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Bench-Mount Filter Press

Part No. 140-20

Instruction Manual

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Ver. 3.0

OFI Testing Equipment, Inc.

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Intro

Measurements of filtration behavior and wall cake-building characteristics of a drilling fluid are fundamental to control and treatment of drilling fluids, as are various characteristics of the filtrate such as oil, water, or emulsion content. These factors are affected by the types and quantities of the solids in the fluid and their physical and chemical interactions, which in turn are affected by changing temperatures and pressures.

The OFITE low pressure filter press helps determine filtration and wall cake-building properties of drilling fluids. The filter press design features a cell body to hold the mud sample, a pressure inlet, and a base cap with screen and filter paper.

The pressure cell is designed so that a 3½" (9 cm) sheet of filter paper can be placed in the bottom of the chamber to remove particles from the fluid. The filtration area is $7.1 \pm 0.1 \text{ in}^2$ ($4,580 \pm 60 \text{ mm}^2$). Pressure may be applied with any non-hazardous fluid medium, either gas or liquid. Some models are equipped with pressure regulators and may be pressurized with portable pressure cylinders, midget pressure cartridges, or hydraulic pressure.

Suitable for field and laboratory use, OFITE Filter Presses have become the industry standard for low pressure/low temperature filtration testing.

Components

#141-00 Test Cell
#141-01 Base Cap
#141-02 Top Cap
#141-04 Screen; 60 Mesh
#141-05 Neoprene Gasket; Qty: 3
#141-08 Bench-Mount Frame
#141-09 Threaded Insert with Set Screw
#141-10 T-Screw
#141-11 Support For Graduated Cylinder
#141-12 Support Rod
#141-18 Thumb Screw
#141-19 Air Hose Adapter
#141-22 Felt Filter; Qty: 2

#140-20-SP Spare Parts for #140-20:

#140-55 3½" (9.0 cm) Filter Paper; Low Pressure; WLP; Box of 100 Qty: 3
#141-04 60-Mesh Screen; Qty: 2
#141-05 Neoprene Gasket; Qty: 6
#141-22 Felt Filter; Qty: 4
#153-16 Graduated Cylinder; 25 mL × ⅓ mL

Safety

Nitrogen must be supplied in an approved Nitrogen Gas Cylinder and secured to meet safety standards.

Carbon Dioxide gas is normally supplied in small bulbs or cartridges, which contain approximately 900 PSI (6,206 kPa) pressure when new. Because they are highly portable, they are usually used in field operations. These bulbs should not be exposed to high heat (50°C/120°F) as they can explode if over heated.

Never transport CO₂ bulbs or cartridges by airplane without proper packaging. Cabin depressurization could cause them to explode.

Nitrous Oxide cartridges should never be used as a pressure source for any Filter Press

Operation

1. Before beginning a test, make sure each part of the cell is clean and dry, particularly the screen. Examine the gaskets for distortion and wear. Make sure the screen is free of sharp edges, burrs, or tears.
2. Measure the initial temperature of the mud sample and record it for later analysis.
3. To assemble the test cell, begin by turning the base cap upside down and placing a rubber gasket inside it. Then, place the screen, one sheet of filter paper, and another gasket. Finally, place the cell body into the base cap and turn it to lock it in place.



Base Cap (#141-01)



Gasket (#141-05)



Screen (#141-04)



Top Cap (#141-02)



Assembled Test Cell

4. Pour the freshly stirred sample fluid into the cell, leaving 0.5"(13 mm) of empty space at the top.
5. Place a rubber gasket inside the top cap. Make sure it is seated all the way around the cap. Then place the top cap onto the cell body and place the entire cell into the frame. Secure the cell with the T-screw.
6. Place a clean, dry graduated cylinder under the filtrate tube.
7. Attach your selected pressure source to the inlet valve on the top cap and apply 100 ± 5 PSI (690 ± 34.7 kPa) in 30 seconds or less. The test period begins at the time of initial pressurization.
8. After 30 minutes, measure the volume of filtrate collected. Shut off the airflow from the pressure source.

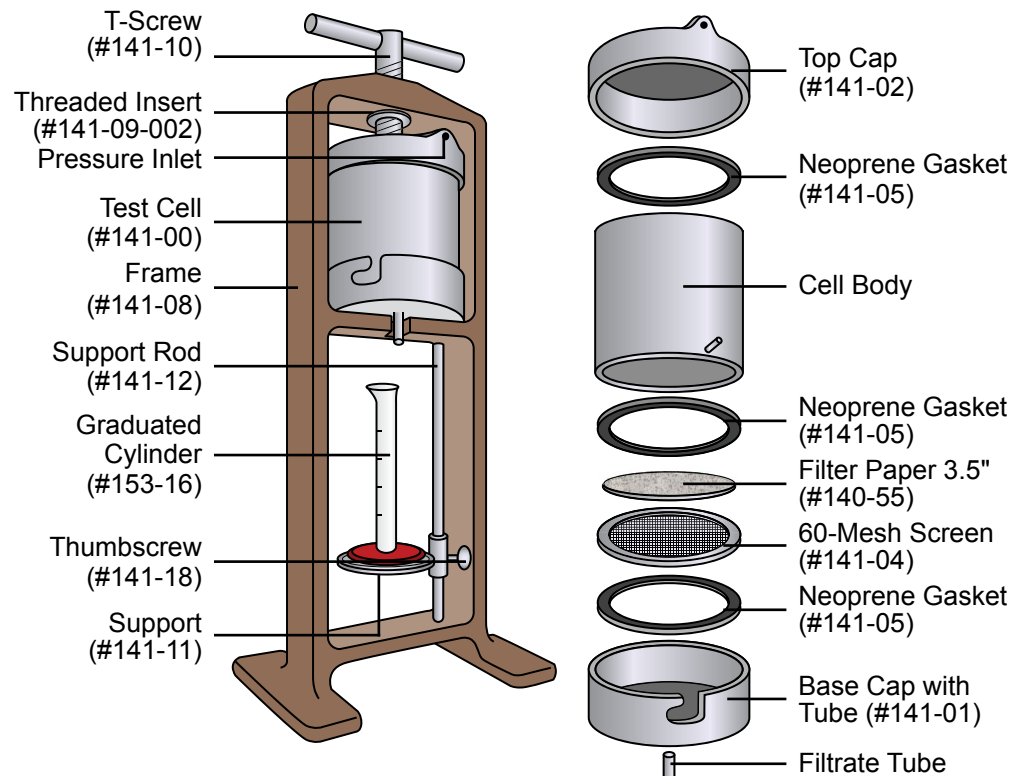
9. Record the volume of filtrate collected in cubic centimeters to the nearest .1 cm³. Label this value "API Filtrate". Record the time interval and the initial mud temperature. Save the filtrate for chemical analysis.
10. Make sure all pressure has been released from the cell. Remove the cell from the frame and disassemble it. Discard any remaining mud.
11. Carefully save the filter paper and deposited cake. Wash the excess filter cake on the paper with a gentle stream of water.



Tip

If you are testing oil mud, use diesel oil to clean the filter cake instead of water.

12. Measure and record the thickness of the filter cake to the nearest 1/32" (0.8 mm). A cake thickness less than 3/32" is usually considered acceptable. Observe and record the quality of the cake: hardness, softness, toughness, slickness, rubberiness, firmness, flexibility, sponginess, etc.
13. After each test, disassemble the test cell and thoroughly clean all surfaces with soap and water. Make sure all parts are clean and dry before storing the unit.



Appendix

Threaded Insert

The threaded insert (#141-09) provides an anchor for the T-screw in the filter press frame. The insert is held in place with a set screw (#141-09-001). If the set screw is lost or damaged, it will be necessary to remove the threaded insert and replace the set screw.

1. Unscrew the set screw and let the threaded insert fall out of the frame.
2. Place the threaded insert into the hole in the frame with the collar pointed down.



Important

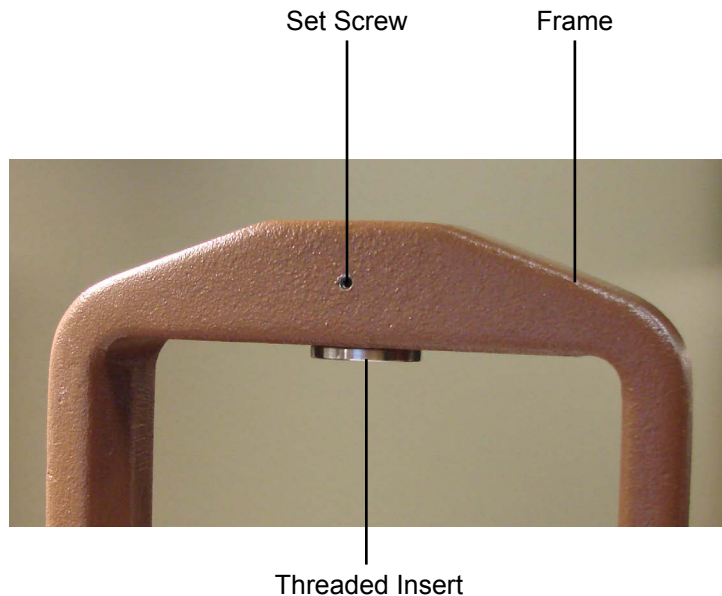
The threaded insert must be inserted from below the hole in the frame. Installing it from above will not provide enough strength to hold the pressure inside the test cell.

3. Turn the insert until the hole is aligned with the set screw hole in the frame.
4. Screw a set screw into the frame until it engages with the threaded insert.



Note

The screw should not extend into the inner portion of the threaded insert. This will prevent the T-screw from screwing all the way in.



Warranty and Return Policy

Warranty:

OFI Testing Equipment, Inc. (OFITE) warrants that the products shall be free from liens and defects in title, and shall conform in all respects to the terms of the sales order and the specifications applicable to the products. All products shall be furnished subject to OFITE's standard manufacturing variations and practices. Unless the warranty period is otherwise extended in writing, the following warranty shall apply: if, at any time prior to twelve (12) months from the date of invoice, the products, or any part thereof, do not conform to these warranties or to the specifications applicable thereto, and OFITE is so notified in writing upon discovery, OFITE shall promptly repair or replace the defective products. Notwithstanding the foregoing, OFITE's warranty obligations shall not extend to any use by the buyer of the products in conditions more severe than OFITE's recommendations, nor to any defects which were visually observable by the buyer but which are not promptly brought to OFITE's attention.

In the event that the buyer has purchased installation and commissioning services on applicable products, the above warranty shall extend for an additional period of twelve (12) months from the date of the original warranty expiration for such products.

In the event that OFITE is requested to provide customized research and development for the buyer, OFITE shall use its best efforts but makes no guarantees to the buyer that any products will be provided.

OFITE makes no other warranties or guarantees to the buyer, either express or implied, and the warranties provided in this clause shall be exclusive of any other warranties including ANY IMPLIED OR STATUTORY WARRANTIES OF FITNESS FOR PURPOSE, MERCHANTABILITY, AND OTHER STATUTORY REMEDIES WHICH ARE WAIVED.

This limited warranty does not cover any losses or damages that occur as a result of:

- Improper installation or maintenance of the products
- Misuse
- Neglect
- Adjustment by non-authorized sources
- Improper environment
- Excessive or inadequate heating or air conditioning or electrical power failures, surges, or other irregularities
- Equipment, products, or material not manufactured by OFITE
- Firmware or hardware that have been modified or altered by a third party
- Consumable parts (bearings, accessories, etc.)

Returns and Repairs:

Items being returned must be carefully packaged to prevent damage in shipment and insured against possible damage or loss. OFITE will not be responsible for equipment damaged due to insufficient packaging.

Any non-defective items returned to OFITE within ninety (90) days of invoice are subject to a 15% restocking fee. Items returned must be received by OFITE in original condition for it to be accepted. Reagents and special order items will not be accepted for return or refund.

OFITE employs experienced personnel to service and repair equipment manufactured by us, as well as other companies. To help expedite the repair process, please include a repair form with all equipment sent to OFITE for repair. Be sure to include your name, company name, phone number, email address, detailed description of work to be done, purchase order number, and a shipping address for returning the equipment. All repairs performed as "repair as needed" are subject to the ninety (90) day limited warranty. All "Certified Repairs" are subject to the twelve (12) month limited warranty.

Returns and potential warranty repairs require a Return Material Authorization (RMA) number. An RMA form is available from your sales or service representative.

Please ship all equipment (with the RMA number for returns or warranty repairs) to the following address:

OFI Testing Equipment, Inc.
Attn: Repair Department
11302 Steeplecrest Dr.
Houston, TX 77065
USA

OFITE also offers competitive service contracts for repairing and/or maintaining your lab equipment, including equipment from other manufacturers. For more information about our technical support and repair services, please contact techservice@ofite.com.