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Bench-Mount Filter Press with Nitrogen Regulator

#140-35 - With Nitrogen Cylinder

#140-36 - Without Nitrogen Cylinder

Instruction Manual

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Ver. 2.3

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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 ± 0.1 in² ($4,580 \pm 60$ mm²). 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, midjet 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

#140-55	Filter Paper for Low Pressure; 3½" (9.0 cm); Box of 100
#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
#141-14	Air Hose; 3'; Low Pressure
#141-18	Thumb Screw
#141-19	Air Hose Adapter
#141-22	Felt Filter; Qty: 2
#142-39	¼" Pipe Plug
#143-06	Safety Bleeder Valve
#153-16	Graduated Cylinder; Glass; 25 mL x 2/10 mL
#170-36	Regulator for Nitrogen Pressure
#170-37	Nitrogen Cylinder, Right-Hand Thread (#140-35 only)
#500-SS-4-HCG	Hex Coupling, ¼"

Optional:

#140-35-SP	Spare Parts for #140-35:
#140-55	Low-Pressure Filter Paper; 3½" (9.0 cm); WLP; 100/box; Qty: 2
#140-60-01	Bleeder Valve O-ring; Qty: 2
#141-04	60-Mesh Screen; Qty: 2
#141-05	Neoprene Gasket; Qty: 6
#141-22	Felt Filter; Qty: 4
#153-16	Glass Graduated Cylinder; 25 mL x 2/10 mL

Safety

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



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)



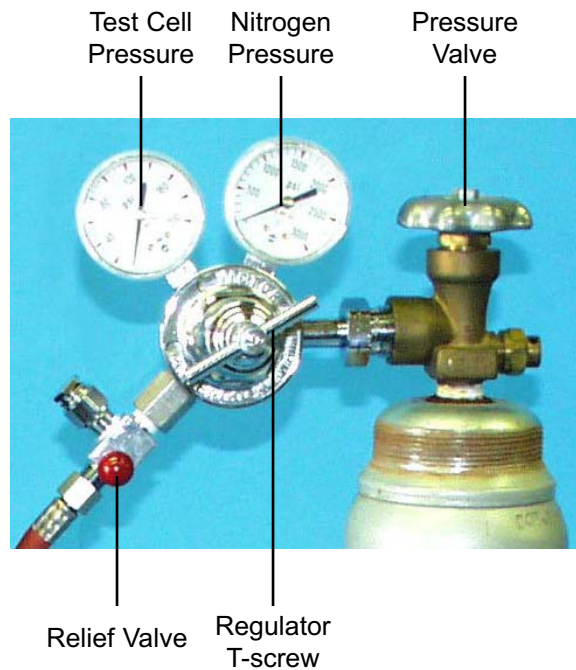
Assembled Test Cell

4. Pour the freshly stirred test 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 the pressure regulator to the Nitrogen tank. Connect the hose to both the pressure regulator and the inlet on the top cap.
8. Make sure the relief valve is pulled out. Open the pressure valve on the Nitrogen tank and adjust the regulator to apply 100 ± 5 PSI (690 ± 35 kPa) in 30 seconds or less. The test period begins at the time of initial pressurization.

Do not exceed 250 PSI (1,735 kPa).

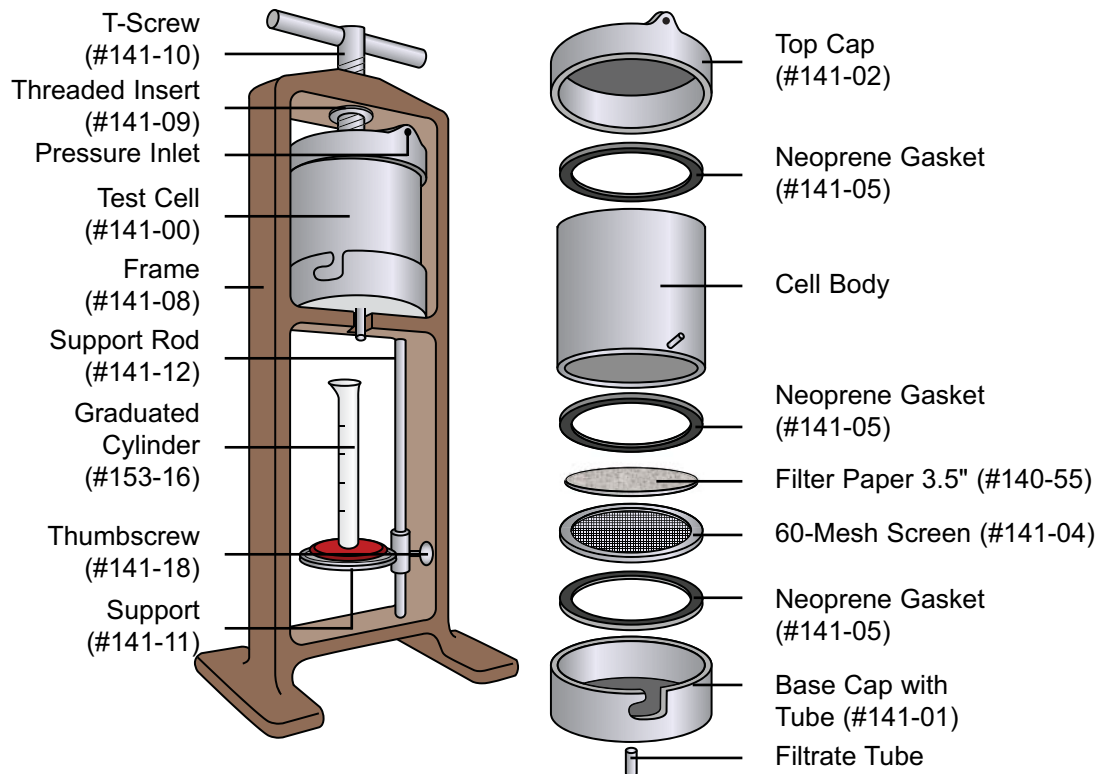


9. After 30 minutes, measure the volume of filtrate collected. Close the pressure valve on the Nitrogen tank and push the relief valve in.
10. Record the volume of filtrate collected in cubic centimeters to the nearest .1 cm³. Label this value "API Filtrate". Record the time interval and the initial mud temperature. Save the filtrate for chemical analysis.
11. Make sure all pressure has been released from the cell and disconnect the hose from the cell cap. Remove the cell from the frame and disassemble it. Discard any remaining mud.
12. Carefully save the filter paper and deposited cake. Wash the excess filter cake on the paper with a gentle stream of water.



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

13. Measure and record the thickness of the filter cake to the nearest 1/32" (0.8 mm). A cake thickness less than 2/32" is usually considered acceptable. Observe and record the quality of the cake: hardness, softness, toughness, slickness, rubberiness, firmness, flexibility, sponginess, etc.
14. 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.



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.



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.

