# OPERATING INSTRUCTIONS
# OFI STIRRED FLUID LOSS TEST CELL

## FILLING THE TEST CELL

1. It is recommended to use new "O" rings before each test and these should be lightly lubricated with a high temperature grease.

2. To facilitate cleaning it is recommended to coat the inner walls of the test cell, the bottom cap and the paddle with a thin coating of waterproof grease.

2. Place a lubricated "O" ring into the groove around the bottom cap and insert the cap into the test cell. Note that the valve stem should be at the 9:00 position in relation to the thermocouple sleeve which is located on top of the test cell

3. Tighten the coned set screws with the allen wrench provided.

4. Thread the lower valve stem into the port on the bottom cap and tighten until snug. Do not over tighten!!

4. Support the test cell on the bottom cap between two blocks. Ensure that the test cell is not supported by the drive bar or the paddle assembly.

5. Mix the cement slurry as stated in API Specification 10 and pour into the cell. Any cement which becomes trapped in the "O" ring groove should be immediately removed.

6. Install the lubricated "O" ring into the groove

7. Place a clean 325 mesh screen on the filtration cap and install a lubricated "O" ring.

8. Insert the filtration cap into the test cell and tighten the six coned screws with the allen wrench.

9. Insert the valve stem into the filtration cap and tighten until snug.

## INSTALLING THE TEST CELL

1. Loosen the two screws which hold the heating jacket cover plate.

2. Rotate the heating jacket until horizontal. The fully open end of the heating jacket should be directed away from the control panel.

3. Slide the test cell into the heating jacket. The rotational end should be inserted first.

4. Rotate the heating jacket to vertical. The test cell should be rotated until it engages the lock pin. The thermocouple sleeve should be located on the back half of the test cell.

5. Slide the heating jacket cover plate over the test cell. Tighten both allen screws.

6. Insert the thermocouple into the test cell. The thermocouple sleeve is located on the back half of the test cell. Ensure that the thermocouple cable is plugged into the receptacle located on the side of the control panel.

7. Connect the upper air line into the connector on top of the test cell.

## STARTING A TEST

1. Ensure that the valve stem on the bottom of the test cell is closed. It should be tightened until snug with the adjustable wrench supplied.

2. Slightly rotate the heating jacket and lift the drive system upwards until horizontal. If the gears do not engage, lower the drive system and operate the motor for a brief second. Lift the drive system forward again and ensure that the drive system is fully horizontal. It may be necessary to repeat this procedure a few times to ensure complete engagement.

3. Lower the drive system and return the heating jacket to vertical. Press the paddle into the test cell as far as possible. Lift the drive to the horizontal position. It may be necessary to rotate the gear slightly for proper alignment. NEVER FORCE THE DRIVE SYSTEM INTO THE HORIZONTAL POSITION. Rotate the drive pin until it aligns with the drive gear. Pull the Drive bar down until it engages with the drive gear.

4. Start the motor and adjust the rotational speed to the desired speed by adjusting the control dial. When the control dial is turned completely clockwise the paddle is rotating at 150 rpm.

5. Increase the pressure to test pressure by rotating the lower regulator handle clockwise.

6. Set the temperature controller to the desired temperature. The arrow keys are used to set the temperature. OFI recommends that all operators study the Temperature Controller Manual which is included in the appendix of this manual.

7. Turn the heater switch to the "on" position to activate the heaters.

8. Once the cement has been conditioned, the upper valve stem should be closed by rotating the valve with the supplied wrench until snug.

9. Release the pressure in the upper hose by turning the regulator clockwise. Disconnect the hose from the upper valve stem.

10. Invert the test cell. Although the heating jacket is insulated, it becomes warm and caution should be observed when inverting the test cell.

11 Slide the back pressure receiver over the lower valve stem and insert the retaining pin to hold it in place.

12. Connect the lower air supply hose to the back pressure receiver by coupling the quick connects together.

13. Connect the upper air supply hose to the valve stem and by coupling the quick connects.

14. Apply pressure to the upper air supply line by turning the regulator handle clockwise until the desired pressure is achieved.

15. Slowly open the upper valve stem approximately 1/2 turn and allow the pressure gauge to stabilize.

16. Apply the necessary pressure to the back pressure receiver by adjusting the lower air regulator.

17. To begin the test open the lower valve stem approximately 1/2 turn. The timer can be reset to zero by turning the unit off momentarily.

18. It is recommended to open the valve on the back pressure receiver every few minutes to collect the filtrate. The filtrate should be measured in the graduated cylinder.

## MAINTENANCE OF THE AGITATION SYSTEM

The bearings and the seal of the agitation assembly should be checked periodically. The agitation components should be disassembled in the following manner.

1. Remove the agitation system from the test cell.

2. Loosen the two allen screws on the drive bar and remove from the paddle.

3. The paddle may be easily removed by withdrawing the paddle through the seal in the bottom cap.

4. The seal may be removed by simply dislodging it from the bottom cap.

5. The bearings can be replaced by removing the internal retaining rings. It may be necessary to insert the end of the paddle into the bearing to remove it..

6. The base cap should be thoroughly cleaned before reassemble.

7. Reassemble the agitation assembly by reversing the above procedures.

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