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.

Roller Oven

The Roller Oven (U.S. Patent No. 4,677,843) is an effective aid in determining the effects of temperature on drilling fluid as it circulates through the well bore. The Roller Oven is designed to provide heating and rolling functionality simultaneously or independently. It is available with either 4 or 5 rollers and includes a circulation fan for uniform heating.

Features

- Variable-speed controlled
- Enclosure is constructed of stainless steel for longer life
- Stainless steel rollers promote a cleaner environment inside the oven
- Glass-impregnated Teflon® roller bearings extend the life of the rollers and allow for longer maintenance-free service
- Digital temperature controller that can be read directly from outside the oven
- Temperature is controlled by an electronic solid state thermostat and operates between 100°F and 450°F (38 - 232.2°C)
- Circulating fan greatly improves air circulation within the oven and provides more stable, consistent, and reliable heating

Technical Specifications and Requirements

- #172-00-C 4 Rollers, 115 Volt
- #172-00-1-C 4 Rollers, 230 Volt
- #172-00-RC 4 Rollers with Redundant Heat Control, 115 Volt
- #172-00-1-RC 4 Rollers with Redundant Heat Control, 230 Volt
- #173-00-C 5 Rollers, 115 Volt
- #173-00-1-C 5 Rollers, 230 Volt
- #173-00-RC 5 Rollers with Redundant Heat Control, 115 Volt
- #173-00-1-RC 5 Rollers with Redundant Heat Control, 230 Volt

Specifications

- Temperature Range: 100 - 450°F (38 - 232.2°C)
- Digital Temperature Controller
- Motor Speed: 25 RPM
- Programmable Timer
- Heater: 2 × 350 Watts
- Material:
  - Cabinet: 303 Stainless Steel
  - Rollers: 304 Stainless Steel
- Capacity (Aging Cells Sold Separately)
  - 4 Roller Oven
    - 260 mL Aging Cells: 6
    - 500 mL Aging Cells: 3
    - 1000 mL Aging Cells: 3
  - 5 Roller Oven
    - 260 mL Aging Cells: 12
    - 500 mL Aging Cells: 8
    - 1000 mL Aging Cells: 4
- Power Requirements: 115 Volt/230 Volt
- Dimensions
  - 4 Roller Oven
    - Size: 26.75" × 22" × 26" (70 × 56 × 66 cm)
    - Weight: 141 lb (64 kg)
    - Crated Size: 35" × 29" × 36" (89 × 74 × 91 cm)
    - Crated Weight: 239 lb (108.4 kg) 1 lb (64 kg)
  - 5 Roller Oven
    - Size: 33.75" × 26.25" × 26" (86 × 67 × 66 cm)
    - Weight: 172 lb (78 kg)
    - Crated Size: 38" × 33" × 34" (97 × 84 × 86 cm)
    - Crated Weight: 290 lb (131.5 kg)

Optional

#175-25 Aging Cell, 260 mL, 303 Stainless Steel
#175-30 Aging Cell, 500 mL, 303 Stainless Steel
#175-50 Aging Cell, 500 mL, 316 Stainless Steel
#175-40 Corrosion Test Cell, 500 mL, 303 Stainless Steel
#175-47 O-ring for Outside of Aging Cell, Viton
#170-04 CO_2 Pressuring Assembly
#170-40 Cell Carrying Tool

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Introduction

The OFITE Roller Oven (U.S. Patent No. 4,677,843) is an effective aid in determining the effects of temperature and pressure on drilling fluid as it circulates through the well bore. Aging the drilling fluid in pressurized containers effectively demonstrates the thermal effects on drilling fluids in which a base exchange reaction occurs and in determining the stability of mud additives and emulsified fluids such as oil muds. Aging is done under conditions that vary from static to dynamic and from ambient to highly elevated temperatures.

Many mud constituents degrade slowly at high temperatures. Such degradation occurs while circulating, but it is more severe when the mud is left in the lower part of the hole when making a trip. When running laboratory tests, aging temperatures are often selected to be near the anticipated circulating or bottom-hole temperatures and pressures, and aging cells are typically rolled in an oven for at least 16 hours.
Routine laboratory analysis using roller ovens would include:

a. Simulate chemical reactions taking place in freshly prepared muds.
b. Determine the time it takes reactions to reach equilibrium under temperature and pressure.
c. Determine the Viscosity of the fluid prior to aging and after.
d. Determine filtration control properties prior to aging and after.
e. Determine the stability of drilling fluid additives and drilling fluids such as oil muds.
f. Perform corrosion analysis.

The 4-roller oven can hold six 260-mL Aging Cells or three 500-mL Aging Cells, while the 5-roller oven can hold twelve 260-mL Aging Cells or eight 500-mL Aging Cells. These are both ideal for laboratory use. OFITE rollers are variable-speed controlled and constructed of stainless steel for longer life and a cleaner environment inside the oven. Glass-impregnated Teflon® roller bearings extend the life of the rollers and allow for longer maintenance-free service.

All models feature a digital temperature controller that can be read directly from outside the oven. The temperature is controlled by an electronic solid-state thermostat and operates between 100°F and 450°F (38°C - 232.2°C). The 4 and 5-roller ovens include a seven-day programmable timer as standard equipment. The timer may be preset to automatically start and stop the heaters, allowing unattended operation. A circulating fan is included on all models which greatly improves air circulation within the oven providing more stable, consistent, and reliable uniform heating.

The Redundant Heat Control is available on select models and is a safety feature for the heaters in the event one or more over-heat. Power to the heaters will be shut down if the oven temperature exceeds a set maximum temperature. The aging process due to the length of time required for completion of the test, is seldom monitored, so a heater failure may be serious.

Specifications

The OFITE Roller Ovens are designed to provide heating and rolling functionality simultaneously or independently. Therefore, they can be put to many practical uses, for instance:

1. Heating Mode Only:
   - Drying Oven
   - Aging Oven
   - Baking Oven

2. Rolling Mode Only:
   - Ball Mill Roller
   - To make homogenous mixtures of liquids
   - To make homogenous mixtures of powders
   - To agitate chemicals into solutions
   - To de-aerate liquids

All OFITE Roller Ovens conform to the American Petroleum Institute's (API) Recommended Practice (RP) 13I. The oven is capable of maintaining a temperature of 150° F ± 5° F (65° C ± 3° C) as specified in RP 13I.

- Temperature Range: 100 - 450°F (38 - 232.2°C)
- Digital Temperature Controller
- 25-RPM Motor
- Programmable Timer
- Material:
  - Cabinet: 303 Stainless Steel
  - Rollers: 304 Stainless Steel

4-Roller Oven:
- 350-Watt Heater, Qty: 2
- Capacity:
  - 260 mL Aging Cells: 6
  - 500 mL Aging Cells: 3
- Size: 26.75" × 22" × 26" (70 × 55.9 × 66 cm)
- Weight: 141 lb. (64 kg)
- Crated Size: 35" × 29" × 36" (89 × 84 × 91 cm)
- Crated Weight: 239 lb. (108.4 kg)

Components

All Ovens:

#165-14-8	Type “J” Thermocouple, ⅛" × 6"
#165-14-10	Fuse, 1 Amp, Qty: 5
#165-45	Neon Lamp, Red
#165-45-1	Neon Lamp, Clear
#170-05	Thermostat, 50° - 500°F (10° - 260°C)
#172-01	Fuse, ½ Amp, for Temperature Controller, Box of 5
#172-02-2	Chain, 2 Feet
#172-02-4	Chain, 1 Foot
#172-03	Sprocket, ½" Bore, Qty: 7
#172-04	Connecting Link for Chain, Qty: 3
#172-08	Bearing for Roller Shafts, Qty: 8
#172-09	Fuse, 10 Amp, Box of 5
#172-11-1	Temperature Controller
#172-13	Fuse, Light Holder
#172-14	On/Off Toggle Switch
#172-15-1	Omron Programmable Timer
#172-22	Heater, 350 Watt, Qty: 2
#172-24	Solid State Relay, 240V-25A
#172-25	Fan Motor
#173-15	Knob, Oven Door, Black
#174-07-1	5" Fan Blade
#174-13	Motor
#174-14	Motor Controller

115-Volt Ovens (172-00-C):

#171-82	Power Cord, 8 Feet
#172-07	Fuse, 5 Amp, Box of 5

230-Volt Ovens (172-00-1-C):

#130-74	Transformer, 230/115 Volt, 50/60 Hz
#165-40-2	Power Cable, 6 Feet
#172-05	Fuse, 2 Amp, Box of 5

Optional:

175-25 Aging Cell, 303 Stainless Steel, with Valve, 260 mL
175-30 Aging Cell, 303 Stainless Steel, with Valve, 500 mL
175-50 Aging Cell, 316 Stainless Steel, with Valve, 500 mL
175-80 Aging Cell, 316 Stainless Steel, with Valve, 1,000 mL

#172-00-SP Spare parts for #172-00-C, 4-Roller Oven with Circulation Fan, 115 Volts

Part Number	Description	Quantity
#165-45	Neon Lamp, Red	1
#165-45-1	Neon Lamp, Clear	1
#172-01	Fuse for Temperature Controller, ½ Amp	5
#172-03	Sprocket	6
#172-04	Connecting Link for Chain	6
#172-06	Half Link for Chain	6
#172-07	Fuse, 5-Amp	5
#172-08	Bearing, for Roller Shafts, Glass-Impregnated Teflon®	8
#172-09	Fuse, 10-Amp	5
#172-13	Fuse Light Holder	1
#172-22	Heater, 350-Watt	2


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.

#172-00-1-SP Spare parts for #172-00-1-C, 4-Roller Oven with Circulation Fan, 230 Volts

Part Number	Description	Quantity
#165-45	Neon Lamp, Red	1
#165-45-1	Neon Lamp, Clear	1
#172-01	Fuse for Temperature Controller, ½ Amp	5
#172-03	Sprocket	6
#172-04	Connecting Link for Chain	6
#172-05	Fuse, 2 Amp	5
#172-06	Half Link for Chain	6
#172-08	Bearing, for Roller Shafts, Glass-Impregnated Teflon®	8
#172-09	Fuse, 10-Amp	5
#172-13	Fuse Light Holder	2
#172-22	Heater, 350-Watt	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.