

# HT4700 Heating Jacket Instruction Manual



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Instrument No. 101631160

## HT4700 Heating Jacket Instruction Manual

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Houston, Texas, USA

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## 1 Introduction

The HT4700 Heating Jacket provides heating in fluid loss tests at temperatures up to 350°F (177°C). This heating jacket holds a 175 ml sample cell.

A fluid loss test simulates filtration against a permeable formation at high temperatures and pressures. Measuring filtration properties of drilling fluids, cement slurries, and fracturing fluids and observing filtrate and filter cake characteristics is fundamental to the design and treatment of fluids and cement slurries.

This heating jacket is designed for safe and efficient testing that meets API specifications.

### 1.1 Document Conventions

The following icons are used as necessary in this manual.



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**NOTE.** Notes emphasize additional information that may be useful to the reader.

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**CAUTION.** Describes a situation or practice that requires operator awareness or action in order to avoid undesirable consequences.

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**MANDATORY ACTION.** Gives directions that, if not observed, could result in loss of data or in damage to equipment.

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**WARNING!** Describes an unsafe condition or practice that if not corrected, could result in personal injury or threat to health.

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**ELECTRICITY WARNING!** Alerts the operator that there is risk of electric shock.

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**HOT SURFACE!** Alerts the operator that there is a hot surface and that there is risk of getting burned if the surface is touched.

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## 2 Safety

Safe laboratory practices and procedures should be observed while operating and maintaining the HT4700 Heating Jacket.



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The heating jacket and sample cell are hot during operation. Be aware of hot areas and avoid contact with them.

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This heating jacket should always be used on a grounded circuit.

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Electrical connections to and from this heating jacket should be properly insulated and must not be compromised.

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### 3 Features and Specifications

The HT4700 Heating Jacket is designed for safe and efficient heating. This heating jacket is insulated to maintain the maximum temperature inside with minimum heat loss. During operation, the surface temperature of the heating jacket is less than 150°F (65.5°C).

The primary features of this heating jacket are as follows:

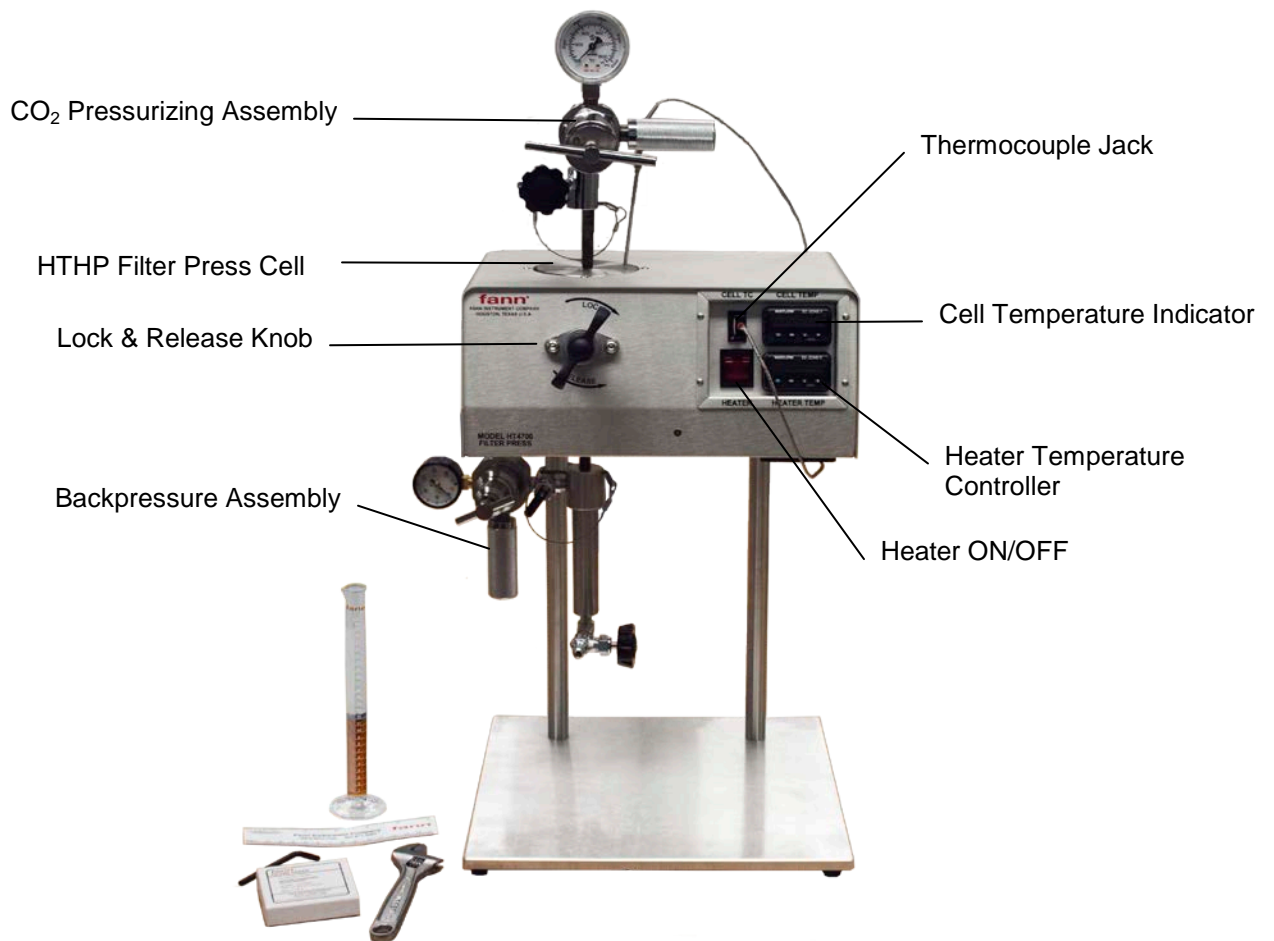
- Digital Temperature Controller for the heater
- Digital Temperature Indicator for the cell
- Lock & Release Knob to secure the cell in place, increasing heat transfer
- Data Port for Logging (data logger not included)
- Cell Thermocouple
- Heater ON/OFF Switch

**Table 3-1 HT4700 Heating Jacket Specifications**

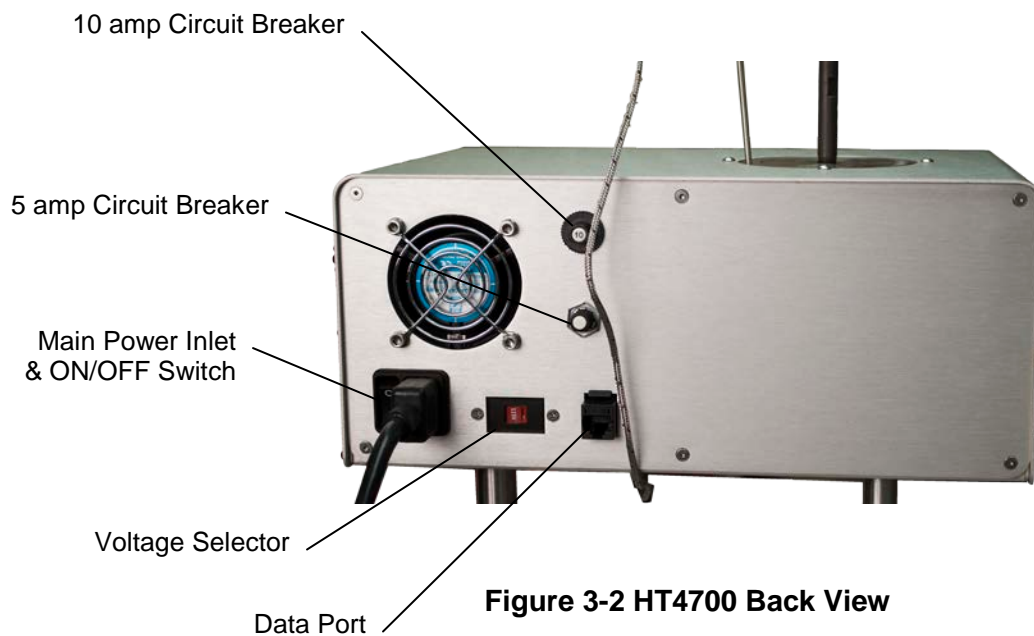
Category	Specification
Maximum Temperature	350°F (177°C)
Sample Cell Volume	175 ml
Heating Capacity	400 watts
Power Requirement	115/230 VAC, 1000 watts
Dimensions	12 x 12 x 17.8 in.
L x W x D	30.5 x 30.5 x 45 cm
Weight	34 lb (15.4 kg)



The HT4700 Heating Jacket Assembly includes Type J thermocouple and power cables, 115V and 230V. HT4700 Filter Press Assemblies are available and include the heating jacket, filter press cell, and pressurizing assemblies. See Section 5 Parts List for ordering.



**Figure 3-1 HT4700 Heating Jacket with Filter Press Assembly**



**Figure 3-2 HT4700 Back View**



## 4 Basic Operation

The basic operating instructions for the HT4700 are provided in this section.



Follow API Recommended Practice for drilling fluids tests.



**Figure 4-1 HT4700 Control Panel**

1. Set the Voltage Selector to proper voltage, and then connect the HT4700 power cord to power outlet. See the back panel in Figure 3-2.
2. Turn on the Main Power Switch (back panel).
3. Connect the thermocouple probe as shown in Figure 4-1.
4. On the heater temperature controller, use the up or down buttons to set the desired temperature. The current temperature will be displayed in larger digits on the display. The setpoint temperature will be displayed in the lower right corner (smaller digits).
5. Turn the Heater Switch to the **ON** position.



The heater temperature will rise to the setpoint temperature and remain constant.

6. Place the cell into the heating jacket. Insert the thermocouple into the cell to monitor the cell temperature.



You may need to increase the heater setpoint temperature to get the desired cell temperature.

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7. When the test ends, turn **OFF** the Heater Switch to begin cooling the heating jacket. Also, set the temperature to below ambient temperature by using the up/down buttons on the heater temperature controller.
8. To shut off the power, ensure that the Heater Switch is **OFF** and turn **OFF** the Main Power Switch.



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During operation, the heating jacket's top and bottom surfaces near the cell will be hot. There is risk of getting burned if these surfaces or the cell are touched.

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## 5 Parts List



For service and repair, contact Fann Instrument Company.

The HT4700 Heating Jacket assembly includes the parts listed in Table 5-1.

**Table 5-1 HT4700 Heating Jacket Assembly, P/N 101631160**

Part No.	Description
208452	POWER CABLE, 115V
208865	POWER CABLE, 230V
102067614	TYPE J THERMOCOUPLE

Table 5-2 lists the HT4700 Filter Press assemblies, which include the HT4700 Heating Jacket and various filter press assemblies.

**Table 5-2 HPHT Filter Press Model 4700**

Part No.	Cell	Pressurizing Assembly
102195986	1800 PSI SINGLE ENDED	CO <sub>2</sub> PRESSURIZING ASSEMBLY 15 ML BACKPRESSURE ASSEMBLY
102196306	1800 PSI DOUBLE ENDED	CO <sub>2</sub> PRESSURIZING ASSEMBLY 15 ML BACKPRESSURE ASSEMBLY
102197003	1800 PSI DOUBLE ENDED	DUAL NITROGEN MANIFOLD 15 ML BACKPRESSURE ASSEMBLY
102197111	1800 PSI SINGLE ENDED	DUAL NITROGEN MANIFOLD 15 ML BACKPRESSURE ASSEMBLY



CO<sub>2</sub> cartridges are not included with the CO<sub>2</sub> pressurizing assemblies.

## **6 Warranty and Returns**

### **6.1 Warranty**

Fann Instrument Company warrants its products to be free from defects in material and workmanship for a period of 12 months from the time of shipment. If repair or adjustment is necessary, and has not been the result of abuse or misuse within the twelve-month period, please return, freight prepaid, and correction of the defect will be made without charge.

Out of warranty products will be repaired for a nominal charge.

Please refer to the accompanying warranty statement enclosed with the product.

### **6.2 Returns**

For your protection, items being returned must be carefully packed to prevent damage in shipment and insured against possible damage or loss. Fann will not be responsible for damage resulting from careless or insufficient packing.

Before returning items for any reason, authorization must be obtained from Fann Instrument Company. When applying for authorization, please include information regarding the reason the items are to be returned.

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