## Benchmark® BM 700

**SERVICE MANUAL**

<table>
<thead>
<tr>
<th>Your System Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Controls</td>
</tr>
<tr>
<td>Microprocessor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tank Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 lb (11 kg) 3 gal (11 L)</td>
</tr>
<tr>
<td>35 lb (15 kg) 4.5 gal (17L)</td>
</tr>
<tr>
<td>50 lb (22 kg) 6 gal (23L)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Voltage Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 VAC, Single Phase, 30 A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motor Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 VAC, 86 RPM</td>
</tr>
</tbody>
</table>

1723 W. Hamlin Rd | Rochester Hills, MI 48309
248.853.2011 | www.hotmelt-tech.com
**Intended Use**

Benchmark® and ProFlex® adhesive melters and components are designed to melt and pump thermoplastic hot melt adhesives and sealants. Any other use is considered to be unintended. Hot Melt Technologies, Inc. (HMT) will not be liable for personal injury or property damage resulting from unintended use. Intended use includes the observance of HMT safety instructions. HMT recommends obtaining detailed information on the hot melt materials being used.

- The product is only intended for use in industrial applications and may only be used to melt and pump thermoplastic hot melt adhesives (e.g. EVA, PSA, APO, Polyamide).
- The product may only be installed, assembled, commissioned, operated, maintained, repaired, de-commissioned and disposed of by trained personnel.
- The product may only be operated with compatible original components and original accessories from HMT.
- The product is to be used exclusively for the purpose described herein and within the limits defined in this document. The product must not be modified with respect to its structure or its safety features without the written consent of HMT. No changes to the software or hardware of HMT products are permitted. Only use original spare parts, original accessories or standard parts that have been approved by HMT.

*The instructions are part of this product. No applications other than those described in the instructions are permitted.*

**Improper Use**

Examples of misuse of the product include:

- Melting and pumping of unsuitable adhesives (e.g. polyurethane reactive (P.U.R.) a.k.a. “Moisture Cured” adhesives)
- In defective condition
- With electrical cabinet open
- With the tank lid open
- Melting and pumping materials which, when under vacuum or pressure, can pose a health hazard or endanger safety in the workplace (e.g. solvents, explosive or highly flammable materials)
- Cleaning the product with highly flammable materials (e.g. solvents)
- Use in environments that require cleaning of the product with jets or sprays of water
- Processing of food

**Residual Risks**

In the design of the Benchmark® and ProFlex® systems, every measure was taken to protect personnel from potential danger. However, some residual risks cannot be avoided:

- Risk of burns from hot material
- Risk of burns when filling the tank, from the tank lid and exposed metal surfaces
- Risk of burns when conducting maintenance and repair work for which the melter or components must be heated up
- Material fumes may be hazardous; Always avoid direct inhalation
<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table of Contents</td>
<td>3</td>
</tr>
<tr>
<td>Safety &amp; Set Up</td>
<td>4-5</td>
</tr>
<tr>
<td>Operating Instructions</td>
<td>6-7</td>
</tr>
<tr>
<td>Front Panel Controls</td>
<td>6</td>
</tr>
<tr>
<td>Temperature and System Controls</td>
<td>7</td>
</tr>
<tr>
<td>Front Panel</td>
<td>8</td>
</tr>
<tr>
<td>Electrical</td>
<td>9-11</td>
</tr>
<tr>
<td>Fuse &amp; Relay Chart</td>
<td>9</td>
</tr>
<tr>
<td>Hose &amp; Gun Card</td>
<td>10</td>
</tr>
<tr>
<td>Schematic</td>
<td>11</td>
</tr>
<tr>
<td>Warranty Information</td>
<td>12</td>
</tr>
</tbody>
</table>
STOP

If incorrectly used, this machine can cause severe injury. Those who use and maintain the machine should be trained in its proper use, warned of its dangers, and should read the entire manual before attempting to set up, operate, adjust or service the machine.

WARNING

- Do not allow the pump motor to stall. A prolonged stall may damage the motor and other components.
- Do not connect or disconnect electrical connectors, or remove components, with the power on. This will prevent arcing of electrical contacts and possible failure of components.
- Always close and secure the control panel access cover to protect internal electrical components.
- Always operate the system with the tank full and lid on.
- Prior to dismantling, assembly, or adjustment of certain service parts (hose/gun fittings, pump assemblies, etc.), the part(s) being serviced should be preheated to reduce the chance of stripping threads or ruining components.
- Working on or around hot melt adhesives and equipment can cause severe burns.
- Use eye protection, gloves and protective clothing while operating and/or servicing hot melt equipment.
- Before installing any hot melt equipment, determine proper electrical requirements per all applicable codes.

At Hot Melt Technologies, we pay special attention to the needs of operators and service personnel when designing equipment, but molten hot melt adhesives are dangerous and can cause severe burns. Extreme care must be exercised to insure personnel safety.

Fire, explosion, personal injury, property, and/or equipment damage can result if the material(s) used in or around any hot melt adhesive supply unit are toxic, heat, or fire sensitive. Always read the manufacturer's recommended use guidelines.

All HMT units are equipped with over temperature protection as a necessary safety device. Run-away heating can cause hot melt materials to exceed their flashpoint.
Safety & Set Up

Benchmark BM700

Prevent Serious Equipment Damage

Protect your hot melt equipment by installing a GFEP (Ground Fault Equipment Protector) device in your distribution panel.

HMT recommends that hot melt systems be protected from unintended line-to-ground currents by installing an appropriate ground fault equipment protection (GFEP) device. Contact HMT Technical Service & Support or a qualified electrical contractor for more information. When installing a GFEP device always comply with local electrical codes.

LEGEND: SAFETY SYMBOLS


Disconnect Power Before Servicing

Consult Service Manual

Warning/Caution: Used to draw attention to Hot Surface Warnings, Over Temp Alarms, Hose Routing Practices, and other safety notifications.

Hot Surface: Surface and surrounding area may be hot. Exercise extreme caution and utilize proper Personal Protective Equipment (PPE).

Before Using Your Hot Melt System

It is your responsibility and obligation to make sure your system:

- Has been properly installed off the floor and on a steady, level work surface away from combustible materials.
- Has been located in such a way that the controls are away from the operator and that the control panel is securely closed at all times.
- Is the right capacity system for the intended use.
- Is connected to the proper power supply. (See Below).
- Is only used to do what a hot melt system is designed to do.
- Is not used by anyone unable to operate it properly.
- Is used in an area where the room temperature does not fall below 65 °F.
- Is used in an area which is free from blowing air caused by cooling fans, open doors or windows.

Basic Electrical Power Connections

For 120 VAC Operation

- A fused 30 A 120 VAC electrical supply is required. Performance problems will occur with voltages less than 108 VAC or greater than 132 VAC.
- Total amperage draw will depend on the final system configuration; number of hoses & length, guns, accessories, etc.
- Do not allow the system to share the same circuit with other electrical items. A dedicated supply is recommended.
- Do not use an extension cord.
- If you change the configuration of your system in any way that may affect the electrical requirements (ex. add a gun, longer hose, automate, etc.) call HMT Technical Service and Support at 248-853-2011 for assistance.

NEMA L5-30 POWER PLUG CONFIGURATION

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Amps</th>
<th>Type</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>30</td>
<td>2-Pole, 3 Wire Grounding</td>
<td>Circuit Breaker</td>
</tr>
</tbody>
</table>

922-185

Control Box

©2015 Hot Melt Technologies, Inc

8/15/2019 REV B
Operating Instructions

Benchmark BM700

Front Panel Controls

1 Service Clock (Optional): Displays the number of hours that the system has been ON.

2 Audible Over Temp Alarm: Sounds when a zone is in Over Temp (see #9).

3 Set Temperatures: Press and hold the Tank, Hose, or Gun button for 2 seconds. When the Set Mode light illuminates, continue to hold the zone button and adjust the set temperature using the arrow keys. Set temperatures range from 100°F to high limit°F (38°C to high limit°C), in 5°F (1°C) increments.

4 Temperature Display: During operation the actual temperatures scan every five (5) seconds. Press and release any zone button to display that zone’s actual temperature.

5 Pump Ready: The pump will not operate until the actual tank temperature is within 25°F (15°C) of set temperature.

6 Standby: All temperatures lowered by 50%. Pump will not operate while in Standby.

7 Standby Timer: If the Standby Timer LED is ON, the system will automatically enter Standby after three (3) continuous hours of motor inactivity. See page 7 to set.

8 Auto Off: If the Auto Off LED is ON, the system will automatically turn OFF after three (3) continuous hours of motor inactivity. See page 7 to set.

9 Over Temp: If any zone reaches 25°F (15°C) above the High Limit, the Over Temp light will illuminate, and the system will shut off. The Temperature Display will read “OFF,” and the light next to the faulted zone will flash.

10 High Limit: Limits the Set Point for any zone; adjustable between 250°F and 475°F.

To Adjust the High Limit: Turn the system off. Press and hold down the High Limit button and turn the Power Switch ON. The display will show the current High Limit. Release the High Limit button and use the Arrow Keys to adjust High Limit Up or Down. Turn the Main Power Switch OFF then ON again. All zones will default to the new High Limit and must be reset.
11 **Zone Temp Display Buttons:** Press and release any Zone Button to see the actual temperature for that zone. Press and hold any Zone Button to see the set temperature for that zone and to enter Set Mode.

12 **Front Panel Lock:** Used to secure the front panel. To enhance the systems tamper resistance, a key lock option is available.

13 **Turning On/Off Hose/Gun Zones:** To turn a Hose/Gun zone ON or OFF, press and hold the Hose and Gun buttons in that zone for three (3) seconds. Set lock must be off to make a change. The temperature scan will skip a Hose/Gun zone that has been turned Off.

14 **Set Lock:** If the Set Lock LED is ON, zone temperature set points cannot be adjusted. The Set Lock can only be activated or deactivated using the Dip Switch located on the backside of the display board within the control box.

15 **Main Power Switch:** Turns the system “ON” or “OFF.”

16 **Pump ON/OFF Switch:** The pump will only operate when: this switch is ON, the pump is “Ready” (see #5 above), and there is an input signal (handgun switch or external switch).

17 **Auto Standby/Auto OFF:** To activate either feature slide dip switch to ON. Neither, either or both can be activated.

18 **Set Lock:** Dip Switch used to lock or unlock set temperature adjustment.

°F vs. °C: Dip Switch used to change from °F or °C (default is Fahrenheit). For Celsius set the switch to “ON.”

Optional 24 hour 7 day Timer Ribbon Cable
Operating Instructions
Benchmark BM700

Front Panel

Hot Melt Application Equipment

For Technical Support Call: (248) 853-2011
or visit: www.hotmelt-tech.com

Service Clock

Main Power

Pump Control

Over Temp Alarm

Temp Display

Set Mode

Set Lock

Pump Ready

Standby

Standby Timer

Auto Off Timer

Over Temp

Max Temp

High Limit

Hold: To See Set Point & Enter Set Mode
Release: To See Actual Temperature
+ Hold Hose/Gun Pair: Zones On/Off

BILL OF MATERIALS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>PART NO</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BM700 Control Box</td>
<td>934-701</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Main Power Switch</td>
<td>211-146</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Pump Switch</td>
<td>211-010</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Service Clock (Optional)</td>
<td>243-004</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Over Temp Alarm</td>
<td>243-006</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Decal</td>
<td>340-700</td>
<td>1</td>
</tr>
<tr>
<td>7a</td>
<td>Front Panel Latch, Non-Locking</td>
<td>340-030</td>
<td>1</td>
</tr>
<tr>
<td>7b</td>
<td>Front Panel Latch, Locking (Optional)</td>
<td>340-032</td>
<td>1</td>
</tr>
</tbody>
</table>

©2015 Hot Melt Technologies, Inc
10/31/2017 REV A
Fuse & Relay Chart

### Fuse Chart

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>REPLACE WITH</th>
<th>PART NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>5 VDC PWR Supply</td>
<td>500 mA, 125 VAC (GMD)</td>
<td>214-501</td>
</tr>
<tr>
<td>F2</td>
<td>24 VDC PWR Supply</td>
<td>2 A, 125 VAC (GMD)</td>
<td>214-503</td>
</tr>
<tr>
<td>F3*</td>
<td>AC Motor</td>
<td>5 A, 125 VAC (GMA)</td>
<td>214-105</td>
</tr>
<tr>
<td></td>
<td>DC Motor</td>
<td>8 A, 125 VAC (GMA)</td>
<td>214-108</td>
</tr>
<tr>
<td>F4</td>
<td>Tank Heater Fuse</td>
<td>1500 W = 15 A, 600 VAC (KLKR)</td>
<td>214-315</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1800 W = 20 A, 600 VAC (KLKR)</td>
<td>214-320</td>
</tr>
</tbody>
</table>

*Fuse size will vary on custom motors. Contact factory for assistance.

Do not install or remove card with power on.
**Electrical**

**Benchmark BM700**

**Hose & Gun Card**

---

**FUSE CHART**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>FUSE RATING</th>
<th>PART NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Hose/Gun Fuse</td>
<td>7.5 A, 250 V (AGC)</td>
<td>214-207</td>
</tr>
</tbody>
</table>

---

**CONNECTOR IDENTIFICATION**

<table>
<thead>
<tr>
<th>CONNECTOR</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CX</td>
<td>Hose connector</td>
</tr>
<tr>
<td>CY</td>
<td>Gun connector</td>
</tr>
<tr>
<td>CZ</td>
<td>Accessory connector</td>
</tr>
</tbody>
</table>

---

**Green LED:**
- **ON Steady** = Calling for heat
- **Blinking** = At temperature
- **OFF** = No input from RTD

**Red LED:**
- **ON Steady** = Hose or Gun sensor fault or over temp

---

**Hose/Gun Card, 120 V (245-215)**

- **Handgun Trigger Switch**
- **Hose Heater**
- **Gun Heater**

---

**120 VAC Output when triggered**

- **Remote Motor Run**
  - Customer supplied N.O. Contact (Normally Open)

---

**Remote Green LED:**
- **ON Steady** = Calling for heat
- **Blinking** = At temperature
- **OFF** = No input from RTD

**Remote Red LED:**
- **ON Steady** = Hose or Gun sensor fault or over temp

---

**PLUG INTO MAIN BOARD**
**Accessory Input:**
Customer Supplied N.O. (Normally Open) Contact.

**Accessory Output:**
120 VAC when triggered.

**Schematic Diagram**

**Symbol Legend**
- Relay Contacts (Normally Open)
- Relay Description
- Relay Contacts (Normally Open)
- AMP Connector & Pin Number
- Bomb Disposal System
- Quick Connect Tab
- Quick Connect Label
- Wire Termination
- Board Mounted Fuse
- Fuse Description
- RTD Temperature
- Capacitor and Motor
- “ON/OFF” Breaker Switch
- Heater
- Coil
- Wire Number

**Connector Identification**

- C1  Tank
- C2  Hose 1
- C3  Gun 1
- C4  Hose 2
- C5  Gun 2
- C6  Accessory 1
- C7  Accessory 2
- C8  Motor

**System Status Indicators**
- ALARM OUT
- RATED LOAD: 0.5A @ 125 VAC, 1A @ 60 VDC
- STANDBY IN
- RATED LOAD: 120 VAC
- STANDBY OUT
- RATED LOAD: 0.5A @ 125 VAC, 1A @ 60 VDC
- SYSTEM READY
- RATED LOAD: 0.5A @ 125 VAC, 1A @ 60 VDC

**Electrical Specifications**
- OVER TEMP
- RATED LOAD: 0.5A @ 125 VAC, 1A @ 60 VDC
- STANDBY
- RATED LOAD: 0.5A @ 125 VAC, 1A @ 60 VDC
- PUMP READY
- RATED LOAD: 0.5A @ 125 VAC, 1A @ 60 VDC

**Diagram Details**
- Hose/Gun Card #1
- Hose/Gun Card #2
- Relay Contacts
- Wire Termination
- Board Mounted Fuse
- Fuse Description
- RTD Temperature
- Capacitor and Motor
- “ON/OFF” Breaker Switch
- Heater
- Coil
- Wire Number
This Warranty extends to the original purchaser only and commences on the date of the original purchase.

Any part of the Hot Melt Technologies (HMT) adhesive supply unit (ASU) manufactured by HMT and found in the reasonable judgement of HMT to be defective in material and workmanship, will be repaired or replaced by HMT without charge for parts or labor.

This Warranty is limited to:

a) One (1) year from initial use,

b) Eighteen (18) months from date of purchase, or

c) Two thousand (2,000) hours of use, whichever comes first.

The ASU including any defective part must be returned to HMT within the warranty period. All transportation expenses to HMT for warranty work and the expense of returning it to the owner will be paid for by the owner. HMT’s responsibility in respect to claims is limited to (at its option) making the required repairs, adjustment, or replacements. No claim of breach of warranty shall be cause for cancellation of the contract of sale of any HMT ASU.

This warranty does not cover any ASU that has been subject to misuse, abuse, negligence, or accident, or which has been operated in any way contrary to the operating instructions. Warranty does not apply to any damage to the ASU that is the result of improper maintenance or installation.

This warranty does not cover any ASU that has been altered or modified by the customer. In addition, the warranty does not extend to repairs made necessary by normal wear or by the use of hot melt materials in the ASU which in the reasonable opinion of HMT are either incompatible with the ASU or adversely affect its operation, performance, or durability. This warranty does not extend to any accessory attachments to the ASU that are warranted separately for different periods of time. Other components supplied by HMT as part of a system will carry the warranty of the original manufacturer.

This warranty does not extend to an ASU damaged during shipment. Risk of loss or damage to the ASU shall pass to the buyer.

HMT reserves the right to change or improve the design of any ASU, or part of an ASU, without assuming any obligation to modify any ASU previously manufactured.

HMT assumes no responsibility for incidental, consequential or other damages including but not limited to: expense for hot melts, delivery or return freight expenses, mechanics travel time, telephone or telegraph charges, rental of a like product during the time warranty repairs are being performed, travel, loss or damage to personal property, loss of revenue, loss of use of the ASU, loss of time or inconvenience.