Bulk Melters BM 200
with Gear/Gerotor Pump
for 200 l Drums

Manual P/N 464 958 C
- English -
Note
This manual applies to the entire series.

Order number
P/N = Order number for Nordson products

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Section 1

Safety

Observe and follow all safety instructions, the general safety instructions included as a separate document, as well as the specific safety instructions in all other related documentation.
Section 2
Description

1. Intended Use

Bulk melters in the series *BM 200 with Gear Pumps/Gerotor Pumps* - hereafter also referred to as *system* - may be used only to melt and feed suitable materials. When in doubt, seek permission from Nordson.

**CAUTION:** Only undamaged and suitable drums (Refer to *Specifications*) may be used.

Any other use is considered to be unintended and is carried out at the operator's own risk. Nordson will not be liable for personal injury or property damage resulting from unintended use.

Intended use also includes the observance of Nordson safety instructions. Nordson recommends collecting detailed information about the materials to be used.

**Unintended Use - Examples -**

The systems may not be used under the following conditions:

- In defective condition
- With electrical cabinet door open
- In a potentially explosive atmosphere
- With unsuitable operating/processing materials
- When safety valves and pressure restrictor valves are not lead-sealed
- When the values stated under *Specifications* are not complied with.

The systems may not be used to process the following materials:

- Explosive and flammable materials
- Erosive and corrosive materials
- Food products.
Electromagnetic Compatibility

Area of use
The system is designed for use in industrial areas.

Operation restriction
When using in industrial areas and in small businesses, the systems may cause interference in other electrical units, e.g. radios.

Installation
Only shielded cables may be connected to the interface XS2. The shield must be connected to ground in compliance with electromagnetic compatibility.

2. Residual Risks

In the design of the system, every measure was taken to protect personnel from possible dangers. Nevertheless, some residual risks can not be avoided. Personnel should be aware of the following points:

- Risk of burns from hot material
- Risk of burns from hot system components
- Risk of burns when conducting maintenance and repair work for which the system must be heated up
- Risk of burns when attaching and removing heated hoses
- Inhalation of potentially hazardous material fumes
- The safety valve may malfunction due to hardened or cracked material.

3. Definition of Term(s)

The safety valve is also referred to in Nordson literature as bypass and bypass valve.
4. Manual References

- This manual applies to the entire series.
- This instruction manual is valid only in conjunction with all documents included in the complete set of documentation (blue binder).
- When the system has special features, customer specifications and/or supplements or a higher-ranking system description may be added to this manual.
- The position numbers in the illustrations do not correspond to the position numbers in the technical drawings and spare parts lists.
- The illustrations show only the essential system components. All other components and details can be found in the included technical drawings (Refer to Parts List).

5. Series Overview

The difference between the systems is the type of pumps.

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<td>Gerotor pump</td>
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*Refer to Specifications for drum height and diameter.

6. Illustrations and System Components

The following illustrations mainly show system components relevant for operation, installation and maintenance. The components are described in this section and in the following sections of this manual or in separate manuals.

Drum Aeration Valve

There are two types of drum aeration valves. Aeration valve 2 is used as of March 2002.

Fig. 2-1
Bulk Melter BM 200

Fig. 2-2

1 Indicator beacon (accessory)
2 Switch rod
3 Pneumatic unit
4 Compressed air filter
5 Control system*
6 Electrical cabinet
7 Main switch
8 Week timer* (accessory)
9 Fan with filter
10 Base with transformer
11 Hose connection fitting
12 Drum aeration valve
13 Reservoir
14 Melt platen
15 Drum clamp
16 Switch (drum inserted)
17 Pneumatic cylinder
18 Safety valve*
19 Gear pump* or gerotor pump*
20 Coupling
21 Protective cover
22 Drum deaeration valve
23 Motor*
24 Hose connecting socket
25 Hose holder
26 Wiring box

Note: There are separate manuals available for all components marked with an asterisk (*).
7. Functioning

The functioning of individual components is described in separate manuals (Refer to Index of Documentation).

Conditioning Compressed Air

The compressed air is conditioned by a compressed air filter. It ensures low-maintenance and minimal wear operation of the pneumatically driven components by dehydrating and cleaning the compressed air. It also compensates for pressure fluctuations. For additional information, refer to Installation and Maintenance.

Lifting and Lowering Melt Platen

A pneumatic switch controls lifting and lowering of the melt platen, and pneumatic cylinders move the melt platen. When lowering the melt platen, a two-hand control must be operated for safety reasons until the melt platen is in the drum.

When the upper sealing ring on the melt platen is completely submerged in the drum, the drum must be deaerated. When the drum is deaerated, the air that is under the melt platen escapes.

When the melt platen is lifted out of the drum, the drum must be aerated below the melt platen to support lifting.

Fig. 2-3 Principle drawing
Melting Process and Material Flow

The material is melted only directly below the melting plate. Depending on how the system is to be used, the melt platen can be equipped with different melting plates (Refer to Melting Plates). A pump (gear pump or gerotor pump) feeds the melted material to the hose connection fitting. From there it flows through a heated hose to an application head or an assembly handgun, possibly to an applicator, to fill that unit.

A safety valve limits the material pressure generated by the pump and keeps it constant.

![Fig. 2-4 Principle drawing with gear pump](002661)

**Drum Deaeration Valve**

The drum deaeration valve (22, Fig. 2-2) is used to deaerate the drum as the melt platen is lowered into the drum.

**Drum Aeration Valve**

The drum aeration valve (12, Fig. 2-2) is used to automatically aerate the drum while a drum is being replaced.

**Drum Clamp**

The drum clamp (15, Fig. 2-2) holds the drum securely in position.
**Pump Drive**

An electrical motor is used to drive the pump.

**Electrical motor**

The electronically controlled electrical motor drives a gear pump or a gerotor pump. It standardly runs in manual mode. Automatic mode is also possible.

- **Manual mode**: In manual mode the motor/pump speed is held steady at the manually set value.

- **Automatic mode**: In automatic mode (key-to-line mode) the motor/pump speed is regulated synchronously to the speed of the parent machine. For this to occur, the system must receive pilot voltage from the parent machine.

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Fig. 2-5  Principle drawing of the pump drive

1 Electrical motor*  
2 Gear pump* or gerotor pump*

Note: There are separate manuals available for all components marked with an asterisk (*).
The melt platen is heated by cast-in heating elements. They ensure optimum heat conducting and energy utilization. The temperature is measured by one or more sensors and is electronically controlled.

**Undertemperature interlock**

The undertemperature interlock prevents the system from starting up when the material is still too cold; the temperature setpoint minus the undertemperature value must be exceeded. On initial heating of the system, the interlock is not released until the actual temperature is 3 °C (5.4 °F) below the temperature setpoint.

The undertemperature interlock locks the motors, solenoid valves and, in some cases, other components of the application system. Refer to the wiring diagram to determine which components are locked.

**Overtemperature indication / shutdown**

The independently operating overtemperature shutdown mechanisms protect the system and the material from overheating. For overtemperature shutdown, the heating and motor are switched off. The red indication lamp **collective fault** lights up.

- Overtemperature indication through temperature controller: Switches relay output **collective fault** when temperature setpoint value plus overtemperature value has been reached and the red indication lamp **collective fault** lights up. The system remains ready for operation.

- Overtemperature shutdown through temperature controller: The overtemperature shutdown value is set automatically 30 °C (54 °F) above the highest temperature setpoint value.

- Overtemperature shutdown through thermostat(s): Serves as an emergency switch OFF in case the overtemperature shutdown of the temperature controller does not function properly. Refer to section **Specifications** for shutdown value.

**WARNING:** When the overtemperature shutdown is triggered, there is either a fault in settings or system malfunction. Switch off the system and have the fault eliminated by qualified personnel.

**Temperature setback**

Serves to protect the material and save energy during interruptions in production or work stoppages. Setback value and setback period are adjustable.
The melt platen consists of the heating plate, the melting plate and sealing rings. When a smooth melting plate is required, the melt platen assumes the function of the melting plate. When a fine-blade (high melt) or an axial melting plate is used, it is screwed under the melt platen.

**NOTE:** Before start up and every time the drum is replaced, remove any material residue and lubricate the sealing rings (Refer to Specifications for lubricant). Do not use sharp tools.

**Melting Plates**

Depending on what the bulk melter is used for, one of these melting plates is used. The melting plates are all release coated.
9. *Electrical Cabinet*

Fig. 2-8

1. Fan with filter
2. Main switch
3. Key switch PROFIBUS (option)
4. Indication lamp PROFIBUS (option)
5. Control system*
6. Door lock
7. Week timer (accessory)*
8. Indicator beacon (accessory)
9. Air filter
10. Covers for 6 additional channels
11. Interface PROFIBUS* (option)
12. Connecting socket *Tach generator*
13. Interface XS2
14. Cable inlet

Note: There are separate manuals available for all components marked with an asterisk (*).

Channel Assignment Symbols

Fig. 2-9

1. Melt platen
2. Pump heater (only in systems with piston pump)
3. Heated hose (accessory)
4. Application head or assembly handgun (accessory)
5. Additional channel
Main Switch

The main switch is used to switch the system on and off.
Position 0/OFF = System is switched off.
Position I/ON = System is switched on.
The main switch can be secured with padlocks to prevent unauthorized persons from switching on the system.

Control System

On the control system, values and parameters are set, and operating modes and faults are displayed.
Refer to manual for the Control System used.

Week Timer (Accessory)

The week timer is used to automatically switch the system on and off. The main switch must be set to I/ON when using the week timer.
Refer to manual Week Timer.

Indicator Beacon (Accessory)

The indicator beacon shows the system operating modes.
Refer to section Troubleshooting and manual Control System.

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<td>Green</td>
<td>Ready for operation</td>
</tr>
<tr>
<td>Yellow</td>
<td>Drum almost empty (blinking light) and drum empty (light on)</td>
</tr>
<tr>
<td>Red</td>
<td>Collective fault</td>
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Electrical Cabinet Ventilation

Air filter (9, Fig. 2-8) / fan with filter (1, Fig. 2-8)
The electrical cabinet ventilation system reduces the temperature inside of the electrical cabinet. The filters must be serviced regularly. Refer to Maintenance.
### Connecting Socket Tach Generator

(12, Fig. 2-8)
The socket is used to connect a tach generator (accessory) or pilot voltage regulating the system's electrical motor synchronously to the speed of the parent machine.
Refer to *Installation and manual Tach Generator*.

### Interface XS2

(13, Fig. 2-8)
Serves as a connection between the system and external devices.
Refer to *Installation and Wiring Diagram*.

### Interface PROFIBUS (Option)

(11, Fig. 2-8)
The PROFIBUS interface is used to compile and process process data.

### Key Switch and Indication lamp PROFIBUS (option)

(3 and 4, Fig. 2-8)
Activated: Operation via PROFIBUS. The indication lamp is on.
Deactivated: Operation via control system. The indication lamp is off.

### Door Lock

(6, Fig. 2-8)
The electrical cabinet may be opened for installation, maintenance and repair. Store the included key such that it is accessible only to qualified and authorized personnel. The system may not be operated when the electrical cabinet is open.

**WARNING:** Risk of electrical shock. Failure to observe may result in personal injury, death, or equipment damage.

**WARNING:** Disconnect equipment from the line voltage.
10. Pneumatic Unit

The pneumatic unit contains all pneumatic operating elements of the system as described in the section Operation.

Factory-set and lead-sealed pressure restrictor valves prevent unpermissible excessive pressurization of subsequent pneumatic components. When the values set at the factory are exceeded, the compressed air is audibly discharged.

NOTE: The lead seals on the pressure restrictor valves may not be broken. Repairs may be made only by the manufacturer.

Fig. 2-10

- 1 Two-hand control
- 2 Pneumatic switch
- 3 Pressure display Operating pressure cylinder
- 4 Pressure controller Operating pressure cylinder
- 5 Pressure display Admission pressure cylinder
- 6 Pressure restrictor valve
- 7 Pressure controller Admission pressure cylinder
- 8 Pressure controller Drum aeration
- 9 Pressure restrictor valve
- 10 Pressure display Drum aeration

DGPN070L101B1200
<table>
<thead>
<tr>
<th><strong>11. Options Overview and Short Description</strong></th>
<th>Options - when they are relevant to installation, operation and maintenance - are described in the appropriate sections of this manual or in separate manuals.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pressure Control</strong></td>
<td>The material pressure beyond the pump is measured by a pressure sensor and regulated by a control system to remain at a constant pressure (can be adjusted). The pressure can be displayed in either bar or psi.</td>
</tr>
<tr>
<td><strong>PROFIBUS Interface</strong></td>
<td>The PROFIBUS interface is used to centrally compile and process process data.</td>
</tr>
<tr>
<td><strong>Additional Temperature Channels</strong></td>
<td>Up to 6 additional temperature channels can be used.</td>
</tr>
<tr>
<td><strong>12. Exhaust Hood</strong></td>
<td>If polyurethane (PUR) hot melt adhesives are processed with the bulk melter, smooth melt platens are usually used (Refer to Fig. 2-7). The resulting material fumes must be suctioned out directly at the drum. An exhaust hood is integrated into the bulk melter for this purpose. The exhaust hood must be connected to the customer's exhaust device (Also refer toInstallation, Exhausting Material Vapors).</td>
</tr>
</tbody>
</table>
13. Accessories

All accessories relevant for installation, operation and maintenance are described in the appropriate sections of this manual or in separate manuals.

Changeover System

The changeover system allows uninterrupted operation of two bulk melters. One of the systems is active (feeding material), and the other is in standby mode (system switched on, melt platen heater not yet on).

If a drum has been emptied to a certain level (in this case, in the system on the right), the melt platen heater of the other system is automatically switched on. Now the empty drum can be replaced while the other system is feeding material.

The changeover system with two bulk melters BM 20 shown here only illustrates the principle. For additional information on the changeover system, refer to manual Control Unit Change-Over for Bulk Melters in the Series BM 20 / BM 200.

Fig. 2-11 Principle drawing BM 20
13. Accessories (contd.)

**Week Timer**

The week timer is used to automatically switch on and off the system. It is built into the electrical cabinet.

**Indicator Beacon**

The indicator beacon shows the system operating modes. Refer to *Electrical Cabinet* to see what the colors indicate.

---

14. ID Plate

---

**Fig. 2-12**

<table>
<thead>
<tr>
<th>Information</th>
<th>Description</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>System designation and configuration code</td>
<td>-</td>
</tr>
<tr>
<td>P/N</td>
<td>Order number (part number)</td>
<td>-</td>
</tr>
<tr>
<td>Ser.</td>
<td>Serial number</td>
<td>-</td>
</tr>
<tr>
<td>U</td>
<td>Operating voltage</td>
<td>Volt</td>
</tr>
<tr>
<td>I</td>
<td>Fuse rating</td>
<td>Ampère</td>
</tr>
<tr>
<td>f</td>
<td>Line voltage frequency</td>
<td>Hertz</td>
</tr>
<tr>
<td>P</td>
<td>Power consumption of system</td>
<td>Watt</td>
</tr>
<tr>
<td>$P_{\text{max}}$</td>
<td>Power consumption of system and connected accessories</td>
<td>Watt</td>
</tr>
</tbody>
</table>
Section 3
Installation

WARNING: Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

1. Unpacking

Unpack carefully and check for transport damage. Save pallet and fastening and packing material for later use, or dispose of properly according to local regulations.

Lifting (Unpacked) System

Refer to Specifications for weight. Lift only with a suitable floor conveyor (lift truck of fork lift).

Fig. 3-1
2. Transport

- Refer to Specifications for weight. Use only suitable methods of transport.

- If possible, use the pallet on which the system was delivered, and fasten the system to the pallet.

- Protect from damage, moisture and dust with suitable packing material.

- Avoid jolts and vibrations.

3. Removing

1. Convey all material out of system and remove drum.

2. When system will not be used for longer periods of time, rinse with cleaning agent if necessary (Refer to Maintenance).

3. Wipe off sealing rings and clean melting plate (Refer to Maintenance).

4. Disconnect all lines to the system, and allow system to cool.

4. Storage

Do not store system outside! Protect from humidity, dust and excessive temperature fluctuations (formation of condensation).

5. Disposal

When your Nordson product has exhausted its purpose and/or is no longer needed, please dispose of it properly according to local regulations.
6. Setting Up

Set up only in an environment that conforms to the system's stated Degree of Protection (Refer to Specifications). Do not set up in a potentially explosive environment.

Protect from vibration. Remove transport protection (if present).

Ensure that there is sufficient free space around the system (Fig. 3-2), especially above it. Refer to Specifications for dimensions.

Fig. 3-2 Principle drawing
7. Exhausting Material Vapors

Ensure that material vapors do not exceed the prescribed limits. Always observe the safety data sheet for the material to be processed.

If necessary, exhaust material vapors and/or provide sufficient ventilation of the location of the system. On systems with exhaust hoods, material vapors are suctioned directly at the drum.

**NOTE:** The exhaust hood must be connected to the customer's exhaust device. The connecting sleeve on the exhaust hood has an inside diameter of 100 mm.

Fig. 3-3  Principle drawing
8. **Electrical Connections**

**WARNING:** Risk of electrical shock. Failure to observe can result in personal injury, death or equipment damage.

**Laying Cables**

**WARNING:** Use only temperature resistant cable in the heating part of the system. Ensure that cables do not touch rotating and/or hot parts. Do not pinch cable, and check regularly for damage. Immediately replace damaged cable!

**Line Voltage**

**WARNING:** Operate only with the line voltage stated on the ID plate.

**NOTE:** Permitted deviation from the rated line voltage is +5% / -10%.

**NOTE:** The power connection cable must have a cross-section matching the power consumption P\text{max}. (Refer to ID Plate).

**Power Supply**

The mains terminals are located in the electrical cabinet. For connecting arrangement, refer to Wiring Diagram. On models with a transformer, the power supply is connected directly to the transformer.

**Hose Connection Socket(s)**

For electrical connection values, refer to Specifications.

**Operating with Assembly Handguns**

For applications with assembly handguns that switch the motor via the heated hose, the bridge XLS1: 1 - 2 (Refer to Wiring Diagram) must be removed.

**Tach Generator (Accessory)**

Connection occurs via the socket (10, Fig. 2-7). Also refer to Wiring Diagram and manual Tach Generator.

**CAUTION:** The pilot voltage generated by the tach generator may not exceed 160 V\text{DC}. Failure to observe will result in damage to the succeeding components.

**NOTE:** The pilot voltage generated by the tach generator must be adjusted (Refer to manual Control System CS 20 for Bulk Melters BM).
The interface serves as a connection between the system and external devices. The functions are described in detail in the manual Control System CS 20 for Bulk Melters BM, section Central Module with Digital Input/Output.

NOTE: It is essential to bridge Pin 9 with Pin 1 (24 VDC) before initial startup. Also refer to plug connection diagram Interface XS2 for BM 200 (wiring diagram).

NOTE: To conform with a European standard regarding electro-magnetic compatibility, only shielded cable may be connected. The cable must be connected to ground in compliance with the standard (PE connection in plug connector).

NOTE: Inductive loads (e.g. solenoid valves) connected to the system must be equipped with a protective device (e.g. recovery diode) that disables the inductive voltage generated when an inductive load is switched off.

### Interface XS 2

<table>
<thead>
<tr>
<th>Pin</th>
<th>Input</th>
<th>Output</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>24 VDC</td>
<td>Internal switching voltage for activating inputs 2, 3, 4, 5, 7 and 9. The switching voltage must be connected to the appropriate input.</td>
</tr>
<tr>
<td>2</td>
<td>24 VDC</td>
<td>-</td>
<td>Unit release (main contactor)</td>
</tr>
<tr>
<td>3</td>
<td>24 VDC</td>
<td>-</td>
<td>Release Drives</td>
</tr>
<tr>
<td>4</td>
<td>24 VDC</td>
<td>-</td>
<td>Switch on/off Temperature setback</td>
</tr>
<tr>
<td>5</td>
<td>24 VDC</td>
<td>-</td>
<td>Release Motor for application 1</td>
</tr>
<tr>
<td>6</td>
<td>-</td>
<td>-</td>
<td>Not assigned</td>
</tr>
<tr>
<td>7</td>
<td>24 VDC</td>
<td>-</td>
<td>Release Motor for application 2</td>
</tr>
<tr>
<td>8</td>
<td>-</td>
<td>-</td>
<td>Not assigned</td>
</tr>
<tr>
<td>9</td>
<td>-</td>
<td>-</td>
<td>Internal link</td>
</tr>
<tr>
<td>10</td>
<td>-</td>
<td>-</td>
<td>Internal link</td>
</tr>
<tr>
<td>11</td>
<td>-</td>
<td>-</td>
<td>Not assigned</td>
</tr>
<tr>
<td>12</td>
<td>-</td>
<td>-</td>
<td>Internal link</td>
</tr>
<tr>
<td>13-16</td>
<td>-</td>
<td>-</td>
<td>Not assigned</td>
</tr>
<tr>
<td>17</td>
<td>24 VDC external</td>
<td>-</td>
<td>External potential for outputs 18, 19, 20, 21, 24 and 26 24 VDC +/- 10 %</td>
</tr>
<tr>
<td>18</td>
<td>-</td>
<td>24 VDC max. 2 A</td>
<td>Indication Ready</td>
</tr>
<tr>
<td>19</td>
<td>-</td>
<td>24 VDC max. 2 A</td>
<td>Indication Collective fault</td>
</tr>
<tr>
<td>20</td>
<td>-</td>
<td>24 VDC max. 2 A</td>
<td>Indication Drum almost empty</td>
</tr>
<tr>
<td>21</td>
<td>-</td>
<td>24 VDC max. 2 A</td>
<td>Indication Drum empty</td>
</tr>
<tr>
<td>22</td>
<td>-</td>
<td>-</td>
<td>Internal link</td>
</tr>
<tr>
<td>23</td>
<td>-</td>
<td>-</td>
<td>Not assigned</td>
</tr>
<tr>
<td>24</td>
<td>-</td>
<td>24 VDC max. 2 A</td>
<td>Valve control application 1</td>
</tr>
<tr>
<td>25</td>
<td>-</td>
<td>-</td>
<td>Not assigned</td>
</tr>
<tr>
<td>26</td>
<td>-</td>
<td>24 VDC max. 2 A</td>
<td>Valve control application 2</td>
</tr>
<tr>
<td>27-32</td>
<td>-</td>
<td>-</td>
<td>Not assigned</td>
</tr>
<tr>
<td>PE</td>
<td>-</td>
<td>-</td>
<td>Shield</td>
</tr>
</tbody>
</table>

NOTE: Refer to Wiring Diagram for electrical connection.
9. **Installing Heated Hoses**

**WARNING:** Hot! Risk of burns. Wear heat-protective gloves.

If cold material can be found in the hose connection fitting (1) and/or hose connection (2), these components must be heated until the material softens (approx. 80 °C, 176 °F).

1. First connect the hose (3) electrically to the system. For more than one hose: every hose connection fitting is allocated to a corresponding connection socket. Do not mistakenly exchange!

2. Heat the system and hose to approx. 80 °C (176 °F).

3. Screw the hose onto the system.

**NOTE:** Close unused hose connection fittings with Nordson screw caps.

---

**Connecting**

![Fig. 3-4 Principle drawing](image)

**Disconnecting**

**WARNING:** System and material pressurized. Relieve pressure before disconnecting heated hoses. Failure to observe can result in serious burns.

**Relieving pressure**

1. Set motor speed to 0 min⁻¹ (rpm); switch off motor(s).

2. Place a reservoir under the nozzle(s) of the application head/hot melt handgun.

3. Activate the solenoid valve(s) electrically or manually; or, pull the trigger of the hot melt handgun. Repeat this procedure until no more material flows out.

4. Re-use the material or dispose of properly according to local regulations.

**Second open-jawed wrench**

Using a second open-jawed wrench prevents the hose connection fitting on the unit from turning.

---

![Fig. 3-5 Principle drawing](image)
10. **Pneumatic Connection**

Refer to *Specifications* for connection values. Connect only dry, clean and non-lubricated compressed air.

**Pneumatic**

Connect compressed air supply to compressed air filter (1).

![Compressed air filter](image)

**Fig. 3-6 Compressed air filter**

11. **Indicator Beacon**

The indicator beacon is an accessory. It must be screwed onto the electrical cabinet and connected to terminal XLWT according to the *Wiring Diagram*.

12. **Week Timer**

The week timer is an accessory and must be installed in the electrical cabinet in place of the terminal XLWZ. Wiring according to *Wiring Diagram*.
Section 4

Operation
Warning: Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

Note: The system should not be started up until the user has read the manual and is familiar with the system. Also refer to Initial Startup.

1. Two-hand Control

Warning: Before operating the two-hand control, ensure that no one can be injured when the melt platen is lowered. Do not handle drum! Noncompliance can result in burns, crushing and severed limbs.

The two-hand control (1) may only be operated by one person using both hands! It is used to lower the melt platen when it is outside of the drum. When the melt platen enters the drum, the system automatically switches to regular lowering mode.

1. Set pneumatic switch (2) to Lower.

2. Press both buttons on the two-hand control (1) at the same time (within 0.5 seconds) until the melt platen is inside of the drum.

Fig. 4-1
2. **Pneumatic Switch**

**WARNING:** Before operating pneumatic switch, ensure that no one can be injured by moving system parts.

![Diagram of Pneumatic Switch]

**Fig. 4-2**

**Stop**

Raising/lowering of the melt platen is stopped.

**Lower**

**NOTE:** The melt platen can only be lowered when there is a drum in the system and the drum clamp is closed.

1. Lubricate sealing rings (Refer to *Specifications* for lubricant).
2. Set pneumatic switch to *Lower*.
3. Operate two-hand control (Refer to *Two-hand Control*).
4. Deaerate drum when the upper sealing ring of the melt platen is completely immersed in the drum (Refer to *Deaerating Drum*).

**Raise (Aerate Drum)**

The melt platen is raised. If the melt platen is in the drum, the drum is automatically aerated (Refer to *Aerating Drum*).
3. Aerating Drum (Raising)

**WARNING:** Risk of burns! When the melt platen leaves the drum, hot material can come out and/or drip from the melt platen. Wear suitable protective clothing!

If the melt platen is inside of the drum, the drum must be aerated to support raising. Aerating means that compressed air is forced under the melt platen.

Drum aeration begins automatically when the pneumatic switch is moved to *Raise* and does not cease until the pneumatic switch is moved to *Stop*.

Fig. 4-3  Principle drawing

4. Deaerating Drum

**WARNING:** Risk of burns! Hot material may flow out of the deaeration valve. Wear appropriate protective equipment.

The drum must always be deaerated when the melt platen is moved into the drum. Deaeration allows the air under the melt platen in the drum to escape.

1. Place a reservoir (2) in front of the deaeration valve (1).

**CAUTION:** Ensure that the system has reached operating temperature.

2. Open deaeration valve (1) when the upper sealing ring on the melt platen (3) is completely submerged in the drum.

3. Close deaeration valve (1) when material flows out free of bubbles.

4. Properly dispose of material according to local regulations.

Fig. 4-4  Principle drawing

Fig. 4-5
5. **Lubricating Sealing Rings**

Lubricate the sealing ring before initial startup and every time the drum is replaced. Remove material residue before lubricating. Refer to Specifications for lubricant.

6. **Inserting and Replacing Drum**

**NOTE:** Insert only undamaged and appropriate drums in the system; otherwise the melt platen sealing rings could be damaged. Always keep the base plate of the system clean so that the drum is positioned straight. If necessary, move the switch rod to the height of the drum (Refer to Adjusting Switch Rod).

**WARNING:** Risk of burns! Hot material can drip from the melting plate. Wear appropriate protective equipment.

1. Lift melt platen and aerate while it is still in the drum.
2. Set pneumatic switch to 0/Stop.
3. Insert or replace drum.
5. Lubricate sealing rings.
6. Lower melt platen.
7. Deaerate drum when the upper sealing ring of the melt platen is completely immersed in the drum.
8. Dispose of material properly according to local regulations.

**Level Indications**

<table>
<thead>
<tr>
<th>Level</th>
<th>Level indications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drum almost empty</td>
<td>Interface XS2* Indicator beacon (yellow) blinking</td>
</tr>
<tr>
<td>Drum empty</td>
<td>Interface XS2* Indicator beacon (yellow) lit</td>
</tr>
</tbody>
</table>

* Refer to Installation, Interface XS2
7. Setting Pressure Controller

Pressure Controller and Display for Operating Pressure of Cylinders

Operating pressure is applied to the pneumatic cylinders when the melt platen is lowered and when it has been raised out of the drum.

Depending on the material to be processed, the pressure controller may need to be set to a different value. The optimum setting may need to be determined by trial and error.

Max. pressure

| 0.75 MPa | 7.5 bar | 109.0 psi |

Fig. 4-6

Pressure Controller and Display for Admission Pressure of Cylinders

Admission pressure (reduced operating pressure) is applied to the pneumatic cylinders when the melt platen is moved out of the drum.

When the melt platen leaves the drum, the system automatically switches to full operating pressure (Also refer to Adjusting Switch Rod).

Max. pressure (limited by pressure restrictor valve)

| 0.2 MPa | 2.0 bar | 29.0 psi |

Fig. 4-7

Pressure Controller and Display for Drum Aeration

Aeration - compressed air is forced under the melt platen to support raising of melt platen - occurs when the melt platen is moved out of the drum (Refer to Aerating Drum).

Max. pressure (limited by pressure restrictor valve)

| 0.1 MPa | 1 bar | 14.5 psi |

Fig. 4-8
8. Adjusting Switch Rod

The system is adapted to the drum height by adjusting the switch rod. The switch rod activates the switches (4, 5 and 6) one after the other and thus triggers the following switching functions:

**Switching functions when lowering**

- Switches from two-hand lowering mode to normal lowering mode when the upper sealing ring (3) is completely immersed in the drum (switch 4).
- Triggers the drum almost empty indication (switch 5).
- Triggers the drum empty indication (switch 6).

**Switching functions when raising**

Switches pressurization of pneumatic cylinders from admission pressure to operating pressure when the melt platen moves out of the drum (switch 4).

**Height**

Set with switch rod (2) such that it activates switch 4 when the upper sealing ring (3) is completely submerged in the drum. To do this, release nuts (1).
9. Setting Values and Parameters

Values and parameters - except air pressures for the pneumatics - are set on the control system.

For additional information, refer to control system used.

10. Switching System ON/OFF

NOTE: Before initial startup, read and observe the instructions in Initial Startup. Start up only as described under Initial Startup.

The system is switched on and off with the main switch (2, Fig. 2-7).
Position 0/OFF = System is switched off.
Position I/ON = System is switched on.
The main switch can be secured with padlocks to prevent unauthorized persons from switching on the system.

System With Week Timer (Accessory)

The week timer (3, Fig. 2-7) is used to automatically switch the system on and off.

NOTE: The main switch must be set to I/ON when using the week timer. Additional information on the week timer can be found in the manual Week Timer.

External System Release

The external system release feature is used to externally switch the system on/off via the interface XS2 (Refer to Installation, Interface XS2).

NOTE: When external system release is used, the main switch must be set to I/ON (switched on).
**Daily Switch ON**

**NOTE:** Do not operate Nordson pumps without material. Before switching on motor, ensure that a drum that is not empty is in the system and that the melt platen has contact with the material.

**NOTE:** To prevent excessive wear, the motor/pump speed should not continuously fall below 5 min⁻¹ (rpm) or continuously exceed 80 min⁻¹ (rpm).

1. Set main switch to \(I/\text{ON}\).
2. Wait until system is ready.
3. Replace drum when empty.
4. Move melt platen into drum.
5. Preselect motor(s).
6. Switch on motor(s).

**Daily Switch OFF**

1. Switch off motor(s).
2. Set main switch to \(0/\text{OFF}\) and protect with padlocks if necessary.
3. Set pneumatic switch to \(0/\text{Stop}\).
4. Conduct daily maintenance.

**NOTE:** The melt platen need not be moved out of the drum.

**11. Switching Off in an Emergency**

**WARNING:** Immediately switch off the system in any emergency situation.

1. Set main switch to \(0/\text{OFF}\) or - when available - press EMERGENCY OFF button (special feature).
2. Set pneumatic switch to \(0/\text{Stop}\).
3. After standstill and before switching the system on again, have the fault remedied by qualified personnel.
12. Initial Startup

NOTE: All system functions were tested before the system left the factory. Special test material was used. There may be residue from this material on the melting plate, in the pump, etc. To remove such residue, melt and feed several kilograms of material before starting production.

NOTE: The temperature setting is determined by the processing temperature prescribed by the material supplier. Do not exceed the maximum operating temperature of the system or heated system components. Nordson assumes no guarantee and/or liability for damage caused by incorrect temperature settings.

NOTE: Do not operate Nordson pumps without material. Before switching on motor, ensure that a drum that is not empty is in the system and that the melt platen has contact with the material.

NOTE: To prevent excessive wear, the motor/pump speed should not continuously fall below 5 min⁻¹ (rpm) or continuously exceed 80 min⁻¹ (rpm).

1. Ensure that the switch rod is set to the drum height (Refer to Adjusting Switch Rod).
2. Set pneumatic switch to 0/Stop.
3. Set main switch to I/ON.
4. Set control system.
5. Set week timer, if present.
6. Wait until system is heated and ready for operation. Green indicator beacon (if present) and/or indication lamp of control system is lit.
7. Move melt platen to top position.
8. Lubricate melt platen sealing rings (Refer to Lubricating Sealing Rings).
9. Insert drum (Refer to Inserting and Replacing Drum).
10. Move melt platen into drum, deaerate drum.
11. Preselect motor(s) and switch on.
12. Set motor speed on control system to achieve desired output quantity.
13. If necessary, set pressure controller (1, Fig. 4-6) to a different value (Refer to Setting Pressure Controller).
## 13. Settings Record Form

Production information:

<table>
<thead>
<tr>
<th>Application material</th>
<th>Supplier</th>
<th>Processing temperature</th>
<th>Viscosity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaning agent:</td>
<td>Supplier</td>
<td>Flash point</td>
<td></td>
</tr>
<tr>
<td>Leading channel:</td>
<td>Factory-set</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Processing temperatures (Setpoint temperatures):

<table>
<thead>
<tr>
<th>Component</th>
<th>Setpoint 1</th>
<th>Setpoint 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melt platen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heated hose (accessory)</td>
<td>1)</td>
<td>2)</td>
</tr>
<tr>
<td>Application head (accessory)</td>
<td>1)</td>
<td>2)</td>
</tr>
<tr>
<td>Assembly handgun (accessory)</td>
<td>1)</td>
<td>2)</td>
</tr>
</tbody>
</table>

### Motor/pump speeds:

<table>
<thead>
<tr>
<th>Motor/pump</th>
<th>Setpoint 1</th>
<th>Setpoint 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Air pressures:

<table>
<thead>
<tr>
<th>Component</th>
<th>bar</th>
<th>MPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder (operating pressure)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cylinder (admission pressure)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drum aeration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application head (accessory)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
</table>
Section 5

Maintenance
Section 5
Maintenance

WARNING: Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

NOTE: Maintenance is an important preventive measure for maintaining operating safety and extending the operational lifetime of the system. It should not be neglected under any circumstances.

1. Risk of Burns

WARNING: Hot! Risk of burns. Wear appropriate protective clothing/equipment. Some maintenance work can only be done when the system is heated up.

2. Relieving Pressure

WARNING: System and material pressurized. Before removing heated hoses, application heads or hot melt handguns, relieve system pressure. Failure to observe can result in serious burns.


1. Set motor speed to $0 \text{ min}^{-1}$ (rpm); switch off motor(s).

2. Place a reservoir under the nozzle(s) of the application head/hot melt handgun.

3. Trigger the solenoid valve(s) electrically or manually; or, pull the trigger of the hot melt handgun. Repeat this procedure until no more material flows out.

4. Re-use material or dispose of properly according to local regulations.
3. **Daily Maintenance**

The stated intervals are general guidelines based on experience. Depending on the location of the system, production conditions and operating time of the system, other maintenance intervals may prove necessary.

<table>
<thead>
<tr>
<th>System part</th>
<th>Activity</th>
<th>Interval</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete system</td>
<td>External cleaning</td>
<td>Daily</td>
<td>Page 5-4</td>
</tr>
<tr>
<td></td>
<td>Inspection for external damage</td>
<td>Daily</td>
<td>Page 5-4</td>
</tr>
<tr>
<td>Connecting cable</td>
<td>Inspection for damage</td>
<td>Daily</td>
<td></td>
</tr>
<tr>
<td>Air hoses</td>
<td>Inspection for damage</td>
<td>Daily</td>
<td></td>
</tr>
<tr>
<td>Displays and lamps</td>
<td>Function check (test)</td>
<td>Daily</td>
<td>Manual Control System</td>
</tr>
<tr>
<td>Fan with filter</td>
<td>Clean air grill</td>
<td>Daily, when dust accumulation is heavy</td>
<td>Page 5-4</td>
</tr>
<tr>
<td>Air filter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melting plate</td>
<td>Check melting plate for cracked material, clean if necessary</td>
<td>Daily</td>
<td>Page 5-7</td>
</tr>
<tr>
<td>Switch Drum inserted</td>
<td>Check switch for material residue or other impurities, clean if necessary</td>
<td>Daily</td>
<td>Section Description</td>
</tr>
<tr>
<td>Base plate</td>
<td>Check base plate for material residue or other impurities, clean if necessary</td>
<td>Daily</td>
<td></td>
</tr>
<tr>
<td>Lubricator</td>
<td>Check oil level; add oil if necessary (Refer to Processing Materials in section Specifications)</td>
<td>Daily</td>
<td></td>
</tr>
<tr>
<td>Electrical motor</td>
<td>Clean fan cover</td>
<td>Daily, if dust accumulation is severe</td>
<td>Manual Motor</td>
</tr>
</tbody>
</table>
4. **Regular Maintenance**

The stated intervals are general guidelines based on experience. Depending on the location of the system, production conditions and operating time of the system, other maintenance intervals may prove necessary.

<table>
<thead>
<tr>
<th>System part</th>
<th>Activity</th>
<th>Interval</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressed air filter</td>
<td>Drain condensate</td>
<td>Weekly</td>
<td>Page 5-5</td>
</tr>
<tr>
<td></td>
<td>Clean filter element</td>
<td>Every three months</td>
<td>Page 5-5</td>
</tr>
<tr>
<td></td>
<td>Clean condensate collector</td>
<td>When cleaning filter element</td>
<td>Page 5-5</td>
</tr>
<tr>
<td>Pneumatic pressure restrictor valve</td>
<td>Function test</td>
<td>Every six months</td>
<td>Page 5-6</td>
</tr>
<tr>
<td></td>
<td>Clean</td>
<td>When not functioning correctly</td>
<td>Page 5-6</td>
</tr>
<tr>
<td>Safety valve</td>
<td>Refer to separate manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gear pump</td>
<td>Refer to separate manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gerotor pump</td>
<td>Refer to separate manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical motor</td>
<td>Refer to separate manual</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. **External Cleaning**

External cleaning prevents pollution created by production from causing system malfunctions.

**CAUTION:** Observe the system’s Degree of Protection when cleaning (see Specifications).

**CAUTION:** Do not damage or remove warning signs. Damaged or removed warning signs must be replaced by new ones.

Only remove material residues with a cleaning agent recommended by the material supplier. Pre-heat with an air heater if necessary.

Vacuum up dust, fluffs etc. or remove them with a soft cloth.

6. **Inspection for External Damage**

**WARNING:** When damaged parts pose a risk to the operational safety of the system and/or safety of personnel, switch off the system and have the damaged parts replaced by qualified personnel. Use only original Nordson spare parts.

7. **Cleaning or Replacing Air Filter**

Depending on dust accumulation, the filters must be cleaned or replaced. A dirty filter can be recognized by its dark color. Clean the filters by tapping out the dirt. Depending on dust accumulation, the filter screens may need to be cleaned daily.

---

Fig. 5-1  Cleaning/replacing filter
8. **Compressed Air Filter**

The compressed air filter dehydrates and cleans the compressed air.

**Draining Condensate**

Drain condensate before it reaches a level approx. 10 mm below the filter disk.

To do this, open the condensate drain valve (7) (Refer to illustration).

![Fig. 5-2](image)

**Cleaning Filter Element**

Under normal conditions, clean filter element (5) approx. every three months. Clean sooner if compressed air filter outlet pressure falls.

1. Stop compressed air supply and release residual pressure by opening the condensate drain valve (7).

2. Unscrew condensate collector (6).

3. Unscrew filter element (5) by turning to the left.

4. Rinse filter element (5) with suitable cleaning agent. Then blow out from the inside. The condensate collector (6) may not come into contact with the cleaning agent!

5. Clean condensate collector (6) if necessary. Use only water!

6. Reassemble compressed air filter.

![Fig. 5-3](image)
9. **Pneumatic Pressure Restrictor Valve**

The factory-set, lead-sealed pressure restrictor valves prevent unpermissibly high pressurization of subsequent pneumatic components. When the factory-set values are exceeded, the compressed air is audibly discharged.

**Function Testing of Pressure Restrictor Valve**

Functioning of the pressure restrictor valve should be checked approx. every six months. To do this, turn the knurled screw until compressed air is audibly discharged (Fig. 5-4). When functioning is not correct, the pressure restrictor valve should be cleaned. If it is still not working as it should, it must be replaced.

**NOTE:** A defective pressure restrictor valve may be replaced only with an original spare valve. Repairs to the pressure restrictor valve may be made only by the manufacturer!

**Cleaning Pressure Restrictor Valve**

Pollution that has penetrated fitting surfaces and conical nipples can be removed by unscrewing the entire top piece - without changing the minimum operating pressure. Use a hook wrench to unscrew (Fig. 5-4).

![Diagram of pressure restrictor valve](XXSV031L084A0397)

**Fig. 5-4**

Note: The illustration shows the old model with a sealing wire instead of a sealing plate.
10. **Changing Type of Material**

**NOTE:** Before changing the material type, determine whether the old and new material can be mixed.

- May be mixed: Residue of the old material can be flushed out using the new material.

- May not be mixed: Rinse thoroughly and clean melting plate with a cleaning agent recommended by the material manufacturer (Refer to Cleaning Melting Plate).

**NOTE:** Ensure proper disposal of the old material according to local regulations.

11. **Flushing with a Cleaning Agent**

**CAUTION:** Use only a cleaning agent recommended by the material supplier. Observe the Material Safety Data Sheet of the cleaning agent.

Before starting production again, flush out residue of the cleaning agent using the new material.

**NOTE:** Ensure proper disposal of the cleaning agent according to local regulations.

12. **Cleaning Melting Plate**

The melting plate is standardly release-coated, making it easy to clean. Cooled material can usually be pulled off of the melting plate; if necessary, first heat to 60 °C / 140 °F.

**CAUTION:** Do not clean with hard or metallic tools. Do not use wire brushes! This could damage the release coating. Use only soft aids (wooden or PTFE spatulas or soft brushes).
## 13. Maintenance Record Form

<table>
<thead>
<tr>
<th>System part</th>
<th>Date / Name</th>
<th>Date / Name</th>
<th>Date / Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety valve</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumatic pressure restrictor valve</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compressed air filter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gear pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gerotor pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical motor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section 6

Troubleshooting
Section 6  
Troubleshooting

**WARNING:** Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

**WARNING:** Troubleshooting activities may sometimes have to be carried out when the system is energized. Observe all safety instructions and regulations concerning energized system components (active parts). Failure to observe may result in an electric shock.

### 1. Troubleshooting Tables

The troubleshooting tables serve as an orientation for qualified personnel. They cannot, however, replace targeted troubleshooting with the help of wiring diagrams and measuring instruments. They also do not include all possible problems, only those which most typically occur.

<table>
<thead>
<tr>
<th>Possible cause</th>
<th>Possible fault / Troubleshooting</th>
<th>Corrective action</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>System has no electrical function</td>
<td>Main switch is set to 0/OFF</td>
<td>Set main switch to 1/ON</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fuses are defective</td>
<td>Check fuses in electrical cabinet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No line voltage supplied</td>
<td>Check whether there is line voltage at the line voltage terminals in the electrical cabinet</td>
<td></td>
</tr>
<tr>
<td>System has no pneumatic function</td>
<td>There is no drum in the bulk melter</td>
<td>Insert drum, then proceed as described under Initial Startup</td>
<td></td>
</tr>
<tr>
<td>System does not heat</td>
<td>Temperatures not set correctly on temperature controller</td>
<td>Check temperature settings for all channels</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fuses for certain channels defective</td>
<td>Check fuses for individual channels</td>
<td></td>
</tr>
<tr>
<td>Possible cause</td>
<td>Possible fault / Troubleshooting</td>
<td>Corrective action</td>
<td>Refer to</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Too little or no material comes out</td>
<td>System, hose and application head / assembly handgun are cold or have not the right temperature</td>
<td>Check all temperature settings. Consider heating phase</td>
<td></td>
</tr>
<tr>
<td>Material viscosity too high</td>
<td></td>
<td>Observe temperature instructions of material manufacturer</td>
<td></td>
</tr>
<tr>
<td>Motor does not turn</td>
<td>Undertemperature interlock has not yet released</td>
<td>Check position of motor switch</td>
<td>Section</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check speed setting</td>
<td>Operation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Are fuses on motor controller functional?</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is motor controller functional?</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is motor functional?</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Have motor controller or motor checked - and, if necessary, replaced - by qualified personnel</td>
<td></td>
</tr>
<tr>
<td>Pump turns, but feeds no or too little material</td>
<td></td>
<td>Check that pump functions correctly</td>
<td></td>
</tr>
<tr>
<td>Nozzle on application head or assembly handgun blocked</td>
<td></td>
<td>Unscrew warm nozzle and clean</td>
<td></td>
</tr>
<tr>
<td>Filter - if present on application head - is blocked</td>
<td></td>
<td>Replace filter cartridge</td>
<td></td>
</tr>
<tr>
<td>Melt platen can not be lowered</td>
<td>Is there a drum in the bulk melter?</td>
<td>Insert drum in bulk melter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is the pneumatic switch set to Lower?</td>
<td>Set pneumatic switch to Lower</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is the operating air pressure for the bulk melter sufficient?</td>
<td>Increase operating air pressure of bulk melter (max. 7.5 bar)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is the drum deaerated?</td>
<td>Deaerate drum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Was the two-hand control operated?</td>
<td>Operate two-hand control until the melting plate has reached the top of the drum</td>
<td></td>
</tr>
<tr>
<td>Possible cause</td>
<td>Possible fault / Troubleshooting</td>
<td>Corrective action</td>
<td>Refer to</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------</td>
<td>-------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Melt platen moves irregularly or not at all</td>
<td>Is there a drum in the bulk meter?</td>
<td>Insert drum in bulk melter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Set pneumatic switch to 0/Stop</td>
<td>If air continuously escapes from the switch in this position, the switch is defective and must be replaced</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Set pneumatic switch to Raise</td>
<td>If air continuously escapes from the valve drain hole in this position, the seals in the air cylinders are probably defective and must be replaced</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When the melt platen is lowered all the way and the pneumatic switch is set to Lower, check whether there is air flowing out of the valve drain.</td>
<td>If this is the case, the air cylinder seals must be replaced. Check whether air is flowing out of the piston rods or air cylinder covers. The air cylinder seals must be replaced in this case, too</td>
<td></td>
</tr>
</tbody>
</table>
Section 7

Repair
Section 7
Repair

WARNING: Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

1. Preparations for Work on Hydraulic System

If the pump of the bulk melter is ready for operation, the entire system should be rinsed before disassembly.

If the pump is not ready but the heating system functions properly, the system should be heated to operating temperature before disassembly is begun. This causes the material in the system to liquify, making disassembly easier.

If neither the pump nor the heating system can be operated, only a hot air fan may be used to heat components.

2. Other Repairs

Refer to manuals for gear pump and gerotor pump.
3. **Replacing Sealing Rings**

**WARNING:** Hot! Risk of burns. Wear heat-protective gloves.

1. Heat melt platen to operating temperature.
2. Aerate drum.
3. Set pneumatic switch to *Raise* until the melt platen exits the drum.
4. Set pneumatic switch to *0/Stop*.
5. Place a clean, hard, heat-resistant object (e.g. metal plate) on the drum below the melting plate.
6. Set pneumatic switch to *Lower* until the melting plate reaches the resting surface.
7. Set pneumatic switch to *0/Stop*.
8. Cut old sealing rings with a knife and dispose of properly.

**WARNING:** Do not damage melt platen.

9. Heat solid rubber or PTFE-coated sealing rings in an oven.
10. Clean and lubricate grooves. Refer to Processing Materials in section *Specifications*.
11. Put heated sealing rings into place on heated melt platen with two people.

---

**Fig. 7-1** Replacing Sealing Rings
4. **Replacing O-rings**

When leakage occurs, the following O-rings should be replaced:

- At the connection between heated hose and melt platen
- At the connection between heated hose and manifold of application head
- At blind fittings on melt platen and application head manifold.

The following tools and spare parts are required for the work:

- Nordson O-rings (P/N 250 253; using spare parts other than original Nordson parts can lead to leakage).
- PTFE paste. Refer to *Processing Materials* in the section *Specifications*.
- Torque wrench.

1. As described under Maintenance, first relieve system of pressure. Then switch off system and disconnect from line voltage.

2. Remove blind fitting or hose connection fitting from melt platen.

3. Remove old O-ring from hose connection fitting or blind fitting.

4. Clean O-ring groove on hose connection fitting or blind fitting, then apply PTFE paste.

5. Stretch the new O-ring just far enough that it fits over the thread of the fitting or of the blind fitting and can be rolled into the groove.

**NOTE:** Do not stretch O-ring too far!

6. Apply PTFE paste to hose connection fitting and O-ring.

7. Screw fitting back into manifold.

8. Use an open-jawed wrench to tighten fitting such that it touches the manifold. Then tighten with a torque wrench to 9.5 Nm.

9. With the nozzles removed from the application heads, continue operation until the air trapped in the system has escaped. Then put nozzles back into place and start up system.
5. Replacing Melting Plate

WARNING: Before performing the following steps, be familiar with the instructions Preparations for Work on Hydraulic System.


NOTE: The melting plate can only be exchanged for a different one when the melt platen is equipped with a fine-blade or an axial melting plate. Systems for processing PUR do not have an actual melting plate, as this function is assumed by the melt platen.

1. Heat melt platen to operating temperature.
2. Aerate drum.
3. Set pneumatic switch to Raise until the melt platen exits the drum.
4. Set pneumatic switch to 0/Stop.
5. Place a clean, hard, heat-resistant object (e.g. metal plate) on the drum below the melting plate.
6. Set pneumatic switch to Lower until the melting plate reaches the resting surface.
7. Set pneumatic switch to 0/Stop.
8. Remove the six fastening screws (2).
9. Set pneumatic switch to Raise until the melting plate is easily accessible.
10. Remove melting plate (1).
11. Center new melting plate under the melt platen.
12. Put the six screws removed in step 8 back into place, then tighten with 2.1 Nm.
13. Start up system.
6. Replacing Melting Plate Temperature Sensor and Thermostat

**WARNING:** Before performing the following steps, be familiar with the instructions Preparations for Work on Hydraulic System.

**WARNING:** Hot! Risk of burns. Wear heat-protective gloves.

1. Heat melt platen to operating temperature.
2. Aerate drum.
3. Set pneumatic switch to Raise until the melt platen exits the drum.
4. Set pneumatic switch to O/Stop.
5. Place a clean, hard, heat-resistant object (e.g. metal plate) on the drum below the melting plate.
6. Set pneumatic switch to Lower until the melting plate reaches the resting surface.
7. Set pneumatic switch to O/Stop.
8. Remove electrical cover (1).
9. Cut the connecting wires of the defective temperature sensor / thermostat and connect with the connecting wires of the new temperature sensor / thermostat.
10. When only thermostat is replaced: Remove fastening screws (4) and thermostat (5).
11. When only temperature sensor is replaced: Release nipple (2) on temperature sensor (3), then remove temperature sensor.
12. When only thermostat is replaced: Apply heat transfer compound to the bottom of the new thermostat (Refer to Processing Materials in section Specifications), then use the screws to fasten it to the melting plate.
13. When only temperature sensor is replaced: Apply heat transfer compound to the new temperature sensor, then press it into the nipple. Then fasten the nipple.
14. Attach electrical cover (1).
15. Start up system.

**Fig. 7-3**
7. Removing Gear/Gerotor Pump

Fig. 7-4  Removing gear/gerotor pump
1. Setscrew
2. Coupling
3. Fastening screw
4. Removing gear/gerotor pump
5. Safety valve
6. Protective plate
WARNING: For the following tasks, observe Preparations for Work on Hydraulic System.


1. Heat melt platen to operating temperature.
3. Set pneumatic switch to Raise until the melt platen exits the drum. Set pneumatic switch to 0/Stop.
4. Place a clean, hard, heat-resistant surface (e.g. metal plate) on the drum under the melting plate.
5. Set pneumatic switch to Lower until the melting plate is almost on the surface. Set pneumatic switch to 0/Stop.
6. Unscrew the two protective plates (6).
7. Remove coupling (2) from the pump shaft of the gear pump or gerotor pump (4) by unscrewing the setscrews (1).
8. Slide coupling together and remove.
9. Release fastening screws (3) and detach gear/gerotor pump from melt platen.

NOTE: When re-assembling, ensure that all O-rings are replaced (Also refer to Replacing O-rings).

NOTE: When re-assembling, follow instructions in the separate manuals for the gear pump or gerotor pump (4) and for the safety valve (5).
Section 8

Specifications
Section 8
Specifications

1. General Data

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of heating</td>
<td>Cast-in electrical resistance heating elements</td>
</tr>
<tr>
<td>Temperature sensor</td>
<td>Ni 120</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP 54</td>
</tr>
<tr>
<td>Heating time</td>
<td>30 to 60 minutes, depending on system, material used and ambient temperature</td>
</tr>
</tbody>
</table>

2. Noise Emission

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical motor</td>
<td>&lt; 72 dBA</td>
</tr>
<tr>
<td>Pneumatics</td>
<td>&lt; 72 dBA</td>
</tr>
</tbody>
</table>

3. Electrical Data

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating voltage</td>
<td>Refer to ID plate</td>
</tr>
<tr>
<td>Operating voltage frequency</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td>Fuse rating</td>
<td>Refer to ID plate</td>
</tr>
<tr>
<td>Power consumption $P$</td>
<td>Refer to ID plate</td>
</tr>
<tr>
<td>Power consumption $P_{max}$</td>
<td>Refer to ID plate</td>
</tr>
<tr>
<td>Load per hose connection socket (2 channels)</td>
<td>max. 1 800 Watt</td>
</tr>
<tr>
<td>Max. pilot voltage (input voltage)</td>
<td>160 $V_{DC}$</td>
</tr>
<tr>
<td></td>
<td>The pilot voltage may not exceed 160 $V_{DC}$. Failure to observe will result in damage to the succeeding components. or 0 - 10 V</td>
</tr>
<tr>
<td></td>
<td>The pilot voltage must be adjusted (Refer to manual Control System).</td>
</tr>
</tbody>
</table>
4. Motors / Speeds

<table>
<thead>
<tr>
<th>Motor</th>
<th>Motor / gear pump speed setting range</th>
</tr>
</thead>
</table>
| 3-phase AC motor with helical gear | 1.0 to 100 min⁻¹ (rpm) \(\text{To prevent excessive wear, the motor/pump speed should not continuously fall below 5 min}^{-1} \text{ (rpm) or continuously exceed 80 min}^{-1} \text{ (rpm).} \)

5. Temperatures and Thermostats

**WARNING:** If no leading channel has been selected, the melt platen temperature can be set to unpermissible 230 °C (446 °F). This can cause damage to O-rings and seals, and the permissible temperature for touchable surfaces can be exceeded.

<table>
<thead>
<tr>
<th>Temperatures</th>
<th>System / components</th>
<th>°C</th>
<th>°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. ambient temperature</td>
<td>-</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>Max. ambient temperature</td>
<td>-</td>
<td>40</td>
<td>104</td>
</tr>
<tr>
<td>Min. operating temperature</td>
<td>-</td>
<td>50</td>
<td>122</td>
</tr>
<tr>
<td>Max. operating temperatures</td>
<td>-</td>
<td>230</td>
<td>446</td>
</tr>
<tr>
<td></td>
<td>Systems for processing PUR</td>
<td>150</td>
<td>302</td>
</tr>
<tr>
<td></td>
<td>Heated hose</td>
<td>230</td>
<td>446</td>
</tr>
<tr>
<td></td>
<td>Application head</td>
<td>230</td>
<td>446</td>
</tr>
</tbody>
</table>

**Overtemperature shutdown by thermostat**

<table>
<thead>
<tr>
<th>Permissible thermostats</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>230 °C 450 °F</td>
<td>N 271 937 A</td>
</tr>
<tr>
<td>177 °C 350 °F</td>
<td>N 271 929 A</td>
</tr>
<tr>
<td>150 °C 300 °F</td>
<td>N 271 936 A</td>
</tr>
</tbody>
</table>

Replacing thermostat: refer to Repair
### 6. Material Pressures

<table>
<thead>
<tr>
<th>Motor/pump model (standard)</th>
<th>bar</th>
<th>MPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three-phase AC motor with gear pump (lead-sealed at factory)</td>
<td>5 to 60</td>
<td>0.5 to 6</td>
<td>72.5 to 870</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>3.5</td>
<td>507</td>
</tr>
<tr>
<td>Three-phase AC motor with gerotor pump</td>
<td>5 to 80</td>
<td>0.5 to 8</td>
<td>72.5 to 1160</td>
</tr>
</tbody>
</table>

### 7. Max. Air Pressures

Factory-set and lead-sealed safety valves prevent unpermissibly high pressure.

<table>
<thead>
<tr>
<th>Pneumatic components</th>
<th>bar (max.)</th>
<th>MPa (max.)</th>
<th>psi (max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressed air filter (system operating pressure)</td>
<td>16</td>
<td>1.6</td>
<td>232</td>
</tr>
<tr>
<td>Cylinder (operating pressure)</td>
<td>7.5</td>
<td>0.75</td>
<td>109</td>
</tr>
<tr>
<td>Cylinder (admission pressure)</td>
<td>2</td>
<td>0.2</td>
<td>29</td>
</tr>
<tr>
<td>Drum aeration</td>
<td>0.5</td>
<td>0.05</td>
<td>7.25</td>
</tr>
</tbody>
</table>

### 8. Pneumatic Connections

The quick-action coupling and the air hose can be ordered by stating the P/N.

<table>
<thead>
<tr>
<th>Connection</th>
<th>Part</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressed air filter</td>
<td>Air hose</td>
<td>269 510</td>
</tr>
<tr>
<td></td>
<td>Quick-action coupling</td>
<td>257 217</td>
</tr>
</tbody>
</table>
9. **Dimensions**

<table>
<thead>
<tr>
<th>System</th>
<th>Drum diameter</th>
<th>Min. drum height*</th>
<th>Max. drum height*</th>
</tr>
</thead>
<tbody>
<tr>
<td>BM 200</td>
<td>571 mm</td>
<td>830</td>
<td>930</td>
</tr>
</tbody>
</table>

* The switch rod must be adapted to the max. drum height for the application (Refer to section *Operation*)

<table>
<thead>
<tr>
<th>System</th>
<th>System dimensions (LxW)</th>
<th>System dimensions (H1) (Melt platen down)</th>
<th>System dimensions (H2) (Melt platen up)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BM 200</td>
<td>800 x 1630 mm</td>
<td>1730 mm</td>
<td>2720 mm</td>
</tr>
</tbody>
</table>

L = length / W = width / H = height

![Fig. 8-1 Principle drawing](image-url)
10. Weight

<table>
<thead>
<tr>
<th>System</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>BM 200</td>
<td>ca. 730 kg</td>
</tr>
</tbody>
</table>

11. Processing Materials

Before using, read the included EU safety data sheet.

<table>
<thead>
<tr>
<th>Use</th>
<th>Lubricating melt platen sealing rings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lubricant</td>
<td>Centoplex H0</td>
</tr>
<tr>
<td>Chemical characterization</td>
<td>Mineraloil, lithium soap</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Klüber Lubrication, D-81379 München</td>
</tr>
<tr>
<td>Nordson order number</td>
<td>P/N 285 600</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use</th>
<th>Inserting thermostats and temperature sensors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Heat transfer compound</td>
</tr>
<tr>
<td>Nordson order number</td>
<td>P/N 257 326</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use</th>
<th>Sealing hose connection fittings, blind fittings, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>PTFE paste</td>
</tr>
<tr>
<td>Nordson order number</td>
<td>P/N 900 236</td>
</tr>
</tbody>
</table>