Note
This manual applies to the entire series.

Order number
P/N = Order number for Nordson products

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Safety Instructions

WARNING: 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.

Introduction

Intended Use

The gear pump metering station of the GP 200 series – hereafter also referred to as pump unit – may be used only for metered feeding of adhesives.

Any other use is considered to be unintended. Nordson will not be liable for personal injury or property damage resulting from unintended use.

Intended use includes the observance of Nordson safety instructions. Nordson recommends obtaining detailed information on the materials to be used.

Unintended Use – Examples –

The pump unit may not be used under the following conditions:

• In defective condition
• Without heat insulation and protective panels
• When unsuitable hot melt adhesives are used
• When changes or modifications have been made by the customer
• In a potentially explosive atmosphere
• When the values stated under Technical Data are not complied with.

The pump unit may not be used to process the following materials:

• Polyurethane hot melt adhesive (PUR)
• Explosive and flammable materials
• Erosive and corrosive materials
• Food products.
Residual Risks

In the design of the unit, every measure was taken to protect personnel from potential danger. However, some residual risks cannot be avoided. Personnel should be aware of the following:

- Risk of burns from hot adhesive.
- Risk of burns from hot accessories, e.g. heated hoses and hot melt application heads.
- Risk of burns when conducting maintenance and repair work for which the pump unit must be heated up.
- Risk of burns when connecting and disconnecting heated hoses.
- Adhesive vapors are potentially hazardous. Avoid inhalation.

Note on Manual

- This manual applies to the entire series.
- This manual is valid only in conjunction with all documents included in the complete set of documentation (blue binder).
- Supplements may be added to this manual when the pump unit is a special model.
- The position numbers in the illustrations do not correspond to the position numbers in the technical drawings and parts lists.
- The illustrations show only the essential components of the pump unit. All other components and details can be found in the included technical drawings (Refer to Parts List).
- Refer to the system plan and wiring diagram for more information.
Figure 1

1 Motor (principal drawing)
2 Cable harness (coupling monitoring)
3 Cable harness (motor)
4 Coupling
5 Gear pump*
6 Pressure sensor (outlet)*
7 Body
8 Port plug or hose connection
9 Drain valve
10 Hose connection (outlet)
11 Safety valve with limit switch
12 Safety valve
13 Hose connection (inlet)
14 Cable harness (body and pump heater)
15 Connecting plug for safety valve with limit switch
16 Pressure sensor (inlet)*

Note: There are separate manuals available for components marked with an asterisk (*).
Figure 2

Fig. 2 Pump unit with CAN bus pressure sensors at outlet

1 Motor (principal drawing) 7 Body
2 Cable harness (coupling monitoring) 8 Port plug or hose connection
3 Cable harness (motor) 9 Drain valve
4 Coupling 10 Hose connection (outlet)
5 Gear pump* 11 Safety valve with limit switch
6 Pressure sensor (outlet)* 12 Safety valve
(CAN bus)
13 Hose connection (inlet)
14 Cable harness (body and pump heater)
15 Connecting plug for safety valve with limit switch
16 Pressure sensor (inlet)*
17 CAN bus plug

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

The hot melt adhesive flows from the melter through the heated hose into the pump unit. In the pump unit, gear pumps generate the required pressure (or required output quantity) - dependent on speed - and pump the adhesive through pressure ports to the pump unit outlets. The adhesive flows through other heated hoses to one or more application heads.

Description of Components

Motor

The gear pump is driven by an electronically-controlled motor.

Coupling

The coupling used in the pump unit connects the motor shaft and the pump shaft.

Coupling Monitoring

NOTE: The coupling monitoring feature is needed in systems that include VersaBlue melters.

A sensor (Reed switch and magnet) monitors the coupling for breakage without actually touching it. The sensor is attached to a holder that is in turn screwed onto the motor plate.

Refer to wiring diagram and manual Versa Blue ....
**Gear Pump**

The motor-driven gear pump feeds the adhesive to the hose connection (outlet).

The gear pumps used are equipped with a Turcon® Roto Variseal® shaft seal, referred to as **Variseal**.

![Variseal Seal](image)

**Fig. 3**

The **Variseal** is a single-direction shaft seal. It consists of an asymmetrical U-shaped seal that is tensed with a V-shaped metal spring. To prevent it from slipping, the seal is equipped with a fixing flange that is clamped axially when installed.

**Variseals** are affixed to the gear pump with a flange.

**NOTE:** When material seeps out at the shaft, the **Variseal** needs to be replaced.
Description of Components (contd.)

**Heating and Temperature Control**

The pump unit is heated with electrical heater cartridges. The temperature is measured by temperature sensors and is controlled by temperature controllers. The temperature controllers are not part of the pump unit.

**Drain Valve**

There are drain valves (9, Fig. 1 and 2) in the gear pump metering station. They are used to quickly relieve the adhesive pressure in the gear pump metering station for maintenance purposes.

![Drain Valve](image)

Fig. 4

**Pressure Sensor**

The pressure sensors electronically register the adhesive pressure in the pump unit inlet and outlet.

Refer to manual *Pressure Sensor*.

**Maximum pressure**

<table>
<thead>
<tr>
<th></th>
<th>Input</th>
<th>35 bar</th>
<th>3.5 MPa</th>
<th>507.5 psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>100 bar</td>
<td>10 MPa</td>
<td>1450 psi</td>
<td></td>
</tr>
</tbody>
</table>

![Pressure Sensor](image)

Fig. 5

**Evaluation of Pressure Sensor Signals**

The output signals from the pressure sensors are evaluated by the melter control unit or by a limit switch.

The motor can be immediately switched off automatically to prevent dangerously high pressure in the gear pump metering station.
Safety Valve

The safety valve limits the adhesive pressure generated by the gear pump and keeps it constant. The safety valve is set to a fixed pressure value.

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Unit</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>85 bar</td>
<td>8.5 MPa</td>
<td>1235</td>
</tr>
</tbody>
</table>

When the pressure is exceeded, the safety valve opens and the adhesive circulates within the body.

Fig. 6

Safety Valve with Limit Switch

The safety valve limits the adhesive pressure generated by the gear pump and keeps it constant. The safety valve is set to a fixed pressure value.

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Unit</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>85 bar</td>
<td>8.5 MPa</td>
<td>1235</td>
</tr>
</tbody>
</table>

When the pressure is exceeded, the safety valve opens and the adhesive circulates within the body. At the same time, an electric signal is sent to the control unit indicating that the safety valve has opened.

Fig. 7

When the unit is used in a system with a VersaBlue melter, the operator can select on the control panel whether an open safety valve triggers a fault (motors stop) or a warning.

ID Plate

The ID plate displays the following information:

- Gear pump metering station
- Nordson order number
- Serial number
- Operating voltage (left box)
- Total power consumption in watts (right box)

Fig. 8
Special Features

Electrical Cabinet

The separate electrical cabinet (also called terminal box or ACM) may be needed in larger application systems to electrically connect the pump unit to the application system.

The following illustration shows an example of an electrical cabinet. The positions of the interfaces on the various electrical cabinets may differ from the illustration.

Refer to the system plan and wiring diagram as well as any separate manual.

Fig. 9  Example of an electrical cabinet

1  ID plate
2  Fan with filter
3  Duct (motor 1)
4  Connecting receptacles (heated hose, application head, valves)

5  Duct (motor 2)
6  Interface XS
7  Connecting receptacle (proportional valve)
8  Connecting receptacle (pressure switch)
9  Connecting receptacle (pressure sensor)
10 Duct (voltage supply)
11 Air filter
12 Main switch

Note: Refer to system plan and wiring diagram of electrical cabinet for connecting system components.
**Pressure Control Valve**

A pressure control valve can be installed in the gear pump metering station for each pump stream. It is manually adjustable from 5 to 90 bar, 0.5 to 9.0 MPa, or 72.5 to 1305 psi.

![Pressure Control Valve](image)

Fig. 10

**Digital Pressure Sensors**

Digital pressure sensors (Fig. 11) are nodes on the CAN bus. The last pressure sensor on the CAN bus must be equipped with a terminating resistor (1, Fig. 11).

The output signals from the digital pressure sensor are evaluated by the control unit in the melter.

![Digital Pressure Sensors](image)

Fig. 11

**Rupture Disk**

When the adhesive pressure in the gear pump metering station outlet exceeds 110 bar, 11.0 MPa, or 1595 psi, the respective rupture disk bursts, allowing the adhesive pressure to fall. The rupture disk lid (2) becomes detached and adhesive drips out of the casing (3). The rupture disk (4) can not be repaired and must be replaced.

The wire coil (1) that passes through the casing is also destroyed when the pressure is too high. The motor stops immediately when this cable breaks. The control system in the melter indicates an error.

![Rupture Disk](image)

Fig. 12
Special Features (contd.)

Limit Switch

Limit switches are used in conjunction with the pressure sensors (not CAN bus) or the rupture disks (special feature) to monitor the adhesive pressure. Different input signals can be processed:

- 0 to 10 VDC
- 4 to 20 mA

If the current input is used, a 0 mA signal is interpreted as a broken wire and the motor stops (broken wire protection).

Single Channel Limit Switch

The set percentage represents the overpressure at which the limit switch is to turn off the respective motor.

![Single Channel Limit Switch Diagram](image)

**Fig. 13**

1 Single channel limit switch 2 Two-channel limit switch

Two-channel Limit Switch

With a two-channel limit switch, the first switching point (first channel) monitors pressure sensor or rupture disk functioning. It must be set to 0 %.

The second switching point (second channel) monitors the pressure. The set percentage represents the overpressure at which the limit switch is to turn off the respective motor.

This value must be lower than the pressure that is prevented e.g. by the rupture disk (meaning less than 110 bar / 11 MPa / 1595 psi).
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.

Unpacking

Unpack carefully. Then check for any damage caused during shipping. Reuse packaging materials or dispose of properly according to local regulations.

Transport

The gear pump metering station is a high precision, valuable part. Handle very carefully!

Storage

Do not store outside! Protect from humidity and dust. Protect the gear pump metering station from damage.

Disposal

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

Set up only in an environment that corresponds to the stated Degree of Protection (Refer to section Technical Data). Do not set up in a potentially explosive atmosphere! Protect from vibration.

Remove transport protection (if present). Check all plug and screw connections for tightness. Leave enough free space around the unit.

Exhausting Adhesive Vapors

Ensure that adhesive vapors do not exceed the prescribed limits. Exhaust adhesive vapors when necessary. Provide sufficient ventilation of the location where the unit is installed.

Installing Inlet Pressure Sensor

NOTE: Several pump units can work together. The inlet pressure sensor must always be installed in the inlet of the last pump unit. If pressure is not measured in the second pump unit, there is a fault in the first pump unit.

![Diagram of hot melt adhesive flow](image)

Fig. 14 The arrows show the hot melt adhesive flow

1 Plug 2 Pressure sensor
Electrical Connections

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

*Laying Cable*

Ensure that cables do not touch rotating and/or hot unit components. Do not pinch cables and check regularly for damage. Replace damaged cables immediately!

*Line Voltage*

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

*Electrically Connecting Pump Unit*

Connect cable harnesses for the pump units (e.g. heating zones) to the corresponding receptacles on a separate electrical cabinet (terminal box, ACM) or directly to the melter.

Refer to system plan and wiring diagram.

*Electrically Connecting Motor*

Connect cable harnesses for the motors to the corresponding receptacles on a separate electrical cabinet (terminal box, ACM) or directly to the application system electrical cabinet. Plugs and receptacles are non-interchangeable.

Refer to system plan and wiring diagram.

*Connecting Other Electrical Components*

Connect the cables for the pressure sensors, safety valves and other components to the corresponding receptacles on a separate electrical cabinet (terminal box, ACM) or directly to the application system electrical cabinet. Plugs and receptacles are non-interchangeable.

Refer to system plan and wiring diagram.
Connecting Heated Hose

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

### Connecting

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

1. First connect the hose (3) electrically to the unit.
2. Heat the unit and hose until the adhesive softens (approx. 80 °C / 176 °F).
3. Screw on heated hose.

![Fig. 15](image1)

### Disconnecting

**WARNING:** System or material pressurized. Relieve pressure. Failure to observe may result in serious burns.

#### Relieving Pressure

1. Set motor speed to 0 min⁻¹ (rpm); switch off all motors.
2. Place a container under the pump unit drain valves and under the application nozzles of the application head.
3. Open drain valve and allow adhesive to drain into container until no more flows out. Close drain valves again.
4. Activate the solenoid valves electrically or manually. Repeat this procedure until no more adhesive flows out.
5. Properly dispose of adhesive according to local regulations.

#### Using Second Open-jawed Wrench

Use a second open-jawed wrench when connecting and disconnecting the heated hose. This prevents the unit's hose connection from turning.

![Fig. 16](image2)
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.

Starting up Pump Unit

The pump unit is part of a hot melt application system. Signals to operate the pump unit are transmitted from an external control unit (PLC) or from a connected melter.

The following parameters may not be exceeded (Refer to *Technical Data* for values).

- Maximum temperature
- Maximum motor/pump speed
- Maximum adhesive pressure

**NOTE:** Nordson will assume no liability for damage resulting from incorrect settings.

**Speeds**

**NOTE:** To prevent excessive wear, the motor/pump speed should not exceed 80 min\(^{-1}\) (rpm).

**Temperatures**

**NOTE:** The temperature setting is determined by the processing temperature prescribed by the adhesive supplier. The maximum operating temperature for the product described here and the heated system components may not be exceeded.
Switching on Pump Unit.

1. Switch on application system.
2. Check settings for motor speed and temperatures; adjust if necessary.
3. Check adhesive supply in the melter; fill if necessary.

When the required temperatures have been reached in the heated hoses, the application head and the pump unit, the application system is ready for operation.
4. Switch on motors.
5. Set desired adhesive quantity.

**NOTE:** The settings are different for each customer. Thus no information can be stated on the exact procedure or the settings.

Shutting Down the Pump Unit

1. Switch off pump unit motors.
2. Set the main switch of the application system to 0 / OFF.

Switching Off in an Emergency

**WARNING:** Immediately turn off the pump unit when any type of emergency or disruption occurs.

1. Press the button EMERGENCY OFF (when present) or set the main switch to 0/OFF.
2. Have the fault remedied by qualified personnel after standstill and before switching the application system on again.

Starting Up After an Emergency

1. Ensure that the emergency situation/disruption has been remedied.
2. Determine which EMERGENCY OFF element was triggered, if any.
3. Unlock the button EMERGENCY OFF (when present) or set the main switch to I/ON.
4. Start up application system again, then start up pump unit.
Starting up Again After Overpressure Shutdown

Pressure sensors in the pump unit outlet transmit the current adhesive pressure values to the control unit. If the pressure exceeds a certain value, the control unit indicates a warning or a fault. The pump unit motor can be switched off automatically.

In special pump unit models, a rupture disk can be installed. It bursts when the pressure is too high, and the motor stops.

Then the following steps must be performed to start up the pump unit again:

1. Remedy the cause of pressure increase (Refer to Troubleshooting).
2. Replace broken rupture disk (special feature) if necessary (Refer to Repair).
3. Acknowledge the error indication to the control unit.
4. Start up pump unit again.
5. Wait for undertemperature release.
6. Switch the motors of the pump unit back on.
7. Resume production.
# Settings Record

## Production Information:

<table>
<thead>
<tr>
<th>Adhesive</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Processing temperature</td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Cleaning agent</td>
<td>Manufacturer</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td></td>
</tr>
</tbody>
</table>

## Basic Settings, Melter

<table>
<thead>
<tr>
<th>Application weight (grammage)</th>
<th>Motor/pump speed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic settings, pump unit</td>
<td>Motor/pump speed</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Adhesive pressure</td>
<td></td>
</tr>
</tbody>
</table>

## Basic Settings, Production Machine

<table>
<thead>
<tr>
<th>Production speed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

## Basic Settings Temperature

<table>
<thead>
<tr>
<th>Heating zone melter</th>
<th>Heating zone pump unit</th>
<th>Heating zone application head</th>
<th>Heating zone hose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undertemperature</td>
<td>Undertemperature</td>
<td>Undertemperature</td>
<td>Undertemperature</td>
</tr>
<tr>
<td>Overtemperature</td>
<td>Overtemperature</td>
<td>Overtemperature</td>
<td>Overtemperature</td>
</tr>
</tbody>
</table>

## Name | Date

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Date</td>
</tr>
</tbody>
</table>

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GP 200 (Mini)  P/N 7105523C
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 lifetime of the unit. It should not be neglected under any circumstances.

Relieving Pressure

WARNING: System or material pressurized. Relieve pressure. Failure to observe may result in serious burns.


1. Set motor speed to 0 min⁻¹ (rpm); switch off all motors.
2. Place a container under the pump unit drain valves and under the application nozzles of the application head.
3. Open drain valve and allow adhesive to drain into container until no more flows out.
4. Activate the solenoid valves electrically or manually. Repeat this procedure until no more adhesive flows out.
5. Properly dispose of adhesive according to local regulations.
Daily Maintenance

<table>
<thead>
<tr>
<th>Unit part</th>
<th>Activity</th>
<th>Interval</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gear pump metering station</td>
<td>Inspect for external damage</td>
<td>Daily</td>
<td>Page 21</td>
</tr>
<tr>
<td>External cleaning</td>
<td></td>
<td>Daily</td>
<td>Page 21</td>
</tr>
</tbody>
</table>

Visual Inspection for External Damage

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

External Cleaning

External cleaning prevents impurities created during production from causing the unit to malfunction.

CAUTION: Observe the unit’s Degree of Protection when cleaning (Refer to Technical Data).

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

Only remove hot melt adhesive residue with a cleaning agent recommended by the adhesive supplier. Heat with an air heater if necessary.

Remove dust, flakes etc. with a vacuum cleaner or a soft cloth.
Regular Maintenance

The maintenance intervals are general guidelines based on experience. Depending on operating environment, production conditions and hours of operation of the melter, other maintenance intervals may prove necessary.

NOTE: The motor, coupling and frequency converter are maintenance-free.

<table>
<thead>
<tr>
<th>Unit part</th>
<th>Activity</th>
<th>Interval</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gear pump metering station</td>
<td>Purge with cleaning agents</td>
<td>Regularly as required by</td>
<td>Page 22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>operating conditions or before</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>changing the adhesive</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clean completely</td>
<td>Depending on operating conditions</td>
<td>Page 23</td>
</tr>
<tr>
<td>Power cables</td>
<td>Inspect for damage</td>
<td>Every time the pump unit is</td>
<td>– –</td>
</tr>
<tr>
<td></td>
<td></td>
<td>serviced</td>
<td></td>
</tr>
<tr>
<td>Safety valve</td>
<td>Forcibly actuate the piston</td>
<td>Monthly</td>
<td>Page 23</td>
</tr>
<tr>
<td>Electrical cabinet (special</td>
<td>Check air filter, clean or</td>
<td>Depending on dust accumulation,</td>
<td>Page 24</td>
</tr>
<tr>
<td>feature)</td>
<td>replace if necessary</td>
<td>daily if necessary</td>
<td></td>
</tr>
<tr>
<td>Pressure control valve (special feature)</td>
<td>Replace outer O-rings</td>
<td>When leaking, at the latest</td>
<td>Page 24</td>
</tr>
<tr>
<td></td>
<td>Disassemble and clean</td>
<td>Every six months</td>
<td>– –</td>
</tr>
<tr>
<td>Pump</td>
<td>Refer to separate manual.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure sensor</td>
<td>Refer to separate manual.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Purging with Cleaning Agents

CAUTION: Use only a cleaning agent recommended by the adhesive manufacturer. Observe the Material Safety Data Sheet for the cleaning agent.

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

NOTE: Properly dispose of cleaning agent according to local regulations.


WARNING: Risk of explosion or fire. Fire, open flames, and smoking prohibited.
Changing Type of Adhesive

NOTE: Before changing the type of adhesive, determine whether the new adhesive may be mixed with the old adhesive.

- Adhesives may be mixed: Remaining old adhesive can be flushed out of the pump unit using the new adhesive.
- Adhesives may be not mixed: Thoroughly purge the pump unit with a cleaning agent recommended by the adhesive manufacturer.

NOTE: Properly dispose of the old adhesive according to local regulations.

Completely Cleaning Pump Unit

CAUTION: Use only a cleaning agent recommended by the adhesive manufacturer. Observe the Material Safety Data Sheet for the cleaning agent.

Disassemble and clean pump unit regularly.

Forcibly Actuate Safety Valve

Forcibly actuate the safety valve piston once a month. This prevents material from blocking the safety valve.

1. Relieve pump unit of pressure.
2. Unscrew all hoses.
3. Close hose connections with proper Nordson port plugs.
4. Measure and make a note of the insertion depth (Fig. 17: dimension X) of the adjusting screw. This allows the insertion depth to be reproduced.
5. Run the pump unit at full speed with the hose connections closed. Switch the motor on and off several times during operation.
Regular Maintenance: Special Features

**NOTE:** The rupture disk (special feature) is maintenance-free.

**Electrical Cabinet**

**Cleaning or Replacing Air Filter**

Depending on dust accumulation, the filters (fig. 18) must be cleaned or replaced. A dirty filter can be recognized by its dark color. Clean the filters by tapping out the dirt. The fan screens need to be cleaned when they are dusty, possibly daily.

**NOTE:** Additional maintenance instructions may be found in the separate manual *Electrical Cabinet (Terminal Box, ACM).*

---

**Replacing Pressure Control Valve O-rings**

Nordson recommends keeping a supply of O-rings. Then the O-rings can be replaced quickly without extended interruption in production.

**NOTE:** Screw in or out only when the valve is warm and the material soft (approx. 80 °C / approx. 176 °F, depending on the material).

1. Measure and make a note of the insertion depth (Fig. 17: dimension X, refer to safety valve) of the adjusting screw. This allows the insertion depth to be reproduced after reassembly.

2. Ensure that the gear pump metering station has been relieved of pressure.

3. Unscrew pressure control valve.

4. Remove all old O-rings and insert new ones.

5. Screw the pressure control valve back into place.

6. Adjust the setting screw to the recorded dimension X.

- Turning clockwise increases the material pressure.
- Turning counterclockwise decreases the material pressure.
## Maintenance Record

<table>
<thead>
<tr>
<th>Unit part</th>
<th>Activity</th>
<th>Date</th>
<th>Name</th>
<th>Date</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump unit</td>
<td>External inspection and cleaning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete cleaning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical cabinet (special feature)</td>
<td>Check air filter, clean or replace if necessary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clean fan screen</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety valve (special feature)</td>
<td>Forcibly actuate the piston</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**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.

**Introduction**

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

The following problems are not included in the troubleshooting tables:

- Faults in installation
- Faults in operation
- Defective cables
- Loose plug and screw connections

In the column Corrective action, the remark that defective parts should be replaced is generally not included.

**NOTE:** Additional troubleshooting tables can be found in the manuals for the other system components.

**Troubleshooting Table**

**NOTE:** *: Depending on the system: Manual Melter, Electrical Cabinet, Control System or Temperature Controller.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump unit does not function</td>
<td>Line voltage not connected</td>
<td>Ensure that line voltage is connected</td>
<td>*</td>
</tr>
<tr>
<td>Pump unit does not heat</td>
<td>Temperature controller defective</td>
<td>Check temperature controller</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>Cable harness not connected</td>
<td>Connect cable harness properly</td>
<td>Page 14</td>
</tr>
</tbody>
</table>

*Continued...*
<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor/pump of pump unit does not function</td>
<td>Undertemperature release of the motor has not yet occurred</td>
<td>Wait for undertemperature release</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>Motor defective</td>
<td>Check, replace if necessary</td>
<td>Page 32</td>
</tr>
<tr>
<td></td>
<td>Frequency converter defective</td>
<td>Check, replace if necessary</td>
<td>Page 33</td>
</tr>
<tr>
<td></td>
<td>Pump blocked by foreign matter</td>
<td>Check, clean if necessary</td>
<td>Manual Pump</td>
</tr>
<tr>
<td></td>
<td>Overpressure caused control unit to switch off motor</td>
<td>Find cause of overpressure and remedy</td>
<td>– –</td>
</tr>
<tr>
<td></td>
<td>Coupling monitoring turned off motor</td>
<td>Find cause of shutdown and remedy</td>
<td>– –</td>
</tr>
<tr>
<td></td>
<td>Rupture disk (special feature) burst and switched off the motor</td>
<td>Find cause of overpressure and remedy</td>
<td>Page 34</td>
</tr>
<tr>
<td>Heatup phase too long</td>
<td>One or more heating elements defective</td>
<td>Check by measuring, replace if necessary</td>
<td>– –</td>
</tr>
<tr>
<td>Operating temperature not reached</td>
<td>One or more heating elements defective</td>
<td>Check by measuring, replace if necessary</td>
<td>– –</td>
</tr>
<tr>
<td>Pump does not function</td>
<td>Screw connection to the coupling is loose</td>
<td>Tighten screws</td>
<td>Page 30</td>
</tr>
<tr>
<td>No adhesive, although motor/pump functions (Pressure too high in outlet)</td>
<td>Pump unit input or output blocked by foreign matter or adhesive residue</td>
<td>Disassemble and clean pump unit</td>
<td>Manual Pump</td>
</tr>
<tr>
<td></td>
<td>Application head or heated hose has not (yet) reached operating temperature</td>
<td>Change temperature setting if necessary</td>
<td>– –</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check temperature controller</td>
<td>*</td>
</tr>
<tr>
<td>Pump unit feeds too little adhesive</td>
<td>Pump unit input or output blocked by foreign matter or adhesive residue</td>
<td>Disassemble and clean pump unit</td>
<td>Manual Pump</td>
</tr>
<tr>
<td></td>
<td>Processing temperature set too low</td>
<td>Change temperature setting if necessary</td>
<td>Adhesive data sheet</td>
</tr>
<tr>
<td></td>
<td>Pump defective</td>
<td>Change temperature setting if necessary</td>
<td>Page 29</td>
</tr>
<tr>
<td>Adhesive hardens in the pump unit</td>
<td>Processing temperature set too high</td>
<td>Change temperature setting if necessary</td>
<td>Adhesive data sheet</td>
</tr>
</tbody>
</table>
Repair

Replacing Gear Pump

**NOTE:** If the pump (4, Fig. 21) should cease functioning, Nordson recommends replacing the pump and sending the defective one in to be repaired.

Nordson recommends keeping a supply of spare pumps. Then a pump can be replaced quickly without extended interruption in production.

Fig. 21

1 Motor (principal drawing) 4 Gear pump*
2 Motor plate 5 Body
3 Coupling 6 Cover (perforated plate)
7 Spacing columns for motor plate
8 Fixing screw

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

**NOTE:** The following position numbers refer to Fig. 21.

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

**WARNING:** Ensure that the pump unit has been relieved of pressure. Refer to *Maintenance, Relieving Pressure*.

**NOTE:** Only unscrew the gear pump when the pump unit is warm (adhesive must be soft). The gear pump may only be screwed on to a cold pump unit.

1. Switch off melter and pump unit.
2. Disconnect all electrical lines from pump unit.
3. Release and remove the cover (6).
4. Release Allen screws that secure the pump shaft in the coupling (3).

**CAUTION:** If a *Semiflex* coupling and a sensor for monitoring the coupling are installed, the sensor and sensor bracket must be detached first. This prevents the sensor from being damaged.

5. Release the four screws (8) that secure the motor plate (2) to the four spacing columns (7).
6. Remove motor plate (2) with motor (1) and coupling (3) from the pump shaft.

**NOTE:** An assistant should hold the coupling (3) together to prevent it from falling apart when a *Semiflex* coupling is used. But if it should fall apart anyway, it can easily be put back together.

7. Have a container ready to collect adhesive residue.
8. Unscrew pump (4) from body (5) (four screws).
9. Clean sealing surface on the body (5). If necessary, heat adhesive residue with a hot air fan, then remove.
10. Cool body (5) to room temperature.
Replacing Gear Pump  *(contd.)*

*Installing Gear Pump*

1. Apply surface sealing paste to the new pump (4). Coat the pump fastening screws with lubricant. Nordson recommends special high temperature grease (Refer to *Processing Materials*).
2. Always replace the O-ring in the pressure port (small diameter).
3. Screw the new pump (4) loosely onto the cooled body (5).

**NOTE:** An assistant should hold the coupling (3) together to prevent it from falling apart when a *Semiflex* coupling is used. But if it should fall apart anyway, it can easily be put back together.
4. Place motor plate (2) with motor (1) and coupling (3) on the pump shaft and secure.
5. Attach the coupling to the shaft without using force (no jolts or pounding). If this is difficult or impossible, sand pulley keys and shaft with sandpaper. Lubricate pulley keys and shaft if needed.
7. Mount the motor plate (2) onto the four spacing columns (7).

**NOTE:** If the pump slides out of place when fastening, it must be re-aligned with the motor.
8. Screw the sensor bracket with sensor back onto the motor plate if necessary.
9. Secure the pump shaft in the coupling with Allen screws.
10. Screw cover (6) back onto the motor plate (2).
11. Re-attach all electrical connections.
Replacing Variseal

**NOTE:** If the pump shaft seal needs to be replaced, Nordson recommends replacing the pump and sending the old one in to be repaired. Only trained personnel can replace the pump shaft seal.

![Variseal Seal](image)

Fig. 22

**NOTE:** Nordson can not provide a guarantee for a Variseal repaired by anyone else.

1. Remove the gear pump from the unit, but do not disassemble it!
   Refer to the separate manual *Gear Pump* or to the manual for the unit in which the gear pump is installed.
2. Have the new seal and the required assembly tool ready.

**Using the Assembly Tool**

The assembly tool is used to slide new seals over the shaft journal and the pump shaft pulley key groove without damaging the seals.

**CAUTION:** The seal must be put into place using the tool; otherwise the seal will be destroyed.

1. Follow the instructions *Assembly Tools for Sealing Kits with Variseal Seals* (P/N 7146229) to proceed.
2. Put the gear pump back into place.
   Refer to the separate manual *Gear Pump* or to the manual for the unit in which the gear pump is installed.
Replacing Motor

NOTE: If the motor (1, Fig. 21) should cease functioning, Nordson recommends replacing it and sending the defective motor in to be repaired.

Nordson recommends keeping a supply of spare motors. Then the motor can be replaced quickly without extended interruption in production.

Removing Motor

1. Switch off melter and pump unit.
2. Release electrical connections to the motor (1).
3. Release the screws that fasten the motor to the gear box.
4. Detach motor from gear box.

Installing Motor

1. Screw new motor onto gear box.
2. Reconnect electrical connections to the motor.
3. Resume production.
Replacing Frequency Converter

The frequency converters are located in the electrical cabinet of the melter or in a separate electrical cabinet (terminal box, ACM).

Refer to system plan and wiring diagram.

**NOTE:** If a frequency converter should cease functioning, Nordson recommends replacing it and sending in the defective frequency converter to be repaired.

Nordson recommends keeping a supply of spare frequency converters. Then a frequency converter can be replaced quickly without extended interruption in production.

**NOTE:** Only use original frequency converters. They are parameterized and guarantee the required function. Some frequency converters need to be set by the customer. Follow the instructions in the corresponding manuals and parameter lists.

The connection terminals may only be plugged in or unplugged when the melter is de-energized.

Removing Frequency Converter

1. Ensure that the electrical cabinet is de-energized.

   **WARNING:** The frequency converter is still energized after switching off. Wait at least 3 minutes before beginning any work!

2. Open the electrical cabinet.
3. Release the electrical connections to the frequency converter.
4. Remove the frequency converter.

Installing Frequency Converter

1. Install the new frequency converter.
2. Reconnect electrical connections to the frequency converter.
3. Set the frequency converter parameters if necessary.

   Refer to the corresponding manuals and parameter lists.

4. Switch on melter or electrical cabinet again and resume production.
Replacing Rupture Disk (Special Feature)

Nordson recommends keeping a supply of spare rupture disks. Then a rupture disk can be replaced quickly without extended interruption in production.

**WARNING:** Ensure that the gear pump metering station has been relieved of pressure. Refer to manual *Gear Pump Metering Station – Maintenance*.

Removing Rupture Disk

1. Release electrical connection between the rupture disk and the electrical cabinet (detach the plug).
2. Place a container under the rupture disk to catch the adhesive.
3. Also open the drain valve, if necessary. Wait until no more adhesive flows out.
4. Unscrew the rupture disk with an open-jawed wrench (size 24).

Installing Rupture Disk

1. Attach new rupture disk. Do not tighten yet.
   
   Do not tighten the rupture disk until the gear pump metering station has reached operating temperature.
2. Electrically connect the rupture disk.
3. Switch the melter and electrical cabinet back on. Reset fault indication(s). Refer to the melter manual.
Replacing Limit Switch (Special Feature)

If a limit switch needs to be replaced, all of the settings from the old limit switch must be kept for the new limit switch.

Removing Limit Switch

1. Ensure that the electrical cabinet is de-energized.

   **WARNING:** The frequency converter is still energized after switching off. Wait at least 3 minutes before beginning any work!

2. Open the electrical cabinet.
4. Remove limit switch.

Installing Limit Switch

1. Install the new limit switch.
2. Reconnect electrical connections to the limit switch.
3. Switch on melter or electrical cabinet again and resume production.

For additional information, refer to *Wiring Diagram* in this binder and in the original documentation.
Product Configuration

The configuration code and the following table indicate the components and parts of the product for which the configuration can be modified.

Fig. 23

<table>
<thead>
<tr>
<th>Box</th>
<th>Code</th>
<th>Component / part</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 4</td>
<td>GP20</td>
<td>Gear pump metering station (type GP 200)</td>
</tr>
</tbody>
</table>

**Options**

<table>
<thead>
<tr>
<th>Box</th>
<th>Code</th>
<th>Component / part</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>–</td>
<td>Number of pumps</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1 pump</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2 pumps</td>
</tr>
<tr>
<td>7</td>
<td>–</td>
<td>Manifold type</td>
</tr>
<tr>
<td></td>
<td>S</td>
<td>Single stream manifold</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Double stream manifold</td>
</tr>
<tr>
<td></td>
<td>U</td>
<td>Single stream upgrade manifold</td>
</tr>
<tr>
<td>8</td>
<td>–</td>
<td>Temperature sensor</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>Pt 100</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Ni 120</td>
</tr>
<tr>
<td>9</td>
<td>–</td>
<td>Inlet pressure sensor</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>Analog pressure sensor (35 bar / 507.5 psi)</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Analog pressure sensor (100 bar / 1450 psi)</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>No pressure sensor</td>
</tr>
<tr>
<td>10</td>
<td>–</td>
<td>Motor (per pump)</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>AC (Versa Pail)</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>Lenze Servo</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Lenze Compact Servo</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>Mitsubishi Servo</td>
</tr>
<tr>
<td></td>
<td>R</td>
<td>Rockwell Servo</td>
</tr>
<tr>
<td>11</td>
<td>–</td>
<td>Coupling monitoring (per pump)</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Coupling monitoring</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>None</td>
</tr>
<tr>
<td>12</td>
<td>–</td>
<td>Inlet hose connection (straight and 45°)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>8 mm, 5/16”</td>
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<td></td>
<td>2</td>
<td>13 mm, 1/2”</td>
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<tr>
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<td>3</td>
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<td>4</td>
<td>20 mm</td>
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<td>Component / part</td>
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<td>-----</td>
<td>------</td>
<td>-----------------------------------</td>
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<tr>
<td>13</td>
<td></td>
<td>Pump type</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Nordson (SN / DN)</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>Feinprüf (SF / DF)</td>
</tr>
<tr>
<td>14–19</td>
<td></td>
<td>Single stream pumps</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>Gear pump SN0030 – 1.4 kg/h</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Gear pump SN0046 – 2.2 kg/h</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Gear pump SN0062 – 2.9 kg/h</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Gear pump SN0093 – 4.5 kg/h</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Gear pump SN0186 – 8.9 kg/h</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>Gear pump SN0371 – 17.8 kg/h</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>Gear pump SN0773 – 37.1 kg/h</td>
</tr>
<tr>
<td>14–19</td>
<td></td>
<td>Double stream pumps</td>
</tr>
<tr>
<td></td>
<td>J</td>
<td>Gear pump SF0016 – 0.8 kg/h</td>
</tr>
<tr>
<td></td>
<td>K</td>
<td>Gear pump SF0030 – 1.4 kg/h</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>Gear pump SF0060 2.9 kg/h</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>Gear pump SF0090 – 4.3 kg/h</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Gear pump SF0120 – 5.7 kg/h</td>
</tr>
<tr>
<td></td>
<td>O</td>
<td>Gear pump SF0175 – 8.4 kg/h</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>Gear pump SF0240 – 11.9 kg/h</td>
</tr>
<tr>
<td></td>
<td>Q</td>
<td>Gear pump SF0300 – 14.4 kg/h</td>
</tr>
<tr>
<td></td>
<td>R</td>
<td>Gear pump SF0450 – 21.6 kg/h</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>No pump</td>
</tr>
<tr>
<td>14–19</td>
<td></td>
<td>Safety valve and pressure display</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Gear pump DN0030 – 1.4 kg/h/pump stream</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Gear pump DN0046 – 2.2 kg/h/pump stream</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Gear pump DN0062 – 2.9 kg/h/pump stream</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Gear pump DN0093 – 4.5 kg/h/pump stream</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Gear pump DN0186 – 8.9 kg/h/pump stream</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Gear pump DN0279 – 13.4 kg/h/pump stream</td>
</tr>
<tr>
<td></td>
<td>S</td>
<td>Gear pump DF0016 – 0.8 kg/h/pump stream</td>
</tr>
<tr>
<td></td>
<td>T</td>
<td>Gear pump DF0030 – 1.4 kg/h/pump stream</td>
</tr>
<tr>
<td></td>
<td>U</td>
<td>Gear pump DF0060 – 2.9 kg/h/pump stream</td>
</tr>
<tr>
<td></td>
<td>V</td>
<td>Gear pump DF0120 – 5.7 kg/h/pump stream</td>
</tr>
<tr>
<td></td>
<td>W</td>
<td>Gear pump DF0175 – 8.4 kg/h/pump stream</td>
</tr>
<tr>
<td></td>
<td>Y</td>
<td>Gear pump DF0240 – 11.5 kg/h/pump stream</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>No pump</td>
</tr>
</tbody>
</table>

**NOTE:** As of December 2008, all gear pump moduls SN and DN with Variseal.
Technical Data

General Data

<table>
<thead>
<tr>
<th>Gear pump metering station GP 200 mini</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating voltage</strong></td>
</tr>
<tr>
<td><strong>Total power consumption</strong></td>
</tr>
<tr>
<td><strong>Degree of protection</strong></td>
</tr>
<tr>
<td><strong>Maximum operating temperature</strong></td>
</tr>
<tr>
<td><strong>Maximum speed</strong></td>
</tr>
</tbody>
</table>

*Note: To prevent excessive wear, the motor/pump speed should not exceed 80 min⁻¹ (rpm).*

| **Maximum inlet pressure** | 35 bar | 507.5 psi | 3.5 MPa |
| **Maximum outlet pressure** | Safety valve | 85 bar | 1235 psi | 8.5 MPa |
| Safety valve with limit switch | 85 bar | 1235 psi | 8.5 MPa |
| Pressure control valve | 90 bar | 1305 psi | 9.0 MPa |
| Pressure sensor | 100 bar | 1450 psi | 10.0 MPa |
| Rupture disk (special feature) | 110 bar | 1595 psi | 11.0 MPa |
| **Weight** | Refer to consignment note |
| **Dimensions** | Refer to technical drawing |

Variseal Seal

<table>
<thead>
<tr>
<th>Operating pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. dynamic load</td>
</tr>
<tr>
<td>Max. static load</td>
</tr>
<tr>
<td><strong>Maximum operating temperature</strong></td>
</tr>
<tr>
<td><strong>Speed</strong></td>
</tr>
</tbody>
</table>

Sealing Kits and Assembly Tool

<table>
<thead>
<tr>
<th>P/N</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7136920</td>
<td>Sealing kit, pump, Ø12,7</td>
</tr>
<tr>
<td>7136921</td>
<td>Sealing kit, pump, Ø16</td>
</tr>
<tr>
<td>7136915</td>
<td>Assembly tool for shaft seal Ø12.7 / for pump shaft buffer ring and Roto Variseal Ø 12.7</td>
</tr>
<tr>
<td>7136918</td>
<td>Assembly tool for shaft seal Ø16 / for pump shaft buffer ring and Roto Variseal Ø 16</td>
</tr>
<tr>
<td>7136922</td>
<td>Assembly tool for shaft seal Ø 16 GER 19 / gerotor pump</td>
</tr>
</tbody>
</table>
Options – Accessories

Pressure Control Valve

<table>
<thead>
<tr>
<th>Item</th>
<th>Part</th>
<th>Description</th>
<th>Quantity</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>394600</td>
<td>SERVICE KIT <em>Pressure control valve</em></td>
<td>1</td>
<td>Page 24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• O-ring 11x2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• O-ring 9x2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• High temperature grease, GLS 595/N2, 10 g</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Special Features – Accessories

Rupture Disk

![Diagram of Rupture Disk with power cable and plug](image)

Fig. 24 Rupture disk with power cable and plug

<table>
<thead>
<tr>
<th>Item</th>
<th>Part</th>
<th>Description</th>
<th>Quantity</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>730189</td>
<td>Rupture disk, 110 bar, 3/4 UNF, L 45, with electrical connection</td>
<td>1</td>
<td>Page 34</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>• O-ring, 17 x 2, Viton</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>• Rupture disk, 110 bar, 3/4 UNF, L 45</td>
<td>1</td>
<td></td>
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<tr>
<td>3</td>
<td></td>
<td>• Power cable</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>• Plug, STAS 2</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Item</th>
<th>Part</th>
<th>Description</th>
<th>Quantity</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>730190</td>
<td>Extension cable for rupture disk, L = 20 m</td>
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</tbody>
</table>
## Processing Materials

<table>
<thead>
<tr>
<th>Designation</th>
<th>Order number</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>High temperature grease</td>
<td></td>
<td><strong>NOTE:</strong> The grease should not be mixed with other lubricants. Oily/greasy parts must be cleaned before application.</td>
</tr>
<tr>
<td>• Can 10 g</td>
<td>P/N 394769</td>
<td>Apply to O-rings and threads</td>
</tr>
<tr>
<td>• Tube 250 g</td>
<td>P/N 783959</td>
<td></td>
</tr>
<tr>
<td>• Cartridge 400 g</td>
<td>P/N 402238</td>
<td></td>
</tr>
<tr>
<td>Sealing paste <em>Stucarit 203</em></td>
<td></td>
<td>Applied to sealing surfaces</td>
</tr>
<tr>
<td>• Tube 100 ml</td>
<td>P/N 255369</td>
<td></td>
</tr>
</tbody>
</table>