

VersaBlue Adhesive Melters with Allen-Bradley CompactLogix Control System, Models VA and VT

Customer Product Manual

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Section 1

Safety

Read this section before using the equipment. This section contains recommendations and practices applicable to the safe installation, operation, and maintenance (hereafter referred to as “use”) of the product described in this document (hereafter referred to as “equipment”). Additional safety information, in the form of task-specific safety alert messages, appears as appropriate throughout this document.

WARNING: Failure to follow the safety messages, recommendations, and hazard avoidance procedures provided in this document can result in personal injury, including death, or damage to equipment or property.

Safety Alert Symbols

The following safety alert symbol and signal words are used throughout this document to alert the reader to personal safety hazards or to identify conditions that may result in damage to equipment or property. Comply with all safety information that follows the signal word.

WARNING: Indicates a potentially hazardous situation that, if not avoided, can result in serious personal injury, including death.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, can result in minor or moderate personal injury.

CAUTION: (Used without the safety alert symbol) Indicates a potentially hazardous situation that, if not avoided, can result in damage to equipment or property.

Responsibilities of the Equipment Owner

Equipment owners are responsible for managing safety information, ensuring that all instructions and regulatory requirements for use of the equipment are met, and for qualifying all potential users.

Safety Information

- Research and evaluate safety information from all applicable sources, including the owner-specific safety policy, best industry practices, governing regulations, material manufacturer's product information, and this document.
- Make safety information available to equipment users in accordance with governing regulations. Contact the authority having jurisdiction for information.
- Maintain safety information, including the safety labels affixed to the equipment, in readable condition.

Instructions, Requirements, and Standards

- Ensure that the equipment is used in accordance with the information provided in this document, governing codes and regulations, and best industry practices.
- If applicable, receive approval from your facility's engineering or safety department, or other similar function within your organization, before installing or operating the equipment for the first time.
- Provide appropriate emergency and first aid equipment.
- Conduct safety inspections to ensure required practices are being followed.
- Re-evaluate safety practices and procedures whenever changes are made to the process or equipment.

User Qualifications

Equipment owners are responsible for ensuring that users:

- receive safety training appropriate to their job function as directed by governing regulations and best industry practices
- are familiar with the equipment owner's safety and accident prevention policies and procedures
- receive, equipment- and task-specific training from another qualified individual

NOTE: Nordson can provide equipment-specific installation, operation, and maintenance training. Contact your Nordson representative for information

- possess industry- and trade-specific skills and a level of experience appropriate to their job function
- are physically capable of performing their job function and are not under the influence of any substance that degrades their mental capacity or physical capabilities

Applicable Industry Safety Practices

The following safety practices apply to the use of the equipment in the manner described in this document. The information provided here is not meant to include all possible safety practices, but represents the best safety practices for equipment of similar hazard potential used in similar industries.

Intended Use of the Equipment

- Use the equipment only for the purposes described and within the limits specified in this document.
- Do not modify the equipment.
- Do not use incompatible materials or unapproved auxiliary devices. Contact your Nordson representative if you have any questions on material compatibility or the use of non-standard auxiliary devices.

Instructions and Safety Messages

- Read and follow the instructions provided in this document and other referenced documents.
- Familiarize yourself with the location and meaning of the safety warning labels and tags affixed to the equipment. Refer to *Safety Labels and Tags* at the end of this section.
- If you are unsure of how to use the equipment, contact your Nordson representative for assistance.

Installation Practices

- Install the equipment in accordance with the instructions provided in this document and in the documentation provided with auxiliary devices.
- Ensure that the equipment is rated for the environment in which it will be used and that the processing characteristics of the material will not create a hazardous environment. Refer to the Material Safety Data Sheet (MSDS) for the material.
- If the required installation configuration does not match the installation instructions, contact your Nordson representative for assistance.
- Position the equipment for safe operation. Observe the requirements for clearance between the equipment and other objects.
- Install lockable power disconnects to isolate the equipment and all independently powered auxiliary devices from their power sources.
- Properly ground all equipment. Contact your local building code enforcement agency for specific requirements.
- Ensure that fuses of the correct type and rating are installed in fused equipment.
- Contact the authority having jurisdiction to determine the requirement for installation permits or inspections.

Operating Practices

- Familiarize yourself with the location and operation of all safety devices and indicators.
- Confirm that the equipment, including all safety devices (guards, interlocks, etc.), is in good working order and that the required environmental conditions exist.
- Use the personal protective equipment (PPE) specified for each task. Refer to *Equipment Safety Information* or the material manufacturer's instructions and MSDS for PPE requirements.
- Do not use equipment that is malfunctioning or shows signs of a potential malfunction.

Maintenance and Repair Practices

- Perform scheduled maintenance activities at the intervals described in this document.
- Relieve system hydraulic and pneumatic pressure before servicing the equipment.
- De-energize the equipment and all auxiliary devices before servicing the equipment.
- Use only new factory-authorized refurbished or replacement parts.
- Read and comply with the manufacturer's instructions and the MSDS supplied with equipment cleaning compounds.

NOTE: MSDSs for cleaning compounds that are sold by Nordson are available at www.nordson.com or by calling your Nordson representative.

- Confirm the correct operation of all safety devices before placing the equipment back into operation.
- Dispose of waste cleaning compounds and residual process materials according to governing regulations. Refer to the applicable MSDS or contact the authority having jurisdiction for information.
- Keep equipment safety warning labels clean. Replace worn or damaged labels.

Equipment Safety Information

This equipment safety information is applicable to the following types of Nordson equipment:

- hot melt and cold adhesive application equipment and all related accessories
- pattern controllers, timers, detection and verification systems, and all other optional process control devices

Equipment Shutdown

To safely complete many of the procedures described in this document, the equipment must first be shut down. The level of shut down required varies by the type of equipment in use and the procedure being completed. If required, shut down instructions are specified at the start of the procedure. The levels of shut down are:

Relieving System Hydraulic Pressure

Completely relieve system hydraulic pressure before breaking any hydraulic connection or seal. Refer to the melter-specific product manual for instructions on relieving system hydraulic pressure.

De-energizing the System

Isolate the system (melter, hoses, guns, and optional devices) from all power sources before accessing any unprotected high-voltage wiring or connection point.

1. Turn off the equipment and all auxiliary devices connected to the equipment (system).
2. To prevent the equipment from being accidentally energized, lock and tag the disconnect switch(es) or circuit breaker(s) that provide input electrical power to the equipment and optional devices.

NOTE: Government regulations and industry standards dictate specific requirements for the isolation of hazardous energy sources. Refer to the appropriate regulation or standard.

Disabling the Guns

All electrical or mechanical devices that provide an activation signal to the guns, gun solenoid valve(s), or the melter pump must be disabled before work can be performed on or around a gun that is connected to a pressurized system.

1. Turn off or disconnect the gun triggering device (pattern controller, timer, PLC, etc.).
2. Disconnect the input signal wiring to the gun solenoid valve(s).
3. Reduce the air pressure to the gun solenoid valve(s) to zero; then relieve the residual air pressure between the regulator and the gun.

General Safety Warnings and Cautions

Table 1-1 contains the general safety warnings and cautions that apply to Nordson hot melt and cold adhesive equipment. Review the table and carefully read all of the warnings or cautions that apply to the type of equipment described in this manual.

Equipment types are designated in Table 1-1 as follows:

HM = Hot melt (melters, hoses, guns, etc.)

PC = Process control

CA = Cold adhesive (dispensing pumps, pressurized container, and guns)

Table 1-1 General Safety Warnings and Cautions

Equipment Type	Warning or Caution	
HM		WARNING: Hazardous vapors! Before processing any polyurethane reactive (PUR) hot melt or solvent-based material through a compatible Nordson melter, read and comply with the material's MSDS. Ensure that the material's processing temperature and flashpoints will not be exceeded and that all requirements for safe handling, ventilation, first aid, and personal protective equipment are met. Failure to comply with MSDS requirements can cause personal injury, including death.
HM		WARNING: Reactive material! Never clean any aluminum component or flush Nordson equipment with halogenated hydrocarbon fluids. Nordson melters and guns contain aluminum components that may react violently with halogenated hydrocarbons. The use of halogenated hydrocarbon compounds in Nordson equipment can cause personal injury, including death.
HM, CA		WARNING: System pressurized! Relieve system hydraulic pressure before breaking any hydraulic connection or seal. Failure to relieve the system hydraulic pressure can result in the uncontrolled release of hot melt or cold adhesive, causing personal injury.
HM		WARNING: Molten material! Wear eye or face protection, clothing that protects exposed skin, and heat-protective gloves when servicing equipment that contains molten hot melt. Even when solidified, hot melt can still cause burns. Failure to wear appropriate personal protective equipment can result in personal injury.
Continued...		

General Safety Warnings and Cautions *(contd)*

Table 1-1 General Safety Warnings and Cautions *(contd)*

Equipment Type	Warning or Caution
HM, PC	 WARNING: Equipment starts automatically! Remote triggering devices are used to control automatic hot melt guns. Before working on or near an operating gun, disable the gun's triggering device and remove the air supply to the gun's solenoid valve(s). Failure to disable the gun's triggering device and remove the supply of air to the solenoid valve(s) can result in personal injury.
HM, CA, PC	 WARNING: Risk of electrocution! Even when switched off and electrically isolated at the disconnect switch or circuit breaker, the equipment may still be connected to energized auxiliary devices. De-energize and electrically isolate all auxiliary devices before servicing the equipment. Failure to properly isolate electrical power to auxiliary equipment before servicing the equipment can result in personal injury, including death.
HM, CA, PC	 WARNING: Risk of fire or explosion! Nordson adhesive equipment is not rated for use in explosive environments and should not be used with solvent-based adhesives that can create an explosive atmosphere when processed. Refer to the MSDS for the adhesive to determine its processing characteristics and limitations. The use of incompatible solvent-based adhesives or the improper processing of solvent-based adhesives can result in personal injury, including death.
HM, CA, PC	 WARNING: Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others and can damage the equipment.
<i>Continued...</i>	

Equipment Type	Warning or Caution
HM	 CAUTION: Hot surfaces! Avoid contact with the hot metal surfaces of guns, hoses, and certain components of the melter. If contact can not be avoided, wear heat-protective gloves and clothing when working around heated equipment. Failure to avoid contact with hot metal surfaces can result in personal injury.
HM	CAUTION: Some Nordson melters are specifically designed to process polyurethane reactive (PUR) hot melt. Attempting to process PUR in equipment not specifically designed for this purpose can damage the equipment and cause premature reaction of the hot melt. If you are unsure of the equipment's ability to process PUR, contact your Nordson representative for assistance.
HM, CA	CAUTION: Before using any cleaning or flushing compound on or in the equipment, read and comply with the manufacturer's instructions and the MSDS supplied with the compound. Some cleaning compounds can react unpredictably with hot melt or cold adhesive, resulting in damage to the equipment.
HM	CAUTION: Nordson hot melt equipment is factory tested with Nordson Type R fluid that contains polyester adipate plasticizer. Certain hot melt materials can react with Type R fluid and form a solid gum that can clog the equipment. Before using the equipment, confirm that the hot melt is compatible with Type R fluid.

Other Safety Precautions

- Do not use an open flame to heat hot melt system components.
- Check high pressure hoses daily for signs of excessive wear, damage, or leaks.
- Never point a dispensing handgun at yourself or others.
- Suspend dispensing handguns by their proper suspension point.

First Aid

If molten hot melt comes in contact with your skin:

1. Do NOT attempt to remove the molten hot melt from your skin.
2. Immediately soak the affected area in clean, cold water until the hot melt has cooled.
3. Do NOT attempt to remove the solidified hot melt from your skin.
4. In case of severe burns, treat for shock.
5. Seek expert medical attention immediately. Give the MSDS for the hot melt to the medical personnel providing treatment.

Safety Labels and Tags

Contact your Nordson representative for information on safety labels and tags.

Section 2

Description

Intended Use

Adhesive melters of the series *VersaBlue*® may be used only to melt and convey suitable materials, e.g. thermoplastic hot melt 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.

Area of Use (EMC)

In regard to electromagnetic compatibility (EMC), the melter is intended for use in industrial applications.

Operating Restrictions

When operated in residential or commercial areas, the melter may cause interference in other electrical units, e.g. radios.

Unintended Use – Examples –

The melter may not be used under the following conditions:

- In defective condition
- Without insulation blanket and protective panels
- With electrical cabinet door open
- With tank lid open
- In a potentially explosive atmosphere
- When the values stated under *Technical Data* are not complied with.

The melter 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 can not be avoided:

- Risk of burns from hot material.
- Risk of burns when filling the tank, from the tank lid, and from the tank lid supports.
- Risk of burns when conducting maintenance and repair work for which the melter must be heated up.
- Risk of burns when attaching and removing heated hoses.
- Material fumes can be hazardous. Avoid inhalation.
- Risk of damage to cables/lines belonging to the customer, if they were installed such that they come into contact with hot or rotating parts.
- The safety valve may malfunction due to hardened or charred material.

Note on Manual

- Features that the customer may not have purchased – depending on the configuration of the melter – are also described in the section *Operation*. In this case they are not visible on the control panel.

Other Sources of Information



User's Guide

The illustrated guide delivered with the melter offers a quick source of information on common operator level tasks.



CD Product Resource Disc

On the CD there is an electronic version of the manual, the catalog of spare parts and other information on using and servicing the melter.

Definition of Terms

Melter Type VA

Standard melter for operating temperatures up to 230 °C (450 °F) with temperature sensors Ni120.

Melter Type VT

High temperature (HT) melter for operating temperatures up to 250 °C (480 °F) with temperature sensors Pt100.

Interface Standard I/O

Component designation: XS2

Transmits the digital input/output signals between the parent machine and the Nordson melter.

Interface Key-to-line

Component designation: XS5 or XS5.1 and XS5.2 with the option *Separate line speed signal inputs*.

NOTE: *Key-to-line* is also referred to as *Automatic mode* in Nordson literature.

In key-to-line the motor/pump speed is regulated synchronously to the speed of the parent machine.

Encoder

The encoder compiles the line speed of the parent machine. It supplies a certain number of electrical pulses per revolution. The frequency is a measure of line speed.

CAUTION: The cable length may not be modified; this could cause incorrect evaluation of the line speed, resulting in incorrect material applications.

Symbols



Nordson default

Refer to section *Operation / Control Panel – Overview – / V21*.



Reset

Melter Description

Illustration

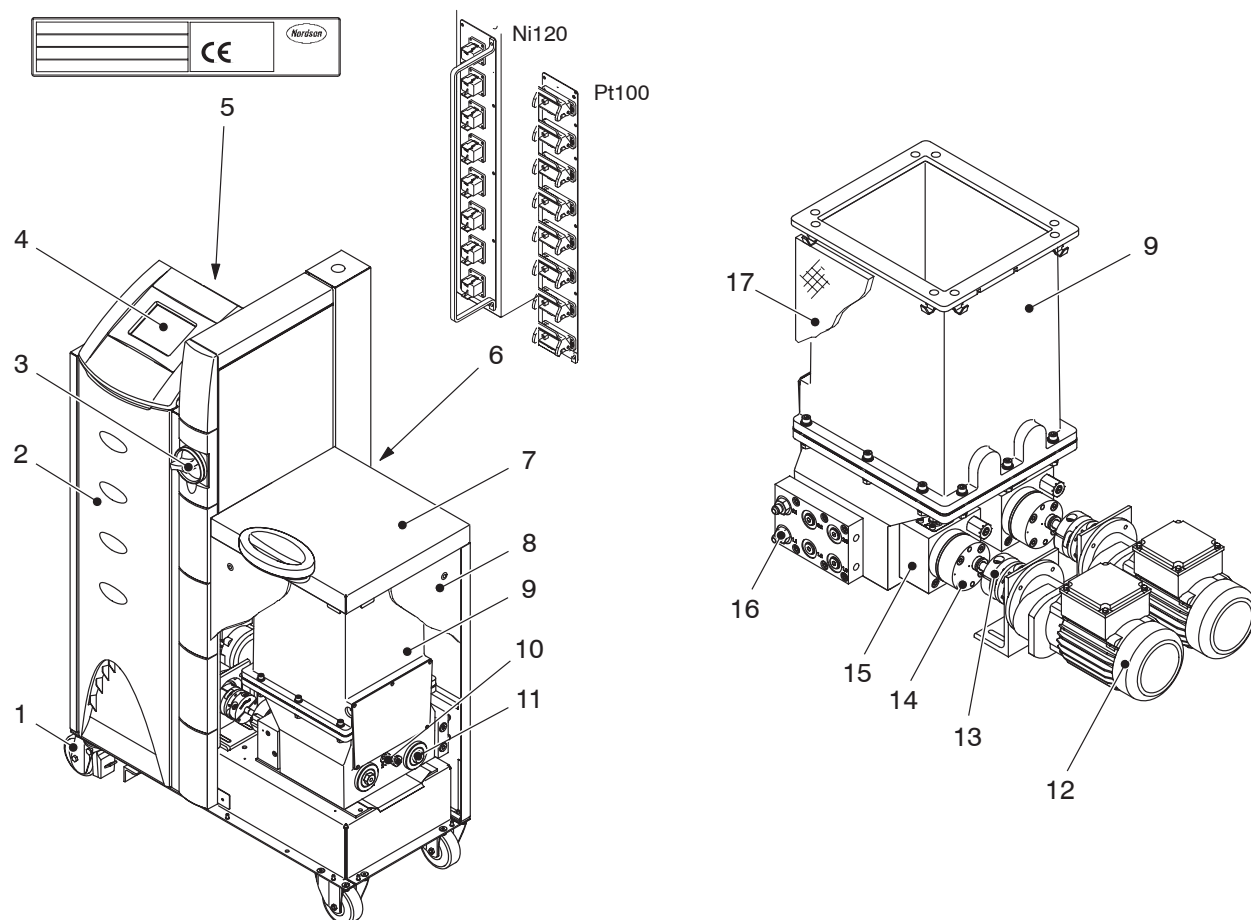


Figure 2-1

- | | | |
|----------------------|-------------------------------|---|
| 1 Casters (option) | 7 Tank lid | 13 Coupling |
| 2 Electrical cabinet | 8 Protective panel, removable | 14 Gear pump (insulation blanket not shown) |
| 3 Main switch | 9 Tank | 15 Safety valve plate |
| 4 Control panel | 10 Pressure control valve | 16 Manifold |
| 5 ID plate | 11 Filter cartridge | 17 Insulation blanket |
| 6 Hose receptacles | 12 Motor | |

Safety Valve Plate

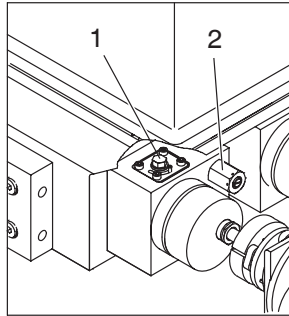


Figure 2-2

Tank Isolation Valve

The tank isolation valve (1) enables replacement of the gear pump without first emptying the tank.

Safety Valve

The standard safety valve (2) is fixed at

85 bar

8500 kPa

1235 psi.

When the pressure is exceeded, the safety valve opens, allowing the material to circulate within the safety valve plate.

Tank

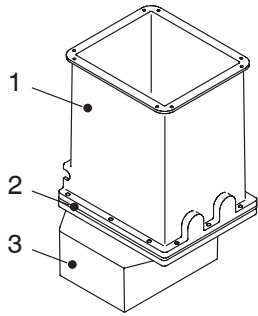


Figure 2-3

The tank is divided into grid (low melt) and reservoir (high melt) sections. An insulating seal (2) provides a temperature barrier between the two sections. The temperature barrier allows the material in the grid section (1) to be gently melted at a low temperature. The material is then melted to processing temperature in the reservoir (3).

Pressure Control Valve

The mechanical pressure control valves (3) can be manually adjusted from

5 to 90 bar	500 to 9000 kPa	72.5 to 1305 psi
-------------	-----------------	------------------

One pressure control valve per pump is standardly installed after the filter cartridge.

The pneumatic pressure control valve replaces the mechanical pressure control valve on some options.

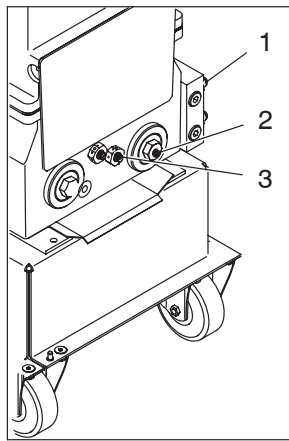


Figure 2-4

- 1 Hose connection
- 2 Filter cartridge
- 3 Pressure control valve

Material Flow

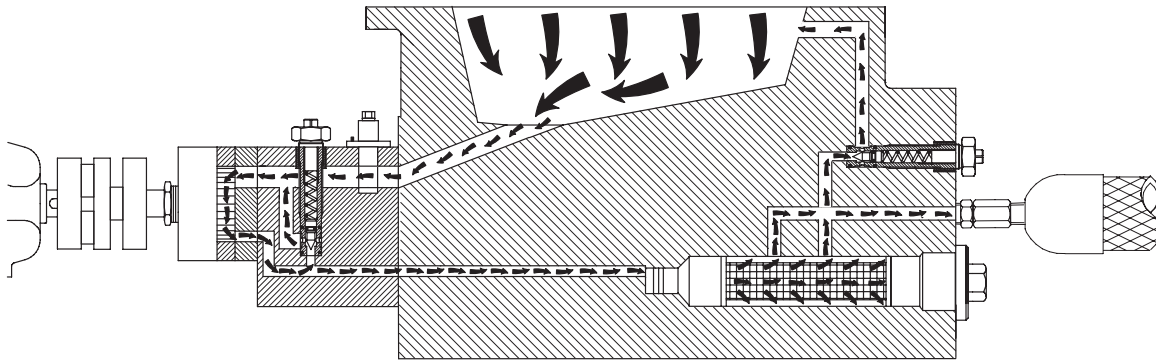


Figure 2-5 Cross-sectional view of the reservoir (principle drawing)

Labeling with Two Pumps

The connecting locations on the melter are labeled with numbers.

2.1 on the manifold means motor/pump 2, 1st hose

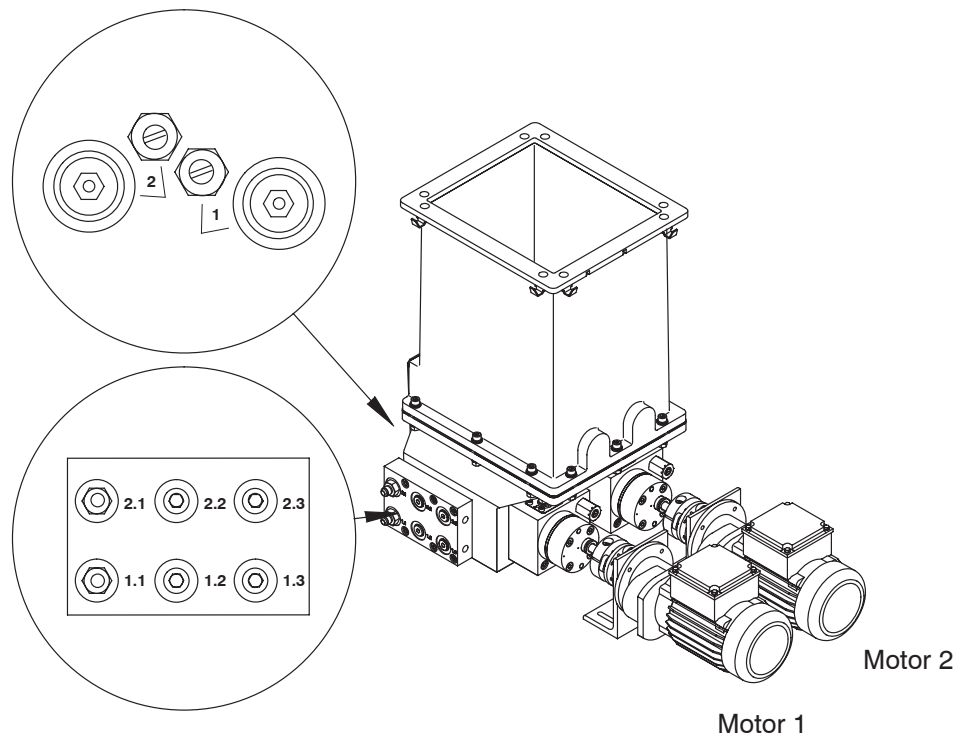


Figure 2-6 Example V25

Electrical Cabinet

Interface assignment

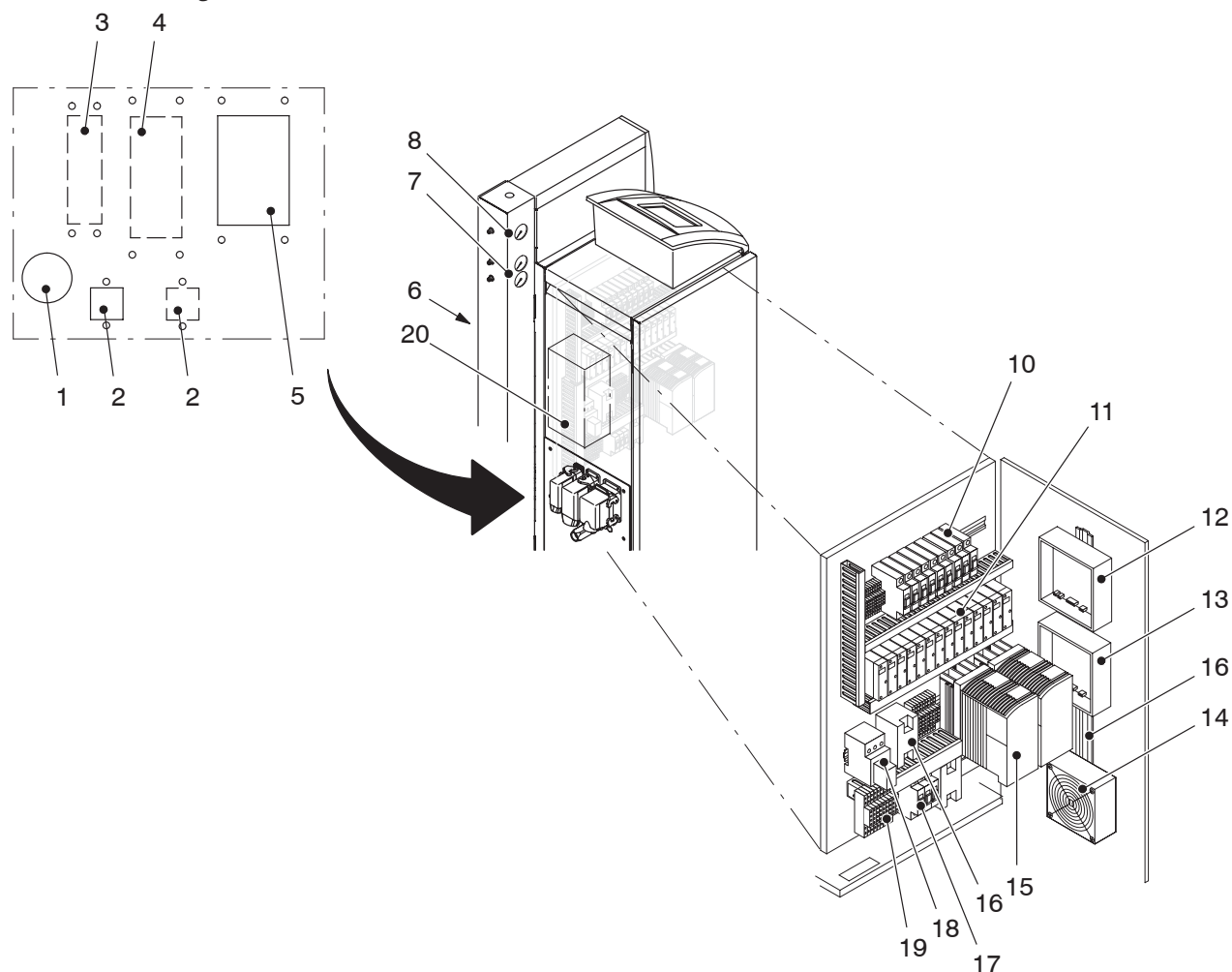


Figure 2-7

- | | | |
|---|---|--|
| 1 Cable gland <i>Power supply</i> | 8 Pressure display <i>Inert gas</i> (option) | 15 Motor controller |
| 2 Interface(s) <i>Key-to-line</i> | 9 Item no. not used | 16 Power supply 24 V _{DC} (max.2) |
| 3 Interface <i>Level control</i> (option) | 10 Circuit breakers | 17 Circuit breaker <i>Main fuse</i> |
| 4 Cable duct <i>PROFIBUS</i> (option) | 11 Solid state relay | 18 Main contactor |
| 5 Interface <i>Standard I/O</i> | 12 Evaluator <i>Level control</i> (option) | 19 Mains terminals |
| 6 Interface <i>Pneumatic pressure control and Bypass control</i> (option) | 13 Evaluator <i>Separate overflow protection</i> (option) | 20 Mains filter (accessory) |
| 7 Pressure displays <i>Pneumatic bypass pump 1 and 2</i> (option) | 14 Fan | |

Level Control / Overflow Protection (Option)

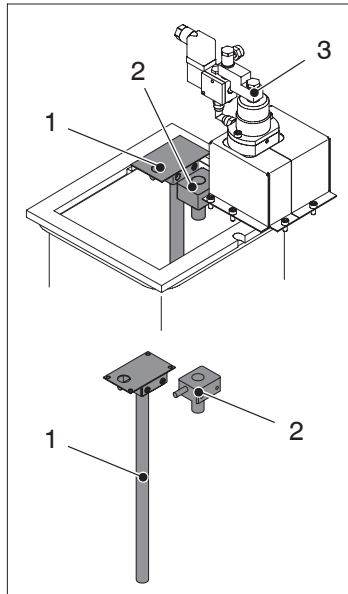


Figure 2-8 Shown without the tank lid

The long level sensor (1) is connected to the analog level display and transmits filling signals to a filling valve.

The short level sensor (2) serves as separate overflow protection. The signal is made available to the customer for further evaluation at the interface *Level control*. It is not evaluated by the industrial PC.

The filling valve (3) for automatic tank filling is located on the tank.

The filling valve control module opens when the solenoid valve is triggered. The material is conveyed into the melter tank, e.g. by a bulk melter.

Pressure Display (Option)

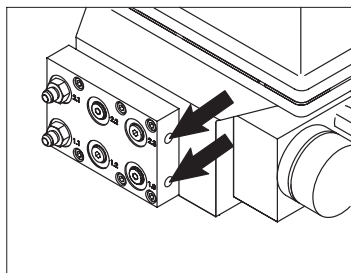


Figure 2-9 Connecting position

The connections for the pressure sensors for material outlet pressure are located in the manifold.

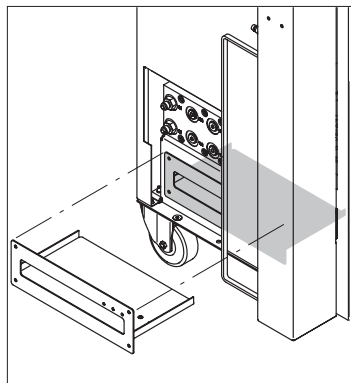


Figure 2-10 Plate

The pressure sensors are located on the plate below the manifold.

ID Plate

The system has two ID plates. One is located on the outside of the melter, and the other is in the electrical cabinet.

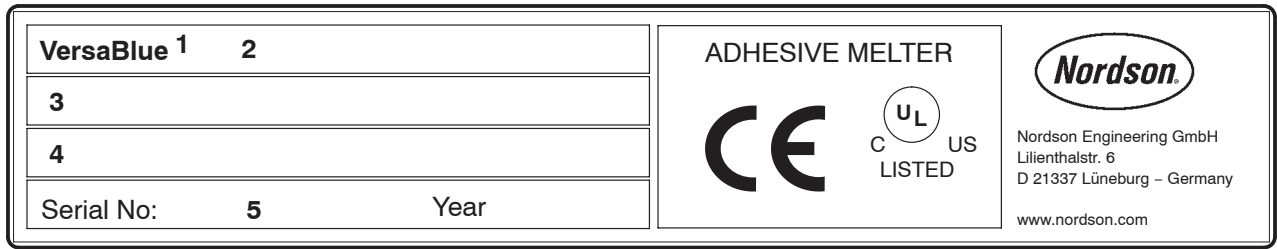


Figure 2-11 Example

1	Melter designation
2	Order number
3	Configuration code
4	Electrical connection, operating voltage, line voltage frequency, melter fuse protection
5	Serial number

Section 3

Installation

WARNING: Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

Transport

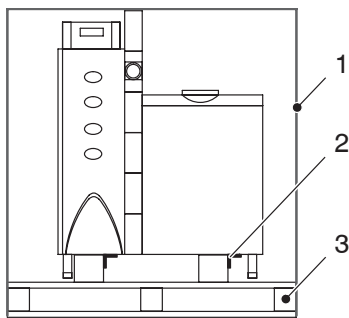


Figure 3-1

- Refer to section *Technical Data* for weight. Use only suitable transport devices.
- If possible, use the pallet (3) that came with the melter and use angle brackets (2) to fasten the melter.
- Use a sturdy box (1) or the folding box (4) to protect from damage.
- Protect from humidity and dust.
- Avoid jolts and vibrations.

Storage

CAUTION: Do not store melter outside! Protect from humidity, dust and extreme temperature fluctuations (formation of condensation).

Unpacking



Unpack carefully and check for damage caused during transport. Save pallet, angle brackets and box for later use, or dispose of it properly according to local regulations.

Figure 3-2

Lifting (Unpacked Melter)

Refer to the section *Technical Data* for weight. Lift melter only at the chassis using suitable lifting equipment or a forklift.

Installation Requirements

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

Protect the control panel from direct sunlight. The UV rays reduce the lifetime of the liquid crystals.

Required Space

NOTE: *) For minimum bending radius refer to the hose manual

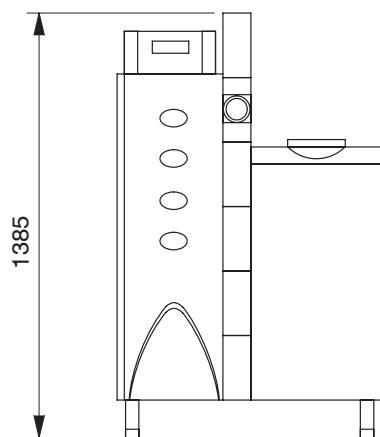
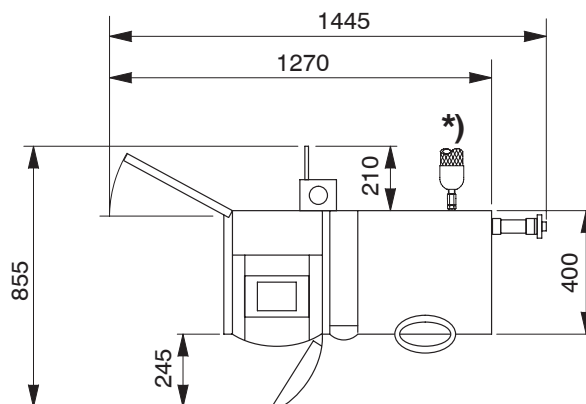


Figure 3-3 V12 and V25



Melters with Transformer

The transformer is located under the melter.

- Keep cables and hoses out of the space under the melter.
- Position the unit such that air can circulate sufficiently under the melter.

Exhausting Material Vapors

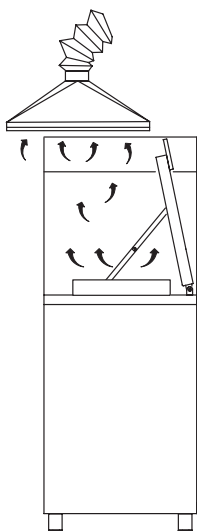


Figure 3-4

Ensure that material vapors do not exceed the prescribed limits. Always observe the safety data sheet (MSDS) for the material to be processed. If necessary, exhaust material vapors and provide sufficient ventilation of the location of the system.

Installation Personnel's Experience

The instructions contained in this section are intended for personnel with experience/authorization in the following fields:

- Application methods with hot melt adhesive or similar materials
- Industrial electrical wiring of power and control lines
- Industrial mechanical installation
- General knowledge of process control.

CAUTION: Illuminated seals may not be installed in the application system.

Electrical Connections

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

Observe when Using Residual Current Circuit Breakers

Local regulations in some geographic areas or industrial branches may require residual current circuit breakers.

Then observe the following points:

- The residual current circuit breaker is to be installed only between the power supply and the melter.
- Only residual current circuit breakers sensitive to pulsating current or universal current ($> 30 \text{ mA}$) may be used.

Laying Cable

WARNING: Use only temperature resistant cable in warm areas of the equipment. Ensure that cables do not touch rotating and/or hot melter components. Do not pinch cables and check regularly for damage. Replace damaged cables immediately!

Operating Voltage

WARNING: Operate only at the operating voltage shown on the ID plate.

NOTE: Permitted deviation from the rated line voltage is $\pm 10\%$.

NOTE: The power connection cable must have a cross-section appropriate for the maximum power consumption (Refer to section *Technical Data* and appendix *Calculating Melter Power Requirements*).

External Control/Signal Circuits

WARNING: Connect external control and signal circuits with suitable cable in accordance with the NEC, class 1. To prevent short-circuiting, lay the cables such that they do not touch printed circuits on PCBs.

Power Supply

NOTE: The melter must be installed securely (permanent power supply connection).

NOTE: On melters with mains filter, the mains terminals for the customer's power supply are located in the mains filter casing.

Operating voltage	Terminals					Mains terminals in electrical cabinet
	L1	L2	L3	N	PE	
200 V _{AC} 3-phase without neutral (Delta)	●	●	●		●	
230 V _{AC} 3-phase without neutral (Delta)	●	●	●		●	
400 V _{AC} 3-phase with neutral (star – WYE)	●	●	●	●	●	
400 V _{AC} 3-phase without neutral (Delta)	●	●	●		●	
480 V _{AC} 3-phase without neutral (Delta)	●	●	●		●	
230 V _{AC} 1-phase with neutral	●			●	●	
Refer to wiring diagram for connecting arrangement.						

Mains Filter

Installing Kit (Accessory)

WARNING: Disconnect the unit from the line voltage.

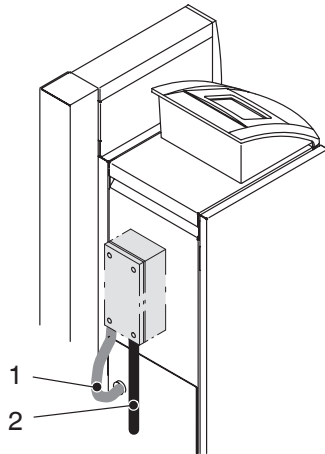


Figure 3-5

1. Disconnect the customer's power supply from the mains terminals in the electrical cabinet. Extract power cable.
2. Replace the cable gland on the electrical cabinet with the EMC cable gland on the shielded cable (1).
3. Screw on mains filter on electrical cabinet.
4. Connect shielded cable (1) to mains terminals in electrical cabinet.
5. Connect customer's power cable (2) to the terminals in the mains filter casing.
6. Fasten casing cover again.

Connecting Heated Hose

Also refer to the hose manual.

Connecting Electrically

1. First connect the hose (1) electrically to the unit.

Use hose receptacles XS10 to XS15 (2b) for the plugs (2a) of the hoses. The connections are protected with a clamp.

NOTE: For more than one hose: Every hose connection is allocated to a corresponding receptacle. Do not mistakenly exchange!

Refer to wiring diagram for connecting arrangement.

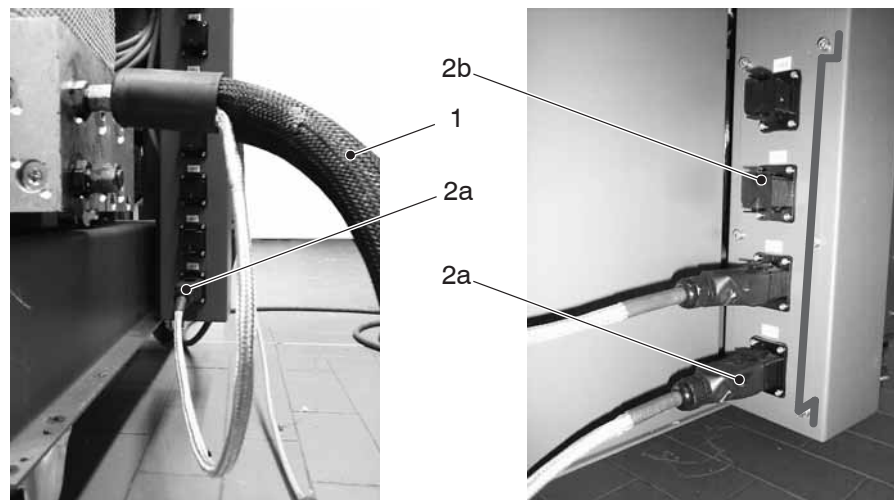


Figure 3-6 Connecting electrically (example Ni120)

Connecting

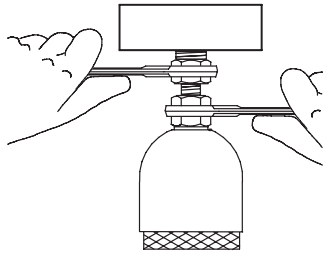


Figure 3-7

Second Open-jawed Wrench

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

NOTE: For units with recirculation hoses: do not mistake recirculation hoses for feed hoses.

If cold material can be found in the hose connection, the components (3, 4) must be heated until the material softens (approx. 70 °C (158 °F), depending on material).

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

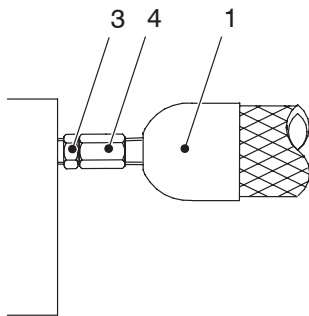


Figure 3-8

2. Heat the melter and hose to approx. 70 °C (158 °F).
3. Connect the hoses in the order of the numbers on the manifold. This prevents the creation of dead space that would otherwise result from unused connections.

Close unused hose connections with Nordson port plugs.

Disconnecting

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

Relieving Pressure

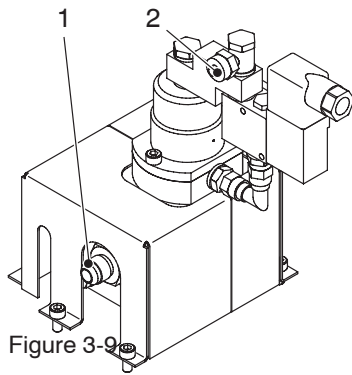
1. Switch off the motor(s) (Refer to section *Operation*).
2. Place a container under the nozzle(s) of the gun / assembly handgun.
3. Activate the solenoid valve(s) electrically or manually, or pull the trigger of the assembly handgun. Repeat this procedure until no more material flows out.
4. Properly dispose of the material according to local regulations.

Installing Gun

Refer to the gun manual.

CAUTION: The maximum operating temperature of the installed gun and the other heated system components should be considered when setting temperatures on the melter control panel.

Connecting Filling Valve (Option)



1. Connect customer's compressed air supply to the control air connection (2).

4 to max. 6 bar	400 to max. 600 kPa	58 to max. 87 psi
-----------------	---------------------	-------------------

NOTE: The compressed air must be dry and non-lubricated. Dirt particles in the air may not exceed 30 µm in size.

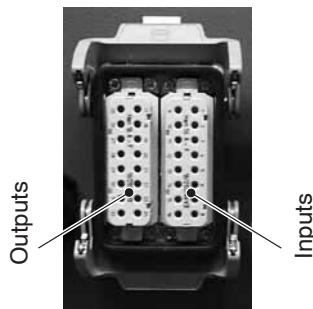
2. Electrically/mechanically connect hose to the filling unit.
3. Connect hose to filling valve connection (1, Fig. 3-9) (Also refer to Fig. 3-8).

The filling valve is heated either via the VersaBlue melter or via the filling unit (e.g. bulk melter).

4. If heating does not occur via the VersaBlue melter, insert the electrical plug (cordset) into the hose receptacle.

Interface Assignment

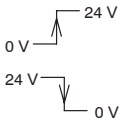
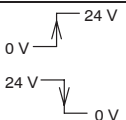
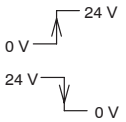
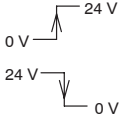
Interface Standard I/O



General Notes

- To conform with a European standard regarding electro-magnetic compatibility (EMC), only shielded cable may be connected. The cable must be connected to ground in compliance with the standard regarding electromagnetic compatibility.
- Inductive loads (e.g. solenoid valves) connected to the melter must be equipped with a protective device (e.g. recovery diode) that disables the inductive voltage generated when an inductive load is switched off.
- The permitted voltage deviation is $\pm 10\%$.
- In *Field bus* mode (option *Fieldbus communication*) the unit can not be controlled via the interface.

NOTE: * optional

Digital inputs		
Pin	Input	Function
1*	24 V _{DC}	Internal (melter)
2*	0 V _{DC}	External (customer's) NOTE: Customer connects his reference potential here, if 24 V _{DC} is provided by customer.
3		Rising edge: Heaters ON (main contactor closes) Falling edge: Heaters OFF (main contactor opens)
4		24 V: All motors ON (collective enable) 0 V: All motors OFF
5		24 V: Enable <i>Motor 1</i> 0 V: No <i>Motor 1</i> enable
6		24 V: Enable <i>Motor 2</i> 0 V: No <i>Motor 2</i> enable
<i>Pin 7/8 not assigned</i>		
9		Rising edge: Switch on <i>Standby</i> Falling edge: Switch off <i>Standby</i>
10		Rising edge: Key-to-line mode (for all motors) Falling edge: Manual mode (for all motors)
11		Rising edge: Switch application group to control mode (input 1) Falling edge: Switch application group to standby or Falling edge: Deactivate application group (<i>Standby</i> or <i>Deactivate</i> is dependent on the function selected on the control panel, refer to section <i>Operation, Working with Application Groups, Setup, Selecting Feature</i>)
12		Like pin 11 (input 2)
13		Like pin 11 (input 3)
14		Like pin 11 (input 4)
15		24 V: Line start 0 V: Line run
<i>Pin 16 not assigned</i>		

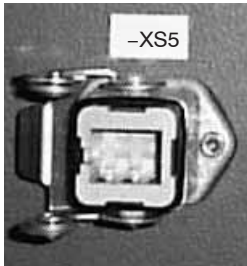
Interface Standard I/O (contd)

NOTE: Contact rating max. 24 V_{DC}/2 A

Digital outputs		
Pin	Contact	Function
17	Make contact	Contact closed: Motor 1 running
18		Contact open: Motor 1 not running
19	Make contact	Contact closed: Motor 2 running
20		Contact open: Motor 2 not running
Pin 21 to 24 not assigned		
25	24 V _{DC}	External (customer's; to be connected by customer)
26	Make contact	24 V: System ready 0 V: System not ready
27	Break contact	24 V: No general alarm –warning– 0 V: General alarm –warning–
28	Break contact	24 V: No general alarm –fault– 0 V: General alarm –fault–
29	Break contact	Not used
Pin 30 not assigned		
31	Make contact	Not used
32	Make contact	24 V: Fill tank 0 V: Do not fill tank NOTE: Pins 31/32 not assigned with option <i>Level control</i> and <i>Level control with overflow protection</i> . Instead, there is the interface <i>Level control</i> .

Interface Key-to-line Mode

In *Field bus* mode (option *Fieldbus communication*) the line speed signals are deactivated.

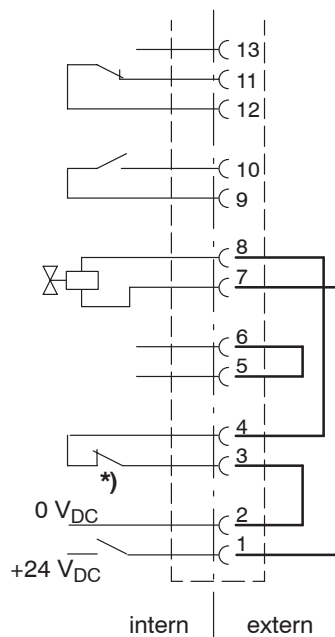


One Line Speed Signal Input for all Motors

The connection shown as an example applies to encoders supplied by Nordson.

XS5		
Pin	Input	Function
1	– (Ground)	Analog input
2	0 to 10 V or 0 to 20 mA or 4 to 20 mA	
Pins 3–6 not assigned		

Interface Level Control



NOTE: Available only with options *Level control* and *Level control with overflow protection*.

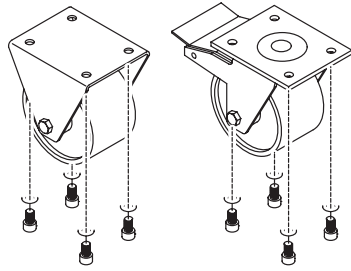
Component designation: XS3

Figure 3-10 Default bridges

Digital inputs/outputs			
Pin	Input	Output	Function
1	–	24 V _{DC}	Internal voltage supply of separate overflow protection
2	–	0 V _{DC}	
3	–	24 V _{DC} /2 A	Fill tank signal to filling valve
4	–		– Additionally with level control with overflow protection – *) Tank overfilled (contact open when level is exceeded)
5	–	–	– Only with level control with overflow protection – Reset (resets signal <i>Tank is overfilled</i>)
6	–	–	
7	+24 V _{DC}	–	Voltage supply to filling valve
8	0 V _{DC}	–	
9	–	24 V _{DC} / 2 A	Fill tank
10	–		
11	–	24 V _{DC} / 2 A	– Only with level control with overflow protection –
12	–		Tank overfilled
13	–		NOTE: Potential-free changeover contact for evaluation by customer
Pin 14 to 16 not assigned			

Casters

Installing Kit (Accessory)



The kit consists of a pair of casters with brakes and a pair without brakes.

NOTE: Attach the casters with brakes (Fig. 3-11, right) to the side of the electrical cabinet.

1. Lift the melter with a suitable floor conveyor (lift truck or fork lift).
2. Detach machine feet.
3. Attach casters. Use the fastening holes for the machine feet to attach the wheels.

Figure 3-11

Removing Melter

Run the melter until empty, separate all connections from the melter, and allow the melter to cool down.

Disposing of Melter

When your Nordson product has exhausted its purpose, dispose of it properly according to local regulations.

Section 4

Operation

WARNING: Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

General Information

The control panel is a touch screen.

Meaning of Colors

Red:	Fault
Yellow:	Display of e.g. status, actual values. Also a warning in status line
Green:	Adjustable values: Input of e.g. setpoints/text or switched on
Gray:	Selection (with keys) is possible

Description of Symbols

The following symbols appear on several screens and indicate



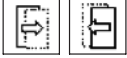
Call up a help text



General information

Description of Symbols *(contd)*

 **ESC** Return to previous level. Cancel and close when in input windows

 To next/previous screen

 Confirmation, acceptance of a value

 Backspace, delete

 Page up/down

 Setup

 Master overwrite

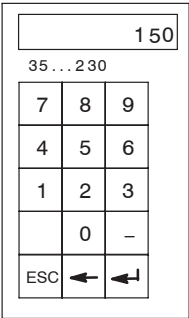
Keys with and without Indication Lamp



The indication lamp indicates the status (lit = switched on). In this case: Heaters are switched on.

Figure 4-1 Example

Input Window



When a field for entering a numerical value is touched, an input window resembling a calculator appears.

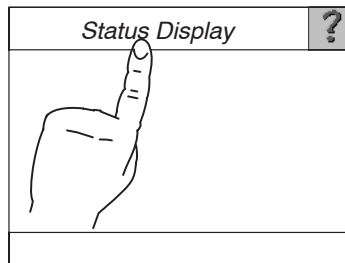
Figure 4-2



When a field for entering a name is touched, an input window resembling a keyboard appears.

Figure 4-3 Keyboard symbol

Status Display



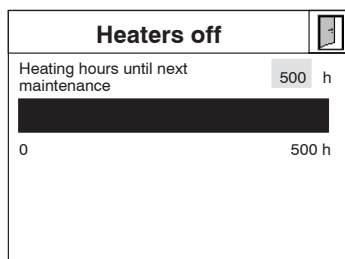
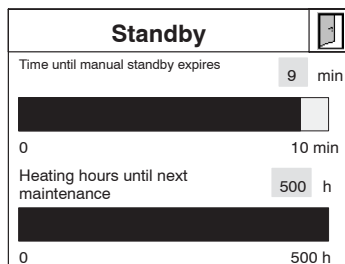
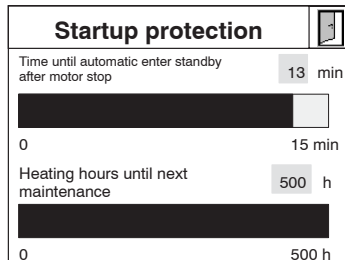
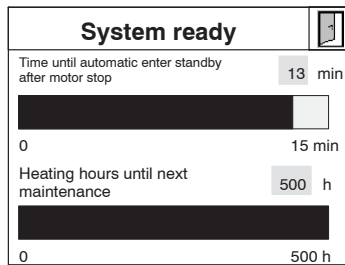
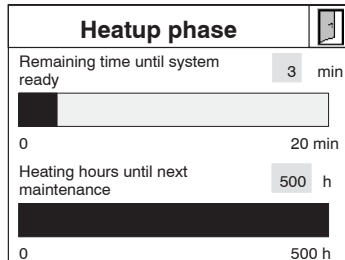
Another screen is called up by touching the line *Status display*. The contents of the screen is a factor of the displayed status:

- Heatup phase
- System ready
- Startup protection or standby
- Motor running or heaters off.

By status

- Warning
- Fault
- Shutdown

the system moves directly to the screen *Alarm log* (Refer to Fig. 4-26).



Initial Startup

After the melter has been properly installed, initial startup can take place.

The melter was subjected to extensive testing prior to shipment. In doing so, the tank was filled with a special test material. Material residue may still be present in the melter. To remove the residue, melt and feed several kilograms of material before starting production.

CAUTION: Do not operate Nordson gear pumps without material. Before switching on the motor, ensure that the tank is filled.

1. Set the main switch to I/ON.



Position I/ON = Melter switched on.



Position 0/OFF = Melter switched off.

Padlocks can be used to protect the main switch from being turned on by unauthorized personnel.

2. Wait until the starting screen appears on the control panel.

NOTE: Do not touch or cover the screen during startup. Wait until it has completed the function test and the light tower lamp test and the starting screen appears.

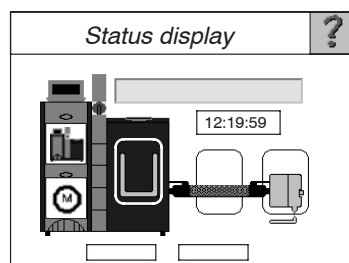


Figure 4-4 Starting Screen

Enter Password

Press the LOGIN key in the starting screen, then enter the user name and respective password.

NOTE: Anyone logging in as OPERATOR can use only the features of the

first operating level. All features that can be selected with the  key must be enabled by entering the next higher password (for trained personnel).

3. If the heater is switched off, the  key may need to be touched. The melter begins to heat up.

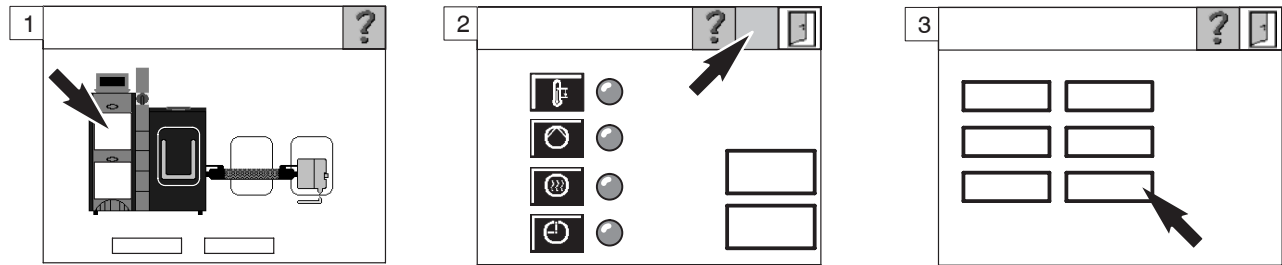
Set on Control Panel:**4. Basic Settings**

Figure 4-5



Touch repeatedly until the starting screen reappears.

Panel setup

NOTE: If the key is touched unintentionally, the following screen appears on the control panel.

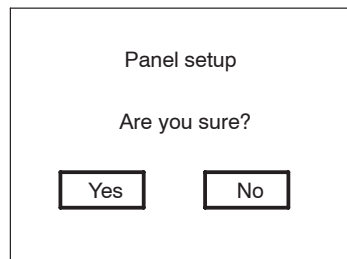


Figure 4-6

- Reply NO and return to the program.

If YES is confirmed, the panel begins the operating program again (restart/reboot). The operator must now wait until a screen appears that contains a key *F8*. The key must be pressed so that the starting screen is displayed again. This takes approx. three to five minutes.

Refer to the *Panel View* manual for more information.

- Temperature setpoints (= processing temperatures)

Refer to *Overview / T1*.

- Undertemperatures / overtemperatures

Refer to *Overview / T2*.

- Activate/deactivate channels
- Re-name temperature channels if necessary.

NOTE: Texts that the customer can change are not translated into the selected local language.

Refer to *Overview / T3*.

- Pump speed(s) in manual mode

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).

Refer to *Overview / M1*.

- If the melter is to be operated via the interface *Standard I/O*, change the motor enable from *Control panel* to *Control panel AND standard I/O*

Refer to *Overview / M2*

- Key-to-line – settings

Refer to *Overview / M1 to M3*.

- Select temperature unit, °C (default) or °F

Select pressure unit: bar (default) or psi

Refer to *Overview / V15*

- Set service interval.

The service tasks that are to be indicated as well as the intervals must be stipulated. For recommended intervals refer to section *Maintenance*. The intervals may need to be adapted to the operating conditions.

Refer to *Overview / V16*

- Additional parameters, depending on model of melter.

5. Set seven-day clock.

Refer to *Overview / V8*

6. Wait until the system is ready for operation.

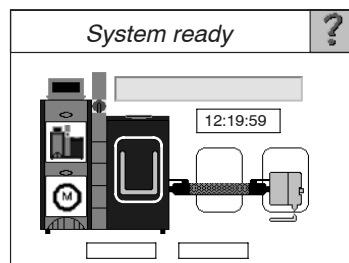
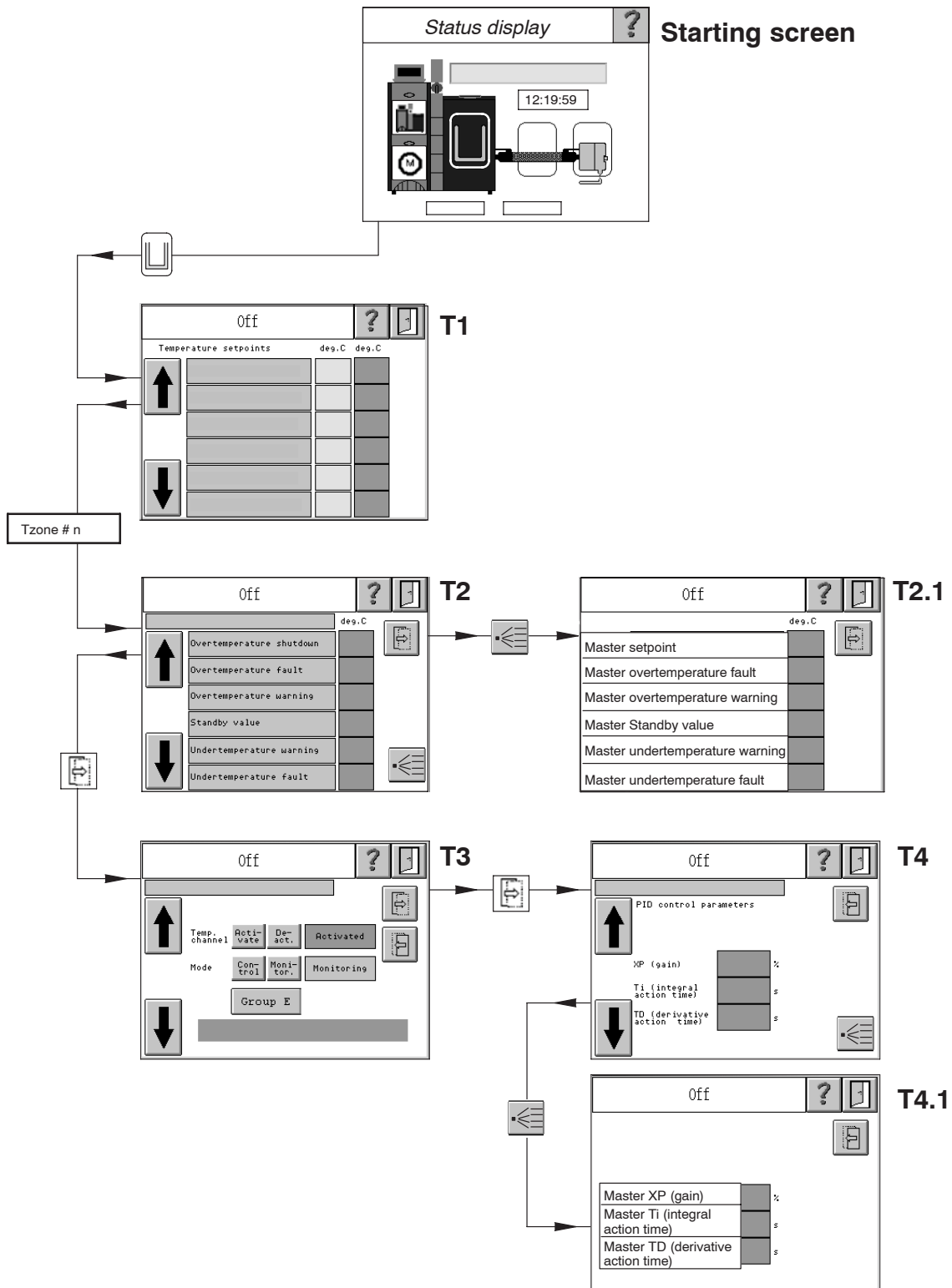


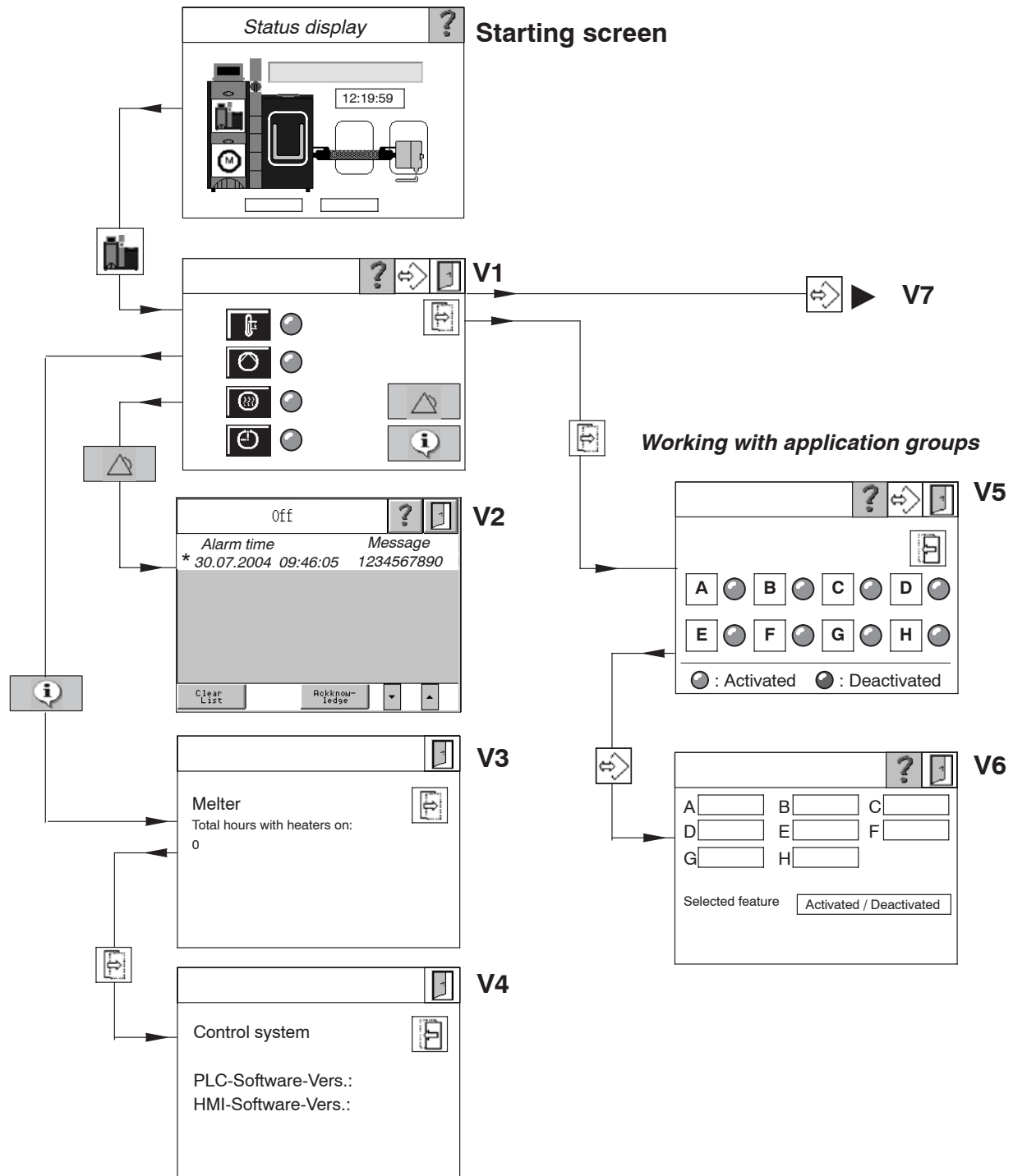
Figure 4-7

7. Tighten the gland bolt on pump(s) (Refer to section *Maintenance*).
8. Enable the motor(s).
9. Switch on the motor(s).

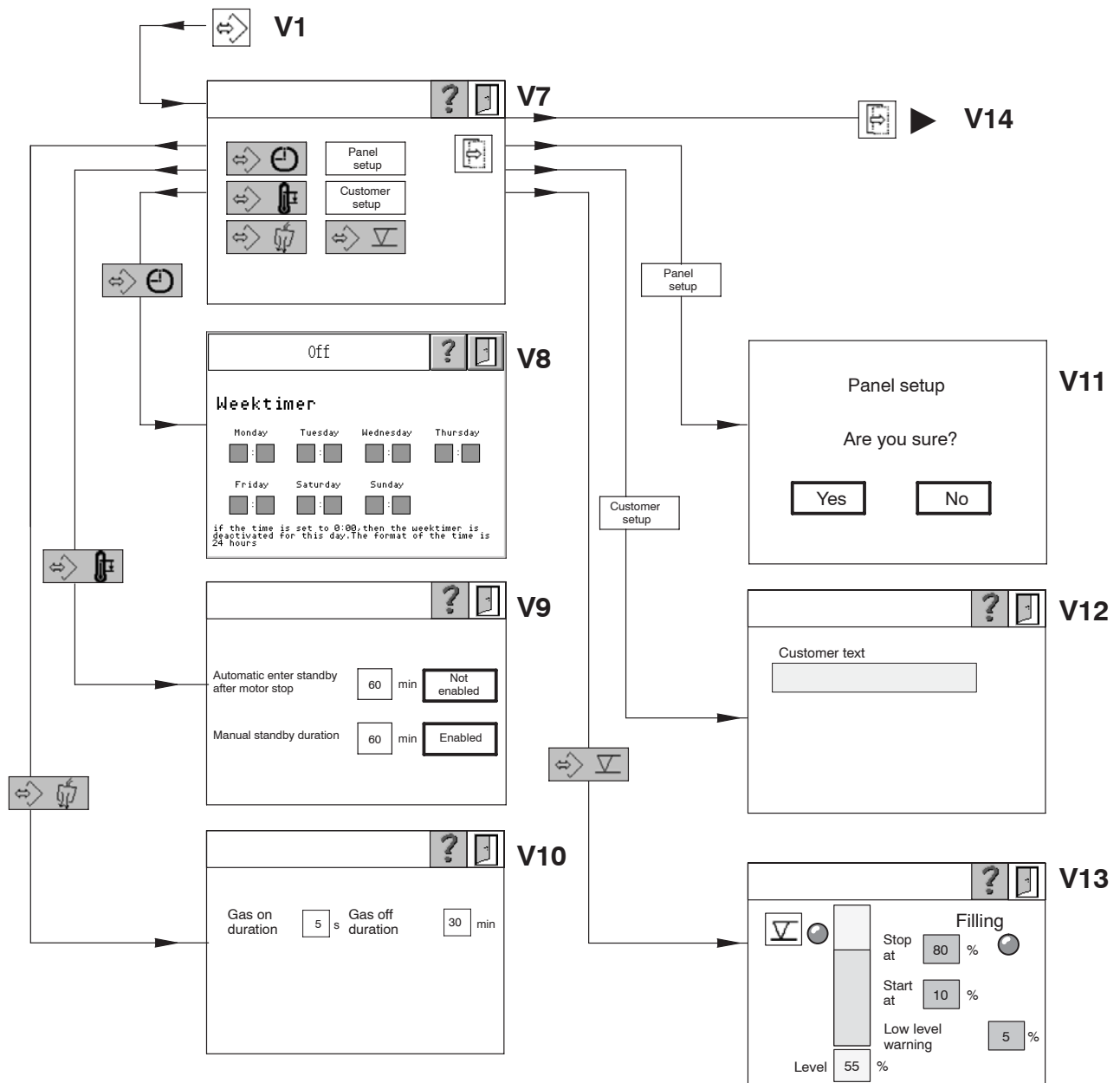
Refer to *Overview / M1* and *V1* and Figure 4-25.

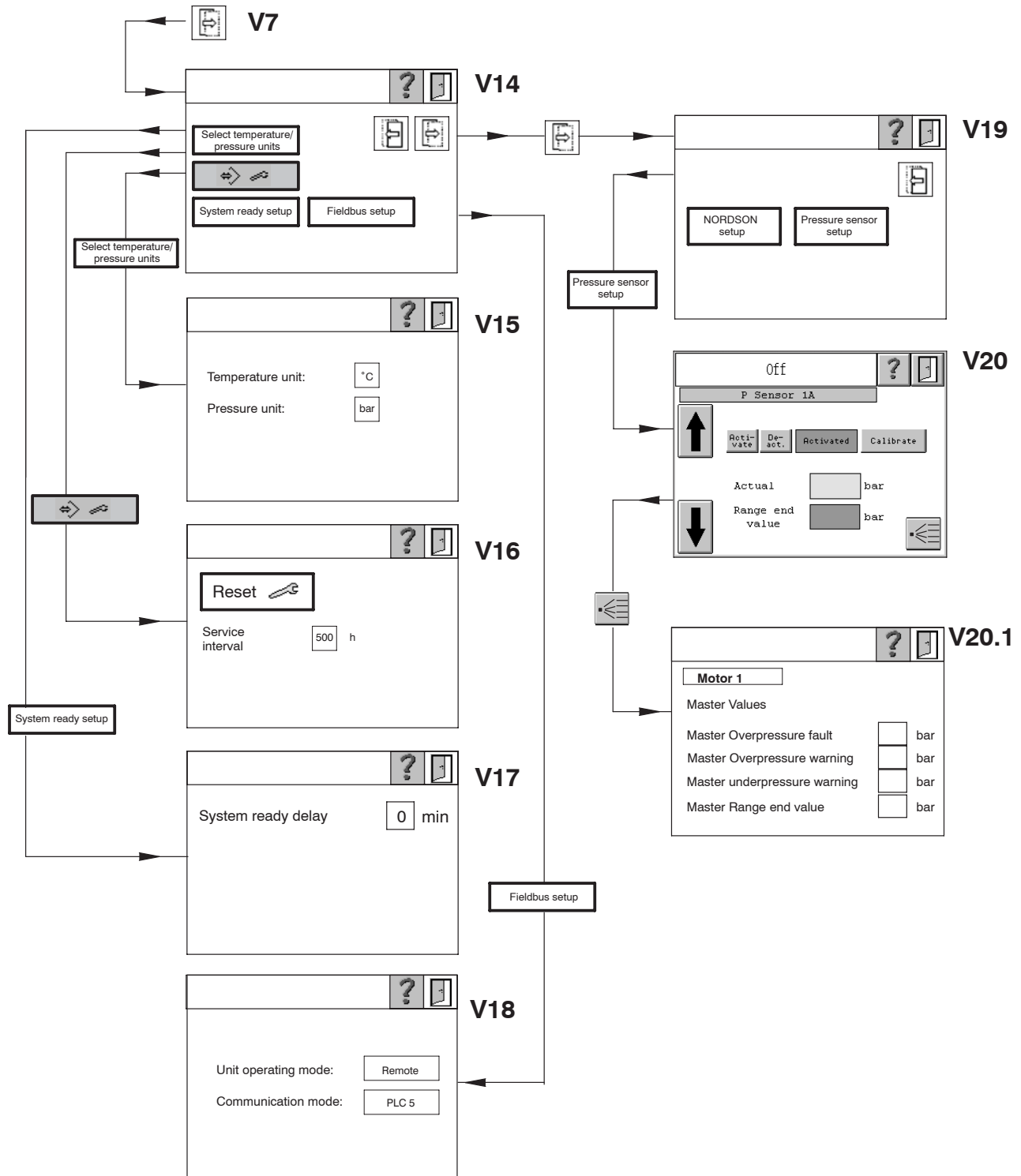
Control Panel – Overview –



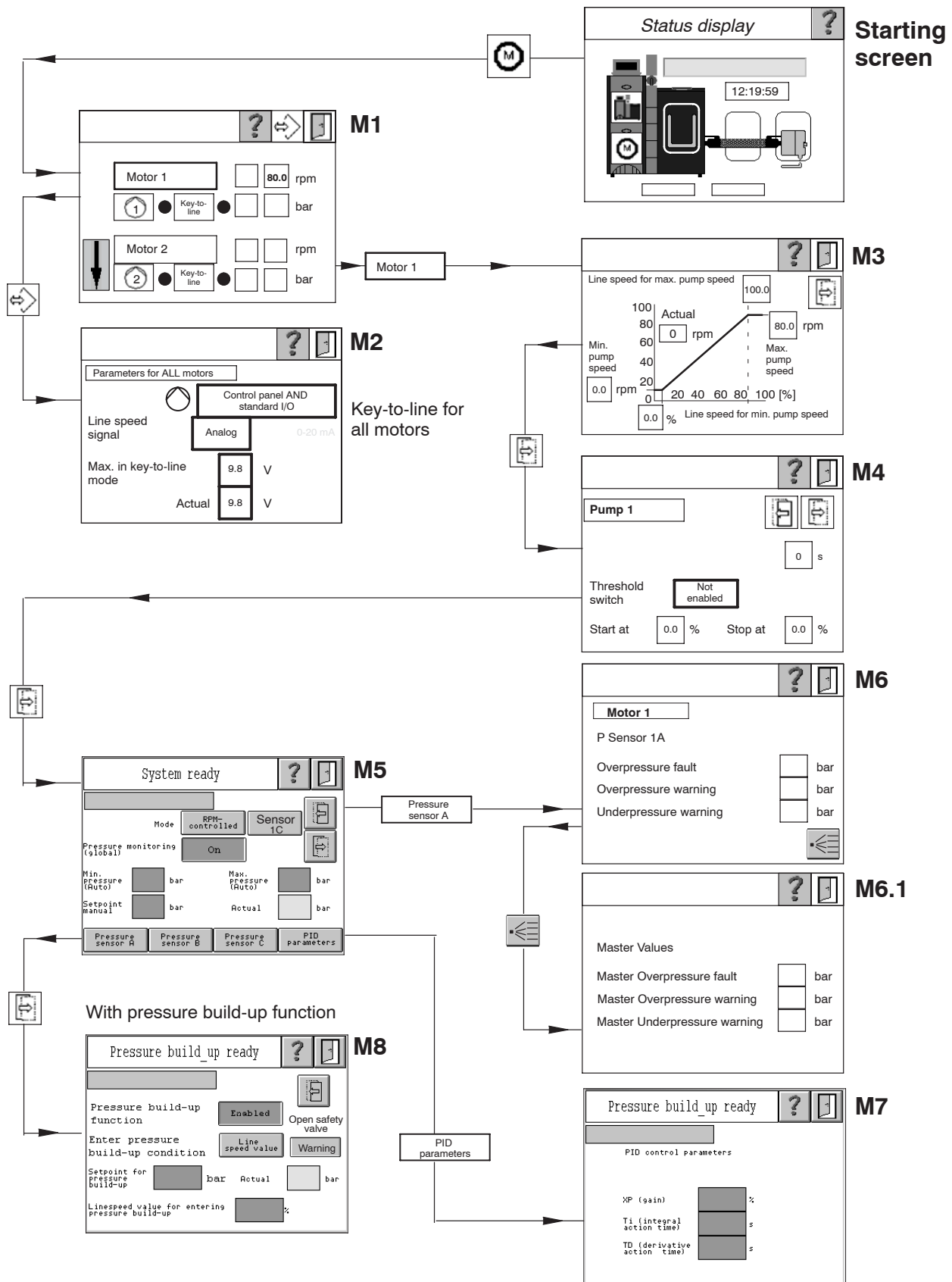


Control Panel – Overview – (contd)





Control Panel – Overview – (contd)



Filling the Tank

Manually

WARNING: Hot! Risk of burns. Wear appropriate protective clothing/equipment. Tank and tank lid are hot. When filling, hot material may splash out of the tank. Use caution when filling tank with material.

CAUTION: Do not operate melter with open tank. When the tank is open, hot material vapors can escape; vapors may contain potentially hazardous substances.

CAUTION: Before filling the tank, ensure that the tank and material are clean and free of foreign substances. Foreign substances can hinder functioning or even cause damage to the melter or accessories.

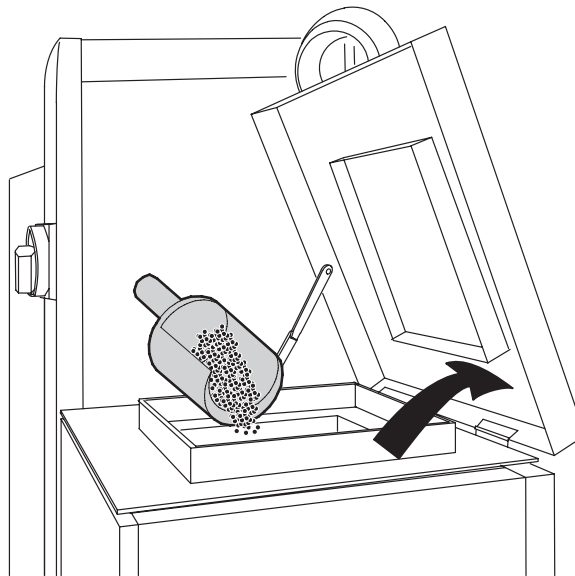


Figure 4-8

CAUTION: Cease operation before the tank is completely empty. If there is too little material in the tank, the material can overheat. Overheated material can char, collect on surfaces and cause malfunctioning.

Maximum Level

The level should not exceed 25 mm (1 inch) under the rim of the tank (max1).

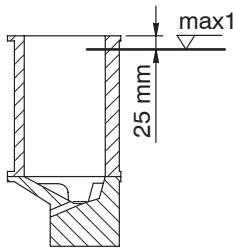


Figure 4-9 Cross-section of tank

Automatic (Option)

Automatic tank filling is performed e.g. by a bulk melter connected to the optional filling valve with a hose. Level sensors in the tank start and stop the filling process.

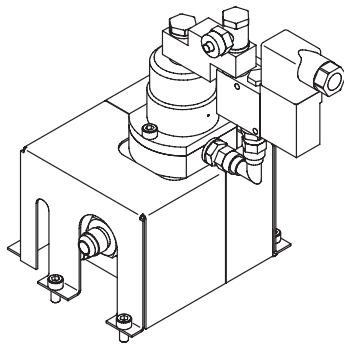


Figure 4-10 Filling valve

Recommended Temperature Setpoints

The temperature setting is determined, among other things, by the processing temperature prescribed by the material supplier.

CAUTION: Nordson will grant no warranty and assume no liability for damage resulting from incorrect temperature settings.

Grid	Up to 20 °C (36 °F) below prescribed processing temperature
Reservoir (high melt)	Prescribed processing temperature (Material quantity used <50 g/min: 0 to 10 °C (18 °F) below prescribed processing temperature)
Undertemperature value (warning)	10 °C (18 °F) below set processing temperature Air heater: approx. 10 °C (18 °F) below set processing temperature
Undertemperature value (fault)	15 °C (27 °F) below set processing temperature Air heater: approx. 20 °C (36 °F) below set processing temperature
Overtemperature value (warning)	10 °C (18 °F) above set processing temperature Air heater: approx. 10 °C (18 °F) above set processing temperature
Overtemperature value (fault)	15 °C (27 °F) above set processing temperature Air heater: approx. 20 °C (36 °F) above set processing temperature
Filling valve (option)	Prescribed processing temperature*
Gun (accessory)	Prescribed processing temperature(s)*
Hose (accessory)	Prescribed processing temperature*

* **CAUTION:** The maximum operating temperature of the installed gun and the other heated system components should be considered when setting temperatures on the melter control panel. Refer to *Overview / T1* for information on input.

Heatup Guided by Reference Channel

NOTE: All activated channels in control mode are included in the heatup guided by reference channel, including those assigned to an activated application group.

After every switchon and after standby is exited, the melter returns to *Heatup phase* (status display).

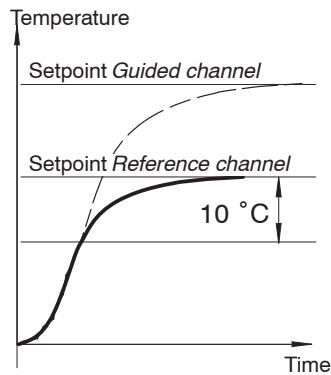


Figure 4-11

Heatup guided by reference channel prevents individual temperature channels from reaching their setpoint temperature long before the slowest temperature channel (reservoir/high melt = reference channel). It prevents hot melt material from charring in hoses / guns and the build-up of material expansion pressure during heatup. It also helps to save energy.

The actual reservoir temperature serves as the current temperature setpoint for the guided channels until the reservoir has reached a temperature of 10 °C (18 °F) below its setpoint temperature. Then heatup guided by reference channel ends automatically. This way all channels reach their setpoint temperatures more or less at the same time.

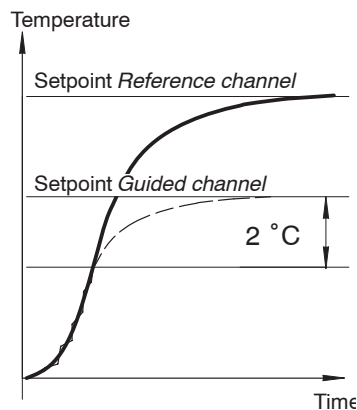


Figure 4-12

When the current temperature setpoint of a guided channel (= current value of reservoir/high melt) reaches the guided channel's own setpoint minus 2 °C (3.6 °F), it is excluded from heatup guided by reference channel and then heats to its own setpoint independently (Refer to Fig. 4-12).

Undertemperature Interlock

The undertemperature interlock prevents the melter motors from being switched on as long as the material is too cold and thus too thick. This could damage the pumps.

The undertemperature interlock is active during every *Heatup phase* (status display) and after every standby. Also refer to section *Troubleshooting, Undertemperature Fault Triggered*. If the system ready delay time is activated, this time must also have expired before the interlock is disabled.

Motor Startup Protection

The motor startup protection prevents the motors from starting up on their own after heatup or after a fault. The melter goes to startup protection if at least one motor was running before heatup or before the fault occurred.

Condition for *Motor running*: *All motors ON and Enable motor*

When the system is ready again (status display), the motors can be switched on again via the control panel or the interface *Standard I/O*.

Acknowledge Startup Protection

On the Control Panel

Press the key *Switch on/off all motors (collective enable)*; startup protection is acknowledged and all enabled motors run again.

Via Interface Standard I/O

Switch *All motors ON/OFF* from OFF to ON. All enabled motors run again.

Via Field Bus (Refer to Appendix F)

Set *Switch ON/OFF All Motors (Collective Enable)* (Rising edge; refer to *Melter control*: If bit 1 = 0, then set to 1. If bit 1 = 1, set to 0 then back to 1). All enabled motors are running again.

Daily Startup

NOTE: The following steps can be performed completely only with a level 1 password.

1. Set the main switch to I/ON.

Enter Password

Press the LOGIN key in the starting screen, then enter the user name and respective password.

2. If the heater is switched off, the  key may need to be touched. The melter begins to heat up.

CAUTION: Do not operate Nordson gear pumps without material. Before switching on the motor, ensure that the tank is filled.

3. Fill the tank if necessary.
4. Wait until the system is ready for operation (green status display *System ready*).
5. Enable the motor(s). Refer to Fig. 4-25.

(Refer to *Overview / V1*)

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).

6. Switch on the motor(s). Refer to Fig. 4-25.

Daily Switchoff

1. Switch off the motor(s).
2. Set the main switch to 0/OFF.
3. If necessary, secure the main switch with padlocks against unauthorized access.

Switching Off in an Emergency

WARNING: Switch off the melter immediately in any emergency situation.

1. Set the main switch to 0/OFF.
2. After standstill and before switching the melter on again, have the emergency situation remedied by qualified personnel.

PanelView Control Panel

NOTE: Also refer to <http://www.ab.com/manuals/eoi/> for additional information on the *PanelView Plus 600*.

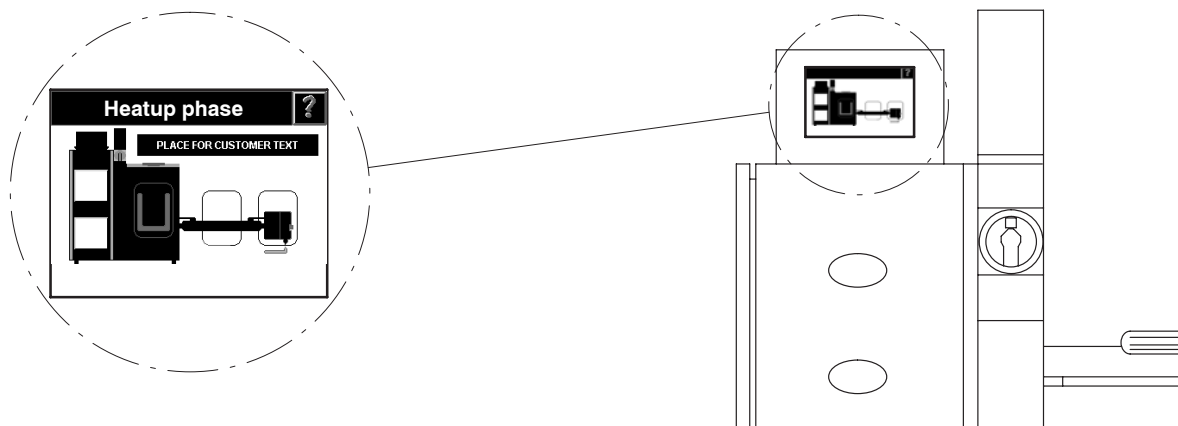


Figure 4-13

Melter Modes – Overview

V12, V25	
⇒ Local Mode	⇒ Field Bus Mode
⇒ Speed control	⇒ Speed control
• Manual mode	• Manual mode
• Key-to-line	• Key-to-line
⇒ Pressure control	⇒ Pressure control
• Manual mode	• Manual mode
• Key-to-line	• Key-to-line

Screen Saver

The screen saver is activated when the screen has not been touched for ten minutes. The screen goes dark.

Touch the screen to deactivate the screen saver.

Starting Screen

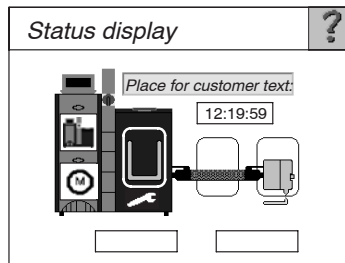


Figure 4-14

Place for customer text: Can be determined by the customer, e.g. adhesive type used in the production line. Refer to *Overview / V12* for information on entering text.

 **Service symbol:** A wrench lights up. Refer to *Overview / V16*.

Additional screens are called up by pressing these symbols:



Move to the screen in which the setpoints can be entered for all temperature channels (Refer to *Overview / T1*).



Move to the screen in which the setpoints can be entered for all temperature channels (Refer to *Overview / T1*).



Move to the screen in which the setpoints can be entered for all temperature channels (Refer to *Overview / T1*).



Move to melter screens



Move to motor screens



Temperature Parameters

CAUTION: The maximum operating temperature of the installed gun and the other heated system components should be considered when setting temperatures.

Off		?	
Temperature setpoints		deg.C	deg.C
↑			
↓			

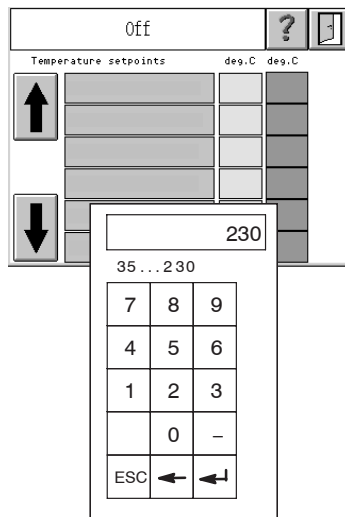
Left temperature column (yellow): Actual values

Right temperature column (green): Setpoints

NOTE: A channel is deactivated if the respective actual values are 0 (zero).

Figure 4-15 T1

-  Grid and reservoir: 175 °C (347 °F)
-  Hose 1 / Gun 1: 175 °C (347 °F)
-  All other channels: 40 °C (100 °F)



Example: Increasing Temperature of Hose 1 from 220 °C (428 °F) to 230 °C (446 °F)

1. Touch the green field 220 °C in the right temperature column.

2. Enter 230 in the input window and confirm with .

Select the desired temperature channel to reach the parameter level.

NOTE: To be able to work on the parameter level, the password for level 2 (trained personnel) must first be entered.

For information on changing a name to your local language (e.g. Hose 1 to XYZ 1), refer to *Overview / T3*.

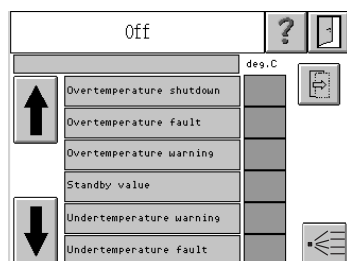
Figure 4-16

Grid

Parameters (Screen 1: Alarm Values)

NOTE: To be able to work on the parameter level, the password for level 2 (trained personnel) must first be entered.

NOTE: The temperatures in this screen are differential values.



Standby temperature =	Setpoint temperature – Standby value
-----------------------	---

NOTE: The minimum standby temperature is 40 °C (100 °F), even if the selected settings would (mathematically) permit the standby temperature to be lower.

Figure 4-17 T2

Standby value: **50 °C** (90 °F)

Warning <i>Overtemperature</i> =	Setpoint temperature + Overtemperature warning delta
Warning <i>Undertemperature</i> =	Setpoint temperature – Undertemperature warning delta

NOTE: The warning value is a factor of the fault value in that the values for the warning may not be larger than the corresponding values for the faults. When appropriate, first increase the fault value.

Overtemperature/undertemperature warning: **5 °C** (10 °F)

Fault <i>Overtemperature</i> =	Setpoint temperature + Overtemperature fault delta
Fault <i>Undertemperature</i> =	Setpoint temperature – Undertemperature fault delta

Overtemperature/undertemperature fault: **10 °C** (18 °F)

Overtemperature shutdown =	Setpoint temperature + (Overtemperature fault delta + 10 °C) Setpoint temperature + Overtemperature fault delta + 20 °F
----------------------------	--

NOTE: The overtemperature shutdown is calculated and therefore can not be changed.

Parameters (Screen 1: Alarm Values) (contd)

Example

Setpoint temperature = 170 °C (338 °F),

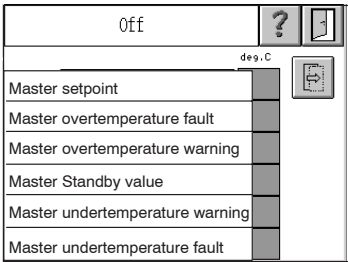
Overtemperature fault = 60 °C (108 °F)

This results in

Fault *Overtemperature* at 230 °C (446 °F)

Overtemperature shutdown at 240 °C (466 °F).

During operation the operator increases the setpoint to 190 °C (374 °F); the value *Overtemperature fault delta* is left unchanged. Mathematically, an overtemperature fault indication would then occur at 250 °C (482 °F). However, shutdown occurs at a fixed value of 245 °C (475 °F).



Master Overwrite (Temperature)

The master overwrite  key offers a way to enter all alarm values only once and have them apply for all temperature channels.

Figure 4-18 T2.1

Graphic Presentation of Temperature Parameters

*Refer to *Monitoring of Heatup and Cooling*

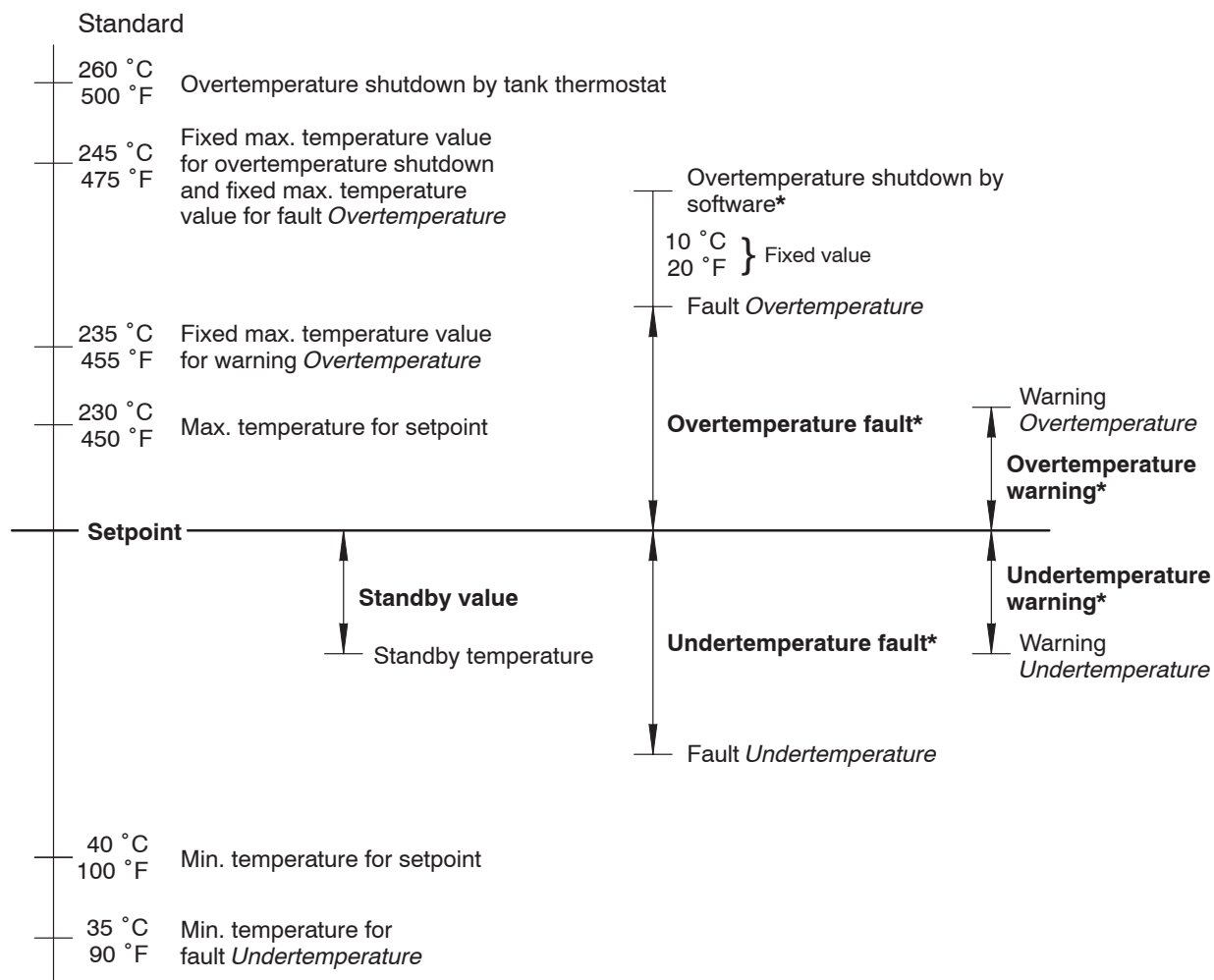


Figure 4-19



Parameters (Screen 2: Activate Channel, Mode, Control Parameters)

NOTE: To be able to work on the parameter level, the password for level 2 (trained personnel) must first be entered.



The  keys can be used to select a certain temperature zone.

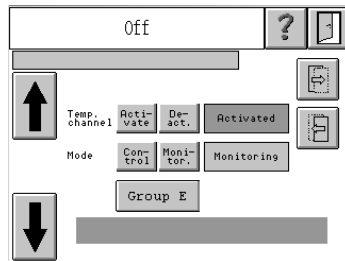


Figure 4-20 T3

Temperature Channel: Select Not Enabled / Enabled

Not activated (deactivated)

A deactivated channel is not heated. Temperature control and monitoring for faults do not take place. Exception: Overtemperature shutdown at a set temperature value of 245 °C (475 °F).

Activated

Normal state of a channel during operation. Activated channels can be switched to display or control mode.

NOTE: Temperature channels for reservoir and grid can not be deactivated.



Not activated

Mode: Select Display mode or Control mode

Display mode

In *Display mode* only the measured temperature is displayed. Temperature control and monitoring for faults do not take place. Exception: Overtemperature shutdown at a set temperature value of 245 °C (475 °F).

NOTE: Temperature channels for reservoir and grid as well as grouped channels can not be switched to display mode.

Control Mode

A PID control algorithm is used for the selected control parameters in control mode.



Control mode



Parameters (Screen 3)

NOTE: To be able to work on the parameter level, the password for level 2 (trained personnel) must first be entered.

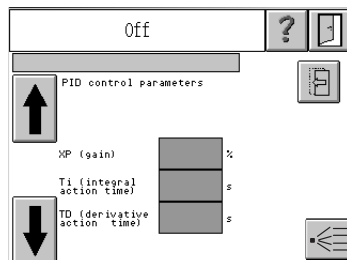


Figure 4-21 T4

Control mode

The PID control parameters can be selected as desired in this screen.

NOTE: Should be adjusted only by personnel with experience in metrology and control technology.

NOTE: The I-component can be deactivated with the value 0.

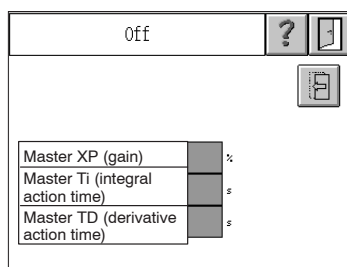


Figure 4-22 T4.1

Master Overwrite (Control Parameters)



The master overwrite  key offers a way to enter all alarm values only once and have them apply for all temperature control parameters.

Assigning Temperature Channel to a Group

Create Groups

All temperature channels (except for grid and reservoir) can be combined to application groups *Group A* to *Group H*. Channels not assigned to any group belong to *No group*.

Of the eight possible application groups, four can be switched via the control panel as well as via the interface *Standard I/O*; the others can be switched only via the control panel (Refer to *Standard I/O Group Inputs*).

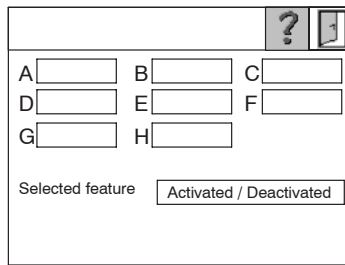
Example:

1. Select temperature channel.
2. Select group letter, e.g. *Group A*.

A different group letter can be selected by repeatedly pressing the group key.

If several temperature channels are to be combined to one group:

1. Select temperature channel.
2. Select desired group.



			?	
A	B	C		
D	E	F		
G	H			
Selected feature			Activated / Deactivated	

Figure 4-23 V6

Standard I/O Group Inputs

Input: An input (for enabling) can be assigned to each application group.

The desired input for the application group is selected by pressing the key repeatedly.

No input: These application groups can not be switched via the interface *Standard I/O*. These groups must be switched by the operator via the control panel or via the field bus.

Select feature

Deactivated: The temperature channels assigned to a deactivated application group are not heated.

Temperature control and monitoring for faults do not take place. Exception: Overtemperature shutdown at a set temperature value of 245 °C (475 °F).

Standby: The temperature channels in this application group are lowered by the standby values set in the temperature parameter screen (Refer to Fig. 4-17).

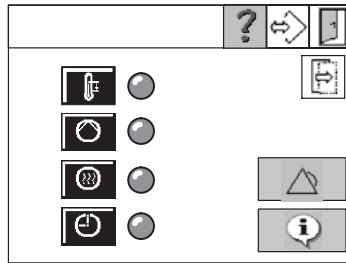
 Melter


Figure 4-24 V1

 Entering/Exiting Standby

Refer to *Overview / V9* for information on standby setup.

 Switch On/Off All Motors (Collective Enable)

Also refer to *Motor Startup Protection*.

Only enabled motors can be switched on. Prerequisite: The system is ready for operation (green status display *System ready* lit).

Enabling

If there is no individual enable, the motors are enabled with the key *Switch on/off all motors (collective enable)* and via the interface *Standard I/O*.

Switching on

If there are individual enables, the motors are switched on with the key *Switch on/off all motors (collective enable)* and via the interface *Standard I/O*.

The indication lamp in the key can be different colors (Also refer to M2 *Motor enable*):

Gray (off):	No collective enable on control panel
Green:	Collective enable on control panel

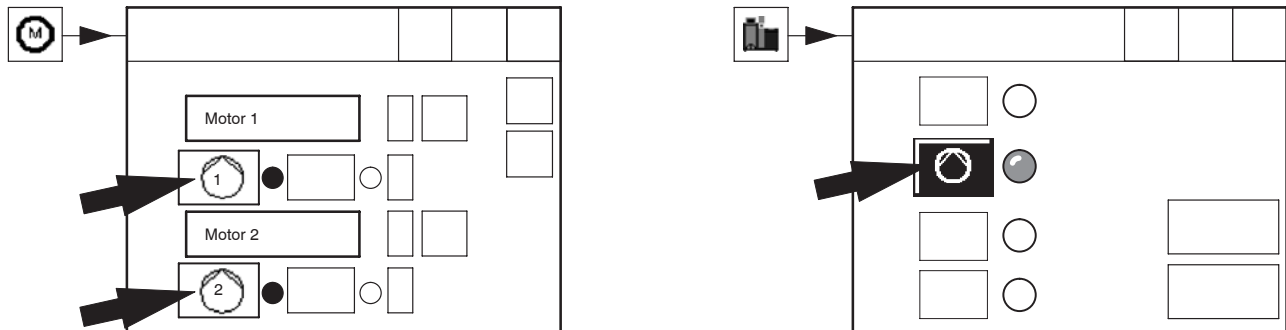


Figure 4-25 Motor(s): Enable on the motor screen – switch on on the melter screen

NOTE: The *Standard I/O* interface signals *All motors ON/OFF (collective enable)* and *Enable motor* can be deactivated with a key. The motors can then only be enabled and switched on via the control panel (Refer to Fig. 4-48 *Motor enable*).

The heaters can be switched on via the control panel, the interface *Standard I/O*, the seven-day clock, or in *field bus* mode via the field bus. The main switch must be set to I/ON.

The main contactor closes. The power supply to heaters and motors is switched on. The heatup phase begins.

NOTE: When the heaters have been switched off, the control unit continues to be supplied with voltage, so the heaters can be switched on at any time via the seven-day clock.

Refer to *Overview / V8*

If this feature is activated, a list of the alarms appears.

Clear List: Deletes all alarms

Acknowledge: Reset fault indication **after** after the cause of the error indication has been remedied.

Off			
<i>Alarm time</i>		<i>Message</i>	
* 30.07.2004	09:46:05	1234567890	
Clear List	Recknow-ledge		

Figure 4-26 V2

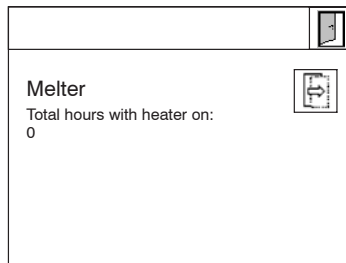


Figure 4-27 V3



Information (Melter and Control System)

Total hours with heaters on: This value indicates the hours that the heaters were switched on.

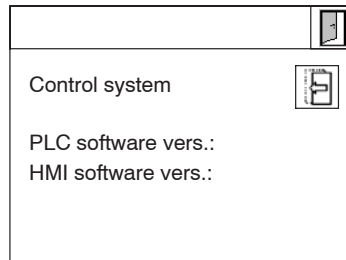


Figure 4-28 V4

This screen indicates the software versions used.

PLC software vers. Version of control system software
X.YYY (example: 1.200)

HMI software vers. Version of control panel software
X.YYY (example: 1.200)

Working with Application Groups

NOTE: To be able to work on the parameter level, the password for level 2 (trained personnel) must first be entered.

If no application groups have been established yet, proceed in this order:

1. Select standard I/O group inputs if groups are to be switched via the interface.
2. Select feature (*Deactivated* or *Standby*)
3. Switch application group(s).

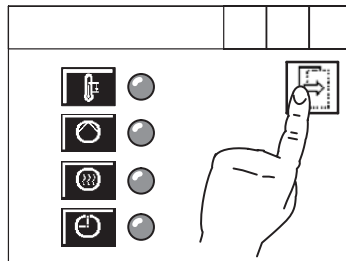


Figure 4-29 V1

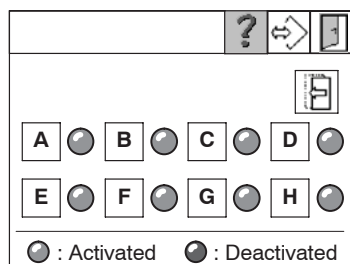


Figure 4-30 V5

**Switch application group(s)**

Temperature channels (except for grid and reservoir) can be combined to application groups A to H (Refer to *Creating Groups*).

The indication lamp shows whether the application group is activated (green) or whether the application group is deactivated or in standby (gray). Touch key to switch between activated and deactivated/standby.

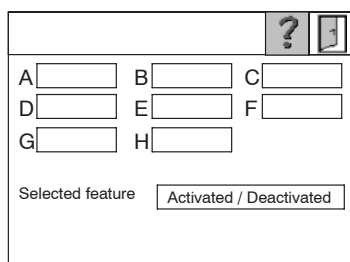


Figure 4-31 Deactivated

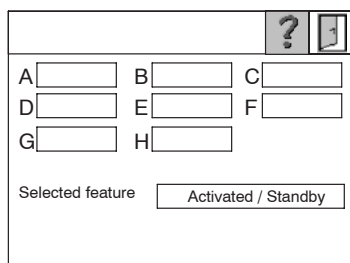


Figure 4-32 Standby

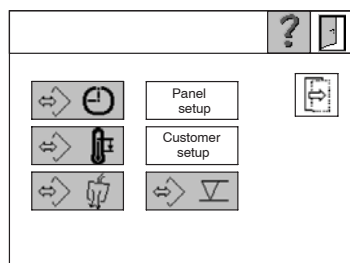


Figure 4-33 V7

**Setup (Screen 1: Seven-day clock, Standby, Level)**

NOTE: To be able to work on the parameter level, the password for level 2 (trained personnel) must first be entered.

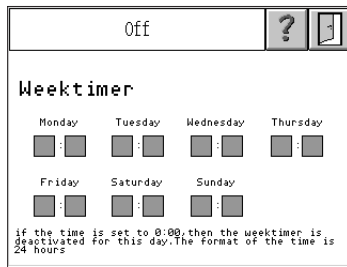


Figure 4-34 V8

Seven-day Clock

Heaters and standby can be switched on via the seven-day clock. A starting time for every day of the week can also be entered.

If 0:00 is entered as the starting time, the seven-day clock is deactivated for that day.

NOTE: The switching times are entered in 24-hour format.

Set Date / Time

The current date and time are set before the melter is delivered. However, both can be changed in the panel setup.

Refer to the manual *Panel View* for more information.

NOTE: The time is not automatically changed to and from daylight savings time.

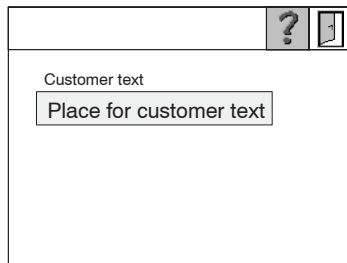


Figure 4-35 V12

Customer Setup

Text can be entered that will appear on the starting screen, e.g. adhesive type used in the production line.

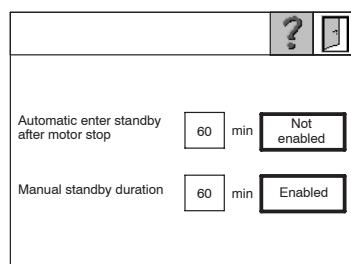


Figure 4-36 V9

Standby

Standby serves to protect the hot melt material and to save energy during breaks in production.

For information on setting the temperature standby value (value by which the setpoint temperature is reduced), refer to *Overview / T2*.

Automatic Startup

Standby is entered as soon as all of the motors have been stopped for a certain time. Enable *Automatic enter standby* for this purpose.

Manual Shutdown

Automatic standby is exited by the operator on the control panel . *Manual standby duration* is ineffective here.



Automatic enter standby after motor stop: **60 min**

Manual Entry/Exit (Control Panel)

External Entry/Exit (Interface)

Either the operator enters and exits standby on the control panel key  or this occurs via the interface *Standard I/O*.

Automatic Shutdown

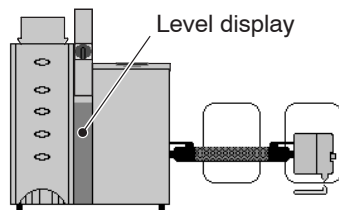
Exit standby can also occur automatically. Enable *Manual standby duration* for this purpose. After the set time has expired, the melter automatically returns to heatup guided by reference channel.



Manual standby duration: **60 min**

Entering/Exiting via the Seven-day Clock

Refer to *Overview / V7* and *V8*.



Level (Option)

If the melter is heated up and there are no undertemperature faults or sensor alarms (short-circuit / sensor break), the command to fill is given as soon as the level reaches or falls below the value *Start at*.

Filling continues until the level has reached or exceeded *Stop at*. All values are shown as a percentage of the tank volume.

The status diode is lit during filling.

Activate and Deactivate Level Control

Level control is activated and deactivated by pressing .

Level display and monitoring no longer occur when level control is deactivated. Now the tank can be emptied for maintenance or repair work without the fault *Tank empty* occurring.

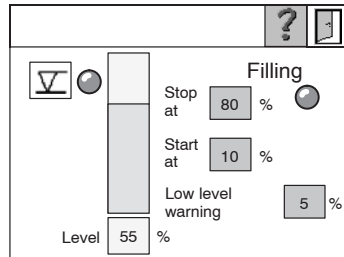


Figure 4-37 V13



 Start at: **10 %**

 Stop at: **80 %**

 Low level warning: **10 %**

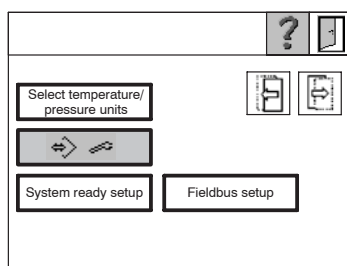


Figure 4-38 V14



Setup (Screen 2: e.g. Units, Ready Delay Time, Service Interval, Field Bus)

NOTE: To be able to work on the parameter level, the password for level 2 (trained personnel) must first be entered.

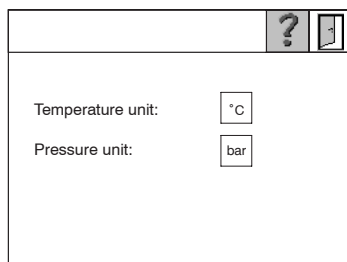


Figure 4-39 V15

Select Temperature/Pressure Units

Either °C or °F can be selected as the temperature unit.



°C

Either bar or psi can be selected as the pressure unit.



bar

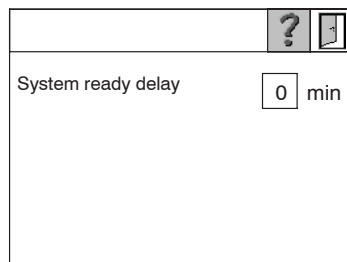


Figure 4-40 V17

System Ready Setup

The system ready delay time is the time after which all components have reached their setpoint temperatures and before the system indicates readiness. This additional time allows the material to reach a thermally homogenous state.

The system ready delay time, if activated, runs after every *heatup phase* (status display).



0 min

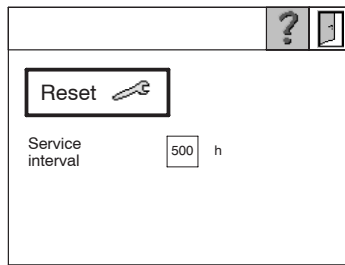


Figure 4-41 V16



Service Interval Setup

When the *Service interval* time defined by the customer has expired, the service symbol (open-jawed wrench) lights up on the starting screen. The symbol can be used e.g. to signal that the filter needs to be changed.



The time for the service interval is reset, and the service symbol is switched off.



500 h (total hours with heaters on)

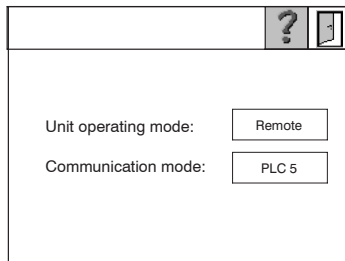


Figure 4-42 V18

Field Bus Setup

The melters on the field bus each require a node address for communication; each address may be assigned only once in the entire field bus.



10

NOTE: The node address may be changed with the software *RS Logix 5000* only by personnel with PLC training.

Switching Between Field Bus Mode and Local Mode

Field bus mode: All screens can still be viewed, but the melter can no longer be operated via the control panel. Parameter changes are not assumed by the control system.

Refer to appendix *ControlNet* for more information.



Local

Switching Between Communication Type PLC 5 / Communication Type CLX

This key is used to select the type of communication between the customer's PLC and the melter.

PLC 5: The customer's PLC 5 control unit communicates with the melter in PLC 5 format (example: *N20:0*).

CLX: The customer's ControlLogix control unit communicates with the melter in tag address format (example: *CS_READ_SD[0]*).

Also refer to *Appendix H, Communication Data List*.

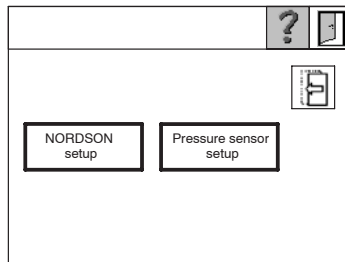


Figure 4-43 V19



Setup (Screen 3: e.g. Nordson Setup, Pressure Sensor Setup)

NOTE: To be able to work on the parameter level, the password for level 2 (trained personnel) must first be entered.

NORDSON setup

Only for Nordson employees with the Nordson password.

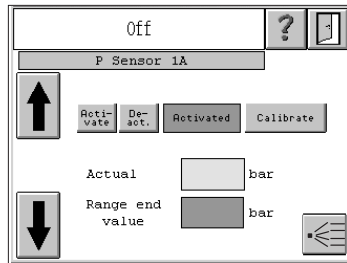


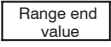
Figure 4-44 V20

Pressure Sensor Setup

The   keys can be used to select a certain pressure sensor.

NOTE: Pressure sensor A is always located at the melter outlet, behind the filter cartridge (default). With the option *Pressure display and pressure control*, it transmits the values to the motor controller.

NOTE: To calibrate the sensor, the melter must be heated to processing temperature and may not be pressurized (relieve pressure if necessary; refer to section *Installation*).

1.  Perform nullification. Nullification should be performed even if 0 bar is displayed as the actual value; internal calibration is more precise.
2. Activate connected pressure channels, thus enabling the pressure display.
3.  The range end value (pressure limit) for every pressure sensor must be entered for the correct pressure to be displayed.

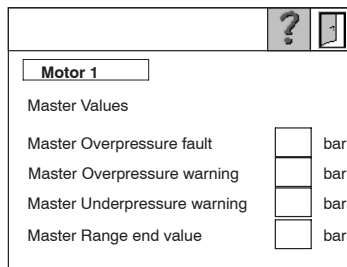


Figure 4-45 V20.1

Master Overwrite (Pressure)

The master overwrite  key offers a way to enter all alarm values only once and have them apply for all pressure channels.

Motor

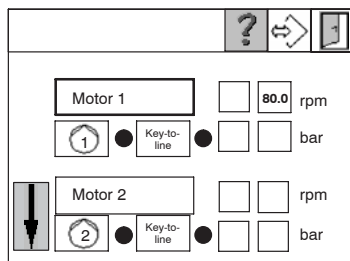


Figure 4-46 M1: Mode *Speed* control with pressure display

Switch On/Off Motor (Individual Enable)

Only enabled motors can be switched on. Prerequisite: The system is ready for operation (green status display *System ready* lit).

rpm: revolutions per minute

Enabling

If there is no collective enable, the individual motors are enabled with the key *Switch on/off motor (individual enable)* and via the interface *Standard I/O* with the signal *Enable motor*.

Switching on

If there is a collective enable, the individual motors are switched on with the key *Switch on/off motor (individual enable)* and via the interface *Standard I/O* with the signal *Enable motor*.

The indication lamp in the key can be different colors:

- Gray (off): No motor enable on the control panel
- Green: The motor is enabled on the control panel

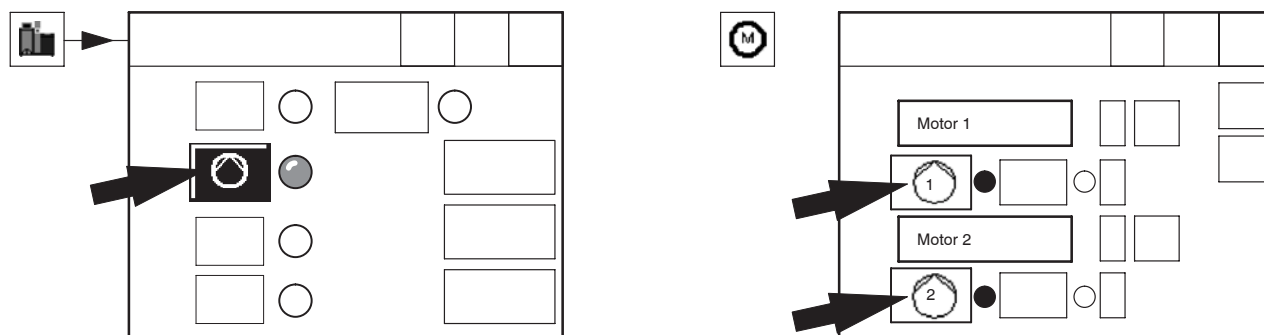


Figure 4-47 Motors: Enable on the melter screen – switch on on the motor screen

Switching on (contd)

NOTE: The *Standard I/O* interface signals *All motors ON/OFF (collective enable)* and *Enable motor* can be deactivated with a key. The motors can then only be enabled and switched on via the control panel (Refer to Fig. 4-48 *Motor enable*).

Selecting **Key-to-line or Manual Mode**

In manual mode the motor runs at the set speed; in key-to-line it runs at the speed determined by the line speed signal value.

Key-to-line mode: Indication lamp lit.

Manual mode: Indication lamp not lit.

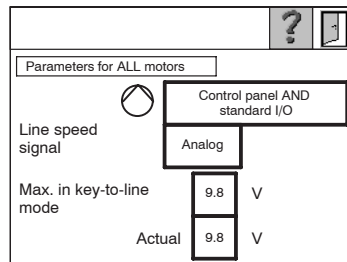


Figure 4-48 M2

 Parameters (Screen 1: Type of Motor Enable, Adaptation to Parent Machine)

NOTE: To be able to work on the parameter level, the password for level 2 (trained personnel) must first be entered.

Motor Enable Via Control Panel / Control Panel AND Standard I/O

Control panel: The *Standard I/O* interface signals *All motors ON/OFF (collective enable)* and *Enable motor* are deactivated. The motors can then only be enabled and switched on via the control panel.

In this case the melter can function even without a standard I/O connection to the parent machine, e.g. if it is to be purged for maintenance purposes.



Enable motor via **Control Panel**

Line Speed Signal

Either *analog* or *digital* (pilot voltage via bus) can be selected.

Max. in key-to-line mode

For calibration with the signal received from the parent machine.

Example: The parent machine runs at maximum speed. A input signal of 9.8 V (*actual* value) is displayed. Then set *Max. in key-to-line mode* to 9.8 (applies only to analog signal).

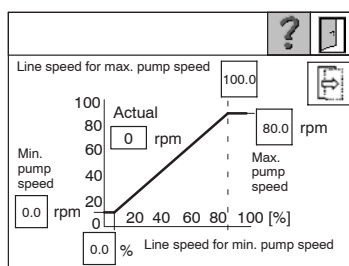


Figure 4-49 M3



Parameters (Screen 2: Key-to-line)

NOTE: To be able to work on the parameter level, the password for level 2 (trained personnel) must first be entered.

NOTE: The graph does not change to adapt to the entered values.

Min. pump speed: Pump speed setpoint when the external line speed signal lies below the entered value Line speed for min. pump speed.



0.0 min⁻¹

Max. pump speed: Pump speed setpoint when the external line speed signal exceeds the entered value Line speed for max. pump speed.



80.0 min⁻¹

Line speed for min./max. pump speed: Line speed signal value in %, below or above which the pumps begin to rotate at the set min./max. speed.



Max: 100.0 %



Min: 0.0 %

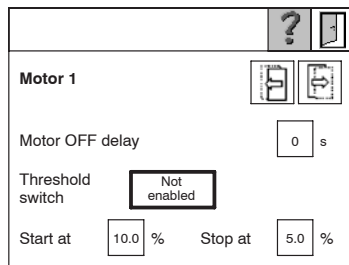


Figure 4-50 M4



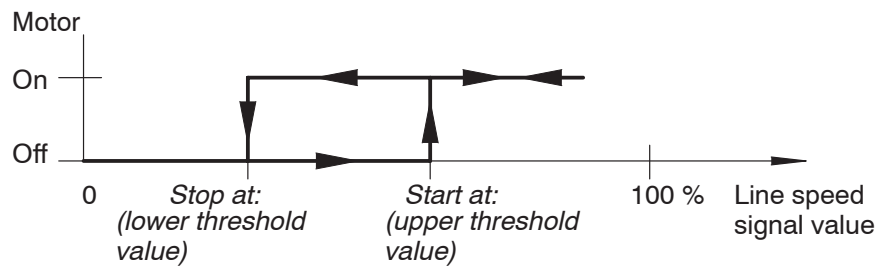
Parameters (Screen 3: Threshold Switch)

NOTE: To be able to work on the parameter level, the password for level 2 (trained personnel) must first be entered.

Threshold Switch

NOTE: The threshold switch is automatically deactivated as long as pressure build-up is enabled.

In threshold switch mode the motors are started and stopped by the line speed signal.



When the upper threshold value is exceeded, the motor starts; when the value falls below the lower value, the motor stops.



Start at: 10.0 %



Stop at: 5.0 %

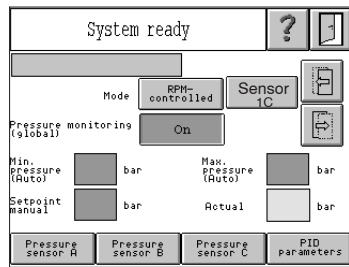


Figure 4-51 M5



Parameters (Screen 4: Pressure Alarms, Switching Between Speed / Pressure Control, Pressure Setpoints)

NOTE: To be able to work on the parameter level, the password for level 2 (trained personnel) must first be entered.

Pressure alarm monitoring (global)

Global = for all motors

Pressure alarm monitoring is available only with options *Pressure display* and *Pressure control*.

If pressure alarm monitoring is switched on, underpressure and overpressure are monitored. Alarms are triggered depending on the set warning and fault values (Refer to *Pressure Sensor A*).

NOTE: When the speed is regulated in key-to-line mode, an underpressure warning can be displayed during parent machine startup until the melter speed setpoint is reached.

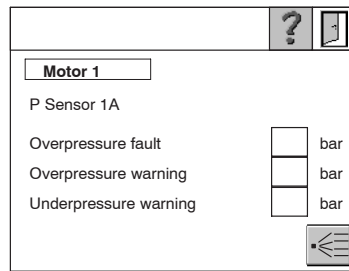


Figure 4-52 M6

Pressure Sensor A

Two pressure sensors (A and B) can be assigned per pump (Refer to *Pressure Sensor Setup* Fig. 4-44). The measured pressures are shown in the motor screen (Fig. 4-46, M1).

NOTE: The values for warnings and faults are absolute values in *Speed control* mode with the option *Pressure display*. With the option *Pressure control*, the values are differential values for sensors A and B and absolute values for the sensors C.

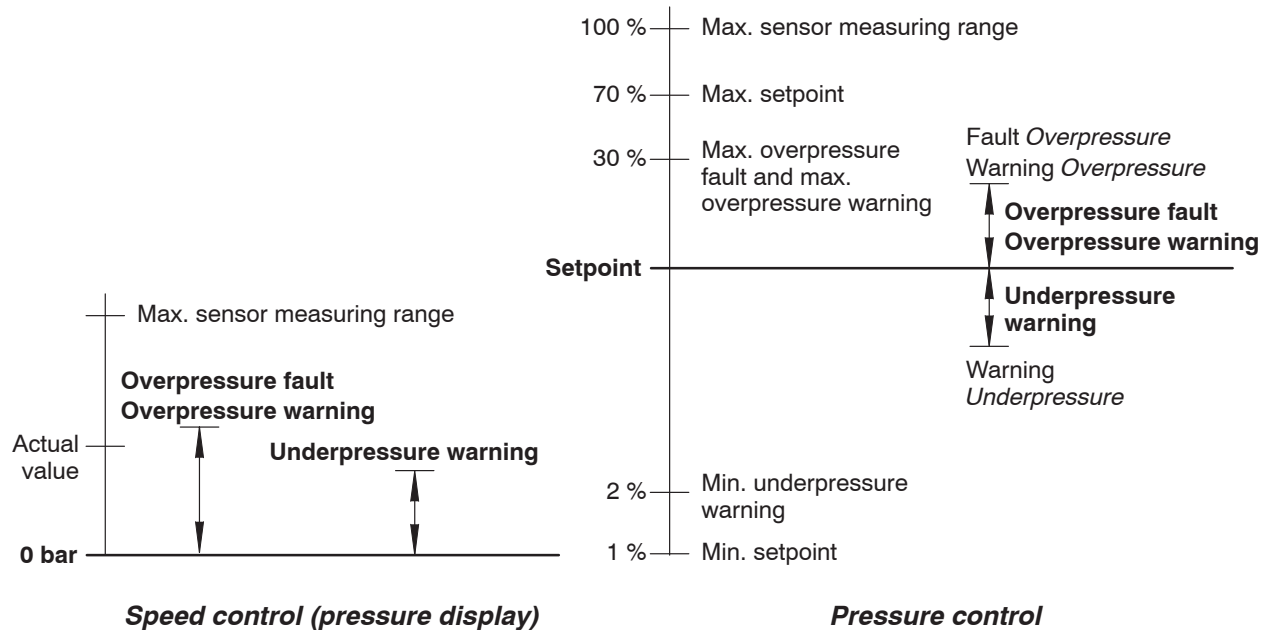


Figure 4-53

NOTE: The overpressure value for the warning can not be greater than the value for the fault.

NOTE: The overpressure value for the warning/fault can not be less than the value for the underpressure warning.



Overpressure fault: **15 bar** (218 psi)



Overpressure warning: **10 bar** (145 psi)



Underpressure warning: **0 bar** (0 psi)

Motor 1

Master Values

Master overpressure fault bar

Master overpressure warning bar

Master underpressure warning bar

Figure 4-54 M6.1

Master Overwrite (Motor – Pressure)

The master overwrite  key offers a way to enter all alarm values only once and have them apply for all motors.

bar		bar	
1 C	10	5 C	10
2 C	10	6 C	10
3 C	10	7 C	10
4 C	10	8 C	10

Figure 4-55

Pressure Sensor C

Unlike pressure sensors A and B, the pressure sensors C are not assigned to a motor. For this reason, the operator is shown a screen with an overview of all sensors and their actual pressure values.

P Sensor 1C

Overpressure fault bar

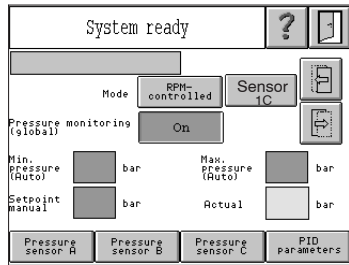
Overpressure warning bar

Underpressure warning bar

Figure 4-56

P SENSOR 1C To the pressure alarm parameters

NOTE: The values for warnings and faults are absolute values in *Speed control* mode with the option *Pressure display*. With the option *Pressure control*, the values are differential values for sensors A and B and absolute values for the sensors C.



Switching Between Speed Control – Pressure Control



Speed-controlled

Speed Control – Manual Mode

In manual mode the operator has control over the motors. The pump speed is equal to the setpoint and does not change.



Speed setpoint: **5 min⁻¹**

Example: Increase pump speed

Prerequisite: *Speed control* mode is selected, and the indication lamp next to key *Key-to-line* is off.

1. Touch the green field **50.0 min⁻¹** (rpm) (setpoint).
2. Enter 60.0 in the input window and confirm with
3. If necessary, enable pump (indication lamp next to key lit).

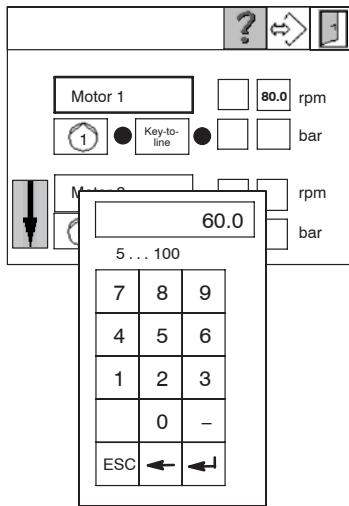
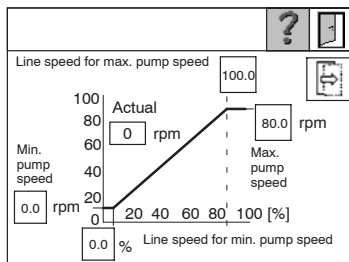


Figure 4-57



Other Settings

- Speeds (Refer to illustration)
- Touch key *Key-to-line* so that the LED lights up (Refer to Fig. 4-46)

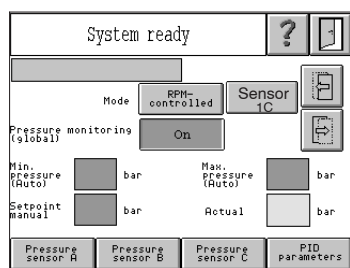


Figure 4-58 M5

Pressure Control – Manual Mode

In manual mode the operator has control over the motors. The pressure is equal to the setpoint and does not change.



Only pressure sensor A: **5 bar** (73 psi)

Pressure Control – Key-to-line

Min. pressure: Setpoint pressure when the external line speed signal is 0%.



0 bar (0 psi)

Max. pressure: Pressure setpoint when the external line speed signal exceeds the entered value Line speed for max. pump speed.



70 bar (1015 psi)

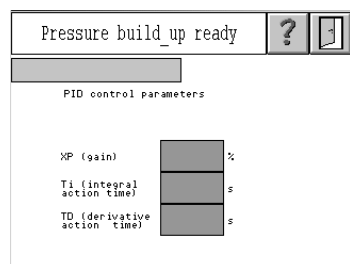


Figure 4-59 M7

PID Pressure Control Parameters

NOTE: Should be adjusted only by personnel with experience in metrology and control technology.



Kp: **0.80**



Ti: **600 ms**



Kd: **0.0**



Parameters (Screen 5: Pressure Build-up Feature)

NOTE: To be able to work on the parameter level, the password for level 2 (trained personnel) must first be entered.

Pressure Build-up Feature

This feature allows the material pressure to be regulated to an adjustable value as soon as the parent machine stops (condition for variation 1) or when the line speed signal falls below an adjustable value (condition for variation 2). This allows the melter to maintain a certain pressure even when there is a break in production.

The pressure sensors A are always responsible for pressure control during pressure build-up.

Figure 4-60 M5

NOTE: When pumps are in the process of building up pressure, there is no pressure alarm monitoring (sensors A and B).

There is no pressure alarm monitoring for pressure sensors C as soon as at least one pump is building up pressure.

NOTE: The output *Motor running* on the interface *Standard I/O* is switched off as long as the corresponding pump is in the process of building up pressure.

When pressure build-up has been completed for all pumps for which this feature has been selected, meaning that the pressure setpoint has been reached, an indication appears in the status line on the control panel and a signal is switched via the interface *Standard I/O* or the field bus.

NOTE: The threshold switch is automatically deactivated as long as pressure build-up is enabled.

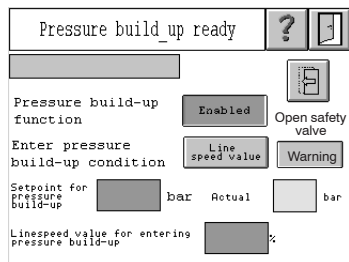


Figure 4-61

Variation 1: Line stop signal

Enable pressure build-up feature and select condition for which the pressure build-up is to be started (here: *Line stop signal*).

The motors are speed-controlled during production. If the signal *Line stop* is switched via the interface *Standard I/O* or the field bus, the motors are pressure-controlled to the value *Setpoint for pressure build-up*.

As soon as the signal *Line start* is switched, the melter returns to speed-controlled mode.

Switching between *Warning/Fault*

The operator can choose whether an open safety valve generates a fault (motors are stopped) or a warning.

Variation 2: Line speed

Enable pressure build-up feature and select condition for which the pressure build-up is to be started (here: *Line speed*).

The motors are speed-controlled during production. If the line speed signal falls below the value *Line speed value for pressure build-up enabling*, the motors are pressure-controlled to the value *Setpoint for pressure build-up*.

As soon as the line speed signal exceeds the value plus 5% (15% in the example), the melter returns to speed-controlled mode.

Switching between *Warning/Fault*

The operator can choose whether an open safety valve generates a fault (motors are stopped) or a warning.

Settings Record

Production information:

--

Material:

Manufacturer

Processing temperature

Viscosity

Cleaning agent:

Manufacturer

Flash point

Processing temperatures (Setpoints):

Grid				
Reservoir (high melt)				
Filling valve (Option)				
Hose (accessory)	1)	2)	3)	4)
Gun (accessory)	1)	2)	3)	4)
Air heater (accessory)	1)	2)	3)	4)

Speeds / pressures (Setpoints):

Pump [min ⁻¹]	1)	2)	3)	4)
Sensor A [bar]	1)	2)	3)	4)
Sensor B [bar]	1)	2)	3)	4)
Sensor [bar]	1)	2)	3)	4)
Sensor [bar]	1)	2)	3)	4)

Air pressures at gun (accessories):

Control air	1)	2)	3)	4)
Spray air	1)	2)	3)	4)

Notes:

--

Name

Date

Section 5

Maintenance

WARNING: Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

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.

Risk of Burns

WARNING: Hot! Risk of burns. Wear appropriate protective clothing/equipment.

Some maintenance work can only be done when the melter is heated up.

Relieving Pressure

WARNING: System and material pressurized. Relieve system of pressure before disconnecting hoses, guns and hot melt handguns. Failure to observe can result in serious burns.

Relieve pressure as described in section *Installation, Connecting Hose, Disconnecting*.

Important when Using Cleaning Agents

- Use only a cleaning agent recommended by the hot melt material manufacturer. Observe the Material Safety Data Sheet for the cleaning agent.
- Properly dispose of cleaning agent according to local regulations.

Processing Materials

Designation	Order number	Use
High temperature grease • Can 10 g P/N 394769 • Tube 250 g P/N 783959 • Cartridge 400 g P/N 402238		To be applied to O-rings and threads NOTE: The grease may not be mixed with other lubricants. Oily/greasy parts must be cleaned before application.
Sealing paste <i>Stucarit 203</i> : • Tube 100 ml P/N 255369		Applied to sealing surfaces
Temperature-resistant adhesive <i>Loctite 640</i> • 50 ml P/N 290359		Secures screw connections
Heat transfer compound <i>NTE303</i> • 1 g P/N 1023441		To improve heat conducting of temperature sensors

Preventive Maintenance

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

NOTE: Coupling and motor controller are maintenance-free.

Melter part	Activity	Interval	Refer to
Complete melter	External cleaning	Daily	5-4
	Inspect for external damage	Daily	5-5
	Purge melter with cleaning agent	When material is changed	5-17
Displays and lamps	Safety and function tests	Daily	5-5
Fan and Air filter	Check filter, clean or replace if necessary Clean fan screen	Depending on dust accumulation; daily if necessary	5-6
Power cable	Inspect for damage	Every time the melter is serviced	–
Air hoses	Inspect for damage	Every time the melter is serviced	–
Gear pump	Tighten the gland bolt	After initial startup	5-7
	Check for leakage, tighten gland bolt if necessary	Dependent on hours of operation, pump speed and pump temperature Recommendation: Monthly	5-7
	Tighten fixing screws	Every 500 hours of operation	5-7
Motor / gear box	Clean fan cover	Depending on dust accumulation; daily if necessary	–
	Change lubricant	Every 15 000 hours of operation or every 4 years	5-8
Pressure sensor	Calibrate	Once/year, more often when conditions dictate	Section Operation
	Check separating membrane for damage	Every time pressure sensor is removed, more frequently if necessary	–
	Check whether hardened or charred material is stuck to the membrane; clean separating membrane if necessary	Every time pressure sensor is removed, more frequently if necessary	5-18
Continued...			

Melter part	Activity	Interval	Refer to
Pressure control valve	Replace outer O-rings (service kit)	At the latest when leakage occurs	5-9
	Disassemble and clean	Every six months	Section <i>Parts</i>
Filter cartridge	Replace filter cartridge	Depending on degree of material pollution	5-12
	Disassemble and clean filter cartridge	Recommendation: Every 1000 hours of operation	5-13
Tank	Clean tank by hand	When there is material residue in tank	5-14
	Tighten fixing screws	Every 500 hours of operation	5-14
Safety valve plate	Replace O-rings (service kit)	When the safety valve plate is detached, at the latest when leakage occurs	5-15
Tank isolation valve	Replace O-ring (service kit)	When the tank isolation valve is detached, at the latest when leakage occurs	5-16
Safety valve	Activate piston	Monthly	5-17
Filling valve (option)	Check control module detection hole; replace complete control module if necessary	When excess material seeps out of detection hole (seals in inside worn)	5-19
Level and overflow protection evaluators	Calibrate	Only when evaluator or level sensor is replaced	Section <i>Repair</i>
Pneumatic safety valve	Performance check; clean or replace if necessary	Every six months	5-20

External Cleaning

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

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

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

Remove material residue only with a cleaning agent recommended by the material supplier. Heat with an air heater if necessary.

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

Nordson recommends the orange cleaning agent P/N 771 192 (12 spray bottles, 0.5 liter each).

Control Panel

CAUTION: Set *Screen cleaning*. This ensures that no functions are unintentionally triggered by touching the screen.

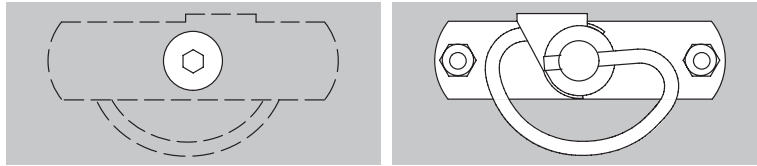
Clean the insides of the plastic frame on the control panel front regularly with a damp, soft cloth. Use caution to ensure that the surface is not scratched or scoured, particularly when removing hard residue and abrasive dust. Do not allow solvents to come into contact with the panel front; solvents could corrode the plastic frame.

Visual Inspection for External Damage

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

Detaching Protective Panels

Open the protective panels with a 4 mm Allen key.



On the inside

Figure 5-1

Detaching Insulation Blanket

1. Release Velcro and clamps.
2. Take insulation blanket out of hooks.

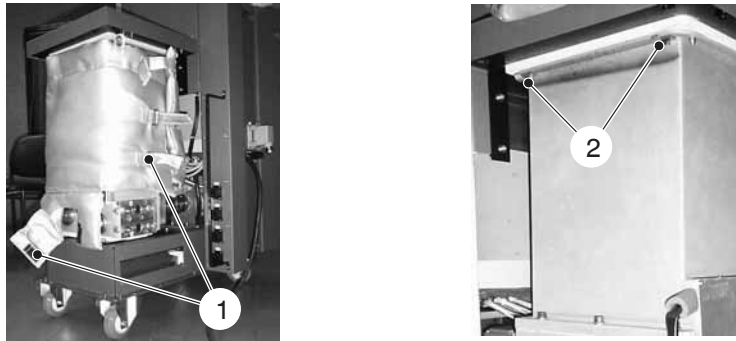


Figure 5-2

Fan and Air Filter

Depending on dust accumulation, the filters (1 and 3) for the air inlet and outlet (4) must be cleaned (knocked out) or replaced.

Refer to section *Spare Parts* for filter order number.

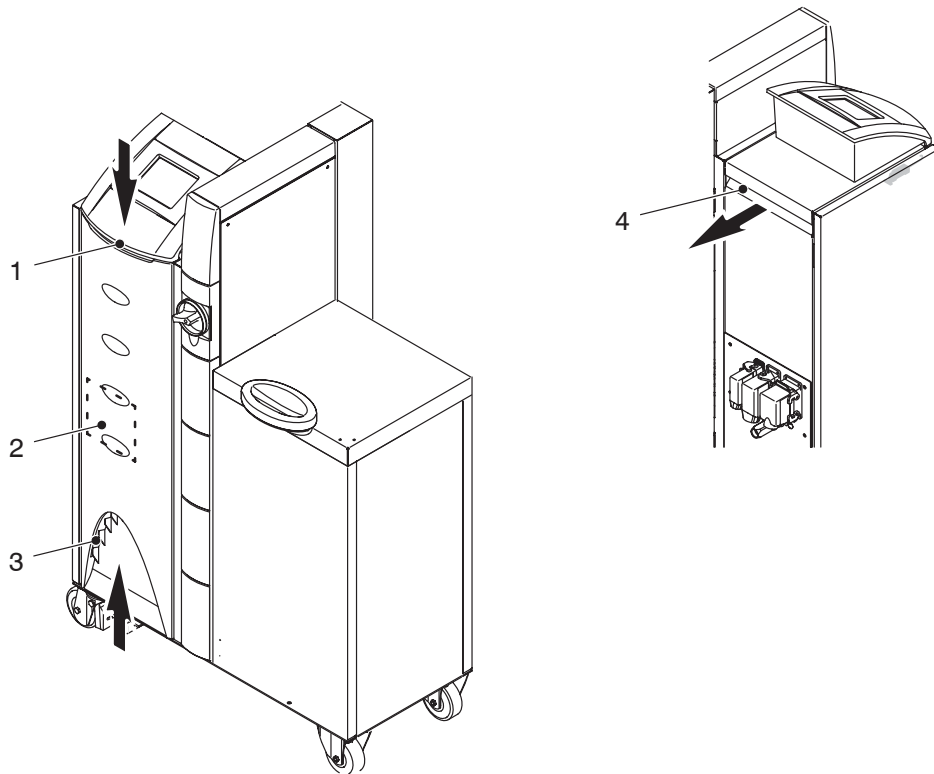


Figure 5-3

1 Air filter, top air inlet

3 Air filter, bottom air inlet

4 Air filter, air outlet

2 Fan

Gear Pump

Checking for Leakage

The gear pump is equipped with a self-sealing pump shaft seal. Material may seep out of the seal at irregular intervals. The gland bolt must then be tightened.

NOTE: When 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.

Tightening Gland Bolt

NOTE: Tighten only when melter is warm.

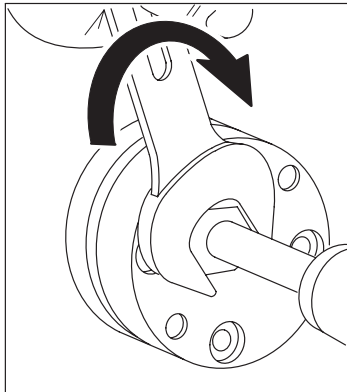


Figure 5-4

Tighten the gland bolt approx. $\frac{1}{4}$ of a revolution in the operating direction of the pump. If tightening is no longer possible, the gear pump must be replaced.

Tightening Fixing Screws

Normal heat cycling (heating and cooling) can cause the fixing screws to become loose.

NOTE: Tighten fixing screws only using a torque wrench (25 Nm / 220 lbin) and when the melter is cold.

Motor / Gear Box

The only motor maintenance required is cleaning the fan cap.

Changing Lubricant

NOTE: Use only the stated lubricant or one that has proven to be equivalent (Refer to *Lubricant Selection*). Using any other lubricant can result in premature wear and/or damage to the gear box.

NOTE: Drain lubricant when warm.

Remove gear box from the motor to change lubricant. Wash out casing with suitable cleaning agent and remove lubricant residue.

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

Lubricant Changing Interval

Operating temperature < 100 °C / 212 °F:

Every 15000 hours of operation or at least every 4 years.

Capacity

The lubricant quantity is indicated on the ID plate. Ensure that the upper gears and rolling bearings are properly lubricated.

NOTE: Never mix different types of lubricants.

Lubricant Selection

Lubricant manufacturer	Mineral oil CLP 220
AGIP	Blasia 220
ARAL	Degol BMB 220 or Degol BG 220
BP	Energol GR-XP 220
DEA	Falcon CLP 220
ESSO	Spartan EP 220 or GP 90
KLÜBER	Klüberoil GEM 1-220
OPTIMOL	Optigear 220
SHELL	Omala Oil 220
TEXACO	GearTex EP-A SAE 85 W-90

Pressure Control Valve

WARNING: Hot! Risk of burns. Wear appropriate protective clothing/equipment.

WARNING: System and material pressurized. Relieve system pressure. Failure to observe can result in serious burns.

NOTE: Screw in/out only when valve is warm and material is soft (approx. 70 °C / 158 °F, depending on material).

Installing Service Kit

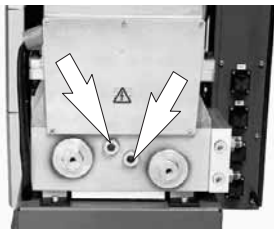
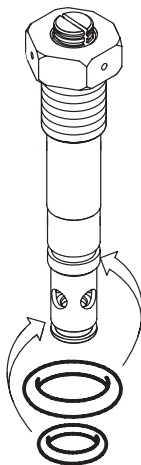
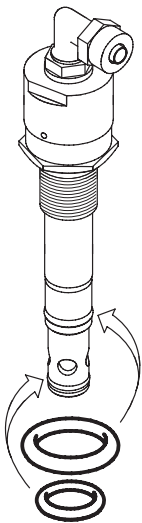


Figure 5-5

Each kit contains two O-rings and high-temperature grease.

* HT = High temperature

Mechanical pressure control valve		Pneumatic pressure control valve (option)	
Service kit P/Ns: 394600 or 394601 (HT*)		Service kit P/Ns: 394600 or 394601 (HT*)	
Required tools: Open-jawed wrench, size 24 Pliers Torque wrench		Required tools: Open-jawed wrench, size 27 Pliers Torque wrench	
	1. Heat melter to operating temperature. WARNING: Hot! Risk of burns. Wear appropriate protective clothing/equipment.		
	2. Relieve melter pressure.		
	–	3. Close compressed air supply.	
	4. Refer to <i>Measuring Insertion Depth</i>	4. Unscrew air hose.	
	5. Use an open-jawed wrench to screw out the pressure control valve, then extract with a pliers.		
	6. Remove old O-rings and disassemble and clean pressure control valve. Refer to section <i>Spare Parts</i> for detailed drawing. NOTE: Disassemble valve only when warm.		
	7. Install new O-rings. Apply grease to all threads and O-rings.		
	8. Guide pressure control valve into the hole when the melter is warm and tighten with torque wrench. Starting torque: 15 Nm (133 lbin)		
	9. Refer to <i>Adjusting Setting Screw</i>	9. Attach air hose.	
	–	10. Open compressed air supply again.	

Important for Mechanical Pressure Control Valve

Measuring Insertion Depth

Measure and make a note of the insertion depth of the setting screw (dimension X). This way the insertion depth can be replicated after reassembly.

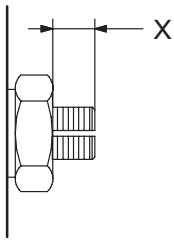


Figure 5-6

Adjusting Setting Screw

Adjust the setting screw to the recorded dimension X.

- Turning to the right increases material pressure.
- Turning to the left decreases material pressure.

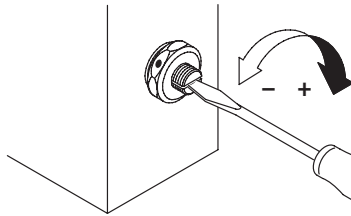


Figure 5-7

Filter Cartridge

Replacing Filter Cartridge

WARNING: Hot! Risk of burns. Wear appropriate protective clothing/equipment.

WARNING: System and material pressurized. Relieve system pressure. Failure to observe can result in serious burns.

Removing Filter Cartridge

NOTE: Remove filter cartridge only when the melter is hot and not under pressure.

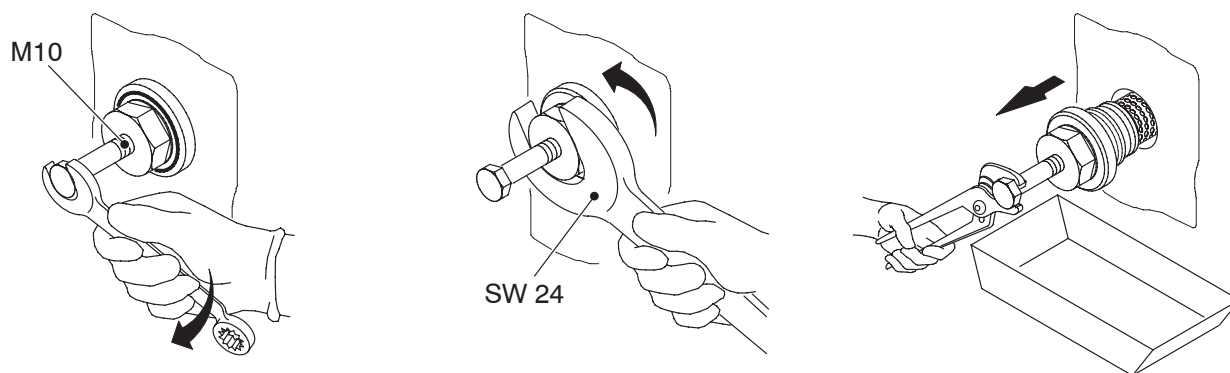


Figure 5-8

Installing Filter Cartridge

NOTE: Install filter cartridge only when melter is hot.

1. Apply high temperature grease to all threads and O-rings.
Refer to *Processing Materials*.
2. Insert filter cartridge and tighten somewhat (approx. 1 Nm / 8.85 lbin).
3. Feed material by allowing the pump to run until the material comes out of the hose connection or gun free of bubbles.
4. Properly dispose of material according to local regulations.

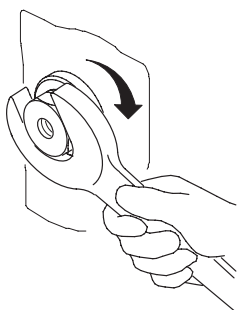
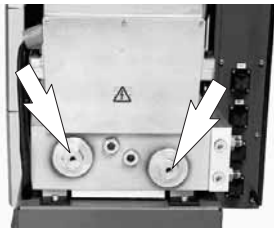


Figure 5-9

Installing Service Kit



Each kit contains three O-rings, filter sheath, filter screen and high-temperature grease.

* HT = High temperature

Figure 5-10

Service kit P/Ns: 394590, 7109691 or 394591 (HT*)	
Required tools: Open-jawed wrench, size 24 and size 13	
	1. Disassemble the filter cartridge when hot.
	2. Replace filter sheath (1), O-rings (2) and filter screen (3).
	3. Clean all other parts.
	4. Apply grease to all threads and O-rings.

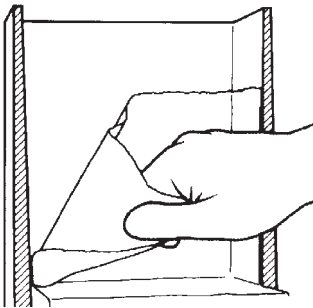
Tank

Draining Material

Pump material out of the melter.

CAUTION: Do not feed charred material through the gun. Particles can block the gun. Instead unscrew hose (Refer to section *Installation*).

Cleaning Tank by Hand



MXTK007S050A0495

Figure 5-11

Cold material can usually be peeled off of the sides of the tank (Refer to Fig. 5-11). If necessary, first heat tank to material softening temperature, usually approx. 70 °C / 158 °F.

NOTE: The inside of the tank is release coated. Do not use metallic tools to clean. Do not use wire brushes! This could damage the release coating.

Tightening Fixing Screws

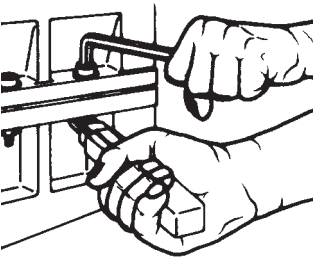


Figure 5-12

Heating and cooling that occurs during daily operation can cause the fixing screws to loosen. Tighten screw as indicated in the table.

NOTE: Tighten fixing screws only using a torque wrench and when the melter is cold.

Connection	Thread	Torque
Tank / melter chassis	M 8	25 Nm / 220 lbin
Grid (low melt) / reservoir (high melt)	M 8	20 Nm / 177 lbin

Safety Valve Plate

Installing Service Kit



Figure 5-13

Each kit contains two O-rings, sealing paste and high-temperature grease.

* HT = High temperature

Service kit P/Ns: 394594 or 394595 (HT*)	
Required tools: Allen key, size 6	
	1. Heat melter to operating temperature.
	WARNING: Hot! Risk of burns. Wear appropriate protective clothing/equipment.
	2. Empty tank.
	3. Detach pump (Refer to section <i>Repair</i>).
	4. Release the four fixing screws M8 from the safety valve plate and remove plate.
	5. Remove old O-rings and when present, the filter screen in the suction hole.
	6. Clean sealing surfaces on tank, safety valve plate and pump.
	7. If there is one, clean filter screen and place in the groove again, or replace with a new filter screen (P/N 394072).
	8. Apply high temperature grease to O-rings and sealing paste to sealing surfaces. Attach O-rings.
	9. Screw on safety valve plate.
	10. Attach pump (Refer to section <i>Repair</i>).
	11. Fill the tank.

Tank Isolation Valve

Installing Service Kit

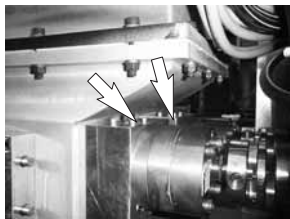


Figure 5-14

Each kit contains one O-ring and high-temperature grease.
* HT = High temperature

Service kit P/Ns: 394598 or 394599 (HT*)	
Required tools: Allen key, size 4 Pliers Open-jawed wrench, size 13, to operate the tank isolation valve	
A diagram showing the removal of the safety valve plate. It illustrates four Allen screws being removed from a plate. Below, it shows an O-ring being greased with a brush and then being installed onto the tank isolation valve. A label 'Size 13' points to the valve handle.	1. Heat melter to operating temperature. WARNING: Hot! Risk of burns. Wear appropriate protective clothing/equipment.
	2. Empty tank.
	3. Release four Allen screws M5 and lift off plate. Use a pliers to extract the tank isolation valve from the safety valve plate.
	4. Remove old O-ring and clean tank isolation valve.
	5. Apply high temperature grease to O-ring, then install again with tank isolation valve.
A diagram of the tank isolation valve handle. It is a rectangular plate with four screws. A curved arrow indicates the handle's movement from position '0' (Closed) to position '1' (Open). Labels 'Tank side' and 'Pump side' are shown. A legend indicates '0: Closed' and '1: Open'.	
NOTE: Operate the tank isolation valve only when the melter has reached operating temperature.	

Safety Valve

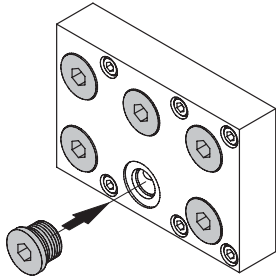


Figure 5-15

Activate the safety valve piston. This prevents the material from blocking the safety valve.

Procedure:

1. Relieve pressure as described in section *Installation*.
2. Disconnect all hoses.
3. Close hose connections with Nordson port plugs (Fig. 5-15).

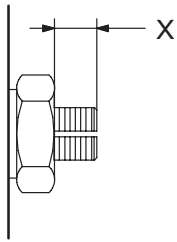


Figure 5-16

4. **Mechanical pressure control valves:** Measure insertion depth (Fig. 5-16) of setting screw (dimension X) and make a note. This ensures that insertion depth can be reproduced. Then close pressure control valve.

Pneumatic pressure control valves: Set compressed air to 6 bar.

5. Operate the melter at full motor speed and with hose connections closed. Switch the motor on and off several times.

Changing Type of Material

Remove old material from the melter (Refer to *Tank, Draining Material*).

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

- May be mixed: Remaining old material can be flushed out using the new material.
- May not be mixed: Thoroughly purge the unit with a cleaning agent recommended by the material supplier.

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

Purging with Cleaning Agent

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

Cleaning agent residue can be flushed out of the unit with new material before production begins again.

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

Pressure Sensor

Available only with options *Pressure display* and *Pressure control*.

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

Cleaning Separating Membrane

WARNING: Hot! Risk of burns. Wear appropriate protective clothing/equipment.



CAUTION: Clean the separating membrane (arrow, Fig. 5-17) with particular care. Never use hard tools.

Whenever possible, remove material residue only with a cleaning agent recommended by the material supplier. Thermoplastic substances such as hot melt adhesive may need to be heated with a hot air fan and then carefully wiped off with a soft cloth.

Figure 5-17

Screwing in

- Apply high temperature grease to the thread (Refer to *Processing Materials*).
- Only screw into a very clean hole.
- The unit part and the pressure sensor should be at or near room temperature before the pressure sensor is screwed in firmly.
- Do not tilt or jam when screwing into place.

Max. installation torque permitted: 56 Nm / 500 lbin

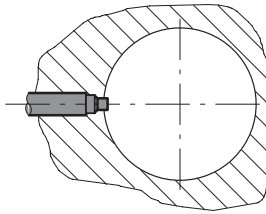


Figure 5-18 Principle drawing

CAUTION: If the material hole is to be cleaned with a hard object, the pressure sensor must first be removed; otherwise the separating membrane would be damaged.

Filling Valve

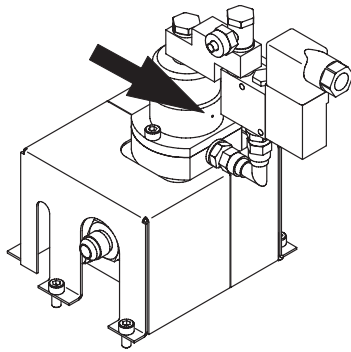


Figure 5-19 Detection hole

Available only with option *Level control*.

Replacing Control Module

Nordson recommends keeping a supply of control modules on hand to prevent disruptions in production.

NOTE: Replace only when control module is warm and material is soft (approx. 70 °C / 158 °F, depending on material).

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

1. Disconnect air supply and electrical connection.
2. Release screws M5 and extract control module from the warm filling valve.
3. Put new control module in place and tighten screws crosswise.
4. Re-connect air supply and electrical connection.

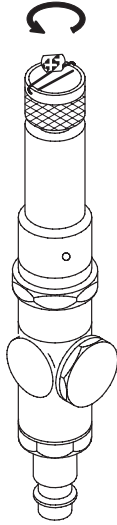
NOTE: Observe voltage shown on solenoid valve ID plate.

Pneumatic Safety Valve

The safety valves, preset at the factory and lead sealed, prevent higher pressurization than permitted of the subsequent pneumatic components. When the factory settings are exceeded, compressed air audibly escapes.

NOTE: The safety valves for the pneumatic options are located in the melter tower.

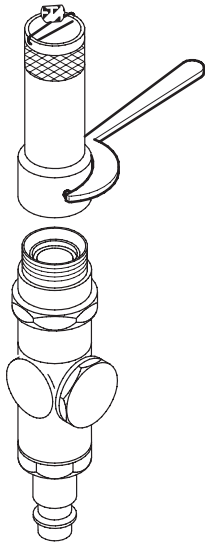
Performance Check



The performance of the safety valve should be checked approx. every six months. Turn the knurled screw until compressed air audibly escapes. If the safety valve does not function properly, it should be cleaned. If it still does not function, it must be replaced.

NOTE: A defective safety valve may be replaced only with an original spare part. Only the manufacturer may perform repairs to the safety valve!

Cleaning



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 sickle wrench to unscrew.

Maintenance Record Form

Melter part	Date / Name	Date / Name	Date / Name
Gear pump			
Motor / gear box			
Fixing screws on pump and tank			
Air filter			
Tank			
Pressure control valve			

Melter part	Date / Name	Date / Name	Date / Name
Filter cartridge			

Section 6

Troubleshooting

WARNING: Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

This section contains troubleshooting procedures. These procedures cover only the most common problems that you may encounter. If you cannot solve the problem with the information given here, contact your local Nordson representative for help.

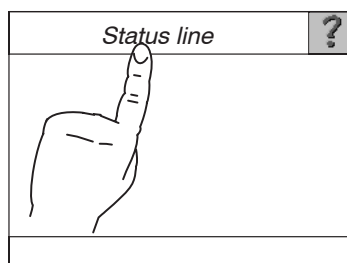
WARNING: Troubleshooting activities may sometimes have to be carried out when the unit is energized. Observe all safety instructions and regulations concerning energized unit components (active parts). Failure to observe may result in an electric shock.

Helpful Tips

Before starting systematic troubleshooting, check the following:

- Is the seven-day clock set correctly?
- Are all parameters set correctly?
- Is the interface wired correctly?
- In key-to-line mode: Is there a line speed signal provided?
- Do all plug connections have sufficient contact?
- Have circuit breakers been activated?
- Could the fault have been caused by an external PLC?
- Are external, inductive loads (e.g. solenoid valves) equipped with recovery diodes?

Alarm Text



The status line of the control panel indicates *Fault* or *Shutdown* alarms. The color of the status block changes as shown in the following tables.

The special alarm text can be found under  (V2, Alarm log) or is shown directly when the *Status line* is touched.

Status	Color of Status Display
Fault A fault switches off the motors. As soon as the fault is corrected, the motor startup protection is automatically activated.	Red
<i>Channel:</i> Overtemperature fault	Red
<i>Channel:</i> Undertemperature fault	Red
<i>Channel:</i> Sensor inlet open or sensor broken (Sensor = temperature sensor)	Red
<i>Channel:</i> Sensor short-circuit (Sensor = temperature sensor)	Red
Motor or motor controller overtemperature (longer than 5 sec)	Red
Overpressure fault: Motor #, sensor #	Red

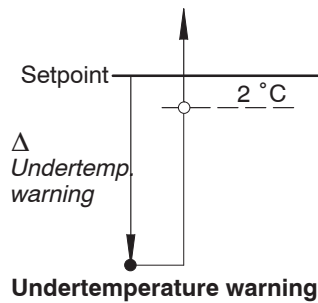
Status	Color of Status Display
Shutdown Shutdown turns the melter off (main contactor opens).	Red
Main contactor / tank thermostat fault ○ Main contactor defective or open ○ Temperature exceeded	Red
(Motor) controller fault: ○ Controller defective ○ Overload ○ Motor short circuit (At least one fault longer than 5 sec.)	Red
<i>Channel:</i> Overtemperature shutdown	Red
Motor coupling blocked or phase missing (motor current exceeds limit longer than 5 sec)	Red

Triggering and Resetting Alarms

Faults can trigger different alarms with various consequences. If several alarms are triggered at once, the most severe takes priority: *Shutdown* before *Fault* before *Warning*.

Undertemperature and Overtemperature – Warning –

- Alarm Triggered
- Alarm Reset

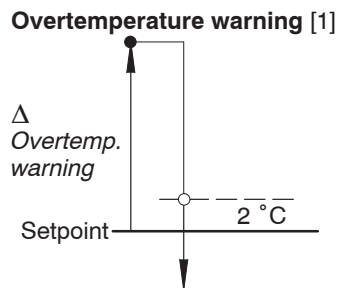


Undertemperature Warning Triggered

Actual temperature has dropped below the differential value (Δ) *undertemperature warning delta* for more than 5 seconds.

Automatic Reset

Actual temperature has increased to 2 °C (3.6 °F) below the setpoint

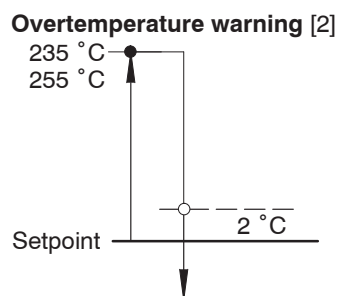


Overtemperature Warning Triggered

[1] Actual temperature has increased beyond the differential value (Δ) *overtemperature warning delta* for more than 5 seconds.

or

[2] Actual temperature has increased beyond 235 °C (455 °F) for more than 5 seconds.

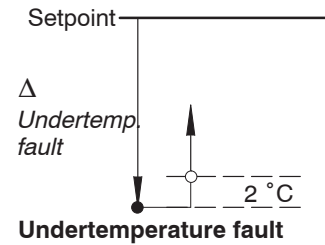


Automatic Reset

Actual temperature has decreased to 2 °C (3.6 °F) above the setpoint for more than 5 seconds.

Undertemperature and Overtemperature – Fault –

- Alarm Triggered
- Alarm Reset

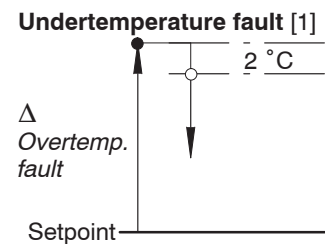


Undertemperature Fault Triggered

Actual temperature has dropped below the differential value (Δ) *undertemperature fault delta* for more than 5 seconds.

Automatic Reset

The actual temperature has exceeded the differential value (Δ) *Undertemperature fault delta* by 2 °C (3.6 °F).

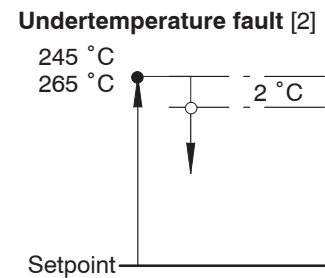


Overtemperature Fault Triggered

[1] The actual temperature has exceeded the differential value (Δ) *overtemperature fault delta* for more than 5 seconds.

or

[2] The actual temperature has exceeded 245 °C (475 °F) for more than 5 seconds.



Automatic Reset

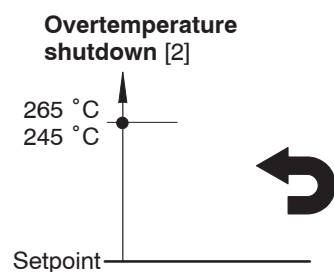
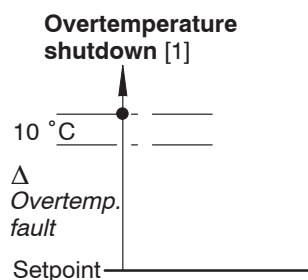
[1] The actual temperature has dropped below the differential value (Δ) *Overtemperature fault delta* by 2 °C (3.6 °F).

or

[2] The actual temperature has dropped below 245 °C (475 °F) by 2 °C (3.6 °F).

Overtemperature – Shutdown –

- Alarm Triggered



Software-triggered

[1] The actual temperature has exceeded the differential value (Δ) *overtemperature fault delta* by 10 °C (20 °F) for more than 5 seconds.

or

[2] The actual temperature has exceeded 245 °C (475 °F) for more than 5 seconds.

NOTE: Channels in display mode trigger shutdown only when they have reached the maximum temperature of 245 °C (475 °F).

Reset

Switch melter off/on with main switch.

Tank Thermostat-triggered

The shutdown value depends on the installed thermostat (Also refer to *Technical Data* for possible thermostats).

Reset

Switch melter off/on with main switch.

Underpressure – Warning –

NOTE: The values for warnings and faults are absolute values in *Speed control* mode with the option *Pressure display*. With the option *Pressure control*, the values are differential values for sensors A and B and absolute values for the sensors C.

Underpressure Warning Triggered

Pressure Sensors A and B

Actual pressure has dropped below the value *Underpressure warning* for more than 20 seconds and the motor assigned to the pressure sensor receives the signal to run. However, the system must be ready for operation.

Pressure Sensors C

Actual pressure has fallen below the value *Underpressure warning* for more than 20 seconds. The warning is indicated even if the system is not yet ready.

Automatic Reset

Actual pressure has exceeded the value *Underpressure warning*.

Overpressure – Warning – / Overpressure – Fault –

NOTE: The values for warnings and faults are absolute values in *Speed control* mode with the option *Pressure display*. With the option *Pressure control*, the values are differential values for sensors A and B and absolute values for the sensors C.

Overpressure Warning Triggered

Actual pressure has increased beyond the value *Overpressure warning* for more than 20 seconds. The warning is indicated even if the system is not yet ready.

Overpressure Fault Triggered

Actual pressure has increased beyond the value *Overpressure fault* for more than 60 seconds. The fault is indicated even if the system is not yet ready.

Automatic Reset

Actual pressure falls below the value *Overpressure warning* or *fault*.

Temperature Sensor – Fault –

Every temperature sensor is monitored.

Short-circuit-triggered

Actual temperature has dropped below $-10\text{ }^{\circ}\text{C}$ ($14\text{ }^{\circ}\text{F}$) for more than 5 seconds.

Triggered by Broken Sensor or Open Sensor Input

Actual temperature has increased beyond $305\text{ }^{\circ}\text{C}$ ($581\text{ }^{\circ}\text{F}$) for more than 5 seconds.

Automatic Reset

After the fixed internal value has been exceeded or fallen below for longer than 5 seconds or after a defective sensor has been replaced.

Level

Warning Tank Overfilled

The warning is triggered as soon as the level has reached or exceeded 98% for longer than 5 seconds. This is a fixed internal value.

Automatic Reset

When the level falls below 90 %.

Warning Tank Level is Low

As soon as the level has fallen below the set value for longer than 5 seconds, the warning is triggered. The value for this warning is set in the screen *Level* (Refer to *Overview / V13*).

Automatic Reset

When the level exceeds the set value for longer than 5 seconds.

Fault Tank Empty

The fault is triggered as soon as the level has reached or fallen below 2 %. This is a fixed internal value.

Automatic Reset

When the level exceeds 5 %.

Troubleshooting Tables

Melter not Functioning

Possible Cause	Possible Fault / Troubleshooting	Corrective Action
No line voltage	–	Connect line voltage
Main switch not switched on	–	Switch on main switch
Main switch defective	–	Replace main switch
Main circuit breaker activated	–	Switch on main circuit breaker
Main circuit breaker activated again	Check for short circuit in melter or accessories	–
24 V _{DC} power supply defective	–	Replace

One Channel does not Heat

Possible Cause	Possible Fault / Troubleshooting	Corrective Action
Channel is deactivated	–	Activate the temperature channel on the control panel (or via the optional field bus)
The channel is assigned to a group, and the group is deactivated or in standby	Check the state of the group in the screen <i>Switch application group(s)</i> (Refer to section <i>Operation</i>)	Activate the group via the control panel, or if set up so, via the Standard I/O interface.

No Line Speed Signal

Possible Cause	Possible Fault / Troubleshooting	Corrective Action
Parent machine not operating	–	Start up parent machine
Polarity of line speed voltage input is reversed	–	Reverse polarity

Control panel does not function

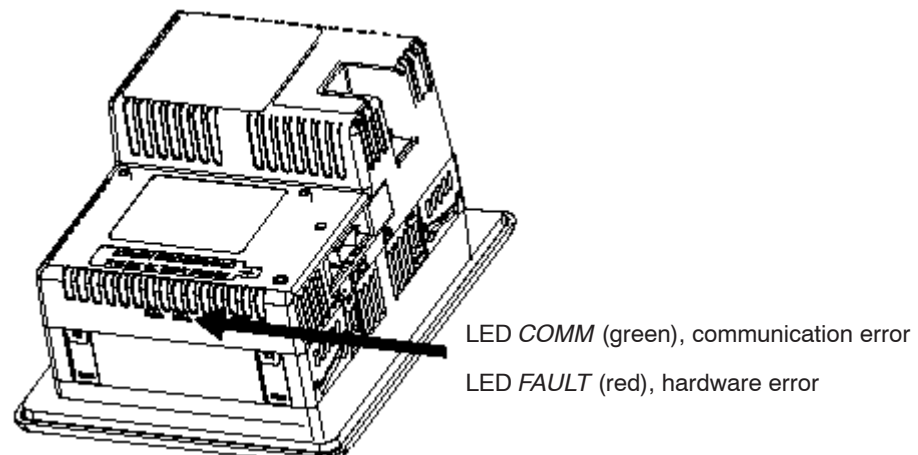


Figure 6-1

The abbreviation LED stands for *Light Emitting Diode*.

NOTE: Also refer to the separate manual *PanelView Plus Operator Terminals* for troubleshooting.

No Material (Motor does not Rotate)

Possible Cause	Possible Fault / Troubleshooting	Corrective Action
System not yet ready for operation	Undertemperature during heating phase	Wait until the melter has heated up and when appropriate until the time <i>System ready delay</i> has expired (<i>System ready</i> appears in the status line).
Melter has lost system ready status	Undertemperature during operation Material was refilled	Wait until the melter is heated.
Motor not switched on	–	Switch on motor
Motor startup protection activated	Standby entered Undertemperature during operation	Switch on the motor(s) again
Speed (rpm) not set	The parameter <i>Min. pump speed</i> in key-to-line is on 0 min ⁻¹	Set speed (rpm)
Key-to-line mode selected, however melter should be in manual mode	–	Switch to manual mode
No external motor enabling via interface <i>Standard I/O</i>	–	Bridge or activate the corresponding contacts of the interface
Key-to-line selected but no line speed signal present	–	Provide line speed signal Check whether the type of input signal is the same as that selected on the control panel (analog/frequency)
Threshold switch not properly set	–	Check and set values on control panel
Standby entered	–	Exit or wait until standby period has expired
Continued...		

No Material (Motor does not Rotate) *(contd)*

Possible Cause	Possible Fault / Troubleshooting	Corrective Action
Motor overheated	Ambient temperature too high Fan cap dirty Pump blocked by foreign matter Pump operates too sluggish Material too cold	Decrease ambient temperature by cooling or airing out Clean Replace pump Replace pump Set temperature accordingly
Motor defective	–	Replace
Motor not supplied with voltage	–	Technical inspection
Motor controller fault	⇒ Motor overheated Motor controller overheated Short circuit Overload (pump blocked by foreign matter, pump too sluggish, material too cold)	Switch melter off and on again with main switch Refer to <i>Motor overheated</i> Decrease ambient temperature by cooling or airing out Clean cooling section of motor controller Refer to <i>Motor overheated</i>
Motor controller defective	–	Replace

No Material (Motor Rotating)

Possible Cause	Possible Fault / Troubleshooting	Corrective Action
Tank isolation valve closed	–	Open
Tank empty	–	Fill tank
Filter cartridge clogged	–	Clean or replace filter screen
Material supply hole to pump or pump suction hole clogged	–	Detach pump and clean supply hole or suction hole

Incorrect Motor Rotation in Key-to-line Mode

Possible Cause	Possible Fault / Troubleshooting	Corrective Action
Line speed signal fluctuates during constant machine speed	Encoder defective or loose contact	Replace
	Drive element (e.g. belt) slips	Eliminate slip

Too Little Material

Possible Cause	Possible Fault / Troubleshooting	Corrective Action
Material supply hole to pump or pump suction hole partially clogged	–	Detach pump and clean supply hole or suction hole
Tank isolation valve not completely open	–	Open
Filter cartridge partly clogged	–	Clean or replace filter screen
Pressure control valve defective	–	Clean or replace
Processing temperature set too low	–	Correct temperature setting
Pump block of the gear pump worn	–	Replace pump

Material Pressure too High

Possible Cause	Possible Fault / Troubleshooting	Corrective Action
Safety valve or pressure control valve dirty and thus blocked	–	Disassemble and clean or replace
Safety valve or pressure control valve defective	–	Replace
Pressure control valve set incorrectly	–	Set to default
Pneumatic safety valve (option) pressurized with too high pressure	–	Reduce pressure

Material Pressure too Low

Possible Cause	Possible Fault / Troubleshooting	Corrective Action
Gear pump is worn	–	Replace pump
Safety valve does not close any more	–	Replace
Pressure control valve dirty and thus clogged	–	Disassemble and clean or replace
Pressure control valve defective	–	Replace
Pressure control valve set incorrectly	–	Set to default
Pneumatic safety valve (option) pressurized with too low pressure	–	Increase pressure

Material Residue in Tank

Possible Cause	Possible Fault / Troubleshooting	Corrective Action
Tank setpoint temperature set too high	– Material of low quality or not appropriate for application (temperature resistance poor)	Correct temperature setting Consult material supplier

Material Hardens in Tank

Possible Cause	Possible Fault / Troubleshooting	Corrective Action
Tank setpoint temperature set too high	–	Correct temperature setting

Filling Valve (Option)

Possible Cause	Possible Fault / Troubleshooting	Corrective Action
No material	No compressed air to control module or compressed air set too low Control module defective	Connect compressed air and set to correct value Replace control module
Filling valve does not heat	Temperature not set Plug not connected Temperature sensor(s) defective	Set on control panel of VersaBlue melter or on filling unit Regulating via VersaBlue Connect to corresponding hose receptacle Regulating via filling unit Connect to hose receptacle Replace
Filling valve does not reach set temperature	Heater cartridge(s) defective	Replace
Solenoid valve does not switch	Solenoid valve is not triggered or is defective	Trigger via customer's PLC or replace solenoid valve

Others

Problem	Possible Cause	Corrective Action
Leakage at pump shaft seal	Pump shaft seal is worn –	Tighten the gland bolt Replace pump
Material pressure too low, output quantity too low	Gear pump is worn	Replace pump
Gear pump blocked	Processed material too cold Foreign material in gear pump	Correct temperature setting (observe data sheet of material manufacturer) Replace pump
Leakage at gun during heatup phase	Safety valve does not open (expansion pressure)	Replace safety valve
Overflow protection (option) is activated, although level has fallen below sensor	Material residue stuck to sensor causes the alarm	If overflow protection is triggered, the fault must be acknowledged. As soon as the level has fallen below the sensor, it must be cleaned to prevent material residue from immediately triggering another alarm.

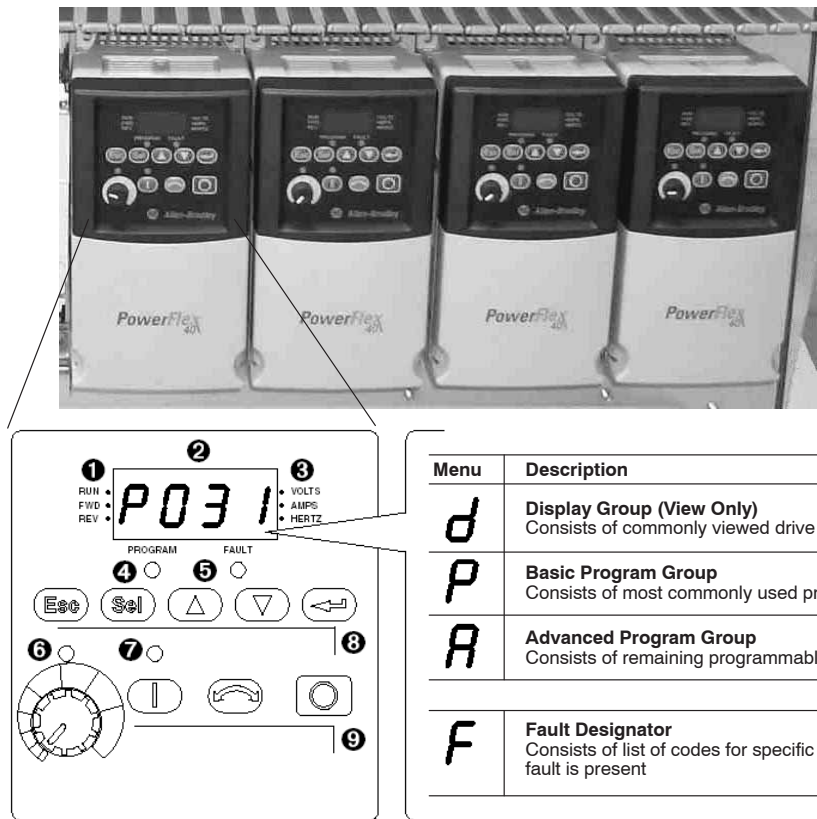
LED of Overflow Protection Evaluator

LED		Fault
Red (LED Full)	Flashing	Sensor break Sensor plug disconnected Operational ground not connected (Refer to section <i>Repair</i> for correct connection).

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LEDs of Motor Controller

Refer to the Allen-Bradley product manual for additional information on the motor controller LEDs.



Menu	Description
d	Display Group (View Only) Consists of commonly viewed drive operating conditions.
P	Basic Program Group Consists of most commonly used programmable functions.
A	Advanced Program Group Consists of remaining programmable functions.
F	Fault Designator Consists of list of codes for specific fault conditions. Displayed only when fault is present

No.	LED		Description
		State	
1	Run/Direction status	Steady red	Indicates drive is running and commanded motor direction.
		Flashing red	Drive has been commanded to change direction. Indicates actual motor direction while decelerating to zero.
2	Alphanumeric display	Steady red	Indicates parameter number, parameter value, or fault code. Refer also to separate manual <i>PowerFlex 40, Adjustable Frequency AC Drive</i> .
		Flashing red	Single digit flashing indicates that digit can be edited. All digits flashing indicates a fault condition.
3	Displayed units	Steady red	Indicates the units of the parameter value being displayed.
4	Program status	Steady red	Indicates parameter value can be changed.
5	Fault status	Flashing red	Indicates drive is faulted
6	Pot status	Steady green	Indicates potentiometer on Integral Keypad is active.
7	Start key status	Steady green	Indicates Start key on Integral Keypad is active. The Reserve key is also active unless disabled by A095 [Reverse Disable].

Section 7

Repair

WARNING: Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

Risk of Burns

WARNING: Hot! Risk of burns. Wear appropriate protective clothing/equipment.

Some melter components can only be detached when the melter is heated up.

Observe Before Performing Repairs

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

WARNING: Disconnect equipment from line voltage before any repairs.

Relieving Pressure

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

Relieve pressure as described in section *Installation, Connecting Hose, Disconnecting*.

Control Panel

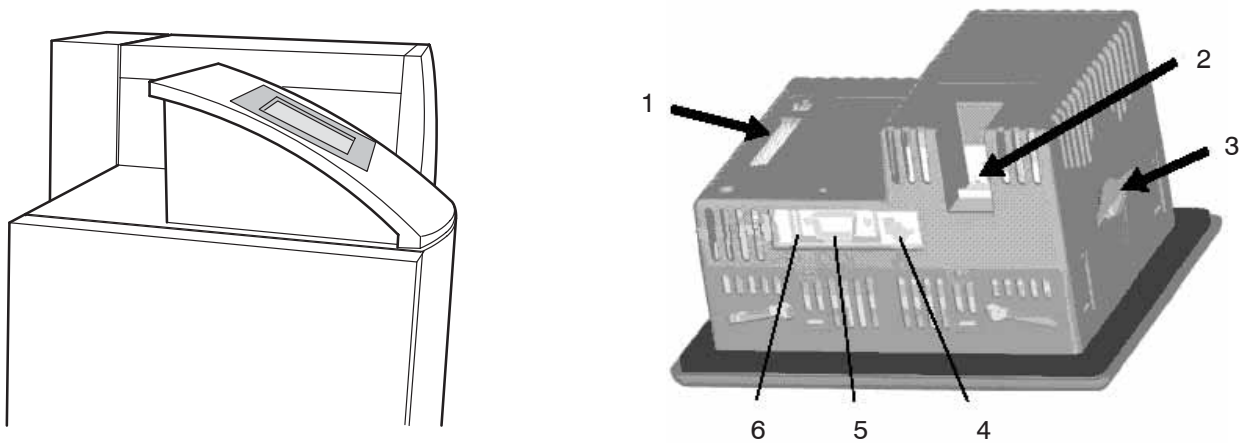


Figure 7-1

- | | | |
|--------------------------------------|--------------------------|----------------|
| 1. Interface for communication board | 3. Slot for memory board | 5. RS 232 port |
| 2. Power supply | 4. Ethernet port | 6. USB port |

Detaching Control Panel



1. Lift one side of the control panel and press in a spring clip (arrows) on the other side. Then the control panel can be lifted high enough that the connections are exposed.
2. Press control panel back into place.

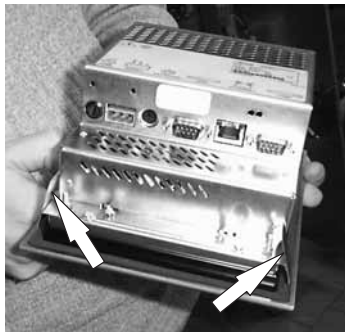


Figure 7-2

Replacing Motor Controller

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

The connection terminals may only be connected or disconnected when the melter is deenergized.

Replacing Ethernet Adapter of Motor Controller

1. Disconnect the motor controller (1) from the power supply and wait at least 3 minutes (capacitors must discharge).
2. Use a screwdriver to release the two screws in the cover, then remove the cover (2) from the motor controller. The Ethernet adapter board is on the back of the cover.



Figure 7-3

Replacing Motor Controller *(contd)*

3. Disconnect all lines from the old Ethernet adapter.
4. Electrically connect the new Ethernet adapter.
5. Put cover back onto the motor controller and screw on.
6. Set the IP address of the Ethernet adapter. The program *BootP* must be started on a PC. Also refer to the manual for the Ethernet adapter (22 Comm UM004B).

The IP address is: 144.93.158.51

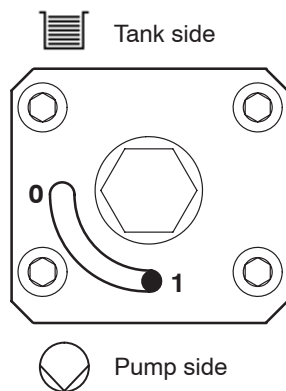
7. The settings have to be downloaded from the PC to the motor controller electronics. The program *Drive Executive* must be used for this purpose. Also refer to the manual for the Ethernet adapter (22 Comm UM004B).

Replacing Gear Pump

Nordson recommends replacing the pump and sending the old one in to be repaired.

WARNING: Hot! Risk of burns. Wear appropriate protective clothing/equipment.

Installing Service Kit



Tank Isolation Valve

NOTE: Operate the tank isolation valve only when the melter is heated to operating temperature.

Pin in position **0**: Closed

Pin in position **1**: Open

Figure 7-4

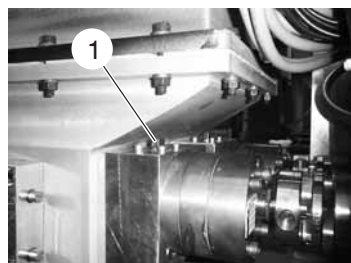


Figure 7-5

Detaching Gear Pump

1. Close tank isolation valve (1).

NOTE: Detach the gear pump only when the material is soft (70 °C/158 °F, depending on material).

CAUTION: The motor is precisely aligned and may not be slid back with the bracket in the slot.



Figure 7-6

2. Turn the coupling until the screws of the coupling half shells are more easily accessible.
3. Release the screws (2) of the coupling half shells on the pump side.
4. The released coupling halves can fall apart. Remove carefully to prevent separation. Store the coupling halves and protect them from dust. They will be needed again.

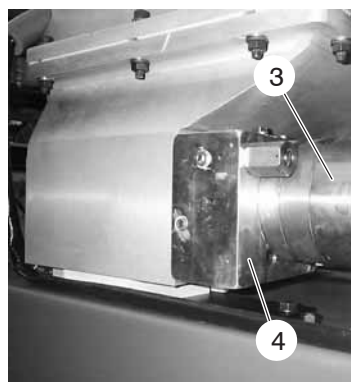


Figure 7-7

5. Place a container under the pump (3) to collect any material left.
6. Detach pump.
7. Clean sealing surface on the plate (4). If necessary, heat material residue with a hot air fan, then remove.
8. Allow melter to cool to room temperature.

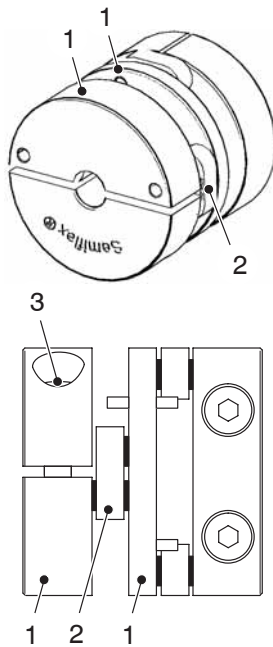


Figure 7-8

Attaching Gear Pump

NOTE: The gear pump may only be screwed on when the melter is cold.

NOTE: The sealing surfaces on the plate and the pump must be clean. Always replace all O-rings.

1. Apply sealing paste (Refer to section *Maintenance, Processing Materials*) to the new pump.
2. Apply high temperature grease (Refer to section *Maintenance, Processing Materials*) to the pump fixing screws and attach only when the tank is cold. Tighten screws crosswise using a torque wrench. Starting torque: 25 Nm / 220 lb in.
3. Refer to *Important Regarding Coupling*
4. Carefully slide the previously detached coupling half onto the shaft of the new pump.
5. Center the coupling disks (1) to one another and allow the coupling links to hang vertically (Refer to Fig. 7-13). Turn the coupling half on the motor shaft to its position by hand.
6. Tighten coupling screws.
7. Heat melter to operating temperature and open tank isolation valve again.

Important Regarding Coupling

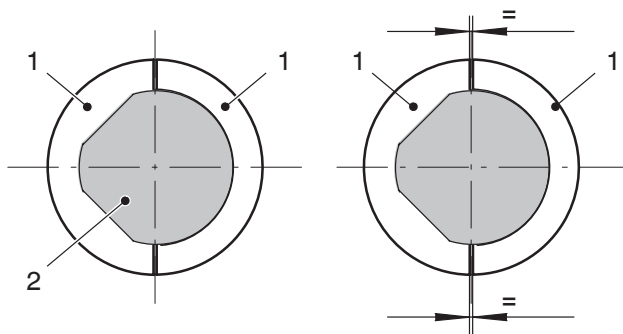


Figure 7-9

- Turn the half shells (1) such that the diagonal surfaces of the pump shaft (2) rest on those of the coupling half shells.
- The coupling half shells (1) must be tightened such that the gaps are the same size.

Extract from manufacturer's installation and operating instructions:

- The drive shaft and output shaft should be parallel* to one another. If the axes lean towards one another, excess load is applied to the edges of the bearings, causing premature wear.
- The coupling may not be twisted axially. Intermediate disk should move freely.

Permitted axial offset: 1 mm / 0.04 in

Permitted radial offset: 1 mm / 0.04 in

Permitted angle offset: 1 °

- The coupling should not be disassembled. Interchanging of coupling links and disks, damaged sealing rings, polluted bearings, etc. can cause premature malfunctioning.
- All three coupling disks must be aligned to the dimension** of the shaft offset. If the intermediate disk is extremely off-center – meaning that the coupling links are no longer parallel – the coupling may be destroyed upon startup.

* = axially aligned

** = within the permitted shaft offset

Replacing Motor

NOTE: Unscrew the gear pump only when the material is soft (70 °C/ 158 °F, depending on material); otherwise the coupling can not be turned.

1. Disconnect motor power cable in the electrical cabinet.
2. Detach plug connector from motor controller.
3. Turn the coupling until the screws of the coupling half shells are more easily accessible.
4. Release the screws of the coupling half shells on the motor side.
5. The released coupling halves can fall apart. Remove carefully to prevent separation. Store the coupling halves and protect them from dust. They will be needed again.

CAUTION: The bracket may not be slid back in the slot or unscrewed.

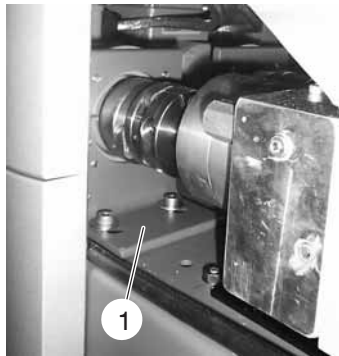


Figure 7-10

6. Unscrew motor from bracket (1).
7. If there is protective varnish on the shaft of the new motor, remove it.
8. Attach the coupling to the shaft without using force (no jolts or pounding). If this is difficult or impossible, sand the pulley keys and shaft with emery paper. Lubricate pulley keys and shaft if needed.
9. Install new motor in the bracket.
10. Attach coupling (Refer to *Important Regarding Coupling*)

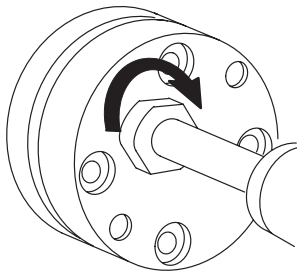


Figure 7-11 Direction of pump rotation

11. Reconnect motor electrically.
12. Secure power cable with strain relief. Ensure that cable shield and clamp have contact.
13. Verify that the motor is connected properly. The pump should turn clockwise (See arrow).

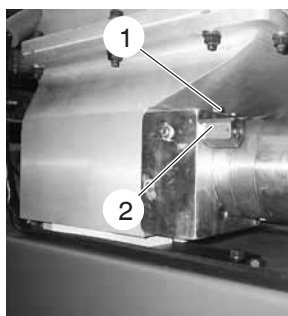
Replacing Safety Valve

WARNING: For safety reasons, the safety valve may not be disassembled. The complete valve must be replaced every time.

Refer to *Installing Service Kit* for procedure. However, points 3 and 4 are omitted.

WARNING: Hot! Risk of burns. Wear appropriate protective clothing/equipment.

Installing Service Kit



Each kit contains two O-rings and high-temperature grease.

NOTE: Screw in/out only when valve (2, Fig. 7-12) and pump are warm and material is soft (approx. 70 °C/158 °F, depending on material).

Figure 7-12

Service kit P/Ns: 394592	
Required tools: Open-jawed wrench, size 24 Pliers Torque wrench	
	1. Close tank isolation valve (1, Fig. 7-12).
	2. Use an open-jawed wrench to screw out the safety valve, then extract with a pliers.
	3. Remove outer O-rings and clean outside of safety valve.
	4. Install new O-rings.
	5. Apply grease to all threads and O-rings.
	6. To prevent damage to the O-rings, carefully guide the valve into the hole when the melter is warm.
	7. Tighten valve with a torque wrench. Starting torque: 15 Nm (133 lbin)
	8. Open tank isolation valve.

Replacing Filter Cartridge

Proceed as described in section *Maintenance* to replace filter cartridge.

Observe When Performing Work Behind Electrical Equipment Cover

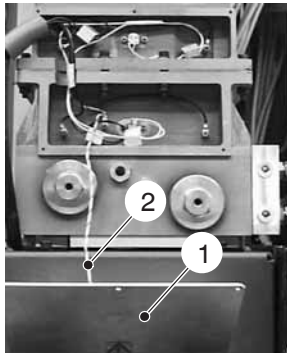


Figure 7-13

WARNING: The electrical equipment cover (1) is linked to the ground conductor. The ground conductor (2) must be reconnected after every repair.

Replacing Thermostat

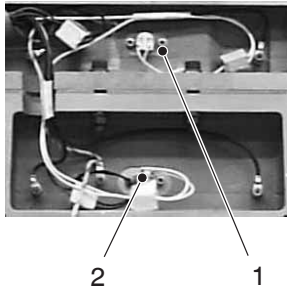


Figure 7-14

1. Remove electrical equipment cover.
2. Release the fixing screws and remove the defective thermostat (1: in grid or 2: in reservoir).
3. Attach connecting wires to the new thermostat.
4. Apply heat transfer compound to the bottom of the thermostat (Refer to *Processing Materials* in section *Maintenance*), then fasten it to the tank again.
5. Attach electrical equipment cover again.

Replacing Heating Connection Insulation

WARNING: The unit may not be operated without properly insulated heater connections. Use only Nordson spare parts for insulation.

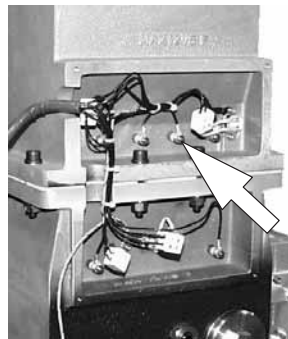
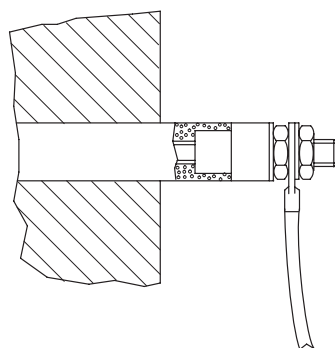
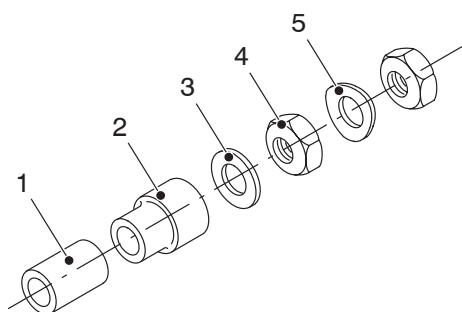


Figure 7-15

The heater connection insulation may be damaged when maintenance and repair work is performed.

Fig. 7-16 shows the kit for insulating heater connections as well as properly attached heater insulation.

1. Remove nut (4), washers (3 and 5) and insulating cylinder (2).
2. Remove all of the ceramic powder from the heater connection.
3. Guide new insulating cylinder (1) into the heater connection.
4. Attach the insulating cylinder (2), washer (3) and nut (4). Tighten nut carefully until the insulating cylinder (2) is tight and has contact with the heater connection.
5. Attach heater cable, spring washer (5) and nut (4) and tighten nut.



MCTK020L050A0497

Figure 7-16

1. Insulating cylinder, small
2. Insulating cylinder, large

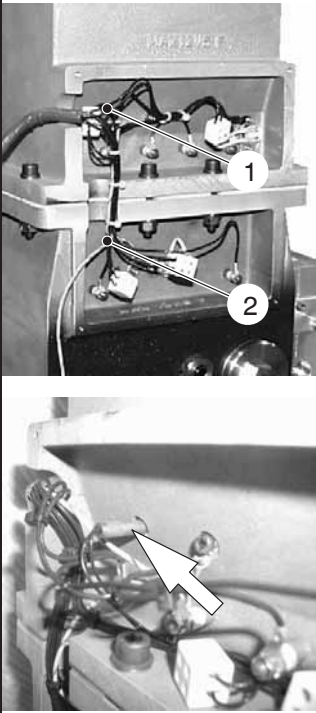
3. Washer
4. Hexagonal nut

5. Spring washer

Replacing Temperature Sensor

Installing Service Kit

The kit contains a temperature sensor and heat transfer compound.

Service kit P/N: 394597 (Ni120)	
Required tools: Pliers Side cutting pliers	
	1. Remove electrical equipment cover.
	2. Disconnect connecting wires and extract defective temperature sensor (1: in grid or 2: in reservoir) by the connecting wires or with the aid of a pliers.
	3. Apply heat transfer compound to new sensor.
	4. Insert sensor and reconnect electrically.
	5. Attach electrical equipment cover again.

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Replacing Level Evaluator (Option)

The evaluator is located in the electrical cabinet door. The active measuring range is indicated by two lines on the level sensor.

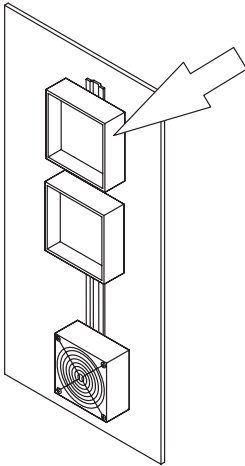


Figure 7-17

Important Notes

- The length of the sensor cable may not be changed.
- Adjustment by electrostatically charged persons can cause the amplifier to malfunction.
- All adjustments should be made with operating ground (no ground conductor function) connected. The operating ground must be linked to the metal casing of the melter along the shortest path. Do not connect via ground conductor!
- All potentiometers have 20 revolutions and no mechanical limit stop, meaning no fixed end position. They can not be damaged by turning too far.

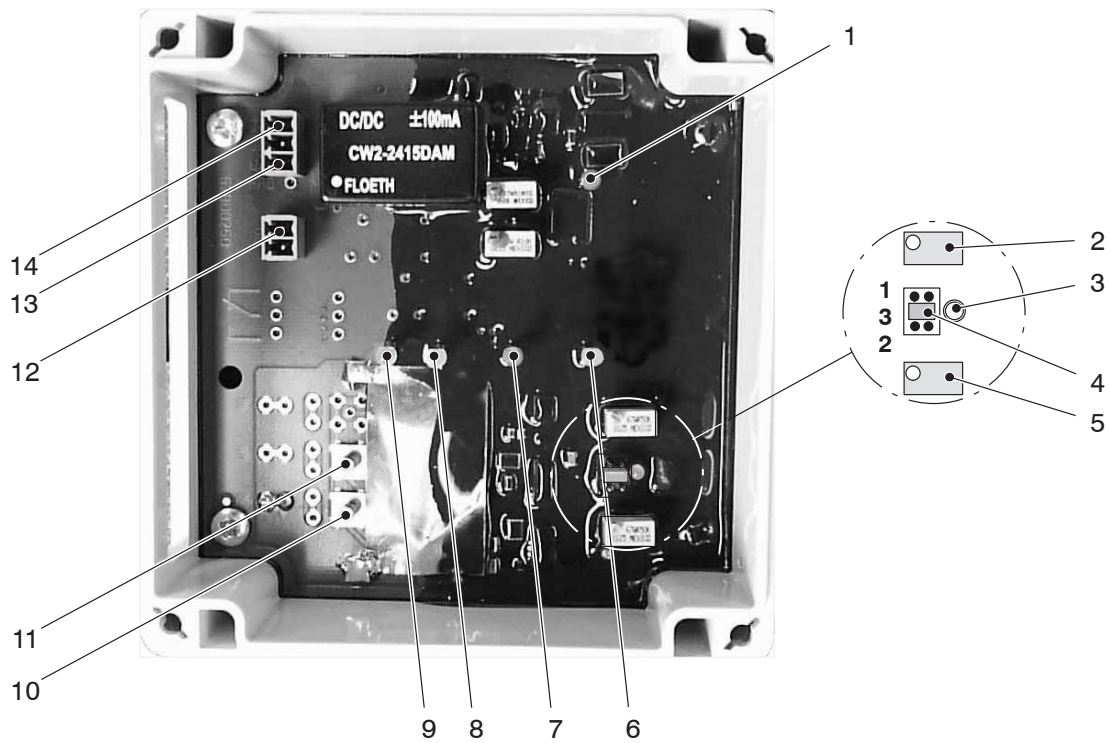


Figure 7-18

- | | | |
|---|---|--|
| 1. LED <i>Operating voltage</i> (green) | 6. LED <i>Tank overfilled</i> (yellow) | 10. Coaxial connection <i>Sensor</i> (black) |
| 2. Potentiometer 1 | 7. LED <i>Level</i> (green) | 11. Coaxial connection <i>Sensor</i> (white) |
| 3. LED <i>Calibration</i> | 8. LED <i>Tank empty</i> (yellow) | 12. Connection <i>Operating ground</i> |
| 4. Jumper <i>Calibration</i> | 9. LED <i>Reference section</i> (green) | 13. Signal output |
| 5. Potentiometer 2 | | 14. Voltage supply (24V) |

Calibrating

CAUTION: When calibrating, keep hands or conducting tools away from coaxial connections (10, 11) to prevent distortion of the signal.

Prerequisites:

- Level sensor is installed, fastened mechanically and connected electrically (observe color of sensor cable)
- Tank is empty
- Level sensor is clean
- Operating voltage applied (LED *Operating voltage* (1) lit).

1. Plug jumper *Calibration* (4) into position **1**.
2. With potentiometer 1 (2), find the switching point of the LED *Calibration* (3) (LED just lights up).

Turn clockwise: LED on

Turn counterclockwise: LED off

3. Plug jumper *Calibration* (4) into position **2**.

4. With potentiometer 2 (5), find the switching point of the LED *Calibration* (3) (LED just lights up).

Turn clockwise: LED on

Turn counterclockwise: LED off

5. Plug jumper *Calibration* (4) into position **3** (center) to switch off the LED *Calibration*.

The evaluator is now ready for operation.

NOTE: The LED *Reference section* (9) lights up as soon as the reference section (area between the lower inactive section and the sensor measuring range) is covered with material.

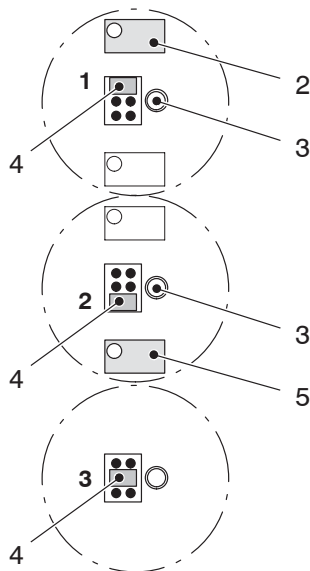


Figure 7-19

Replacing Overflow Protection Evaluator (Option)

The evaluator is located in the electrical cabinet door.

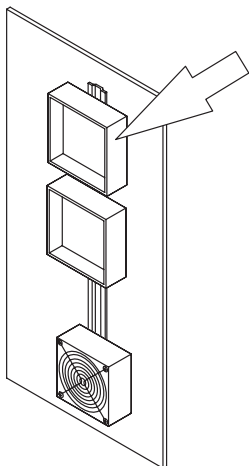


Figure 7-20

Important Notes

- The length of the sensor cable may not be changed.
- Adjustment by electrostatically charged persons can cause the amplifier to malfunction.
- All adjustments should be made with operating ground (no ground conductor function) connected. The operating ground must be linked to the metal casing of the melter along the shortest path. Do not connect via ground conductor!
- All potentiometers have 20 revolutions and no mechanical limit stop, meaning no fixed end position. They can not be damaged by turning too far.

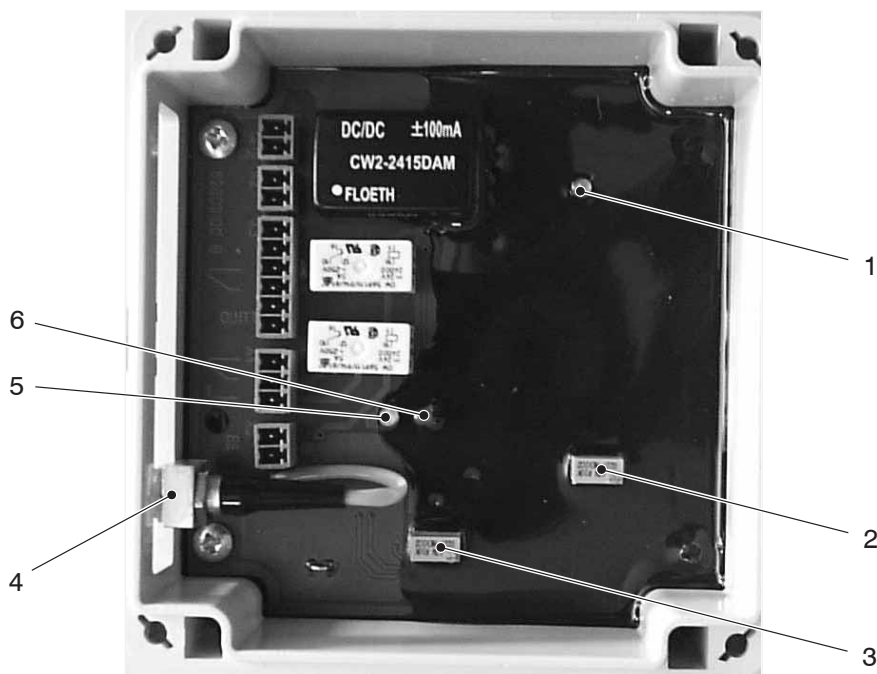


Figure 7-21

- | | | |
|---|-------------------------------------|-----------------------------|
| 1. LED <i>Operating voltage</i> (green) | 3. Potentiometer A | 5. LED <i>empty</i> (green) |
| 2. Potentiometer 3 | 4. Triaxial socket for sensor cable | 6. LED <i>full</i> (red) |

Calibrating

Prerequisites:

- Level sensor is installed, fastened mechanically and connected electrically (observe color coding of sensor cable)
- Tank is empty (empty calibration: most sensitive setting, material irrelevant)
- Operating voltage applied (LED *Operating voltage* (1) lit).

Sensor Break

1. Turn potentiometer *A* (3) 20 revolutions counterclockwise.
2. Turn potentiometer *P3* (2) counterclockwise until the green LED *empty* (5) is off and the red LED *full* (6) begins to flash.
3. Turn potentiometer *P3* counterclockwise to the switching point (green LED *empty* on, red LED *full* off).
4. Then turn counterclockwise one or two more revolutions past the switching point.

NOTE: The closer the setting is to the switching point, the more precise is the measurement. When the potentiometer *P3* is turned all the way counterclockwise, sensor break monitoring is deactivated.

5. Perform function test: Disconnect sensor cable; sensor break monitoring is triggered (red LED *full* flashes).

Limit Switching Points

1. Turn potentiometer *A* clockwise to the switching point (green LED *empty* off, red LED *full* on).
2. Turn back from switching point until the green LED *empty* is on.

Section 8

Parts

Product Configuration

The configuration code and the table indicate the components and parts of this product that are configurable. The codes are also used to identify the spare parts.

VersaBlue		ADHESIVE MELTER 	 Nordson Engineering GmbH Lilienthalstr. 6 D 21337 Lüneburg – Germany www.nordson.com
VA025-4EEXX4/PALW1DXCGXXXXXXXXXXXXX			
Serial No:	Year		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
V A 0 2 5 - 4 E E X X 4 / P A L W 1 D X C G Box Code

CAUTION: The maximum operating temperature of the installed gun and the other heated components should be considered when setting temperatures on the melter control panel.

Box	Code	Components / parts
1-2	VA	VersaBlue Melter
	VT	VersaBlue Melter <i>High Temperature</i>
3-5	012	12 liter (26 lb)
	025	25 liter (55 lb)
	050	50 liter (110 lb)
	100	100 liter (220 lb)
7	1	230 V 1 Phase
	2	200 V 3 Phase Delta
	3	230 V 3 Phase Delta
	4	400 V 3 Phase WYE
	5	400 V 3 Phase Delta
	6	480 V 3 Phase Delta

Product Configuration *(contd)*

8-9	A	Gear Pump	SN0030 – 0.30 cm ³ /rev	(PR2m1)
	B	Gear Pump	SN0046 – 0.46 cm ³ /rev	(PR3m1)
	C	Gear Pump	SN0062 – 0.62 cm ³ /rev	(PR4m1)
	D	Gear Pump	SN0093 – 0.93 cm ³ /rev	(PR6m1)
	E	Gear Pump	SN0186 – 1.86 cm ³ /rev	(PR12m1)
	F	Gear Pump	SN0371 – 3.71 cm ³ /rev	(PR12m2)
	9	Gear Pump	SH0371 – 3.71 cm ³ /rev, hardened	(PR12m2)
	G	Gear Pump	SN0773 – 7.73 cm ³ /rev	(PR25m2)
	Z	Gear Pump	SH0773 – 7.73 cm ³ /rev, hardened	(PR25m2)
	H	Gear Pump	SN1710 – 17.1 cm ³ /rev	(PR100m3)
10 + 11		Reserved		
12	2	2 Hose/Gun Pairs		
	4	4 Hose/Gun Pairs		
	6	6 Hose/Gun Pairs		
	8	8 Hose/Gun Pairs		
Options				
14	P	Automatic Pneumatic Pressure Control		
	M	Manual Pneumatic Pressure Control		
	F	Flow Control Bypass		
	C	Internal Pressure Indication w Output Pressure Control Per Drive		
	X	Standard: Manual Pressure Control		
15	A	Internal Pressure Indication (IPI)		
16	L	Level Control		
	B	Level Control w/ Bulk Feed Lid (Ni120)		
	P	Level Control w/ Bulk Feed Lid (Ni120) + Overfill Protection		
	C	Level Control w/ Bulk Feed Lid (Pt100)		
	D	Level Control w/ Bulk Feed Lid (Pt100) + Overfill Protection		
17	W	Light Tower (not available)		
18	1	Main Switch Red – 4 Pole		
	2	Main Switch Black – 3 Pole		
	3	Main Switch Black – 4 Pole		
	X	Standard: Main Switch Red – 3 Pole		
19	D	PROFIBUS-DP		
	N	ControlNet		
20	K	Key-To-Line Per Drive		
21	C	Casters		
22	G	Inert Gas		
23	C	0.8 mm Filter with 85 bar Safety Valve – VA melters only –		
	D	0.2 mm Filter with 100 bar Safety Valve – VA melters only –		
	G	0.8 mm Filter with 100 bar Safety Valve – VA melters only –		
	X	Standard: 0.2 mm Filter with 85 bar Safety Valve		
24 – 36	X	Reserved		

How to Use Illustrated Parts List

The parts lists in this section are divided into the following columns:

Item— Identifies parts that can be obtained from Nordson.

Part— Nordson part number for each spare part shown in the illustration. A row of hyphens in the column Part (- - - -) indicates that this part can not be ordered separately.

Description— This column contains the name of the part and, when appropriate, its dimensions and other properties. The points in the column *Description* show the relationship between assemblies, subassemblies and single parts.

Quantity— The quantity needed per unit, assembly or subassembly. The abbreviation AR (as required) is used when this item is a bulk item or when the quantity per assembly depends on the product version or model.

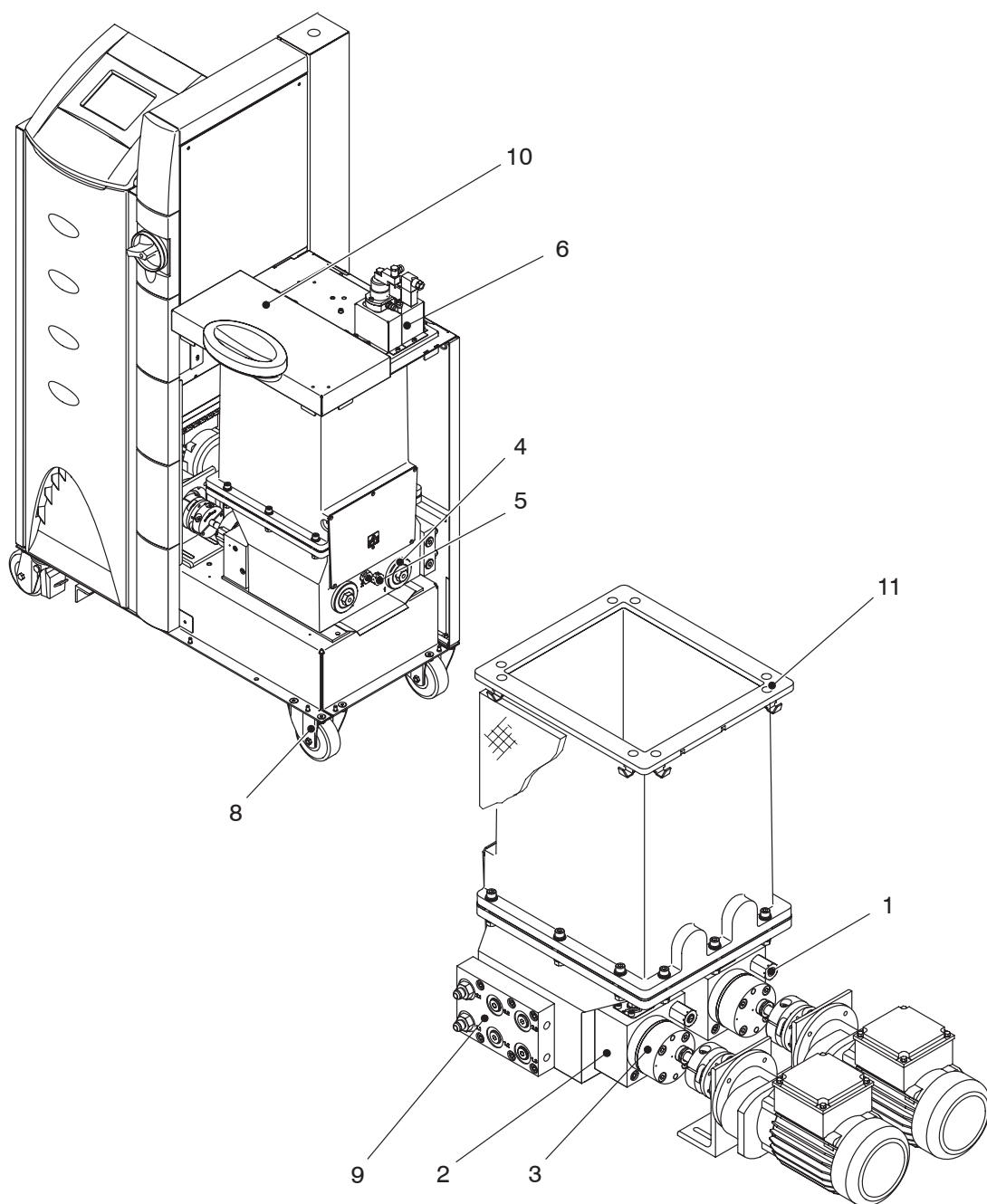
Fasteners

Fasteners are shown as *Fx* in every illustration, whereby "x" indicates the number of the fastener in the list *Schedule of Fasteners* at the end of this chapter.

Component Designation

The electrical components are labeled in accordance with DIN 40719, part 2.

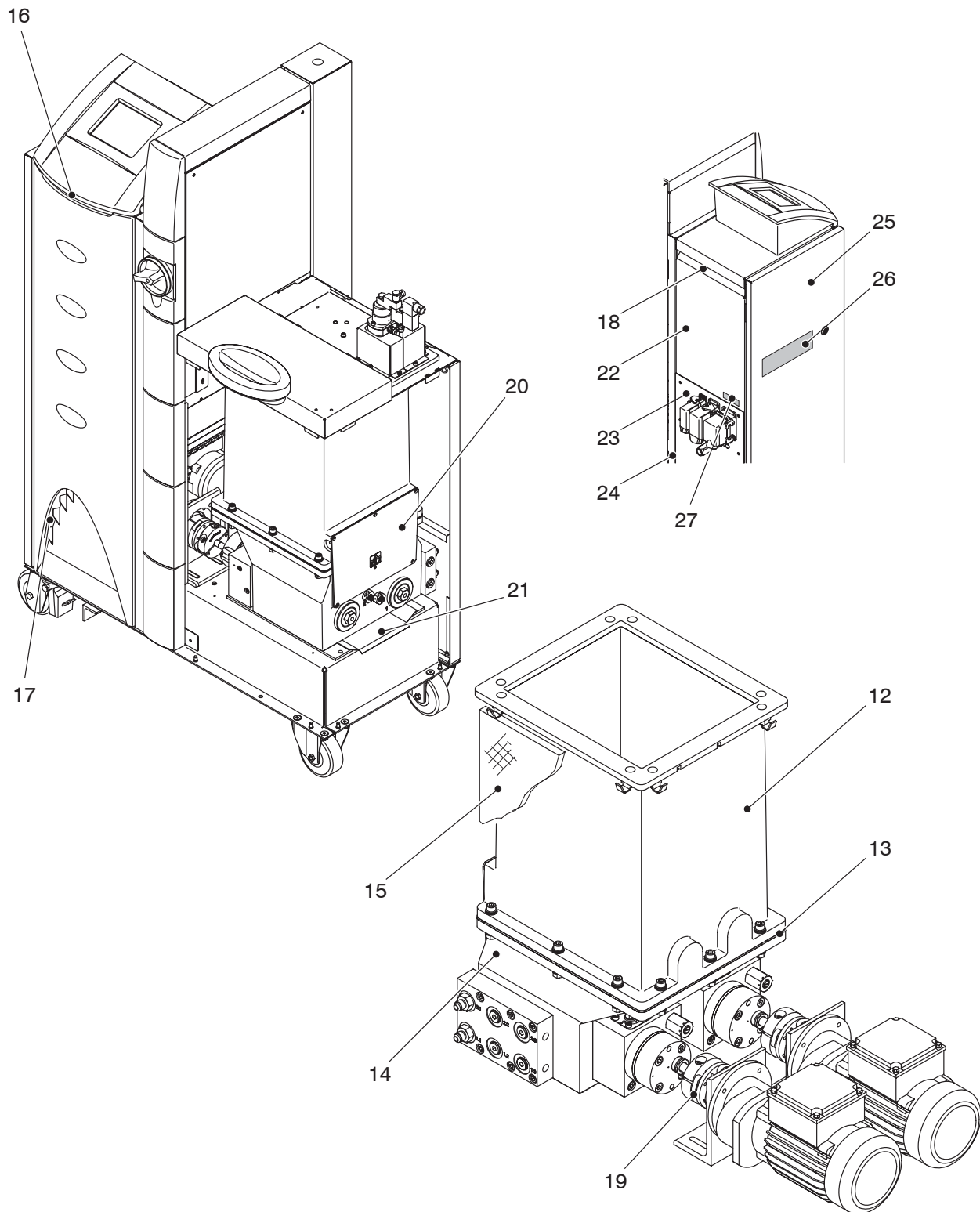
Assembly Overview (1)



Item	Part	Description	Page	Quantity	Box	Code
1	–	Safety Valve	10	1, 2		
2	–	Bypass plate with tank isolation valve	12	1, 2		
	–	Bypass plate, SN1710, with tank isolation valve	14	1, 2		
3	–	Gear Pump	16	1, 2		
	394268	Insulation jacket (for all pump sizes)	–	1, 2	3 – 5	012, 025
4	–	Filter cartridge	17	1, 2		
5	–	Pressure control valve	18	1, 2		
	–	Pressure control valve, pneumatically ctrl.	20	1, 2		
	394941	Plug, pressure control valve	–	1, 2	1 – 2 14	VA C
	394942	Plug, pressure control valve, HT	–	1, 2	1 – 2 14	VT C
6	–	Feed valve	24	1		
7	–	–				
8	201853	Machine foot, complete	–	1	3 – 5 21	012-050 X
	710438 1	Machine foot, complete	–	1	3 – 5 21	100 X
	203446	Casters, complete	50	1	3 – 5 21	012-050 C
	710441 2	Casters, complete	50	1	3 – 5 21	100 C
9	–	Manifold	28 – 32	1		
10	203795	Cover, 12, complete	–	1	3 – 5	012
	203796	Cover, 25, complete	–	1	3 – 5	025
	203803	Cover, 50, complete	–	1	3 – 5	050
	207790	Cover, 100, complete	–	1	3 – 5	100
	207771	Cover, 12, feed valve, complete	–	1	3 – 5 16	012 B,P,C,D
	207772	Cover, 25, feed valve, complete	–	1	3 – 5 16	025 B,P,C,D
	394968	Cover, 50, feed valve, complete	–	1	3 – 5 16	050 B,P,C,D
	710439 3	Cover, 100, feed valve, complete	–	1	3 – 5 16	100 B,P,C,D
11	207789	Insulation plate, 12, cover	–	1	3 – 5	012
	207753	Insulation plate, 25, cover	–	1	3 – 5	025
	207791	Insulation plate, 50, cover	–	1	3 – 5	050
	729811	Insulation plate, 100, cover	–	1	3 – 5	100

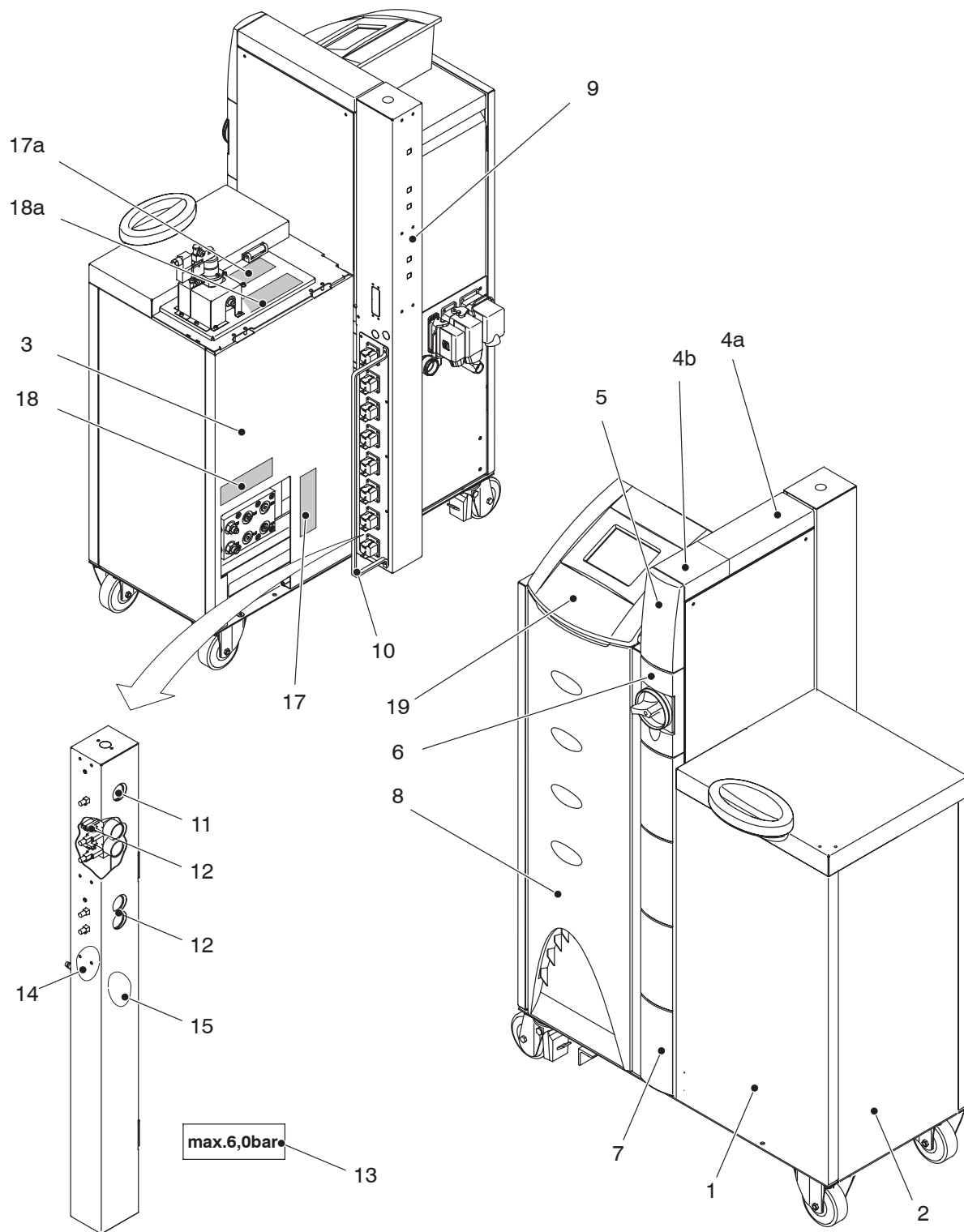
Continued...

Assembly Overview (1) *(contd)*



Item	Part	Description	Page	Quantity	Box	Code
12	201757	Grid, 12	–	1	3 – 5	012
	201758	Grid, 25	–	1	3 – 5	025
	201759	Grid, 50	–	1	3 – 5	050
	201760	Grid, 100	–	1	3 – 5	100
13	203423	Insulation grid/reservoir, 12, SIL C4409	–	1	3 – 5	012
	203424	Insulation grid/reservoir, 25, SIL C4409	–	1	3 – 5	025
	203425	Insulation grid/reservoir, 50, SIL C4409	–	1	3 – 5	050
	203426	Insulation grid/reservoir, 100, SIL C4409	–	1	3 – 5	100
14	203272	Reservoir, 12-1, 1 pump	–	1	3 – 5	012
	201750	Reservoir, 12-2, 2 pumps	–	1	3 – 5	012
	203273	Reservoir, 25-1, 1 pump	–	1	3 – 5	025
	201751	Reservoir, 25-2, 2 pumps	–	1	3 – 5	025
	203700	Reservoir, 50-1, 1 pump	–	1	3 – 5	050
	201752	Reservoir, 50-2, 2 pumps	–	1	3 – 5	050
	203701	Reservoir, 100-1, 1 pump	–	1	3 – 5	100
	201753	Reservoir, 100-2, 2 pumps	–	1	3 – 5	100
15	207682	Insulation jacket, fitted, 12	–	1	3 – 5	012
	207684	Insulation jacket, fitted, 25	–	1	3 – 5	025
	729207	Insulation jacket, fitted, 50, complete	33	1	3 – 5	050
	729208	Insulation jacket, fitted, 100, complete	33	1	3 – 5	100
16	203204	Filter mat, front top	–	1		
17	203207	Filter mat, front bottom	–	1		
18	203208	Filter mat, rear top	–	1		
19	394135	Coupling, SEMIFLEX, NFB, 4.7/2, D17F7/12,7H7	–	1, 2	8 – 9	A – G 9, Z
	203908	Coupling, SEMIFLEX, NFB, 4.7/2, D17F7/16H7	–	1, 2	8 – 9	H
20	203391	Electric cover, 12, complete	–	1	3 – 5	012
	203488	Electric cover, 25, complete	–	1	3 – 5	025
	729197	Electric cover, 50, complete	–	1	3 – 5	050
	729198	Electric cover, 100, complete	–	1	3 – 5	100
21	394403	Drip pan, filter VX	–	1		
22	203768	Electrical cabinet, rear	–	1	3 – 5	012, 025
23	203771	Electrical cabinet, rear, plug <i>– will be replaced by P/Ns 729901 & 203436 –</i>				
22	729901	Electrical cabinet, rear	–	1	3 – 5	012-100
23	203436	Electrical cabinet, rear, plug	–	1	3 – 5	012-100
24	7104625	Electrical cabinet, right, complete	–	1	3 – 5	012, 025
	7104624	Electrical cabinet, right, complete	–	1	3 – 5	050
	7104756	Electrical cabinet, right, complete	–	1	3 – 5	100
25	203767	Electrical cabinet, left, complete	–	1	3 – 5	012, 025
	394007	Electrical cabinet, left, complete	–	1	3 – 5	050
	729220	Electrical cabinet, left, complete	–	1	3 – 5	100
26	–	TAG, WARNING, HAZARDOUS VOLTAGE	48	1		
27	–	TAG, WARNING – Only class II circuit.	48	1		

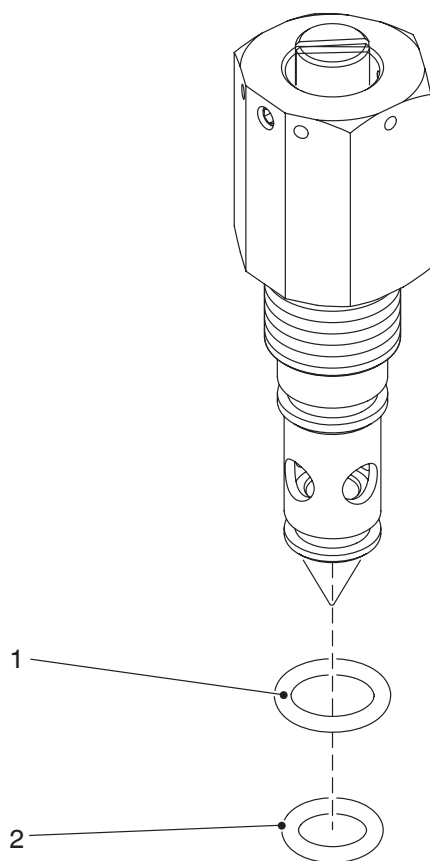
Assembly Overview (2)



Item	Part	Description	Page	Quantity	Box	Code
1	203808	Panel, front, complete	–	1	3 – 5	012, 025
	729093	Panel, front, complete	–	1	3 – 5	050
	710433 8	Panel, front, complete	–	1	3 – 5	100
2	203810	Panel, 12/25, right, complete	–	1	3 – 5	012-025
	394020	Panel, 50, right, complete	–	1	3 – 5	050
	710435 1	Panel, 100, right, complete	–	1	3 – 5	100
3	203812	Panel, 12/25, rear, complete	–	1	3 – 5	012-025
	394022	Panel, 50, rear, complete	–	1	3 – 5	050
	710435 4	Panel, 100, rear, complete	–	1	3 – 5	100
4a	207088	Cover, tower, top	–	1	3 – 5	012-100
4b	394758	Cover, tower, top	–	1	3 – 5	050
	394759	Cover, tower, top	–	2	3 – 5	100
5	207553	Cover, tower, front top	–	1		
6	207083	Cover, tower front, main switch	–	1		
7	207082	Cover, tower, front bottom	–	4		
8	207085	Cover, electrical cabinet, front	–	1		
9	–	Tower back	44	1		
	203790	• Holding plate, tower back	–	1		
10	394052	Hoop guard	–	1	1 – 2	VA
11	207816	Inert gas equipment	26	1	22	G
12	394265	Pneumatic control (Manual Control), 1-fold	22	1	14	M
	394266	Pneumatic control (Manual Control), 2-fold	22	1	14	M
	394542	Pneumatic control (Flow Control), 1-fold	22	1	14	F
	394543	Pneumatic control (Flow Control), 2-fold	22	1	14	F
13	729077	Sign <i>max. 6,0bar</i>	–	1	14	P, M, F
14	279615	Pneumatic safety valve, 6 bar, G1/4 SW20	23	1	14	P, M, F
15	394524	Proportional valve (AutoPneumatic Pressure Control), 0-6 bar G1/8"	–	1, 2	14	P
17	–	TAG, WARNING, <i>HOT ADHESIVE</i> (Relieve pressure)	48	1		
17a	–			1	16	B, P, C, D
18	–	TAG, CAUTION, <i>HOT SURFACE</i>	48	1		
18a	–			1	16	B, P, C, D
19	207086	Console IPC	–	1		
	394829	Sealing cord D2,5	–	910 mm		
–	–	Electrical components	35 – 47	–		
–	–	Schedule of Fasteners	52	–		

Spare Parts, Service Kits and Accessories

Safety Valve



85 bar

Item	Part	Description	Quantity	Note	Box	Code
–	207932	Safety valve, 85 bar	1		1 – 2	VA
–	394592	SERVICE KIT	1	Page 7-12		
1	– – – – –	• O-ring 11x2	1			
2	– – – – –	• O-ring 9x2	1			
–	– – – – –	• High-temp. grease, GLS 595/N2, 10g	1			

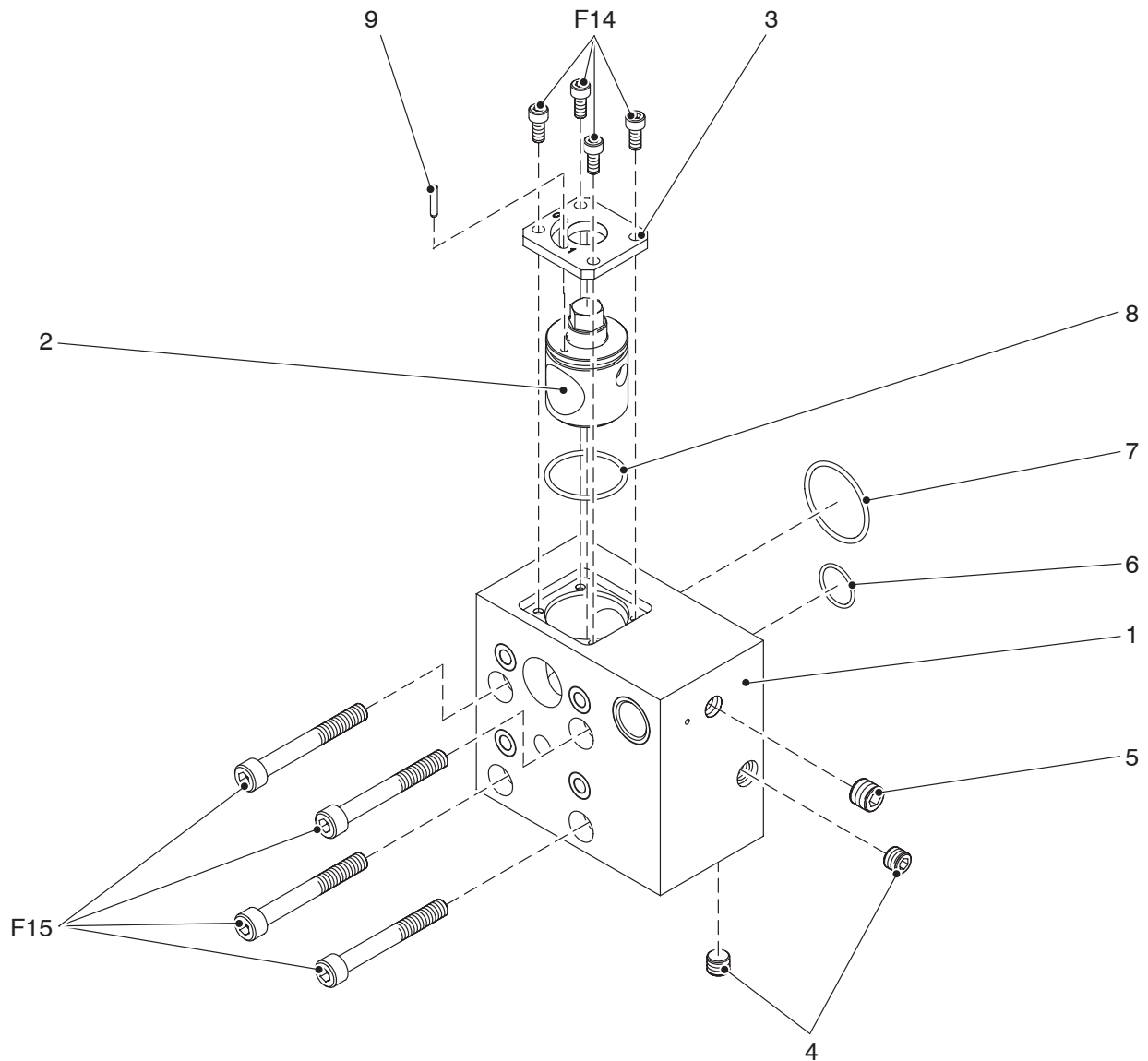
Item	Part	Description	Quantity	Note	Box	Code
–	394101	Safety valve, 85 bar HT	1		1 – 2	VT
–	394593	SERVICE KIT	1	Page 7-12		
1	– – – – –	• O-ring 11x2	1			
2	– – – – –	• O-ring 9x2	1			
–	– – – – –	• High-temp. grease, GLS 595/N2, 10g	1			

100 bar

Item	Part	Description	Quantity	Note	Box	Code
–	203419	Safety valve 100 bar	1	A	1 – 2	VA
–	394592	SERVICE KIT	1	Page 7-12		
1	– – – – –	• O-ring 11x2	1			
2	– – – – –	• O-ring 9x2	1			
–	– – – – –	• High-temp. grease, GLS 595/N2, 10g	1			

NOTE A: Do not use in conjunction with pump SN1710.

Bypass Plate with Tank Isolation Valve, SN0030 – SN0773

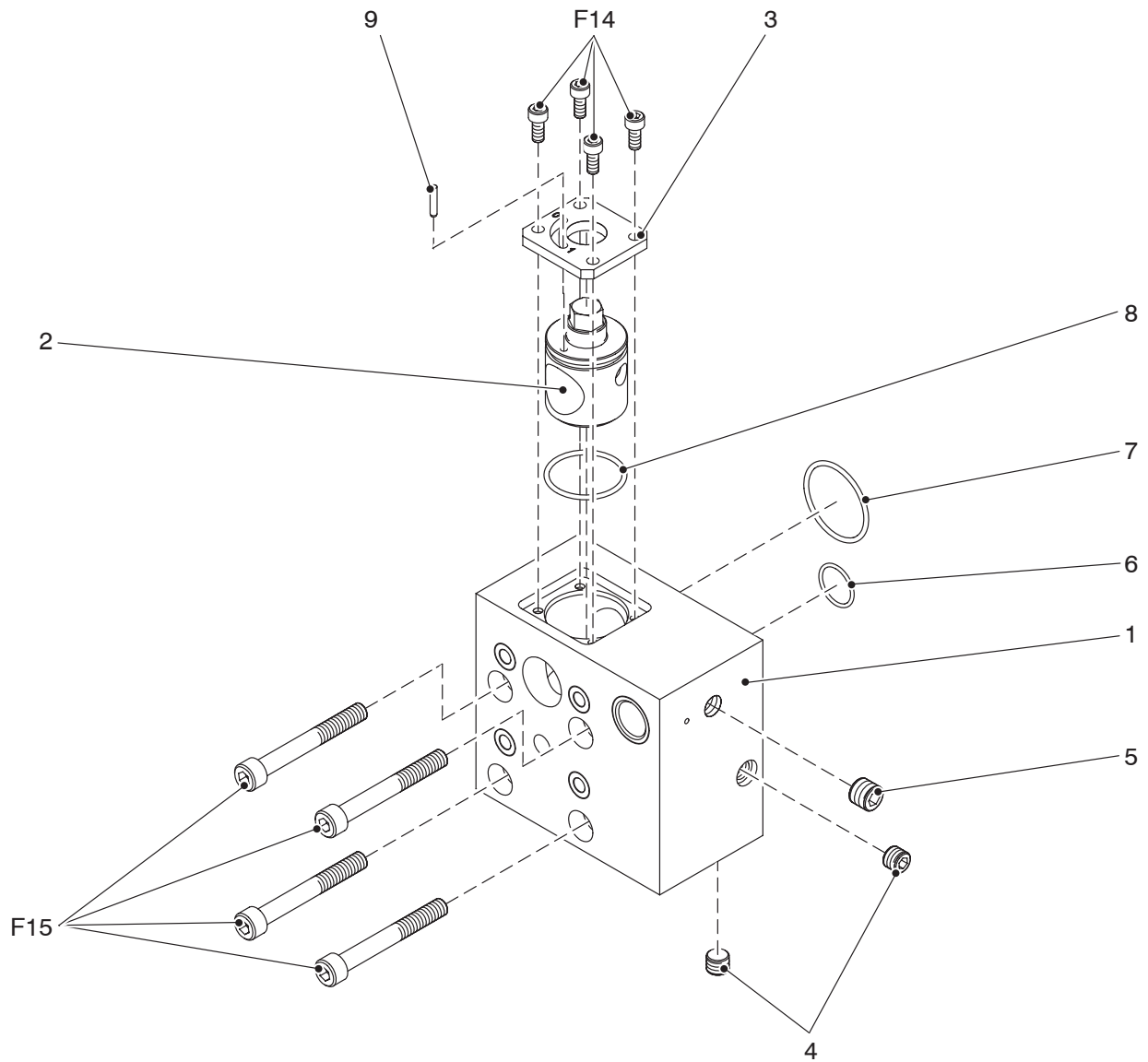


394122.02

Item	Part	Description	Quantity	Note	Box	Code
–	394122	Bypass plate, SN0030 –SN0773, with tank isolation valve	1		1 – 2 8 – 9	VA ≠ H
1	– – – – –	Body, bypass plate, tank isolation valve	1			
2	– – – – –	Tank isolation valve	1			
3	– – – – –	Stop plate, tank isolation valve	1			
4	– – – – –	Screw plug, M10x1.0, DIN906	2			
5	– – – – –	Screw plug, M12x1.5, DIN906	1			
6	– – – – –	O-ring, 18x1.5, Viton	1			
7	– – – – –	O-ring, 35x2	1			
8	– – – – –	O-ring, 32x2	1			
9	– – – – –	Parallel pin, D3m6x16, DIN6325-D	1			
–	394594	SERVICE KIT <i>Bypass plate</i>	1	Page 5-15		
6	– – – – –	• O-ring 18x1,5 Viton	1			
7	– – – – –	• O-ring 35x2	1			
–	397160	• Instruction sheet	1			
–	– – – – –	• Sealing paste, Stucarit 203, 100ml	1			
–	– – – – –	• High-temp. grease, GLS 595/N2, 10g	1			
–	394598	SERVICE KIT <i>Tank isolation valve</i>	1	Page 5-16		
8	– – – – –	• O-ring 32x2	1			
–	397161	• Instruction sheet	1			
–	– – – – –	• High-temp. grease, GLS 595/N2, 10g	1			

Item	Part	Description	Quantity	Note	Box	Code
–	394124	Bypass plate, SN0030 –SN0773, with tank isolation valve, High Temperature (HT)	1		1 – 2 8 – 9	VT ≠ H
1	– – – – –	Body, bypass plate, tank isolation valve	1			
2	– – – – –	Tank isolation valve	1			
3	– – – – –	Stop plate, tank isolation valve	1			
4	– – – – –	Screw plug, M10x1.0, DIN906	2			
5	– – – – –	Screw plug, M12x1.5, DIN906	1			
6	– – – – –	O-ring, 18x1.5	1			
7	– – – – –	O-ring, 35x2	1			
8	– – – – –	O-ring, 32x2	1			
9	– – – – –	Parallel pin, D3m6x16, DIN6325-D	1			
–	394595	SERVICE KIT <i>Bypass plate, HT</i>	1	Page 5-15		
6	– – – – –	• O-ring 18x1,5	1			
7	– – – – –	• O-ring 35x2	1			
–	397160	• Instruction sheet	1			
–	– – – – –	• Sealing paste, Stucarit 203, 100ml	1			
–	– – – – –	• High-temp. grease, GLS 595/N2, 10g	1			
–	394599	SERVICE KIT <i>Tank isolation valve, HT</i>	1	Page 5-16		
8	– – – – –	• O-ring 32x2	1			
–	397161	• Instruction sheet	1			
–	– – – – –	• High-temp. grease, GLS 595/N2, 10g	1			

Bypass Plate with Tank Isolation Valve, SN1710

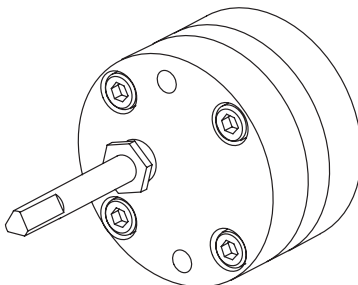


394122.02

Item	Part	Description	Quantity	Note	Box	Code
–	394125	Bypass plate, SN1710, with tank isolation valve	1		1 – 2 8 – 9	VA H
1	–	Body, bypass plate, tank isolation valve	1			
2	–	Tank isolation valve	1			
3	–	Stop plate, tank isolation valve	1			
4	–	Screw plug, M10x1.0, DIN906	2			
5	–	Screw plug, M12x1.5, DIN906	1			
6	–	O-ring, 18x1.5, Viton	1			
7	–	O-ring, 35x2	1			
8	–	O-ring, 32x2	1			
9	–	Parallel pin, D3m6x16, DIN6325-D	1			
–	394594	SERVICE KIT <i>Bypass plate</i>	1	Page 5-15		
6	–	• O-ring 18x1,5 Viton	1			
7	–	• O-ring 35x2	1			
–	397160	• Instruction sheet	1			
–	–	• Sealing paste, Stucarit 203, 100ml	1			
–	–	• High-temp. grease, GLS 595/N2, 10g	1			
–	394598	SERVICE KIT <i>Tank isolation valve</i>	1	Page 5-16		
8	–	• O-ring 32x2	1			
–	397161	• Instruction sheet	1			
–	–	• High-temp. grease, GLS 595/N2, 10g	1			

Item	Part	Description	Quantity	Note	Box	Code
–	394127	Bypass plate, SN1710, with tank isolation valve, High Temperature (HT)	1		1 – 2 8 – 9	VT H
1	–	Body, bypass plate, tank isolation valve	1			
2	–	Tank isolation valve	1			
3	–	Stop plate, tank isolation valve	1			
4	–	Screw plug, M10x1.0, DIN906	2			
5	–	Screw plug, M12x1.5, DIN906	1			
6	–	O-ring, 18x1.5	1			
7	–	O-ring, 35x2	1			
8	–	O-ring, 32x2	1			
9	–	Parallel pin, D3m6x16, DIN6325-D	1			
–	394595	SERVICE KIT <i>Bypass plate, HT</i>	1	Page 5-15		
6	–	• O-ring 18x1,5	1			
7	–	• O-ring 35x2	1			
–	397160	• Instruction sheet	1			
–	–	• Sealing paste, Stucarit 203, 100ml	1			
–	–	• High-temp. grease, GLS 595/N2, 10g	1			
–	394599	SERVICE KIT <i>Tank isolation valve, HT</i>	1	Page 5-16		
8	–	• O-ring 32x2	1			
–	397161	• Instruction sheet	1			
–	–	• High-temp. grease, GLS 595/N2, 10g	1			

Gear Pump



1210.0165.00

Item	Part	Description	Quantity	Note	Box	Code
–	259598	Gear pump SN0030 (PR2m1)	1		8 – 9	A
–	254406	Gear pump SN0046 (PR3m1)	1		8 – 9	B
–	257734	Gear pump SN0062 (PR4m1)	1		8 – 9	C
–	256015	Gear pump SN0093 (PR6m1)	1		8 – 9	D
–	254316	Gear pump SN0186 (PR12m1)	1		8 – 9	E
–	254247	Gear pump SN0371 (PR12m2)	1		8 – 9	F
–	259600	Gear pump SH0371 (PR12m2), hardened	1		8 – 9	9
–	254279	Gear pump SN0773 (PR25m2)	1		8 – 9	G
–	253992	Gear pump SH0773 (PR25m2), hardened	1		8 – 9	Z
–	254231	Gear pump SN1710 (PR100m3)	1	A	8 – 9	H
NOTE A: Do not use in conjunction with a 100 bar safety valve.						

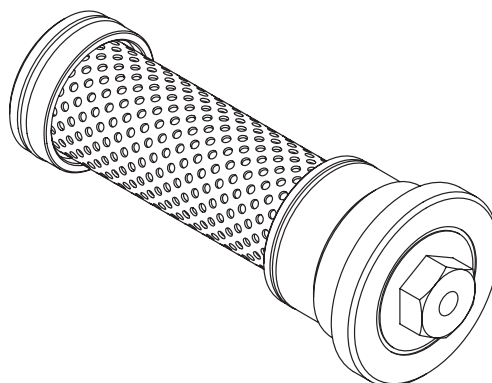
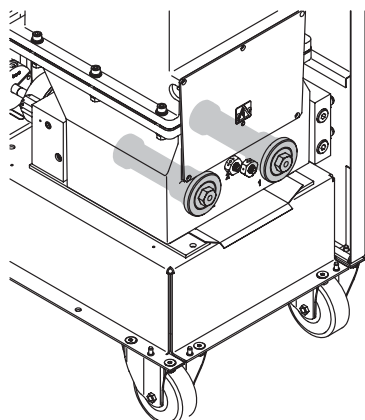
Item	Part	Description	Quantity	Note	Box	Code
–	394589	SERVICE KIT for pump sizes SN0030 to SN0773	1	Page 7-8	8 – 9	A – G 9, Z
–	– – – – –	• O-ring 10x1,5	1			
–	– – – – –	• Sealing paste, Stucarit 203, 100ml	1			
–	– – – – –	• High-temp. grease, GLS 595/N2, 10g	1			

Item	Part	Description	Quantity	Note	Box	Code
–	394596	SERVICE KIT for pump size SN1710	1	Page 7-8	8 – 9	H
–	– – – – –	• O-ring 15x1,5	1			
–	– – – – –	• Sealing paste, Stucarit 203, 100ml	1			
–	– – – – –	• High-temp. grease, GLS 595/N2, 10g	1			

Accessory

Item	Part	Description	Quantity	Note	Box	Code
–	394072	Pre-filter plate D29.5x0.5	1			

Filter Cartridge

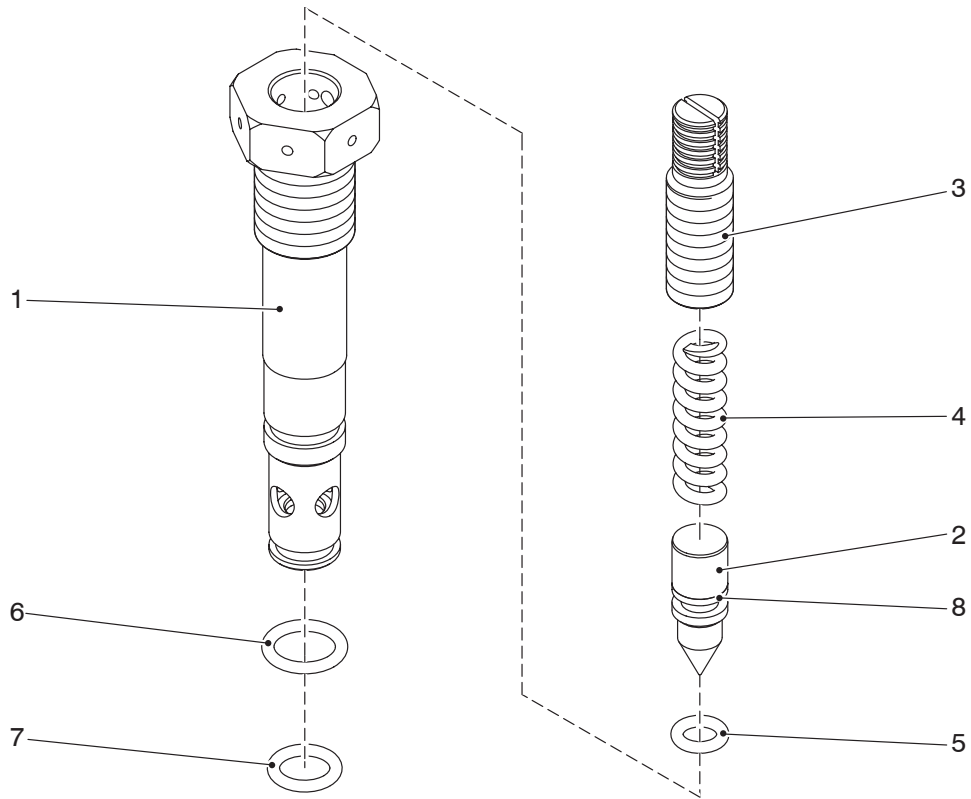


394200.01

Item	Part	Description	Quantity	Note	Box	Code
–	394200	Filter cartridge, Mesh Size 0.2 mm, complete	1		1 – 2	VA
–	203357	Filter cartridge Mesh Size 0.8 mm, complete	1			
–	394590	SERVICE KIT <i>Filter 0.2 mm</i>	1	Page 5-13		
–	710969 1	SERVICE KIT <i>Filter 0.8 mm</i>	1			
–	-----	• Filter sleeve complete	1			
–	-----	• • Filter sheath D40	1			
–	-----	• • Filter sleeve L104	1			
–	-----	• • O-ring 31x1	1			
–	-----	• • O-ring 44x3	1			
–	-----	• • O-ring 48x2	1			
–	-----	• High-temp. grease, GLS 595/N2, 10g	1			

Item	Part	Description	Quantity	Note	Box	Code
–	394103	Filter cartridge, Mesh Size 0.2 mm, complete, High Temperature (HT)	1		1 – 2	VT
–	394591	SERVICE KIT <i>Filter 0.2 mm, HT</i>	1	Page 5-13		
–	-----	• Filter sleeve complete, HT	1			
–	-----	• • Filter sheath D40	1			
–	-----	• • Filter sleeve L104	1			
–	-----	• • O-ring 31x1	1			
–	-----	• • O-ring 44x3	1			
–	-----	• • O-ring 48x2	1			
–	-----	• High-temp. grease, GLS 595/N2, 10g	1			

Pressure Control Valve

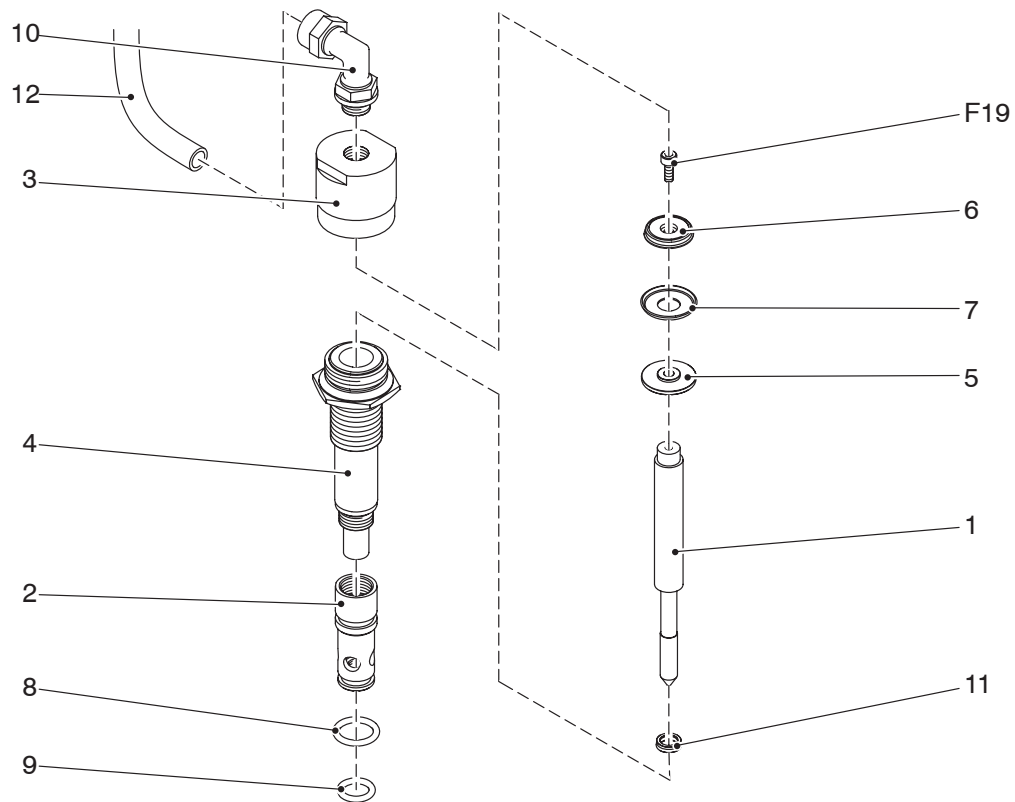


203059.02

Item	Part	Description	Quantity	Note	Box	Code
–	203059	Pressure control valve, 90 bar, adjustable	1		1 – 2 14	VA X
1	-----	Valve body, pressure control valve	1			
2	-----	Piston, safety valve f. supporting ring	1			
3	-----	Set screw, black, 100 bar	1			
4	-----	Compression spring, 2.2x7.4x34.4	1			
5	-----	O-ring, 6x2	1			
6	-----	O-ring, 11x2	1			
7	-----	O-ring, 9x2	1			
8	-----	Supporting ring, Da10, Di6.7, spiral	1			
–	394600	SERVICE KIT <i>Pressure control valve</i>	1	Page 5-10		
6	-----	• O-ring 11x2	1			
7	-----	• O-ring 9x2	1			
–	-----	• High-temp. grease, GLS 595/N2, 10g	1			

Item	Part	Description	Quantity	Note	Box	Code
–	394104	Pressure control valve, 90 bar, adjustable, High Temperature (HT)	1		1 – 2 14	VT X
1	-----	Valve body, pressure control valve	1			
2	-----	Piston, safety valve f. supporting ring	1			
3	-----	Set screw, black, 100 bar	1			
4	-----	Compression spring, 2.2x7.4x34.4	1			
5	-----	O-ring, 6x2	1			
6	-----	O-ring, 11x2	1			
7	-----	O-ring, 9x2	1			
8	-----	Supporting ring, Da10, Di6.7, spiral	1			
–	394601	SERVICE KIT <i>Pressure control valve, HT</i>	1	Page 5-10		
6	-----	• O-ring 11x2	1			
7	-----	• O-ring 9x2	1			
–	-----	• High-temp. grease, GLS 595/N2, 10g	1			

Pneumatic Pressure Control Valve

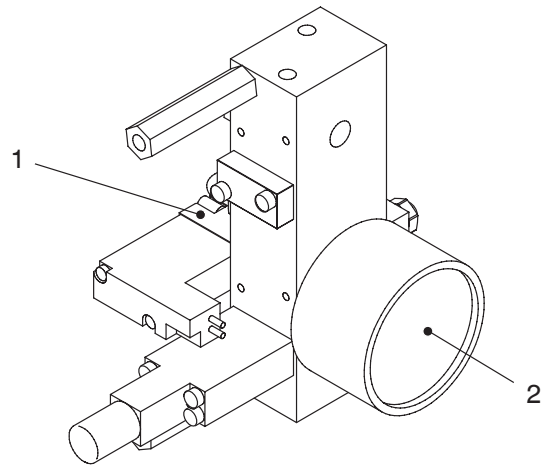
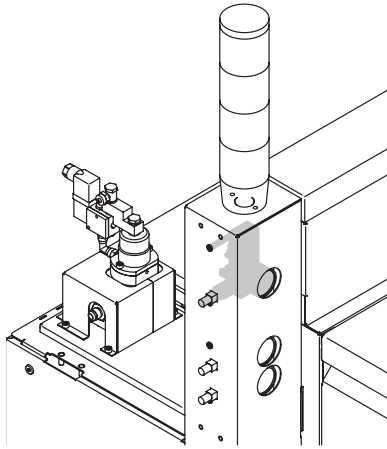


394104.01

Item	Part	Description	Quantity	Note	Box	Code
–	207300	Pressure control valve, pneumatically controlled	1		1 – 2 14	VA P, M, F
1	-----	Piston, pressure control valve	1			
2	-----	Valve body, bypass 300°	1			
3	-----	Cylinder, bypass pneu., Di19.3	1			
4	-----	Valve body, bypass pneumatic, 90 bar	1			
5	-----	Piston, bypass pneu., Da19.3	1			
6	-----	Piston, bypass pneu., Da19.3	1			
7	-----	Seal, 19.7x0.6	1			
8	-----	O-ring, 11x2	1			
9	-----	O-ring, 9x2	1			
10	-----	Fitting, quick thread-in, -W-d04-G1/8-TURN	1			
11	-----	Inside seal, Turcon-Variseal-M2S	1			
12	-----	Hose, D4.0, d2.5, PTFE	1500 mm			
–	394600	SERVICE KIT Pressure control valve	1	Page 5-10		
8	-----	• O-ring 11x2	1			
9	-----	• O-ring 9x2	1			
–	-----	• High-temp. grease, GLS 595/N2, 10g	1			

Item	Part	Description	Quantity	Note	Box	Code
–	394105	Pressure control valve, pneumatically controlled, High Temperature (HT)	1		1 – 2 14	VT P, M, F
1	-----	Piston, pressure control valve	1			
2	-----	Valve body, bypass 300°	1			
3	-----	Cylinder, bypass pneu., Di19.3	1			
4	-----	Valve body, bypass pneumatic, 90 bar	1			
5	-----	Piston, bypass pneu., Da19.3	1			
6	-----	Piston, bypass pneu., Da19.3	1			
7	-----	Seal, 19.7x0.6	1			
8	-----	O-ring, 11x2	1			
9	-----	O-ring, 9x2	1			
10	-----	Fitting, quick thread-in, -W-d04-G1/8-TURN	1			
11	-----	Inside seal, Turcon-Variseal-M2S	1			
12	-----	Hose, D4.0, d2.5, PTFE	1500 mm			
–	394601	SERVICE KIT, Pressure control valve	1	Page 5-10		
8	-----	• O-ring 11x2	1			
9	-----	• O-ring 9x2	1			
–	-----	• High-temp. grease, GLS 595/N2, 10g	1			

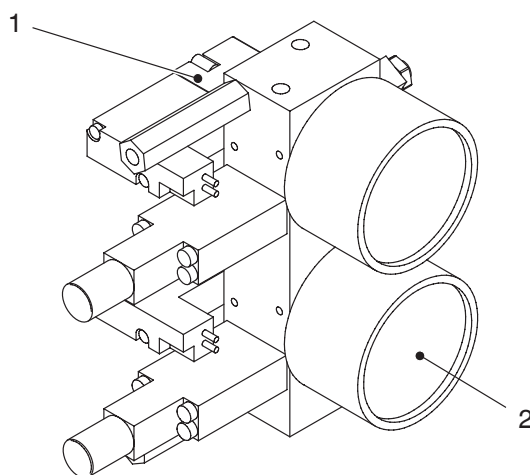
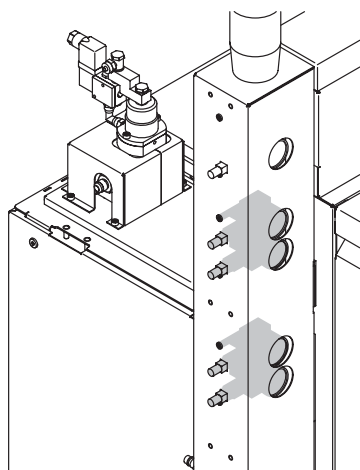
Pneumatic Control, 1-fold



394271.02

Item	Part	Description	Quantity	Note	Box	Code
–	394265	Pneumatic control, 1-fold, Man Pr. Control, cpl.	1		14	M
–	394542	Pneumatic control, 1-fold, Flow Control, compl.	1		14	F
1	394814	Solenoid valve (see <i>Electrical Components</i>)	1		14	F
2	394813	Pressure gauge	1		14	M, F

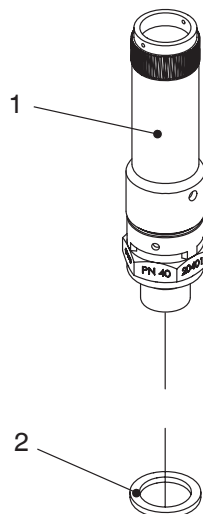
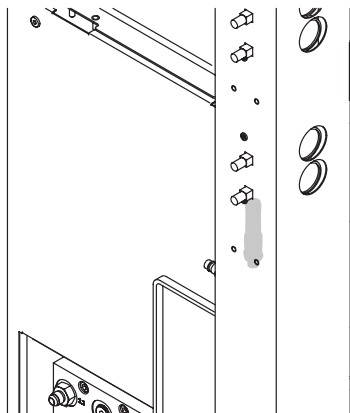
Pneumatic Control, 2-fold



394272.02

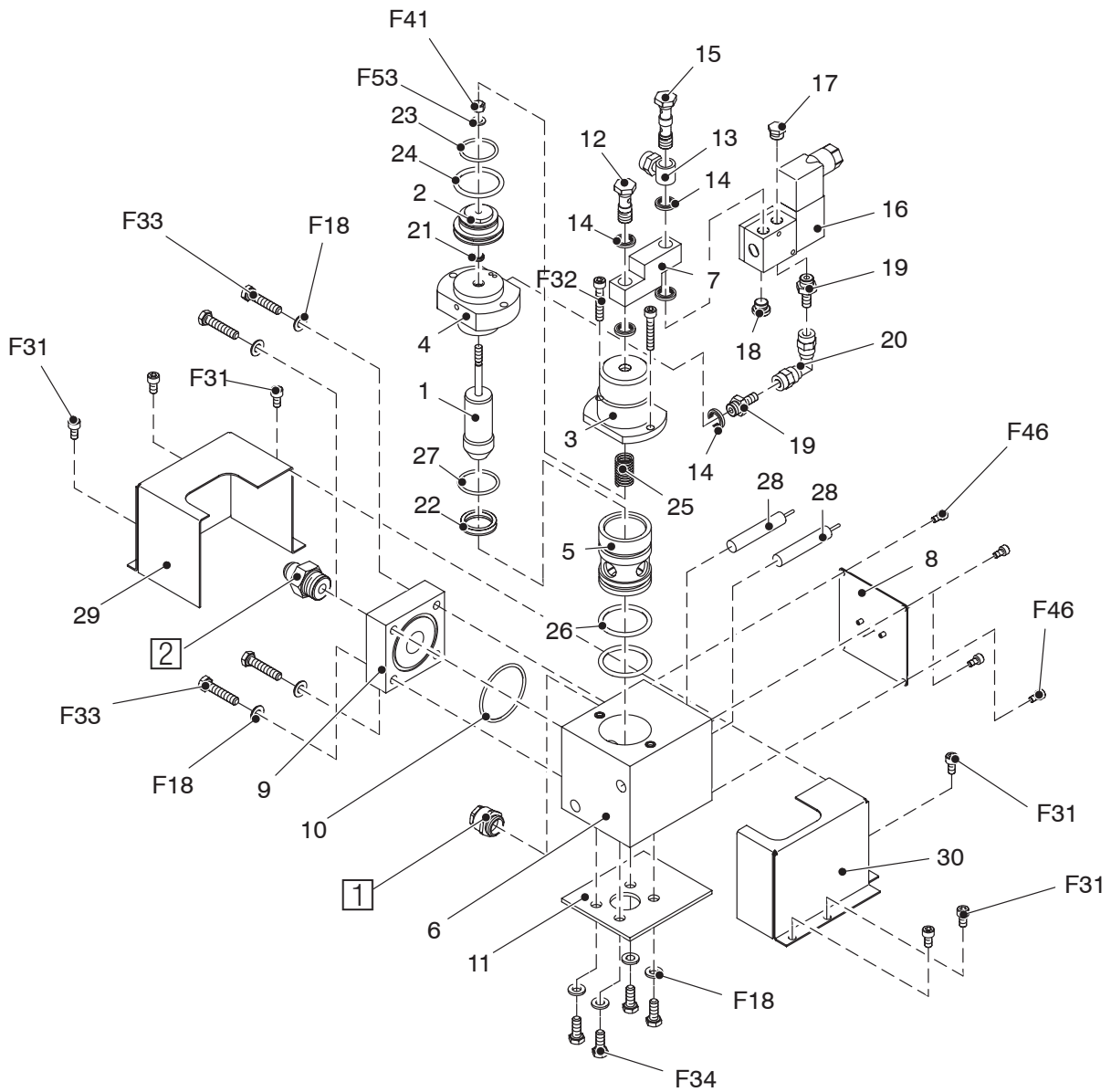
Item	Part	Description	Quantity	Note	Box	Code
–	394266	Pneumatic control, 2-fold, Man Pr. Control, cpl.	1		14	M
–	394543	Pneumatic control, 2-fold, Flow Control, compl.	1		14	F
1	394814	Solenoid valve (see <i>Electrical Components</i>)	2		14	F
2	394813	Pressure gauge	2		14	M, F

Pneumatic Safety Valve



Item	Part	Description	Quantity	Note	Box	Code
1	279615	Pneumatic Safety valve, 6 bar, G1/4 SW20	1		14	P, M, F
2	255166	Sealing ring, R1/4 type: PDR-14	1			

Feed Valve



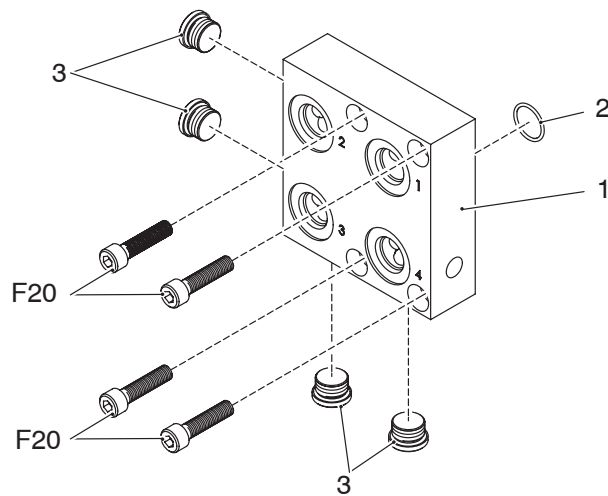
207285.02

Item	Part	Description	Quantity	Note	Box	Code
–	207285	Feed valve, Nomin. Width 20 , 24V, complete	1	A	16	B,P,C,D
1	– – – –	Needle, valve, D22, L91, feed valve, NW20	1			
2	– – – –	Piston, feed valve, NW20	1			
3	– – – –	Cylinder, control module, feed valve	1			
4	– – – –	Cylinder flange, feed valve, NW20	1			
5	– – – –	Bushing, D38, L48	1			
6	– – – –	Body, feed valve, NW20	1			
7	– – – –	Air manifold, control module, feed valve	1			
8	– – – –	Electric cover, 71x69x1, CE compl.	1			
9	– – – –	Adapter plate, i3/4UNF-a60x60, VX	1			
10	252252	O-ring, 42x2	1			
11	– – – –	Insulation, feed valve, SIL C4409	1			
12	– – – –	Hollow screw, 1single, G1/8 L31	1			
13	– – – –	Fitting, G1/8 1xNW8	1			
14	414098	Sealing ring, 10x15x2	5			
15	– – – –	Hollow screw, 2single, G1/8 L43	1			
16	254248	Solenoid valve, 4/2ways, 24V/5,9W G1/8	1			
17	– – – –	Muffler, R1/8	1			
18	401878	Screw plug, G1/8 with o-ring	1			
19	– – – –	Connector slip collar D6–aG1/8	2			
20	– – – –	Thread fitting, -W-D06-D06-0000	1			
21	264298	Inside seal, Turcon-Variseal-M D5	1			
22	264750	Inside seal, Turcon-Variseal-M D20	1			
23	314675	O-ring, 24x2	1			
24	251143	O-ring, 30x3	1			
25	– – – –	Compression spring, 1.4x12x23	1			
26	314673	O-ring, 32x3	2			
27	256800	O-ring, 26x2	1			
28	250682	Heater cartridge, 3/8"x2", 230V-200W	2			
29	– – – –	Cover, feed valve, front	1			
30	– – – –	Cover, feed valve, back	1			
–	729077	Sign <i>max. 6,0 bar</i>	1			

NOTE A: Max. operating temperature 230 °C / 450 °F

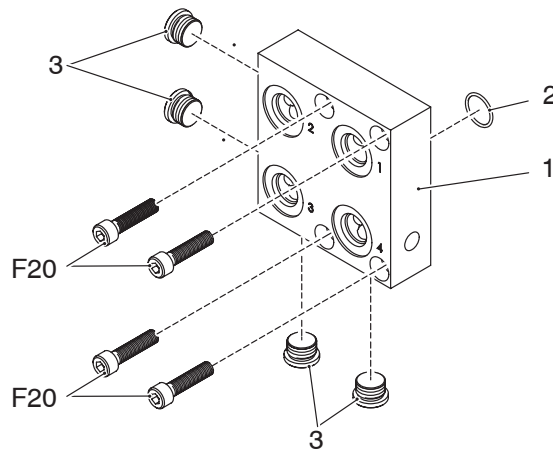
Item	Part	Description	Quantity	Note	Box	Code
①	461732	Lock nut metal M20x1,5	1			
②	419881	Hose fitting a3/4UNF-a3/4UNF (NW 13) with O-ring	1		16	C, D
	203786	Hose fitting a1 1/16-12-a3/4UNF (NW 16) with O-ring	1		16	B, P

Manifold



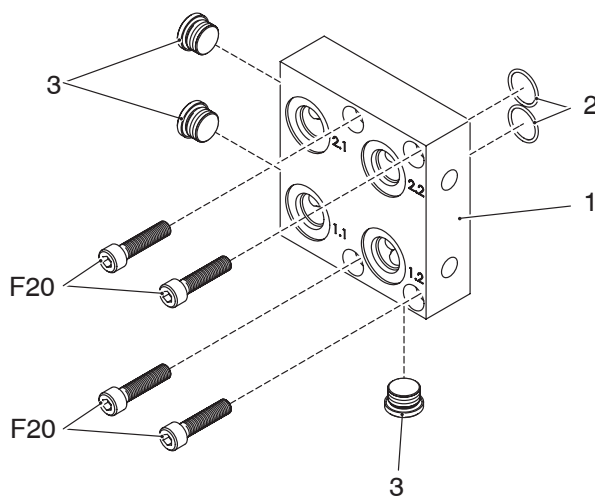
203614.02

Item	Part	Description	Quantity	Note	Box	Code
–	203614	Manifold, 1x4, NW 13, complete, 1 Pump	1		1 – 2 3 – 5 9	VA 012 X
1	–	Manifold, 1x4, Nominal Width 13 mm	1			
2	252242	O-ring, 18x1.5, Viton	1			
3	446987	Screw plug G3/8 with O-ring	4			



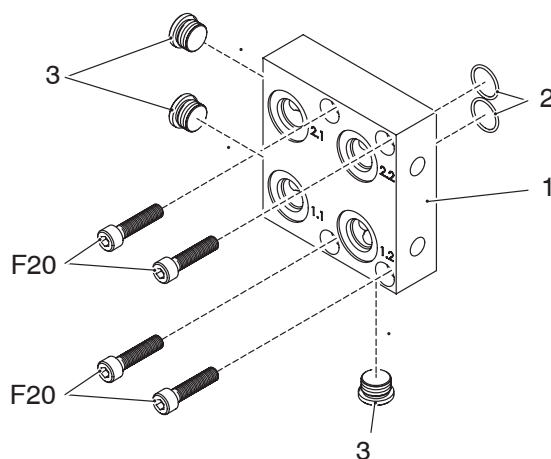
394106.01

Item	Part	Description	Quantity	Note	Box	Code
–	394106	Manifold, 1x4, NW 13 complete, High Temperature, 1 Pump	1		1 – 2 3 – 5 9	VT 012 X
1	–	Manifold, 1x4, Nominal Width 13 mm	1			
2	394079	O-ring, 18x1.5	1			
3	394091	Screw plug, G3/8 with O-ring	4			

Manifold (contd)

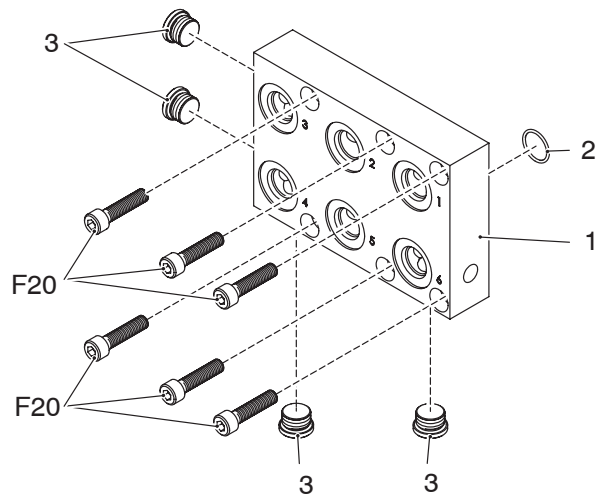
203431.02

Item	Part	Description	Quantity	Note	Box	Code
–	203431	Manifold, 2x2, NW13, complete, 2 Pumps	1		1 – 2 3 – 5 9	VA 012 ≠X
1	– – – – –	Manifold, 2x2, Nominal Width 13 mm	1			
2	252242	O-ring, 18x1.5, Viton	2			
3	446987	Screw plug G3/8 with O-ring	3			



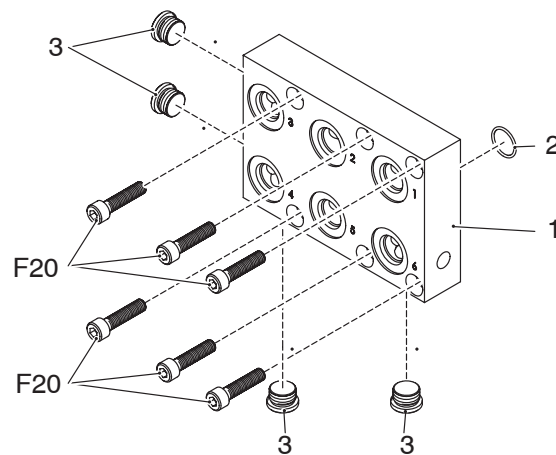
394107.01

Item	Part	Description	Quantity	Note	Box	Code
–	394107	Manifold, 2x2, NW13, compl., High Temperature, 2 Pumps	1		1 – 2 3 – 5 9	VT 012 ≠X
1	– – – – –	Manifold, 2x2, Nominal Width 13 mm	1			
2	394079	O-ring, 18x1.5	2			
3	394091	Screw plug, G3/8 with O-ring	3			

Manifold (contd)

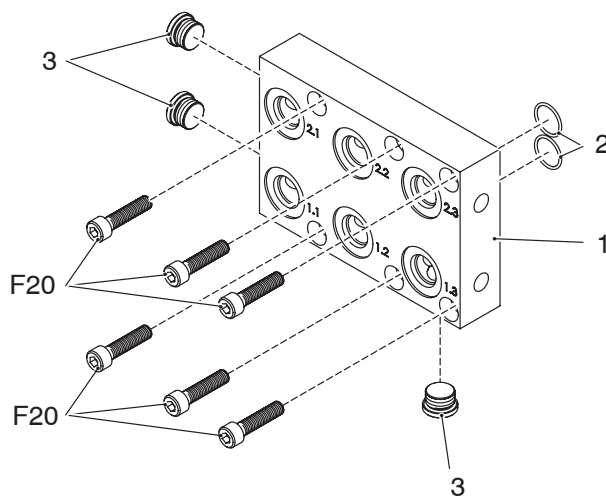
203621.02

Item	Part	Description	Quantity	Note	Box	Code
–	203621	Manifold, 1x6 NW13, complete, 1 Pump	1		1 – 2 3 – 5 9	VA 025-100 X
1	-----	Manifold, 1x6 Nominal Width 13 mm	1			
2	252242	O-ring, 18x1.5	1			
3	446987	Screw plug G3/8 with O-ring	4			



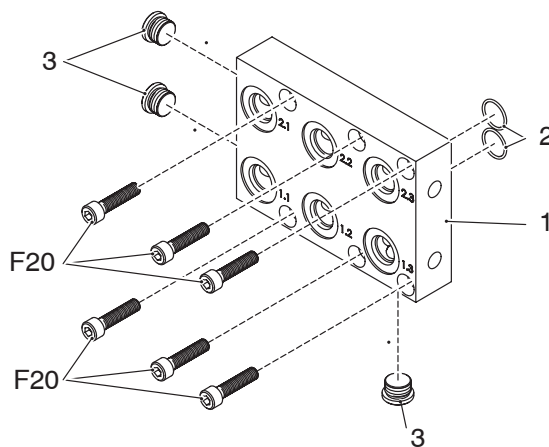
394108.01

Item	Part	Description	Quantity	Note	Box	Code
–	394108	Manifold, 1x6 NW13, compl., High Temperature, 1 Pump	1		1 – 2 3 – 5 9	VT 025-100 X
1	-----	Manifold, 1x6 Nominal Width 13 mm	1			
2	394079	O-ring, 18x1.5	1			
3	394091	Screw plug, G3/8 with O-ring	4			

Manifold (contd)

203619.02

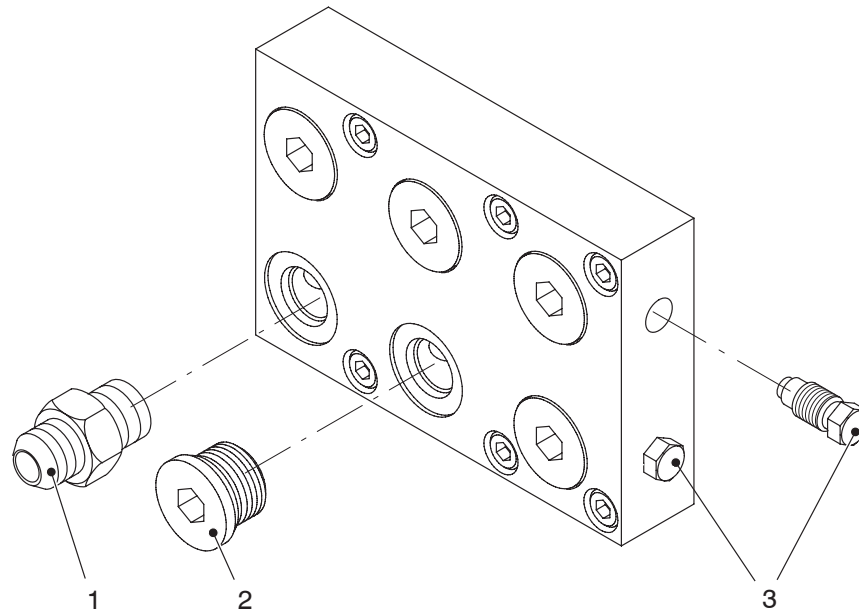
Item	Part	Description	Quantity	Note	Box	Code
–	203619	Manifold, 2x3, NW13, complete, 2 pumps	1		1 – 2 3 – 5 9	VA 025-100 ≠X
1	-----	Manifold, 2x3, Nominal Width 13 mm	1			
2	252242	O-ring, 18x1.5, Viton	2			
3	446987	Screw plug G3/8 with O-ring	3			



394109.01

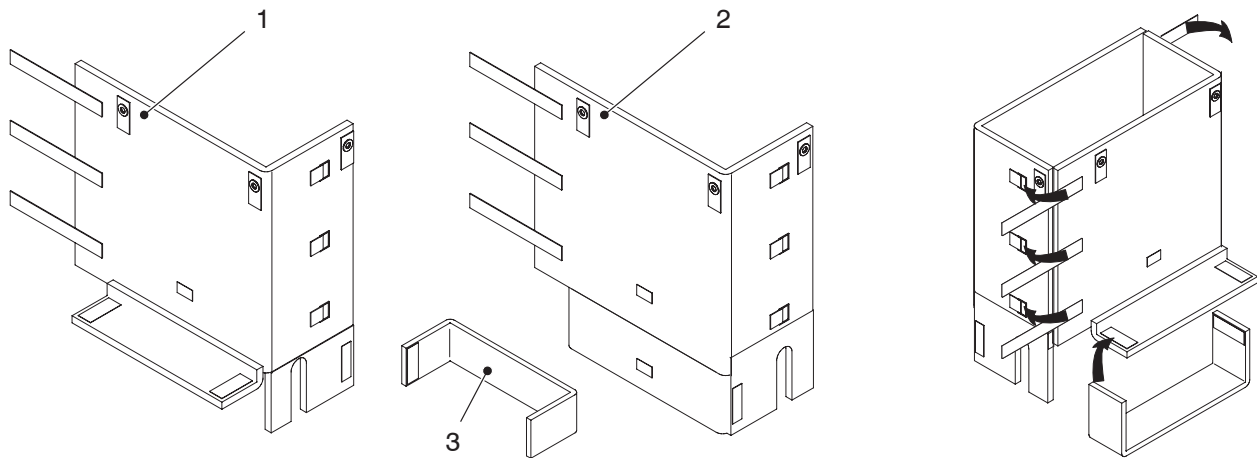
Item	Part	Description	Quantity	Note	Box	Code
–	394109	Manifold, 2x3, NW13, compl., High Temperature, 2 Pumps	1		1 – 2 3 – 5 9	VT 025-100 ≠X
1	-----	Manifold, 2x3, Nominal Width 13 mm	1			
2	394079	O-ring, 18x1.5	2			
3	394091	Screw plug, G3/8 with O-ring	3			

Manifold Accessories



Item	Part	Description	Quantity	Note	Box	Code
1	446617	Hose fitting a9/16UNF-a3/4UNF (NW 8) with O-ring	1		1 – 2	VA
1	419881	Hose fitting a3/4UNF-a3/4UNF (NW 13) with O-ring	1			
1	203786	Hose fitting a1 1/16-12-a3/4UNF (NW 16) with O-ring	1			
2	7109634	PLUG,O RING 16x2FPM,STR THD,3/4-16	1			
1	7109584	Hose fitting a9/16UNF-a3/4UNF (NW 8) with O-ring HT	1		1 – 2	VT
1	7109671	Hose fitting a3/4UNF-a3/4UNF L37 (NW 13) with O-ring HT	1			
1	7109672	Hose fitting a1 1/16-12-a3/4UNF (NW 16) with O-ring HT	1			
2	7109585	PLUG,O RING,STR THD,3/4-16,STL, HT	1			
1	7104944	Accessory kit, check valve NW08 • Check valve 9/16UNF-3/4UNF NW8 • • O-ring 16x2, High Temperature • Padded bag 170x225mm outside C13	1	Replaces hose fitting (NW 8)		
3	251276	Plug, 1/2 UNF, L33, DD	1	Closes pressure sensor port		

Insulation Jacket



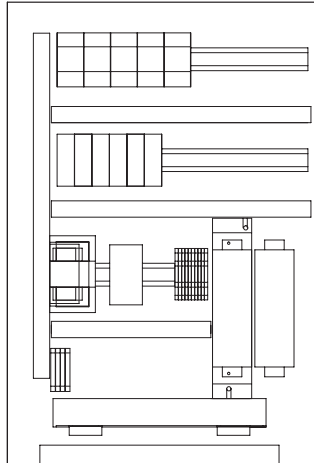
Item	Part	Description	Quantity	Note	Box	Code
–	729207	Insulation jacket, fitted, 50, complete	1		3 – 5	050
1	729894	• Insulation sleeve front/left	1			
2	729895	• Insulation sleeve back/right	1			
3	394092	• Insulation sleeve f.pump	1			
–	729208	Insulation jacket, fitted, 100, complete	1		3 – 5	100
1	7104519	• Insulation sleeve front/left	1			
2	7104520	• Insulation sleeve back/right	1			
3	7104523	• Insulation sleeve f.pump	1			

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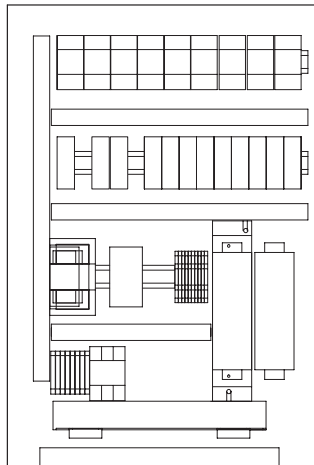
Electrical Components, Part 1

V12, V25

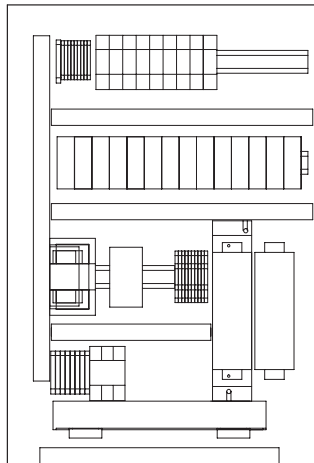
1x230 V_{AC} (V12 only)



3x230 V_{AC} / 3x200 V_{AC}



3x400 V_{AC} / 3x480 V_{AC}



Electrical Components, Part 1 *(contd)*

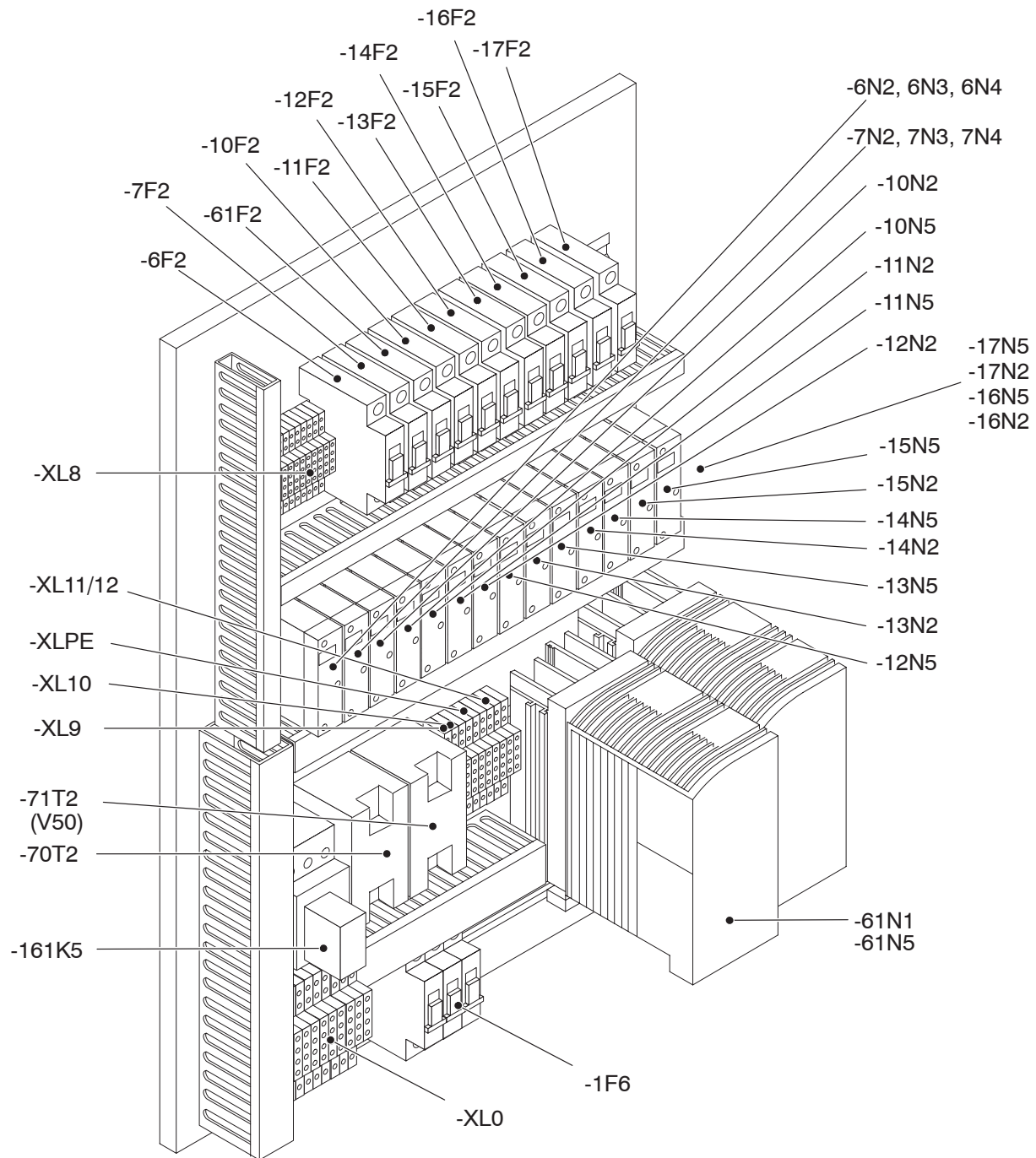


Figure 8-1 Example

Item	Part	Description	Quantity	Note	Box	Code
-1F6	254244	Circuit-breaker 50A 3-pole FAZ-3-B50	1		3-5 7	012, 025 2
	458518	Circuit-breaker 32A 3-pole FAZ-3-B32	1		3 - 5 7	012, 025 5, 6
	429779	Circuit-breaker 32A 3-pole FAZ-3-B32N	1		3 - 5 7 18	012, 025 4 1, 3
	318248	Circuit-breaker 63A 3-pole FAZ-3-B63	1		3 - 5 7	050 2
	458519	Circuit-breaker 40A 3-pole FAZ-3-B40	1		3 - 5 7	050 5, 6
	7104069	Circuit-breaker 40A 3-pole FAZ-3-B40N	1		3 - 5 7 18	050 4 1, 3
	7104855	Circuit-breaker 90A 3-pole NZMB1-AF90-N	1		3 - 5 7	100 2, 3
	318248	Circuit-breaker 63A 3-pole FAZ-3-B63	1		3 - 5 7	100 5, 6
	441715	Circuit-breaker 63A 3-pole FAZ-3-B63N	1		3 - 5 7 18	100 4 1, 3
-6F2	251364	Circuit-breaker, 16A 1-pole FAZ-1-B16	1		3 - 5 7	012, 025 4, 5, 6
	255592	Circuit-breaker, 16A 2-pole FAZ-2-B16	1		3 - 5 7	012, 025 1, 2, 3
	254309	Circuit breaker 10A 3-pole FAZ-3-B10	1		3 - 5 7	050 4, 5, 6
	256142	Circuit breaker 20A 3-pole FAZ-3-B20	1		3 - 5 7	050 2, 3
	256142	Circuit breaker 20A 3-pole FAZ-3-B20	1		3 - 5 7	100 4, 5, 6
	256144	Circuit breaker 32A 3-pole FAZ-3-B32	1		3 - 5 7	100 2, 3
-7F2	251364	Circuit-breaker, 16A 1-pole FAZ-1-B16	1		3 - 5 7	012, 025 4, 5, 6
	255592	Circuit-breaker, 16A 2-pole FAZ-2-B16	1		3 - 5 7	012, 025 1, 2, 3
	256141	Circuit breaker 16A 3-pole FAZ-3-B16	1		3 - 5 7	050 4, 5, 6
	256142	Circuit breaker 20A 3-pole FAZ-3-B20	1		3 - 5 7	050 2, 3
	256142	Circuit breaker 20A 3-pole FAZ-3-B20	1		3 - 5 7	100 4, 5, 6
	256144	Circuit breaker 32A 3-pole FAZ-3-B32	1		3 - 5 7	100 2, 3

Continued...

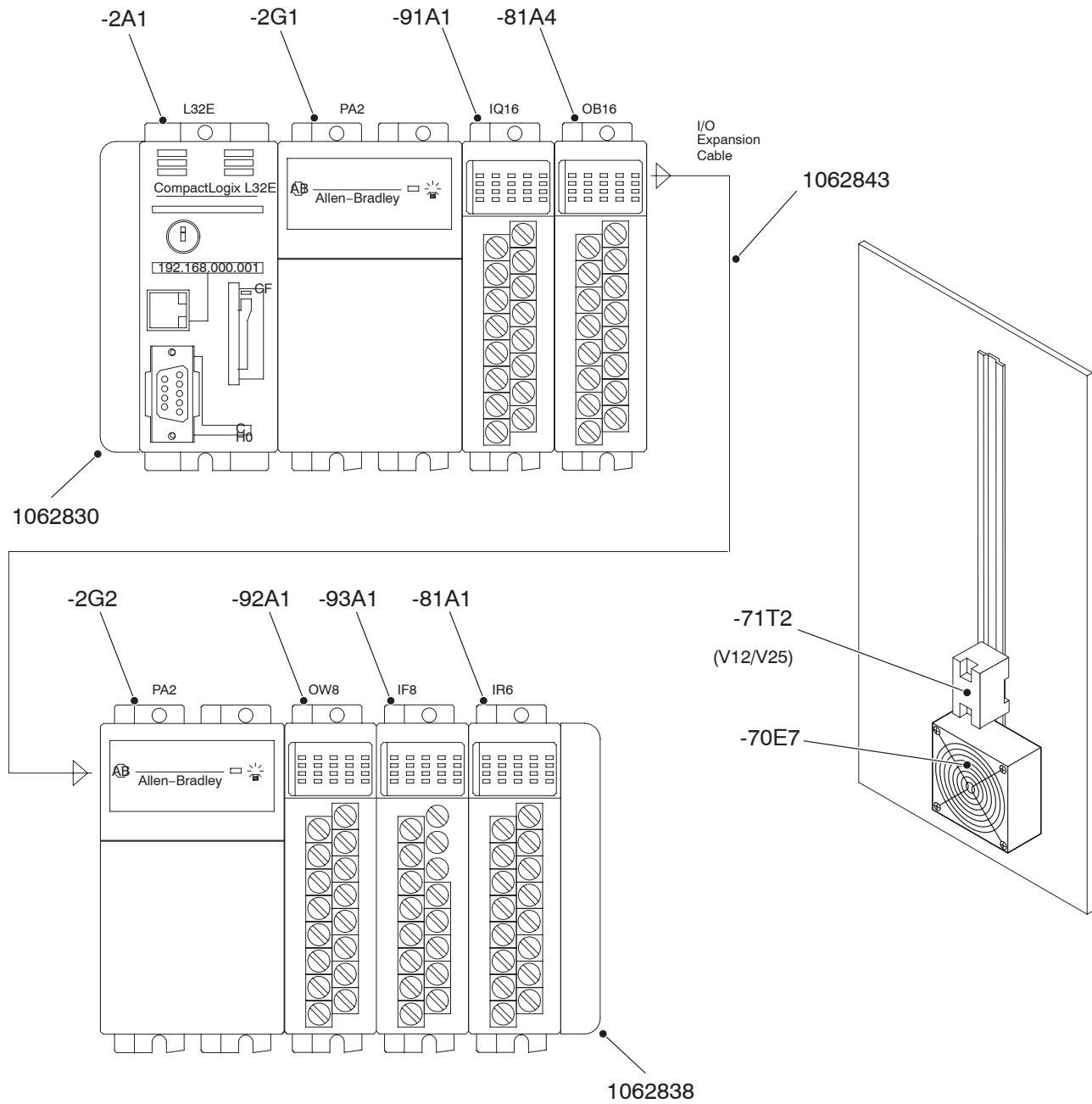
Electrical Components, Part 1 (contd)

Item	Part	Description	Quantity	Note	Box	Code
-6N2	207397	Solid-state-relay, G3PB 100-260V max. 25A	1		3 – 5	012, 025
-7N2			1		7	1 – 6
-6N2	207397	Solid-state-relay, G3PB 100-260V max. 25A	1		3 – 5	050
-6N3			1		7	2 – 6
-6N4			1		7	4 – 6
-7N2			1		7	2 – 6
-7N3			1		7	4 – 6
-7N4			1		7	2 – 6
-6N2	207397	Solid-state-relay, G3PB 100-260V max. 25A	1		3 – 5	100
-6N3			1		7	4 – 6
-6N4			1		7	4 – 6
-7N2			1		7	4 – 6
-7N3			1		7	4 – 6
-7N4			1		7	4 – 6
-6N2	7104755	Solid-state-relay, G3PB 100-260V max. 45A	1		3 – 5	100
-6N4			1		7	2, 3
-7N2			1		7	2, 3
-7N4			1		7	2, 3
-10F2	457991	Circuit-breaker, 10A 1-pole FAZ-1-B10	1		7	4, 5, 6
	254242	Circuit-breaker, 10A 2-pole FAZ-2-B10	1		7	1, 2, 3
-11F2		Refer to -10F2				
-12F2						
-13F2						
-14F2						
-15F2						
-16F2						
-17F2						
-10N2	207396	Solid-state-relay, G3PB 100-260V max. 15A	1		12	2,4,6,8
-10N5			1		12	2,4,6,8
-11N2			1		12	2,4,6,8
-11N5			1		12	2,4,6,8
-12N2			1		12	4, 6, 8
-12N5			1		12	4, 6, 8
-13N2			1		12	4, 6, 8
-13N5			1		12	4, 6, 8
-14N2			1		12	6, 8
-14N5			1		12	6, 8
-15N2			1		12	6, 8
-15N5			1		12	6, 8
-16N2			1		12	8
-16N5			1		12	8
-17N2			1		12	8
-17N5			1		12	8

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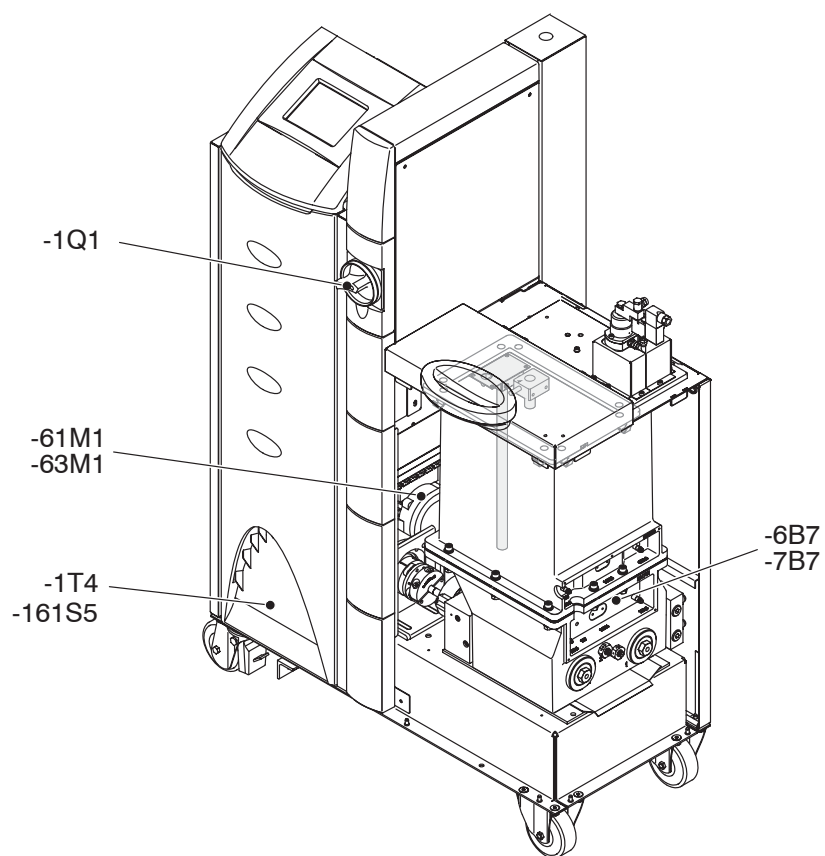
Item	Part	Description	Quantity	Note	Box	Code
-61F2	456986	Circuit-breaker, 16A 1-pole FAZ-1-S16	1		7	4, 5, 6
	408303	Circuit-breaker, 16A 2-pole FAZ-2-S16	1		7	1, 2, 3
<i>Continued...</i>						
-61N1	7109039	Frequency converter, unpr., 750 W, PowerFlex40	1		8	
	7109048	Ethernet/IP adapter	1			
-61N5	7109077	Cover, interface module, PowerFlex	1		8	
-70T2	207678	Power supply, 230V/N/24V, 90W	1			
-71T2	207678	Power supply, 230V/N/24V, 90W	1		3 – 5	050,100
					14	P
					16	B,P,C,D
-161K5	414100	Contactor, DIL 0M-G(24 VDC) 35A/400V	1		3 – 5	012,025
					7	1,4,5,6
	256703	Contactor, DIL 1M-G/22(24 VDC) 55A/400V	1		3 – 5	012,025
	316454	Auxiliary contactor block, 11 DIL M1OE 1S	1		7	2, 3
	256703	Contactor, DIL 1M-G/22(24 VDC) 55A/400V	1		3 – 5	050,100
	316454	Auxiliary contactor block, 11 DIL M1OE 1S	1		7	4, 5, 6
	291187	Contactor, DIL 2M–G 24VDC 90A/400V	1		3 – 5	050,100
	316454	Auxiliary contactor block, 11 DIL M1OE 1S	1		7	2, 3
	414102	Free-wheel diode, 12-250 VDC FD B DIL	1			
-XL0						
-XL8					7	4, 5, 6
-XL9						
-XL10						
-XL11/12						
-XLPE						
NS	1057713	Switch, Ethernet	1			
NOTE: Item = Component designation with reference to the Wiring Diagram						
NS: Not Shown						

Electrical Components, Part 2



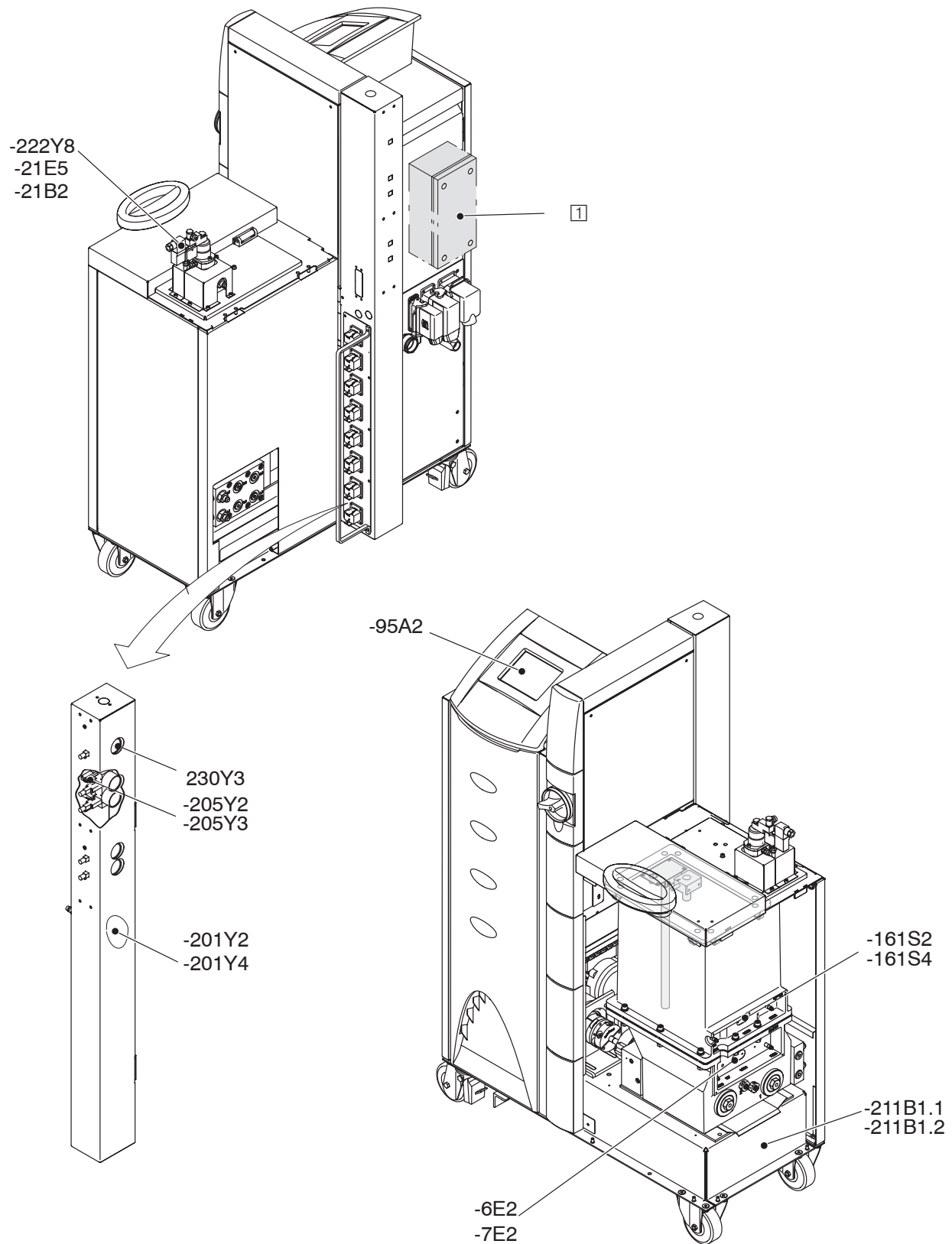
Item	Part	Description	Quantity	Note	Box	Code
-70E7	207400	Fan, 4100N, V=160 3,5W	1			
-71T2	207678	Power supply, 230V/N/24V, 90W	1		3 – 5 14 16	012, 025 P B,P,C,D
—	1062830	Cap, end, left, PLC, CompactLogix	1			
-2A1	1062831	PLC, CompactLogix, L32E	1			
-2G1, -2G2	1062832	Power supply, PLC, CompactLogix	2			
-91A1	1062833	Module, input, digital, 16PT, CompactLogix	1			
-81A4	1062834	Module, output, digital, 16PT, CompactLogix	1			
-92A1	1062835	Module, output, relay, 8PT, CompactLogix	1			
-81A1	1062836	Module, input, RTD, 6PT, CompactLogix	1			
-93A1	1062837	Module, input, analog, 8PT, CompactLogix	1			
—	1062838	Cap, end, right, PLC, CompactLogix	1			
-2A4	1062839	Adapter, DF1-Ethernet	1			
-2A2	7109038	Control panel, PanelView Plus 600, color	1			
—	1062841	Cover, adapter, PowerFlex40, Ethernet	1			
-2W4	1062842	Cable, adapter, Ethernet	1			
—	1062843	Cable, expansion, I/O, CompactLogix	1			
-61N1	1062844	Motor control, PowerFlex40, 240V, 1 PH, 1 hp, Ethernet	1			
—	1062848	Module, communication, Ethernet, PowerFlex40	1			
-2A3	1057713	Control unit, hub, Ethernet, 5-port	1			
-2W2, -2W1, -2W3	1057714	Cable, patch, UTP, CAT6, 7 ft	3			

Electrical Components, Part 3



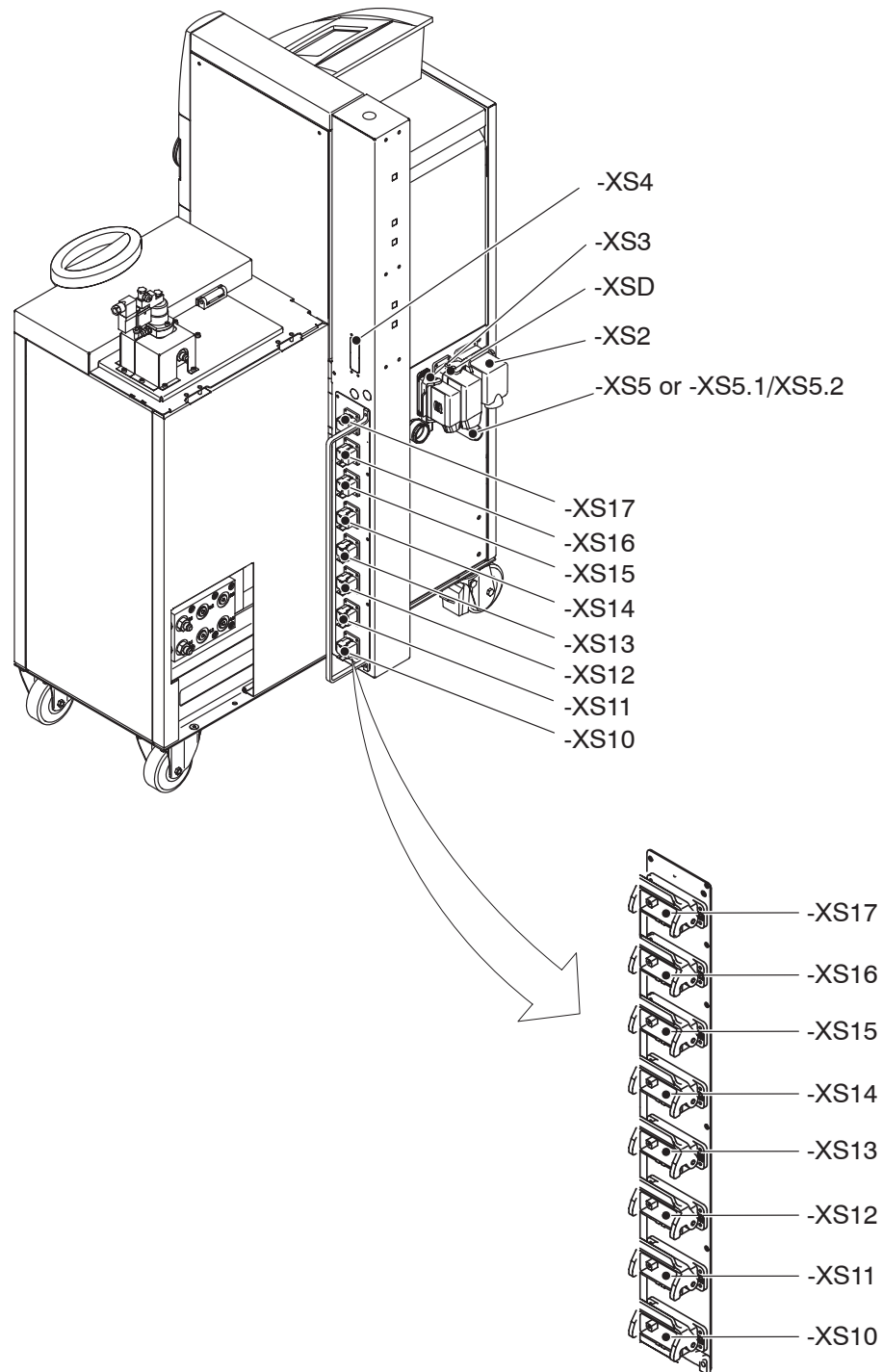
Item	Part	Description	Quantity	Note	Box	Code
-1T4	207394	Transformer, three-phase, 200V/240V 20 kVA	1		3 – 5 7	012, 025 2
	729705	Transformer, three-phase, 200V/240V 26 kVA	1		3 – 5 7	050 2
	729707	Transformer, three-phase, 200V/240V 39 kVA	1		3 – 5 7	100 2
	207395	Transformer, three-phase, 480V/400V 21 kVA	1		3 – 5 7	012,025 5, 6
	729706	Transformer, three-phase, 480V/400V 28 kVA	1		3 – 5 7	050 5, 6
	729708	Transformer, three-phase, 480V/400V 38 kVA	1		3 – 5 7	100 5, 6
-161S5	-----	Thermostat (Transformer), 155 °C / 311 °F	1			
		Main switches			3 – 5	012,025
-1Q1	252794	Main switch, 3x63A red/yellow	1		7 18	2, 3 X
	253639	Main switch, 3x32A red/yellow	1		7 18	1, 4, 5, 6 X
	315250	Main switch, 3x63A black	1		7 18	2, 3 2
	400847	Main switch, 3x32A black	1		7 18	1, 4, 5, 6 2
	207831	Main switch, 3x32A black with "N"	1		7 18	4 3
	419768	Main switch, 3x32A red/yellow with "N"	1		7 18	4 1
		Main switches			3 – 5	050,100
-1Q1	256567	Main switch, 3x100A red/yellow	1		7 18	2, 3 X
	252794	Main switch 3x63A red/yellow	1		7 18	4, 5, 6 X
	7104109	Main switch, 3x100A black	1		7 18	2, 3 2
	315250	Main switch, 3x63A black	1		7 18	4, 5, 6 2
	7104826	Main switch, 3x63A black with "N"	1		7 18	4 3
	251531	Main switch, 3x63A red/yellow with "N"	1		7 18	4 1
	7104827	Auxiliary switch N–P3Z	1		7 18	4 1, 3
-6B7 -7B7	120167	Temperature sensor. RTD 1/4X1.25, nickel	1 1	Page 8-49	1 – 2	VA
-6B7 -7B7	279305	Temperature sensor, PT100	1 1		1 – 2	VT
-61M1 -63M1	207398	Motor, 0,25kW, BG06-31/D06LA4-TOF/SP	1 1			

Electrical Components, Part 3 *(contd)*



Item	Part	Description	Quantity	Note	Box	Code
-161S2	1024618	Thermostat, OOR, 260 °C/500 °F	1		1 – 2	VA
-161S4			1			
-161S2	1035766	Thermostat, OOR, 288 °C/550 °F	1		1 – 2	VT
-161S4			1			
①	394909	Assembly, line filter 1x230VAC 42A	1	Accessory	7	1
	394908	Assembly, line filter 3x480VAC 90A	1	Accessory	7	2,3,5,6
	394907	Assembly, line filter 3x400VAC/N 55A	1	Accessory	7	4
-201Y2	394524	Proportional valve, 0-6 bar, G1/8"	1		14	P
-201Y4			1			
-205Y2	394814	Solenoid valve (Flow Control)	1	Page 8-22	14	F
-205Y3			1			
-221B2	207765	L312 incl. holder <i>replaced by</i>	1		3 – 5	012, 025
	729844	Level probe, analog, L278 incl. holder			16	L, B, P, C, D
	729845	Level probe, analog, L361 incl. holder	1		3 – 5	050, 100
					16	L, B, P, C, D
-222B1	207766	Level probe, overfill, L30	1		16	P,D
-222Y8	254248	Solenoid valve, (Feed Valve)	1	Page 8-25	16	B,P,C,D
-230Y3	394814	Solenoid valve (Inert Gas Equipment)	1	Page 8-27	22	G
-211B1.1	7104322	Pressure sensor, 1/2 UNF, 0-100 bar, analog	1		14	C
-211B1.2			1			
-211B1.1	7104322	Pressure sensor, 1/2 UNF, 0-100 bar, analog	1		15	A
-211B1.2			1			
-6E2	-----	Cast-in heater <i>Grid</i>	1		3 – 5	012, 025
			3		3 – 5	050, 100
-7E2	-----	Cast-in heater <i>Reservoir</i>	1		3 – 5	012, 025
			3		3 – 5	050, 100
-21E5	250682	Heater cartridge, 3/8"x2" 230V-200W	2		16	B,P,C,D
-21B2	120167	Temperature sensor. RTD 1/4X1.25, nickel	1		1 – 2	VA
					16	B, P
	253126	Temperature sensor, PT100	1		1 – 2	VA
					16	C, D
-95A2	7109038	Control panel, PanelView Plus 600, color	1	A	19	X
	7104438	• Seal, control panel	1			
	7104435	• Metal sheet, control panel	1			
-	207876	Plug, PROFIBUS, EasyConn, PB	1		19	D
NOTE A: The <i>Central unit</i> does not contain the Nordson software. Either the existing memory card can be used, or memory card P/N 729736 can be ordered.						
Continued...						

Electrical Components, Part 3 *(contd)*



Item	Part	Description	Quantity	Note	Box	Code
-XS2	-----	Interface <i>Standard I/O</i>				
-XS3	-----	Interface <i>Level Control</i>			16	B,P,C,D
-XS4	-----	Interface <i>Pneumatic Pressure Control / Bypass Control</i>			14	P, F
-XS5	-----	Interface <i>Key-to-line Mode</i>			20	X
-XS5.1	-----	Interface <i>Key-to-line Mode</i>			20	K
-XS5.2		Option: Key-To-Line Per Drive				
-XSD	-----	Cable duct			19	D
-XS10	-----	Hose receptacle			12	2,4,6,8
-XS11	-----	Hose receptacle			12	2,4,6 8
-XS12	-----	Hose receptacle			12	4, 6, 8
-XS13	-----	Hose receptacle			12	4, 6, 8
-XS14	-----	Hose receptacle			12	6, 8
-XS15	-----	Hose receptacle			12	6, 8
-XS16	-----	Hose receptacle			12	8
-XS17	-----	Hose receptacle			12	8

Signs and Tags

Item	Part	Description	Quantity	Note	Box	Code
–	290083	Sign, dangerous voltage	1			
–	417709	Sign <i>max. 2,0 bar</i>	1			
–	729077	Sign <i>max. 6,0 bar</i>	1			
–	1043755	Sheet of tags (multilingual)				
		TAG, WARNING, <i>HOT ADHESIVE</i> (Relieve pressure)				
		English, German, French, Spanish, Italian, Japanese, Simplified Chinese, Korean	1			
		English, Danish, Dutch, Finnish, Greek, Norwegian, Portuguese, Swedish	1			
		Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Slovak, Slovenian	–	<i>future</i>		
		TAG, CAUTION, <i>HOT SURFACE</i>				
		English, German, French, Spanish, Italian, Japanese, Simplified Chinese, Korean	1			
		English, Danish, Dutch, Finnish, Greek, Norwegian, Portuguese, Swedish	1			
		Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Slovak, Slovenian	–	<i>future</i>		
		TAG, WARNING, <i>HAZARDOUS VOLTAGE</i>				
		English, German, French, Spanish, Italian, Japanese, Simplified Chinese, Korean	1			
		English, Danish, Dutch, Finnish, Greek, Norwegian, Portuguese, Swedish	1			
		Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Slovak, Slovenian	–	<i>future</i>		
–	7104911	TAG, WARNING – <i>Only class II circuit.</i>	1			

Ship-With-Kit

Item	Part	Description	Quantity	Note	Box	Code
1	419218	• Sliding box 200x142x40mm w/o foam	1			
2	253145	• Two-way key no.5 (control cabinet)	1			
3	422464	• Allen key, 4 mm	1			
4	394403	• Drip pan, filter VX (for filter exchange)	1	Page 8-7		
5	446617	• Hose fitting a9/16UNF-a3/4UNF (NW 8) with O-ring	AR		1 – 2	VA
	7109584	• Hose fitting a9/16UNF-a3/4UNF (NW 8) with O-ring HT	AR		1 – 2	VT

Additional Service Kits

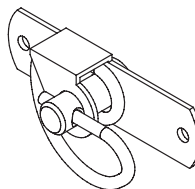
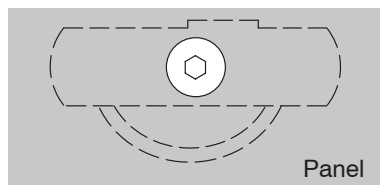
RTD sensor

Item	Part	Description	Quantity	Note	Box	Code
–	394597	RTD Sensor Kit	1	Page 7-15		
1	-----	• Temperature sensor. RTD 1/4X1.25, nickel	1			
2	-----	• Padded bag 170x225mm outside C13	1			
–	-----	• Compound, thermal, NTE303 ,1 gram	1			

Heater Connection Insulation

Item	Part	Description	Quantity	Note	Box	Code
–	263274	Insulation Kit	1	Page 7-14		
1	-----	• Insulation cylinder M4–small	6			
2	-----	• Insulation cylinder M4–big	6			
3	-----	• Washer D4,3 DIN125 type A	6			
4	-----	• Hexagon nut M4 DIN934–5.8 turned steel	12			
5	-----	• Spring washer D4 DIN137 A	6			

Panel Latch



Item	Part	Description	Quantity	Note	Box	Code
–	394482	Turnbuckle w/spr.latch, hex.socket head	1			

Additional Accessory Kits

Casters

Item	Part	Description	Quantity	Note	Box	Code
–	394793	Casters Kit			3 – 5	012-050
1	-----	• Casters complete				
2	-----	• Packing, cardboard 410x310x335mm				

–	7104872	Casters Kit			3 – 5	100
1	-----	• Casters complete				
2	-----	• Bag Minigrip 70mmx100mm				
3	-----	• Packing, cardboard 410x310x335mm				

Interface Kits (Connector Plugs)

Item	Part	Description	Quantity	Note	Box	Code
–	729678	Standard I/O Interface (XS2) Kit	1			
1	-----	• Cable housing HAN32A 32-pole 10A PG21	1			
2	-----	• Plug insert HAN16A 16-pole 16A 250V	1			
3	-----	• Plug insert HAN32A 16-pole 16A 250V	1			
4	-----	• Conduit connection, metal PG21	1			

–	729677	Key-to-line (XS5) Kit	1			
1	-----	• Cable housing HAN7D 8-pole 10A PG11	1			
2	-----	• Plug insert STAF6 6-pole 10A 50V	1			

Safety Valve

Item	Part	Description	Quantity	Note	Box	Code
–	203432	Safety valve 100 bar HT	1	A	1 – 2	VT
–	394593	SERVICE KIT	1	Page 7-12		
1	-----	• O-ring 11x2	1			
2	-----	• O-ring 9x2	1			
–	-----	• High-temp. grease, GLS 595/N2, 10g	1			

NOTE A: Do not use in conjunction with pump SN1710.

Filter Cartridges

Item	Part	Description	Quantity	Note	Box	Code
–	203354	Filter cartridge Mesh Size 0.4 mm, complete	1		1 – 2	VA
–	203356	Filter cartridge Mesh Size 0.6 mm, complete	1		1 – 2	VA

Schedule of Fasteners

Number	Description	Part
F1	Hexagon nut, M6, DIN439 B	259213
F2	Flat head screw, M8x16, DIN7991	408826
F3	Serrated lock washer, D8,4, DIN6798 A	291384
F4	Hexagon nut, M8, DIN934	250144
F5	Allen head cap screw, M8x30, DIN912, stainless	314370
F6	Serrated lock washer, D5,3, DIN6798 A	250101
F7	Hexagon head screw, M8x16, DIN933	415312
F8	Washer, D8,4, DIN125, type B, stainless	256853
F9	Allen head cap screw, M8x50/10.9, DIN912	250035
F10	Disc spring, A16x8,2x0,9, DIN2093 type A	251948
F11	Allen head cap screw, M5x25, DIN912, stainless	254680
F12	Hexagon nut, M5, DIN934	254713
F13	Washer, D5,3, DIN125 type A	255264
F14	Allen head cap screw, M5x12, DIN912, stainless	250019
F15	Allen head cap screw, M8x65/10.9, DIN912	256829
F16	Allen head cap screw, M8x20, DIN912, stainless	250031
F17	Allen head cap screw, M6x20, DIN912, stainless	264523
F18	Washer, D6,4, DIN125 type B	250095
F19	Allen head cap screw, M3x8, DIN912, stainless	261025
F20	Allen head cap screw, M8x 35/10, DIN912	250034
F21	Allen head cap screw, M5x60, DIN912 A2/70	206089
F22	Washer, D16 d8 H3	413663
F23	Hexagon nut, M6, DIN980 V	255302
F24	Pan head screw, D6x25, EjotPT, WN5451	207993
F25	Flat head screw, M4x10, DIN7991, stainless	260114
F26	Flat head screw, M5x8, DIN7991, stainless	207764
F27	Hexagon nut, M4, DIN980 V	255301
F28	Flat head screw, M5x10, DIN7991, stainless	255897
F29	Flat head screw, M5x12, DIN7991	254693
F30	Serrated lock washer, D5,3, DIN6798 A	283597
F31	Allen head cap screw, M5x10, DIN912, stainless	259432
F32	Allen head cap screw, M5x30, DIN912, stainless	250023
F33	Hexagon head screw, M6x30, DIN933	415788
F34	Hexagon head screw, M6x16, DIN933	261021
F35	Allen head cap screw, M4x10, DIN912, stainless	445773

Number	Description	Part
F36	Hexagon nut, M5, DIN934-5.8, steel	250142
F37	Allen head cap screw, M4x35, DIN912, stainless	250016
F38	Hex domed cap nut, M5, DIN1587 high	264402
F39	Allen head cap screw, M4x6, DIN912, stainless	250008
F40	Washer, D4,3, DIN125 type A	250092
F41	Hexagon nut, M4, DIN934	250141
F42	Holding plate, 12/25, Pt100	207721
F43	Allen head cap screw, M5x8, DIN912, stainless	250077
F44	Washer, D3,2, DIN125 type A	250090
F45	Allen head cap screw, M3x10, DIN912, stainless	254673
F46	Allen head cap screw, M4x10, DIN912-A2-70	250073
F47	Pan head screw, D6x18, EjotPT, WN5451	207992
F48	Allen head cap screw, M4x6, DIN6912, stainless	419433
F49	Allen head cap screw, M5x16, DIN912	250021
F50	Knurled nut, M5, DIN466	416005
F51	Set screw, M5x20/45H, DIN913	422138
F52	Allen head cap screw, M5x6 DIN912, stainless	256836
F53	Serrated lock washer D4,3 DIN6798 A	265197
F54	Allen head cap screw M5x10 DIN7984 niro	457444

Section 9

Technical Data

General Data

Storage temperature	– 45 °C to + 75 °C – 49 °F to + 167 °F		
Min. ambient temperature	– 5 °C 23 °F		
Max. ambient temperature	40 °C 104 °F		
Humidity	10 to 95 %, not condensing		
Max. operating height	3000 m 9840 ft		
Type of heating	Cast-in electrical resistance heating elements		
Possible temperature sensors	Ni120 (standard melter) Pt100 (high temperature melter)		
– Measuring precision	± 1 °C		
Material pressure (standard)	5 to 85 bar	500 to 8500 kPa	72.5 to 1 233 psi
	The pressure control valve is preset at the factory. Default:		
	35 bar	3500 kPa	508 psi
Degree of protection	IP 54		
Noise emission at a distance of 1 m	1 motor: 62 dB(A) 2 motors: 65 dB(A)		
Motor type	3 ph AC motor		
Gear box type	Helical gear		
Motor/pump speed setting range	1.0 to 100 min ⁻¹ To prevent excessive wear, the motor/pump speed should not continuously fall below 5 min ⁻¹ (rpm) or continuously exceed 80 min ⁻¹ (rpm).		
Heatup time	< 45 min (standard melter) < 60 min (high temperature melter)		
Melting capacity	1 tankful per hour		

Temperatures

CAUTION: The maximum operating temperature of the installed gun and the other heated components should be considered when setting temperatures on the melter control panel.

Min. operating temperature (setpoint)	40 °C	100 °F	
Max. operating temperatures for standard melters Ni120 temperature sensor	230 °C	450 °F	Ni 120  Pt 100  Hose connections
Max. operating temperatures for high temperature melters Pt100 temperature sensor	250 °C	480 °F	
Overtemperature shutdown by thermostat	260 °C 288 °C	500 °F 550 °F	Standard melter High-temperature melter
Shutdown by transformer thermostat	155 °C (±5 °C)	311 °F (±9 °F)	
Max. operating temperature of filling valve (option)	230 °C	450 °F	

Electrical Data

WARNING: The unit is designed for only one operating voltage. Operate only at the operating voltage shown on the ID plate.

Available operating voltages	200 V _{AC} 3-phase without neutral (<i>Delta</i>) 230 V _{AC} 3-phase without neutral (<i>Delta</i>) 400 V _{AC} 3-phase with neutral (star – <i>WYE</i>) 400 V _{AC} 3-phase without neutral (<i>Delta</i>) 480 V _{AC} 3-phase without neutral (<i>Delta</i>) Only with V12: 230 V _{AC} 1-phase with neutral
Permissible voltage deviations	Power supply: $\pm 10\%$ Standard I/O: $\pm 10\%$
Operating voltage frequency	50/60 Hz
Melter fuse protection	Refer to ID plate
Key-to-line Max. input	0 to 10 V _{DC} 0 to 20 mA 4 to 20 mA 0 to 100 kHz

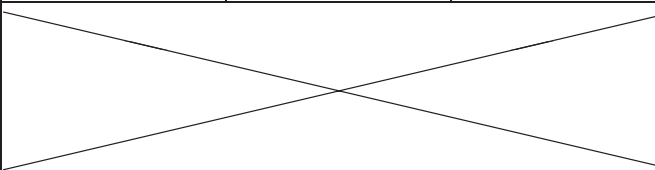
Max. Melter Load (Without Accessories)

<i>All data at 230 V_{AC}</i>	V12	V25	V50	V100
● With 1 motor	4160 W	6810 W	12075 W	20690 W
● With 2 motors	4960 W	7610 W	12875 W	21490 W

Max. Load (Accessory)

<i>All data at 230 V_{AC}</i>	V12	V25	V50	V100
		*Max. 6 pairs		*Max. 8 pairs
● Total		10800 W		14400 W
● Per hose/gun pair*		1800 W		1800 W
● Per channel		1800 W		1800 W

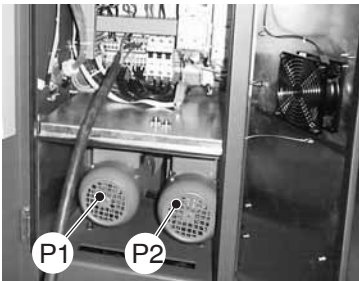
Max. Load (Accessory) – Single Phase V12 –

<i>All data at 230 V_{AC}</i>	V12	V25	V50	V100
• Total • Per hose/gun pair* • Per channel	*Max. 2 pairs 2400 W 1800 W 1800 W			

Melter Fuse Protection

	V12			V25			V50			V100			
	Hose/gun			Hose/gun			Hose/gun			Hose/gun			
	2	4	6	2	4	6	2	4	6	2	4	6	8
230 V 1 Ph Δ	32 A	–	–	–	–	–	–	–	–	–	–	–	–
200 V 3 Ph Δ	30 A	38 A	46 A	42 A	49 A	57 A	52 A	68 A	70 A	81 A	90 A	90 A	90 A
230 V 3 Ph Δ	26 A	36 A	40 A	36 A	43 A	50 A	46 A	59 A	61 A	71 A	84 A	84 A	90 A
400 V 3 Ph Y	15 A	22 A	24 A	23 A	26 A	31 A	26 A	34 A	39 A	40 A	48 A	50 A	56 A
400 V 3 Ph Δ	15 A	22 A	24 A	23 A	26 A	31 A	26 A	34 A	39 A	40 A	48 A	50 A	56 A
480 V 3 Ph Δ	13 A	19 A	20 A	20 A	21 A	26 A	20 A	28 A	33 A	34 A	40 A	42 A	47 A

Mechanical Data

Type Designation	V12	V25	V50	V100												
Weight [kg] Melter with two pumps, without transformer, without packaging	190	225	275	360												
	Refer to consignment note for exact weight															
Dimensions [mm] Length x Width	885 x 585	885 x 585	1000 x 785	1100 x 1035												
Tank opening [mm] ● With the option filling valve	191 x 165 62 x 165	227 x 267 95 x 267	232 x 459 232 x 308	306 x 685 306 x 418												
Tank volume [liters]	12	25	50	97												
Maximum number of single stream pumps	2															
Number of hose connections with One pump Two pumps	4 2/pump	6 3/pump														
Assignment of hose connections with two pumps	 <table><tr><td> 2.1</td><td> 2.2</td><td>Pump 2 (P2)</td><td> 2.1</td><td> 2.2</td><td> 2.3</td></tr><tr><td> 1.1</td><td> 1.2</td><td>Pump 1 (P1)</td><td> 1.1</td><td> 1.2</td><td> 1.3</td></tr></table>				 2.1	 2.2	Pump 2 (P2)	 2.1	 2.2	 2.3	 1.1	 1.2	Pump 1 (P1)	 1.1	 1.2	 1.3
 2.1	 2.2	Pump 2 (P2)	 2.1	 2.2	 2.3											
 1.1	 1.2	Pump 1 (P1)	 1.1	 1.2	 1.3											

Dimensions

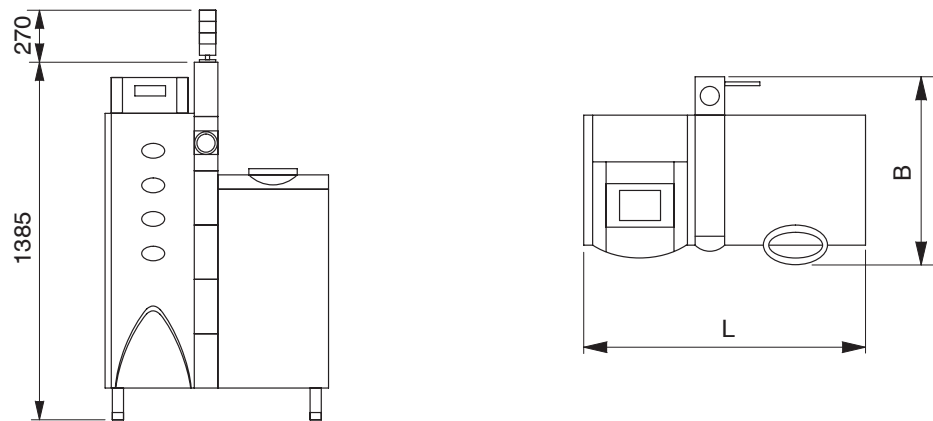


Figure 9-1

Section 10

Options

Option: Parts or features that must be known when melter assembly is begun.

Accessories: Parts that can be added at anytime without modifying the melter.

VersaBlue	14 15 16 17 18 19 20 21 22	ADHESIVE MELTER	 Nordson Engineering GmbH Lilienthalstr. 6 D 21337 Lüneburg – Germany www.nordson.com
VA025-4EEXX4/	P A L W 1 D X C G XXXX		
Serial No:	Year		

Configuration code box	14	15	16	17	18	19	20	21	22	23
Options	P	A	L	W	1	D	K	C	G	C
	M		B		2	N				D
	F		P		3					G
	C		C		X					X
			D							

Option in configuration code	Box	Also available as accessory	Description
Pneumatic pressure control	14	–	The pneumatic pressure control valve replaces the installed mechanical pressure control valve. P: Automatic A proportional valve supplies regulated compressed air to the pneumatic pressure control valve. It receives the line speed signal from the parent machine needed for regulation. M: Manual The operator sets the required compressed air with the pressure controller handwheel.
			<i>continued</i>

Option in configuration code	Box	Also available as accessory	Description
Bypass control	14	–	F: The pneumatic pressure control valve replaces the installed mechanical pressure control valve. In normal production mode, the pressure control valve is supplied with maximum air pressure (approx. 6 bar) and closed. The material is conveyed to the melter outlet. When the gun closes, the solenoid valve receives an electrical signal. The pressure control valve is supplied with regulated compressed air and begins to open. The material is returned to the tank (bypass).
Pressure display and pressure control	14	–	C: One pressure sensor per pump. The pressure control valve is omitted. The desired pressure is set on the control panel. The pressure sensor converts the pressure to an electrical signal, which is used for control via the CAN bus.
Pressure display	15	–	A: One pressure sensor per pump The melter outlet pressure is displayed and monitored. Alarms for underpressure and overpressure are displayed.
Level display and control	16	–	L: Level display Level sensor in tank for analog level display
			B: Level control (Ni120) C: Level control (Pt100) Level sensor in tank for the analog level display and the filling signals for a filling valve. Automatic tank filling is performed e.g. by a bulk melter connected to the filling valve with a hose.
continued			

Option in configuration code	Box	Also available as accessory	Description
Level display and control	16	–	P: Level control (Ni120) with overflow protection D: Level control (Pt100) with overflow protection Level sensor in tank for the analog level display and the filling signals for a filling valve. Automatic tank filling is performed e.g. by a bulk melter connected to the filling valve with a hose. Additional level sensor in tank for separate overflow protection
Light tower	17	●	W: Four colors. Indicates operating mode of melter.
Main switch	18	–	1: red-yellow, 4-pin 2: black, 3-pin 3: black, 4-pin X: red-yellow, 3-pin (standard)
Field bus communication	19	–	D: PROFIBUS DP N: ControlNet
Separate line speed signal inputs	20	–	K: Every motor receives its own line speed signal.
Casters	21	●	C: To move melter; two can be locked
Inert gas equipment	22	●	G: Used to blanket tank contents with inert gas. This is needed when processing certain materials.
Filter cartridge / safety valve	23	●	C: 0.8 mm mesh size / 85 bar – <i>only VA</i> – D: 0.2 mm mesh size / 100 bar – <i>only VA</i> – G: 0.8 mm mesh size / 100 bar – <i>only VA</i> – X: 0.2 mm mesh size / 85 bar (standard)

Accessories

Flap Valve	For 8 mm and 16 mm hose connections
Adapter cable	For connection to the interface <i>Standard I/O</i>
Mains filter	Filters electromagnetic interference
Safety valve (100 bar)	Replaces standard safety valve (85 bar) NOTE: Do not use in conjunction with pump SN1710.
Filter cartridge	Mesh size: 0.8 mm – <i>only VA</i> – 0.2 mm

Appendix A

Password

Level	Functions enabled
Level 1 Operation Normal operation for all operators	All functions of the first operating level. No parameters can be changed.
Level 2 Parameters Settings for trained personnel	All functions of all operating levels
Level Nordson Only for Nordson personnel	NORDSON setup

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If appropriate, remove this page and store in a safe location.

Level	User name	Password
1: User	u	747
2: Trained personnel	e	757

DECLARATION of CONFORMITY

(For CE-Certified Adhesive/Sealant Application Equipment)

PRODUCT:

VersaBlue Adhesive Melters with Allen-Bradley CompactLogix Control System

APPLICABLE DIRECTIVES:

98/37/EC (Machinery)
73/23/EEC (Low Voltage)
89/336/EEC (Electromagnetic Compatibility)

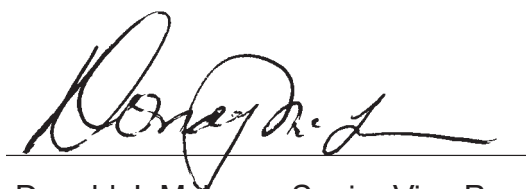
STANDARDS USED TO VERIFY COMPLIANCE:

EN12100 (Parts 1 and 2)
EN294
EN563
EN61000 (Parts 6-2 and 6-4)
EN60204 (Part 1)
EN60519 (Part 2)

PRINCIPLES:

This product has been manufactured according to good engineering practice.

The product specified conforms to the directive and standards described above.



Donald J. McLane, Senior Vice President

Date: 29 August 2005



Nordson Corporation • 12 Nordson Drive • Dawsonville, GA

DOC052
P/N 1064528A

