

**Bulk Melters
VersaPail[®] VP020
VersaDrum[®] VD200
with Piston Pump and IPC Control Unit**

Manual P/N 7146640_07
- English -

Ausgabe 11/20



Note

This document applies to the entire series.

Order number

P/N = Order number for Nordson articles

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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. This equipment has not been certified for compliance with the ATEX directive nor as nonincendive and should not be installed in potentially explosive environments.
- Ensure 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

- Allow only personnel with appropriate training and experience to operate or service the equipment.
- 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 Nordson-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, applicators, 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 Applicators

NOTE: Adhesive dispensing applicators are referred to as “guns” in some previous publications.

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

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

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, applicators, etc.)

PC = Process control

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

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 applicators 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.
Continued...	

General Safety Warnings and Cautions (contd.)

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

Equipment Type	Warning or Caution
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.
HM, PC	 WARNING! Equipment starts automatically! Remote triggering devices are used to control automatic hot melt applicators. Before working on or near an operating applicator, disable the applicator's triggering device and remove the air supply to the applicator's solenoid valve(s). Failure to disable the applicator'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 has not been certified for the ATEX directive or as nonincendive. In addition, this equipment 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.
Continued...	

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

Equipment Type	Warning or Caution
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 to the equipment.
HM	 CAUTION! Hot surfaces! Avoid contact with the hot metal surfaces of applicators, 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

Figure 1-1 illustrates the location of the safety labels and warning tags affixed to the equipment. Table 1-2 provides an illustration of the hazard identification symbols that appear on the safety labels and tags, the meaning of the symbols and the exact wording of the safety message.

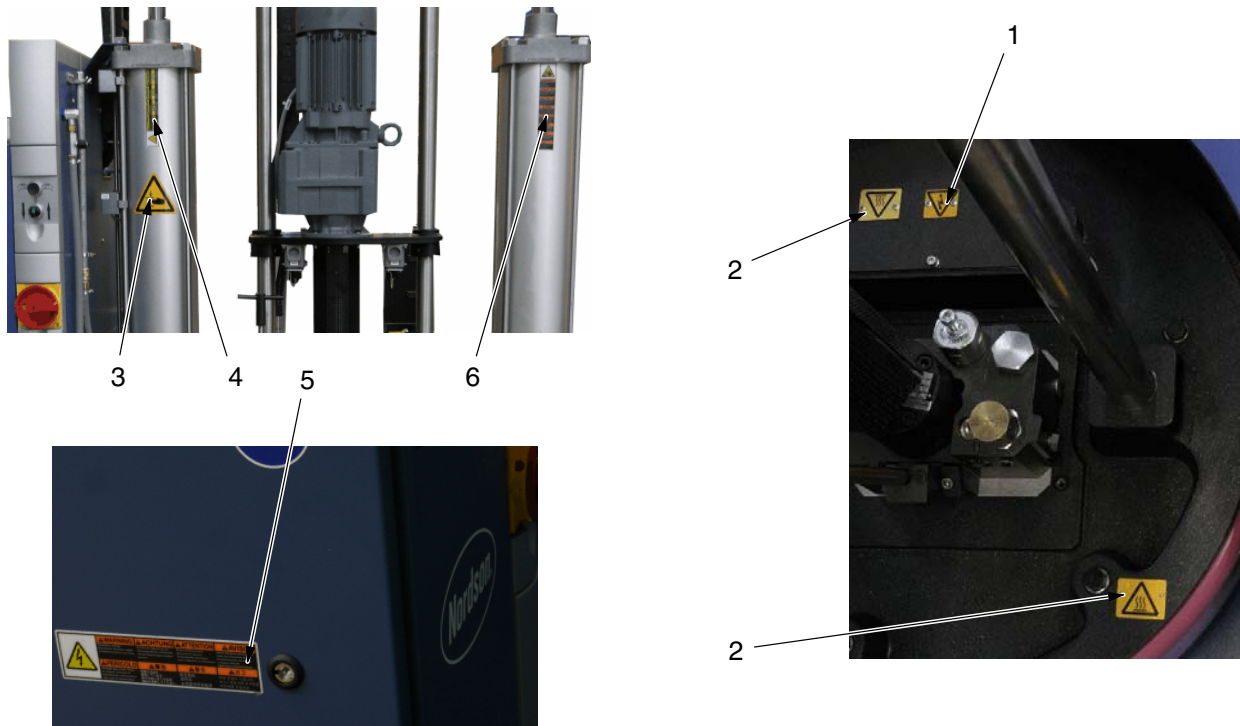
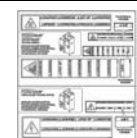


Fig. 1-1 Safety labels and tags

Table 1-2 Safety labels and tags

Position	P/N	Description	
1	290083		ATTENTION: Risk of electrical shock. Failure to observe may result in personal injury, death, or equipment damage.
2	290082		ATTENTION: Hot surface. Failure to observe can cause burns.
3	421460		ATTENTION: Risk of pinching parts of the body between platen and container. Ensure that, during operation, no one else is near the melter.
4, 5, 6	1059866		TAGS, SHEET OF, VERSA/DURABLU LG,CE LANGUAGES

Section 2

Introduction

Intended Use

Bulk melters of the series *VersaPail* and *VersaDrum* - hereafter also referred to as *bulk melter* - may be used only to melt and convey suitable materials, e.g. thermoplastic hot melt adhesives. When in doubt, seek permission from Nordson.

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

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

Unintended Use - Examples -

The bulk melters may not be used under the following conditions:

- In defective condition
- With electrical cabinet door open
- In a potentially explosive atmosphere
- With unsuitable operating/processing materials
- When the values stated under *Technical Data* are not complied with.
- With damaged or unsuitable containers:

Prohibited Containers

VersaPail® VP020



ATTENTION: In VersaPail® VP020 bulk melters, do not use any containers that are not at least 370 mm (20 l) high.

VersaDrum® VD200



ATTENTION: In VersaDrum® VD200 bulk melters, do not use any containers that are not at least 875 mm (200 l) high.

When containers that do not meet the minimum height requirement are used, there is a risk of serious injury from being crushed between the platen and the upper edge of the container. This risk is particularly high when using 50 liter containers in VersaDrum® VD200 bulk melters.

Also refer to page 9-2, *Suitable Containers*.

Unintended Use - Examples - (contd.)

The bulk melters may not be used to process the following materials:

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

Do not use the platen

- As a press
- To lift loads
- To heat objects.

Area of Use

The bulk melter is designed for use in industrial areas.

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

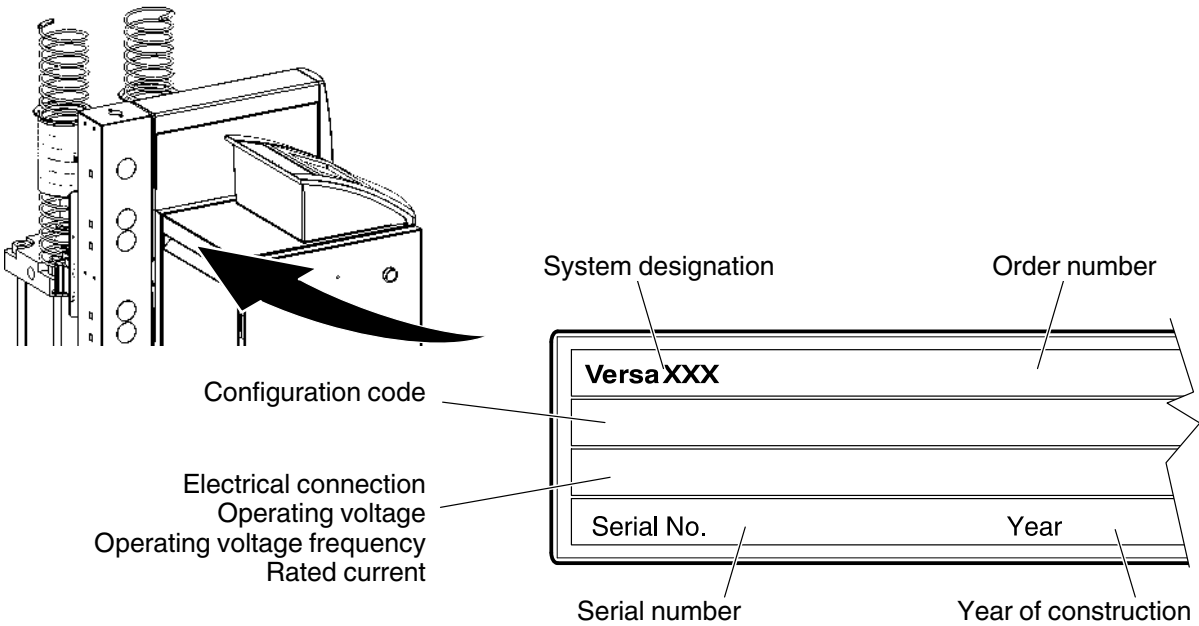
Residual Risks

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

- Risk of burns from hot material
- Risk of burns from hot bulk melter components
- Risk of burns when conducting maintenance and repair work for which the bulk melter must be heated up.
- Risk of burns when attaching and removing heated hoses
- Material fumes can be hazardous. Avoid inhalation. If necessary, exhaust material vapors and/or provide sufficient ventilation of the location of the bulk melter (Refer to page 3-3, *Exhausting Material Vapors*)
- Risk of pinching parts of the body between platen and container. Ensure that, during operation, no one else is near the bulk melter
- The safety valve may malfunction due to hardened or charred material.

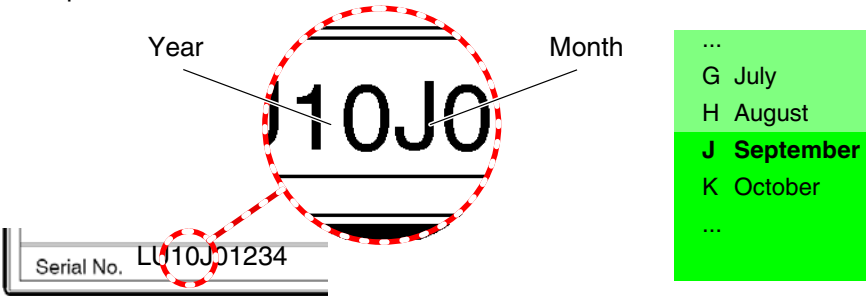


ID Plate



Year of Construction

The year and month of production are indicated in the serial number on the ID plate:



Configuration Code

The series *VersaPail* and *VersaDrum* can be configured in various ways. The configuration code offers information on the included features. If information contained in this manual applies only to certain configurations, the respective configuration code is indicated. Example:

 Box 18 = P

NOTE: Models with a gear/gerotor pump (box 10 $\neq$ A, B) are not described in this manual.

NOTE: An *E* instead of the - in box 6 means that the equipment differs from the configuration code; the respective box contains the # symbol. Such special aspects are described in a supplement when appropriate. The supplement is then added to this manual. Also refer to page 8-2, *Special Models*.

Box	Melter Type	Code	VP020	VD200
1-5	VersaPail	VP020	x	-
	VersaDrum	VD200	-	x

Box	Separator	Code	VP020	VD200
6	Standard configurable Unit		x	x

Box	Platen Surface	Code	VP020	VD200
7	Axial, with standard platen seal	R	x	x
	Smooth, with standard platen seal	U	x	x
	Smooth, with soft platen seal	B	x	-
	Finned	P	-	x

Box	Container Diameter	Code	VP020	VD200
8	280 mm (Europe)	K	x	
	286 mm (N.America)	N	x	
	567 mm (Japan)	J		x
	571 mm (Standard Drum)	D		x

Configuration Code (contd.)

Box	Voltage	Code	VP020	VD200
9	200V 3 Phase Delta	2	x	x
	240V 3 Phase Delta	3	x	x
	3 x400V 3 Phase WYE	4	x	x
	400V 3 Phase Delta	5	x	x
	480V 3 Phase Delta	6	x	x
	575V 3 Phase Delta	7	-	x

Box	Pump	Code	VP020	VD200
10	SN0093 - 4.5 kg/hr (PR6m1)	D	x	-
	SH0093 - 4.5 kg/hr (PR6m1-NH)	N	x	-
	SN0186 - 8.9 kg/hr (PR12m1)	E	x	-
	SH0186 - 8.9 kg/hr (PR12m1-NH)	Q	x	-
	SN0371 - 17.8 kg/hr (PR12m2)	F	x	x
	SH0371 - 17.8 kg/hr (PR12m2-NH)	P	x	x
	SN0557 - 26.7 kg/hr (PR18m2)	C	x	x
	SH0557 - 26.7 kg/hr (PR18m2-NH)	S	x	x
	SN0773 - 37.1 kg/hr (PR25m2)	G	x	x
	SH0773 - 37.1 kg/hr (PR25m2-NH)	R	x	x
	GN1160 Gerotor Pump	H	x	x
	GH1160 Gerotor Pump (tool steel)	T	x	x
	DN0093 - 2x4.5 kg/hr	1	x	x
	DN0186 - 2x8.9 kg/hr	2	x	x
	DN0371 - 2x17.8 kg/hr	3	x	x
	DN0557 - 2x26.7 kg/hr	4	x	x
	DN0773 - 2x37.1 kg/hr	5	-	x
	SN1891 (PU15/85)	J	-	x
	SH1891 (PU15/85-NH)	U	-	x
	SN3135 (PU25/85)	K	-	x
	SH3135 (PU25/85-NH)	V	-	x
	SN4390 (PU35/85)	L	-	x
	SH4390 (PU35/85-NH)	W	-	x
	SN6272 (PU50/85)	M	-	x
	SH6272 (PU50/85-NH)	Z	-	x
	Piston Pump - Low Pressure Configuration	B	x	x
	Piston Pump - High Pressure Configuration	A	x	x

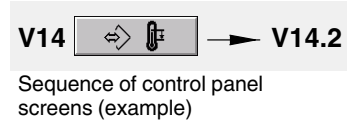
Configuration Code (contd.)

Box	Hose/Gun Pairs	Code	VP020	VD200
11	2 Hose/Gun Pairs (@ platen)	2	x	x
	4 Hose/Gun Pairs	4	x	x
	6 Hose/Gun Pairs	6	x	x
	8 Hose/Gun Pairs	8	-	x
Box	Maximum Operating Temperature	Code	VP020	VD200
12	150 °C / 300 °F	L	x	x
	180 °C / 350 °F	M	x	x
	230 °C / 450 °F	H	x	x
Box	Temperature Sensor	Code	VP020	VD200
13	Ni-120 Temperature sensor	N	x	x
	PT-100 Temperature sensor	P	x	x
Box	Separator for options	Code	VP020	VD200
14		/	x	x
Box	Hose Fitting	Code	VP020	VD200
15	28 mm (1 1/8 in)	M	-	x
	22 mm (7/8 in) Includes	K	-	x
	16 mm (5/8 in) or 13 mm (Pt100) and 8 mm (5/16 in) fittings	X	x	x
Box	Pail / Drum Clamp / Fiber Drum Jacket	Code	VP020	VD200
16	Pail / Drum Clamp	P	x	x
	Fiber Drum Jacket	F	-	x
	None	X	x	-
Box	Aeration	Code	VP020	VD200
17	Automatic aeration	A	x	x
	Manual aeration	X	x	x
Box	Flow Control	Code	VP020	VD200
18	Automatic Pneum. Pressure Control	P	x	x
	Manual Pneum. Pressure Control	M	x	x
	Flow Control Bypass	F	x	x
	Output Pressure Control (A in Box 19)	C	x	x
	Standard manual Pressure Control Valve	X	x	x
Box	Internal Pressure Indication	Code	VP020	VD200
19	Int. Pressure Indication (IPI)	A	x	x
	None	X	x	x
Box	Light Tower	Code	VP020	VD200
20	Light Tower	W	x	x
	None	X	x	x

Configuration Code (contd.)

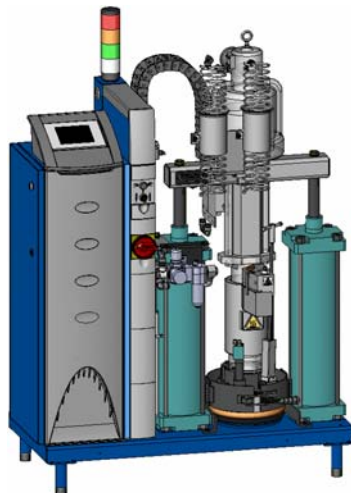
Box	Main Switch	Code	VP020	VD200
21	Main Switch Red - 4 Pole	1	x	x
	Main Switch Black - 3 Pole	2	x	x
	Main Switch Black - 4 Pole	3	x	x
	Standard Main Switch Red - 3 Pole	X	x	x
Box	Host Communications	Code	VP020	VD200
22	Profibus-DP	D	x	x
	ControlNet	N	x	x
	EtherNet/IP	E	x	x
	Profinet I/O	P	x	x
	None	X	x	x
Box	Casters / Drip Shield	Code	VP020	VD200
23	Casters	C	x	x
	Retractable Drip Shield	D	x	x
	None	X	x	x
Box	Exhaust Hood	Code	VP020	VD200
24	Exhaust Hood	E	x	x
	None	X	x	x
Box	Additional Pre-melting Features			
25	Bookbinding-Spine gluing	B	x	x
	Bookbinding-Side gluing	S	x	x
	None	X	x	x
Box	Pallet Load Frame	Code	VP020	VD200
26	Pallet load frame	W	x	x
	None	X	x	x
Box	Two Pumps / Key-to-Line	Code	VP020	VD200
27	Two Pumps with Single Key-to-Line for Both	D	-	x
	Two Pumps with Individual Key-to-Line per Drive	K	-	x
	None	X	x	x
Box	External Pressure Indicator	Code	VP020	VD200
28	External Pressure Indicator	#	x	x
	None	X	x	x
Box	Application Typ	Code	VP020	VD200
29	PUR	P	-	x
	Standard	X	x	x

Note on Manual



- The position numbers in the illustrations do not correspond to the position numbers in the technical drawings and parts lists. Refer to separate document *Parts List* for details.
- Features that the customer may not have purchased - depending on the configuration of the bulk melter - are also described in the section *Operation*. In this case they are not visible on the control panel. In some cases the sequence of the control panel screens may differ from the description
- Some of the illustrations in this manual may deviate from the actual equipment due to ongoing technical development or a different configuration.

Definition of Term(s)



Operating side
(= front)

Bulk Melter / Melter

The term *Bulk melter* is also used in the manual. The term *Melter* is used on the control panel.

Drum / Pail / Container

The term *Container* is used regardless of size. The term *Container* is used on the control panel.

Valves

Valves have different names in Nordson literature, depending on their function and use. These include:

- *Safety valve* and *Pressure restrictor valve*: Valves that limit pressure for safety reasons. The term *Safety valve* is usually used in conjunction with material pressure.
- *Pressure control valve*: A valve used to set or control pressure. Depending on the model, the pressure can be set manually, electrically or pneumatically.

Key-to-line

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

IPC

Abbreviation for *Industrial Personal Computer*, used here in the sense of *System control*.

ACO

Abbreviation for *Automatic changeover*.

To prevent interruption of the material supply in an application system, two bulk melters can be combined to form an ACO system.

The ACO system enables continuous operation, with at least one bulk melter always active.

Master/Slave

- Master: controlling bulk melter
- Slave: controlled bulk melter

Two bulk melters linked to form an ACO system have a master/slave relationship.

In a field bus network, a single bulk melter as well as each bulk melter in an ACO system acts on its own as a field bus slave that is controlled by the field bus master.

Symbols



Original State



Nordson Default

Original setting of parameters that can be reset to the defaults by touching .



Configuration Code

If information contained in this manual applies only to certain configurations, the respective configuration code is indicated.

Example:  Box 18 = P



Automatic Changeover System (ACO System)

Special points that must be observed with an ACO system.

Description of the Bulk Melter

VersaPail and VersaDrum differ from one another in the size of the container. VersaPail is for 20 liter containers (pails) and VersaDrum for 200 liter containers (drums).

VersaPail

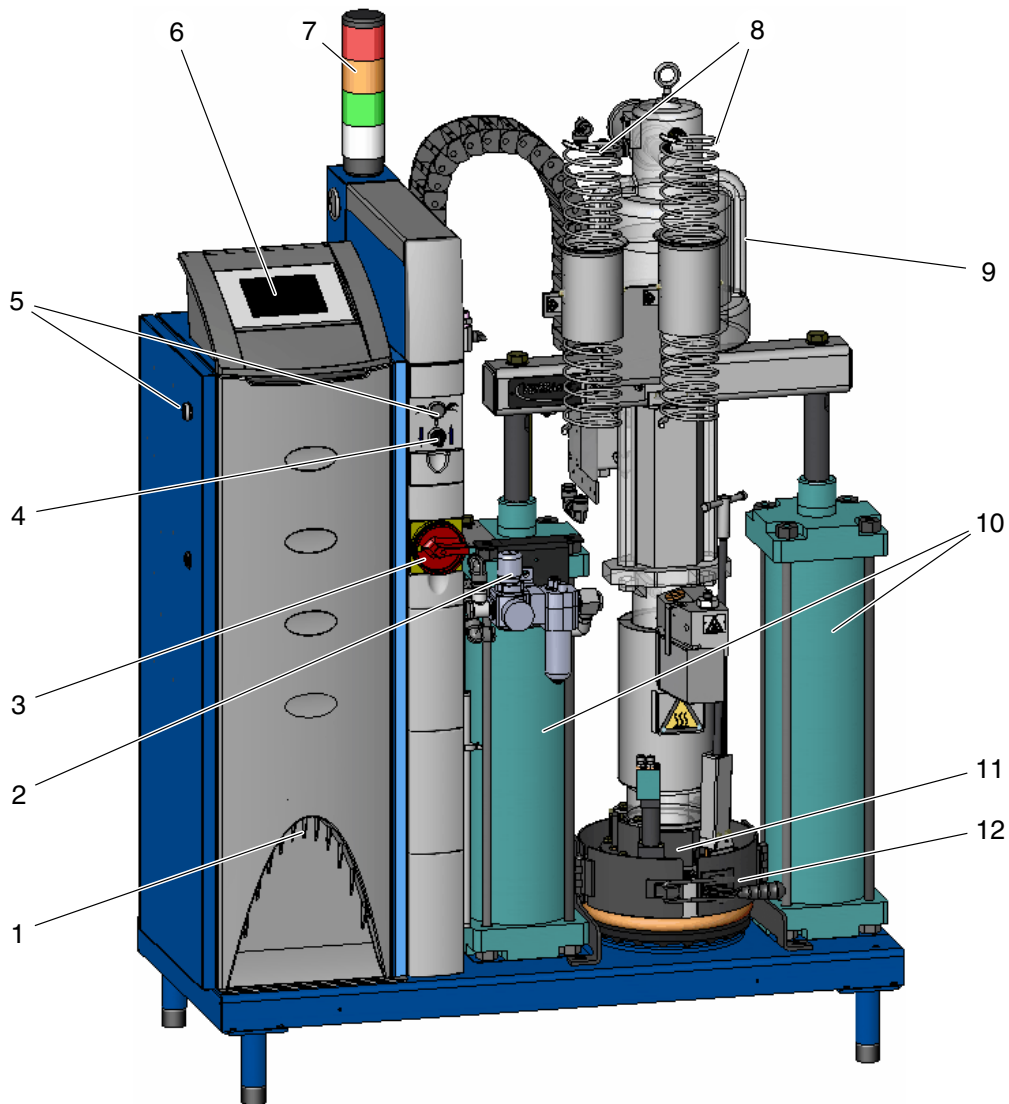


Fig. 2-1

- | | | |
|--------------------------------------|-----------------|-----------------------------|
| 1 Air filter (air inlet) | 6 Control panel | 9 Motor |
| 2 Pressure controller <i>Motor</i> | 7 Light tower | 10 Pneumatic cylinder |
| 3 Main switch | 8 Hose holder | 11 Platen |
| 4 Selector <i>Raise/Lower Platen</i> | | 12 Container clamp (option) |
| 5 Button <i>Two-hand control</i> | | |

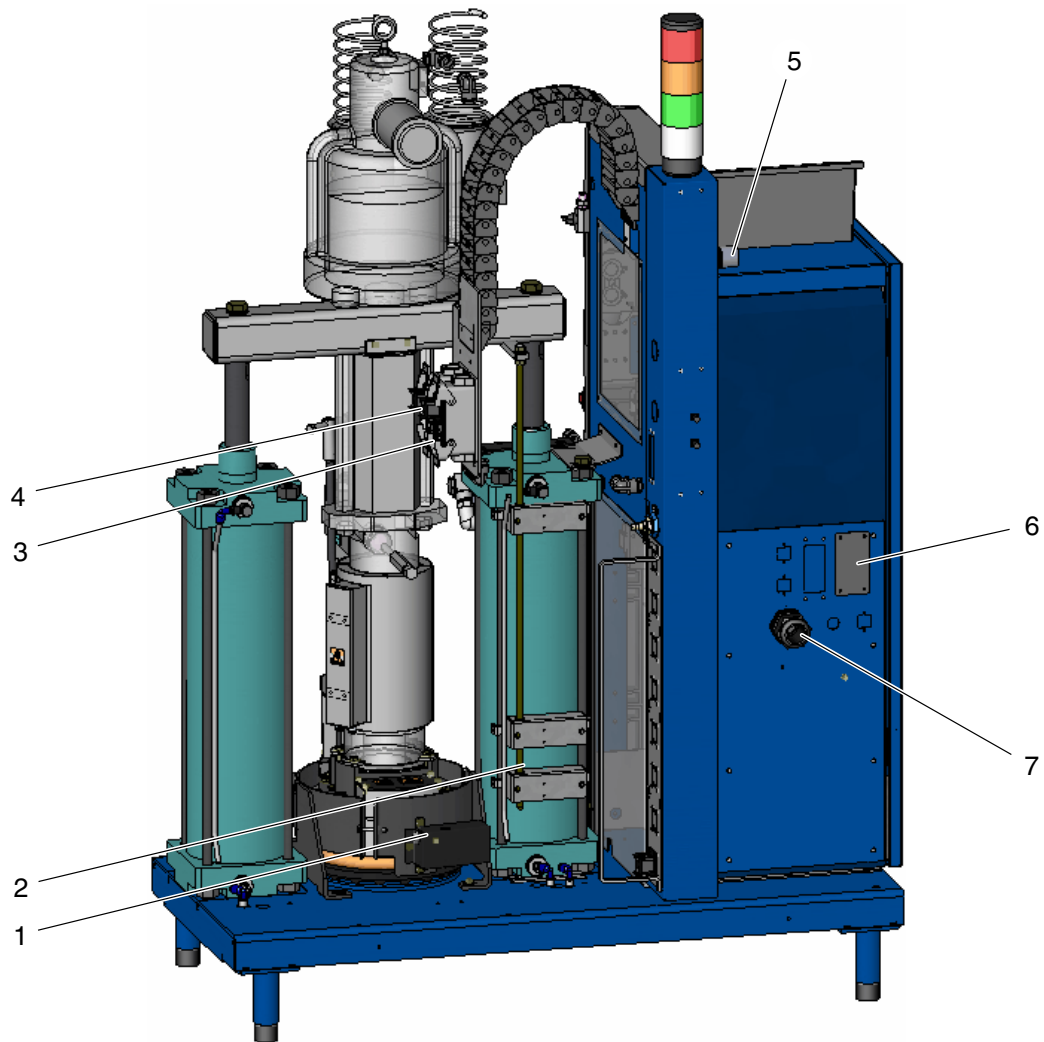


Fig. 2-2

- | | | |
|---|---|---------------------------------------|
| 1 Switch <i>Container detection</i> | 5 Pressure control valve <i>Pneumatic cylinder working pressure</i> | 6 Interface <i>Standard I/O (XS2)</i> |
| 2 Switch <i>Platen position (3x)</i> | | 7 Cable duct <i>Power supply</i> |
| 3 Hose receptacles
(interfaces <i>XS10, XS11</i>) | | |
| 4 Assembly handgun receptacles
(interfaces <i>XS18, XS19</i>) | | |

VersaDrum

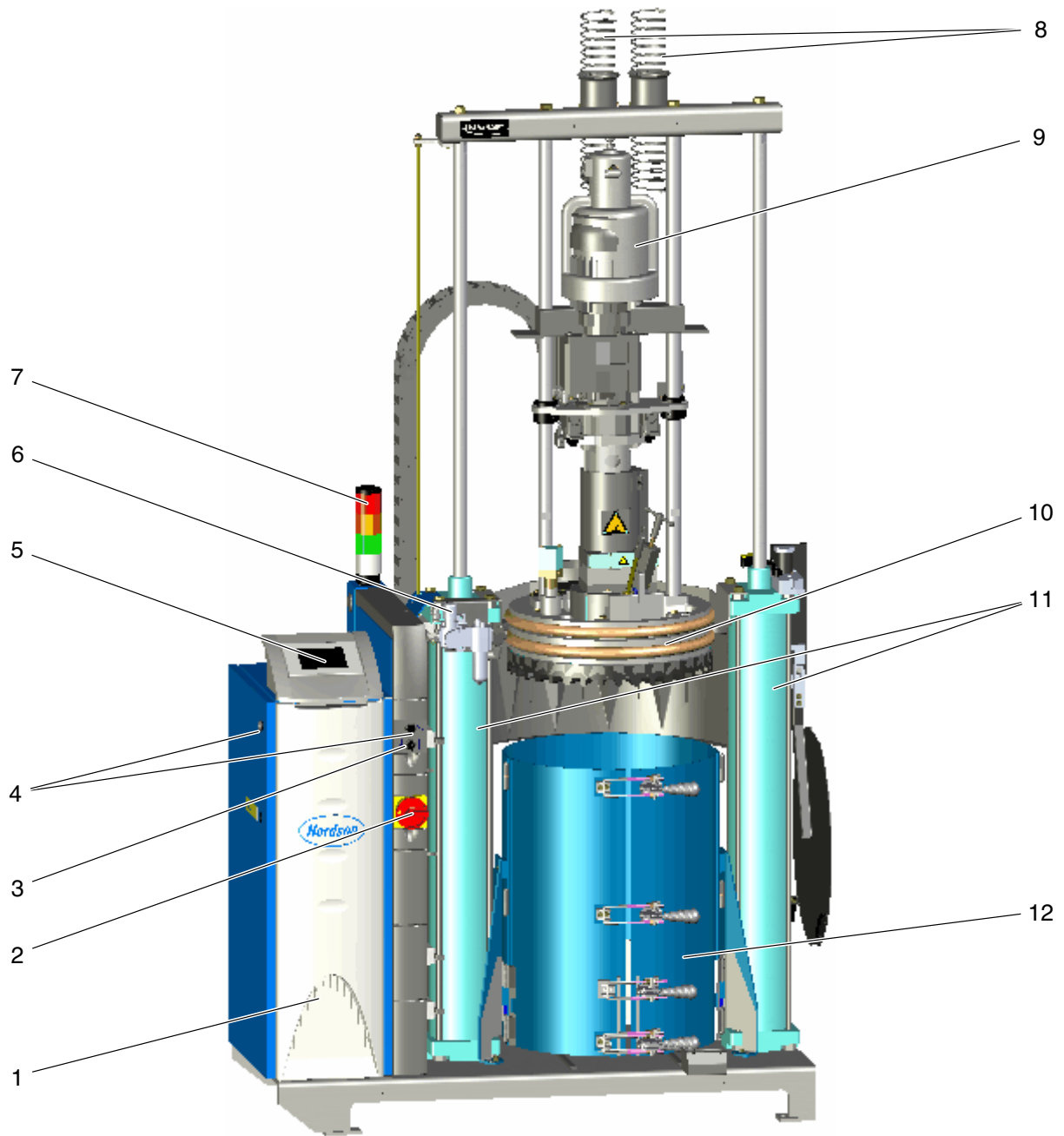


Fig. 2-3

- | | | |
|--------------------------------------|------------------------------------|--|
| 1 Air filter (air inlet) | 5 Control panel | 8 Hose holder |
| 2 Main switch | 6 Pressure controller <i>Motor</i> | 9 Motor |
| 3 Selector <i>Raise/Lower Platen</i> | 7 Light tower | 10 Platen |
| 4 Button <i>Two-hand control</i> | | 11 Pneumatic cylinder |
| | | 12 Container clamp (in this case:
<i>high container jacket for
cardboard containers, option</i>) |

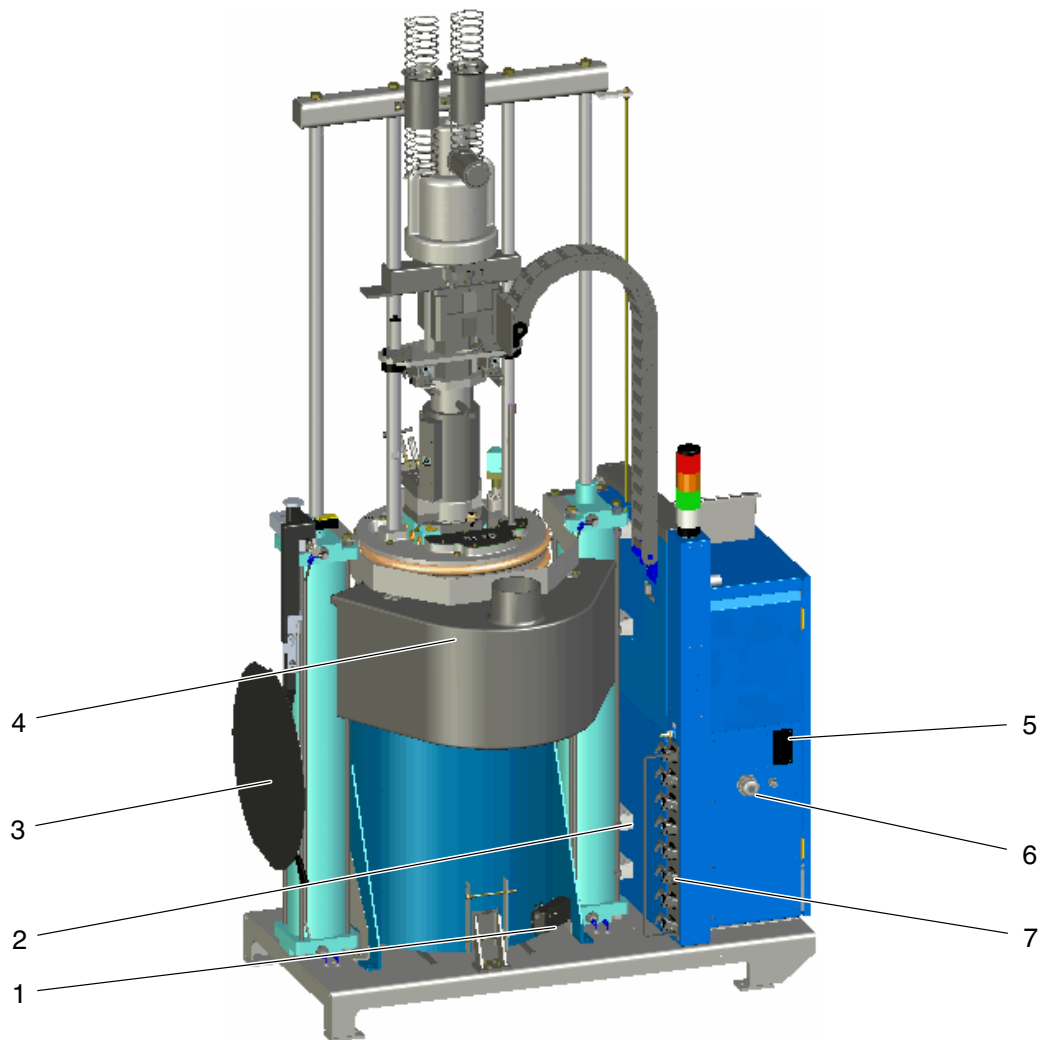


Fig. 2-4

- | | |
|--------------------------------------|---|
| 1 Switch <i>Container detection</i> | 5 Interface <i>Standard I/O (XS2)</i> |
| 2 Switch <i>Platen position (3x)</i> | 6 Cable duct <i>Power supply</i> |
| 3 Swiveling drip tray (option) | 7 Additional hose receptacles (number according to configuration) |
| 4 Exhaust hood (option, accessory) | |

Platen

VersaPail

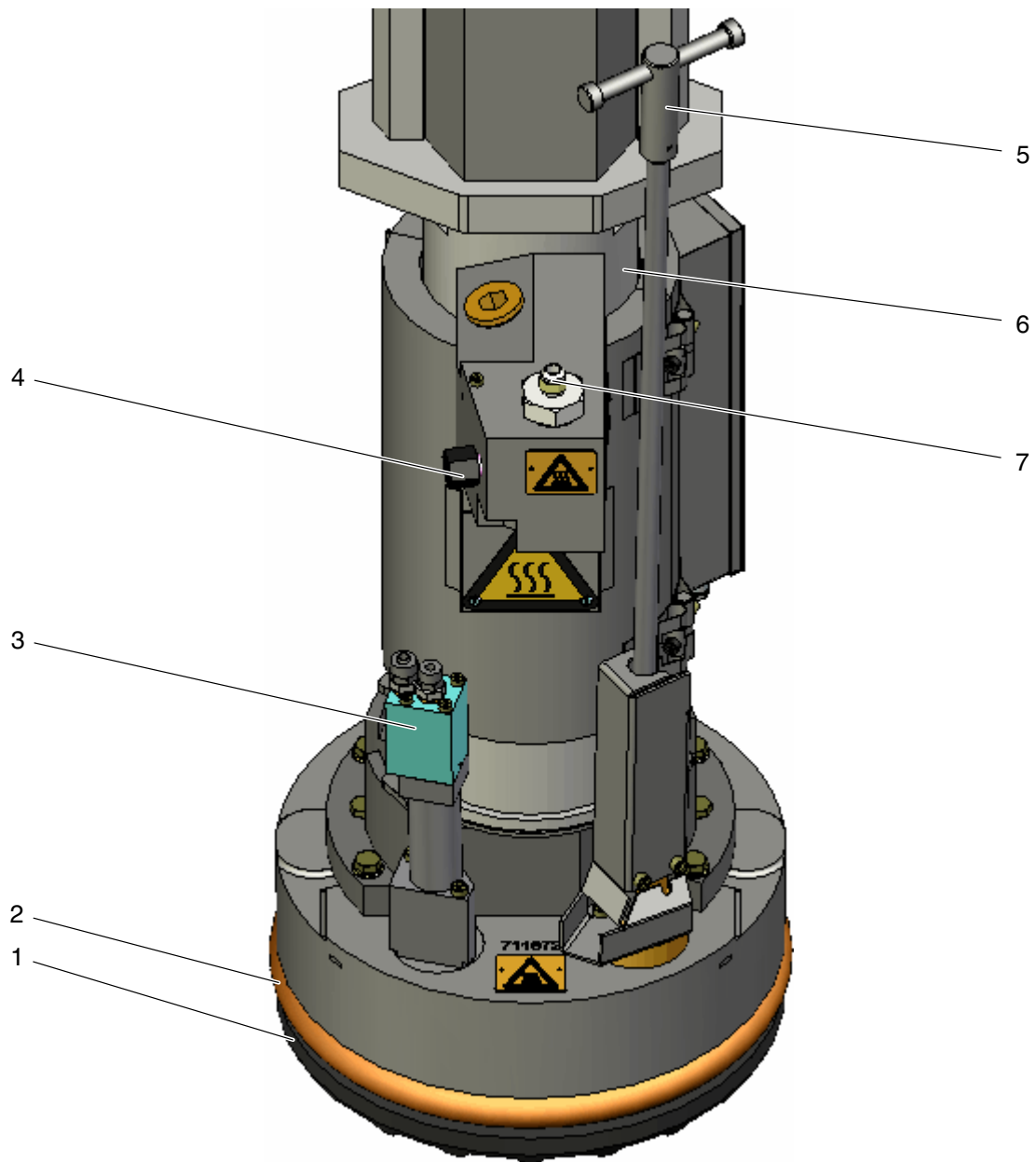


Fig. 2-5

- | | |
|-------------------------------------|-------------------------------------|
| 1 Melting plate | 5 Air relief valve <i>Container</i> |
| 2 Sealing ring | 6 Pump |
| 3 Automatic aeration valve (option) | 7 Hose connection |
| 4 Air relief valve <i>Pump</i> | |

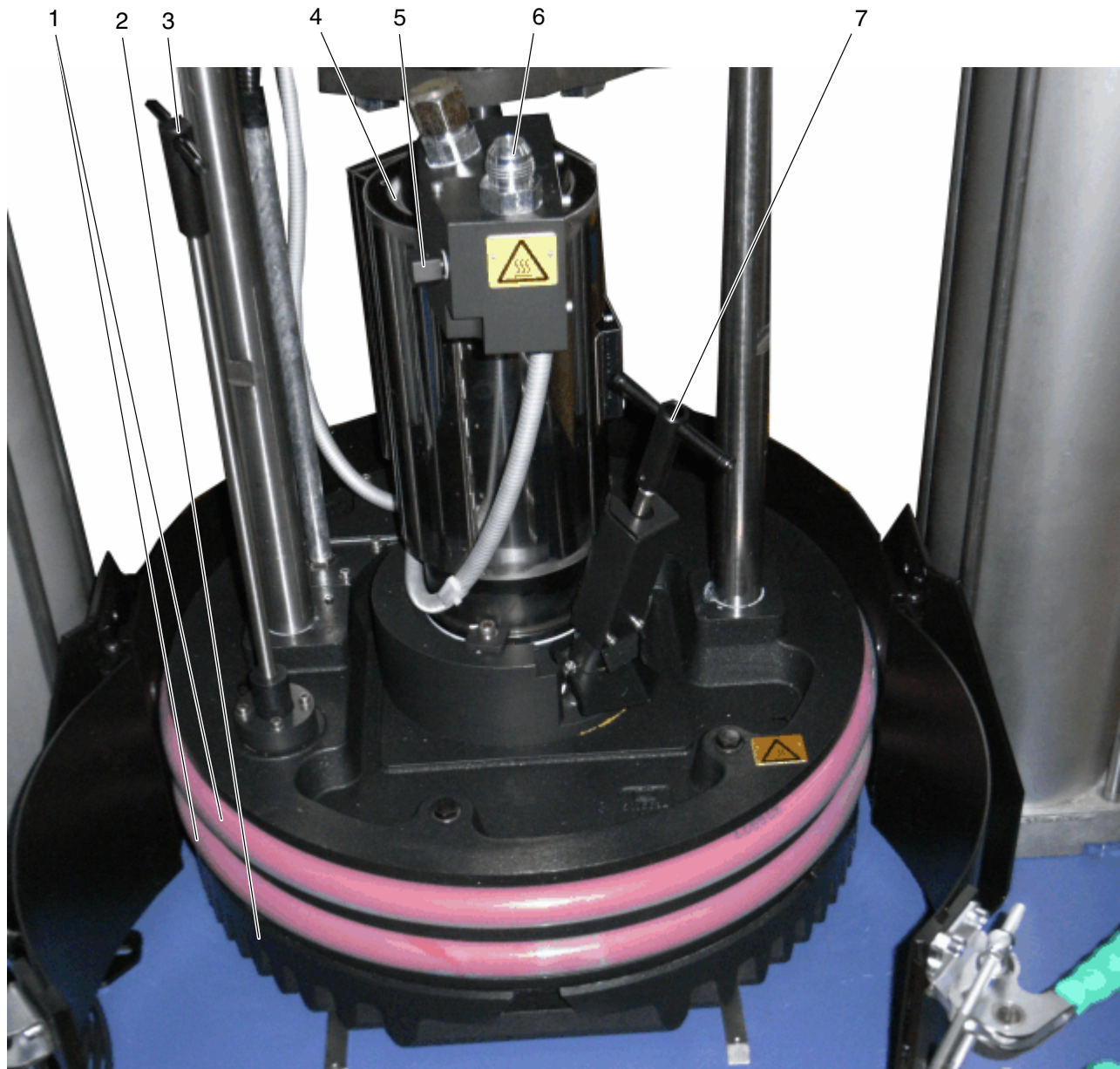
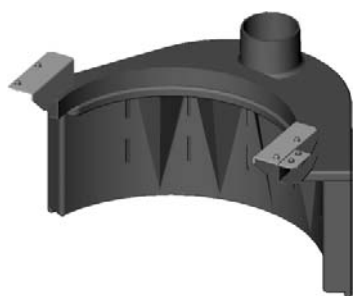
VersaDrum

Fig. 2-6

- | | | |
|------------------|--------------------------------|-------------------------------------|
| 1 Sealing ring | 4 Pump | 7 Air relief valve <i>Container</i> |
| 2 Melting plate | 5 Air relief valve <i>Pump</i> | |
| 3 Aeration valve | 6 Hose connection | |

Note: Only the lower sealing ring is on the platen with models for cardboard containers (box 16 = F).

Exhaust Hood



☐ Box 24 = E

If the bulk melter is used to process polyurethane hot melt adhesives (PUR), fumes are created that should be suctioned off directly at the container. An exhaust hood is attached to the bulk melter for this purpose.

The exhaust hood must be connected to the customer's exhaust device (Refer to page 3-3, *Exhausting Material Vapors* and page 9-1, *Technical Data*).

NOTE: The exhaust hood can be added later. Refer to page 3-17, *Exhaust Hood*.

Light Tower



☐ Box 20 = W

The light tower shows the bulk melter operating modes.

● : Illuminated

X : On and off

White	Green	Yellow	Red	Status
Switched on	Ready for operation	General alarm		
●	●	○	○	
	X	●	○	General alarm <i>Warning</i> Refer to page 6-2, <i>Alarms</i>
	X	Flashing	○	Adhesive level low (container almost empty)
	X	●	Flashing	Container is empty <i>Warning</i> Refer to page 4-15, <i>Status When Container Empty</i>
	○	○	Flashing	Container is empty <i>Fault</i>
	○	●	○	<i>Heatup phase or Standby</i>
	○	○	●	General alarm <i>Fault or Shutdown</i> Refer to page 6-2, <i>Alarms</i>

NOTE: The light tower can be added later. Refer to page 3-21, *Light Tower*.

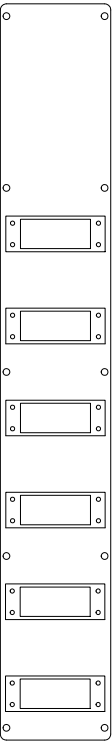
Optional Hose Receptacles

 Box 11 = 4, 6 or 8



Pt100 (Box 13 = P)

Ni120 (Box 13 = N)
and Box 10 = A



-XS17

-XS16

-XS15

-XS14

-XS13

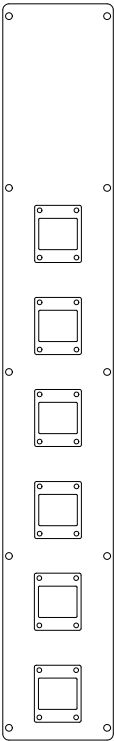
-XS12

8 gun/hose connections
(Option Hose/Gun Pairs "8")

6 gun/hose connections
(Option Hose/Gun Pairs "6")

4 gun/hose connections
(Option Hose/Gun Pairs "4")

Ni120 (Box 13 = N)
and Box 10 = B



-XS17

-XS16

-XS15

-XS14

-XS13

-XS12

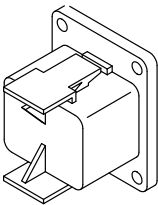
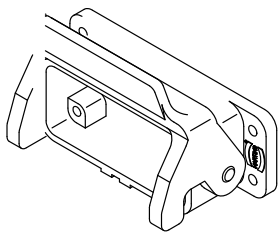
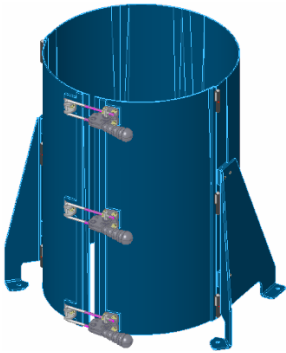


Fig. 2-7 Maximum equipment (box 11 = 8)

High Container Jacket for Cardboard Containers



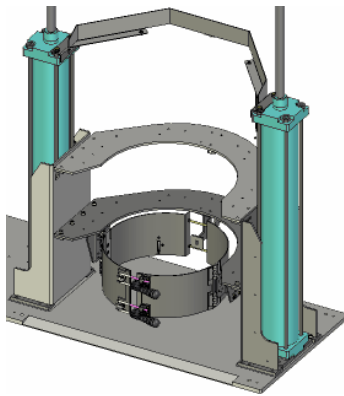
☐ Box 16 = F

CAUTION: Do not use metal containers in this model! The container jacket is intended to be used only with cardboard containers!

NOTE: Only the lower sealing ring is on the platen with models for cardboard containers.

NOTE: The high container jacket can be added later. Refer to page [3-18](#), *Container Jacket for Cardboard Containers*.

Base Plate for Pallet Loading



☐ Box 26 = W

Because the distance to the pneumatic cylinders has been increased, a container on a pallet can be placed under the platen.

Swiveling Drip Tray



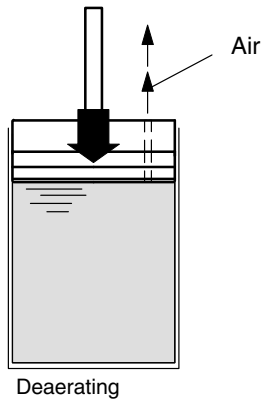
☐ Box 23 = D

Catches material that may drip from the raised platen.

NOTE: The swiveling drip tray can be added later. Refer to page [3-20](#), *Swiveling Drip Tray*.

Functioning / Concepts

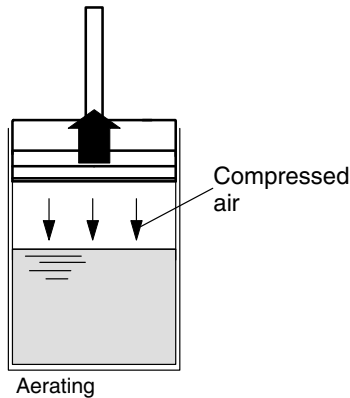
Raising and Lowering Platen



The pneumatic cylinders raise and lower the platen. When lowering the platen, a two-hand control must be operated for safety reasons until the platen is in the container.

Deaerating Container

The air relief valve *Container* must be opened manually to allow air to escape when the platen is lowered into the container.



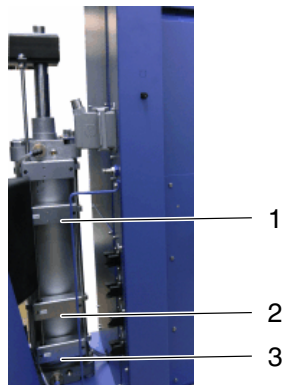
Aerating Container

To prevent a vacuum from forming when the platen is lifted out of the container, the container must be aerated. This is done automatically or manually, depending on the model.

Platen Position

A switch rod activates the switches (1, 2 and 3) one after the other, triggering the following switching functions:

- Switching functions when lowering:
 - Switches from two-hand lowering mode to normal lowering mode when the platen sealing ring is completely submerged in the container (switch 1)
 - Activates the *Adhesive level low indication* (switch 2)
 - Activates the *Container empty* indication (switch 3).
- Switching functions when raising:
 - Switches off automatic container aeration (switch 1).



Temperature Control

The bulk melter electronically controls the temperature of various components of the bulk melter itself (platen, pump) as well as connected components of an entire application system.

Overtemperature Shutdown

The overtemperature shutdown feature protects the bulk melter and the material from overheating. For overtemperature shutdown, the heater and motor are switched off.

Undertemperature Interlock

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

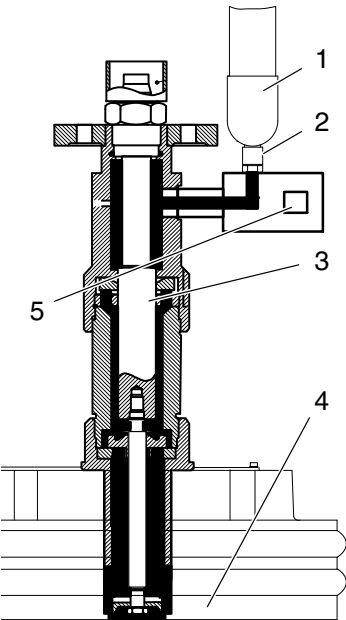
Standby

Standby serves to protect the material and to save energy during breaks in production. The temperature setpoints are reduced by a standby value.

Heatup Guided by Reference Channel

Heatup guided by reference channel prevents individual temperature channels from reaching their setpoint long before the slowest temperature channel (pump heater or first hose = 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.

Melting Process and Material Flow



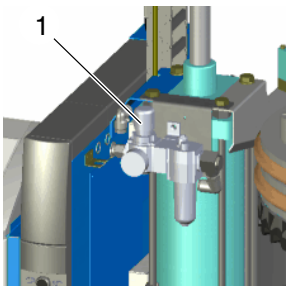
Principle drawing

The material is melted only directly below the melting plate (4). A piston pump (3) feeds the melted material to the hose connection (2). From there it flows through a hose (1) to a applicator or an assembly handgun.

Air Relief Valve

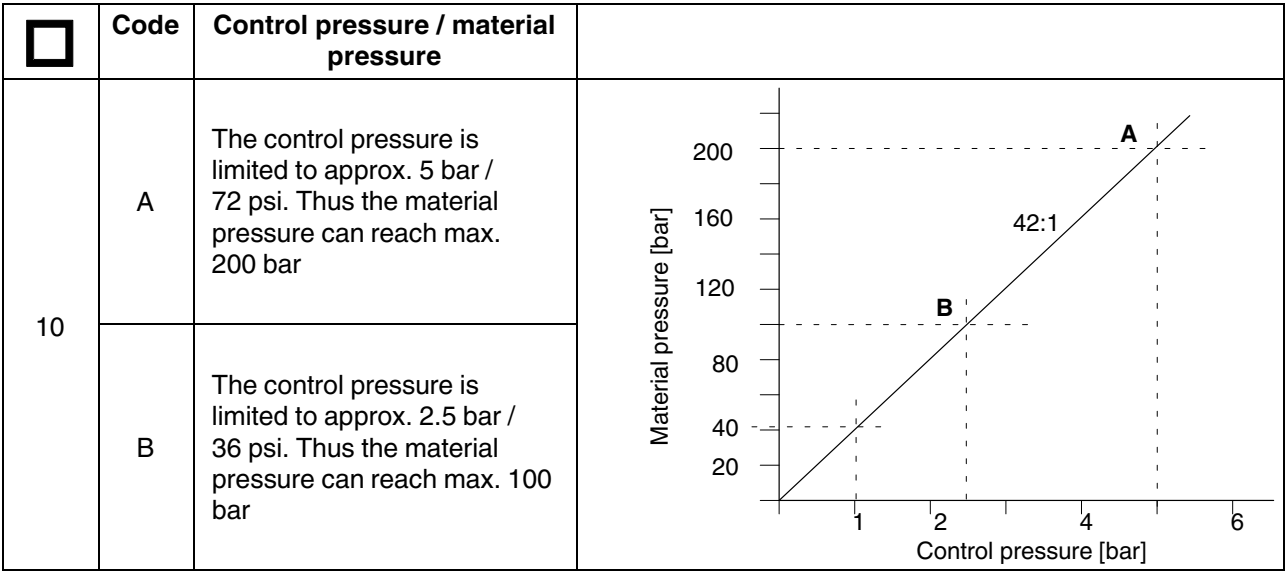
The air relief valve (5) is used to relieve the pump of air upon initial startup and every time the container is changed. Refer to page 4-11, *Deaerating Pump*.

Controlling Material Quantity and Pressure



Pneumatic control pressure and piston pump transmission ratio (42:1) determine the material pressure. The control pressure can be set manually on a pressure controller (1).

ATTENTION: Verify that the subsequent system components are designed to accommodate the material pressure!



Motor Startup Protection

The motor startup protection prevents the motor from starting up on its own after heatup or after a fault. The bulk melter enters startup protection only after the heatup phase ends or there is no longer a fault, and at this time all required motor enables have been granted.

Integrating into a Production System

The bulk melter can exchange control signals with components of a production system via various interfaces:

- Interface *Standard I/O (XS2)*:
The interface provides various inputs and outputs. Refer to page 3-7, *Connecting Standard I/O Interface*.

NOTE: Processing of input signals at interface *Standard I/O (XS2)* can be switched off. Refer to page 4-16, *Selecting Control Options*.

The following features/configurations allow the bulk melter to be controlled by a higher-ranking control unit:

Field Bus Interface

NOTE: Also refer to the separate manual *Field Bus on Nordson Melters with IPC*



Box 22:

- D: Profibus-DP
- N: ControlNet
- E: EtherNet/IP
- P: Profinet I/O.

NOTE: Processing of input signals at the field bus interface can be switched off. Refer to page 4-16, *Selecting Control Options*.

Section 3

Installation



ATTENTION: Allow only qualified personnel to perform the following tasks. Follow the safety instructions here and in the entire documentation.

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.

Transport

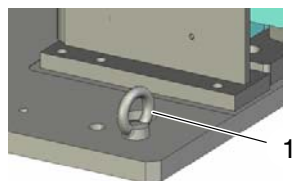
Refer to page [9-5](#), *Dimensions and Weights* for weight.

- Use only suitable transport devices:



Box 26:

- X: Use a lift truck or forklift. Do not lift with a crane.
- W: Fasten the eye-bolts (1) to the base plate. Lift with a crane.
- If possible, use the pallet on which the bulk melter was delivered, and fasten the bulk melter to the pallet.
- Protect from damage, moisture and dust with suitable packing material.
- Avoid jolts and vibrations.



Eye-bolt

Storage

Do not store the bulk 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 and fastening and packing material for later use, or dispose of properly according to local regulations.

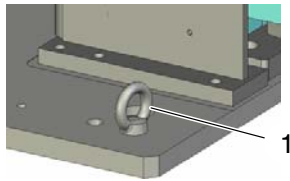
Lifting (Unpacked Unit)

Refer to page 9-5, *Dimensions and Weights* for weight.



Box 26:

- X: Use a lift truck or forklift. Do not lift with a crane.
- W: Fasten the eye-bolts (1) to the base plate. Lift with a crane.



Eye-bolt

Setting Up

- Set up only in an environment that corresponds to the stated Degree of Protection. Refer to page 9-1, *General Data*. Do not set up in a potentially explosive atmosphere!
- Protect from vibration. Remove transport protection (if present).
- Protect the control panel from direct sunlight. The UV rays reduce the serviceable life of the liquid crystals.
- Ensure that there is sufficient clearance around the system, especially above it. Refer to page 9-5, *Dimensions and Weights* for dimensions.
- Observe the minimum hose bending radius (Refer to the hose manual).

Exhausting Material Vapors

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/or provide sufficient ventilation of the location of the system. On bulk melters with exhaust hood, material vapors are suctioned off directly at the container.

NOTE: The exhaust hood can be added later. Refer to page 3-17, *Exhaust Hood*.

NOTE: The exhaust hood must be connected to the customer's exhaust device. Refer to page 9-3, *Exhaust Hood (Accessory)*.

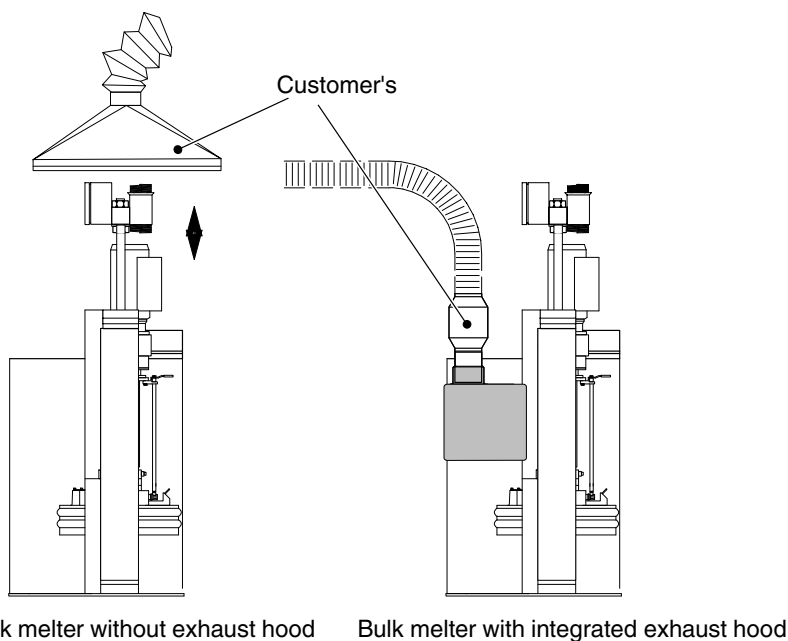
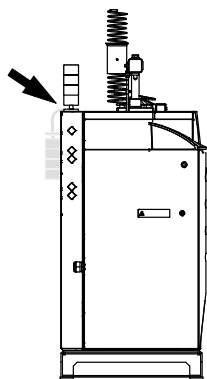


Fig. 3-1 Principle drawing

Screwing on Light Tower (Option)



The light tower is not attached upon delivery of the bulk melter. Use the two included screws to fasten the light tower to the top of the melter tower.

NOTE: The light tower can be added later. Refer to page 3-21, *Light Tower*.

Electrical Connections - General Information



ATTENTION: 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 industrial branches require residual current circuit breakers.

Then observe the following points:

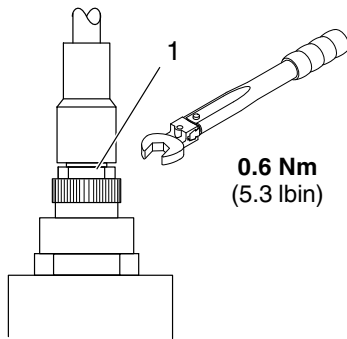
- Residual current circuit breakers are to be installed only between the power supply and the bulk melter.
- Use only inverter-compatible residual current circuit breakers.

Laying Cable



ATTENTION: 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!

CAUTION: Lay the CAN bus cable with a bending radius > 60 mm (2.4 in).



CAN Bus: Securing Plug Connections

Tighten the hexagon nut (1, if there is one) with 0.6 Nm torque. Nordson recommends the torque wrench made by Murr Elektronik, Murr article number 7000-99102-0000000.

Power Supply



ATTENTION: Operate only at the operating voltage shown on the ID plate. Permitted deviation from the line voltage is $\pm 10\%$.

Box 9	Operating voltage	Terminals				
		L1	L2	L3	N	PE
2	200 V _{AC} 3-phase without neutral (- <i>Delta</i>)	•	•	•		•
3	230 V _{AC} 3-phase without neutral (- <i>Delta</i>)	•	•	•		•
4	400 V _{AC} 3-phase with neutral (- <i>WYE</i>)	•	•	•	•	•
5	400 V _{AC} 3-phase without neutral (- <i>Delta</i>)	•	•	•		•
6	480 V _{AC} 3-phase without neutral (- <i>Delta</i>)	•	•	•		•
7	575 V _{AC} 3-phase without neutral (- <i>Delta</i>)	•	•	•		•

CAUTION: The power cable cross-section must comply with the rated current (Refer to ID plate).

The system must be installed securely (permanent power supply connection). Refer to wiring diagram for connecting arrangement.



Mains terminal (example)

Connecting System to Field Bus

Also refer to:

- Separate manual *Field Bus on Nordson Melters with IPC*
- Page 4-17, *Field Bus*.

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

☐ Box 22 = D: **Profibus-DP**

NOTE: The address is set on the IPC. Refer to page 4-17, *Field Bus*.

☐ Box 22 = N: **ControlNet**

NOTE: The address is set with two decimal dials on the gateway located in the electrical cabinet. Refer to separate manual *Field Bus on Nordson Melters with IPC*.

☐ Box 22 = E: **EtherNet/IP**

NOTE: The IP address can be set in these ways:

- With the DIP switches on the gateway
- With a PC, by using the ARP command (*ARP = Address Resolution Protocol*)
- With address configuration software.

Refer to separate manual *Field Bus on Nordson Melters with IPC*.

☐ Box 22 = P: **ProfiNet I/O**

NOTE: The IP address can be set with the DIP switches on the gateway.

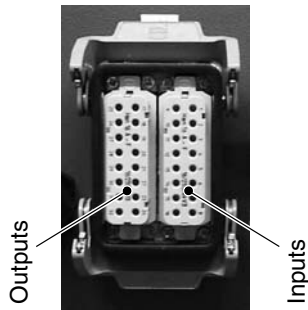
Refer to separate manual *Field Bus on Nordson Melters with IPC*.

Connecting Standard I/O Interface (XS2)



The *Standard I/O interface* (XS2) of the master in an ACO system controls both bulk melters.

General Notes



- To conform with a European standard regarding electro-magnetic compatibility (EMC), only shielded cable may be connected. The shield must be connected to ground in compliance with the standard regarding electromagnetic compatibility.
- Inductive loads (e.g. solenoid valves) connected to the system must be equipped with a protective device (e.g. recovery diode) that disables the inductive voltage generated when an inductive load is switched off.
- The permitted voltage deviation is $\pm 10\%$.

Observe for Edge-controlled Signals

Example of Standby

If standby is switched on via the interface (rising edge), it can be switched off with the seven-day clock or by the operator on the control panel (*Who-touched-me-last*).

If standby is then to be switched on again via the interface, it must first be switched off (falling edge) then on again via the interface.

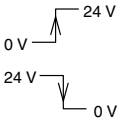
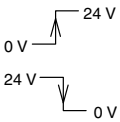
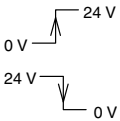
Inputs Pin 4, 5 and 6

The *Standard I/O interface* inputs *All motors ON/OFF* (collective enable) and *Enable motor* can be disabled. Refer to page [4-17](#), *Enable at Standard I/O Interface (XS2)*.

Interface Assignment

Inputs

NOTE: * optional

Digital inputs			
Pin	Input	Function	Note
1*	24 V _{DC}	Internal (unit)	
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)	A
4		24 V: All motors ON (collective enable) 0 V: All motors OFF	
5		24 V: Enable <i>Motor / trigger assembly handgun 1</i> 0 V: No enable <i>Motor / trigger assembly handgun 1</i>	
6		24 V: Enable <i>Motor / trigger assembly handgun 2</i> 0 V: No enable <i>Motor / trigger assembly handgun 2</i>	
Pin 7/8 not assigned			
9		Rising edge: Enter <i>standby</i> Falling edge: Exit <i>standby</i>	A
10		Rising edge: Key-to-line Falling edge: Manual mode	A
Pin 11- 16 not assigned			
NOTE A: Refer to page 3-7, <i>Observe for Edge-controlled Signals</i>			

Outputs

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

Digital outputs			
Pin	Output	Function	Note
17	Make contact	Contact closed: Motor running	A
18		Contact open: Motor not running	
Pin 19- 22 (24) not assigned			
23	0 V _{DC}		B
24	24 V _{DC}		
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	24 V: - 0 V: Container is empty	
30	Make contact	24 V: - 0 V: Adhesive level low	
Pin 31/32 not assigned			
NOTE	A: Does not apply to an ACO system B: Only on models with <i>Box 25 = B, S</i>		

Connecting Hose

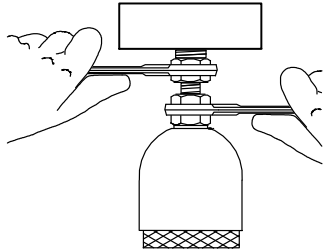


ATTENTION: Hot! Risk of burns. Wear heat-protective gloves.



ATTENTION: Verify that the hoses are designed to accommodate the highest material pressure possible! Refer to page 9-1, *General Data* and to the hose manual.

Using Second Open-end Wrench



Use a second open-end wrench when connecting and disconnecting the heated hose. This prevents the hose connection from turning.

Electrical Connection



Example: VersaPail

Up to two hoses can be attached to the platen. Guide the hoses through the hose holders to the platen and initially connect them electrically to interfaces XS10 and XS11 (1).

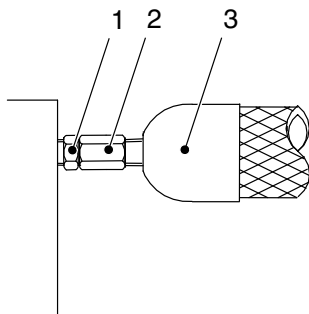


Box 11 = 4, 6, or 8: Electrically connect additional hoses (or other heated components) to interfaces XS12 to XS17.



Box 10 = A: Hoses must be designed to accommodate at least 200 bar / 2900 psi and must contain the required bridge *High pressure hose detection* to bridge the connections B5 - C5 of the interface.

Connecting



If cold material can be found in the hose connection (1), the components (2, 3) must be heated until the material softens (approx. 70 °C / 158 °F, depending on material).

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

NOTE: Close unused hose ports with Nordson port plugs.

Disconnecting



ATTENTION: System and material pressurized. Relieve bulk melter pressure before disconnecting pressurized components (e.g. hoses, pressure sensors). Failure to observe can result in serious burns.

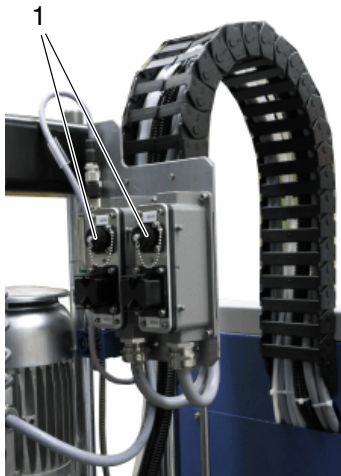
Relieving Pressure

1. Switch off motor.
2. Set selector *Raise/lower platen* to *0/stop*.
3. Place a container under the nozzle(s) of the applicator / assembly handgun.
4. Guns: 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.
5. Properly dispose of material according to local regulations.

Connecting Assembly Handguns



Box 13 = N



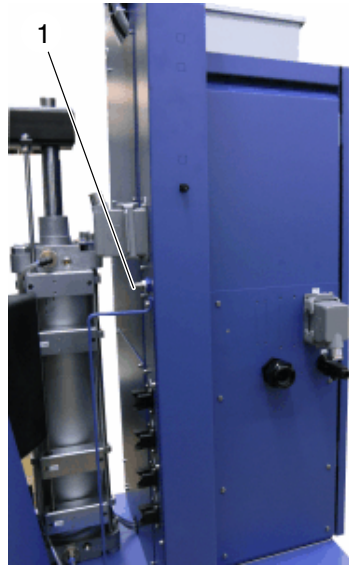
Example: VersaPail

1. Connect the assembly handgun switches to receptacles XS18 and XS19 (1).
2. Jumper pins 1 and 4 on the *Standard I/O interface (XS2)* to apply the signal *Collective enable*.

When the assembly handgun is triggered (switch closed), the pump is switched on. Prerequisites:

- The *Standard I/O* control option must be selected. Refer to page [4-16](#), *Selecting Control Options*
- *Control panel AND standard I/O* must be selected in control panel screen M2. Refer to page [4-17](#), *Enable at Standard I/O Interface (XS2)*.

Connecting Compressed Air



Connect dry, clean and nonlubricated compressed air to the compressed air connection (1). Dirt particles in the air may not exceed 30 µm in size.

Air pressure

Min	3 bar	0.3 MPa	43.5 psi
Max	8 bar	0.8 MPa	116 psi

NOTE: A pressure restrictor valve behind the compressed air connection limits the air pressure to 8 bar / 0.8 MPa / 116 psi

Inner hose diameter

Min	½ "	13 mm	
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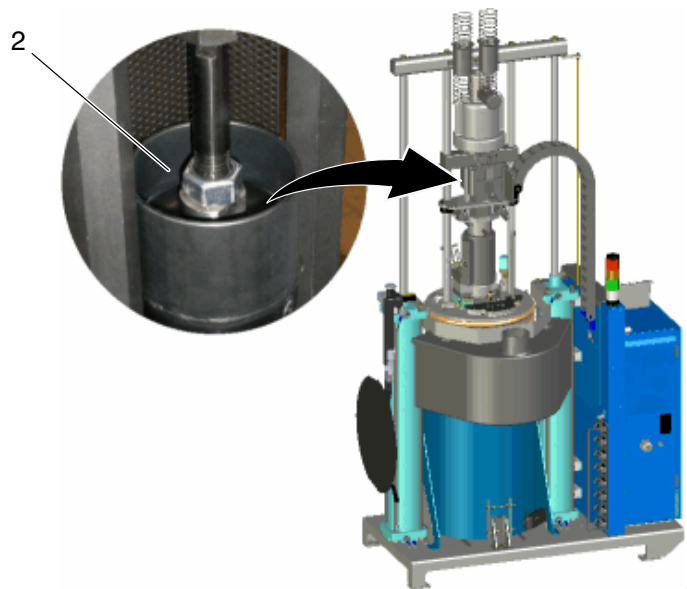
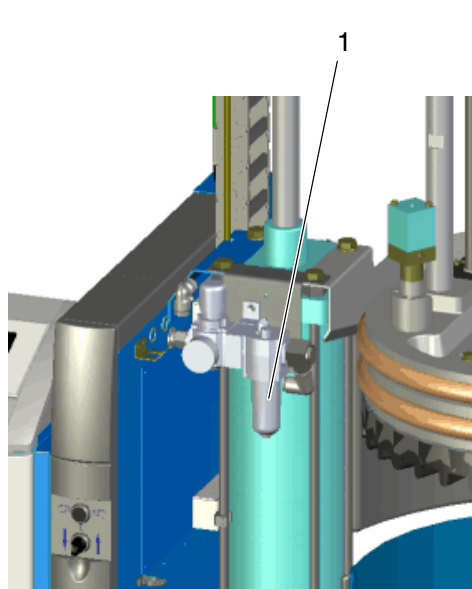
NOTE: If the inner hose diameter is too small, the fault *Air pressure too low* can be triggered

Compressed Air for Piston Pump Air Motor

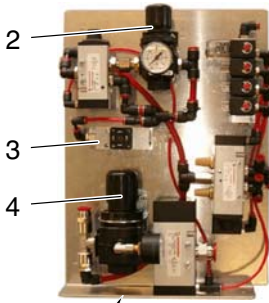
CAUTION: The motor may be operated only with lubricated compressed air.

- Ensure that the lubricator (1) is filled
- Ensure that the oil basin (2) is filled

Refill with *Vitalizer Oil*. Refer to page 5-3, *Processing Materials*.



Pneumatic Plate



Also refer to [E-1](#), appendix *Pneumatics Diagram*.

Pressure Switch

A pressure switch (3) triggers the fault *Air pressure too low* when there is insufficient air pressure.

Pressure Control Valves

CAUTION: Do not change the setting: A lower pressure makes it difficult to raise the platen.

- *Raise pneumatic cylinder (2)*



VP: 1.6 bar / 0.16 MPa / 23.2 psi
VD: 2 bar / 0.2 MPa / 29 psi

- *Aerate container (4):*



1 bar / 0.1 MPa / 14.5 psi

NOTE: A pressure restrictor valve prevents higher, unpermitted pressure.



Pneumatic Plate

Adapting the Bulk Melter to the Container Used

Important when Using Cardboard Containers

CAUTION:

- Cardboard containers may be used only with the *VersaDrum* series and only with the proper container jackets. Refer to page 3-18, *Container Jacket for Cardboard Containers*.
- The *VersaPail* series may be used only with metal containers.

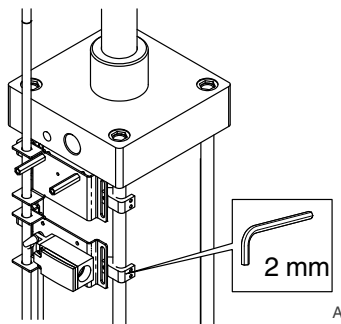
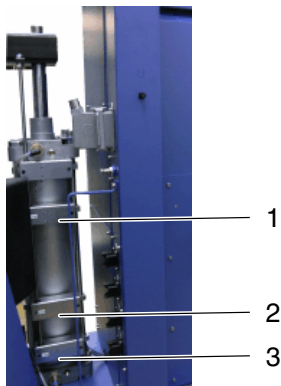
Platen Position: Adjusting Switches



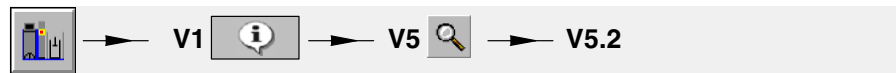
ATTENTION: Risk of squash! Ensure that switch 1 is not actuated until the platen is inside of the container.

A switch rod activates three switches (1, 2 and 3) one after the other, triggering the following switching functions:

- Switching functions when lowering:
 - Switches from two-hand lowering mode to normal lowering mode when the platen sealing ring is completely submerged in the container (switch 1)
 - Activates the *Adhesive level low indication* (switch 2)
 - Activates the *Container empty* indication (switch 3).
- Switching functions when raising:
 - Switches off automatic container aeration (switch 1).



NOTE: The switching state can be displayed on the control panel:



Switch 1, Switching from Two-hand Lowering to Automatic Lowering Mode



ATTENTION: Risk of squash!

The correct switch position is a factor of the container height and the level in the container.

1 Sealing Ring, Box 16 = F, Cardboard Containers

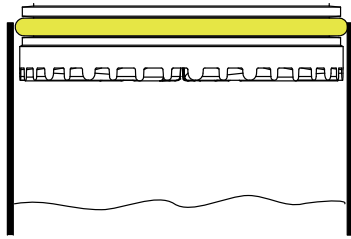


Fig. 3-2

Set the height of the switch such that, when lowering, it does not switch until the gap between the sealing ring and the upper edge of the container jacket is closed. Refer to Fig. 3-2.

2 Sealing Rings, Box 16 = P, Metal Containers

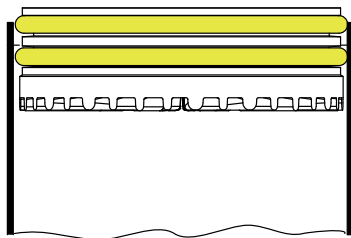


Fig. 3-3

Set the height of the switch such that it does not switch until the gap between the upper sealing ring and the upper edge of the container jacket is closed. Refer to Fig. 3-3. If the container is so full that this is not feasible, lower the platen as far as possible in two-hand mode.

Switch 2, Activation of Adhesive Low Indication



In an ACO system, the *Adhesive level low* (switch 2) indication activates application group A of the inactive bulk melter. So set the distance between switch 2 and switch 3 such that there is sufficient time for heatup before the Container empty indication (switch 3) is triggered.

Switch 3, Activation of Container Empty Indication

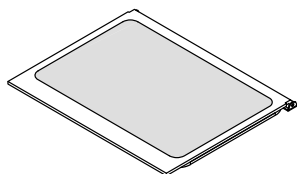
The correct position of switch 3 for the *Container empty* indication is a factor of the melting plate height and the type of container bottom (for metal or cardboard container).

Either use an empty container or measure the container bottom and then determine the height at which the switch rod can still activate the switch and have the least possible remaining adhesive.

Installing Accessories

The following components can also be installed later as accessories:

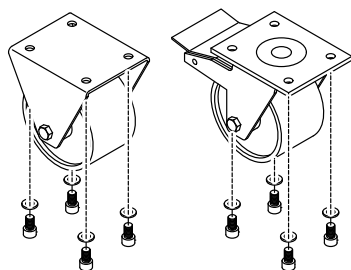
Control Panel Protector



P/N	For	Note
7109694	VP, VD	Protects the control panel from unintentional contact and pollution

- B
1. Remove the protective film from the hinge
 2. Adhere the protector to the control panel.

Casters



P/N	For	Note
428178	VP	The kit consists of a pair of casters with brakes and a pair without brakes. Attach the pair with brakes to the electrical cabinet side. The holes for the casters have already been made in the base plate

1. Lift the bulk melter with a suitable floor conveyor (lift truck or forklift).
2. Detach machine feet.
3. Attach casters.

Platen Lock

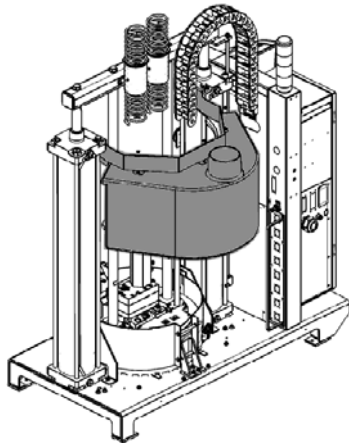


P/N	For	Note
7140350	VD	The platen lock facilitates maintenance work on the platen. The platen is secured in the upper position and can not descend.
7140351	VP	

Fasten the platen lock to the piston rod of a pneumatic cylinder.

CAUTION: Remove the platen lock before setting the selector to *Lower*. Otherwise the bulk melter could be damaged.

Exhaust Hood



P/N	For	Note
7140345	VD Box 26 $\neq$ W	Can not be used in conjunction with the <i>Back cover</i>
7140926	VD Box 26 = W	
7140346	VP	

1. Attach the exhaust hood to the back of the bulk melter.
2. The exhaust hood must be connected to the customer's exhaust device. Refer to page 9-3, *Exhaust Hood (Accessory)*.

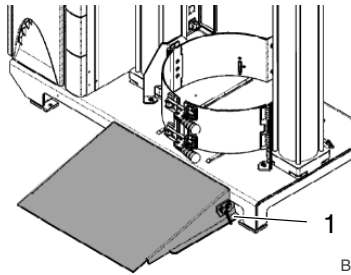
Back Cover



P/N	For	Note
7140347	VD Box 26 $\neq$ W	The cover prevents access to the back section of the bulk melter, thus protecting the operator from potential injury
7140348	VP	Can not be used in conjunction with the <i>Exhaust hood</i> .

Attach the cover to the back of the bulk melter.

Container Ramp



P/N	For	Note
7140344	VD	The container ramp makes it easier to replace the container

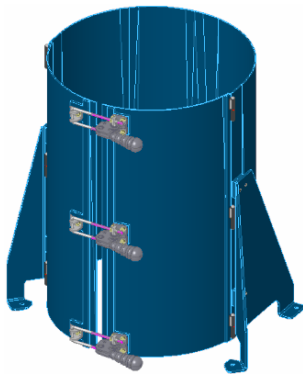
Use the two clamping levers (1) to fasten the container ramp to the bulk melter.

Container Jacket for Cardboard Containers

P/N	For	Note
7140349	VD Box 26 $\neq$ W	
-	VD Box 26 = W	There is no kit available for models where box 26 = W. However, the required parts can be ordered separately.

CAUTION: Do not use metal containers in this model! The container jacket is intended to be used only with cardboard containers! Refer to page 3-14, *Important When Using Cardboard Containers*.

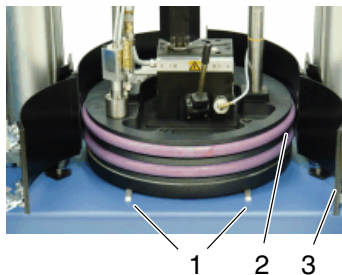
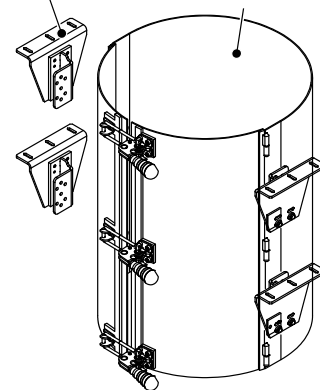
☐ Box 26 $\neq$ W



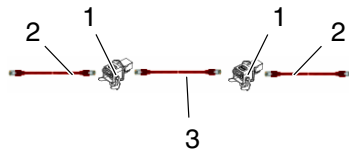
☐ Box 26 = W

4x 7140834

1x 7140830

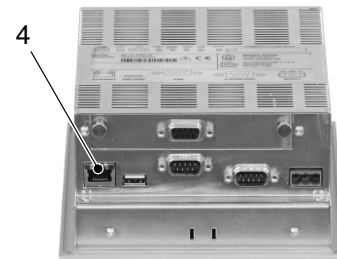
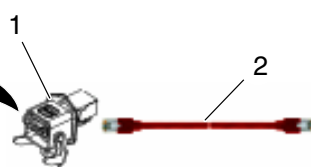
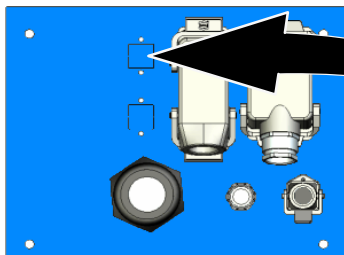


1. Replace the existing container clamp (3) with the container jacket.
2. Remove the tracks (1, only on some models). Then the *Platen position* switches must be adjusted. Refer to page 3-14, *Platen Position: Adjusting Switches*.
3. Recommendation: Remove the upper sealing ring (2).

ACO Kit

P/N	For	Note
7126906	VP, VD	ACO connector accessories are also needed. Refer to page 3-19, ACO Connector.

1. On both bulk melters:
 - a. Punch out perforated plate on the back of the electrical cabinet and remove.
 - b. Install the receptacle (1).
 - c. In the electrical cabinet: Connect the receptacle to the control panel (4) with the cable (2). Refer to page 7-2, Detaching Control Panel.
2. Connect the two bulk melters to one another (3).

**ACO Connector**

P/N	For	Note
		The ACO kit is also needed. Refer to page 3-19, ACO Kit.
7140516	VP, VD	One output
7140517		Two outputs

Refer to page 3-25, Combining Two Bulk Melters to an ACO System.

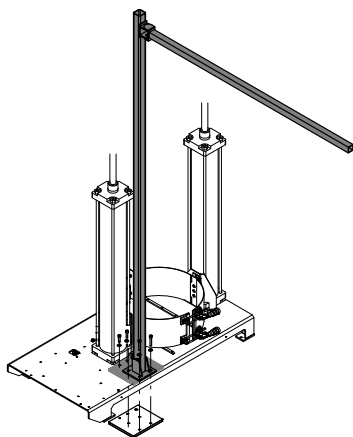
Swiveling Drip Tray



P/N	For	Note
7157332	VD Box 26 ≠ W	Catches material that may drip from the raised platen.

Refer to the instructions included in the kit.

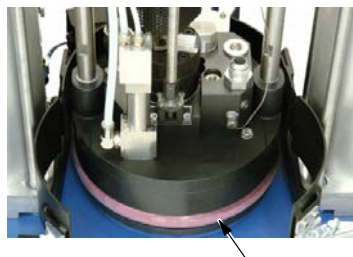
Rocker Bar



P/N	For	Note
7155909	VD	Permits a hose to swivel, e.g. for use with moving applicators

Refer to the instructions included in the kit.

Platen Sealing Ring for Low Temperatures



P/N	For	Note
7157210	VP Box 8 = K	This platen sealing ring is pliable at room temperature. So it should be used at low processing temperatures up to approx. 120 °C / 247 °F

Refer to page 7-9, *Replacing Sealing Ring*.

Aeration Override Feature

NOTE: This feature is standard in bulk melters produced in September 2010 and later. For information on the *Year of construction*, refer to page 2-3, *Year of Construction*.

P/N	For	Note
7157353	VP, VD	The purpose of the feature is to press back down a container that was unintentionally lifted during <i>Raise container</i> . The retrofitting kit includes retrofitting instructions

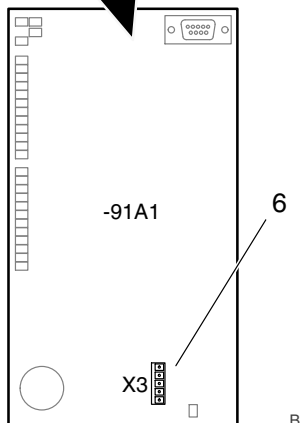
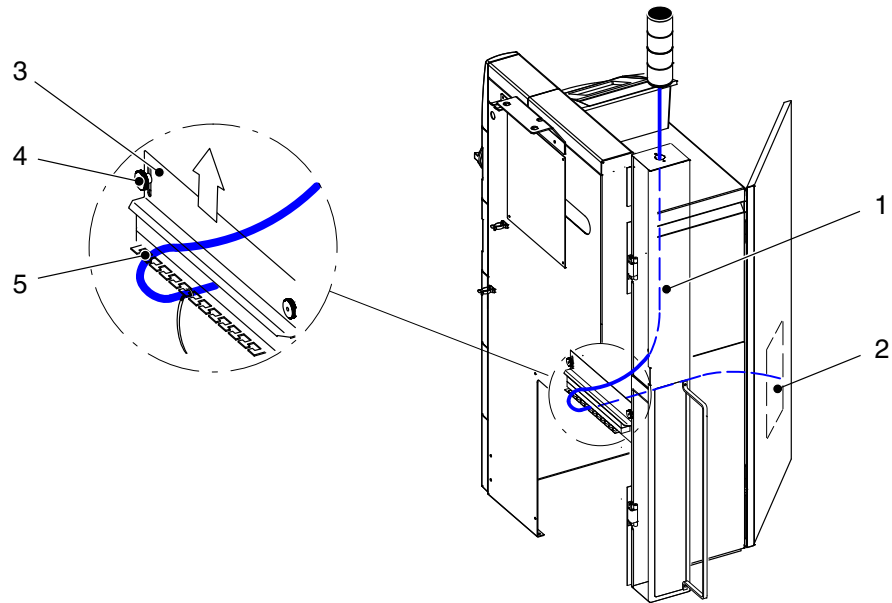
Light Tower



P/N	For	Note
394794	VP, VD	Refer to page 2-16, <i>Light Tower</i>



ATTENTION: Disconnect the melter from the line voltage.



1. Break out the plate from the top of the melter tower (1) along the punched lines and remove.
2. Swivel melter tower open.
3. Guide cable through the resulting hole.
4. Use the two screws M4 to fasten the light tower.
5. Guide the cable through the top opening of the melter tower and to the inside wall of the electrical cabinet.
6. Release the knurled nuts (4) from the *Cable duct* bracket (3). Slide the bracket up in the slot.
7. Guide the cable through the resulting hole and then through the cable ducts to the I/O board (2) in the electrical cabinet door.
8. Insert the light tower plug into X3 of the I/O board (6).
9. Use a cable tie to fasten the cable to one of the metal teeth (5) below the *Cable duct* bracket.
10. Slide the bracket down and tighten the knurled nuts.
11. Update configuration code: Box 20 = W. Refer to page 4-25, *Entering Configuration Code*. Nordson recommends indicating the change on the ID plate, too.

Page remains empty.

Connecting IPC to External PC

The controller (*IPC*) is equipped with a *Webserver*. This allows the bulk melter to be operated via a PC with HTML browser.

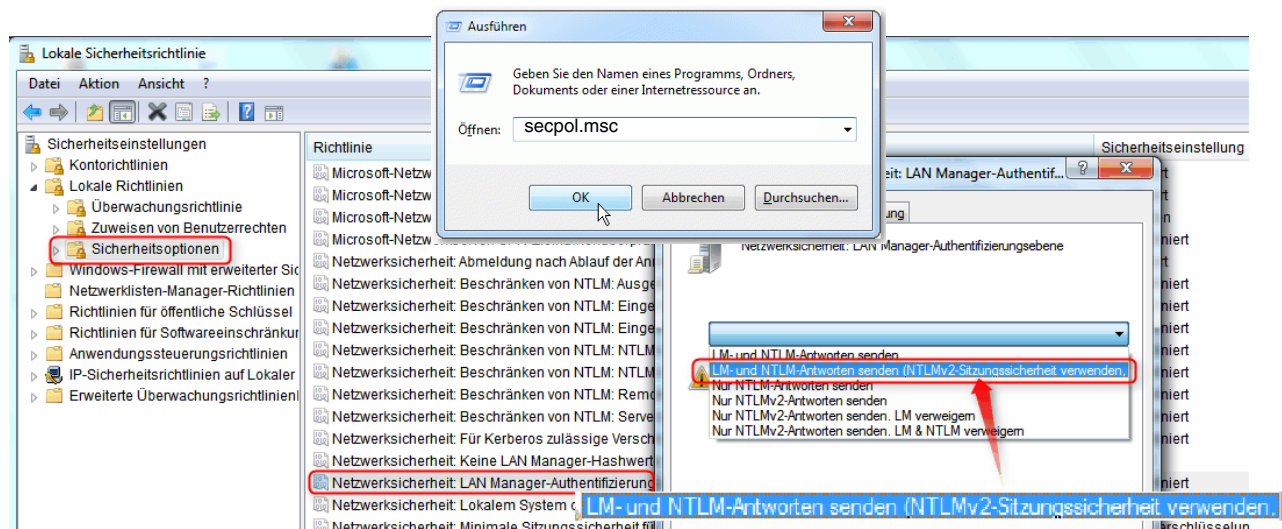
- Use an EtherNet crossover cable to connect. A cross-over cable (2 m) can be ordered under P/N 7197919 (Kit ACC VersaWeb).
- PC system requirements: Java Runtime Environment (Sun), version 1.1 or higher
- With *Windows® 7* operating system:
 - Open the start menu, enter *secpol.msc* in the search box and press ENTER.
 - Make the following settings:

Local Policies

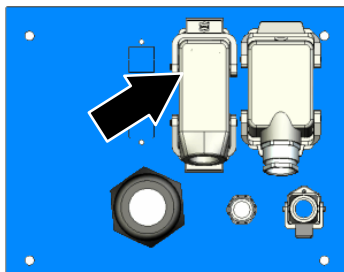
Securing Options

Network security: LAN Manager authentication level

Send LM and NTLM - use NTLMv2 session security if negotiated



Connecting

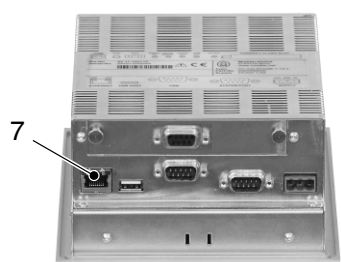
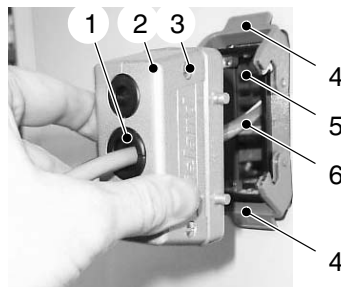


1. Make IP settings. Refer to page 4-18, *Making IPC IP Settings*.
2. Punch out perforated plate on the back of the electrical cabinet and remove.
3. Connect the Ethernet cable. Refer to page 3-24, *Connecting Ethernet Cable*.

Connecting EtherNet Cable



ATTENTION: Switch off the system with the main switch and disconnect from the line voltage.



1. Release the clamps (4) and pull the socket casing (2) off of the casing plate (5).
2. Screw the casing plate (5) onto the back of the electrical cabinet.
3. Release screws (3) and open socket casing.
4. Slide one of the sealing rings (1) onto the EtherNet cable (6).
5. Guide the cable through the socket casing, then insert the cable and sealing ring in the socket casing and secure with a cable clamp.
6. Guide free end of EtherNet cable through the casing plate.
7. Connect the EtherNet cable to the control panel (7). Refer to page 7-2, *Detaching Control Panel*.
8. Screw the two halves of the socket casing together again, put into place on the casing plate and secure with clamps.
9. Close the electrical cabinet.
10. Connect the free end of the EtherNet cable to the PC or to the control panel of the second bulk melter in an ACO system.



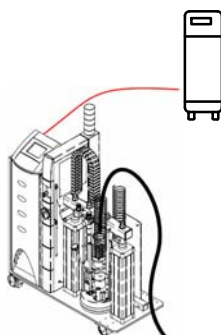
CAUTION: Lay the cable outside of the bulk melter such that there is no risk of stumbling over it.

11. Switch on the bulk melter again.

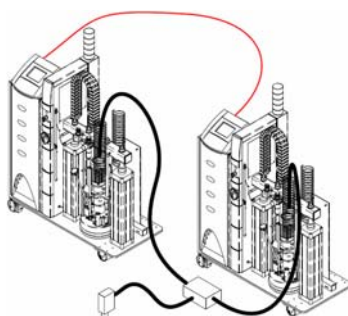


When two bulk melters are combined to form an ACO system, the IPCs of the two bulk melters are linked to one another in a similar way (Refer to page 3-19, *ACO Kit*). To also connect a PC to be able to use the Webserver, a *Switch* (1) must be used:

IPC - PC



IPC - IPC



IPC - IPC & PC

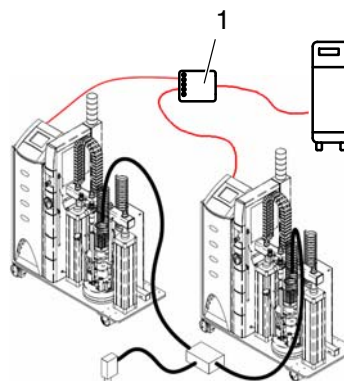


Fig. 3-4 Connection

Combining Two Bulk Melters to an ACO System

The ACO system enables continuous operation, with at least one bulk melter always active.

If the container of the bulk melter that was active first has been emptied to *Adhesive level low*, the second bulk melter is automatically heated up. For this to occur, the heaters must be switched on.

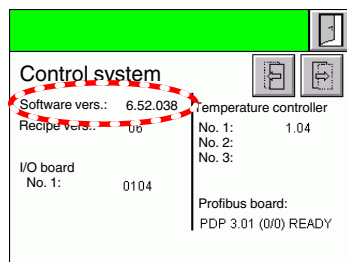
When the bulk melter that was active first reaches the status *Warning Container is empty*, the motor of the second bulk melter starts. Prerequisites:

- Motor is enabled
- Application group A is heated up
- Selector *Raise/lower platen* is set to *Lower*.

The pumps of both melters then run simultaneously for the time set as *Fault delay: Container is empty*.

When this time has elapsed, the bulk melter that was active first indicates the status *Fault Container is empty* and its motor stops. When the bulk melter's platen is raised out of the container, application group A of this bulk melter is deactivated or switched to standby.

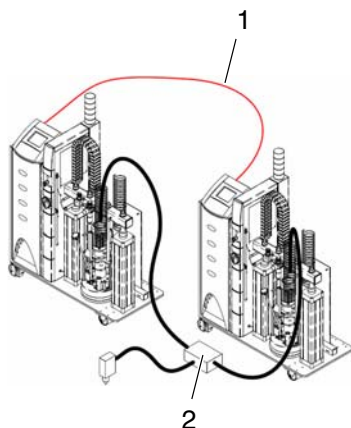
NOTE: For the *Automatic changeover* system to function properly, software version V6.52.038 or higher must be installed on both bulk melters. The software version is shown in the control panel screen V6.



V6



Replace the memory board, if necessary. Refer to page 7-3, *Replacing Memory Board*.



1. Make the IPC IP settings for both bulk melters. Refer to page 4-18, *Making IPC IP Settings*.
2. Connect the IPCs of the two bulk melters (1). Refer to page 3-19, *ACO Kit*.
3. Designate one bulk melter as the *Master* and one as the *Slave*. Refer to page 4-26, *Determining Master/Slave*.
4. Usual recommendation: Add the hoses between the bulk melters and manifold (2) in application group A to the respective bulk melter. Refer to page 4-36, *Working with Application Groups*.
5. Set the fault delay: container is empty. Refer to page 4-15, *Status When Container Empty*.

Note on Initial Startup

- The bulk melter that is to be active first must be activated manually. Refer to page [4-38](#), *Activating/Deactivating Bulk Melter Manually*.
- In an ACO system, the *Adhesive level low* indication of the active bulk melter activates application group A of the inactive bulk melter. If application group A is not heated up when the automatic change to the second bulk melter occurs: Refer to page [3-14](#), *Platen Position: Adjusting Switches*.

Bulk Melter as Filling System

Standard I/O (XS2) inputs 5 and 6 serve as control inputs for starting the pump with the system components to be filled (e.g. tank melters).

Prerequisites:

- The *Standard I/O* control option must be selected. Refer to page [4-16](#), *Selecting Control Options*
- *Control panel AND standard I/O* must be selected in control panel screen M2. Page [4-17](#), *Enable at Standard I/O Interface (XS2)*.

The *Automatic fill time* feature can be used as overflow protection. Refer to page [4-20](#), *Automatic Fill Time*.

Dismantling

1. Pump until the bulk melter is empty, then remove the container.
2. When the bulk melter will not be used for longer periods of time, purge with cleaning agent if necessary. Refer to page [5-7](#), *Purging with Cleaning Agent*.
3. Wipe off sealing ring and clean melting plate. Refer to page [5-7](#), *Cleaning Melting Plate*.
4. Disconnect all lines to the bulk melter, and allow bulk melter to cool.

Disposal

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

CAUTION: The fluorescent light for the control panel background lighting contains mercury.

CAUTION: With bulk melters built September 2010 and earlier: The fluorescent light for the control panel background lighting contains mercury. For information on the *Year of construction*, refer to page [2-3](#), *Year of Construction*.

Section 4

Operation



ATTENTION: Allow only qualified personnel to perform the following tasks. Follow the safety instructions here and in the entire documentation.

Control Panel Description

NOTE: The bulk melter can also be operated via the Webserver. The user interface is the same as the control panel. Refer to page 4-45, *Operation via the IPC Webserver*.

The control panel is a touch screen that graphically displays system components (e.g. *container, hose, applicator*) and operating elements (e.g. *keys, input fields*). Touch (*press*) the icons to operate. This will lead to other *Screens* of the control panel.

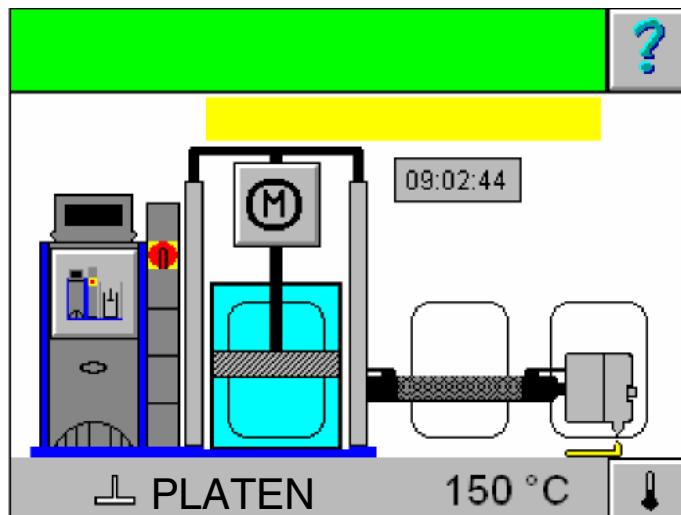
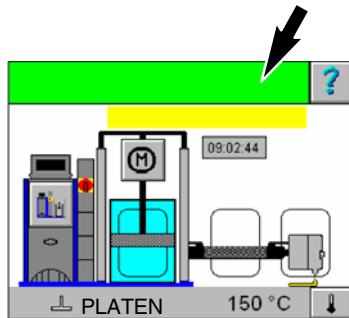


Fig. 4-1 Starting screen

NOTE: In this manual, control panel screens are designated with abbreviations, e.g. *V1* or *M3*. Refer to page 4-48, *Control Panel - Overview* - for the screen structure.

Elements of the Starting Screen



Status Display

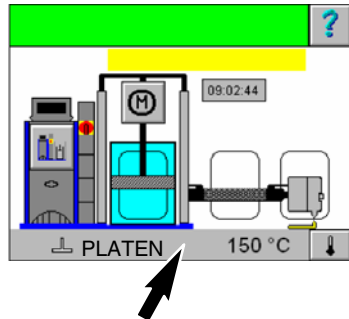
The current bulk melter mode is shown. Examples:

- *System ready*
- *Standby.*

Touching the status display leads to additional information on the respective status.

Meaning of Colors in the Status Display

Red:	Fault
Yellow:	Warning
Green:	Ready for operation



Scan Line

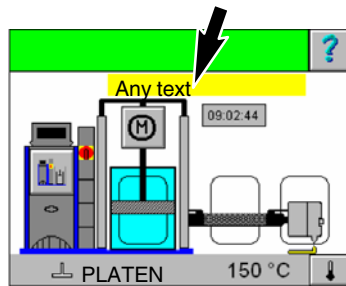
The scan line can show:

	The actual values of the activated temperature channels
	No function (no display)
	No function (no display)

To select, touch the key in the scan line until the desired category appears. The display of single values changes every three seconds.

Standard Symbols of Temperature Channels

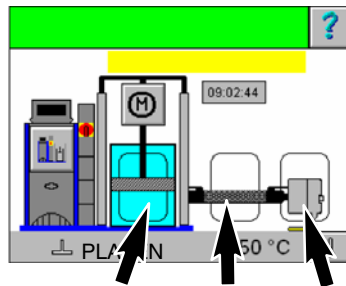
	Platen
	Pump
	Hose manifold (not standard on models built before February 2011)
	Hose
	Applicator



Information Line

Text can be determined by the customer, e.g. adhesive type used in the production line.

Refer to page 4-15, *Info Line: Entering Text*.



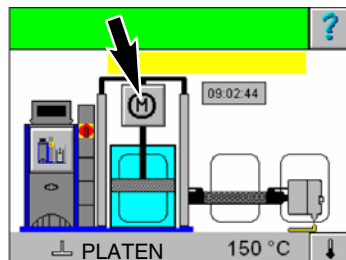
Container/Platen, Hose, Applicator Keys

Lead to control panel screens T..., . Examples:

- T1: Temperature setpoints
- T4: Controller characteristics.

Meaning of Container Colors

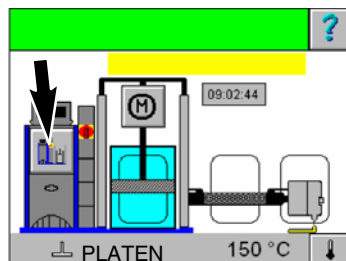
Gray:	Platen outside of container
Turquoise:	Platen in container
Yellow:	Adhesive level low (container almost empty)
Red:	Container is empty
White:	No container



Motor Key

Leads to control panel screens (M..), which directly or indirectly influence the motor's behavior. Examples:

- M1: Enable / switch on/off motor.
- M 6: Setting warning and fault values for pressure alarm monitoring.



Bulk Melter Key

Initially leads to the control panel screen V1 with the following keys:

-  Entering/exiting standby for all activated temperature channels. Also refer to page 4-14, *Standby*.
-  Enable / switch on/off motor. Also refer to page 4-16, *Selecting Control Options*.
-  Switch on/off heater for all activated temperature channels.
-  Switch on/off seven-day clock. Also refer to page 4-39, *Programming Seven-day Clock*.

Other Elements of the Control Panel

Input Window



- When a field for entering a name is touched, this input window appears.



- When a field for entering a numerical value is touched, this input window with the limits *Min.* and *Max.* appears.



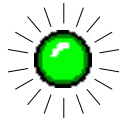
Backspace, delete



Confirmation, application of a value

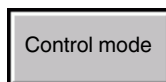
Function Keys

NOTE: If a feature (e.g. *Pressure control*) is available according to the bulk melter configuration but contradicts the feature currently selected on the control panel (e.g. *Speed control*), all of the keys relevant for the feature that is not selected will appear subdued.



Keys with Indication Lamp

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



Keys without Indication Lamp

The label indicates the status. In this case: The temperature channel is in control mode.

Navigation Keys



Calling up a help text



General information



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



To next/previous screen



Access other settings of the current screen



Confirmation, application of a value



Cancel

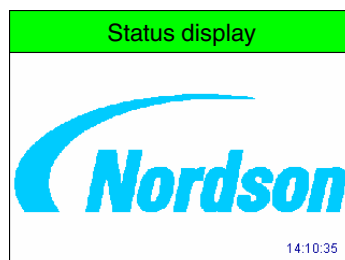


Page up/down



Increase/decrease value

Screen Saver



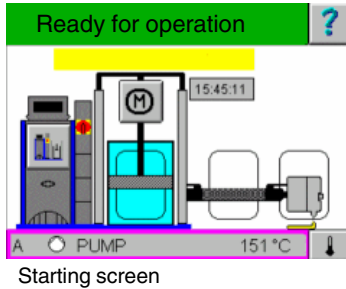
The screen saver is activated when the screen has not been touched for ten minutes. The background lighting is reduced.

To deactivate the screen saver, touch the screen and exit with the door symbol.

Initial Startup



ATTENTION: Wear hearing protection.



1. Set selector *Raise/lower platen* to 0.
2. Set the main switch to I/ON. The heaters are switched on.
3. Insert container. Refer to page 4-7, *Inserting and Replacing Container*.
4. Wait until the light tower lamp test is completed and the starting screen appears on the control panel.
5. Set values and parameters. Refer to page 4-13, *Setting Values and Parameters*.
6. Select control options. Refer to page 4-16, *Selecting Control Options*.
7.  The bulk melter that is to be active first must be activated manually. Refer to page 4-38, *Activating/Deactivating Bulk Melter Manually*.
8. Wait for *Ready* indication.
9. Enable and start motor/pump. Refer to page 4-16, *Selecting Control Options*.

NOTE: Refer to page 4-47, *Switching Bulk Melter ON/OFF* for information on daily operation.

Saving Values and Parameters

Set values and parameters can be saved as an external file (*Recipe*) with a PC. Refer to page 4-43, *Saving and Loading Recipes*.

Purging Bulk Melter

All features were tested before the bulk melter left the factory. Special test material was used. Material residue may still be present on the melting plate, in the pump, etc. To remove the residue, feed and then discard several kilograms of material before starting production.

Initial Maintenance

In the course of daily operation, heating and cooling can cause screwed parts to become loose, leading to leakage. Thus initial maintenance should be performed after the first day. Refer to page 5-5, *Initial Maintenance*.

Inserting and Replacing Container

CAUTION: Place only undamaged, suitable containers in the bulk melter; otherwise the platen sealing ring will be damaged. Refer to page 9-2, *Suitable Containers*. Always keep the base plate of the bulk melter clean so that the container is positioned straight.



ATTENTION: Risk of pinching parts of the body between platen and container. Ensure that, during operation, no one else is near the melter.



CAUTION: Risk of squash! When handling a full container, keep in mind that it is heavy.



In a few special situations (e.g. initial startup), it may be necessary to manually activate the bulk melter. Refer to page 4-38, *Additional Button*.

1. Raise platen (See below).
2. Set selector *Raise/lower platen* to *0/Stop*.
3. Place a new container under the platen. Fasten with the container clamp (when available).
4. Lubricate sealing ring. Refer to page 5-3, *Processing Materials*.
5. Lower platen. Refer to page 4-10, *Lowering Platen*.
6. Properly dispose of empty container according to local regulations.

Raising Platen



ATTENTION: Risk of burns! Hot material can splash out when the platen exits the container. Wear goggles and heat-protective gloves.

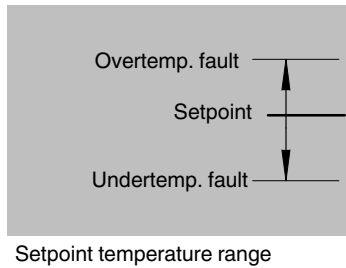


No Container in the Bulk Melter

1. Set selector *Raise/lower platen* to *Raise*.
2. Press both buttons on the two-hand control at the same time (within 0.5 seconds).

Container in the Bulk Melter

Platen Lift-up Protection



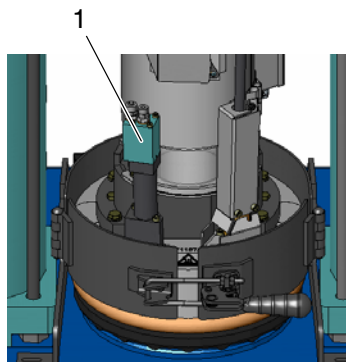
The platen cannot be raised until it is within the setpoint temperature range. The indication *Platen lift-up protection* appears. This protects the sealing rings from being damaged by charred material. To acknowledge the indication:

- Press both buttons on the two-hand control at the same time (within 0.5 seconds)
- or
- Set selector *Raise/lower platen* to *0*, then move it back to *Raise*.

Aerating Container

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

The air pressure in the container is limited to 1 bar (0.1 MPa / 14.5 psi) by a pressure restrictor valve.



Example: VersaPail



Box 17 = A (Automatic aeration):

The bulk melter is equipped with a valve (1) for automatic aeration:

1. Set selector *Raise/lower platen* to *Raise*. If the container also rises, use the feature *Aeration override*:
 - a. Set selector *Raise/lower platen* to *0*.
 - b. Press both buttons on the two-hand control at the same time (within 0.5 seconds) until the container is lowered again.

NOTE: The feature *Aeration override* is not standard on models built before September 2010. It can be added. Refer to page [3-20](#), *Aeration Override Feature*.

☐ Box 17 = X (Manual aeration):

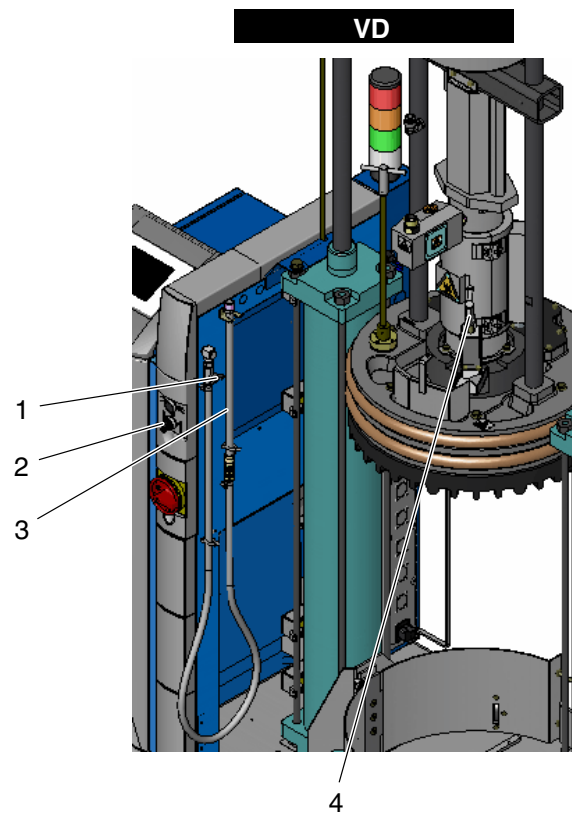
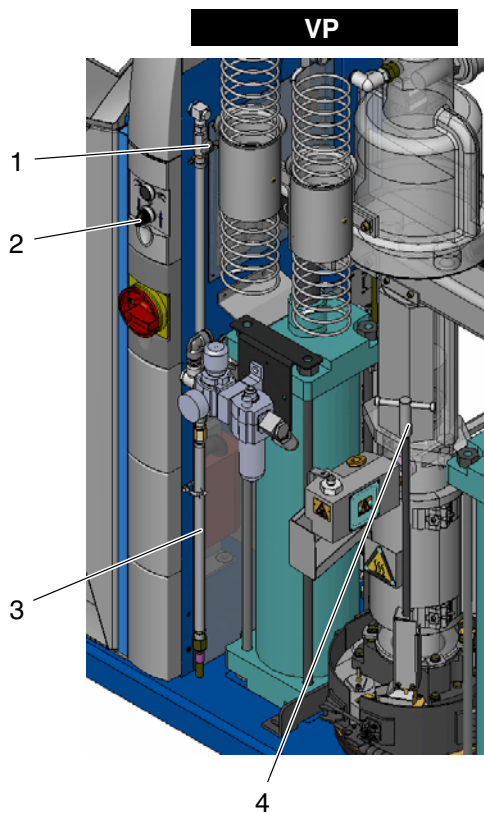


ATTENTION: Risk of injury! Do not use an external source of compressed air for aeration. Excessive pressure could damage the container or cause the platen to jerk.

1. Set the selector *Raise/lower platen* to *Raise* for 3 to 4 seconds to relieve material pressure under the platen.
2. Verify that the selector *Raise/lower platen* (2) is set to 0.
3. Screw the rod (4) out of the aeration connection.
4. Screw in the aeration tube (3).
5. Open the shutoff valve *Compressed air to aerate container* (1).
6. Set selector *Raise/lower platen* to *Raise*. If the container also rises, use the feature *Aeration override*:

NOTE: The feature *Aeration override* is not standard on models built before September 2010. It can be added. Refer to page 3-20, *Aeration Override Feature*.

- a. Set selector *Raise/lower platen* to 0.
- b. Press both buttons on the two-hand control at the same time (within 0.5 seconds) until the container is lowered again.



Lowering Platen



ATTENTION: Risk of burns! Hot material may flow out of the air relief valve. Wear goggles and heat-protective gloves.

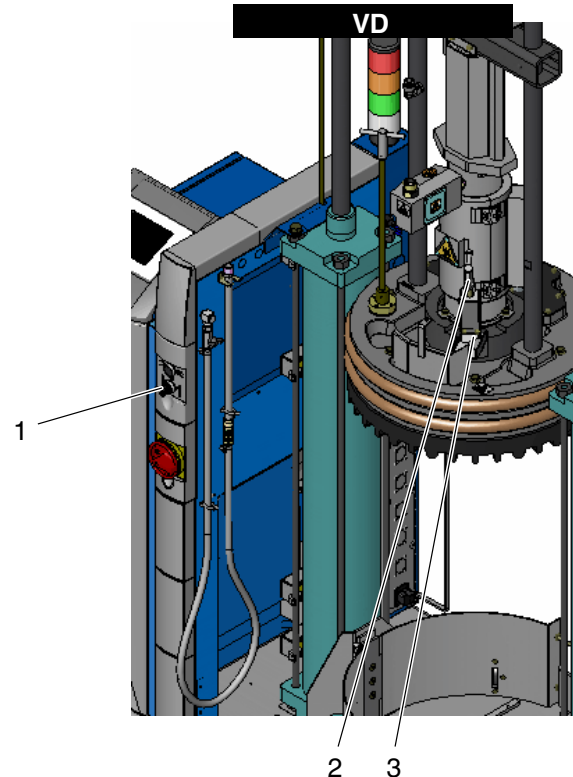
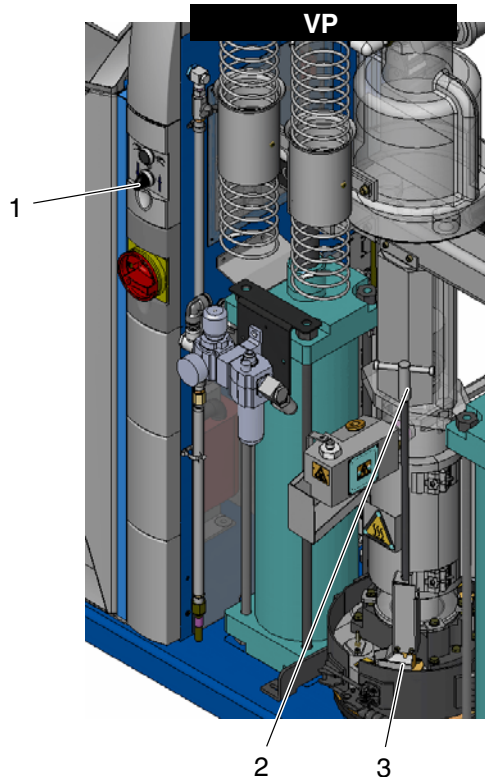


The container must always be deaerated when the platen is moved into the container. When the container is deaerated, the air that is under the platen escapes.

1. Set selector *Raise/lower platen* (1) to *Lower*.
2. Place a drip pan under the air relief valve (3).
3. Unscrew the rod (2) two to three revolutions to open the air relief valve.
4. Press both buttons on the two-hand control at the same time (within 0.5 seconds) until the platen is inside of the container. The downward motion continues on its own now.

CAUTION: If no air escapes from the air relief valve:

- Set selector *Raise/lower platen* (1) to *0* to cancel the process.
 - Clean air relief valve. Refer to page 5-12, *Cleaning Air Relief Valve*.
5. Close air relief valve when material flows out free of bubbles: Screw the rod back into place.
 6. Properly dispose of material according to local regulations.
 7. Relieve the pump of air. Refer to page 4-11, *Deaerating Pump*.



Deaerating Pump

The piston pump must be relieved of air upon initial startup and every time the container is changed. It is equipped with an air relief valve for this purpose.



1. Hang the drip pan under the air relief valve (1).
2. Open the air relief valve.
3. Set the motor/pump to medium output quantity and switch on.
4. Wait until material flows out free of bubbles.
5. Close the air relief valve.
6. Properly dispose of material according to local regulations.



Setting Working Pressure



6 bar / 0.6 MPa / 87 psi

When needed, change the setting on the pressure control valve:

- Increase pressure for high-viscosity (ropy) materials
- Decrease pressure for low-viscosity (liquid) materials to max. 3 bar
- Set the working pressure to 0 bar for maintenance and repair work near the platen. Refer to page [5-2](#), *Relieving Air Pressure to Pneumatic Cylinders*.

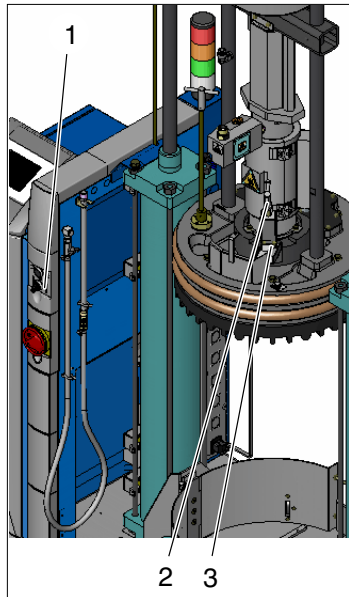
Filling Piston Pump with High-viscosity Material for the First Time



CAUTION: Filling a new or emptied piston pump with highly viscous material under pressure (approx. 1.5 MPas) can cause the pump to leak.

To prevent this:

1. Set the temperature setpoint for all bulk melter heating zones to 160 °C. Refer to the bulk melter manual, page 4-26, *Setting Temperature Parameters*.



2. Set the air pressure for the air motor to 0 bar on the maintenance unit.

When all heating zones have reached the setpoint:

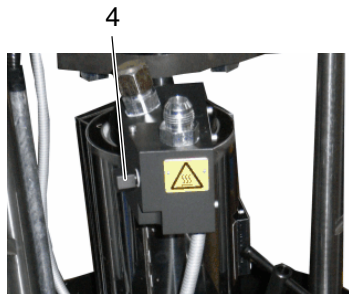
3. Set selector *Raise/lower platen* (1) to *Lower*.
4. Screw the rod out of the aeration connection on the platen to bleed the drum.
5. Open the pump air relief cock.

If material escapes through the air relief valve:

6. Set selector *Raise/lower platen* to *0*.
7. Screw the rod all the way back into the aeration connection.
8. Clean air relief valve.
9. Trigger the solenoid valve to supply air to the pump. The stroke movement fills the pump with material.
10. On the maintenance unit, increase the air pressure slowly from 0 bar to 3 bar over a span of approx. 45 minutes.

If material escapes through the air relief cock:

11. Close the air relief valve (4).
12. Set the temperature setpoint for all bulk melter heating zones to the material processing temperature.
13. Set working pressure.



Setting Values and Parameters

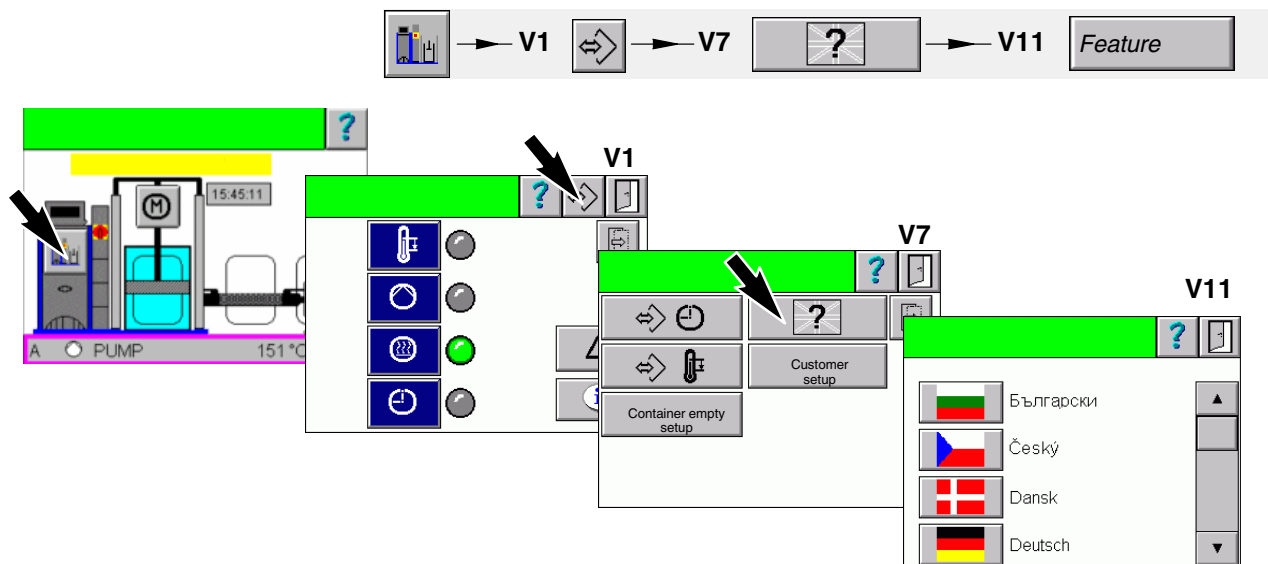
Notes

- Settings on the control panel can be saved as *Recipe*. Refer to page 4-43, *Saving and Loading Recipes*.
- Settings can be returned to their defaults. Refer to page 4-24, *Restoring Default Settings*.

Basic Settings

Language

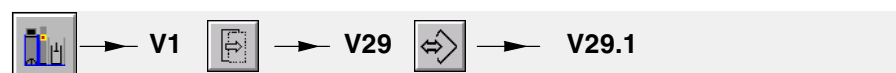
Selected in control panel screen V11:



Defining Application Groups

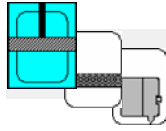
It is advantageous or necessary to define application groups in these cases:

- In an application system in which several application branches/lines are to be operated independently of one another.
- In an ACO system.



Refer to page 4-36, *Working with Application Groups*.

Temperatures



Refer to page 4-27, *Setting Temperature Parameters*.

Standby



NOTE: Set the standby value (value by which the setpoint temperature is reduced) on the control panel screen T2. Refer to page 4-29, *Limits*.

NOTE: Standby can be entered and exited at any time:

- By the operator on the control panel 
- Via the interface *Standard I/O*
- Via the seven-day clock.

Automatic enter standby after motor stop	60 min	Disabled
Manual standby duration	60 min	Enabled

V9

Automatic Enter Standby After Motor Stop

Enabled:

Standby is entered as soon as the motor has been stopped for a certain time.



Disabled (60 min if enabled)

Manual Standby Duration

Enabled:

Standby is exited automatically. After the set time has expired, the unit automatically returns to heatup guided by reference channel.



Disabled (60 min if enabled)

Week Timer

Heaters and standby can be controlled via the seven-day clock. Up to four schedules that run at the same time can be stored for each day of the week.

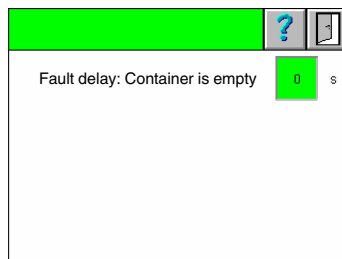
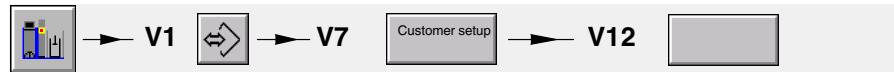


Refer to page 4-39, Programming Seven-day Clock.

NOTE: The seven-day clock can be switched on/off in control panel screen V1 with .

Information Line: Entering Text

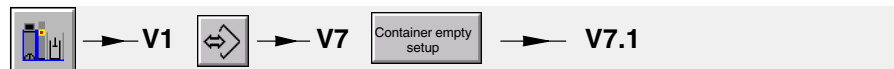
Text can be determined by the customer, e.g. adhesive type used in the production line. Appears in the information line of the starting screen. Refer to page 4-3, Info Line.



V7.1

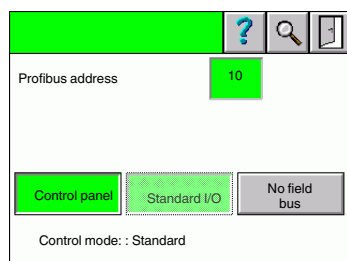
Status When Container Empty

The *Fault delay: Container is empty* is the time that elapses between the status *Warning Container is empty* and the status *Fault Container is empty*. If the time is 0 sec, the status *Fault Container is empty* is indicated immediately.

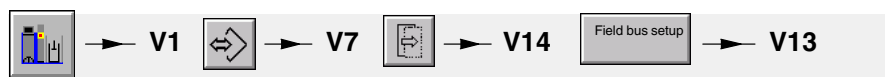


Both bulk melters feed material during this time. If the time is set to 0 s, the status *Fault Container is empty* immediately appears and the bulk melter is immediately changed.

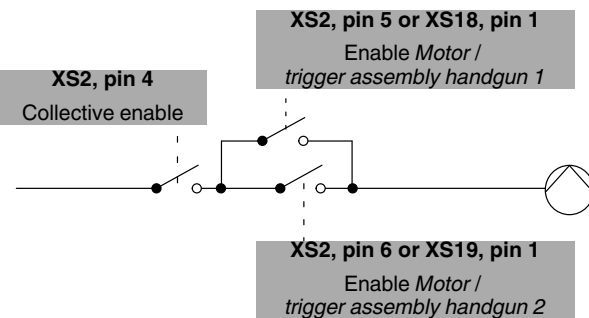
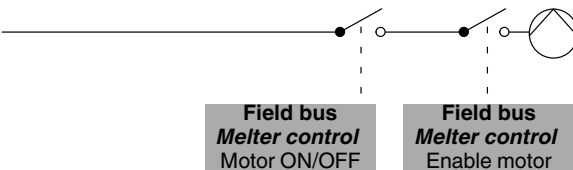
Selecting Control Options



V13 (original state)

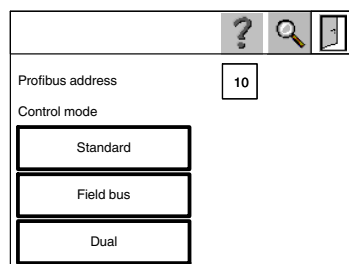


Various control options can be switched on and off separately. Each option selected poses its own conditions for *Motor running*:

Control option	Conditions for <i>Motor running</i>
 The bulk melter can be operated via the control panel / IPC Webserver	 V1 M1
 Input signals at the <i>Standard I/O</i> interface are processed Processing of the input signals <i>Collective enable</i> and <i>Enable motor</i> can be switched separately. Refer to page 4-17, <i>Enable at Standard I/O Interface (XS2)</i>	 XS2, pin 4 Collective enable XS2, pin 5 or XS18, pin 1 Enable Motor / trigger assembly handgun 1 XS2, pin 6 or XS19, pin 1 Enable Motor / trigger assembly handgun 2
 The bulk melter can be operated via field bus signals.	 Field bus Melter control Motor ON/OFF Field bus Melter control Enable motor

NOTE:

- Not all combinations are possible
- With bulk melters with software < 5.02.004, only the following combinations (called *Control mode*) can be selected:



V13 (software < 5.02.004)

Control options	Control mode
  	Standard
  	Field bus
  	Dual

Enable at Standard I/O Interface (XS2)

If the motor is also to be enabled via the *Standard I/O* interface or the bulk melter is to be operated with assembly handguns:

Change from *Control panel* to *Control panel AND standard I/O*:



Exchange of the remaining signals is not affected by the setting.

Also refer to page 3-7, *Connecting Standard I/O Interface*.

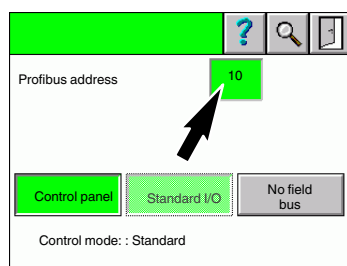


The *Standard I/O interface* (XS2) of the master in an ACO system controls both bulk melters. This means that the slave can not and need not be changed to *Control panel AND standard I/O*.

Field Bus

☐ Box 22 $\neq$ X

NOTE: Also refer to the separate manual *Field Bus on Nordson Melters with IPC*.



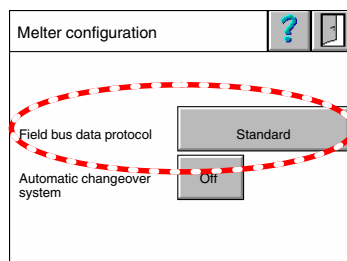
V13 (Profibus)

Profibus Address



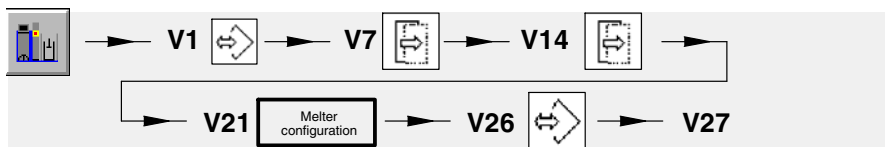
☐ Box 22 = D

Set field bus address



V27

Selecting Field Bus Data Protocol



CAUTION: The type of protocol selected on the control panel must correspond to the implementation on the master; the type may not be changed during field bus operation. Also refer to the separate manual *Field Bus on Nordson Melters with IPC*.



Making IPC IP Settings

?	
IPC IP address	192.168.0.99
Subnet mask	255.255.255.0
Gateway address	
Changes in this screen cause the IPC to re-boot by itself.	
✓	✗

V24



IPC IP address: 192.168.0.99

Subnet mask: 255.255.255.0

Gateway address: *Blank* (not a required field). Also refer to page 4-19, *Requesting IPC IP Address via DHCP.*

NOTE: These settings are necessary in the following cases:

- A. To communicate with the IPC when using the Webserver. They must be clearly defined in an Ethernet network.

☐ Box 22 = E:

The field bus interface *EtherNet/IP* has its own network address, set by hand on the *Gateway*. Also refer to the separate manual *Field Bus on Nordson Melters with IPC*.

Default of Nordson EtherNet/IP adapter (*Gateway*): IP address 192.168.0.98.

- B. For communication of two bulk melters in an ACO system.

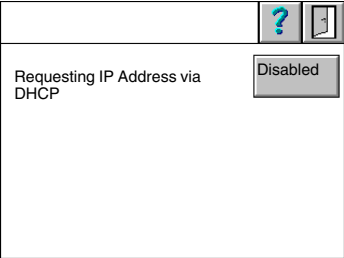
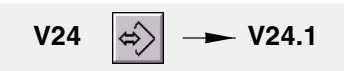


Observe the following:

- The Subnet mask must be the same for both bulk melters
- The IPC IP address of the two bulk melters may - and must - be different only in the part that is not masked by the Subnet mask.

Example:

Subnet mask	255.255.255.0
IPC IP address <i>Bulk melter 1</i>	192.168.0.99
IPC IP address <i>Bulk melter 2</i>	192.168.0.100



V24.1

Requesting IPC IP Address via DHCP

NOTE: Available with software version 6.00.000 and higher.

DHCP: The Dynamic Host Configuration Protocol is a method for automatically assigning IP addresses.

If this feature is enabled (*Obtain an IP address via DHCP: Enabled*), the IPC requests an IP address from the server. The assigned IPC IP address, the Subnet mask and the gateway address of the intranet are displayed, but they cannot be changed.



Request IP address via DHCP: Disabled

Deleting Gateway Address

When a gateway address has been assigned (whether manually or via DHCP), 0.0.0.0 must be entered to delete it again. When *Requesting IP address via DHCP* has been enabled, initially set this feature to *Not enabled*. The field is empty again after booting.

Motor

For information on starting the motor, refer to page 4-16, *Selecting Control Options*.

To set the output quantity, refer to page 2-21, *Controlling Material Quantity and Pressure*.

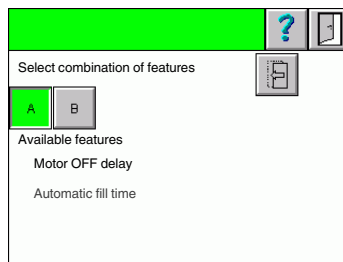
Automatic Fill Time

If this feature is activated, the motor stops when the set time has elapsed.

Examples of applications:

- Overflow protection
- Time-dependent material application

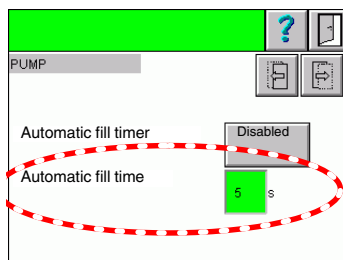
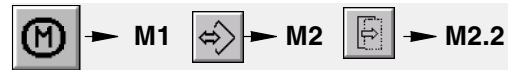
Setting range: 0 to 99 s.



M2.2

Activating Function

NOTE: The feature can not be activated along with certain other features. A suitable *Feature combination* (A, B, ..) must be selected in the control panel screen M2.2.



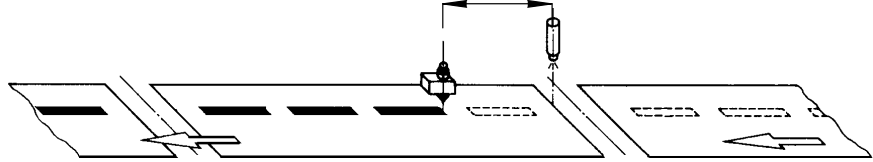
M5

Adjusting Fill Time



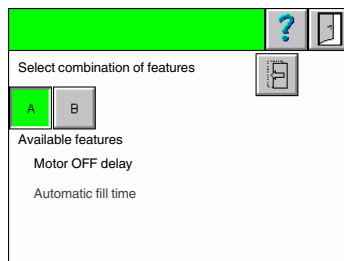
Motor OFF Delay

The motor OFF delay supports overtravel when identifying the product, if the sensor distance to the applicator needs to be considered:



If this feature is not activated or the delay = 0 s, the motor stops as soon as it is switched off.

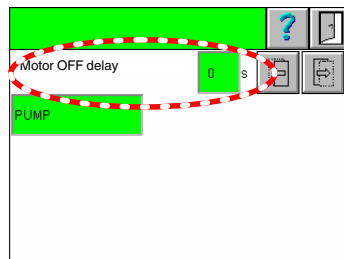
If this feature is activated, the motor continues to run for the set time after it has been turned off via the interface *Standard I/O*.



M2.2

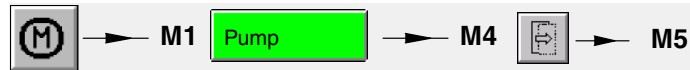
Activating Function

NOTE: The feature can not be activated along with certain other features. A suitable *Feature combination* (A, B, ..) must be selected in the control panel screen M2.2.



M4

Setting Delay

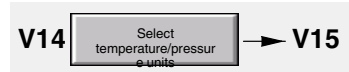
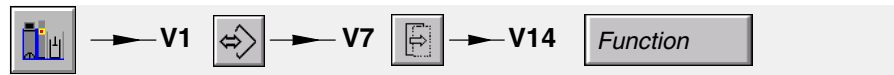


NOTE: If the motor is switched on via the *Standard I/O* interface before the motor OFF delay has expired, the *Motor OFF* delay ends immediately.



0 s

Additional Settings (V14)



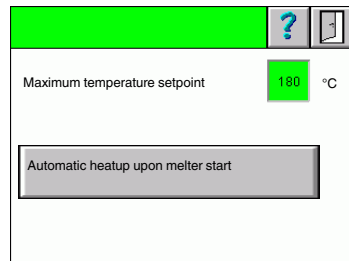
Units

- Temperature: Select °C or °F. °C
- Pressure: Select bar, psi or kPa. bar



Maximum Temperature Setpoint

This parameter is used to adapt the bulk melter to the maximum material processing temperature permitted. Then no higher setpoint can be set for any channel.



V14.2

	Box 12 = L	Box 12 = M	Box 12 = H
	150 °C (300 °F)	180 °C (350 °F)	230 °C (450 °F)

Automatic Heatup upon Melter Start

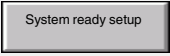
NOTE: Available with software version 6.00.000 and higher.

The bulk melter can be switched on without the heaters being automatically switched on.

To do this, switch to *Automatic heatup upon melter start blocked*. The bulk melter does not begin to heat up until the command is given.

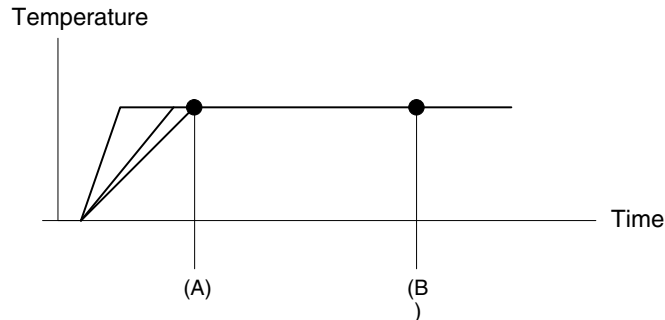


Automatic heatup upon melter start.

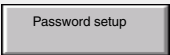
V14  → V17

Ready Delay

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



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

 0 min
V14  → V18

Passwords and Security Level

Refer to page 4-41, *Passwords and Security Level*.

If no keys are touched for 10 minutes after accessing a feature protected by password, the selected password protection becomes active again. Then the password prompt appears again for password-protected features.

V14  → V14.1

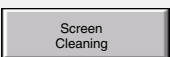
Brightness

50% or 100% can be selected

V14  → V16

Service Interval

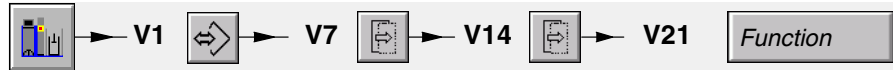
When the *Service interval* time defined by the customer has expired, the service symbol (open-end wrench) lights up on the starting screen.

 500 h (total hours with heaters on)
V14  → V20

Screen cleaning

The screen can be cleaned until the time shown has expired, without accidentally triggering any features. An indication is issued when the time has expired, and 10 s later the previous screen appears again.

Additional Settings (V21)



Restoring Default Settings

All parameters are returned to the Nordson default settings.

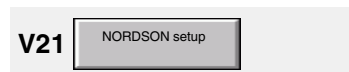
Exceptions:

- Brightness
- Date and time
- Local language
- IPC IP address and Subnet mask
- Assignment as master or slave in an ACO system
- PROFIBUS address
- Passwords
- Selected line speed signal and all values based on the line speed signal
- Customer text and other free texts, such as names of temperature channels, etc.
- Alarm history
- Counter (total hours with heaters on)
- Application groups
- The state of the bulk melter (activated/deactivated) in an ACO system
- Feature for switching application groups
- Settings in the screens *Melter configuration* (V26, V27).



Making IPC IP Settings

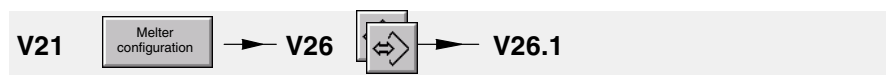
Refer to page [4-18](#), *Making IPC IP Settings*.



Protected Settings

Only for Nordson employees with the Nordson password.

Entering Configuration Code



V26.1

If the memory board was replaced or the configuration code has changed due to a modification, the bulk melter's configuration code must be communicated to the IPC.

NOTE: The configuration code can be found on the ID plate. Refer to page 2-3, *ID Plate*. An *E* instead of the - in box 6 means that the equipment differs from the configuration code. In this case the Software configuration code must be entered. It is shown on the first page of the manual (blue binder).

1. First enter the configuration code under *Configuration code*.

NOTE: The options are shown in the configuration code following the slash. If no options or no additional options are entered, the software automatically places an X in the remaining positions.

2. Enter the configuration code under *Confirm configuration code* again.

If the two codes entered are the same, the key  to confirm is enabled. After confirmation, the system returns to the control panel screen V26.

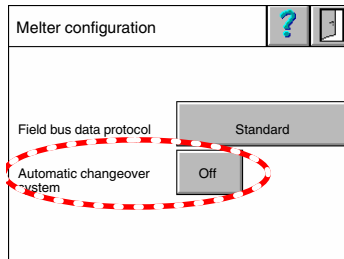
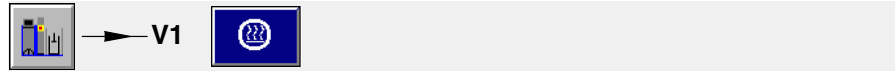
3. Touch  to save the configuration on the memory board.

V26

Determining Master/Slave

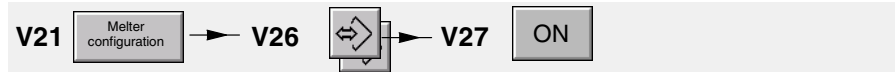


1. Switch off the heaters on both bulk melters:



V27

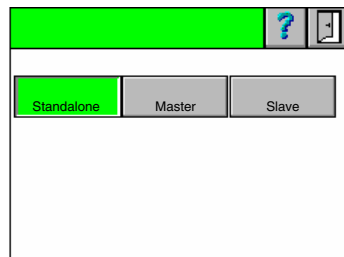
2. Switch on the ACO system in both bulk melters involved.



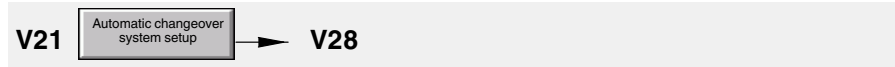
3. Touch the key  to return to control panel screen V26.

4. Touch  to save the setting on the memory board.

5. Designate one bulk melter as the *Master* and one as the *Slave*:



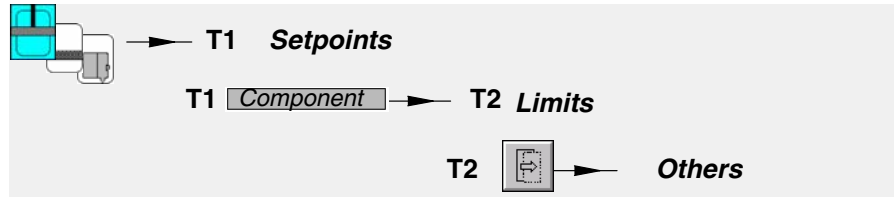
V28



NOTE: The setting must be made on both bulk melters within 60 s.

Standalone	Bulk melter is not part of an ACO system
Master	In an ACO system, set one bulk melter as <i>Master</i> and one as <i>Slave</i>
Slave	

Setting Temperature Parameters

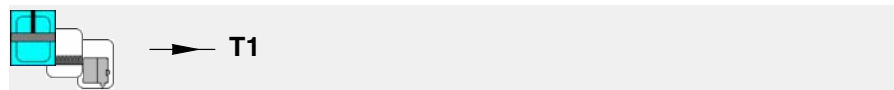


Also refer to page 2-20, *Temperature Control* and page 4-33, *Graphic Presentation of Temperature Parameters*.

CAUTION: The temperature setting is determined by the processing temperature prescribed by the material supplier. The maximum operating temperature for the system and heated components described here may not be exceeded.

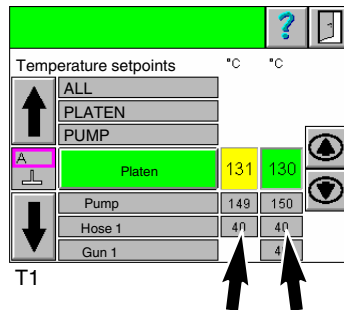
Nordson will grant no warranty and assume no liability for damage resulting from incorrect temperature settings.

Setpoints



NOTE: The maximum setpoint that can be set may be limited. Refer to page 4-22, *Maximum Temperature Setpoint*.

Display



Left temperature column: Actual values
Right temperature column: Setpoints

Display	Meaning
Only actual values	Channel is activated and in display mode
Only setpoints	Channel is deactivated
Setpoints and actual values	Channel is activated and in control mode

Also refer to page 4-31, *Activate Channel, Mode, Controlled System Heating Rate*

NOTE: If an actual value has a white background instead of yellow, the channel is in standby.

Default Temperature Setpoints

	 Box 12 = L	 Box 12 = M	 Box 12 = H
Platen, pump and hose manifold	135 °C (275 °F)	150 °C (302 °F)	150 °C (302 °F)
All other channels	40 °C (104 °F)	40 °C (104 °F)	40 °C (104 °F)

Recommended Setpoints

Platen, pump and hose manifold	Prescribed processing temperature (Material quantity used < 50 g/min: up to 10 °C / 18 °F below prescribed processing temperature)
Applicator (accessory)	Prescribed processing temperature
Hose (accessory)	Prescribed processing temperature

Adjusting Setpoint

A.

1. Select the components with the  keys

2. Adjust the setpoint with the  keys
OR

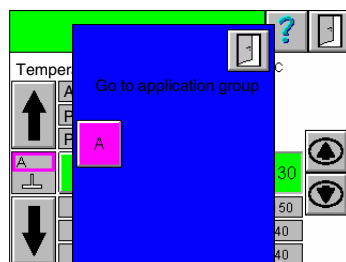
1. Touch the green field in the right temperature column (setpoints)
2. Enter the value in the input window and confirm with .

B. Instead of a single component, the following groups can be selected:

- **ALL:** All temperature channels receive the same setpoint.
- **ALL HOSES / ALL GUNS:** All temperature channels in the respective group receive the same setpoint.

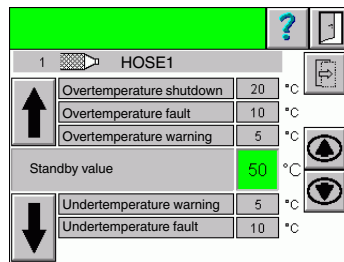


If all of the temperature channels or all temperature channels of a group do not already have the same setpoint, a keyboard symbol is visible instead of a setpoint. Touch symbol and set temperature with the input window.

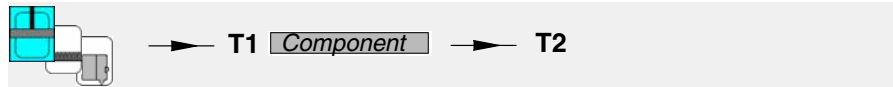
C. If application groups have already been defined (Refer to page 4-36, *Working with Application Groups*), it is possible to jump to the first temperature channel of an application group:

1. Touch the *Channel symbol/number* key (example ). A window opens.
2. Touch the group key to move to the first temperature channel of the selected application group.

Limits



T2



NOTE: The temperatures in this screen are differential values.

Standby Value

Standby temperature = Temperature setpoint - Standby value	50 °C (90 °F)

The minimum standby temperature is 0 °C (100 °F), even if the selected settings would (mathematically) permit it to be lower.

NOTE: Refer to page 4-14, *Standby* for more standby settings.

Alarm Values

Also refer to page 6-6, *Triggering and Resetting Alarms* and page 4-34, *Monitoring of Heatup and Cooling*.

Warning and Fault

Warning <i>Undertemperature</i> = Temperature setpoint - Undertemperature warning	20 °C (36 °F)
Fault <i>Undertemperature</i> = Temperature setpoint - Undertemperature fault	25 °C (45 °F)
Warning <i>Overtemperature</i> = Temperature setpoint + Overtemperature warning	5 °C (9 °F)
Fault <i>Overtemperature</i> = Temperature setpoint + Overtemperature fault	10 °C (18 °F)

NOTE: If the heated platen is lowered onto the cold material, it will cool off, the degree of which is a factor of the processing temperature and material. This may trigger the fault or warning *Undertemperature*. If this happens, increase the alarm value. Observe the following:

- A *Warning* value cannot be greater than the respective *Fault* value. Thus the *Fault* value should be increased first.

Shutdown

Overtemperature shutdown = Temperature setpoint + Overtemperature fault + 10 °C / 20 °F, at the latest when maximum value is reached		
Maximum value		
☐ Box 12 = L	☐ Box 12 = M	☐ Box 12 = H
165 °C (330 °F)	195 °C (385 °F)	245 °C (475 °F)

Example (Box 12 = H):

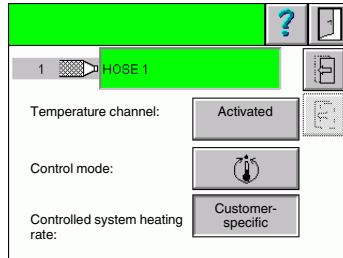
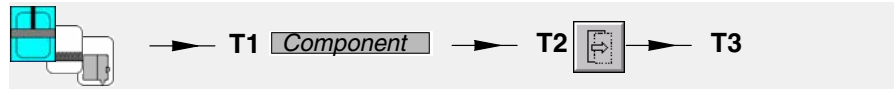
- Temperature setpoint = 170 °C (338 °F)
- Overtemperature fault = 60 °C (108 °F)

This results in

- Fault *Overtemperature* at 230 °C (446 °F)
- Overtemperature shutdown at 240 °C (464 °F)

During operation the operator increases the setpoint to 190 °C (374 °F); leaving the value *Overtemperature fault* 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).

Activate Channel, Mode, Controlled System Heating Rate



T3

Temperature Channel: Select Activated/Deactivated

Deactivated

A deactivated channel is not heated. Temperature control and monitoring for faults do not take place. Exception: Overtemperature shutdown at fixed temperature.

Activated

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



Deactivated

NOTE: Temperature channels for platen, pump and hose manifold cannot be deactivated.



Exception: In an ACO system, the platen, pump and hose manifold are automatically included in group A. This group can be deactivated.

Control 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 fixed temperature.

NOTE: Temperature channels for platen, pump and hose manifold as well as grouped channels cannot be switched to display mode.



Control Mode

The PID control algorithm is used for the selected controlled system heating rate, e.g. *Normal*, in control mode.



Control mode

Controlled System Heating Rate

NOTE: The setting *Normal* generally does not need to be changed. It can not be changed for platen, pump and hose manifold.

There are fixed parameter sets for the first four types.

Type	Suitable for
Slow*	Temperature channels that heat slowly
Normal	Hose, gun
Fast **	Temperature channels that heat quickly
Very fast	Air heater
Customer-defined	Refer to below: <i>Controlled System Heating Rate: Customer-defined</i>

* To be set if heating the last 5 °C (9 °F) up to the setpoint takes too long (possible with a very high temperature setpoint)

** To be set if the temperature swings above the setpoint during heatup (possible with a very low temperature setpoint)



Normal

Controlled System Heating Rate: Customer-defined

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.

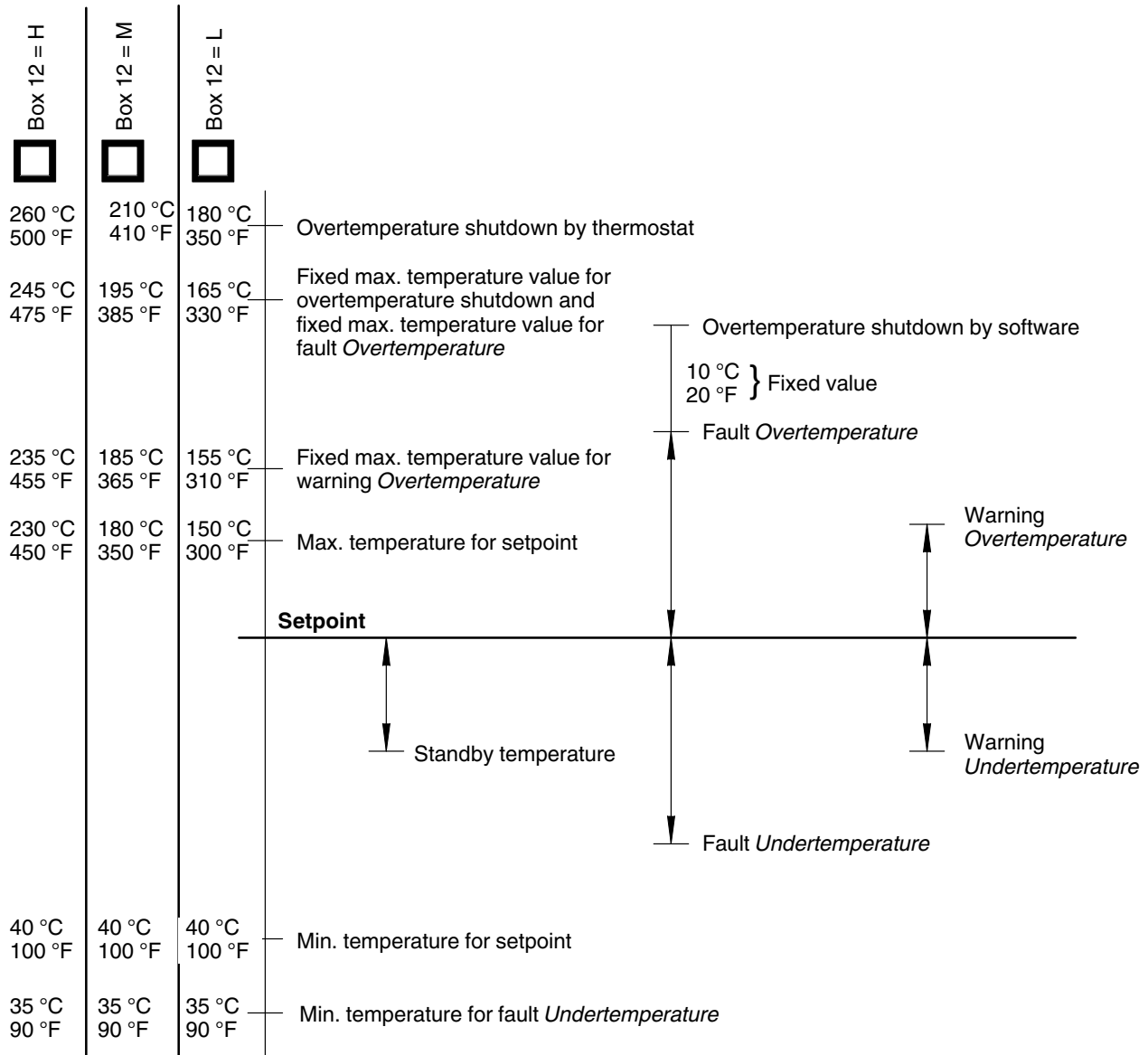
NOTE: The I-component can be deactivated with the value 0.

The control band is the +/- range around the temperature setpoint. Above the band the heater is always off, and below the band the heater is always on.

Recommended control band: 5 °C (9 °F)

For orientation purposes, the parameter set of one of the four controlled system heating rates can be loaded. Then individual values can be adjusted.

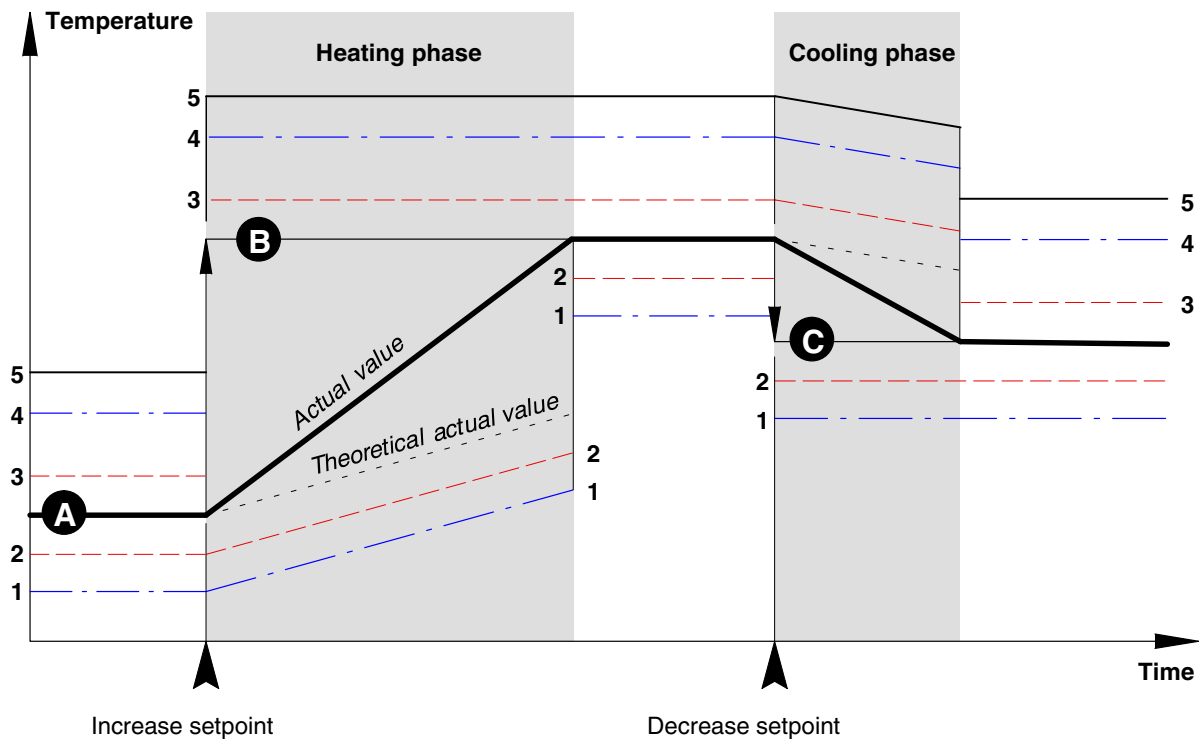
Graphic Presentation of Temperature Parameters



Monitoring of Heatup and Cooling

The undertemperature alarm values are not a factor of the setpoint during the heatup phases of the individual temperature channels. They are based on a theoretical actual value. This causes an alarm to be triggered when the heatup phase is longer than anticipated.

The same applies to the overtemperature alarm values during the cooling phases.



- 5 ——— Overtemperature Shutdown
- 4 - - - Overtemperature fault
- 3 - - - Overtemperature warning
- 2 - - - Undertemperature warning
- 1 - - - Undertemperature fault

- *Actual value*
- *Actual value*
- - - *Theoretical actual value*
- - - *Theoretical actual value*
- A B C** Setpoints

Alarm

Refer to Fig. 4-2: If the actual value of a temperature channel is less by the undertemperature *Warning* ● than the theoretical value ○ that it should have at least reached after time X, an undertemperature warning is issued.

If the actual value of a temperature channel is less by the undertemperature *Fault* ● than the theoretical value ○ that it should have at least reached after time Y, an undertemperature fault is issued.

The same applies accordingly to the cooling phase.

This has the advantage that

- Changing the setpoint
- Switching on cold application groups
- Connecting cold or heated temperature channels to the hose receptacles

can occur during operation without triggering undertemperature or overtemperature fault/shutdown, which would cause interruptions in production.

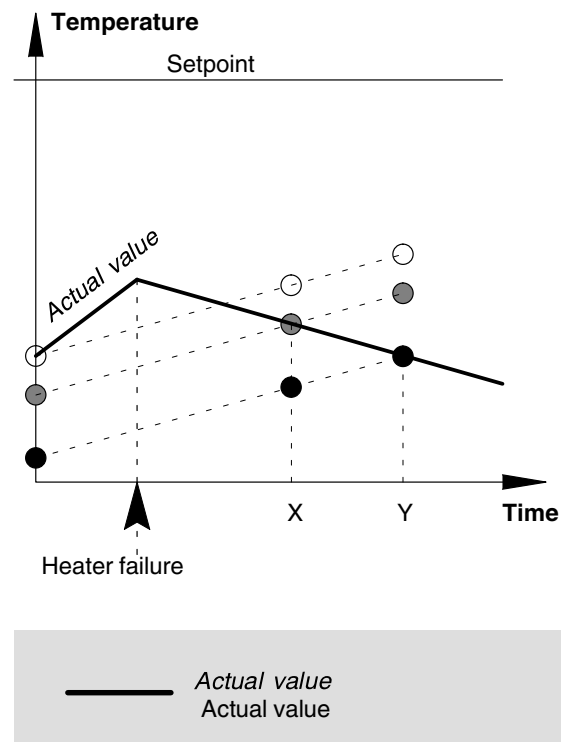
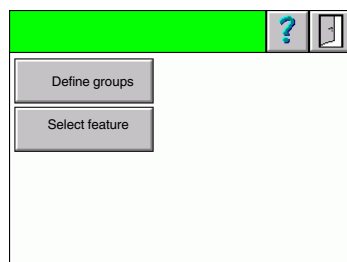


Fig. 4-2 Example of Alarm during heatup phase

Working with Application Groups



V29.1

Temperature channels can be combined to application groups A to H. Channels not assigned to any group belong to *No group*.

Such a group (and thus all temperature channels included in the group) can be switched between activated and deactivated/standby.

NOTE: The following temperature channels can not be assigned to a group:

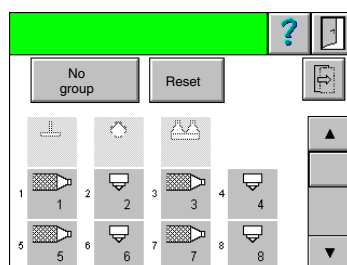
-  Platen
-  Pump
-  Hose manifold (not standard on models built before February 2011)



In an ACO system, the platen, pump and hose manifold are automatically included in group A.

Defining Groups

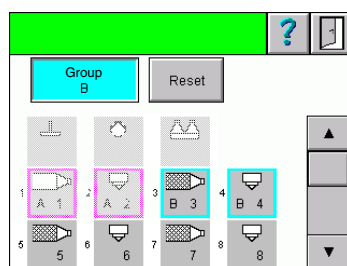
NOTE: The *logical* channel numbering can change when the groups are defined. Refer to page 4-38, *Channel Numbering*.



V30

1. Touch the key *No group* until the group to which channels are to be assigned (A, B, ...) appears.
2. Touch a channel key to assign it to a group. The assignment is indicated by a frame in the color of the group.
3. A different symbol can be assigned to the channel by touching the key again. This makes sense when, instead of hose and applicator, other components are connected:

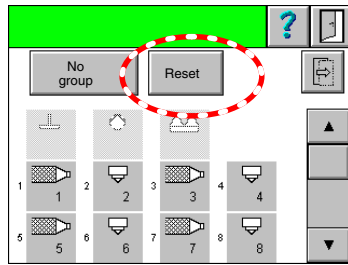
-  Hose
-  Applicator
-  Air heater
-  Tank or other



Example: Group B

NOTE: Reverting to the original symbol removes the channel from the group, and it may need to be reassigned.

Dissolving Groups



V30

Touch the *Reset* key to dissolve all groups and reset the channel symbols. However, the PID parameters remain unchanged.

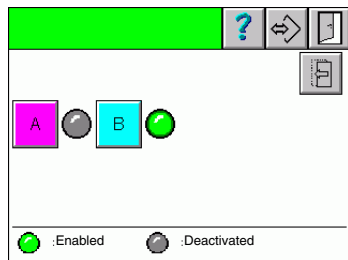


Group A remains intact in an ACO system.

Activating or Deactivating Groups / Standby



NOTE: The keys  *Heaters on/off* and  *Standby* in the control panel screen V1 take precedence over the keys for individual groups. They switch all of the connected components.

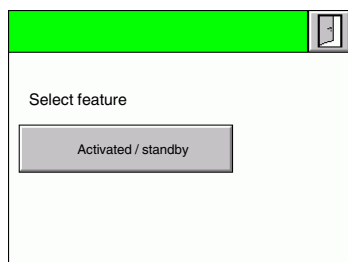
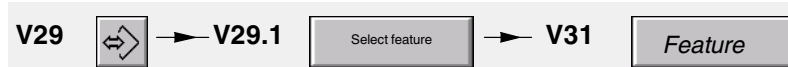


V29

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

NOTE: *Standby* or *Deactivate* is dependent on the feature selected:

Select Feature: "Deactivate" or "Standby"



V31

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 fixed maximum temperature:

Maximum value		
☐ Box 12 = L	☐ Box 12 = M	☐ Box 12 = H
165 °C (330 °F)	195 °C (385 °F)	245 °C (475 °F)

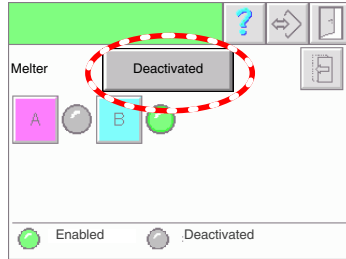
Standby: The temperature channels in this application group are lowered by the standby values set in the temperature parameter screen.

Activating/Deactivating Bulk Melter Manually

NOTE: Available with software version 5.05.007 and higher.



In an ACO system, the bulk melter that is to be active first must be activated manually upon initial startup:



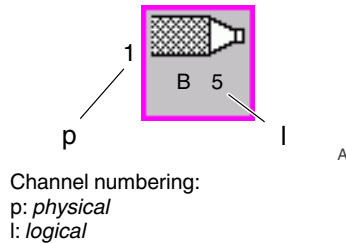
A. Switching from *deactivated* to *activated*:

- Group A is activated
- The motor can be started (when the other requirements have been met).

B. Switching from *activated* to *deactivated*:

- The motor cannot be started.
- Group A remains activated until the platen has been raised out of the container. This protects the sealing rings from being damaged by charred material.

Channel Numbering



- The *physical* numbering (p) indicates the corresponding hose receptacle and does not change
- The *logical* numbering (l) can change when the groups are defined. It is used internally by the control unit:
 - It determines the order in which the channels are displayed in the scan line of the starting screen: Channels of *Group A*, then *Group B*, etc. up to the channels without group (*No group*)
 - It is used in alarm indications with a preceding **Ch** (for **Channel**).
Example:

Ch5: Temperature sensor short-circuit

Thus it is beneficial to make a note of the resulting logical numbering after the groups are defined:

Receptacle		XS10		XS11		XS12		XS13		XS14		XS15		XS16		XS17		Platen	Pump	Hose manifold
Physical numbering (p)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
Group																				
Logical numbering (l)																				
Channel numbers on the field bus	VersaDrum	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	1	2	19
	VersaPail	3	4	5	6	7	8	9	10	11	12	13	14	Not present				1	2	15

Programming Seven-day Clock



V8

Heaters and standby can be controlled via the seven-day clock. Up to four schedules that run at the same time can be stored for each day of the week.

Clear: All of the schedules for the marked day (in this case: Monday) will be deleted.

Edit schedule

The times are entered by row. The corresponding key must be activated to be able to enter a time.

NOTE: 00:00 is a valid time; it does not mean that this feature is switched off.

Delete (individual schedules): The displayed schedule is deleted.

Copy schedules (Example: Copy schedules for Monday to Tuesday and Friday)

1. Select in the main screen.
2. : A window opens in which the days Tuesday and Friday have to be marked.
3. Confirm selection with .

The schedules have been copied.

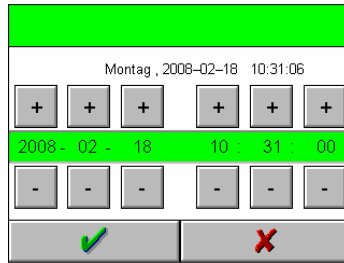
Overview

Gray: Heaters off / standby off

Yellow: Enter standby

Green: Heaters on

NOTE: The programmed times are shown, not the bulk melter mode.



Set date/time

The current date and time can be set with the +/- keys.

The date is shown in the following format: YYYY-MM-DD (Y: year; M: month; D: day)

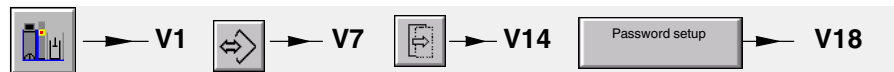
NOTE: The time is not automatically changed to and from daylight savings time.

Important when Using the Seven-day Clock (Example of a Schedule)

Heaters on	08:00
Enter standby	12:00
Exit standby	1:00
Heaters off	5:00

If the seven-day clock is not switched on until after 08:00 (V1, key ) , the switching time 08:00 has already passed; the heater is not switched on by the seven-day clock. The schedule is ineffective.

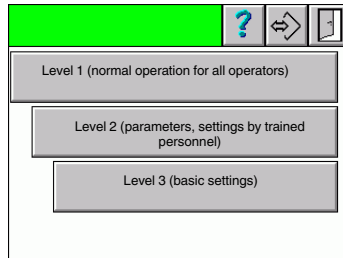
Passwords and Security Level



Refer to [A-1](#), Appendix *Password*.

Assigning New Password

NOTE:



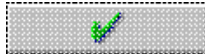
V18

- A password can be assigned for each of the three operating levels (*Level 1 to Level 3*)
- The passwords must be different for each level and must be at least one character long and no longer than 16 characters
- Every level also applies to the lower ones. Example: The password for level 2 also grants access to the features of level 1.

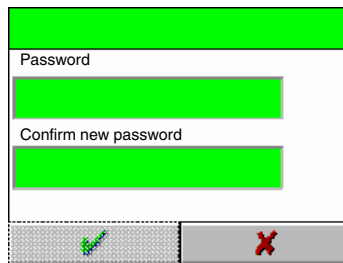
1. Press the key for a level. After confirmation, the control panel screen V18.1 opens.

2. Enter the password under *Password*.

3. Enter the password under *Confirm new password* again.

If the two codes entered are the same, the key  to confirm is enabled. After confirmation, the control panel screen V18 opens again.

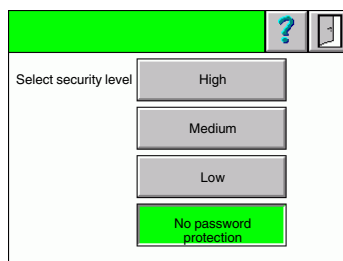
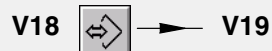
4. Touch  to save the password.



V18.1

When the passwords have all been assigned, a security level must be selected:

Selecting Security Level



V19

High	Password protection is switched on for all three levels
Medium	Password protection is switched on for level 2 and 3
Low	Password protection is switched on only for level 3
No password protection	Password protection is switched off for all three levels



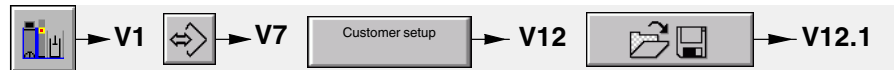
No password protection

Page remains empty.

Saving and Loading Recipes



V12.1



Process parameters can be saved in recipes on the memory board.

NOTE: Recipes can also be saved on an external PC and then transferred from there again. This allows:

- Recipes to be exchanged between bulk melters
- Existing recipes to continue to be used, even after the memory board is replaced.

Refer to page 4-45, *Exchanging Recipes with an External PC*.



Save current parameters as a recipe

1. Enter a name by *File* (max. 8 characters)
2. To be better able to identify the individual recipes, enter e.g. the name of the application under *Description*.

All current, adjustable parameters are saved, except for the following.

- Brightness
- Date / time
- Local language
- IPC IP address and Subnet mask
- Assignment as master or slave in an ACO system
- Alarm history
- Counter (total hours with heaters on)
- Settings in the screens *Melter configuration* (V26, V27).
- PROFIBUS address
- Passwords
- Selected line speed signal and all values based on the line speed signal.

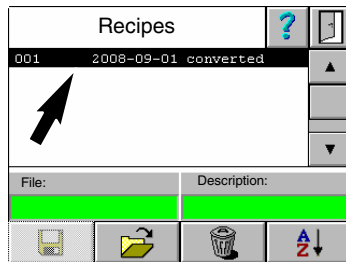
NOTE: Up to 500 recipes can be saved.



Load recipe

The current parameters are overwritten with the values from the selected recipe.

NOTE: If during loading of the recipe (approx. 4 s) the bulk melter is switched off (e.g. power failure), the control unit will no longer function properly. The desired recipe must then be loaded again.



V12.1
Name and description of a
converted recipe

CAUTION: Observe for *converted* recipes:

- A converted recipe can be recognized by the name and description; also refer to page 4-46, *Copy recipe from PC to memory board (upload)*.
- If a converted recipe is loaded, it must be saved under a new name to be compatible with the melter software. Refer to page 4-43, *Saving Current Parameters as a Recipe*.
- Then delete the recipe that is not compatible.



Recipe is irrevocably deleted.



Sort recipes by name, description or date.

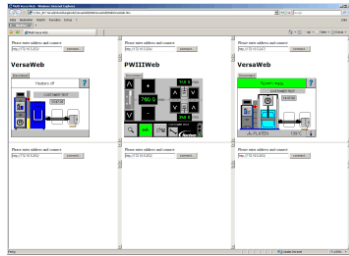
Operation via the IPC Webserver

Prerequisite: The IPC is connected to an external PC. Refer to page 3-23, *Connecting IPC to External PC*.



ATTENTION: Operation via the Webserver and operation via the control panel are not mutually exclusive.

Calling up Bulk Melter



MultiVersaWeb, calling up three bulk melters

NOTE: The CD-ROM supplied with the melter contains an HTML file *MultiVersaWeb.htm*. It enables six bulk melters to be called up in a browser window.

1. Call up the bulk melter in the browser with the configured address, for example <http://192.168.0.99>.
2. Enter the user name and keyword (Refer to A-1, Appendix *Password*) and confirm.
3. *Password* input in the *next* window can be skipped by pressing OK. Then the current control panel screen is displayed.

Exchanging Recipes with an External PC



V12.1

1. Call up the bulk melter. See above.
2. Go to control panel screen V12.1:



3. Select *Up-/Download* in the browser window. A window similar to the following appears:

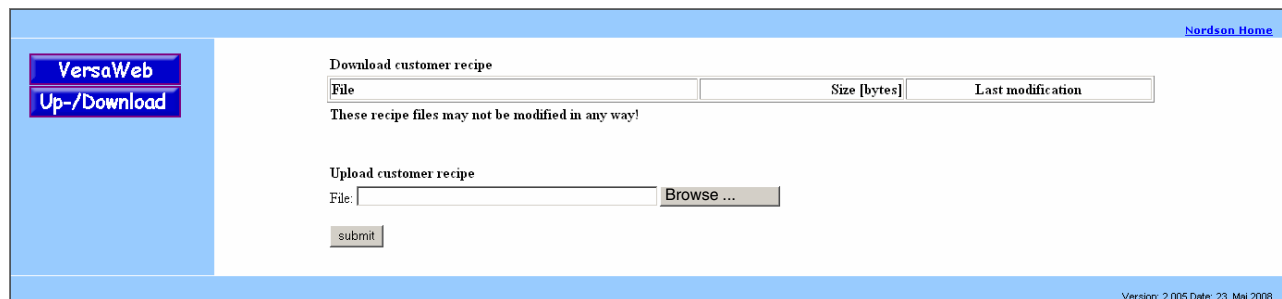


Fig. 4-3

Continued ...

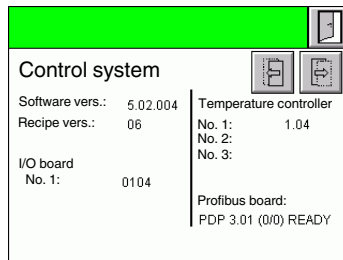
A. Copy recipe from memory board to PC (download)

All of the recipes are shown under *Download customer recipe*.

1. Click the desired recipe name.
2. Download the recipe as instructed by the PC operating system.

B. Copy recipe from PC to memory board (upload)

NOTE: If the bulk melter software version is 5.00.000 or higher, recipe versions 3 and higher are automatically converted. Older recipe versions can not be copied onto the memory board. The software and recipe versions are shown in the control panel screen V6:

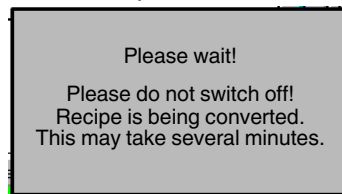


V6



1. Under *Upload customer recipe*, touch *Browse* and select the desired recipe (Fig. 4-3).
2. Then touch *Submit*.

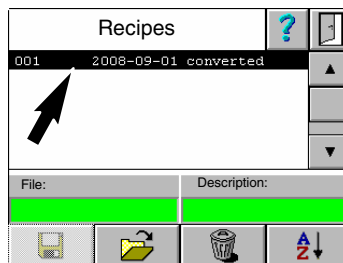
CAUTION: The upload may take several minutes; this is indicated on the control panel:



Do not switch off the bulk melter during this time.

NOTE: The name and description of the copy of a recipe that is already compatible are the same as that of the original. On the other hand, the name of a *converted* recipe is replaced by a number, and the word *converted* appears in the description.

To be able to use a recipe, it must be loaded. Refer to page 4-44, *Load Recipe*.



V12.1

Name and description of a converted recipe

4. Click *VersaWeb* in the browser window to display the current control panel screen again.

Switching Bulk Melter ON/OFF

NOTE: Before initial startup, read and observe the instructions in *Initial Startup*. Start up only as described under *Initial Startup*. Refer to page 4-6, *Initial Startup*.

Daily Startup

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



ATTENTION: Wear hearing protection.

1. Set the main switch to I/ON.
2. Set selector *Raise/lower platen* to *Lower*.
3. With the feature *Automatic heatup upon melter start blocked* (Refer to page 4-22): Switch on heaters manually.
4. Wait until system is ready.
5. Enable and start motor. Refer to page 4-16, *Selecting Control Options*.

Daily Shutdown

NOTE: The main switch must remain set to I/ON (switched on) when using the seven-day clock.

1. Set selector *Raise/lower platen* to *0/stop*.
2. Perform daily maintenance.
3. Set the main switch to 0/OFF and protect from unauthorized access with padlocks if necessary.

Emergency Shutdown



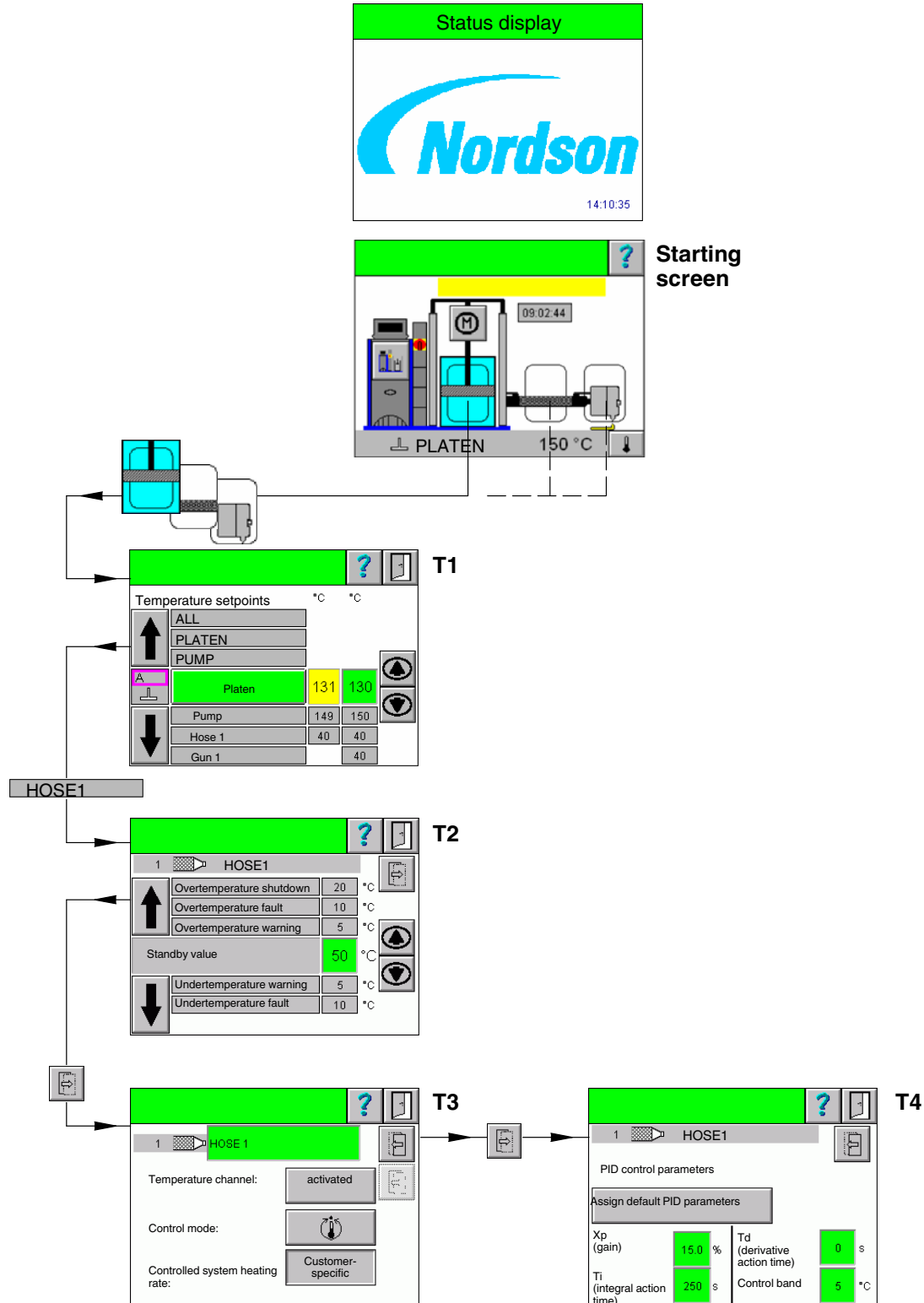
ATTENTION: Immediately switch off the unit in any emergency situation.

1. Set the main switch to 0/OFF.
2. Set selector *Raise/lower platen* to *0/stop*.
3. After standstill and before switching the system back on, have the fault remedied by qualified personnel.

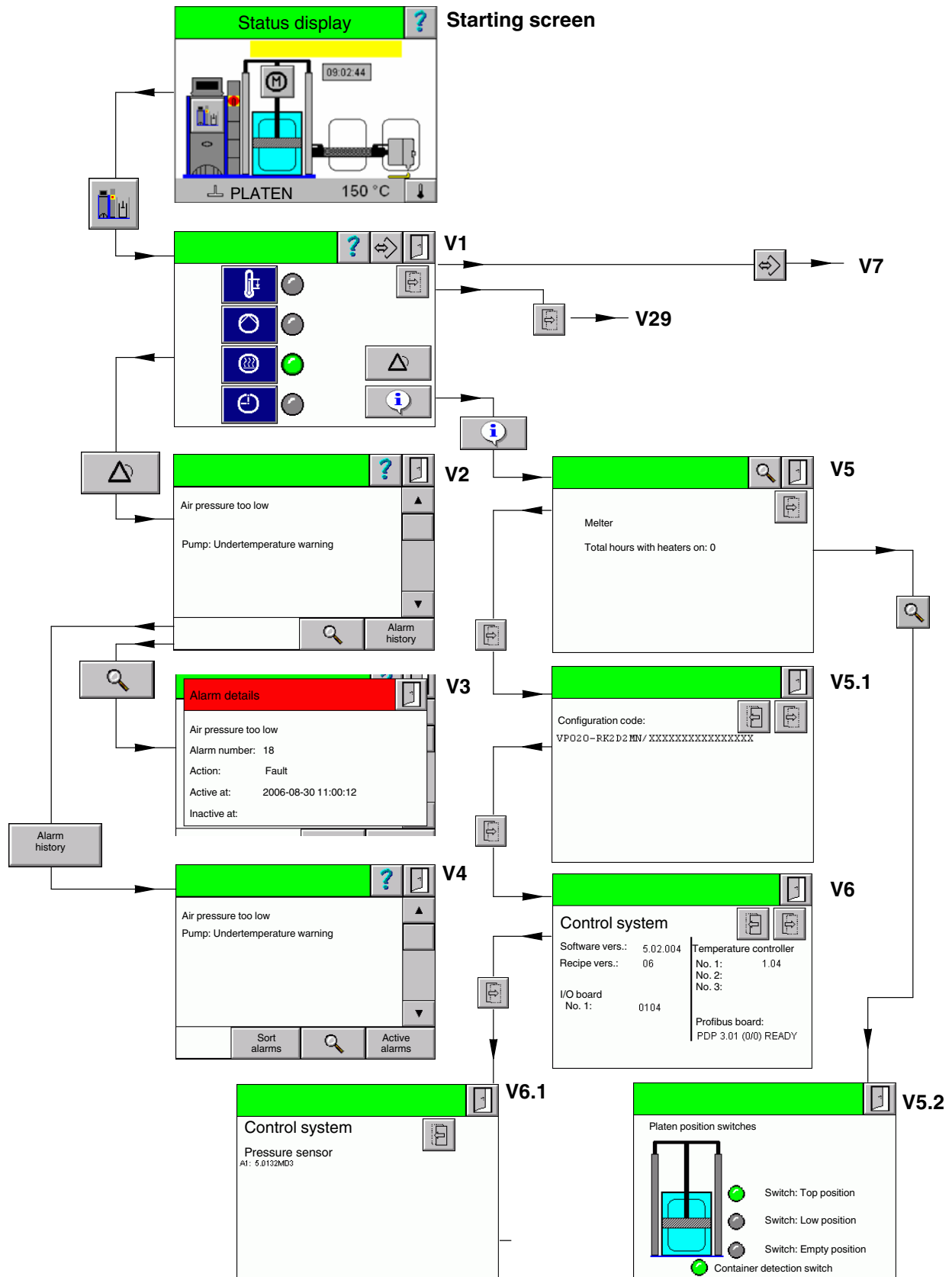
Control Panel - Overview -

NOTE: Some screens may differ from the illustrations, depending on the software version used.

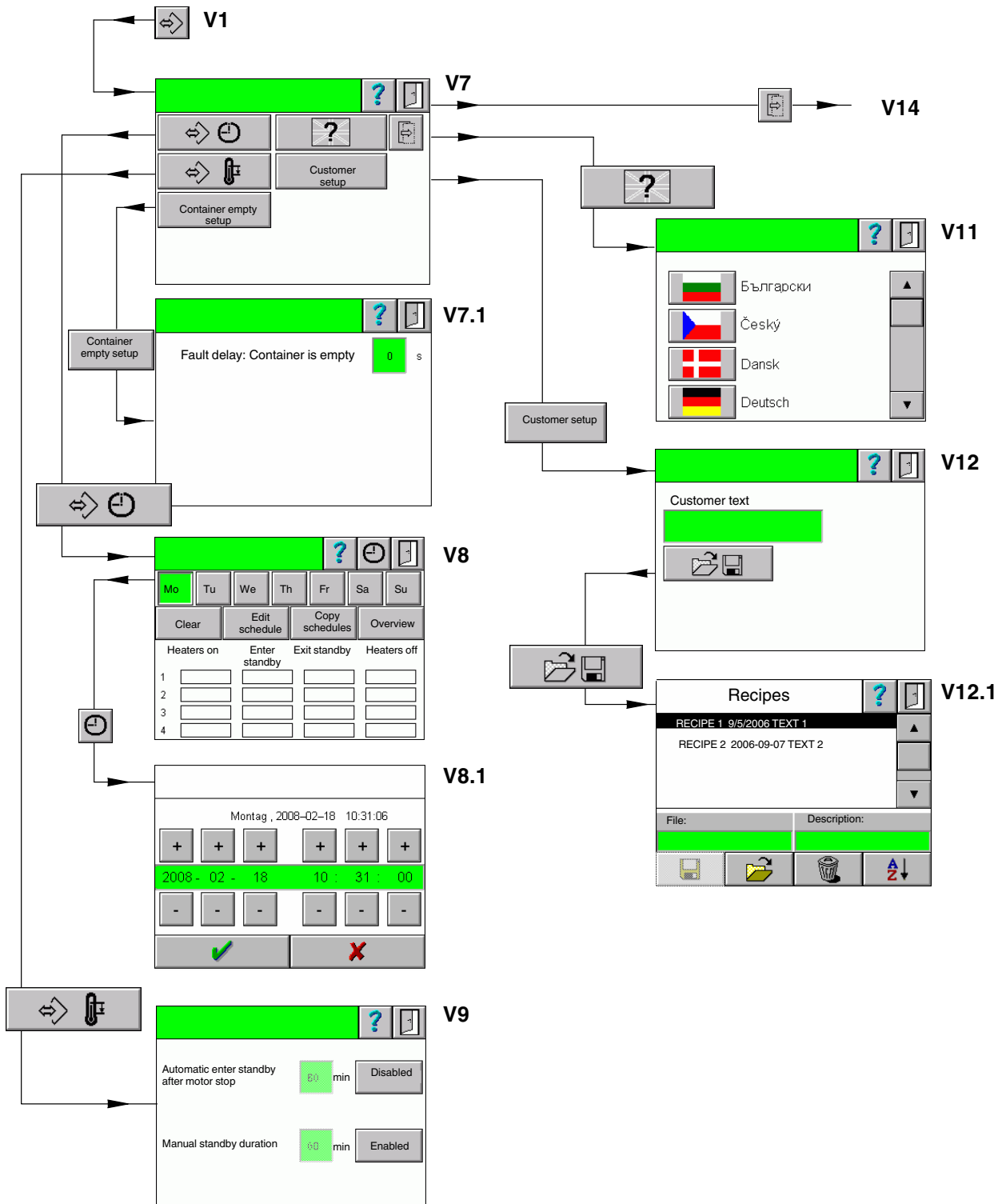
Screens T1 - T4



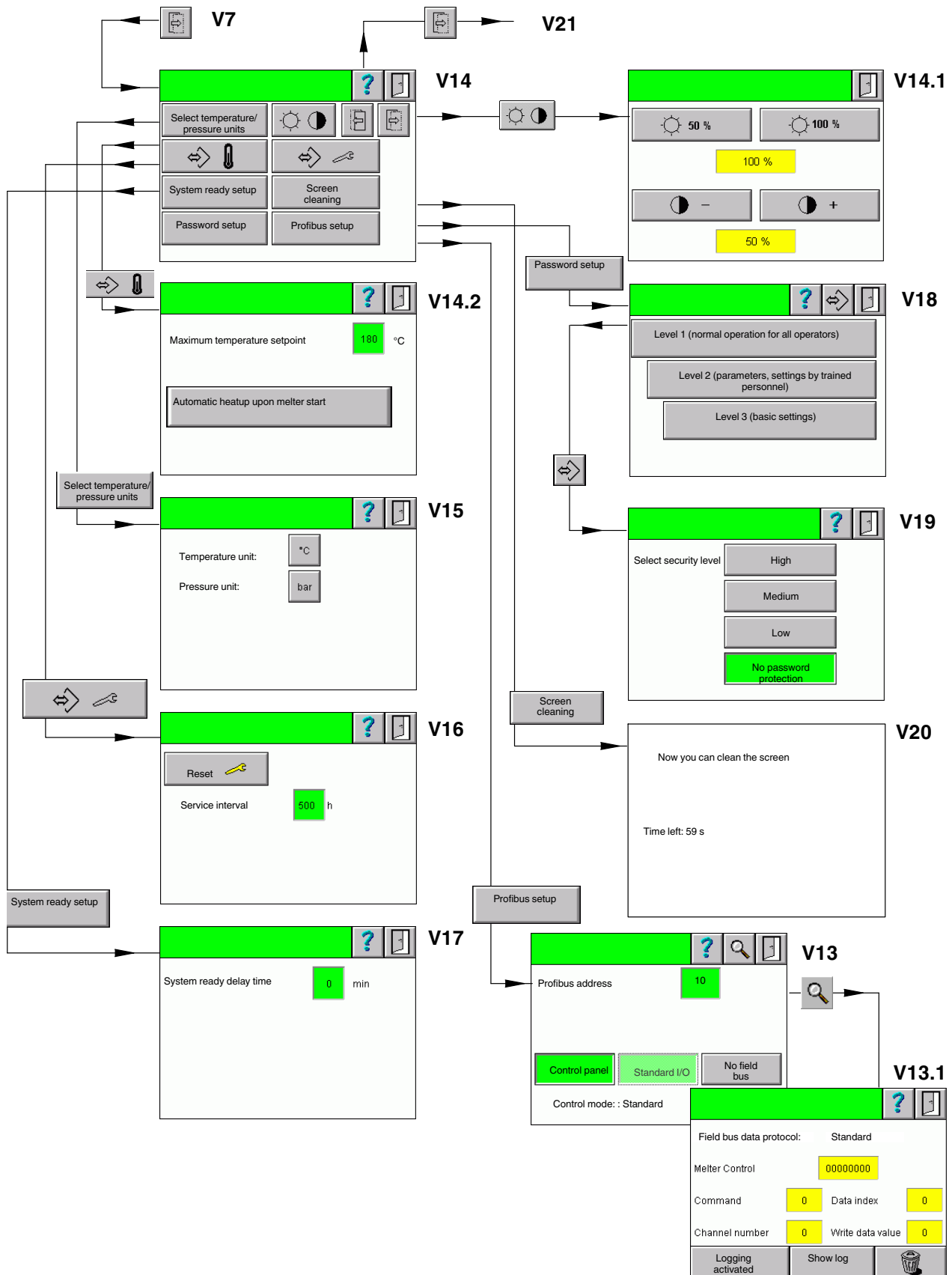
Screens V1 - V6



Screens V7 - V12

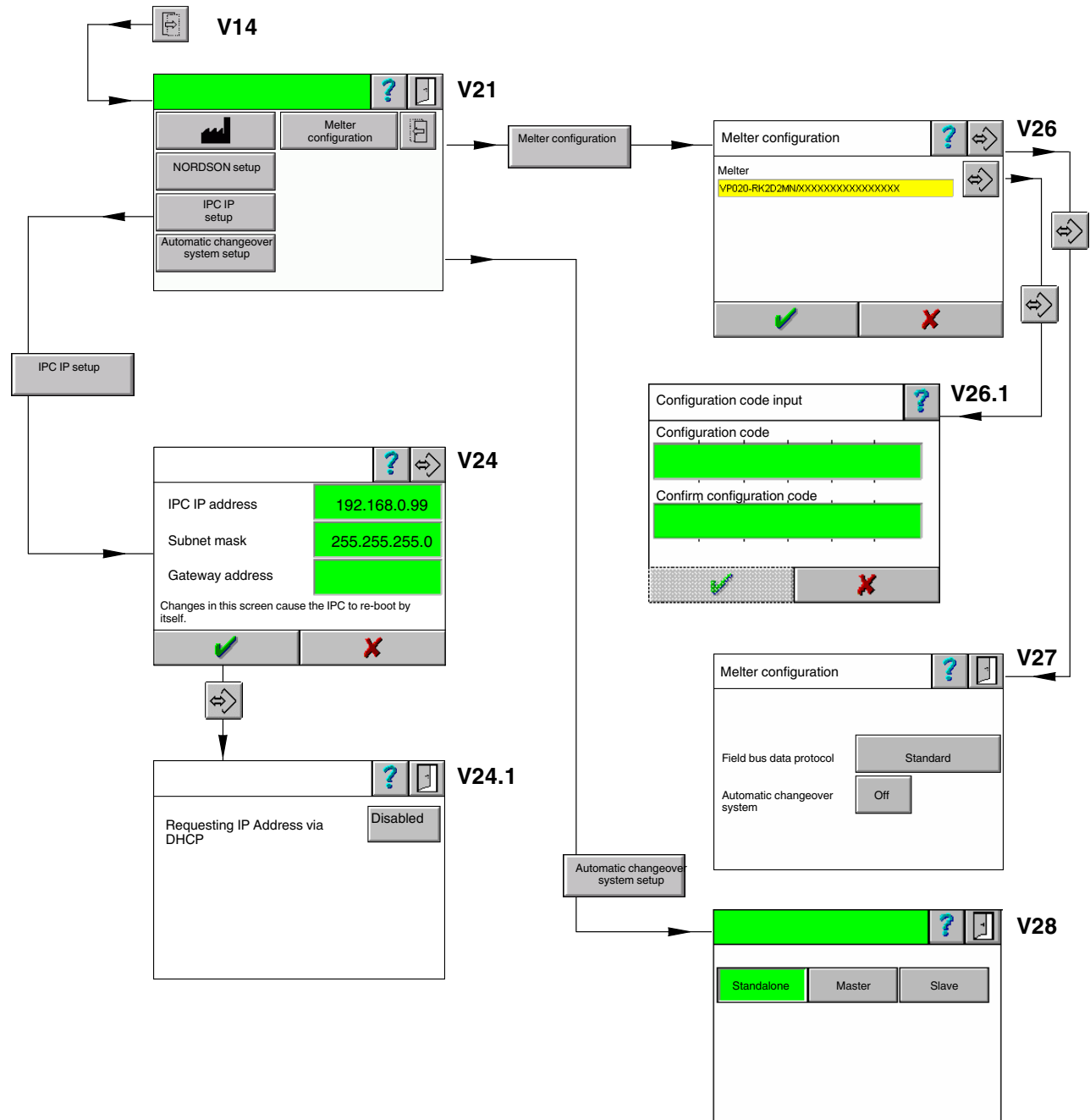


Screens V13 - V20

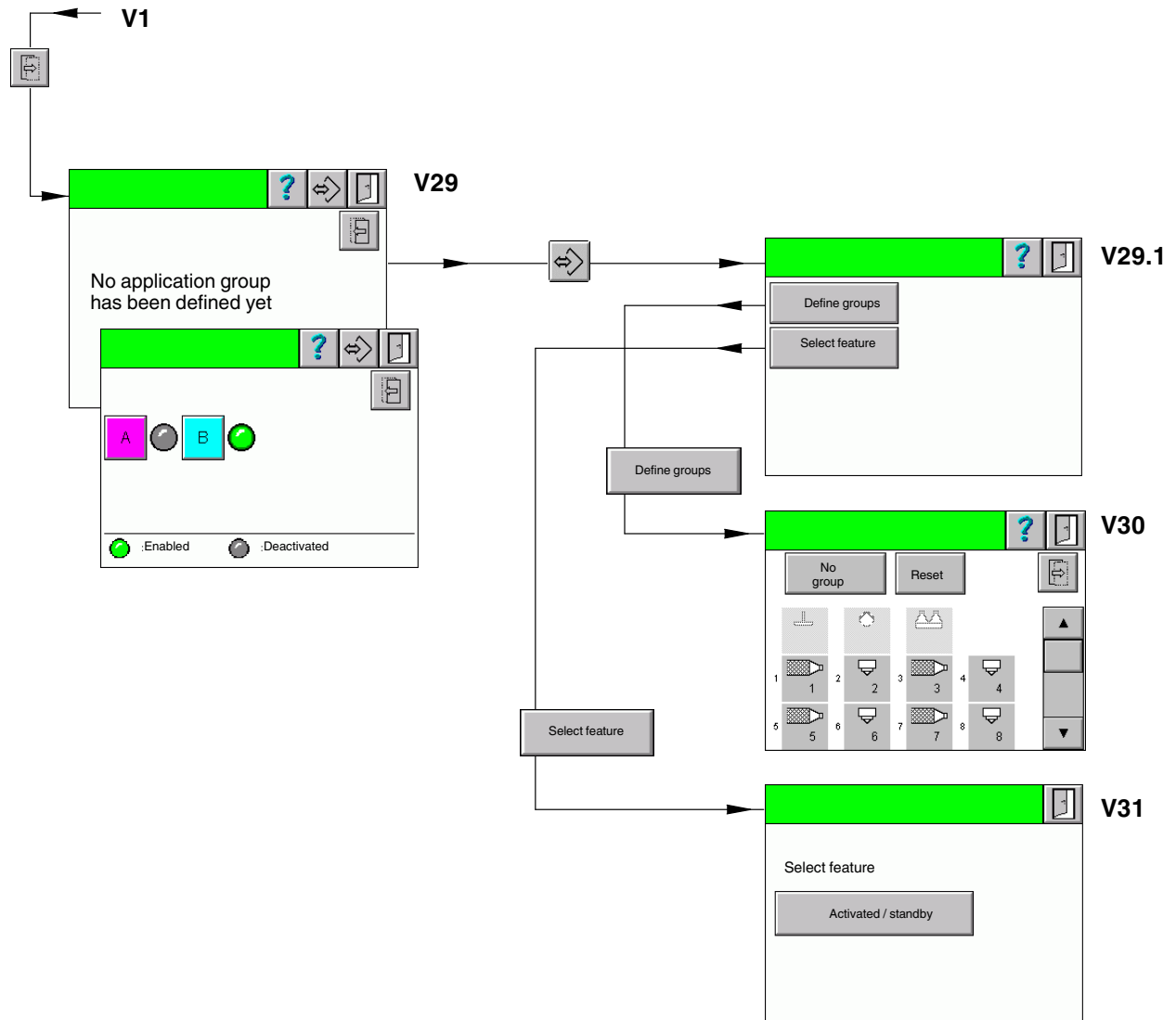


Screens V21 - V28

NOTE: Screens V22, V23 and V25 are not used.

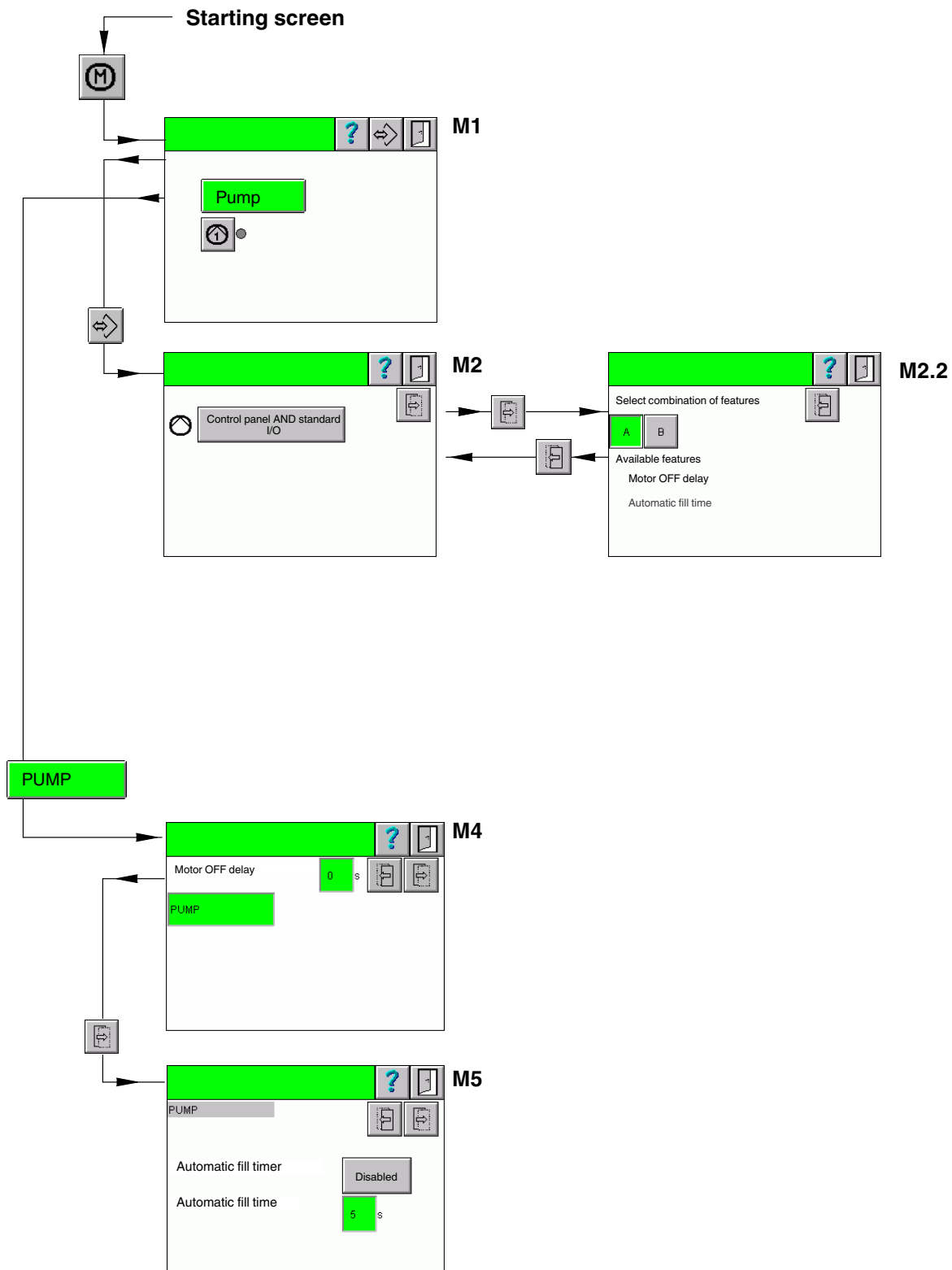


Screens V29 - V31



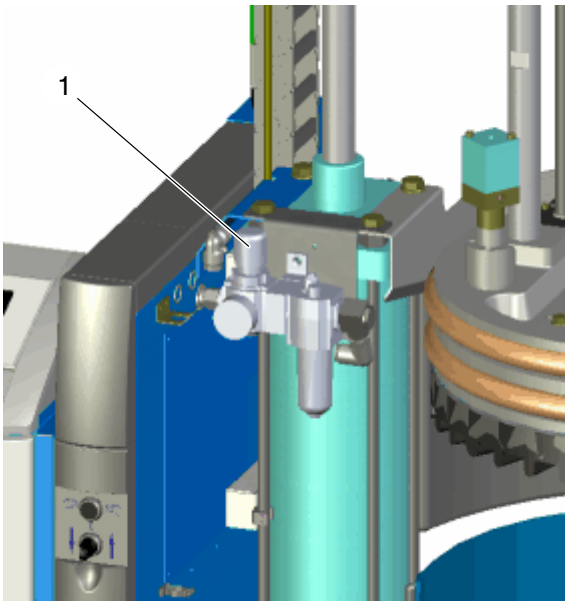
Screens M1 - M5

NOTE: Screens M2.1 and M3 are not used.



Setting Material Pressure

Pneumatic control pressure and piston pump transmission ratio (42:1) determine the material pressure. The control pressure can be set manually on a pressure controller (1).

☐	Code	Control pressure / material pressure	Actuator
10	A	The control pressure is limited to approx. 5 bar / 72 psi. Thus the material pressure can reach max. 200 bar	
	B	The control pressure is limited to approx. 2.5 bar / 36 psi. Thus the material pressure can reach max. 100 bar	

Section 5

Maintenance



ATTENTION: Allow only qualified personnel to perform the following tasks. Follow the safety instructions here and in the entire documentation.

NOTE: Maintenance is an important preventive measure for maintaining operating safety and extending the service life of the melter. It should never be neglected.

Risk of Burns

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



ATTENTION: Hot! Risk of burns. Wear goggles and heat-protective gloves.



Relieving Pressure



ATTENTION: System and material pressurized. Relieve bulk melter pressure before disconnecting pressurized components (e.g. hoses, pressure sensors). Failure to observe can result in serious burns.

1. Switch off motor.
2. Set selector *Raise/lower platen* to 0.
3. Place a container under the nozzle(s) of the applicator / assembly handgun.
4. Applicators: 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.
5. Re-use the material or properly dispose of it according to local regulations.

NOTE: Also refer to page 5-2, *Relieving Pressure When Using High-viscosity Material*.

Relieving Pressure When Using High-viscosity Material



Fig. 5-1

NOTE: Only when using high-viscosity material:

Open the air relief bore (1) on the manifold to relieve pressure. Turn it approx. five revolutions with an open-end wrench to do this. The remaining material pressure may not be higher than 10 bar.

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 the cleaning agent according to local regulations.

Relieving Air Pressure to Pneumatic Cylinders

Before performing maintenance or repair work near the platen, relieve the air pressure to the cylinders to prevent the platen from moving unexpectedly, the air hoses from whipping around and dust from stirring up.

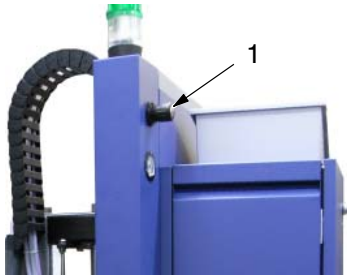


Fig. 5-2

1. Lower the platen all the way or set it on a sturdy object with a large surface, e.g. a squared timer.
2. Set the working pressure on the pressure control valve (1) to 0 bar.
3. To remove any residual pressure from the hoses and cylinders, set the selector *Raise/lower platen* briefly to *Raise* then to *Lower*.
4. Set the selector *Raise/lower platen* to 0.

Processing Materials

Before using, read the included EU safety data sheet.

Designation	Order number	Use
High temperature grease • Can, 10 g • Tube, 250 g • Cartridge, 400 g	P/N 394769 P/N 783959 P/N 402238	Apply to O-rings and threads NOTE: The grease may not be mixed with other lubricants. Oily/greasy parts must be cleaned before application.
Grease <i>Centoplex H0</i> • 1 kg	P/N 285600	Lubricating platen sealing ring
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 230359	Secures screw connections
Heat transfer compound • 500 g	P/N 257326	To improve heat conducting of temperature sensors
Vitalizer Oil • 1 pint (approx. 0.5 l) • 1 quart (approx. 1 l) • 1 gallon (approx. 3.7 l) • 5 gallons (approx. 18.5 l)	P/N 900214 P/N 900215 P/N 900216 P/N 900217	For lubricator and oil basin

Preventive Maintenance

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

Interval	Unit part	Activity	Page
After initial startup	Various	Initial Maintenance	5-5
Every time the container is changed	Melting plate	Check melting plate for charred material, clean if necessary. Do not use sharp tools	-
		Lubricate sealing ring Refer to page 5-3, <i>Processing Materials</i>	-
	Base plate	Check base plate for material residue or other impurities, clean if necessary	-
Daily	Complete bulk melter	External cleaning	5-6
		Visual inspection for external damage	5-6
	Power cable	Inspect for damage	-
	Air hoses		
	Pump	Check oil level in lubricator and oil basin	5-9
Daily, if dust accumulation is severe	Electrical cabinet ventilation	Clean fan screens, clean or replace filter	5-8
Weekly When the level reaches the ribs in the container	Silencer with oil separator	Check level in container Drain oil, replace filter mat	5-11
Weekly	Piston pump gland	Check for leakage	5 - 10
If leaking		Tighten	
Depending on hours of operation, pump speed and pump temperature Recommendation: monthly	Various	Like initial maintenance	5-5
Every six months	Pressure restrictor valve (pneumatics)	Performance check	5-14

Initial Maintenance

In the course of daily operation, heating and cooling can cause screwed parts to become loose, leading to leakage.

Retighten the following components with a torque wrench:

Component			Torque		Note
Example	Pos.	Designation	[Nm]	[lbin]	
	1	Plug	20	176	A
	2	Hose connection	25	220	A
NOTE A: Retighten while the material is still soft (approx. 70 °C/158 °F, depending on the material)					

External Cleaning

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



CAUTION: Observe the unit's Degree of Protection when cleaning. Refer to page 9-1, *Technical Data*.



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

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

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

Control Panel



CAUTION: Refer to page 4-23, *Screen Cleaning*. This ensures that no functions are unintentionally triggered when the screen is touched.

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 control panel front; solvents could corrode the plastic frame.

Visual Inspection for External Damage



ATTENTION: When damaged parts endanger the operating safety and/or the safety of personnel, switch off the bulk melter and have the damaged parts replaced by qualified personnel. Use only original Nordson spare parts.

Changing Type of Material

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

- May be mixed: Remaining old material can be flushed out using the new material.
- May not be mixed: Purge thoroughly and clean melting plate with a cleaning agent recommended by the material manufacturer. Refer to page 5-7, *Cleaning Melting Plate*.

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

Purging with Cleaning Agent

Place a container of cleaning agent in the bulk melter to purge. Then feed the cleaning agent until it comes out free of material residue.



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

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

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

Cleaning Melting Plate

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



CAUTION: Do not use hard or metallic tools to clean. Do not use wire brushes! This could damage the release coating. Use only soft aids (wooden or PTFE spatula or soft brush).

Fan and Air Filter

Depending on dust accumulation, the air filters in the fan and for the air outlet must be cleaned (knocked out) or replaced.

Refer to separate document *Parts* for filter order numbers.

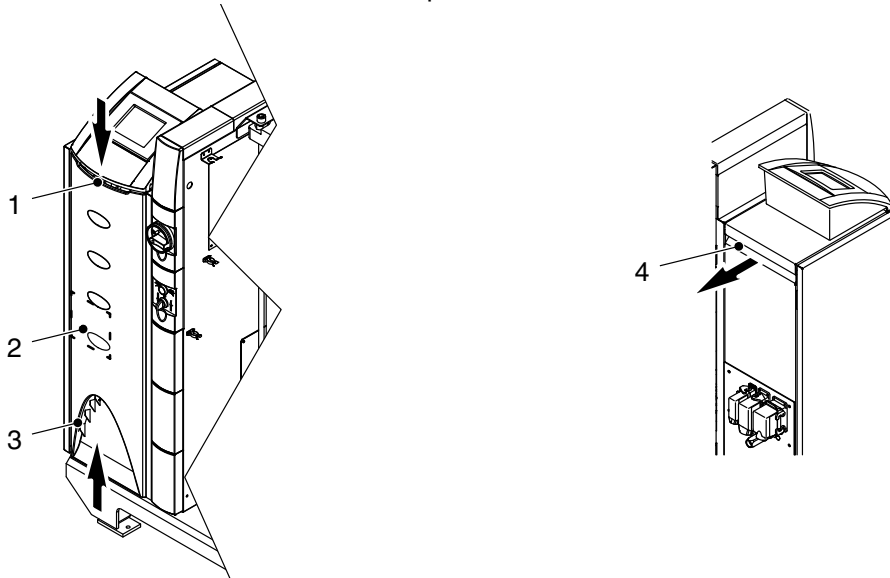


Fig. 5-3

- 1 Air filter, top air inlet
- 2 Fan

- 3 Air filter, bottom air inlet

- 4 Air filter, air outlet

Piston Pump

Oil Basin

CAUTION: The motor may be operated only with lubricated compressed air.

- Ensure that the lubricator (1) is filled
- Ensure that the oil basin (2) is filled

Refill with *Vitalizer Oil*. Refer to page 5-3, *Processing Materials*.

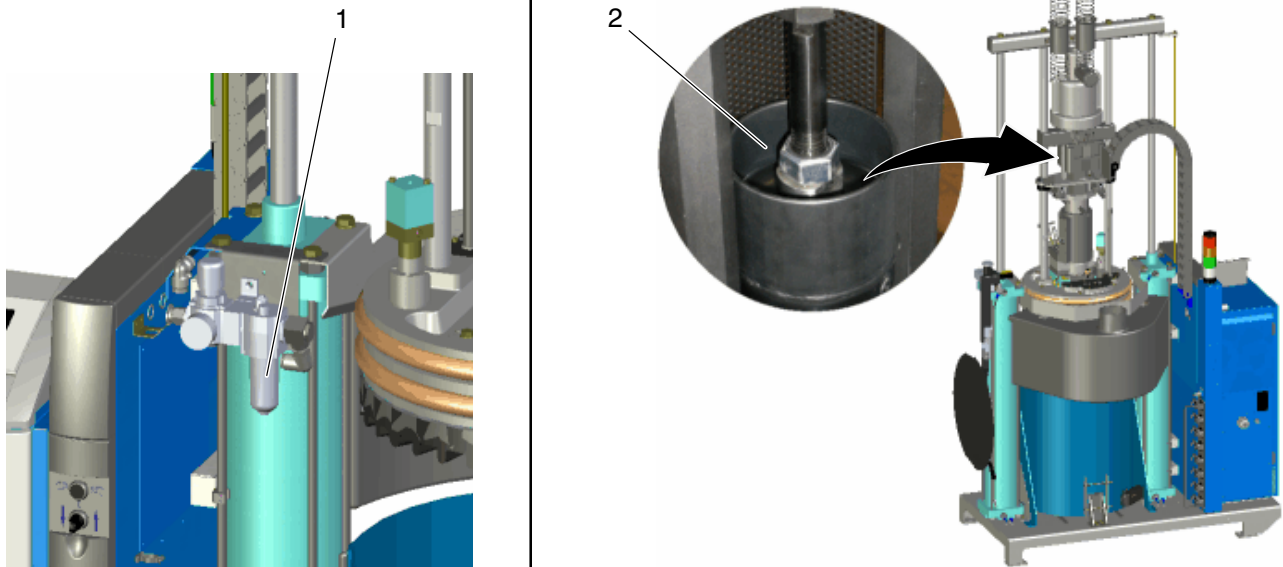


Fig. 5-4

Gland

There is a gland in the piston pump. Check once a week that the gland is functioning properly. If material is escaping from the gland, tighten it. If the gland cannot be tightened any more, replace it. Order kit SVC P/N7561946.

Retightening Gland Bolt

Use a sickle wrench to tighten the gland bolt. The ideal gland torque is a factor of the specific application. Nordson cannot specify it, as it must be determined by trial and error.



CAUTION: Overtightening the gland will block the piston.

Silencer with Oil Separator

Draining Oil

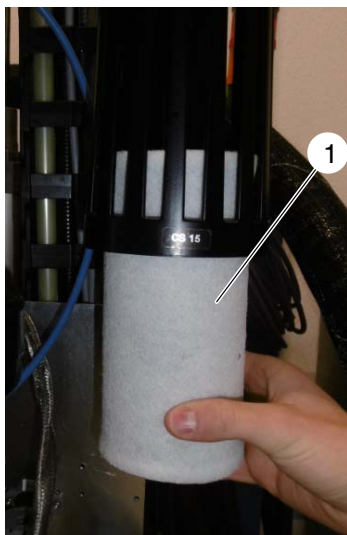


Fig. 5-5

Check the level in the container every week. Empty the container at the latest when the level reaches the ribs (1) in the container. Open the drain screw (2) to do this.

Properly dispose of the oil according to local regulations.

Replacing Filter Mat



When the container is so full that it has to be emptied, the filter mat (1) is saturated with oil and has to be replaced.

NOTE: Nordson order number for filter mat with O-ring: P/N 7561891.

1. Unscrew the container.
2. Unscrew the filter mat.

NOTE: There is an O-ring on the filter mat.

3. Place a new O-ring on the filter mat and screw the filter mat back into place.
4. Screw the container back on.

Properly dispose of the filter according to local regulations.

Cleaning Air Relief Valve



ATTENTION: Risk of burns! Hot material may flow out of the air relief valve. Wear goggles and heat-protective gloves.



If no air escapes from the air relief valve when *Lowering Platen* (Refer to page 4-10), it is clogged and has to be cleaned.

To be able to resume production as soon as possible, *Quick Cleaning* can be performed. *Thorough Cleaning* should then be performed at the next opportunity.

Quick Cleaning

1. Set the selector *Raise/lower platen* to *Raise* (1) for 3 to 4 seconds to relieve material pressure under the platen.
2. Unscrew the rod (2).
3. Use a thin wooden (to prevent damage to the surface) object to force impurities out of the bore (3).

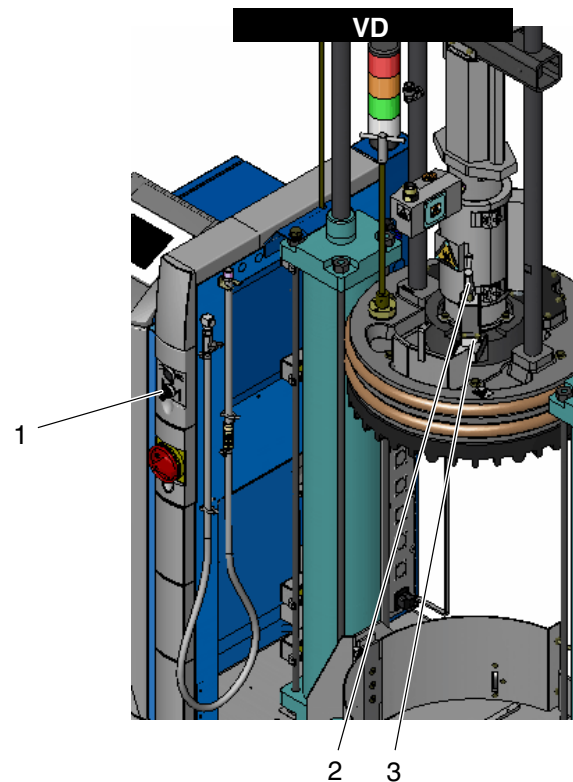
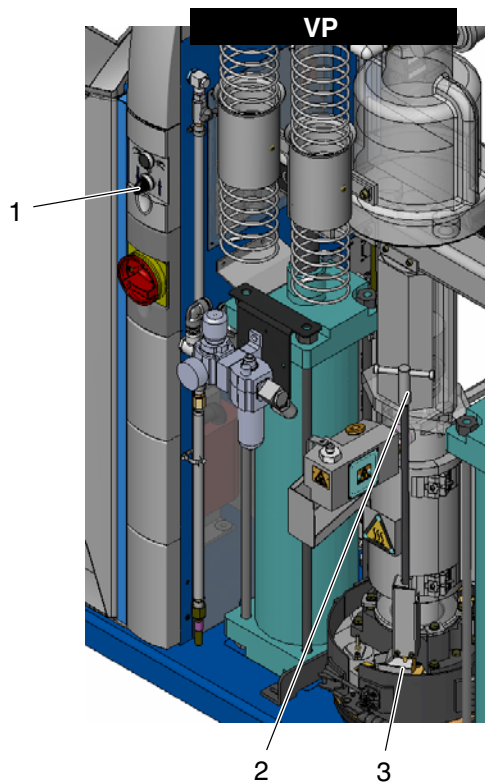
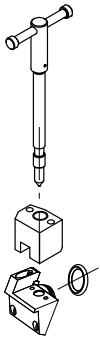


Fig. 5-6

Thorough Cleaning



Assembly *Deaeration*
(example)
Refer to the separate
document *Parts List*,
Deaeration for the actual
model.

1. Raise the platen out of the container. Refer to page [4-7](#), *Raising Platen*.
2. Detach the assembly *Deaeration* and purge with suitable cleaning agent. Do not use hard objects. This could damage the release coating.
3. When reassembling:
 - Use new O-rings when possible.
 - Apply high temperature grease to all threads and to the O-ring (Refer to page [5-3](#), *Processing Materials*).

Pressure Restrictor Valves (Pneumatics)

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

☐ Box 1 - 5 = VersaDrum **and** Box 17 = A (Automatic aeration)

Functioning of the pressure restrictor valve *Aerate container* (1) should be checked approx. every six months. Do this by turning the knurled screw until the compressed air is audibly released. When functioning is not correct, the pressure restrictor valve should be cleaned. If it still does not function, it must be replaced.

Impurities that have penetrated seat 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.

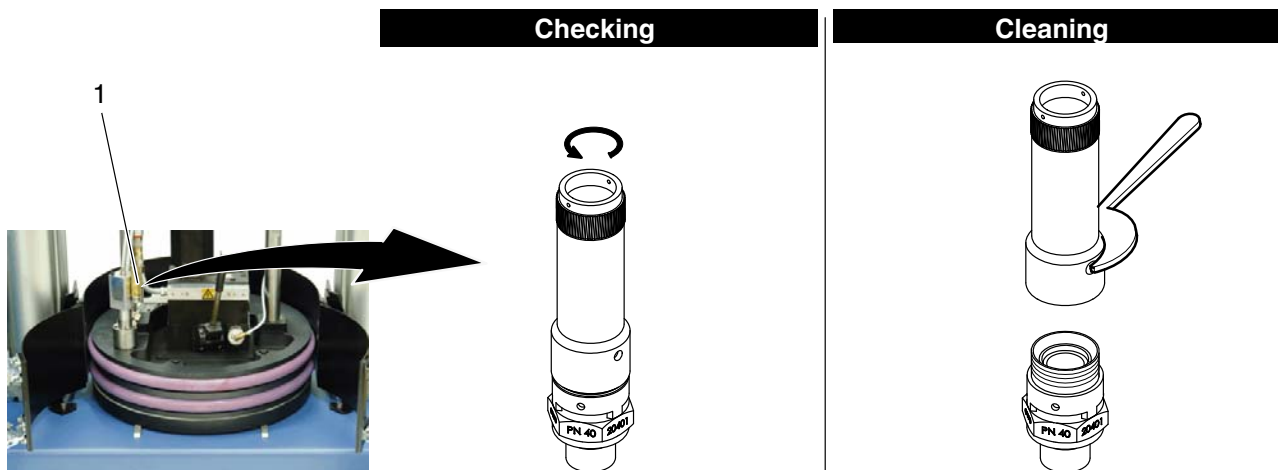


Fig. 5-7

Section 6

Troubleshooting



ATTENTION: Allow only qualified personnel to perform the following tasks. Follow the safety instructions here and in the entire documentation.



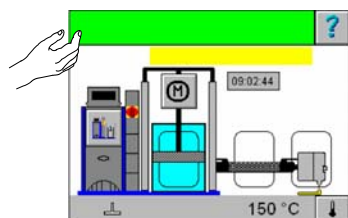
ATTENTION: Troubleshooting activities may sometimes have to be carried out when the melter is energized. Observe all safety instructions and regulations concerning energized components (active parts). Failure to observe may result in an electric shock.

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?

Alarms



The status line of the control panel indicates only *Warning*, *Fault* or *Shutdown*. The special alarm text is displayed when the line *Status display* is touched.

Warning			Light tower		
			Green	Yellow	Red
The operator must decide whether the situation is critical for the application and action is required. Whether or not the bulk melter is ready for operation does not change				●	
Alarm no.	Status	Possible fault / troubleshooting			
6	Service interval is expired	-			
9	Platen position switches defective (illegal signal supplied) Example: bottom switch closed, middle switch open	Switch defective Switches set incorrectly Switches blocked by adhesive Refer to page 3-14, <i>Platen Position: Adjusting Switches</i> To cancel the alarm, switch off/on with the power switch			
14	I/O board: Incorrect software version	The firmware version of the I/O board installed is not compatible with the IPC program version Replace I/O board. Refer to page 7-5, <i>Replacing Temperature Control Board or I/O Board</i>			
22	<i>Channel:</i> Overtemperature warning	Refer to alarm no. 21 <i>Channel:</i> Overtemperature fault			
24	<i>Channel:</i> Undertemperature warning	Refer to alarm no. 23 <i>Channel:</i> Undertemperature fault			
37	Fill time expired	Refer to page 4-20, <i>Automatic Fill Time</i> The warning goes away when one of the startup conditions for the motor is taken away again. Refer to page 4-16, <i>Selecting Control Options</i>			

Fault		Light tower		
		Green	Yellow	Red
A fault switches off the motor. As soon as the fault is corrected, the motor startup protection is automatically enabled.				●
Alarm no.	Status	Possible fault / troubleshooting		
3	Command from field bus master missing with control option <i>Field bus</i> NOTE: Field bus data transmitted from the field bus master to the bulk melter can be checked. Refer to page 6-18, <i>Checking Transmitted Field Bus Data</i> .	The transmission data block contains the illegal command = 0 Field bus cable broken, defective or not connected Interruptions in communication, e.g. if the master is not switched on Defective or missing bus terminating resistor. Refer to page 7-7, <i>CAN Bus Terminating Resistor</i> . The network was not set up properly Sudden resets or crashes, e.g. due to electro-magnetic interference		
5	Temperature controller output short-circuit	-		
7	Changeover system communication failure (longer than 5 sec)	Refer to page 3-25, <i>Combining Two Bulk Melters to an ACO System</i>		
8	Pump inlet air pressure too high	Air pressure too high Compressed air monitoring feature supplies wrong signal Refer to page 3-12, <i>Compressed Air for Piston Pump Air Motor</i>		
18	Air pressure too low	Air pressure too low, inner hose diameter too small. Refer to page 3-12, <i>Connecting Compressed Air</i> Compressed air monitoring feature supplies wrong signal. Refer to page 3-13, <i>Pressure Switch</i>		
19	Changeover system, incorrect software version	The software versions of the two bulk melters are not compatible Replace the memory board in one of the bulk melters. Refer to page 7-3, <i>Replacing Memory Board</i> NOTE: The software version is indicated on the memory board		
Continued ...				

Fault		Light tower		
		Green	Yellow	Red
A fault switches off the motor. As soon as the fault is corrected, the motor startup protection is automatically enabled.				•
Alarm no.	Status	Possible fault / troubleshooting		
21	<i>Channel:</i> Overtemperature fault	The material was already heated to a higher temperature by another heating zone. Example: Setpoint temperature <i>Platen</i> greater than setpoint temperature <i>Hose</i> Solid state relay defective?		
23	<i>Channel:</i> Undertemperature fault	Is temperature controller working/regulating? Refer to page 6-16, <i>LEDs of Temperature Control Board</i> Are the solid state relays being triggered? (Is the LED illuminated?) Are the solid state relays switching through the line voltage? Is the line voltage too low? Heater defective? Check wiring of temperature sensors (Sensor connected to correct channel?) Correct temperature sensor type?		
26	<i>Channel:</i> Sensor short-circuit (sensor = temperature sensor)	Check wiring of temperature sensors Temperature sensor defective		
27	Sensor open / no high pressure hose	Hose/applicator not connected Check wiring of temperature sensors (Sensor connected to correct channel?) Temperature sensor defective Models <i>High pressure configuration</i> (Box 10 = A): Check whether the connected hoses are designed to accommodate at least 200 bar / 2900 psi and contain the required bridge <i>High pressure hose detection</i> to bridge the connections <i>B5 - C5</i> of the interface.		

Shutdown		Light tower		
		Green	Yellow	Red
Shutdown turns the bulk melter off (main contactor opens).				●
Alarm no.	Status	Possible fault / troubleshooting		
1	Main contactor / thermostat fault	Main contactor defective or open. Check wiring of main contactor and checkback contact Tank temperature exceeded		
2	CAN bus not started	Check CAN bus cable Check CAN bus plugs on all components Check CAN bus terminating resistors. Refer to page 7-7, <i>CAN Bus Terminating Resistor</i>		
	I/O board failure	Contact fault in voltage supply Fuse(s) on board have activated Incorrect or fluctuating operating voltage The CAN bus address of the board was changed (dial) while the bulk melter was operating. Short-circuiting or potential faults at the plug connections X5, X10, X14, X15 of the I/O board		
	Temperature controller failure			
	Gateway failure	Contact fault in voltage supply or fuses have activated Gateway defective or not connected to the serial Subnet Serial cable IPC to gateway <i>Subnet</i> defective Bus terminating resistor missing or defective. Refer to page 7-7, <i>CAN Bus Terminating Resistor</i>		
13	Temperature controller: incorrect software version	The firmware version of the controller installed is not compatible with the IPC program version. Replace board. Refer to page 7-5, <i>Replacing Temperature Control Board or I/O Board</i>		
20	<i>Channel:</i> Overtemperature shutdown	-		

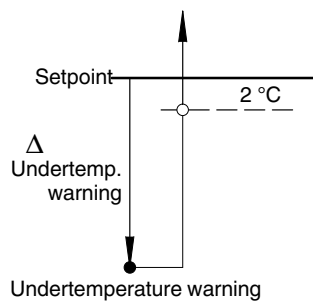
Triggering and Resetting Alarms

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 -

Also refer to page 4-33, *Graphic Presentation of Temperature Parameters* and page 4-34, *Monitoring of Heatup and Cooling*.

- Alarm triggered
- Alarm reset



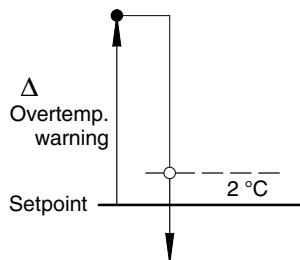
Undertemperature Warning Triggered

The temperature has fallen below the setpoint by more than the differential value (Δ) *Undertemperature warning* delta for longer than 5 seconds.

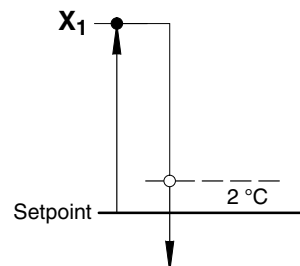
Automatic Reset

The warning goes away when the temperature has increased to 2 °C (3.6 °F) below the setpoint.

Overtemperature warning [1]



Overtemperature warning [2]



Overtemperature Warning Triggered

[1] The temperature has exceeded the setpoint by more than the differential value (Δ) *Overtemperature warning* delta for longer than 5 seconds.

or

[2] The value X_1 (fixed max. temperature value for *Overtemperature* warning) was exceeded for longer than 5 seconds.

	☐ Box 12 = L	☐ Box 12 = M	☐ Box 12 = H
X_1	155 °C (310 °F)	185 °C (365 °F)	235 °C (455 °F)

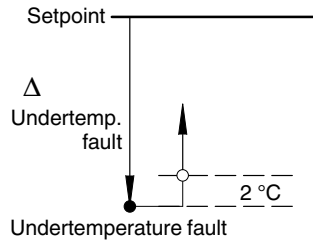
Automatic Reset

The warning goes away when the temperature has fallen to 2 °C (3.6 °F) above the setpoint.

Undertemperature and Overtemperature - Fault -

Also refer to page 4-33, *Graphic Presentation of Temperature Parameters* and page 4-34, *Monitoring of Heatup and Cooling*.

- Alarm triggered
- Alarm reset



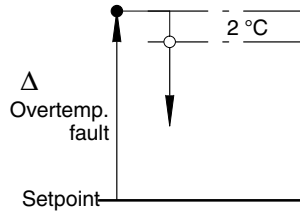
Undertemperature Fault Triggered

The temperature has fallen below the setpoint by more than the differential value (Δ) *Undertemperature fault* delta for longer than 5 seconds.

Automatic Reset

The fault no longer exists as soon as the actual value exceeds the setpoint minus differential value (Δ) *Undertemperature fault* delta by 2 °C (3.6 °F).

Overtemperature fault [1]



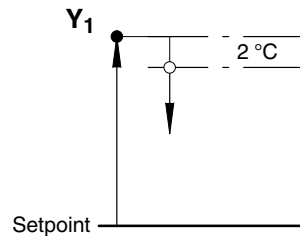
Overtemperature Fault Triggered

[1] The temperature has exceeded the setpoint by more than the differential value (Δ) *Overtemperature fault* delta for longer than 5 seconds.

or

[2] The value Y_1 (fixed max. temperature value for *Overtemperature fault*) was exceeded for longer than 5 seconds.

Overtemperature fault [2]



	☐ Box 12 = L	☐ Box 12 = M	☐ Box 12 = H
Y_1	165 °C (330 °F)	195 °C (385 °F)	245 °C (475 °F)

Automatic Reset

[1] The fault no longer exists as soon as the temperature has fallen below the setpoint plus differential value (Δ) *Overtemperature fault* delta by 2 °C (3.6 °F).

or

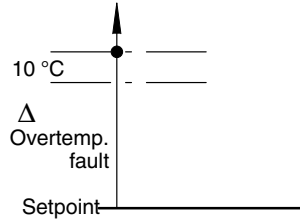
[2] The fault no longer exists as soon as the temperature has fallen below the value Y_1 by 2 °C (3.6 °F).

Overtemperature - Shutdown -

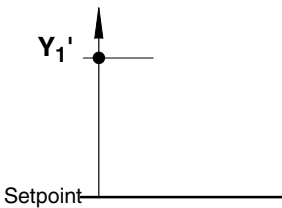
Also refer to page 4-33, *Graphic Presentation of Temperature Parameters*.

• Alarm triggered

Overtemperature shutdown [1]



Overtemperature shutdown [2]



Software-triggered

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

or

[2] The value Y_1' (fixed max. temperature value for overtemperature shutdown) was exceeded for longer than 5 seconds.

	☐ Box 12 = L	☐ Box 12 = M	☐ Box 12 = H
Y_1'	165 °C (330 °F)	195 °C (385 °F)	245 °C (475 °F)

NOTE: Channels in display mode trigger shutdown only when they have reached the maximum Y_1' .

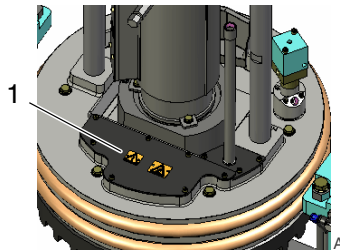
Reset: Switch bulk melter off/on with main switch.

Shutdown by Thermostat

NOTE: The *Main contactor / thermostat* fault indicates that either the overtemperature thermostat or the transformer thermostat has switched off the bulk melter.

Overtemperature Thermostat

The thermostat is located behind the electrical equipment cover (1) of the platen. The shutdown value depends on the thermostat installed:



Example: VersaDrum

	☐ Box 12 = L	☐ Box 12 = M	☐ Box 12 = H
Shutdown value	180 °C (350 °F)	210 °C (410 °F)	260 °C (500 °F)

Reset: Switch bulk melter off/on with main switch.

Transformer Thermostat

Shutdown value: 155 ± 5 °C / 311 ± 9 °F.

Reset: Switch bulk melter off/on with main switch.

Temperature Sensor - Fault -

Every temperature sensor is monitored.

Short-circuit-triggered

The sensor has supplied the fixed value - 10 °C (14 °F) for more than 5 seconds.

Triggered by Broken Sensor or Open Sensor Input

The sensor has supplied the fixed value 305 °C (581 °F) for more than 5 seconds.

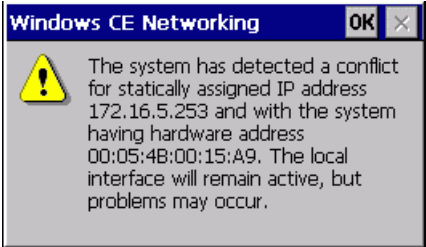
Automatic Reset

The fault no longer exists when the sensor has supplied a value between - 10 °C (14 °F) and 305 °C (581 °F) for more than 5 seconds.

NOTE: If reset does not occur automatically, the temperature sensor is probably defective and may need to be replaced.

Troubleshooting Tables

Bulk Melter does not Function

Possible cause	Possible fault / troubleshooting	Corrective action
1. No line voltage	-	Connect line voltage
2. Main switch not switched on	-	Switch on main switch
3. Main switch defective	-	Replace main switch
4. Main circuit breaker triggered	-	Switch on main circuit breaker
5. Main circuit breaker activated again	Check for short circuit in the unit or accessories	-
6. 24 V _{DC} power supply defective	-	Replace
7. IP address was assigned twice in the network		Check the IP addresses and set a unique IP address for each node Refer to page 4-18, <i>Making IPC IP Settings</i>

One Channel does not Heat

Possible cause	Possible fault / troubleshooting	Corrective action
1. Channel is deactivated	-	Activate the temperature channel on the control panel (or via the optional field bus)
2. Channel is assigned to a group, and the group is deactivated or in standby	Check state of group	Activate group on control panel Refer to page 4-37, <i>Activating or Deactivating Groups / Standby</i>
3. Channel is in display mode	-	Switch to control mode. Refer to page 4-31, <i>Mode: Select Display Mode or Control Mode</i>

Control Panel does not Function

Problem	Possible cause	Corrective action
1. Does not start. Control panel dark or fault indications upon startup	Memory board (CompactFlash) not in place	Plug in Refer to page 7-3, <i>Replacing Memory Board</i>
2. Control panel dark or bright	Brightness setting was changed	Refer to page 4-23, <i>Brightness</i>
3. Control panel does not function/react	Hardware defective Control panel dirty	Refer to page 7-2, <i>Control Panel</i> For part numbers, refer to separate document <i>Parts</i> Clean Refer to page 5-6, <i>External Cleaning</i>
4. System can not be operated via Webserver Also refer to page 4-45, <i>Operation via the IPC Webserver.</i>	Wrong/invalid IPC IP address set Incorrect EtherNet cable plugged in	Correct the IP address on the control panel. Refer to page 4-18, <i>Making IPC IP Settings</i> The LINK LED is lit when connected properly The ACT LED is lit when data is transferred properly Refer to page 6-17, <i>LEDs of IPC</i>

No Material

Possible cause	Possible fault / troubleshooting	Corrective action
1. Hose or applicator is cold	Hose/applicator not connected electrically Hose/applicator temperature channel not activated Hose/applicator heater defective	Insert plug into the corresponding receptacle (Refer to wiring diagram for assignment) Activate on control panel Replace hose Replace heater cartridge(s) in applicator
2. System not yet ready for operation (heatup phase)	-	Wait until the system has heated up and when appropriate until <i>System ready delay time</i> has expired Refer to page 4-23, <i>Ready Delay</i>
3. ACO system not ready	Status indication <i>Other temperature channels not ready</i>	Wait until all temperature channels are heated
4. Motor not switched on	-	Switch on motor Refer to page 4-16, <i>Selecting Control Options</i>
5. Motor startup protection activated	Standby entered Undertemperature during operation	Switch on motor again
6. No external motor enabling via interface <i>Standard I/O</i>	-	Activate the corresponding contacts of the interface Refer to page 4-16, <i>Selecting Control Options</i>
7. Standby entered	-	Exit or wait until standby period has expired
8. Air in pump	Pump moves up and down, but it feeds too little or no material	Open air relief valve and allow air to escape Refer to page 4-11, <i>Deaerating Pump</i>
9. Bulk melter deactivated	-	Refer to page 4-38, <i>Activating/Deactivating Bulk Melter Manually</i>

Too Little Material or Irregular Feeding

Possible cause	Possible fault / troubleshooting	Corrective action
1. Air in pump	Pump moves up and down, but it feeds too little or no material	Open air relief valve and allow air to escape Refer to page 4-11 , <i>Deaerating Pump</i>
2. Pressure controller set incorrectly	-	Refer to page 4-55 , <i>Setting Material Pressure</i>

Others

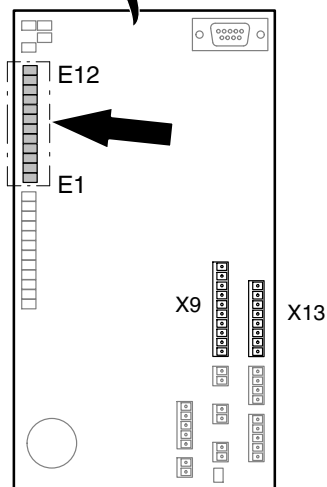
Problem	Possible cause	Corrective action
1. Bulk melter always switches to <i>Shutdown</i>	CAN bus terminating resistors not connected properly	A terminating resistor should be on both sides of the CAN bus. Refer to page 7-7 , <i>CAN Bus Terminating Resistor</i>
2. Platen can not be raised (container in bulk melter)	Platen lift-up protection is activated Container is not aerated	Refer to page 4-8 , <i>Platen Lift-up Protection</i> Refer to page 4-8 , <i>Aerating Container</i>
3. Platen can not be lowered (container in bulk melter)	Container is not relieved of air	Refer to page 4-10 , <i>Lowering Platen</i>

LEDs



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

LEDs of I/O Board

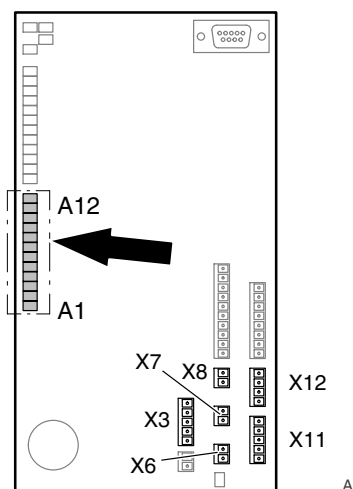


Inputs

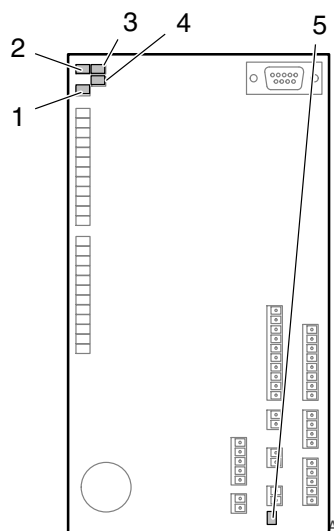
NOTE: The LED indicates only that there is voltage at the I/O board input; it does not indicate whether the function is activated

Plug	LED	Inputs (LED lit, if 24 V _{DC} supplied)
X9.3	E1	Heaters on
X9.4	E2	All motors ON (collective enable)
X9.5	E3	Enable <i>Motor 1</i>
X9.6	E4	Enable <i>Motor 2</i>
X9.7	E5	Enter standby
X9.8	E6	LED illuminated: Manual mode on LED not illuminated: Key-to-line mode on
X9.9	E7	Application group 1
X9.10	E8	Application group 2
X13.2	E9	Application group 3
X13.4	E10	Application group 4
X13.6	E11	Main switch (main contactor)
X13.8	E12	<i>Reserved</i>

Outputs



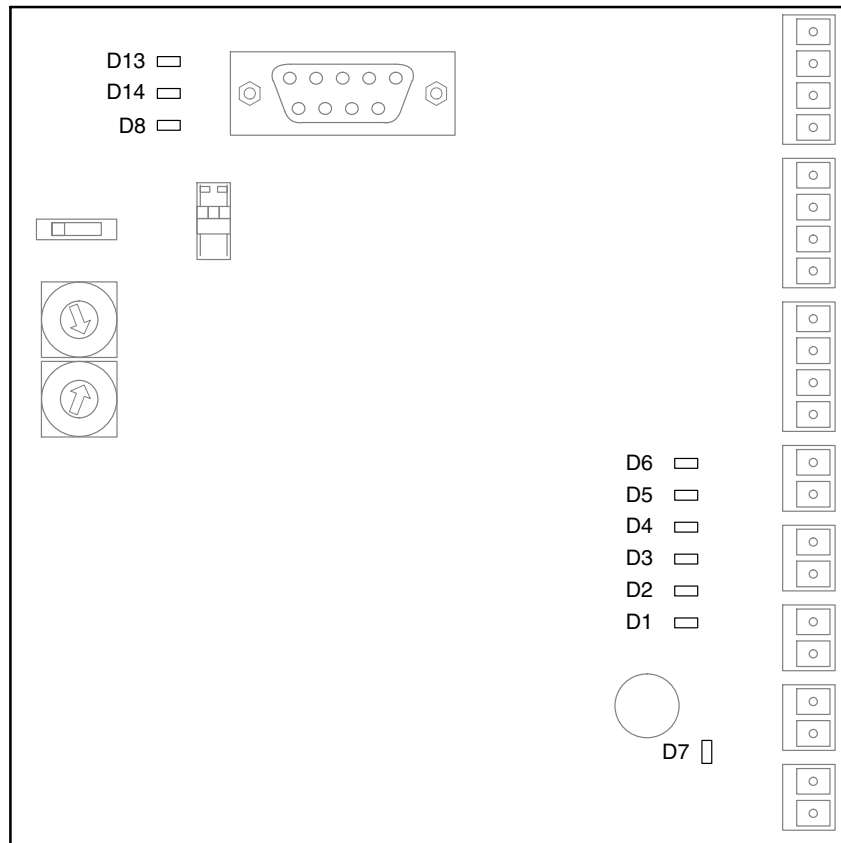
Plug	LED	Outputs (LED lit, if 24 V _{DC} supplied)
X3.3	A1	Light tower: Green lamp <i>System ready</i>
X3.4	A2	Light tower: Yellow lamp <i>Warning</i>
X3.5	A3	Light tower: Red lamp <i>Fault</i>
X6.1	A4	Main contactor
X7.1	A5	Aerating Container
X8.1	A6	Raising Platen
X11.2	A7	System ready
X11.3	A8	General alarm -warning-
X11.4	A9	General alarm -fault-
X11.5	A10	Container is empty
X12.2	A11	Piston pump enabled
X12.4	A12	Container almost empty



Various

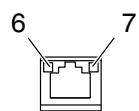
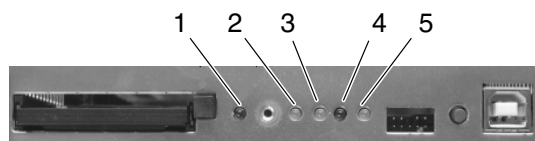
FIN LED (1)	Lit as soon as pulses > 1 Hz at frequency input
RUN LED (2)	Lit when power is ON (bulk melter switched on) Flashing during operation
CAN communication (3)	Lit as soon as communication occurs at CAN bus
CAN error (4)	Lit with communication fault
Fuse (5)	Lit when 24 V _{DC} supply to internal outlets OK

LEDs of Temperature Control Board

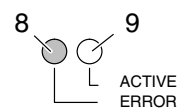


LED	
D1	Heater output of the first channel is switched on. NOTE: Depending on position of dials S1 and S2, the first channel of this temperature control board is channel 1, 7 or 13.
D2 (... D6)	Heater output of the second channel (... the sixth channel) is switched on.
D7	Operating voltage present
D8	CAN data received or transmitted
D13	Lit: Controller software reset Flashing: CAN fault counter overflow, stack error, power down not finished properly
D14	No connection to control unit (IPC)

LEDs of IPC



EtherNet



PROFIBUS DP

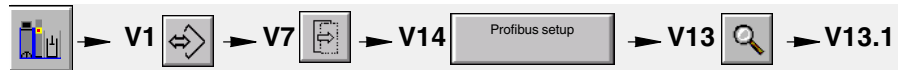
- 1. CF ACT
- 2. CAN ACT
- 3. TOUCH ACT

- 4. TOUCH ERROR
- 5. SUPPLY OK
- 6. LINK (EtherNet)

- 7. ACT (EtherNet)
- 8. ERROR (Profibus DP)
- 9. ACTIVE (Profibus DP)

Pos.	LED		Meaning
1	CF ACT (red)	Flashes briefly	(Internal) access to memory board
2	CAN ACT (green)	Flashes briefly	CAN active (data traffic)
3	TOUCH ACT (green)	Illuminated	Control panel (touch panel) ready
		Flashing	When control panel is touched
		Off	During booting
4	TOUCH ERROR (red)	Illuminated	During booting, otherwise fault
		Flashing	Control panel dirty
		Off	Control panel (touch panel) ready
5	SUPPLY OK (green)	Illuminated	Energized
6	LINK (green)	Illuminated	Active network connected and detected
7	ACT (yellow)	Flashing	EtherNet active (data traffic)
8	ERROR	Illuminated	Command from field bus master missing: Field bus cable broken, defective or not connected Interruptions in communication, e.g. if the master is not switched on Defective or missing Profibus terminating resistor The network was not set up properly Sudden resets or crashes, e.g. due to electro-magnetic interference
9	ACTIVE	Flashing	Profibus active (data traffic)

Checking Transmitted Field Bus Data



In control panel screen V13.1 the field bus data transmitted by the field bus master to the bulk melter can be monitored.

The field bus data shown is a factor of the field bus data protocol used (Refer to page 4-17, *Selecting Field Bus Data Protocol*):

V13.1
Field bus data protocol
Standard

A. When *Standard* is used:

- *Melter control*, binary display
- *Command*, decimal display
- *Data index*, decimal display
- *Channel number*, decimal display
- *Write data value*, decimal display.

V13.1
Field bus data protocol
Extended

B. When *Extended* is used:

- *Melter control 1*, binary display
- *Melter control 2*, binary display
- *Melter control 3*, binary display (software version 6.45.034 and higher)
- *Command*, decimal display
- *Data index*, decimal display
- *Channel number*, decimal display
- *Write data value*, decimal display.

This data forms a data set. Every change in the data set is recorded when logging is activated (key *Logging activated*).

NOTE: In exceptional cases, logging may not be able to keep up with the speed of the data changes. Logging ends automatically as soon as there would be a gap in the log.

The most recently recorded changes in the data set can be displayed (key *Show log*).

NOTE:

- *No.* = Data set counter, decimal display from 1 to 99
- (*Melter*) *control*, hexadecimal display in this case.

Section 7

Repair



ATTENTION: Allow only qualified personnel to perform the following tasks. Follow the safety instructions here and in the entire documentation.

Observe Before Performing Repairs



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

Risk of Burns



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

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

Relieving Pressure

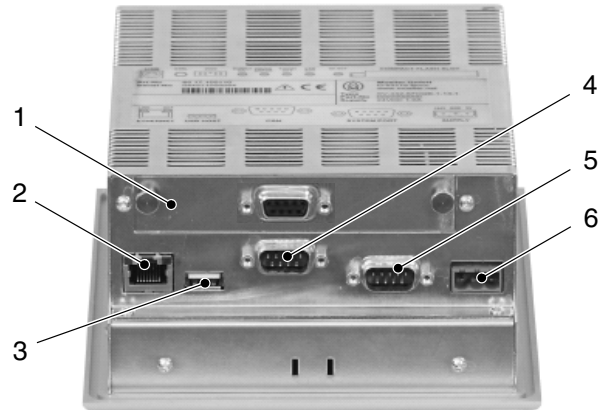


ATTENTION: System and material pressurized. Relieve bulk melter pressure before disconnecting pressurized components (e.g. hoses, pressure sensors). Failure to observe can result in serious burns.

1. Switch off motor.
2. Set selector *Raise/lower platen* to *0/stop*.
3. Place a container under the nozzle(s) of the applicator / assembly handgun.
4. Applicators: 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.
5. Properly dispose of material according to local regulations.

Control Panel

CAUTION: When a bulk melter has no communication assembly, operate only with the cover to protect the slot.



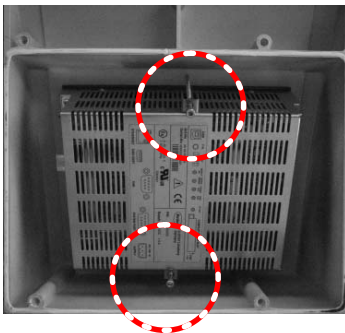
- 1 Communication assembly PROFIBUS-DP (option)*
- 2 RJ45 EtherNet

- 3 *Not in use*
- 4 CAN plug 9-pin DSub male

- 5 RS232 plug 9-pin DSub male
- 6 24 V_{DC} power supply

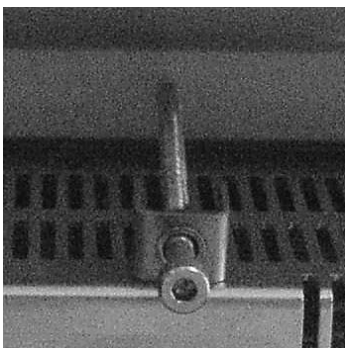
Note: * If the system does not include the option PROFIBUS DP, there is a cover on this port.

Detaching Control Panel



1. The control panel is fastened to the console with two clamping screws. The two angled brackets slide into the IPC cooling slots.
2. Release the clamps, then remove the clamping screws and brackets.
3. Detach the connections, if necessary. The control panel can now be removed.

CAUTION: When the control panel is put into place, tighten the clamping screws only by hand.

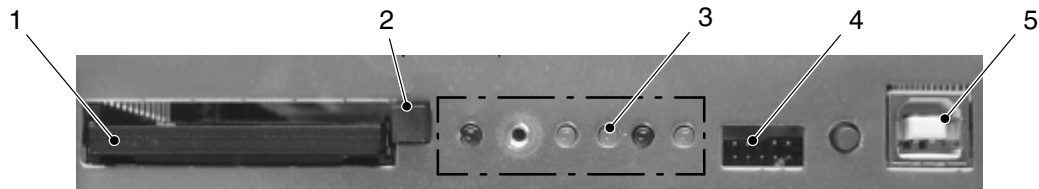


Replacing Memory Card



ATTENTION: The memory board may be replaced only when the bulk melter is switched off.

NOTE: All of the set parameters (*Recipes*) are lost when the memory board is replaced. The bulk melter is returned to the original state. Recipes can be saved on an external PC beforehand and then transferred from there again later. Refer to page 4-45, *Exchanging Recipes with an External PC*.



1 Memory board *CompactFlash*
2 Eject button for memory board

3 Indication lamps (LEDs)
4 Not in use

5 Not in use

1. Switch the bulk melter off with the main switch.
2. Detach the control panel. Refer to page 7-2, *Detaching Control Panel*.
3. Press the eject button and remove the old memory board.
4. Carefully slide in the new memory board until the eject button pops out again.
5. Reconnect any cables that were detached.
6. Attach the control panel.
7. Switch on the bulk melter again.
8. Enter the configuration code. Refer to page 4-25, *Entering Configuration Code*.
9. Set values and parameters. Refer to page 4-13, *Setting Values and Parameters*.

Installing/Replacing the Communication Assembly

CAUTION:

- When a bulk melter has no communication assembly, operate only with the cover to protect the slot
- A grounding wrist-strap should be worn to protect from electrostatic discharges when installing/removing the communication assembly.
- Do not plug in the communication assembly when voltage is applied.

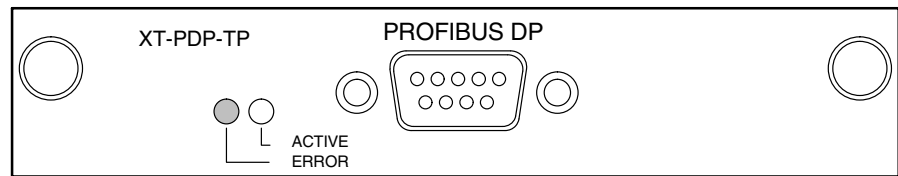
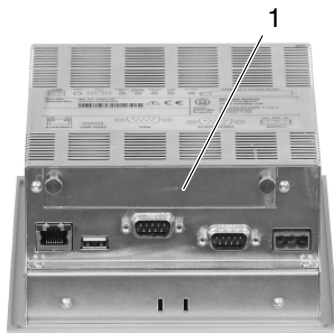
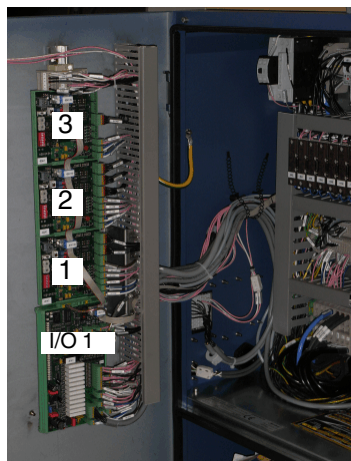


Fig. 71 Communication assembly PROFIBUS DP



1. Unscrew the cover (1) and place aside for later use, or unscrew and extract the old communication assembly.
2. Carefully slide in the new communication assembly until it clicks into place.
3. Secure the communication assembly with the two knurled screws.

Replacing Temperature Control Board or I/O Board



Board no.

NOTE: Switch / DIP switch settings, bus terminating resistors yes/no and jumper settings are to be assumed from the replaced board.

Setting CAN Address



The CAN address is set on the dials using a screwdriver.

Temperature Control Board

(CAN bus plug X9)

Dial (default)		Board no.	Temperature channel
S1	S2		
7	1	1	1 to 6
7	2	2	7 to 12
7	3	3	13 to 18
NOTE: Dial setting S1 may not be changed.			

I/O Board

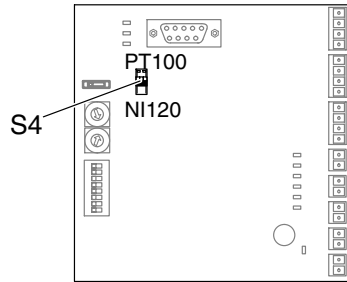
(CAN bus plug X16)

Dial (default)		Board no.
SW1	SW2	
0	5	I/O 1
NOTE: Dial setting SW1 may not be changed.		

Temperature Board: Additional Settings

Setting Ni 120 or Pt 100

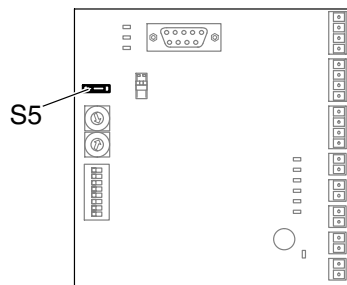
The temperature sensor type (Ni 120 or Pt 100) is set with the switch S4.



Switching Bus Terminating Resistor on/off

The terminating resistor is switched on and off with switch S5. The terminating resistor on the last temperature control board must always be switched on; the others must always be switched off.

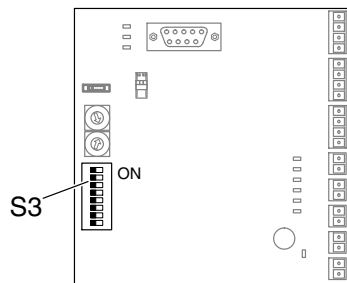
If e.g. a third board is added, the resistor of board 2 must be switched from *on* to *off*; the resistor of the retrofitted board 3 must be switched *on*.



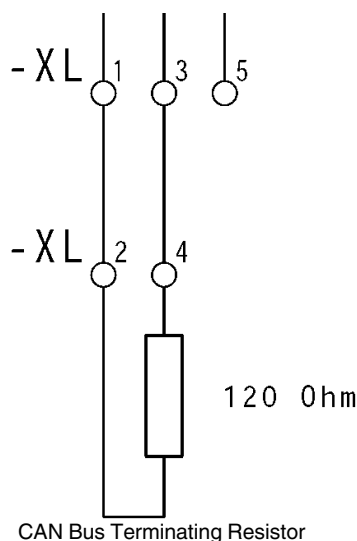
Setting DIP Switches S3

All switches to OFF.

NOTE: If during work on the CAN bus errors occur that have no readily apparent cause (red indication lamps) or the bulk melter shuts down, switch the bulk melter off then on again with the main switch.



CAN Bus Terminating Resistor



A terminating resistor should be on both sides of the CAN bus. One of the two terminating resistors is on the last temperature board and must be switched on. Refer to page 7-6, *Switching Bus Terminating Resistor on/off*.

The second terminating resistor must be installed at terminal XL.

NOTE: The two CAN bus terminating resistors are switched in parallel via the bus. Thus, when they are installed, resistance measuring indicates a value of 60 Ω .

Refer to page 3-4, *CAN Bus: Securing Plug Connections*.

Replacing O-rings



ATTENTION: System and material pressurized. Relieve bulk melter pressure before disconnecting pressurized components (e.g. hoses, pressure sensors). Failure to observe can result in serious burns. Refer to page 7-1, *Relieving Pressure*.



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

When leakage occurs, e.g. at the hose connections, the O-rings must be replaced. Observe the following:

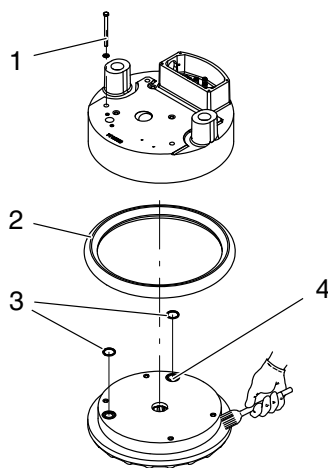
- Clean and lubricate O-ring groove. Nordson recommends special high temperature grease; refer to page 5-3, *Processing Materials*.
- Also lubricate O-ring.
- Do not use removed O-rings again.
- Tighten hose connection and blind covers with a torque wrench to 9.5 Nm.

Replacing Melting Plate

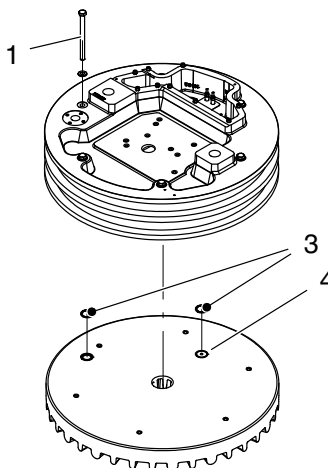


ATTENTION: Hot! Risk of burns. Wear heat-protective gloves.

VersaPail



VersaDrum



1. Heat the platen until the material softens (approx. 70 °C/158 °F, depending on the material).
2. Place a clean, hard, heat-resistant resting surface (e.g. metal plate) on the container and lower the platen onto the surface.
3. Release all of the fixing screws (1).
4. Raise the platen approx. 10 cm. The melting plate remains on the resting surface.
5. Shut down the bulk melter.
6. Carefully extract the temperature sensor from the bore (4).
7. Replace the O-rings (3). Clean and grease the grooves. For the type of grease, refer to page 5-3, *Processing Materials*.
 - VersaPail: The sealing ring (2) can now be replaced. For the type of grease, refer to page 5-3, *Processing Materials*.
8. Apply heat transfer compound (Refer to page 5-3, *Processing Materials*) to the temperature sensor and insert it into the bore (4).
9. Screw the melting plate into place:
 - a. Grease the fixing screws and screw in loosely such that the platen and melting plate have thermal contact
 - b. Wait until the platen and melting plate are at the same temperature.
 - c. Tighten the fixing screws with the torque indicated in the table:

	VP020	VD200
Torque	10 Nm	15 Nm

NOTE: The next time the platen is *cold* (e.g. weekend, factory vacation) tighten the fixing screws again with the torque indicated in the table.

Replacing Sealing Ring



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

VersaPail

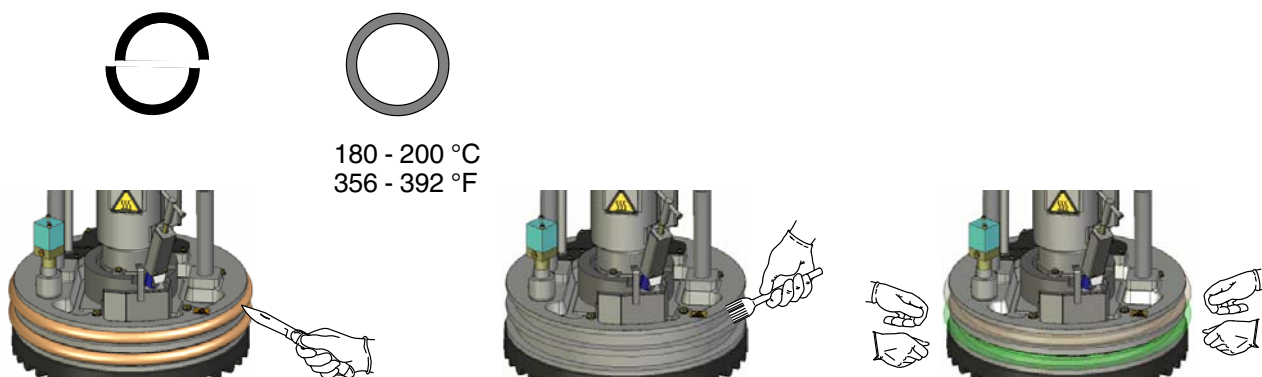
Proceed as described under *Replacing Melting Plate*. Refer to page [7-8](#)

VersaDrum

1. Heat the platen to operating temperature.
2. Place a clean, hard, heat-resistant resting surface (e.g. metal plate) on the container and lower the platen onto the surface.
3. Cut old sealing rings with a knife and dispose of properly.

CAUTION: Do not damage the nonstick coating.

4. Clean and grease the grooves. For the type of grease, refer to page [5-3](#), *Processing Materials*.
5. Put the sealing rings on the heated platen; this will require two persons. If necessary, heat the new sealing rings in a heating furnace (180 - 200 °C / 356 - 392 °F).



Box 16 = F: Only the lower sealing ring is on the platen with models for cardboard containers

Replacing Temperature Sensor or Thermostat



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



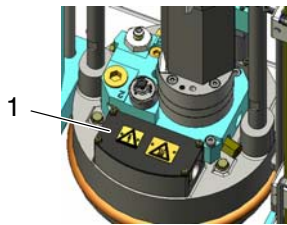
ATTENTION: Risk of electrical shock. Failure to observe may result in personal injury, death, or equipment damage.



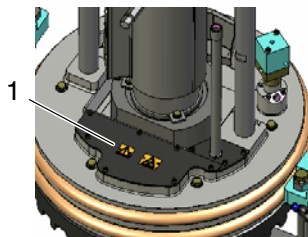
Cable lugs (example)

CAUTION: Tighten the nuts on the cable lugs applying max. 1 Nm, and grasp the lower nut to brace. Otherwise the ceramic bases or the heating elements could be damaged.

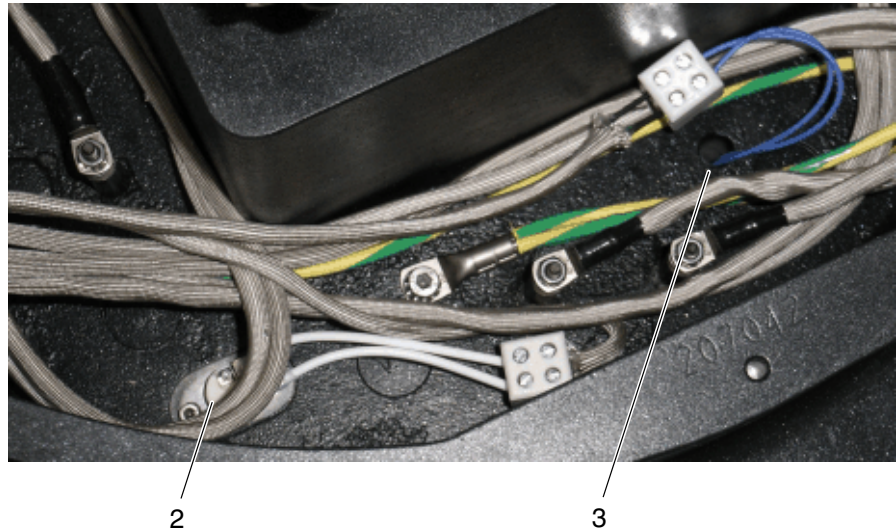
VersaPail



VersaDrum



1. Disconnect the bulk melter from the line voltage.
2. Remove the cover (1).



3.

Thermostat (2)

1. Apply heat transfer compound (Refer to page 5-3, *Processing Materials*) to the new thermostat and replace.

Temperature sensor (3)

1. Carefully pull the temperature sensor out of the melting plate by the connecting cable. If it cannot be pulled out easily, the melting plate must be removed. Refer to page 7-8, *Replacing Melting Plate*.
2. Apply heat transfer compound (Refer to page 5-3, *Processing Materials*) to the temperature sensor and insert/fasten.
4. Re-attach the cover.
5. Start up the bulk melter again.

Section 8

Parts

How to Use Illustrated Parts List

The parts lists in the separate document *Parts List* 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 cannot 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.

NOTE: The texts are available only in English. Refer to the separate document *Parts List*.

Fasteners

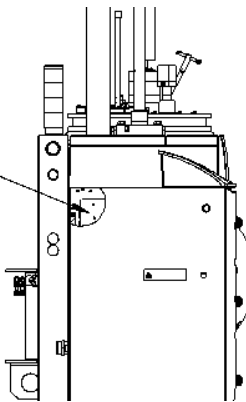
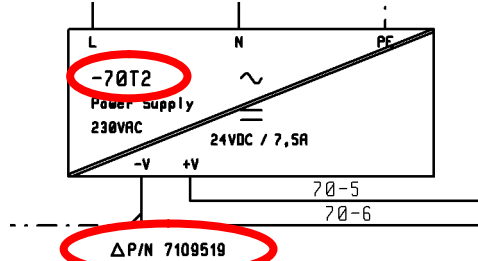
Fasteners are shown as *Fx* in every illustration, whereby "x" indicates the number of the fastener in the list *Schedule of Fasteners* at the end of the separate document *Parts List*.

Component Designation

The electrical components are labeled according to DIN 40719, part 2.

Special Models

An *E* instead of the - in box 6 of the configuration code indicates a special model. When appropriate, a so-called *Delta Parts List* (Δ -Parts List) is added to the document *Parts List*. Then parts that differ from the standard spare parts offering are indicated as followed:

Δ	Note	Example				
#M	Mechanical component Refer to additional drawing	<table><tr><th>Ref</th><th>Benennung</th></tr><tr><th>P/N</th><th>Description</th></tr></table> #M 7104532spacer M5x15 Abstandsbolzen M5x15 Δ 7154268 Δ 7104532 Δ 255284 Δ 254713 	Ref	Benennung	P/N	Description
Ref	Benennung					
P/N	Description					
#E-	Electrical component Refer to wiring diagram	<table><tr><th>Ref</th><th>Benennung</th></tr><tr><th>P/N</th><th>Description</th></tr></table> #E-70T2 7109519switching power supply 23 Schaltnetzteil 230V/N/24V 0001 -70T2 0002 -71T2 	Ref	Benennung	P/N	Description
Ref	Benennung					
P/N	Description					

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		
Max. material pressure ☐ Box 10 = B ☐ Box 10 = A	100 bar	10000 kPa	1450 psi
	200 bar	20000 kPa	2900 psi
Degree of protection	IP 54		
Noise emission 1 m away	80 dB(A)		
	 ATTENTION: Wear hearing protection.		

Suitable Containers

CAUTION:

- Cardboard containers may be used only with the *VersaDrum* series and only with the proper container jackets. Refer to page 3-18, *Container Jacket for Cardboard Containers*.
- The *VersaPail* series may be used only with metal containers.



ATTENTION: Use only containers that meet the minimum height requirement. Otherwise there is a risk of squash!

	Code	Container diameter (interior)	Min. and max. container height (exterior)
8	K	280 mm	370 mm - 475 mm
	N	286 mm	370 mm - 486 mm
	J	567 mm	875 mm - 960 mm
	D	571 mm	875 mm - 960 mm

Temperatures

CAUTION: The temperature setting is determined by the processing temperature prescribed by the material supplier. The maximum operating temperature for the system and heated components described here may not be exceeded.

	 Box 12 = L	 Box 12 = M	 Box 12 = H
Min. operating temperature (setpoint)	40 °C 100 °F	40 °C 100 °F	40 °C 100 °F
Max. operating temperature	150 °C 300 °F	180 °C 350 °F	230 °C 450 °F
Overtemperature shutdown by thermostat	180 °C 350 °F	210 °C 410 °F	260 °C 500 °F

Air Consumption

	VersaPail	VersaDrum
Per cycle (platen up and down) at 8 bar / 116 psi	Approx. 400 standard liters	Approx. 600 standard liters
Piston pump air motor at 4.7 bar / 68 psi	Approx. 25 standard liters per double stroke	

Exhaust Hood (Accessory)

	VersaPail	VersaDrum
Nominal air quantity (recommendation)	205 m ³ /h	510 m ³ /h
Pressure loss at nominal air quantity	Approx. 50 Pa	Approx. 180 Pa
Connecting sleeve	Ø 100 mm	Ø 150 mm

Electrical Data



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

Permitted deviation from operating voltage	±10%
Operating voltage frequency	50/60 Hz
Max. power output per heating channel	2 000 W, but also max. 2000 W per receptacle <i>Hose/gun</i> (Each receptacle supplies two heating channels)
Permitted voltage deviation at interface <i>Standard I/O</i>	±10%

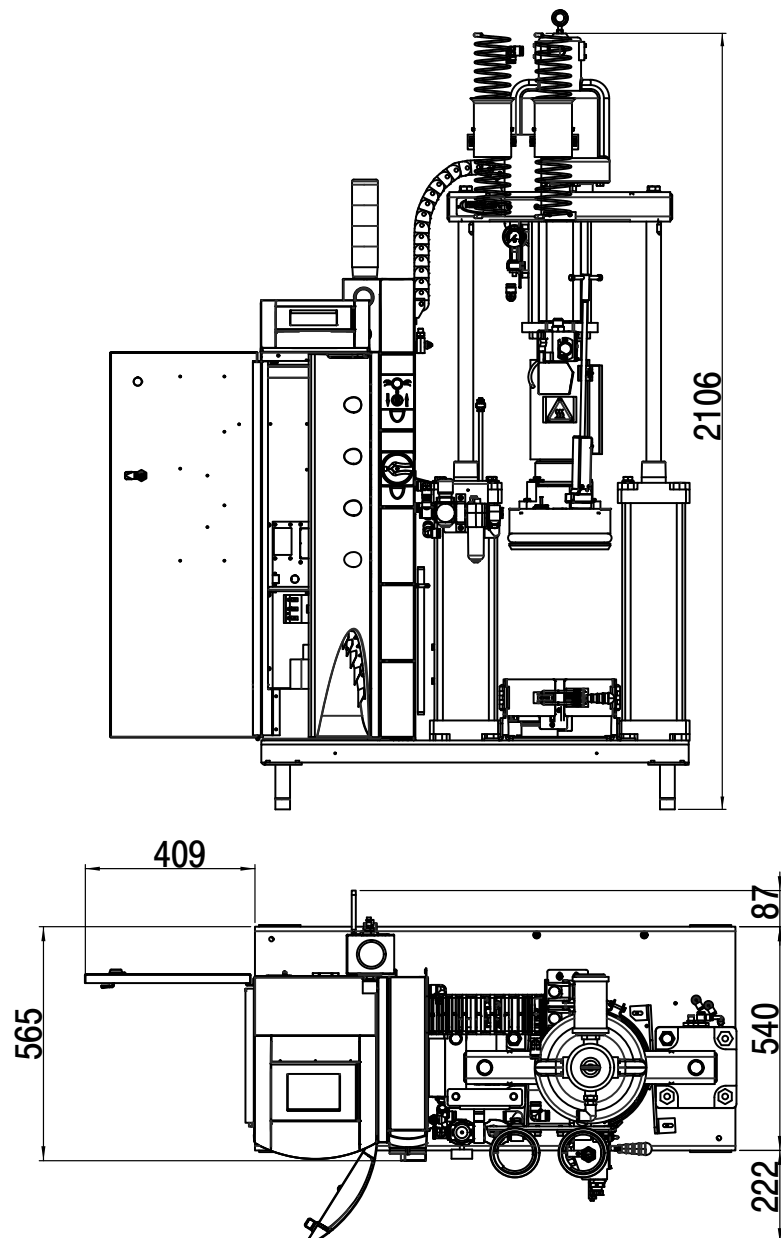
Rated Current / Operating Voltage

				Receptacles <i>Hose/gun</i>								
				Box 11								
				2	4	6			2	4	6	8
				VersaPail				VersaDrum				
Operating voltage	Box 9	2	200 V 3 Ph Δ	43 A	52 A	57 A			76 A	93 A	100 A	100 A
		3	230 V 3 Ph Δ	38 A	45 A	53 A			67 A	81 A	96 A	97 A
		4	400 V 3 Ph Y	22 A	30 A	31 A			38 A	47 A	55 A	56 A
		5	400 V 3 Ph Δ	22 A	30 A	31 A			38 A	47 A	55 A	56 A
		6	480 V 3 Ph Δ	19 A	25 A	26 A			32 A	39 A	46 A	47 A
		7	575 V 3 Ph Δ	-	-	-			27 A	33 A	39 A	39 A

Dimensions and Weights

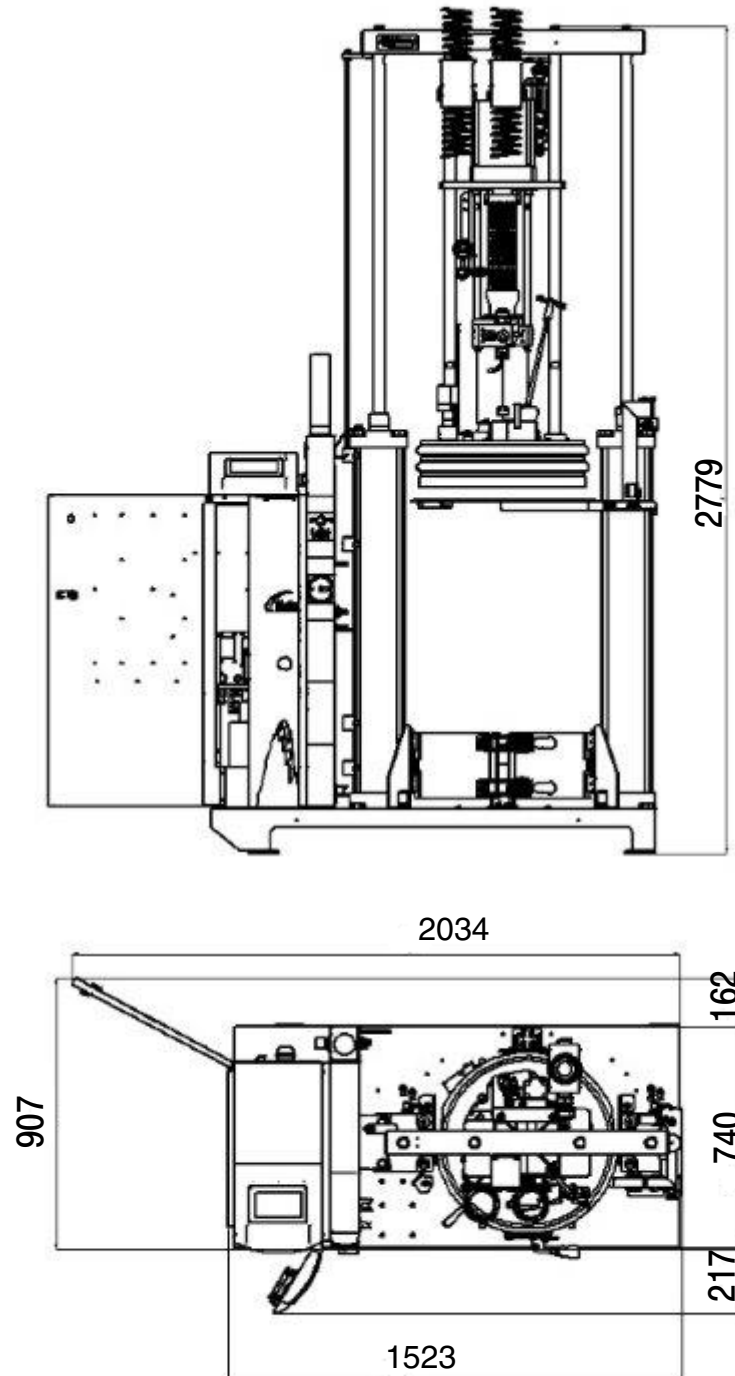
VersaPail

		Note
Weight	Approx. 332 kg	Refer to consignment note for exact weight
Load on floor (when melter is completely filled)	Approx. 0.94 N/mm ²	



VersaDrum

		Note
Weight	Approx. 672 kg	Refer to consignment note for exact weight
Load on floor (when melter is completely filled)	Approx. 0.41 N/mm ²	



Appendix A

Password

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

Customer Master Password	Operation via the IPC webserver	
	NOTE: Observe capitalization.	
	User name	Keyword
X5SW3HH	VersaWeb	manager

NOTE: The customer's master password is valid for levels 1 to 3.

Level	Functions enabled
Level 0 Accessible without password	Switch on/off heaters Switch on/off collective motor enable Switch on/off seven-day clock Enter/exit standby Change language Brightness Change date / time
Level 1 Operation Normal operation for all operators	Temperature setpoints Switch application groups on/off Individual motor enable Pressure setpoint Speed setpoint Max. pump speed (in key-to-line mode)
Level 2 Parameters Settings for trained personnel	Undertemperature/overtemperature <i>warning/fault</i> Standby values Automatic enter standby Manual standby duration Temperature channel activated/deactivated Switch between manual mode / key-to-line
Continued ...	

Level 3 Basic settings	Application names (temperature channels, pumps, pressure sensors) Controlled system heating rate temperature Switch between °C / °F Temperature channel: Display mode, control mode Maximum temperature setpoint Define application groups Select function for switching application groups Seven-day clock: Delete, edit schedule, copy schedule Switch between bar, psi, kPa Pressure alarm monitoring on/off Overpressure and underpressure alarms Pressure PID parameters Motor enables from control panel / control panel AND standard I/O Key-to-line signal: Analog/frequency, voltage/current Motor feature combination Speed control / pressure control Line speed for min./max. speed Pump speed/pressure Min. pump speed (in key-to-line mode) Min./max. pressure (in key-to-line mode) Threshold switch Increased speed Automatic fill time Restore default settings Melter configuration Control options / control modes Customer setup (recipes / application names) Service interval Setup <i>System ready</i> Password setup Recipes IPC IP address and Subnet mask Changeover system setup Pressure sensor setup Profibus setup ControlNet setup EtherNet/IP setup
Level Nordson Only for Nordson personnel	NORDSON setup

Appendix B

General Application Materials Processing Instructions

(With instructions regarding PUR application materials)

Definition of Term

Application materials are considered to be e.g. thermoplastic hot melt adhesives, adhesives, sealants, liquid adhesives and similar application materials that are also referred to as materials in the following text.

NOTE: The materials that may be processed using your Nordson product are described in the manual under *Intended* and *Unintended Use*. When in doubt, consult your Nordson representative.

Manufacturer Information

Materials may be processed only when the manufacturer's product descriptions and Safety Data Sheets are observed.

Among other things, they give information on correct processing of the product, transport, storage and disposal. Information regarding reactivity and potentially hazardous decomposition products, toxic properties, flash points, etc. can also be found there.

Liability

Nordson will not be liable for danger or damage resulting from the materials.

Risk of Burns

There is a risk of burns when handling heated materials. Work carefully and wear appropriate safety equipment.

Vapors and Gases

Ensure that vapors and gases do not exceed the prescribed limits. Exhaust vapors and gases with appropriate devices when necessary and/or ensure sufficient ventilation of the work area.

Substrate

The substrate should be free of dust, grease and dampness. Experiment to select the suitable material and to determine the optimum working conditions and any pretreatment that may be needed for the substrate.

Processing Temperature

When processing tempered materials, the prescribed processing temperature must be complied with to ensure high-quality application. The temperature may not be exceeded! Overheating may cause charring or cracking of the material, which could lead to downtime or damage to the unit.

The material should always be melted gently. Avoid long, unnecessary exposure to heat. When work is interrupted, the temperature should be reduced. The temperature in the tank of the unit should be coordinated with the material consumption. When a large amount of material is consumed, the temperature should be set close to the prescribed processing temperature; lower consumption means a lower temperature.

When processing cold material, consider the influence of shear heat and ambient temperature. Cool if necessary.

Flash Point Temperatures of Adhesives to be observed

Depending on the switching temperature of the used thermostat (see configuration code or technical data of the melter) only adhesives are to be used which have a flash point temperature of at least 10 °C (18 °F) above the switching temperature of the thermostat.

The flash point temperature of the adhesive can be found in the respective manufacturer's data sheet or must be questioned at the manufacturer.

Important Note for Polyurethane Materials (PUR)

When processing polyurethane materials (PUR), the following additional instructions must be followed:

- When the maximum level of harmful substance concentration is exceeded, use a gas mask and air purifying equipment.
- During production stoppages or breaks, reduce the temperature and close the applicator nozzle as well as possible. Cover the remaining opening with high-temperature grease or high-temperature tape.
- Before the application system is shut down for a longer period of time, rinse it with a suitable cleaning agent. Use only a cleaning agent recommended by the material manufacturer.
- Close open material connections so that they are airtight.

Appendix C

Glossary

Advance Distance

Distance between initiator and gun/application head.

Angel Hair

Fine threads of adhesive that are created when adhesive is incorrectly transferred from the nozzle to the substrate. This could be caused e.g. by poor shaving of high viscosity material at the nozzle.

Application Head / Applicator

Refer to *Gun*.

Application System, Hot Melt

An arrangement of units and components that melt, feed, meter and apply hot melt adhesive, e.g. bulk melter, melter, gear metering pump station, gun, coating stand and heated hoses.

Application Weight

The weight (grammage) of the application material applied to a surface unit of the substrate.

Determining the application weight: A circle cutter is used to cut several 100 mm² sized circles from the uncoated substrate. The cut out sections should be evenly distributed on the substrate. The samples are each weighed to exactly 0.01 g, and the average weight is calculated. The same is done with the coated substrate. The number of samples taken depends on how much the weights of the samples differ. The application weight is the difference between the coated and uncoated substrate. The application weight is usually stated in g/m².

Assembly Handgun

Manually operated system component used to apply material as a bead, dot, surface or spray application.

bar

Legal unit for pressure. The SI unit is Pascal (Pa). The unit commonly used in the USA is psi. Refer to *Conversions*.

Bd (Baud)

Rate of data transfer: Bit/s.

Bead Size

The width of a bead of material applied to a substrate. The size refers to the bead before it is compressed by the two parts.

CAN Bus

The **C**ontroller **A**rea **N**etwork is an internationally standardized serial bus system. With Nordson melters, control components such as temperature controllers, motor controllers (frequency converters) and pressure sensors exchange data with the industrial PC via the CAN bus. The CAN bus is used as an internal network for Nordson unit control and is not intended to be an interface for the customer's control units.

Cast-in Heater

A resistance heating element that is cast into a tank or melting plate. This fixed connection provides optimal heat conducting.

Charring

Decomposition of a synthetic material, particularly through heat influence. Can occur when processing temperature is too high.

Class of protection

Protective measures are required to ensure electrical safety of the units. The measures prevent accessible metal parts from conducting voltage when a fault occurs. Assignment of classes of protection indicates the protective measures.

Class of protection	Symbol	Precaution
1		All accessible metal parts are conductively connected to one another and are linked to the mains ground conductor.
2		The unit is insulated such that there are no accessible metal parts that could conduct voltage in the event of a fault. There is no ground conductor.
3		The unit is operated with extra-low voltage up to 42 V from a safety isolating transformer or a battery.

Component

1. System component:
This term designates a single unit (e.g. melter) that is part of an application system.
2. Unit component:
This term designates a single part (e.g. coupling, *EMERGENCY OFF* button) or a group of parts that forms a functional unit (e.g. inert gas equipment).

Controller

Used to control proportional valves (pressure control unit) or solenoid valves and guns/application heads (pattern controller) dependent on the speed of the parent machine.

ControlNet

Internationally standardized serial field bus with scanner and adapter subscribers. Nordson melters (adapter) with a ControlNet interface can be controlled remotely by the customer's control unit (scanner).

Control Voltage

Electrical cabinet internal voltage for electrical components such as temperature controllers, PLC, etc. The control voltage in Nordson electrical cabinets is usually 230 V_{AC} or 24 V_{DC}.

Conversions

In mesh	In mm	In mesh	In mm
2,5	8.0	50	0.30
3	6.73	60	0.25
5	4.0	80	0.18
8	2.38	100	0.149
10	2.0	140	0.105
14	1.41	170	0.088
18	1.0	200	0.074
20	0.84	270	0.053
30	0.59	325	0.044
40	0.42	400	0.037

Table: U.S. Bureau of Standards

Conversions (contd.)

Unit		Multiplied by		Result	
Density		SI unit: [kg/m³]			
Kilograms per cubic meter	kg/m³	1.0 x 10 ⁻³		Kilograms per liter	kg/l
Kilograms per cubic meter	kg/m³	8.35 x 10 ⁻³		Pounds per gallon (US)	lb/gal
Kilograms per liter	kg/l	8.35		Pounds per gallon (US)	lb/gal
Pounds per gallon (US)	lb/gal	0.12		Kilograms per liter	kg/l
Starting torque		SI unit: [Nm]			
Newtonmeter	Nm	8.85		Pound inch (US)	lbin
Newtonmeter	Nm	0.74		Pound foot (US)	lbft
Pound inch (US)	lbin	0.113		Newtonmeter	Nm
Pound foot (US)	lbft	1.36		Newtonmeter	Nm
Pressure		SI unit: Pascal [Pa = N/m²]			
Pascal	Pa	1.0 x 10 ⁻⁵		Bar	bar
Pascal	Pa	0.69 x 10 ⁻⁶		Pounds per square inch (US)	psi
Bar	bar	14.5		Pounds per square inch (US)	psi
Pounds per square inch (US)	psi	0.069		Bar	bar
Speed		SI unit: [m/s]			
Meters per second	m/s	196.89		Feet per minute	ft/min
Feet per minute	ft/min	5.1 x 10 ⁻³		Meters per second	m/s
Length		SI basic unit: Meter [m]			
Meter	m	3.2808		Foot	ft
Foot	ft	0.3048		Meter	m
Centimeter	cm	0.3937		Inch	in
Inch	in	2.54		Centimeter	cm

Conversions (contd.)

Unit	Multiplied by	Result
Mass SI basic unit: Kilogram [kg]		
Kilogram kg	2.2046	Pound (US) lb
Pound (US) lb	0.4536	Kilogram kg
Gram g	0.0353	Ounce oz
Ounce oz	28.35	Gram g
Temperature SI basic unit: Kelvin [K]		
Degrees Celsius °C	(°C x 1.8) + 32	Degrees Fahrenheit °F
Degrees Fahrenheit °F	(°F - 32) ÷ 1.8	Degrees Celsius °C
Viscosity, dynamic SI unit: Pascal second [Pas]		
Pascal second Pas	1.0 x 10 ³	Centipoise ^A cP
Centipoise ^A cP	1.0 x 10 ⁻³	Pascal second Pas
Viscosity, kinematic SI unit: [m ² /s]		
Square meters per second m ² /s	1.0 x 10 ⁻⁶	Centistoke ^A cSt
Centistoke ^A cSt	1.0 x 10 ⁶	Square meters per second m ² /s
Volume SI unit: [m ³]		
Cubic meter m ³	1. 0 x 10 ³	Liter l
Cubic meter m ³	264.2	Gallon (US) gal
Liter l	0.2642	Gallon (US) gal
Gallon (US) gal	3.7853	Liter l
NOTE: A: Has not been a legal unit since 1986.		

dB (A)

Unit for the sound intensity level, measured according to the internationally standardized evaluation curve A, which measures sound in a way similar to how it is perceived by the human ear.

Degree of Protection

According to IEC 529/DIN 40 050.

The degrees of protection of electrical components through metal protection are stated as an abbreviation such as IP 54. The first numeral stands for the contact and impurity protection, and the second numeral indicates water protection. The third numeral, which indicates impact protection, is usually not stated.

	1. numeral	2. numeral	3. numeral
IP	Contact and impurity protection	Water protection	Impact protection
	Protection from...	Protection from...	Protection from impact strength up to...
0	-	-	-
1	Foreign object > 50 mm	Water dripping vertically	0,225 J = Impact of 150 g from a height of 15 cm
2	Foreign object > 12 mm	Water dripping diagonally	0,375 J = Impact of 250 g from a height of 15 cm
3	Foreign object > 2.5 mm	Spray water	0,5 J = Impact of 250 g from a height of 20 cm
4	Foreign object > 1 mm	Splash water	-
5	Dust accumulation	Water stream	2,0 J = Impact of 500 g from a height of 40 cm
6	Dust penetration	Upon flooding	-
7	-	When dipped	6,0 J = Impact of 1.5 kg from a height of 40 cm
8	-	When submerged	-
9	-	-	20 J = Impact of 5 kg from a height of 40 cm

Drop-off Delay

1. The time between the signal to switch off the gun/application head and the end of material application.
2. The time that a delay relay remains engaged after it has been switched off.

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. Refer to *Line Speed Signal*.

Firmware

Internal software that cannot be changed by and that is not accessible to the customer.

Flap Valve

A valve through which material can only flow in one direction. The valve closes automatically when the flow direction changes.

Free-wheeling Diode

Electronic component that protects electronic assemblies from power surges that occur when relays or solenoid valves are switched off.

Grammage

Refer to *Application Weight*.

Gun (Applicator)

System component used to apply material as a bead, dot, surface or spray application.

Heater Cartridge

A replaceable, cylindrical resistance heating element. It is inserted into a hole in the component to be heated.

Hopper

Unheated tank extension, used to increase tank volume.

Host

Higher-order control unit.

Hot Melt

Synonym for *hot melt adhesive*.

Hot Melt Adhesive

Hot melt adhesives are thermoplastic synthetic materials. They are processed in a liquid state. They bond by solidifying.

Inert gas

Gas (e.g. nitrogen) used to protect the adhesive from contact with humidity and therefore from undesired reactions. Inert gas is also referred to as protective gas.

Initiator

Component that generates a signal when an object is in a certain area of its surroundings. Possible models are e.g. proximity initiators and light beam photo cells.

Intermittent Mode

Mode of operation for guns/application heads. Instead of material application being continuous, it occurs with pauses to create the desired application pattern.

LED

Light Emitting Diode.

Line Speed Signal

A signal generated by the parent machine (voltage, current or frequency) to control the melter.

Line Voltage

Voltage in the customer's network. It may need to be converted to operating voltage by a transformer.

Machine Enable

A control unit is enabled by a signal from the parent machine. In Nordson literature the enable feature is also referred to as *Parent Machine Interlock* or *Security*.

Master-Slave

The setup of two or more units in which one assumes control of one or more slaves.

Example: Nordson melters on the PROFIBUS are slaves that are controlled by the customer's master.

Material

General Nordson term for application materials such as thermoplastic hot melt adhesives, adhesives, sealants, cold glue, etc.

Melter

Melts and feeds hot melt adhesives or similar materials.

Menu

Branched program structure from which the operator selects the desired functions/features.

min⁻¹

min⁻¹ = 1/min. Revolutions per minute (rpm).

MSDS

Material Safety Data Sheet.

Ni 120

Abbreviation for a nickel based resistance temperature sensor. At a temperature of 0° C (32° F), it has an electrical resistance of 120 Ω.

Nm

Newtonmeter, SI unit for energy and starting torque. Refer to *Conversions*.

Noise Emission

Noise level that a unit produces in the immediate vicinity. The noise emission is stated in dB (A).

Nominal Air Quantity

States suction volume of exhaust hoods. The pressure drop from the exhaust hood to the customer's fan must also be taken into consideration.

Nozzle

The component through which the material leaves the gun/application head. The nozzle determines the volume, shape and direction of the material outlet.

Open Time

The maximum time in which bonding can occur between application of the material to the substrate and pressing on the second part. Factors such as application temperature, substrate, adhesive properties and amount of adhesive are relevant to *open time*.

Operating Air Pressure

The customer's compressed air supply is usually reduced by pressure controllers in the units. The operating air pressure is the reduced pressure at which pneumatic components are operated.

Operating Voltage

The voltage used to operate the unit. The operating voltage is stated on the ID plate. A transformer may be necessary to adapt the melter to the customer's line voltage.

Output Quantity

The material volume fed by the pump. Stated e.g. in cm³/min.

Pa

Pascal, SI unit for pressure. Refer to *Conversions*.

Parameters

Variably adjusted values that must be entered into a control unit, a PLC control or the control system.

Parent Machine

The user's machine that generates the line speed signal for key-to-line mode. Refer to *Line Speed Signal*.

Pas

Pascal second, SI unit for dynamic viscosity.

PID Controller

A type of controller that combines different control characteristics of proportional, integral and differential aspects.

The controller should be calibrated such that the controlled variable (output variable) and the manipulating variable (input variable) fluctuate as little as possible and the time needed for the manipulating variable to stabilize is as short as possible.

PLC

Programmable Logic Controller.

Polyamide

A term used by Nordson to describe polyamide-based hot melt adhesives. Other common designations are polyamide resin and polyamide hot melt adhesive.

Polyurethane Hot Melt Adhesive

Moisture interlaced hot melt adhesive. Common abbreviations are PU and PUR. When processing polyurethane adhesives, additional safety instructions must be observed.

Power Consumption P

The electrical power consumption (wattage) of the unit (motor, heater and the electrical components in the electrical cabinet).

Power Consumption P_{max}

The maximum electrical power consumption (wattage) of the unit and the connected accessories. It is calculated as the product of the connected voltage and the maximum current protected by fuse.

Processing Temperature

The processing temperature is prescribed or recommended by the material manufacturer. It can be found in the product information and/or in the Material Safety Data Sheet (*MSDS*)

PROFIBUS

Internationally standardized serial field bus with master-slave subscribers. Nordson melters (slave) with a PROFIBUS DP interface can be controlled remotely by one of the customer's control units (master).

Proper Disposal

Disposal of all types of waste in compliance with all local regulations.

Proportional Pressure Control Valve

Electropneumatic component that enables control of pneumatic pressure with an electrical variable (usually control voltage).

Protective Gas

Refer to *Inert Gas*.

Pt 100

Abbreviation for a platinum based resistance temperature sensor. At a temperature of 0° C (32° F), it has an electrical resistance of 100 Ω .

Pull-in Delay

1. The time between the signal to switch on the gun/application head and the beginning of material application.
2. The time between when the voltage is turned on and when the delay relay is actually engaged.

PUR

Refer to *Polyurethane Hot Melt Adhesive*.

Rated Current

The setpoint for current to a unit, determined by standards or as agreed upon by the manufacturer and the customer.

Release Coating

Largely prevents hot melt adhesive from burning onto the surface and makes it easier to clean the application system parts coming into contact with the adhesive.

Residual Risks

Hazards that can pose a danger to the user, even when all safety regulations for manufacturing a product are followed and when the unit is used only as intended. Residual risks are noted - as extensively as the manufacturer is aware of them - in the manual and/or with warning signs on the unit.

Resistance Temperature Sensor

Component with an electrical resistance, the value of which changes as a factor of the temperature. Nordson units use the models *Pt 100* and *Ni 120*.

Reverse Mode

A pump motor operates counter to the direction of material feeding. Prevents material from dripping.

RPM

Revolutions per minute, same as $\text{min}^{-1} = 1/\text{min}$.

Safety Valve

A valve that prevents the material pressure from exceeding a preset value.

Safety Valve Plate

A component in which material circulates when the installed safety valve is open.

Set Time

The amount of time that the adhesive needs from application to complete hardening.

SI

Système International d' Unités (international standardization system).

Solenoid Valve

Usually part of the gun/application head. A control valve that is activated by an electromagnetic coil.

Solid State Relay

Electronic assembly without mechanical parts but with the function of an electromechanical relay.

Solvent

Solvents are liquid, organic materials and their compounds, used to clean adhesive off of surfaces. Solvents are slightly volatile. Special regulations must be followed when using solvents.

In Nordson literature, the solvent is always the substance prescribed by the hot melt manufacturer.

Substrate

The product - fabric, foil, etc. - to which a material is applied.

Tach Generator

A component that generates electrical voltage (pilot voltage). The voltage is proportional to the speed at which the tach generator is driven.

Temperature Sensor

A part of a temperature control system that compiles the temperature and transmits it to the control system. *Resistance temperature sensor* are used in Nordson units.

Thermostat

Component that regulates temperature. It is usually an electrical switch that switches at a certain or set temperature. The difference between the temperatures at which the unit switches on and off is called hysteresis.

Transformer

Voltage converter.
Used in Nordson units to convert the customer's line voltage to the operating voltage.

V_{AC}

Abbreviation for *Alternating Current*. AC voltage.

 V_{DC}

Abbreviation for *Direct Current*. DC voltage.

Viscosity

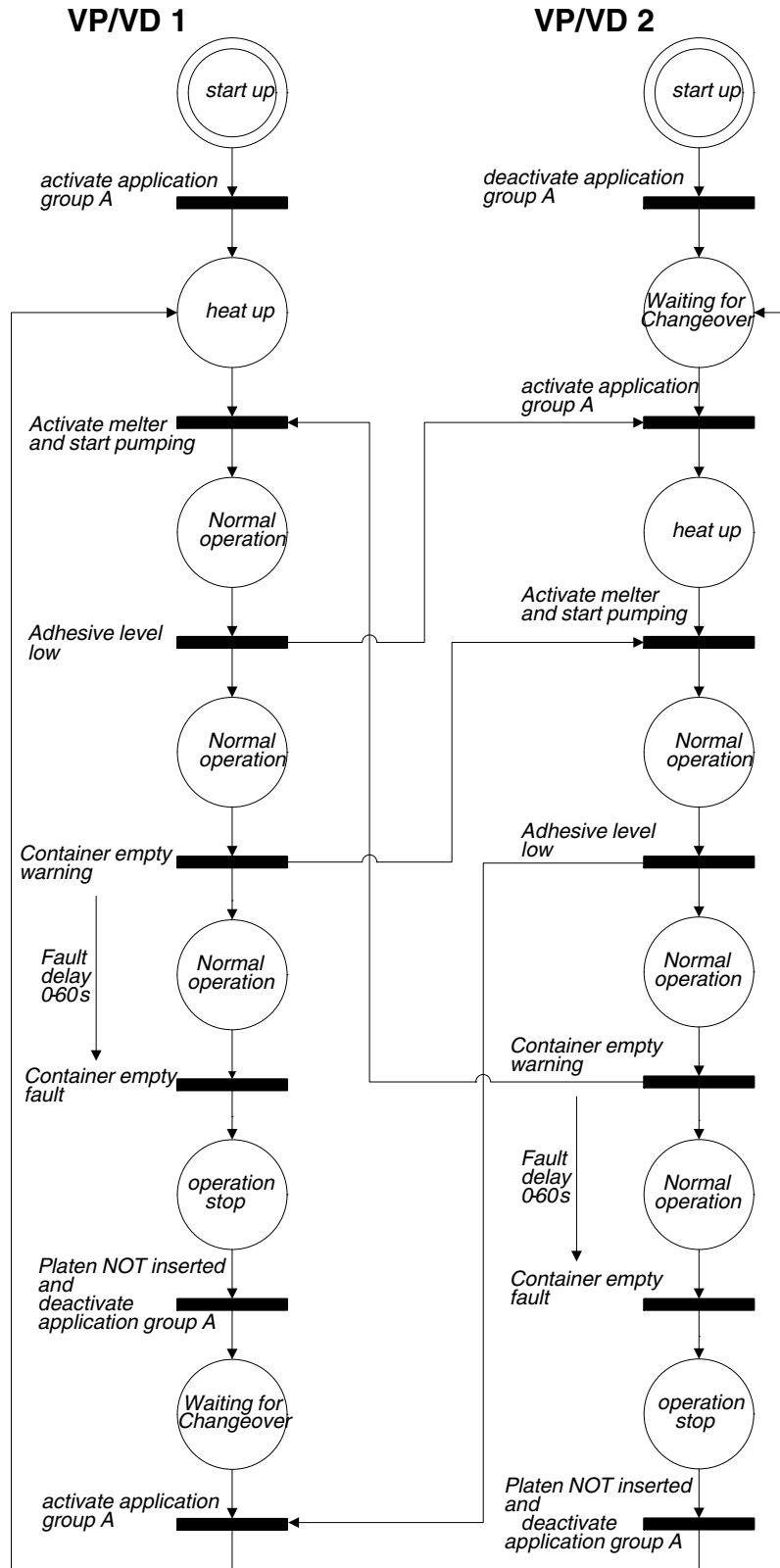
Strength; an indication of the force that must be generated to move a liquid:

1. Viscosity (also called dynamic viscosity).
Unit: Pas (Refer to *Conversions*).
2. Kinematic viscosity (dynamic viscosity divided by material density).
Unit: m²/s (Refer to *Conversions*).

Appendix D
ACO System - State Transition Diagram

Continued ...

NOTE: Valid for software version V6.52.038 and higher.



Appendix E

Pneumatics Diagram

Continued ...

