Hot Melt Applicators
EB □□□ Flex

incl. Control Box and Operating Unit

Manual P/N 7179567_11
- English -

Edition 04/21

NORDSON ENGINEERING GMBH • LÜNEBURG • GERMANY

Note

This document applies to the entire series.

This equipment is regulated by the European Union under WEEE Directive 2002/96/EC.

See www.nordson.com for information about how to properly dispose of this equipment.

Order number

P/N = Order number for Nordson articles

☽ http://www.nordson.com/en/global-directory

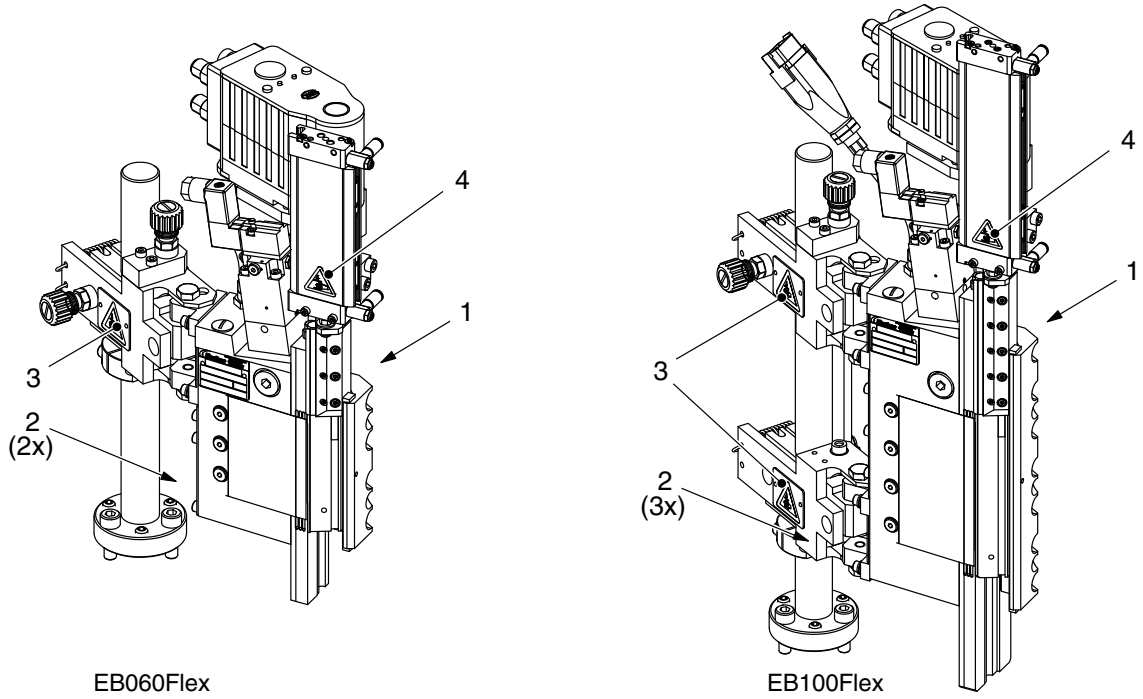
Table of Contents

Safety Instructions

ATTENTION: Please comply with the safety instructions included as a separate document and with the specific safety instructions throughout the documentation.

Safety Labels and Tags

Figure 1 shows the places on the applicator where safety signs and labels are affixed. Table 1 indicates what the labels and symbols mean.



EB060Flex EB100Flex

Fig. 1

Tab. 1 Safety labels and tags

Position	P/N	Description	
1	290082		**CAUTION:** Hot surface. Failure to observe can cause burns.
2	290083		**ATTENTION:** Risk of electrical shock. Failure to observe may result in personal injury, death, or equipment damage.
3 4	455754 7133387		**CAUTION:** Risk of squash. Failure to observe may result in hand injuries.

Introduction

Intended Use

Applicators in the series *EB_Flex* are intended to be used to coat the edges of particle boards (Edge Banding).

Polyolefines, EVA (ethylene vinyl acetate) and PUR (polyurethane) hot melt adhesives can be processed.

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.

Recommended System Environment - Examples -

The applicator works in an application system, in combination with one of the the following melters:

- System with a bulk melter VP020 or VD200 and an applicator
- System with a melter VersaPUR, VA025 or PURBlue 4 and an applicator

A control box and a control unit are used for motor-driven application width adjustment. These components can be purchased from Nordson.

Unintended Use - Examples -

The applicator may not be used under the following conditions:

- When changes or modifications have been made by the customer
- In defective condition
- In a potentially explosive atmosphere
- In the food industry
- In any installation position other than that described in this manual.
- When the values stated under *Technical Data* are not complied with.

Unintended Use - Examples - (contd.)

The applicator may not be used to apply the following materials:

- Explosive and flammable materials
- Erosive and corrosive materials
- Unsuitable adhesives (Refer to *From Roll Application to Slot Nozzle*)
- Food products.

From Roll Application to Slot Nozzle

If production has recently been converted from roll application to slot nozzle application, keep in mind that some adhesives that work well with roll application may cause problems with slot nozzle application.

One possible complication is that the substrate may not be evenly and properly coated. When appropriate, consult the adhesive manufacturer.

Residual Risks

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

- Risk of burns! The applicator is hot.
- Risk of burns! The material that comes out of the nozzle is hot.
- Risk of burns when connecting and disconnecting heated hoses.
- Risk of burns when conducting maintenance and repair work for which the applicator must be heated up.
- Material fumes can be hazardous. Avoid inhalation.

  When the prescribed limits are exceeded, install an exhaust system. Always comply with the processing instructions in the respective adhesive data sheets.
- Risk of pinching near swiveling and clamping device and near the pneumatic cylinder.

Note on Manual

An *Applicator* is also referred to as *Application head* in older Nordson literature.

In some places *Material* is used as a general term to designate adhesives and similar hot melt substances.

Melter is the general term used in this manual for all units that supply adhesive to the applicator.

If you have this manual as a PDF file, you can use the blue links - e.g. Refer to page 77, *Calibrating Slide Position* to navigate quickly through the file.

Definition of Terms

EB: Edge Banding

EB - Right model means that the right edge - viewed in the direction in which the board runs through the system - of the board is coated.

Chip board, or: Board

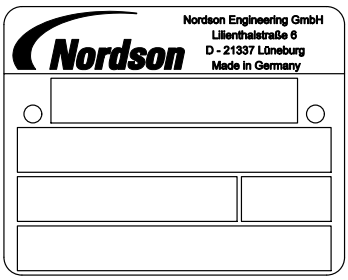
Symbols

Delivery state

Nordson default (original setting of parameters that can be reset to the defaults on the control panel)

Applicator ID Plate

Please always state the serial number AND order number when asking questions.



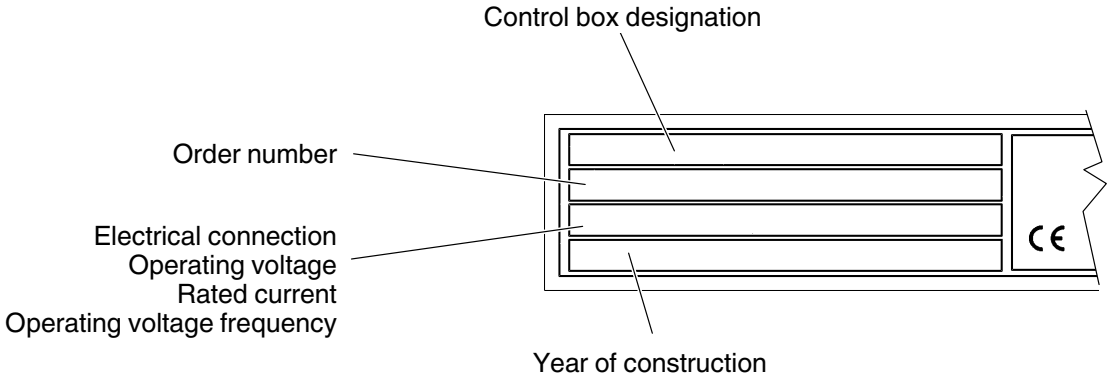
1st line	Applicator type designation EB-060F005, EB-060F008 or EB-100F010
2nd line	Serial number
3rd line	Order number and year of construction
4th line	Operating voltage, applicator power consumption, operating voltage frequency

Applicator Configuration

Example with motor-driven application width adjustment																				
E	B	-	0	6	0	F	0	0	5	**S**	1	N	L	/	X	X	X	_	X	X	_	X

Control Box ID Plate

Please always state the serial number AND order number when asking questions.



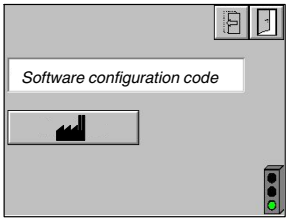
Control Box Configuration

Control box without field bus communication																					
E	B	-	_	_	_	F	_	_	_	**S**	_	_	_	/	_	_	X	**X**	X	X	P*	X
Control box with field bus communication																					
E	B	-	_	_	_	F	_	_	_	**S**	_	_	_	/	_	_	X	**C**	X	X	P*	X

* Example

Setup

Box	Code	Description
1 - 3	**EB-** EBE	Standard configuration Engineered (There may be a supplement added to this document)
4 - 6	**060** 100	Maximum application width in mm
7	**F**	Flexible
8 - 10	005 008 **010**	Minimum application width in mm
11	**S** M E	Motor-driven application width adjustment Manual application width adjustment OEM "without motor / without handwheel"
12*	**1** *2* 3	Nozzle slot size: 0.5 mm *Reserved for nozzle slot size 1.0 mm* Nozzle slot size: 0.8 mm
13	**N** *P*	Temperature sensor: Ni120 (16 mm hose connection) *Reserved for temperature sensor: Pt100 (13 mm hose connection)*
14	**L** R	The left edge - viewed in the direction in which the board runs through the system - of the board is coated. The right edge - viewed in the direction in which the board runs through the system - of the board is coated.
15	**/**	**Options begin here**
16	**X**	Tool steel nozzle, hardened and coated
17	**X**	*Reserved*
18	**X**	*Reserved*
19	**X** C P A	No field bus communication CANopen Profinet IO EtherCAT
20	**X**	*Reserved*
21	**X**	*Reserved*
22	**X** P N M	No automatic nozzle closure 2-point monitoring, positive switching (product detection) 2-point monitoring, negative switching (product detection) Pneumatically activated nozzle closure (selectable when box 11:M)
23	**X**	*Reserved*
* Always Box 12:1 when entering on control panel		



CAUTION: Software supplied at a later date (e.g. an update) is always set to a standard configuration (pre-set data shown bold: **EB-060F010S**...) and must be adapted to the existing applicator. Nordson recommends making a note of the existing settings before the update.

Description of Components

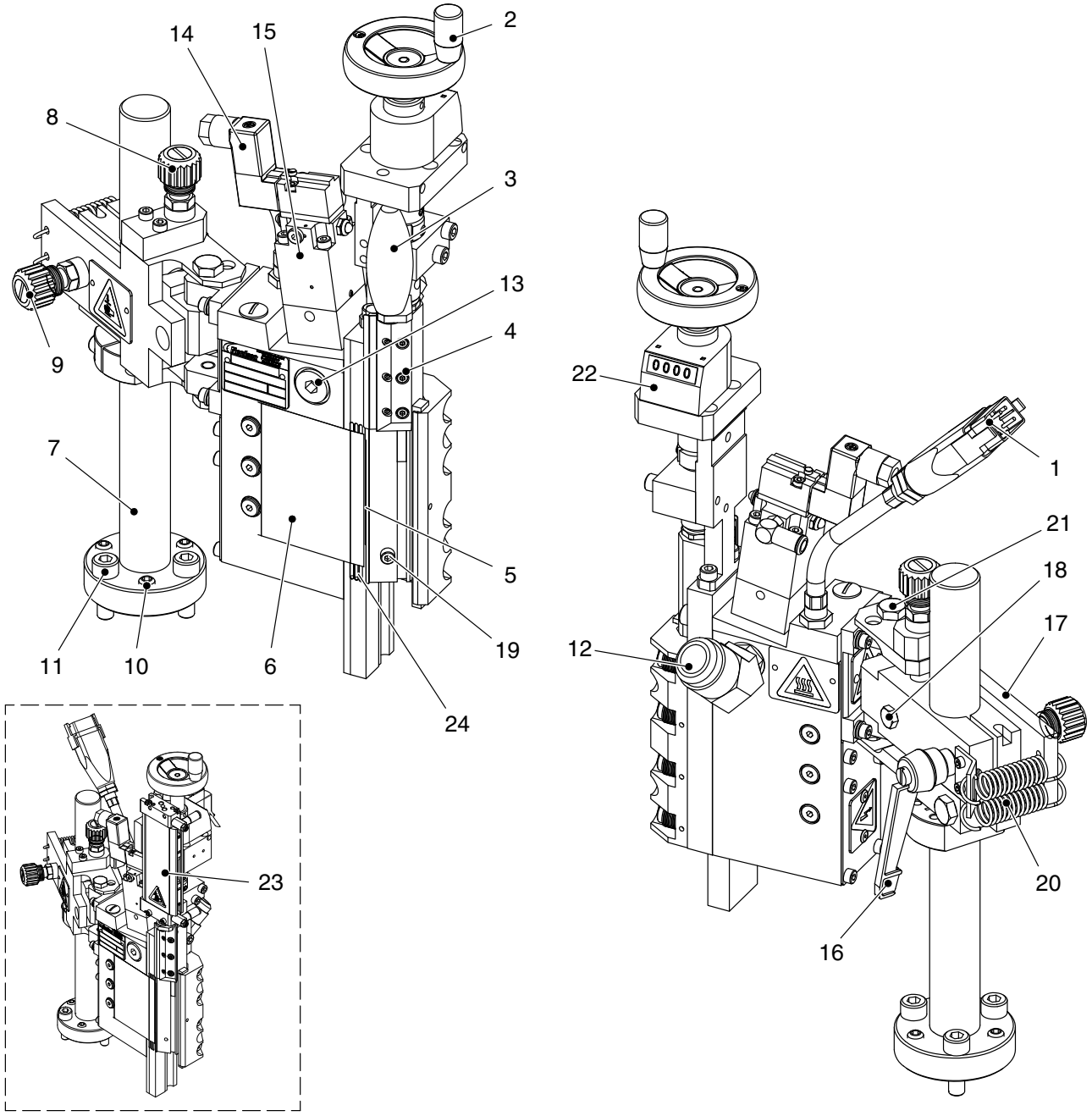


Fig. 2 Example: Application width adjustment with handwheel - left model

1 Power cable (heater)
2 Handwheel *Application width*
3 Handle *Nozzle closure*
4 Nozzle closure
5 Nozzle slot
6 Sliding plate
7 Stand
8 Fine height adjuster with compression spring
9 Swivel limiter
10 Adjusting screws
11 Fixing screws
12 Hose connection
13 Screw plug
14 Solenoid valve
15 Control module
16 Clamping device with clamping lever
17 Swivel holder
18 Guide shaft fastener
19 Stop *Nozzle closure*
20 Tension spring (2x)
21 Swivel holder screw (2x)
22 Display *Application width*
23 Pneumatic cylinder *Nozzle closure*
24 Adhesive drain grooves

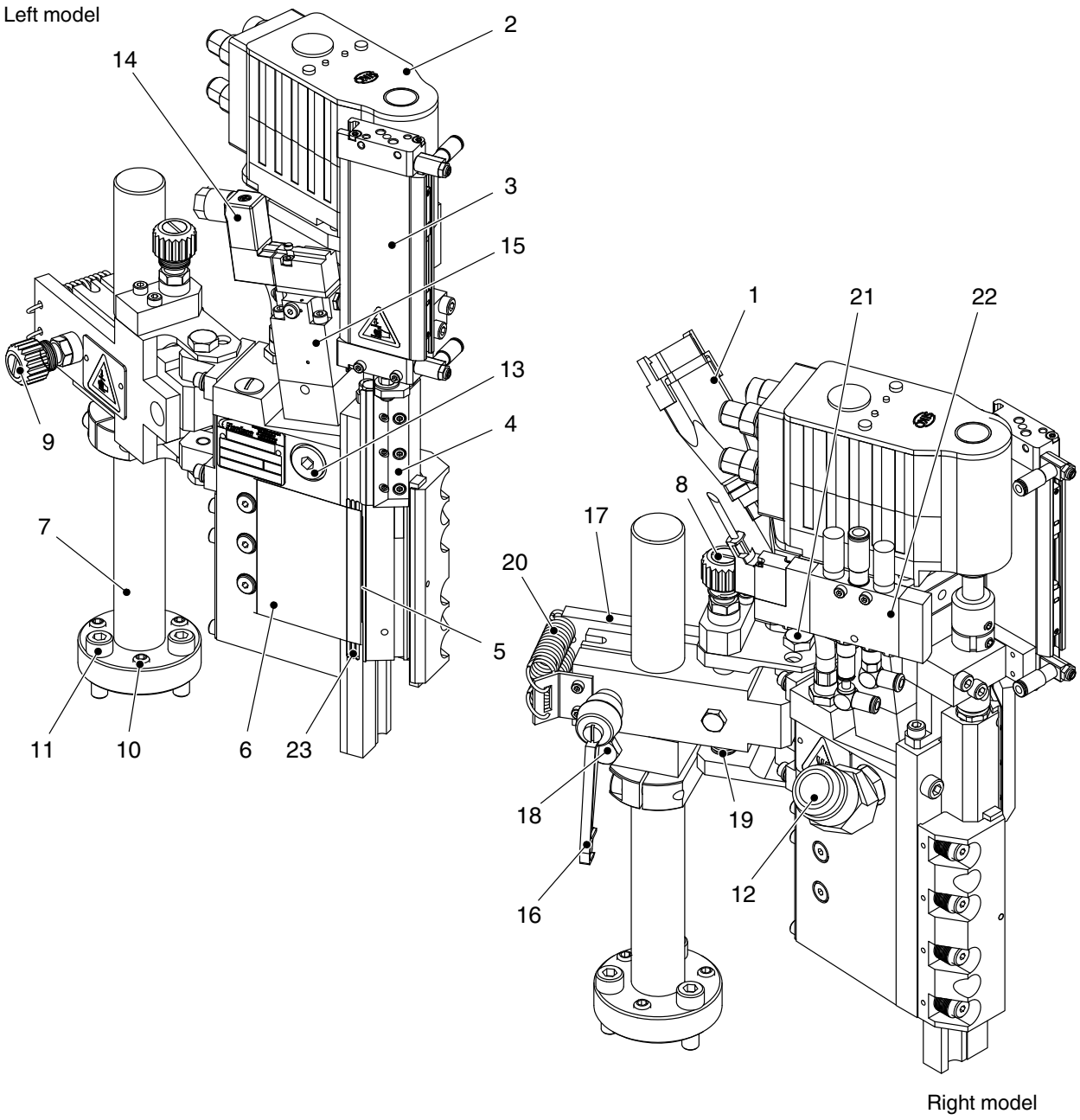


Fig. 3 Example with motor-driven application width adjustment

1 Power cable (heater)
2 Motor *Application width adjustment**
3 Pneumatic cylinder *Nozzle closure*
4 Nozzle closure
5 Nozzle slot
6 Sliding plate
7 Stand
8 Fine height adjustment
9 Swivel limiter
10 Adjusting screws
11 Fixing screws
12 Hose connection
13 Screw plug
14 Solenoid valve
15 Control module
16 Clamping device with clamping lever
17 Swivel holder
18 Guide shaft fastener
19 Compression spring
20 Tension spring (2x)
21 Swivel holder screw (2x)
22 Pneumatic valve *Nozzle closure**
23 Adhesive drain grooves

* Not on OEM models

Function

Adhesive Flow

The adhesive flows from a melter through a heated hose to the applicator. The adhesive supply to the nozzle is switched on and off with an electro-pneumatic control module.

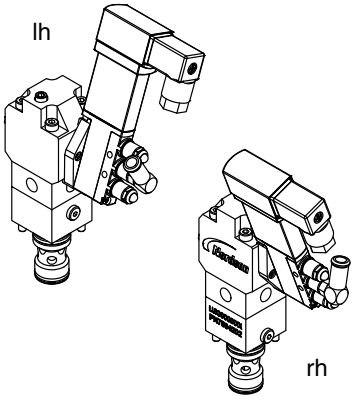
Volume Control
(patent-protected)

The volume is equalized inside of the applicator, so when the application width is decreased no adhesive escapes from the nozzle and when it is increased no air is sucked into the nozzle. Thus material is applied precisely beginning with the first product.

Heating

Electrical heater cartridges are used to heat the melter. The temperature is continuously measured by a temperature sensor and regulated by an electronic temperature controller, usually located in the electrical cabinet of the melter.

Control Module



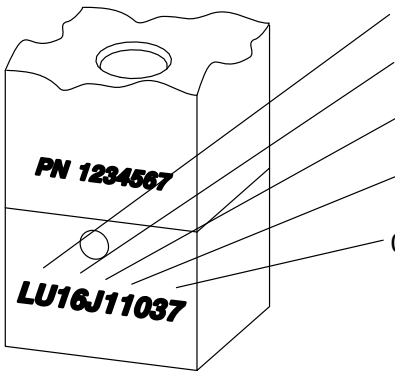
Beginning mid October 2020: P/N 7584211 (lh*) and P/N 7584212 (rh*) replace the control module P/N 7183068 in EB060Flex applicators.
*Definition when edge banding with the applicator.

NOTE: There are two models of the new control modules: left (lh) and right (rh). Do not mistakenly exchange!

The electro-pneumatic control module opens and closes the adhesive supply to the nozzle by raising or lowering the nozzle stem. A compression spring ensures that the control module outlet is closed when control air pressure drops, preventing adhesive from being applied.

Control Modules with ID Numbers

The ID number can be used to create maintenance schedules for the control modules.



LU: Manufacturing plant (Lüneburg)

16: Year of manufacturing (2016)

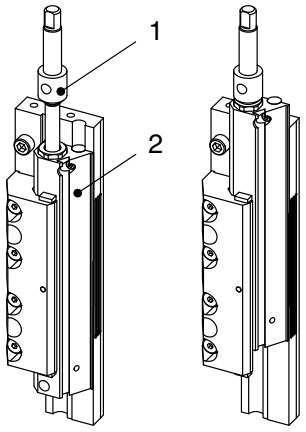
J: Month of manufacturing (September)

11: Day of the month

037: No. of control module on current day

A	January
B	February
C	March
D	April
E	May
F	June
G	July
H	August
J	**September**
K	October
L	November
M	December

Motor-driven Application Width Adjustment



Nozzle

The motor turns the spindle (1) that moves the mouthpiece (2) up and down.

The application width can be continuously adjusted between the minimum and the maximum application width (indicated on the ID plate). The current application width can be seen on the control panel at any time. The nozzle slot width can be chosen as 0.5, 0.8 or 1 mm.

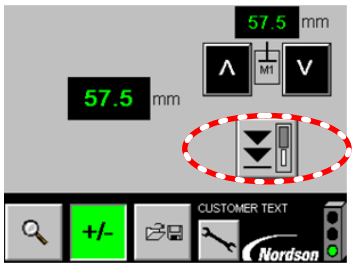
During width adjustment via the number field (direct input) but not during fine adjustment, the nozzle slot is sealed with the nozzle closure (4 , Fig. 3). No adhesive flows out. And no air penetrates the nozzle, making purging unnecessary after adjustment. Thus material is applied precisely beginning with the first product.

Nozzle Closure Time

The nozzle closure time for an EB060 is 1 - 2 seconds. When positioning the sensor with the option *Automatic nozzle closure with product detection*, this time has to be considered in combination with the web speed.

Also refer to *What the Customer's Programmer Must Know* at the end of the section *Installation* in this manual.

Nozzle Closure



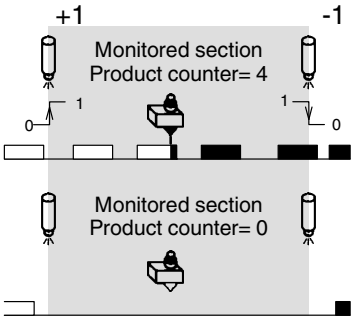
Before a longer break, the nozzle can be closed using a button on the control panel or via the optional field bus.

Software version < 2.06.006: If the nozzle closure was closed with this key, it also has to be opened with this key before application widths can be loaded or be selected via the number field (direct input).

Software version 2.06.006 and higher: As long as it is possible to close the nozzle closure, application widths can be loaded or selected via the number field regardless of the nozzle closure setting - open/closed.

Automatic Nozzle Closure with Product Detection Option

Software version 2.06.006 and higher

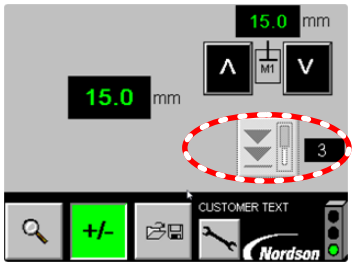


Product detection via sensors/switches: This option requires two sensors or switches; and an additional sensor is used for the pattern controller.

One sensor/switch detects whether products (chip board) have moved into the monitored section by the applicator; a second sensor/switch detects whether the products have left the section again.

As long as there are products in the monitored section (product counter > 0), the nozzle closure does not close.

Counting is slope-triggered; a rising slope means +1 and a falling slope -1. Also refer to page 70 *Alarms (Warning* and *Fault).*



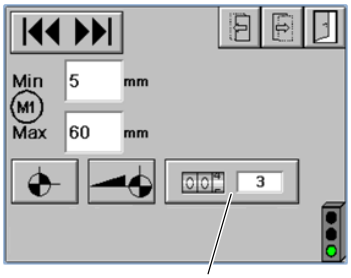
The nozzle closure key is located next to the product counter. It is inactive as long as there are products in the monitored section (product counter > 0), meaning the nozzle closure cannot be closed by the operator or via the optional field bus during this time.

Product detection via parent machine: The signal from the parent machine indicating that a chip board is in the production section is connected to both inputs of the digital input module *Product counter* parallel. In the event of a rising slope, +1 is counted (meaning that the nozzle closure is opened), and for a falling slope -1 (nozzle closure is closed) is counted.

Correcting or Resetting Product Counter
Setting Closing Delay (Nozzle Closure)

If e.g. particle boards are rejected before they leave the sensor section, the product counter will indicate an incorrect value. Touch the product counter key to correct this.

A screen opens in which the value can be corrected using the +/- keys. The RESET key can be operated only when the warning *Current count and internal false trigger counter differ* or the fault *Sensor fault/failure* is indicated. The false value can be reset with the "0" key; then set the correct value.



Product counter key

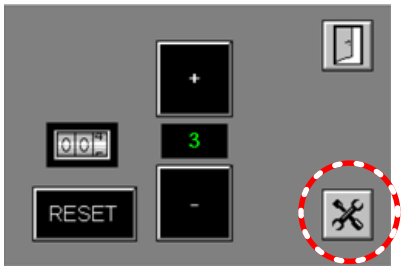
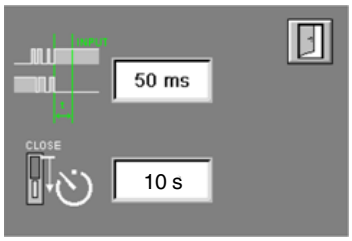


Fig. 4

Another screen can be opened with the tool key:



A debouncing time for the sensor inputs can be entered here. The value applies to both sensors. This allows switching signals triggered by the holes (e.g. indentations for door handles) to be suppressed.

A closing delay (0 to 30 s) can be set as well. The time starts running when all boards have left the sensor section (counter at zero). If no new board is detected when the time has elapsed, the nozzle closure closes.

The new values are saved in the control unit when the screen is exited (door symbol). The nozzle closure is then triggered depending on the new values.

Retrofitting Older Applicators with Option "Automatic Nozzle Closure with Product Detection"

Nordson offers a retrofitting kit containing a memory board with a software version >=2.06.006 and the digital input module *Product counter* for this feature.

There is a separate kit available for the two sensors/switches.

Control Box

The control box provides the voltage supply to the applicator motor and solenoid valve, and it serves as the connection to the operating unit. Also refer to control box wiring diagram.

Enable Solenoid Valve

The customer's control system must supply the signal *Enable solenoid valve* for the application control module as soon as production begins.

Automatic Nozzle Closure with Product Detection Option
If the customer's signal *Enable solenoid valve* for the application control module goes away while there is still a product in front of the nozzle, the nozzle closure does not close.

Interface Motor Enable / Operating Modes (XS2)

The melter supplies the signal *Enable motor* when all of the applicator heating zones have reached their setpoint temperatures.

The width can be adjusted only when the signal is received by the control box (contact closed). This prevents damage to seals from adhesive that is still too cold.

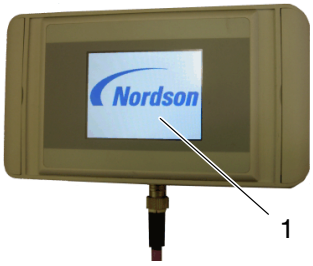
Optional Field Bus Interface

The field bus interface is used to exchange data between the applicator and the customer's control system. Refer to separate manual *Field Bus on Nordson Applicators*, Rev. _06 and higher.

Enable solenoid valve: In addition to the signal from the customer's control system, bit 2 of *Control* also has to be set on the field bus.

Enable motor: In addition to the signal from the melter, bit 1 of *Control* also has to be set on the field bus.

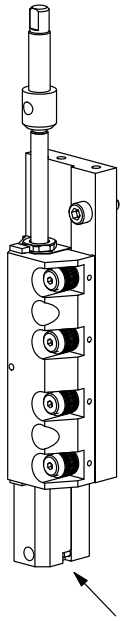
Operating Unit



The operating unit contains an industrial PC (IPC) to control the applicator.

The applicator is essentially operated via the control panel (1) on the operating unit. The control panel is a touch screen.

Application Width Adjustment with Handwheel



CAUTION: Use the handwheel only when the system is heated!

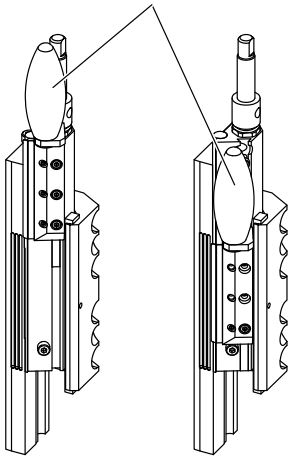
The handwheel turns the spindle that moves the mouthpiece up and down.

The application width can be continuously adjusted between the minimum and the maximum application width (indicated on the ID plate). A digital position indicator [mm] shows the application width. The nozzle slot width can be chosen as 0.5, 0.8 or 1 mm.

CAUTION: A cylinder pin (arrow) restricts the mouthpiece path to the minimum application width. Attempting to close the nozzle farther than the minimum application width will damage the applicator.

Nozzle Closure (Manual or Pneumatic)

Handle *Nozzle closure*



Open Closed

Manual: The operator can close the nozzle slot for extended breaks.

Pneumatic: The signal to open/close comes from the parent machine (pneumatic nozzle closure 23 , Fig. 2).

The nozzle has to be opened if there is a chip board in the production section. Close the nozzle closure when the signal goes away.

Installation

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

Unpacking

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

Transport

The applicator is a high precision, valuable part. Handle very carefully! Protect the nozzle from damage.

Storage

Do not store outside! Protect from humidity and dust. Do not lay unit on the nozzle. Protect the nozzle from damage, e.g. by placing it in the original packaging.

Disposal

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

ATTENTION: Risk of explosion from incorrect disposal. The operating unit contains a lithium battery that is soldered into place.

Space Requirement

Because of the restricted space, the applicator should be removed for maintenance and repair.

For operation, leave sufficient clearance around the applicator to accommodate

- Electrical/pneumatic connections
- Heated hose
- Height adjustment / angle of Incidence

Exhausting Adhesive Vapors

Ensure that adhesive vapors do not exceed the prescribed limits. Exhaust adhesive vapors if necessary. Provide sufficient ventilation in the area where the machine is set up.

Selecting Sliding Plate

The applicator is supplied with three sliding plates (0.1 / 0.2 / 0.3 mm). The thickness of the plate should be more or less that of the desired application thickness.

If during application e.g. it becomes apparent that the film is not continuous, it may help to use a thinner sliding plate. If beads of adhesive form, choose a thicker sliding plate.

CAUTION: Do not operate the applicator without the sliding plate. The sliding plate also protects the nozzle from damage that could be caused by the passing board. Replace worn sliding plates

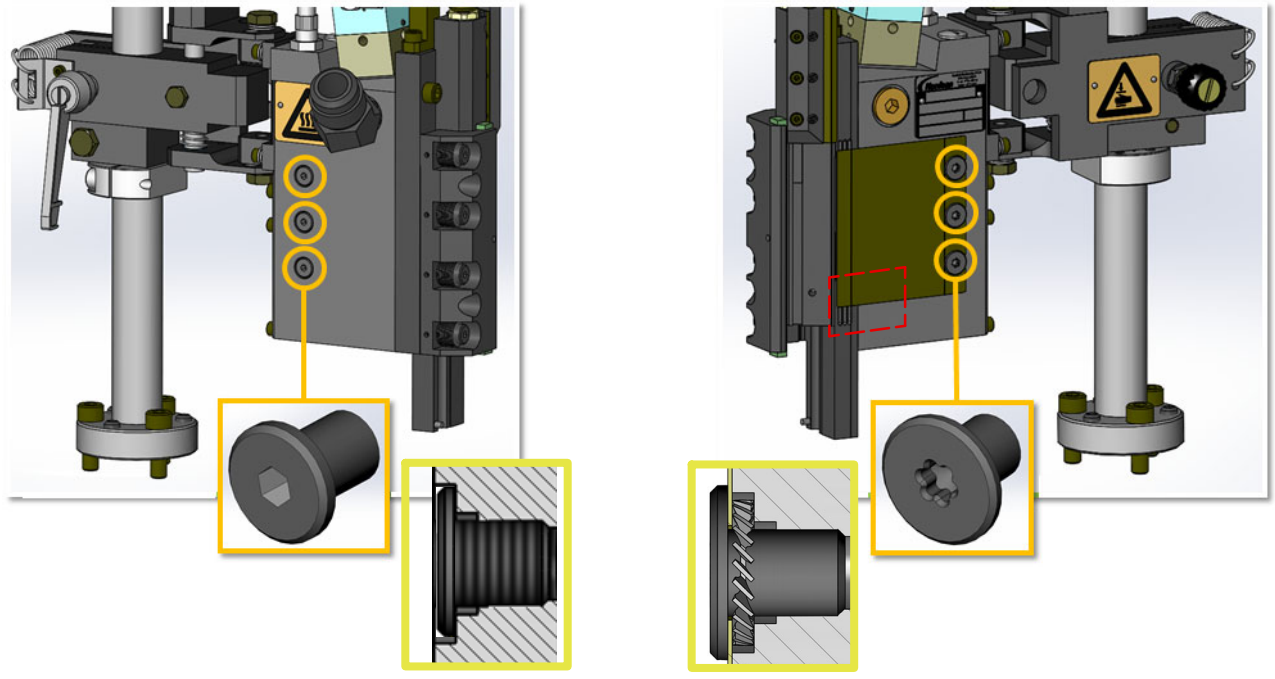


Fig. 5 Use screws with the biggest possible head diameter to secure the sliding plate

Adjusting Sliding Plate

NOTE: The nozzle closure plate has to be in the correct position before the sliding plate can be adjusted. Refer to page 60, if the nozzle was previously removed.

Adjust the nozzle closure plate (1, Fig. 23) in the slots and with the setscrews (2, Fig. 23) such that the plate rests against the nozzle slot but can still be moved. When the nozzle closure is closed, the nozzle closure plate completely covers the nozzle slot.

1. Close the nozzle closure (Fig. 6, left).

2. Slide the sliding plate against the nozzle closure plate. Then retract the sliding plate just far enough that the sliding plate and nozzle closure plate are no longer touching one another (Fig. 6, center).

The sliding plate is positioned correctly when it protrudes approx. 0.5 mm beyond the third adhesive drain groove.

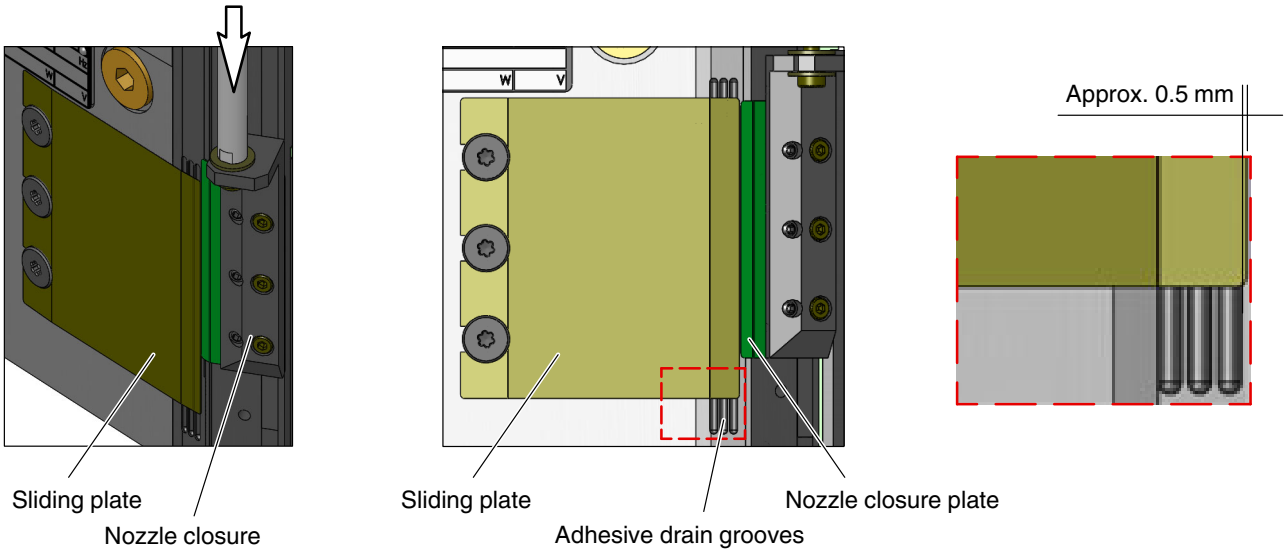
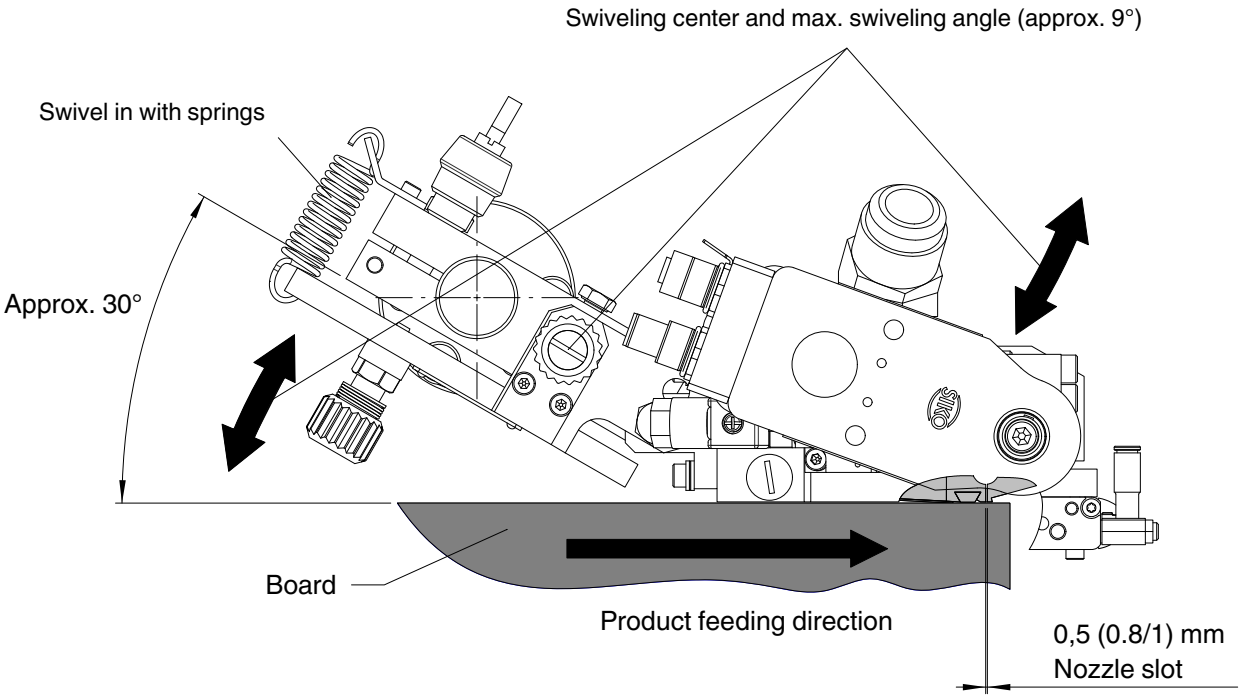


Fig. 6

Installing

- Protect from humidity, vibrations, dust and drafts
- Ensure access to parts relevant for maintenance and operation
- To achieve optimum adhesive application, install the applicator such that the distance and, when appropriate, the angle between the nozzle and the substrate can be varied.
- When installing ensure that cables, air hoses and heated hoses cannot be bent, pinched, torn off or otherwise damaged.
- Mounting position: Nozzle is vertical



Positioning Applicator

Left Model

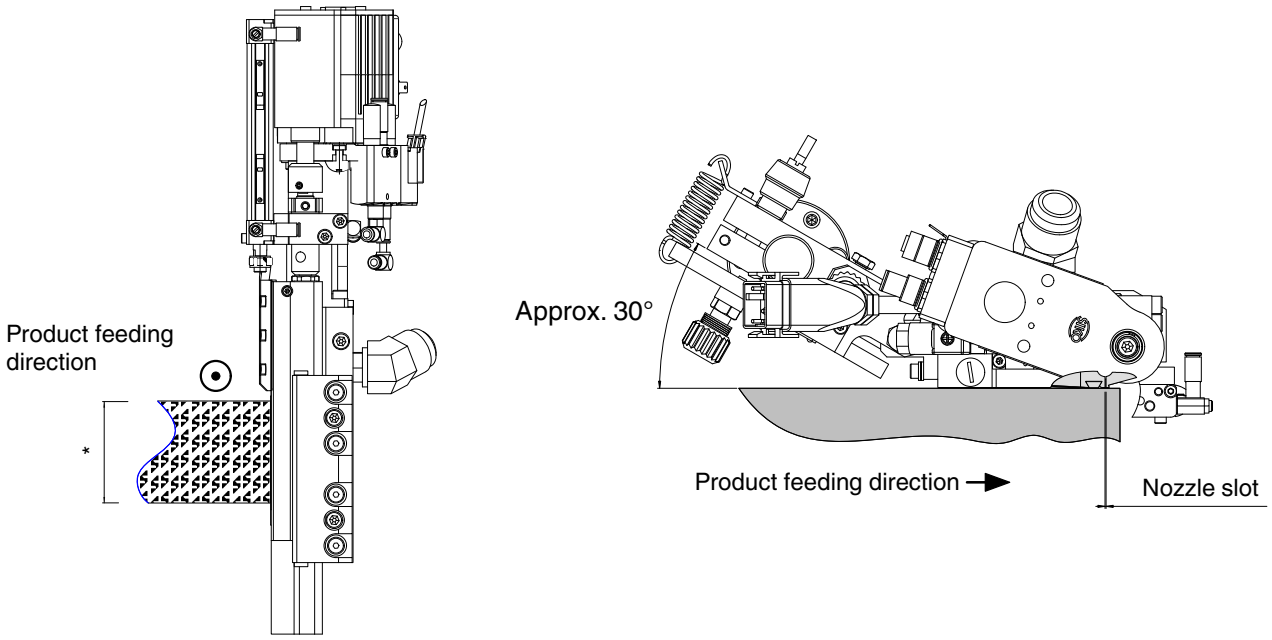


Fig. 7 *Application width

Right Model

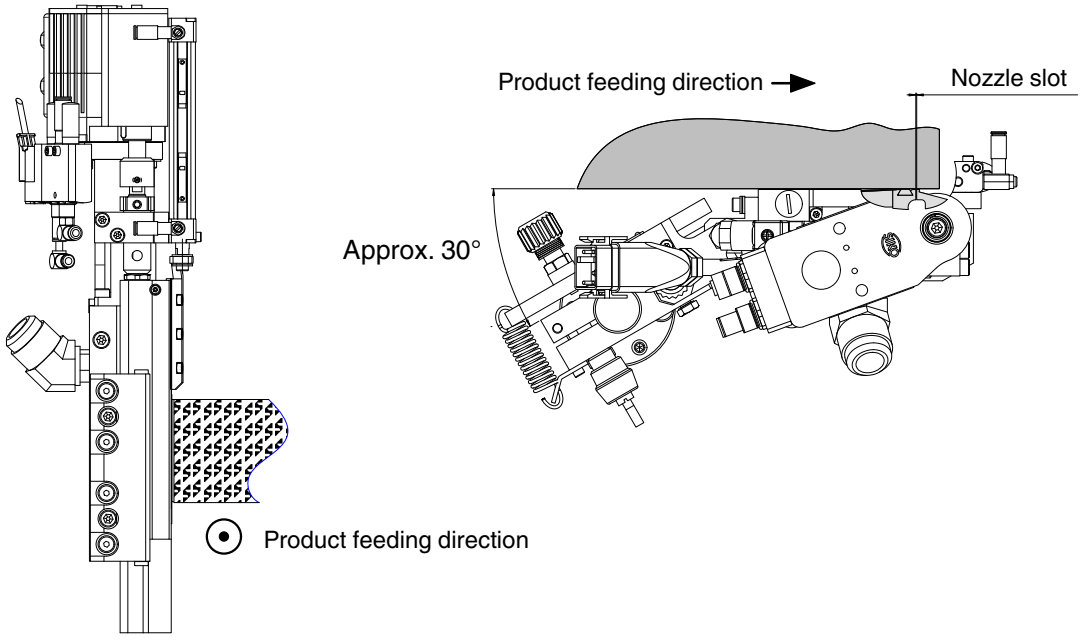


Fig. 8

Attaching Applicator to Parent Machine

Use a circular level (round spirit level) to align.

1. Using the drilling pattern, make three threaded bores M8 for the stand in a suitable place on the parent machine. Two of the threaded bores should be on the side farthest from the board and parallel to the edge of the board (Refer to Fig. 9).

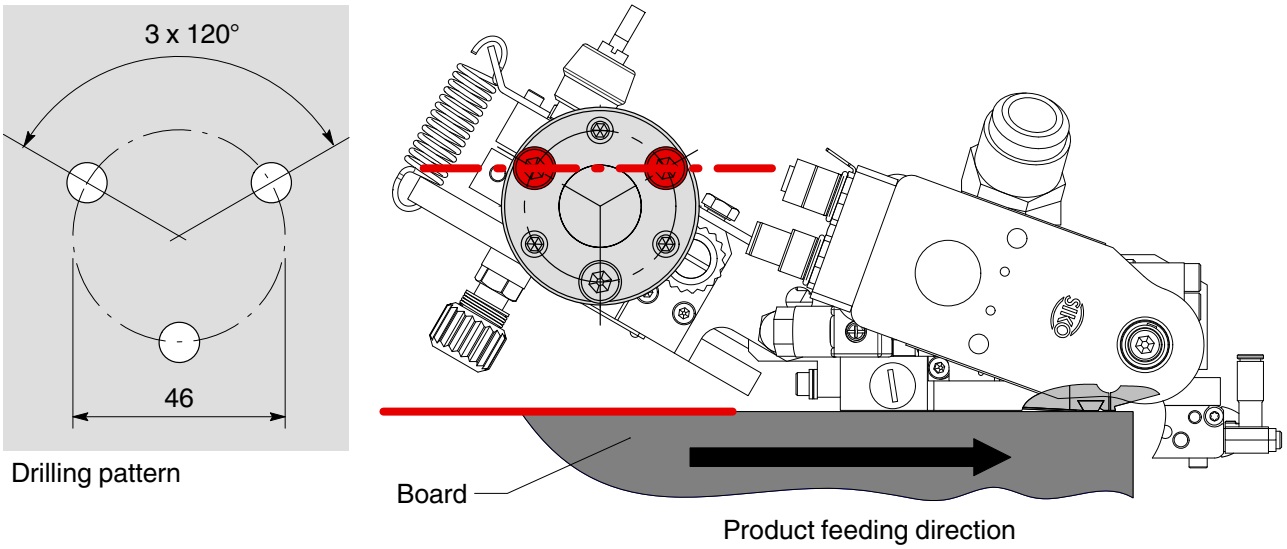


Fig. 9

2. Fig. 10: Align the applicator parallel to the board in vertical direction. Use the stand adjustment screws (1) for this purpose.

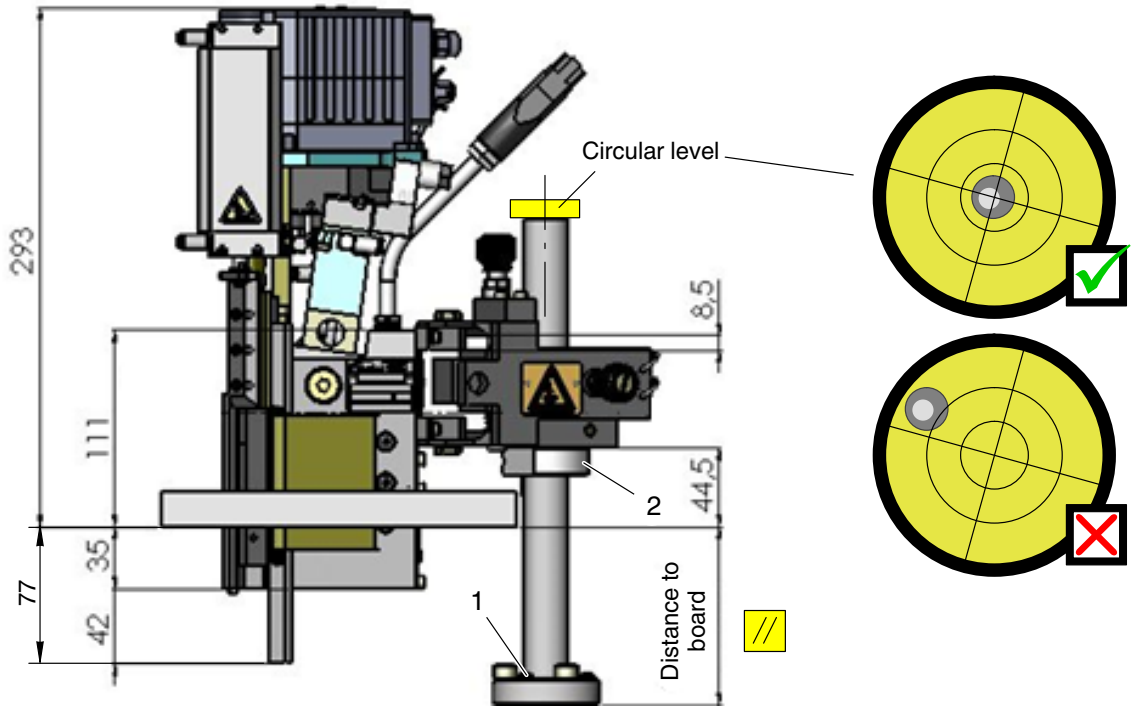


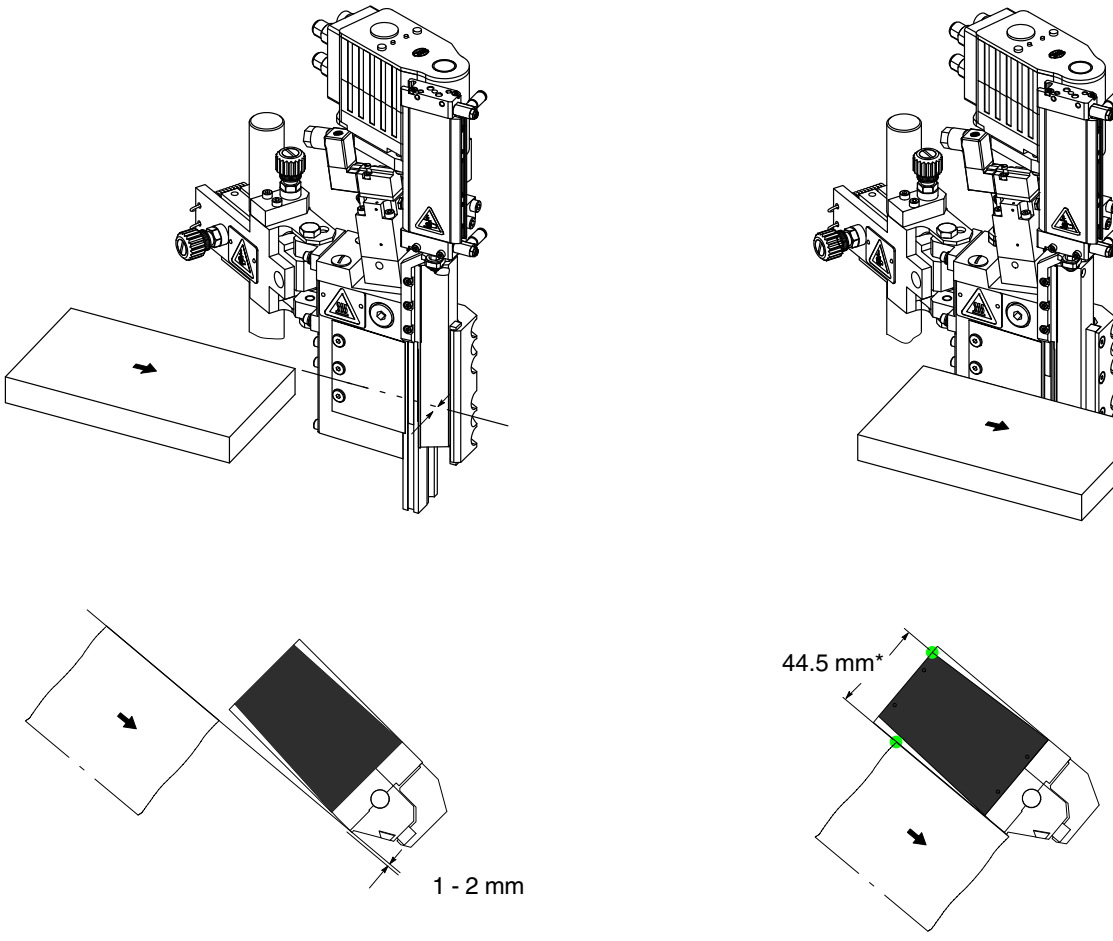
Fig. 10 Example EB060F005

3. Adjust the height of the applicator. Secure the setting with the clamping ring (2, Fig. 10).

   The distance "mouthpiece receptacle to lower edge of board" depends on the specific applicator:

   - EB060F005: 77 mm (Refer to Fig. 10)
   - EB060F008: 63 mm
   - EB100F010: 112 mm

4. Check dimensions (Fig. 11). Proceed with *Edge Banding Settings.*



Maximum immersion in gap between boards: 1 to 2 mm

*Distance "End of body to board"

Fig. 11

Continued ...

Edge Banding Settings

CAUTION: Risk of squash!

- Be aware of the spring restoring force between the swivel holder and the clamping device.
- Support the applicator when releasing the clamp lever and the clamp limit stop.

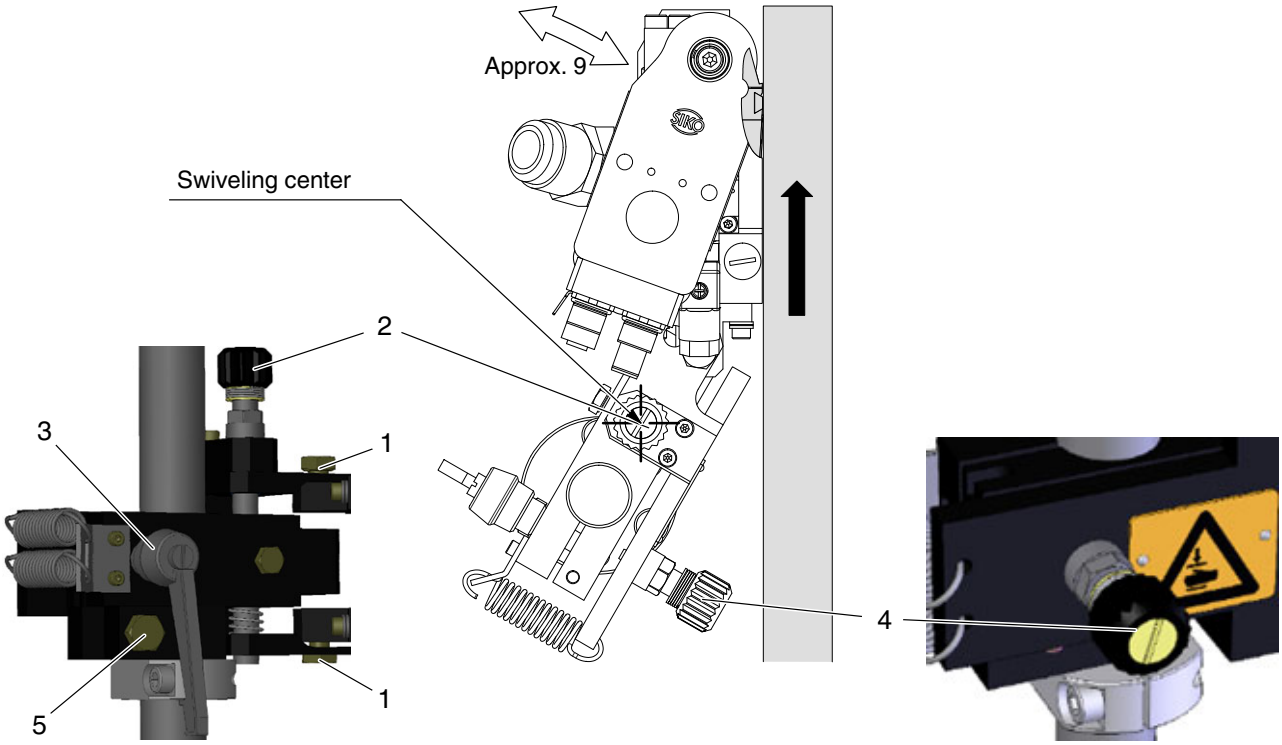


Fig. 12

1. Slightly loosen the hexagonal screws (1) at the top and bottom of the swivel holder.
2. Release the clamp lever (3) and hexagonal screw (5) on the clamp limit stop.
3. Turn and slide the applicator on the stand such that the nozzle moves to a suitable position in relation to the substrate. Refer to Fig. 11.
4. Tighten the clamp lever (3) and hexagonal screw (5) on the clamp limit stop.
5. Tighten both hexagonal screws (1).
6. Make fine adjustments to the height with the snap-in screw (2) on the fine height adjuster if necessary. Also refer to *Setting Zero Point*.
7. To prevent the approaching board from causing damage, use a swivel limiter (4) to minimize excessive swiveling out of the applicator.

   NOTE: A gap need not be set, because the gap is determined by the thickness of the sliding plate.

Setting Zero Point

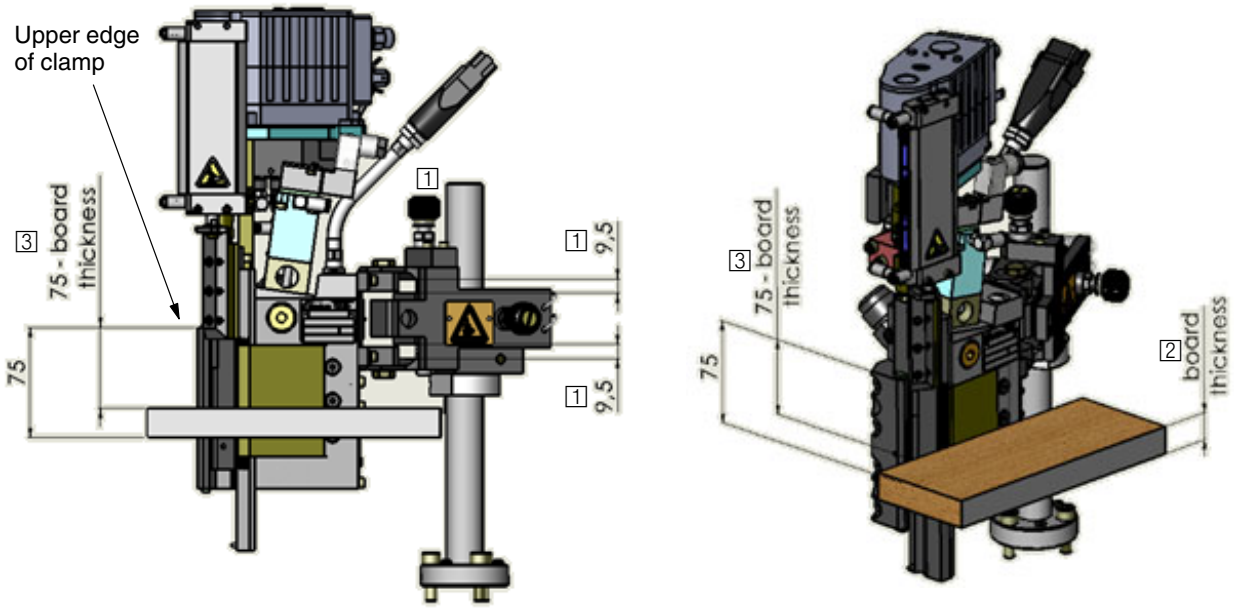


Fig. 13 Example EB060F005

1. Use the height adjuster to center the bracket (9.5 mm/9.5 mm). Refer to Fig. 13: 1
2. Measure the board thickness (Fig. 13: 2) and move the board to right in front of the nozzle.
3. Set the nozzle height to
   - EB060F005: 75 mm minus board thickness (Fig. 13: 3)
   - EB060F008: 80 mm minus board thickness

Sensor/Switch Settings for the Option "Automatic Nozzle Closure with Product Detection"

- Example EB060: Place the first sensor/switch far enough before the applicator that it takes at least 4 s* for the chip board to reach the nozzle; at a machine speed of 30 m/min, this would be 2 m away.

  *The nozzle closure time is a factor of the applicator size and the adhesive.

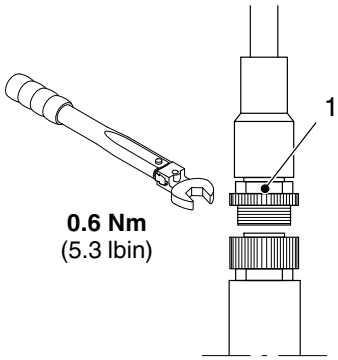
- Place the second sensor/switch just past the applicator. Because it is so close to the heated applicator, it must be temperature-resistant.

Electrical Connections

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

Laying Cable

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



CAN Bus: Securing Plug Connections

Tighten the hexagonal head (1) with torque of 0.6 Nm. Nordson recommends using a torque wrench made by Murr Elektronik, Murr article number 7000-99102-0000000.

Connecting Solenoid Valve (Control Module)

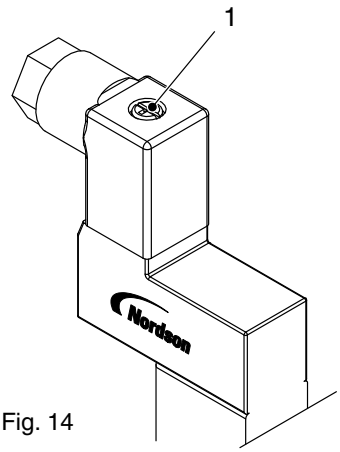


Fig. 14

Secure the plug connection with the screw (1, Fig. 14).

CAUTION: Operate the solenoid valves only with the voltage shown on the ID plates.

The solenoid valve on the control module is triggered by a 24 V_{DC} voltage supply from the control box.

Set the signal *Enable solenoid valve* only when the applicator is heated to operating temperature (Signal *Enable motor* received). Seals in the control module could be damaged if the adhesive were too cold.

Adjusting/Connecting Proximity Switches (Nozzle Closure)

Connect the proximity switches to the control unit of the parent machine.

The positions of the two proximity switches on the pneumatic cylinder determine how far in and out the cylinder moves and thus when the positions *Nozzle closure open* and *Nozzle closure closed* are reported.

The proximity switches are preset at the factory.

Connecting Heater

1. Plug the cordset into the heated hose receptacle.
2. Use safety clips - when available - to secure the plug connection.

Connecting Applicator, Control Box and Operating Unit

CAUTION: Do not mix up the CAN bus and voltage supply connection of the motor. Plugging the voltage supply into the CAN bus receptacle XS7 would destroy the motor.

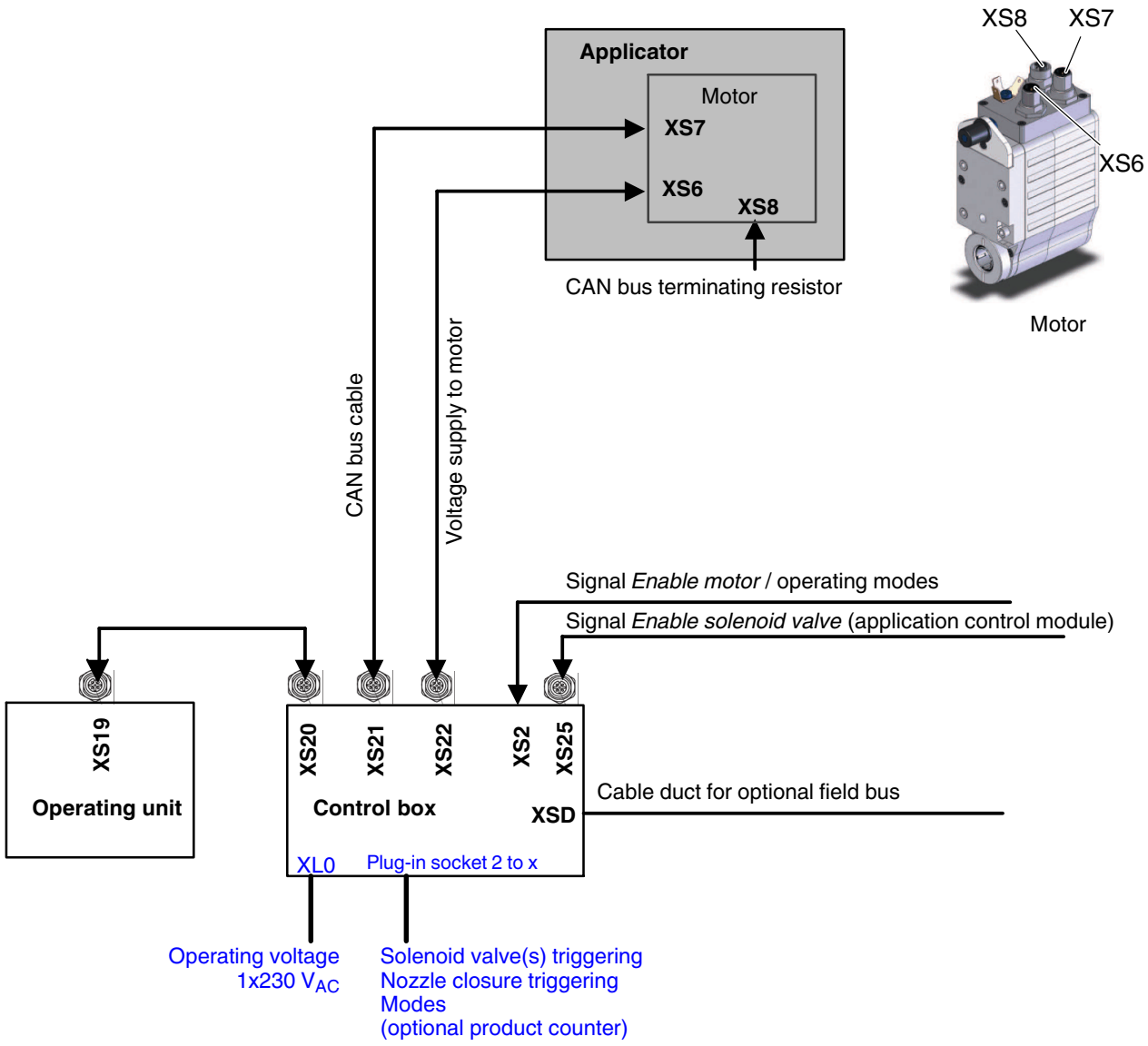


Fig. 15

Pneumatic Connections

Operation with Non-lubricated Compressed Air

When an applicator is connected to a compressed air system in which the compressed air has previously been lubricated, simply ceasing to lubricate the air is not sufficient. The oil remaining in the compressed air supply will reach the solenoid valves and the control modules and wash out the original lubricant/oil from these parts, substantially decreasing the service life of the units.

To operate with non-lubricated compressed air, ensure that:

- The system has been converted to absolutely non-lubricated operation
- No oil from a possibly defective compressor can penetrate the compressed air supply.

NOTE: Nordson will assume no warranty or liability for damage caused by unpermitted, temporary lubrication.

Conditioning Compressed Air

The quality of the compressed air must be at least class 2 as stipulated by ISO 8573- 1. This means:

- Max. particle size 1 µm
- Max. particle density 1 mg/m^3
- Max. pressure dewpoint -40 °C
- Max. oil concentration 0.1 mg/m^3.

Connecting Compressed Air

The applicator may only be connected to pressure-controlled and conditioned compressed air.

1. Connect the customer's air supply to the inlet of an air conditioning unit.
2. Use a hose (D6/d4) to connect the control module to the air conditioning unit.
3. Set control air pressure:

4 to 6 bar	0.4 to 0.6 MPa	58 to 87 psi

4. Connect the pneumatic cylinder *Nozzle closure*.* Air pressure required:

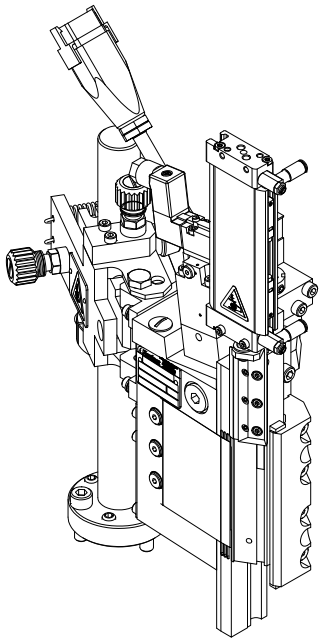
6 to 10 bar	0.6 to 1.0 MPa	87 to 145 psi

* With OEM models, the pneumatic valve (22 , Fig. 3) is provided by the customer

OEM: Applicators without Motor / without Handwheel

(for example: P/N 7133540, P/N 7133541)

Motor-drive Application Width Adjustment (Provided and Installed by Customer)



CAUTION: Risk of injury from moving parts! Protect from direct contact.

Nordson recommends programming temperature enable for the motor so that the application width cannot be adjusted until the applicator has reached operating temperature.

Observe the following when installing the drive:

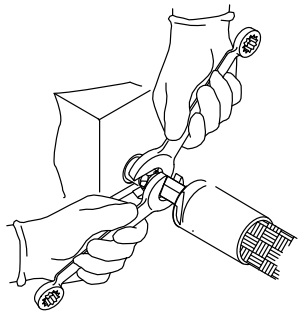
- Maximum torque: 3.2 Nm
- Maximum recommended spindle speed: 100 rpm, corresponds to 2 mm/s application width adjustment

  Higher speeds increase wear to seals and bearing surfaces.
- Acceleration/delay (ramp): 0.2 rev/s^2
- No radial forces are permitted. The motor shaft and spindle must be aligned.
- Max. motor weight: 800 g, when the Nordson motor bracket is used
- Follow the instructions in the document P/N 7560692 *EB Flex OEM Integration*, provided with the respective applicators.

Also refer to *What the Customer's Programmer Must Know* at the end of the section *Installation* in this manual.

Connecting Heated Hose

Using Second Open-end Wrench

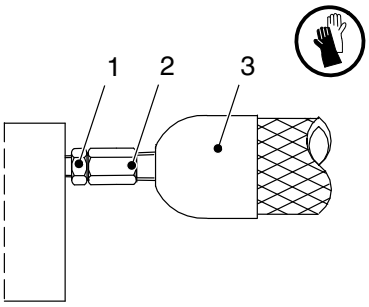


Use a second open-end wrench when connecting and disconnecting the heated hose. This prevents the hose connection on the unit from turning.

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

CAUTION: Nordson melters are usually subjected to extensive testing prior to shipment. There may be some of the test material, similar to adhesive, left in the hose connection.

Connecting



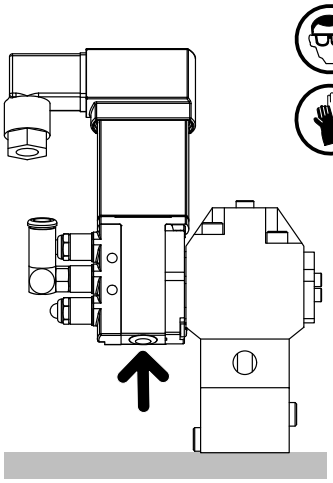
ATTENTION: Hot! Risk of burns. Wear heat-protective gloves.

1. First connect the hose (3) electrically to the unit.
2. Heat applicator and hose until the adhesive softens.
3. Screw on the heated hose.

Disconnecting

ATTENTION: System and material pressurized. Before detaching, refer to *Relieving Adhesive Pressure.* Failure to observe can result in serious burns.

Relieving Adhesive Pressure



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

1. Set the motor speed of the melter feeding the adhesive to 0 rpm; switch off the motor(s).
2. Place a suitable container under the nozzle of the applicator to collect the adhesive.
3. Activate the solenoid valve electrically or manually (arrow). Do not use sharp objects! Repeat this procedure until no more adhesive flows out.
4. Properly dispose of adhesive according to local regulations.

What the Customer's Programmer Must Know

- Do not open the nozzle closure until just before application. Open signal 4 s (EB060) or 7 s (EB100) before the chip board reaches the nozzle.

- No close signal between two boards
- No close signal when the machine stops as long as there is still a board at the nozzle. The control unit has to close and the pressure has to be reduced to the value between two boards.

- Close the nozzle closure if the break is expected to be longer than 5 min.

  Recommendation, particularly for low-viscosity adhesives: Close 30 s after the end of the last board in a series has left the nozzle section to prevent adhesive from leaking out of the nozzle.

- When the nozzle closure is closed, no board may be conveyed past the applicator; this would damage the applicator

- Program enable for the control module solenoid valve.

  NOTE: Enable must be deactivated in the control system until the nozzle closure is completely opened (upper proximity switch). A nozzle closure that is not completely opened will trigger the indication *System not ready*.

  When the solenoid valve is activated, the control module opens (digital output = 24 V_{DC}). The control module cannot be opened during calibration (Refer to page 77, *Calibrating Slide Position*).

The applicator mode, warnings and indications are connected to the interface XS2 to be evaluated by the customer.

Important Information for Initial Startup and When Replacing Parts

If the applicator is ordered and delivered along with its control boxes, the slide position will have been calibrated by Nordson.

ATTENTION: When spare parts are ordered - either a motor (for width adjustment) or the entire applicator - calibration must be performed on site, following the instructions on page 77, *Calibrating Slide Positions*. This ensures that the control unit and applicator are attuned to one another.

Failure to observe can result in irreversible damage to the applicator.

Note on Motor-driven Application Width Adjustment

Make a note of the control box / applicator configuration code and the software configuration code (control panel) upon initial startup.

If the control box or applicator is purchased separately, the codes have to match for the system to be able to function properly.

Observe Before Beginning Production

Unless agreed otherwise, the applicator was tested with a material similar to adhesive before it left the factory. Flush out the test material residue before beginning production.

Important for Interruptions in Production

- Depending on adhesive properties: If the break in production will be longer than 3 to 4 h, close the nozzle closure and switch off the system
- Depending on adhesive properties: Purge the system with cleaning agent if the break in production will be longer than 3 days.

Operation

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

Polyurethane Application Materials (PUR)

When PUR adhesive is used, it must be prevented from reacting to the thermal load in the applicator.

It is imperative that the following guidelines are followed when processing polyurethane application materials (PUR):

- Wear respiratory protection when the maximum permissible concentration of hazardous substances is exceeded.
- Reduce the temperature during production interruptions or breaks throughout the day. Close the nozzle closure.
- Opening and closing the nozzle is also a form of cleaning.

With Handwheel

CAUTION: If adjustment is difficult, the piston may be blocked, e.g. by charred adhesive. If this is the case, clean the nozzle.

With Motor

CAUTION: The motor has a torque limit. Unintentional stopping during width adjustment may indicate that the slide is blocked (e.g. by charred material). To prevent damage, do not continue to attempt to adjust the width. Clean the nozzle instead.

- When PUR adhesive is used, it must be prevented from reacting to the thermal load in the applicator. The applicator has to be purged with adhesive for about one minute every day when work is finished for the day and whenever production is interrupted for >1 h. Set to the maximum width during purging.

  CAUTION: Never exceed the maximum applicator pressure permitted (Refer to *Technical Data*), whether purging with adhesive or with cleaning agent.

  After purging, set to the minimum application width and close the nozzle closure.

- Before prolonged standstill of the application system for four days or longer, purge with a suitable cleaning agent. Use only a cleaning agent recommended by the adhesive manufacturer.

  CAUTION: Never exceed the maximum applicator pressure permitted (Refer to *Technical Data*), whether purging with adhesive or with cleaning agent.

  Rinse out the cleaning agent just before beginning production again.

- Close open adhesive connections, e.g. hose connections, airtight.

Setting Temperatures

If there are multiple applicator heating zones, set them all to the same temperature.

The procedure for setting the temperatures is described in the temperature controller manual and/or the melter manual. Temperature controllers are not part of the applicator. They are usually located in the electrical cabinet of the melter.

Maximum Operating Temperature

The maximum operating temperature of the applicator is 200 °C (392 °F).

NOTE: The maximum operating temperature may not be exceeded.

The values stipulated by the adhesive manufacturer serve as the basis for temperature selections.

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

PUR Adhesives

CAUTION: Reduce temperature when production is to cease for longer than 30 minutes.

System Ready

Prerequisite for Applicators with Handwheel

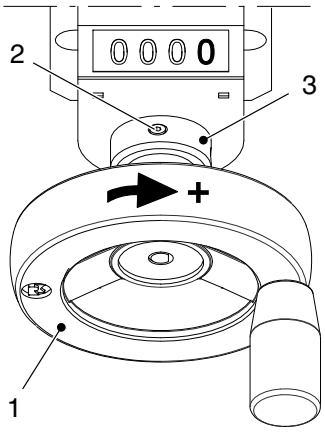
- Setpoint temperature for applicator has been reached
- Nozzle closure is open

CAUTION: Attempting to close the nozzle farther than the minimum application width will damage the applicator.

Prerequisites for Applicators with Motor

- *Enable motor* signal received (Setpoint temperature for applicator has been reached)
- *Calibrate slide position* was completed (after replacing motor or updating software)
- The actual application width is within the permitted range
- Nozzle closure is open
- No fault has occurred.

Calibrating "Application Width" Display (with Handwheel)



Turn to the right to increase the number in the display and thus the application width. The display shows a value precise to one decimal place.

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

1. Heat the applicator.
2. Set any application width [mm] with the handwheel (1).
3. Measure the width of the open slot (= application width).
4. Release the setscrew (2).
5. Turn the set collar (3) until the display corresponds to the measured value.
6. Tighten the setscrew again.

Control Panel Description

Screen saver

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

To deactivate the screen saver:

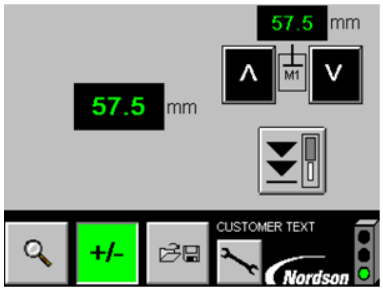
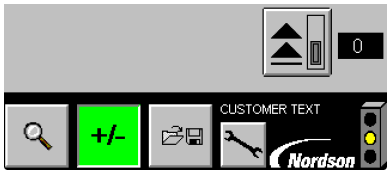
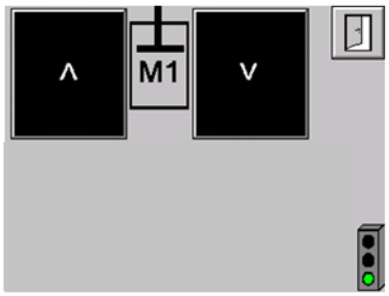
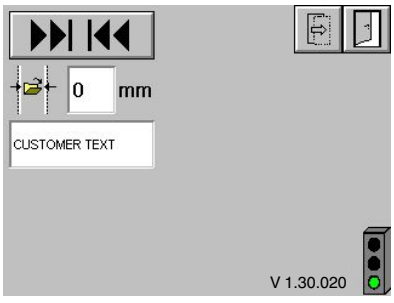
1. Touch the screen and then touch the key that appears.

The starting screen appears.

2. Call up the control panel screens by touching the respective keys.

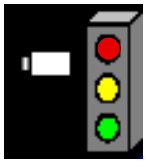
Continued ...

Control Panel Description *(contd.)*

Key	Control panel screen
+/-	 **Starting screen** Set the application width. Refer to page 40, *Setting Application Width (Control Panel)*. Open/close the nozzle closure.  With product counter and automatic nozzle closure (option)
	 **Fine adjustment** The keys *Application width* are enlarged. This makes fine adjustment during operation easier when the operator is looking at the substrate and not at the control panel. Refer to page 42, *Fine Adjustment*.
	 **Save / load application width** There are five memory locations available. Special application widths can also be loaded/selected. Refer to page 43, *Saving/Loading Application Width*. These keys are reversed in older software:
	 **Setup** Settings that need be made only rarely, e.g. upon initial startup. Refer to page 36, *Initial Startup (with Control Panel)*. **NOTE:** Some settings are protected with passwords. Refer to page 97, *Password*. When a field or button is pressed, an input window opens in which to enter the password. If no key is touched for ten minutes after pressing a password-protected feature, password protection is reactivated. Then the password prompt appears again for password-protected features.

Elements of Control Panel Screens

Signal Beacon and Battery Symbol



The signal beacon indicates the status of the applicator:

- Red = fault or shutdown
- Yellow = warning
- Green = ready for operation

If the battery symbol appears next to the signal beacon, the battery voltage of the motor's absolute encoder is low.

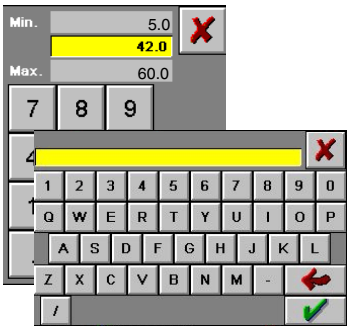
NOTE: The absolute encoder remembers the position even after switching off. The operating unit reads out the position and uses it to display the application width.
In some situations, the position must be calibrated (Refer to page 77, *Calibrating Slide Position*).

Touch the signal beacon to display the control panel screen *Alarms*. Refer to page 70, *Alarms*.

Navigation Keys

	Back	To the next-higher control panel screen Cancel and close when in input windows
	To the next subscreen	A control panel screen can have multiple subscreens

Input Window



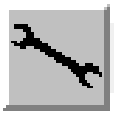
When a field for entering text or a numerical value is touched, an input window appears when the field is touched.

	Cancel	Exit input window without implementing changes
	Backspace, delete	To correct unintended input
	Confirm	Acceptance of a value

Initial Startup (with Control Panel)

Switch on the control box for startup: **I**.

Setting Parameters

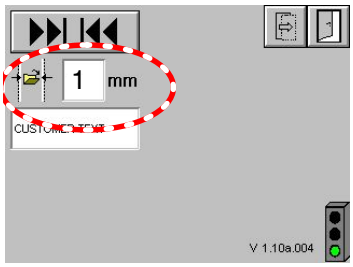


Upon initial startup, set the following parameters in the control panel screen *Setup* as required.

NOTE:

- Some parameters are protected with passwords. Refer to page 97, *Password*.
- Keys and fields in this control panel screen that are not relevant to initial startup are explained in the appropriate part of this manual.

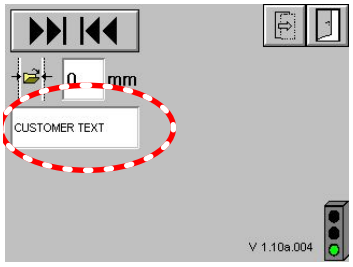
Entering Safety Margin



Setting range: 0 - 10 mm

When an application width is loaded (Refer to page 43, *Saving/Loading Application Width*), an application width is selected that is reduced by this safety margin. This prevents material from being applied beyond the edge of the substrate.
Thus the application width needs to subsequently be corrected with the application width key  or the *Fine adjustment*.

Information Line: Entering Text



The operator can enter any text that is to appear in the *Information line*. The information line appears in most control panel screens:

Limiting Application Width

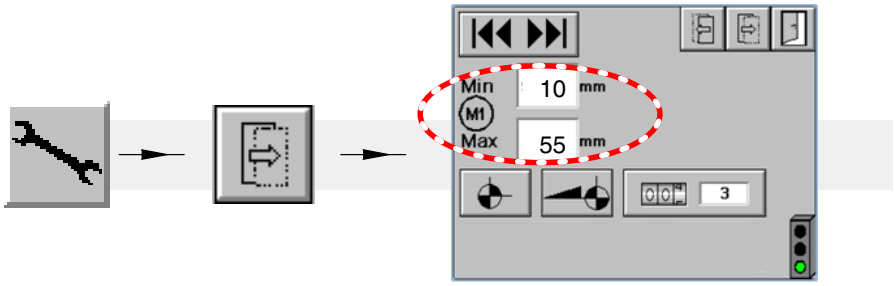
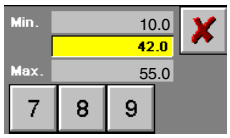


Fig. 16

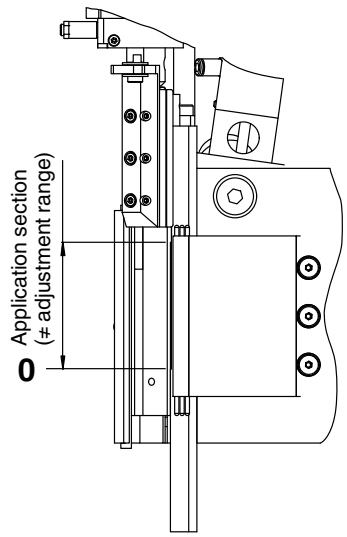


A limit can be set for the motor to prevent an application width from being selected when the production system is not intended for this purpose. These limits are visible in the input window.

Touch the following keys in the screen *Load application width*

Select minimum application width: The applicator closes to 10 mm

Select the maximum application width: The applicator opens to 55 mm.



Notes

- The values refer to the closed nozzle (nozzle slot: 0 mm ≠ minimum application width)

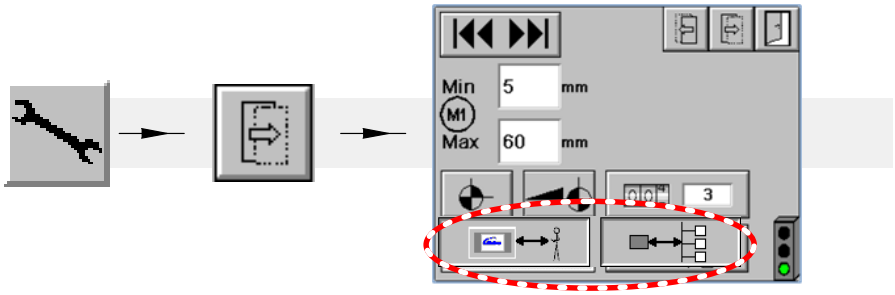
  Caution with model with handwheel: Attempting to close the nozzle farther than the minimum application width (as indicated by the ID plate) will damage the applicator. The minimum application width is a factor of the applicator.

  The software takes this into consideration for models with motor and Nordson control box/panel.

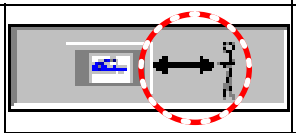
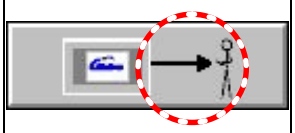
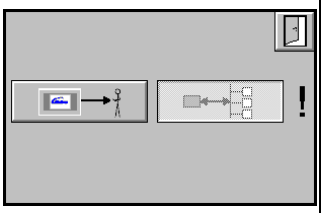
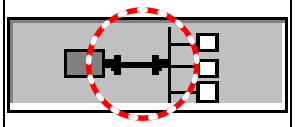
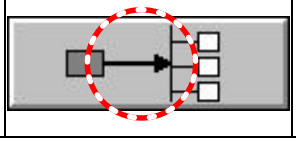
- Values beyond the range cannot be entered.

Fig. 17 Example EB060FLEX (extract from the technical drawing)

Selecting Control Options (with Field Bus Option)

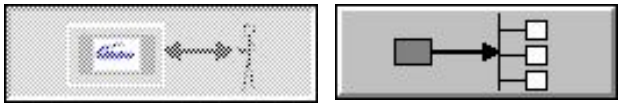


Example: *Control panel* selected, *Field bus* selected

Control option		Function
Control panel		The applicator can be controlled via the control panel
		The applicator can **not** be controlled via the control panel. **Exception:** *Fine adjustment*. Refer to page 42, *Fine Adjustment*. Values can be read. When an attempt is made to control via the control panel, a message appears: 
Field bus		The applicator can be controlled with field bus signals.
		The applicator can **not** be controlled with field bus signals. Data from the applicator can be received

NOTE: It is not possible to deactivate both control options. This is why only one of the selected control option keys is faded gray.

Control panel selected, *Field bus* deactivated:



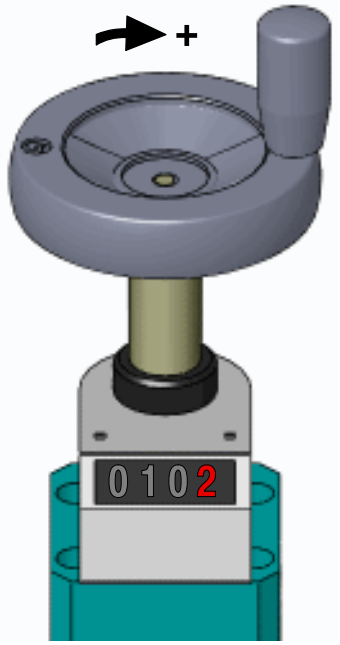
Setting Application Width (Handwheel)

CAUTION: To prevent damage to the applicator (e.g. to the seals), adjust the application width only when the applicator is heated to operating temperature.

- Do not open the nozzle closure until just before application
- When the nozzle closure is closed, no board may be conveyed past the applicator; this would damage the applicator.

  NOTE: Application width adjustments up to 1 mm can be made during operation. But then the nozzle closure should not be closed; this would cause a passing board to damage the applicator.
- When the nozzle closure is closed, the control module solenoid valve may not be activated.

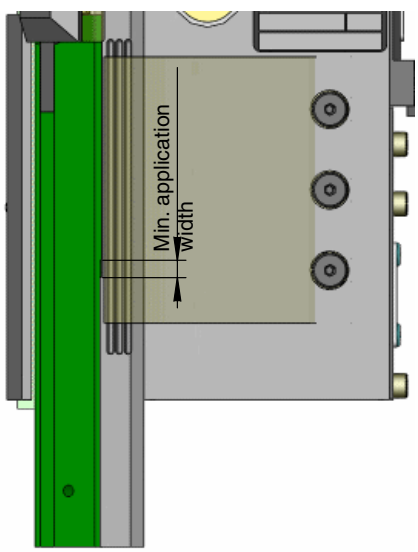
  When the solenoid valve is activated, the control module opens (digital output = 24 V_{DC}).

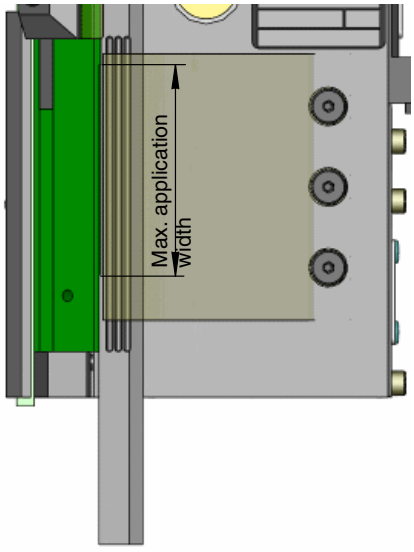


Application width: 10.2 mm

1. Close the nozzle closure.
2. Use the handwheel to adjust the application width.

   NOTE: Turn to the right to increase the number in the display and thus the application width.





   The maximum application width can be continuously reduced to the minimum value.

   If adjustment is difficult, the spindle may be blocked. If this is the case, extract and clean the nozzle.

3. Open the nozzle closure again.

Setting Application Width (Control Panel)

Precision of Display

The actual application widths may deviate slightly from the application widths indicated on the control panel. Possible causes:

- Slack in the spindle nut.

  Insert additional shim rings to increase the pretension. Refer to page 64 *Increasing Spindle Nut Pretension*.

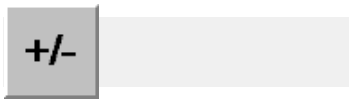
- Manufacturing tolerances in the spindle pitch.

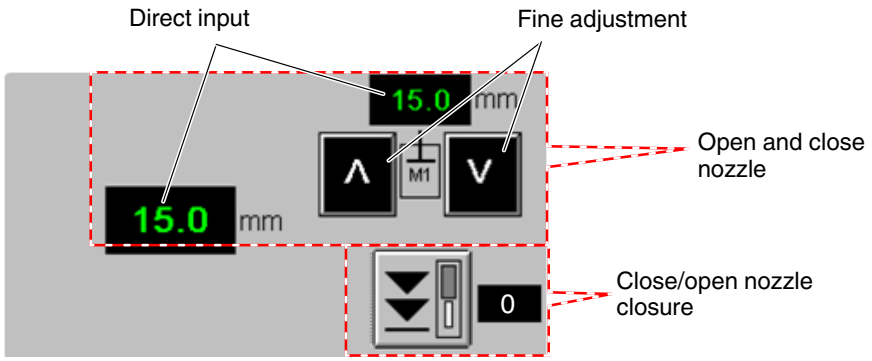
  Then refer to page 78*, Adjusting Application Width Display*.

- Different heat expansion at different operating temperatures.

  Then repeat calibration at the new operating temperature.

Opening and Closing Nozzle (Width Adjustment)





Using Arrow Keys (Fine Adjustment)

Touch the keys 

.

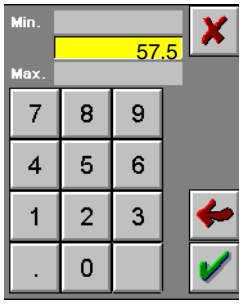
- Adjustment occurs immediately, without nozzle closure and regardless of the optional product counter.
- The speed of adjustment increases with the length of time that the key is touched.

Recommendation

Nordson recommends using the arrow keys only when the adjustment to the application width is no more than 1 mm. Small adjustments like this can be done during operation without the applicator being damaged by a passing board.

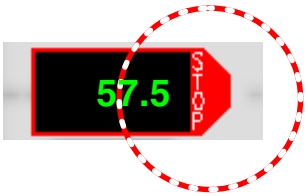
With the Number Field (Direct Input)

Touch the number field.



Input Window

- An input window opens. Enter a value (in mm, resolution 0.1 mm) and confirm.
- Stop application width adjustment: Touch the *Stop* key to stop adjustment prematurely:



Nozzle Closure

The pneumatic cylinder automatically closes the nozzle slot during width adjustment via the number field.

Software version < 2.06.006: If the nozzle closure was closed with this key, it also has to be opened with this key before application width can be selected.

Automatic Nozzle Closure with Product Detection (Option)

Width adjustment occurs only when the product counter = 0. The nozzle closure is closed during width adjustment.

Operation Sequence when Width is Adjusted via the Number Field

A. The nozzle closure closes until the pneumatic cylinder reaches the lower end position (lower proximity switch). Indicator beacon is yellow.

B. The motor is triggered until the width adjustment reaches the entered value.

C. The nozzle closure opens until the pneumatic cylinder reaches the upper end position (upper proximity switch).

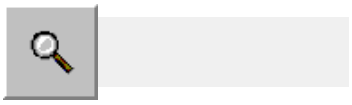
D. Signal *System ready* received. Indicator beacon is green.

Also refer to page 32, *System Ready / Prerequisites for Motor-driven Applicators*.

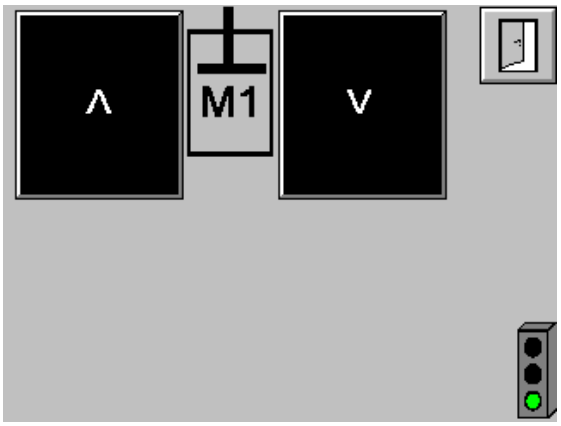
Fine Adjustment - Magnified View

NOTE: Adjustment occurs immediately, without nozzle closure and regardless of the optional product counter.

Nordson recommends using the arrow keys only when the adjustment to the application width is no more than 1 mm. Small adjustments like this can be done during operation without the applicator being damaged by a passing board.



The keys *Application width* are enlarged:

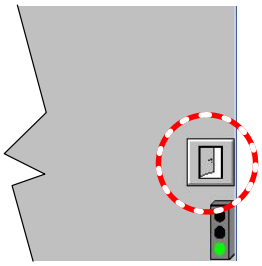


This makes fine adjustment during operation easier, when the operator is looking at the product and not at the control panel.

To return to the normal view:

1. Touch the key 
2. Touch the second key  , which then appears.

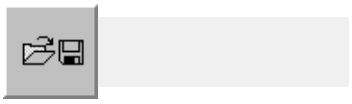
   This prevents incorrect operation when the first key is touched unintentionally.

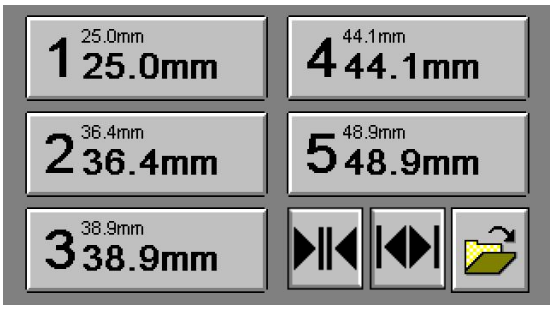


Second key

Saving/Loading Application Width

There are five memory locations available. The label for each memory location depends on the saved application width and is entered automatically.





Saving

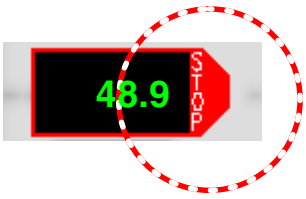
Save mode

To save the current application width:

1. Touch the key  to go to *Save* mode: 
2. Touch the key for the desired memory location.
   The following confirmation prompt appears:

3. Save the current application width with  , or cancel with  .

Loading



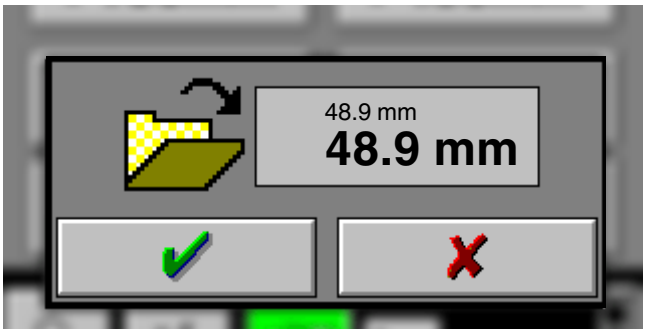
NOTE: After loading an application width, adjustment occurs automatically.

Stop application width adjustment: Touch the *Stop* key to stop adjustment prematurely.

Loading Saved Application Widths

Load mode

1. Verify that the  key is in *Load* mode, meaning that it is not pressed.
2. Touch the key for the desired memory location.
   The following confirmation prompt appears:



3. Load the application width with  , or cancel with  .

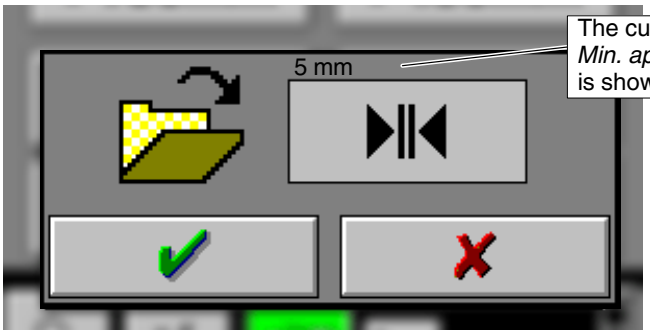
   NOTE: An application width is selected that is reduced by the safety margin (Refer to page 36, *Entering Safety Margin*). So the application width should then be corrected with the *Fine adjustment*.

Loading Special Application Widths

1. Select the desired application width:

 **Minimum application width**	**NOTE:** The maximum and minimum application widths can be specified. Refer to page 37, *Limiting Application Width*.
 **Maximum application width**	

   The following confirmation prompt appears:



2. Load the application width with  , or cancel with  .

Enabling Solenoid Valve of Application Control Module

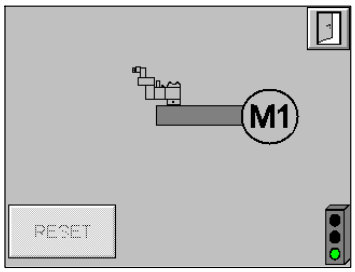
The status is indicated by these symbols:

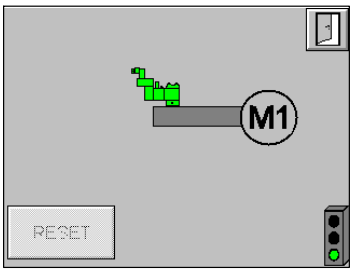
- Gray control module: Solenoid valve not enabled

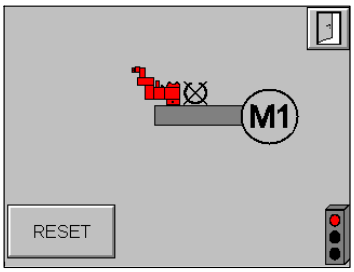
  Wait until the parent machine is ready and the signal *Enable solenoid valves* has been transmitted to the control box.

  NOTE: The message *Solenoid valves not enabled* will also appear if the enable cable is missing.

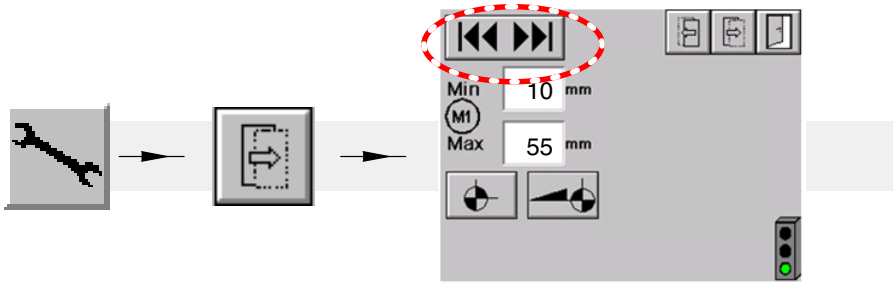
- Green control module: Solenoid valve enabled
- Red control module: Solenoid valve control failed







Maximizing Application Slot (Maintenance Position)



This key can open the applicator to the maximum application width (as specified by the software configuration code), e.g. for maintenance and repair purposes.

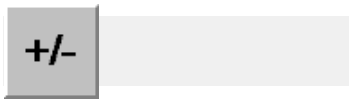
The stated maximum value for motor 1 (55 mm in the illustration) is ignored.

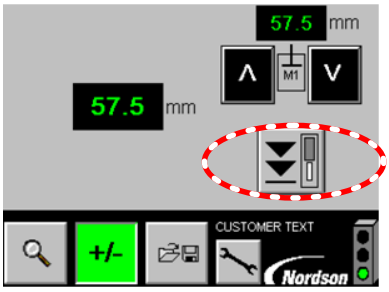
Minimizing Application Slot (Smallest Application Width)

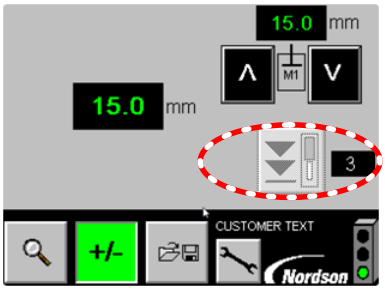
This key is used to close the applicator to the minimum application width (as specified by the software configuration code).

Opening and Closing Nozzle Closure with a Key on the Control Panel

CAUTION: The applicator must be at operating temperature before the nozzle closure can be opened.







Product counter => 0

Close

Open

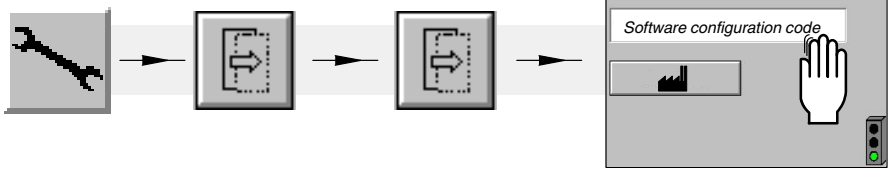
Blocked

There is a key with which the operator can close the nozzle closure, e.g. during production stoppage. Touch the key a second time to open the nozzle closure.

The key is blocked to prevent opening during width adjustment or closing when there are products in the detection range.

Refer to page 10 for more information on the nozzle closure.

Software Configuration Code



Symbol *Restart*

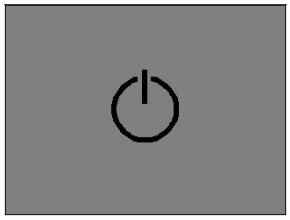
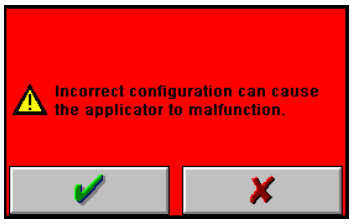


Fig. 18



1. Touch the input field.
2. Confirm the warning.

   CAUTION: Change the software configuration code only when the configuration has actually changed (e.g. due to retrofitting) or has to be changed, e.g. for a software update (Refer to page 83 *Software Update*). Otherwise the applicator may not function properly.

   Nordson will inform of the new, changed software configuration code.
3. Enter the software configuration code. Then the operator will be prompted to restart.
4. Touch the *Restart* symbol to boot the operating unit.

Resetting to Nordson Default

Nordson default

Delivery state of parameters that can be reset to the default with the key (Fig. 18).

Daily Shutdown

1. Perform daily maintenance.
2. With motor-driven application width adjustment: Switch off the control box.

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 applicator. It should never be neglected.

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

Refer to page 28, *Relieving Adhesive Pressure* in the section *Installation*.

With the Field Bus Option

CAUTION: Verify that the control option *Field bus* is deactivated. This prevents unintentional adjustment of the mouthpiece. Refer to page 38, *Selecting Control Options (with Field Bus Option).*

Processing Materials

CAUTION: Always consult the material safety data sheet (MSDS) issued by the respective manufacturer. Nordson MSDS can be found at http://emanuals.nordson.com/MSDS/default.htm

Manufacturer / designation		**Use**
Elkalub GLS 595/N2	Please purchase from the processing material manufacturer	High-temperature grease to be applied to O-rings and threads **NOTE:** The grease should not be mixed with other lubricants. Oily/greasy parts must be cleaned before application.
Henkel Loctite® 620	Please purchase from the processing material manufacturer	Refer to page 63 High-strength retaining compound
Nordson CLEANER C NF 4 spray bottles, 0.5 l each	Order number P/N 7334104	Cleaning agent for external cleaning
Nordson CLEANER C ODORLESS 4 spray bottles, 0.5 l each	Order number P/N 7334088	NEW! Cleaning agent for external cleaning

Regular Maintenance

Unit part	Activity	Interval	Refer to
Entire applicator Power cable Air hoses	Visual inspection for external damage	Daily	Page 51
Entire applicator	External cleaning	Daily	Page 51
	Purge with cleaning agent	When adhesive is changed or before extended production standstill (4 days or longer)	Page 54
Control panel	Clean	When dirty	Page 52
Control module	Check detection hole for leakage	Daily	Page 55
	Replace	When leakage or a functional fault occurs	Page 55
Nozzle	Clean slide track and lubricate with high temperature grease	When production is finished	Page 61
	Extract and clean	Every three months, when the application pattern deteriorates or adjustment is sluggish	Page 61
	Purge with adhesive	Note when using PUR: Once daily for approx. 1 min and when production pauses for >1 h. More often if necessary with small product quantities. **CAUTION:** Never exceed the maximum applicator pressure permitted (Refer to *Technical Data*), whether purging with adhesive or with cleaning agent.	Page 53
	Replace	When damaged	Beginning on page 57
Spindle	Increase pretension of spindle nuts with additional shim rings or replace the spindle nuts and adjust the pretension	When noticeably slack	Page 64 or Page 62 and Page 63
Groove nut	Adjust	When the spindle is noticeably slack in the spindle bearing	Page 64
Sliding plate The sliding plate determines the clearance, which would be distorted if the sliding plate were deformed, to the board.	Replace	When worn	Page 17
	Visual inspection; if necessary, clean adhesive drain grooves (e.g. 23 , Fig. 3) under the sliding plate	If too much adhesive was set and seeped under the sliding plate	-
Nozzle closure	Tighten setscrew (2, Fig. 23)	When the pretension and thus the sealing properties of the nozzle closure plate deteriorate.	Page 60

When the Applicator is Detached from the Stand for Maintenance Purposes

To ensure that the set position remains unchanged, follow these instructions:

- Do not release the clamping ring; it secures the height.
- The clamp limit stop remains on the stand and secures the angle.
- Release the clamp lever and remove it from the applicator along with the clamping device.

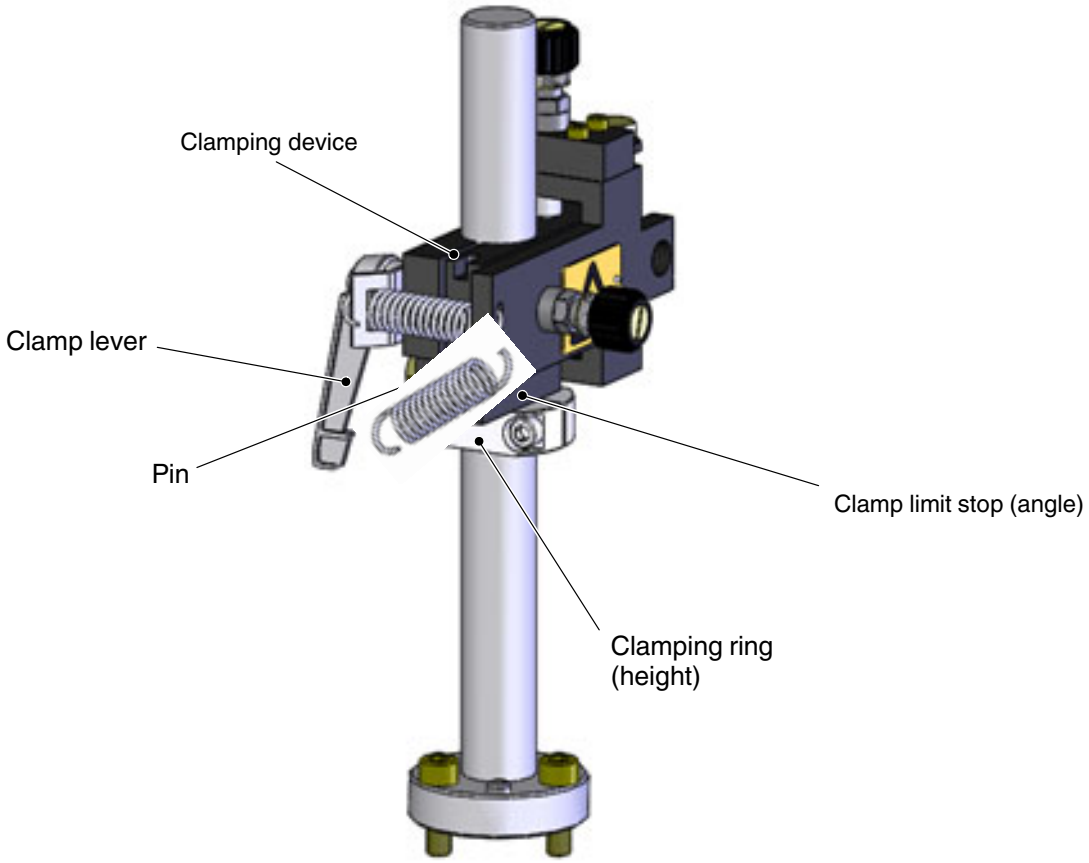


Fig. 19

CAUTION: After the applicator is put back into place, the pin in the clamp limit stop has to engage properly in the clamping device.

Visual Inspection for External Damage

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

External Cleaning

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

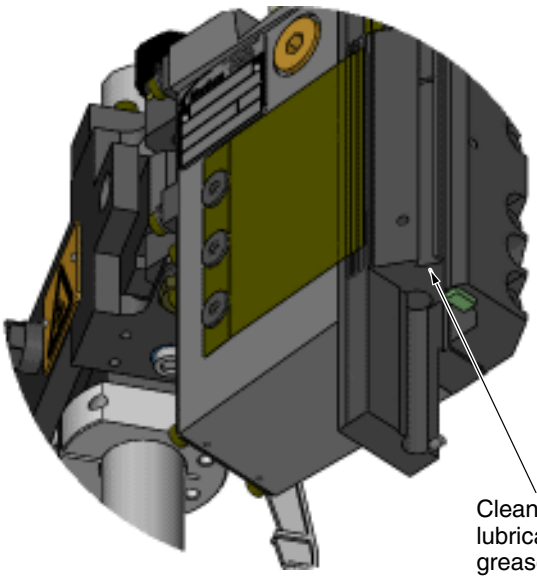
CAUTION: Do not use hard tools to clean the coated nozzle. Do not use wire brushes! This could cause scratches that are detrimental to application. Nordson recommends using a wooden or plastic spatula. Before using near the nozzle slot, always try out the tools in a less critical place.

Always follow the manufacturer's instructions when using cleaning agents!

1. Electrically heat the cold applicator until the material is liquid.
2. Thoroughly remove the warm material with a cleaning agent and/or a soft, lint-free cloth.
3. Remove dust, fluffs, etc. with a vacuum cleaner or a soft, lint-free cloth.

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

Cleaning Slide Track



Clean the slide track (groove) and lubricate with high temperature grease

Cleaning Control Panel

CAUTION: De-energize the control box. This ensures that no functions are unintentionally triggered.

- Do not use any sharp objects (e.g. knife) to clean
- Do not use aggressive or abrasive cleaning agents or solvents
- Prevent liquids from penetrating the operating unit.
- Clean the control panel regularly with a soft, damp cloth. Use caution to ensure that the surface is not scratched or scoured, particularly when removing hard residue and abrasive dust.

Changing Type of Material

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

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

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

Purging with Adhesive

NOTE: Depending on the adhesive properties and specifically for PUR: once daily for approx. 1 min and when production pauses for >1h. More often if necessary with small product quantities.

CAUTION: When purging, comply with the maximum applicator pressure permitted (*Technical Data*).

Purging

As the nozzle opens and closes, adhesive charring is prevented around the surface nozzle, and the nozzle slot is cleaned.

1. With the pump switched off, go to the minimum application width.
2. With the pump switched off, go to the maximum application width (maintenance position).
3. Clean the nozzle slot.
4. Purge at the maximum application width until the adhesive flows out free of bubbles and clots. Switch the pump off again.
5. With the pump off, reduce to the production application width.
6. Externally clean the nozzle.

Purging with Cleaning Agent

When the type of adhesive is changed or depending on the adhesive properties and specifically for PUR: purge with cleaning agent before extended breaks in production (four days or longer).

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

CAUTION: When purging, comply with the maximum applicator pressure permitted (*Technical Data*).

1. Maintain operating temperature.
2. *Relieve adhesive pressure*.
3. Detach the heated hose from the applicator to prevent impurities from the melter and hose from being forced into the applicator during purging.
4. Purge melter and heated hose.
5. Screw the heated hose onto the applicator again and purge the applicator:

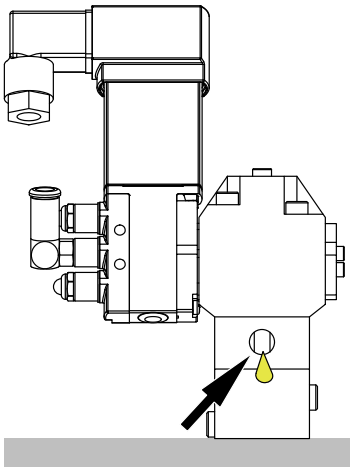
   As the nozzle opens and closes, adhesive charring is prevented around the surface nozzle, and the nozzle slot is cleaned.

   a. With the pump switched off, go to the minimum application width.
   b. With the pump switched off, go to the maximum application width (maintenance position).
   c. Clean the nozzle slot.
   d. Purge at the maximum application width until the adhesive flows out free of bubbles and clots. Switch the pump off again.

If the adhesive supplier does not recommend otherwise and especially when PUR adhesives are used, do not continue until right before the next production:

6. With the pump off, reduce to the production application width.
7. Purge the system (melter, hose, applicator) with the material currently in use to flush out the cleaning agent; continue until the adhesive flows out free of bubbles and clots.
8. Switch off the pump and clean the outside of the nozzles.
9. Properly dispose of the cleaning agent according to local regulations.

Inspecting Control Module



If material escapes from the detection hole (arrow), the internal O-rings have worn and the control module must be replaced.

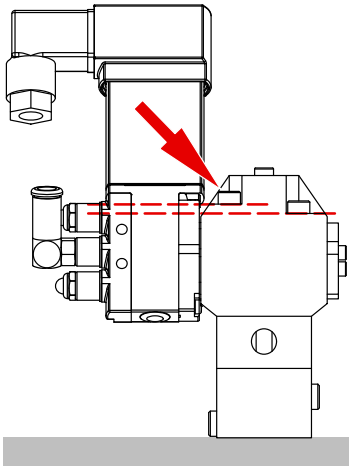
Replacing Control Module

P/N 7584211 PUR Control Module (Left)
P/N 7584212 PUR Control Module (Right)
P/N 7584210 PUR Control Module (Without Solenoid Valve)

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

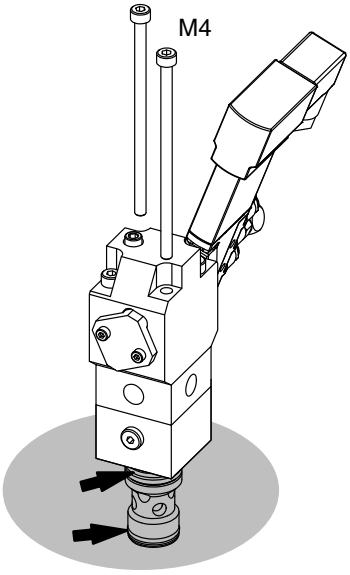
CAUTION: The control module is a high precision, valuable part. Handle very carefully!

Removing Control Module



1. *Relieve adhesive pressure*.
2. Release the air connection and electrical connection.
3. Release the two* M4 fixing screws.
   *Recognizable by the higher screw head (Refer to arrow)
4. Extract the control module from the warm applicator.

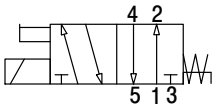
Installing Control Module



NOTE: Required tool: Torque wrench.

1. Apply high temperature grease to the O-rings (arrows).
2. Insert the new control module. Do not tilt!
3. Carefully screw in the screws by hand.
4. Tighten the screws uniformly and crosswise. Torque: 3 Nm.
5. Re-connect air and electrical connections.

NOTE: Observe the voltage stated on the ID plate of the solenoid valve.



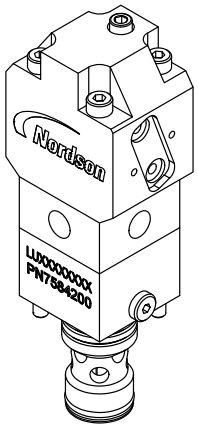
If Control Module P/N 7183068 is Replaced with P/N 7584211 or P/N 7584212: Adjust Valve Compensation

After the old control module has been replaced, the pattern controller (valve compensation) has to be adjusted for the new control module.

- Valve time OPEN: approx. 8.0 ms
- Valve time CLOSE: approx. 11.0 ms

Then perform fine adjustment.

Kit-SVC 7584210 (Control Module without Solenoid Valve)



P/N 7584210

NOTE: Because the O-rings (Fig. 20, circle) are inserted only loosely, remove the solenoid valve carefully. The O-rings are not included in the kit P/N 7584210.

Replace as described in the section Retrofitting.

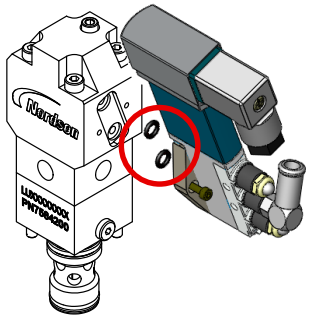
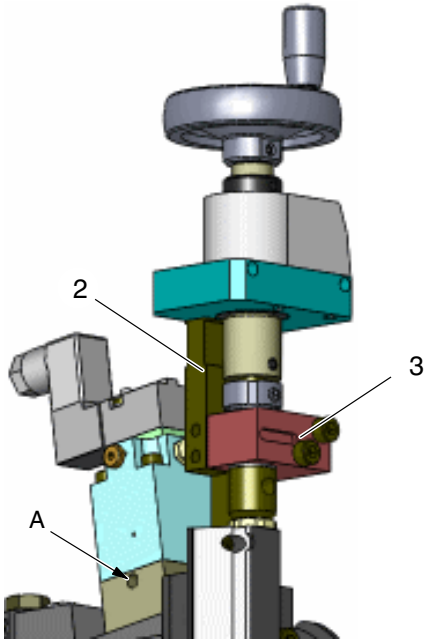


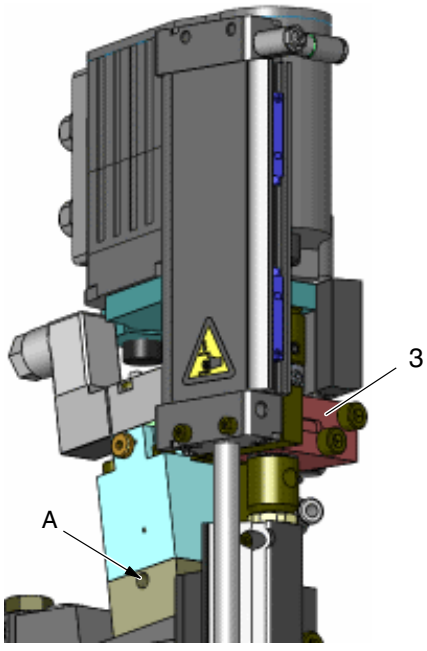
Fig. 20

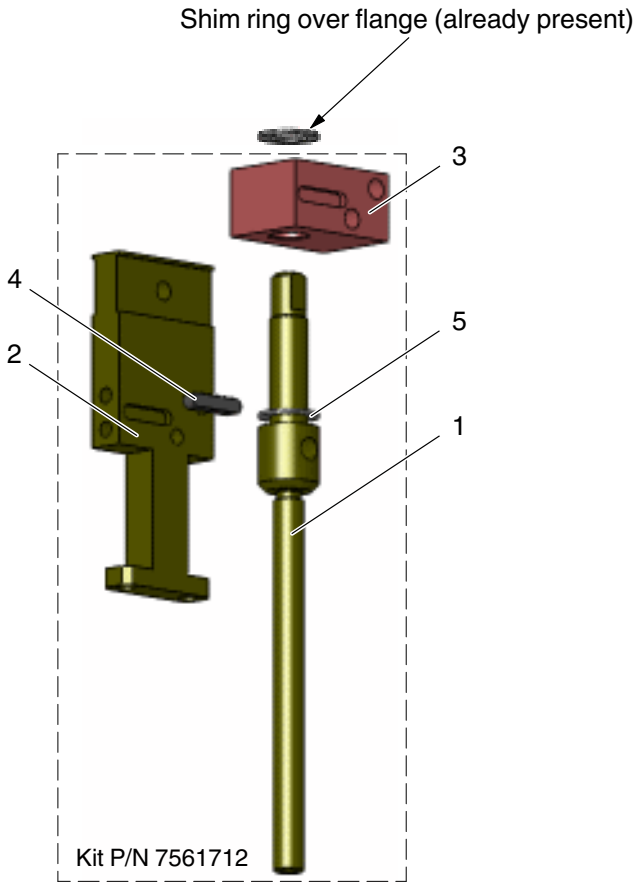
Opening/Removing Nozzle

Changes Beginning April 2017

- A pulley key groove was added to the front and back of both the bracket (2) and the flange (3). This means they can be used in left and right applicators. Now there is also a shim ring (5) under the flange, which affects a dimension of the spindle (1). The kit P/N 7561712 is available for older applicators.
- New control module (recognizable by smaller detection hole (A))







Model with Motor

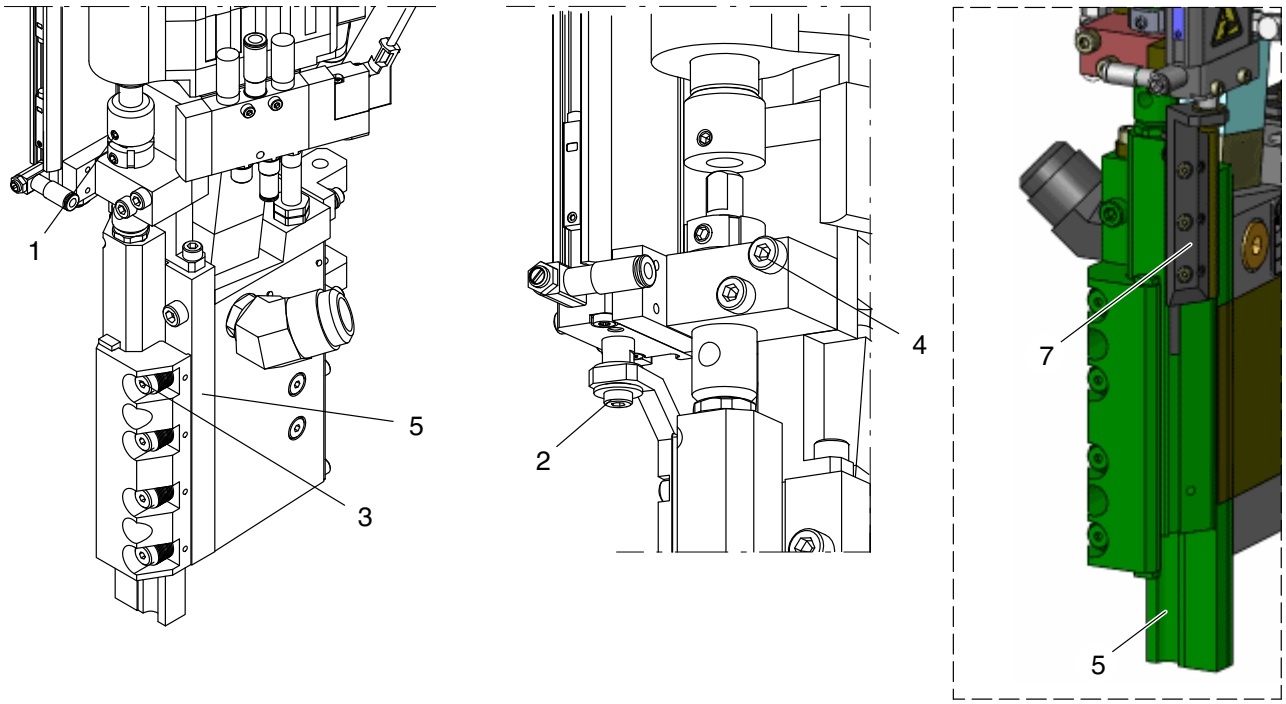


Fig. 21

1. *Relieve adhesive pressure*.
2. Release the set screw (1, Fig. 21) and slide the shaft up to expose the end of the spindle.
3. Release the hex bolt (2) to detach the nozzle closure (7).
4. In the first step, loosen all four screws (3) on the clamp only a few revolutions. They are secured to prevent them from falling out. Then unscrew them completely.
5. Release the two fixing screws (4) and detach the assembly from the applicator.

   The mouthpiece receptacle (5) remains on the applicator.

If the whole nozzle is to be replaced, refer to *Removing Complete Nozzle*.

Model with Handwheel

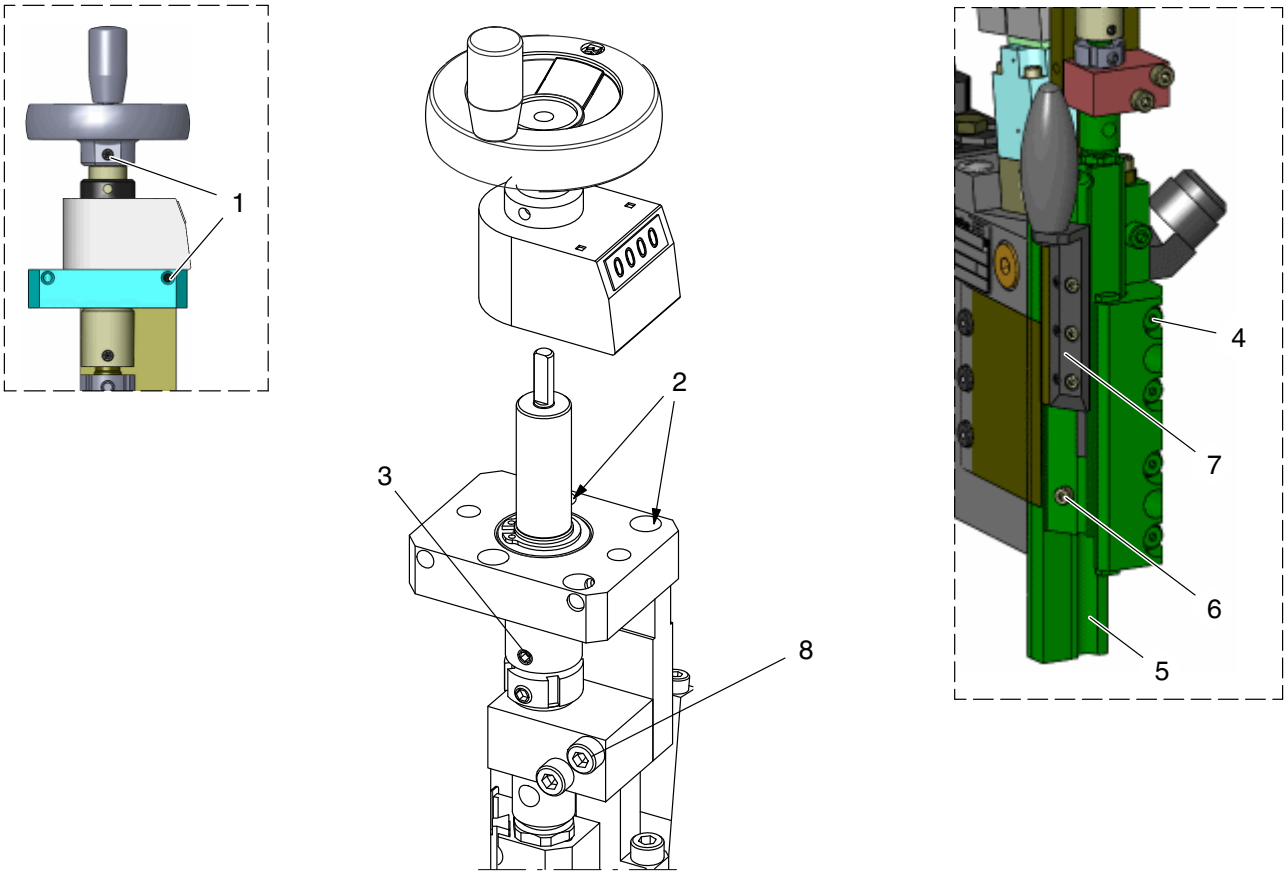


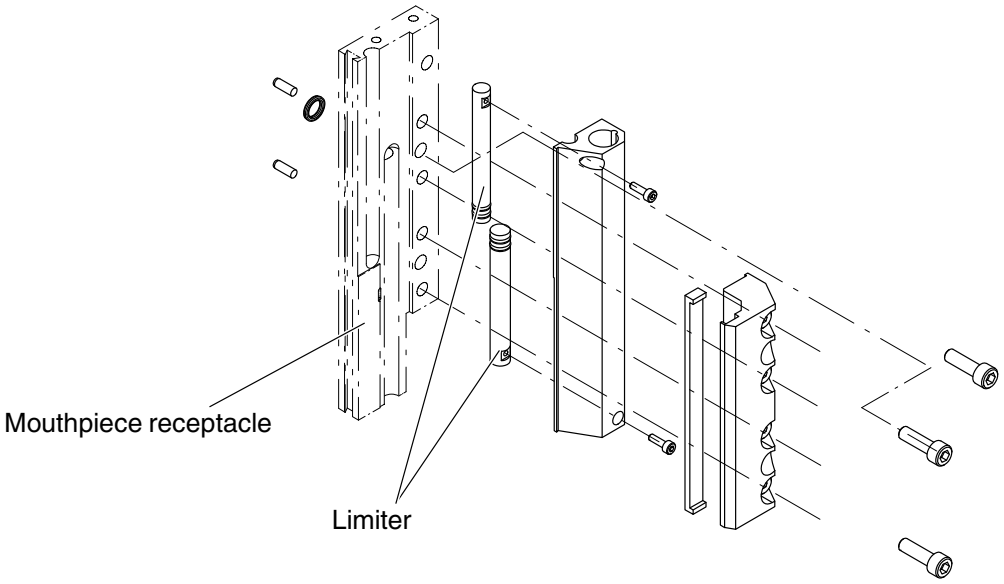
Fig. 22

1. *Relieve adhesive pressure*.
2. Release the setscrews (1, Fig. 22) on the handwheel and for the position indicator and remove the parts. If this is done carefully, the display will not need to be calibrated after re-assembly.
3. Release the setscrew (3) and the two screws (2). The bearing block can then be detached along with the shaft.
4. In the first step, loosen all four screws (4) on the clamp only a few revolutions. They are secured to prevent them from falling out. Then unscrew them completely.
5. Release the two fixing screws (8) and detach the assembly from the applicator.

   The mouthpiece receptacle (5) remains on the applicator.

If the whole nozzle is to be replaced, refer to *Removing Complete Nozzle*.

Replacing Limiter



Removing Complete Nozzle

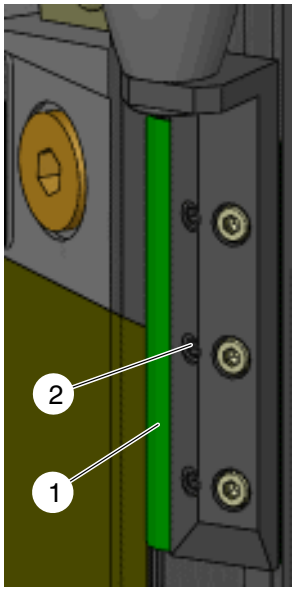


Fig. 23 Nozzle closure

If the whole nozzle is to be removed, these additional tasks must be performed.

1. Remove the mouthpiece receptacle. It belongs to the (old) nozzle.
2. Remove the nozzle closure and, on the model with handwheel, also remove the limiter screw M4 (6, Fig. 22). They will be used again.

After installation

3. Adjust the nozzle closure plate (1, Fig. 23) in the slots and with the setscrews (2, Fig. 23) such that the plate rests against the nozzle slot but can still be moved.
   When the nozzle closure is closed, the nozzle closure plate has to completely cover the nozzle slot.

   Tighten the setscrews if the pretension and thus the sealing properties deteriorate. When nozzle closure is manual, loose setscrews can also cause unintentional closing during production, resulting in damage to the applicator.

4. **Model with handwheel:** Calibrate the display. Refer to *Calibrating "Application Width" Display (with Handwheel)*.

Cleaning Nozzle

CAUTION: Do not use hard tools to clean the coated nozzle. Do not use wire brushes! This could cause scratches that are detrimental to application. Nordson recommends using a wooden or plastic spatula. Before using near the nozzle slot, always try out the tools in a less critical place.

Nordson recommends having the nozzle disassembled and cleaned by Nordson if there are no properly trained persons on site or if pollution is excessive. Otherwise the nozzle could be damaged beyond repair or begin leaking.

- Wipe off the adhesive with a soft, lint-free cloth
- Heat adhesive residue with a hot air fan
- Clean the spindle thread with a brass brush.
- Use a wooden or plastic spatula near coating.

Wooden spatulas that can be used to clean the nozzle are available in retail outlets; a set of spatulas (6 spatulas) can also be purchased from Nordson, P/N 7162022 (Fig. 24, left).

Wooden tongue depressors can e.g. be cut to the width of the distribution and compensation channel (Fig. 24, right).

Fig. 24

Replacing Spindle Nut

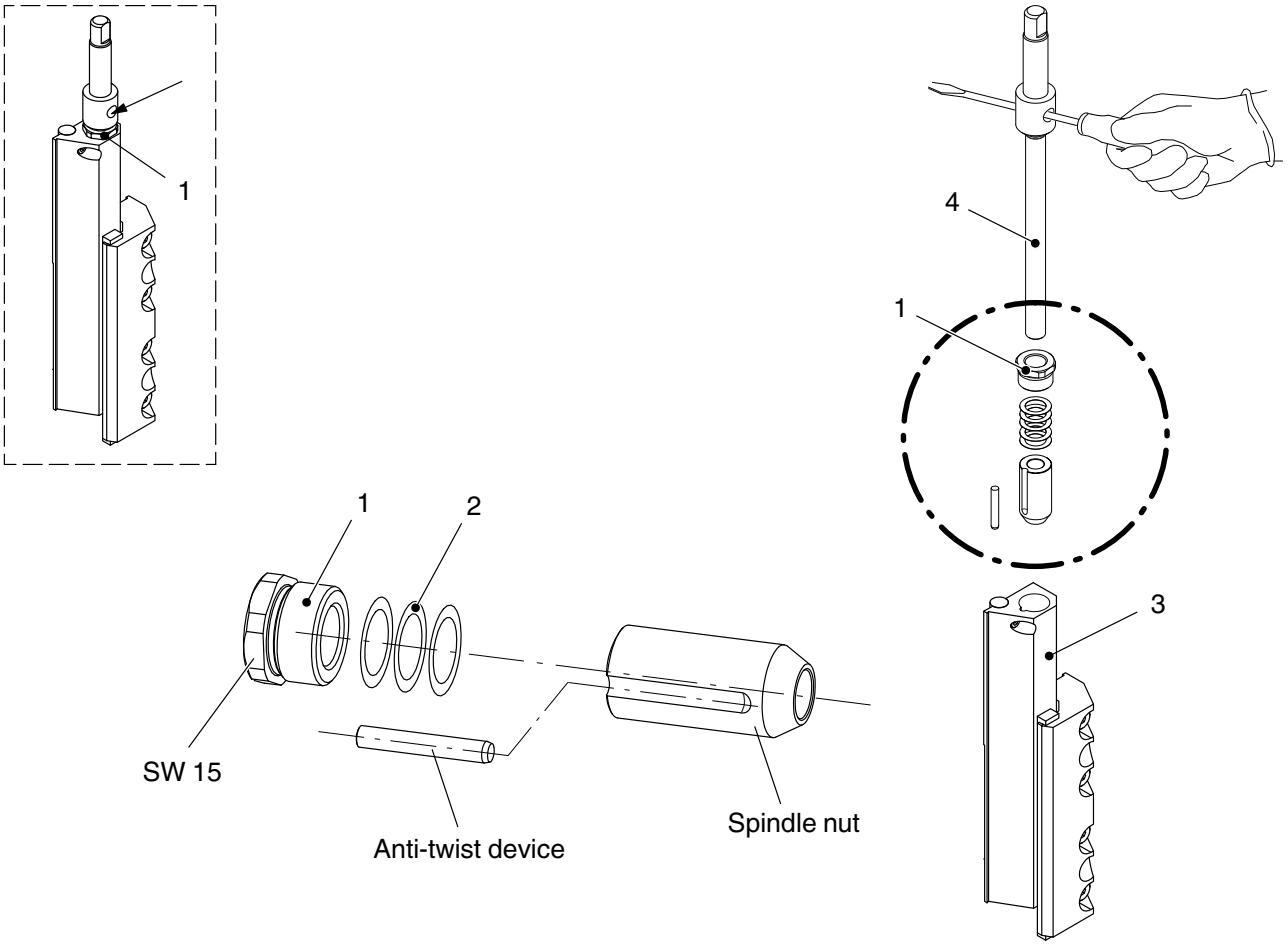


Fig. 25 SW: Wrench width

1. *Remove the nozzle*.

A tool can be inserted into the 6 mm hole (arrow) to unscrew the spindle.

2. Unscrew the spindle (4) far enough that the screw (1) can be extracted.
3. Extract the screw (1).
4. Pull out the spindle nut along with the spindle.
5. Insert a new spindle nut and use the cylinder pin to prevent it from turning.

Adjust the pretension as described in the section *Adjusting Spindle Nut Pretension* (page 63).

Adjusting Spindle Nut Pretension

Correct pretension ensures hydraulic sealing on the spindle, similar to a gland. It has to be adjusted when the spindle nut is replaced.

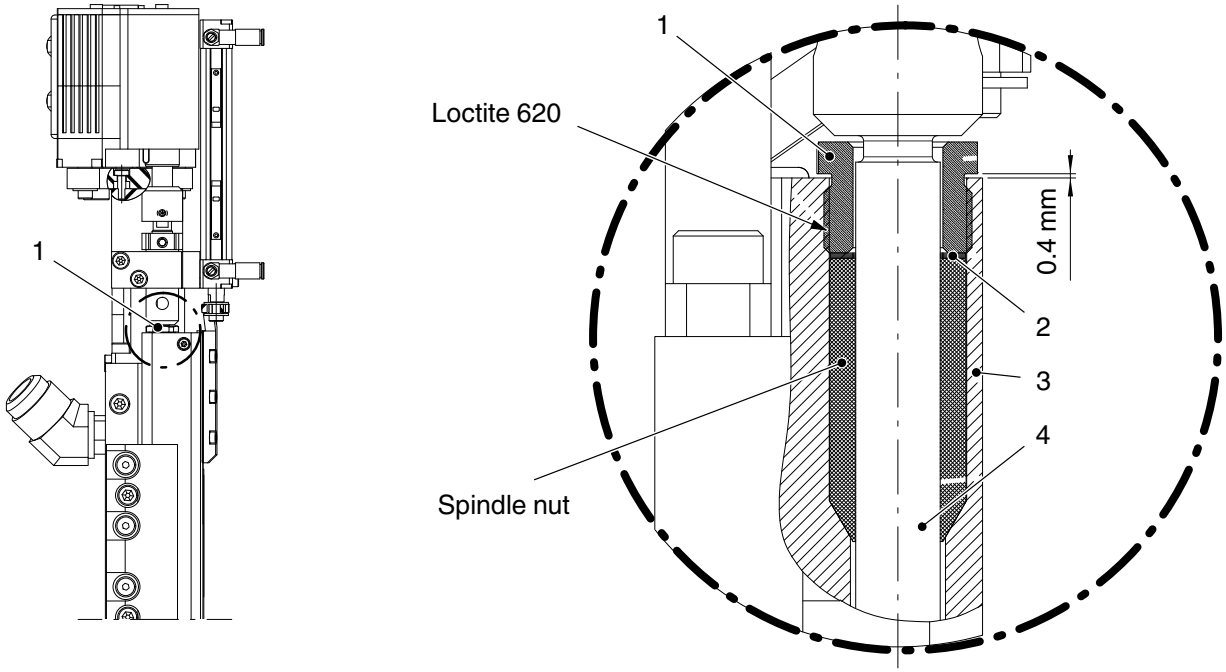


Fig. 26

1. *Remove the nozzle*.

A tool can be inserted into the 6 mm hole (arrow) to unscrew the spindle.

2. Unscrew the spindle (4) far enough that the screw (1) can be extracted.
3. Extract the screw (1).
4. Unscrew the spindle all the way.

Adjust Pretension

5. Set the gap to 0.4 mm by inserting 0.1 mm shim rings (2). Always tighten the screw (1) only hand-tight.
6. When the gap size has been achieved, extract the screw again and apply Loctite 620 to the screw thread.

CAUTION: Tighten the screw all the way only when the mouthpiece (3) is on the spindle (4).

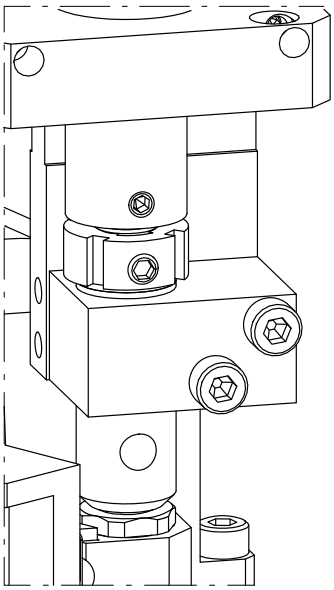
7. Screw the spindle back in again and tighten the screw (1) all the way.

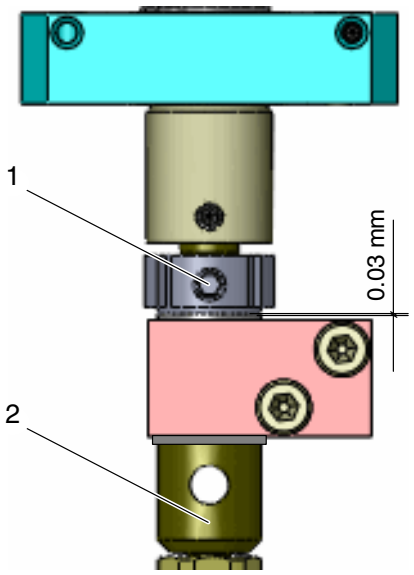
Increasing Spindle Nut Pretension

If there is noticeable slack in the spindle bearing, the pretension can be increased with additional shim rings (2, Fig. 26).

Tightening Groove Nut

The spindle (2) should be able to turn without too much axial leeway. Excessive axial leeway causes imprecise width adjustment.





To tighten, release the securing screw (1) and turn the groove nut to a defined distance from the washer, e.g. by inserting a sensor gauge (0.03 mm in the illustration). Tighten the securing screw again.

Troubleshooting

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

Introduction

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

The following problems are not included in the troubleshooting tables:

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

Software Version

The software version may be relevant for troubleshooting or when calling the Nordson hotline. It is displayed on the control panel screen *Setup*.

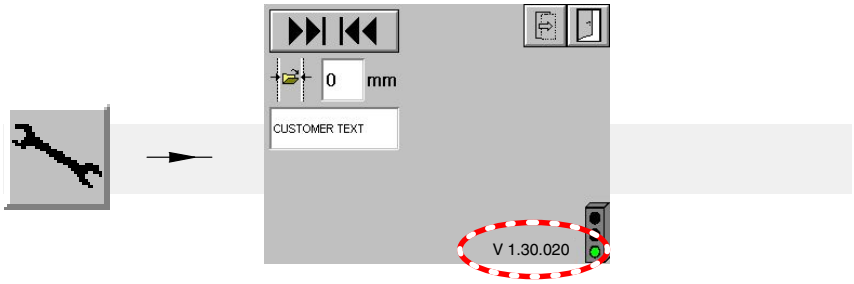


Fig. 27 Example

Troubleshooting Table

Problem	Possible cause	Corrective action	Refer to
No material	Melter tank is empty	Fill	
	Melter motor is not switched on	Switch on	
	Melter pump is not working	Check	Separate manual *Melter*
	Applicator has not yet reached operating temperature	Wait until temperature has been reached; check temperature setting if necessary	
	Applicator cold or not yet warm enough	Refer to *Applicator does not heat*	- -
	Compressed air not connected	Connect	Page 26
	Nozzle clogged	Clean nozzle	Page 61
	Nozzle stem is stuck	Replace control module	Page 55
	Solenoid valve does not switch	Control unit not switched on	- -
		If the plug is not connected or is loose, secure the connection with a screw	Page 24
	Nozzle closure closed	Control fault?	- -
		Proximity switch defective?	
Applicator does not heat	Temperature is not set	Set on the melter control panel	Separate manual *Melter*
	Plug not connected	Connect	Page 25
	Fuses in melter defective	Disconnect melter from line voltage, check fuses and replace if necessary	- -
	Heater cartridge(s) in applicator defective	Replace	- -
Applicator does not reach the set temperature	Heater cartridge(s) in applicator defective	Replace	- -
	Ambient temperature too low	Increase ambient temperature	- -

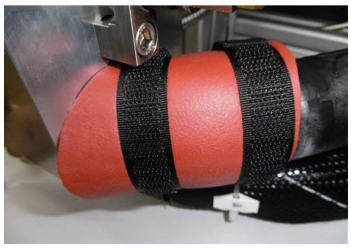
Continued ...

Problem	Possible cause	Corrective action	Refer to
Application pattern not exact	Production parameters not attuned to one another	Check/correct system temperatures and adhesive quantity/pressure	- -
	Applicator does not have even contact with the substrate	Check height and angle of incidence, adjust if necessary	Fig. 11 f
	Sliding plate worn, or sliding plate not suitable for the desired application thickness (application weight) chosen. 100 g/m^2= 0.1 mm	Replace sliding plate	- -
	Control unit not programmed correctly	Correct programming	- -
	Nozzle partially blocked or damaged	Extract and clean nozzle	Page 61
	Pollution inside of nozzle	Clean	Page 61
	Nozzle damaged	Replace nozzle	- -
	Application quantity and substrate processing speed not attuned to one another	Check settings; change so as to be attuned to one another if necessary	- -
	Unsuitable adhesive, e.g. after switching from roll application to slot nozzle	Ask manufacturer	Data sheet of material manufacturer
Poor cut-off	Adhesive is offgassed due to extended standstill	Purge system	- -
	Air has penetrated the applicator because the system was cooled off		
Pause time too long	Muffler in control module clogged	Replace muffler	- -
The *open time is too long** * The *open time* is the time from when the adhesive leaves the nozzle until it hardens on the substrate.	Application temperature too high	Set temperature lower	Separate manual *Melter*
	Adhesive unsuitable	Ask manufacturer	Data sheet of material manufacturer
The *open time is too short**	Application temperature too low	Set temperature higher	Separate manual *Melter*
	Adhesive unsuitable	Ask manufacturer	Data sheet of material manufacturer

Continued ...

Problem	Possible cause	Corrective action	Refer to
Distance between coating and upper or lower edge incorrect	Lower: Height is not set to production reference point Upper: Distance set incorrectly	Adjust applicator	Fig. 11 f
Nozzle slot no longer properly sealed	Setscrews are loose	Increase pretension by carefully tightening setscrews. **CAUTION:** Do not overtighten; this would block the pump cylinder.	Fig. 23
Spindle nut pretension has eased	>>	Insert additional shim rings until the correct gap size is reached Replace spindle nuts after two years	Page 63 Page 62

If Hose Connection is Too Cold



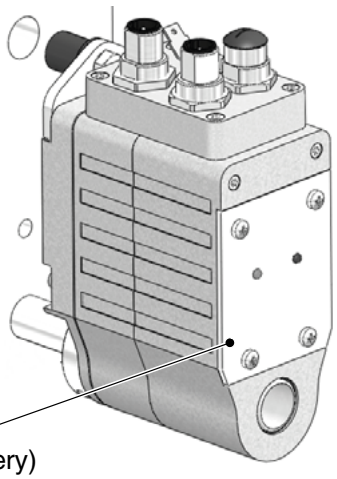
Insulation can be (re)ordered under P/N 7561342.

Servomotor AG03 and Servomotor AG03/1

The model AG03 is not longer available. It has been replaced with the AG03/1:

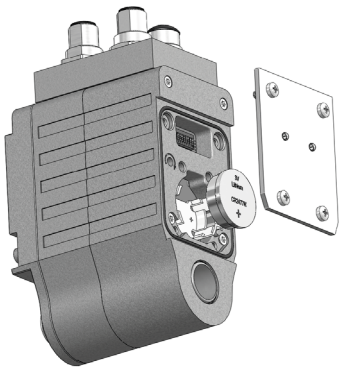
AG03

Round cover (DIP switch)



Square cover (DIP switch and battery)

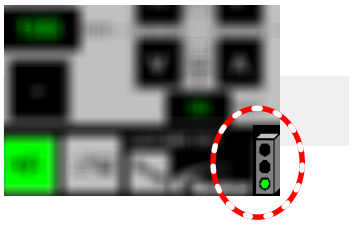
AG03/1



Replacing Battery in AG03/1

1. When the battery is replaced with the voltage supply connected, the position has to be re-calibrated upon completion. But then verify that the control option *Field bus* is deactivated. This prevents unintentional adjustment of the nozzle mouthpiece.
2. Release the screws in the cover but do not remove them.
3. Carefully remove the cover with the four screws such that the optical fibers do not break and the four rings in the body do not fall out.
4. Risk of short-circuit when tools are conducting. For this reason, extract the battery with your fingers.
5. Snap the new battery (CR2477N; 3 V lithium; 950 mAh) into the bracket.
6. Verify that the O-ring is completely submerged in the groove and then put the cover back into place. Tighten the screws uniformly until the lid lies flat.
7. If the voltage supply was not connected when the battery was replaced, proceed as described under *Calibrating Slide Position* (page 77).

Alarms



Touch the signal beacon to display the control panel screen *Alarms*.

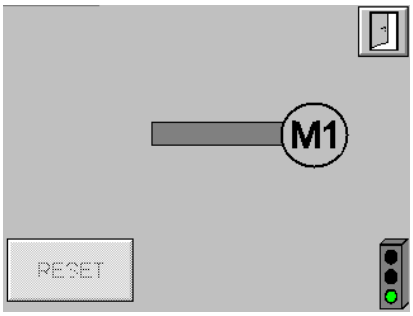


Fig. 28 *Alarms* screen: no warning, no fault

If a motor is affected, it is shown in color: Yellow for *Warning*, red for *Fault / shutdown*. The alarm is explained with a symbol. Example:

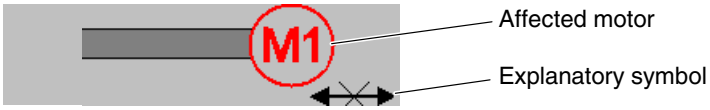
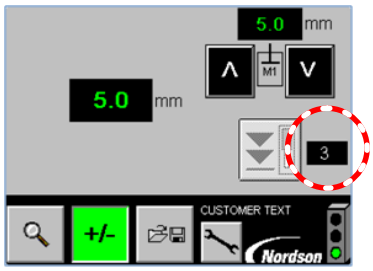


Fig. 29 Fault *Motor 1 is blocked*

Automatic Nozzle Closure with Product Detection (Option)

Starting screen



Product counter screen

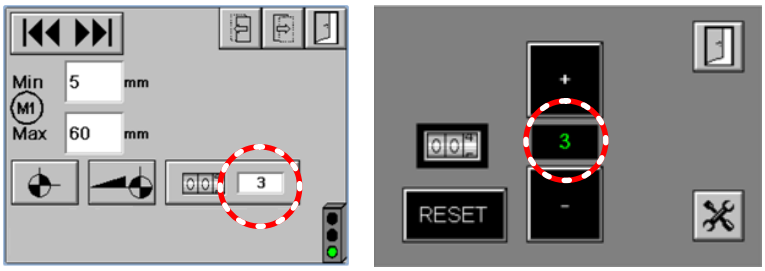
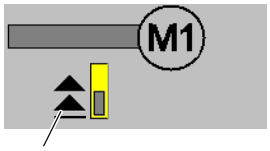
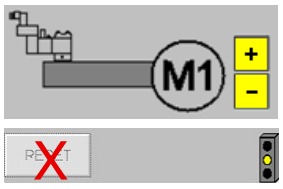


Fig. 30

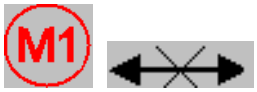
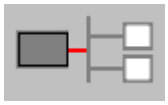
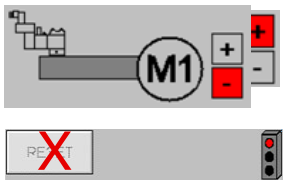
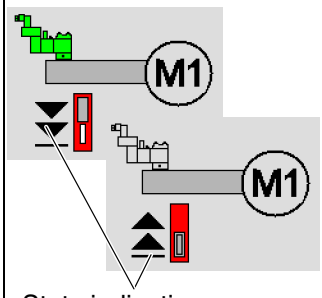
Warning

The ready state yes/no remains the same.

Symbol	Possible cause	Corrective action
	The battery voltage of the motor's absolute encoder is low	**AG03/1:** The battery lasts about five years and can be replaced by the customer. Refer to *Replacing Battery in AG03/1* **AG03:** The customer cannot replace the battery. The battery lasts approx. 10 years. Replace the motor as soon as possible (within six months). Refer to page 76, *Replacing Motor*
	Signal *Enable motor* not received	Wait until the setpoint temperature has been reached (the melter does not transmit the *Enable motor* signal until then). Check wiring
	A position was selected that is outside of the application width limit. Refer to page 37, *Limiting Application Width*	Upon completion of the task, return to the permitted application width
 State indication (not a key)	Nozzle closure not open (upper proximity switch)	Wait until the nozzle closure is open. **Software version < 2.06.006:** Open the nozzle closure with the key *Nozzle closure* when the nozzle was closed using this key
	**Automatic nozzle closure with product detection (option)** The maximum counter limit has been reached. The counter was stopped.	Determine the actual number of products currently in the sensor range and correct the value in the product counter screen (Fig. 30).
	**Automatic nozzle closure with product detection (option)** Actual count and internal false trigger counter different	Determine the actual number of products currently in the sensor range and correct the value in the product counter screen (Fig. 30). Do this by first setting the incorrect value to "0" with the RESET key and then entering the actual quantity of products. **NOTE:** The warning cannot be acknowledged with the RESET key in the error screen.

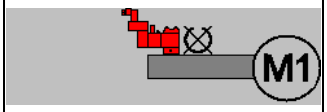
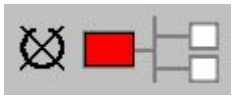
Fault

The applicator is no longer ready for operation. After remedying the cause of the fault, touch *RESET* (= acknowledge fault)

Symbol	Possible cause	Corrective action
	Motor electronic control component fault	The fault is more clearly indicated by LEDs on the motor. Refer to page 74, *Status LED on Motor*
	Motor is blocked	Find the cause and remedy: • Is the spindle blocked by charred material in the nozzle? Clean nozzle
	Field bus communication disrupted: • Transmission data block faulty • Field bus cable defective or not connected to the customer's control system • Field bus terminating resistor missing or defective • Communication disrupted (e.g. customer's control system not switched on) • Network not set up correctly • Sudden resets or crashes, e.g. caused by electromagnetic interference	Find the cause and remedy. Refer to separate manual *Field Bus on Nordson Applicators*. **NOTE:** This fault cannot be acknowledged; it goes away as soon as field bus communication has been restored.
	**Automatic nozzle closure with product detection (option)** Sensor fault/failure (counter overflow/underflow) The number of products is more or less than the permitted range [-x products to +y products].	Determine the actual number of products currently in the sensor range and correct the value in the product counter screen (Fig. 30). Do this by first setting the incorrect value to "0" with the RESET key and then entering the actual quantity of products. **NOTE:** The sensor fault cannot be acknowledged with the RESET key in the error screen.
 State indication (not a key)	Nozzle closure position incorrect / not compatible with the current function	Check the actual nozzle closure position at the applicator and compare to the proximity switches (switching state) on the pneumatic cylinder

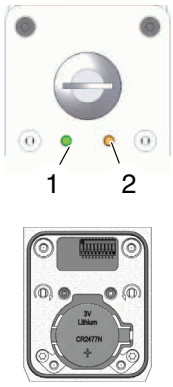
Shutdown

The applicator is no longer ready for operation. After remedying the cause of the fault, touch *RESET* (= acknowledge fault) - the control unit boots

Symbol	Possible cause	Corrective action
	Motor not connected to CAN bus	Check the CAN bus plug on the motor. Refer to page 24, *CAN Bus: Securing Plug Connections* Check CAN bus terminating resistors. Refer to page 80, *CAN Bus Terminating Resistor*
	Motor not connected to voltage supply	Measure to determine cause
	Motor defective	
	Motor CAN address set incorrectly	Refer to page 76, *Observe when Assembling*
	Solenoid valve control failed	XI/ON digital output modules defective **NOTE:** Enable cable missing or loose (XS25 on control box or customer's control system), triggers the indication *Solenoid valves not enabled*.
	Field bus gateway: • No power supply • Sudden resets or crashes, e.g. caused by electromagnetic interference • CAN address set incorrectly	Find the cause and remedy. Also refer to the control box wiring diagram and to the separate manual *Field Bus on Nordson Applicators*
	CAN bus terminating resistor missing or defective	Refer to page 80, *CAN Bus Terminating Resistor*
	CAN BUS cable defective or not connected	Refer to page 25, *Connecting Applicator, Control Box and Operating Unit*

Motor

The motor contains the required electronic control components. LEDs indicate various states:

<table>
<tr><td rowspan="5"> 
</td><th>LED</th><th>State</th><th>Meaning</th></tr>
<tr><td rowspan="3">Status
(1, green)</td><td>flashing</td><td>Motor malfunction (Refer to Status LED on Motor)</td></tr>
<tr><td>ON</td><td>Signal Enable motor received</td></tr>
<tr><td>OFF</td><td>No signal Enable motor or voltage supply</td></tr>
<tr><td rowspan="2">Bus
(2, orange)</td><td>ON</td><td>Normal state</td></tr>
<tr><td>flashing</td><td>Boot process. Of it continues to flash; Refer to page 70, Alarms.</td></tr>
</table>

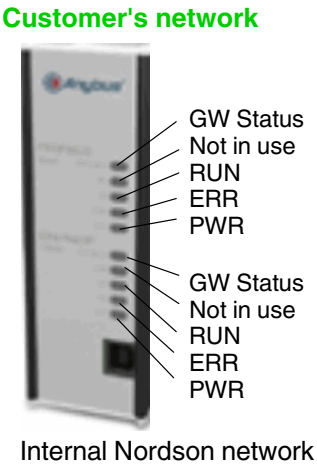
Status LED on Motor

The green status LED (1) indicates the fault by the number of times that it flashes:

<table>
<tr><th>Flashing</th><th>Fault</th><th>Corrective action</th></tr>
<tr><td>1 x</td><td>Supply voltage too low</td><td>Measure to determine cause</td></tr>
<tr><td>2 x</td><td>Blocked spindle</td><td rowspan="3">Find the cause and remedy:
• Is the spindle blocked by charred material in the nozzle? Clean nozzle
• Is the ambient temperature of the motor elevated, e.g. by hot air flow or heat build-up?</td></tr>
<tr><td>3 x</td><td>Motor current too high</td></tr>
<tr><td>4 x</td><td>Output temperature too high</td></tr>
<tr><td>5 x</td><td rowspan="3">Reserved</td><td rowspan="3">-</td></tr>
<tr><td>6 x</td></tr>
<tr><td>7 x</td></tr>
<tr><td>8 x</td><td rowspan="2">CAN bus fault at motor</td><td rowspan="2">Refer to page 70, Alarms</td></tr>
<tr><td>9 x</td></tr>
</table>

Optional Field Bus Gateway

The gateways offer additional troubleshooting help with their LEDs.



LED	Color / status	Meaning
GW (gateway) status	Green	Communication running
	Red	Communication error
	Flashing red	Network interface error
RUN	Green	Operational state
	Green (flashing)	Pre-operational state
	Green (flashes once)	Stopped state
	Red (flashing)	Bus initialization fault
	Off	Device not powered
ERR	Red	Bus off
	Flashes once	Warning limit reached
	Flashes twice	Error control event
	Flashes 3 times	Sync error
	Off	No error
PWR	Green	Device powered
	Off	Device not powered

Power Supply (Control Box)

Overvoltage Protection / Reset

The power supply's overvoltage protection switches off the output voltage as soon as it reaches approx. 130 % of the nominal voltage. Remedy the cause of overvoltage and reset the power supply.

RESET: Switch off the control box for 3 minutes and then switch it on again.

Repair

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

CAUTION: Verify that the control option *Field bus* is deactivated. This prevents unintentional adjustment of the nozzle mouthpiece. Refer to page 38, *Selecting Control Options (with Field Bus Option).*

Replacing Motor

1. Detach the cable and terminating resistor from the connections on the motor.
2. Extract the screw (1).
3. Release the screws on the underside of the motor.
4. Pull the motor up and out (arrow), and remove the washer (3).

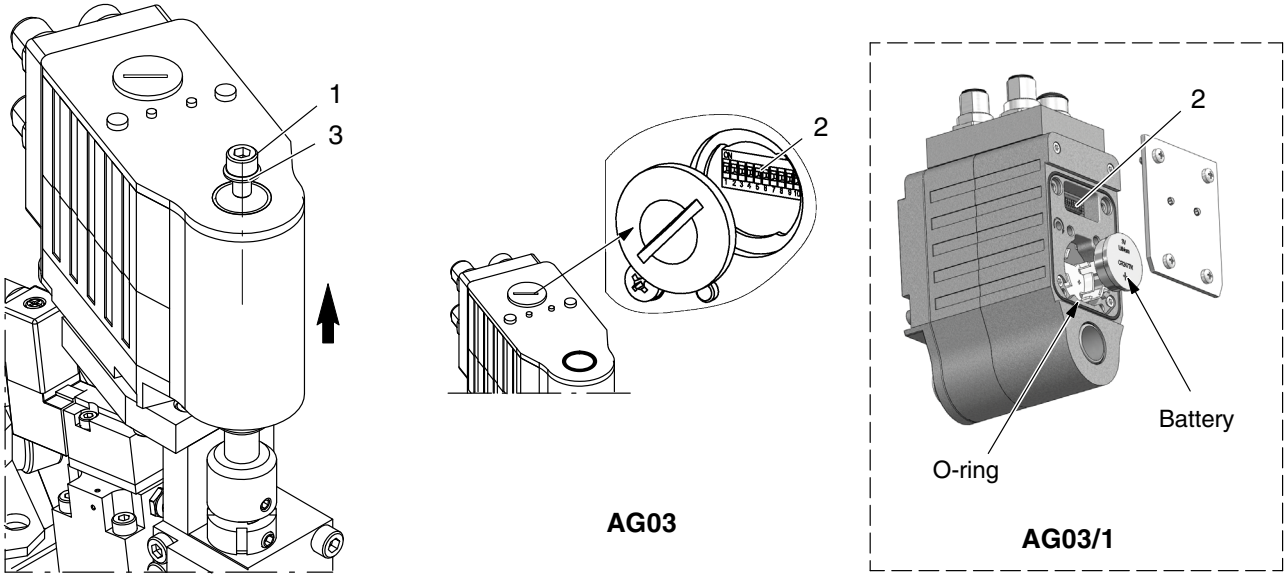


Fig. 31

Observe when Assembling

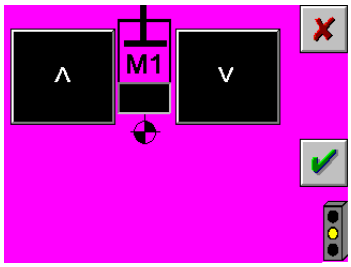
CAUTION: Do not mix up the CAN bus and voltage supply of the motor. Plugging the voltage supply into the CAN bus receptacle would destroy the motor.

DIP switch

- Set the DIP switch (2)
- Insert the screw (1) with washer and tighten the screw

CAUTION: After assembly, proceed with *Calibrating Slide Position* (page 77). Otherwise the application width will not correspond to the set value.

Calibrating Slide Position



The position must be calibrated anew when one of the following situations occurs:

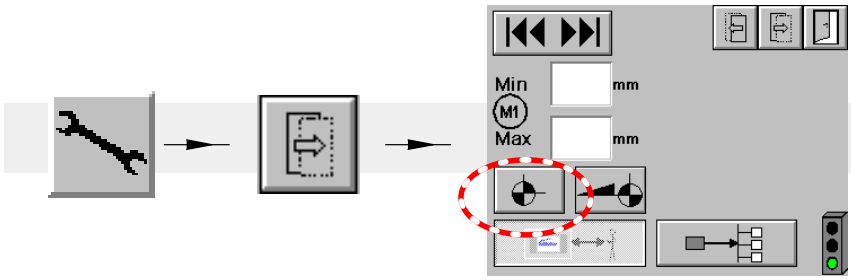
a. The spindle and the motor shaft have been separated
b. The motor has been replaced
c. After a software update.

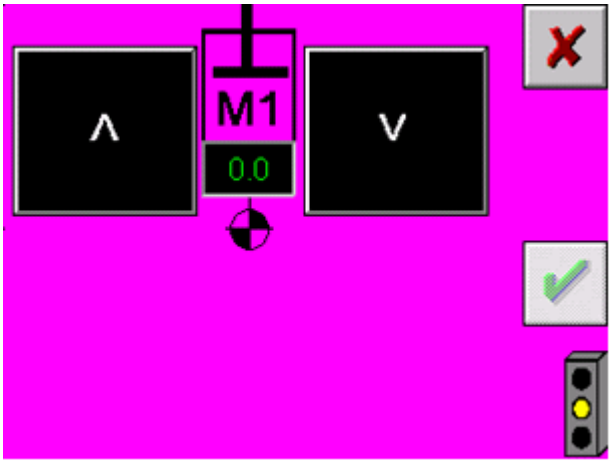
In the event that b. or c. applies, the control panel screen for calibration opens automatically.

Calibration sets a reference point that the software uses to calculate the application width.

CAUTION: When calibrating, never adjust the application width using setpoint input; use only the arrow keys.

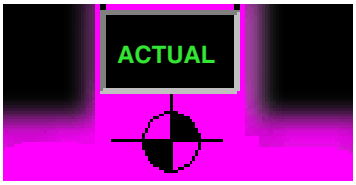
5. Open the calibration screen:





6. Enter any application width using the arrow keys.

   NOTE: The value in the number field does not change. The value measured in step 7. is entered here.



7. Carefully measure the actual application width (ACTUAL value) with a caliper gauge.
8. Enter the ACTUAL value in the control panel screen.
9. Save the input with  , or cancel with  .

   NOTE: If no values have been saved (e.g. after a motor is replaced), the process cannot be canceled.

If any imprecisions are determined in the application width display, continue with *Adjusting Application Width Display / Second Position Calibration.*

Adjusting Application Width Display

Definition of *Transmission ratio*: Rotation of motor in relation to linear motion of mouthpiece. In this case *1:Spindle pitch*.

If the transmission ratio changes greatly, e.g. due to a significantly different operating temperature, the display can become imprecise. Adjustment compensates for the change.

Verify that the applicator is heated to operating temperature.

 *First Position Calibration*

CAUTION: For the first position calibration, never adjust the application width using setpoint input; use only the arrow keys.

Refer to page 77, *Calibrating Slide Position*.

As a result of the first position calibration, the actual value [ACTUAL] became the reference point for further internal calculations.

However, the actual spindle pitch can deviate from the theoretical pitch saved in the software, either because of heat expansion or manufacturing tolerances.

The second position calibration is needed to store the actual pitch in the software.

Continued ...

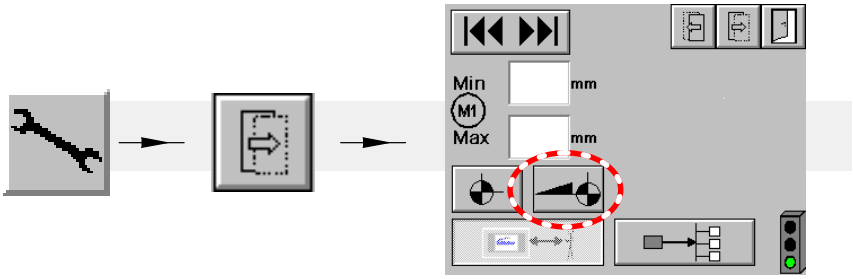
Second Position Calibration

Now the application width can be adjusted using setpoints.

1. Set the application width.

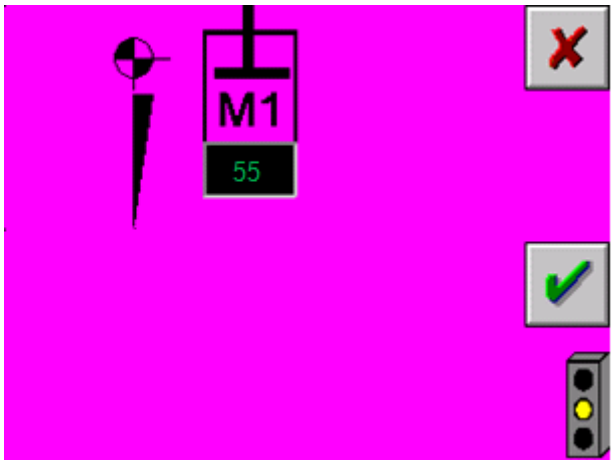
   NOTE: The greater the application width discrepancy to the first position calibration, the more precise is the adjustment.

2. Open the adjustment screen:



3. Carefully measure the actual application width (ACTUAL value) with a caliper gauge.

4. Enter the actual value in the control panel screen:



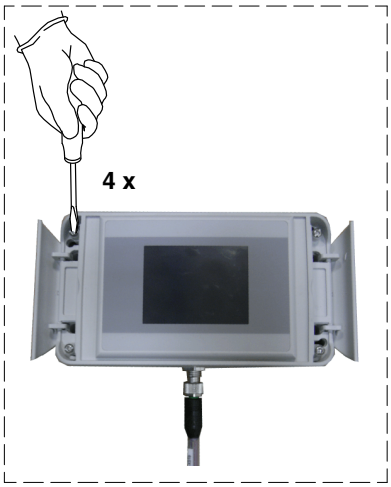
5. Save input with  .

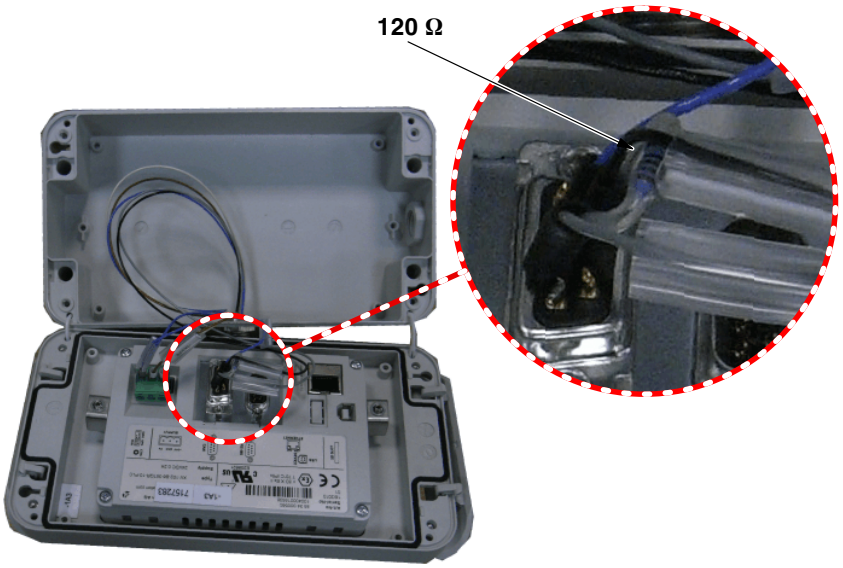
CAN Bus Terminating Resistor

There must be a terminating resistor on each end of the CAN bus.

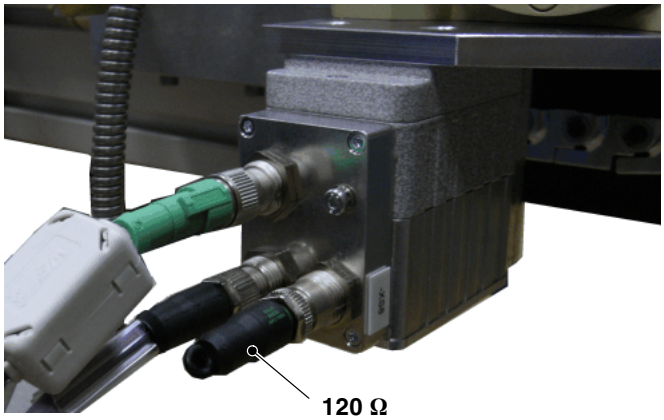
NOTE: The two CAN bus terminating resistors are connected in parallel via the bus. When the resistance is measured in the installed state, the result is 60 Ω.

One terminating resistor is located in the operating unit.





The second terminating resistor must be mounted on the XS8 of the motor



Also refer to page 24, *CAN Bus: Securing Plug Connections*.

Continued ...

There is a third terminating resistor in the CAN plug in the control box on the gateway. It must be switched OFF.

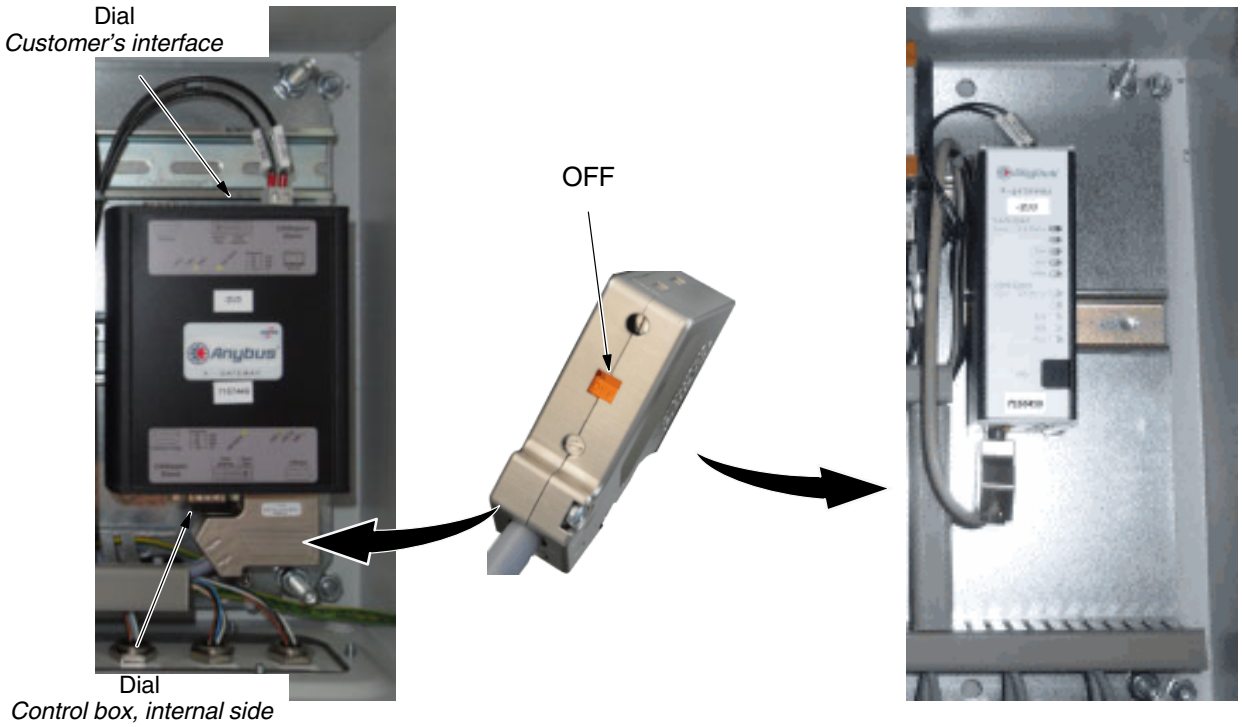
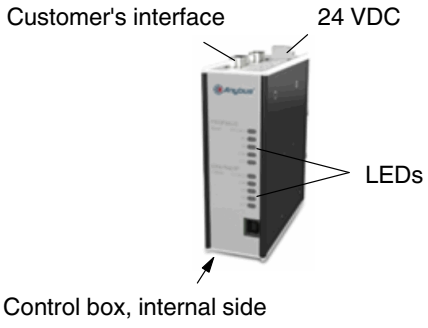


Fig. 32 Left: CANopen Gateway P/N 7157449

Comparison of CANopen Field Bus Gateways

P/N 7157449 (until Oct. 31, 2014) AB7894-**C**	P/N 7186458 (beginning Nov. 1 2014) AB7894-**F**
	

The EDS file *AB7894-**F*** is provided for gateway P/N 7186458.

NOTE: The EDS files *AB7894-**F*** and *AB7894-**C*** are available online. Do not mistakenly exchange!

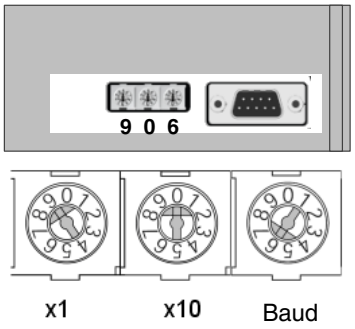
Adjusting Dial on Field Bus Gateway (Option)

CAUTION: Adjust the dials only when the control box is deenergized.

The dials are very small. The switch setting is indicated by the small groove on the flattened side.

In this example, the dial is set to 1.

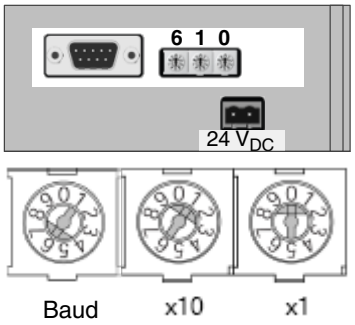
Delivery State



Control Box, Internal Side

Baud rate (500 kbit/s): 6

Internal CAN bus address (Do not change): 9



Customer's Interface (Example CANopen)

NOTE: Each unit on the CANopen field bus needs a field bus address for communication purposes. Each address may be assigned only once in the entire network.

Baud rate (500 kbit/s): 6

CANopen field bus address: 10

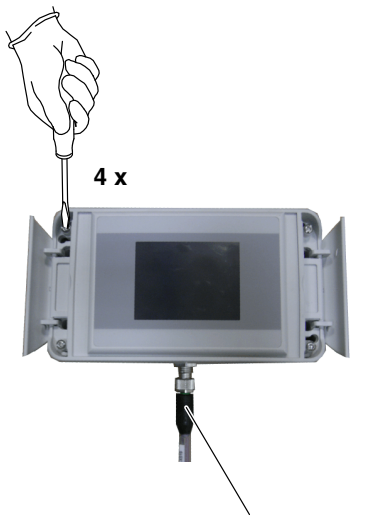
Refer to separate manual *Field Bus on Nordson Applicators* for information on additional field buses.

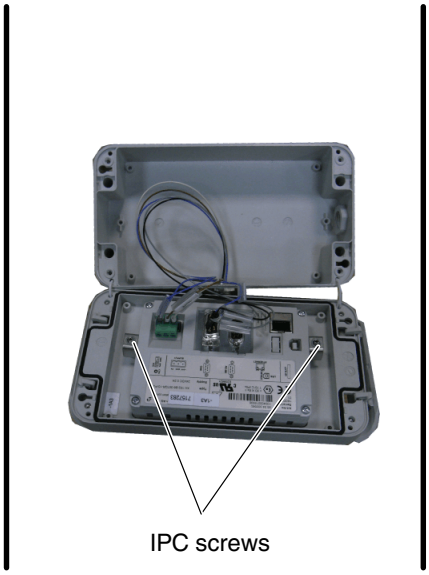
Software Update

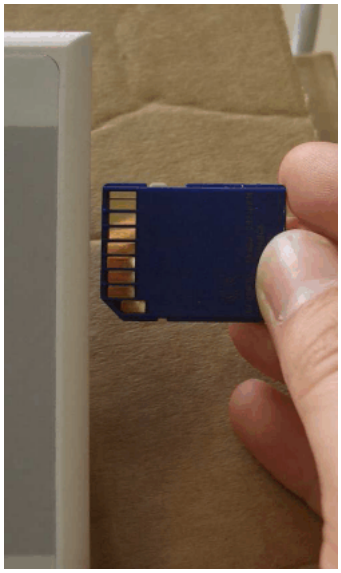
The new software version is loaded onto the IPC from an *SD* memory card. All of the previous settings are lost. Nordson recommends making a note of the existing settings (e.g. Fig. 18: Software configuration code) before the update.

CAUTION: The memory card may be inserted and removed only when the IPC is deenergized.

1. Disconnect the operating unit from the voltage supply. To do this, either
   - Disconnect the plug and detach from operating unit
   - Switch off control box.
2. Open the operating unit, release the screws from the IPC and press it out somewhat to be able to insert the memory card:







```
REM ****************************************
REM
REM   Update complete!
REM
REM   Please disconnect the ipc from
REM   power and
REM   remove the SD-Card .
REM.
REM
REM ****************************************
```

Message *Copying completed*

3. Start the voltage supply again. After about one minute, a message on the control panel indicates that copying has been completed.
4. Disconnect the operating unit from the voltage supply again.
5. Remove the memory card.
6. Secure the IPC again and close the operating unit.
7. Start the voltage supply again. If the connector to the operating unit was released, plug it in again and secure with knurled nuts. The screen for calibrating the position opens automatically.
8. *Calibrating Slide Position*. Refer to page 77.
9. Enter the configuration code.
   Refer to page 47, *Software Configuration Code*.
10. Refer to page 36, *Initial Startup* for instructions on how to proceed.

Observe When Replacing Heater Cartridges or Temperature Sensor

ATTENTION: Risk of electrical shock. Before removing the electrical equipment covers, ensure that the applicator is deenergized. Failure to observe may result in personal injury, death, or equipment damage.

NOTE: Insert the heater cartridges without heat transfer compound.

Parts

How to Use the Illustrated Parts List

The parts lists in the separate document *Parts List* are divided into the following columns:

Item - Identifies the parts shown, available from Nordson.

Part - Nordson spare part number for each available part shown in the illustration. A series of hyphens (- - - - -) in the Parts column means that the part cannot be ordered separately.

Description - This column contains the name of the part and, when appropriate, the dimensions and other properties. The dots in the *Description* column illustrate the relationship between assemblies, subassemblies and individual parts.

Quantity - The quantity required per unit, assembly or subassembly. The abbreviation AR (as required) is used to designate that items are stated in drum sizes or that the quantity required per assembly is a factor of the product version or the model. A [w] after the quantity indicates a part that wears.

NOTE: The texts are available only in English. Refer to separate document Parts List, P/N 7192555.

Recommended Spare Parts

To prevent production stoppage, Nordson recommends keeping a spare

- Control module
- Temperature sensor
- Complete nozzle assembly, Quadring, nozzle assembly sealing rings
- Spindle nuts, shim rings, seals

Technical Data

General Data

Maximum operating height	3000 m (9840 ft)
Humidity	10 to 95 %, not condensing
Use (inside or outside)	Only inside
Required degree of cleanliness 1 (e.g. metal foundry) ... 6 (e.g. residential area) ... 10 (e.g. operating room)	4
Operating air pressure, control module	4-6 bar (58-87 psi)
Operating air pressure, nozzle closure	6-10 bar (87-145 psi)
Noise emission	< 85 dB(A)
Degree of protection	IP50
Temperature sensors	Ni120

Data Dependent on Application

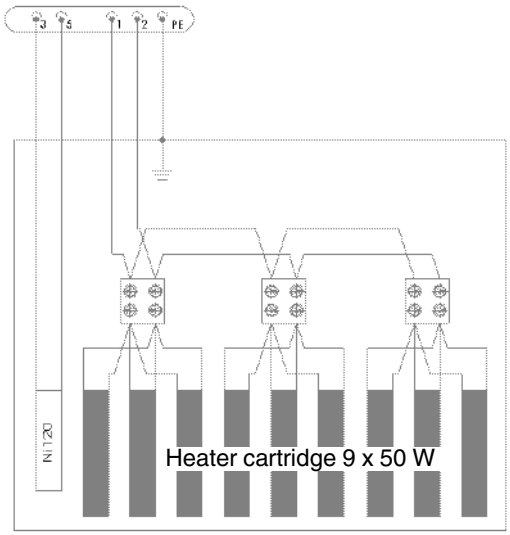
Minimum (= technically possible*) application width *The actual minimum application width depends on the system, meaning it is a factor of the minimum possible output quantity of the pump(s) used	5 mm, 8 mm or 10 mm Caution with model with handwheel: Attempting to close the nozzle farther than the minimum application width (as indicated by the ID plate) will damage the applicator.
Maximum application width	60 mm or 100 mm (according to ID plate)
Applicator weight **(Also refer to consignment note)**	Approx. 10 kg (without T-box and control unit)
Maximum operating temperature for applicator	200 °C (392 °F)
Heatup time	150 °C (302 °F) Approx. 15 min, depending on system environment
Max. adhesive pressure at applicator inlet	30 bar (435 psi)

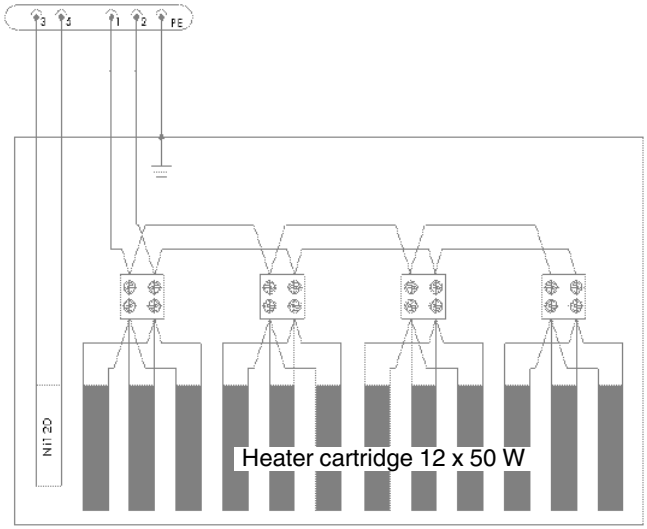
Electrical Data

Power consumption, applicator (heater cartridges)	450 W (EB060) or 600 W (EB100)
Operating voltage	230 V
Operating voltage frequency	50/60 Hz
IP class (I, II, III, protective insulation pursuant to DIN EN 61140)	I

Current Flow Diagram (Applicator)

Also refer to the technical drawings for information on connecting the heater cartridges and the temperature sensor.





Dimensions

With Handwheel

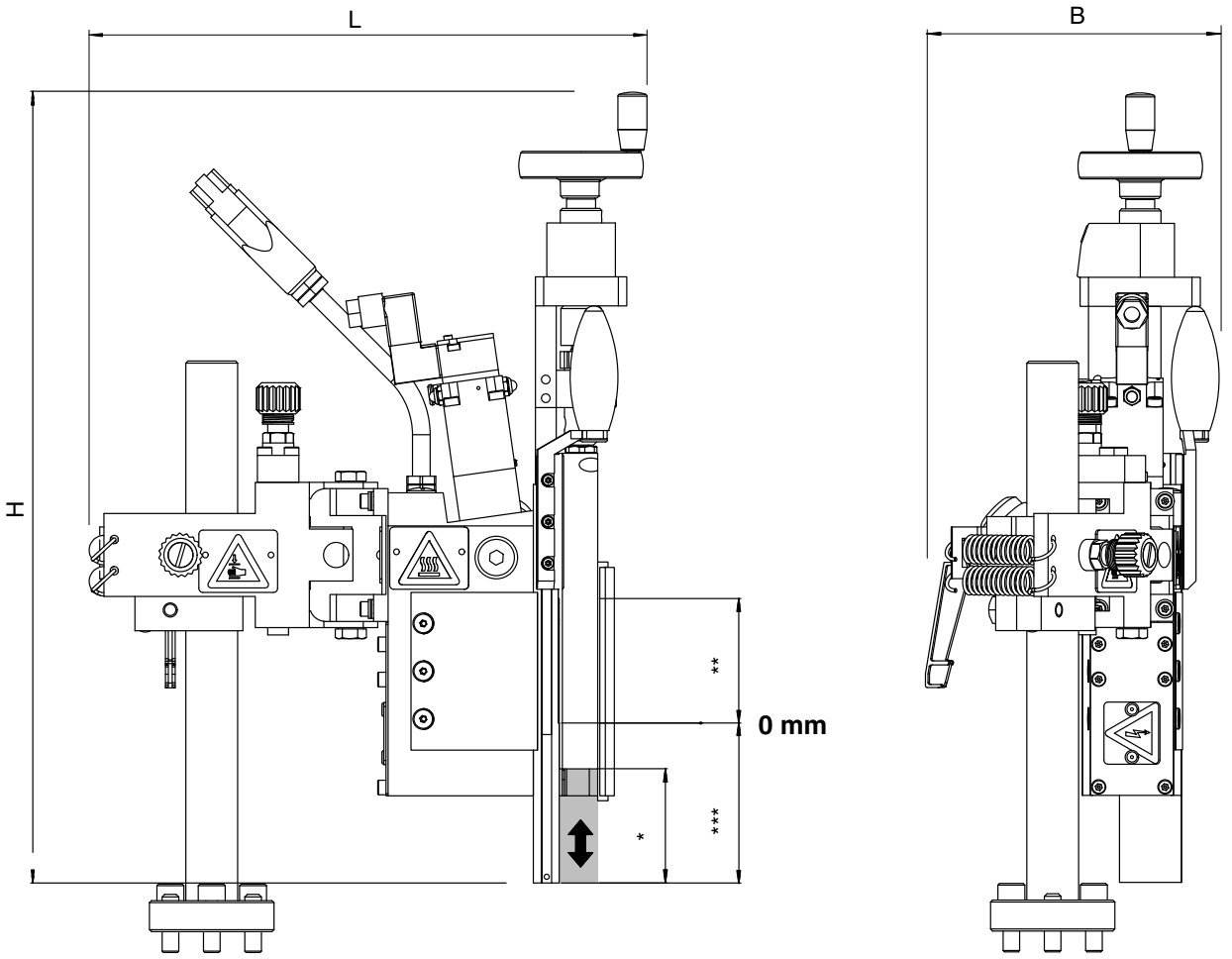


Fig. 33

Applicator	L	B	H	* Nozzle motion	**	***
EB-060F005	265 mm (14.4 in.)	145 mm (5.7 in.)	385 mm (15.2 in.)	55 mm (2.2 in.)	60 mm (2.4 in.)	77 mm (3 in.)
EB-060F008			375 mm (14.8 in.)	52 mm (2.1 in.)	60 mm (2.4 in.)	63 mm (2.5 in.)
Also refer to the technical drawing of the supplied applicator for more information						

With Motor

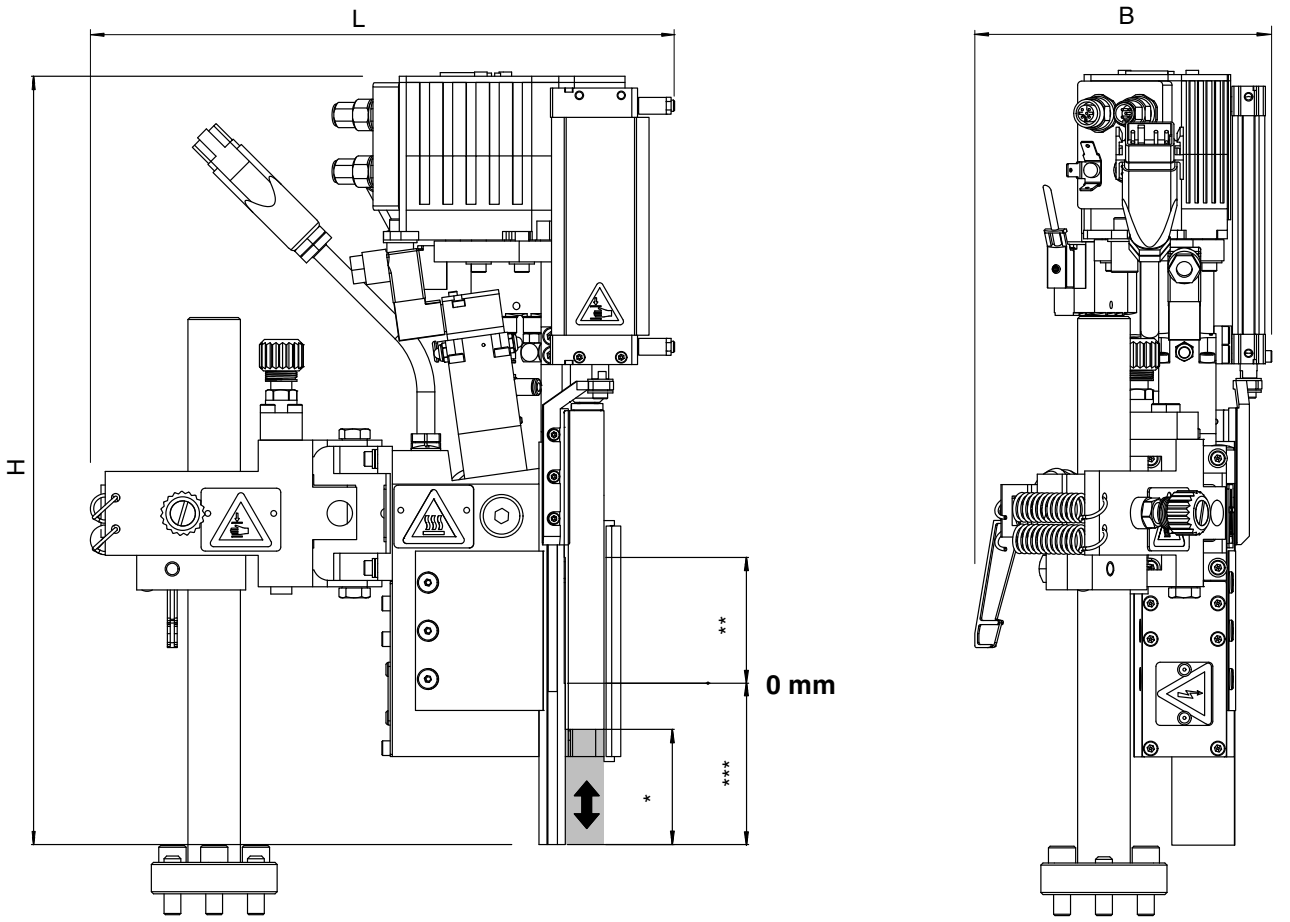
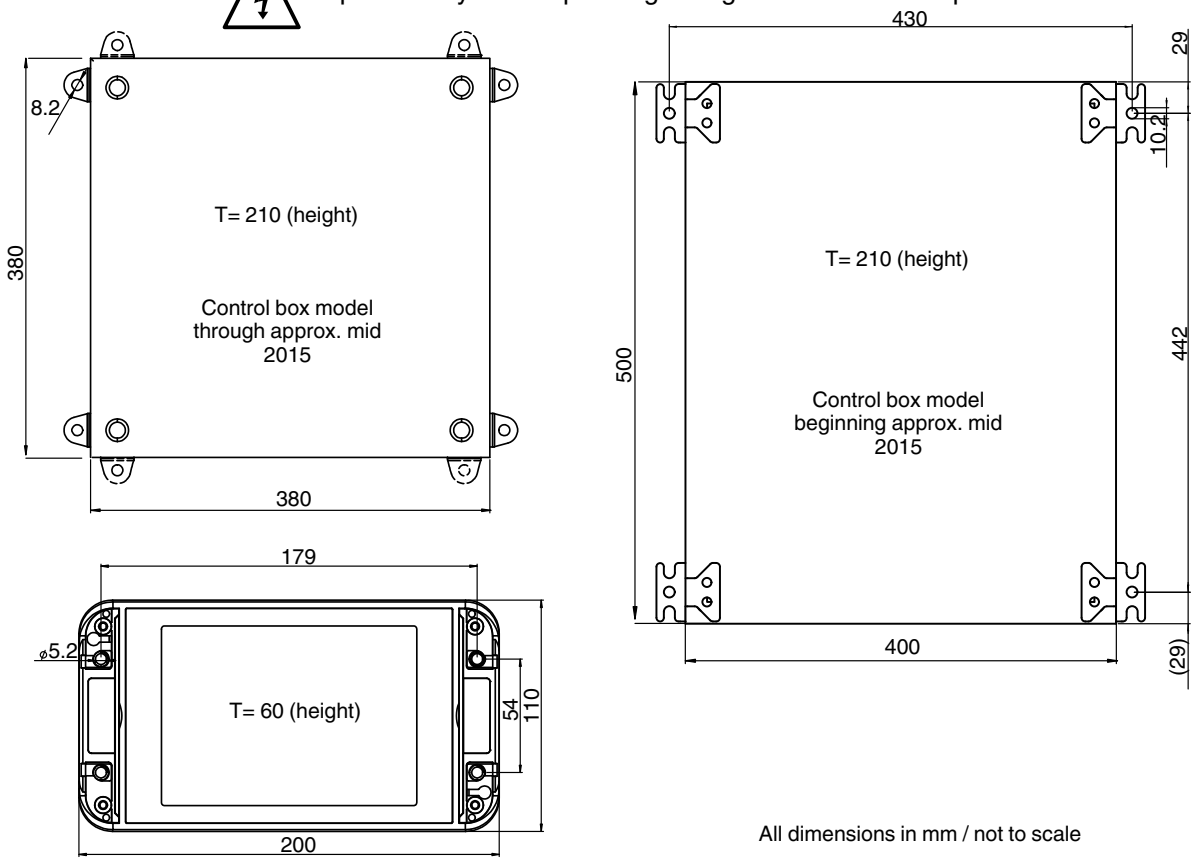


Fig. 34

Applicator	L	B	H	* Nozzle motion	**	***
EB-060F005	280 mm (11 in.)	145 mm (5.7 in.)	370 mm (14.6 in.)	55 mm (2.2 in.)	60 mm (2.4 in.)	77 mm (3 in.)
EB-060F008			360 mm (14.2 in.)	52 mm (2.1 in.)	60 mm (2.4 in.)	63 mm (2.5 in.)
EB-100F010			520 mm (20.5 in.)	90 mm (3.6 in.)	100 mm (4 in.)	112 mm (4.4 in.)
Also refer to the technical drawing of the supplied applicator for more information						

Control Box and Operating Unit

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



All dimensions in mm / not to scale

Degree of protection	IP 54
Control box connection	Customer's connection: 1x230 V_{AC}
Permitted voltage deviation	± 10%
Operating voltage frequency	50/60 Hz

XION gateway board (in the control box)	
Storage temperature	- 20°C to + 85 °C
Ambient temperature	0 to +55 °C
Humidity	15 to 95 %, not condensing
Gateway switch settings **(delivery state)**	Baud rate for bus lengths up to 100 m: 500 kbit/s Internal CAN bus address: 8 **NOTE:** Do not change internal addresses. Adjust the switches only when the control box is deenergized.
XI/ON digital output modules	Normal load voltage: 24 V_{DC} Output current at 24 V_{DC} Max. constant current (ohmic): 2 A Minimum load current (recommended): 10 mA

Replacing Electronics Modules

Digital input module

A single electronics module can be replaced with a module with the same function.

CAUTION: Follow the order of the plug-in sockets. Do not change.

gray	Gateway / voltage supply
white	Digital input modules
light blue	Analog input modules
orange	Relay output modules
green	Analog output modules

XI/ON Gateway Module (Base Module)

Gateway XNE-GWBR (current)

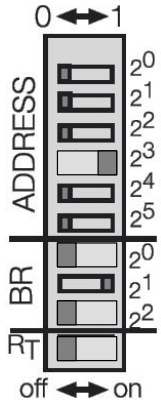
Gateway XN-GWB (obsolete)

Gateway XN-GW (obsolete)

Fig. 35 Base modules

The kit P/N 7556554 is available for retrofitting an old gateway to the new gateway XNE-GWBR.

Replacing Gateway XNE-GWBR



CAUTION: The terminals may only be connected or disconnected when the control box is deenergized. The frequency converters are still energized after switching off. Wait three minutes before beginning any work!

Whether the upper or lower connections CAN_H, CAN_L and CAN_{GND} are used on the gateway has no impact.

Set the DIP switches (illustration at left):

1. DIP switch ADDRESS (set node address): 8
2. DIP switch BR (set bit rate): 500 kBit/s
3. DIP switch R_T (set terminal resistance): off, because the gateway is not used as the first or last node.
4. Continue with *Gateway XNE-GWBR: Applying XI/ON Configuration*.

Gateway XNE-GWBR: Applying XI/ON Configuration

To see the original text and illustrations, refer to the manufacturer's document *EATON manual (02/2016 MN05002005Z-DE)*

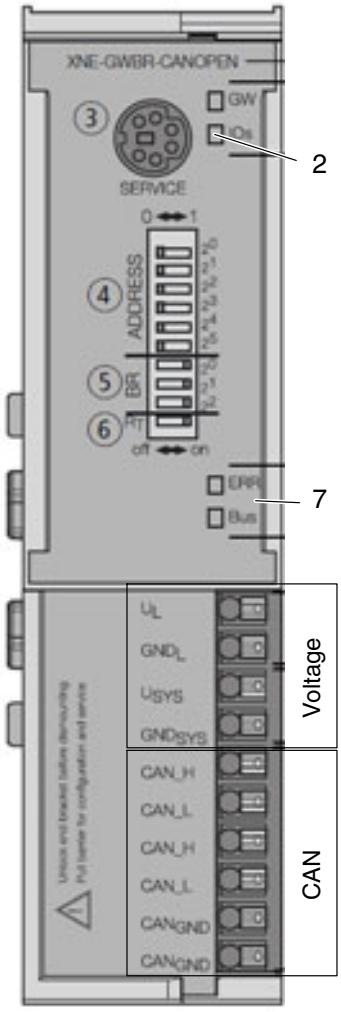


Fig. 36

When the XI/ON station is reconfigured or when the existing station setup (board list) is changed, always apply the current configuration.

This is done with the ADDRESS DIP switch on the gateway. The control box is deenergized.

1. Set a node address (node ID) ≠ 0 on the gateway.
2. Switch on the control box.
3. On the gateway, set the node address = 0, meaning that all ADDRESS DIP switches are set to off.

   The gateway then saves the station configuration. This is indicated by the "IOs" LED (2) flashing yellow.

   When the configuration has been saved, the "IOs" LED briefly flashes orange and then stops flashing.

   NOTE: The LEDs "Err" and "Bus" (7) alternately flash red at a rate of 4 Hz due to the invalid node ID "0" that is still set.

4. Switch off control box.

Continued ...

5. On the gateway, set the node address = 8.
6. Switch on the control box.

   After switching on, the “IOs” LED changes to green after about two seconds.

   NOTE: The green LED ”IOs” indicates that the current XI/ON configuration corresponds to the saved reference board list.

Replacing Gateway XN-GWB

CAUTION: Adjust only when the control box is deenergized. Do not change the dial settings.

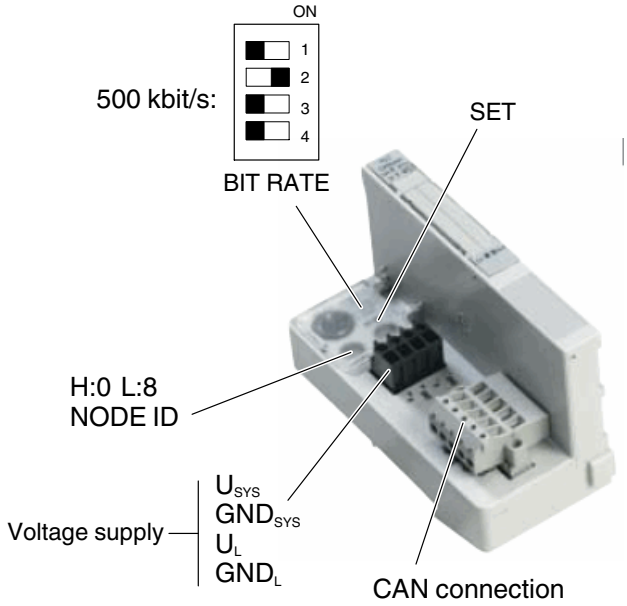


Fig. 37 Base module

Gateway XN-GWB: Applying XI/ON Configuration

After replacing the gateway or replacing (different function) or adding an electronics module, switch the control box on and load the new module configuration by pressing the SET button with a sharp object for several seconds (until all LEDs light up red).

System Recommendation

System Plans and Accessories

If other hose and cable lengths are needed, please contact your Nordson representative.

System (Fig. 38) - Example with bulk melter		
1	P/N *configurable*	Bulk melter VersaPail
		Melter VersaBlue
2	P/N 150155	Hose
3	P/N 7163497	Kit-SVC cable XS2 (standard I/O)
4	P/N 7163498	Kit-SVC cable XS5 (pilot voltage)
5	P/N 254329	Extension, valve connection L = 10 m (Enable motor)

Continued ...

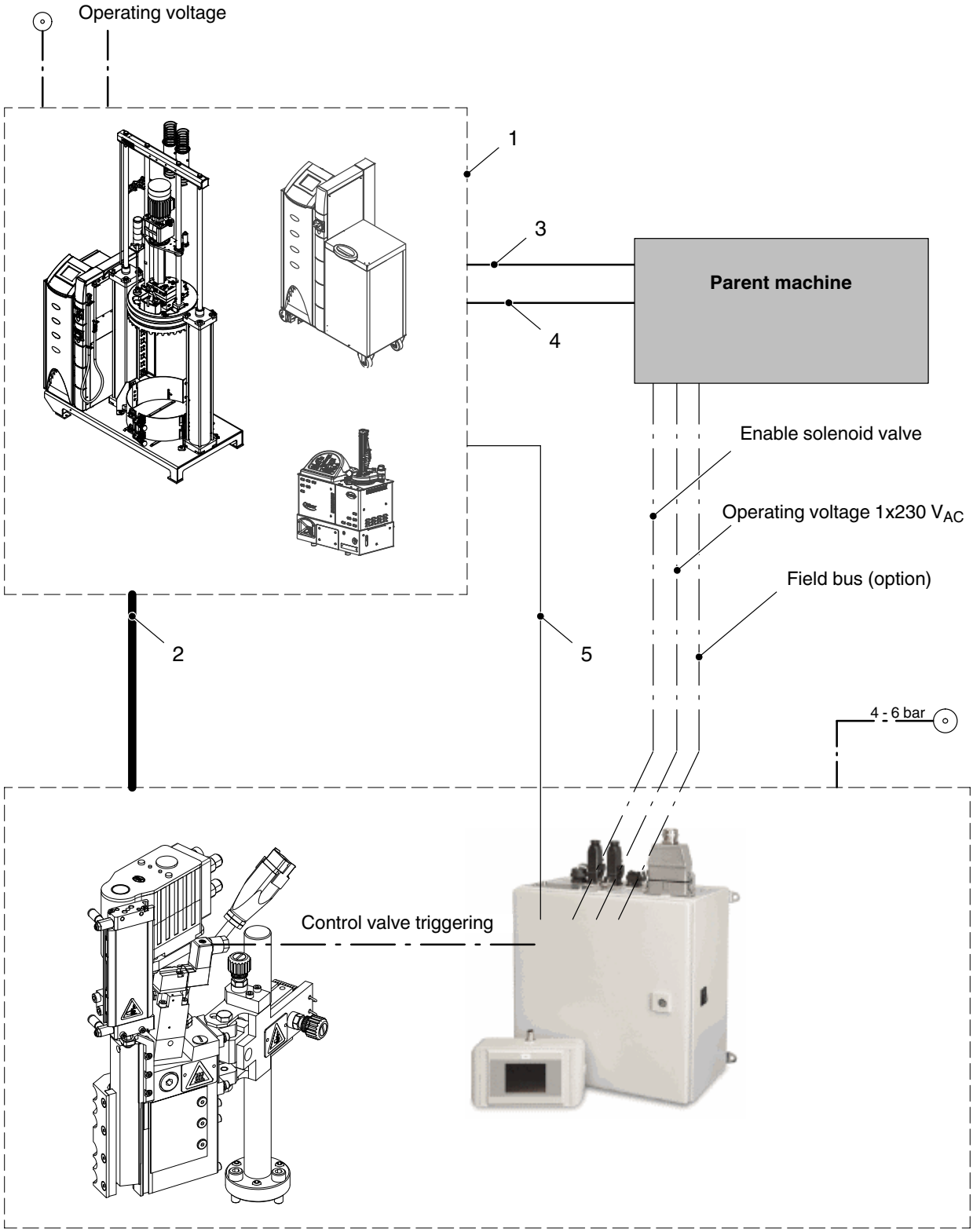


Fig. 38

Appendix

Settings and maintenance record.

Settings Record

Production information		
Material	Manufacturer	
	Max. processing temperature	
	Viscosity	
Cleaning agent	Manufacturer	
	Flash point	
Basic settings	Application weight	
	Application width	
	Substrate speed	
	Material quantity	
	Output capacity	
Air pressure at applicator	Control air	
Basic settings temperature (heating zones)	Applicator	
	Heated hose	
Pump speeds	Melter	
	Motor controller (setpoint)	
Material pressure	Melter	
	Motor controller (setpoint)	
Notes		
Form filled out by:		
Name	**Date**	

Maintenance Record

Melter part	Activity	Date	Name	Date	Name
Entire applicator					
Power cable / air hoses					
Control module					
Nozzle					
Sliding plate					
Spindle / spindle nut					
Clean control panel					

Password

Some settings are protected with passwords. When a field or button is pressed, an input window opens in which to enter the password. If no key is touched for ten minutes after pressing a password-protected feature, password protection is reactivated. Then the password prompt appears again for password-protected features.

Serial number and P/N (applicator) To be entered by the customer (Refer to applicator ID plate)	**Password (operating unit)**
	1234