

TruFlow Applicator UTA... Flow Divider and Flow Meter

Manual P/N 7146808_02
- English -

Edition 12/14



Note

This document applies to the entire series.

Order number

P/N = Order number for Nordson articles

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Safety Instructions



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

Introduction

Intended Use

Flow Splitters, also referred to as *TruFlow*, may be used only on the intended Nordson applicators or gear pump metering stations. TruFlow applicators, Flow Dividers and Flow Meters may be used only on the machinery intended to accommodate them.

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.

Unintended Use - Examples -

A Flow Splitter, TruFlow applicator, Flow Divider or Flow Meter 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
- Without material
- When values stated under *Technical Data* are not complied with.

A Flow Splitter, TruFlow applicator, Flow Divider or Flow Meter may not be used to apply the following materials:

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

Residual Risks

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

- Risk of injury from the rotating shaft.
- Risk of burns. A Flow Splitter, TruFlow applicator, Flow Divider or Flow Meter is hot.
- Risk of burns! The adhesive that comes out is hot.
- Risk of burns when connecting and disconnecting heated hoses.
- Risk of burns when performing maintenance or repairs for which a Flow Splitter, TruFlow applicator, Flow Divider or Flow Meter must be heated.
- Material fumes can be hazardous. Avoid inhalation.

Note on Manual

- The position numbers in the illustrations do not correspond to the position numbers in the technical drawings and parts lists.
- The illustrations show only the essential components of a TruFlow applicator, Flow Divider or Flow Meter. All other components and details can be found in the included technical drawings and the parts list.
- All other components, such as control modules or application nozzles, are described in separate manuals or supplements.
- Manuals for many of the components can be found directly at the website <http://emanuals.nordson.com>.
- The separate technical drawings and parts lists for a TruFlow applicator, Flow Divider or Flow Meter are contained in this manual.

Definition of Terms

- A Universal TruFlow Applicator (UTA-...) is made up of a Flow Splitter (*TruFlow*) and an applicator.
- A Flow Divider consists of a Flow Splitter (*TruFlow*) in conjunction with a gear pump metering station.
- A Flow Meter consists of a Flow Splitter (*TruFlow*) in conjunction with a simple body.

TruFlow Applicator

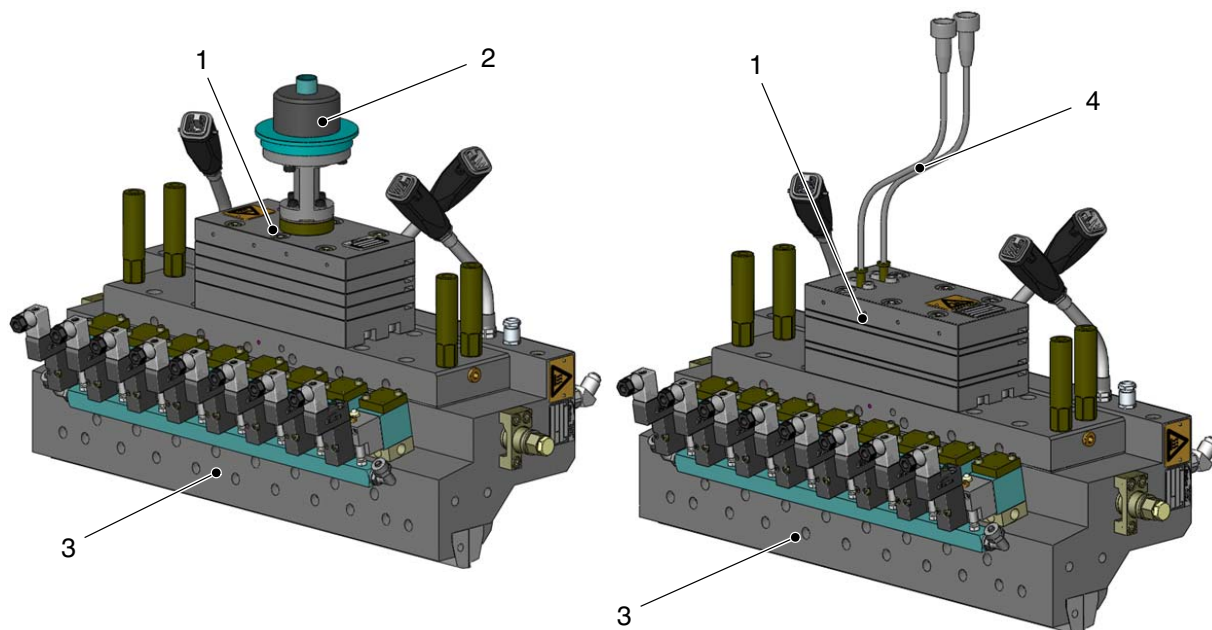


Fig. 1 TruFlow Applicator

- 1 TruFlow (Flow Splitter)
- 2 Encoder

- 3 TruFlow applicator (UTA ...)
(here: SpeedCoat)

- 4 Optical fiber cable

Flow Divider

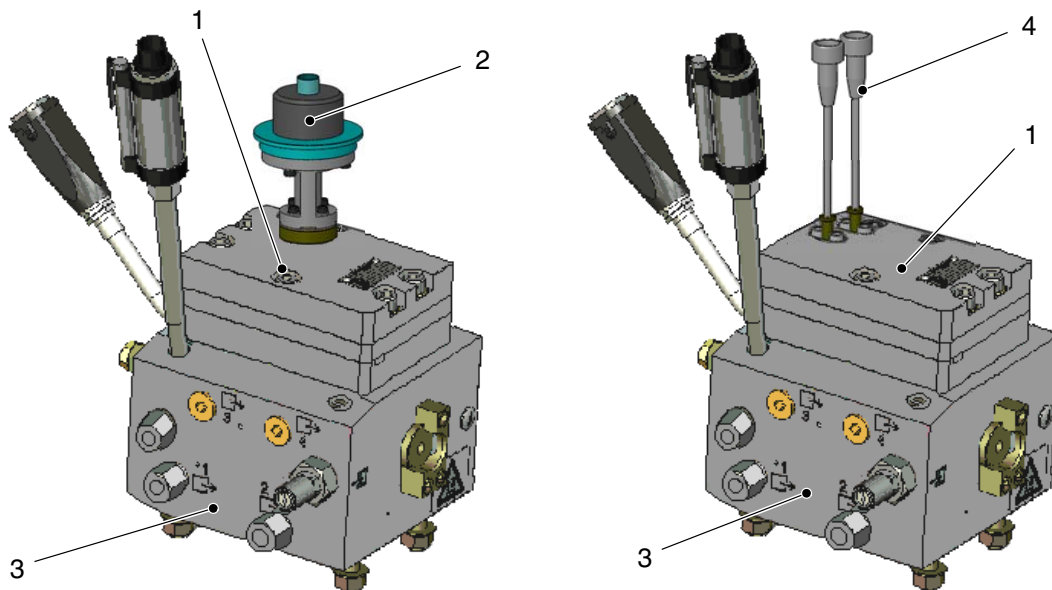


Fig. 2 Flow Divider

- 1 TruFlow (Flow Splitter)
- 2 Encoder

- 3 Flow Divider

- 4 Optical fiber cable

Flow Meter

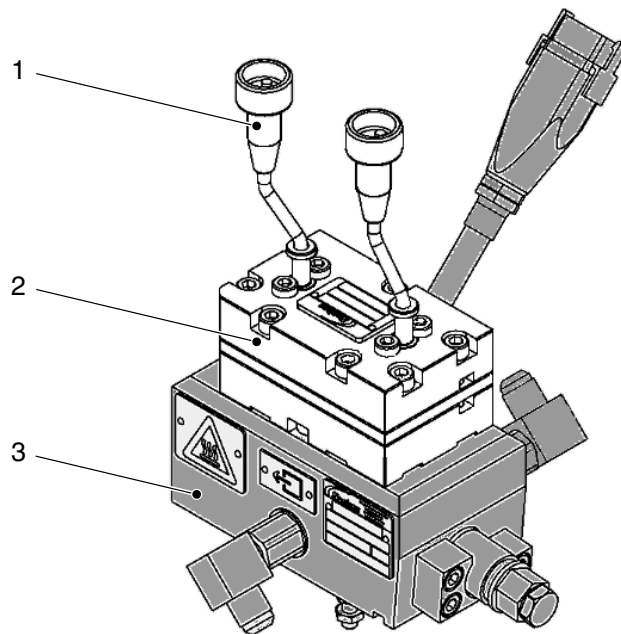


Fig. 3 Flow Meter

1 Optical fiber cable

2 TruFlow (Flow Splitter)

3 Body

Principle of Operation

A TruFlow applicator or a Flow Divider enables adhesive application at a precise speed with a desired application weight.

Flow Dividers separate the material current into 2, 3, 4, 6 or 8 different material streams. This enables a single melter to be used to supply different applications.

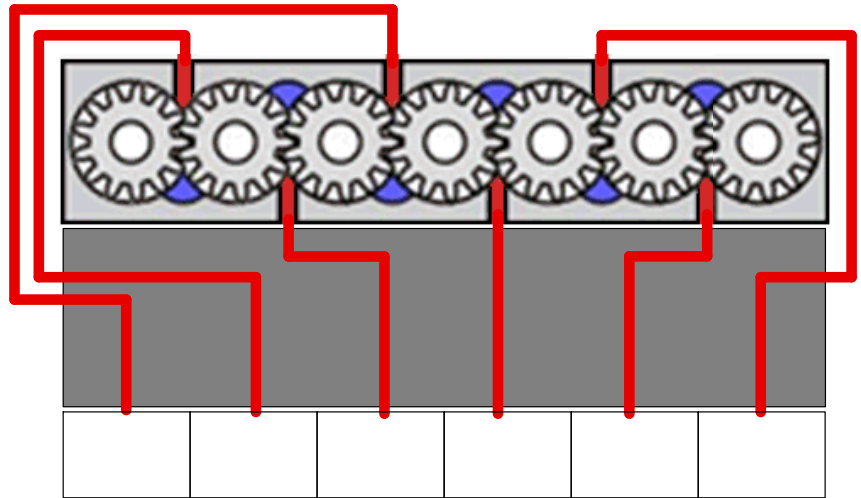


Fig. 4 Schematic diagram of a TruFlow applicator

The Flow Splitter does not need a motor to convey the material. The metering wheels in the interior are driven by the material that the melter supplies. The material channels in the body of the applicator or the pump block distribute the stream of material.

If the material in one of the outlets ceases to flow, the encoder shaft will turn irregularly or not at all; or the optical fibers cease transmitting signals to the control unit. A fault indication appears on the connected electrical cabinet.

TruFlow Applicator or Flow Divider in Closed-loop Control

Measuring Speed with Encoder or Optical Fibers

The current speed of the TruFlow is transmitted to the controller with a high-resolution encoder or optically using optical fiber cables. The signal is compared to the current pilot voltage of the customer's machine and of the melter. The control circuit enables optimum material application.

The minimum speed of the mechanical encoder is 10 g/min.

Optical detection of the rotation allows flow rates as small as 5 g/min to be measured (TruFlow low flow). The optical fiber cables have to be connected to the *TruFlow™ Flow Detection System* to be able to do this. Refer to the separate manual for additional information

The data can be displayed on a control panel or can be sent to a PC for analysis.

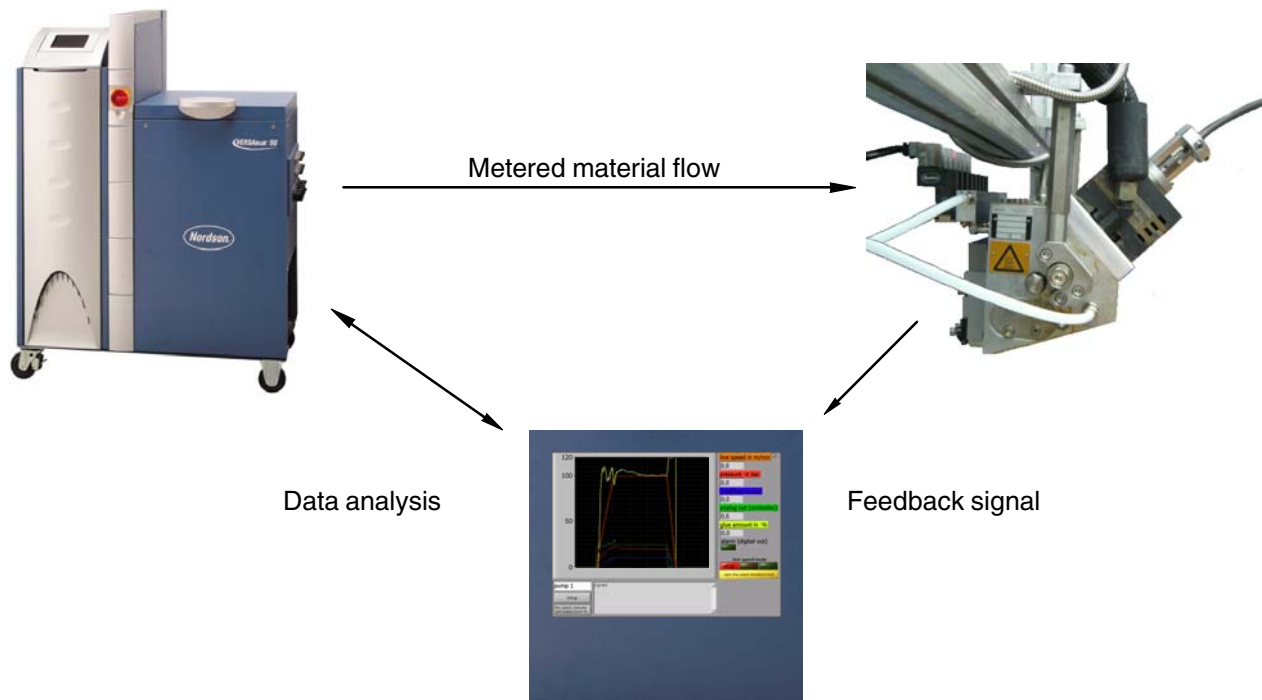


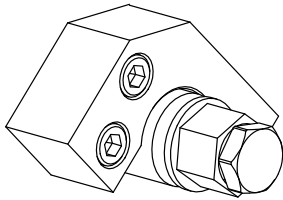
Fig. 5

Description of Components / Functioning

Heating

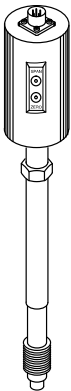
TruFlow applicators and Flow Dividers are heated with electrical heater cartridges. The temperature is continuously measured by temperature sensors and is controlled with electronic temperature controllers.

Filter Cartridge



The adhesive flows from the inside of the filter cartridge to the outside. Thus dirt particles remain trapped in the filter cartridge.

Pressure Sensor



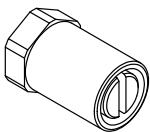
Pressure sensors are used to electronically compile the adhesive pressure in the inlet and outlet of a Flow Divider, or less frequently, in a TruFlow applicator.

Refer to manual *Pressure Sensor*.

Maximum pressure

Input	35 bar	3.5 MPa	507.5 psi
Output	100 bar	10 MPa	1450 psi

Drain Valve



Drain valves are used to relieve the adhesive pressure in a TruFlow applicator or Flow Divider. They should be installed such that the adhesive can escape out the bottom. They are opened with a screwdriver. Do not loosen the screw completely!

Control Modules

The control modules open and close the material 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 material from being applied.

Applies to all control modules: The number of control modules is a factor of the greatest application width possible.

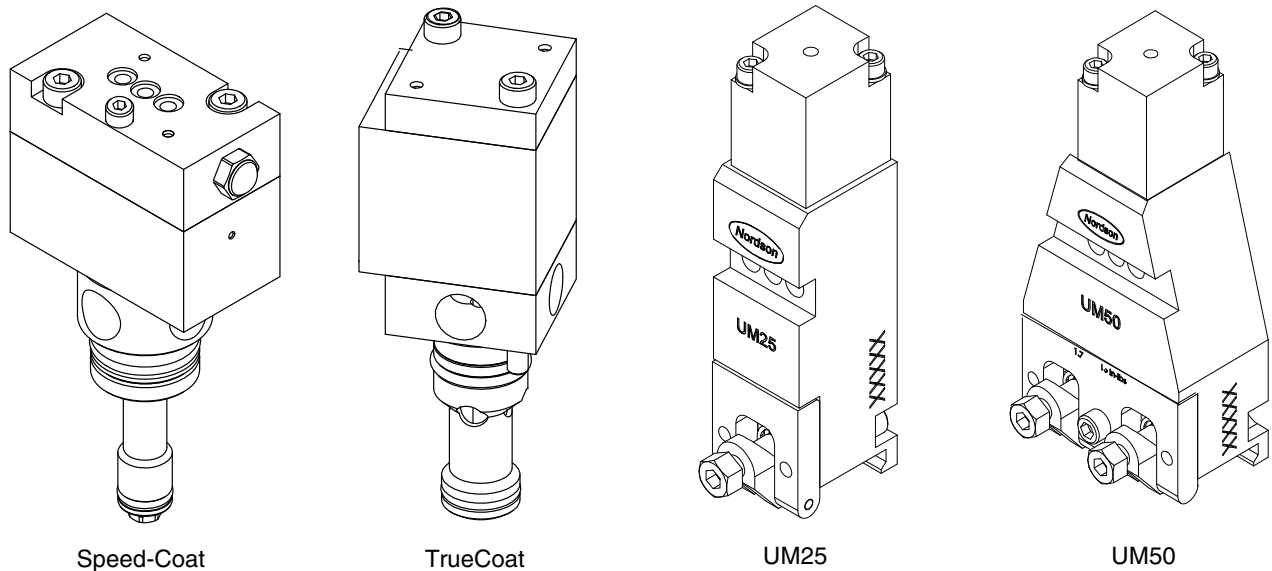


Fig. 6 Different control modules that can be used on the UTA

Special Features

The Speed-Coat control module is opened by lowering the nozzle stem. The adhesive is sucked back into the control module when the nozzle stem moves up. This ensures that the adhesive is cut off properly.

Two nozzles are attached under a UM50 control module. They have to be the same type.

Description of Components / Functioning *(contd.)*

UM Application Nozzles

UM25 and UM50 control modules can accommodate different nozzles, either directly or using an adapter. These nozzles can create various spray applications with the aid of separately supplied spray air. Controlled Fiberization (CF), Meltblown, Summit and SureWrap.

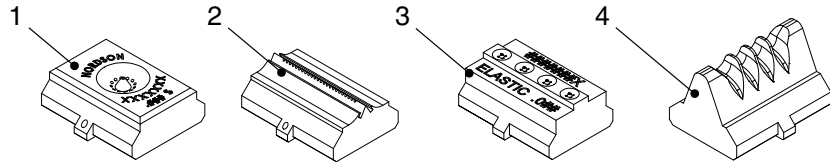


Fig. 7

- | | |
|-----------------------|--------------------|
| 1 Universal CF nozzle | 3 Summit nozzle |
| 2 Meltblown nozzle | 4 Sure Wrap nozzle |

UM Adapter Plates

Adapter plates allow the application pattern to be changed quickly. The various adapter plates differ from one another in the arrangement of the control modules.

Solenoid Valve

All control modules are equipped with solenoid valves that switch the air supply. The solenoid valves differ from one another, depending on the control module used. Special instructions apply to some solenoid valves; refer to e.g. *Installation*.

Special Features

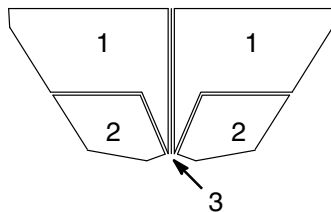
Air Heater

The spray air is heated in the air heater to a temperature just below the processing temperature. This prevents cold air from having a negative effect on the adhesion properties of the material.

Heat Exchanger

In the heat exchanger, the adhesive flows through long, winding channels, facilitating uniform heat transfer. The warm adhesive is heated to the processing temperature in the heat exchanger.

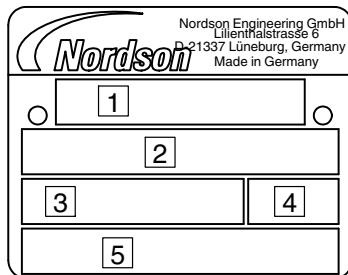
CC nozzle



The Control Coat (CC) nozzle consists of the two halves of the material nozzle (1), the two halves of the air nozzle (2) and the shim plate (3).

The material flows through the material nozzle. The spray air flows through the air nozzle. The spray air spreads the adhesive out like a curtain before it reaches the substrate.

ID Plate



The ID plate contains all of the important information pertaining to the Universal TruFlow applicator or to the Flow Divider.

1. field	TruFlow and encoder type
2. field	Nordson order number
3. field	Unit (ccm/rev)
4. field	Output
5. field	Serial number

Product Configuration

The configuration code and the table indicate the components of this product that can be configured.

Box	1-3	4	5	6	7-9	10	11 - 13	14	15-16	17-18
Code	UTA	-	C	C	XXX	-	XXX	-	02	SN
			F	H					03	TC
			S	T					04	U2
				X					06	U5
									08	XX

Box	19-20	21	22	23	24	25	26	27-29	30	31
Code	XX	-	D	N	L	N	C	Reserved	/	X
			R	P	R	X	D			S
			T				X			
			X				X			

Box	Code	Component / part / option
1-3		Name
	UTA	Universal TruFlow applicator
4	-	Place holder
5		Applicator type
	C	Surface application
	F	Flow Divider
	S	Spray application
6		Application
	C	Continuous
	H	Fast intermittent
	T	Intermittent
	X	Flow Divider
7-9		Application width (mm)
	XXX	Application width in mm, measured from the first to the last control module, max. 500 mm A: For the Flow Divider: XXX B: Application width must be smaller than nozzle length.
10	-	Place holder
11-13		Nozzle length (mm)
	XXX	Length in mm, max. 500 mm A: For the Flow Divider: XXX B: Nozzle length must be greater than application width.
14	-	Place holder
Continued ...		

Box	Code	Component / part / option
15-16		Number of material streams <i>Max. 2 streams per control module.</i>
	02	2 stream Flow Splitters (TruFlow)
	03	3 stream Flow Splitters (TruFlow)
	04	4 stream Flow Splitters (TruFlow)
	06	6 stream Flow Splitters (TruFlow)
	08	8 stream Flow Splitters (TruFlow)
17-18		Control module
	SN	SpeedCoat without boost
	TC	TrueCoat (standard, fixed, 3 mm)
	U2	UM25 (fixed cap)
	U5	UM50 (fixed cap)
	XX	Flow Divider <i>For the Flow Divider: XX.</i>
19-20		Number of control modules <i>For Flow Divider: XX.</i>
	XX	Total number of control modules <i>Min. 1 control module per stream. Max. 3 control modules per stream. Max. 24 control modules per applicator. With UM50: Max. 1 control module per stream and max. 12 control modules per applicator.</i>
21	-	Place holder
22		Encoder feedback
	D	Direct encoder <i>Nordson recommends this option!</i>
	R	Indirect encoder
	T	Optical fiber cable
	X	No encoder
23		Temperature sensor
	N	Ni120
	P	Pt100
24		Operator / filter side <i>Standard filter: 0.08 mm mesh size.</i>
	L	Left
	R	Right
25		Solenoid valve type
	N	24 V _{DC} Nordson solenoid valve
	X	No solenoid valve <i>For the Flow Divider: X. For SN or TC in box 17-18: X.</i>
26		Solenoid valve control
	C	Via hose
	D	Direct
	X	No solenoid valve <i>For the Flow Divider: X.</i>
27 - 29	-	Reserved
30	/	Place holder
31		Special features
	X	Standard model
	S	Special model

Installation



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

Unpacking

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

Transport

Flow Splitters, TruFlow applicators, Flow Dividers and Flow Meters are valuable parts produced with the greatest precision. Handle very carefully! Use the original packaging when possible.

Storage

Do not store outside! Protect from humidity and dust. Protect Flow Splitters, TruFlow applicators, Flow Dividers and Flow Meters from damage. Use the original packaging when possible.

Disposal

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

Mounting

Do not set up in a potentially explosive atmosphere! Protect from vibration. Remove transport protection (if present). Check all plug and screw connections for tightness. Provide sufficient clearance around the melter.

Installing

When installing the TruFlow applicator. Flow Divider or Flow Meter, observe these points to avoid greater effort later.

- Protect from humidity, vibrations, dust and drafts.
- Ensure access to parts relevant for maintenance and operation.
- Install the TruFlow applicator in the parent machine. To achieve optimum adhesive application, during assembly ensure 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.
- Protect the solenoid valves from excessive temperatures.

Exhausting Adhesive Vapors

Ensure that adhesive vapors do not exceed the prescribed limits. Exhaust material vapors if necessary. Ensure sufficient ventilation of the installation location.

Protecting Solenoid Valves from Heat

CAUTION: The serviceable life of the solenoid valves may be reduced if its temperature exceeds 80 °C / 176 °F.

If the operating temperature recommended by Nordson for the TruFlow applicator is complied with and the ambient temperature of the solenoid valves is below 80 °C / 176 °F, the temperature of the solenoid valves will not exceed 80 °C / 176 °F.

When in doubt, install heat deflectors to prevent the solenoid valves from overheating.

Electrical Connections



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

Laying Cable

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

Line Voltage



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

Electrically Connecting TruFlow Applicator or Flow Divider

Connect the applicator or Flow Divider cable harnesses (e.g. heater and valve control) to the respective receptacles of the electrical cabinet or the heated hose.

Refer to the system plan and wiring diagram.

Installing and Connecting Encoder

Connect the encoder to the encoder shaft on the Flow Splitter. Connect the signal line to the electrical cabinet.

Attaching and Connecting Optical Fiber Cables



1. Insert the optical fiber cables in the respective openings on the Flow Splitter.
2. Connect the optical fiber cables to the Flow Detection system.
3. Connect the Flow Detection system to the electrical cabinet.

Refer to the separate manual *TruFlow[™] Flow Detection System* for additional information.

Connecting Solenoid Valves

Depending on the specific design of the application system, the solenoid valves on the control modules are controlled either by an external power supply, e.g. control unit, or through the valve control lines of the heated hose. Secure the voltage plug with the clamp if necessary.

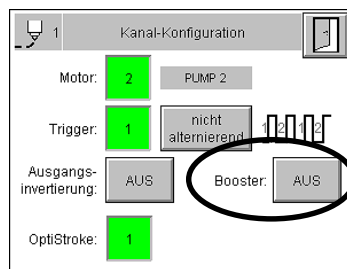


ATTENTION: If the TruFlow applicator is equipped with blue-black solenoid valves, the valves may be connected only to PLCs or control units that supply a stabilized 24 V_{DC} signal **without** overexcitation. Higher voltage will damage the solenoid valves.

Example: Triggering via Nordson VersaBlue Melter

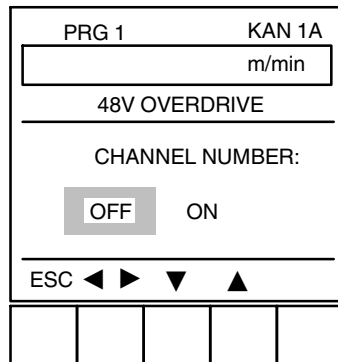


ATTENTION: Blue-black solenoid valves, so-called *Booster* valves, can be installed in Nordson applicators. They may be triggered **only** with a stabilized 24 V_{DC} signal **without** overexcitation. Voltage higher than 24 Volt will damage the solenoid valves.



When these special solenoid valves are used, the booster feature in the control unit has to be switched **off**.

Refer to the separate manual for melter types *VersaBlue* and *VersaBlue Plus*, section *Operation* - chapter *Pattern Controller Function* - *Switching Booster Feature On or Off*.



Example: Triggering via Nordson ES 90 Control Unit

NOTE: If the TruFlow applicator is equipped with blue-black solenoid valves and operated with a control unit type *ES 90*, the so-called *48 volt excitation (OVERDRIVE)* must be switched off there for each control module. Also refer to the manual *Control Unit*.

1. Select Off: Move left or right with ◀ ▶.
2. Select the channel number with ▲ or ▼.
3. Exit the submenu by pressing *ESC*.

Pneumatic Connections

Nordson recommends using dry, controlled and nonlubricated compressed air.

Operation with Nonlubricated Compressed Air

When a TruFlow 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.

NOTE: It must be ensured that the compressed air supply to the TruFlow applicators has been converted to absolutely nonlubricated operation.

NOTE: No oil from a possibly defective compressor may be permitted to 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 $-40\text{ }^{\circ}\text{C}$
- Max. oil concentration 0.1 mg/m^3 .

Connecting Compressed Air

1. Connect customer's air supply to the inlet of an air conditioning unit.

Maximum air pressure	8 bar	0.8 MPa	116 psi
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2. Connect the control modules to the air conditioning unit.

Control air pressure	Approx. 4 to 6 bar	Approx. 0.4 to 0.6 MPa	Approx. 58 to 87 psi
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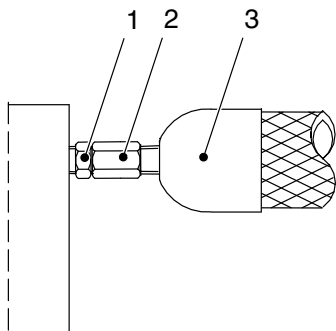
NOTE: The values for the spray air pressure are different for each nozzle attached; refer to the technical data.

Connecting Heated Hose



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

Connecting



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

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

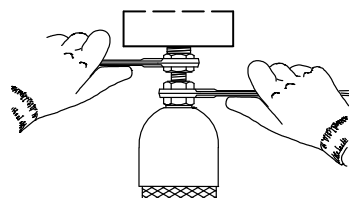
Disconnecting



ATTENTION: Relieve pressure to the TruFlow applicator or Flow Divider before detaching hoses!

Relieving Pressure

1. Set motor speed(s) to 0 min⁻¹ (rpm); switch off motor(s).
2. Place a container under the TruFlow applicator nozzle or under the pressure relief valves / drain valves of the Flow Divider.
3. Manually operate the solenoid valves of the TruFlow applicator or open the pressure relief valves / drain valves of the Flow Divider to allow adhesive to flow out. Collect the adhesive in the container.
4. Properly dispose of adhesive according to local regulations.



Using Second Open-end Wrench

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

Operation



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

The equipment is operated using the control panel in the respective electrical cabinet or with a connected PC. For this reason, no further instructions can be specified here. Refer to the manual for the TruFlow application system electrical cabinet.

Triggering Solenoid Valve

CAUTION: Trigger the solenoid valves only when the TruFlow applicator is heated to operating temperature!

Setting Temperatures

NOTE: The basis for temperature setting is the processing temperature stipulated by the material manufacturer (usually 150 to 180 °C / 302 to 356 °F). The maximum operating temperature prescribed for the TruFlow applicator or the Flow Divider and for an air heater that may be in use may not be exceeded.

The temperatures required are set on the melter.

TruFlow Applicator	Max. 200 °C / 392 °F
Flow Divider	Max. 200 °C / 392 °F
Air heater (special feature)	Max. 220 °C / 392 °F

Setting Spray Air Pressure

CAUTION: Operate the TruFlow applicator only when the spray air is switched on! If the spray air is not on, material can penetrate the nozzle air channels. This will cause malfunctioning.

The spray air pressure is set to suit each application on an air conditioning unit. The air conditioning unit with pressure control valve is not part of the TruFlow applicator.

NOTE: The values for the spray air pressure are different for each nozzle attached; refer to the technical data.

Nordson will assume no warranty or liability for damage caused by an incorrect pressure setting.

Setting Control Air Pressure

The control air pressure is set to suit each application on an air conditioning unit. The air conditioning unit with pressure control valve is not part of the TruFlow applicator.

Control air pressure	Approx. 4 to 6 bar	Approx. 0.4 to 0.6 MPa	Approx. 58 to 87 psi
----------------------	--------------------	------------------------	----------------------

Nordson will assume no warranty or liability for damage caused by an incorrect pressure setting.

Maximum Material Pressure

The maximum material pressure may not be exceeded:

60 bar	6 MPa	870 psi
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Setting Application

Before beginning adjustments, the distance between the application nozzle and the substrate must be set between 10 and 20 mm.

The material is usually applied vertically to the substrate. Sometimes though the application result may be better if the material is applied at a slight angle deviating $\pm 5^\circ$ to 7° from vertical application.

The optimum spray result must be determined by trial and error.

Starting Up TruFlow Flow Detection System

When a TruFlow applicator or Flow Divider with optical fiber cables is used, the corresponding Flow Detection system must also started up properly and used. This is the only way to monitor motion of the TruFlow gears and thus their functioning.

Refer to the separate manual for melter types *VersaBlue* and *VersaBlue Plus*, section *Operation* - chapter *Pattern Controller Function - Switching Booster Feature On or Off*.

Settings Record

Production information

Material	Manufacturer	
	Max. processing temperature	
	Viscosity	

Cleaning agent	Manufacturer	
	Flash point	

Basic settings	Application weight (grammage)	
	Application width	
	Substrate speed	
	Material quantity	
	Output capacity	

Air pressure at TruFlow applicator	Control air	
---	-------------	--

Basic settings temperature (heating zones)	Applicator body	
	Heated hose	

Pump speeds	Melter	
	Motor controller (setpoint)	

Material pressure	Melter	
	Motor controller (setpoint)	

Notes

Form filled out by:	
Name	Date

Maintenance



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

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

Relieving Pressure



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



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



1. Set the motor speed of the unit feeding the material to 0 min⁻¹; switch off the motor(s).
2. Place a container under the TruFlow applicator nozzle or under the pressure relief valves or drain valves of the Flow Divider.
3. Manually operate the solenoid valves of the TruFlow applicator or open the pressure relief valves / drain valves of the Flow Divider to allow adhesive to flow out. Collect the adhesive in the container.
4. Properly dispose of material according to local regulations.

Maintenance Table

Unit part	Activity	Interval	Refer to
Electrical cables	Inspect for damage	Daily	Page 23
Air hoses		Daily	Page 23
Flow-Splitter (TruFlow) Flow Meter	Check for leakage	Daily	Page 24
	Replace shaft seals	When defective	Page 24
	Retighten fixing screws	Every 500 hours of operation	Page 24
TruFlow applicator	External cleaning	Daily	Page 25
	Check control module (when present) for leakage	Daily	Page 26
	Replace control module	When defective	Page 27
	Clean filter cartridge and replace filter screen	Depending on degree of adhesive pollution. Recommendation: Every 100 hours of operation	Page 31
Flow Divider	Purging with Cleaning Agent	Regularly as required by operating conditions or before changing the adhesive	Page 33
	Clean completely	Depending on operating conditions	Page 33
	Forcibly activate the safety valve piston	Monthly	Page 33

Electrical and Pneumatic Connecting Lines

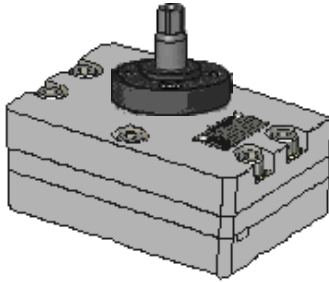
Visual Inspection for External Damage



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

Flow-Splitter / TruFlow / Flow Meter

Checking for Leakage



Flow Splitters are equipped with a self-sealing shaft seal. Adhesive may drip out of the seal. The shaft seal must then be replaced.

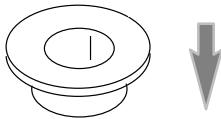
NOTE: If the shaft seal needs to be replaced, Nordson recommends replacing the entire Flow Splitter and sending the old one in to be repaired.

Replacing Shaft Seal

1. Detach the encoder.
2. Unscrew the pressure piece.
3. Carefully remove the seal. Do not use sharp tools! Ensure that the sealing surfaces are not damaged.

The seal is no longer needed and can be disposed of.

4. Clean the sealing surfaces (e.g. with a wooden or brass spatula). Do not burn out.



5. Insert the shaft seal. Position it properly (arrow).
6. Attach the pressure piece.
7. Install the encoder.

NOTE: Nordson can assume no guarantee for a shaft seal that the customer replaces himself.

Retightening Fixing Screws

NOTE: Tighten the fixing screws only when the unit is cold and only with a torque wrench.

Thermodynamic tension can cause the fixing screws to loosen.

Tighten fixing screws with 25 Nm every 500 hours of operation.

TruFlow Applicator

External Cleaning

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

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

1. Electrically heat the applicator until the adhesive is liquid.
2. Thoroughly remove warm adhesive with a cleaning agent and/or a soft 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.

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 unit with a cleaning agent recommended by the material supplier.

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

Control Modules

Overview

NOTE: Four different control modules can be configured for a TruFlow applicator. Speed-Coat, TrueCoat, UM25 and UM50. The maintenance instructions sometimes differ; sometimes they apply to multiple types of control modules.

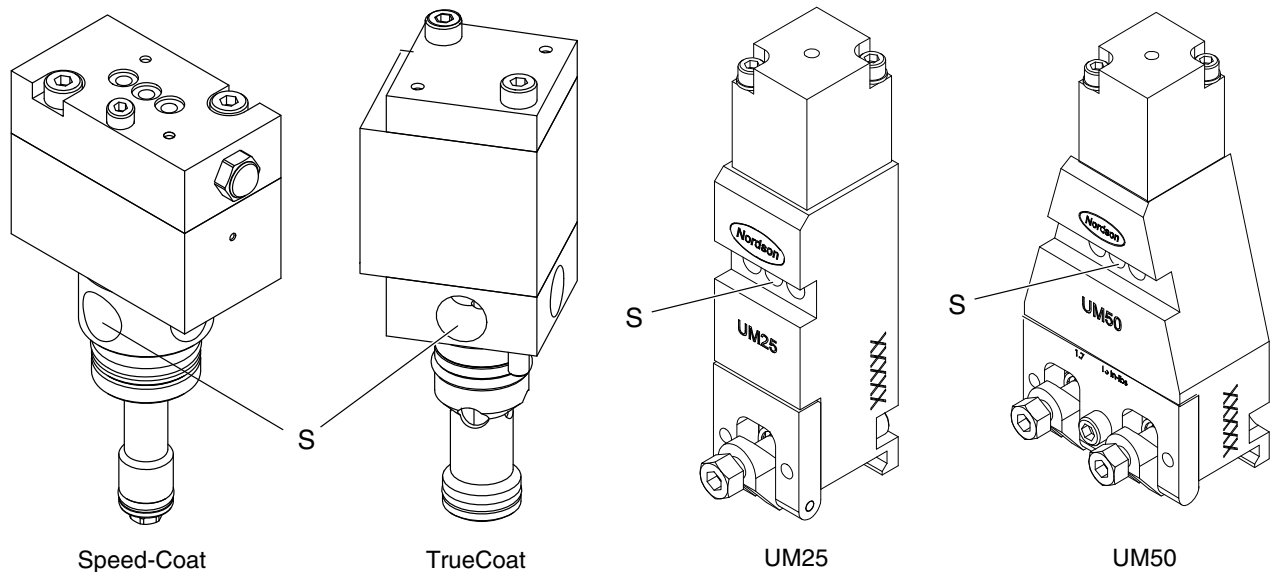


Fig. 8 Different control modules that can be used on the UTA

Inspecting Control Module

If excess adhesive escapes from the detection hole (S, Fig. 8), the internal seals have worn and the control module must be replaced.

Replace Control Module

Nordson recommends keeping control modules on hand to avoid interruptions in production (Refer to *Parts List*).



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 Speed Coat Control Module

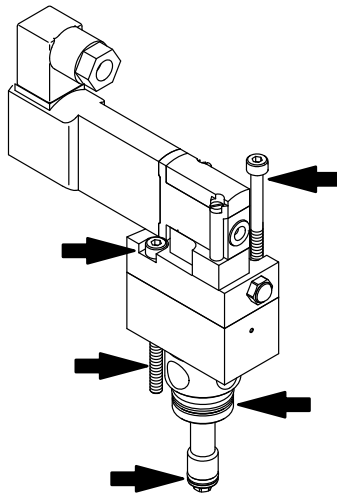
1. Relieve pressure.
2. Release the air connection and electrical connection.
3. Release screws (M4) and extract control module from warm TruFlow applicator.

Installing Speed Coat Control Module

NOTE: Required tool:

Torque wrench (e.g. 0.8 - 4 Nm / 7 - 35 lbin),

Hexagonal bit 3 mm (0.12 inch).



1. Apply high temperature grease (Refer to *Processing Materials*, section *Technical Data*) (arrows, left illustration):

- To the O-rings
- To the screw threads
- Under the screw heads.

2. Insert the new control module carefully, taking care not to tilt it.

NOTE: When the control module is slid into the body, the two O-rings cause some resistance that must be overcome. When the cylindrical part with the detection holes is on the body, the control module has been slid in far enough.

3. Screw in the screws by hand. Do not tighten!
4. Then tighten the screws as follows:

1st step: Set the torque wrench to 0.9 Nm (8 lbin) and tighten the screw somewhat. Repeat for the second screw.

2nd step: Set the torque wrench to 1.8 Nm (16 lbin) and tighten the screw securely. Repeat for the second screw.

3rd step: Set the torque wrench to 2.7 Nm (24 lbin) and tighten the screw. Repeat for the second screw.

5. Connect the TruFlow applicator to the compressed air supply again:
Max. air pressure: 6 bar / 0.6 MPa / 87 psi

6. Connect the TruFlow applicator electrically again.

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

Control Modules *(contd.)*

Replacing Control Module *(contd.)*

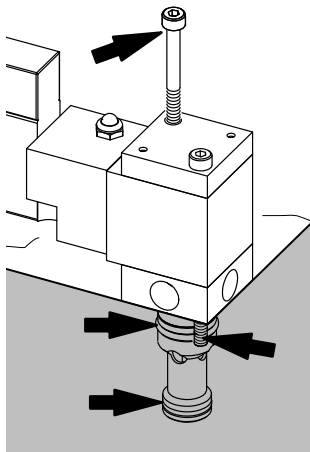
Removing TrueCoat Control Module



1. Relieve pressure.
2. Release the air connection and electrical connection.
3. Release screws (M4).
4. Use a suitable tool, e.g. a screwdriver (left illustration), to release the instant plug connection for the control module and the air bar.
5. Extract the control module from the warm applicator.

Installing TrueCoat Control Module

NOTE: Required tool: Torque wrench.



1. Apply high temperature grease (Refer to *Processing Materials*, section *Technical Data*) (left illustration):
 - To the O-rings
 - To the screw threads
 - Under the screw heads.
2. Insert the new control module. Do not tilt! The control module is positioned correctly when the cylindrical part rests evenly on the body, below the detection holes. The gap between the square part and the body is then 2 mm. Also compare to the adjacent control modules or to the left illustration.
3. Screw in the screws by hand. Do not tighten yet.
4. Then tighten the screws as follows:

1st step: Set the torque wrench to 0.9 Nm (8 lbin) and tighten the screw somewhat. Repeat for the second screw.

2nd step: Set the torque wrench to 1.8 Nm (16 lbin) and tighten the screw securely. Repeat for the second screw.

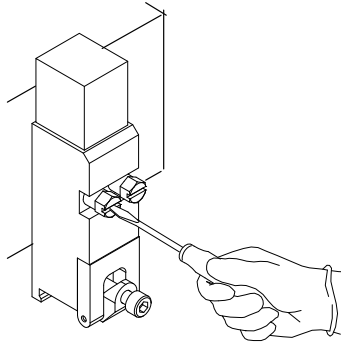
3rd step: Set the torque wrench to 2.7 Nm (24 lbin) and tighten the screw. Repeat for the second screw.

5. Re-connect air and electrical connections.

Replacing UM Control Module



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



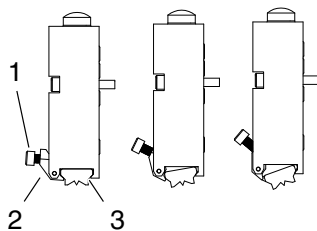
Nordson recommends keeping control modules on hand to avoid interruptions in production (Refer to *Parts List*).

1. Relieve pressure.
2. Detach the air connections and electrical connection (solenoid valve).
3. Release screws and detach control module from warm application head.
4. Attach new control module.
5. Attach the air connections and electrical connection (solenoid valve) again.

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

Cleaning UM Nozzle

Detaching / Replacing UM Nozzle



- 1 Clamping screw
- 2 Terminal
- 3 Nozzle

1. Release the clamping screw that secures the nozzle.
2. Slide the clamp towards the module to press out the nozzle.
3. CF nozzles can also be unscrewed.

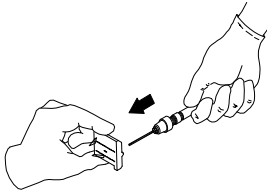
Cleaning procedure

Cleaning procedure	Procedure
Nordson cleaning fluid, type R	1. Place the nozzles in a regulated heater with Nordson cleaning fluid type R, and heat the fluid to a temperature higher than the melting point of the adhesive. 2. Wipe the nozzles with a clean, dry cloth.
Electrical heater gun	1. Heat the nozzles with a flameless, electrical heater gun. 2. Wipe the nozzles with a clean, dry cloth.
Ultrasonic cleaner	1. Soak the nozzles in an ultrasonic cleaner filled with solvent. 2. Wipe the nozzles with a clean, dry cloth.
Air	Blow air through the openings in the nozzles.

Control Modules *(contd.)*

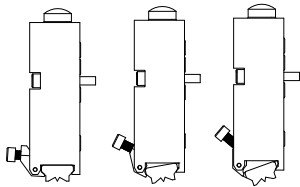
Cleaning UM Nozzle with a Probe

Insert the probe counter to the direction of adhesive flow. Do not turn!



Installing / Replacing UM Nozzle

1. Clean the contact surfaces in the module seat on which the nozzle is to be installed.
2. Check the nozzle O-rings for damage and replace if necessary.
3. Carefully place the nozzle in the module seat and tighten the clamping screw. Screw on CF nozzle (disk nozzle: 3.4 Nm, single-part nozzle: 0.6 Nm)



Filter Cartridge

Clean Filter Cartridge

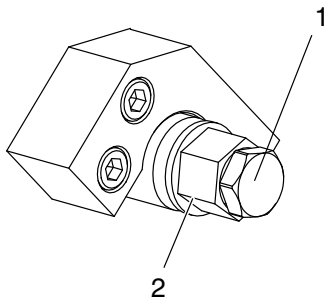
NOTE: Remove the filter cartridge only when the applicator is hot and not pressurized. Install only when the applicator is hot.



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



ATTENTION: System and adhesive pressurized. Relieve system of pressure before replacing a filter cartridge. Failure to observe can result in serious burns.



Removing Filter Cartridge

1. Place a container under the filter bore.

NOTE: Use a second open-end wrench when screwing in and out the pressure relief screw (1). This prevents the filter cartridge (2) from turning.

2. Screw the pressure relief screw out of the filter cartridge until adhesive flows out.
3. Simultaneously press the filter cartridge in and turn counterclockwise (bayonet fastener), then extract it. Use an open-end or ring wrench (size 17), if necessary.

NOTE: If the filter cartridge is stuck in the filter bore, grasp the filter cartridge with a pliers and extract.

4. Purge the filter bore by allowing the pump to run briefly with adhesive. This rinses out particles of dirt that may still be in the filter bore.
5. Properly dispose of adhesive according to local regulations.

Filter Cartridge *(contd.)*

Replacing Filter Screen



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

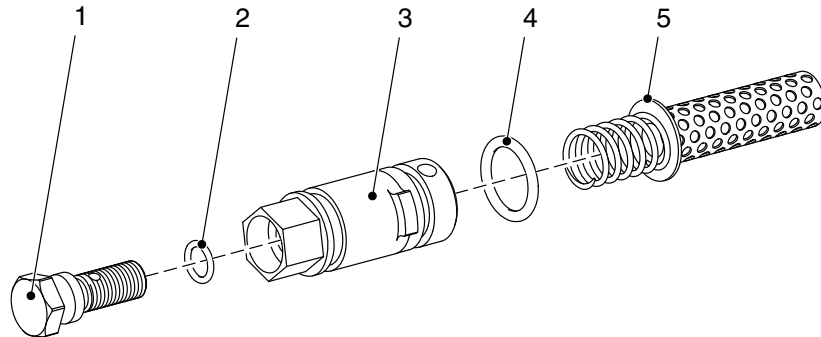


Fig. 9

- | | |
|-------------------------|-----------------------------|
| 1 Pressure relief screw | 4 O-ring |
| 2 O-ring | 5 Filter screen with spring |
| 3 Filter screw | |

1. Heat the filter cartridge until adhesive is liquid.
2. Turn the unit consisting of pressure relief screw, filter screen and spring counterclockwise out of the filter screw, then replace.

NOTE: Nordson recommends keeping a supply of replacement filter cartridges to avoid interruptions in production.

Installing Filter Cartridge

1. Heat the TruFlow applicator until adhesive is liquid.
2. Apply high temperature grease to the O-ring.
(can, 10 g, P/N 394769; tube, 250 g, P/N 783959)
3. Slide the filter cartridge into the filter bore.

NOTE: Air penetrates the filter bore when the filter cartridge is replaced. The TruFlow applicator is deaerated with the aid of the pressure relief screw.

4. Unscrew the pressure relief screw somewhat.
5. Allow the pump to run briefly until adhesive flows out. This forces out air.
6. Turn in the pressure relief screw clockwise all the way when the adhesive flows out free of bubbles.

Flow Divider

Purging with Cleaning Agent



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

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

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



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



ATTENTION: Risk of explosion or fire. Fire, naked lights and smoking prohibited.

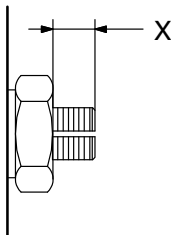
Cleaning Complete Flow Divider



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

The Flow Divider must be regularly detached and cleaned.

Forcibly Actuating Safety Valve



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

1. Relieve pressure to the Flow Divider. If there are pressure relief screws, open them. Collect the escaping material and dispose of properly.
2. Disconnect all hoses.
3. Close hose connections with proper Nordson plugs.
4. Measure and make a note of the insertion depth (dimension X in the illustration) of the adjusting screw. This allows the insertion depth to be reproduced.
5. Run the metering station at full speed with the hose connections closed. Switch the motor on and off several times during operation.

Maintenance Record

Unit part	Activity	Date	Name	Date	Name
Flow-Splitter	Check for leakage				
	Tighten sealing flange				
	Retighten fixing screws				
Applicator	Inspect for damage				
	External cleaning				
	Check control modules for leakage				
	Clean filter cartridge and replace filter screen				
Flow Divider	Inspect for damage				
	Purging with Cleaning Agent				
	Forcibly actuate the safety valve piston				

Maintenance Record Form - Copy

Unit part	Activity	Date	Name	Date	Name
Flow-Splitter	Check for leakage				
	Tighten sealing flange				
	Retighten fixing screws				
Applicator	Inspect for damage				
	External cleaning				
	Check control modules for leakage				
	Clean filter cartridge and replace filter screen				
Flow Divider	Inspect for damage				
	Purging with Cleaning Agent				
	Forcibly actuate the safety valve piston				

Troubleshooting



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

Introduction

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

The following problems are not included in the troubleshooting tables:

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

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

Troubleshooting Table

Problem	Possible cause	Corrective action	Refer to
Leakage at pump shaft seal	Pump shaft seal is worn	Have Flow-Splitter repaired	-
Adhesive pressure too low, output quantity too low	Flow-Splitter is worn	Replace Flow-Splitter	-
	Melter does not feed	Check and remedy fault	-
Flow-Splitter blocked	Processed material too cold	Change temperature setting (observe data sheet of adhesive manufacturer)	<i>Temperature controller manual</i>
	Foreign matter in Flow-Splitter	Purge Flow-Splitter with solvent	-
		Replace Flow-Splitter	-
TruFlow applicator does not heat	Temperature is not set	Set on temperature controller	<i>Temperature controller manual</i>
	Plug not connected	Connect	Page 14
	Fuses in melter defective	Disconnect melter from line voltage, check fuses and replace if necessary	- -
	Heater cartridge(s) in TruFlow applicator defective	Replace	- -
TruFlow applicator does not reach the set temperature	Ambient temperature too low	Increase ambient temperature	- -
No adhesive	Melter tank is empty	Fill	<i>Melter manual</i>
	Melter motor is not switched on	Switch on	<i>Melter manual</i>
	Melter pump is not working	Check, replace if necessary	<i>Pump manual</i>
<i>Continued...</i>			

Problem	Possible cause	Corrective action	Refer to
No adhesive at outlet	TruFlow applicator has not yet reached operating temperature	Wait until temperature has been reached; check temperature setting if necessary	<i>Temperature controller manual</i>
	Compressed air not connected	Connect	Page 16
	Nozzle stem is stuck	Replace control module	Page 25
	Nozzle clogged	Clean nozzle	Page 29
	Filter cartridge is clogged	Clean or replace filter screen if necessary	Page 30
	An adhesive channel is blocked by a potentially defective control module	Check control module, replace if necessary	Page 25
	Potentially defective solenoid valve does not switch off control module	Check solenoid valve, replace if necessary	-
Application weight too low	Control parameters not optimal	Optimize control parameters	<i>TruFlow Controller manual</i>
Application weight incorrect	Optical fiber cable type not suitable for TruFlow type	Connect proper optical fiber cable	<i>Flow Detection System manual</i>
Application weight twice as high as expected	One optical fiber cable channel is switched off	Both optical fiber cable channels have to be switched on.	
Application pattern not exact	Temperature not set precisely on melter	Correct setting	<i>Melter manual</i>
	Temperature of TruFlow applicator not set precisely	Correct setting	Page 18
	Adhesive quantity/pressure not set precisely	Correct setting	Page 19
	Distance between nozzle and substrate incorrect	Correct distance	Page 19
	Control unit not programmed correctly	Correct programming	<i>Control Unit manual</i>
	External pollution on nozzle	Clean	Page 29
	Pollution inside of nozzle	Clean	Page 29
	Nozzle damaged	Replace nozzle	Page 29
	Application quantity and substrate processing speed not attuned to one another	Check settings; change so as to be attuned to one another if necessary	- -
	Adhesive unsuitable	Ask manufacturer	Data sheet of the adhesive supplier

Repair



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

Nordson recommends that you not attempt to repair the TruFlow application system yourself. It should be sent to Nordson to be repaired.

Technical Data

General Data

Name	UTA-... (Universal TruFlow Applicator / Flow Divider)		
Type of heating	Electrical resistance heating elements		
Temperature sensors	Pt 100 / Ni 120		
Max. processable viscosity			
Speed-Coat, TrueCoat	25000 mPas	25000 cP	
UM25, UM50	500 to mPas 10000	500 to cP 10000	
Max. application width	500 mm		
Min. number of control modules per stream	1	With UM50	1
Max. number of control modules per stream	3	With UM50	1
Max. number of control modules per applicator	24	With UM50	12
Installation height (distance between nozzle and substrate)			
Speed-Coat			
Recommendation	Contact	Contact	
TrueCoat			
Recommendation	Contact	Contact	
CF			
Recommendation	19 to 51 mm	0.75 to 2 inch	
Meltblown			
Recommendation	19 to 51 mm	0.75 to 2 inch	
Summit			
Recommendation	12 to 25 mm	0.5 to 1 inch	
SureWrap			
Recommendation	Contact	Contact	

Temperatures

Max. ambient temperature	60 °C	140 °F	
Max. operating temperature for solenoid valves	80 °C	176 °F	
Max. operating temperature for applicator	200 °C	392 °F	
Spray air temperature			
Meltblown	Recommendation 16 to 27 °C (30 to 50 °F) higher than the adhesive temperature		
CF, Summit, SureWrap			
Recommendation	9 to 15 °C (15 to 25 °F) higher than the adhesive temperature		

Air Pressure

Control air	approx. 4 to 6 bar	approx. 0.4 to 0.6 MPa	approx. 58 to 87 psi
Spray/application air			
Speed-Coat, TrueCoat	approx. 0.8 to 1.5 bar	approx. 0.08 to 0.15 MPa	approx. 11.6 to 21.7 psi
CF	0.3 to 3.4 bar	0.03 to 0.34 MPa	5 to 50 psi
Recommendation	0.8 to 1.2 bar	0.08 to 0.12 MPa	12 to 18 psi
Meltblown	2.1 to 3.1 bar	0.21 to 0.31 MPa	30 to 45 psi
Recommendation			
Summit	0.3 to 1.7 bar	0.03 to 0.17 MPa	5 to 25 psi
Recommendation			
Sure Wrap	0.5 to 1.5 bar	0.05 to 0.15 MPa	7 to 22 psi
Recommendation	0,8 bar	0,08 MPa	12 psi
Air consumption UM control modules	~ 7.1 to 56.6 nlm (~ 0.25 to 2.0 scfm) Dependent on type of application: More for <i>Meltblown</i> , less for <i>Summit</i>		

Electrical Data



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

Operating voltage	230 V _{AC}
Operating voltage frequency	50/60 Hz
Voltage for solenoid valve	Without overexcitation! max. 24 V _{DC}
	Refer to section 3 Installation: <i>Connecting Solenoid Valves</i>
Starting current I _{ON} solenoid valve	2 A for P/N 7157157
Power consumption per 50 mm body length	
Spray application	420 - 480 W
Surface application	290 - 370 W
Flow Divider	210 - 360 W
Degree of protection	IP 30

Dimensions and Weights

Dimensions	Refer to technical drawing
Weight	See consignment note

Processing Materials

Designation	Order number	Use
High temperature grease		Apply to O-rings and threads
• Can 10 g	P/N 394769	NOTE: The grease should not be mixed with other lubricants. Oily/greasy parts must be cleaned before application.
• Tube 250 g	P/N 783959	
• Cartridge 400 g	P/N 402238	

Torques

Screws	Torque
Air cap	1.7 Nm (15 lbin)
Control module - body	3.4 Nm (30 lbin)
Nozzle clamp	1.7 Nm (15 lbin)
CF nozzle	3.4 Nm (30 lbin)
CF nozzle (Unibody)	0.6 Nm (5 lbin)

