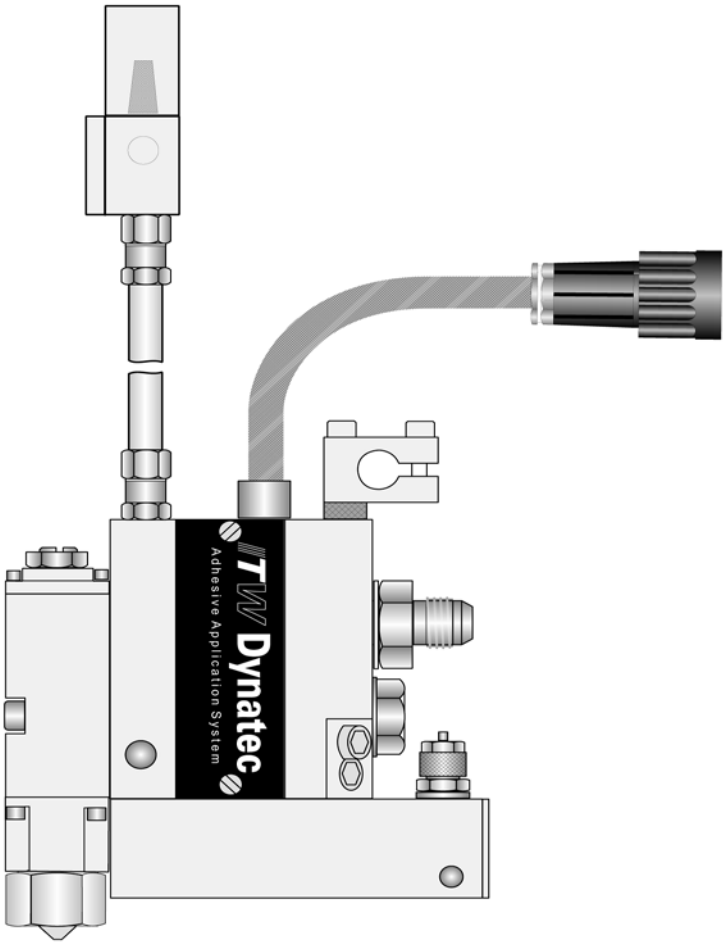
ITW Dynatec®

Adhesive Application Solutions | ISO 9001 certified

Dyna BFS Spray Applicator

PN 75.04401.842

Technical Documentation, Rev.9.16



ITW Dynatec
An Illinois Tool Works Company
www.itwdynatec.com

Information about this manual

Read all instructions before operating this equipment!

It is the customer's responsibility to have all operators and service personnel read and understand this information. Contact your ITW Dynatec customer service representative for additional copies.

NOTICE:

Please be sure to include the serial number of your application system each time you order replacement parts and/or supplies. This will enable us to send you the correct items that you need.

ITW Dynatec Service Parts and Technical Service:

AMERICAS

ITW Dynatec
31 Volunteer Drive
Hendersonville, TN 37075
USA
Tel. +1.615.824.3634
info@itwdynatec.com
service@itwdynatec.com

EUROPE, MIDDLE EAST & AFRICA

ITW Dynatec
Industriestrasse 28
40822 Mettmann
Germany
Tel. +49.2104.915.0
info@itwdynatec.de
service@itwdynatec.de

ASIA PACIFIC

ITW Dynatec
Unit2, B1 Building
No.9 Weixin Road
SIP, Suzhou, 215122
China
Tel. +86.512.6289.0620
info@itwdynatec.cn
service@itwdynatec.cn

ITW Dynatec
Tsukimura Building 5th Floor
26-11, Nishikamata 7-chome
Ota-ku, Tokyo 144-0051,
Japan
Tel. +81.3.5703.5501
info@itwdynatec.co.jp
service@itwdynatec.co.jp

Index

Chapter 1
Safety Instructions

General Considerations

- **All operators and service personnel must read and understand this manual before operating or servicing equipment.**
- **All maintenance and service on this equipment must be performed by trained technicians.**

Read and adhere to the manual!

1. Keep the binding rules for accident prevention valid for your country and the place of installation. Also keep the approved qualified technical rules for safety-conscious and professional work.
2. Additional safety instructions and/ or symbols are located throughout this manual. They serve to warn maintenance personnel and operators about potentially hazardous situations.
3. Inspect the machine for unsafe conditions daily and replace all worn or defective parts.
4. Keep work area uncluttered and well lit. Remove all material or things not needed for the production from the workspace of the equipment!
5. All covers and guards must be in place before operating this equipment.
6. Subject to technical modifications without notice!
7. To ensure proper operation of the equipment, use specified electrical and/ or air supply sources.
8. Do not attempt to alter the design of the equipment unless written approval is received from ITW Dynatec.
9. Keep all manuals readily accessible at all times and refer to it often for the best performance from your equipment.

Warning Labels

1. Read and obey all of the warning labels, signs and caution statements on the equipment.
2. Do not remove or deface any of the warning labels, signs and caution statements on the equipment.
3. Replace any warning labels, signs and caution statements which have been removed or defaced. Replacements are available from ITW Dynatec.

Safety Symbols in this Manual

1. WARNINGS and CAUTIONS are found throughout this manual.
   WARNINGS mean that failure to observe the specific instructions may cause injury to personnel.
2. CAUTIONS mean that failure to observe the specific instructions may damage the equipment.

Safe Installation and Operation

Read and adhere to the manual!

1. Read this manual before applying electrical power to the equipment. Equipment may be damaged by incorrect electrical connections.
2. To avoid possible failure of hoses, make sure all hoses are routed to avoid kinking, tight radius turns (8” or less) and abrasive contact. Hot-melt hoses should not have prolonged contact with heat-absorbing surfaces such as cold floors or metal troughs. These heat-absorbing surfaces can alter adhesive flow and cause incorrect calibration. Hoses should never be covered with materials that prevent heat dissipation, such as insulation or sheathing. Hoses should be spaced apart from each other, not making direct contact.
3. Do not use adhesive that is dirty or that may be chemically contaminated. Doing so can cause system clogging and pump damage.
4. When adhesive hand-held applicators or other movable applicators are used, never point them at yourself or at any other person. Never leave a hand-held applicator's trigger unlocked when not actually in use.
5. Do not operate the hopper or other system components without adhesive for more than 15 minutes if the temperature is 150 degrees C (300 degrees F) or more. To do so will cause charring of the residual adhesive.
6. Never activate the heads, hand-held applicators and/ or other application devices until the adhesive's temperature is within the operating range. Severe damage could result to internal parts and seals.
7. Never attempt to lift or move the unit when there is molten adhesive in the system.
8. In case of an emergency or exceptional incident, press the emergency stop button in order to stop the unit quickly.
9. Use the unit only as it is intended to.
10. Never let the unit run unattended.
11. Operate the unit only in a faultless and fully functional condition. Check and make sure that all safety devices work in proper form!

Explosion/ Fire Hazard

1. Never operate this unit in an explosive environment.
2. Use cleaning compounds recommended by ITW Dynatec or your adhesive supplier only.
3. Flash points of cleaning compounds vary according to their composition, so consult with your supplier to determine the maximum heating temperatures and safety precautions.

Use of PUR (Polyurethane) Adhesives

1. PUR adhesives emit fumes (MDI and TDI) that can be dangerous to anyone exposed to them. These fumes cannot be detected by the sense of smell. ITW Dynatec strongly recommends that a power-vented exhaust hood or system be installed over any PUR system.
2. Consult with your adhesive manufacturer for specifics about required ventilation.

CAUTION

Because of the nature of PUR adhesives to strongly bond in the presence of moisture, care must be taken to prevent them from curing inside ITW Dynatec equipment.

If PUR adhesive solidifies in a unit, the unit must be replaced. Always purge old PUR adhesive from the system per your adhesive manufacturer's instructions and time table.

ALLOWING PUR ADHESIVE TO CURE IN A UNIT OR ITS COMPONENTS VOIDS ITW DYNATEC'S WARRANTY.

Eye Protection & Protective Clothing

WARNING
EYE PROTECTION & PROTECTIVE CLOTHING REQUIRED

1. It is very important that you PROTECT YOUR EYES when working around hot melt adhesive equipment!
2. Wear a face shield conforming to ANSI Z87.1 or safety glasses with side shields which conform to ANSI Z87.1 or EN166.
3. Failure to wear a face shield or safety glasses could result in severe eye injury.
4. It is important to protect yourself from potential burns when working around hot melt adhesive equipment.
5. Wear heat-resistant protective gloves and long-sleeved, protective clothing to prevent burns that could result from contact with hot material or hot components.
6. Always wear steel-reinforced safety shoes.

Electrical

DANGER HIGH VOLTAGE

1. Dangerous voltages exist at several points in this equipment. To avoid personal injury, do not touch exposed connections and components while input power is on.
2. Disconnect, lockout and tag external electrical power before removing protective panels.
3. A secure connection to a reliable earth ground is essential for safe operation.
4. An electrical disconnect switch with lockout capability must be provided in the line ahead of the unit. Wiring used to supply electrical power should be installed by a qualified electrician.
5. Notify the maintenance personnel immediately, if cables are damaged. Provide for exchanging the defective components immediately.

Lockout/ Tagout

Switch the unit voltage-free before working!
Main switch OFF!

1. Follow OSHA 1910.147 (Lockout/ Tagout Regulation) for equipment's lockout procedures and other important lockout/tagout guidelines.
2. Be familiar with all lockout sources on the equipment.
3. Even after the equipment has been locked out, there may be stored energy in the application system, particularly in the capacitors within the panel box. To ensure that all stored energy is relieved, wait at least one minute after removing power before servicing electrical capacitors.

High Temperatures

WARNING HOT SURFACE

1. Severe burns can occur if unprotected skin comes in contact with molten adhesive or hot application system parts.
2. Face shields (preferred) or safety glasses (for minimum protection), heat-resistant protective gloves and long-sleeved clothing must be worn whenever working with or around adhesive application systems.

High Pressure

WARNING HIGH PRESSURE PRESENT

1. To avoid personal injury, do not operate the equipment without all covers, panels and safety guards properly installed.

2. To prevent serious injury from molten adhesive under pressure when servicing the equipment, disengage the pumps and relieve the adhesive system's hydraulic pressure (i.e. trigger the heads, hand-held applicators, and/or other application devices into a waste container) before opening any hydraulic fittings or connections.

3. IMPORTANT NOTE: Even when a system's pressure gauge reads “0” psi, residual pressure and trapped air can remain within it causing hot adhesive and pressure to escape without warning when a filter cap or a hose or hydraulic connection is loosened or removed. For this reason, always wear eye protection and protective clothing.

4. Either of the two High Pressure symbols shown may be used on ITW Dynatec equipment.

5. Keep the given operating pressure.

6. Notify the maintenance personnel immediately, if hoses or components are damaged. Provide for exchanging the defective components immediately.

Protective Covers

WARNING
DO NOT OPERATE WITHOUT GUARDS IN PLACE

1. Keep all guards in place!

2. To avoid personal injury, do not operate the application system without all covers, panels and safety guards properly installed.

3. Never get your extremities and/or objects into the danger area of the unit. Keep your hands away from running parts of the unit (pumps, motors, rolls or others).

Servicing, maintenance

1. Only trained and qualified personnel are to operate and service this equipment.
2. Before any service work disconnect the external power supply and the pressure air supply!
3. Never service or clean equipment while it is in motion. Shut off the equipment and lock out all input power at the source before attempting any maintenance.
4. Follow the maintenance and service instructions in the manual.
5. Keep the maintenance rates given in this documentation!
6. Any defects in the equipment that impact safe operation have to be repaired immediately.
7. Check screws that have been loosened during the repair or maintenance, if they are tight again.
8. Replace the air hoses in preventive maintenance regularly, even if they have got no viewable damages! Adhere to the manufacturers` instructions!
9. Never clean control cabinets or other houses of electrical equipment with a jet of water!
10. Adhere to the current safety data sheet of the manufacturer when using hazardous materials (cleaning agents, etc.)!

Secure transport

1. Examine the entire unit immediately after receipt, if it has been delivered in perfect condition.
2. Let damages in transit certify by the carrier and announce them immediately to ITW Dynatec.
3. Use only lifting devices that are suitable for the weight and the dimensions of the equipment (see drawing of the equipment).
4. The unit has to be transported upright and horizontally!
5. The unit has to cool down to room temperature before packaged and transported.

Treatment for Burns from Hot Melt Adhesives

Measures after being burned:

1. Burns caused by hot melt adhesive must be treated at a burn center. Provide the burn center's staff a copy of the adhesive's M.S.D.S. to expedite treatment.

2. Cool burnt parts immediately!

3. Do not remove adhesive forcibly from the skin!

4. Care should be used when working with hot melt adhesives in the molten state. Because they rapidly solidify, they present a unique hazard. Even when first solidified, they are still hot and can cause severe burns.

5. When working near a hot melt application system, always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body.

6. Always have first-aid information and supplies available.

7. Call a physician and/or an emergency medical technician immediately. Let the burns medicate by a medic immediately.

Measures in case of fire

1. Please heed that not covered hot parts of the engine and molten hot melt may cause heavy burns. Risk of burns!

2. Work very carefully with molten hot melt. Keep in mind, that already jelled hot melt can be very hot, too.

3. When working near a hot melt application system, always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body!

Measures in case of fire:

Wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body.

Firefighting - burning hot melt:

Please keep attention to the safety data sheet given by the adhesive manufacturer.

EXTINGUISH FIRE

Appropriate extinguishing agents:
Foam extinguisher, Dry powder, Spray, Carbon dioxide (CO2), Dry sand.

For safety reasons not appropriate extinguishing agents: None.

Firefighting - burning electrical equipment:

Appropriate extinguishing agents:
Carbon dioxide (CO2), Dry powder.

Keep attention to environmental protection standards

1. When working on or with the unit, the legal obligations for waste avoidance and the duly recycling / disposals have to be fulfilled.

2. Keep attention, that during installations, repairs or maintenance matters hazardous to water, like adhesive / adhesive scrap, lubricating grease or oil, hydraulic oil, coolant and cleaner containing solvent not pollute the ground or get into the canalization!

3. These matters have to be caught, kept, transported and disposed in appropriate reservoirs!

4. Dispose these matters according to the international, national and regional regulations.

Chapter 2
Description and Technical Specs

2.1 Applicable Safety Regulations

Intended Use

The Spray Applicator may be used only to apply suitable materials, e.g. adhesives. When in doubt, seek permission from ITW Dynatec.

The adhesive will be melted in an ITW Dynatec's Adhesive Supply Unit and supplied to the Applicator, which applies respectively sprays the adhesive to the substrate.

If the unit is not used in accordance with this regulation, a safe operation cannot be guaranteed.

The operator - and not ITW Dynatec - is liable for all personal injury or property damages resulting from unintended use!

Intended use includes, that you
- read this documentation,
- heed all given warnings and safety instructions, and
- do all maintenance within the given maintenance rates.

Any other use is considered to be unintended.

Unintended Use, Examples

The Spray Applicator may not be used under the following conditions:
- In defective condition.
- In a potentially explosive atmosphere.
- With unsuitable operating/processing materials.
- When the values stated under Specifications are not complied with.

The Spray Applicator may not be used to process the following materials:
- Toxic, explosive and easily flammable materials.
- Erosive and corrosive materials.
- Food products.

Residual Risks

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

Personnel should be aware of the following:

- Risk of burns from hot material.
- Risk of burns from hot Adhesive Supply Unit and Applicator components.
- Risk of burns when conducting maintenance and repair work for which the system must be heated up.

- Risk of burns when attaching and removing heated hoses.
- Material fumes can be hazardous. Avoid inhalation. If necessary, exhaust material vapors and/or provide sufficient ventilation of the location of the system.
- Risk of pinching parts of the body at running parts of the unit (pumps, motors, rolls or others).
- The safety valves may malfunction due to hardened or charred material.

Technical changes

Any kind of technical changes having impact to the security or the operational liability of the system should only be done by written agreement of ITW Dynatec. Suchlike changes made without given a corresponding written agreement will lead to immediate exclusion of liability granted by ITW Dynatec for all direct and indirect subsequent damages.

Using foreign components

ITW Dynatec takes no responsibility for consequential damages caused by using foreign components or controllers that have not been provided or installed by ITW Dynatec.

ITW Dynatec does not guarantee that foreign components or controllers used by the operating company are compatible to the ITW Dynatec-system.

Setting-up operation

We recommend asking for an ITW Dynatec-service technician for the setting-up operation, to ensure a functioning system. Let yourself and the people working with or working on the system be introduced to the system on this occasion.
ITW Dynatec takes no responsibility for damages or faults caused by any untrained personal.

2.2 Technical Data

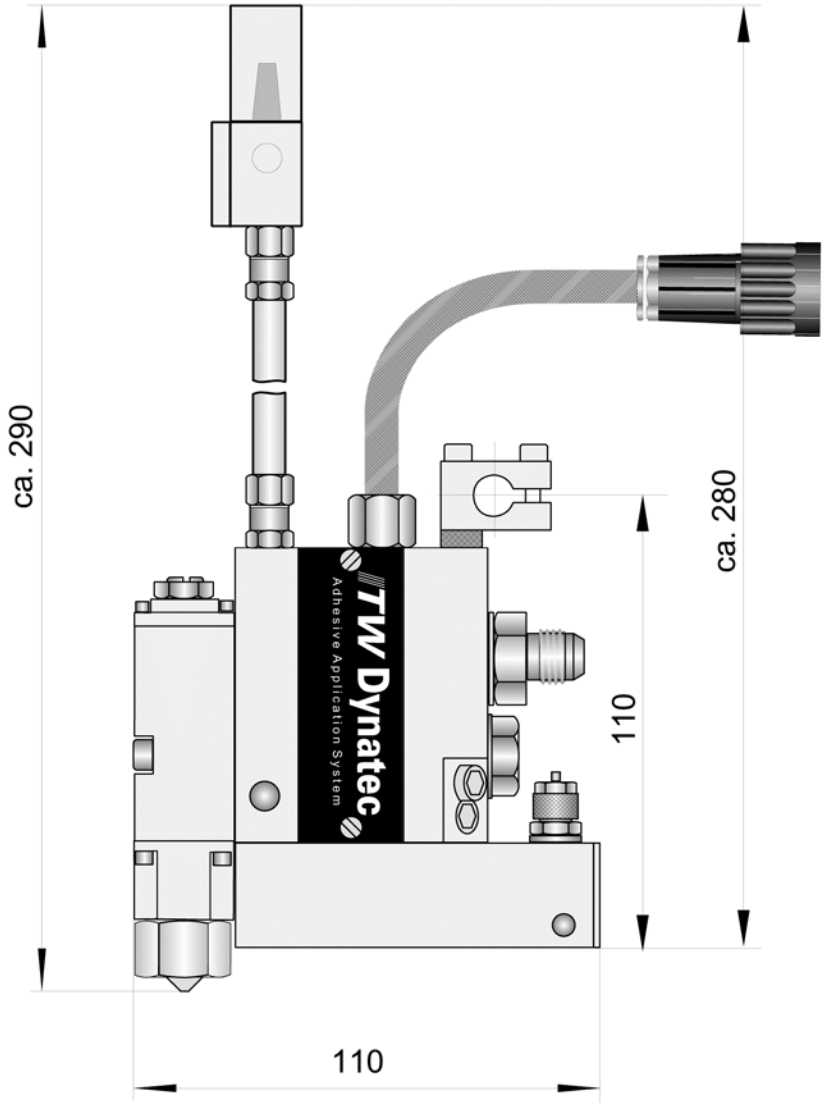
Environmental:	
Storage/ shipping temperature	-40°C to 70°C (-40°F to 158°F)
Ambient service temperature	0°C to 50°C (32°F to 122°F)
Noise emission	The acoustic pressure level measured according to EN 13023 does not exceed the value of 80 dB (A).

Physical:	
Dimensions	see dimensional layouts on following page
Hose connection	1x
Filter	1x
Heater cartridge Supply block	1x
Heater cartridge Air Heater	1x

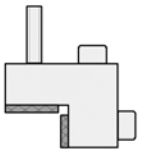
Electrical:	
Power supply	240V
Power consumption, system maximum	360W
Temperature sensor	1x, PT 100

Performance:	
Operating temperature	until max. 200°C (392°F)
Operating pressure	6 bar (87 psi)

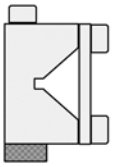
Dimensions Dyna BFS Spray Applicator



Retainer for threaded rod attachment

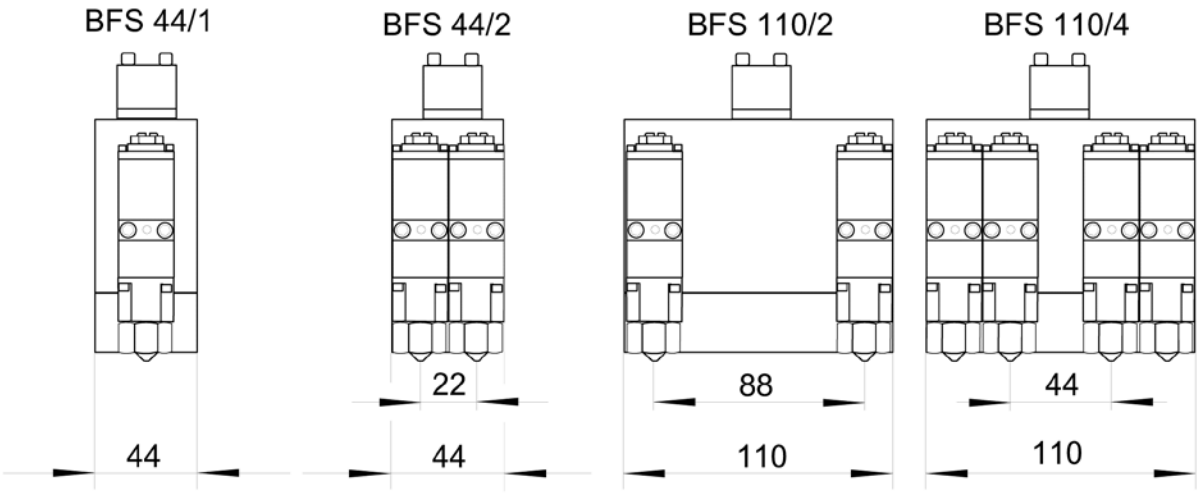


Retainer for attachment diameter 10-14 mm



Dimensions in mm.

Dyna BFS Spray Applicators are available in following standard configurations (other configurations on request):



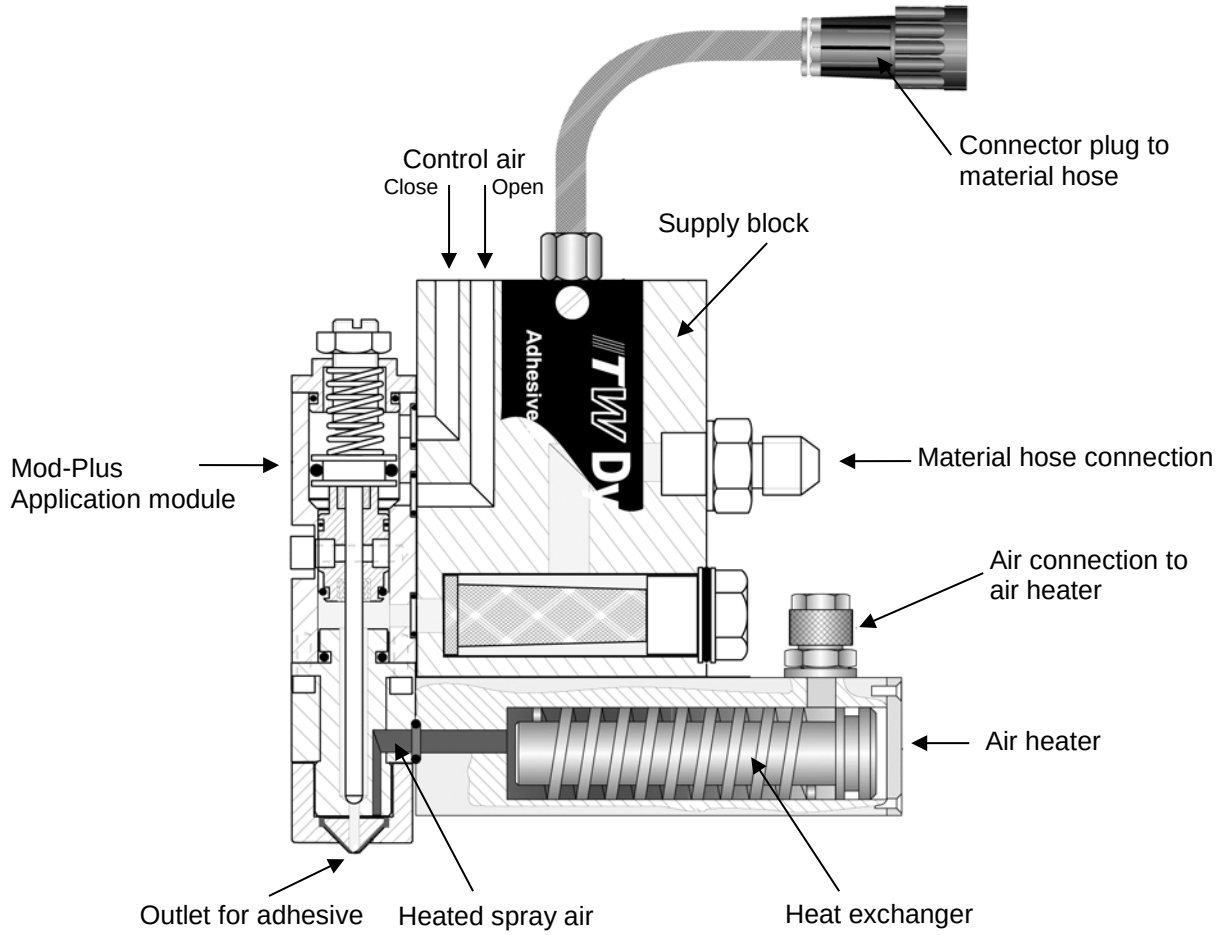
2.3 Description of Dyna BFS Spray Applicator

The Dyna BFS Spray Applicator is intended for the application of hot-melt adhesives. The adhesive is swirled using air so !hat a spiral coating is attained.

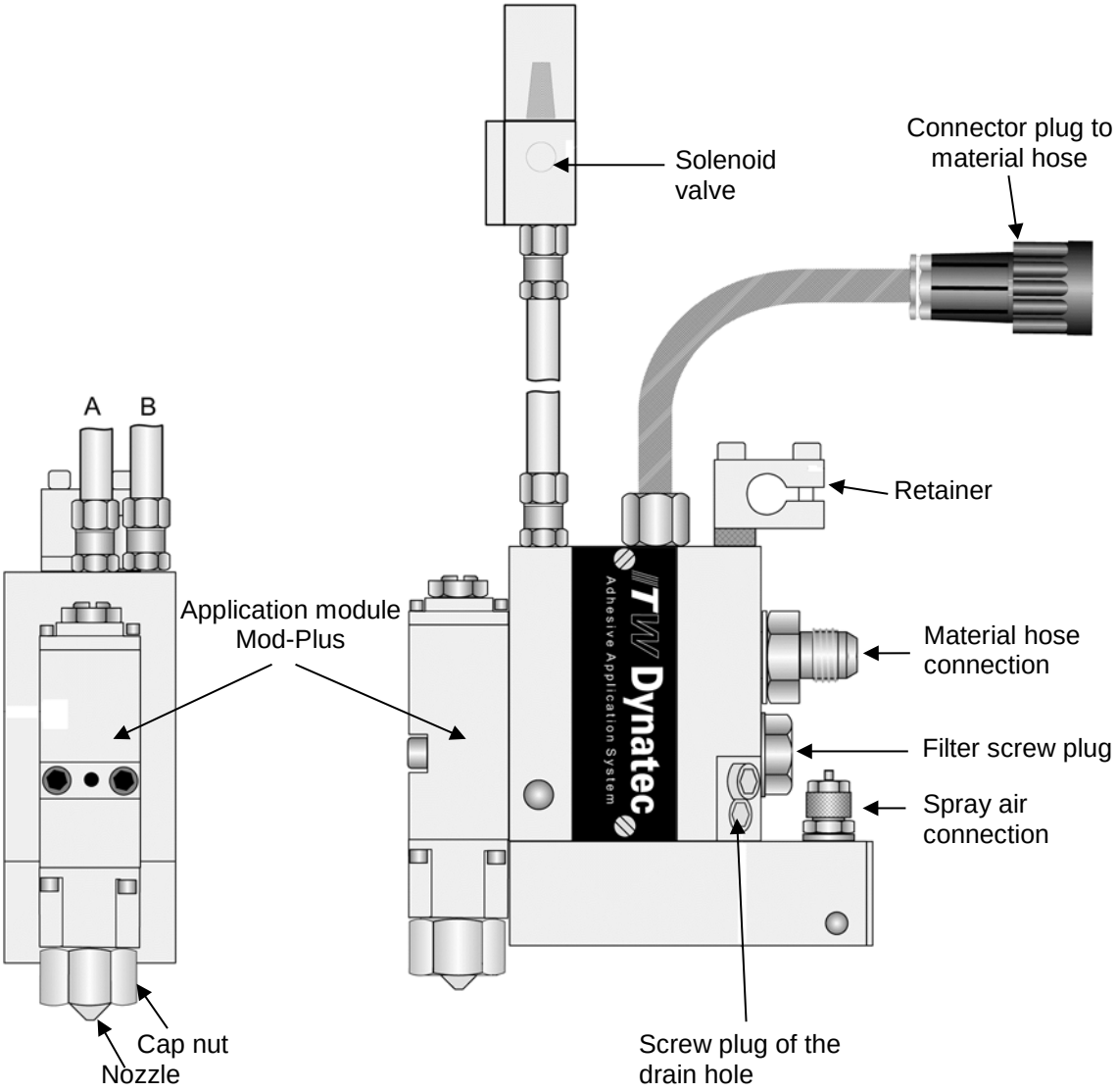
Dyna BFS Spray Applicator is available in two widths, with one, two or four application modules. Refer to illustrations on previous page.

Function:

The Dyna BFS Spray Applicator consists of a heated supply block, a Mod-Plus application module and an air heater. The supply block and air heater are heated electrically and maintained at a constant temperature. The adhesive is supplied through a channel in the supply block to the application module by means of a hose connection. The Mod-Plus application module is opened and closed pneumatically. When the piston is moved upwards, the adhesive runs out of the nozzle. Compressed air, heated in a heat exchanger, is also supplied to the air heater which is situated on the underside of the supply block. The heated air is supplied to the application module by means of a channel. Grooves on the nozzle side enable the air to escape. According to the amount of air, the adhesive is swirled in spiral forms of various strengths and is deposited in the form of spray on the application surface.



Component classification



Chapter 3
Installation

CAUTION

- Before setting up, please read this documentation carefully.
- Pay attention to all the installation and connecting advices.
- Heed all safety instructions mentioned in Chapter 1.

3.1 Conditions for set-up and mounting

Place requirement

Install the Applicator in the machine so that the operator is able to work on it from all sides, for e.g. for adjusting, preparing, maintaining, repairing, cleaning, etc. See drawing in Chapter 2.

Electrical connection

- Provide necessary electrical connection. See electrical schematics.
- The unit has to be connected according to the schematics. Heed the regulations of the VDE or local power supply organization in all cases!
- Never connect or disconnect plug-and-socket connections under load!

Pneumatic connection

Provide necessary pneumatic connection:

- The required air pressure is 6 bar.
- Connect a compressed-air supply hose of DN8 at least to the Spray Applicator. CAUTION: In any case the air has to be clean and dry! See advice in Chapter “Quality of compressed air”.
- Please heed that units with high air demand may not be used at the same time with the same air supply.

ADVICES

- Check all screw connections at the unit and retighten if necessary.
- Lay the cables and heated hoses so that no risk or least possible risk of stumbling occurs.

3.2 Installation

CAUTION

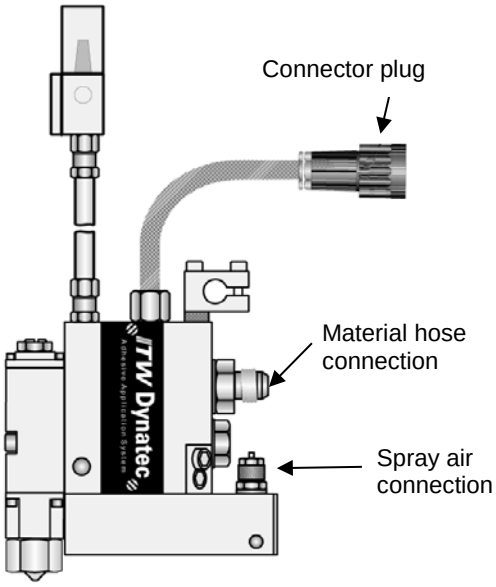
- All work on or with this unit is only permitted for skilled personnel!
- Pay attention to the electrical schematics!
- Clean and dry air and air pressure of 6 bar to the applicator solenoids is required.
- All heating elements have to be mounted and operated secured and according to the valid regulations.

WARNING

- While installing the Applicator, use an appropriate protection device to avoid unintended contact with heated parts and with spilling out hot adhesive. The protection device has to prevent also the operator against not reaching into the adhesive application and against injuring.
- Risk of burns and risk of injury!

Proceed as follows to interconnect the unit components according to the wiring diagram. Refer to the “Installation Variants” on next pages.

1. Switch off all necessary aggregates for Applicator operation. Ensure that these cannot be switched on without authorization.
2. Install the Applicator on the machine at the foreseen place for adhesive application. Push the applicator‘s retainer onto the fixing bar and fix the retainer at the right position.
3. Fasten the hose to the Applicator’s material connection using a wrench.
4. Connect air hose for spray air at the air heater.

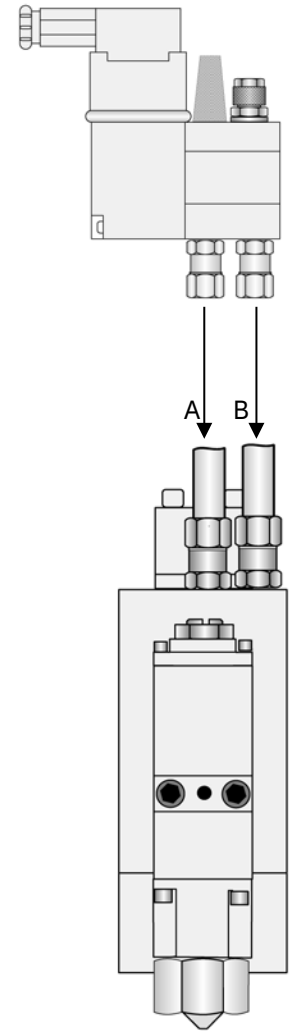


5. Mount the solenoid valve to the Applicator (refer to illustration).

6. Connect the connector cable to the socket of the solenoid valve coil. Then connect the plug onto the coil body and tighten the fastening screw.

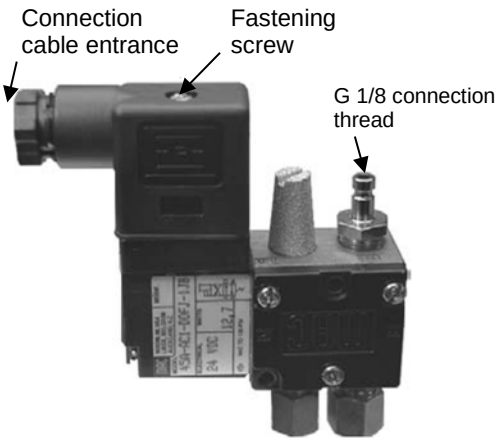
   Note:
   Please refer to the solenoid valve supplement when assigning connections. When using solenoid valves of other manufacturers, please follow their instructions concerning cable connections.

4/2 way solenoid valve



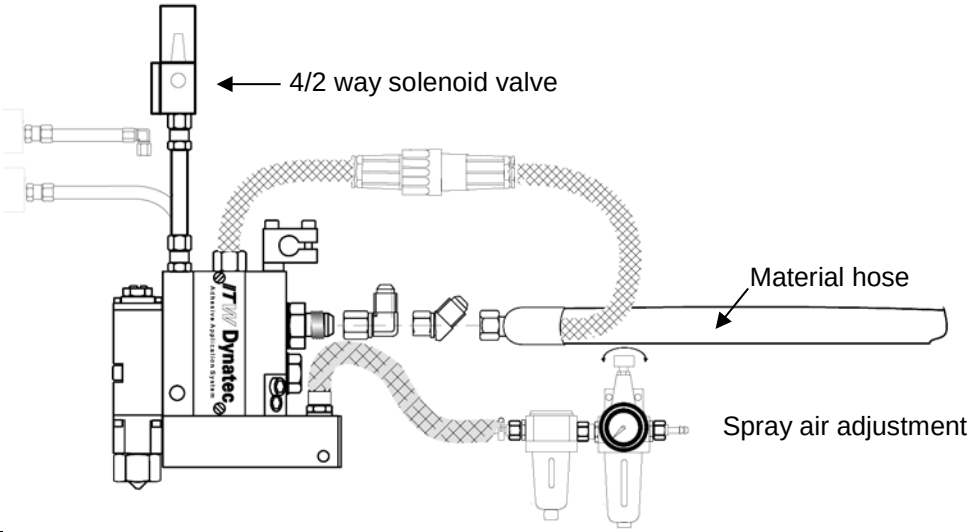
7. Screw the air connection into the valve using a G1/8 thread screw. (Use Cu-sealing washers only).

8. Connect the Applicator's connector plug to the material hose.

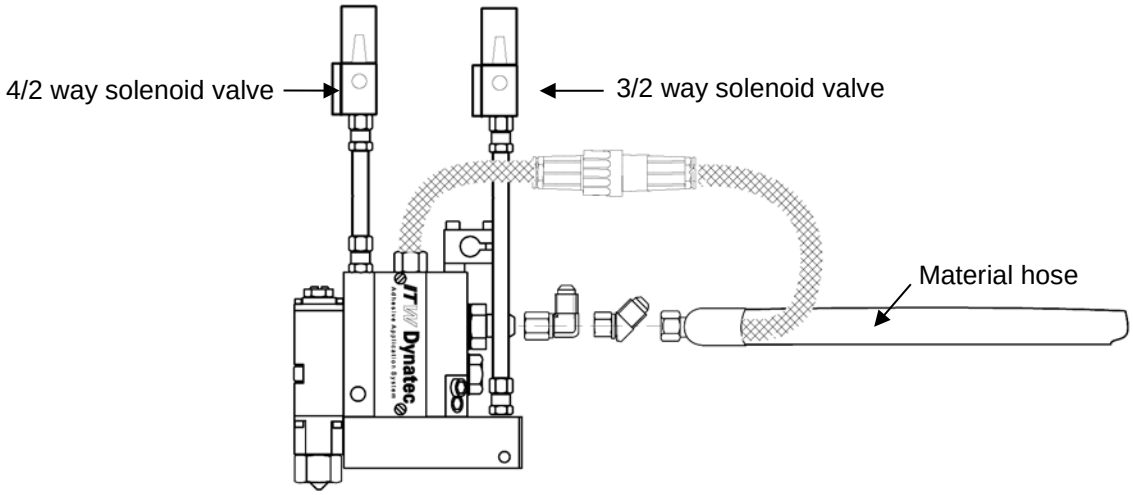


Installation Variants

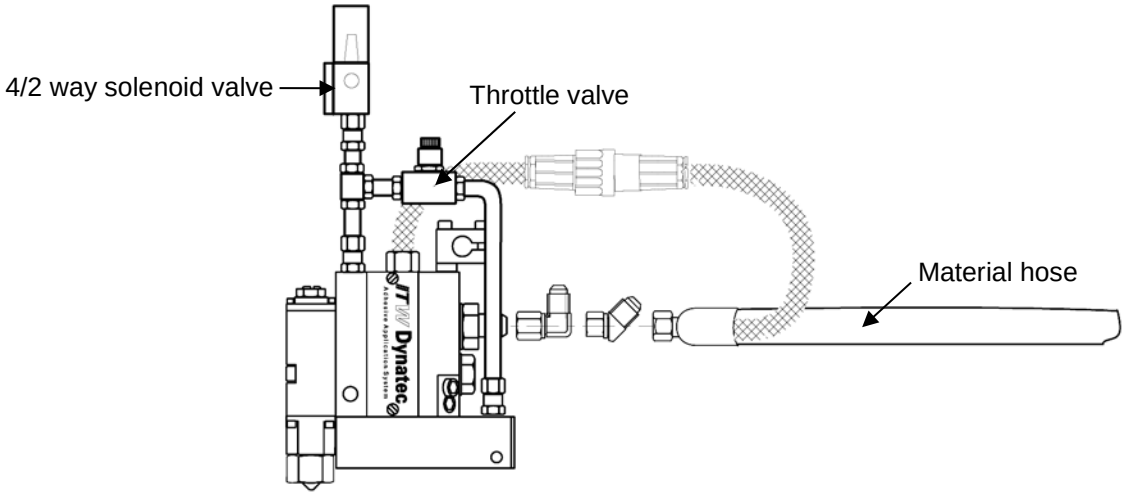
Adjustable and unswitched spray air



Separately switched spray air



Adjustable and commonly switched spray air



Quality of compressed Air

Compressed air quality class according to ISO 8573-1

- We recommend to use a maintenance-unit for compressed-air conditioning with a filter 40µm.
- Keep the quality class 5.4.2 according to ISO 8573-1.

Classification of Quality Classes According to ISO 8573-1:

Class	1. Particulate Material		2. Water Content	3. Oil Content
	max. particle size (µm)	max. particle density (mg/m3)	max. pressure dew point (°C)	max. oil concentration (mg/m3)
1	0,1	0,1	-70	0,01
2	1	1	-40	**0,1**
3	5	5	-20	1
4	15	8	**+3**	5
5	**40**	**10**	+7	25
6			+10	
7			not defined	

This page intentionally left blank.

Chapter 4
Start-up, Shutdown

4.1 Advices for start-up

ADVICE

Start with start-up operation not until

- the functioning of the unit is known, and
- the unit installation for start-up has been done according to the details given in the previous chapter. That means all unit components are operable.

Read the documentation thoroughly to avoid breakdowns caused by faulty handling.

We recommend asking for an ITW Dynatec-service technician for the start-up operation, to ensure a functioning unit. Let yourself and the people working with or working on the unit be introduced to the unit on this occasion.

ITW Dynatec takes no responsibility for damages or faults caused by any untrained personnel.

Head all safety instructions mentioned in chapter 1.

Allow only skilled expert staff to do the start-up operation!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing when working on or with the unit. Risk of burns and risk of injury!

Risk of electric shocks! Risk of injury, Mortal danger!

The unit components are getting very hot during operation! Risk of burns!

The adhesive is very hot and pressurized! Risk of burns and risk of injury! At working temperature, molten adhesive could cause heavy burns. Let spilled out adhesive cool down first, before removing it!

CAUTION

During operating the unit, heed the following:

- Heed all safety instructions mentioned in chapter 1.
- Set the working temperatures strictly within the temperature range given by the adhesive manufacturer. Do not exceed this temperature range.
- Switch the unit off during longer production breaks.
- Switch the unit to standby during shorter production breaks.
- Avoid voltage fluctuation.
- The air supply has to be clean and dry.
- In case of an emergency or exceptional incident, press the emergency stop button in order to stop the unit quickly.

The unit is ready for operation, when

- all temperatures are within the tolerances and
- all motors are switched on.

Risk of stumbling on cables and heated hoses!

Keep your hands away from running parts of the unit (pumps, motors, rolls or others).

4.2 Start-up

This is a generic start-up. The customers may have different ways to start-up their unit.

1. Check the complete unit and the traverse paths for safety. Fix visible damages immediately.
2. Before switching the unit on, make sure that the starting unit could hurt no one!
3. Remove all material or other things not needed for the production from the workspace of the unit!
4. Check and make sure that all safety devices are working in proper form!
5. Switch on the unit electrically and pneumatically.

   When operating temperatures for tank, material hoses and Applicators have been reached, purging can begin.

CAUTION! Risk of burns and injury!

- The unit operates with very high temperatures and high adhesive pressure.
- Hot adhesive/ oil comes out of the Applicator/ hoses!
- Always wear heat-resistant protective gloves and safety goggles! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

6. Place a heat-resistant adhesive container (receptacle) under the Applicator.
7. Open the application module by activating the solenoid valve's manual trigger.

   Adhesive and air will come out of the nozzle.

   The purging procedure is completed, only when adhesive comes out of the Applicator without any air and bubbles.

   After purging, the Applicator is ready for operation.

4.3 Shutdown

Removing dirt:

ADVICE

Remove dirt from Adhesive Supply Unit and Applicator immediately.

Wooden scrapers, lint-free cloth with thinner or cleaner may only be used for cleaning.

Metallic scrapers or other tools made from steel, like knife or blades, may not be used under any circumstances.

Temporary Shutdown:

1. Switch the unit voltage-free and pressureless.
2. Release adhesive remains from hose and Applicator, which is to be disassembled.
3. Release remaining pressure from the unit.
4. Disconnect power supply lines.
5. Dismount hose from Adhesive Supply Unit and Applicator and clean it.
6. Pack components in a corrosion-proof manner.
7. Secure hose and Applicator and store in a safe place.

Continuous Shutdown and Waste Disposal

1. Switch the unit voltage-free and pressureless.
2. Release adhesive remains from hose and Applicator, which is to be disassembled.
3. Release remaining pressure from the unit.
4. Disconnect power supply lines.
5. Dismount hose from Adhesive Supply Unit and Applicator.
6. Disassemble components into mechanical and electrical assemblies.
7. Dispose of components.

Chapter 5
Maintenance and Repair Notes

5.1 Security advices for maintenance and repair

Heed all security advices given in Chapter 1.

Use only original parts from ITW Dynatec, otherwise ITW Dynatec's warranty is void!

Maintenance and repair work is only permitted for skilled personnel!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or heavy burns!

High Voltage! Risk of injury and mortal danger!

- All electrical connections must be made by qualified electrical personnel.
- Care must be taken to assure proper grounding prior to any disassembly.
- Lockout and tag the electrical sources as required.
- Make sure there is no electrical power on the leads you will be connecting.
- When covers are removed, high voltage sources create an electrocution hazard.
- Wear appropriate safety equipment when working with high voltage sources.

Parts and surfaces of the unit get very hot. High temperatures! Risk of heavy burns!

High adhesive temperature and adhesive pressure! Risk of injury or heavy burns!
Always assume that the system is under pressure, proceed with caution.

Keep a cool-pack, or bucket of clean water near the work area.

Place a heat-resistant catchment container/underlay under the components. Hot adhesive may come out.

CAUTION: At working temperature, molten adhesive could cause heavy burns. Let spilled out adhesive cool down first, before removing it!

CAUTION: Use only lint-free cleaning cloth and suitable cleaner for cleaning! Do not damage surfaces! Do not scratch above them with sharp-edged tools, otherwise the components will get leaky and inoperable!

All maintenance and repair work has to be done at working temperature, except as noted otherwise. Else there is a risk of damaging the unit components!

Before any service work disconnect the external power supply and switch the unit voltage-free:

1. ,Switch off the main switch and the controller.
2. Disconnect the power supply respectively remove the plug / cable.
3. Guard the unit against unauthorized restarting!

Before any service work the adhesive pressure must be relieved throughout the system. Switch the unit pressureless:

1. Disconnect the pressure air supply.
2. Turn the pressure regulator to zero bar, if necessary. Wait approximately 1 minute until the pressure is relieved.

5.2 Cleaning the Applicator

ADVICE

Heed all security advices given in chapter 5.1.

MAINTENANCE

Check the Applicator regularly for dirt. Dirt can be caused e.g. by burned adhesive and pile up at the supply part, application module or nozzle.

When cleaning, adhere to the actual safety data sheet of the manufacturer of the cleaner!

CAUTION

PUR-adhesives react with air humidity. To avoid blocked nozzles or Applicators, these parts have to be protected airproof with PUR cleaner immediately after production stop or the whole unit must be purged with PUR cleaner.

Nozzles could be protected e.g. with protection caps filled with PUR-cleaner, mounted immediately after production stop.

Cleaning the Applicator from the adhesive residues:

1. Stop adhesive supply/ all motors.
2. Switch the unit voltage-free and pressureless! Refer to the Adhesive Supply Unit manual.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out!
5. Clean the Applicator from adhesive residues by using a wooden scraper or lint-free cloth with thinner or cleaner.

   CAUTION: Do not damage the Applicator with sharp-edged or metallic objects or tools.

After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.

CAUTION

- **Before each start of production, purge the Applicator,** i.e. let the adhesive flow out until the adhesive is clean and bubble free.

  Thereafter switch off the adhesive and clean the nozzle from adhesive.

  Continue production.

5.3 Purging the Filter Element

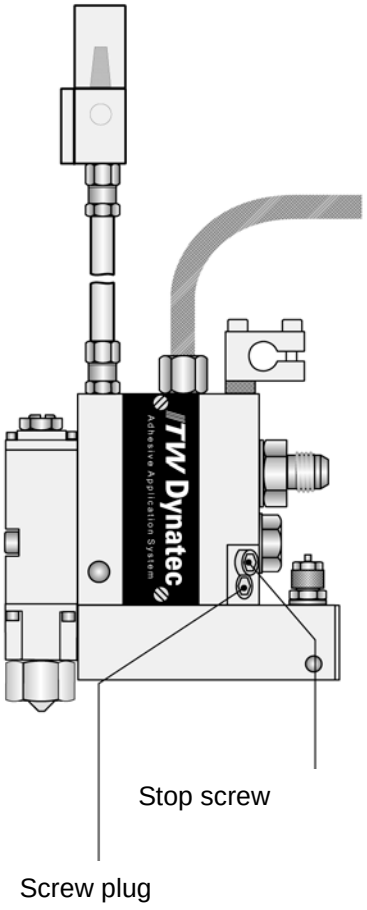
ADVICE

Heed all security advices given in chapter 5.1.

MAINTENANCE

For preventive maintenance and avoidance of malfunctioning, we recommend replacing the filter element after ca. 200 operational hours.

1. Stop adhesive supply/ all motors.
2. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out.
3. Switch on adhesive supply.
4. Screw out the screw plug using a SW5 hexagon socket screw key until the stop screw is reached. When unscrewing the screw plug, adhesive will come out from the outlet on the underside of the supply block.
5. Let adhesive flows out until the the emerging adhesive is uncontaminated.
6. Screw the locking screw again, until it stops.



After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Continue production.

5.4 Replacing the Filter Element

ADVICE

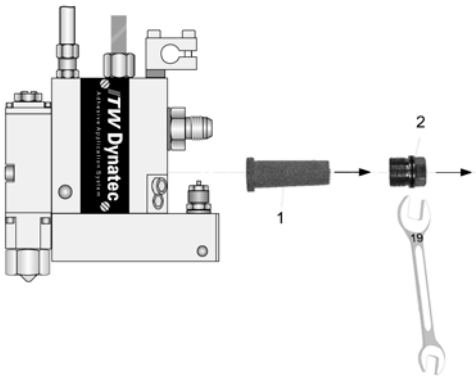
Heed all security advices given in chapter 5.1.

1. Stop adhesive supply/ all motors.
2. Switch the unit voltage-free and pressureless!
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out!
5. Open the application module by activating the solenoid valve's manual trigger. Thus, adhesive will come out of the nozzle and the system pressure will be relieved.

6. Unscrew the filter screw plug (2) using a SW19 wrench.

   Note! Check the O-ring for damage and replace it if necessary.

7. Pull out the filter element (1).
8. Insert a new filter element.
9. Lubricate the O-ring on the filter screw with heat resistant silicone grease and screw the filter screw plug again using a SW19 wrench.



Pos.	PN	Description
1	07.41200.501	Filter element 150µm, fine
	07.41200.502	Filter element 200µm, coarse
2	06.02035.019	O-ring

After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.

CAUTION

- **Before each start of production, purge the Applicator,** i.e. let the adhesive flow out until the adhesive is clean and bubble free.

  Thereafter switch off the adhesive and clean the nozzle from adhesive.

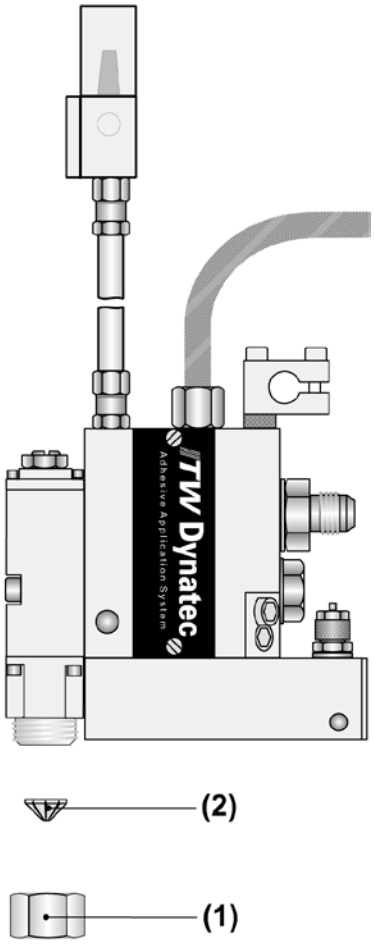
  Continue production.

5.5 Demounting and Cleaning the Nozzle

ADVICE

Heed all security advices given in chapter 5.1.

1. Stop adhesive supply/ all motors.
2. Switch the unit voltage-free and pressureless!
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out!
5. Open the application module by activating the solenoid valve's manual trigger. Thus, adhesive will come out of the nozzle and the system pressure will be relieved.
6. Unscrew the nozzle's cap nut (1) from the application module using a SW19 wrench and remove it with nozzle (2).
7. Clean the nozzle boring with nozzle cleaning tools from ITW Dynatec.
8. Assemble the nozzle in reverse order.



After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.

CAUTION

- **Before each start of production, purge the Applicator,** i.e. let the adhesive flow out until the adhesive is clean and bubble free.

  Thereafter switch off the adhesive and clean the nozzle from adhesive.

  Continue production.

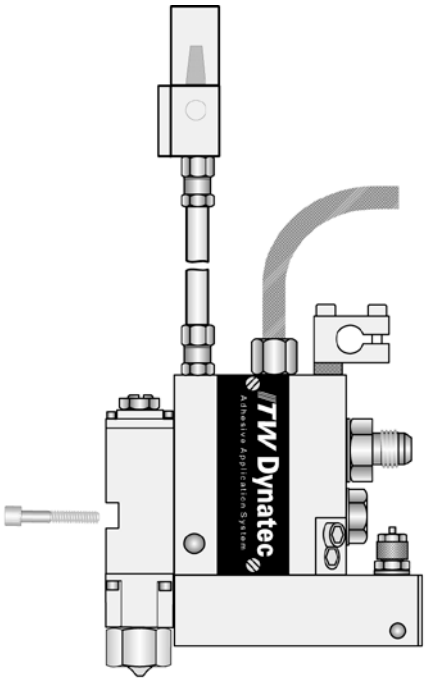
5.6 Replacing the Application Module

ADVICE

Heed all security advices given in chapter 5.1.

1. Stop adhesive supply/ all motors.
2. Switch the unit voltage-free and pressureless!
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out!
5. Open the application module by activating the solenoid valve's manual trigger. Thus, adhesive will come out of the nozzle and the system pressure will be relieved.

6. Unscrew both hexagon socket screws from the application module using a SW4 Allen wrench. Remove then the module from the supply block.
7. Take a new application module and ensure that all O-rings (1) are attached on the rear side.
8. Place the application module on the supply block and fasten it using two hexagon socket screws.



After finishing the maintenance or repair works:

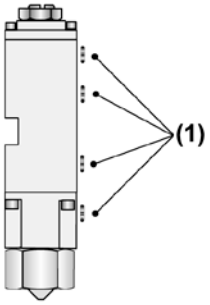
- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.

CAUTION

- **Before each start of production, purge the Applicator,** i.e. let the adhesive flow out until the adhesive is clean and bubble free.

  Thereafter switch off the adhesive and clean the nozzle from adhesive.

  Continue production.



5.7 Checking and Replacing the Heater Cartridges and Temperature Sensor

ADVICE

Heed all security advices given in chapter 5.1.

1. Stop adhesive supply/ all motors.
2. Disconnect the Applicator's plug from the hose coupling.
3. Calculate the resistance value of heater cartridges {Supply block (1) and Air heater (2)}:

$\frac{\text{Operation voltage}^2 \text{ of the Applicator (Volt)}}{\text{Power consumption of the Applicator (Watt)}}$	= Resistance (Ohm)

4. To check the **heater cartridges**, tap the pins 7 and 8 of the connector plug using an ohmmeter.

   Set the ohmmeter to the corresponding resistance range.
   Now measure the resistance of the heater cartridge.

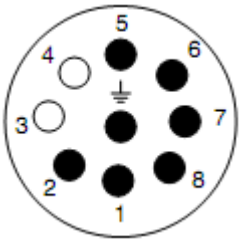
   Consider a tolerance of ± 20%.
   If the value is outside this range, then the heater cartridge must be replaced.

5. To check the **temperature sensor**, tap the pins 5 and 6 of the connector plug using an ohmmeter.

   Consider a tolerance of ± 5%.
   If the value is outside this range, then the temperature sensor must be replaced.

The resistance value of the temperature sensor is dependent on the temperature of the Applicator. In practice, resistance values of 110 - 180 ohms will be measured.

Connector plug



1	Impulse only electric head
2	Impulse only electric head
3	NC
4	NC
5	Pt 100
6	Pt 100
7	Heating
8	Heating
⏚	Protective conductor

See the next sections to replace a heater cartridge or a temperature sensor.

Resistance Tables, Temperature sensors

Temperature sensor PT 100 Ohms
Control option: DCL

Temperature °F	Temperature °C	Resistance in Ohms
32	0	100
50	10	104
68	20	108
86	30	112
104	40	116
122	50	119
140	60	123
158	70	127
176	80	131
194	90	135
212	100	139
230	110	142
248	120	146
268	130	150
284	140	154
302	150	157
320	160	161
338	170	164
356	180	168
374	190	172
392	200	176
410	210	180
428	220	183

Temperature sensor Ni 120 Ohms
Control option: NOR

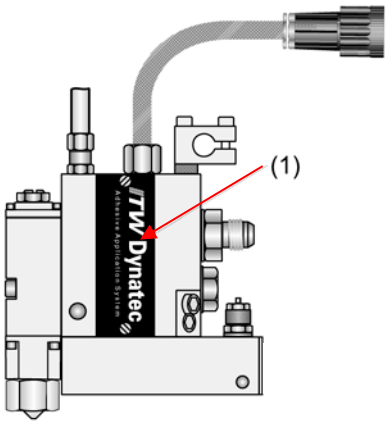
Temperature °F	Temperature °C	Resistance in Ohms
32	0	120
50	10	127
68	20	135
86	30	142
104	40	150
122	50	158
140	60	166
158	70	174
176	80	183
194	90	192
212	100	201
230	110	210
248	120	219
268	130	229
284	140	239
302	150	249
320	160	259
338	170	270
356	180	284
374	190	292
392	200	303
410	210	315
428	220	328

Replacing the Heater Cartridge in Supply Block

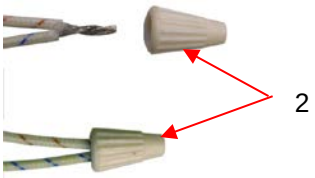
ADVICE

Heed all security advices given in chapter 5.1.

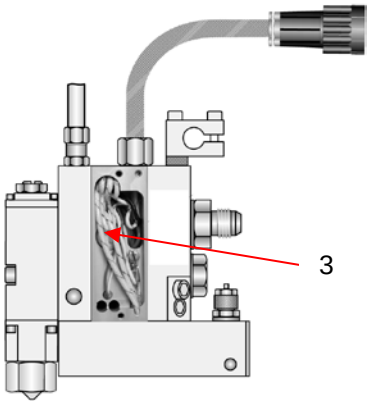
1. Stop adhesive supply/ all motors.
2. Switch the unit voltage-free and pressureless!
3. Guard the unit against unauthorized restarting!
4. Unscrew the cover (1) and remove it.



5. Unscrew the ceramic connector (2) from the lines and disconnect them.



6. Pull out the heater cartridge (3) out of the supply block; thereby follow with the connecting cable carefully.
7. Insert a new heater cartridge.
8. Twist the wires of the heater cartridge and the supply line together and screw the ceramic connector on the twisted lines. Check the connection.
9. Remount the cover.



After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.

CAUTION

- **Before each start of production, purge the Applicator,** i.e. let the adhesive flow out until the adhesive is clean and bubble free.

  Thereafter switch off the adhesive and clean the nozzle from adhesive.

  Continue production.

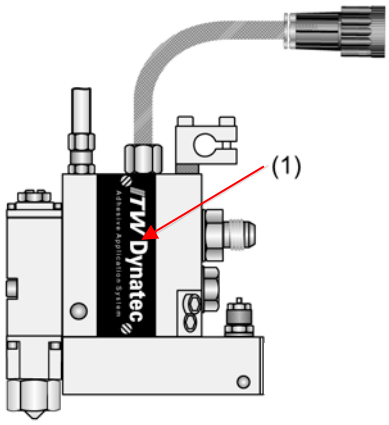
Replacing the Heater Cartridge in Air Heater

ADVICE

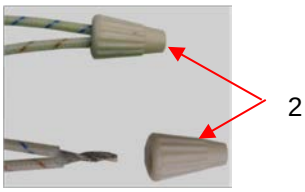
Heed all security advices given in chapter 5.1.

1. Stop adhesive supply/ all motors.
2. Switch the unit voltage-free and pressureless!
3. Guard the unit against unauthorized restarting!

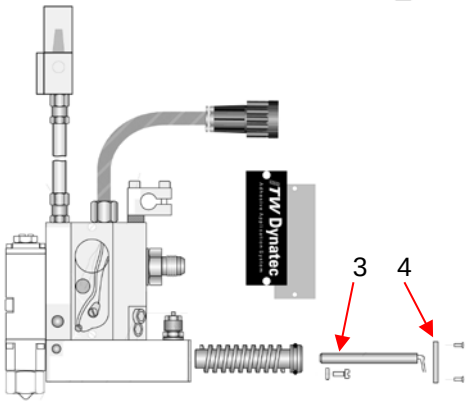
4. Unscrew the cover (1) and remove it.



5. Unscrew the ceramic connector (2) from the lines and disconnect them.



6. Unscrew the cover (4) on the rear side of the air heater.
7. Pull out the heater cartridge (3) out of the heat exchanger; thereby follow with the connecting cable carefully.
8. Insert a new heater cartridge.
9. Twist the wires of the heater cartridge and the supply line together and screw the ceramic connector on the twisted lines. Check the connection.
10. Remount the covers.



After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.

CAUTION

- **Before each start of production, purge the Applicator,** i.e. let the adhesive flow out until the adhesive is clean and bubble free.

  Thereafter switch off the adhesive and clean the nozzle from adhesive.

  Continue production.

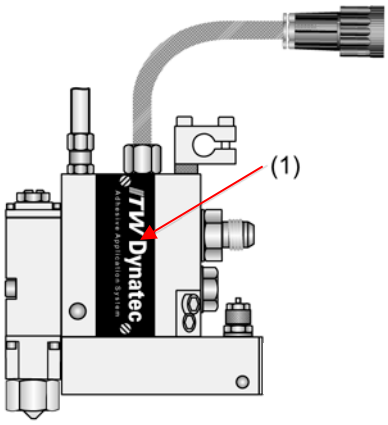
Replacing the Temperature Sensor

ADVICE

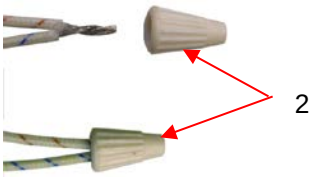
Heed all security advices given in chapter 5.1.

1. Stop adhesive supply/ all motors.
2. Switch the unit voltage-free and pressureless!
3. Guard the unit against unauthorized restarting!

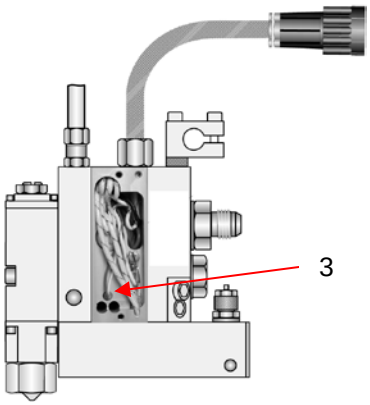
4. Unscrew the cover (1) and remove it.



5. Pull out the temperature sensor (3) out of the supply block.
6. Disconnect the cable directly at the temperature sensor.



7. Insert a new temperature sensor and shorten the cable.
8. Twist the wires of the temperature sensor and the supply line together and screw the ceramic connector (2) on the twisted lines. Check the connection.
9. Remount the cover.



After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.

CAUTION

- **Before each start of production, purge the Applicator,** i.e. let the adhesive flow out until the adhesive is clean and bubble free.

  Thereafter switch off the adhesive and clean the nozzle from adhesive.

  Continue production.

5.8 Maintenance plan

CAUTION

- Heed all security advices given in Chapter 5.1.
- Use only original parts from ITW Dynatec, otherwise ITW Dynatec's warranty is void!
- Heed the current safety data sheets when handling the hazardous substances (cleaner, etc.).
- Please use only the indicated lubricants and keep the prescribed maintenance intervals. Consider in addition the enclosed regulations of manufactures (if applicable).
- Punctual and conscientious maintenance of the unit secures not only a trouble free function, but prevents also for expensive repair costs.
- Before starting repair or maintenance work, switch the unit voltage-free and pressureless.
- After maintenance work, remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Place a heat-resistant catchment container/underlay under the components. Hot adhesive may come out.
- Use only lint-free cleaning cloth and suitable cleaner for cleaning! Do not damage surfaces! Do not scratch above them with sharp-edged tools, otherwise the components will get leaky and inoperable!

Maintenance plan:

Operating time/ frequency	Inspection point / maintenance notes
Continuous	• Remove dropped out adhesive and scrap adhesive and search for the cause of that, eliminate the cause.
Once a day	• Clean the Applicator and components from dirt. • Clean the nozzle from adhesive before each production start.
Once a week	• Perform a visual check of the tightness of the application modules and replace if necessary. • Check the solenoid valves for proper function and replace it if necessary.
Once a month	• Check the adhesive filter in the Applicator for contamination and replace if necessary. • Due to temperature differences a loosening of threads (threaded connections) is possible. Check all parts with threads, all screw fittings and fasteners for tightness and tighten them if necessary.
Once a year	• Clean the Applicator. • Complete check-up for wearing.
Every two years	• Complete maintenance.

Chapter 6
Troubleshooting

ADVICES:
Please re-read all security advices given in Chapter 1 before troubleshooting.
All troubleshooting or repair procedures must be performed by qualified, trained technicians.

The temperatures measured on the outer surface may deviate significantly from the temperatures set and displayed. This can lead to a false conclusion (e.g. defective heating). Such a difference is normal and depends also largely on the materials used.

In general: If failure occurs, check first:

- Check all the electrical and pneumatic connections.
- Verify that the Applicator has sufficient compressed air and it is heating properly.
- Verify that the main power switch of the Adhesive Supply Unit is ON.
- Verify that the pump is functioning and the required adhesive pressure is present.
- Verify that the temperature controller is in operation and that the setpoints are correct for the Melter, Heated Hoses, Applicator and all other components connected to the unit.

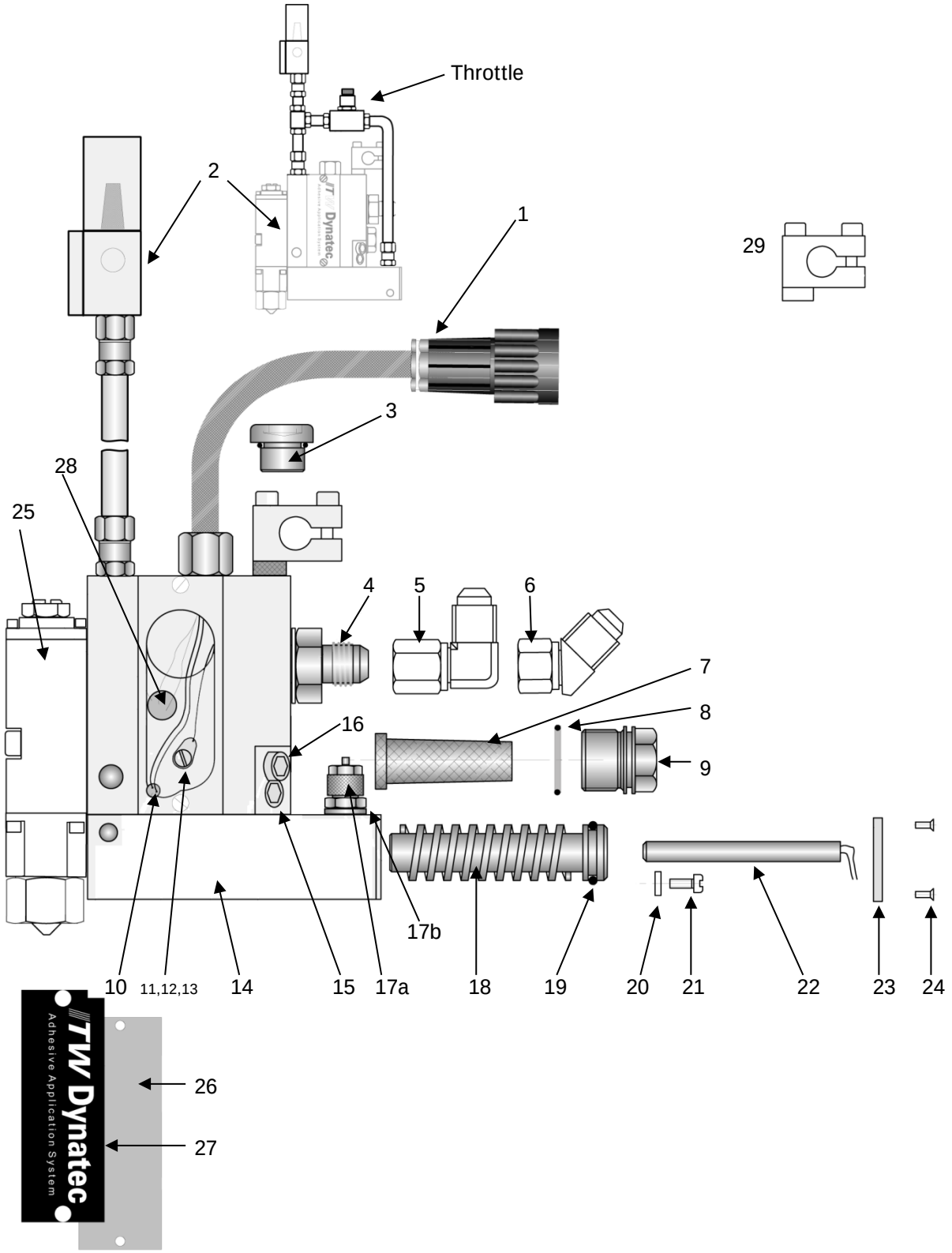
Problem	Possible Cause	Solution
Module does not open.	1. Temperature adjustment of hopper, hose or applicator is too low. 2. Solenoid defective. 3. Compressed air for Applicator is too low. 4. Standby activated.	1. Check temperature adjustment. 2. Check solenoid. 3. Check compressed air; this should be 6 bar. 4. Deactivate standby.
No adhesive flowing out of module.	1. Nozzle is clogged. 2. Filter element is dirty. 3. Module defective. 4. ASU's hopper is empty. 5. Adhesive is too cold. 6. Solenoid valve is not opening.	1. Clean or replace nozzle. 2. Clean or replace filter. 3. Replace module. 4. Re-fill hopper. 5. Check temperature settings. 6. Check solenoid valve.
Adhesive is coming out of the module's "weep" holes.	1. Module seals are damaged.	1. Check seals and replace module if necessary.
Applicator does not reach operating temperature.	1. Temperature settings wrong. 2. Heater cartridge defective. 3. Temperature sensor defective.	1. Reset temperature settings. 2. Check heater cartridge and replace if necessary. 3. Check temperature settings and replace if necessary.
Applicator is too hot	1. Temperature setpoint is too high. 2. Temperature sensor defective. 3. Controller defective.	1. Check temperature settings and reset if necessary. 2. Check temperature settings and replace if necessary. 3. Replace controller.

Problem	Possible Cause	Solution
Air escapes from module	1. O-rings located at the rear side of module are defective.	1. Remove module replace O-rings.
Application pattern is erratic	1. Adhesive pressure too low. 2. Air is in system.	1. *For units without speed control:* increase adhesive pressure at inlet pressure regulator of adhesive pump. *For units with speed control (tach follower):* adjust adhesive pressure at the controller. 2. Purge air from system.
Adhesive flow is tearing off.	1. Temperature too low.	1. Increase temperature.
Adhesive amount too high.	1. Nozzle orifice too large. 2. Temperature too high. 3. Adhesive pressure too high.	1. Change nozzle. 2. Reset temperature. 3. Decrease adhesive pressure at the Adhesive Supply Unit.

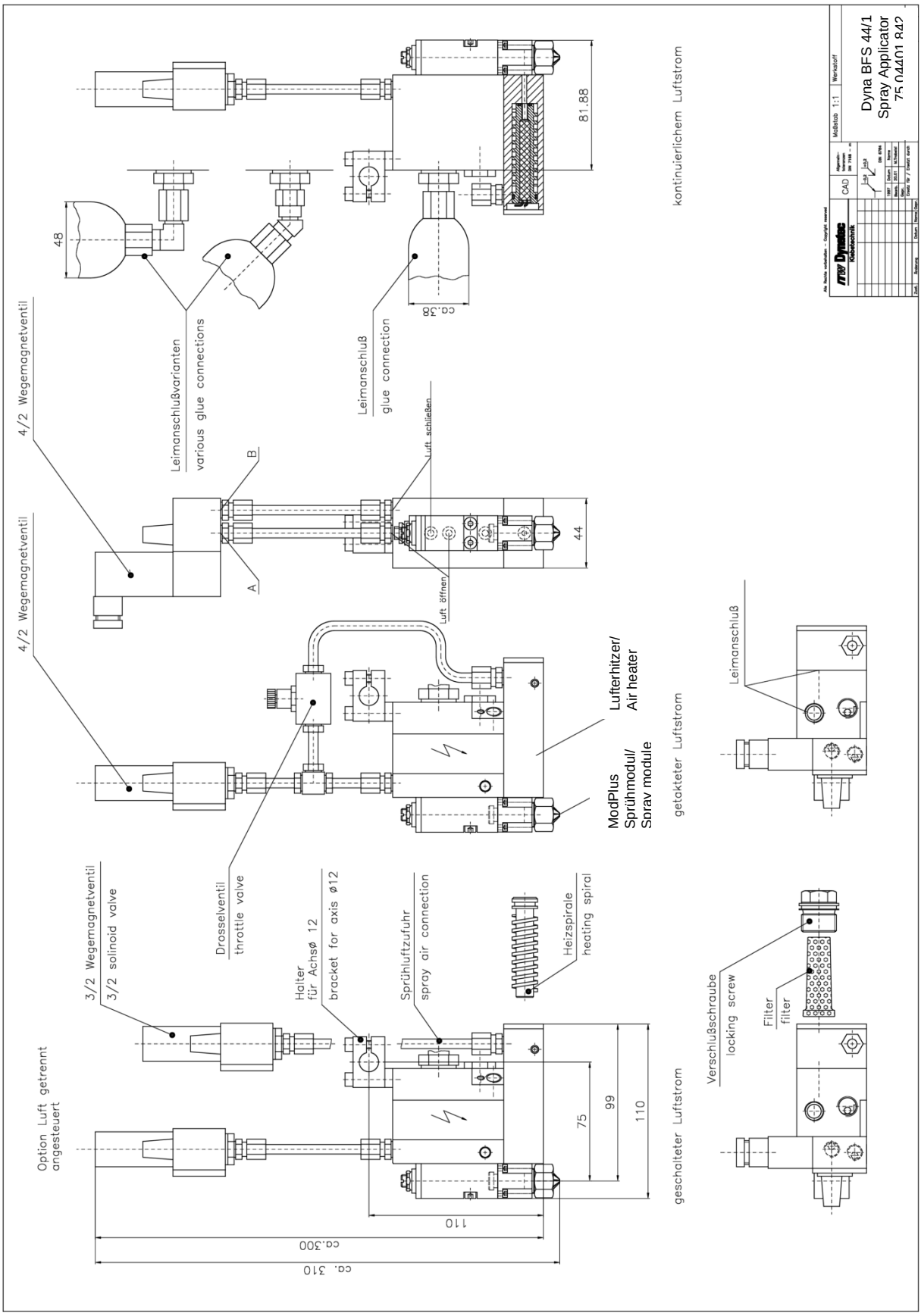
Chapter 7
Drawings & Bills of Materials

Dyna BFS Spray Applicator, PN 75.04401.842

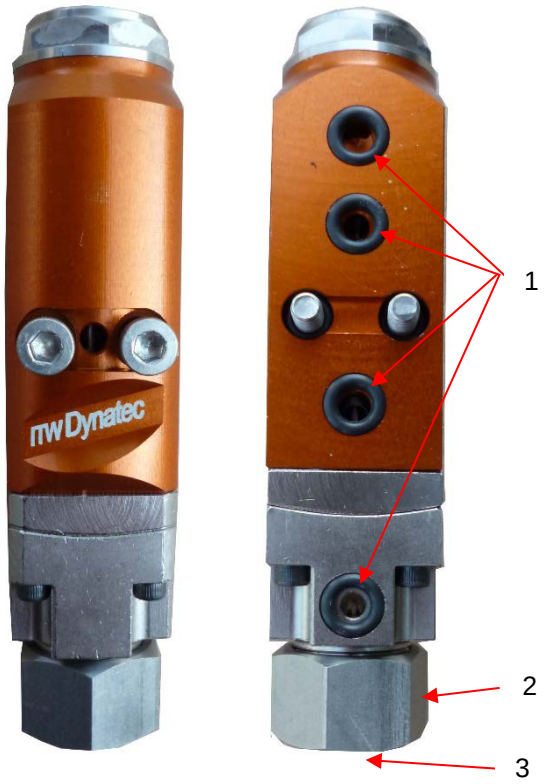
Pos.	Part Number	Description	Qty.
1	103467	Connecting cable with Pt100 (BF 44)	1
	71.00061.870	Connecting cable with Pt100 (BF 66, 88, 110, 154, 198)	1
2	07.93024.712	4/2 way solenoid valve 24V, 12,7 W	1
	07.93024.719	4/2 way solenoid valve 24V, 12,7 W, with throttle valve for BFS	1
3	00.61320.102	Plug screw G ¼	1
4	07.00600.120	Hose connection DN8, straight UNF ½ 2 OG	1
5	N07830	Swiveling screw-fitting DN8 90° UNF ½ OG	1
6	N07831	Swiveling screw-fitting DN8 45° UNF ½ OG	1
7	07.41200.502	Filter element 200µm sintered bronze	1
8	06.02035.019	O-ring di=20,35/S=1,78 mm	1
9	71.01000.359	Filter screw	1
10	05.63040.015	Temperature sensor PT100, Ø4x15mm	1
11	00.20306.084	Screw M3x6 mm	1
12	02.70320.797	Toothed washer Ø3.2	1
13	02.00320.125	Washer Ø3.2	1
14	75.04401.731	Air heater BF 44/1	1
	75.04402.731	Air heater BF 44/2	1
15	104852	Draing screw M 10 x 12	1
16	101833	Lock screw 10-32 x ½	1
17a	07.10600.117	Fitting 6/4 – 1/8“ OR	1
17b	02.11050.483	Washer Cu Ø13,5	1
18	75.04401.302	Heat exchanger	1
19	06.01242.014	O-ring di=12,42/S=1,78 mm	1
20	02.00430.021	Washer Ø4,3	1
21	00.20408.085	Slotted pan head screw M 4 x 8	1
22	05.30160.006	Heater cartridge Ø6,5 x 50 mm, 160W, 220V for air heater	1
23	75.00000.116	Cover	1
24	00.50308.963	Counter sunk slotted screw M 3 x 8	2
25	75.00000.740	ModPlus Spray module for Dyna BFS complete	1
26	75.00000.127	Sealing	2
27	103733	Cover plate	1
28	104128D	Heater cartridge Ø12,5x34mm, 200W, 240V	1
29	75.00000.002	Retainer for mounting diameter 12 mm	1



Drawing: Dyna BFS Spray Applicator, PN 75.04401.842


Dyna BFS 44/1
Spray Applicator
81.88
48
ca.38
Leimanschlußvarianten
various glue connections
Leimanschluß
glue connection
4/2 Wegemagnetventil
4/2 Wegemagnetventil
Luft schließen
Luft öffnen
44
Lufterhitzer/
Air heater
ModPlus
Sprühmodul/
Sprav module
kontinuierlichem Luftstrom
getakteter Luftstrom
geschalteter Luftstrom
Leimanschluß
3/2 Wegemagnetventil
3/2 solinoid valve
Drosselventil
throttle valve
Halter
für Achsø 12
bracket for axis ø12
Sprühluftzufuhr
spray air connection
Heizspirale
heating spiral
Option Luft getrennt
angesteuert
75
99
110
110
ca.300
ca. 310
Verschlußschraube
locking screw
Filter
filter

ModPlus Spray Module for Dyna BFS complete, PN 75.00000.740



Pos.	Part Number	Description	Qty.
1	06.00447.008	O-ring, -008 Viton	4
2	71.00790.104	Cap nut for BFS Module	1
3	95.31025.102	Spray nozzle d=0,25 mm, version high-alloyed steel	1
	95.31030.102	Spray nozzle d=0,30 mm, version high-alloyed steel	
	95.31040.102	Spray nozzle d=0,40 mm, version high-alloyed steel	
	95.31050.102	Spray nozzle d=0,50 mm, version high-alloyed steel	
	95.31060.102	Spray nozzle d=0,60 mm, version high-alloyed steel	
	95.31070.102	Spray nozzle d=0,70 mm, version high-alloyed steel	

Optional Spray Nozzle and according Cap Nut

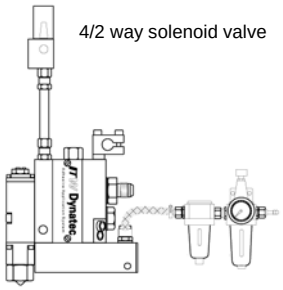
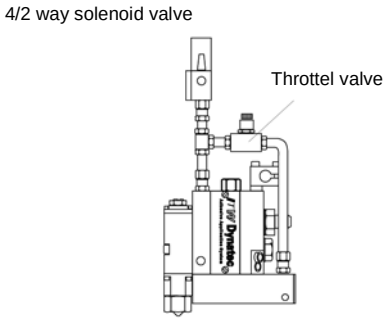
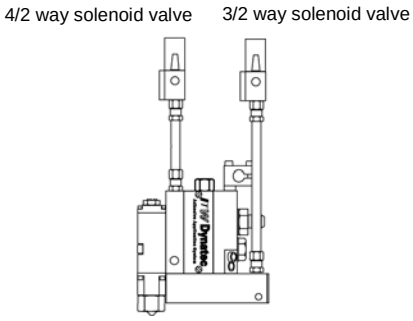
Pos.	Part Number	Description	Qty.
	I32.00012.401	Spray nozzle d=0,50 mm, groove 1 mm	1
	I32.00017.400	Spray nozzle d=0,50 mm, groove 0,50 mm	
	I32.00018.400	Spray nozzle d=0,50 mm, groove 0,75 mm	
	I32.00019.400	Spray nozzle d=0,50 mm, groove 1,25 mm	
	44.00151.400	Cap nut for BFS Module Version 2012	1

Chapter 8
Options & Accessories

Hose connections

Part Number	Description
07.00600.109	Hose connection for piston pump, straight UNF ½ OG
07.10690.101	Swiveling screw-fitting DN6 90° UNF ½ OG
07.10645.101	Swiveling screw-fitting DN6 45° UNF ½ OG

Spray air control variants

Part Number	Description	Drawing
07.93024.712	4/2 way solenoid valve 24V, 12,7 W	
07.93024.719 07.81000.005 08.00806.103	4/2 way solenoid valve 24V, 12,7 W, with throttle valve for BFS Throttle valve GR 1/8 PTFE Air hose	
07.93024.717	3/2 way solenoid valve 24 VDC, 12,7 W Accessories without throttle valve	

This page intentionally left blank.

Chapter 9
Recommended Spare Parts

Dyna BFS Spray Applicator, PN 75.04401.842

Pos.	Part Number	Description	Qty.
2	07.93024.712	4/2 way solenoid valve 24V, 12,7 W	1
	07.93024.719	4/2 way solenoid valve 24V, 12,7 W, with throttle valve for BFS	1
7	07.41200.502	Filter element 200µm sintered bronze	1
8	06.02035.019	O-ring di=20,35/S=1,78 mm	1
10	05.63040.015	Temperature sensor PT100, Ø4x15mm	1
19	06.01242.014	O-ring di=12,42/S=1,78 mm	1
22	05.30160.006	Heater cartridge Ø6,5 x 50 mm, 160W, 220V for air heater	1
25	75.00000.740	ModPlus Spray module for Dyna BFS complete	1
28	104128D	Heater cartridge Ø12,5x34mm, 200W, 240V	1

ModPlus Spray Module for Dyna BFS complete, PN 75.00000.740

Pos.	Part Number	Description	Qty.
1	06.00447.008	O-ring, -008 Viton	4
2	71.00790.104	Cap nut for BFS Module	1
3	95.31025.102	Spray nozzle d=0,25 mm, version high-alloyed steel	1
	95.31030.102	Spray nozzle d=0,30 mm, version high-alloyed steel	
	95.31040.102	Spray nozzle d=0,40 mm, version high-alloyed steel	
	95.31050.102	Spray nozzle d=0,50 mm, version high-alloyed steel	
	95.31060.102	Spray nozzle d=0,60 mm, version high-alloyed steel	
	95.31070.102	Spray nozzle d=0,70 mm, version high-alloyed steel	

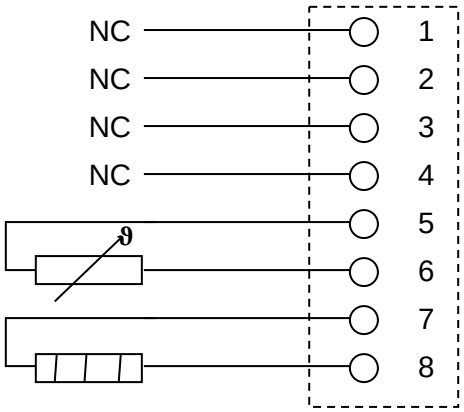
Optional Spray Nozzle and according Cap Nut

Pos.	Part Number	Description	Qty.
	I32.00012.401	Spray nozzle d=0,50 mm, groove 1 mm	1
	I32.00017.400	Spray nozzle d=0,50 mm, groove 0,50 mm	
	I32.00018.400	Spray nozzle d=0,50 mm, groove 0,75 mm	
	I32.00019.400	Spray nozzle d=0,50 mm, groove 1,25 mm	
	44.00151.400	Cap nut for BFS Module Version 2012	1

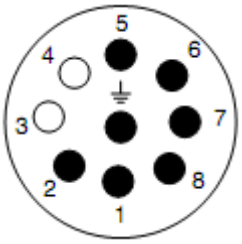
This page intentionally left blank.

Chapter 9
Schematics

Dynatec plug



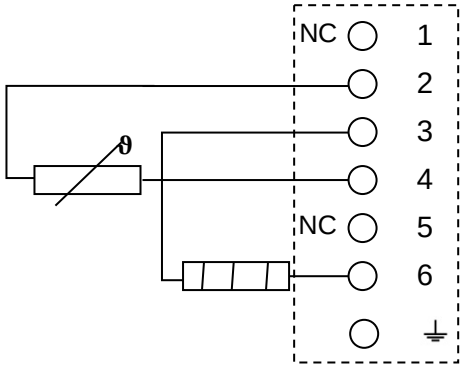
Connecting plug



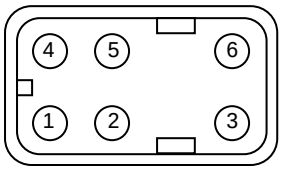
Connections showed from front

1	NC
2	NC
3	NC
4	NC
5	Temperature sensor Pt100
6	Temperature sensor Pt100
7	Heating
8	Heating
⏚	Protective conductor

Nordson plug



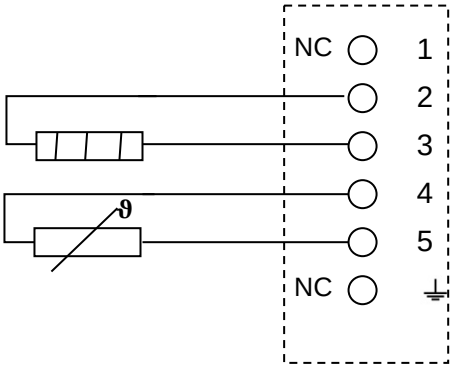
Connecting plug



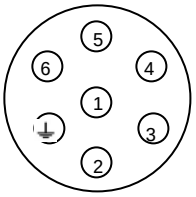
Connections showed from front

1	Protective conductor
2	Temperature sensor Ni 120, Head
3	Heating, Head
4	Temperature sensor Ni 120, Head
5	NC
6	Heating , Head
⏚	Protective conductor

Euchner plug



Connecting plug



Connections showed from front

1	NC
2	Heating
3	Heating
4	Temperature sensor Pt100
5	Temperature sensor Pt100
⏚	Protective conductor

This page intentionally left blank.

This page intentionally left blank.

ITW Dynatec Service Parts and Technical Service:

AMERICAS

ITW Dynatec
31 Volunteer Drive
Hendersonville, TN 37075
USA
Tel. +1.615.824.3634
info@itwdynatec.com
service@itwdynatec.com

EUROPE, MIDDLE EAST & AFRICA

ITW Dynatec
Industriestrasse 28
40822 Mettmann
Germany
Tel. +49.2104.915.0
info@itwdynatec.de
service@itwdynatec.de

ASIA PACIFIC

ITW Dynatec
Unit2, B1 Building
No.9 Weixin Road
SIP, Suzhou, 215122
China
Tel. +86.512.6289.0620
info@itwdynatec.cn
service@itwdynatec.cn

ITW Dynatec
Tsukimura Building 5th Floor
26-11, Nishikamata 7-chome
Ota-ku, Tokyo 144-0051,
Japan
Tel. +81.3.5703.5501
info@itwdynatec.co.jp
service@itwdynatec.co.jp