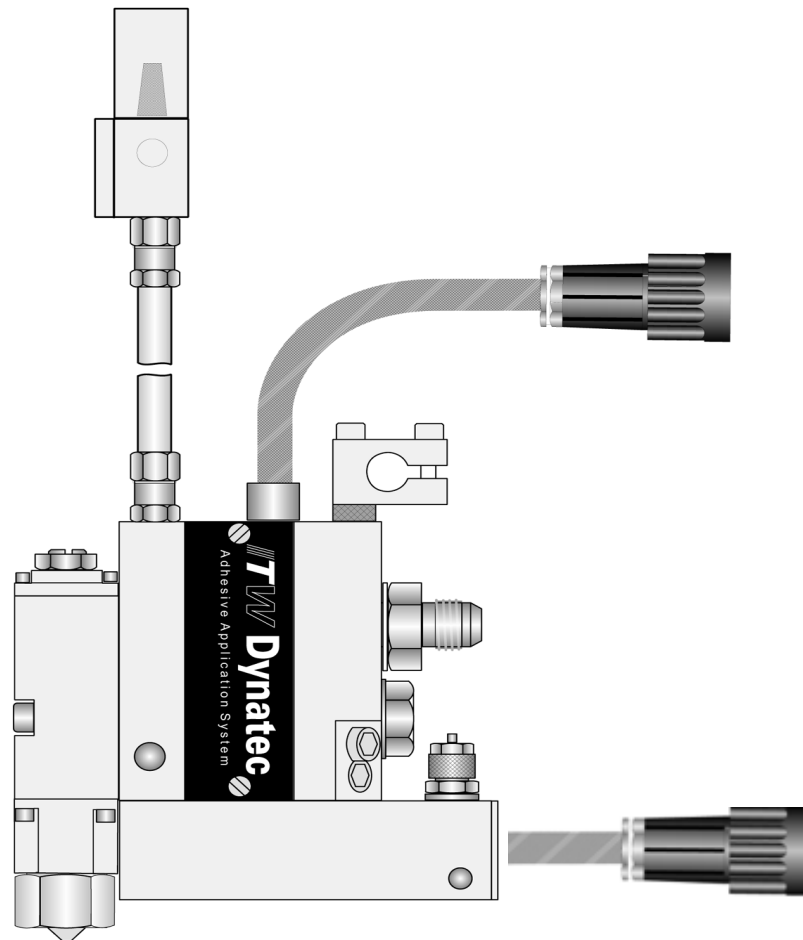


Dyna BFS Spray Applicator

PN 75.04401.842, Dyna BFS-44/1, with 1 connection cable
PN 75.04401.844, Dyna BFS-44/1, with 2 connection cables

Technical Documentation, No.40-78, Rev.10.25
English - Translation of the original instructions (German)



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.

NOTICE:

Most common screws, nuts and washers called out in the manual are not for sale and they can be obtained locally at your hardware Store. Specialty fasteners are available by contacting ITW Dynatec's Customer Service.

ITW Dynatec Service Parts and Technical Service:

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Chapter 1

Safety Instructions

1.1 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. Read and follow these instructions.
Failure to do this could result in severe personal injury or death.
2. 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.
3. Additional safety instructions and/ or symbols are located throughout this manual. They serve to warn maintenance personnel and operators about potentially hazardous situations.
4. Inspect the machine for unsafe conditions daily and replace all worn or defective parts.
5. Keep work area uncluttered and well lit. Remove all material or things not needed for the production from the workspace of the equipment!
6. All covers and guards must be in place before operating this equipment.
7. Subject to technical modifications without notice!
8. To ensure proper operation of the equipment, use specified electrical and/ or air supply sources.
9. Do not attempt to alter the design of the equipment unless written approval is received from ITW Dynatec.
10. Keep all manuals readily accessible at all times and refer to it often for the best performance from your equipment.

1.2 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.

1.3 Safety Symbols in this Manual

Mandatory signs

	General mandatory sign		Wear foot guard!
	Read and adhere to the documentation!		Wear protective gloves!
	Switch the unit voltage-free before working! Main switch OFF!		Wear protective clothing!
	Wear headgear, protective goggles and ear protection!		

Warning signs

NOTE: The dangers and risks exist if the corresponding instructions are not heeded and the precautionary measures are not taken!

	Caution, danger spot! This sign points to possible dangers for life and physical condition or to possible risks for machine and material or to possible risks for environment. The word “ DANGER ” in addition with this points to possible dangers of life The words “ WARNING ” and “ CAUTION ” in addition with this sign point to possible risks of injury. The word “ ADVICE ” in addition with this sign points to possible risks for machine, material or environment.		Danger, high voltage! This sign points to possible dangers for life and physical condition caused by electricity. Risk of injury, mortal danger!
			Caution, hot surface! This sign points to possible risks of burns. Risk of Burns!
			Caution, high pressure! This sign points to possible risks of injury caused by high pressure. Risk of injury!
			Caution, rotating rolls! This sign points to possible risks of injury caused by inrunning nip (at rolls). Risk of injury!

Prohibition signs

	Fire danger! Smoking prohibited!		Fire danger! Fire and open flames prohibited!
---	---	--	--

1.4 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!



Smoking, fire and open flames prohibited! Fire danger!

Make absolutely sure that there is no smoking and no fire being lit in the work area!

1.5 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.

1.6 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.

1.7 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.

1.8 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.

1.9 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.

1.10 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.

1.11 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.

1.12 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).

1.13 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.)!

1.14 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.

1.15 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.

1.16 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.

1.17 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 do 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

2.1.1 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.

2.1.2 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.

2.1.3 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.

2.1.4 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.

2.1.5 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.

2.1.6 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 Description of Dyna BFS Spray Applicator

2.2.1 Description

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

Dyna BFS Spray Applicator is available in two widths, with one, two or four application modules. Refer to illustrations in Ch.2.2.3.

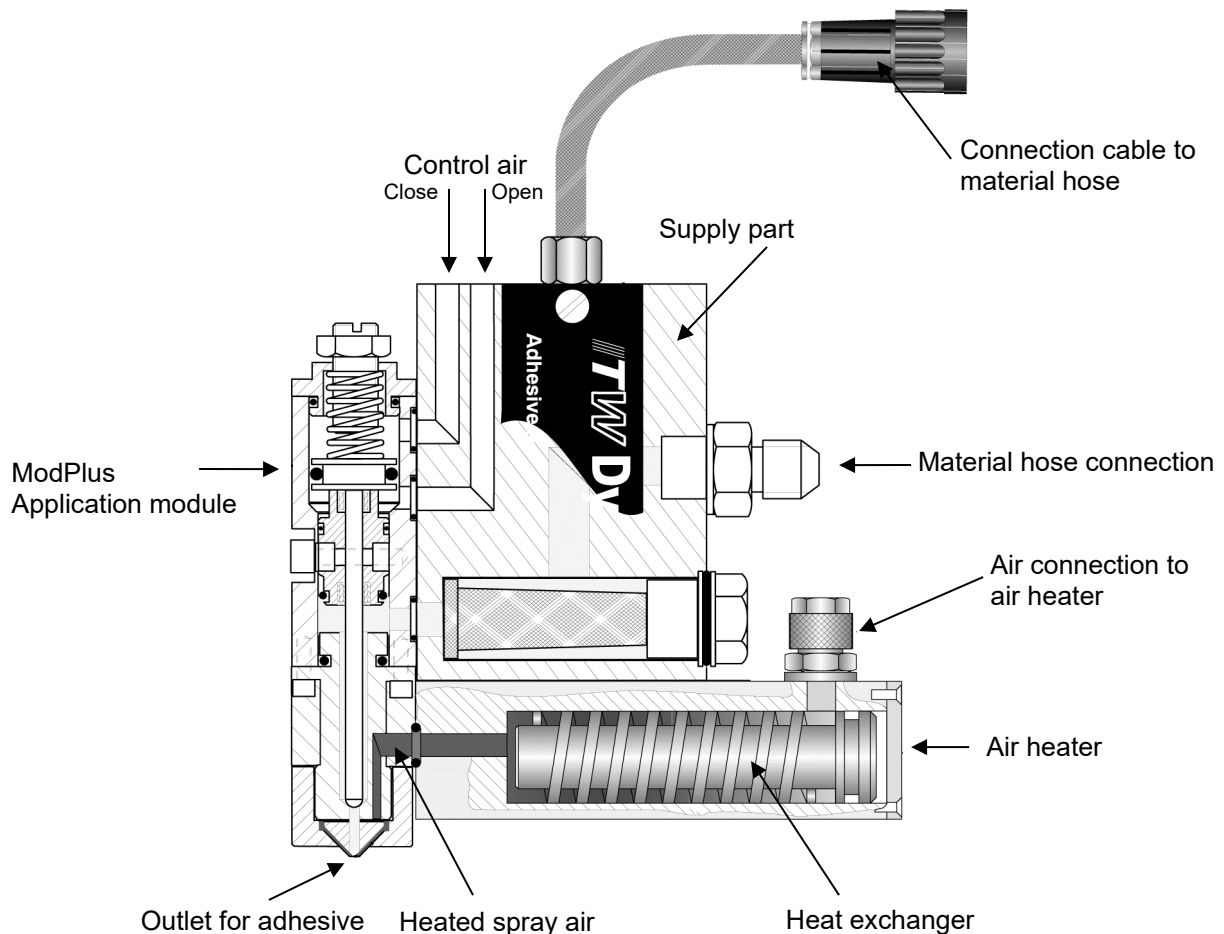
The Dyna BFS can be equipped with one or two connection cables.

In the version with one connection cable, the supply part and the air heater are controlled together and in the version with two connection cables, the supply part and the air heater are controlled separately.

Function:

The Dyna BFS Spray Applicator consists of a heated supply part, a ModPlus application module and an air heater. The supply part and air heater are heated electrically and maintained at a constant temperature. The adhesive is supplied through a channel in the supply part to the application module by means of a hose connection. The ModPlus application module is opened and closed pneumatically. When the piston is moved upwards, the adhesive runs out of the nozzle.

Compressed air, which will be heated in a heat exchanger, is also supplied to the air heater which is situated on the underside of the supply part. 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.



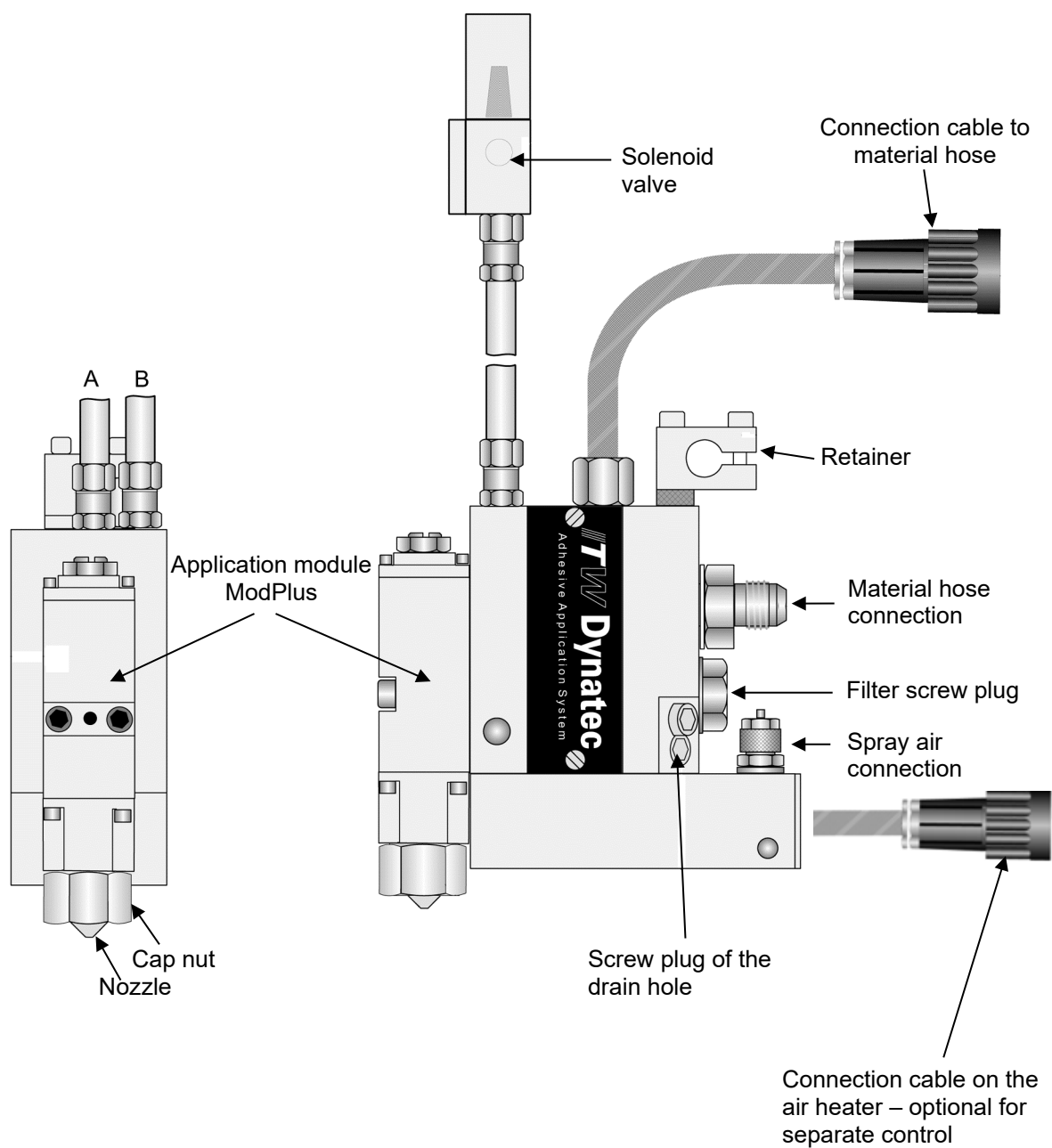


Illustration: Component classification

2.2.2 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:

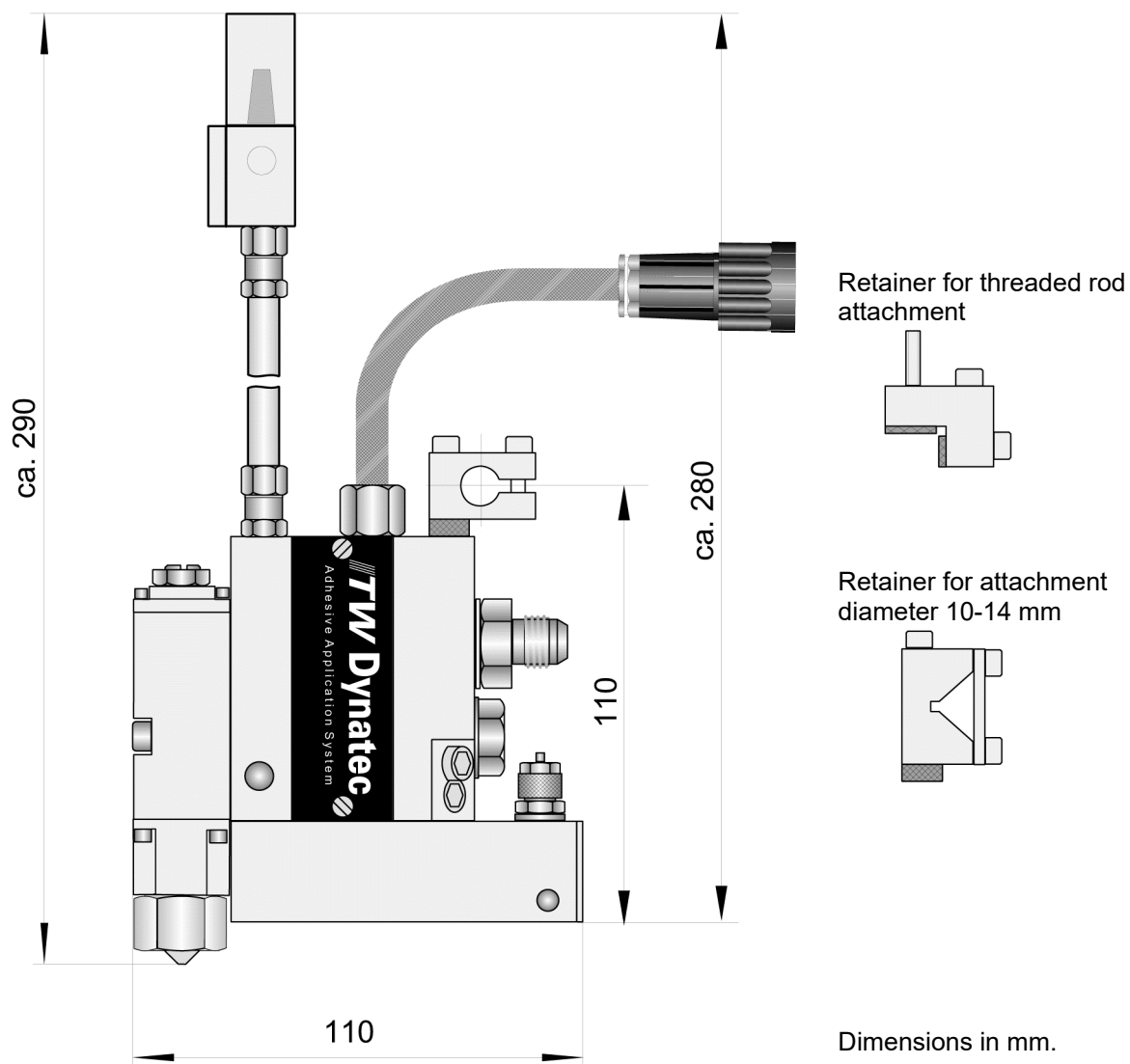
Dimensions	see dimensional layouts on following page
Hose connection	1x
Filter	1x
Heater cartridge Supply part	1x
Heater cartridge Air Heater	1x

Electrical:

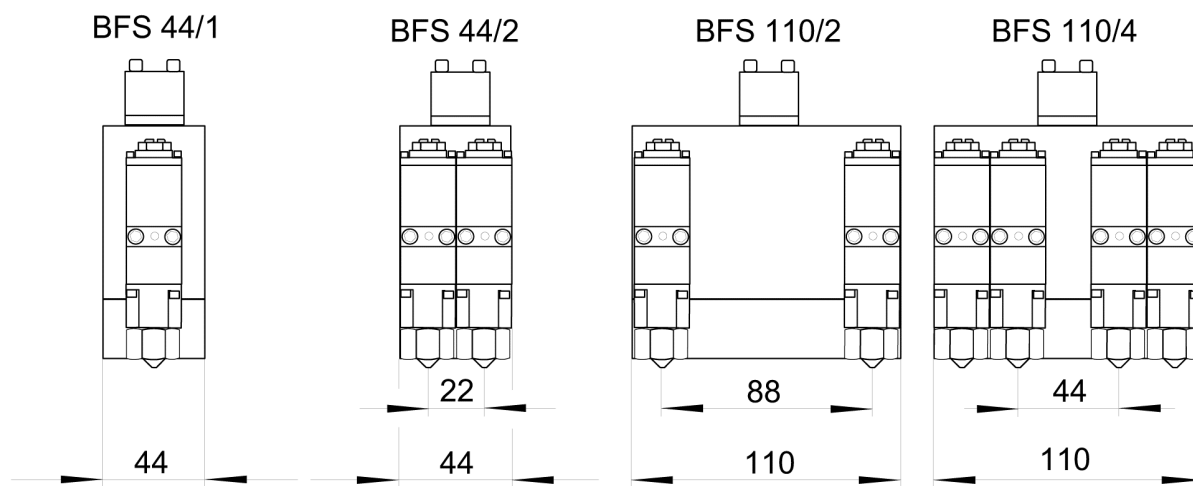
Power supply	240V
Power consumption, system maximum	360W
Temperature sensor	1x, PT 100

Performance:

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

2.2.3 Dimensions Dyna BFS Spray Applicator

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



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.

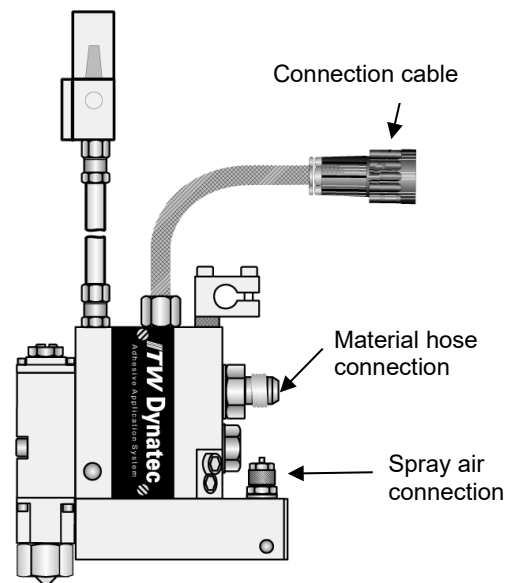


WARNING

- 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.

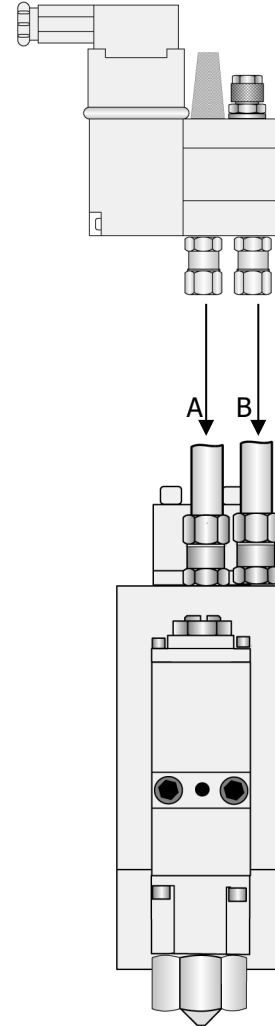


5. Mount the solenoid valve to the Applicator (refer to illustration).
6. Connect the connector cable to the socket of the solenoid valve coil. Then connect the plug onto the coil body and tighten the fastening screw.

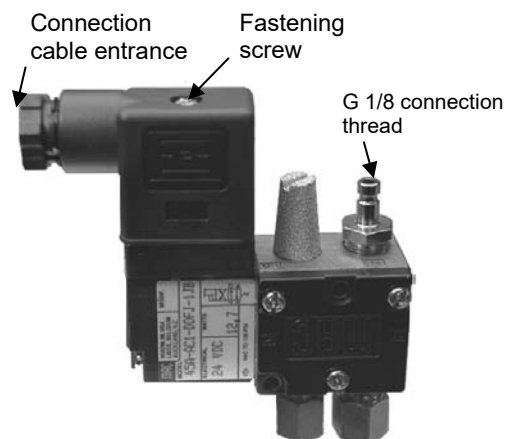
Note:

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

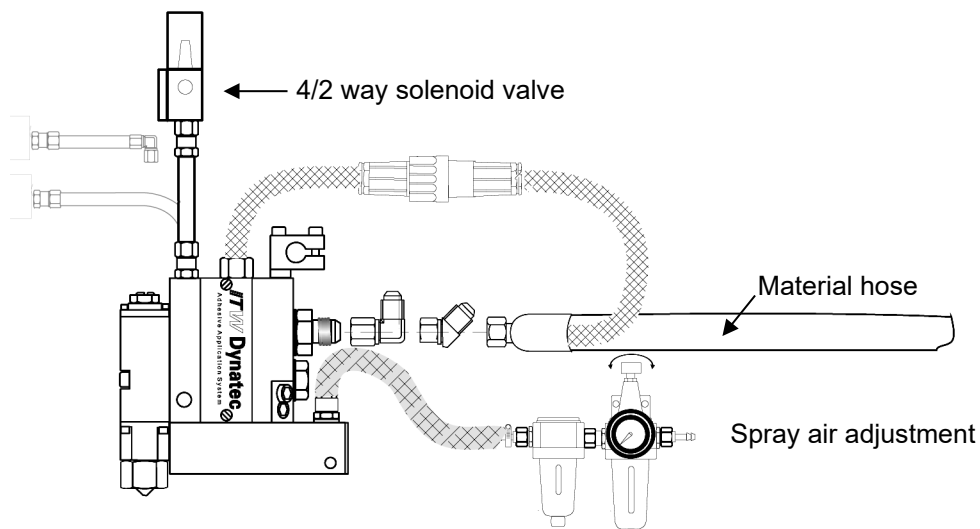


7. Screw the air connection into the valve using a G1/8 thread screw. (Use Cu-sealing washers only).
8. Connect the Applicator's connection cable to the material hose.

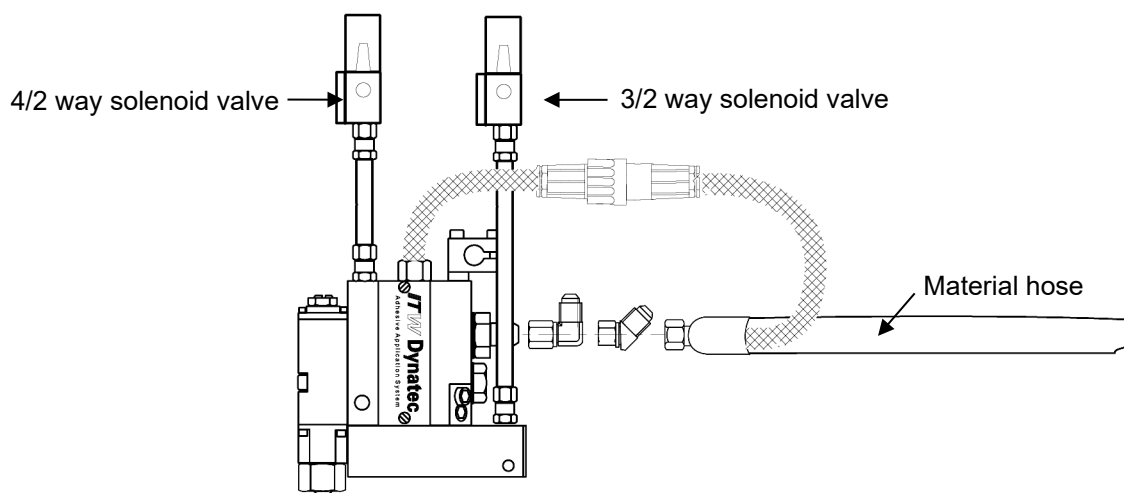


3.2.1 Installation Variants

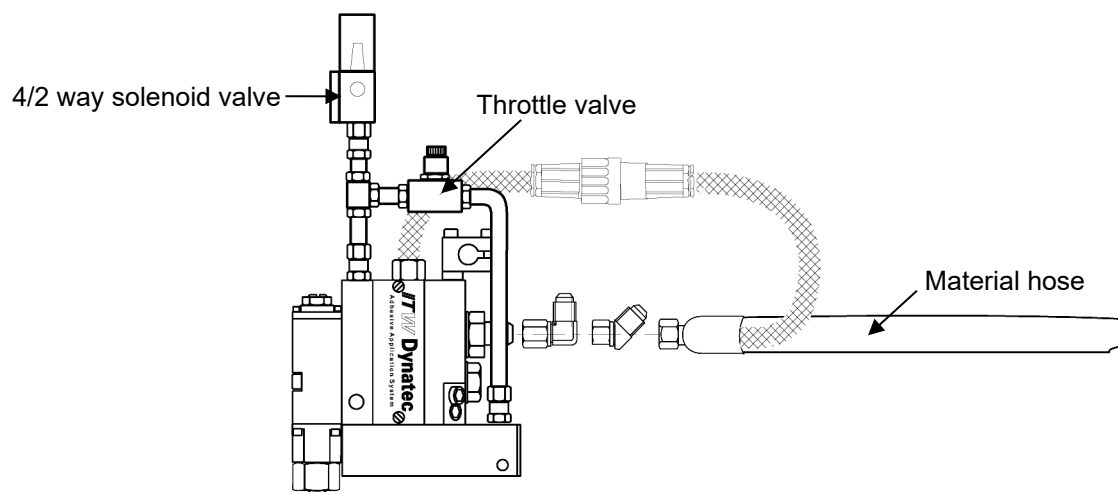
Adjustable and unswitched spray air



Separately switched spray air



Adjustable and commonly switched spray air



3.2.2 Quality of compressed Air



CAUTION

- In any case, the air has to be clean and dry!
- The min. requirement for compressed air supply to solenoids to control automatic Applicators is ISO 8573-1:2010 class 2:4:3.
- We recommend installing the ITW Dynatec's Air Control Kit PN 100055 (see Appendix).

Compressed air quality classes according to ISO 8573-1:2010 class 2:4:3:

ISO 8573-1: 2010	Solid particles				Water		Oil
Class	Maximum number of particles per m ³			Mass concentration mg/m ³	Vapor pressure dew point °C	Liquid g/m ³	Total oil content (liquid, aerosol and mist) mg/m ³
	0.1-0.5 µm	0.5-1 µm	1-5 µm				
0	As stipulated by the equipment user, stricter requirements than class 1.						
1	≤ 20,000	≤ 400	≤ 10	-	≤ -70	-	0.01
2	≤ 400,000	≤ 6,000	≤ 100	-	≤ -40	-	0.1
3	-	≤ 90,000	≤ 1,000	-	≤ -20	-	1
4	-	-	≤ 10,000	-	≤ +3	-	5
5	-	-	≤ 100,000	-	≤ +7	-	-
6	-	-	-	≤ 5	≤ +10	-	-
7	-	-	-	5-10	-	≤ 0.5	-
8	-	-	-	-	-	0.5 - 5	-
9	-	-	-	-	-	5 - 10	-
X	-	-	-	> 10	-	> 10	> 10

Chapter 4

Start-up, Shutdown

4.1 Advices for start-up



ADVICE

Start with start-up operation only if

- 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.



Heed 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.

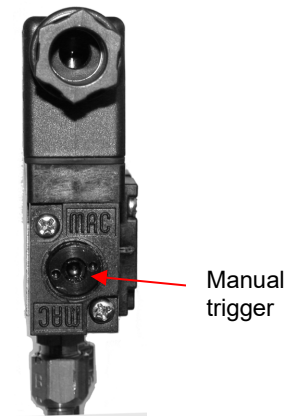
	CAUTION! Risk of burns and injury! • The unit operates with very high temperatures and high adhesive pressure. • Hot adhesive/ oil comes out of the Applicator/ hoses! • Always wear heat-resistant protective gloves and safety goggles! Molten adhesives at operating temperature could cause heavy burns. • 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 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!

CAUTION: 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.

3. 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.
Or, screw out the screw plug using a SW5 hexagon socket screw key until the stop screw is reached. When unscrewing the screw plug, the adhesive (remaining pressure) will come out from the outlet on the underside of the supply part. See Ch. 5.3.

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!



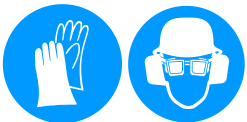
CAUTION

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.



CAUTION! Risk of burns and injury!



- The unit operates with very high temperatures and high adhesive pressure.
- During this procedure, hot adhesive can come out of the applicator under high pressure.
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

Cleaning the Applicator from the adhesive residues:

1. The applicator must be at operating temperature.
2. Turn the ASU's pump/ motor OFF.
Switch the unit voltage-free and pressureless.
Turn the air pressure regulator to zero bar.
Guard the unit against unauthorized restarting.
3. Place a heat-resistant catchment container/underlay under the Applicator.
Hot adhesive may come out!
4. Clean the Applicator from adhesive residues by using a wooden scraper or lint-free cloth with 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 Adhesive Pressure Relief

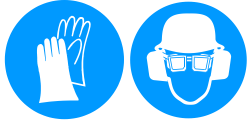


ADVICE

Heed all security advices given in chapter 5.1.

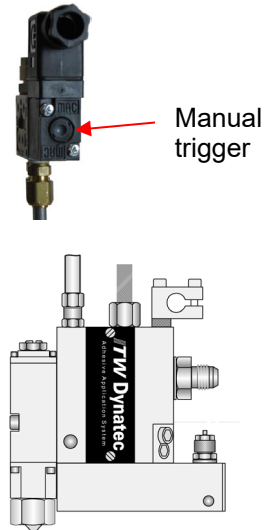


CAUTION! Risk of burns and injury!



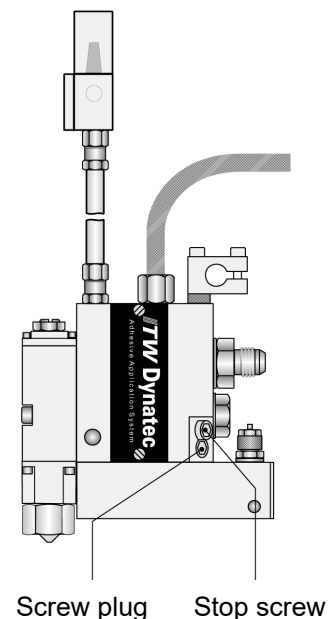
- The unit operates with very high temperatures and high adhesive pressure.
- During this procedure, hot adhesive can come out of the applicator under high pressure.
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

1. The applicator must be at operating temperature.
2. Turn the ASU's pump/ motor OFF.
Switch the unit voltage-free and pressureless.
Turn the air pressure regulator to zero bar.
Guard the unit against unauthorized restarting.
3. Place a heat-resistant catchment container/underlay under the Applicator.
Hot adhesive may come out!
4. 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.



Second way to relieve the adhesive pressure:

1. The applicator must be at operating temperature.
2. Turn the ASU's pump/ motor OFF.
Switch the unit voltage-free and pressureless.
Turn the air pressure regulator to zero bar.
Guard the unit against unauthorized restarting.
3. Place a heat-resistant catchment container/underlay under the Applicator.
Hot adhesive may come out!
4. Screw out the screw plug using a SW5 hexagon socket screw key until the stop screw is reached.
When unscrewing the screw plug, the adhesive (remaining pressure) will come out from the outlet on the underside of the supply part.
5. Stand clear since there may be residual adhesive pressure in the applicator.
6. When the adhesive pressure is relieved, 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.
- 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.

5.4 Purging the Filter Element



ADVICE

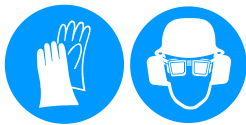
Heed all security advices given in chapter 5.1.

MAINTENANCE

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



CAUTION! Risk of burns and injury!

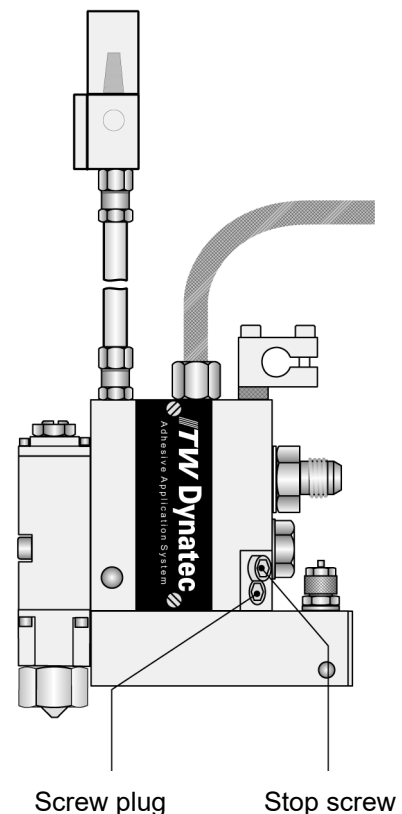


- The unit operates with very high temperatures and high adhesive pressure.
- During this procedure, hot adhesive can come out of the applicator under high pressure.
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

1. The applicator must be at operating temperature.
2. Stop adhesive supply/ all motors.
3. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive will come out.
4. Switch on adhesive supply.
5. Screw out the screw plug using a SW5 hexagon socket screw key until the stop screw is reached. When unscrewing the screw plug, the adhesive will come out from the outlet on the underside of the supply part.

Stand clear since there may be residual adhesive pressure in the applicator.

6. Let adhesive flows out until the emerging adhesive is uncontaminated.
7. 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.

5.5 Replacing the Filter Element

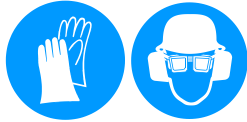


ADVICE

Heed all security advices given in chapter 5.1.



CAUTION! Risk of burns and injury!



- The unit operates with very high temperatures and high adhesive pressure.
- During this procedure, hot adhesive can come out of the applicator under high pressure.
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!



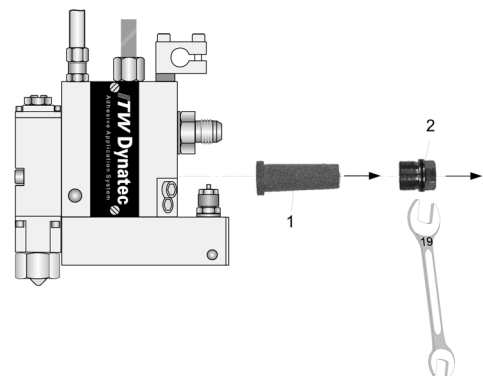
1. The applicator must be at operating temperature.
2. Turn the ASU's pump/ motor OFF.
Switch the unit voltage-free and pressureless.
Turn the air pressure regulator to zero bar.
Guard the unit against unauthorized restarting.
3. Place a heat-resistant catchment container/underlay under the Applicator.
Hot adhesive may come out!
4. 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.
5. Unscrew the filter screw plug (2) using a SW19 wrench.

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

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



Manual trigger



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.

5.6 Demounting and Cleaning the Nozzle

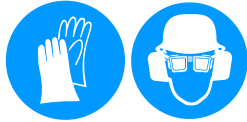


ADVICE

Heed all security advices given in chapter 5.1.



CAUTION! Risk of burns and injury!



- The unit operates with very high temperatures and high adhesive pressure.
- During this procedure, hot adhesive can come out of the applicator under high pressure.
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!



1. The applicator must be at operating temperature.
2. Turn the ASU's pump/ motor OFF.
Switch the unit voltage-free and pressureless.
Turn the air pressure regulator to zero bar.
Guard the unit against unauthorized restarting.
3. Place a heat-resistant catchment container/underlay under the Applicator.
Hot adhesive may come out!
4. 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.
5. Unscrew the nozzle's cap nut (1) from the application module using a SW19 wrench and remove it with nozzle (2).
6. Clean the nozzle boring with nozzle cleaning tools from ITW Dynatec.
7. Assemble the nozzle in reverse order.



Manual trigger

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.

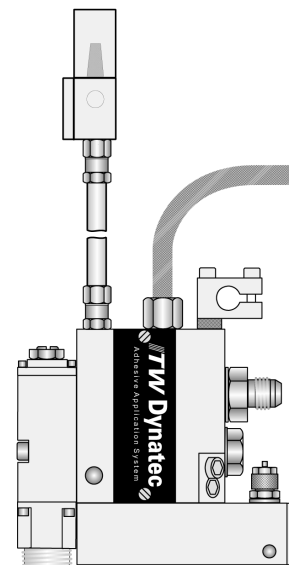


CAUTION

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.



(2)

(1)

5.7 Replacing the Application Module

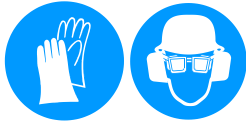


ADVICE

Heed all security advices given in chapter 5.1.



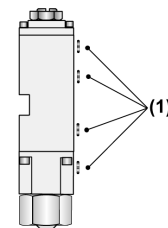
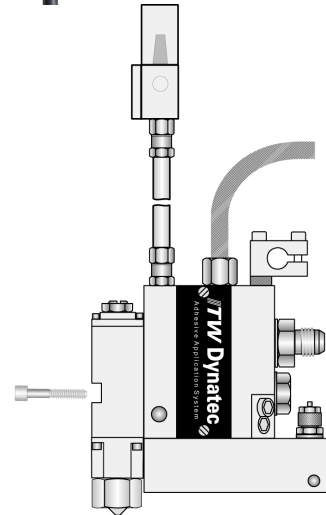
CAUTION! Risk of burns and injury!



- The unit operates with very high temperatures and high adhesive pressure.
- During this procedure, hot adhesive can come out of the applicator under high pressure.
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!



1. The applicator must be at operating temperature.
2. Turn the ASU's pump/ motor OFF.
Switch the unit voltage-free and pressureless.
Turn the air pressure regulator to zero bar.
Guard the unit against unauthorized restarting.
3. Place a heat-resistant catchment container/underlay under the Applicator.
Hot adhesive may come out!
4. 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.
5. Unscrew both hexagon socket screws from the application module using a SW4 Allen wrench. Remove then the module from the supply part.
6. Take a new application module and ensure that all O-rings (1) are attached on the rear side.
7. Place the application module on the supply part 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.

5.8 Checking and Replacing the Heater Cartridges and Temperature Sensor



ADVICE

Heed all security advices given in chapter 5.1.

Only authorized skilled personnel may carry out the following work.



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 part (1) and Air heater (2)}:

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

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

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

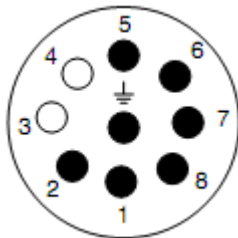
Consider a tolerance of $\pm 20\%$.
If the value is outside this range, then the heater cartridge must be replaced.

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

Consider a tolerance of $\pm 5\%$.
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.

Connection cable



- | | |
|---|----------------------------|
| 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.

5.8.1 Resistance Tables, Temperature sensors

Temperature sensor PT 100 Ohms
Control option: DCL

Temperature °F	°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	°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

5.8.2 Replacing the Heater Cartridge in Supply part

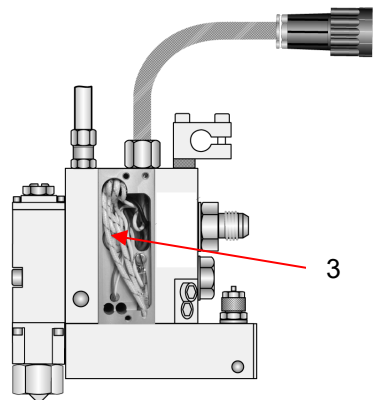
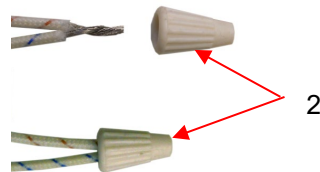
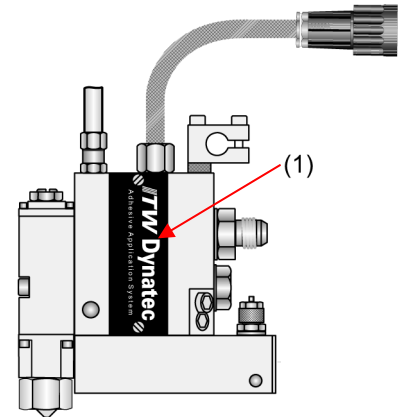


ADVICE

Heed all security advices given in chapter 5.1.
Only authorized skilled personnel may carry out the following work.



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 part; thereby follow with the connection 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.

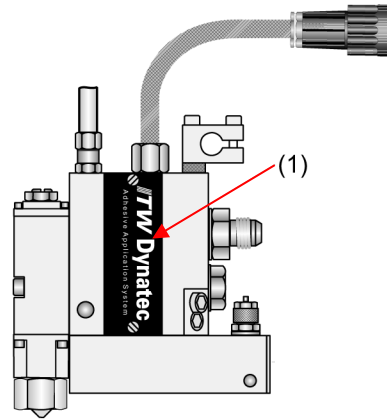
5.8.3 Replacing the Heater Cartridge in Air Heater**ADVICE**

Heed all security advices given in chapter 5.1.
Only authorized skilled personnel may carry out the following work.

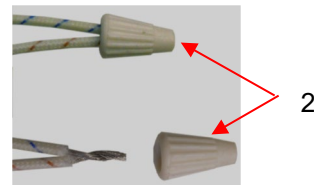


1. Stop adhesive supply/ all motors.
2. Switch the unit voltage-free and pressureless!
3. Guard the unit against unauthorized restarting!

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



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



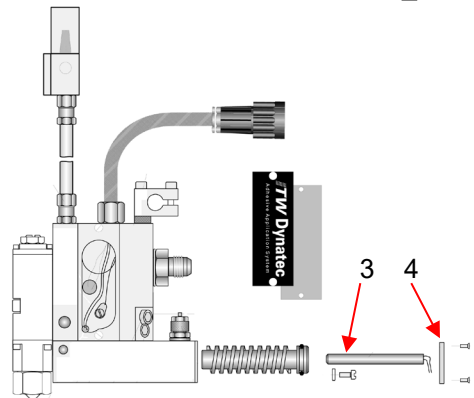
6. Unscrew the cover (4) on the rear side of the air heater.

7. Pull out the heater cartridge (3) out of the heat exchanger; thereby follow with the connection 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.

5.8.4 Replacing the Temperature Sensor



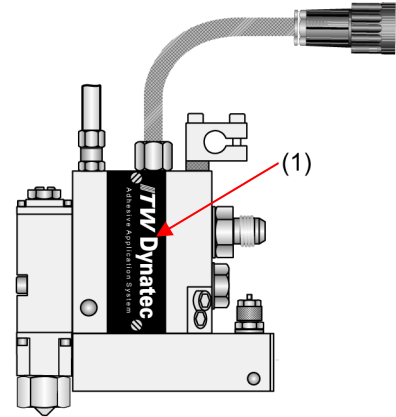
ADVICE

Heed all security advices given in chapter 5.1.
Only authorized skilled personnel may carry out the following work.

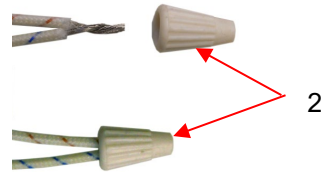


1. Stop adhesive supply/ all motors.
2. Switch the unit voltage-free and pressureless!
3. Guard the unit against unauthorized restarting!

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



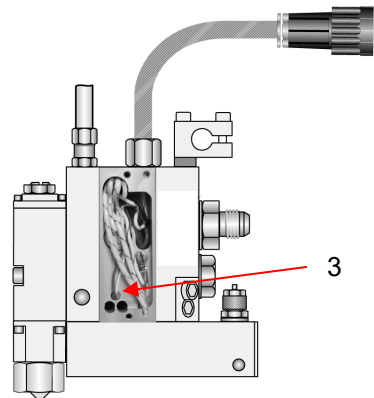
5. Pull out the temperature sensor (3) out of the supply part.



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.

5.9 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.



CAUTION! Risk of burns and injury!

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

Problem	Possible Cause	Solution
1. Module does not open.	1. Temperature adjustment of hopper (tank), hose or applicator is too low. 2. Solenoid valve defective. 3. Compressed air for Applicator is too low. 4. Standby activated.	1. Check temperature adjustment. 2. Check solenoid valve. Push the solenoid's manual button. If it opens, the problem is electrical. 3. Check compressed air; this should be 6 bar. 4. Deactivate standby.
2. No adhesive flowing out of module.	1. Nozzle is clogged. 2. Filter element is dirty. 3. Module (or its seals) defective. 4. ASU's hopper (tank) 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 (tank). 5. Check temperature settings. 6. Check solenoid valve. Push the solenoid's manual button. If it opens, the problem is electrical.
3. Adhesive is coming out of the module's "weep" holes.	1. Module seals are damaged.	1. Replace module.

4. 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 sensor and replace if necessary.
5. 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 sensor and replace if necessary. 3. Replace controller.
6. Air escapes from module	1. Inoperative piston seal. 2. O-rings located at the rear side of module (between module and service block) are defective.	1. Replace module. 2. Remove module and replace O-rings.
7. Application pattern is erratic	1. Adhesive pressure too low. 2. Pattern controller settings are wrong. 3. Air is in system.	1. <i>For units without speed control:</i> increase adhesive pressure at ASU. <i>For units with speed control (tach follower):</i> adjust pump speed control. 2. Adjust Pattern controller settings. See Pattern controller manual for proper adjustment. 3. Purge air from system.
8. Adhesive flow is tearing off.	1. Temperature too low.	1. Increase temperature.
9. Adhesive amount too high.	1. Nozzle orifice too large. 2. Temperature too high. 3. Adhesive pressure too high.	1. Change nozzle (module). 2. Reset temperature. 3. Decrease adhesive pressure at the Adhesive Supply Unit.

Chapter 7

Drawings & Bills of Materials



WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect equipment's operation and can result in personal injury.

This chapter contains the component illustrations (exploded-view drawings) for each assembly. These drawings are useful for finding part numbers as well as for use when maintaining or repairing the equipment.

Note: Most common screws, nuts and washers called out in the manual are not for sale and they can be obtained locally at your hardware Store. Specialty fasteners are available by contacting ITW Dynatec's Customer Service.

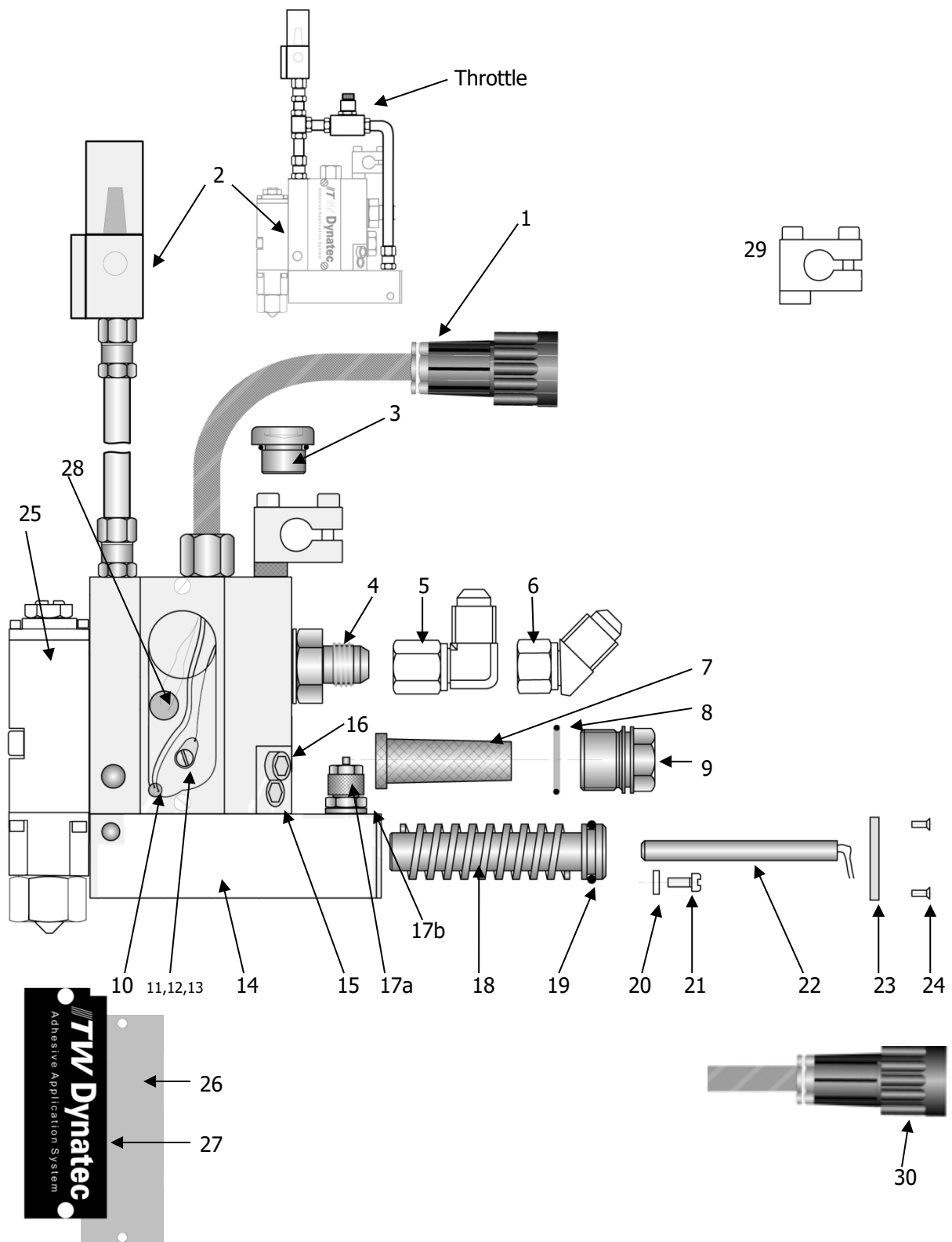
7.1 Dyna BFS Spray Applicator, PN 75.04401.842 and 75.04401.844

- PN **75.04401.842** Dyna BFS-44/1 with 1 connection cable; the supply part and the air heater are controlled together.
- PN **75.04401.844** Dyna BFS-44/1 with 2 connection cables; the supply part and the air heater are controlled separately.

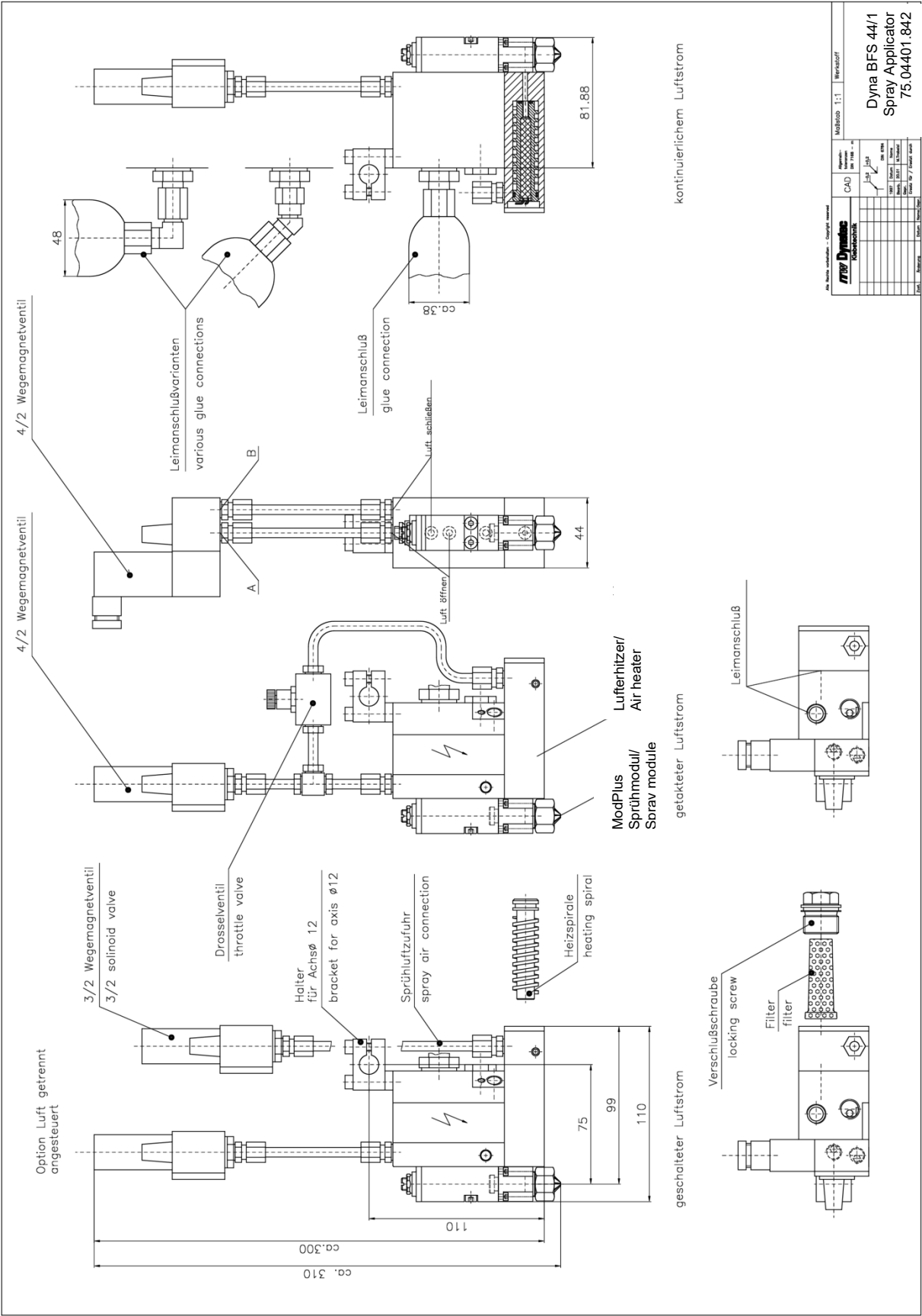
Pos.	Part Number	Description	Qty.
1	103467	Connection cable (for BF 44) (incl. Temp. sensor Pt100 05.63040.015), on supply part	1
	71.00061.870	Connection cable (for BF 66, 88, 110, 154, 198) (incl. Temp. sensor Pt100 05.63040.015), on supply part	1
2	07.93024.712	4/2 way solenoid valve 24V, 12,7 W	1
	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 (part of connection cable)	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	Drain 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	05.30250.021	Heater cartridge Ø6,5 x 50 mm, 250W, 230V 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
30	71.00061.870 *	Connection cable (for BF 66, 88, 110, 154, 198) (incl. Temp. sensor Pt100 05.63040.015), on air heater	1

* Only for Dyna BFS-44/1, PN 75.04401.844 with separate control.

This second cable on the air heater allows the air heater to be controlled separately from the supply part.



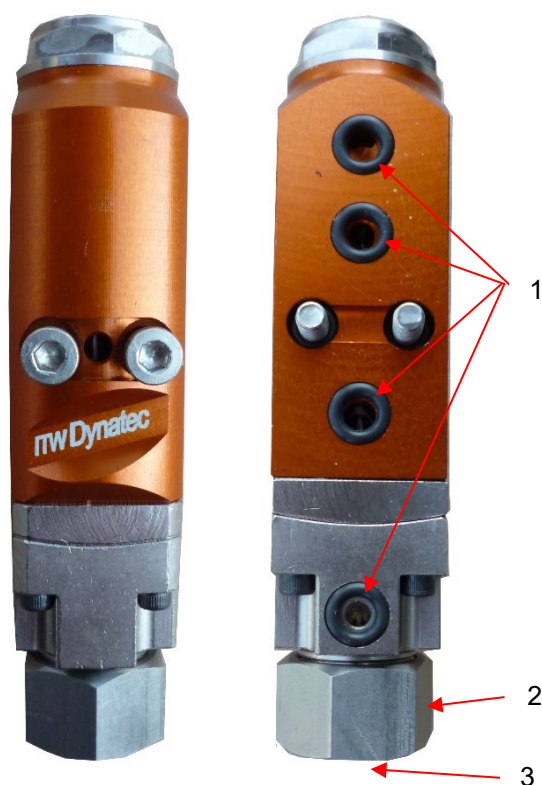
Drawing: Dyna BFS Spray Applicator



Deutsch	English	Français
Option: Luft getrennt angesteuert	Option: air controlled separately	Option : air contrôlé séparément

3/2-Wege Magnetventil	3/2-way solenoid valve	Electrovanne 3/2 voies
Drosselventil	Throttle valve	Vanne d'étranglement
Halter für Achse Ø12	Bracket for axis Ø12	Support pour axe Ø12
Sprühluftzufuhr	Spray air connection	Alimentation d'air de pulvérisation
Heizspirale	Heating spiral	Élément chauffant en spirale
Geschalteter Luftstrom	Switched airflow	Ecoulement d'air commuté
Verschlussschraube	Plug screw	Vis de fermeture
4/2-Wege Magnetventil	4/2-way solenoid valve	Electrovanne 4/2 voies
ModPlus Sprühmodul	ModPlus spray module	Module de pulvérisation ModPlus
Lufterhitzer	Air heater	Réchauffeur d'air
Getakteter Luftstrom	Clocked airflow	Ecoulement d'air cadencé
Leimanschluss	Glue connection	Raccordement de colle
Leimanschlussvarianten	Glue connection variants	Variantes de raccordement de colle
Luft öffnen	Open air	Ouvrir l'air
Luft schließen	Close air	Fermer l'air
Kontinuierlichem Luftstrom	Continuous air flow	Ecoulement d'air continu

7.2 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	95.31025.101	Spray nozzle d=0.25 mm, 1-orifice, brass	1
	95.31030.101	Spray nozzle d=0.30 mm, 1-orifice, brass	
	95.31040.101	Spray nozzle d=0.40 mm, 1-orifice, brass	
	95.31050.101	Spray nozzle d=0.50 mm, 1-orifice, brass	
	95.31060.101	Spray nozzle d=0.60 mm, 1-orifice, brass	
	95.31070.101	Spray nozzle d=0.70 mm, 1-orifice, brass	

7.3 Optional Spray Nozzle and according Cap Nut

Pos.	Part Number	Description	Qty.
	I32.00012.401	Spray nozzle d=0.50 mm, groove 1 mm, stainless steel	1
	I32.00017.400	Spray nozzle d=0.50 mm, groove 0,50 mm, stainless steel	
	I32.00018.400	Spray nozzle d=0.50 mm, groove 0,75 mm, stainless steel	
	I32.00019.400	Spray nozzle d=0.50 mm, groove 1,25 mm, stainless steel	
	44.00151.400	Cap nut for BFS Module Version 2012	1

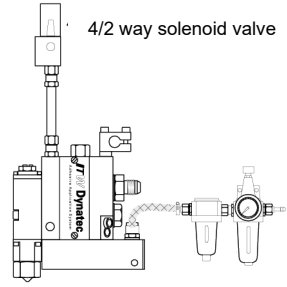
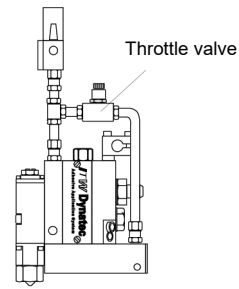
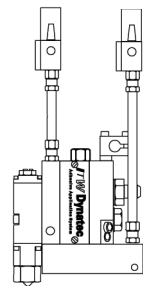
Chapter 8

Options & Accessories

8.1 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

8.2 Spray air control variants

Part Number	Description	Drawing
07.93024.712	4/2 way solenoid valve 24V, 12,7 W	 4/2 way solenoid valve
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	 4/2 way solenoid valve Throttle valve
07.93024.717	3/2 way solenoid valve 24 VDC, 12,7 W Accessories without throttle valve	 4/2 way solenoid valve 3/2 way solenoid valve

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Chapter 9

Recommended Spare Parts

As a general rule, we recommend that you keep on hand the same quantity of following parts as listed on the BOMs under Ch.7, the Optional Parts under Ch.8 and your order:

- Modules
- Nozzles
- Heaters
- RTDs, Temperature Sensors
- O-rings, Sealings
- Filters
- Kits

9.1 Dyna BFS Spray Applicator, PN 75.04401.842 and 75.04401.844

- PN 75.04401.842 Dyna BFS-44/1 with 1 connection cable; the supply part and the air heater are controlled together.
- PN 75.04401.844 Dyna BFS-44/1 with 2 connection cables; the supply part and the air heater are controlled separately.

Pos.	Part Number	Description	Qty.
1	103467	Connection cable (for BF 44) (incl. Temp. sensor Pt100 05.63040.015)	1
	71.00061.870	Connection cable (for BF 66, 88, 110, 154, 198) (incl. Temp. sensor Pt100 05.63040.015)	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
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 (part of connection cable)	1
19	06.01242.014	O-ring di=12,42/S=1,78 mm	1
22	05.30250.021	Heater cartridge Ø6,5 x 50 mm, 250W, 230V 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
30	71.00061.870 *	Connection cable (for BF 66, 88, 110, 154, 198) (incl. Temp. sensor Pt100 05.63040.015), on air heater	1

* Only for Dyna BFS-44/1, PN 75.04401.844 with separate control.

This second cable on the air heater allows the air heater to be controlled separately from the supply part.

9.2 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	95.31025.101	Spray nozzle d=0.25 mm, 1-orifice, brass	1
	95.31030.101	Spray nozzle d=0.30 mm, 1-orifice, brass	
	95.31040.101	Spray nozzle d=0.40 mm, 1-orifice, brass	
	95.31050.101	Spray nozzle d=0.50 mm, 1-orifice, brass	
	95.31060.101	Spray nozzle d=0.60 mm, 1-orifice, brass	
	95.31070.101	Spray nozzle d=0.70 mm, 1-orifice, brass	

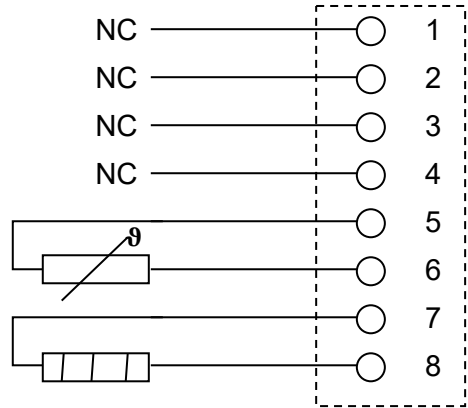
9.3 Optional Spray Nozzle and according Cap Nut

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

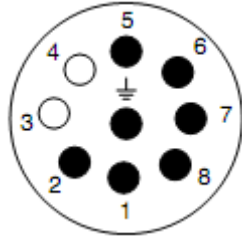
Chapter 10

Schematics

10.1 Dynatec plug



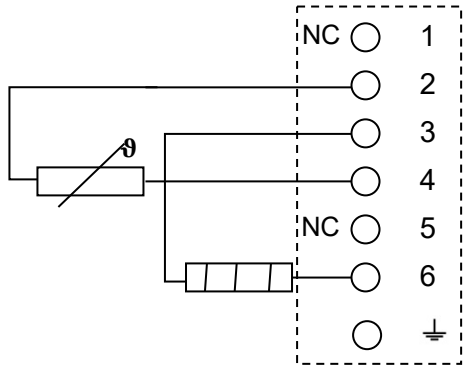
Connector plug



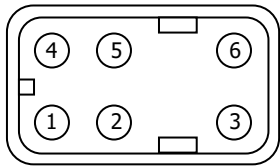
Connections showed from front

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

10.2 NDSN plug



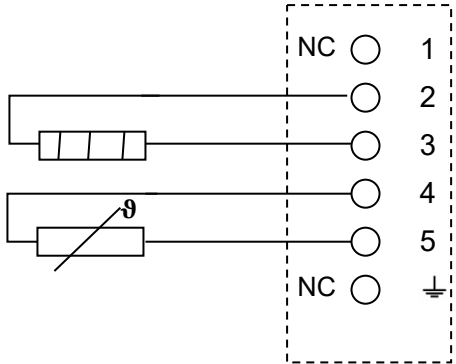
Connector plug



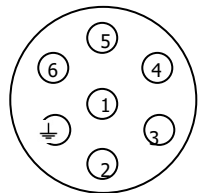
Connections showed from front

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

10.3 Euchner plug



Connector plug



Connections showed from front

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

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Manual Revisions

Revision	Page/Ch.	Description
Rev.1.21	Ch.7	Heater cartridge in air preheater changed to 250W.
Rev.2.23	Ch.5	Ch.5.3 Adhesive Pressure Relief added.
Rev.8.23	P.1	Manual language added.
Rev.1.24	Ch.2.2.1 Ch.7.1	Dyna BFS 75.04401.844 with separate control added.
Rev.10.25	Ch.7.2 Ch.9.2	The "high-alloyed steel" spray nozzles replaced by "brass" spray nozzles.

ITW Dynatec Service Parts and Technical Service:

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