

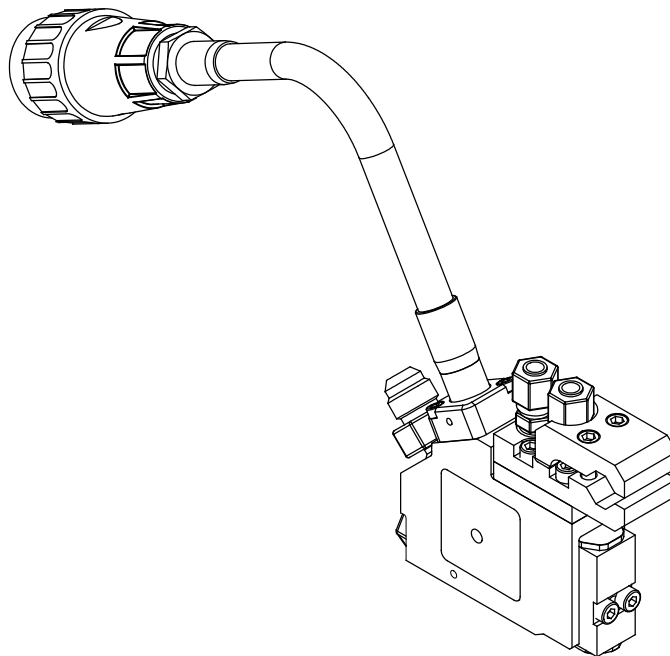


The Next Level of Technology

■ innovation ■ service ■ reliability

## OPERATIONS AND SERVICE MANUAL

### BF MICRO ADHESIVE APPLICATOR with MICRO OPTIMA MODULE HOT MELT ADHESIVE APPLICATOR



#### **IMPORTANT ! - 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 Direct Dial: 1-800-538-9540  
ITW Dynatec Technical Service Direct Dial: 1-800-654-6711**



# SAFETY INSTRUCTIONS

## GENERAL CONSIDERATIONS

1. Read and follow these instructions. Failure to do this could result in severe personal injury or death.
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.
5. All covers and guards must be in place before operating this equipment.

*For precautions and definitions of safety symbols, refer to the Safety Chapter of the service manual.*

## SERVICING EQUIPMENT

1. Only trained personnel are to operate and service this equipment.
2. 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.
3. Follow the maintenance and service instructions in the manual.

## SIGNS

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.

## ADDITIONAL CONSIDERATIONS

1. To ensure proper operation of the equipment, use specified electrical and/ or air supply sources.
2. Do not attempt to alter the design of the equipment unless written approval is received from ITW Dynatec.
3. Keep all manuals readily accessible at all times and refer to it often for the best performance from your equipment.

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**ITW Dynatec**

Adhesive Application Solutions

# Declaration of Conformity

**Equipment Type:** Heavy Industrial

**Model No.** \_\_\_\_\_

**The manufacturer of the products covered by this declaration is**

**ITW Dynatec  
31 Volunteer Dr.  
Hendersonville, TN 37075**

**The directives covered by this declaration**

89/336/EEC Electromagnetic Compatibility (EMC) directive, as amended  
73/23/EEC Low Voltage Equipment directive, as amended  
98/37/EC Machinery directive (consolidated edition)

**The basis on which conformity is declared**

The product identified above complies with the protection requirements of the EMC directive, with the principal elements of the safety objectives of the Low Voltage directive, and with the essential health and safety requirements of the Machinery directive. The manufacturer has applied one or more of the following standards:

I, the undersigned, hereby declare that the equipment specified above conforms to the following Directive(s) Standard(s).

EN 292-1 Safety of Machinery – basic terminology, methodology  
EN 563 Temperatures of Touchable Surfaces  
EN 60204-1 Electrical Equipment of Machines  
EN 50081-2 General Immunity Standard- Residential, light industrial environment  
EN 50082-2 General Immunity Standard- Industrial environment

**Signed:** .....  .....  
Judson Broome (General Manager)

**Date:** ..... 09/01/08 .....  
(dd/mm/yy)



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## Chapter 1 SAFETY PRECAUTIONS

**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.**

### *Electrical*



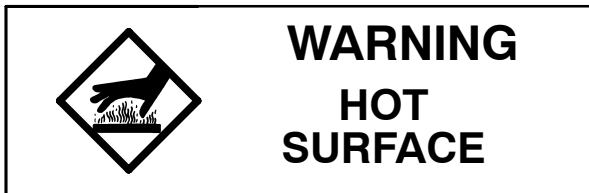
Dangerous voltages exist at several points in this equipment. To avoid personal injury, do not touch exposed connections and components while input

power is on. Disconnect, lockout and tag external electrical power before removing protective panels.

A secure connection to a reliable earth ground is essential for safe operation.

A 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.

### *High Temperatures*



Severe burns can occur if unprotected skin comes in contact with molten adhesive or hot application system parts.

Safety glasses, gloves and long-sleeved clothing must be worn whenever working with or around adhesive application systems.

### *High Pressure*



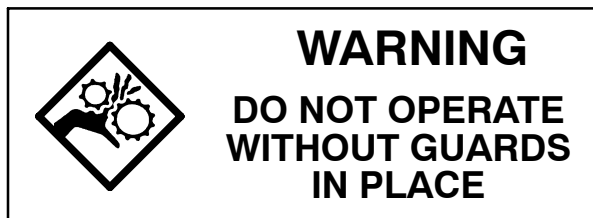
To avoid personal injury, do not operate the equipment without all covers, panels and safety guards properly installed.

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

**IMPORTANT NOTE:** Even when a system's pressure gauge reads "0" psig, 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.

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

## ***Protective Covers***



Keep all guards in place!

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

## ***Eye Protection & Protective Clothing***



Wear safety glasses with side shields which conform to ANSI Z87.1 or EN166.

Failure to wear safety glasses could result in severe eye injury.

It is important to protect yourself from potential burns when working around hot melt adhesive equipment.

Wear protective gloves and long-sleeved, protective clothing to prevent burns that could result from contact with hot material or hot components.

Always wear steel-reinforced safety shoes.

It is very important that you PROTECT YOUR EYES when working around hot melt adhesive equipment!

## ***Safe Installation and Operation***

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.

Read this manual before applying electrical power to the equipment. Equipment may be damaged by incorrect electrical connections.

Do not use adhesive that is dirty or that may be chemically contaminated. Doing so can cause system

clogging and pump damage.

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.

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.

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.

## ***Treatment for Burns From Hot Melt Adhesives***

Burns caused by hot melt adhesive must be treated at a burn center.

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. When working near a hot melt application system, always wear safety gloves, safety glasses and long-sleeved, protective clothing.



Always have first-aid information and supplies available.

Call a physician and/or an emergency medical technician immediately.

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## **Service**

Refer all servicing to qualified personnel only.

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## **Explosion/ Fire Hazard**

Never operate this unit in an explosive environment.

Use cleaning compounds recommended by ITW Dynatec or your adhesive supplier only. Flash points

of cleaning compounds vary according to their composition, so consult with your supplier to determine the maximum heating temperatures and safety precautions.

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## **Lockout/ Tagout**

Follow OSHA 1910.147 (Lockout/ Tagout Regulation) for equipment's lockout procedures and other important lockout/ tagout guidelines.

Be familiar with all lockout sources on the equipment.

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 before servicing electrical capacitors.

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## **Use of PUR (Polyurethane) Adhesives**

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 an exhaust hood or system be installed over any PUR system.

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 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 timetable. ALLOWING PUR ADHESIVE TO CURE IN A UNIT VOIDS ITW DYNATEC'S WARRANTY.

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## **In This Manual**

WARNINGS and CAUTIONS are found throughout this manual.

WARNINGS mean that failure to observe the specific

instructions may cause injury to personnel.

CAUTIONS mean that failure to observe the specific instructions may damage the equipment.

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## Chapter 2 DESCRIPTION AND SPECIFICATIONS

### *Description*

ITW Dynatec's BF Micro Applicator is an air-operated, single-nozzle hot melt adhesive applicator assembly with an integrated filter cartridge which prevents particulate matter from obstructing flow through the head. It is used with intermittent pressure and constant pressure hot melt adhesive supply units (ASUs).

Each applicator features one Micro Optima module mounted to a single service block. The module is "optimized" (self-cleaning). Its nozzle is integrated into the module, making it maintenance free. The Micro Optima module is designed for high speed/ high pressure (above 400 psi) applications where a sharp cutoff is necessary.

The module is opened and closed by air pressure. The rate of adhesive flow from the applicator is determined by the adhesive pressure applied by the ASU's pump, the size of the nozzle orifice and the characteristics of the adhesive.

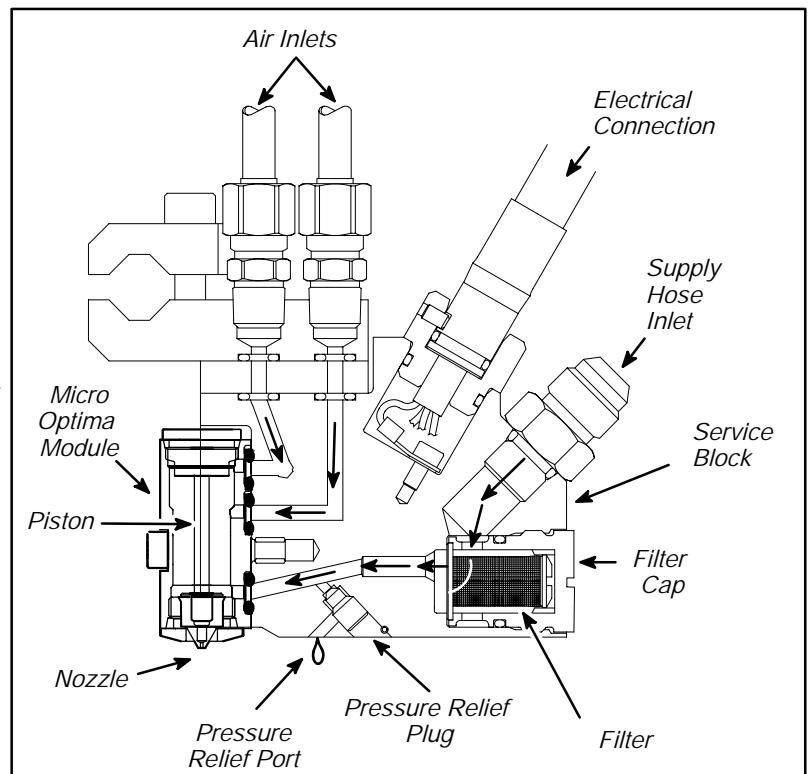
The applicator is heated by replaceable cartridge heating elements which are controlled by an integrated RTD sensor and electronic control.

As seen in the illustration below, a module is mounted onto a service block. A piston inside the module is pneumatically triggered by a solenoid air valve, which allows adhesive to flow through a valve within the module.

The heated adhesive supply hose may be connected at the rear of the service block or at the top. A variety of optional 45 and 90 degree fittings allows positioning flexibility. Adhesive flows from the hose into and through the channels within the block to the module. Air pressure opens the adhesive module, allowing adhesive to flow through the nozzle when the valve is open.

Operating air connections, from the solenoid valve, and electrical connections are made at the top of the service block.

The applicator is configured for ITW Dynatec's DynaControl or Dynamini controller. Both 120 and 240 volt configurations are available. The applicator is water-tight for wash-down service.



## Specifications

### Environmental:

Storage/ shipping temperature ..... -40°C to 70°C (-40°F to 158°F)  
Ambient service temperature ..... -7°C to 50°C (20°F to 122°F)

### Physical:

Dimensions ..... See dimensional layout on following page  
Weight (with module) ..... 0.58 kg (1.3 lb.)  
Mounting ..... Integrated clamp-mount for 1/2" (12 to 13 mm) rod  
Material ..... Anodized aluminum with stainless steel screws

### Performance:

Temperature range ..... 38°C to 218°C (100°F to 425°F)  
Warm-up time ..... 15 minutes for cold start/ 1 minute for module change only  
Adhesive viscosity ..... 100 to 15000 mPa. sec. (100 to 15000 centipoise)  
Cycle rate ..... 5000 cycles/ minute maximum  
Adhesive pressure range ..... 68 bar maximum (1000 psi maximum)

### Air Requirements:

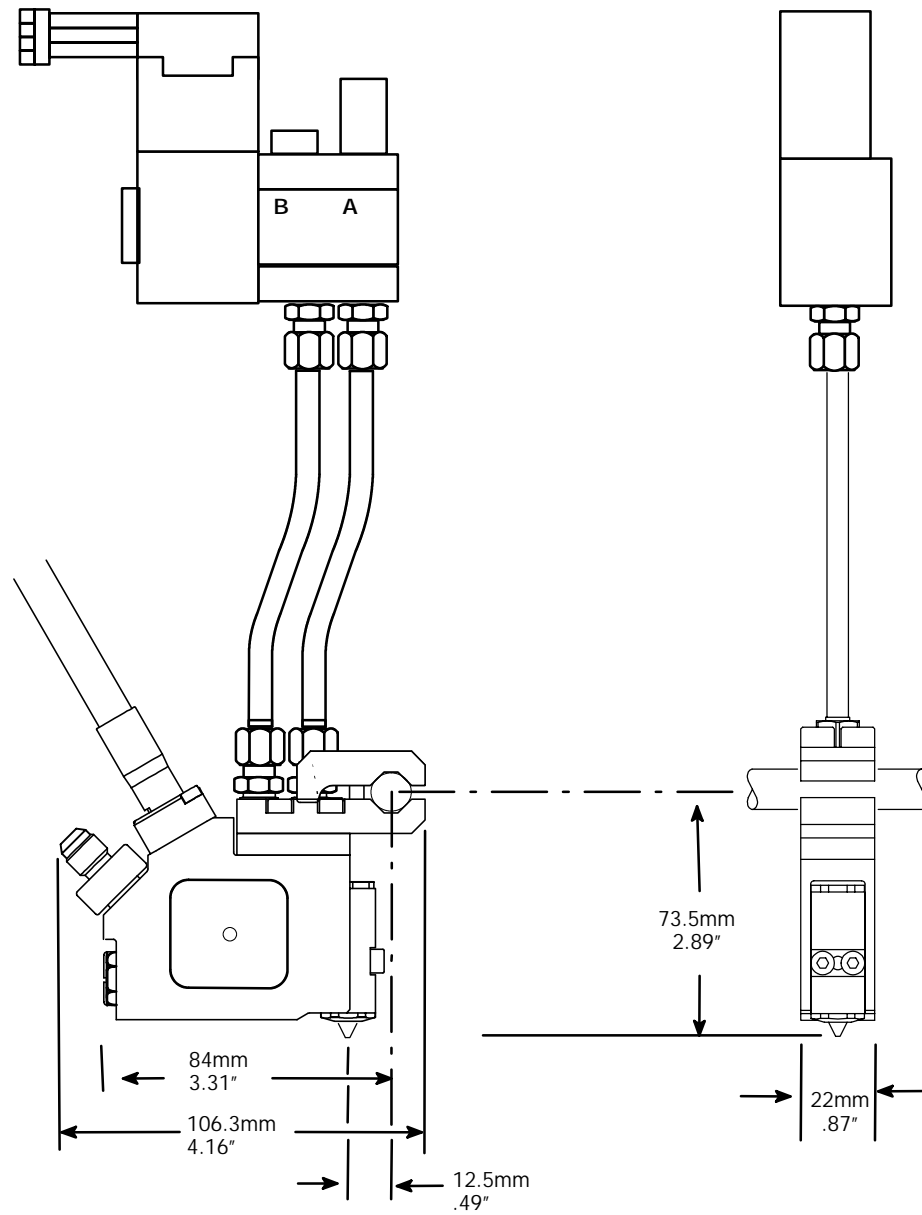
Air pressure range ..... 4.8 to 9.5 bar (70 to 140 psi)

### Electrical:

Supply voltage ..... 120 VAC or 240 VAC/ 1ph/ 50-60 Hz  
Power requirements ..... 120 VAC: 125 watts  
or 240 VAC: 125 watts

CE Mark ..... yes

## Dimensions



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## Chapter 3 INSTALLATION & START UP

Note: Re-read Chapter 1 "Safety Precautions" before performing any installation or start-up procedures. All installation and start-up procedures must be performed by qualified, trained technicians.

### *Handling and Shipping*

BF Micro applicator head assemblies are packaged within protective cushioning material in a fiber packing carton. This package may be shipped inside another carton along with other individual boxes containing components of the system.

### *Service Requirements*

The applicator assembly consists of a service block assembly and a micro-module assembly.

Incoming electrical power and temperature control is supplied through the flexible cable exiting the adhesive supply hose cuff. The applicator has a circular, plastic connector which mates with the connector attached to this cable.

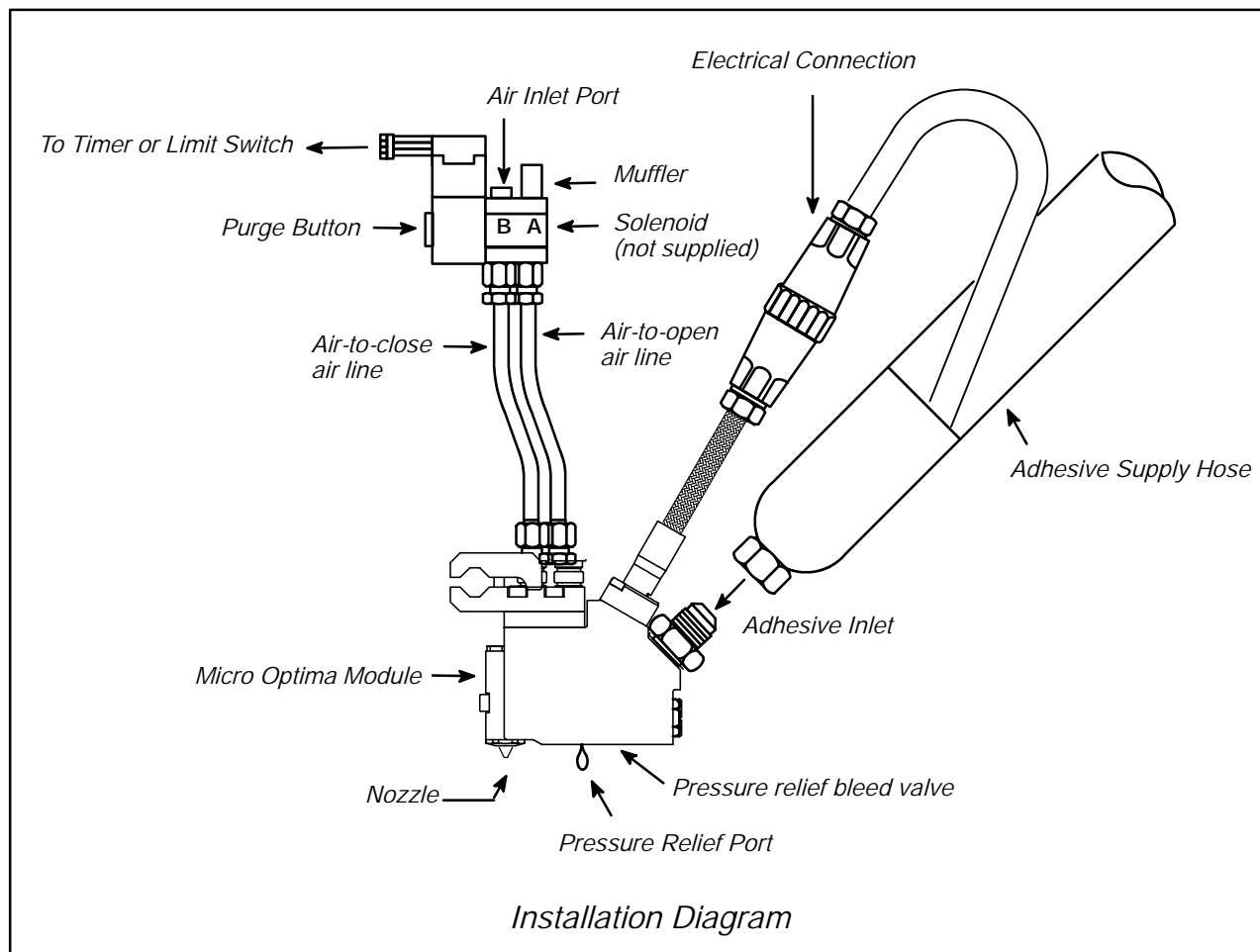
Incoming (operating) air is supplied through a solenoid valve (not supplied). It must be clean and unlubricated. It is controlled by a four-way solenoid valve and should be separately regulated and maintained at a pressure between 4.8 to 9.5 bar (70 to 140 psi). Air lines from the solenoid valve should be 6.4mm (1/4 inch). Head air inlet ports are 1/8 NPT. The air outlet ports on the solenoid air valve are marked "A" or "1" (open/ ON) and "B" or "2" (closed/ OFF).

### *Installation Instructions*

The ITW Dynatec applicator's service block has been tested at the factory and is ready for installation and operation. BF Micro applicators require a 4-way solenoid valve for each applicator. The modular applicator has an very high speed capability. To take advantage of this, the solenoid air valve should be located as close to the applicator as possible to keep applicator air lines short. (Note: air lines and fittings must be capable of withstanding temperatures up to 218°C (425°F.) ITW Dynatec supplies Air Control Filter Coalescing Kits (PN 100055) to be used with air-operated applicators (see the Air Control Filter Coalescing Kit Manual in the appendix of this manual).

Applicator control solenoid valves may be controlled by timers or limit switches which sense the position of the package or object to which adhesive is being applied. Switches should be mounted on moveable brackets to provide adjustment for proper location of adhesive application.

*cont.*



See the diagram above for location of the components referred to in the following section.

1. The applicator should be supported from brackets that permit lateral and vertical adjustments. Mount the applicator on a 12mm to 13mm (1/2 inch) rod or bracketry using the clamp provided. Allow access to the filter. Be sure that the module's "weep" holes are visible for periodic inspection.
2. Before making the adhesive connection to the applicator, align the adhesive supply hose with its electrical connector oriented in relation to the electrical connector on the top of the applicator. Connect the swivel fitting of the hot melt hose to the male fitting on the service block. When tightening the hose fitting, hold the hose cuff to prevent the hose core from rotating.
3. Make the electrical connection from the hose to the applicator by connecting the female connector of the hose to the male connector of the applicator.

*cont.*



4. When connecting the air lines to the applicator, the air line which has air pressure to the module when the 4-way solenoid is OFF is the closing air line (marked "B" or "2" on the solenoid air valve). This line connects to the "close" air fitting on the applicator. The other air line is connected to the "open" air port on the air valve. The "A" (or "1") air line has pressure when the solenoid is ON (open). This line can be checked by loosening the air line after the system has been pressurized. The air line closest to the module is always the closed/ OFF line.



**CAUTION:** Do not use lubricating oil with the air supply as applicators are lubricated at the factory and do not require lubrication when used in production. Where oil is present in the air supply, a coalescing filter (Dynatec PN 100055) must be installed between the standard air regulator/ filter and the applicator.

5. It is advisable to check the temperature of the applicator. This can be done through the temperature readout of the adhesive supply unit. Surface temperature may be checked with a separate pyrometer and surface probe or with a dial thermometer. Turn the system power switch ON. Permit the applicator to warm up at least 15 minutes (1 minute for module change) before reading temperature.
6. Purge the applicator of air and test fluid. Turn the applicator ON electrically and pneumatically. Allow adhesive and applicator to warm up.



## **WARNING HIGH PRESSURE**

During the purging procedure, hot adhesive and fluid can come out of the head under high pressure. Wear safety glasses, gloves and protective clothing.



## **WARNING**

Use a stable, deep container to collect hot-melt adhesive and/ or fluid.

Place a heat resistant container under the module to collect the material that drains from the applicator. Manually open the solenoid air valve by pushing (with a small screwdriver or other tool) the purge button located on the solenoid coil. Continue to hold in the purge button until all air and fluid have drained and only adhesive flows from the module.

7. Orient the nozzle tip so it points toward the substrate.

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## Chapter 4 MAINTENANCE

**Note:** Re-read Chapter 1 "Safety Precautions" before performing any maintenance procedures. All maintenance procedures must be performed by qualified, trained technicians.

The BF Micro Applicator requires no regular maintenance. Wipe the applicator clean of adhesive with a clean cloth while still hot at the end of each shift. Inspect the applicator periodically as outlined in the following table.

### *Maintenance Schedule*

ITEM	CHECK	FREQUENCY	ACTION
Adhesive supply hose fitting connection	Inspect for leaks	As required	Tighten if loose
Air supply connections	Inspect for leaks	As required	Tighten if loose
Module weep holes	Inspect for adhesive	As required	Replace module
Nozzle performance	Inspect all nozzles for proper operation	As required	Replace module
Built-in filter	Inspect for cleanliness	Monthly or as required by use	Replace filter element

## Adhesive Pressure Relief



### WARNING HIGH PRESSURE

During this procedure, hot adhesive can come out of the applicator under high pressure. Wear safety glasses, gloves and protective clothing.

The applicator should be at operating temperature. Turn the ASU's pump/ motor OFF.

1. Place a heat-resistant container under the module.
2. With a 3mm hex key (allen wrench), slowly loosen the screw recessed under the service body (do not try to remove it). Stand clear since there may be residual adhesive pressure in the applicator.

## Replacement of the Built-in Filter

Observe the warning and conditions for “Adhesive Pressure Relief”, see above.

The applicator should be at operating temperature. Turn the ASU's pump/ motor OFF.

1. Relieve adhesive pressure as described above.
2. Remove the filter cap with an open wrench and remove (and discard) the old filter element. At the base of a new filter element, install an o-ring (PN N00179). Insert the new filter element into the filter cap.
3. Re-install the filter cap slowly, taking care to seat the cap o-ring without pinching it. Torque the filter cap to 88.5 in./lbs (10Nm).

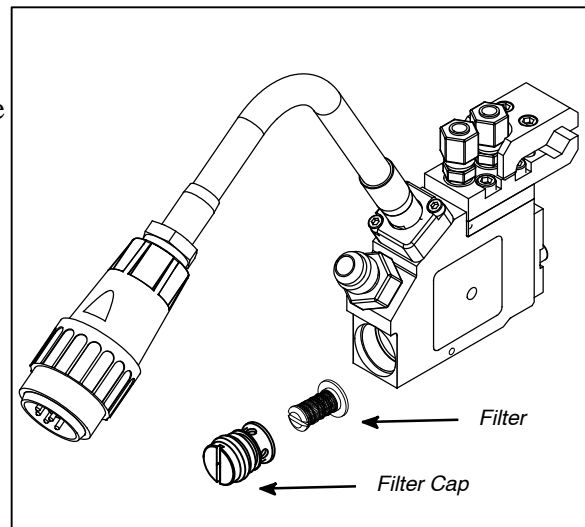
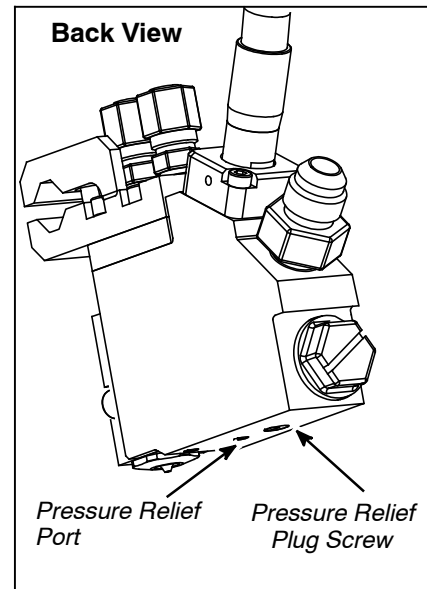


**CAUTION:** Apply a coat of anti-seize compound onto the threads of the filter cap before re-installing it.

## Module Maintenance

Refer to the Optima Module's User Manual for details on its care.

Observe the warning and conditions for “Adhesive Pressure Relief” (see above) before removing or working on modules.



### ***Stroke Limit Adjustment of the PN 7050 Adjustable Micro Module***

This procedure can be performed only on the optional adjustable micro module, which can be identified by its adjustment plate at the top of the module.

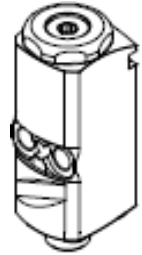
1. Bring applicator up to operating temperature.
2. Turn the adjustment plate clockwise until it bottoms lightly.



**CAUTION:** Tightening the adjustment plate to completely shut OFF the nozzle will cause damage to the applicator.

3. Back off the adjustment plate one and one-half to two turns.

Adjustment  
Plate →



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Adhesive Application Solutions

## Chapter 5 TROUBLESHOOTING & SERVICE

**Note:** Re-read Chapter 1 Safety Precautions” before performing any troubleshooting or repair procedures. All troubleshooting or repair procedures must be performed by qualified, trained technicians.

### *In General*

If failure occurs, first check all the electrical and pneumatic connections. Verify that the main power switch is ON at the ASU. Verify that the pump is ON and the application heads have sufficient air pressure. Verify that the temperature controller is in operation and that the setpoints are correct for the application. Check to see if all components are heating properly.

### *Troubleshooting Guide*

Problem	Possible Cause	Solution
Module does not open	<ol style="list-style-type: none"> <li>1. Temperature adjustment of head is too low.</li> <li>2. Inoperative solenoid valve.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check temperature adjustment.</li> <li>2. Push the solenoid’s manual button. If it opens, the problem is electrical.</li> </ol>
No adhesive flowing out of module	<ol style="list-style-type: none"> <li>1. Filter element is dirty.</li> <li>2. Module seals (o-rings) are inoperative.</li> <li>3. ASU’s hopper is empty.</li> <li>4. Adhesive is too cold.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace filter, see instructions in Ch. 4 Maintenance.</li> <li>2. Replace module.</li> <li>3. Re-fill hopper.</li> <li>4. Adjust temperature, see ASU manual.</li> </ol>
Hot melt is coming out of the module’s “weep” holes	<ol style="list-style-type: none"> <li>1. Module seals are damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace module, see instructions in this chapter.</li> </ol>

*cont.*

Problem	Possible Cause	Solution
Applicator does not reach operating temperature	<ol style="list-style-type: none"> <li>1. Hopper temperature setpoint is too low.</li> <li>2. Inoperative heater cartridge.</li> <li>3. Inoperative temperature sensor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Change setpoint, see ASU manual.</li> <li>2. Check/ replace heater cartridge, see instructions in this chapter.</li> <li>3. Check/ replace sensor, see instructions in this chapter.</li> </ol>
Applicator is too hot	<ol style="list-style-type: none"> <li>1. Applicator temperature setpoint is too high.</li> <li>2. Inoperative temperature sensor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Change setpoint, see ASU manual.</li> <li>2. Check/ replace sensor, see instructions in this chapter.</li> </ol>
Air escapes from module	<ol style="list-style-type: none"> <li>1. Piston seal failure.</li> <li>2. O-rings located between module and service block are out of position or damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace module.</li> <li>2. Remove module from block (see instructions in this chapter: "Replacement of Module") and replace o-rings.</li> </ol>
Application pattern is erratic	<ol style="list-style-type: none"> <li>1. Adhesive pressure is too low.</li> <li>2. Adjust pattern controller.</li> </ol>	<ol style="list-style-type: none"> <li>1. a. <i>For units without speed control:</i> increase adhesive pressure at ASU.  b. <i>For units with speed control (tach follower):</i> adjust pump speed control.</li> <li>2. See pattern controller manual for proper adjustment.</li> </ol>



## ***Replacement of the Module***

Turn the ASU OFF. Turn all adhesive and air pressure OFF.



### **WARNING HIGH PRESSURE**

During this procedure, hot adhesive can come out of the applicator under high pressure. Wear safety glasses, gloves and protective clothing.

1. Place a heat-resistant container under the manifold.
2. With a 5mm hex key (allen wrench), slowly loosen the screw recessed under the service body (do not try to remove it). Allow the adhesive to flow out of applicator. Be sure to stand clear since there may be residual adhesive pressure in the applicator.
3. Verify that there is no internal pressure.
4. Remove the module from the service block by removing the two 4mm socket head cap screws on the front of the module with a 3mm hex key screwdriver (allen wrench). Make sure that the three old o-rings located on the back of the module are also removed (the new module will include three new o-rings).
5. Mount the new module using a 3mm hex key on the socket head cap screws.

## ***Testing of Heater Cartridge or Temperature Sensor***

1. Turn the ASU OFF and make sure all adhesive air pressure and the pump are turned OFF.
2. Unplug the electrical cable from the adhesive supply hose to expose the pins in the cable.

*Note: Pin connectors and pinout numbers vary depending on the control scheme of the applicator. See Chapter 8 for a pinout diagram.*

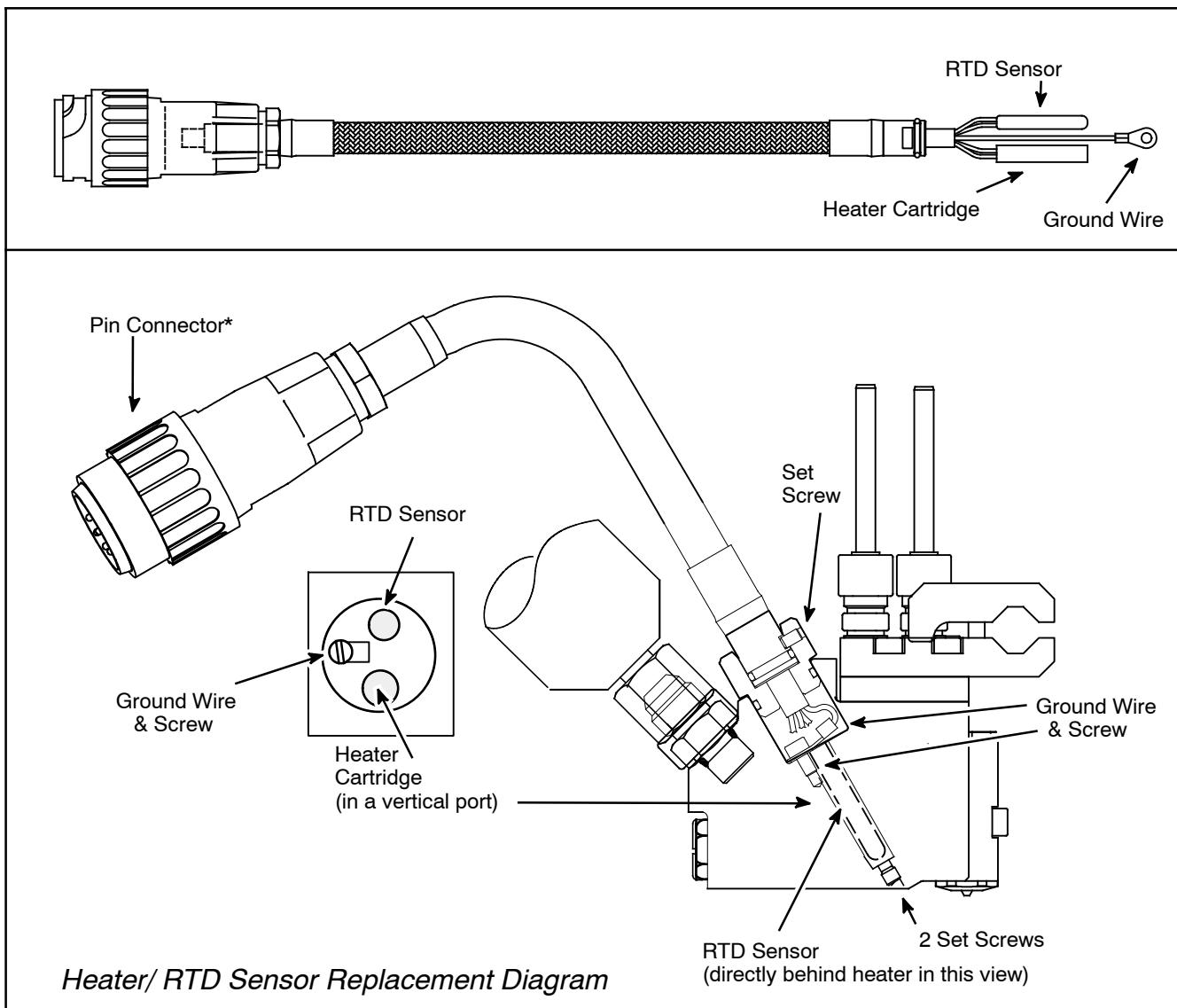
### **Testing Resistance of the Heater Cartridge**

- a. The resistance value (Ohms) of the applicator's 125 watt heater cartridge is 122.9-106.2 Ohms (120v) or 492.1-425.0 Ohms (240v).
- b. *For DynaControl or Dynamini:* With an ohmmeter, contact pins 7 and 8 and measure heater resistance.
- c. A heater cartridge that tests outside of the above noted range must be replaced. Replacement instructions follow in this chapter.

### Testing Resistance of the RTD Temperature Sensor

- a. The resistance value (Ohms) of your temperature sensor depends on the temperature of the sensor at the time it is being tested. At 25°C (77°F), the resistance of a PT 100 (Platinum) sensor should be 110 Ohms.
- b. *For DynaControl/Dynamini:* With an ohmmeter, contact pins 5 and 6 and measure sensor resistance.
- c. A tolerance range of  $\pm 10\%$  is allowed. A sensor that tests outside of this range must be replaced. Replacement instructions follow in this chapter.

### Replacement of Heater Cartridge or Sensor



1. Disconnect power to the ASU and make sure all adhesive air pressure and pumps are turned OFF.
2. Loosen the two screws in the cable anchor and withdraw anchor from the service block body.
3. Disconnect the ground wire screw.
4. Remove the two set screws in the bottom of the back of the service body. Note: It may be necessary to apply heat in order to break the thread sealant.
5. Pull the cable assembly out of the service block.
6. Loosen the set screw in the cable anchor and remove the cable assembly from the anchor.

#### Re-assembly

1. Re-assemble the cable assembly to the cable anchor. Re-attach the ground wire to the service block body. Insert the heater and sensor into their respective holes in the service block body and carefully insert the anchor and cable assembly into the body.
2. Tighten the two cable anchor screws.
3. Re-assemble and tighten the two set screws in the back of the service body. If a water-tight seal is desired, re-apply thread sealant (Loctite 242 or equal) to the set screws.

#### *Re-Assembly Procedures and General Cautions*

Unless noted, head re-assembly is simply the reverse sequence of the disassembly procedures. However, the following “cautions” should be followed (whenever they apply) for proper re-assembly:



**CAUTION:** In general, all *O-RINGS AND SEALS* must be replaced whenever hot-melt equipment is re-assembled. All new o-rings must be lubricated with o-ring lube (PN N07588).

**CAUTION:** *TAPERED PIPE THREADS* are found on air line fittings used with the pump air supply and on the outlet filter manifold. Apply thread sealant (PN N02892) whenever tapered pipe threaded parts are re-assembled.

**CAUTION:** *SOME FITTINGS* used for adhesive on hot melt equipment have straight threads and o-ring seals. Use of thread sealant is not necessary with these parts, but the o-ring seals should be clean and lubricated. Tighten straight-threaded parts and fittings until their shoulders are firmly seated. Excessive torque may damage straight-threaded parts and the use of power wrenches is not recommended.

**CAUTION:** *HOT-MELT RESIDUE* must be cleaned from parts before they are re-assembled, particularly from threaded parts. As a precaution against adhesive residue preventing proper re-assembly, threaded parts must always be re-tightened at operating temperature.



## Chapter 6 COMPONENT ILLUSTRATIONS & BILLS OF MATERIAL

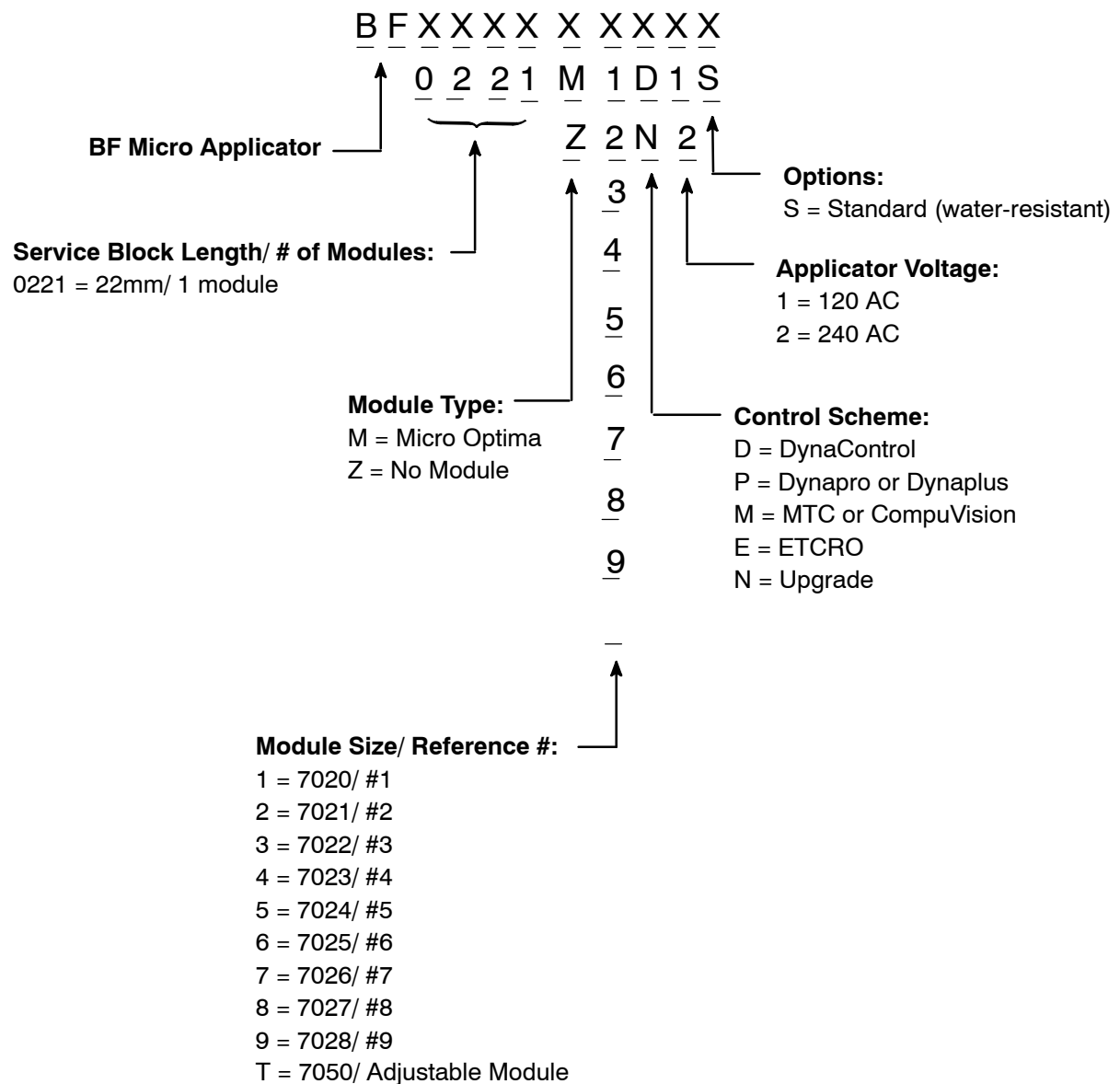


### WARNING

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.

The following pages provide exploded-view reference drawings to assist users of the applicator to identify parts and aid in servicing the equipment.

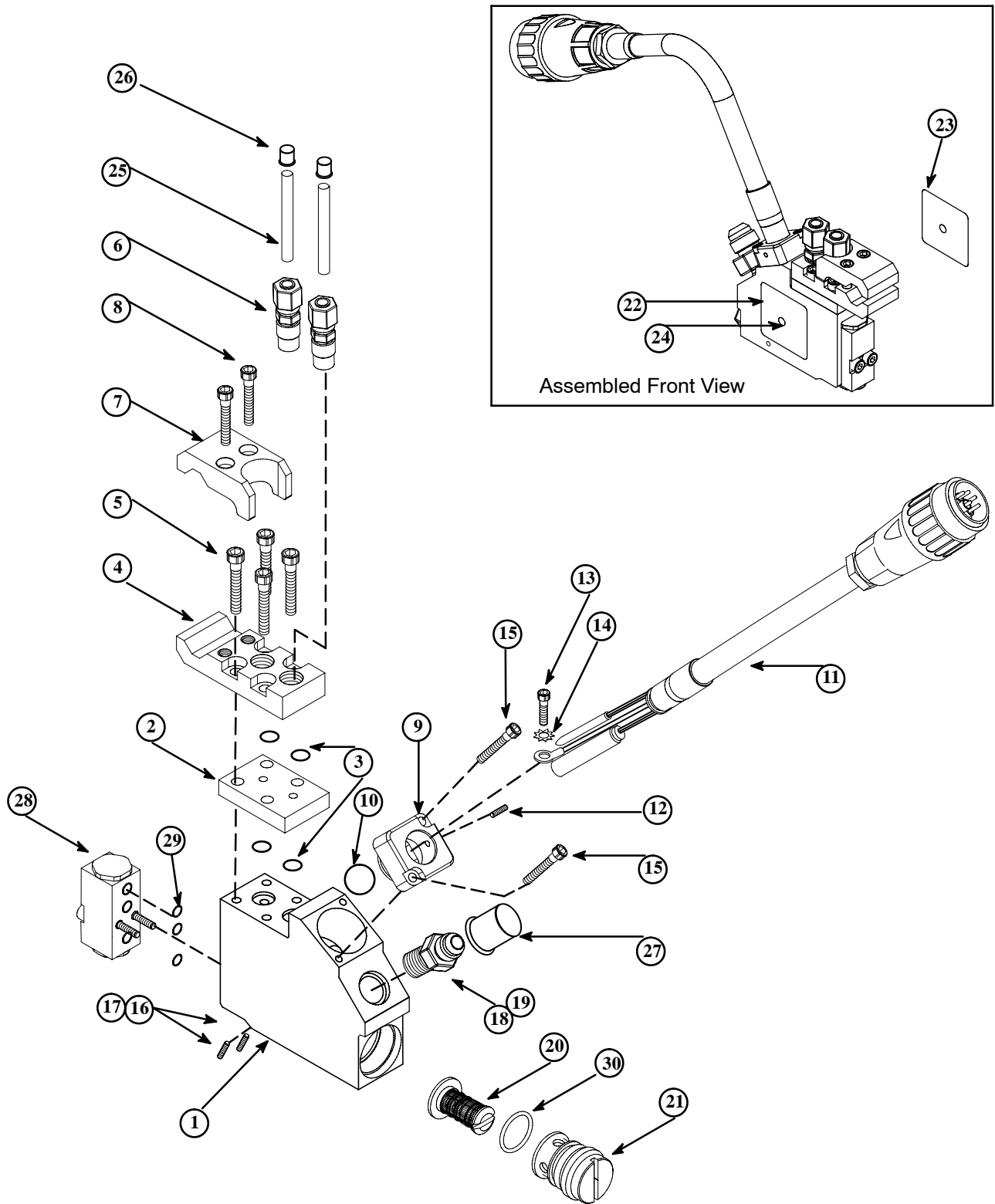
### Repositional Micro Applicator Model Designation Guide



## BF Micro Applicator 120v, 240v and 240v (Ni120) Service Block Assemblies

Item No.	Part Number	Description	Qty.
1	109699	Service Block (standard)	1
	116222	Service Block (revised filter housing)	1
2	109700	Insulator, Mount	1
3	N00175	O-ring, -008, Viton	4
4	109701	Base, Mount, Micro Head	1
5	109745	M4 x 0.7 x 20mm, SHC Screw, SST	4
6	N00093	Fitting, Straight Male Adapter, 1/8 NPT x .25T, Brass	2
7	109702	Clamp, Mount, Micro Head	1
8	106853	M6 x 1 x 25mm SHC Screw, SST	2
9	109707	Anchor, Cable, Micro Head	1
10	N00182	O-ring, -015, 75 Duro Viton	1
11	109742	Cable Assembly, 120vac (Service Block Assys. 109740 & 116224)	1
	109708	Cable Assembly, 240vac (Service Block Assys. 109741 & 116225)	1
	110065	Cable Assembly, 240vac (Service Block Assys. 110066 & 116227)	1
	114975	Cable Assembly, 120vac (Service Block Assys. 114976 & 116226)	1
12	106857	M3 x 0.5 x 5mm Flat Point Set Screw, SST	1
13	103405	Screw, SHC, M3 x 0.5 x 6mm, Black Oxide	1
14	108362	Lock Washer, External Tooth, M3	1
15	109747	M3 x 0.5 x 14mm, SHC Screw, SST	2
16	109746	M4 x 0.7 x 4mm, Flatpoint Set Screw, SST	2
17	106374	Adhesive/ sealant, Loctite 242	
18	113518	Fitting, Male Adapter, #6 ST Thd ORS	1
19	N00360	O-ring, -906, 75 Duro Viton	1
20	111987	Filter Assembly, Applicator, 200 mesh	1
21	109840	Filter Cap, Micro Head (stainless steel)	1
	816439	Filter Cap, Micro Head (brass)	1
22	110182	Label, Info, Micro Head	1
23	109883	Label, Warning, Micro Head	1
24	109748	M2.5 x 0.45 x 6mm SST Socket Flat Head Screw	2
	108700	Lube, TFE (not shown)	
		Anti-Seize Compound (not shown)	
25	L13533	Tube, Aluminum, .25 OD x .035 wall x 8.0, Lg.	2
26	N02028	CAPLUG, Red Poly, T-1-X	2
27	N02212	CAPLUG, Red Poly, T-6	1
	100978	Tag, QAC (not shown)	1
	103053	Tag Oil Free (not shown)	1
28		Optima Micro Module (see Ordering Guide)	1
29	N00175	O-ring, -008 (shown for reference only)	3
30	109706	O-ring, -15mm x 1,8mm	1

Bill of Materials

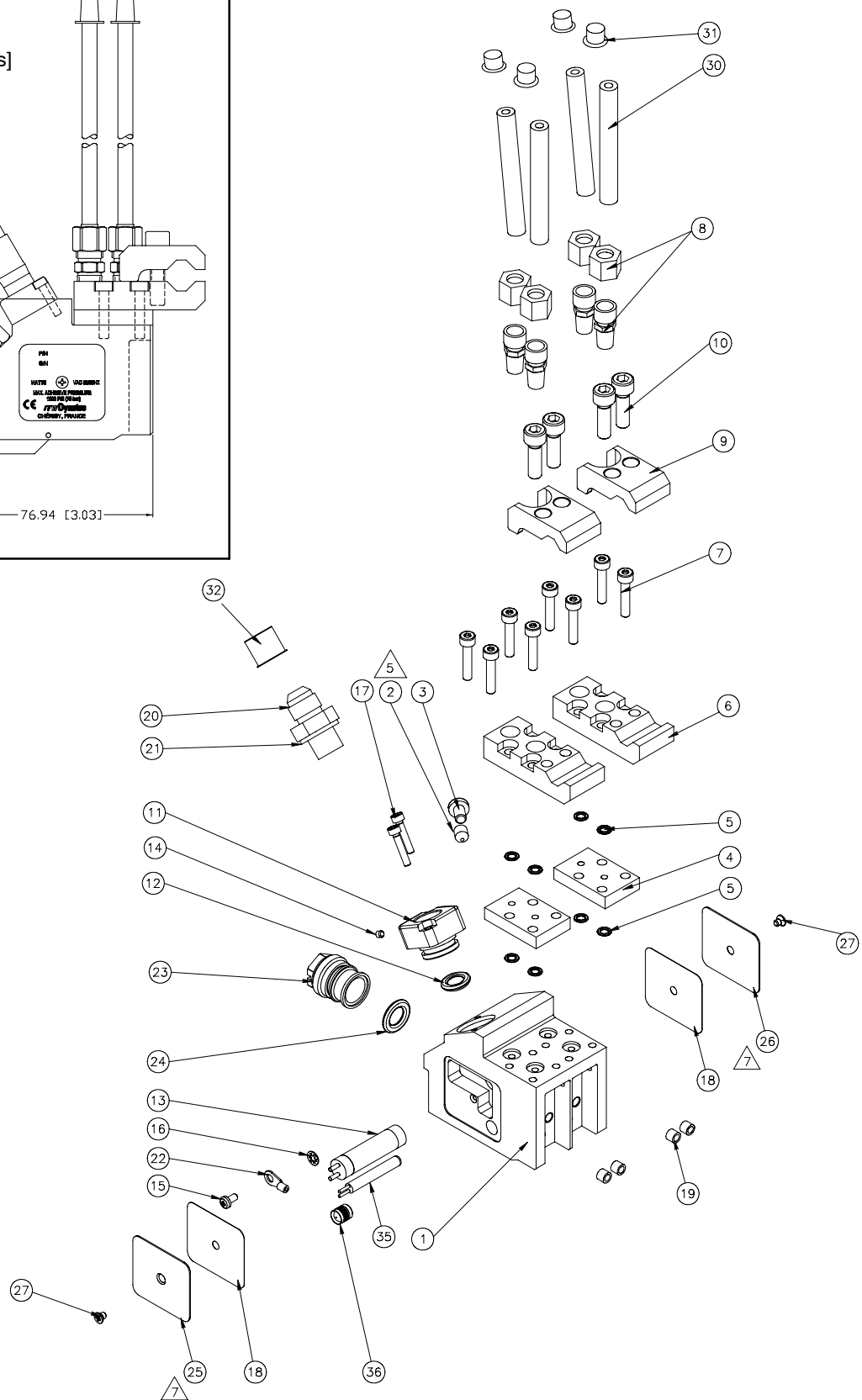
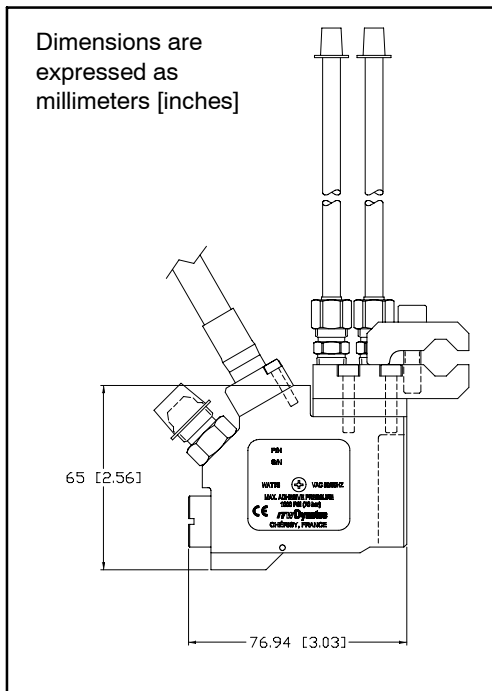


BF Micro Applicator 120v, 240v and 240v (Ni120) Service Block Assemblies

## BF Micro Applicator Service Block Assembly: 812408 2 Port, 20.0 (240v)

Item No.	Part Number	Qty.		Description
36	106708	REF	EA	PLUG,EXP,7MM DIA
35	N07958	1	EA	SNSR, RTD, Pt, .1875X1.25L
34	103053	1	EA	TAG, OIL FREE (NOT SHOWN)
33	100978	1	EA	TAG, QA (NOT SHOWN)
32	N02212	1	EA	CAPLUG, RED POLY, T-6
31	N02028	4	EA	CAPLUG, RED POLY, T-1-X
30	110317	4	EA	TUBE, ALUM, .25D x .035W x 4.00
29	107324	A/R	EA	COMPOUND, ANTI-SEIZE (NOT SHOWN)
28	001U002	A/R	EA	LUBE, SILICONE, DOW 112 (NOT SHOWN)
27	109748	2	EA	SCREW, PH FLAT HD, M2.5x0.45 x 6, SST
26	109883	1	EA	LABEL, WARNING, MICRO HEAD
25	110182	1	EA	LABEL, INFO, MICRO HEAD, FRANCE
24	109706	1	EA	O-RING, 15mm ID x 1.8mm W, 75 DURO, VITON
23	816439	1	EA	CAP,FILTER,BRASS,MICRO
22	N07430	1	EA	TERM,RING,22-16,06,UNINS
21	N00360	1	EA	O-RING, -906, 75 DURO, VITON
20	113518	1	EA	FTG, MALE ADAPTER, #6 SAE 37° x #6 ST THD ORS
19	SEE SER BLK	REF	EA	4MM HEIL-COIL
18	811527	2	EA	GASKET, DATA TAG
17	109747	2	EA	SCREW, SHC, M3x0.5 x 14, SST
16	108362	1	EA	WASHER, LOCK, EXT T, M3
15	103405	1	EA	SCREW, SHC, M3x0.5 x 6, BLK OXIDE
14	106857	1	EA	SCREW, SET, M3x0.5 x 5, FLAT PT, SST
13	816094	1	EA	HTR,10X35,240V,150W
12	N00182	1	EA	O-RING, -015, 75 DURO, VITON
11	109707	1	EA	ANCHOR, CABLE, MICRO HEAD
10	106853	4	EA	SCREW, SHC, M6x1 x 25, SST
9	109702	2	EA	CLAMP, MOUNT, MICRO HEAD
8	N00093	4	EA	FTG, ST MALE ADAPTER, 1/8NPT x .25T, BRASS
7	109745	8	EA	SCREW, SHC, M4x0.7 x 20, SST
6	109701	2	EA	BASE,MNT,MICRO,HEAD
5	N00175	8	EA	O-RING, -008, 75 DURO, VITON
4	109700	2	EA	INSULATOR, MOUNT, MICRO HEAD
3	101833	1	EA	M5 X12 PAN TR SCREW
2	109882	1	EA	PLUG, PRESSURE BLEED, M6
1	812407	1	EA	SER BLK,2PG,MICRO,20.0





BF Micro Applicator Service Block Assembly: 812408 2 Port, 20.0 (240v)

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Adhesive Application Solutions

## Chapter 7 ORDERING GUIDES

### **Micro Optima Modules**

Modules are listed in order of increasing adhesive flow. The diameter of the module orifice is not shown because this is not the only flow control variable incorporated into module design. For assistance in module selection, contact your ITW Dynatec representative.

Module Part Number	Reference #	Module Part Number	Reference #
7020	No. 1	7025	No. 6
7021	No. 2	7026	No. 7
7022	No. 3	7027	No. 8
7023	No. 4	7028	No. 9
7024	No. 5		

### **Micro Adjustable Module**

PN 7050 Adjustable Micro module with interchangeable nozzles (see pg. 7-2 for complete list).

### **Filters**

The standard filter for the Micro Optima is the 200 mesh filter.

Module Part Number	Filter	Filter Part Number	Filter 10-pack
7020	200 mesh	111987	CF6001
7021	200 mesh	111987	CF6001
7022	200 mesh	111987	CF6001
7023	200 mesh	111987	CF6001
7024	100 mesh	109711	CF6002
7025	100 mesh	109711	CF6002
7026	100 mesh	109711	CF6002
7027	100 mesh	109711	CF6002
7028	100 mesh	109711	CF6002

Filter Assembly PN	Filter
109711	100 mesh
111987	200 mesh

### **PN 114286 Filter Kit with Stainless Filter Cap**

### **PN 116223 Filter Kit with Brass Filter Cap**

Filter Kits are available which contain a PN N00179 #12 o-ring, a PN 111987 200-mesh filter assembly and either a PN 109840 filter cap (stainless) or a PN 816439 filter cap (brass).

**PN N00179-10** O-ring, filter, package of 10

## Nozzles

Note: all of the following nozzles are for the PN 7050 module only

### Single-Orifice Nozzles, straight-thru

Part Number	Description
MM2501	Nozzle, .008 ORF,.050BRL,SS
MM2503	Nozzle, .010 ORF,.050BRL,SS
MM2504	Nozzle, .012 ORF,.050BRL,SS
MM2505	Nozzle, .014 ORF,.050BRL,SS
MM2507	Nozzle, .016 ORF,.050BRL,SS
MM2508	Nozzle, .018 ORF,.050BRL,SS

### Single-Orifice Nozzles, straight-thru

Part Number	Description
MM2509	Nozzle, .020 ORF,.050BRL,SS
MM2511	Nozzle, .024 ORF,.050BRL,SS
MM2513	Nozzle, .028 ORF,.050BRL,SS
MM2514	Nozzle, .030 ORF,.050BRL,SS
MM2515	Nozzle, .032 ORF,.050BRL,SS

### Single-Orifice 90 Degree Nozzles

Part Number	Description
MM1510	Nozzle, .008 x 90 DEG
MM3904	Nozzle, .012 x 90 DEG
MM3906	Nozzle, .016 x 90 DEG
MM1518	Nozzle, .018 x 90 DEG

### Single-Orifice 90 Degree Nozzles

Part Number	Description
MM3907	Nozzle, .020 x 90 DEG
MM3909	Nozzle, .024 x 90 DEG
MM3908	Nozzle, .028 x 90 DEG
MM3900	Nozzle, .039 x 90 DEG

### Dual-Orifice Nozzles, straight-thru

Part Number	Description
MM1194	Nozzle, 2/O, .012 X 17 DEG.
MM1196	Nozzle, 2/O, .016 X 17 DEG.
MM1198	Nozzle, 2/O, .020 X 17 DEG.
MM1199	Nozzle, 2/O, .028 X 17 DEG.
MM1152	Nozzle, 2/O, .008 X 30 DEG.
MM1153	Nozzle, 2/O, .010 X 30 DEG.
MM1154	Nozzle, 2/O, .012 X 30 DEG.
MM1155	Nozzle, 2/O, .014 X 30 DEG.
MM1156	Nozzle, 2/O, .016 X 30 DEG.
MM1157	Nozzle, 2/O, .018 X 30 DEG.

### Dual-Orifice Nozzles, straight-thru

Part Number	Description
MM1158	Nozzle, 2/O, .020 X 30 DEG.
MM1159	Nozzle, 2/O, .028 X 30 DEG.
MM1122	Nozzle, 2/O, .008 X 45 DEG.
MM1123	Nozzle, 2/O, .010 X 45 DEG.
MM1124	Nozzle, 2/O, .012 X 45 DEG.
MM1125	Nozzle, 2/O, .014 X 45 DEG.
MM1126	Nozzle, 2/O, .016 X 45 DEG.
MM1127	Nozzle, 2/O, .018 X 45 DEG.
MM1128	Nozzle, 2/O, .020 X 45 DEG.
MM1129	Nozzle, 2/O, .028 X 45 DEG.

### Dual-Orifice 90 Degree Nozzles

Part Number	Description
MM4914	Nozzle, 2/O, .012 X 15 DEG.
MM4916	Nozzle, 2/O, .016 X 15 DEG.
MM1618	Nozzle, 2/O, .018 X 15 DEG.
MM4917	Nozzle, 2/O, .020 X 15 DEG.
MM1624	Nozzle, 2/O, .024 X 15 DEG.

### Dual-Orifice 90 Degree Nozzles

Part Number	Description
MM4926	Nozzle, 2/O, .016 X 30 DEG.
MM1724	Nozzle, 2/O, .018 X 30 DEG.
MM4927	Nozzle, 2/O, .020 X 30 DEG.
MM1728	Nozzle, 2/O, .024 X 30 DEG.

cont.

Triple-Orifice Nozzles, straight-thru		Triple-Orifice Nozzles, straight-thru	
Part Number	Description	Part Number	Description
MM1132	Nozzle, 3/O, .008 X 45 DEG.	MM1136	Nozzle, 3/O, .016 X 45 DEG.
MM1133	Nozzle, 3/O, .010 X 45 DEG.	MM1137	Nozzle, 3/O, .018 X 45 DEG.
MM1134	Nozzle, 3/O, .012 X 45 DEG.	MM1138	Nozzle, 3/O, .020 X 45 DEG.
MM1135	Nozzle, 3/O, .014 X 45 DEG.	MM1139	Nozzle, 3/O, .028 X 45 DEG.

### **Optional Solenoids**

PN 113314 kit for Festo, 24v solenoid is offered with standard fittings, tubing and cable for one- or two-port Micro applicators. The Festo solenoid is more compact than conventional MAC solenoids.

PN 113682 kit for Festo, 24v solenoid is offered with standard fittings, tubing and cable for DY 2002-8 and DPC2 timers. The Festo solenoid is more compact than conventional MAC solenoids.

PN 113350 Festo, 24v, four-way solenoid only. This valve is contained in both of the above kits.

### **Service Block Assembly Recommended Service Parts List**

Part Number	Description	Qty. per Service Block
N00175	O-ring, -008	14
N00182	O-ring, -019	1
N00360	O-ring, -906	1
108700	TFE Lube, 0.25 oz.	1
see list on pg. 7-1	Filter	2
<i>Heaters and RTD Sensors are located in the Cable Assemblies, choose one of the following:</i>		
109742 or	Cable Assembly, 120v (Pt100)	1
109708 or	Cable Assembly, 240v (Pt100)	1
110065 or	Cable Assembly, 240v (Ni120)	1
114975	Cable Assembly, 120v (Ni120)	1

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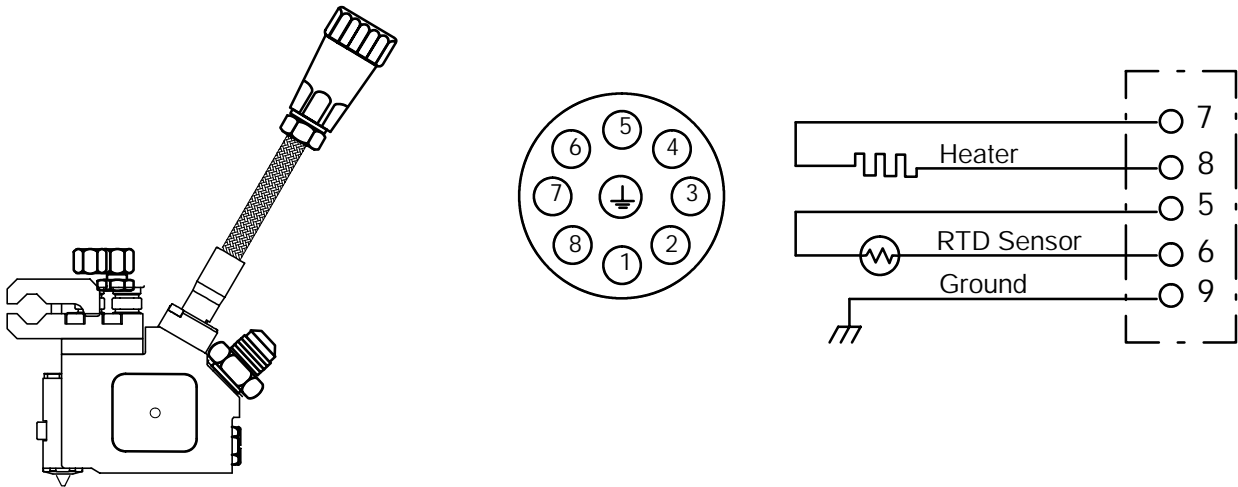
Adhesive Application Solutions

## Chapter 8 ENGINEERING DRAWINGS & SCHEMATICS

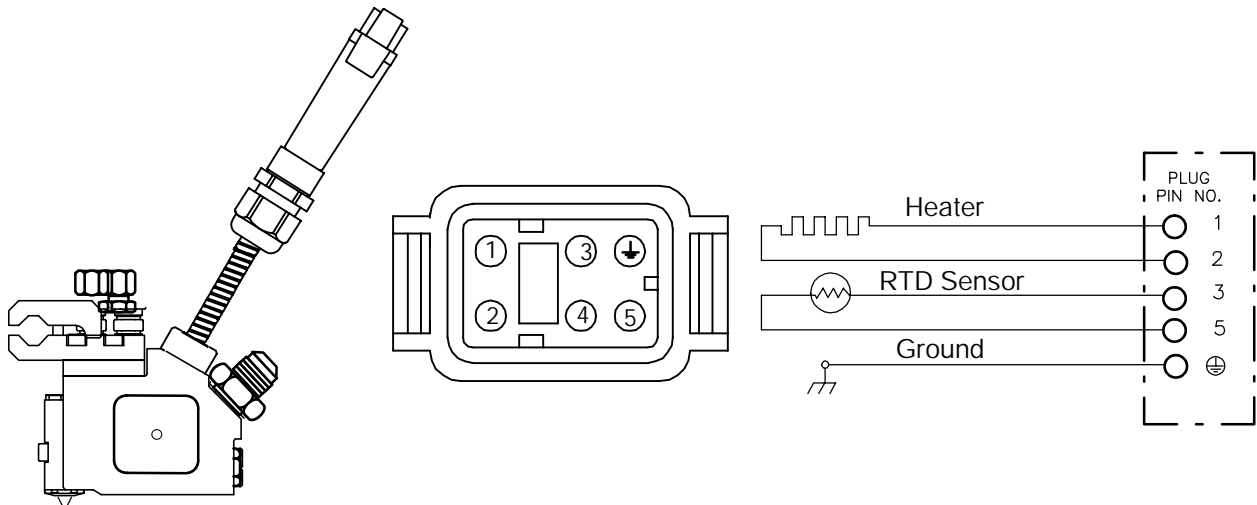
### *Pin Connectors & Electrical Schematics*

Note: Pin connectors are viewed from the exposed end. Pins not shown on schematics are not used.

**DynaControl/Dynamini** Uses PN N07958 RTD Sensor, Pt100



**Upgrade** Uses PN N07864 RTD Sensor, Ni120



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Adhesive Application Solutions



## Appendix PN 100055 Air Control Filter Coalescing Kit for Applicator Heads

ITW Dynatec applicator heads require compressed air for needle actuation. Air Control Filter Coalescing Kits (PN 100055) are available to provide filter regulators, tubing and fittings for one or more applicator heads.

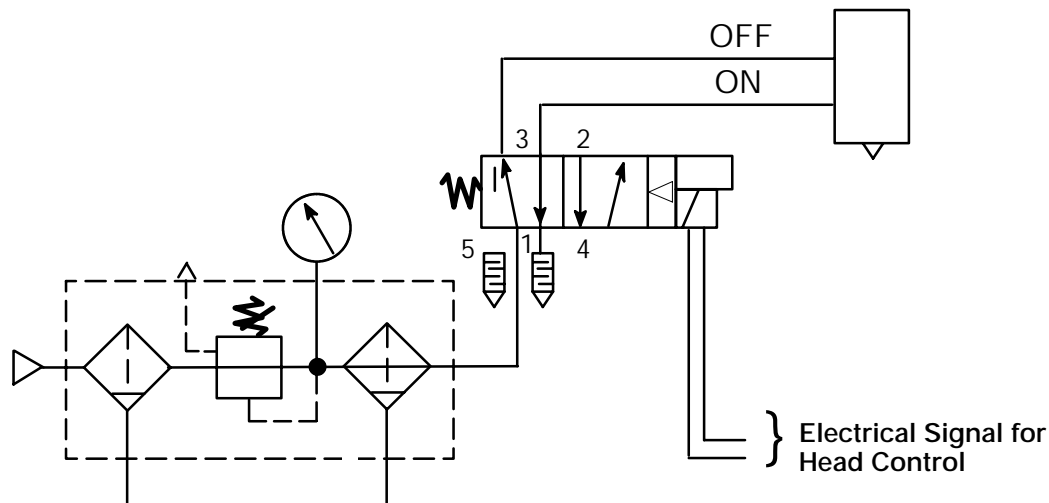
In addition to the kit, a solenoid valve with voltage that matches the output voltage of the electrical control device must be selected for the application. Use the following chart to select an appropriate solenoid valve:

Part No.	Voltage	Application
100054	24 VDC	Single-port head
100383	24 VDC	Multi-port head
100421	120 VAC	Single or multi-port head
100422	240 VAC	Single or multi-port head

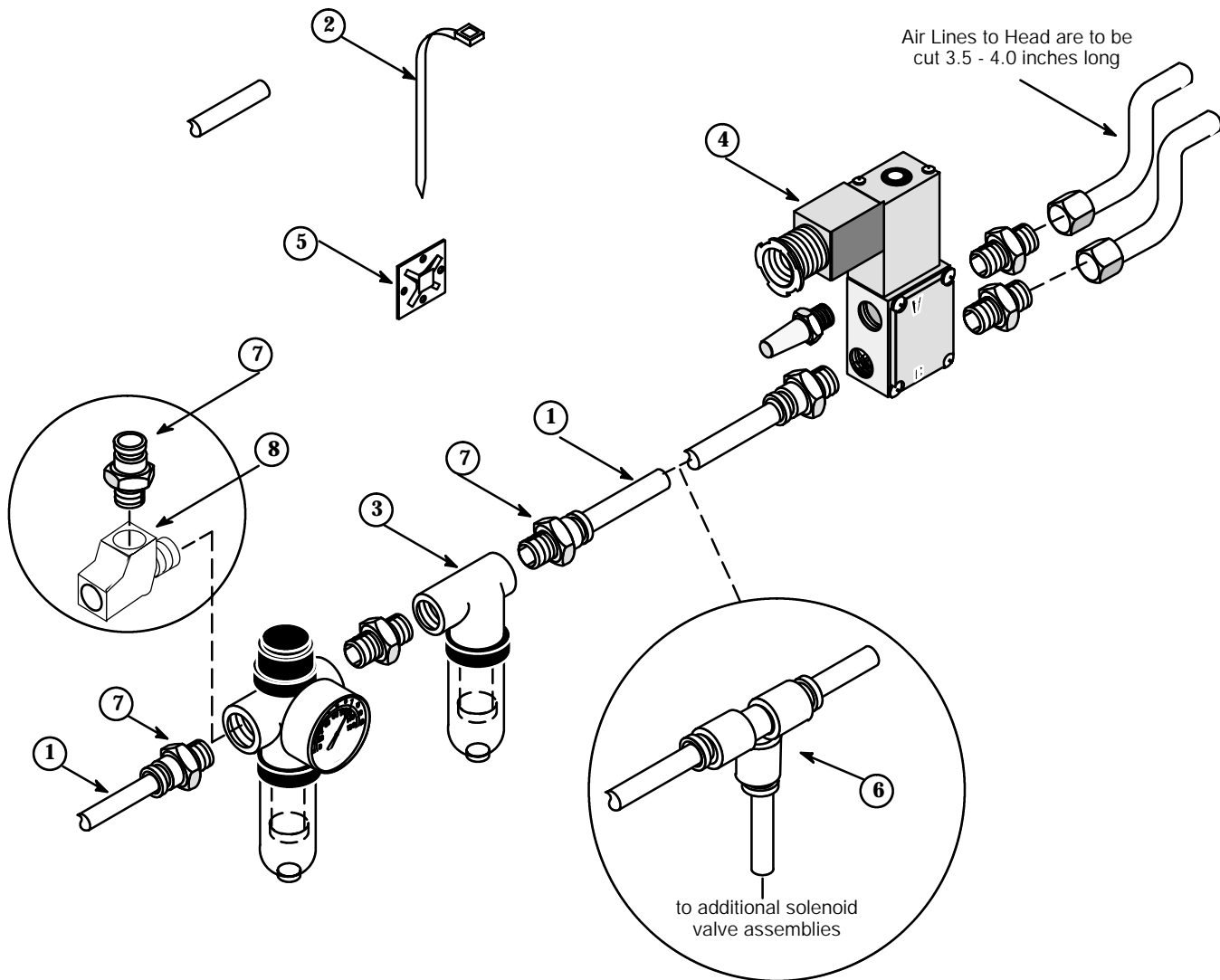
### *Air Control Filter Coalescing Kit Installation Notes*

- 1) Compressed air for applicator head operation should be clean, dry and oil free.
- 2) Operation of more than two applicator heads by one kit may require additional lines, tee-fittings and solenoid valves not supplied in one kit.
- 3) To provide identical operation of more than one head, air line circuits from solenoid valves to heads should be the same length and contain similar fittings.
- 4) To minimize applicator response time, minimize length of the air line circuits from the solenoid valve(s).

### *Pneumatic Drawing for Head Air Control*



## Component Illustration: PN 100055 Air Control Filter Coalescing Kit



Item No.	Part Number	Description	Qty.
1	N06438	Nylon Tubing, .250 Dia.	10 '
2	N00318	Cable Tie, .09 x 3.62 Lg	10
3	100380	Filter Assembly	1
4		Solenoid Valve Assembly	1
5	N04264	Cable Tie Anchor	3
6	N06504	Push-in Union Tee Fitting	1
7	N06430	Male Connect Fitting	3
8	N04531	1/4 Treet T, Brass	1