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ITW Dynatec

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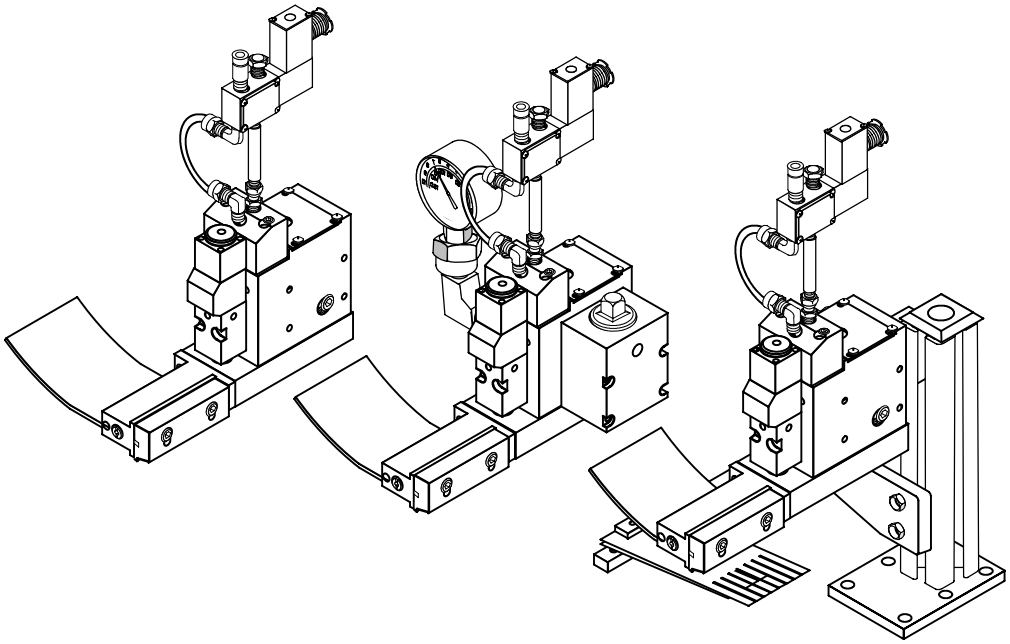
OPERATIONS AND SERVICE MANUAL

MR1300 HI FLOW SLOT DIE HOT MELT ADHESIVE APPLICATOR HEADS*



*Manufactured under U.S. Patent # 6,076,711

For an online copy of this manual, go to www.itwdynatec.com/manuals.htm

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

Moving Forward Through Technology ™

⚠ 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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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

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

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.

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.

Service

Refer all servicing to qualified personnel only.

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.

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.

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.

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.

Chapter 2
DESCRIPTION AND SPECIFICATIONS

Description

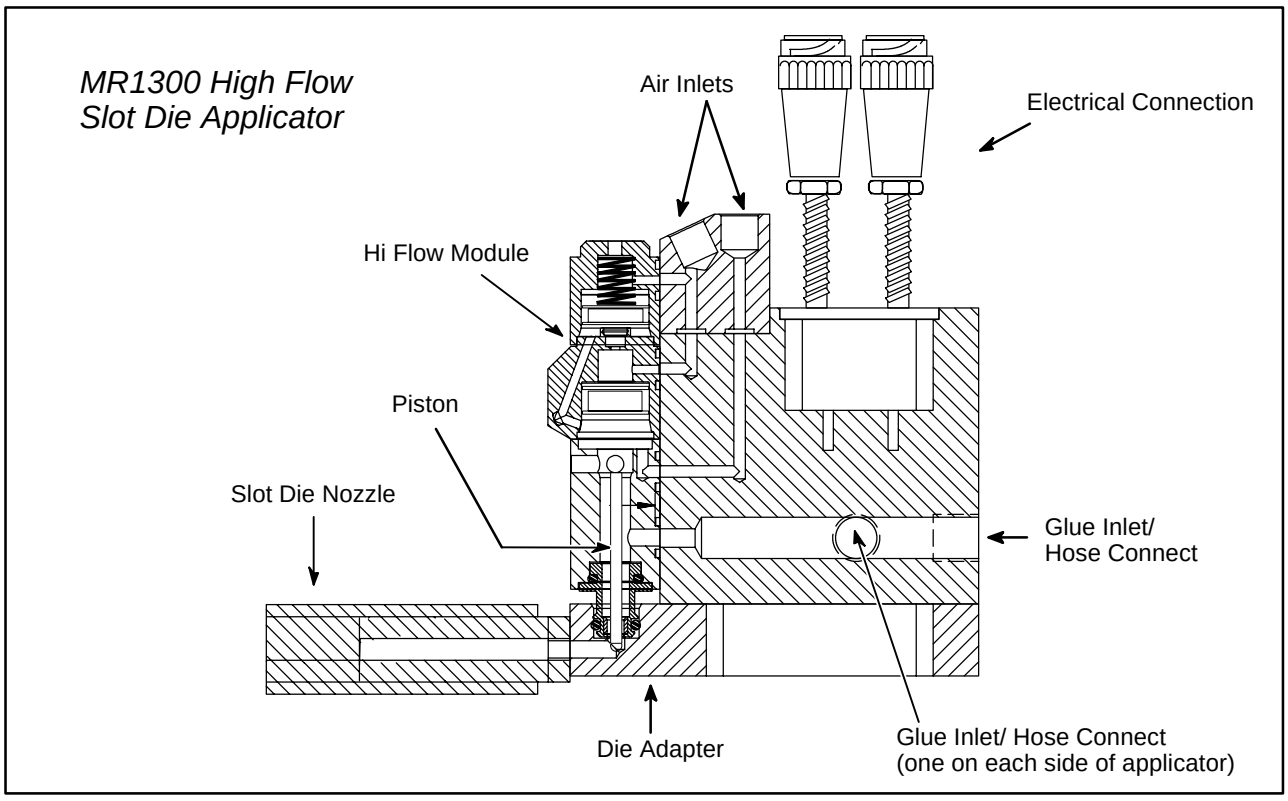
ITW Dynatec's MR1300 High Flow Slot Die Applicator Head is an air-operated, single-module, hot melt adhesive applicator assembly commonly used in the pinch-bottom bag industry. A choice of bracketry allows setup for right- or left-hand or up- or down-apply applications, depending on requirements.

The applicator is heated by replaceable cartridge heating elements which are controlled by an integrated RTD sensor and electronic control. High Flow applicators are available configured for ITW Dynatec's DynaControl, MTC/ CompuVision or Allen-Bradley PLC controls.

Theory of Operation

Each applicator features one MR1300 high flow slot die adhesive valve mounted to a single service block. The valve (module) is opened and closed by air pressure. Springs are used to keep the stem closed when no air pressure is supplied to the head. The rate of adhesive flow from the applicator is determined by the adhesive pressure applied by the adhesive application system's (ASU's) pump and the stem stroke adjustment.

As shown in the illustration below, the heated adhesive supply hose may be connected at either side of the applicator or at the hose connect at the back. Adhesive flows from the hose into the service block and then to the module. Air pressure opens the adhesive valve, allowing adhesive to flow through the module's seat and into the slot die.



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 (including module and solenoid valve) . . . . . 3.52 kg (7.75 lb.)
Mounting . . . . . M6 x 1 screws with insulators

Performance:

Temperature range . . . . . 38°C to 218°C (100°F to 425°F)
Warm-up time . . . . . 15 minutes for cold start/ 5 minutes for module change only
Adhesive viscosity . . . . . 100 to 30000 mPa. sec. (100 to 30000 centipoise)
Adhesive pressure range . . . . . 150 to 650 psi typical*
Noise emission . . . . . 70 dB(A)

Air Requirements:

Air pressure range . . . . . 4.1 to 6.9 bar (70 to 100 psi)

Electrical:

Supply voltage . . . . . 200-240 VAC/ 1p/ 50-60 Hz
Power requirements . . . . . service block: 500 watts
die adapter: 90 watts

Options

Filter Block Assembly PN 106720 (Hi Temperature Filter Block Assembly PNs 108892 &108893)

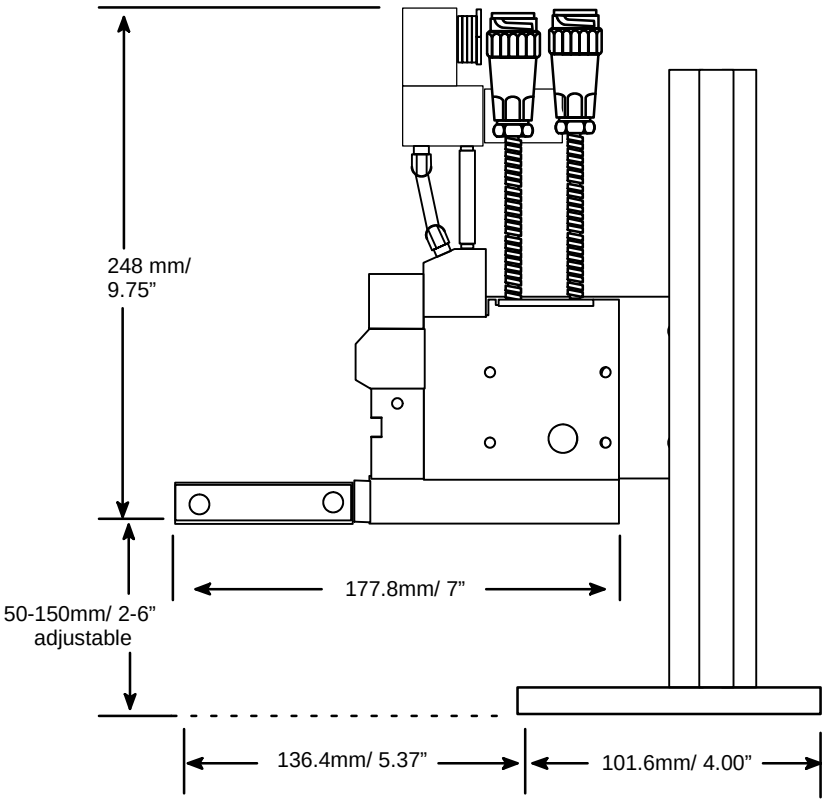
A filter block assembly allows adhesive to be filtered prior to entering the applicator's service block. Filter baskets are available in either 80 or 100 mesh and can be easily accessed for replacement or cleaning.

Pressure Gauge Assembly PN 101175

Installation of a pressure gauge allows monitoring of adhesive pressure inside the service block.

* Dependant on adhesive viscosity, hose length and diameter, and shim thickness.

Dimensions


248 mm/
9.75”
177.8mm/ 7”
50-150mm/ 2-6”
adjustable
136.4mm/ 5.37”
101.6mm/ 4.00”

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

MR1300 Hi Flow Slot Die 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 service block's 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. 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 4.1 to 6.9 bar (60 to 100 psi). Head air inlet ports are G 1/8 threads (1/8 NPT).

Installation Instructions

The applicator head has been tested at the factory and is ready for installation and operation.

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).

See the diagram on the following page 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 bracketry using the M6 screws and insulators provided. Allow access to the (optional) filter, if installed. Be sure that the stroke limit adjustment screws are accessible and that the "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 adapter on the service block, using either one of the inlet ports located on either side of the applicator or the port located on the back of the applicator. When tightening the hose fitting, hold the hose cuff to prevent the hose core from rotating.

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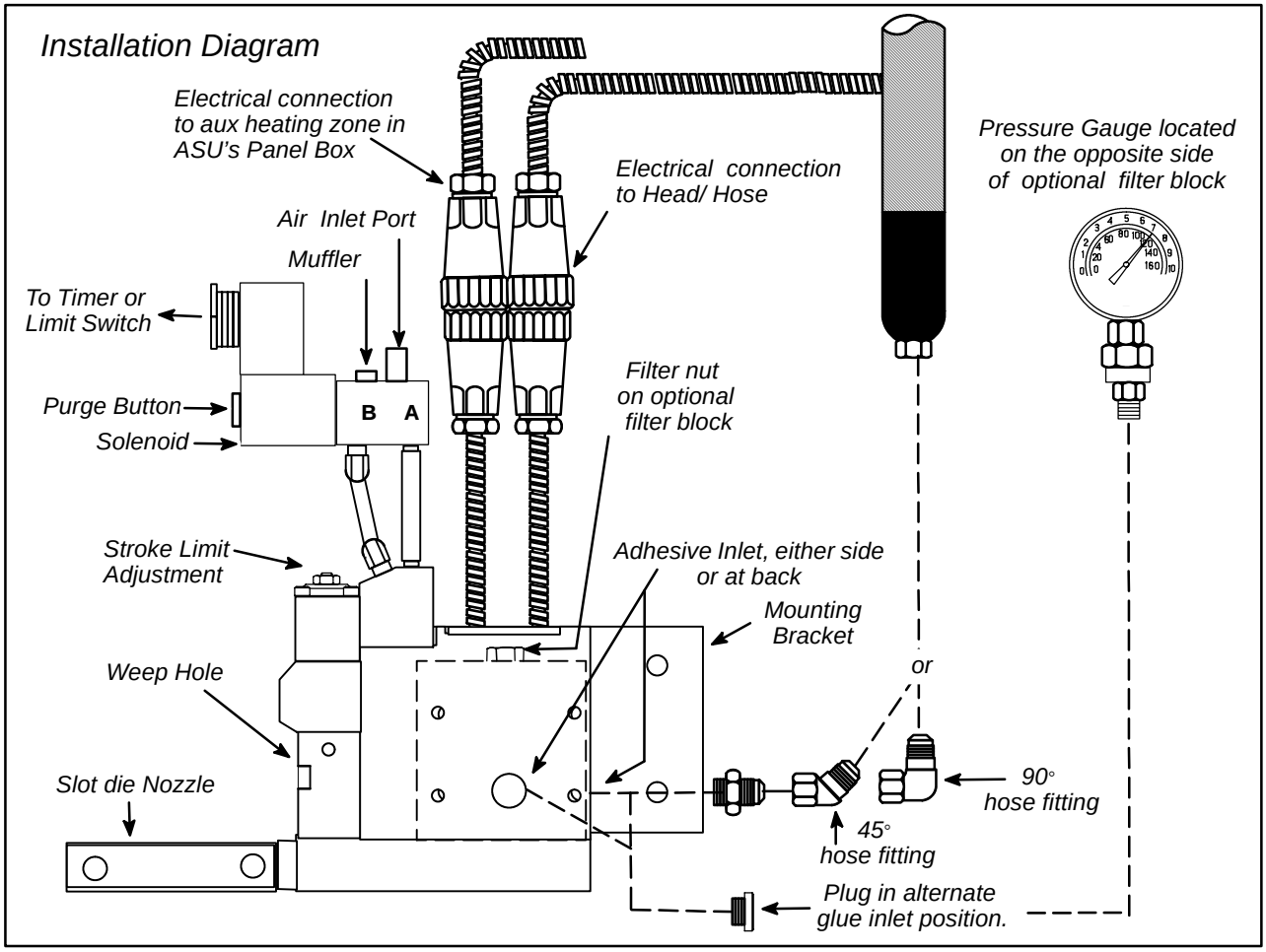


3. Make the two electrical connections:
   a. Make one connection from the hose to the applicator by connecting the female connector of the hose to the male connector of the applicator.
   b. Make the other connection (to heat the slot die nozzle) from the applicator to an auxillary heating zone in the ASU's panel box by connecting the male connector of the applicator to the female connector on the auxilliary cable, which adapts to the female connection at the panel box.

4. Install the air line onto the air inlet port on the solenoid valve.

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. If an (optional) pressure gauge is to be utilized, remove the plug in the pressure gauge port and thread the gauge into the port.

6. 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

cont.

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 (5 minutes for module change) before reading temperature.

7. Purge the applicator of air and oil. Turn the applicator ON electrically and pneumatically.

WARNING HIGH PRESSURE

During the purging procedure, hot adhesive and oil 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 oil.

8. Place a heat resistant container under the module to collect the material that drains from the applicator. Manually open the solenoid 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 oil have drained and only adhesive flows from the module.

Chapter 4
MAINTENENCE

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

The MR1300 High Flow Slot Die modular 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.

Maintenence 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
Weep holes	Inspect for adhesive	As required	Replace seal cartridge or valve module
Nozzle performance	Inspect all nozzles for proper operation	As required	Clean nozzle or re-adjust stroke limiter
Optional filter block assembly	Inspect for cleanliness	Monthly or as required by use	Replace filter element

Stroke Limit Adjustment

All applicators are equipped with a stroke limit adjustment. Whenever the module is disassembled, the stroke limit must be adjusted using the following procedure (see next page for illustration):

1. Bring applicator up to operating temperature.

2. Loosen the lock nut located on the top of the module.

3. Bottom the stroke adjustment screw lightly.

CAUTION: Tightening the stroke adjustment to shut OFF the nozzle will cause damage to the applicator.

4. Back off the screw one-half to one turn.

cont.

5. While holding the screw in positon, tighten the lock nut.

Replacement of the Filter in the Optional Filter Block Assembly

WARNING
HIGH PRESSURE

WARNING
HOT SURFACE

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

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

1. Place a heat-resistant container under the die lips.

2. Relieve the adhesive pressure by manually opening the modules. This is done by pushing the purge button located on the side of the air solenoid coil. Or, if the ASU is equipped with a drain, adhesive pressure may be relieved at the ASU.

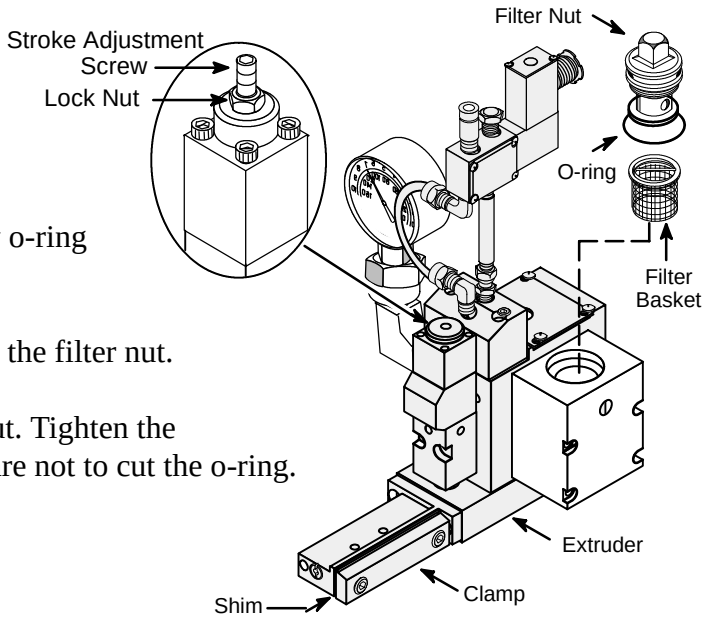
3. Unscrew and remove the filter nut.

4. With needle nose pliers, pull the filter basket out of the manifold.

5 Replace the o-ring on the filter nut. Apply o-ring lubricant (PN N07588) to the new o-ring.

6. Apply a coat of anti-seize to the threads of the filter nut.

7. Re-install the filter basket and the filter nut. Tighten the filter nut until it is seated firmly, taking care not to cut the o-ring.



Shim Replacement

All slot die heads are equipped with shims, located between the clamp and the body of the extruder. To replace a shim:

WARNING HOT SURFACE

During this procedure, the applicator will be at operating temperature. Wear safety glasses, gloves and protective clothing to avoid injury from hot parts or adhesive.

1. Bring applicator up to operating temperature.

2. Loosen the M5 screws which attach the clamp and shim to the body of the extruder.

3. Wipe the body and clamp clean of all adhesive and char using a liquid cleaning solvent. Pay special attention to the surfaces that clamp the shim.

4. Inspect the new shim for any burrs or rough edges. Using 400 grit paper on a flat surface, sand as required to insure flatness.

5. Re-attach shim and clamp to the body, keeping the screws loose.

6. Hold a flat bar (steel or aluminum) against the leading edge of the extruder. This will align the shim to the clamp and the body. All components must be parallel for the entire length of the assembly. Tighten the screws to hold the components together. Remove the flat bar.

7. If required, wrap a piece of 400 grit sandpaper around a flat file and, going from end to end, sand the entire leading edge surface to remove any shim edges that are not in parallel with the clamp and body.

8. Test the applicator for proper performance. Adjust as required.

Chapter 5
TROUBLESHOOTING & SERVICE

Note: Re-read Chapter 1 Safety Precautions" before performing any troubleshooting or repair procedurs. 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	1. Temperature adjustment of head is too low.	1. Check temperature adjustment.
	2. Inoperative solenoid.	2. Push the solenoid's manual button. If it opens, the problem is electrical.
No adhesive flowing out of module	1. Nozzle is clogged.	1. Clean or replace nozzle.
	2. Optional filter element is dirty.	2. Replace filter, see instructions in Ch. 4 Maintenence.
	3. Module seals (o-rings) are inoperative.	3. Check module o-rings, see instructions in this chapter: "Module Assembly Instructions."
	4. ASU's hopper is empty.	4. Re-fill hopper.
	5. Adhesive is too cold.	5. Adjust temperature, see ASU manual.
	6. Solenoid valve is not opening.	6. Check solenoid valve.
	7. Piston stroke is too low.	7. Adjust the stroke limit, see Ch. 4 Maintenence.

Problem	Possible Cause	Solution
Hot melt is coming out of the module's "weep" holes	1. Module seals are damaged.	1. Replace seal cartridge or module, see instructions in this chapter.
Applicator does not reach operating temperature	1. Hopper temperature setpoint is too low.	1. Change setpoint, see ASU manual.
	2. Inoperative heater cartridge.	2. Check/ replace heater cartridge, see instructions in this chapter.
	3. Inoperative temperature sensor.	3. Check/ replace sensor, see instructions in this chapter.
Applicator is too hot	1. Applicator temperature setpoint is too high.	1. Change setpoint, see ASU manual.
	2. Inoperative temperature sensor.	2. Check/ replace sensor, see instructions in this chapter.
Air escapes from module	1. Inoperative piston o-ring.	1. Replace o-ring, see instructions in this chapter.
	2. O-rings located between module and service block are inoperative.	2. Remove module from block (see instructions in this chapter: "Replacement of Module") and replace o-rings.
Application pattern is erratic	1. Adhesive pressure is too low.	1. a. *For units without speed control:* increase adhesive pressure at ASU. b. *For units with speed control (tach follower):* adjust pump speed control.
	2. Adjust pattern controller or solenoid firing mechanism.	2. See pattern controller manual for proper adjustment.
	3. Finger pressure is incorrect.	3. Re-adjust finger pressure and/ or finger location over the slot.
Adhesive is bubbling	1. Adhesive is too hot.	1. Lower adhesive temperature.
	2. Adhesive is below the pressure relief setting.	2. Add adhesive and allow time for it to melt.
	3. Moisture in the adhesive.	3. Drain the ASU and fill with new batch of adhesive.

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. Relieve the adhesive pressure by manually opening the modules. This is done by pushing the purge button located on the side of the air solenoid coil. Or, if the ASU is equipped with a drain, adhesive pressure may be relieved at the ASU.

3. Remove the module from the service block by removing the two mounting screws on the front of the module with a hex key screwdriver (allen wrench). Make sure that the old o-rings located on the back of the module are also removed (the new module will include new o-rings).

4. Mount the new module using a 4mm (5/32”) hex key on the mounting screws.

Module Assembly Instructions for the PN 106480 Hi Flow Module

Use the component illustration and parts list on pages 6-2 and 6-3 as a reference with the following instructions for the MR1300 Hi Flow module. ITW Dynatec has a Module Seal Kit available (PN 106722) which contains the components necessary to rebuild one module, including the seal cartridge assembly, all o-rings, springs and seal lubricant.

1. During re-assembly, coat all o-rings with a liberal amount of High Temp Lube (PN N07588).

CAUTION: DO NOT SUBSTITUTE! Failure to use High Temp Lube (N07588) may result in premature seal breakdown and leakage of glue from the applicator.

2. Insert the new seal cartridge assembly into the module body. Align the roll pin in the seal cartridge with the corresponding hole in the top of the module body. Press the seal cartridge into position. The air hole in the seal cartridge must align with the air hole in the module body for the valve to function properly.

3. Place a new piston o-ring onto the stem assembly and slowly insert the stem assembly into the seal cartridge.

4. After applying locktite to the coupling nut, install the coupling nut onto the stem (on top of the lower piston).

5. Put the stem extension on the opposite side of the coupling nut.

6. Insert the mid air cylinder anti-rotation plate onto the top of the piston.

cont.

7. Install the seals (o-rings) into the mid air cylinder cap. Slide the cap down over the piston.

8. Install the upper piston and piston seals (o-rings).

9. Place the two new springs on top of the upper piston. The smaller spring will nest inside the larger spring.

10. Place the air cylinder over the springs and piston and press down into place. Take care not to dislodge the springs or damage may result. Secure the air cylinder with the four mounting screws.

11. Place a new o-ring on the seat assembly and insert the seat assembly into the bottom of the module body. Secure with the four mounting screws. Spring resistance will be felt as the screws are tightened. Tighten the screws evenly to avoid binding.

12. Thread the adjusting screw into the sealing washer and insert this assembly into the top of the air cylinder. *Do not adjust the stem stroke at this time.*

13. Place new o-rings into the grooves on the rear face of the module and mount the module onto the service block.

14. Allow five minutes for the module to heat. Adjust the stem stroke to the desired setting.

To disassemble, reverse above order.

Testing Resistance of Heater Cartridges

1. Turn the ASU OFF or disable the head (applicator) at the control panel. Turn all pumps OFF and relieve system pressure before proceeding.

2. Unplug the electrical cable from the adhesive supply hose to expose the pins in the cable.

3. With an ohmmeter or multimeter, contact pins 7 and 8 and measure resistance. Compare the reading with the values given in the charts below.

Service Block Heaters

The service block of the High Flow applicators contains two heaters wired in parallel. The individual and parallel resistance values of these heaters is listed below:

Applicator Model	Individual Resistance	Parallel Resistance
High Flow	230.4 Ohms each	97.6 Ohms

Die Adapter Heater

The die adapter contains one heater, wired in parallel with the two heaters in the service block. The resistance value of this heater is listed below:

Applicator Model	Individual Resistance	Parallel Resistance
High Flow	640 Ohms	n.a.

If one of the heaters is not functional, the parallel resistance measured at the contact pins will be *higher* than the range given in the chart. To determine which heater is not functional, remove the cover plate and test each heater independently.

Testing Resistance of the RTD Temperature Sensor

All M1300 applicators use platinum temperature sensors. The resistance value (Ohms) of the temperature sensor depends on the temperature of the sensor at the time it is being tested. At 25°C (77°F), the resistance of the sensor should be 110 Ohms.

With an ohmmeter or multimeter, contact pins 5 and 6 and measure the sensor resistance. A tolerance range of ± 5% is allowed. A sensor that tests outside of this range must be replaced.

Replacement of Heater Cartridge or Sensor

Replacement of Service Block Heater Cartridges

1. Turn OFF the ASU and relieve all system pressure before proceeding.

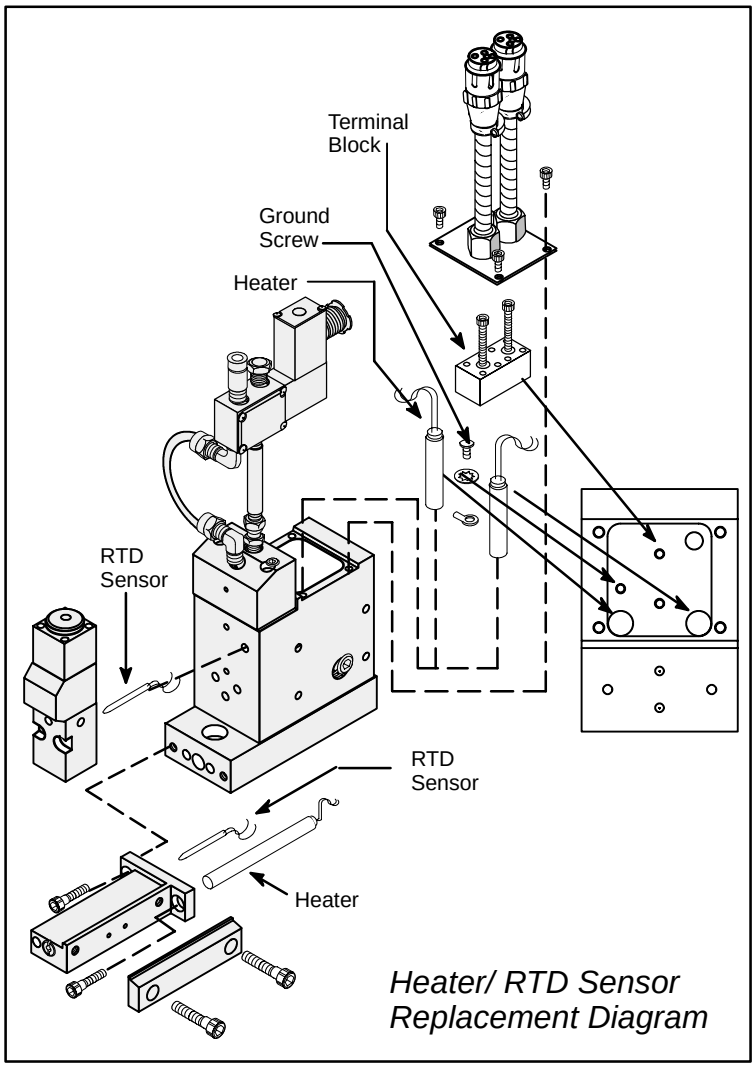
2. Disconnect the service block's electrical cable assembly from the hose.

3. Remove the four screws holding the cover plate. Remove the plate. Pull the ceramic terminal blocks from the wiring cavity and disconnect the heater leads from the terminal blocks.

4. Locate the non-functioning heater with a multimeter. Remove and replace the heater. Apply a thin film of thermal paste to the new heater before installation.

5. Reconnect the heaters to the terminal blocks, making sure that no strands of wire are protruding from the terminal blocks.

6. Place the terminal blocks back into the wiring cavity. Replace the cover plate.



Heater/ RTD Sensor Replacement Diagram

Replacement of Die Adapter Heater Cartridge

See illustration on page 5-6 for parts locations.

1. Turn OFF the ASU and relieve all system pressure before proceeding.

2. Disconnect the service block's electrical cable assembly from the hose.

3. Remove the three M4 screws from the wire cover. Remove the wire cover.

4. Disconnect the heater leads from the ceramic terminal block.

5. Check the heater with a multimeter.

6. If the heater is non-functioning, remove and replace it at this time. Apply a thin film of thermal paste to the new heater before installation.

7. Reconnect the heater to the terminal block, making sure that no strands of wire are protruding from the terminal block.

8. Replace the wire cover.

Replacement of Temperature Sensors

See illustration on page 5-6 for parts locations. There are two temperature sensors. One is located in the die adapter. The other is located in the service block.

To Replace the Die Adapter Sensor:

1. Disconnect the service block's electrical cable assembly from the hose.

2. Disconnect the die adapter's electrical cable assembly from the adapter cable.

3. Remove the three screws holding the die adapter cover plate. Remove the plate.

4. Pull the sensor out of the die adapter and disconnect its leads from the ceramic terminal block.

5. Apply a thin film of thermal paste to the new sensor and place it in the die adapter.

6. Wire the new sensor to the ceramic terminal block, making sure that no strands of wire are protruding from the terminal block.

7. Replace the die adapter cover.

8. Re-connect all cable assemblies.

To Replace the Service Block Sensor:

1. Disconnect the service block's electrical cable assembly from the hose.

cont.

2. Disconnect the die adapter's electrical cable assembly from the adapter cable.

3. Remove the top cover plate where the electrical cables are mounted.

4. Pull the sensor out of the service block and disconnect its leads from the ceramic terminal block.

5. Apply a thin film of thermal paste to the new sensor and place it in the service block.

6. Wire the new sensor to the ceramic terminal block, making sure that no strands of wire are protruding from the terminal block.

7. Replace the wiring cover.

8. Re-connect all cable assemblies.

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

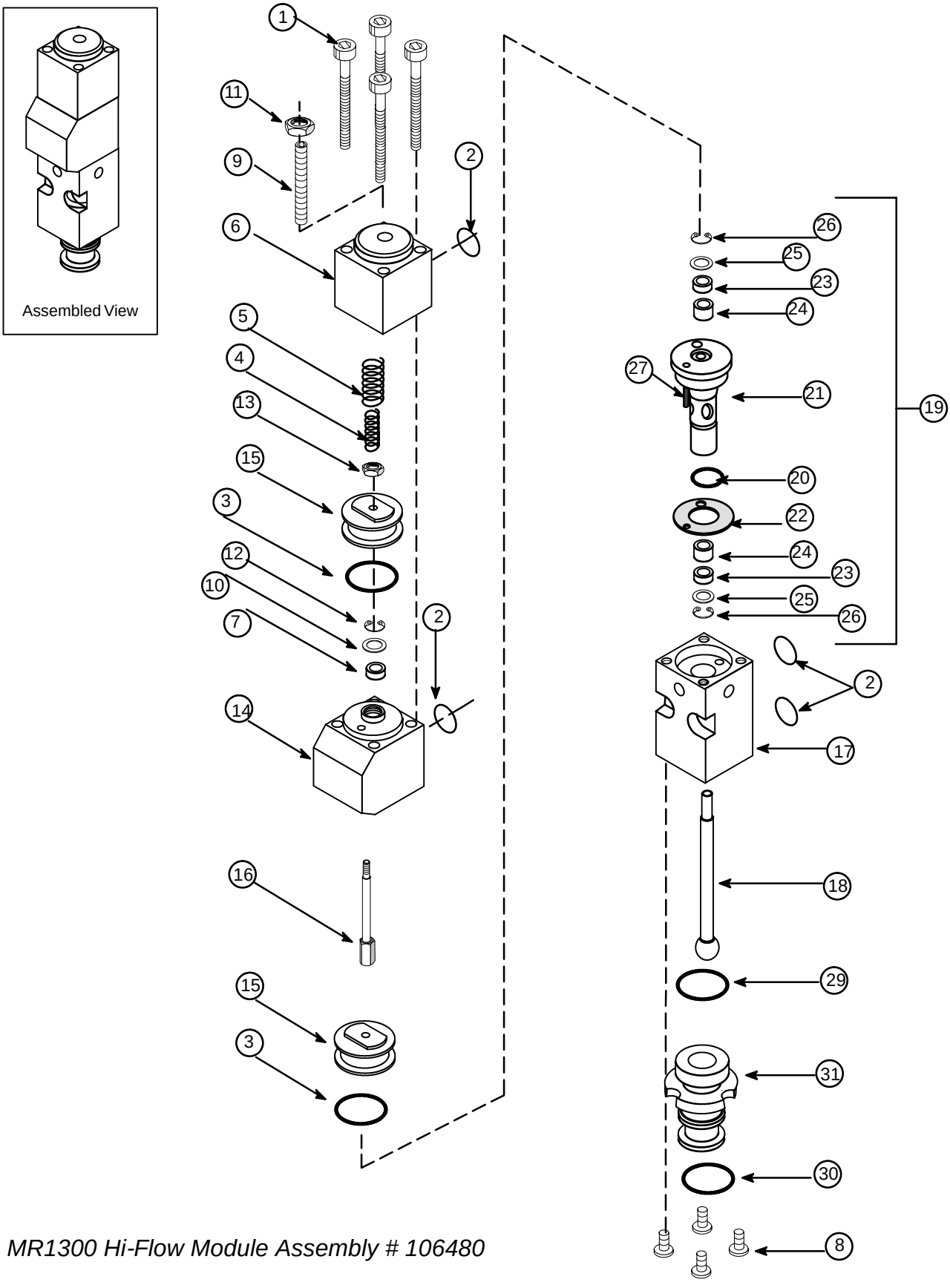
All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect equipment's operation and can result in personal injury.

The following pages provide exploded-view reference drawings to assist users of MR1300 Hi-Flow Slot Die applicators to identify parts and aid in servicing the equipment.

Note: most common nuts, bolts and fasteners can be obtained locally at your hardware store. Specialty fasteners are available by contacting Dynatec's Customer Service.

MR1300 Hi-Flow Module Assembly # 106480

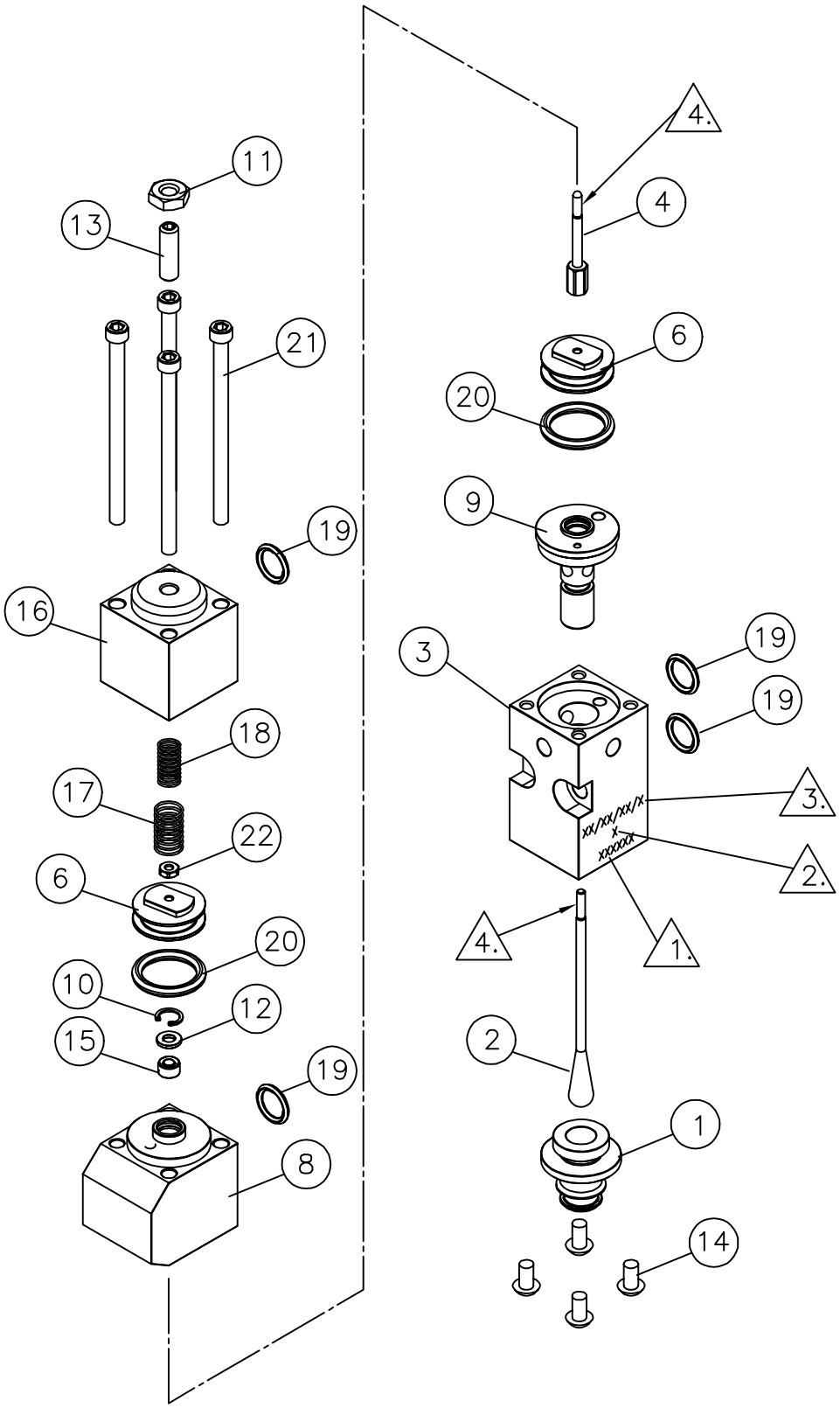
Item No.	Part Number	Description	Qty.
1	C78A204	6-32 x 2 1/2 SHC Screw	4
2	N00178	O-ring, -011	4
3	N00198	O-ring, -113	2
4	057E409	Inner Compression Spring	1
5	057E410	Outer Compression Spring	1
6	057F139	Air Cylinder	1
7	069X197	Stem Seal	1
8	N02680	6-32 x 3/8 BHC Screw	4
9	078A384	10-32 x 3/4 SHS Screw	1
10	078C085	Washer, .25 x .16 x .032	1
11	078D078	10-32 Sealing Hex Nut	1
12	078F034	Internal Ring	1
13	106515	2-56 Hex Nut	1
14	106487	Mid Air Cylinder Cap	1
15	106489	Piston, Threaded	2
16	108753	Extension Stem	1
17	110584	Body	1
18	106493	Stem & Ball Assembly	1
19	**084B1361**	**Seal Cartridge Assembly**	**1**
20	N00176	O-ring, -009	1
21	057E429	Seal Cartridge	1
22	057I260	Gasket	1
23	069X197	Stem Seal	2
24	069X198	Seal Back Up	2
25	078C085	Washer, .25 x .16 x .032	2
26	078F034	Internal ring	2
27	078G028	1/16 Dia. x 3/8 LG Roll Pin	18
28	**106496**	**Die To MR1300 High Flow Adapter**	**1**
29	N00195	O-ring, #-110	1
30	N05044	O-ring, -109	1
31	110587	Die Adapter Assembly	1



MR1300 Hi-Flow Module Assembly # 106480

MR1300 Hi-Flow, Hi-Temp. Module Assembly # 108789

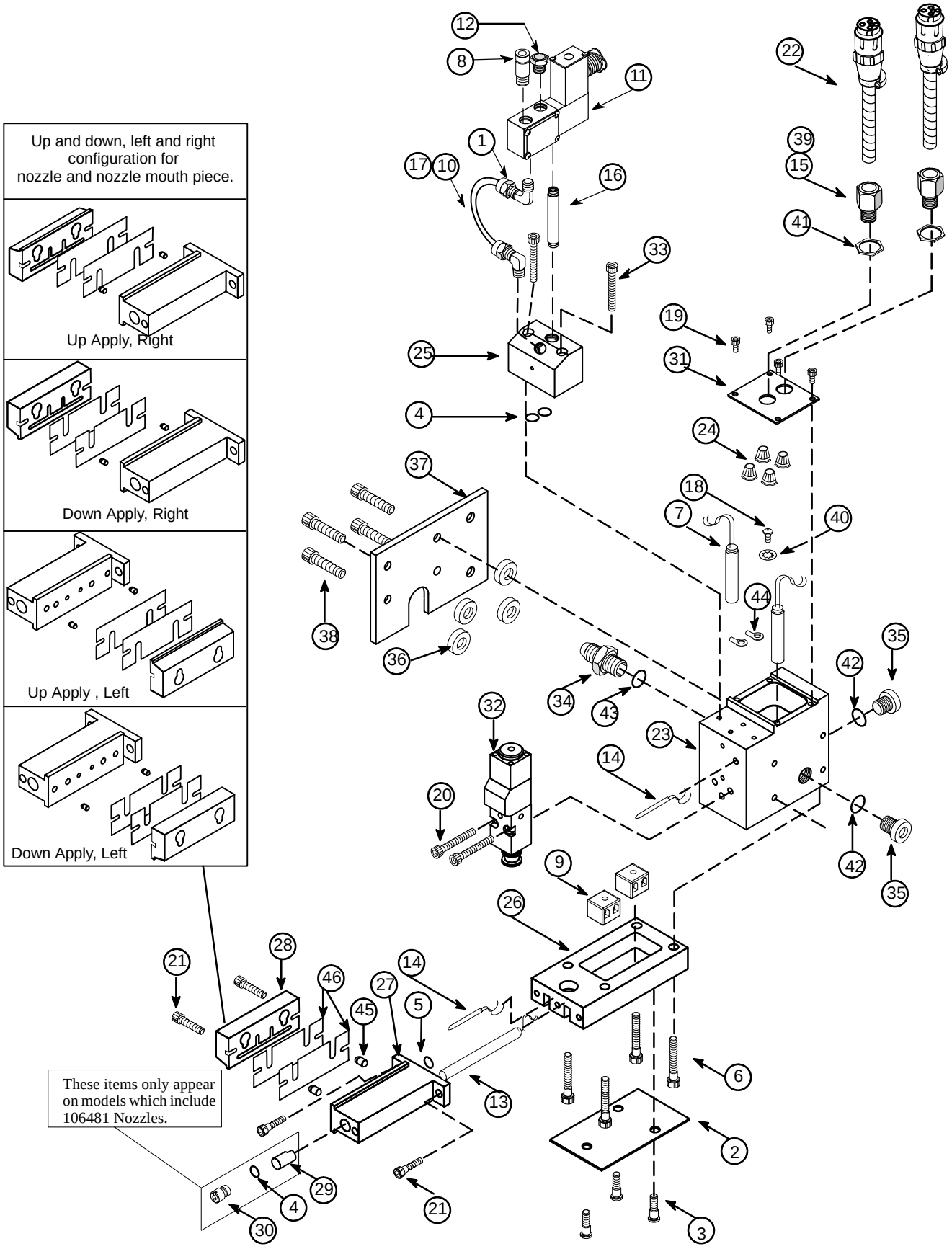
Item No.	Part Number	Description	Qty.
1	110613	Adapter Assembly, Die, MR13HF, Hi Temp	
2	106493	Stem Hi Flow	1
3	110584	Module Body	1
4	108753	Stem Extension	1
5	102289	Primer, Loctite, 7649	A/R
6	106489	Piston Threaded	2
7	108669	Thread Sealant	A/R
8	106487	Cylinder, Mid, Air	1
9	084B1457	Seal Cartridge Assembly, Hi-Temp.	1
10	078F034	Ring, Ret, Internal	1
11	078D078	10-32 Hex Nut	1
12	078C085	Washer, .25 x .16 x .32 THK	1
13	078A384	10-32 x 3/4 SHC Screw	1
14	N02680	6-32 x 3/8 BSHC Screw	4
15	069X197	Stem Seal	1
16	057F139	Air Cylinder	1
17	057E410	Outer Compression Spring	1
18	057E409	Inner Compression Spring	1-
19	N07079	O-ring, -011	4
20	069X222	O-ring, -113	2
21	C78A204	6-32 x 2.5 SHC Screw	4
22	106515	2-56 Hex Nut	4
23	001U002	Lube	



MR1300 Hi-Flow, Hi-Temp. Module Assembly # 108789

MR1300 Hi-Flow Slot Die Applicator Assembly # 106500 DCL & 106485 MTC/ CV

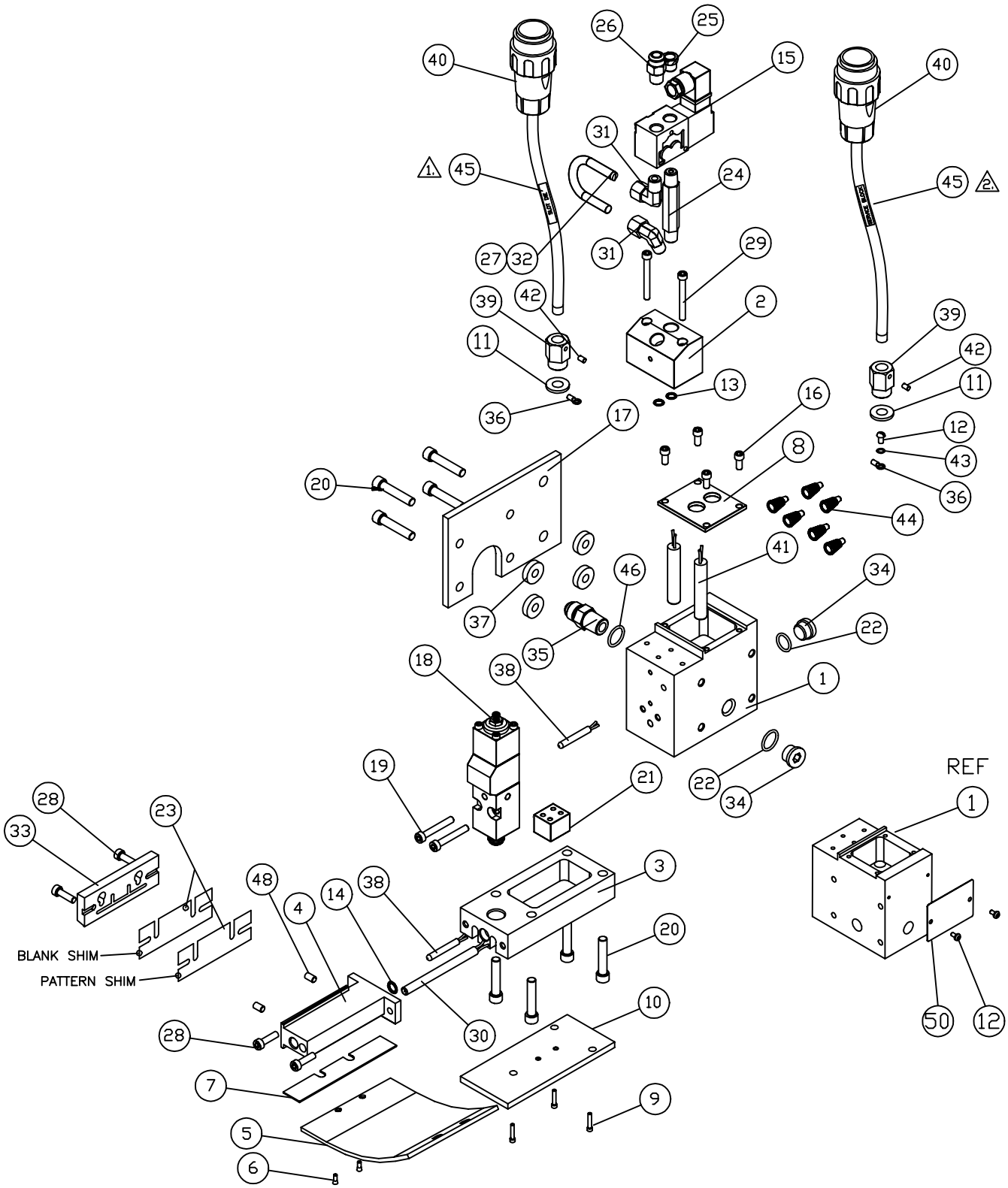
Item No.	Part Number	Description	Qty.
1	N00099	Fitting, Elbow, 90°	2
2	106645	Cover Plate, Die Adapter	1
3	105113	Screw, Cover Plate, Die Adapter	3
4	N00175	O-ring,#-008 (This part appears with106481)	3
5	N00178	O-ring, #-011	1
6	104663	M6-1,0 x 25mm SHC Screw	4
7	108699	Heater, Cartridge, 250w, 240v, 3/8 x 2	2
8	N06435	Fitting connector, Push-in	1
9	107881	Terminal block, 2 Pos, Ceramic	2-3
10	N07677	Tubing Teflon, .25OD x .125 ID	4”
11	109402	Valve Solenoid, Mac 45, 1/8, 24DC	1
12	030B108	1/8 NPT Breathing Vent	1
13	113365	Heater, 1/4 x 3, 240v, 200w	1
14	N07958	Temperature Sensor (106500 DCL)	2
	104912	Temperature Sensor (106485 MCV)	2
	N07864	Temperature Sensor (113288 Upgrade)	2
15	048J049	1/4 Conduit Fitting	2
16	072X254	2.5” Solenoid Nipple, 1/8 NPT	1
17	072X383	3/16 Tube Support	2
18	105162	M3-0,5 x 6mm Phil. Screw	1
19	102466	M4-07 x 10mm SHC Screw	4
20	078A111	10-24 x 1 1/4 SHC Screw	2
21	106242	M5-0,8 x 16mm SHC Screw	4
22	106648	Cable Assembly, 240v, DCL (106500 DCL)	2
	106655	Cable Assembly, 240v, MTC (106485 MCV)	2
	113287	Cable Assembly, (Upgrade 113288)	
23	106477	Service Block, MR13HF	1
24	N02540	Wire Nut	4-6
25	106478	Solenoid Adapter,1 port, MR13HF	1
26	106479	Die Adapter, 1 port, MR13HF	1
27	106481	Nozzle, 1 port, MR13HF (This part appears on earlier models)	1
	107132	Nozzle, 1 Port, MR13HF	1
28	107133	Die (To be used with Shim Pack)	1
29	106952	Plug (This part appears with106481)	1
30	106483	Pressure Screw (This part appears with106481)	1
31	106486	Wire Cover, Service Block	1
32	106480	Module, MR13HF, Slot	1
33	101691	M4-0,7 x 40mm SHC Screw SHC Screw	2
	107461	Machinable Die (optiion)	
34	103944	1/4 BSPP, #8	1
35	101625	Fitting, Plug, 1/4 BSPP	2
36	L00006	Insulated Spacer	4
37	106508	Mounting Plate	1
38	104663	M6-1,0 x 25mm SHC Screw	4
39	078A055	10-24 x 3/16 SH Set Screw	2
40	106245	M3 Lock Washer, Int Tooth	1
41	N06883	Nut, Hex, Jam, 9/16-18	2
42	069X024	O-ring, -014	2
43	N00196	Oring, -111	1
44	N07430	Terminal Ring	2
45	107144	Dowel Pin, 1/8 Dia. x 3/16	2
46	**107138**	**Shim Kit (to be modified with customers pattern)**	**1**
	107134	Shim, Blank, .020	1
	107135	Shim, Blank, .015	1
	111682	Shim, Blank, .025	1
	111683	Shim, Blank, .031	1
	Note: the following parts are shown with the bracket assembly pages 6–10		
see 57	107031	Shim Slide	1
see 59	106509	Skid Plate	1



MR1300 Hi-Flow Slot Die Applicator # 106500/ 106485

MR1300 Hi Temp, Hi-Flow Slot Die Applicator, Right Down Apply, 240V PN's # 108790 DCL, 108791 MTC/CV

Item No.	Part Number	Description	Qty.
1	106477	Service Block, MR13HF	1
2	106478	Solenoid Adapter,1 port, MR13HF	1
3	106479	Die Adapter, 1 port, MR13HF	1
4	107132	Nozzle, 1 Port, MR13HF	1
5	106509	Skid Plate	1
6	106470	M4 x 8mm,FH Screw	
7	107031	Shim Slide	1
8	106486	Wire Cover, Service Block	1
9	105113	Screw, Cover Plate, Die Adapter	3
10	106645	Wire Cover, Die Adapter	1
11	078C137	Washer	2
12	105162	M3-0,5 x 6mm Phil. Screw	1
13	N07077	0-ring, -008 (Hi-Temp.)	2
14	N07079	0-ring, -011	1
15	109402	Valve Solenoid	1
16	102446	M4-07 x 10mm SHC Screw	4
17	106508	Mounting Plate	1
18	108789	Module,MR13HF, Hi Temp.Slot	1
19	078A111	M5 x 35mm SHC Screw	2
20	104663	M6-1,0 x 25mm SHC Screw	4
21	107881	Terminal Block, 2 Pos, Ceramic	2
22	N07081	0-ring, -014	2
23	**107138**	**Shim Kit (to be modified with customers pattern)**	**1**
24	072X254	2.5" Solenoid Nipple, 1/8 NPT	1
25	030B108	1/8 NPT Breathing Vent	1
26	N06435	Fitting connector, Push-in	1
27	072X383	3/16 Tube Support	2
28	106242	M5-0,8 x 16mm SHC Screw	4
29	101691	M4-0,7 x 40mm SHC Screw SHC Screw	2
30	036A016	Heater, 1/4 x 3, 240v, 90w	1
31	N00099	Fitting, Elbow, 90°	2
32	N07677	Tubing Teflon, .25OD x .125 ID	4
33	107133	Die	1
	107461	Machinable Die (Option)	
34	101625	Fitting, Plug, 1/4 BSPP	2
35	103944	1/4 BSPP, #8	1
36	N07430	Terminal Ring	2
37	L00006	Insulated Spacer	4
38	104912	Temperature Sensor (106485 MCV)	2
39	048J049	1/4 Conduit Fitting	2
40	106655	Cable Assembly, 240v, MTC (106485 MCV)	2
41	108699	Heater,, Cartridge, 250w, 240V, 3/8 x 2"	2
42	078A055	10-24 x 3/16 SH Set Screw	2
43	106245	M3 Lock Washer, Int Tooth	1
44	N02540	Wire Nut, Ceramic	4-6
45	105282	Marker, Tie	2
46	100097	0-ring, -111 (Hi Temp.)	1
47	N08036	Ferrule (Not Shown)	8
48	107144	Dowel Pin, 1/8 Dia. x 3/16	2
49			
50	108878	Data Tag	1

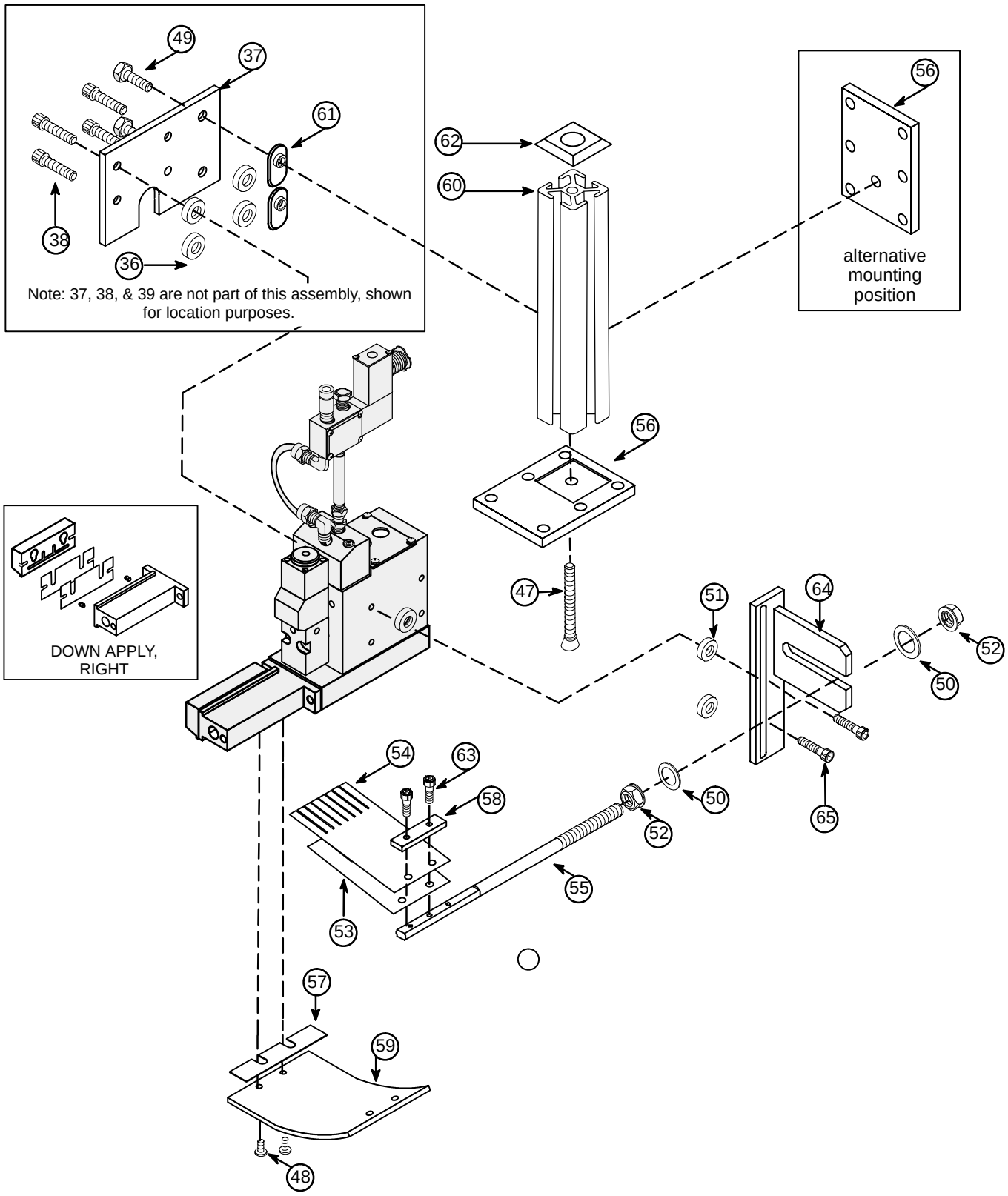


MR1300 Hi Temp, Hi-Flow Slot Die Applicator,
Right Down Apply, 240V PN's # 108790 DCL, 108791 MTC/CV

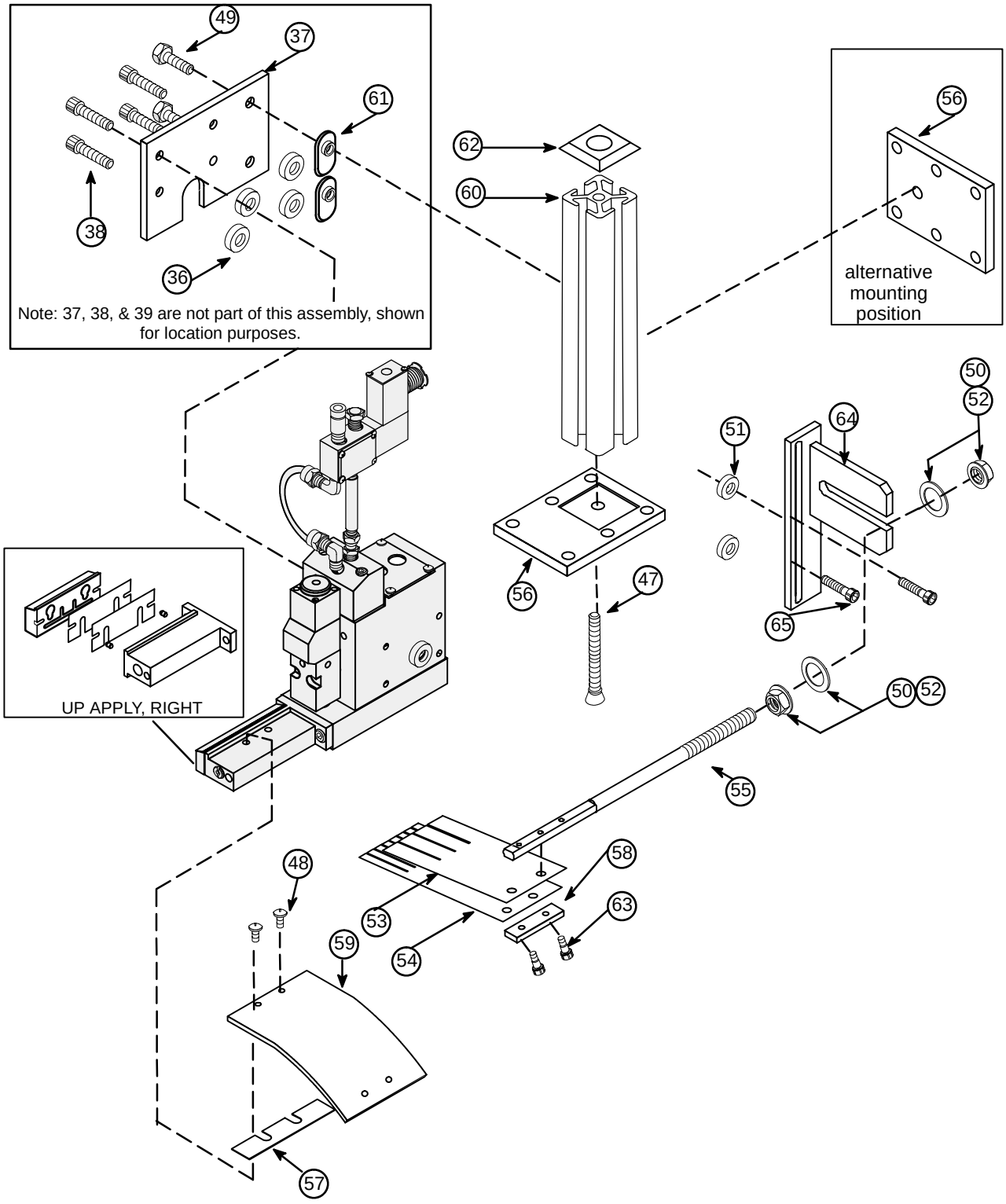
MR1300 Hi-Flow Applicator Bracket Assembly # 106653

Item No.	Part Number	Description	Qty.
	106653	**Pinch Bottom Bracket Assembly**	**1**
47	078A028	3/8-16 x 1 1/4 FHSC Screw	1
48	105278	M4-0,7 x 6 FHSC Screw	2
49	N00732	5/16-18 x 3/4 HHC Screw	2
50	078C012	1/2” Flat Washer SAE	2
51	L00006	Spacer, Insulating	2
52	109848	M12 Hex Nut, Flange Lock	2
53	106499	Guide, Finger	1,
54	106501	Guide, Finger	1
55	106502	Finger, Bar	2
56	106504	Base Plate	1
57	107031	Shim Slide (Part Of Head Assembly 106500)	1
58	106507	Finger, Holdown	2
59	106509	Skid Plate (Part Of Head Assembly 106500)	1
60	106510	T-Slotted, Stud	1
61	106657	T-Slot, Fastener	2
62	106656	T-Slot End Cap	1
63	101626	M5-0,8 x 12 SHC Screw	2
64	107255	Finger Guide Support	1
65	104663	M6 x 25mm SHC Screw	2

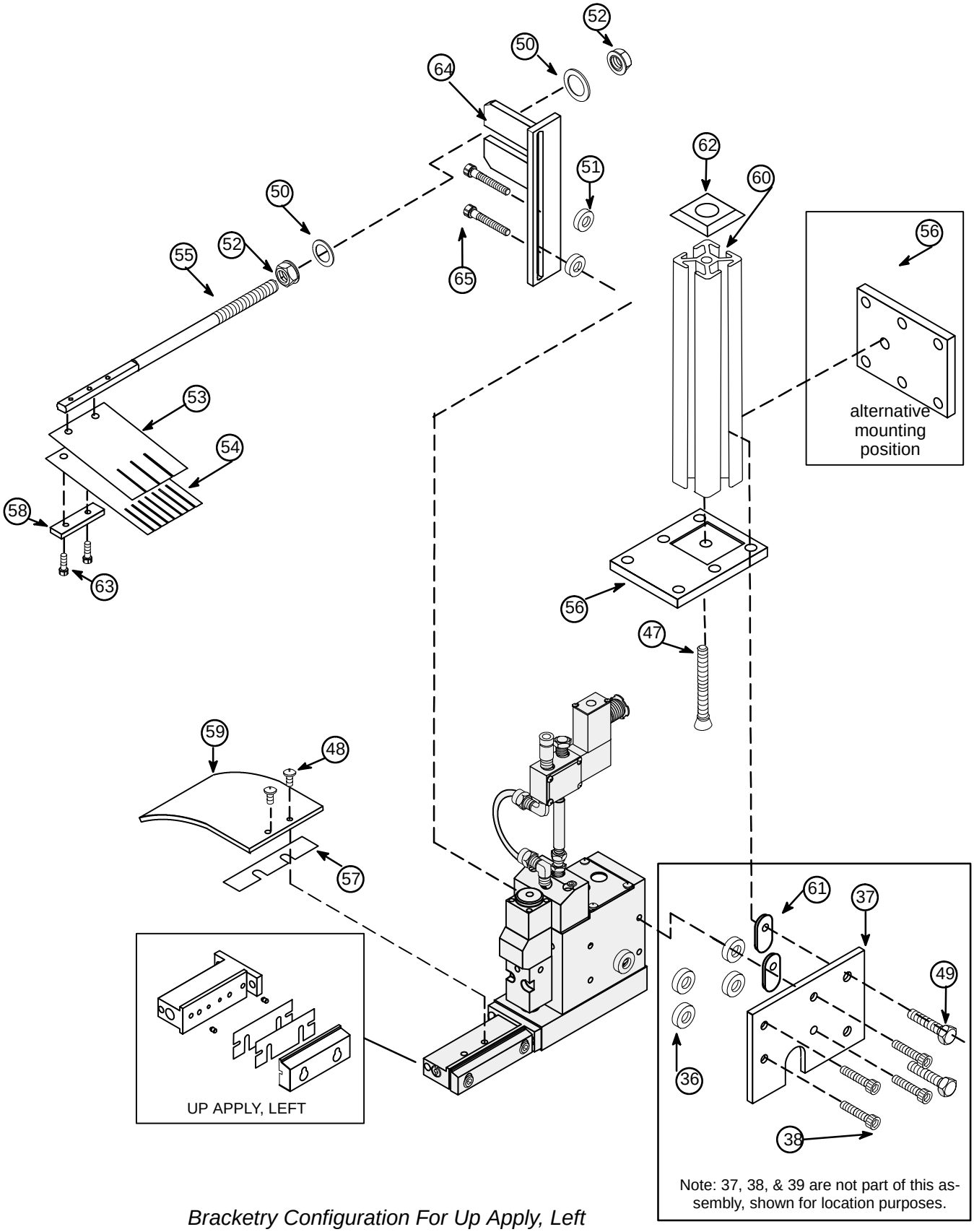
Note: The following pages show alternative bracketry set-ups for the Left and Right, Up and Down applicatons.



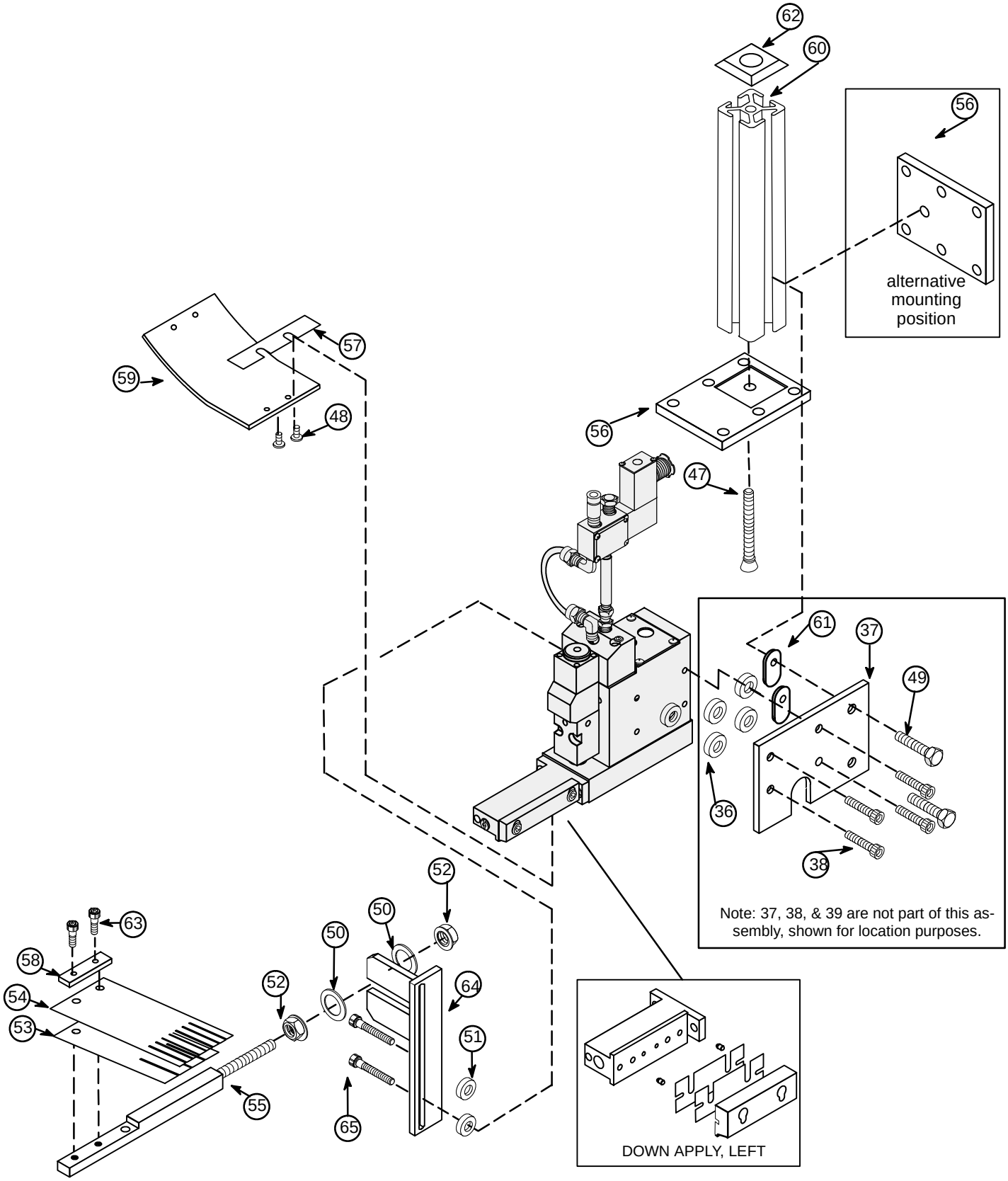
Bracketry Configuration For Down Apply, Right
(See page 6 of this chapter for BOM)



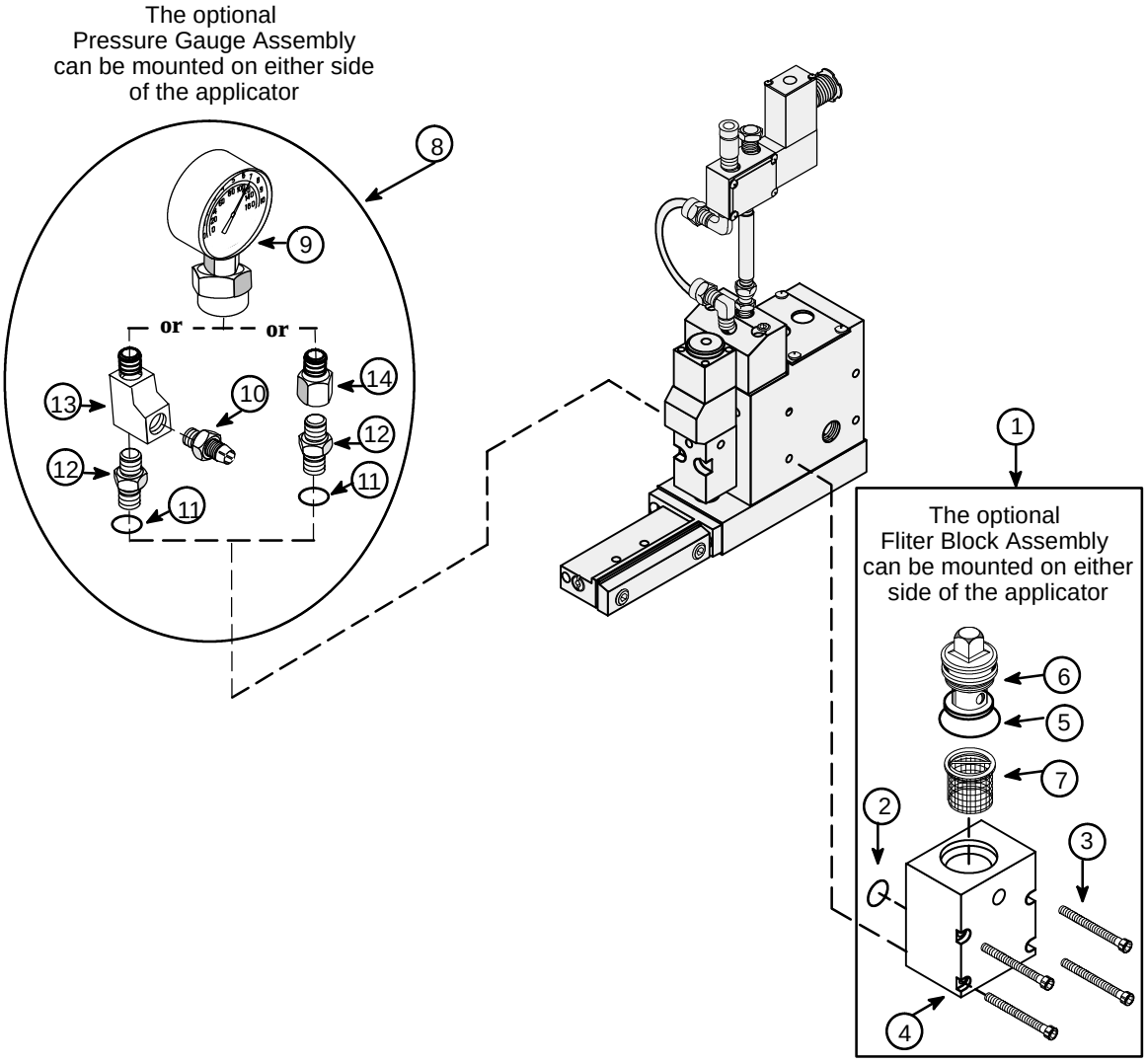
Bracketry Configuration For Up Apply, Right
(See page 6 of this chapter for BOM)



Bracketry Configuration For Up Apply, Left
(See page 6 of this chapter for BOM)



Bracketry Configuration For Down Apply, Left
(See page 6 of this chapter for BOM)



MR1300 Hi-Flow Slot Die Applicator Options

Item No.	Part Number	Description	Qty.
1	**106720**	**Optional Filter Block Assembly**	**1**
2	N00185	O-ring, #-018	1
3	106721	M6 x 60mm SHCS	4
4	006B121	Filter Block	1
5	069X058	O-ring,# -028	1
6	006C024	Filter Nut	1
7	101247	Filter Basket, 100 mesh (standard)	1
	102693	Filter Basket, 80 mesh (option)	1
	102646	Filter Basket, 40 mesh (option)	1
8	**101175**	**Optional Pressure Gauge Assembly**	**1**
9	101174	Pressure Gauge	1
10	N00104	Fitting Adapter, M, 37 JICM	1
11	N00196	O-ring, -111	1
12	103330	Fitting, Adapter,1/4 BPSS x 1/4 NPT	1
13	N04531	Fitting, Street Tee, Brass, 1/4 NPT	1
14	101172	Fitting Adapter, 1/4 MPT x 1/4 FPT	1

Chapter 7
ORDERING GUIDES

Hi Flow Applicator Heater Cartridges

Part No.	Description	Location	Qty.
036A016 108699	3” long, 90w 3/8x2”, 250w	die adapter service block	1 2

Hi Flow Applicator RTD Sensors

Applicator	Part No.	Description	Location	Qty.
106500	N07958	Pt 100	die adapter service block	1 1
106485	104985	Pt, dual	die adapter service block	1 1
113288	N07864	Ni120	die adapter service block	1 1

Module Repair Kits

PN 106722 Hi-Flow Seal Repair Kit

The Hi-Flow module seal repair kit contains all the parts necessary to rebuild one High Flow MR1300 module, including the seal cartridge, high temperatue lubricant, springs and all o-rings.

PN 113709 Hi-Flow, Hi-Temp Seal Repair Kit

The Hi-Flow, Hi-Temp module repair kit contains all the parts necessary to rebuild one High Flow, High Temp MR1300 module, including the seal cartridge, high temperatue lubricant, springs and all o-rings.

MR1300 High Flow Shim Kit PN 107138

All slot die applicators require that a shim be modified (cut) per the user’s application pattern. The shim kit contains four shims of various widths (0.015, 0.020, 0.025 and 0.031), one of which should be selected for the modification. Important note: No other shim on the applicator should be cut.

Recommended Service Parts List

Part Number	Description	Qty. per Applicator
106722	Hi-Flow Module Seal Kit	as required
113709	Hi-Flow, Hi-Temp Module Seal Kit	as required
084B1361	Seal Cartridge Assembly	as required
See Ordering Guide	Heaters	as required
See Ordering Guide	RTD Sensor	1
030A035	Solenoid Valve	1
N00195	O-ring 110	1
N00178	O-ring 011	1
069X024	O-ring 014	2
N00198	O-ring 113	1
N00175	O-ring 008	3
N00177	O-ring 010	1
N00196	O-ring 111	1
N00176	O-ring 009	1
N07588	Lubricant	1
001V061	Thermal Paste	1

Recommended Service Parts List for Options

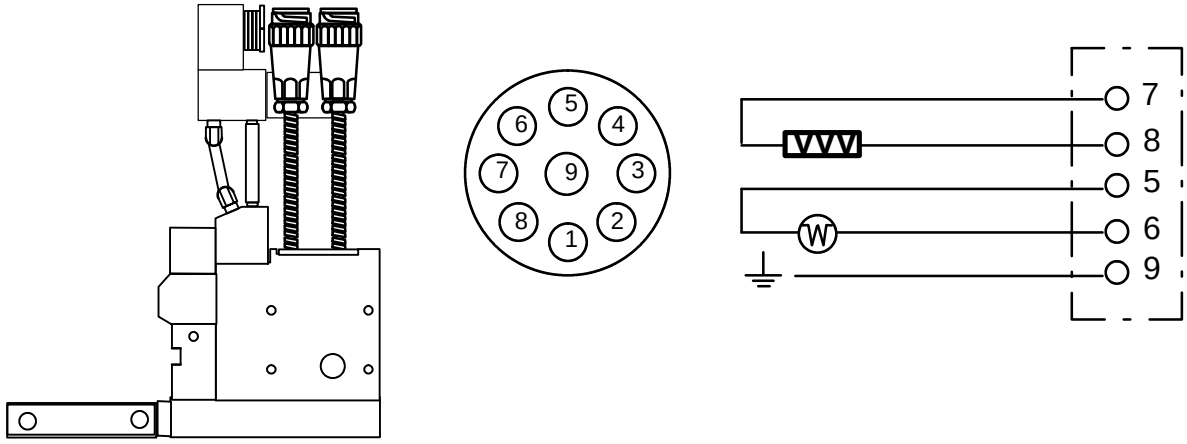
069X058	O-ring 028 (filter block option)	1
N00185	O-ring 018 (filter block option)	1
102693	Filter Basket, 80 mesh (filter block option)	2
101247	Filter Basket, 100 mesh (filter block option)	2
N00196	O-ring 111 (pressure gauge option)	1

Chapter 8
ENGINEERING DRAWINGS & SCHEMATICS

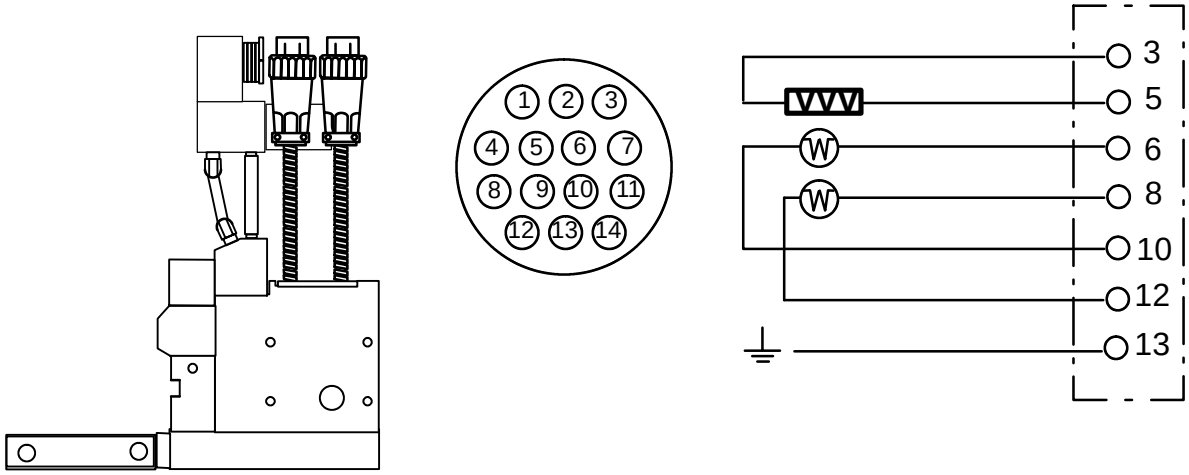
Pin Connectors & Electrical Schematics

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

DynaControl (DCL) or PLC Control Scheme PN 103117

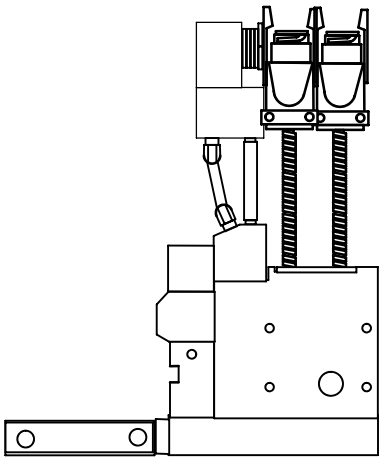


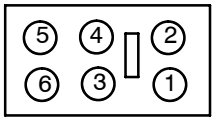
Microprocessor Temperature Control or CompuVision (MCV) Control Scheme PN 045X144



Symbols Used: Heater — RTD Sensor — Ground

Upgrade (Nickel RTD) Control Scheme PN 104551





Note: pin out numbers are not labeled on the Upgrade connector.