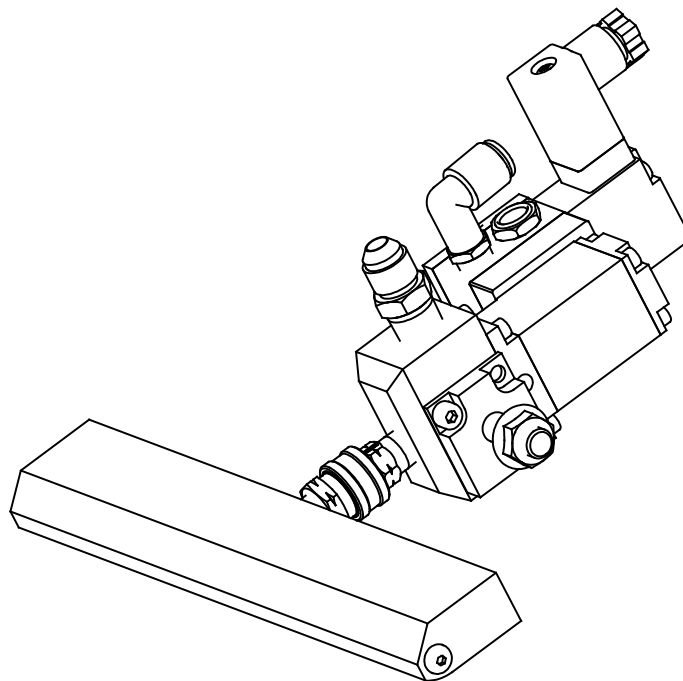




The Next Level of Technology

■ innovation ■ service ■ reliability

APEX MINI COLD GLUE MODULE SERVICE MANUAL



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**

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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 Pressure



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

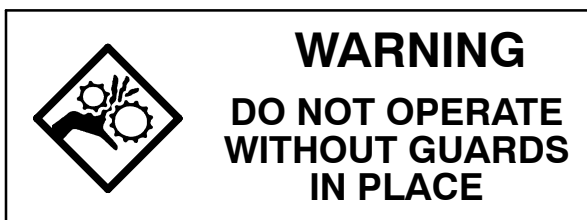
To prevent serious injury from adhesive under pressure when servicing the equipment, disengage the pumps and relieve the adhesive system's hydraulic pressure

(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 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.

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.

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 APEX Mini Cold Glue Module is an electrically-triggered, air-actuated valve designed for the dispensing of ambient temperature adhesives. Different versions exist for a large variety of high and low volume application requirements. It may be configured for both contact and non-contact applications, depending upon the nozzle and valve body design.

The valve is "reverse acting", meaning that it seals on the outflow side of the seat rather than the in-flow side; thus a slight negative pressure is created during valve shutoff which can potentially enhance the pattern cutoff during intermittent operations.

Specifications

Performance:

Cycle Rate	5,000 Cycles per Minute
On/Off Times	6ms ON/6ms OFF
Adhesive Viscosity	300 to 15,000 centipoise (mPa)
Adhesive Pressure, High-Pressure Module	to 750psi (52bar)
Adhesive Pressure, Low-Pressure Module	to 100psi (6.9bar)
Adhesive Type	Water-Based, Synthetic Resin Emulsion
Noise Emission	30dB(A)

Air Requirements:

Actuating Air Pressure	75 to 90psi (5 to 6 bar)
Air consumption	.28 liters/min @ 100 cycles/min (0.1 SCFM @ 100 cycles/min)

Electrical:

Supply voltage	24VDC, 6.5 watts
Over-excitation voltage	55VDC @ 1ms (Mac valve version only)

Physical:

Mounting	varies by design
Weight	1.1 lbs. (500gm)
Dimensions	see dimensional layout on following page

Dimensions

0 14.55 [.573]

M4x0.7 - 6H ▽ 6.50
[M4x0.7 - 6H ▽ .256]

0 96.91 [3.815]

114.91 [4.524]

123.66 [4.869]

146.00 [5.748]

28.07 [1.105]

44.97 [1.770]

64.47 [2.538]

71.37 [2.810]

0 37.10 [1.461]

49.50 [1.949]

61.90 [2.437]

0 96.91 [3.815]

114.91 [4.524]

113.16 [4.455]

M4x0.7 - 6H ▽ 6.50
[M4x0.7 - 6H ▽ .256]

3.00 [.118]

21.80 [.858]

0 64.47 [2.538]

44.97 [1.770]

M4x0.7 - 6H ▽ 6.50
[M4x0.7 - 6H ▽ .256]

0 18.40 [.724]

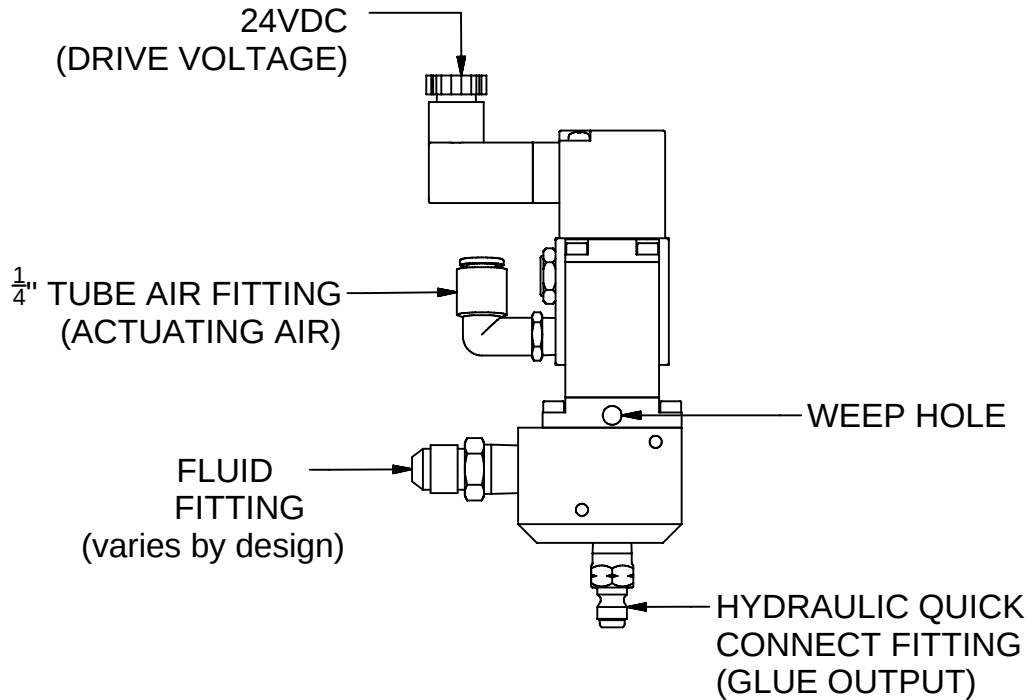
12.40 [.488]

DIMENSIONS ARE MM [INCH]

DIMENSIONS ARE MM [INCH]

Chapter 3 INSTALLATION

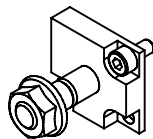
Note: Re-read the listed “Safety Precautions” before performing any installation or start-up procedures. All installation and start-up procedures must be performed by qualified, trained technicians.



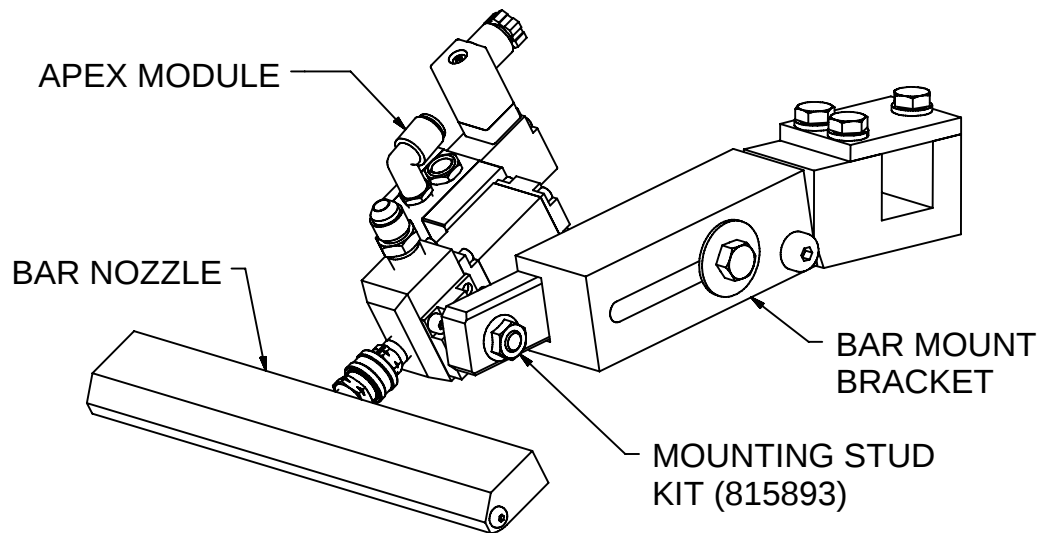
Mounting the Module

The APEX module may be supplied with an optional mounting bracket (PN 815893) that has a 5/16-18 UNC threaded stud and locking nut designed to accommodate a 3/8" to 5/8" thick mounting plate with an 8.20mm (.323") through hole. ITW Dynatec also offers a spring-loaded bracket assembly designed to mount on 1 inch square tube that is used, along with the PN 815893 Bracket, to mount the Apex module.

The Apex module should be mounted on bracketry that permits vertical adjustments and the ability to easily rotate the application nozzle off the substrate to accomplish any necessary maintenance functions.



BRACKET KIT (815893)



Fluid Connection

The APEX module employs either a 5/16 JIC, 37° Flare or 3/8" tube fluid fitting, depending upon the specific version employed. The 5/16 JIC version is strongly recommended for fluid application pressures in excess of 100psi (6.8bar). See Chapter 2 (Specifications) for details concerning fluid operating pressure ranges.

Air Connection

The APEX comes supplied with a 24VDC solenoid valve directly attached to the module. The solenoid valve is designed for connection of a 1/4" tube for actuating air. See Chapter 2 (Specifications) for details concerning actuating air operating pressure ranges.



CAUTION: Do not use lubricating oil with the air supply to the solenoid valve as this may cause premature failure of the valve. A coalescing filter (Dynatec PN 100055) must be installed between the standard air regulator/filter and applicator when oil is present in the air supply.

Needle Stroke Adjustment

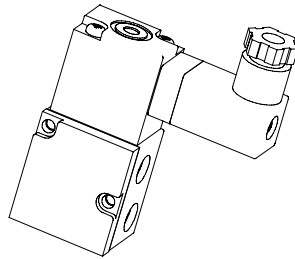
The applicator needle stroke is preset at the ITW Dynatec factory. Modification of needle stroke is not recommended.

Electrical Connection

The Apex applicator may be supplied with one of two different solenoid valves, depending upon the version purchased.

MAC Valve (PN 815698)

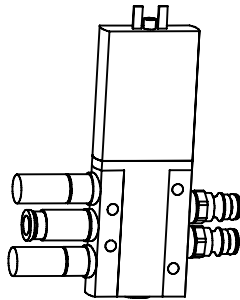
The MAC valve comes supplied with a 3-wire (positive neutral and ground) DIN electrical connector. The solenoid requires 24VDC nominal voltage at 5.4 watts and may also accept 55VDC over-excitation (spike) for up to 1 millisecond in duration to increase the cycle speed. It is recommended that AWG 18 wire be used for the connection of power to the solenoid valve.



MAC VALVE (815698)

Festo Valve (PN 115056)

The Festo valve requires a special electrical connection cable (contact ITW Dynatec for details) for the supply of actuating voltage. The required voltage range is between 21.6 and 26.4 VDC at 6.5 watts. This solenoid is of a special design. No over-excitation (spike) voltage may be used, as this will irreparably damage the solenoid.



FESTO VALVE (115056)



WARNING HIGH PRESSURE

Adhesive and oil can come out of the glue applicator under high pressure. Wear safety glasses, and protective clothing as appropriate to prevent injury.

Chapter 4 MAINTENANCE & TROUBLESHOOTING

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.

Maintenance Schedule

ITEM	CHECK	FREQUENCY	ACTION
Adhesive supply hose	Inspect for leaks	Daily	Tighten fitting and/or replace hose
Air supply tubing and fittings	Inspect for leaks	Daily	Tighten fittings and/or replace tubing
Weep hole	Monitor for excess adhesive flow (small amount is acceptable)	Daily	Replace base module (PN 816173 or 816174) or rebuild existing module (PN 816198).
Clean applicator nozzle	Inspect for glue build-up	As required	Use damp cloth to clean all adhesive build-up
Flush module with water	N/A	At least monthly	Flush fluid delivery system and module with fresh water until clear water is purged
Flush module with vinegar/water solution	N/A	At least quarterly	Flush fluid delivery system and module with water, then a 10% vinegar/water solution, then flush again with water.

Stroke Limit Adjustment

The stroke is factory set at ITW Dynatec. Field adjustment of the stroke is not recommended.

Troubleshooting

Check all electrical and pneumatic connections if module failure occurs and verify that adequate fluid pressure is present in the system.

Troubleshooting Guide

Problem	Possible Cause	Solution
Module does not open	1. Inoperative solenoid. 2. Insufficient air pressure. 3. Insufficient fluid pressure. 4. Adhesive supply is empty. 5. Air or fluid supply lines are crimped, broken or leaking.	1. Push the solenoid's manual button. The problem is electrical if the valve opens. 2. Check to assure actuating air pressure is within the limits prescribed in Chapter 2 of this manual. 3. Check to assure fluid pressure is adequate for the adhesive being used. 4. Check Adhesive supply. 5. Check all supply lines for damage.
Adhesive is leaking from the module's "weep hole"	Module seals are worn/damaged.	Module must be rebuilt (see instructions in this chapter).
Air escapes from module	Module seals are worn/damaged.	Module must be rebuilt (see instructions in this chapter).
Erratic or intermittent adhesive flow from nozzle	1. The contact applicator is pushed too tightly against the web, causing blockage of the nozzle. 2. The nozzle is clogged. 3. Glue pressure is too low. 4. The air pressure to the solenoid is too low.	1. Adjust nozzle to assure proper pressure against the web. 2. Thoroughly clean the nozzle and/or application module. 3. Adjust glue pressure. 4. Adjust the air pressure to within the . limits prescribed in Ch. 2 of this manual.

cont.

Troubleshooting Guide, cont.

Problem	Possible Cause	Solution
Adhesive is leaking from the module when shut off	Adhesive contains debris, the glue applicator is dirty or the stem/seat is worn/damaged.	1. Clean/ replace fluid filter. 2. Completely flush system with water. 3. Replace stem/ seat if cleaning system does not solve the problem.

Rebuild the APEX Mini Cold Glue Module

The APEX Mini employs a modular replacement concept that simplifies and expedites the repair of the glue applicator. Refer to the bill of material drawings that follow for parts ordering information.



WARNING HIGH PRESSURE

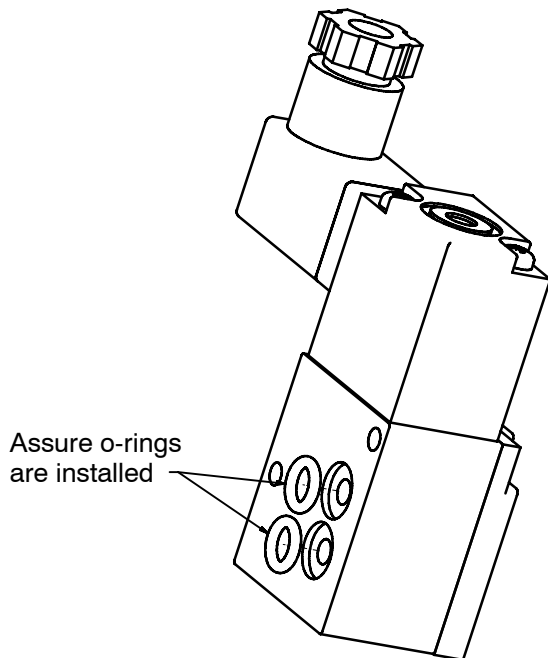
Be certain to depressurize the entire glue application system prior to disassembly of any of its components. Wear safety glasses and any other appropriate personal protective equipment.

Required Tools

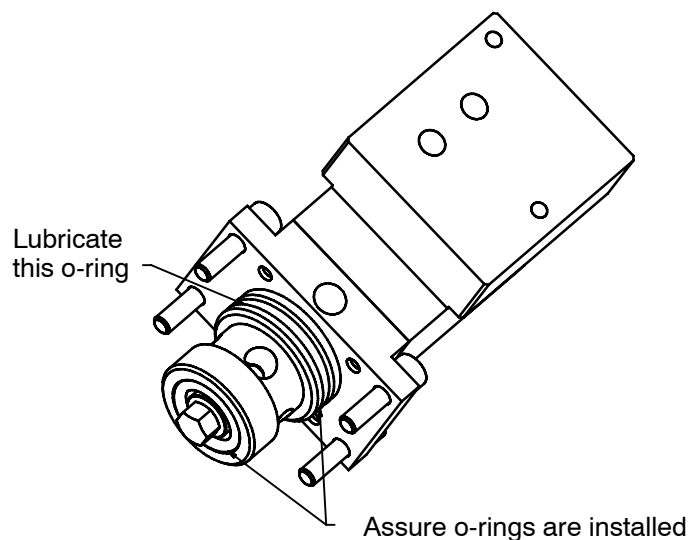
- 1 x 2.5mm hex (Allen) wrench
- 1 x Imperial Box Wrench Set

Re-assembly Notes

During re-assembly, attention should be paid to the o-rings, as shown in the illustrations below.

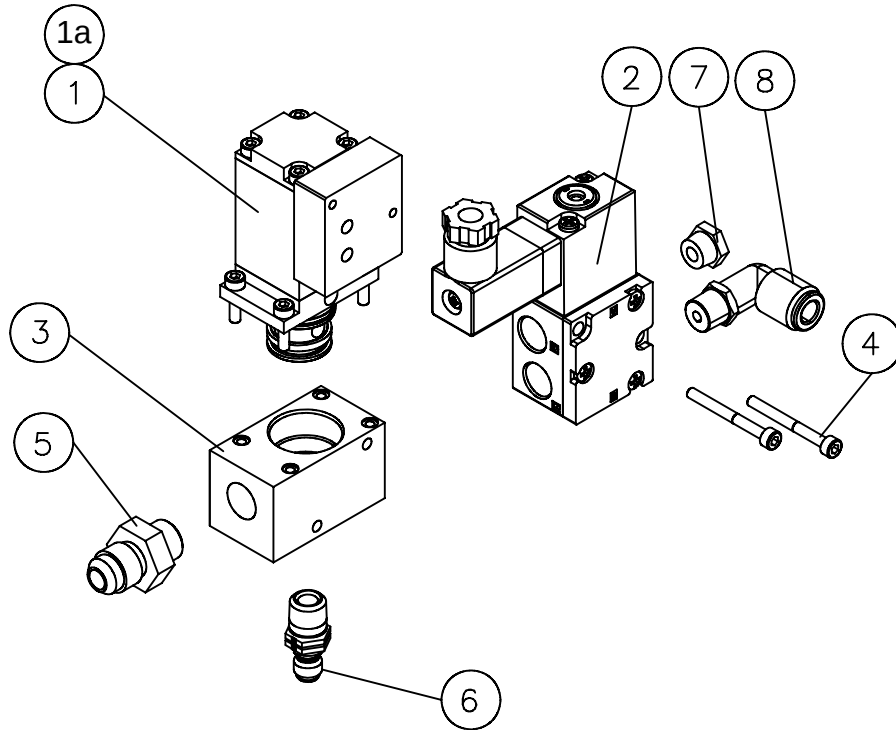


Solenoid Valve PN 815698



Base Module Assembly
PN 816173/ 816174

**PN 816175 High Flow, High Pressure Module. 0.60mm (.024") Stroke and
PN 816176 Standard Flow, High Pressure Module. 0.30mm (.012") Stroke**

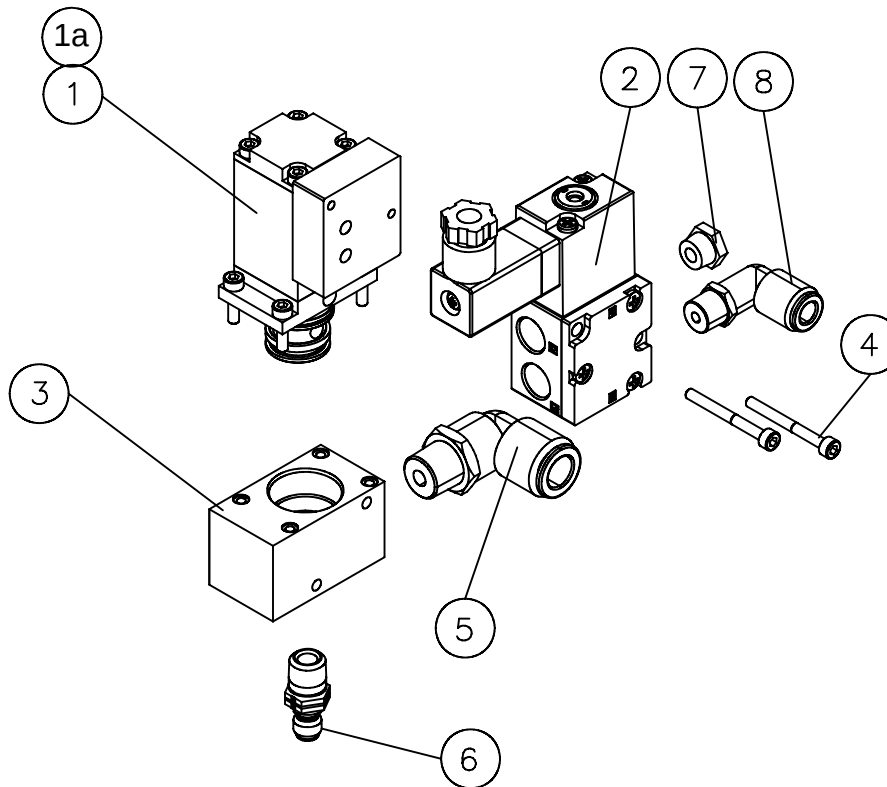


Notes:

1. Apply pipe sealant (#11) to #5 and #6 prior to assembly.
2. Apply lube (#9) to o-rings prior to assembly.
3. Apply anti-seize (#10) to screw threads prior to assembly.
4. See re-assembly illustrations on page 4-4.

Item No.	Part Number	Qty.		Description
11	115141	A/N	EA	PIPE,SEALANT
10	107324	A/N	EA	CMPND,ANTISEIZE,CHSTN710
9	108700	A/N	EA	LUBE,TFE,.25 OZ
8	NO6436	1	EA	FTG,ELB,1/4TUB X 1/8NPT
7	110420	1	EA	BREATHVENT 1/8UNIX11MM
6	110941	1	EA	FTG,MHYDQC,1/8MPT,SST
5	108070	1	EA	NIP,1/4NPTX5/16JIC,SST
4	815724	2	EA	SCR,SHC,M3-0.5X30,SST
3	815691	1	EA	BASE,MINI,APEX,SS
2	815698	1	EA	MAC,VALVE,MINI,APEX
1	816173	1	EA	MOD,ASY,MINIAPEX,HI
1a	816174	1	EA	MOD,ASY,MINIAPEX,STD

**PN 816181 High Flow, Low Pressure Module. 0.60mm (.024") Stroke and
PN 816182 Standard Flow, Low Pressure Module. 0.30mm (.012") Stroke**



Notes:

1. Apply pipe sealant (#11) to #5 and #6 prior to assembly.
2. Apply lube (#9) to o-rings prior to assembly.
3. Apply anti-seize (#10) to screw threads prior to assembly.
4. See re-assembly illustrations on page 4-4.

Item No.	Part Number	Qty.		Description
11	115141	A/N	EA	PIPE,SEALANT
10	107324	A/N	EA	CMPND,ANTISEIZE,CHSTN710
9	108700	A/N	EA	LUBE,TFE,.25 OZ
8	N06436	1	EA	FTG,ELB,1/4TUB X 1/8NPT
7	110420	1	EA	BREATHVENT 1/8UNIX11MM
6	110941	1	EA	FTG,MHYDQC,1/8MPT,SST
5	N06502	1	EA	FTG,EL,1/4MPTX3/8TUBE
4	815724	2	EA	SCR,SHC,M3-0.5X30,SST
3	815691	1	EA	BASE,MINI,APEX,SS
2	815698	1	EA	MAC,VALVE,MINI,APEX
1	816173	1	EA	MOD,ASY,MINIAPEX,HI
1a	816174	1	EA	MOD,ASY,MINIAPEX,STD