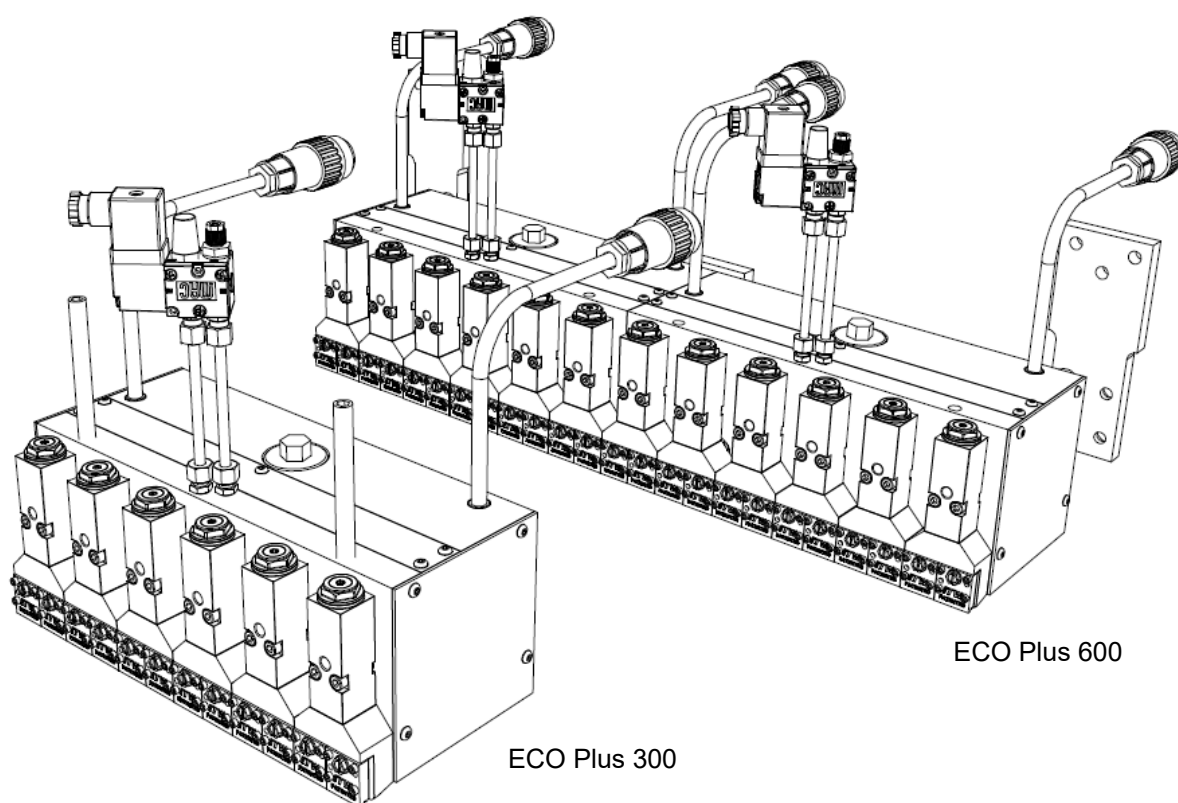


ECO Plus

SPRAY APPLICATOR

Technical Documentation, No.40-61, Rev.5.24
English - Original instructions



Information about this manual



Read all instructions before operating this equipment!

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



NOTICE:

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

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

ITW Dynatec Service Parts Direct Dial: 1-800-538-9540

ITW Dynatec Technical Service Direct Dial: 1-800-654-6711

ITW Dynatec Service Parts and Technical Service:

AMERICAS

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

EUROPE, MIDDLE EAST & AFRICA

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

ASIA PACIFIC

ITW Dynatec
No. 2 Anzhi Street,
SIP, 215122 Suzhou,
China
Tel. +86.512.6289.0620
info@itwdynatec.cn
service@itwdynatec.cn

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

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Chapter 1

Declaration of Incorporation / Conformity

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Chapter 2

Safety Instructions

2.1 General Considerations



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



Read and adhere to the manual!

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

2.2 Warning Labels

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

2.3 Safety Symbols in this Manual

Mandatory signs

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

Warning signs

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

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

Prohibition signs

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

2.4 Safe Installation and Operation



Read and adhere to the manual!

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



Smoking, fire and open flames prohibited! Fire danger!

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

2.5 Explosion/ Fire Hazard

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

2.6 Use of PUR (Polyurethane) Adhesives

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



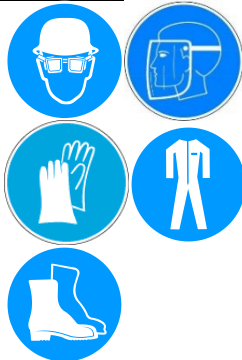
CAUTION

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

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

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

2.7 Eye Protection & Protective Clothing



WARNING

EYE PROTECTION & PROTECTIVE CLOTHING REQUIRED

1. It is very important that you PROTECT YOUR EYES when working around hot melt adhesive equipment!
2. Wear a face shield conforming to ANSI Z87.1 or safety glasses with side shields which conform to ANSI Z87.1 or EN166.

3. Failure to wear a face shield or safety glasses could result in severe eye injury.
4. It is important to protect yourself from potential burns when working around hot melt adhesive equipment.
5. Wear heat-resistant protective gloves and long-sleeved, protective clothing to prevent burns that could result from contact with hot material or hot components.
6. Always wear steel-reinforced safety shoes.

2.8 Electrical



DANGER HIGH VOLTAGE

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

2.9 Lockout/ Tagout



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

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

2.10 High Temperatures



WARNING HOT SURFACE

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

2.11 High Pressure



WARNING HIGH PRESSURE PRESENT

1. To avoid personal injury, do not operate the equipment without all covers, panels and safety guards properly installed.
2. To prevent serious injury from molten adhesive under pressure when servicing the equipment, disengage the pumps and relieve the adhesive system's hydraulic pressure (i.e. trigger the heads, hand-held applicators, and/or other application devices into a waste container) before opening any hydraulic fittings or connections.
3. IMPORTANT NOTE: Even when a system's pressure gauge reads "0" psi, residual pressure and trapped air can remain within it causing hot adhesive and pressure to escape without warning when a filter cap or a hose or hydraulic connection is loosened or removed. For this reason, always wear eye protection and protective clothing.
4. Either of the two High Pressure symbols shown may be used on ITW Dynatec equipment.
5. Keep the given operating pressure.
6. Notify the maintenance personnel immediately, if hoses or components are damaged. Provide for exchanging the defective components immediately.

2.12 Protective Covers



WARNING DO NOT OPERATE WITHOUT GUARDS IN PLACE

1. Keep all guards in place!
2. To avoid personal injury, do not operate the application system without all covers, panels and safety guards properly installed.
3. Never get your extremities and/or objects into the danger area of the unit. Keep your hands away from running parts of the unit (pumps, motors, rolls or others).

2.13 Servicing, maintenance

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

2.14 Cleaning Recommendation

- Filters are disposable and need to be replaced regularly. DO NOT boil in mineral oil, solvents or water; the sealant used in filter assembly may become brittle and very likely disintegrate when boiled.
- When cleaning other components in mineral oil, remove all non-metallic items (O-rings, seals, filter cartridge, etc.) away from chemicals before components are subjected to hot mineral oil cleaning.
- If there is not a specific rebuild kit available or directions on how to clean a part, please treat it as a replacement item and do not attempt to clean/rebuild.

2.15 Secure transport

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

2.16 Treatment for Burns from Hot Melt Adhesives

Measures after being burned:

1. Burns caused by hot melt adhesive must be treated at a burn center. Provide the burn center's staff a copy of the adhesive's M.S.D.S. to expedite treatment.
2. Cool burnt parts immediately!
3. Do not remove adhesive forcibly from the skin!
4. Care should be used when working with hot melt adhesives in the molten state. Because they rapidly solidify, they present a unique hazard. Even when first solidified, they are still hot and can cause severe burns.
5. When working near a hot melt application system, always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body.
6. Always have first-aid information and supplies available.
7. Call a physician and/or an emergency medical technician immediately. Let the burns medicate by a medic immediately.

2.17 Measures in case of fire

1. Please heed that not covered hot parts of the engine and molten hot melt may cause heavy burns. Risk of burns!
2. Work very carefully with molten hot melt. Keep in mind, that already jelled hot melt can be very hot, too.
3. When working near a hot melt application system, always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body!

Measures in case of fire:

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

Firefighting - burning hot melt:

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

	EXTINGUISH FIRE
	Appropriate extinguishing agents: Foam extinguisher, Dry powder, Spray, Carbon dioxide (CO ₂), Dry sand.
	For safety reasons not appropriate extinguishing agents: None.
	Firefighting - burning electrical equipment: Appropriate extinguishing agents: Carbon dioxide (CO ₂), Dry powder.

2.18 Keep attention to environmental protection standards



1. When working on or with the unit, the legal obligations for waste avoidance and the duly recycling / disposals have to be fulfilled.
2. Keep attention, that during installations, repairs or maintenance matters hazardous to water, like adhesive / adhesive scrap, lubricating grease or oil, hydraulic oil, coolant and cleaner containing solvent do not pollute the ground or get into the canalization!
3. These matters have to be caught, kept, transported and disposed in appropriate reservoirs!
4. Dispose these matters according to the international, national and regional regulations.

Chapter 3

Description and Technical Specs

3.1 Applicable Safety Regulations

3.1.1 Intended Use

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



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

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



Intended use includes, that you

- read this documentation,
- heed all given warnings and safety instructions, and
- do all maintenance within the given maintenance rates.

Any other use is considered to be unintended.

3.1.2 Unintended Use, Examples

The Applicator may not be used under the following conditions:

- In defective condition.
- In a potentially explosive atmosphere.
- With unsuitable operating/processing materials.
- When the values stated under Specifications are not complied with.

The Applicator may not be used to process the following materials:

- Toxic, explosive and easily flammable materials.
- Erosive and corrosive materials.
- Food products.

3.1.3 Residual Risks

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

Personnel should be aware of the following:



- Risk of burns from hot material.
- Risk of burns from hot Applicator's components.
- Risk of burns when conducting maintenance and repair work for which the system must be heated up.
- Risk of burns when attaching and removing heated hoses.
- Material fumes can be hazardous. Avoid inhalation. If necessary, exhaust material vapors and/or provide sufficient ventilation of the location of the system.
- Risk of pinching parts of the body at running parts of the Adhesive Supply Unit (pumps, motors, rolls or others).
- The safety valves may malfunction due to hardened or charred material.

3.1.4 Technical changes

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

3.1.5 Using foreign components

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

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

3.1.6 Start-up operation

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

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

3.2 Description of ECO Plus Spray Applicator

3.2.1 Description

ITW Dynatec's ECO Plus Spray Applicator is an air-operated hot melt adhesive applicator assembly with one or more modules and integrated basket filters which prevent particulate matter from obstructing flow through the applicator.

The applicator is heated by replaceable cartridge heating elements which are controlled by an integrated RTD temperature sensor and electronic control. One heat zone for the service block and the air preheater means there is one temperature control point on each manifold assembly. The applicators are configured for ITW Dynatec's DynaControl.

There are 3 standard ECO Plus models: 100mm with 2 modules, 200mm with 4 modules and 300mm with 6 modules. Each model is stackable (expandable); their total widths ranging from 100mm to 1200mm (3.93in to 47.24in). Design is all metric.

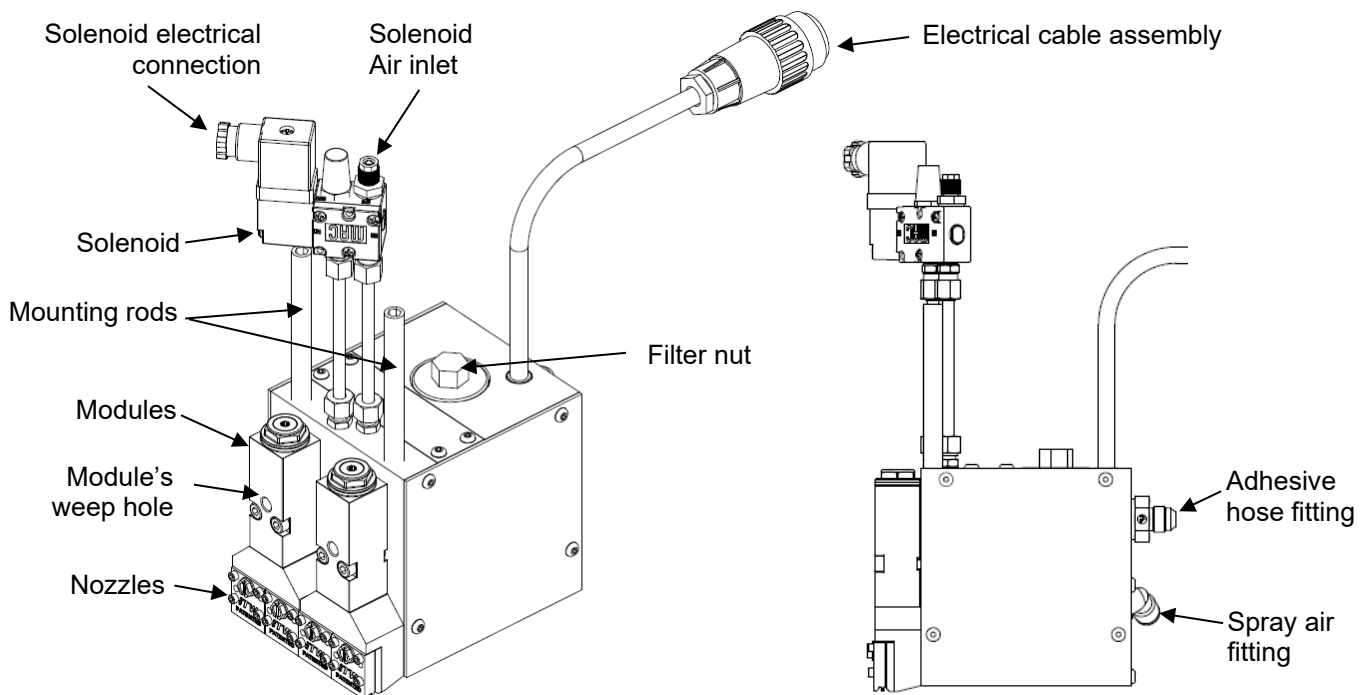
The modules are mounted to a single service block. Each module is opened and closed by air pressure controlled by a solenoid. Springs are used to keep needles closed when no air pressure is supplied to the applicator.

On the standard ECO Plus applicators, one solenoid mounted on the service block supplies the air pressure which activates all modules together.

The rate of adhesive flow from the applicator is determined by the adhesive volumetric flow rate applied by the Melter's pump.

The applicator offers a variety of heated adhesive supply hose connections into the service block. Adhesive flows from the hose into and through the channels within the block and filter and then to the module. Air pressure opens the module, allowing adhesive to flow through the module into the spray nozzle.

On the applicator, an air preheater is located below the service block. The preheater supplies heated air (Process Air), used to fiberize the adhesive streams, to the modules.



Example illustration of components: ECO Plus 100mm Applicator

3.2.2 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 layouts on following page
Mounting.....2x M10 threaded rods (for 100-300mm applicators)
Filtration..... filter basket in the service block
Weight see Model Configuration table on next page

Performance:

Operating temperature range 38°C to 200°C (100°F to 390°F)
Warm-up time 15 minutes for cold start/ 5 minute for module change only
Adhesive viscosity 100 to 15.000 mPa.sec. (centipoise)
Adhesive pressure range max. 68 bar (1000 psi)
Noise emission 75 dB(A) at 1 meter

Air Requirements:

Air pressure range (standard) 4.1 to 6.9 bar (60 to 100 psi)
Process air pressure range (spray air).....0-2.7 bar (0-40 psi)
Air consumption.....see diagrams on next page

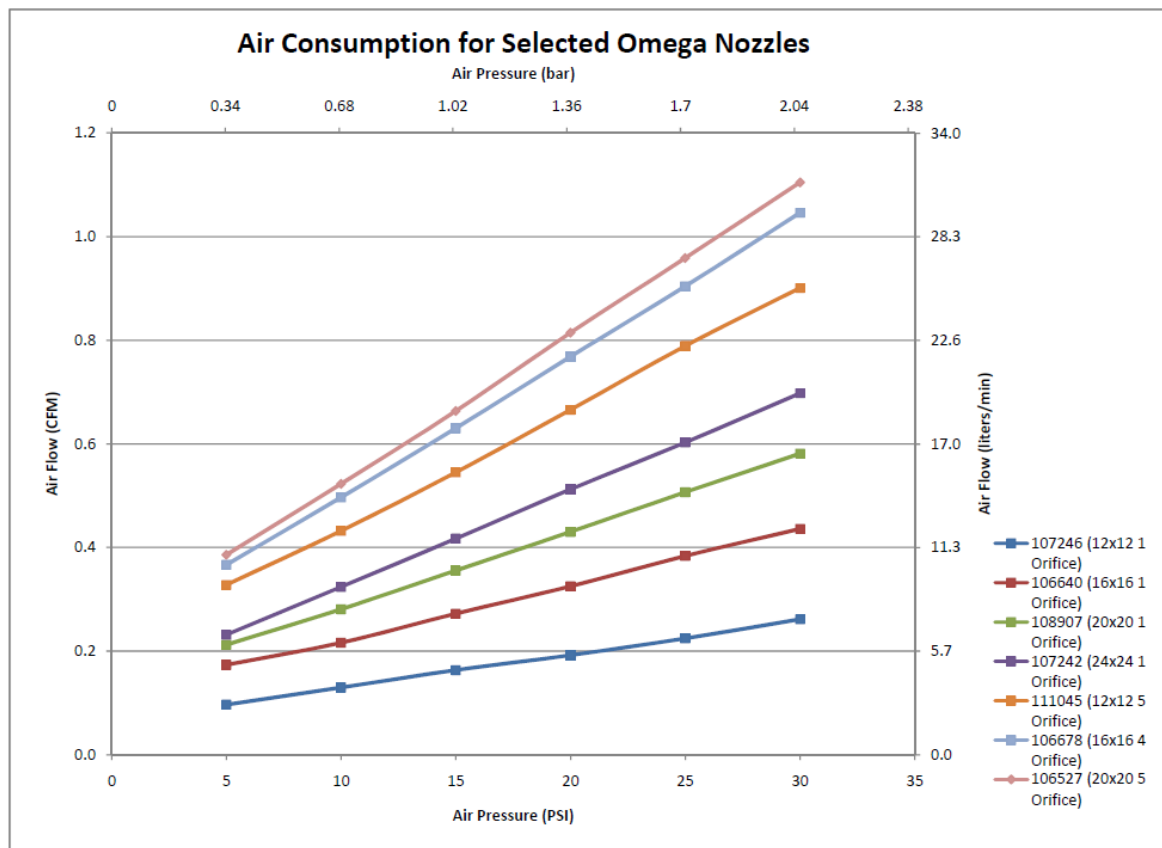
Electrical:

Supply voltage 200-240 V AC/ 1ph/ 50-60 Hz with 24 VDC control voltage

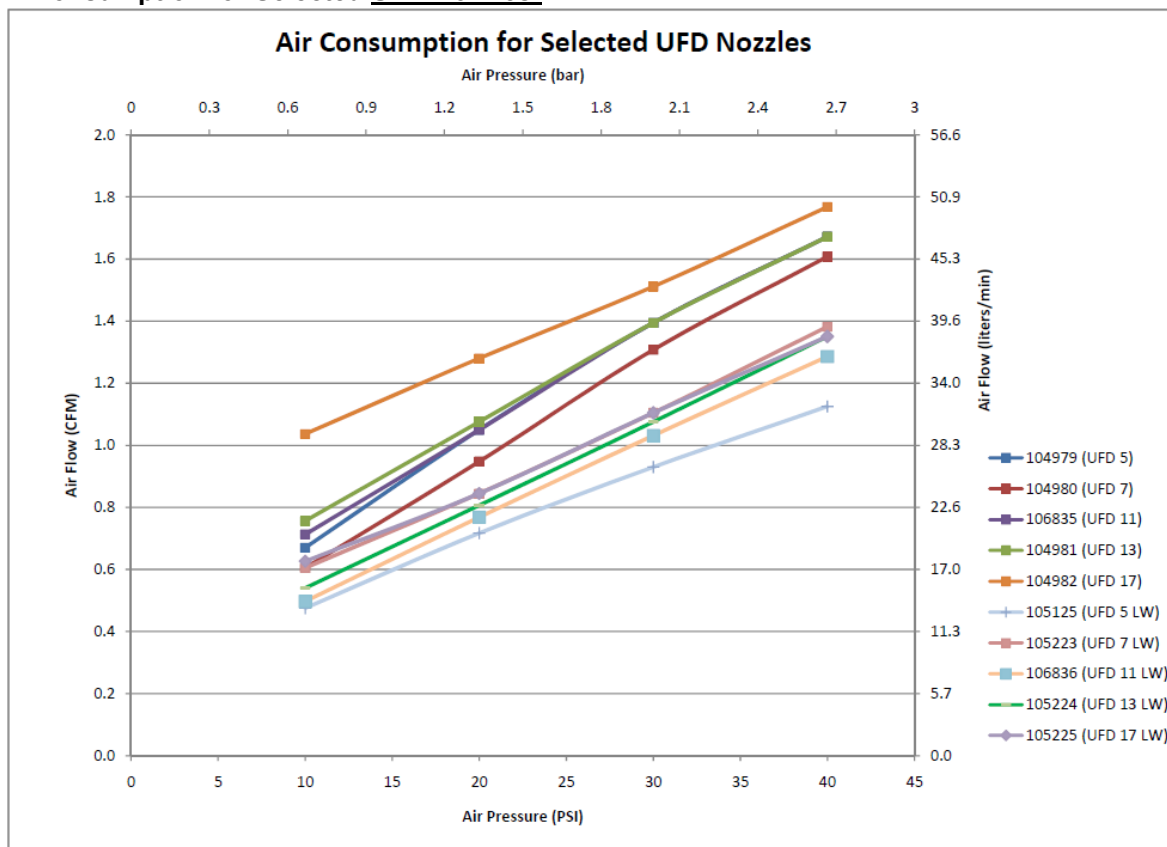
Models and Power requirementssee Standard Configurations /
Model Configuration table on next pages.

3.2.3 Air consumption diagrams

Air Consumption for Selected Omega Nozzles:



Air Consumption for Selected UFD Nozzles:



3.2.4 Standard Configurations

The illustrations on next page show the standard configurations of the ECO Plus applicators. Illustrated are the standard segments and electrical connections. The 100mm, 200mm and 300mm ECO Plus applicators are the building blocks of the ECO Plus heads. They are joined, in-line, to create the longer (400mm to 1200mm) applicators.

Model Configurations:

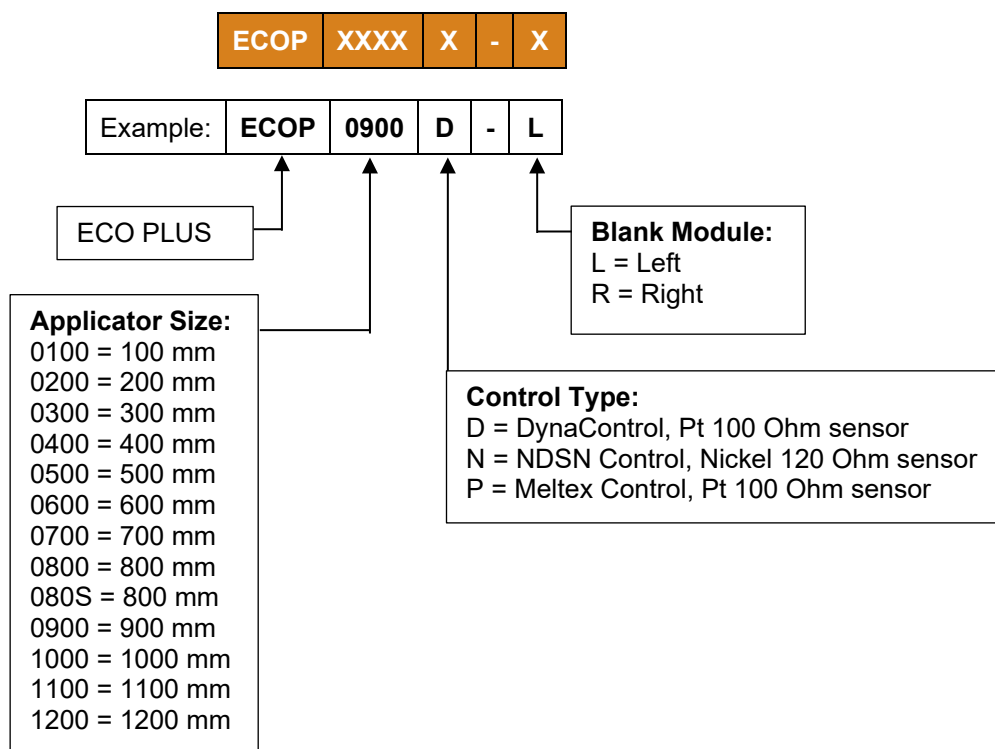
Model Number	Part Number	Modules Quantity	Nozzles Quantity	Hose Connections Quantity	Wattage 240 VAC	Weight kg
ECO PLUS 100	ECOP0100	2	4	1	1200 W	4,6
ECO PLUS 200	ECOP0200	4	8	1	2400 W	8,6
ECO PLUS 300	ECOP0300	6	12	1	3600 W	12,5
ECO PLUS 400	ECOP0400	8	16	2	4800 W	19,5
ECO PLUS 500	ECOP0500	10	20	2	6000 W	23,5
ECO PLUS 600	ECOP0600	12	24	2	7200 W	27,5
ECO PLUS 700	ECOP0700	14	28	3	8400 W	32,5
ECO PLUS 800	ECOP0800	16	32	3	9600 W	36,5
ECO PLUS 800S	ECOP080S	16	32	4	9600 W	38,2
ECO PLUS 900	ECOP0900	18	36	3	10800 W	40,4
ECO PLUS 1000	ECOP1000	20	40	4	12000 W	46,1
ECO PLUS 1100	ECOP1100	22	44	4	13200 W	50,1
ECO PLUS 1200	ECOP1200	24	48	4	14400 W	54,0

ECO Plus - stacked applicator setup:

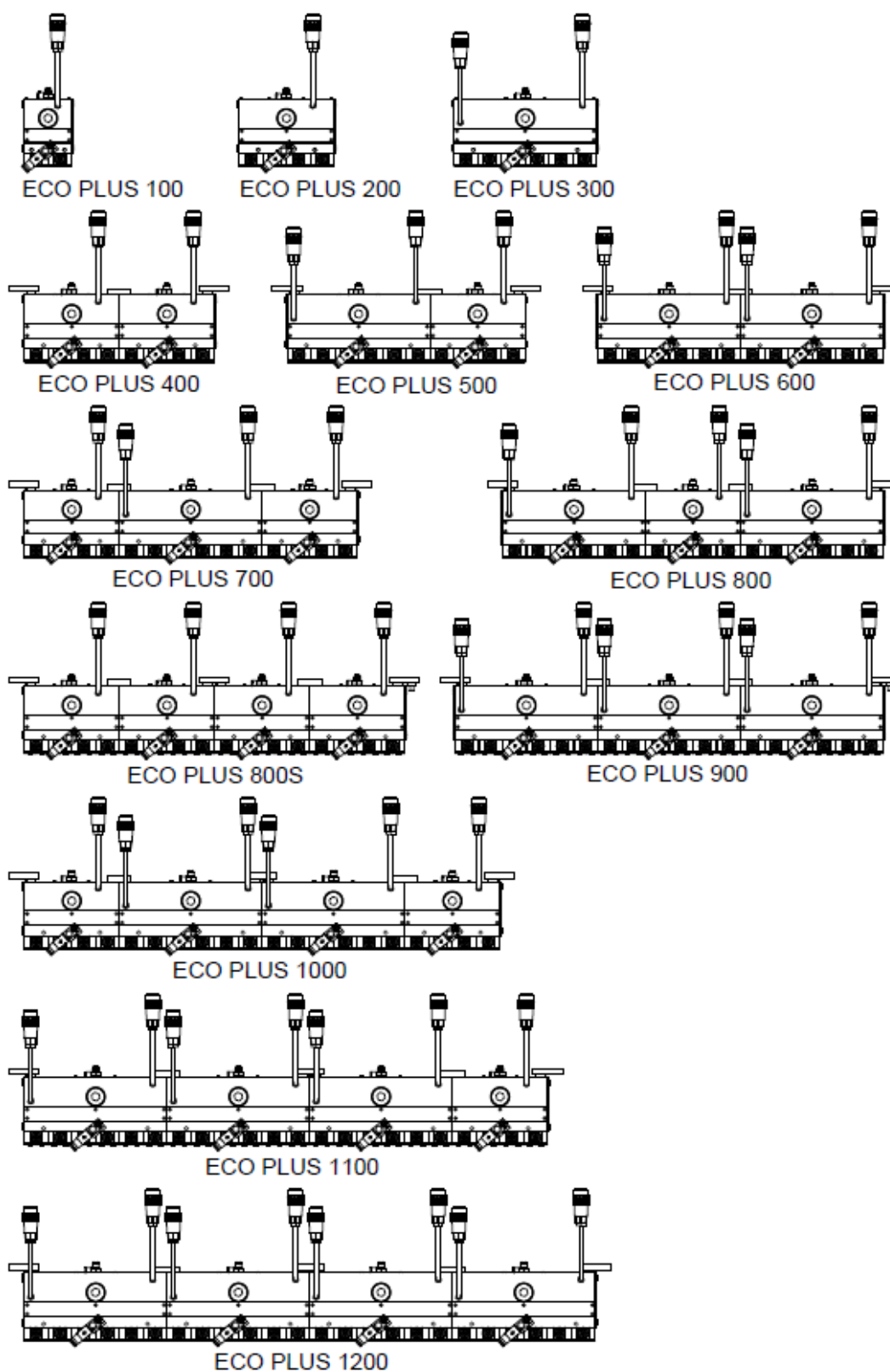
Part Number	Block 1 mm	Block 2 mm	Block 3 mm	Block 4 mm	Total length mm *	Pump setup proposal
ECOP0100	100	-	-	-	100 *	1 single pump
ECOP0200	200	-	-	-	200 *	1 single pump
ECOP0300	300	-	-	-	300 *	1 single pump
ECOP0400	200	200	-	-	400 *	1 dual pump or 2 single pumps
ECOP0500	200	300	-	-	500 *	2 single pumps
ECOP0600	300	300	-	-	600 *	1 dual pump or 2 single pumps
ECOP0700	200	300	200	-	700 *	1 dual pump plus 1 single pump
ECOP0800	300	200	300	-	800 *	1 dual pump or 1 single pump
ECOP080S	200	200	200	200	800 *	2 dual pumps
ECOP0900	300	300	300	-	900 *	1 dual pump plus 1 single pump or 3 single pumps
ECOP1000	300	200	200	300	1000 *	2 dual pumps
ECOP1100	300	300	300	200	1100 *	1 dual pump plus 2 single pumps
ECOP1200	300	300	300	300	1200 *	2 dual pumps

* Total length = The real size can slightly be different based on module distance of 25.2mm. Please check dimension drawings for exact size under section "3.3 Applicators and Mounting Dimensions".

3.2.5 Model Designation Guide



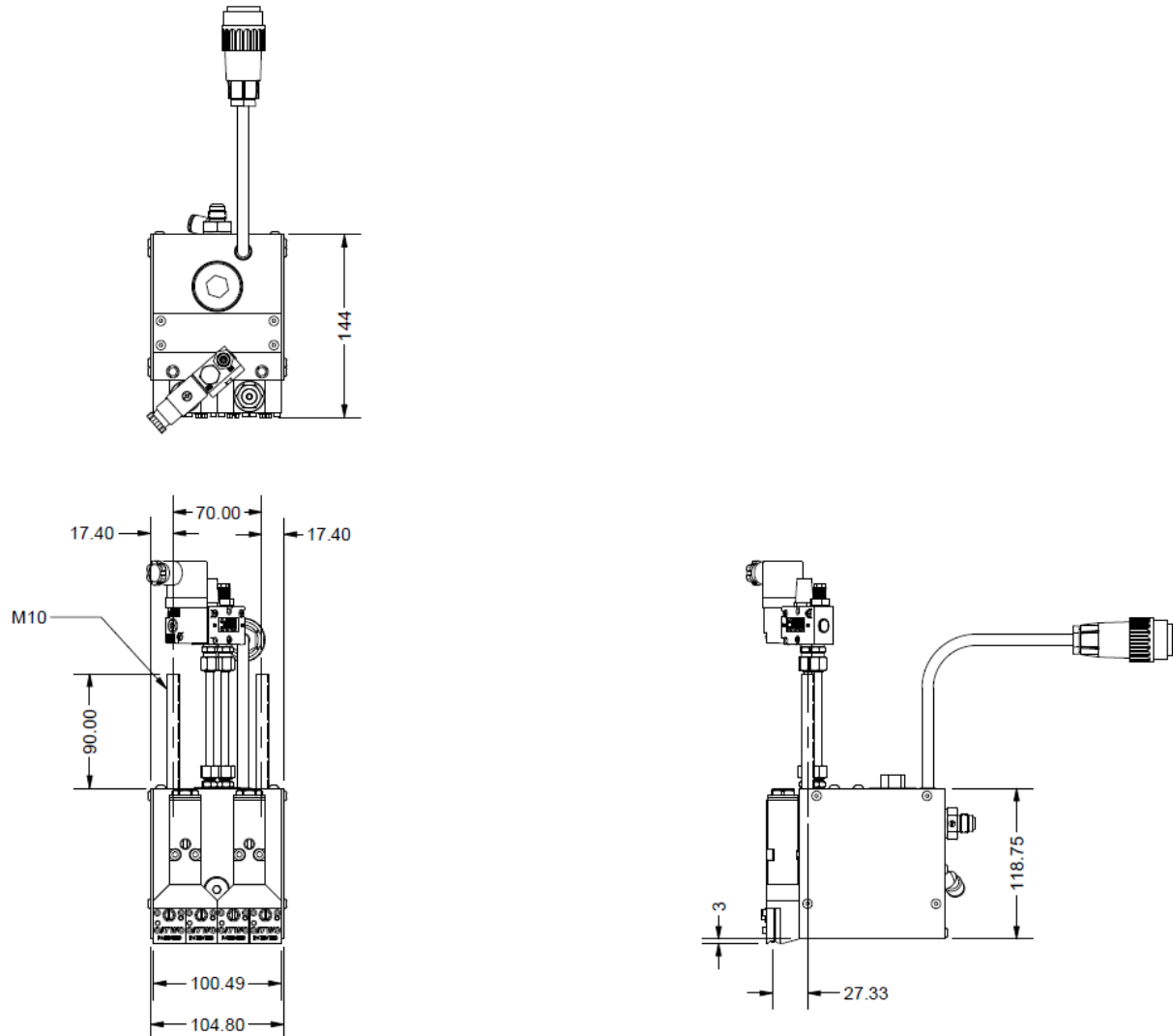
3.2.6 Front view of all available standard ECO Plus Applicator sizes



3.3 Applicators and Mounting Dimensions

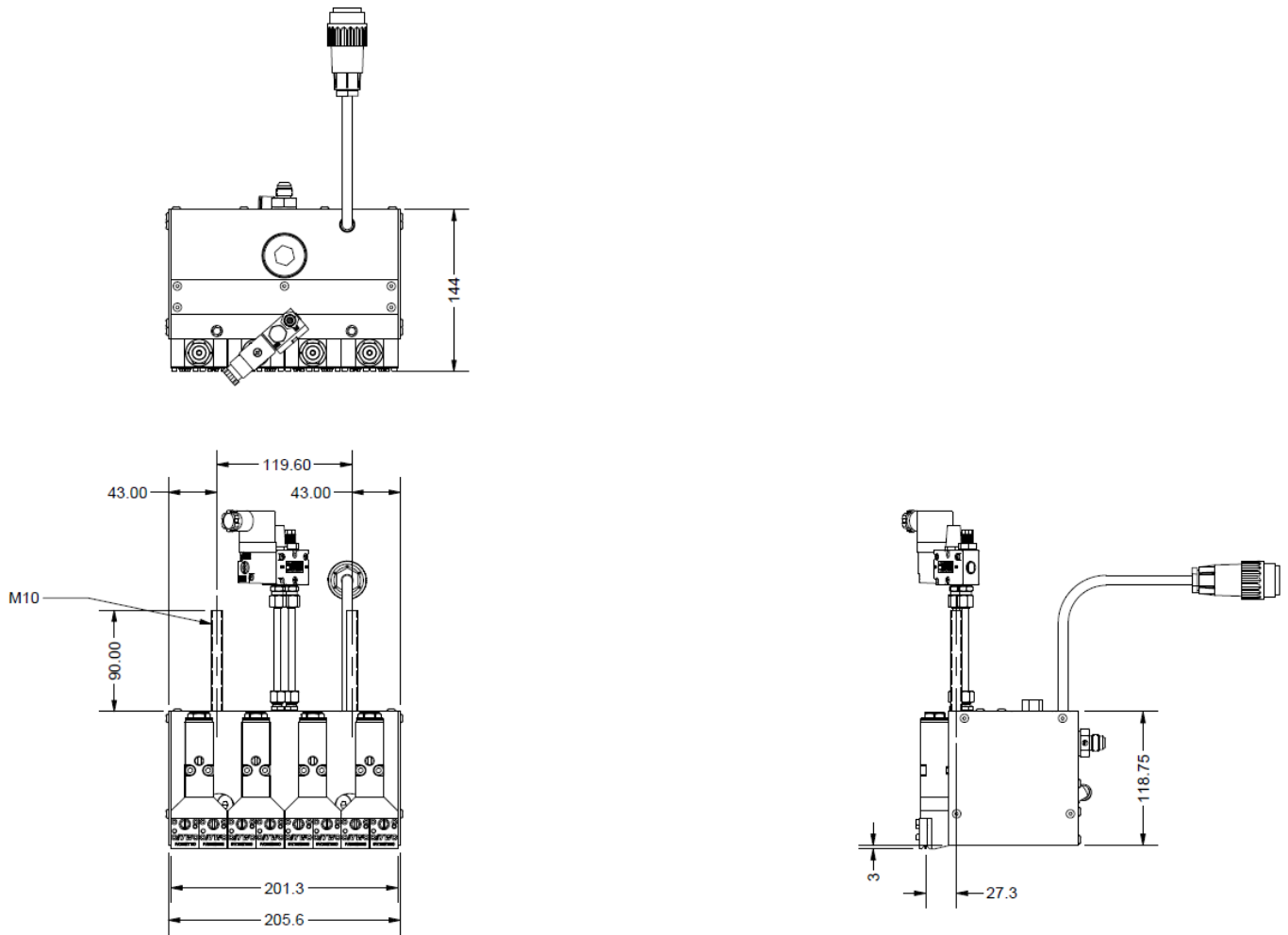
3.3.1 ECO Plus 100mm

Dimensions are expressed as “mm”.



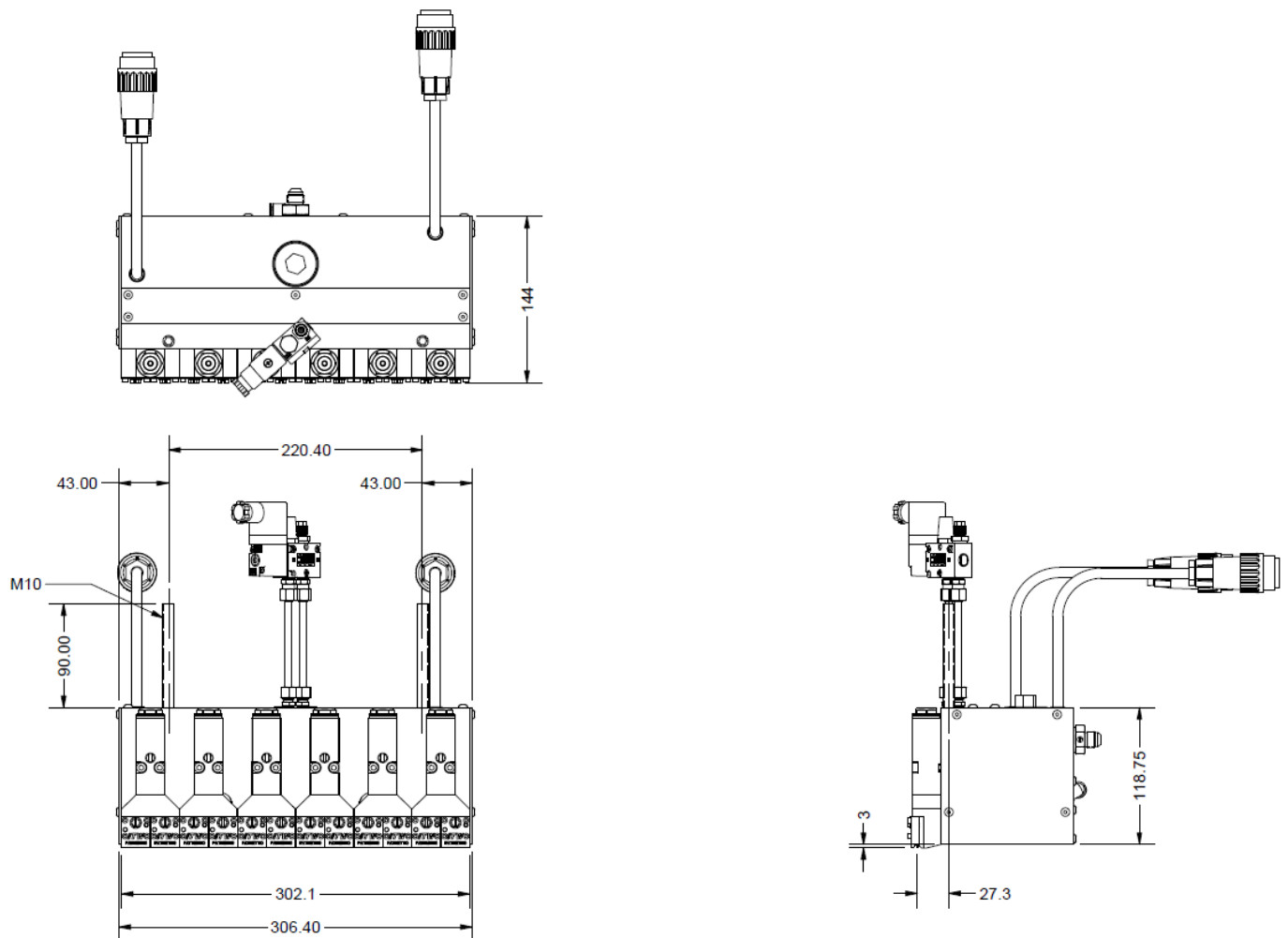
3.3.2 ECO Plus 200mm

Dimensions are expressed as “mm”.



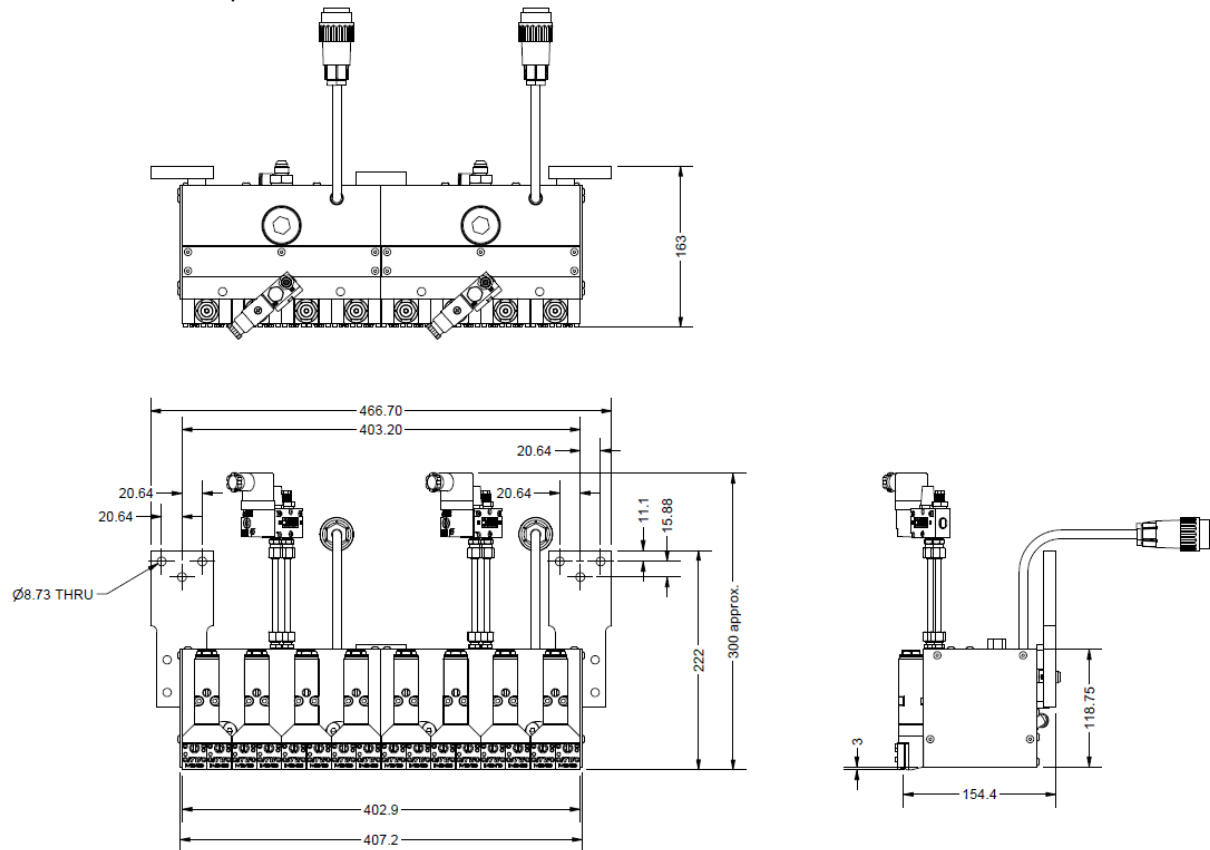
3.3.3 ECO Plus 300mm

Dimensions are expressed as “mm”.



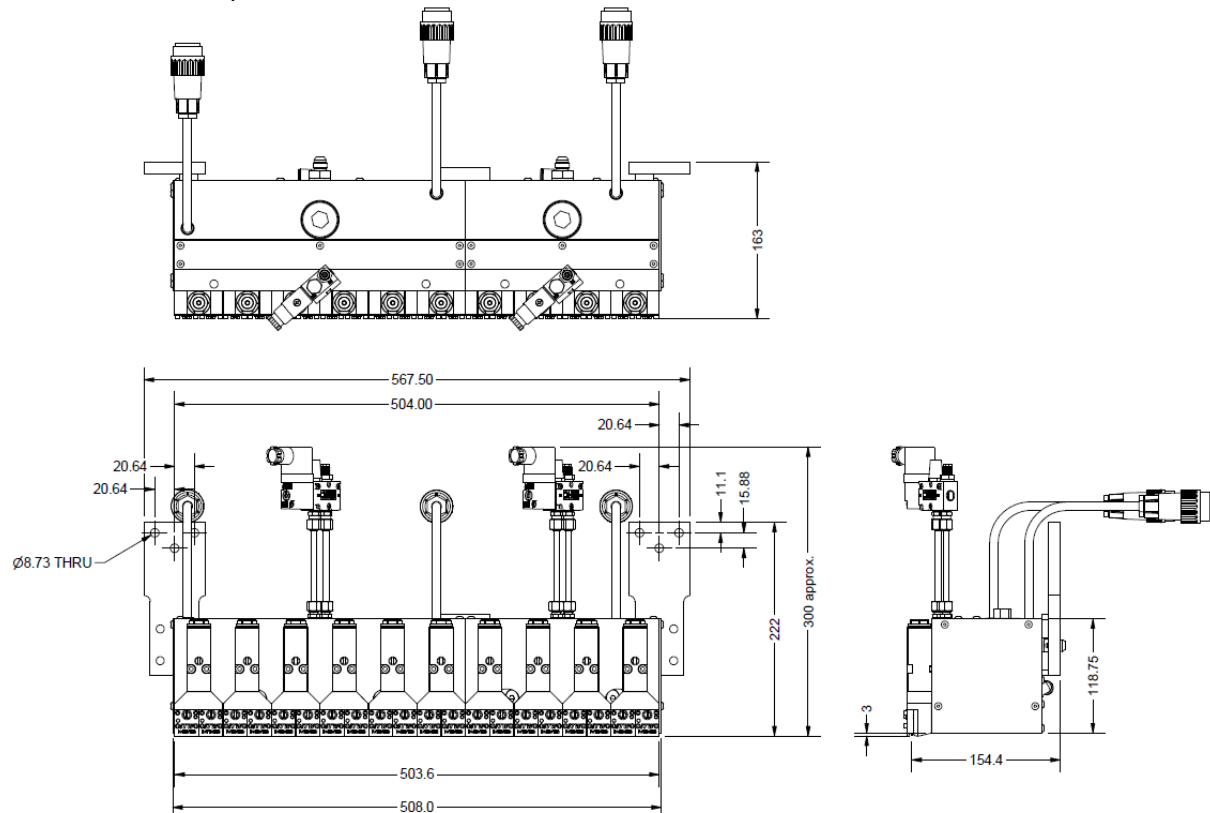
3.3.4 ECO Plus 400mm

Dimensions are expressed as “mm”.



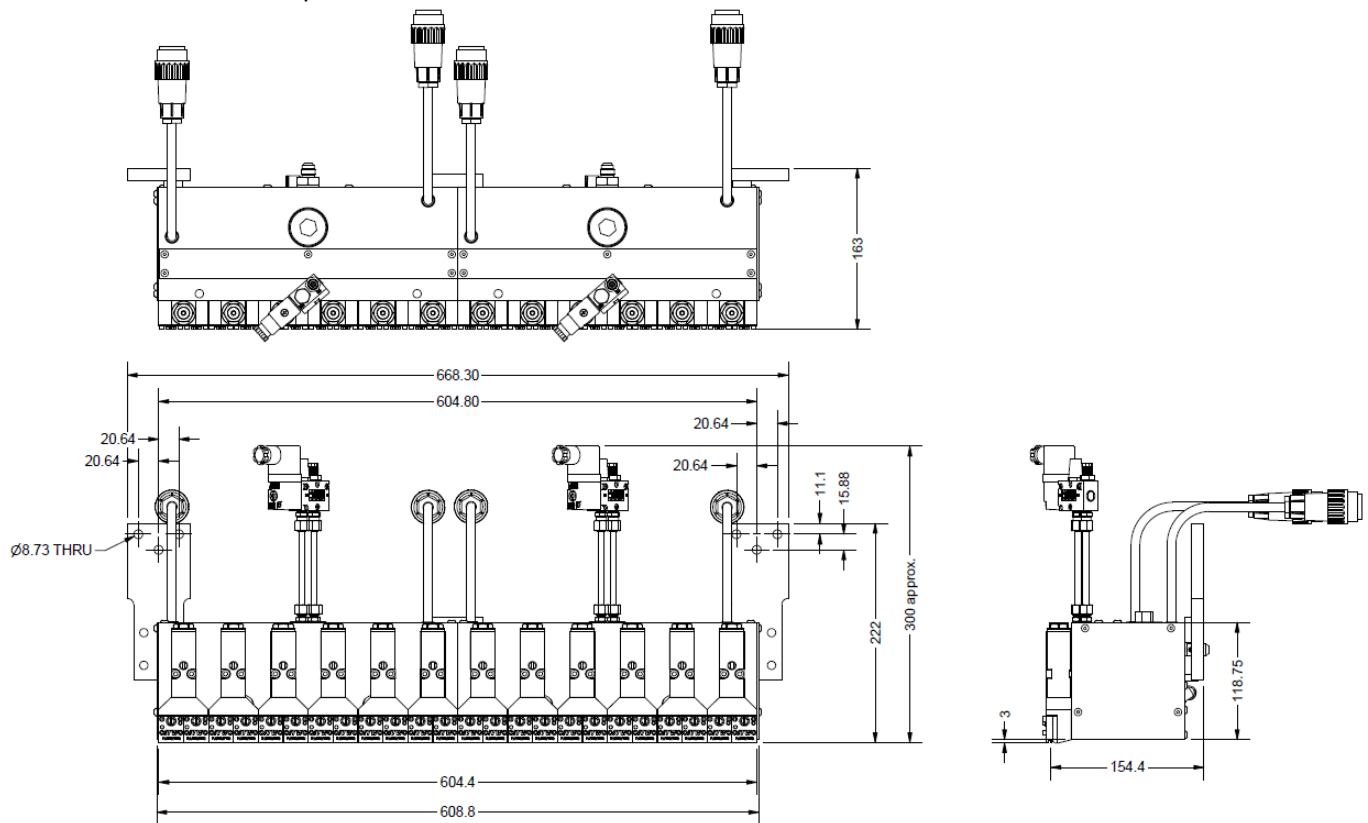
3.3.5 ECO Plus 500mm

Dimensions are expressed as “mm”.



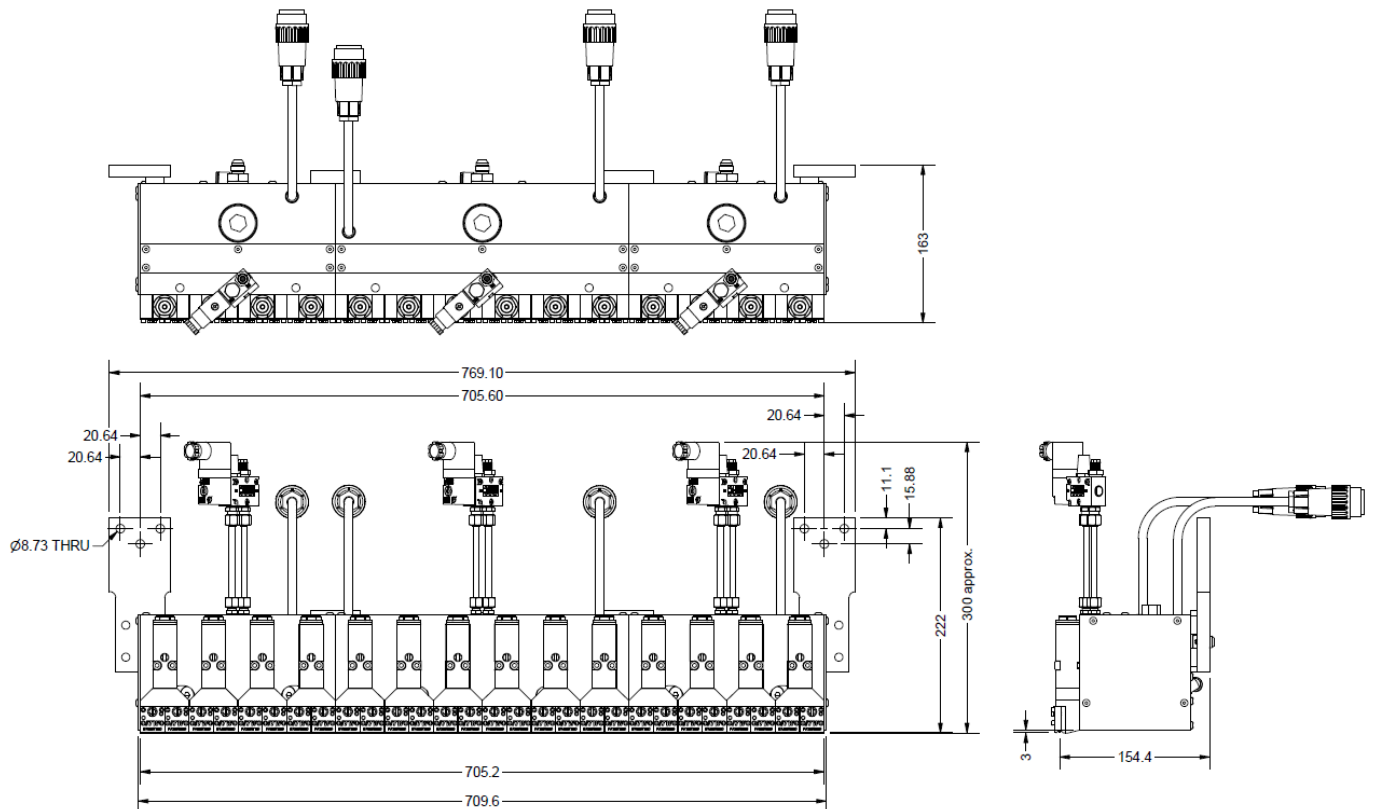
3.3.6 ECO Plus 600mm

Dimensions are expressed as “mm”.



3.3.7 ECO Plus 700mm

Dimensions are expressed as “mm”.

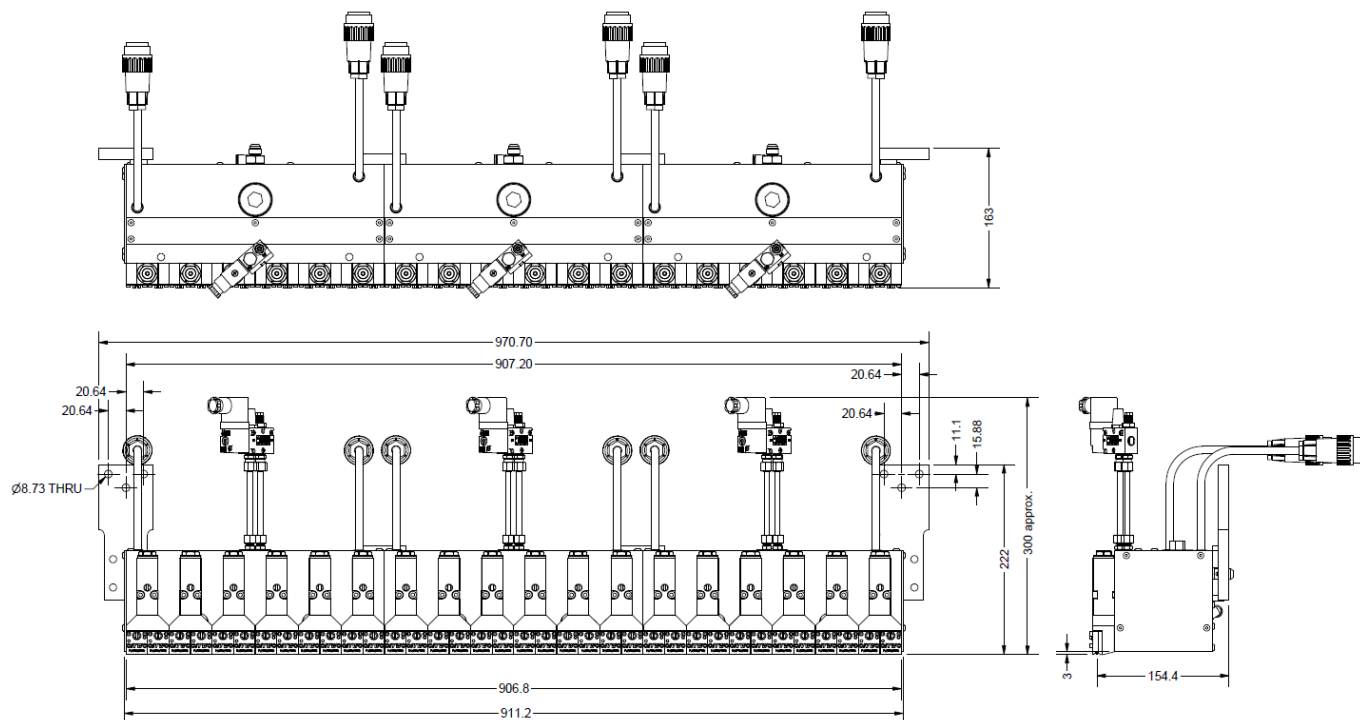


Dimensions are expressed as “mm”.



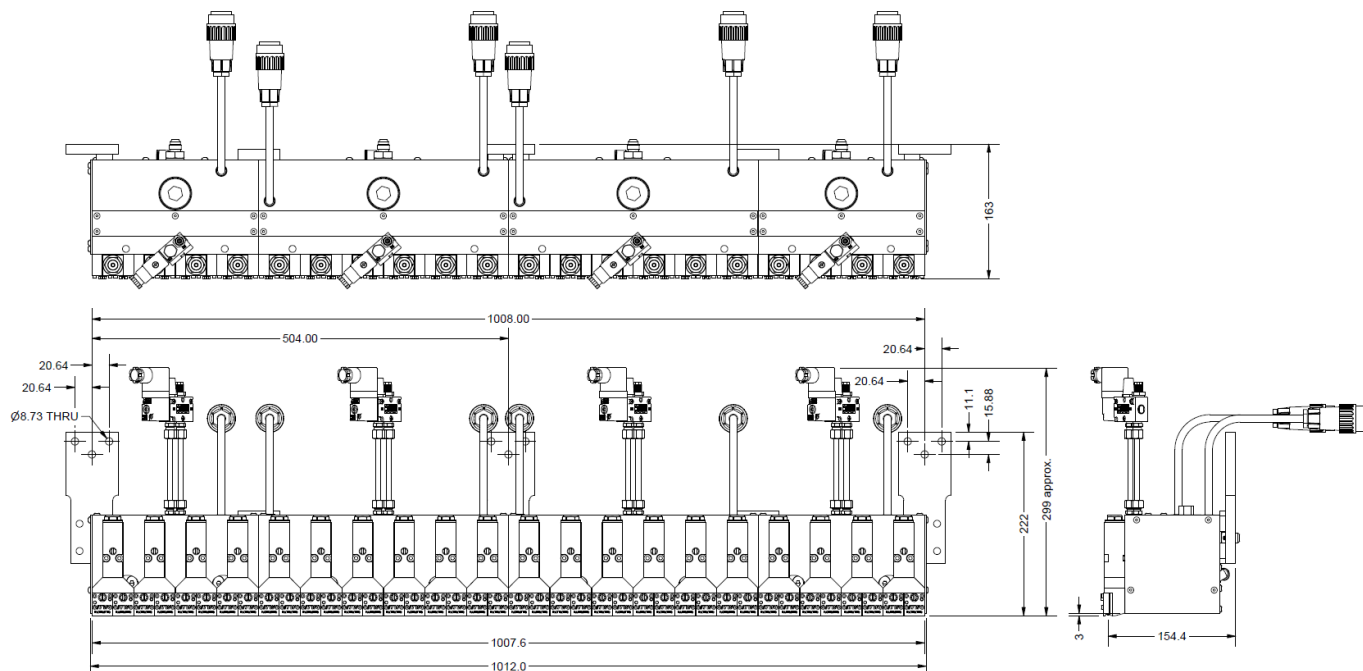
3.3.9 ECO Plus 900mm

Dimensions are expressed as “mm”.



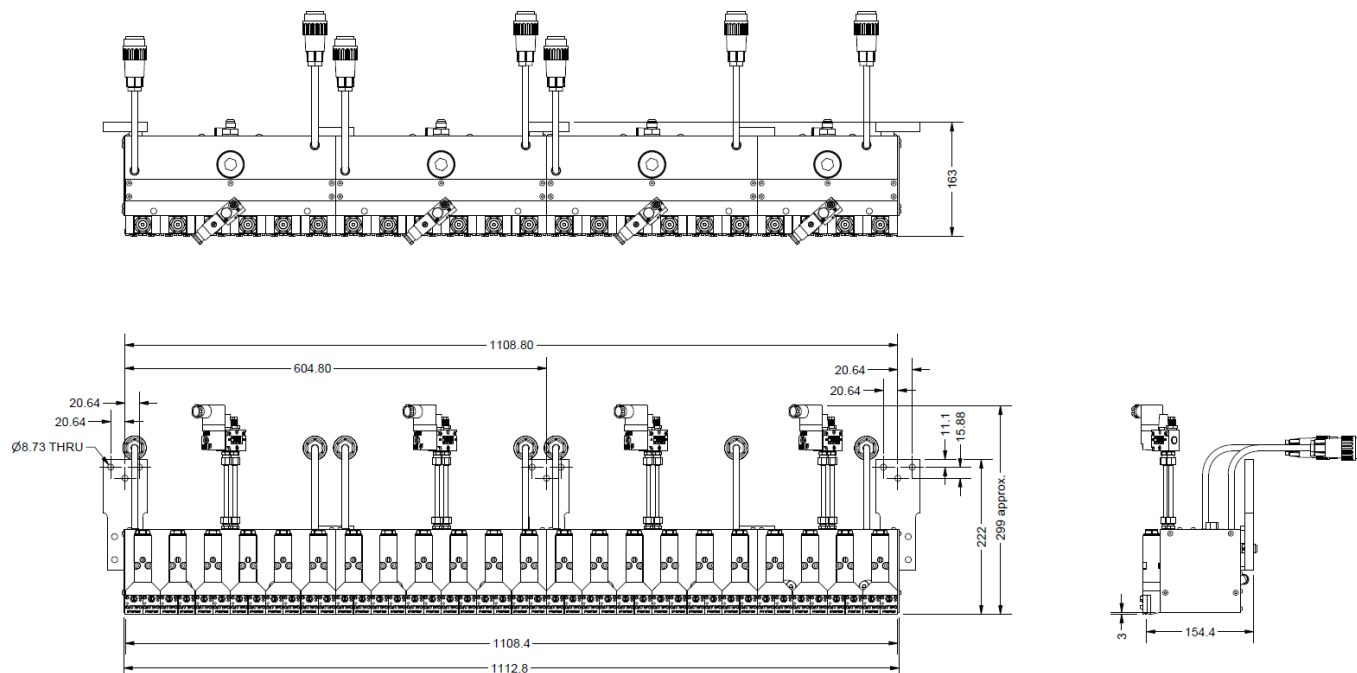
3.3.10 ECO Plus 1000mm

Dimensions are expressed as “mm”.



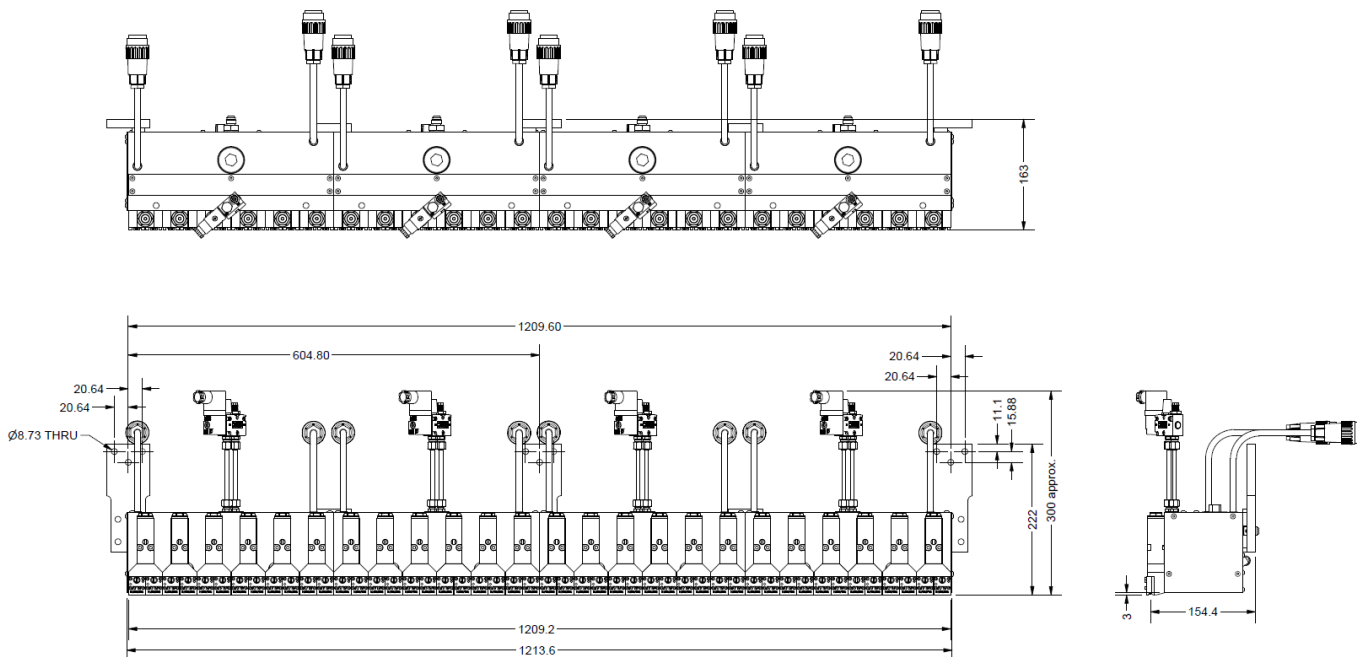
3.3.11 ECO Plus 1100mm

Dimensions are expressed as “mm”.



3.3.12 ECO Plus 1200mm

Dimensions are expressed as “mm”.



Chapter 4

Installation & Start-up Operation



CAUTION

- Before starting with installation and start-up operation, please read this documentation carefully.
- Pay attention to all the installation and connecting advices.
- Heed all safety instructions mentioned in chapter 2.

4.1 Conditions for set-up and mounting

Place requirement

Install the Applicator in the machine so that the operator is able to work on it from all sides, for e.g. for adjusting, preparing, maintaining, repairing, cleaning, etc.
See "Mounting Dimensions" under Ch.3.3.

Mounting and alignment

- The complete system has to be set-up on solid, stable and flat ground.
- The alignment in height of the complete system has to be considered.
- The alignment of the machine has to be considered.

Electrical connection

- Necessary electrical connection has to be provided. See electrical schematics.
- Never connect or disconnect plug-and-socket connections under load!
- **The 100 and 200mm applicators have one cable assembly each.** 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.
- **The 300mm applicators have two cable assemblies.** The service block's incoming electrical power and temperature control is supplied through the flexible cable exiting the adhesive supply hose cuff and through an extension cable from the Melter. The applicator has a circular, plastic connector which mates with the connector attached to this cable.

Pneumatic connection



- In any case the air has to be clean and dry! See below the "Quality of compressed air" table.
- **Incoming (operating) air** is supplied through a solenoid valve. It is controlled by a four-way solenoid valve and should be separately regulated and maintained at a pressure 4.1 to 6.9 bar (60 to 100 psi).
- The air supply hose for the spray air must be 8mm outside calibrated (5/16").
- Please heed that units with high air demand may not be used at the same time with the same air supply.

4.1.1 Quality of compressed Air



CAUTION

- In any case, the air has to be clean and dry!
- The min. requirement for compressed air supply to solenoids to control automatic Applicators is ISO 8573-1:2010 class 2:4:3.
- We recommend installing the ITW Dynatec's Air Control Kit PN 680275 (see Appendix).

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

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

Further Advices:



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

4.2 Typical Installation



CAUTION

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



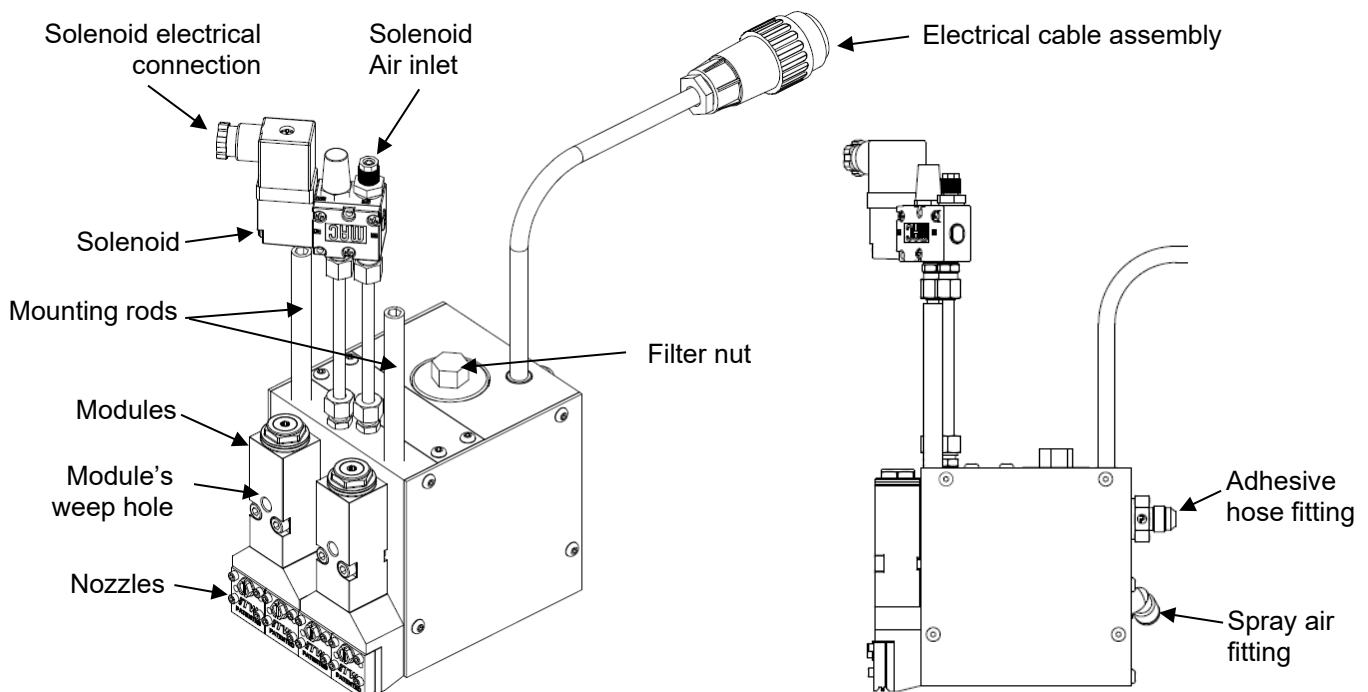
WARNING

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



NOTES

- Air lines and fittings must be capable of withstanding temperatures up to 200°C (390°F). ITW Dynatec supplies Air Control Filter Coalescing Kits (PN 680275) to be used with air-operated applicators.
- 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.



Example illustration of components: ECO Plus 100mm Applicator

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 bracketry using the M10 thread studs with insulator (for the 100mm to 300mm applicators) or mounting plates with insulator at the rear (for the 400mm to 1200 mm applicators) provided.
2. Allow access to the filter.
Be sure that the “weep” holes are visible for periodic inspection.
3. 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.

Tighten the hose fitting and thereby hold the hose cuff to prevent the hose core from rotating.

4. 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.
 - The 100 and 200mm applicators have one cable assembly each. 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.
 - The 300mm applicators have two cable assemblies. The service block's incoming electrical power and temperature control is supplied through the flexible cable exiting the adhesive supply hose cuff and through an extension cable from the Melter. The applicator has a circular, plastic connector which mates with the connector attached to this cable.



Heed the following for the installation of the heated hoses:

- Refer to the hose manual.
- Heated hoses may be damaged by overheating, if they are laid faulty and if the maximum bend radius is not considered.
- Do not hang hoses without proper support.
- Do not crimp, clamp, squeeze or tie hoses.

5. Connect the air hose (8mm outside calibrated (5/16”) to the air supply.
6. Connect the air line onto the air inlet port on the solenoid valve.
When connecting the air lines to the applicator, the air line which has air pressure to the module when the solenoid is OFF is the closing air line. See Appendix for details and diagrams of solenoid setup.



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 680275, see Appendix) must be installed between the standard air regulator/ filter and the ECO Plus applicator.**
- **The min. requirement for compressed air supply to solenoids to control automatic Applicators is ISO 8573-1:2010 class 2:4:3. See advice in chapter 4.1 “Quality of compressed air”.**

4.3 Typical Start-up operation

4.3.1 Safety instructions



WARNING

Start with start-up operation only if

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

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

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

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



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



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



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



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

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



CAUTION

During operating the unit, heed the following:

- Heed all safety instructions mentioned in chapter 2.
- Set the working temperatures strictly within the temperature range given by the adhesive manufacturer. Do not exceed this temperature range.
- Switch the unit off during longer production breaks.
- Switch the unit to standby during shorter production breaks.
- Avoid voltage fluctuation.
- The air supply has to be clean and dry.
- In case of an emergency or exceptional incident, press the emergency stop button in order to stop the unit quickly.



CAUTION

Risk of stumbling on cables and heated hoses!



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

4.3.2 General Start-up operation

This is a generic start-up and purging process:

1. Check the complete unit and the traverse paths for safety. Fix visible damages immediately.
2. Before switching the unit on, make sure that the starting unit could hurt no one!
3. Remove all material or other things not needed for the production from the workspace of the unit!
4. To turn the main power on, turn all main switches of the components to "ON"!
5. Heat up the system to operating temperature.
6. Adjust the adhesive pressure by the pressure regulator.
7. Place a heat resistant container under the applicator to collect the material that drains from it.

	WARNING HIGH PRESSURE RISK OF BURNS AND INJURY! • During the purging procedure, hot adhesive and oil can come out of the head under high pressure. • The unit operates with very high temperatures and high adhesive pressure. • Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing when working on or with the unit. Risk of burns and risk of injury! • Molten adhesives at operating temperature could cause heavy burns. • Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!
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8. Remove all nozzles from the applicator. This is important for purging the adhesive through the applicator.
9. Start the motors/pumps of the Melter.
10. Purge the applicator of air and oil:
Turn the applicator ON electrically and pneumatically.

Manually open the solenoids using the controller or by pushing (with a small screwdriver or other tool) the trigger button located on the solenoid coil.

Continue to hold in the trigger button until all air and oil have drained and only adhesive flows from the module.

11. Switch off (deactivate) the module solenoids.
12. Clean the applicator from adhesive residuals.
13. Install all nozzles on the applicator.
14. Remove the heat resistant container.
15. Switch the controller to automatic mode.
16. Set the unit parameters respectively check if they are set correct.

17. Thread the material webs.



WARNING

Make sure, that the production line, rolls, etc. are free from adhesive residuals or other contaminations before threading the material web!

Avoid collision!

In case of a collision with the production line, rolls, etc. several parts of the applicator and the system can be destroyed!

Make sure unconditionally, that there is no mechanical contact possible between the applicator and the production line and rolls.



The basic requirement for proper coating is a tight guidance of the material web.



Varying material tension may cause wrinkles within the material web.

Keep your hands, head, etc. away from running rolls! Limbs may be drawn in. Risk of crushing!

18. Start the unit (web material). Make sure that the material web runs even.

19. Activate the module solenoids for the adhesive application. Adhesive will be applied;

20. Production is running.

4.3.3 Advices on Daily operation



Purge the Applicator before every start of production respectively of a shift by allowing the adhesive flows out.

Then switch off the adhesive and clean the nozzles from adhesive.

Bring the Applicator in work position and continue production.

4.3.4 Purging Adhesive Through the Applicator

This procedure may be used anytime the operator wishes to purge old adhesive from the applicator and replace it with fresh adhesive. For example, this procedure could be used in instances where the adhesive system has been held at temperature for an extended time without running, such as during a production line start-up.

	WARNING HIGH PRESSURE RISK OF BURNS AND INJURY! • During the purging procedure, hot adhesive and oil can come out of the head under high pressure. • The unit operates with very high temperatures and high adhesive pressure. • Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing when working on or with the unit. Risk of burns and risk of injury! • Molten adhesives at operating temperature could cause heavy burns. • Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!
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1. Remove all nozzles. Place a suitable container under the applicator to catch adhesive.
2. Activate the modules and manually run the adhesive pump to purge the hoses and heads of old adhesive. Purge until the adhesive exiting the modules is fresh.
3. Check system pressure to see if filters are clogged and need to be changed.
4. Replace the nozzles and check the adhesive flow through them. Compare to target flow.
5. Check the nozzle spray pattern.
6. Clean (or replace if necessary) any nozzles that do not spray properly and check the spray pattern again.

4.4 Shut Down Procedure



CAUTION! RISK OF BURNS AND INJURY!

- Parts of the unit can be hot long after switching off.
- Always wear heat-resistant protective gloves and safety goggles! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!



Do not switch off the controller and the main switch, if the unit has to be operated by weekly timer.

To switching the unit off:

1. Switch all Melter's pumps/motors off.
2. Switch the main switch off.



ADVICES

PUR-adhesives react with air humidity. To avoid blocked nozzles, slot nozzles or applicators, these parts have to be protected airproof with PUR cleaner immediately after production stop.

Protection caps for nozzles:

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

Protection pan for slot nozzles:

Slot nozzles could be protected e. g. by a pan filled with PUR-Cleaner. Immediately after production stop you dunk the slot nozzle into this pan.

Removing dirt:

Remove dirt from the melter and the applicator immediately.

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

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

Chapter 5

Maintenance and Repair Notes

5.1 Security advices for maintenance and repair



Heed all security advices given in chapter 2.

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

Maintenance and repair work is only permitted for skilled personnel!

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

High Voltage! Risk of injury and mortal danger!

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



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

High adhesive temperature and adhesive pressure! Risk of injury or heavy burns!

Always assume that the system is under pressure, proceed with caution.

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

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

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

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



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

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

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

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

1. Disconnect the pressure air supply.
2. Turn the pressure regulator to zero bar, if necessary. Wait approximately 1 minute until the pressure is relieved.
3. Open the modules by activating the solenoids (trigger button) to relieve any adhesive pressure.

5.1.1 Equipment Preparation for Maintenance & Repair

- Adhesive processing equipment must be worked on while hot enough to soften any material residue within the assembly. This depends on the type of adhesive used with the equipment. This may require the system to be up to operating temperature before disassembled, to prevent damage to fasteners and components.
- Once disassembled, the individual parts may be cleaned by immersion in approved solvent. Surface deposits may be removed by lightly scrapped with a brass device or scrapper. Care must be taken not to damage sealing surfaces with sharp objects or sand paper.
- Components such as O-rings, fasteners and relief valves should be discarded and replaced by certified ITW Dynatec replacement parts.

5.1.2 Re-Assembly Procedures and General Cautions

Unless noted, the 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).

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.

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.

5.1.3 Cleaning Recommendation

- Filters are disposable and need to be replaced regularly. DO NOT boil in mineral oil, solvents or water; the sealant used in filter assembly may become brittle and very likely disintegrate when boiled.
- When cleaning other components in mineral oil, remove all non-metallic items (O-rings, seals, filter cartridge, etc.) away from chemicals before components are subjected to hot mineral oil cleaning.
- If there is not a specific rebuild kit available or directions on how to clean a part, please treat it as a replacement item and do not attempt to clean/rebuild.

5.2 Maintenance plan



CAUTION

Heed all security advices given in chapter 5.1.

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

Please use only the indicated lubricants and keep the prescribed maintenance intervals. Consider in addition the enclosed regulations of manufactures.

Punctual and conscientious maintenance of the unit secures not only a trouble-free function, but prevents also for expensive repair costs.

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

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

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

Wipe the applicator clean of adhesive with a clean cloth while still hot at the end of each shift, taking care not to damage the nozzles. Inspect the applicator periodically as outlined in the following table.

Maintenance plan:

Operating time/ frequency	Inspection point / maintenance notes
Continuous	Remove dropped out adhesive and scrap adhesive and search for the cause of that, eliminate the cause.
Once a day	Clean the Applicator and components from dirt.
Once a week	- Check the nozzles for proper operation and clean or replace if necessary. - Check the filter for clogging and replace if necessary. - Check the modules on Applicator if leaky and replace if necessary. (Monitor for excess adhesive flow out of "Weep holes" – small amount is normal). - Check the air supply connections for leaks and tighten if loose or replace if necessary. - Check all hose fittings for leaks and tighten if necessary. - Check the solenoid valves for proper function and replace it if necessary.
Every 3 months	Due to temperature differences a loosening of threads (threaded connections) is possible. Check all parts with threads, all screw fittings and fasteners for tightness and tighten them if necessary.
Once a year	- Clean the Applicator. - Complete check-up for wearing.
Every two years	Complete maintenance.

5.3 Depressurizing, Purging Hot Adhesive Under Pressure

	WARNING Heed all security advices given in chapter 5.1. Maintenance and repair work is only permitted for skilled personnel! Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns! During this procedure, hot adhesive can come out of the Applicator under high pressure. Components and adhesive are hot when this procedure is being done. Take every precaution to prevent the material and hot surfaces from contacting the skin.
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Many maintenance and troubleshooting procedures potentially expose the maintenance technician to dangerous hot adhesive which is under pressure.

Follow this procedure to release the adhesive pressure in the applicator before performing such maintenance:

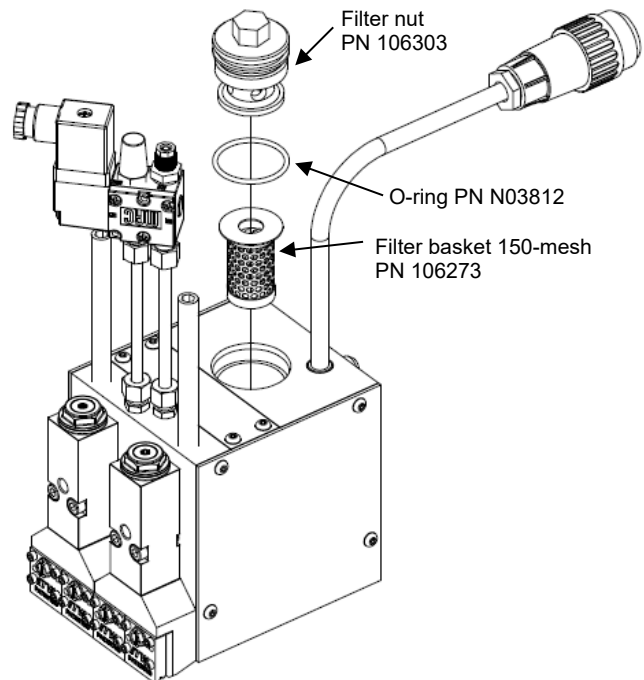
1. The applicator should be at operating temperature.
2. Turn the Melter's pump/ motor OFF.
3. Relieve the adhesive pressure manually by opening the modules by activating the solenoids.
4. Or, if the Melter's filter block is equipped with a drain, adhesive pressure may be relieved at the Melter.

5.4 Replacement of the Filter

	WARNING Heed all security advices given in chapter 5.1. Maintenance and repair work is only permitted for skilled personnel! Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns! During this procedure, hot adhesive can come out of the Applicator under high pressure. Components and adhesive are hot when this procedure is being done. Take every precaution to prevent the material and hot surfaces from contacting the skin.
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The Applicator must be at operating temperature.

1. Turn the Melter's pump/ motor OFF.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out!
5. Relieve the adhesive pressure by following the instructions under "Ch. 5.3 Depressurizing, Purging Hot Adhesive Under Pressure".
6. Wearing insulated gloves, unscrew and remove the filter nut.
7. With needle nose pliers, pull the filter basket out of the filter block.
8. Replace the O-ring on the filter nut. Apply O-ring lubricant (PN N07588) to the new O-ring.
9. Apply a coat of anti-seize to the threads of the filter nut.
10. Re-install a new filter basket and the filter nut.
Tighten the filter nut until it is seated firmly, taking care not to cut the O-ring.



After finishing the maintenance or repair works:

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

5.5 Cleaning and Replacement of the UFD Nozzle



WARNING

Heed all security advices given in chapter 5.1.

Maintenance and repair work is only permitted for skilled personnel!

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

During this procedure, hot adhesive can come out of the Applicator under high pressure.

Components and adhesive are hot when this procedure is being done. Take every precaution to prevent the material and hot surfaces from contacting the skin.

Occasionally nozzles can become clogged with char, residue or other foreign material. This can result in the decrease or even stoppage of glue flow. Use one of the following two methods to clean nozzles.

Cleaning by High Temperature Oven

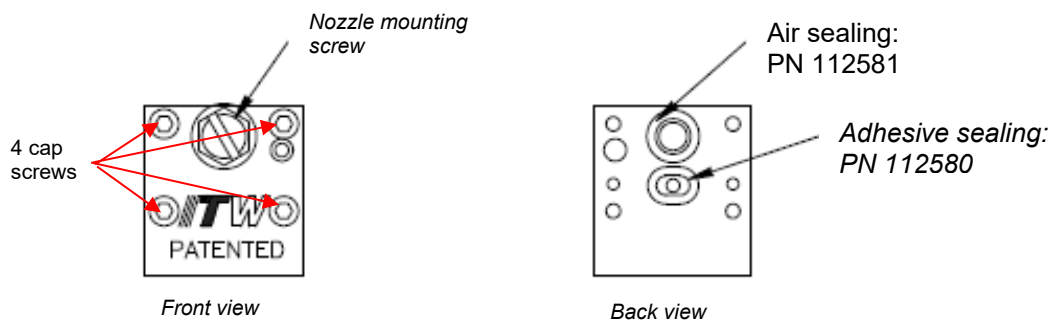
For routine nozzle cleaning, a high temperature oven should be utilized. An optional Nozzle Cleaning Oven is available from ITW Dynatec. The procedure is explained in the manual of the oven.

After several cleanings in an oven, nozzles must be disassembled and soaked in solvent in order to remove all contaminants. Perform the following procedure as needed:

Cleaning by Nozzle Disassembly, Replacement of the nozzle

The nozzle must be at operating temperature when cleaned.

1. Turn the Melter's pump/ motor OFF.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out.
5. Relieve the adhesive pressure by following the instructions under "Ch. 5.3 Depressurizing, Purging Hot Adhesive Under Pressure".
6. Remove the nozzle from the adapter by loosening its mounting screw.



7. Remove the mounting screw and the four cap screws from the nozzle.
8. Separate the nozzle from its front and rear mounting plates.
9. Soak the nozzle plates in solvent.
If necessary, use a non-metallic brush to remove any foreign material.

**CAUTION: Be careful not to damage any of the nozzle's orifices!
Be sure to remove all residue before re-assembling.**

10. After cleaning, mount the front and rear mounting plates using the 4 cap screws.
11. Lubricate the nozzle O-rings with O-ring lube (PN N07588).
12. Install the nozzle on the adapter again and tighten the mounting screws with a torque wrench.

NOTE: The recommended torque value for the UFD nozzle mounting screw is 20-25 in./lbs (2.3-2.8 Nm).

After finishing the maintenance or repair works:

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

5.6 Replacement of Module



WARNING

Heed all security advices given in chapter 5.1.

Maintenance and repair work is only permitted for skilled personnel!

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

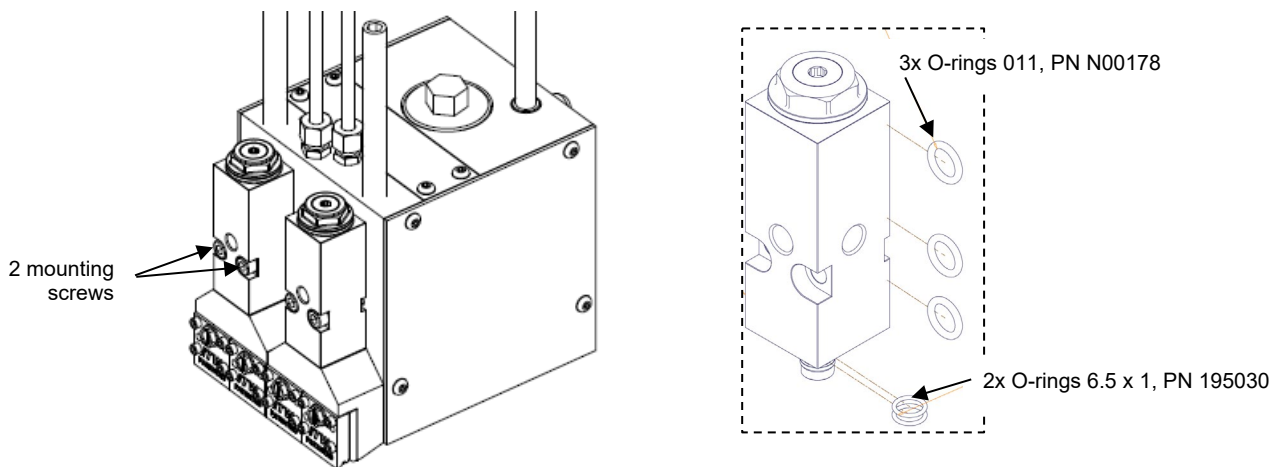
During this procedure, hot adhesive can come out of the Applicator under high pressure.

Components and adhesive are hot when this procedure is being done. Take every precaution to prevent the material and hot surfaces from contacting the skin.

NOTE: For the replacement, see module illustration in Chapter 8.

1. Turn the Melter's pump/ motor OFF.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out.
5. Relieve the adhesive pressure by following the instructions under "Ch. 5.3 Depressurizing, Purging Hot Adhesive Under Pressure".
6. Remove the module from the service block by removing the two mounting screws on the front of the module with a 4mm (5/32") 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).



7. Lubricate the module O-rings with O-ring lube (PN N07588).

8. Mount the new module and tighten the mounting screws with a torque wrench. The recommended torque value for the module mounting screws is 25-35 in./lbs (2.8-4.0 Nm).

After finishing the maintenance or repair works:

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

5.7 Replacement of Blind Module

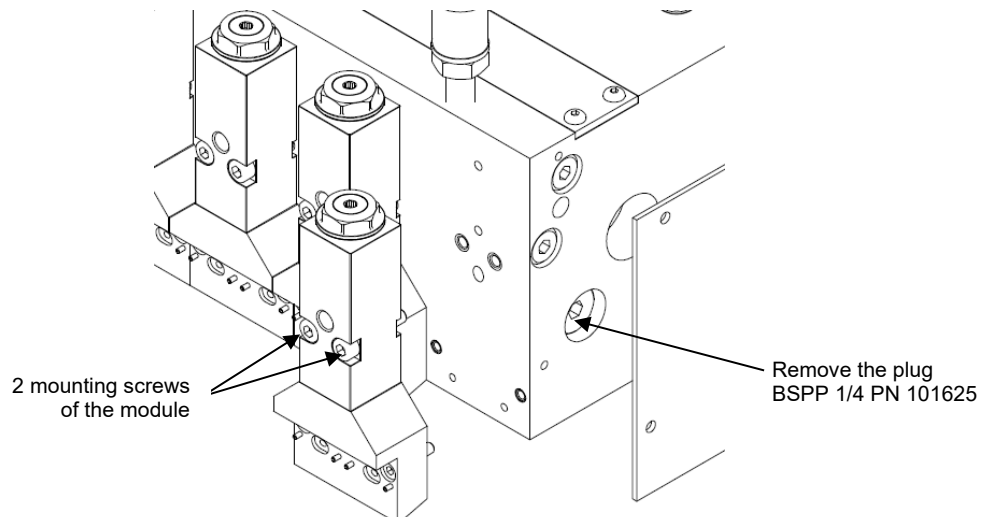
	WARNING Heed all security advices given in chapter 5.1. Maintenance and repair work is only permitted for skilled personnel! Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns! During this procedure, hot adhesive can come out of the Applicator under high pressure. Components and adhesive are hot when this procedure is being done. Take every precaution to prevent the material and hot surfaces from contacting the skin.
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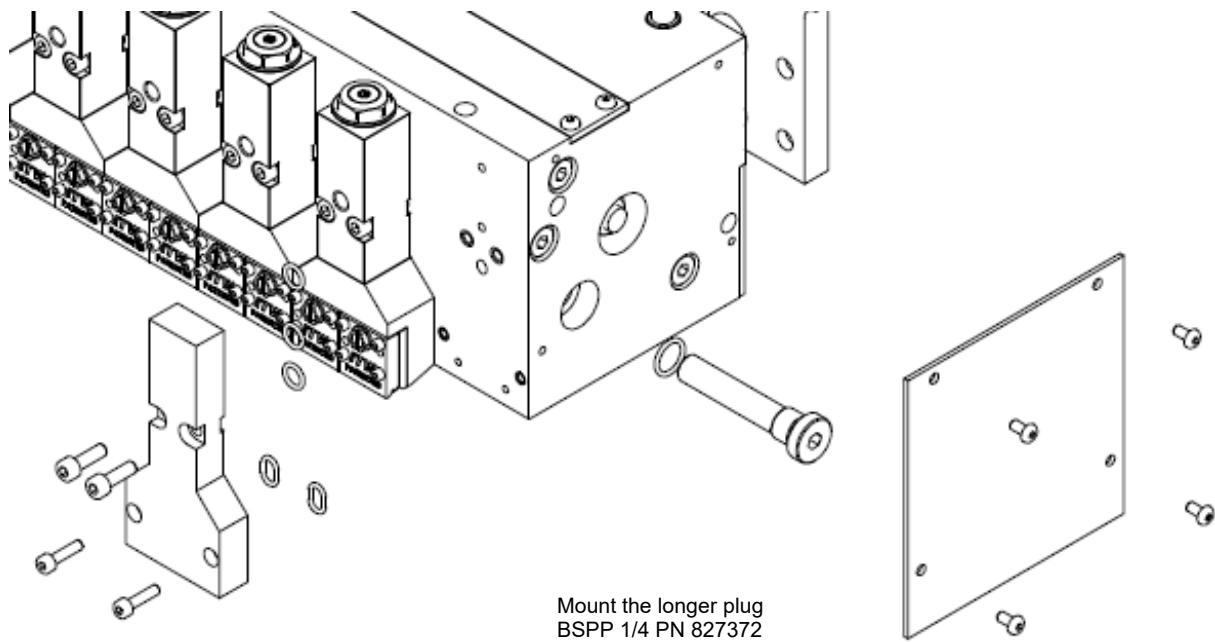
NOTE: For the replacement, see module illustration in Chapter 8.

1. Turn the Melter's pump/ motor OFF.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out.
5. Relieve the adhesive pressure by following the instructions under "Ch. 5.3 Depressurizing, Purging Hot Adhesive Under Pressure".
6. Remove the module from the service block by removing the two mounting screws on the front of the module with a 4mm (5/32") hex key screwdriver (Allen wrench).

Make sure that the old O-rings located on the back of the module are also removed (the blind module will include new O-rings).

7. Remove the side cover by loosening the 4 screws.
8. Remove the plug BSPP 1/4 PN 101625 from the service block.





9. Mount the longer plug BSPP 1/4 PN 827372 into the service block and tighten it.

NOTE: The plug 827372 must be used in combination with the blind module 827370. When using a blind module 827370 on the ECO Plus 300mm applicator, the longer plug 827372 must be inserted to block the cross-channel behind the blind module for glue and so avoid glue charring in the channel.

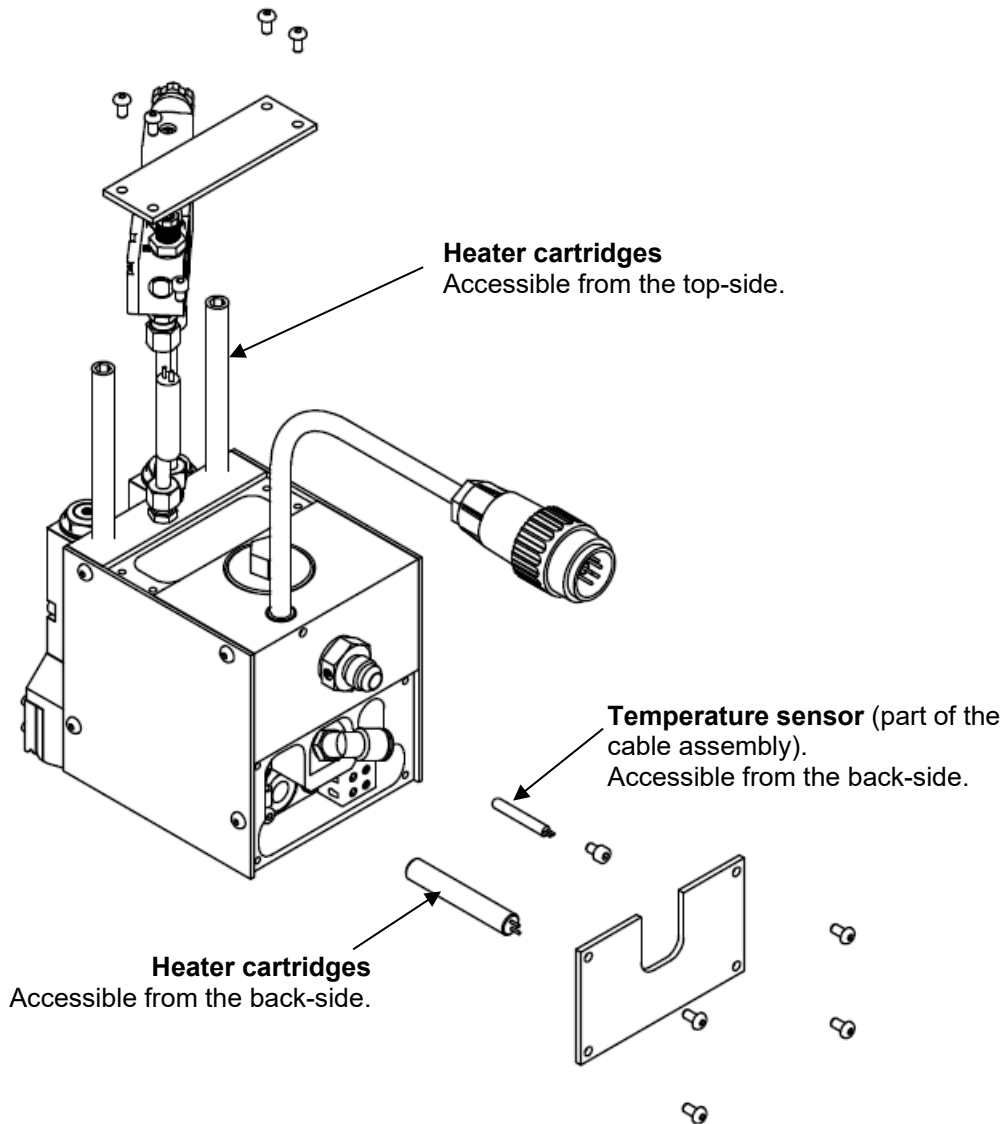
10. Mount the side cover again.
11. Lubricate the blind module 5 O-rings with O-ring lube (PN N07588).
12. Mount the blind module 827370 and tighten the mounting screws with a torque wrench.
The recommended torque value for the module mounting screws is 25-35 in./lbs (2.8-4.0 Nm).

After finishing the maintenance or repair works:

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

5.8 Replacement of Heater Cartridges or Temperature Sensors

NOTE: For the exact quantities of heater cartridges and temperature sensors refer to the drawings/BOMs of the manifold of your applicator.



Example illustration of ECO Plus 100: Heater cartridges and temperature sensor

5.8.1 Replacement of heater cartridges in the manifold

	WARNING Heed all security advices given in chapter 5.1. Maintenance and repair work is only permitted for skilled personnel! Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns! During this procedure, hot adhesive can come out of the Applicator under high pressure. Components and adhesive are hot when this procedure is being done. Take every precaution to prevent the material and hot surfaces from contacting the skin.
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NOTE: The 300mm Applicator has 2 cable assemblies.

1. Turn the Melter's pump/ motor OFF.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out.
5. Relieve the adhesive pressure by following the instructions under "Ch. 5.3 Depressurizing, Purging Hot Adhesive Under Pressure".
6. Disconnect the electrical cable assembly from the hose.
7. Remove the top and back cover by loosening the 4 fastening screws.
8. Disconnect the heater leads from the ceramic terminal blocks. See applicator's drawing.
9. Locate the non-functioning heater with a multimeter.
10. Pull the defective heater cartridge out of the service block.
11. Apply a thin coat of thermal paste (PN 001V061) to the new heater cartridge.
12. Insert the new heater cartridge in the service block and connect its wires to the terminal block, making sure that no strands of wire are protruding from the terminal block.
13. Replace the top cover plate and tighten the 4 fastening screws.

After finishing the maintenance or repair works:

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

5.8.2 Replacement of temperature sensors in the manifold

	WARNING
	Heed all security advices given in chapter 5.1.
	Maintenance and repair work is only permitted for skilled personnel!
	Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns!
	During this procedure, hot adhesive can come out of the Applicator under high pressure.
	Components and adhesive are hot when this procedure is being done. Take every precaution to prevent the material and hot surfaces from contacting the skin.

NOTES:

- The temperature sensors are part of the cable assembly.
 - **100mm and 200mm Applicator:** The temperature sensor is located in the air preheater (bottom part). See drawing.
 - **300mm Applicator:** One temperature sensor is located in the air preheater (bottom part) and one in the service block (upper part). See drawing.
 - The 300mm Applicator has 2 cable assemblies.
1. Turn the Melter's pump/ motor OFF.
 2. Switch the unit voltage-free and pressureless.
 3. Guard the unit against unauthorized restarting.
 4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out.
 5. Relieve the adhesive pressure by following the instructions under "Ch. 5.3 Depressurizing, Purging Hot Adhesive Under Pressure".
 6. Disconnect the electrical cable assembly from the hose (and from the cable extension, at the 300mm Applicator).
 7. **For 100 and 200mm applicators:** Remove the back cover plate by loosening the fastening screws.
For 300mm applicator: Remove the top and back cover plates by loosening the fastening screws.
 8. Pull the sensor out of the service block. See applicator's drawing.
 9. Cut the old sensor wires off as close to the sensor as possible.
 10. Apply a thin film of thermal paste to the new sensor and place it in the service block (or preheater). Trim the lead wires so that they overlap the old sensor wires by one to two inches. Strip the ends of all four wires.
 11. Use the splice kit to connect the new sensor to the old sensor wires.
 12. Place the wires in the wiring cavity.
 13. Replace the top and back cover plate(s) and tighten the fastening screws.

After finishing the maintenance or repair works:

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

Chapter 6

Troubleshooting

6.1 Troubleshooting In General



NOTE: Please re-read all security advices given in chapter 2 before performing any troubleshooting or repair procedures.

All troubleshooting or repair procedures must be performed by qualified, trained technicians.



DANGER HIGH VOLTAGE

The Melter and Applicator use electrical power that can be life threatening and hot-melt adhesives that can cause serious burns. Only qualified persons should perform service on the system.



WARNING HOT SURFACE

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

Some of the procedures in the following Troubleshooting Guide require working near hot adhesive.

Face shields (preferred) or safety glasses (for minimum protection), heat-resistant protective gloves and long-sleeved clothing must be worn whenever working with or around adhesive application systems.

Use proper tools for handling hot melt components.

6.2 Troubleshooting Guide



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

Preliminary Checks: Verify the following before proceeding:

- All pneumatic and electrical connections are correct.
- The Melter is supplied with power and the main power switch is ON.
- Adhesive is in the hopper (tank) and the Melter's pump is ON.
- The Melter and Applicator have sufficient air pressure.
- The temperature controller is in operation. The setpoints are correct for the application, Melter, Heated Hoses and Applicators. All components are heating properly.

Problem	Possible Cause	Solution
Module does not open.	1. Temperature adjustment of head is too low. 2. Inoperative solenoid valve.	1. Check temperature adjustment. 2. Push the solenoid's manual button. If it opens, the problem is electrical.
No adhesive flowing out of module.	1. Nozzle is clogged. 2. Filter element is dirty. 3. Module seals (O-rings) are inoperative. 4. Melter's hopper (tank) is empty. 5. Adhesive is too cold. 6. Solenoid valve is not opening.	1. Clean the nozzle. 2. Replace the filter. 3. Check/ replace module O-rings. 4. Re-fill hopper (tank). 5. Adjust temperature, see Melter's manual. 6. Check solenoid valve.
Hot melt is coming out of the module's "weep" holes.	1. Module seals are damaged.	1. Replace module.
Applicator does not reach operating temperature.	1. Hopper temperature setpoint is too low. 2. Inoperative heater cartridge. 3. Inoperative temperature sensor.	1. Change setpoint, see Melter's manual. 2. Check/ replace heater cartridge. 3. Check/ replace sensor.
Applicator is too hot.	1. Applicator temperature setpoint is too high. 2. Inoperative temperature sensor.	1. Change setpoint, see Melter's manual. 2. Check/ replace sensor.

Problem	Possible Cause	Solution
Air escapes from module.	1. Inoperative piston O-ring. 2. O-rings located between module and service block are inoperative.	1. Replace module. 2. Remove module from block and replace O-rings.
Application pattern is erratic.	1. Adhesive pressure is too low. 2. Pattern controller's adjustment is improper.	1. <i>a. For units without speed control:</i> increase adhesive pressure at Melter. <i>b. For units with speed control (tach follower):</i> adjust pump speed control. 2. See pattern controller manual for proper adjustment.

6.3 Testing of Heater Cartridge or Temperature Sensor

6.3.1 Testing Resistance of the Heater Cartridges in Manifold:



WARNING

Heed all security advices given in chapter 5.1.

Maintenance and repair work is only permitted for skilled personnel!

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

During this procedure, hot adhesive can come out of the Applicator under high pressure.

Components and adhesive are hot when this procedure is being done. Take every precaution to prevent the material and hot surfaces from contacting the skin.

NOTE: The resistance value (Ohms) of the heater cartridge may be calculated using the formula:

$$\frac{\text{Volts}^2}{\text{Watts}} = \text{Ohms}$$

1. Turn the Melter OFF or disable the applicator (service block and preheater) zones at the control panel.
Disconnect all electrical cables from the applicator.
Switch the unit voltage-free and pressureless.
Guard the unit against unauthorized restarting.
Relieve the adhesive pressure by following the instructions under "Ch. 5.3 Depressurizing, Purging Hot Adhesive Under Pressure".
2. Unplug the electrical cable from the adhesive supply hose to expose the pins in the cable.
Note: Pin connectors and pinout numbers will vary depending on the control scheme of the applicator. See Chapter 9 for a diagram of each.
3. Use the schematics in Ch. 9 to determine the correct pins used to measure the heater resistance. Compare the reading with the values given in the chart below.

See applicator's drawing.

List of the parallel resistance values of the heater cartridges:

Applicator Length	Heater cartridge PN/ Watts	Qty. Heaters	Parallel Resistance in Ohms	
			Min.	Max.
ECO Plus 100 mm	803960/ 200W *	2	45.67	50.33
	106329/ 200W #	4		
ECO Plus 200 mm	803960/ 200W *	4	22.8	25.2
	106329/ 200W #	8		
ECO Plus 300 mm	803960/ 200W *	6	15.22	16.78
	106329/ 200W #	12		

* in service block: PN 803960, heater cartridge, Ø10x40mm, 200W.

in air preheater: PN 106329, heater cartridge, Ø10x60mm, 200W.

If one of the heaters is not functional, the parallel resistance as 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.

Measurements:

- *For DynaControl/ PLC:* With an ohmmeter, contact pins 7 and 8 and measure resistance.

NOTE: A tolerance range of $\pm 5\%$ is allowed for ambient temperature differences. A heater cartridge that tests outside of this range must be replaced.

Resistance/ Voltage Tables for RTD Temperature Sensor PT100:

Temperature		Resistance in Ohms
°F	°C	
32	0	100
50	10	104
68	20	108
86	30	112
104	40	116
122	50	119
140	60	123
158	70	127
176	80	131
194	90	135
212	100	139
230	110	142
248	120	146
268	130	150
284	140	154
302	150	157
320	160	161
338	170	165
356	180	168
374	190	172
392	200	176
410	210	180
428	220	183

Measurements:

- *For DynaControl/ PLC:* With an ohmmeter, contact pins 5 and 6 and measure resistance.

NOTE: A tolerance range of $\pm 5\%$ is allowed for ambient temperature differences. A temperature sensor that tests outside of this range must be replaced.

Chapter 7

Available Options & Accessories

7.1 Extension Cable Assemblies

The following extension cable assemblies are available. These cables connect one applicator zone to the Melter. One cable assembly per applicator is usually required for the preheater; others may be used as necessary for the installation.

Controller	Part Number	Cable Length
DynaControl/Allen-Bradley	103773	10 ft (3 m)
	103774	15 ft (4.5 m)
	103775	20 ft (6 m)
	103776	25 ft (7.5 m)
	105123	30 ft (9 m)
	105147	40 ft (12 m)

7.2 Optional UFD Nozzle Cleaning Oven

The use of the UFD Nozzle Cleaning Oven eliminates the need to disassemble the UFD nozzles for cleaning. Nozzles are baked in the oven for approximately six hours at 750-800 °F (400-425°C).

Complete cleaning instructions are provided.

Chapter 8

Drawings and Bill of Materials



WARNING

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

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

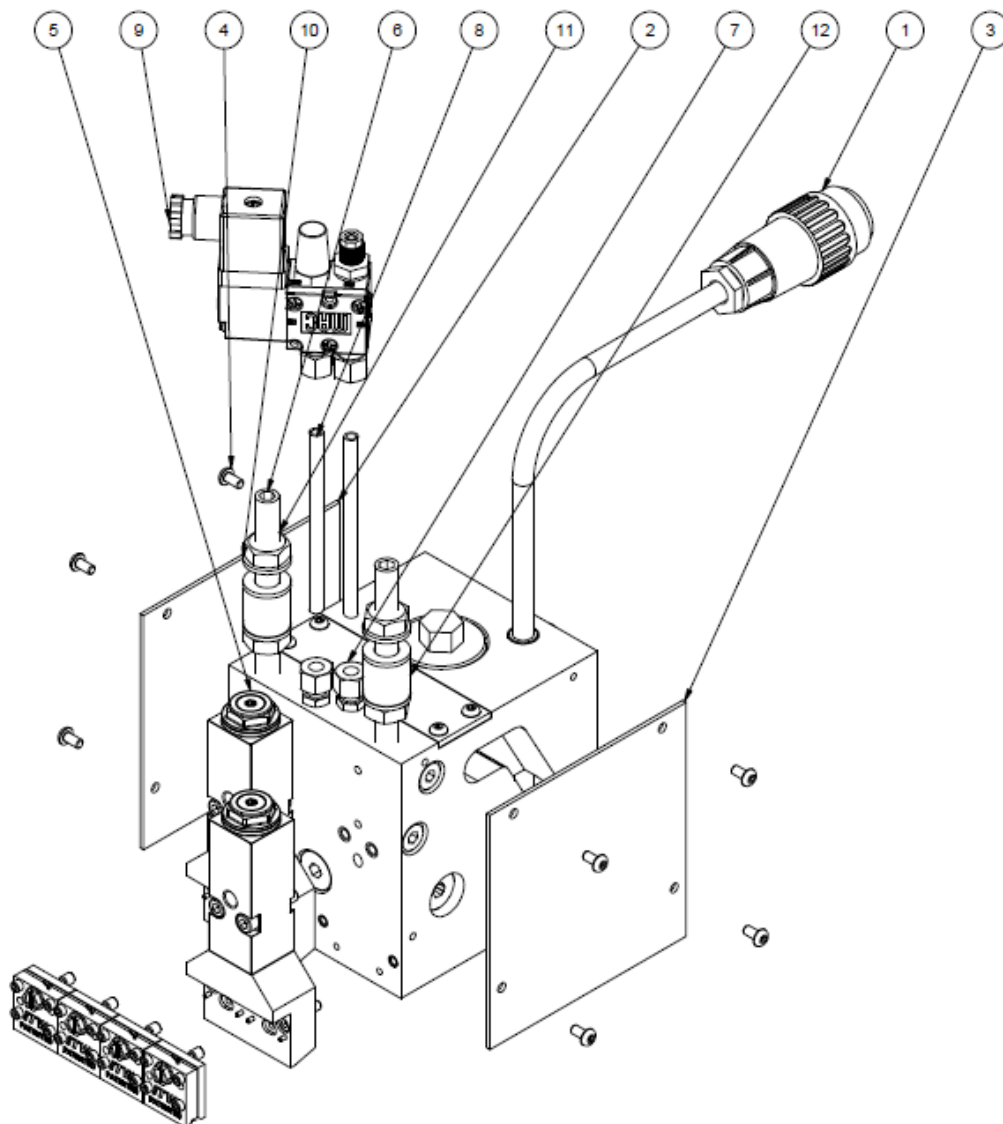
Note: Most common screws, nuts and washers called out in the manual are not for sale and they can be obtained locally at your hardware Store. Specialty fasteners are available by contacting ITW Dynatec's Customer Service.

8.1 ECO Plus 100 Applicator, PN 827233

Item	Part Number	Description	Quantity
1	827230 *	Manifold assembly, ECO Plus 100	1
2	827223	Side plate left	1
3	827224	Side plate right	1
4	107161	Screw M4x8mm	8
5	827229 *	Application module ECO Plus 50mm	2
6	104072	Threaded rod M10x100mm	2
7	N00093	Air fitting	2
8	106333	Tube	2
9	680952	Solenoid 4/2 Way 24VDC 12,7W, assy	1
10	610169	Washer	6
11	804376	Nut M10	4
12	680295	Insulator	2
13	#	UFD nozzle	4

* see separate drawing/BOM.

The nozzles are optional and they are not part of that assembly.



8.1.1 Manifold Assembly, ECO Plus 100, PN 827230

Item	Part Number	Description	Quantity
1	827214	Manifold, ECO Plus 100	1
2	106294	Spiral tube	4
3	N00183	O-ring 016	4
4	803960	Heater cartridge Ø10x40mm, 200W	2
5	N07958	Temperature sensor PT100 (part of cable asy)	1
6	103404	Screw M4x6mm	5
7	107881	Ceramic terminal	1
9	106329	Heater cartridge Ø10x60mm, 200W	4
10	106303	Filter nut	1
11	N03812	O-ring 125	1
12	106273	Filter basket 150-mesh	1
13	105327	Contact washer M3	1
14	048G018	Cable lug (part of cable asy)	1
15	101627	Screw M3x6mm	1
16	103623	Hose fitting BSPP 3/8 #6	1
17	101625	Plug BSPP 1/4	3
18	815541	Plug BSPP 1/8	6
19	112716	Set screw M5x6mm	1
21	680936	Cable asy	1
22	827217	Top cover plate	1
23	827220	Rear cover plate	1
24	107161	Screw M4x8mm	8
25	680933	Push fitting 90°, BSPP 1/8, 8mm	1

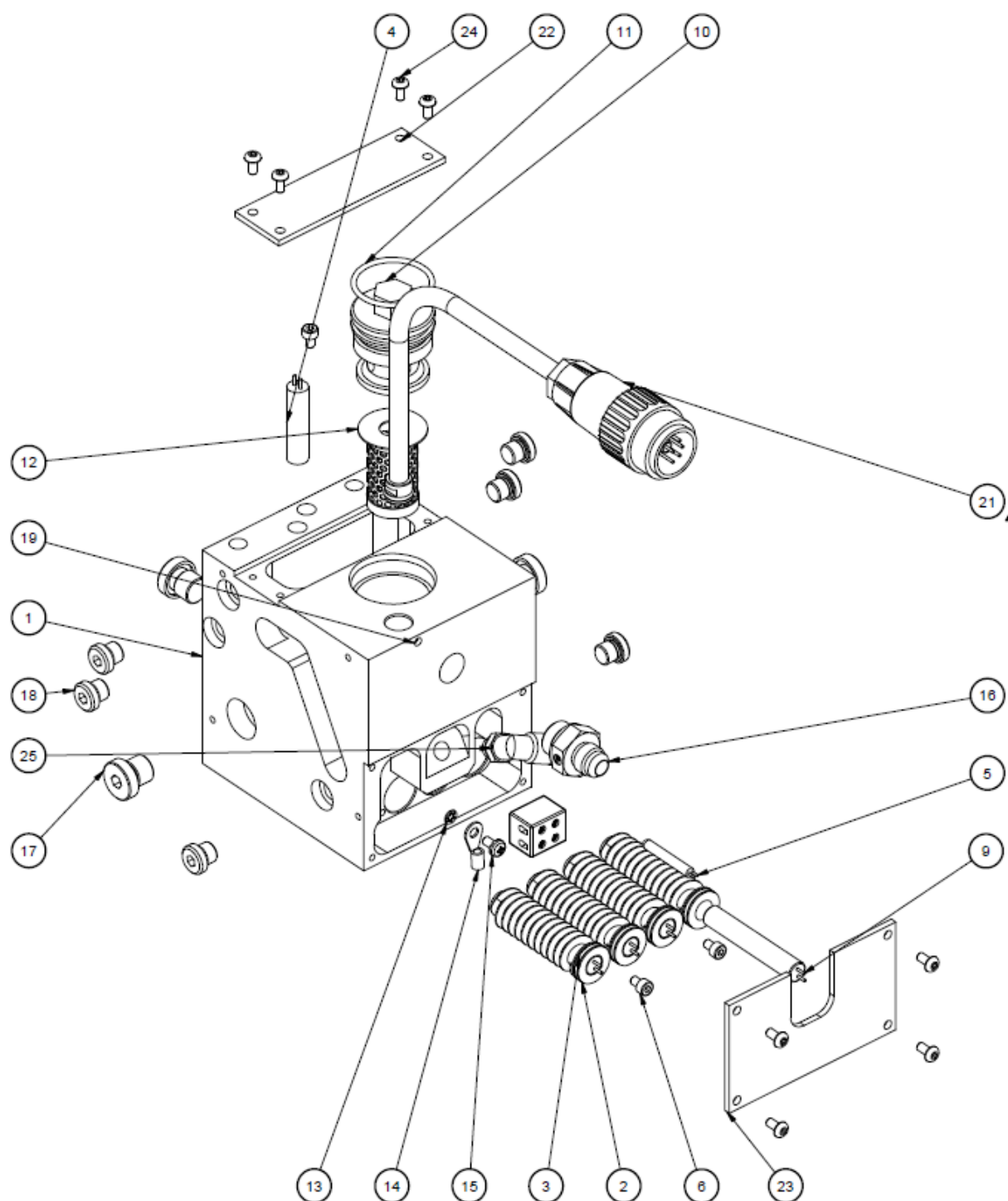


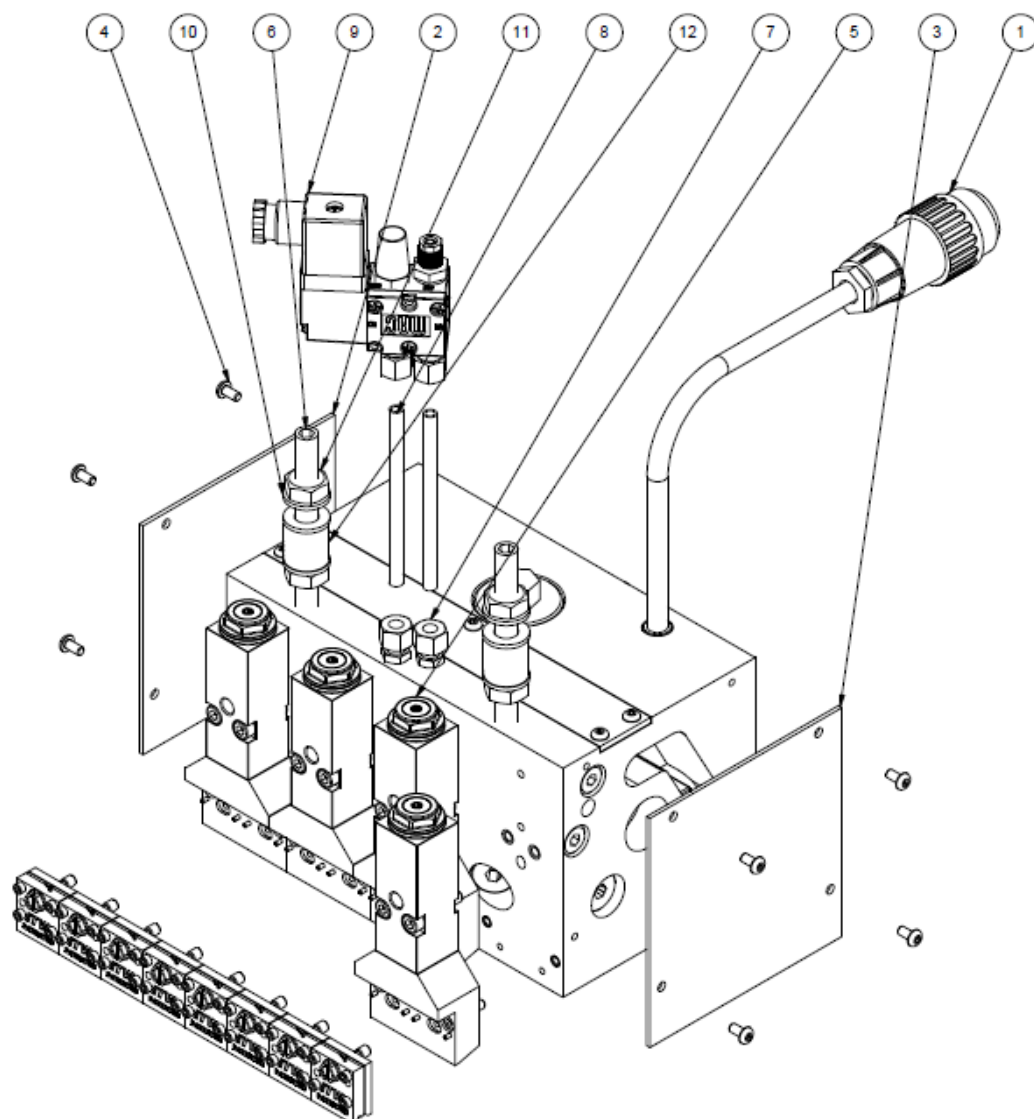
Illustration: Manifold Assembly, ECO Plus 100, PN 827230

8.2 ECO Plus 200 Applicator, PN 827234

Item	Part Number	Description	Quantity
1	827231 *	Manifold assembly, ECO Plus 200	1
2	827223	Side plate left	1
3	827224	Side plate right	1
4	107161	Screw M4x8mm	8
5	827229 *	Application module ECO Plus 50mm	4
6	104072	Threaded rod M10x100mm	2
7	N00093	Air fitting	2
8	106333	Tube	2
9	680952	Solenoid 4/2 Way 24VDC 12,7W, assy	1
10	610169	Washer	6
11	804376	Nut M10	4
12	680295	Insulator	2
13	#	UFD nozzle	8

* see separate drawing/BOM.

The nozzles are optional and they are not part of that assembly.



8.2.1 Manifold Assembly, ECO Plus 200, PN 827231

Item	Part Number	Description	Quantity
1	827215	Manifold, ECO Plus 200	1
2	106294	Spiral tube	8
3	N00183	O-ring 016	8
4	803960	Heater cartridge Ø10x40mm, 200W	4
5	N07958	Temperature sensor PT100 (part of cable asy)	1
6	103404	Screw M4x6mm	9
7	107881	Ceramic terminal	4
9	106329	Heater cartridge Ø10x60mm, 200W	8
10	106303	Filter nut	1
11	N03812	O-ring 125	1
12	106273	Filter basket 150-mesh	1
13	105327	Contact washer M3	1
14	101627	Screw M3x6mm	1
15	048G018	Cable lug (part of cable asy)	1
16	103623	Hose fitting BSPP 3/8 #6	1
17	101625	Plug BSPP 1/4	4
18	815541	Plug BSPP 1/8	6
19	112716	Set screw M5x6mm	1
21	680936	Cable asy	1
22	827218	Top cover plate	1
23	827221	Rear cover plate	1
24	107161	Screw M4x8mm	13
25	680933	Push fitting 90°, BSPP 1/8, 8mm	1

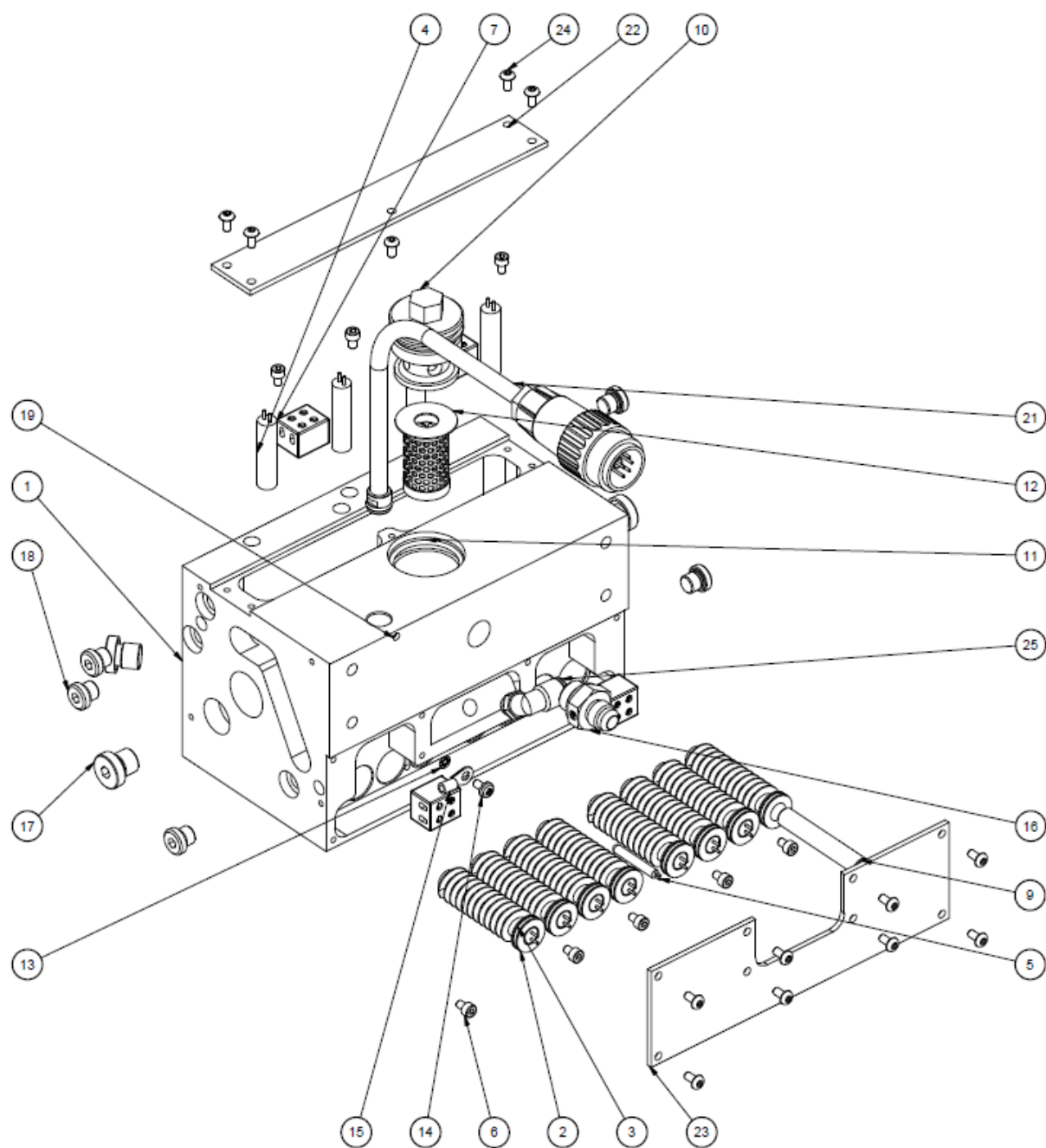
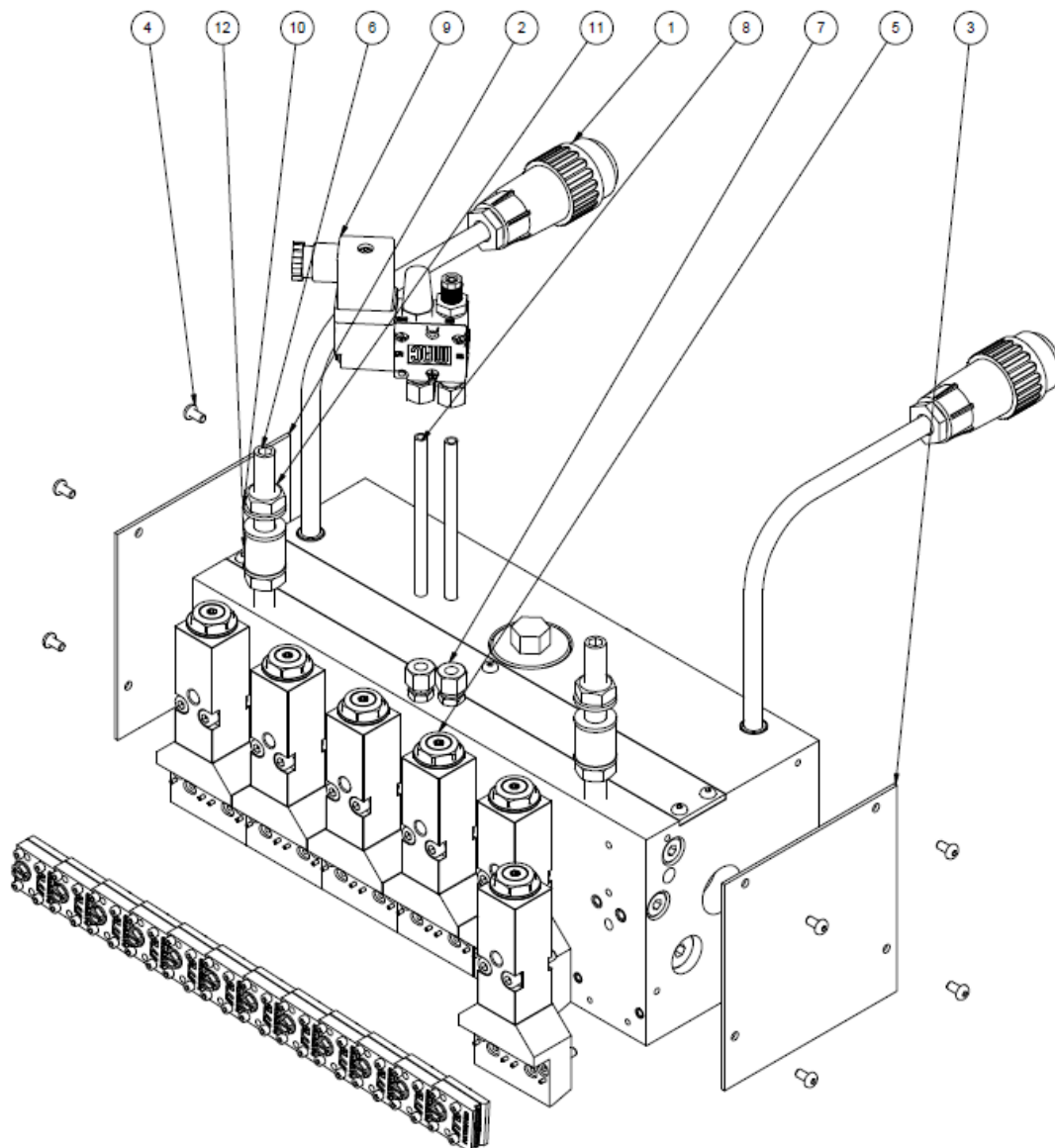


Illustration: Manifold Assembly, ECO Plus 200, PN 827231

Item	Part Number	Description	Quantity
1	827232 *	Manifold assembly, ECO Plus 300	1
2	827223	Side plate left	1
3	827224	Side plate right	1
4	107161	Screw M4x8mm	8
5	827229 *	Application module ECO Plus 50mm	6
6	104072	Threaded rod M10x100mm	2
7	N00093	Air fitting	2
8	106333	Tube	2
9	680952	Solenoid 4/2 Way 24VDC 12,7W, assy	1
10	610169	Washer	6
11	804376	Nut M10	4
12	680295	Insulator	2
13	#	UFD nozzle	12

The nozzles are optional and they are not part of that assembly.



8.3.1 Manifold Assembly, ECO Plus 300, PN 827232

Item	Part Number	Description	Quantity
1	827216	Manifold, ECO Plus 200	1
2	106294	Spiral tube	12
3	N00183	O-ring 016	12
4	803960	Heater cartridge Ø10x40mm, 200W	6
5	N07958	Temperature sensor PT100 (part of cable asy)	2
6	103404	Screw M4x6mm	14
7	107881	Ceramic terminal	3
9	106329	Heater cartridge Ø10x60mm, 200W	12
10	106303	Filter nut	1
11	N03812	O-ring 125	1
12	106273	Filter basket 150-mesh	1
15	048G018	Cable lug (part of cable asy)	2
16	103623	Hose fitting BSPP 3/8 #6	1
17	101625	Plug BSPP 1/4	4
18	815541	Plug BSPP 1/8	6
19	112716	Set screw M5x6mm	2
22	827219	Top cover plate	1
23	827222	Rear cover plate	1
24	107161	Screw M4x8mm	13
25	680933	Push fitting 90°, BSPP 1/8, 8mm	1
27	680936	Cable asy	2
28	101627	Screw M3x6mm	2
29	105357	Contact washer M3	2

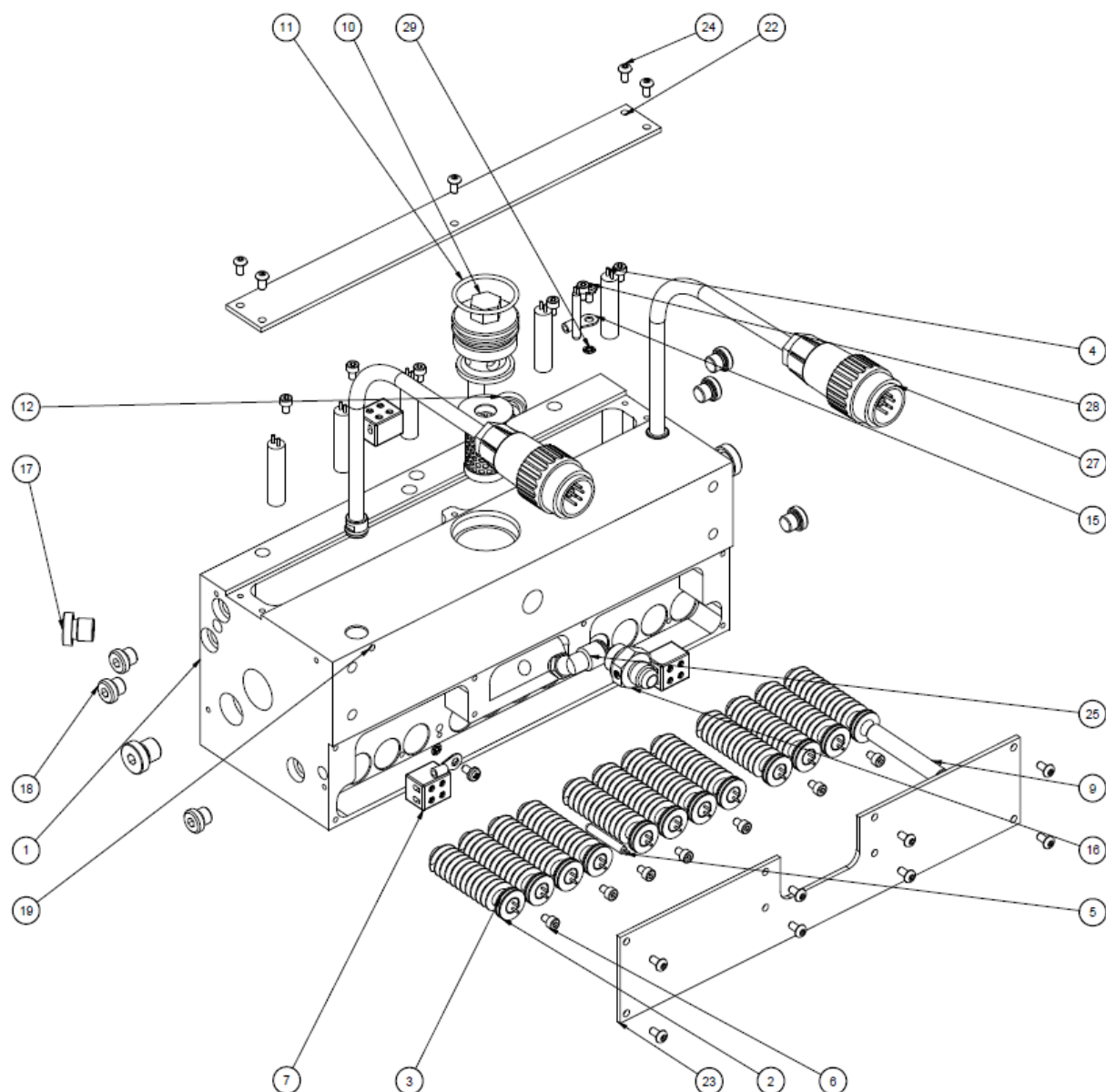
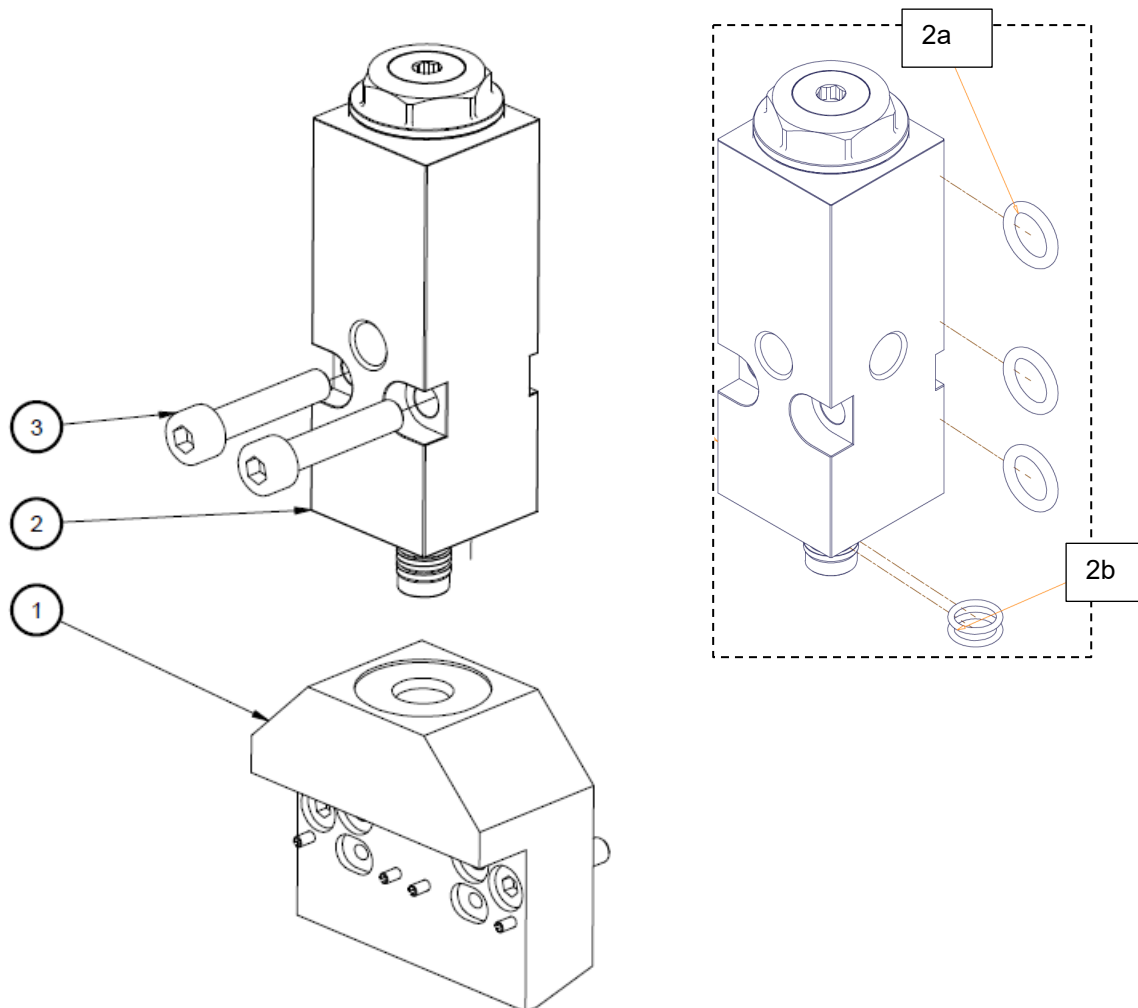


Illustration: Manifold Assembly, ECO Plus 300, PN 827232

8.4 Application module ECO Plus 50mm, PN 827229

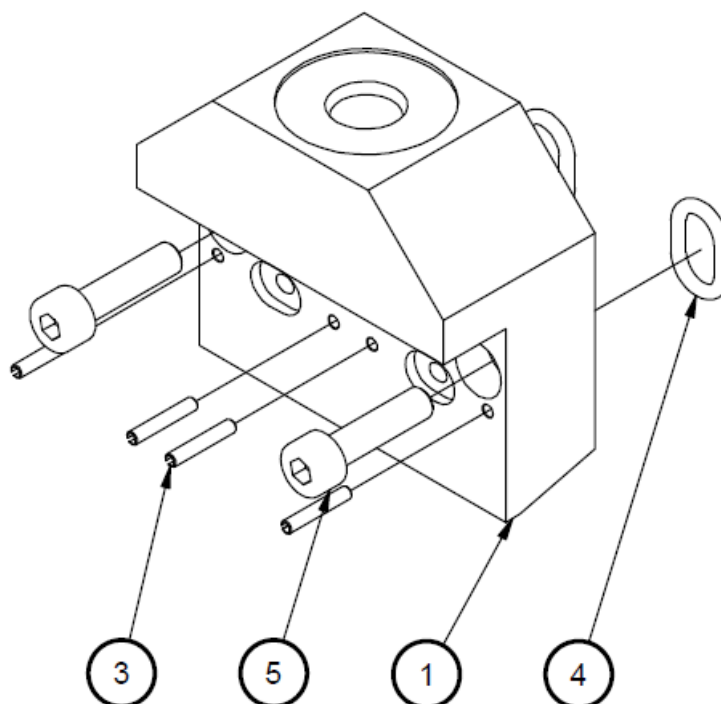
Item	Part Number	Description	Quantity
1	827228 *	Module adapter asy	1
2	120545	Application module MR13	1
2a	N00178	O-ring 011, di=7,65/S=1,78mm (part of the module 120545)	3
2b	195030	O-ring 6.5 x 1 (part of the module 120545)	2
3	107160	Screw M5x25mm	2

* see separate drawing/BOM.



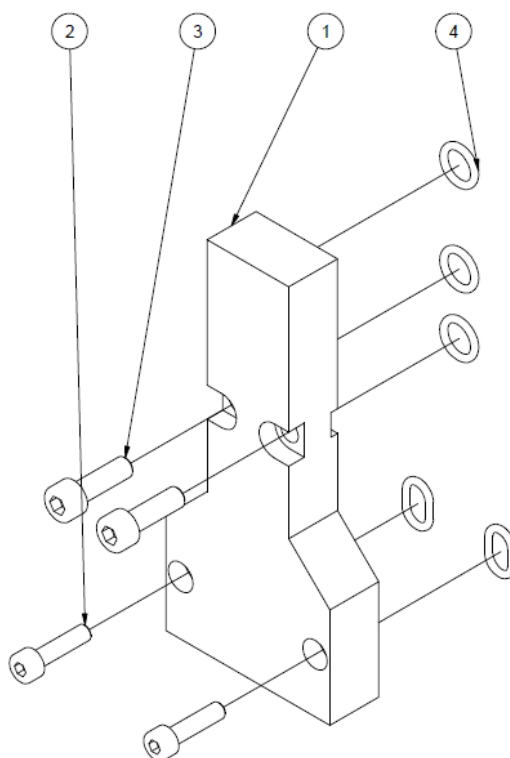
8.4.1 Module adapter asy, PN 827228

Item	Part Number	Description	Quantity
1	827227	Module adapter	1
3	195046	Spring pin	4
4	N00178	O-ring 011	2
5	106328	Screw M4x16mm	2



8.5 Blind module, PN 827370

Item	Part Number	Description	Quantity
1	827371	Blind module body	1
2	106328	Screw M4x16mm	2
3	106242	Screw M5x16mm	2
4	N00178	O-ring 011, di=7,65/S=1,78mm	5

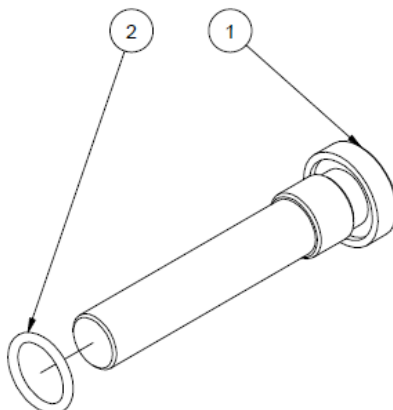


8.5.1 Plug asy, for ECO Plus 300mm, PN 827372

NOTE: This plug 827372 must be used in combination with the blind module 827370.

When using a blind module 827370 on the ECO Plus 300mm applicator, the plug BSPP 1/4 101625 (refer to the manifold drawing 827232 under section 8.3) must be removed and replaced with the longer plug 827372 to block the cross-channel behind the blind module for glue and so avoid glue charring in the channel.

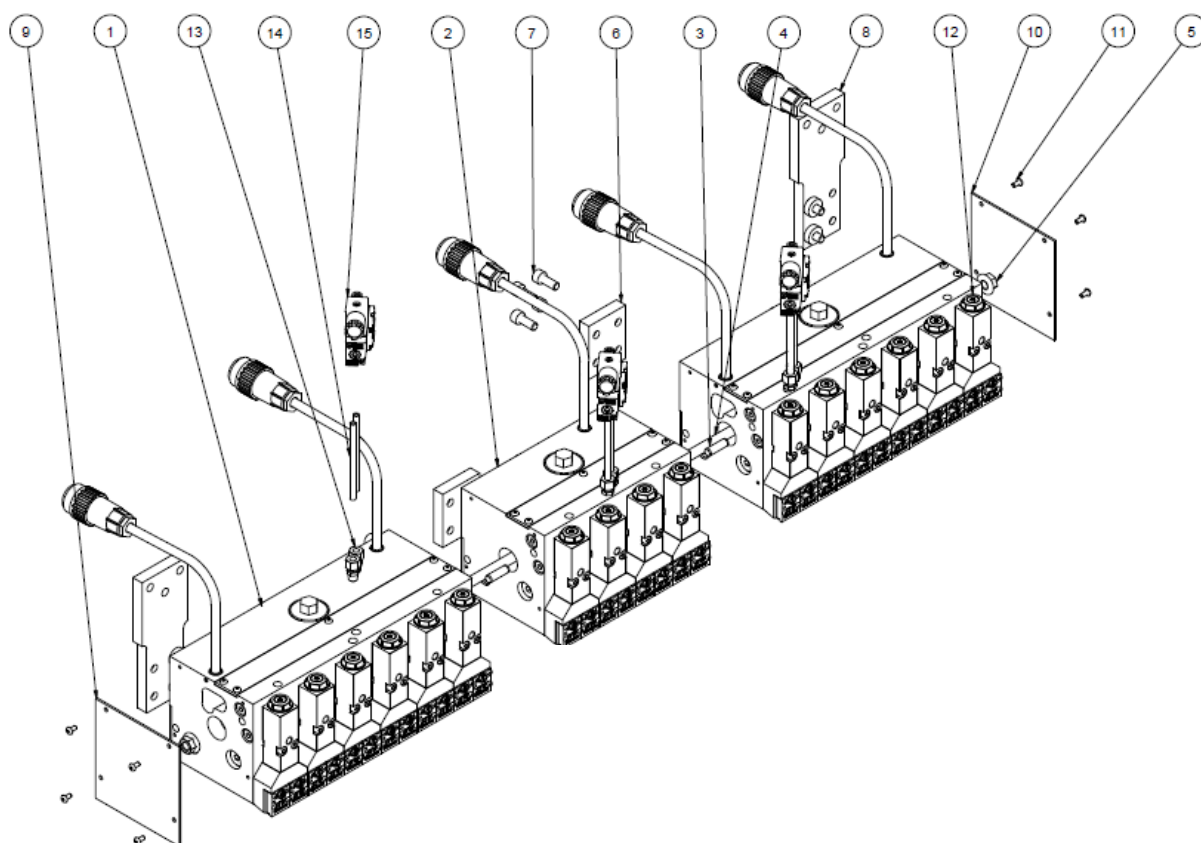
Item	Part Number	Description	Quantity
1	827373	Plug BSPP 1/4 for ECOP300	1
2	N00181	O-ring 014	1



8.6 Connecting Parts for ECO Plus Stacked Applicators

For the ECO Plus stacked applicators from 400 to 1200mm following parts are needed.

Pos.	PN	Description	Qty ECOP 400	Qty ECOP 500	Qty ECOP 600	Qty ECOP 700	Qty ECOP 800	Qty ECOP 800S	Qty ECOP 900	Qty ECOP 1000	Qty ECOP 1100	Qty ECOP 1200
1	827232	Manifold 300mm	0	1	2	1	2	0	3	2	3	4
2	827231	Manifold 200mm	2	1	0	2	1	4	0	2	1	0
3	804356	Parallel pin	2	2	2	4	4	6	4	6	6	6
4	827369	Threaded rod M10	0.4m	0.5m	0.6m	0.7m	0.8m	0.8m	0.9m	1.0m	1.1m	1.2m
5	610210	Nut, self-locking w. washer	2	2	2	2	2	2	2	2	2	2
6	804521	Bracket support asy	1	1	1	2	2	2	2	2	2	2
7	107345	Screw M8x25	4	4	4	8	8	8	8	8	8	8
8	808911	Bracket asy	2	2	2	2	2	3	2	3	3	3
9	827223	Side plate left	1	1	1	1	1	1	1	1	1	1
10	827224	Side plate right	1	1	1	1	1	1	1	1	1	1
11	107161	Screw M4x8mm	8	8	8	8	8	8	8	8	8	8
12	827229	Application module ECO Plus 50mm	8	10	12	14	16	16	18	20	22	24
13	N00093	Air fitting	4	4	4	6	6	8	6	8	8	8
14	106333	Tube	4	4	4	6	6	8	6	8	8	8
15	680952	Solenoid 4/2 way 24VDC 12.7W asy	2	2	2	3	3	4	3	4	4	4



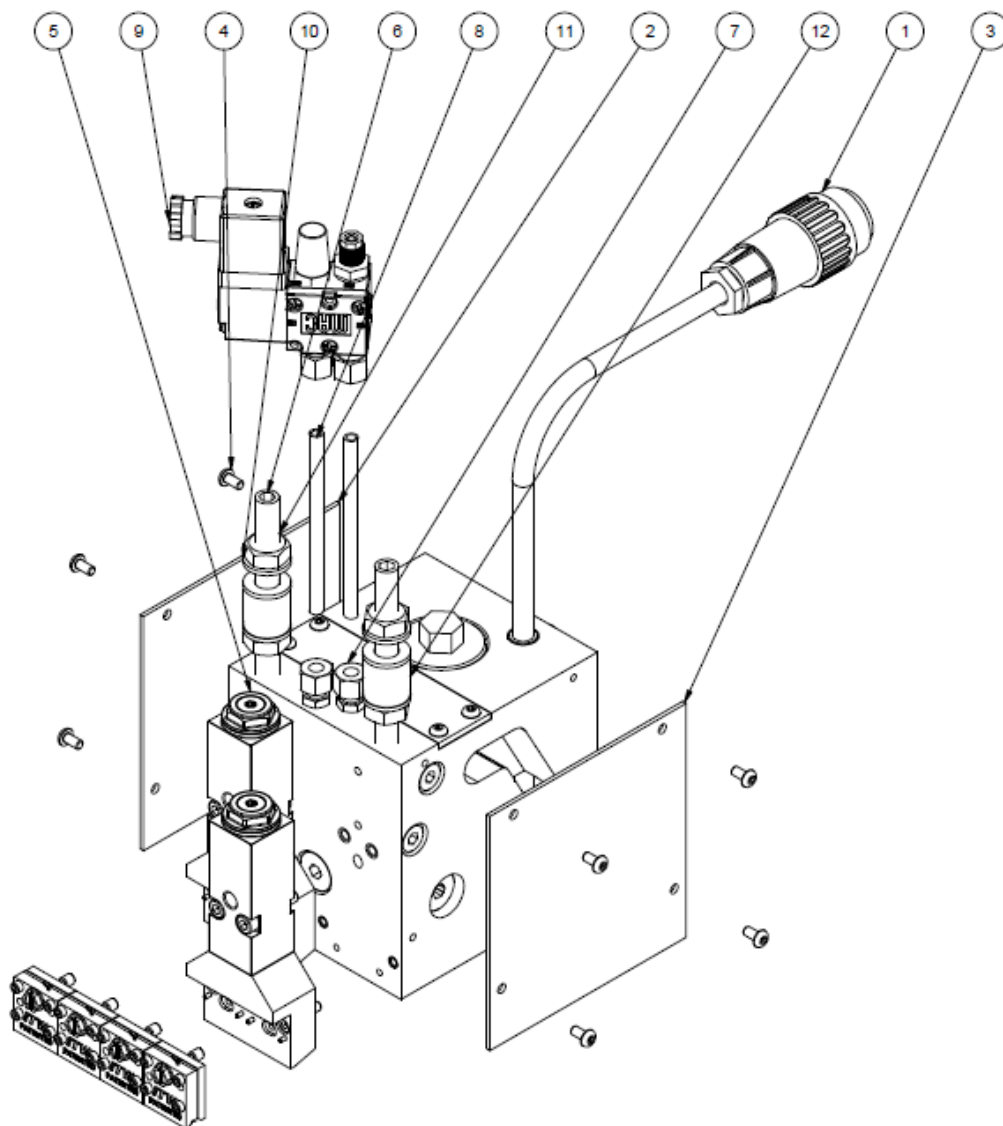
8.7 Recommended Spare Part Lists

8.7.1 ECO Plus 100 Applicator, PN 827233

Item	Part Number	Description	Quantity
5	827229 *	Application module ECO Plus 50mm	2
9	680952	Solenoid 4/2 Way 24VDC 12,7W, assy	1
13	#	UFD nozzle	4

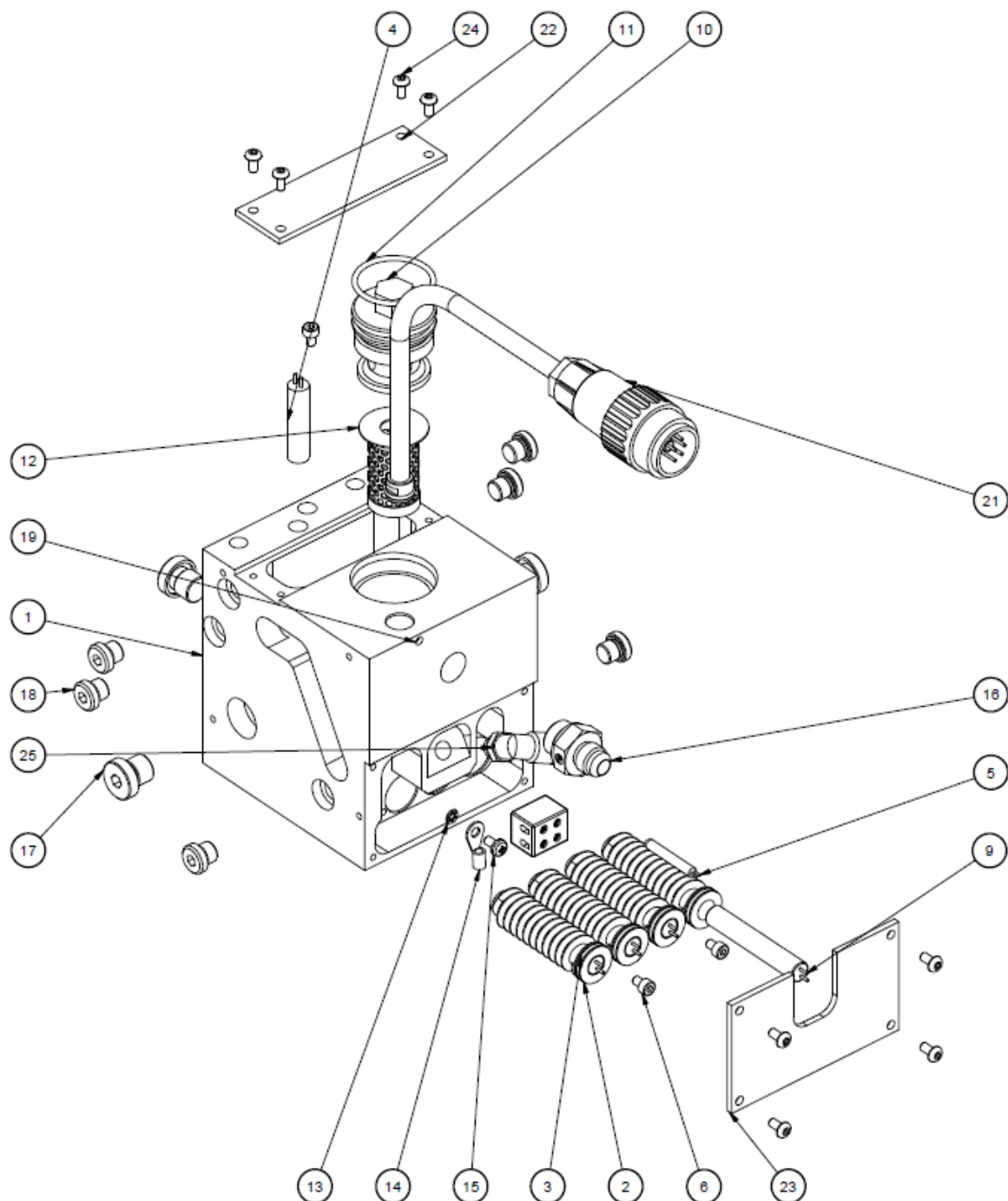
* see separate drawing/BOM.

The nozzles are optional and they are not part of that assembly.



8.7.1.1 Manifold Assembly, ECO Plus 100, PN 827230

Item	Part Number	Description	Quantity
3	N00183	O-ring 016	4
4	803960	Heater cartridge Ø10x40mm, 200W	2
5	N07958	Temperature sensor PT100 (part of cable asy)	1
9	106329	Heater cartridge Ø10x60mm, 200W	4
11	N03812	O-ring 125	1
12	106273	Filter basket 150-mesh	1
21	680936	Cable asy	1

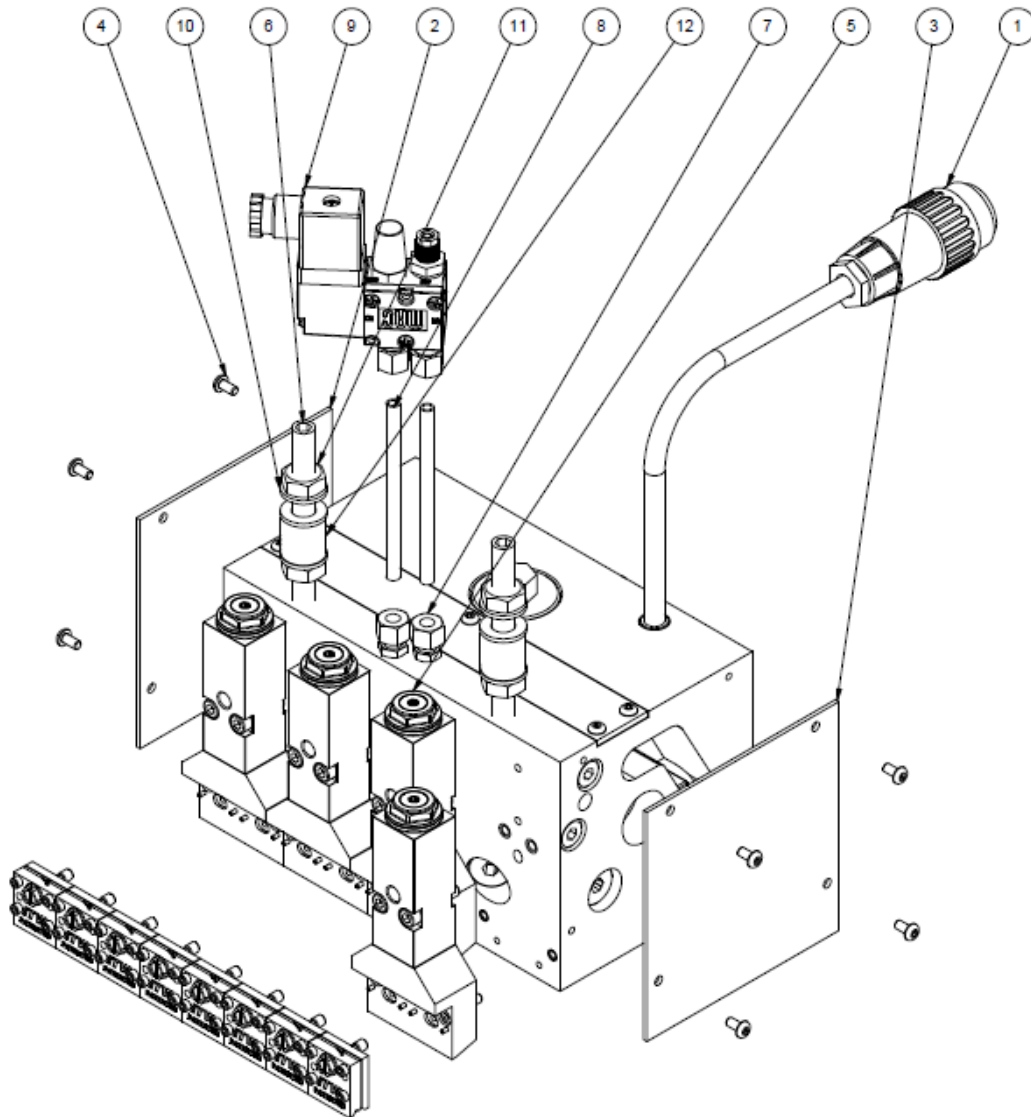


8.7.2 ECO Plus 200 Applicator, PN 827234

Item	Part Number	Description	Quantity
5	827229 *	Application module ECO Plus 50mm	4
9	680952	Solenoid 4/2 Way 24VDC 12,7W, assy	1
13	#	UFD nozzle	8

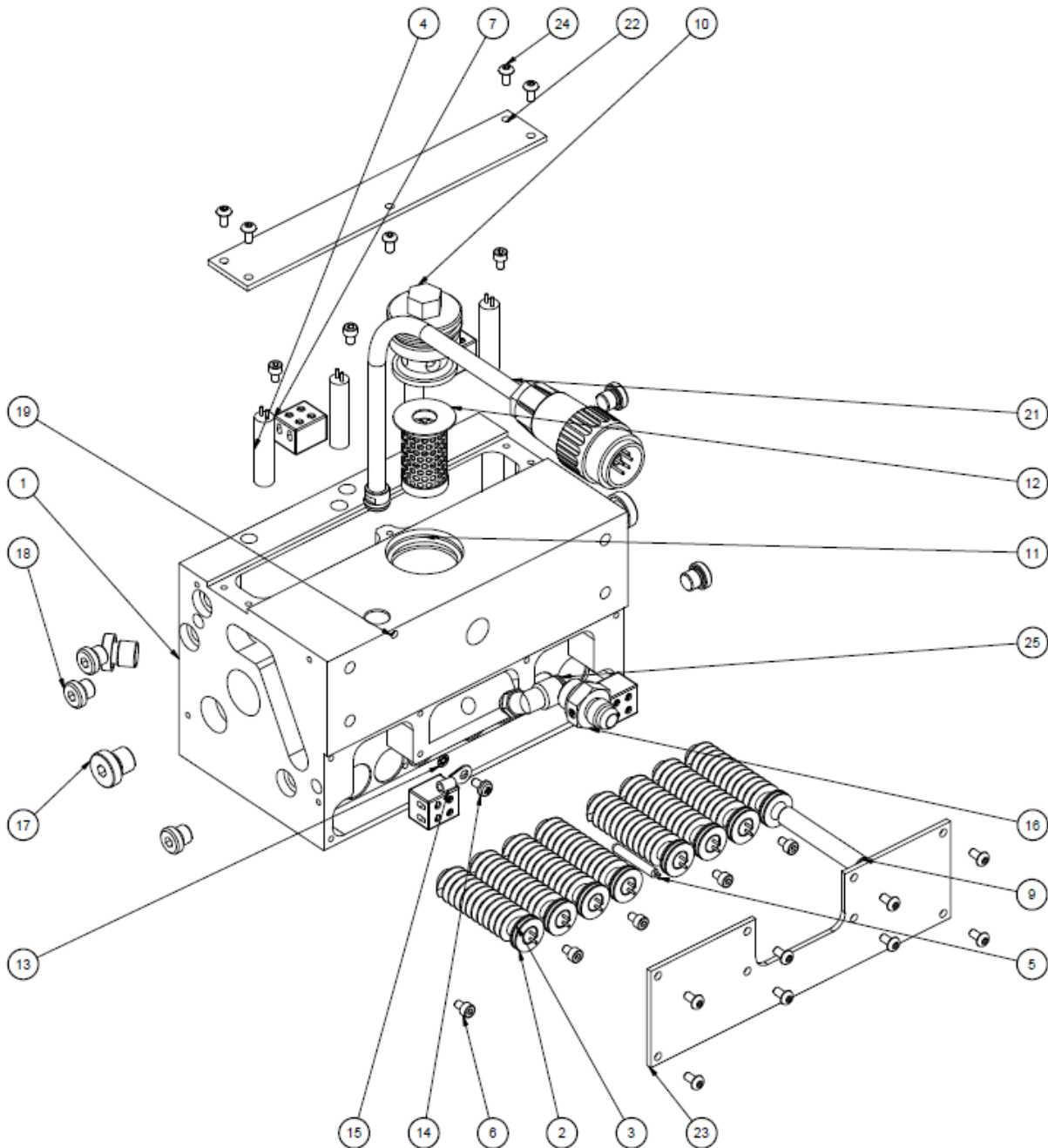
* see separate drawing/BOM.

The nozzles are optional and they are not part of that assembly.



8.7.2.1 Manifold Assembly, ECO Plus 200, PN 827231

Item	Part Number	Description	Quantity
3	N00183	O-ring 016	8
4	803960	Heater cartridge Ø10x40mm, 200W	4
5	N07958	Temperature sensor PT100 (part of cable asy)	1
9	106329	Heater cartridge Ø10x60mm, 200W	8
10	106303	Filter nut	1
11	N03812	O-ring 125	1
12	106273	Filter basket 150-mesh	1
21	680936	Cable asy	1

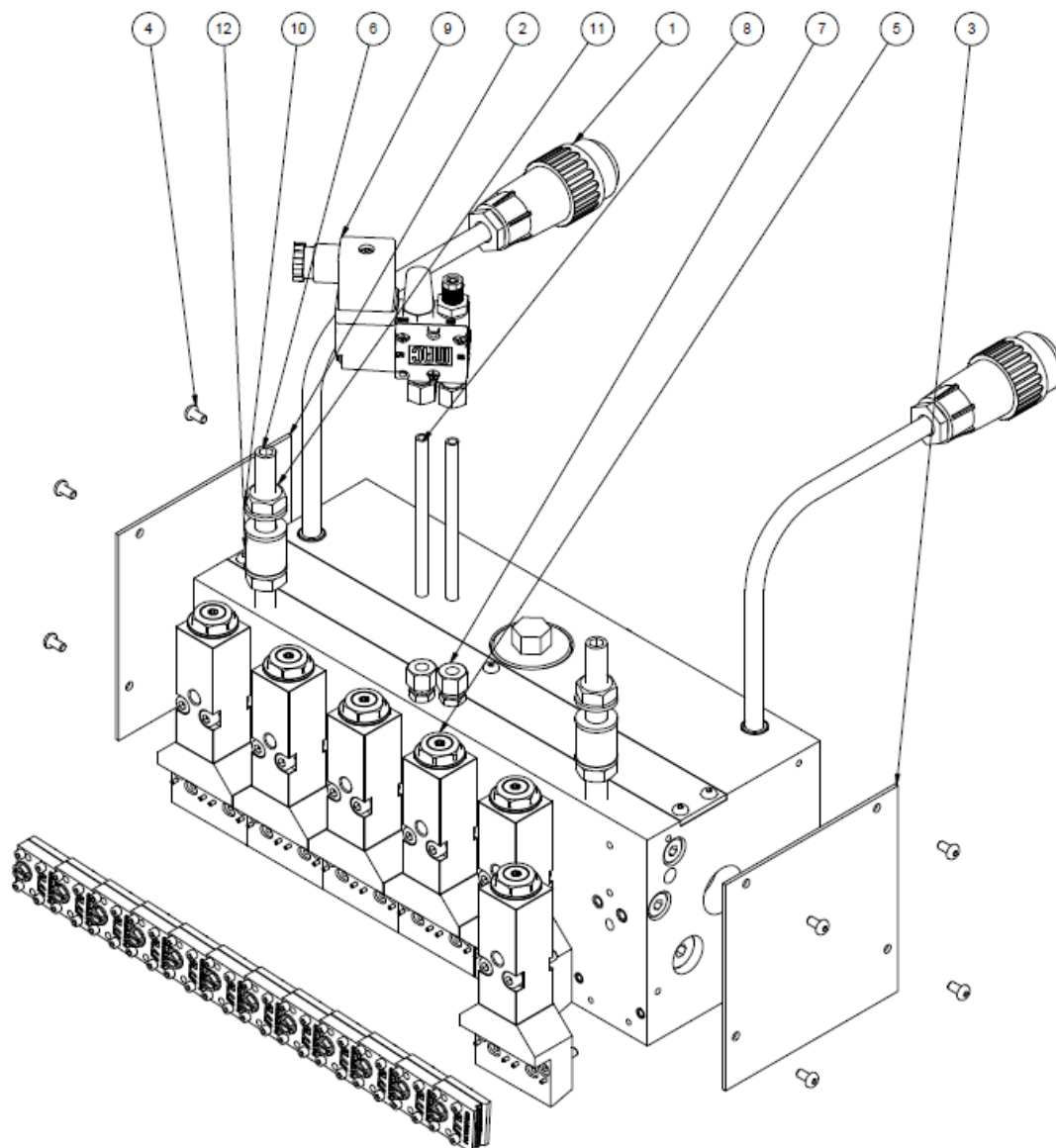


8.7.3 ECO Plus 300 Applicator, PN 827235

Item	Part Number	Description	Quantity
5	827229 *	Application module ECO Plus 50mm	6
9	680952	Solenoid 4/2 Way 24VDC 12,7W, assy	1
13	#	UFD nozzle	12

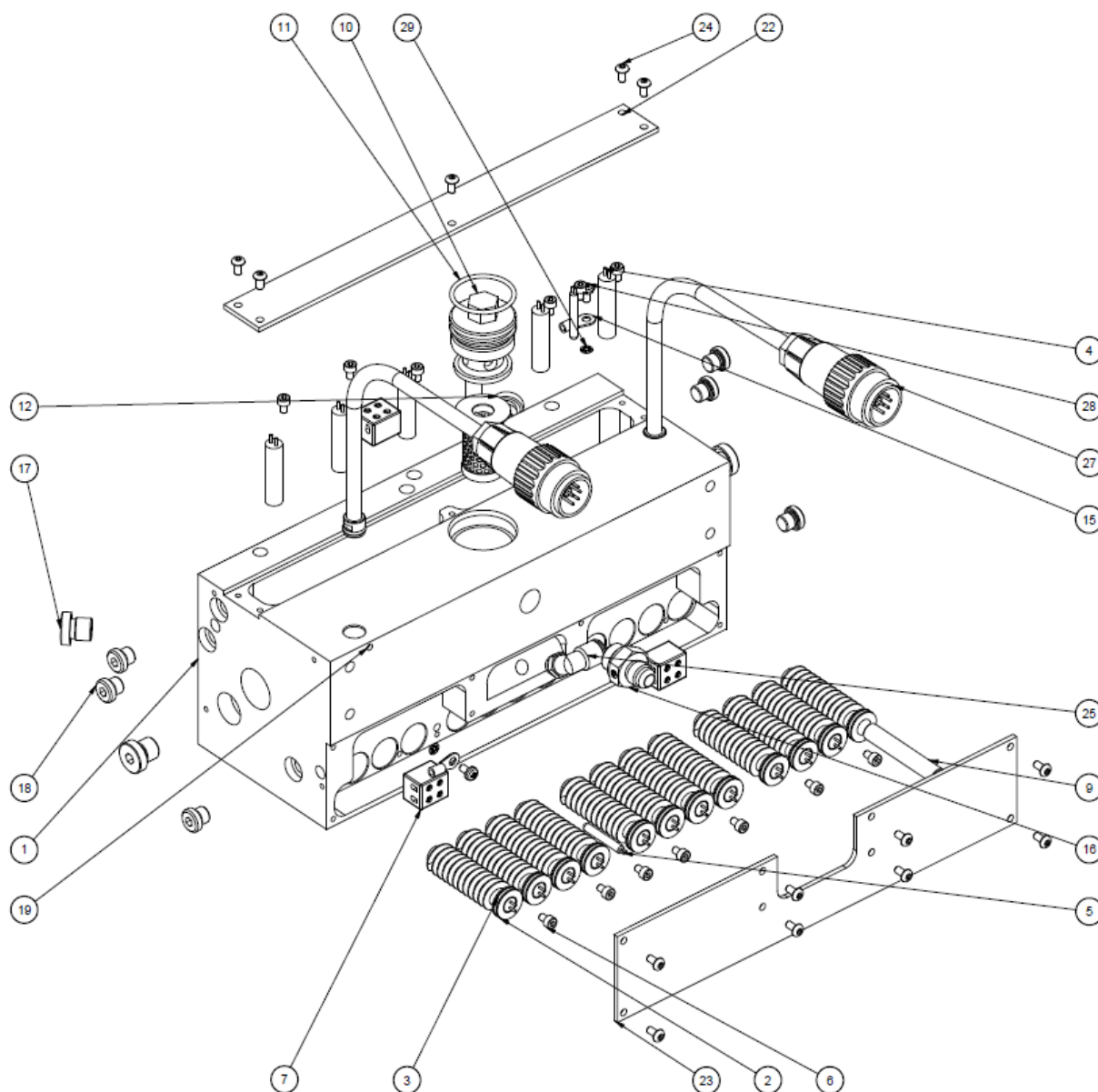
* see separate drawing/BOM.

The nozzles are optional and they are not part of that assembly.



8.7.3.1 Manifold Assembly, ECO Plus 300, PN 827232

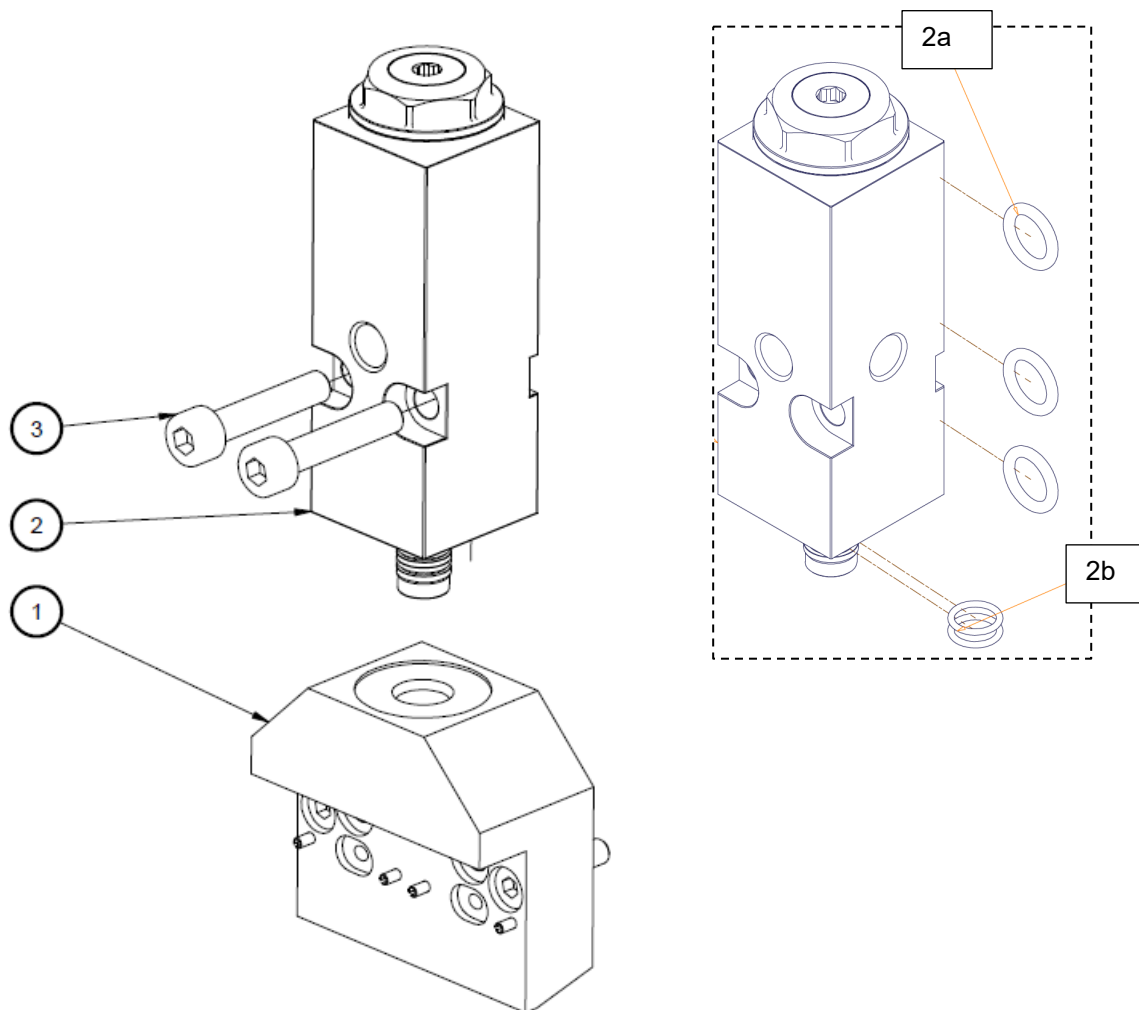
Item	Part Number	Description	Quantity
3	N00183	O-ring 016	12
4	803960	Heater cartridge Ø10x40mm, 200W	6
5	N07958	Temperature sensor PT100 (part of cable asy)	2
9	106329	Heater cartridge Ø10x60mm, 200W	12
10	106303	Filter nut	1
11	N03812	O-ring 125	1
12	106273	Filter basket 150-mesh	1
27	680936	Cable asy	2



8.7.4 Application module ECO Plus 50mm, PN 827229

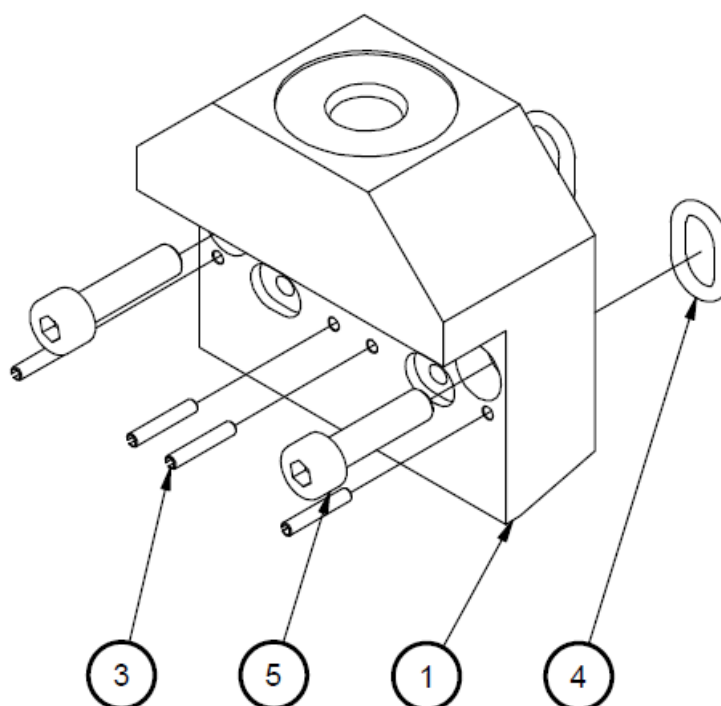
Item	Part Number	Description	Quantity
1	827228 *	Module adapter asy	1
2	120545	Application module MR13	1
2a	N00178	O-ring 011, di=7,65/S=1,78mm (part of the module 120545)	3
2b	195030	O-ring 6.5 x 1 (part of the module 120545)	2

* see separate drawing/BOM.



8.7.4.1 Module adapter asy, PN 827228

Item	Part Number	Description	Quantity
4	N00178	O-ring 011	2



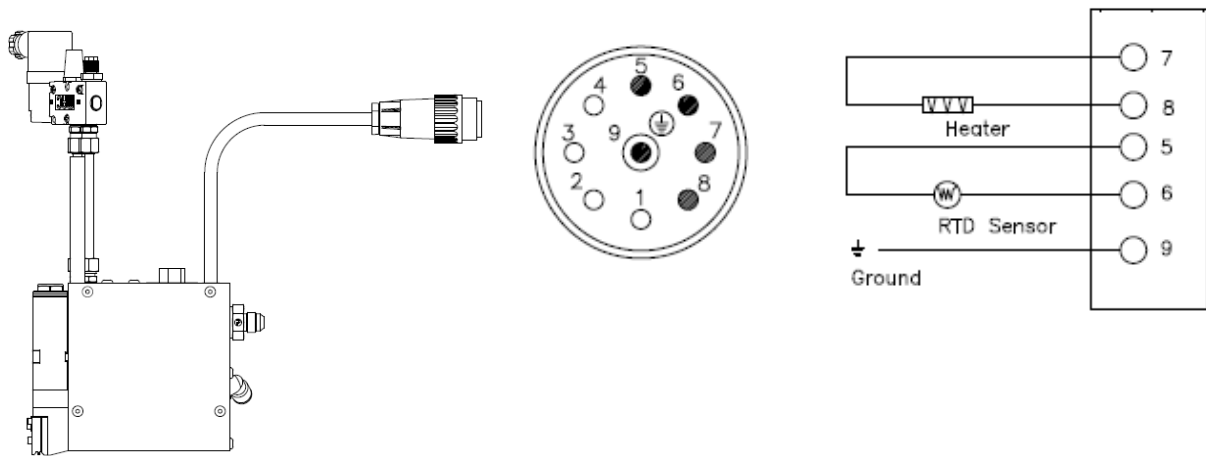
Chapter 9

Schematics

9.1 Pin Connectors & Electrical Schematics

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

DynaControl or PLC Control Scheme (Temperature sensor PT100), PN 680936



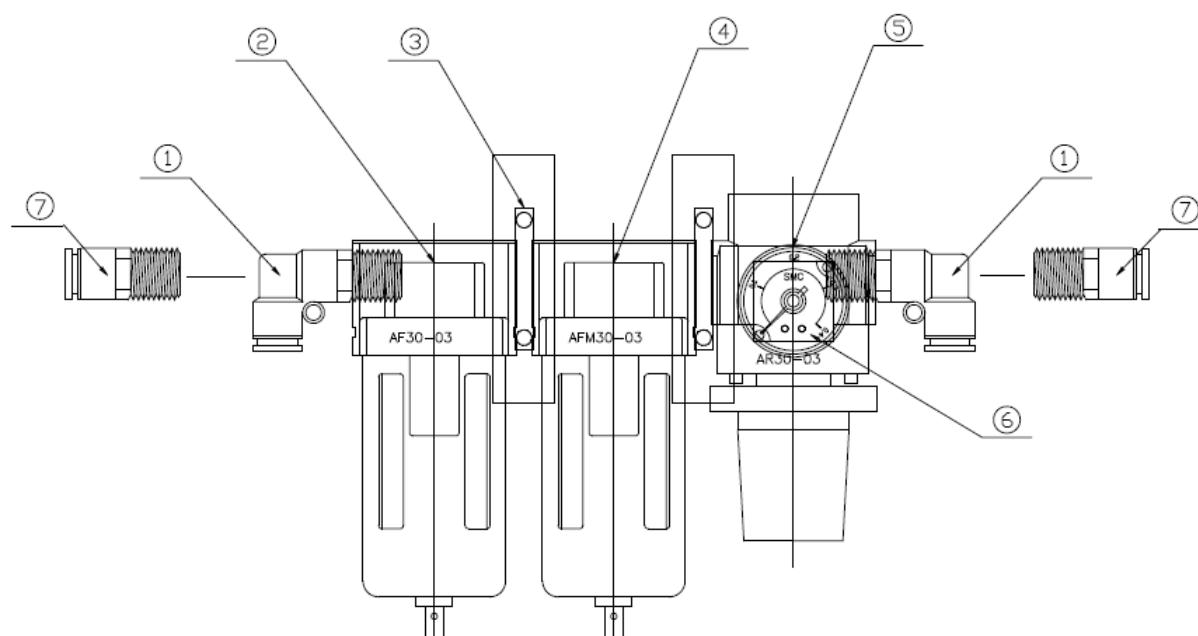
Chapter 10

Appendix

10.1 Air Control Kit, PN 680275

Item	Part Number	Description	Quantity
1	*	Fitting 3/8, 10mm(8mm), 90°	2
2	680263	Coarse air filter, AF30-03	1
3	680260	Spacer and bracket, Y300T	2
4	680259	Pure air filter, AFM30-03	1
5	680261	Pressure regulator, AR30-03	1
6	680268	Pressure gauge, G36-4-1	1
7	*	Fitting 3/8, 10mm(8mm), straight	2

*optional.

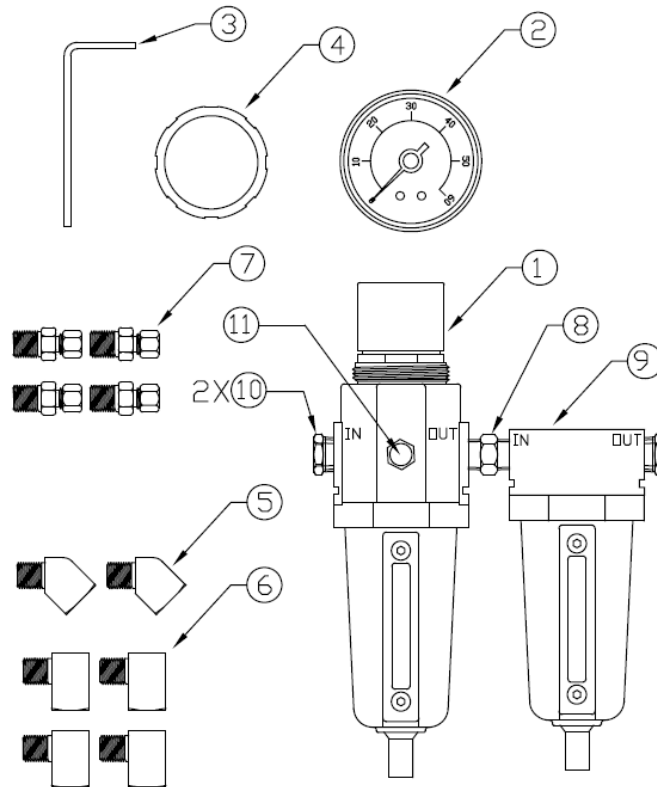


10.2 Coalescing Filter and Regulator Assembly, 0-50 PSI, PN 107404

The PN 107404 Filter and Regulator Assembly is available for precise control of the process spray air. It includes a coalescing filter/ regulator, a liquid-filled gauge, mounting bracket and necessary fittings.

Installation Notes

1. Locate the filter so that the bowl drains are easily accessible for servicing and the regulator knob is accessible for adjustments.
2. To ensure accurate process air control, operation of more than one applicator from a single filter/ regulator is not recommended.



Item	Part Number	Description	Quantity
1	100991	Filter/ Regulator, 3/8 NPT	1
2	100992	Gauge 0-60 PSI	1
3	100994	Mounting bracket	1
4	100995	Nut	1
5	072X002	Street elbow 1/4 NPX x 45°	2
6	072X040	Street elbow 1/4 NPX x 90°	4
7	N00092	Fitting 1/4 tube x 1/4 NPT	4
8	112319	Nut, hex nip, 3/8 NPT, brass	1
9	107403	Coalescing filter	1
10	066X028	Fitting, bushing, 3/8 NPT x 1/4 NPT, brass	2
11	108000	Fitting, reducer, 1/4FPT-1/8MPT	1

Manual Revisions

Revision	Page/ Chapter	Description
5.23	Ch.3.2	Model Designation Guide added and part number scheme updated.
5.24	P.1	Manual language added.

ITW Dynatec Service Parts and Technical Service:

AMERICAS	EUROPE, MIDDLE EAST & AFRICA	ASIA PACIFIC
ITW Dynatec 31 Volunteer Drive Hendersonville, TN 37075 USA Tel. +1.615.824.3634 info@itwdynatec.com service@itwdynatec.com	ITW Dynatec Industriestrasse 28 40822 Mettmann Germany Tel. +49.2104.915.0 info@itwdynatec.de service@itwdynatec.de	ITW Dynatec No. 2 Anzhi Street, SIP, 215122 Suzhou, China Tel. +86.512.6289.0620 info@itwdynatec.cn service@itwdynatec.cn
		ITW Dynatec Tsukimura Building 5th Floor 26-11, Nishikamata 7-chome Ota-ku, Tokyo 144-0051, Japan Tel. +81.3.5703.5501 info@itwdynatec.co.jp service@itwdynatec.co.jp