ITW Dynatec®

Adhesive Application Solutions | ISO 9001 certified

DYNAMINI

ADHESIVE MELT & SUPPLY UNIT

with Gear Pump and Controller V2 and up

Technical Documentation, No. 20-25, Rev.7.23

English – Original Instructions

ITW Dynatec
An Illinois Tool Works Company
www.itwdynatec.com

Information about this manual

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

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

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

ITW Dynatec Service Parts and Technical Service:

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Chapter 1
Declaration of Incorporation / Conformity

EC declaration of conformity

according to the Machinery Directive 2006/42/EC, Annex II 1. A

Original

The manufacturer bears the sole responsibility for issuing this declaration of conformity

ITW Dynatec

31 Volunteer Drive

TN 37075 Hendersonville

Person established in the Community authorised to compile the relevant technical documentation

Andreas Pahl

ITW Dynatec GmbH

Industriestraße 28

40822 Mettmann

Description and identification of the machinery

Product / Article	Adhesive supply unit
Project number	Dynamini
Commercial name	Dynamini
Model	05_10
Function	Melting and delivery of hot melt adhesives

It is expressly declared that the machinery fulfils all relevant provisions of the following EU Directives or Regulations:

2006/42/EC	Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) (1) Published in L 157/24 of 6/9/2006
2014/30/EU	Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast) Published in 2014/L 96/79 of 3/29/2014
2014/35/EU	Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits Published in 2014/L 96/357 of 3/29/2014

Reference to the harmonised standards used, as referred to in Article 7 (2):

EN ISO 12100:2010-11	Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)
EN ISO 13850:2015	Safety of machinery — Emergency stop function — Principles for design (ISO 13850:2015)
EN ISO 13854:2019	Safety of machinery - Minimum gaps to avoid crushing of parts of the human body (ISO 13854:2017)
EN 60204-1:2018	Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2016, modified)

Hendersonville, 3/8/2023

Place, Date

Signature
Rushton Heidi
VP/GM

Signature
Wallner Michael
Operations Manager EMEA & Asia

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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!

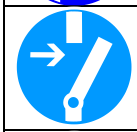
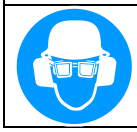
1. Read and follow these instructions.
   Failure to do this could result in severe personal injury or death.
2. Keep the binding rules for accident prevention valid for your country and the place of installation. Also keep the approved qualified technical rules for safety-conscious and professional 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
	Read and adhere to the documentation!
	Switch the unit voltage-free before working! Main switch OFF!
	Wear headgear, protective goggles and ear protection!

	Wear foot guard!
	Wear protective gloves!
	Wear protective clothing!

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

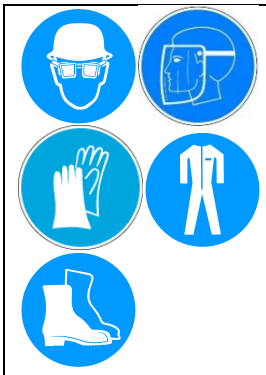
1. Never operate this unit in an explosive environment.
2. Use cleaning compounds recommended by ITW Dynatec or your adhesive supplier only.
3. Flash points of cleaning compounds vary according to their composition, so consult with your supplier to determine the maximum heating temperatures and safety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

2.6 Choice of Adhesive

DANGER! HARMFUL FUMES!

Substance(s) being processed (e.g., melted, pumped, applied) by ITW equipment is at the discretion of the user and beyond ITW Dynatec's control. Any health effects or other safety-related concerns arising from the melting of those particular substances (e.g., hazardous fumes) is the responsibility of the user to identify and mitigate.

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 nut 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 (CO2), Dry sand.

For safety reasons not appropriate extinguishing agents: None.

Firefighting - burning electrical equipment:
Appropriate extinguishing agents:
Carbon dioxide (CO2), 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 Dynamini Adhesive Melt and Supply Unit (ASU) may be used only to melt and supply suitable materials, e.g. adhesives. When in doubt, seek permission from ITW Dynatec.

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

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

Intended use includes, that you
- read this documentation,
- heed all given warnings and safety instructions, and
- do all maintenance within the given maintenance rates.

Any other use is considered to be unintended.

3.1.2 Unintended Use, Examples

The Dynamini Melter 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 Dynamini Melter 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 Dynamini Melter, 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 Melter'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 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 Setting-up operation

We recommend asking for an ITW Dynatec-service technician for the setting-up operation, to ensure a functioning system. Let yourself and the people working with or working on the system be introduced to the system on this occasion.
ITW Dynatec takes no responsibility for damages or faults caused by any untrained personal.

3.2 Description Dynamini

3.2.1 Description

The Dynamini Adhesive Melt and Supply Unit (ASU) from ITW Dynatec melts suitable material, e.g. hot melt adhesives, and supplies this.

The Teflon-coated tank of the Dynamini Melter accepts adhesive in all popular forms, including pellets, slugs and blocks. The Melter can accommodate air-actuated automatic applicators (heads), electric applicators, hand-held applicators and/or special applicators.

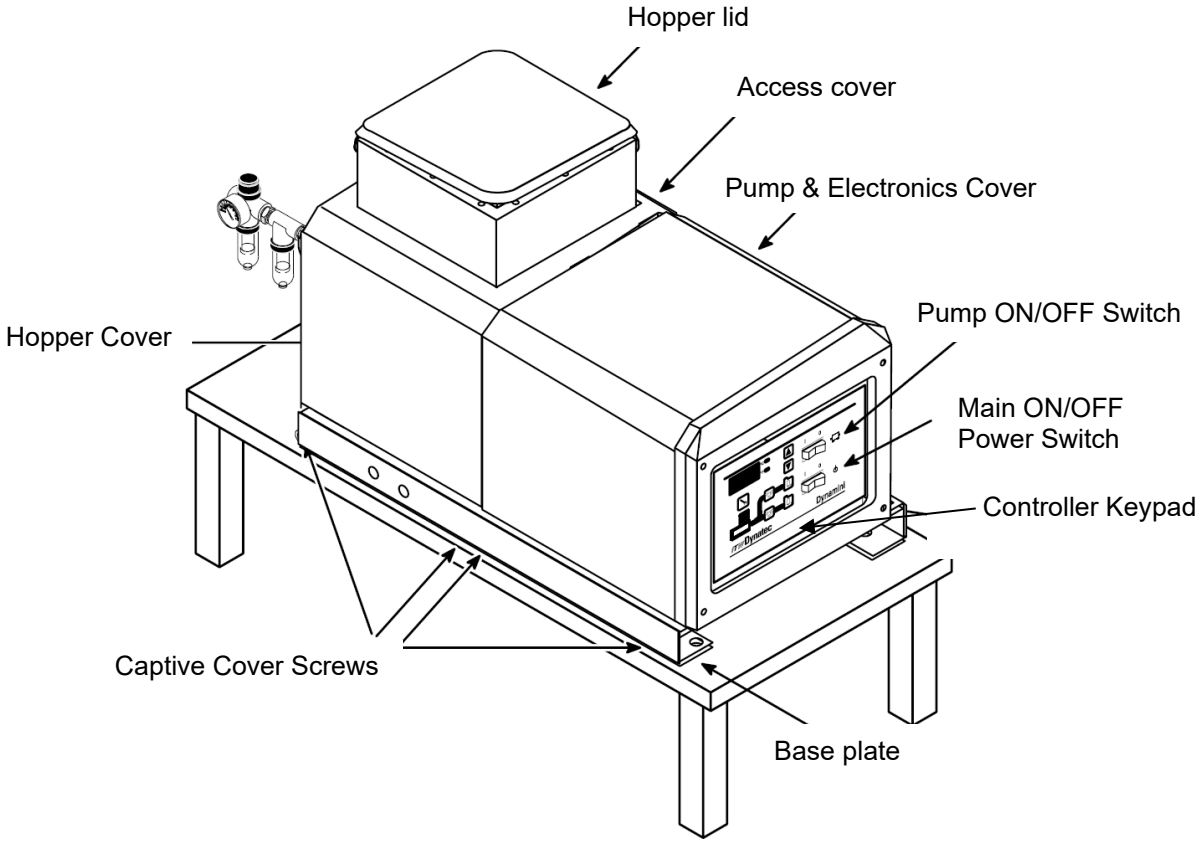
The melter is equipped with a 5 or 10 kg hopper (tank). Up to two hoses and applicators can be connected to the melter.

The gear pump ensures a steady and precise flow of adhesive. The single or double pumps are driven by single drives.

The microprocessor temperature control ensures precise temperature control of the adhesive for a tank with up to two hoses and two applicators.
The temperature setpoints can be selected by the operator for the zones, and the system automatically issues warning messages in the event of operating errors or system malfunctions. Sequential heat-up delays can be programmed to activate hoses and applicators. It is also possible to program a “standby temperature” to keep the temperature zones at a lower temperature when the adhesive melter is not actively in operation, and at the same time to allow a quick return to normal operation.

Dynamini uses these flexible programming functions for temperature setting to increase the working life of the adhesive, as high adhesive temperatures are no longer required over a longer period of time. This reduces energy consumption and the system is brought to normal operating temperature within a very short time.

Thanks to the temperature control, the production machine can be permanently set with pre-selected adhesive temperatures, so that production will automatically be started when the correct adhesive temperatures for the respective application have been reached.



Dynamini Adhesive Melter

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)
Noise emission ..... < 60 dbA (at 1 meter)

Physical:

Dimensions ..... see dimensional layouts on following pages
Number of hoses/ applicators 2
Number of hopper temperature zones 1
Number of gear pumps 1
Gear pump .....see options under Model Designation Guide
Enclosure .....styled, durable metal and high temp polymer, dust and splatter resistant
Hose connections..... Electrical = universal 15-pin Amphenol connectors at Melter
Mechanical = wrench-secured fluid fittings (#6 JIC)
Hopper (tank) capacity .....Model 05 = 5 kg (11 lbs)
Model 10 = 10 kg (22 lbs)
Hopper construction ..... cast-in heaters, TFE Teflon-impregnated
Filtration.....hopper bottom screen, manifold basket filter
Adhesive form ..... standard grades (non-water based only)
Weight, empty .....ca. 50 kg (110 lbs)

Electrical:

Power Supply Required ..... 100-120 VAC/ 1p/ 50-60 Hz/ 15 Ampere
or 200-240 VAC/ 1p/ 50-60 Hz/ 30 Ampere
Hopper heater type.....cast-in tubular
Power consumption, system maximum.....100-120 VAC system: 1800 Watts
200-240 VAC system: 7200 watts (w. gear pump)
Hopper Power ..... 100-120 VAC system: 600 Watts at 120 VAC
200-240 VAC system: 1200 Watts at 240 VAC
Temperature control.....Microcontroller
Temperature sensors ..... 100 Ohm Platinum RTD standard
Gear pump Motor ..... 1/4 hp, constant speed, AC, direct drive, horizontal orientation

Pressurized Air:

Air pressure supply .....1.4 to 6.8 bar (20 to 100 psi)

Performance:

Maximum operating temperatures ..... 218°C (425°F)
Over-temperature cutoff for hopper..... 232°C (450°F)
Adhesive temperature control range..... 40°C to 218°C (100°F to 425°F)
Adhesive temperature control accuracy..... ±1°C (1°F)
Adhesive viscosity ..... 500 to 50.000 centipoise
Warm-up time, full hopper ..... approximately 0.5 hour
Adhesive delivery rate (depends on adhesive used) ..... up to 8 kg/h (17.3 lbs/h)
Adhesive pressure..... up to 68 bar (1000 psi) maximum
Maximum pump speed, gear pump.....87 revolutions per minute, 60 Hz, constant speed
73 revolutions per minute, 50 Hz, constant speed

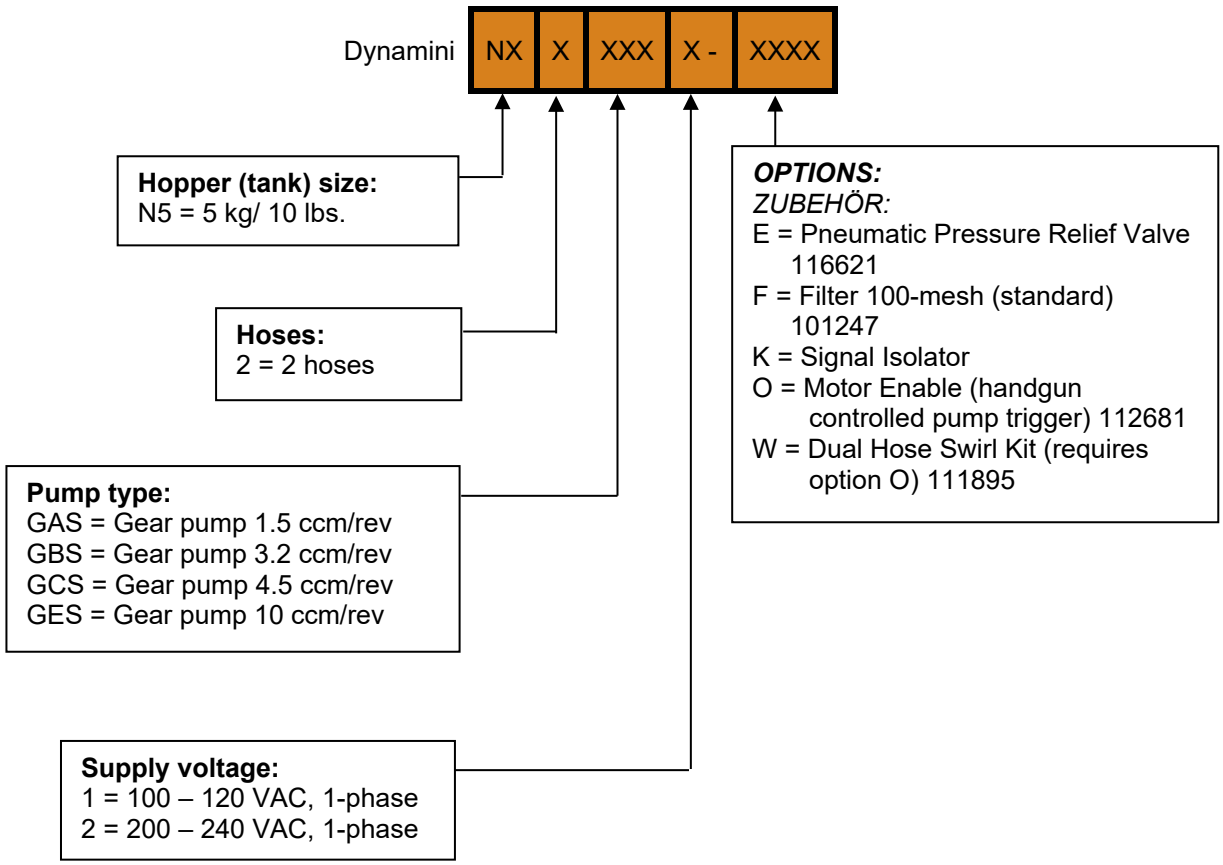
DynaControl Temperature Control:

Controller board..... 1 PCB
Display type.....long-life, light-emitting diode (LED)
Temperature control zones ..... 5 Triac-output
Fuses ..... all fuses are 5mm x 20mm
Hose / Applicator: 6.3 A slow-blow
Pump: 2 A slow-blow
Electronics board: 1 A slow-blow
Operator interface ..... Digital display with simplified, all-icon keypad
Temperature offset.....no
Sensor open error message.....yes

Other

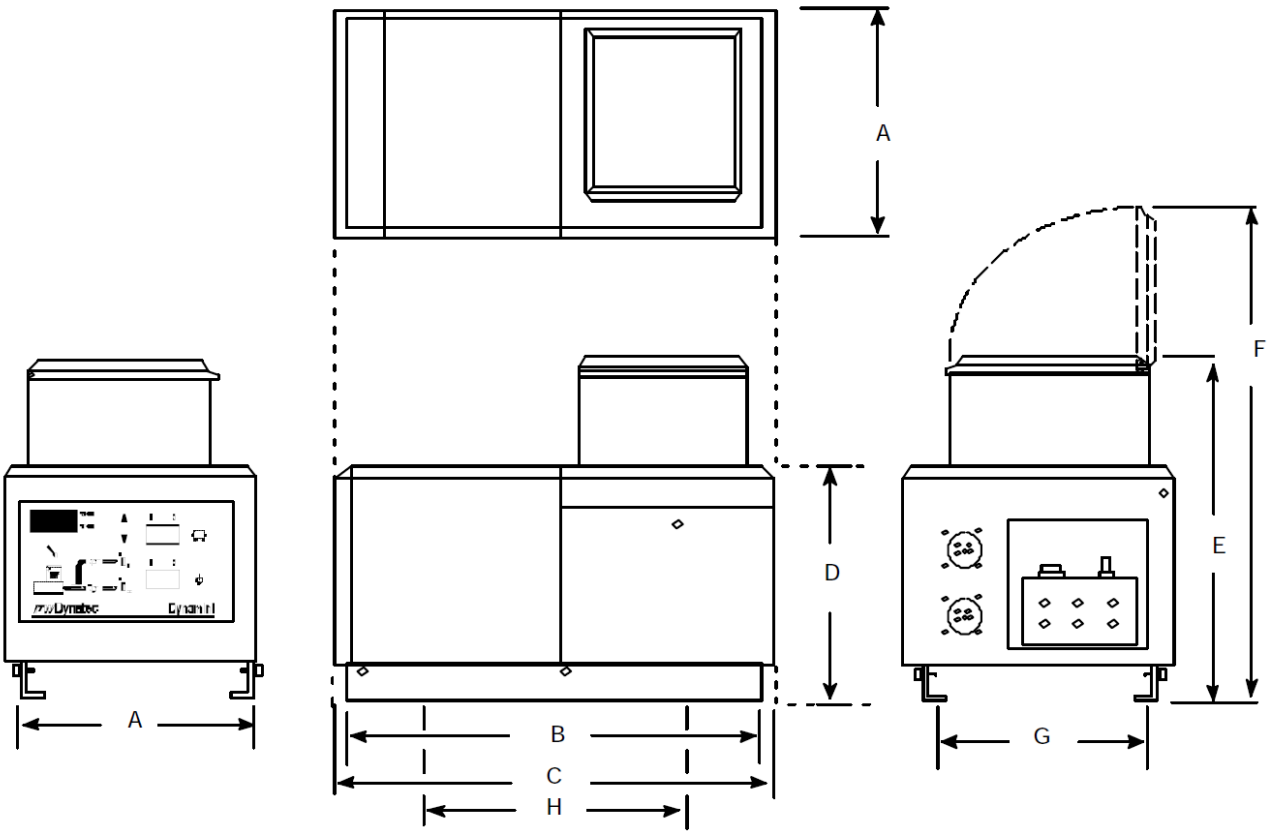
CE- approval granted .....yes

3.2.3 Model Designation Guide



Example:
N52GAS2-F = Dynamini with 5kg (10lbs) tank, 1.5 ccm/rev gear pump, 240 VAC/ 1-phase and 100-mesh outlet filter.

3.2.4 Dimensions Dynamini



Tables								
Dimensions	**A**	**B**	**C**	**D**	**E**	**F**	**G***	**H***
Model 5 (mm)	289	527	540	238	451	635	249	381
Model 5 (inch)	11,38	20,75	21,25	9,37	17,75	25,0	9,8	15,0
Model 10 (mm)	289	527	540	238	654	838	249	381
Model 10 (inch)	11,38	20,75	21,25	9,37	25,75	33,0	9,8	15,0

* All mounting holes are 10mm diameter.

Chapter 4
Installation & Start-Up

CAUTION

- Before setting up, please read this documentation carefully.
- Pay attention to all the installation and connecting advices.
- Heed all safety instructions mentioned in Chapter 2.

4.1 Conditions for Installation and Mounting

WARNING

The unit must be lifted by two persons, using proper lifting technique, one person at either end.
Securely hold the unit under its base plate.
No belts or hooks should be used.
Never allow anyone to stand on the Melter.

Place requirement

Install the Dynamini Melter so that the operator is able to work on it from all sides, for e.g. for adjusting, preparing, maintaining, repairing, cleaning, etc. See drawing of the unit for dimensions.

Mounting and alignment

- The complete unit has to be set up on solid, stable and flat ground.
- An open and solid frame should be preferred because it is easy to service.
  The main electrical power and the serial communication connections come in from below the unit and connect under the keypad.
- The Dynamini's hinged hopper lid may be rotated 90 degrees in any direction.
- For installation dimensions, see point Dimensions under previous chapter.
- Pay attention to the height alignment of the entire system.
- Make sure that the machine is correctly aligned..

Electrical connection

- Necessary electrical connection must be provided. See electrical schematics.
- Never connect or disconnect plug-and-socket connections under load!

Pneumatic connection

- In any case the air must be clean and dry! See advice in chapter "Quality of compressed air".
- Please heed that units with high air demand may not be used at the same time with the same air supply.

Advices:

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

4.2 Installation

CAUTION

- All work on or with this unit is only permitted for skilled personnel!
- Pay attention to the wiring diagram!
- Clean and dry air is required.

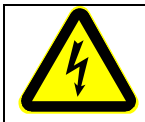
WARNING

- Risk of injury and burns!
- When installing the adhesive melter, use adequate protection to prevent accidental contact with heated parts and leaking hot melt adhesive. The protective device must also protect the operator from touching the adhesive application and from injuries.

Typical installation of the Dynamini adhesive Melter:

1. Secure or mount the melter properly.

2. Make sure that incoming line power to the Melter is turned OFF at a customer-provided circuit breaker. Incoming line power must be overcurrent-protected.



DANGER HIGH VOLTAGE

- **Disconnect and lockout input power to the application system before starting any installation procedures.**
- **Make sure there is no electrical power on the leads you will be connecting.**
- **THE UNIT'S MAIN SWITCH DOES NOT SHUT OFF ALL POWER WITHIN UNIT! Make sure incoming line power is turned off at the customer-provided circuit breaker before opening the unit or removing the pump and electrical cover.**

3. Loosen the screws on the pump and electrical cover and remove the cover.

4. Please note the following when connecting the power supply cable:

   For 200-240 VAC units, power supply wires should be rated for 30 Amperes service and should include an earth ground conductor.

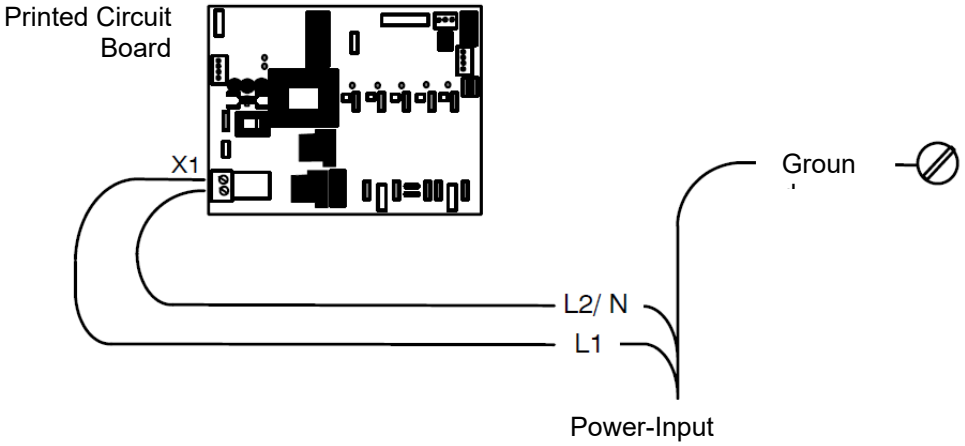
CAUTION

Grounding conductors must never carry electrical current. The use of a neutral conducting wire as earth ground is incorrect and may cause damage to the equipment.

100-120 VAC units are supplied with a line cord and a plug suitable for use in North America on 15A power supplies. For other types of 100-120 VAC power wiring, supply wires should be rated for 15A service and include an earth ground conductor.

Acceptable power supplies are either 100-120 VAC 1-Ph 50/60 Hz with a neutral wire, or 200-240 VAC 1-Ph 50/60 Hz. The information plate on the Melter will indicate the required power supply.

Power supply wires are to be connected to the removable plug at header X1 on the printed circuit board, as shown below.



Supply Power Installation Diagram

5. Reassemble the pump and electronics cover to the Melter.

6. Refer to the Wattage Availability Chart (on the next page) to determine the hose and head power available for the various configurations of the Dynamini Melter.

7. Interconnect the Melter and the Applicators with the heated hoses

   The adhesive hoses are connected at the rear cover (see illustration on next pages).

Heed the following for the installation of the heated hoses:

- Heated hoses may be damaged by overheating, if they are laid faulty.
- Make your electrical hose connections at the two numbered connects on the left side of the cover.
- Route hoses so that there is at least an eight-inch radius at any bend.
- Do not hang hoses without proper support.
- Do not crimp, clamp, squeeze or tie hoses.
- The hose adhesive ports are located at the bottom of the filter block, to the right of the electrical connections.
- There are three ports for the use of up to two hoses and one for the (optional) adhesive pressure gauge. When making hose connections, use the numbered guides shown on the illustration to coordinate; i.e., when using one hose make your hookup to electrical connection #1 and adhesive port #1. When using two heads/ hoses, hookup hose/head #1 to electrical connection #1 and adhesive port #1, then hookup hose/ head #2 to electrical connection #2 and adhesive port #2.

Refer to the hose and applicator manuals for further details on these items.

8. Install the hose manifold outlet cover by sliding it into place and attaching with the two M4 screws provided.

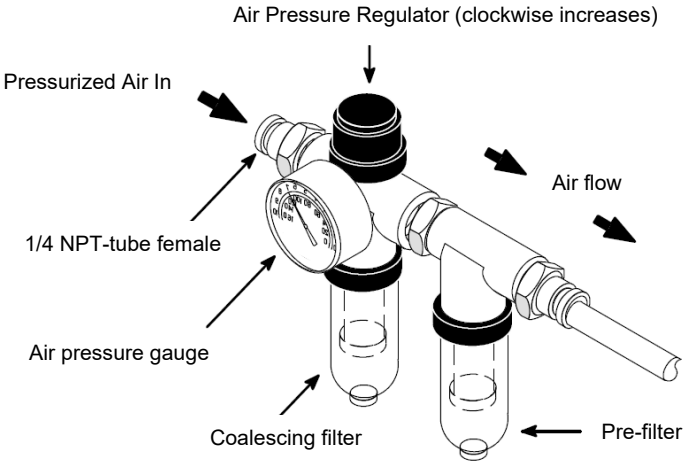
9. Connect the components with the appropriate Profibus (or EtherNet etc.) interface cables (if applicable).

4.2.1 Wattage Availability Chart

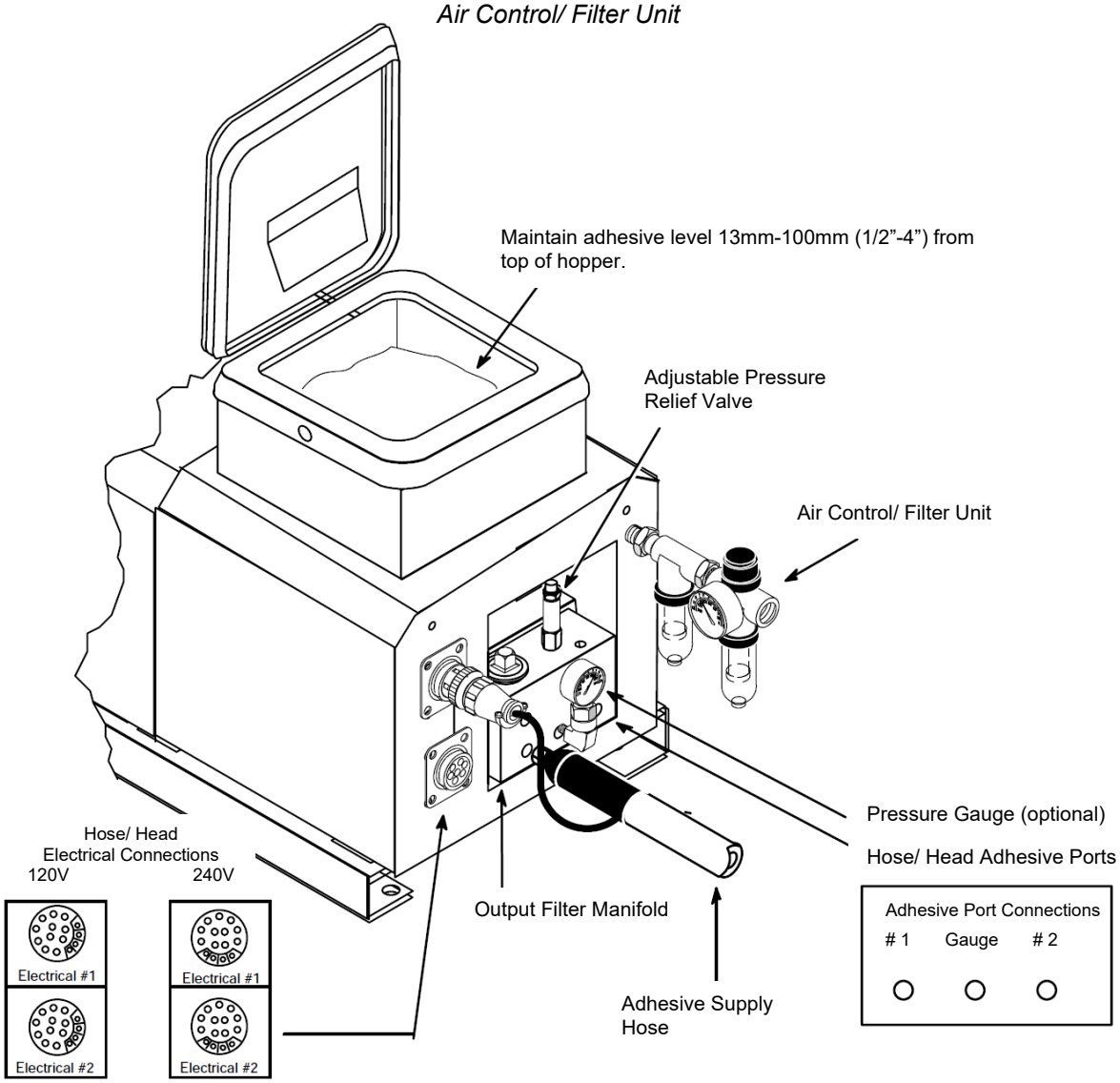
Melter Voltage	Max. System Wattage	Hopper (Tank) Wattage	Motor-Wattage (for Gear Pump)	Available Wattage for All Hoses and Heads
100-120 VAC (PN 111723)	1800 W at 120VAC	600 W at 120VAC	370 W at 120VAC	830 W at 120VAC
200-240 VAC (PN 111724)	7200 W at 240VAC	1200 W at 240VAC	370 W at 240VAC	5630 W at 240VAC

Notes:
1. Assume 33 Watts per foot (30cm) of hose, #6 hose at 120VAC or 240VAC.
2. Assume 100 Watts per inch (2.54cm) of head width, at 120VAC or 240VAC.
3. The power available for any one hose or head is 720 Watts at 120VAC or 1440 Watts at 240VAC.
4. At reduced voltage, less wattage is available.
   For example: 120 volt equipment operated on 100 volts or 240 volt equipment on 200 volts, will develop wattage 31% lower than the wattage available at 120 or 240 volts.

4.2.2 Rear Cover: Hose and Head Electrical and Adhesive Connections



Air Control/ Filter Unit



4.3 Quality of compressed Air

CAUTION

- **In any case, the air has to be clean and dry!**
- **The min. requirement for compressed air supply to solenoids to control automatic Applicators is ISO 8573-1:2010 class 2:4:3. We recommend installing the ITW Dynatec's Air Control Kit PN 100055 (see Appendix).**
- **The min. requirement for compressed air supply to solenoids to control Adhesive Supply Unit is ISO 8573-1:2010 class 7:4:3.**

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 m³			Mass concentration	Vapor pressure dew point	Liquid	Total oil content (liquid, aerosol and mist)
	0.1-0.5 µm	0.5-1 µm	1-5 µm	mg/m³	°C	g/m³	mg/m³
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

Compressed air quality classes according to ISO 8573-1:2010 class 7:4:3:

ISO 8573-1: 2010	Solid particles				Water		Oil
Class	Maximum number of particles per m³			Mass concentration	Vapor pressure dew point	Liquid	Total oil content (liquid, aerosol and mist)
	0.1-0.5 µm	0.5-1 µm	1-5 µm	mg/m³	°C	g/m³	mg/m³
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

4.4 Advices for the start-up operation

CAUTIONS

Start with start-up operation only if
- the functioning of the unit is known, and
- all preparations for start-up operation have 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 self-contained start-up.

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

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body 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.
- Install an adequate protection to prevent accidental contact with heated parts and leaking hot melt adhesive. The protective device must also protect the operator from touching the adhesive application and from injuries.
- Only move within the temperature range recommended by the adhesive manufacturer. Do not exceed this under any circumstances.
- 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

The unit is ready for operation, if
- all temperatures are within the tolerances, and
- the adhesive within the tank is molten.

WARNING
Risk of stumbling on cables and heated hoses!

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

4.5 Start-up in general

Typical start-up of the Dynamini Melter:

1. Check the complete unit and the traverse paths for safety. Fix visible damages immediately.
2. Before switching the unit on, make sure that the starting unit could hurt no one!
3. Remove all material or other things not needed for the production from the workspace of the unit!
4. Check and make sure that all safety devices are working in proper form!
5. Fill the tank of the melter with clean hot melt adhesive.

CAUTION, HOT ADHESIVE!

The adhesive and the unit components get very hot during operation! Risk of burns!

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

CAUTION

Using adhesive with viscosity over 50,000 centipoise could cause motor stall and/ or pump failure.

NOTES ON FILLING OR REFILLING ADHESIVE:

- Do not overfill the hopper (melt tank) since adhesive generally expands as it melts and a full hopper will overflow.
- The adhesive level should be maintained at 13mm to 100mm (1/2” to 4”) from the top of the hopper (tank).
- Where applications demand a high output volume of adhesive, add small amounts of adhesive frequently. Adding large amounts of adhesive to an almost empty hopper will lower the temperature of the adhesive in the hopper and may cause the Melter to fall below its READY setpoint.
- **Changing the Adhesive Formula:**
  If a different adhesive formulation from the one being currently used is needed, the system will have to be flushed if the two formulations are incompatible. See chapter 6.6 of this manual for the proper flushing procedure. When in doubt about adhesive compatibility, flush (purge) your system.

6. Close the hopper lid immediately to prevent contaminants from falling in. (Cover your bulk supply of adhesive to prevent contaminants also.)
   The consequences of dirt would be:
   - breakdowns
   - higher contamination of the adhesive filter,
   - the adhesive application and/or adhesive film formation will be disabled, contain those dirt particles, tend to tear open.

7. Switch the Main Power Switch ON at the ASU.
   The controller will perform its initial calibration cycle.
   The display will read “CAL”. Each of the five temperature zone’s LEDs will flash as a lamp test.

8. Program your adhesive setpoints (see instructions in chapter 5) or use the factory settings listed below

   Allow adequate time (approximately 20-30 min.) for the adhesive to melt and the temperatures of the temperature zones to stabilize.

CAUTION

The unit is ready for operation, when
- all temperatures are within the tolerances, and
- the adhesive in the Melter hopper is molten completely.

NOTE: When the Melter leaves the ITW Dynatec factory, it is programmed with the following factory settings (unless special factory settings were requested):
- Hopper (tank): 150°C (300°F)
- Hose: 177°C (350°F)
- Applicator: 177°C (350°F)
- Sequential Startup: ON

9. Place a heat-resistant adhesive container (e.g. cardboard) under the applicator.

10. Once the Melter has reached temperature, turn ON the Pump ON/ OFF Switch. The Melter will begin to pump adhesive.

11. Use the pressure relief valve, located on the filter outlet manifold, to regulate adhesive output.

CAUTION! RISK OF BURNS AND INJURY!
- The unit operates with very high temperatures and high adhesive pressure.
- Hot adhesive comes out of the Hose/Applicator!
- 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!

12. Adhesive will be pumped through the hose/head, thereby the hose/head will be filled and flushed with adhesive.

13. Stop Melter pump.

14. Clean the Applicator from adhesive residuals.

15. Remove the heat resistant container/paperboard.

16. The equipment is ready for operation.

4.6 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!

Effect following steps for switching the unit off:

1. Switch the Pump Switch OFF!
2. Switch the Main Power Switch OFF!

Removing dirt:

Remove dirt from all unit components immediately.

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

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

4.7 Storage and Disposal of the Dynamini Adhesive Melter

Temporary Storage of the Unit

1. Flush (purge) the adhesive application system with flushing fluid (PN L15653), following the instructions detailed in Chapter 6 of this manual.
2. Clean or replace both the outlet filter and the hopper filter, following the instructions detailed in Chapter 6.
3. Shut OFF all pressure and power sources.
4. Release residual air pressure.
5. Remove all residual adhesive and wipe components clean.
6. Remove all air lines and all power supply cables.
7. Pack the unit in a corrosion-proof manner.
8. Store the unit in such a way that it is protected from damage.

Disposal of the Unit

1. Shut OFF all pressure and power sources.
2. Release residual air pressure.
3. Remove all residual adhesive.
4. Remove all air and adhesive supply hoses and all power supply cables.
5. Dismantle all components and sort into mechanical and electrical components.
6. Arrange for all components to be recycled.

Chapter 5
Controller

5.1 Controller Set-Up

5.1.1 Helpful Tips for the User

- When the Melter is turned on, all temperature setpoints and other operating parameters will be exactly where they were when the Melter was turned off.
- When the Melter is turned on, all system heaters go on unless they have previously been set below 40°C (100°F).

5.1.2 Temperature Control Functions in General

The Dynamini temperature controller provides accurate temperature control for the hopper (tank), hoses and applicators. Setpoints are programmed at the user-friendly, all-icon keypad. The controller will display an error message any time an open or shorted sensor condition occurs.

5.1.3 Defining Temperature Control Terms

Adhesive Temperature Control Range
The temperature limits within which the ASU, hoses and applicators may be programmed and maintained.

Printed Circuit Board (PCB)
The Dynamini contains one PCB. It contains the central processing unit (CPU) of the microprocessor temperature control as well as providing control signals to, and monitoring signals from, the hopper, hoses and applicators. It features lighted LEDs to indicate that heater power is ON. The Melter's fuses are located on this board.

Temperature Controller
The built-in control system that controls, monitors and displays all system temperature values of the Dynamini Melter.

Mechanical High-Temperature Protection
A mechanical, redundant thermostat located on the hopper that will turn off the system above 232°C (450°F).

RTD sensors
The Dynamini system uses 100-Ohm platinum RTD (resistance temperature detector) sensors for all temperature controls

Sequential Startup

This feature allows the temperature zones to come on in sequence (hopper, followed by hose, followed by head). When activated, and the ASU is turned ON from a cold start, the hopper heats first. When the hopper is within the programmable tolerance of setpoint, the Head(s) and hose(s) begin to heat. No other features of the ASU are affected by sequential startup.
Note: sequential startup is rarely used. In most cases, it should be de-activated to ensure rapid warm up.

Setpoint

A programmable temperature that has been selected for hopper, hoses and applicators.

Setpoint Limitation

This is a universal maximum temperature for all zones (218°C [425°F]). The programmer cannot program a temperature setpoint higher than the setpoint limitation.

Stepped Function (Future feature, not on V2.0)

Used on systems with electric applicators only. After programming the temperature (to the softening point of your adhesive, see safety data sheet of your adhesive manufacturer), the controller holds all electric heads at the operator-selected temperature for ten minutes before releasing them to operating setpoint. This feature allows for the stabilization of the electric valves.

5.1.4 Error Indication Messages

- **EO1 =** A controller display of “EO1” indicates that the selected zone (i.e., a hose, applicator or the hopper) has an open sensor.
- **EO2 =** A display of “EO2” indicates a shorted sensor.

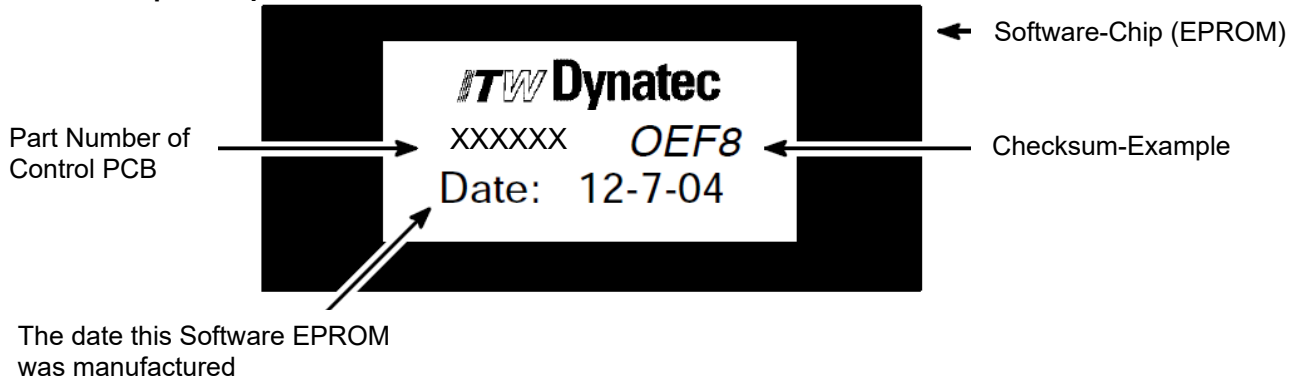
If either alarm occurs, first verify that the following three connections are made correctly:
1. The Melter-to-hose connection(s) located at the back of the Melter,
2. The hose-to-applicator connection(s),
3. The RTD Input connections (X4) located on the Control Printed Circuit Board.

If the problem is not with a connection, check the sensor and replace if necessary.

5.1.5 Software-Chip (EPROM) and Checksum

The software EPROM is on the Control Printed Circuit Board (see Ch. 7). Inscribed on the controller’s software chip is information that is required if your controller needs service, including the controller’s checksum.

Software-Chip-Example:



5.1.6 Settings for a Typical Operation

Note: The values given here are approximate settings for a typical packaging operation. The values you choose will be based on the type of equipment and adhesive you are using and the nature of your particular operation.

If Application Temperature is 163°C (325°F):

- Hose and head temperature: 177°C (350°F).
- Hopper setpoint temperature: 150°C (300°F).
- ASU operating range: 135°C to 177°C (275°F to 350°F).
- Mechanical thermostat (for the hopper) over-temperature: 232°C (450°F).

5.1.7 System Values That Are Permanently Programmed

- Minimum setpoint value: 40°C (100°F).
- Maximum setpoint value: 218°C (425°F).

5.1.8 System Values as Programmed by the Factory

ITW Dynatec can set the controller's system values to customer's specs, if provided.

If customer's specs are not provided, the following values will be entered into the Dynamini temperature controller at the factory. They may be changed by reprogramming through the keypad.
(These are not the "default" settings, see following section).

- Temperature scale: displayed in degrees Fahrenheit.
- Applicator (head) and hose setpoints: 177°C (350°F).
- Hopper setpoint: 150°C (300°F).
- All zones are switched off, except for the hopper.

5.1.9 Default Settings of the Controller

Default settings are the manufacturer's preset values to which the system will return if the Dynamini temperature control is subjected to an internal memory reset. While you can change your programmed values to anything within the system's limits, the default settings cannot be changed.

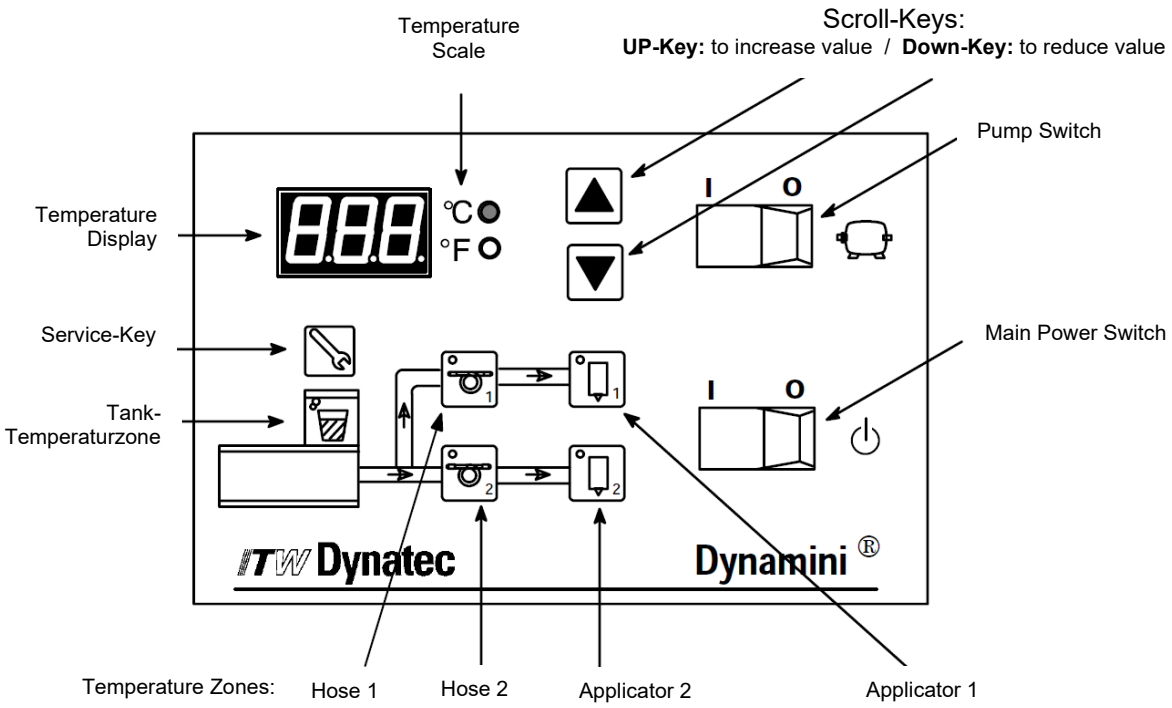
To cause an internal memory reset (i.e., to restore the defaults) of a temperature zone, turn that temperature zone ON and then OFF.

Defaults

- Temperature setpoint for each zone: 93°C (200°F).
- Sequential Startup: SSO (OFF)

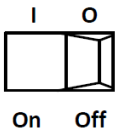
5.2 Programming Instructions for Dynamini Controller

5.2.1 Controller Keypad



5.2.2 Programming

5.2.2.1 Turn controller ON (Position ON)



➢ **Turn ON the main power switch.**

System will go through its self-diagnostics (CAL).

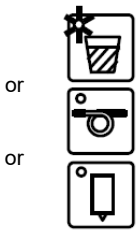
Temperature zone LEDs will flash.

Controller will display “SS 1” (On) or “SS 0” (Off) to indicate status of the Sequential Startup feature (see info on “Sequential Startup” later in this chapter).

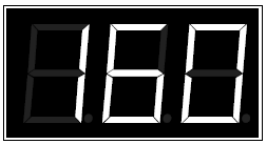
Controller will display it’s software version, i.e., V.2.XX.

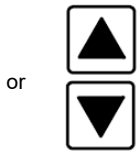
or

5.2.2.2 Programming temperature setpoints



➢ Choose a temperature zone.

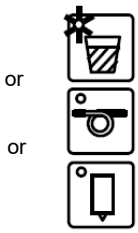




➢ Scroll to “increase value” or ”reduce value”, in order to adjust the setpoint temperature.

After two seconds the display will read the actual temperature. The setpoint is stored.

5.2.2.3 Turning temperature zones ON/OFF



➢ Choose a temperature zone.

➢ Scroll to “reduce value” until temperature setpoint is 0 (---).
The temperature zone is now turned OFF.

➢ To turn ON the temperature zone, increase the setpoint

After programming is complete, wait a few seconds and the controller will return to the actual temperature of the melter.

5.2.2.4 Error indication messages

“EO1” = The temperature sensor is open or has high resistance.

“EO2” = The temperature sensor is shorted or has low resistance.

5.2.3 Keypad Locking

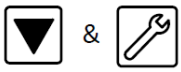
It is possible to lock or unlock the controller in order to restrict programming changes. To change the code which is necessary to over-ride or unlock the keypad lock, see Service Functions.

Note: the Melter is shipped with de-activated keypad lock. If the keypad lock must be used, an access code must be programmed prior to locking the keypad.

Locking or Unlocking the Keypad

Important Note: the controller must be in the Temperature Display mode in order to allow locking or unlocking of the keypad.

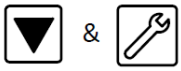
Locking the Keypad



➢ Press the Down Scroll key, then hold and press the Service icon key.

You will see “Loc” to indicate that the Keypad Lock is active

Unlocking the Keypad



➢ Press the Down Scroll key, then hold and press the Service icon key..

You will see “Cod” to indicate that the access code is required.

or

Enter your access code by scrolling up or down. Default code = “ -- -- --”.

Confirm your code input by pressing Tank key.

Notes:

1. Once the keypad lock is active, unauthorized programming is not possible, even after turning the Melter OFF, then back ON again.

2. Once the keypad lock is unlocked, programming is possible until the Melter is turned OFF, then back ON or the keypad is locked again.

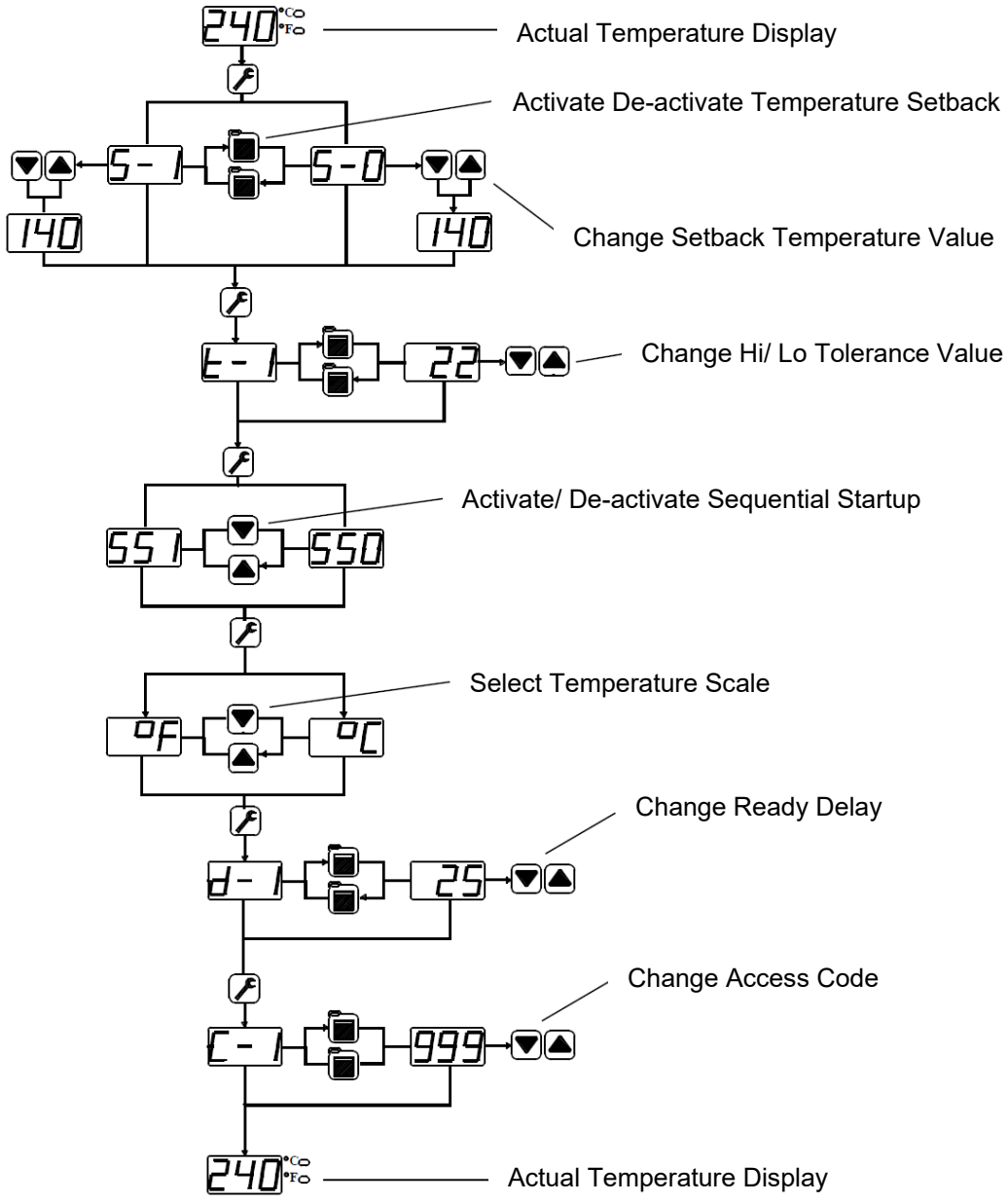
3. If the keypad must be unlocked permanently, the access code must be de-activated in the Service Functions.

5.2.4 Service Functions

After the basic programming of Temperature Setpoints is complete, the programmer proceeds to programming of the Service Functions, if desired.
The Service Functions are a continuous loop of programming steps (”functions”) which the programmer moves through by pressing the “Service” key. These steps are described in this section of the chapter. The Service Functions loop and basic programming is diagrammed below.

There are three ways to exit the Service Functions loop:
1. Just wait (approx. 10 seconds) and the controller will automatically return to the actual temperatures display,
2. Press the Service key until you are back to the actual temperatures display, or
3. Press any Hose or Head key and you will return to the actual temperatures screen.

5.2.4.1 Diagram of the Service Functions Loop



5.2.4.2 Standby Programming

"Standby" is a temperature value by which all temperature zones will lower when Standby mode is activated.

For example, if your temperature setpoints are all 300 degrees, and you program a 100 degree Standby, then the Standby temperature of all zones will be 200 degrees. Similarly, if your temperature zones setpoints vary, and you program a 100 degrees Standby, each zone's Standby temperature will be 100 degrees lower than its setpoint.

- Press Service icon to enter Service Functions.

  You will see either "S-1" (standby is On) or "S-0" (standby is Off).

- Press the Tank icon to activate/ de-activate Standby.

  If desired, you may set the Standby temperature by scrolling up or down to desired temperature.

  When programming is complete, wait a few seconds and the controller will return to the Melter's actual temperature.

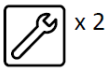
or

Note:
When Standby is active, the display will alternate between the Melter's actual temperature and S-1.

5.2.4.3 To Set Tolerance (Hi & Low Temperature Limits)

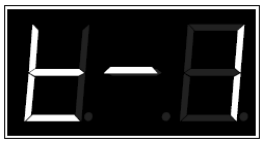
The Tolerance (high/ low alarm) setpoint is a range (+ and - the zone's temperature setpoint) between which your Melter can safely operate. It's lower temperature represents the Melter's ready temperature. It's upper value represents the over-temperature point.

Setting the Tolerance range, for example: if the temperature setpoint is 200 degrees, and the Tolerance setpoint is 10 degrees, then the high alarm (overtemp) equals 210 degrees and the low alarm (ready temp) equals 190 degrees.



- Press the Service icon twice to select the Tolerances of your temperature zones.

  A display of "t--1" indicates the Tolerance function has been selected..



- Press the Tank button to display the Tolerance.

or

Use the scroll buttons to change the Tolerance range for all zones.
Note: your Tolerance range must be a value between ± 5 and 50 degrees Fahrenheit (± 2 and 27 degrees Celsius).

When Tolerance programming is complete, wait a few seconds and the controller will return to the Melter's actual temperature.

5.2.4.4 Turning Sequential Startup ON/OFF

The Sequential Startup feature programs the order in which the temperature zones will come on at startup.

- A Sequential Startup" of **"SS1" (On)** means the tank will begin heating first, then, when the tank is ready, the other zones will begin heating.
- A Sequential Startup of **"SSO**" means Sequential Startup is Off and all zones will begin heating immediately.

➢ Press the Service icon three times to set Sequential Startup.

The display will flash either "SS1" (sequential startup is ON) or "SS0" (sequential startup is OFF).

or

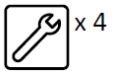
or

Scroll to choose between ON and OFF. When programming is complete, wait a few seconds and the controller will return to the Melter's actual temperature.

Note: Any time the Melter is switched ON, you will briefly see "SS1" or "SS0" displayed..

5.2.4.5 To Set Temperature Scale

The Temperature Scale may be set to display temperature either in degrees Celsius or Fahrenheit



➢ Press the Service icon four times to set the Temperature Scale.

Scroll to choose between Celsius ("C") or Fahrenheit ("F") as indicated by the Temperature Scale LED.

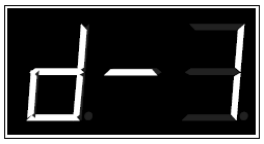
or

When programming is complete, wait a few seconds and the controller will return to the Melter's actual temperature.

5.2.4.6 To Set Ready Delay

When the system is ready (all temperature zones are within tolerance), a ready delay may be programmed to delay the system's ready output signal.

➢ Press the Service icon five times to set a Ready Delay.



You will see "d--1" to indicate you are in Ready Delay programming mode.

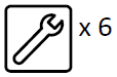
Press the Tank icon to display the Ready Delay.

To change a Ready Delay, scroll up or down to the desired length (in minutes) of delay.
0 = Default, no delay
99 minutes = maximum length of delay

or

When programming is complete, wait a few seconds and the controller will return to the Melter's actual temperature.

5.2.4.7 To Change Access Code (De-activate Keypad Locking)



➢ To change the Access Code, press the Service icon six times.

You will see "C-1" to indicate you are in Access Code programming mode.

Press the Tank icon to see the programmed Access Code. For example, "999".

To change the Access Code, scroll up or down to the desired numeric value.
"- - -" = no Access Code (Access code is de-activated),
"- - -" = no Keypad Locking
1 - 999 = possible Access Code values

or

When programming is complete, wait a few seconds and the controller will return to the Melter's actual temperature.

5.2.5 Controller Features

5.2.5.1 System Ready Indicator Light

When not in programming mode, a flashing temperature scale light (LED) indicates that the ASU is not “Ready” for production. This LED will cease to flash when all temperature zones are within the programmed temperature tolerance window.

5.2.5.2 Error Indication Messages

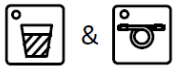
“EO1” = the temperature sensor is open (no sensor attached) or has high resistance.

“EO2” = the temperature sensor is shorted or has low resistance.

5.2.5.3 To Copy and Paste Setpoints

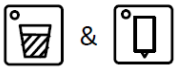
The Copy/ Paste feature of the controller copies the tank setpoint and pastes it as the setpoint of other temperature zones. The paste will apply to only temperature zones that are switched ON.

Set your Tank setpoint as described earlier in this chapter.



Push and hold the Tank icon. While holding, press the #1 Hose icon. Release.

then



Push and hold the Tank icon again. While holding, press the #1 Head icon. Release.

The manually programmed setpoint has now been pasted in to all turned on hose and head zones.

When programming is complete, wait a few seconds and the controller will return to the Melter’s actual temperature.

Chapter 6
Maintenance and Repair Notes

6.1 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 applicators purge valve or open the modules by activating the solenoids to relieve any adhesive pressure.

6.1.1 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.

6.1.2 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 high-temp lube (PN 001V078).

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

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.

6.1.3 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.

6.2 Maintenance plan

CAUTION

Heed all security advices given in Chapter 6.1.

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!

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. • Listen for abnormal sounds of the unit, e. g. from the motors, pumps, etc.
Once a day	• Clean the Melter and components from dirt.
Once a week	• Check pump and their seals for wearing and leaks and replace if necessary. • Check output filter for clogging and replace if necessary. • Check pressure relief valves for function and replace if necessary. • Check air supply connections for leaks and tighten if loose or replace if necessary. • Check the solenoid valves for proper function and replace it if necessary.
Every 3 months	• Check pump mounting screws for tightness and tighten if necessary. • Check all hose fittings for tightness and tighten if necessary. • Due to temperature differences a loosening of threads (threaded connections) is possible. Check all parts with threads, all screw fittings and fasteners for tightness and tighten them if necessary.
Once a year	• Clean the Melter. • Complete check-up for wearing.
Every two years	• Complete maintenance.

6.3 General Cleaning

Follow the manufacturer's directions when using industrial cleaners on the enclosure.

6.4 Preventive Maintenance

6.4.1 Output Filter

WARNING

Heed all security advices given in Chapter 6.1.

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!

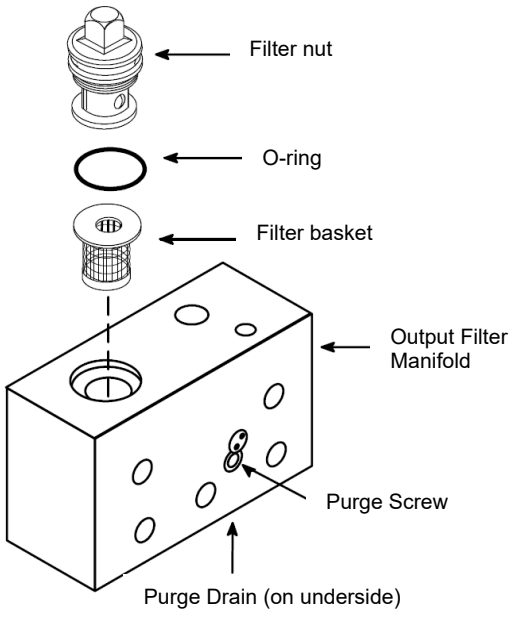
During the purging procedure, hot adhesive can come out of the manifold under high pressure. Avoid splashing hot adhesive. Stand clear of the ASU until all pressure is relieved.

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

NOTE: The filter cartridge must be replaced every month in the first few weeks of operation!

To replace the Output Filter:

1. Purge the filter manifold by following the instructions under "Point 6.5 Purging the Filter Manifold of Adhesive and Pressure".
2. Turn the pump/ motor OFF.
3. Switch the unit voltage-free and pressureless.
4. Guard the unit against unauthorized restarting.
5. Place a heat-resistant catchment container/underlay under the manifold's purge drain. Hot adhesive may come out!
6. Unscrew and remove the filter nut (15,8 mm or 5/8"-nut).
7. With pliers, pull the filter basket out.
8. Replace the O-ring on the filter nut. Apply O-ring lubricant (PN 001U002) to the new O-ring.
9. Replace the filter basket.



10. Apply anti-seize to the threads of the filter nut and re-install. 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.

6.4.2 Hose Fittings & Fasteners

Periodically check all hose fittings and screws for tightness.

6.4.3 Hopper Filter Inspection & Cleaning

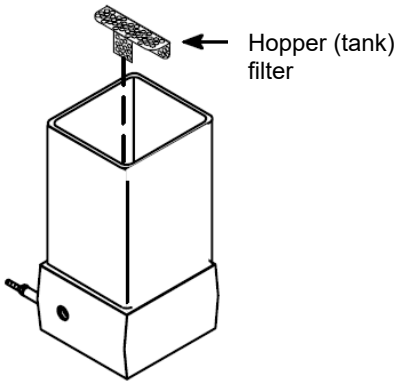
The hopper (tank) filter is a coarse screen located in the bottom of the hopper. It fits over the hopper's drain hole and prevents any large debris from leaving the hopper

1. Pump all adhesive out of the Melter.
2. Turn the pump/ motor OFF.
3. Switch the unit voltage-free and pressureless.
4. Open the hopper lid and inspect the hopper filter.
5. If cleaning the filter is necessary, lower the temperature of the hopper 20-30°C (35-50°F) from operating temperature.

WARNING HOT SURFACE

The Melter will still be hot during this procedure. Use insulated gloves and protective clothing when handling the hopper filter

6. Use a hook to pull the hopper filter out.
7. Immerse the clogged filter in flushing fluid (PN L15653), then use a hot air gun and rags to clean it.
8. Re-insert the filter into the hopper.
9. Refill the hopper and resume production.



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.

6.5 Purging the Filter Manifold of Adhesive and Pressure

As a safety precaution, purge the filter manifold before changing the output filter or before removing any of the hoses or applicators from their manifold port.

WARNING

Heed all security advices given in Chapter 6.1.

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 the purging procedure, hot adhesive can come out of the manifold under high pressure. Avoid splashing hot adhesive. Stand clear of the ASU until all pressure is relieved.

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

Refer to the illustration under “point 6.4 Preventive Maintenance/ Outlet Filter” while following these instructions.

1. The system should be at operating temperature.
2. Turn the pump/ motor OFF.
3. Switch the unit voltage-free and pressureless.
4. Guard the unit against unauthorized restarting.
5. Place a heat-resistant catchment container/underlay under the manifold’s purge drain. Hot adhesive may come out!
6. With a hex key screw driver (Allen wrench), slowly loosen the purge screw (do not remove it). Allow the adhesive and pressure to escape. All the adhesive will flow into the heat resistant container.
7. Re-tighten the purge screw.

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.

6.6 Flushing the System

Contaminated adhesive, accumulation of residue, or changing the adhesive formulation may require the system to be flushed. At least 6 liters (1.5 gallons) of flushing fluid is required (PN L15653)

WARNING

Heed all security advices given in Chapter 6.1.

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 the purging procedure, hot adhesive can come out of the manifold under high pressure. Avoid splashing hot adhesive. Stand clear of the ASU until all pressure is relieved.

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

1. Pump out as much of the molten adhesive as possible.
2. Reduce the pump pressure to zero by first turning the pump switch to OFF.
3. Open the purge screw, following the instructions given in " point 6.5 Purging the Filter Manifold of Adhesive and Pressure" on previous pages.
4. Disconnect one of the supply hoses' adhesive feed from its applicator.
   Do not disconnect electrical power to the head.
5. Put the hose in a secured position within a heat-resistant container to catch the used flushing fluid.
6. Add flushing fluid to the hopper and allow approximately fifteen minutes for it to reach hopper temperature.
   Carefully stir the flushing fluid to mix with any remaining adhesive
7. Slowly turn the pressure relief valve clockwise to increase the air pressure and pump about half of the fluid into the container.

Pressure relief valve

8. Turn the motor OFF.
9. Reconnect the supply hose to ist applicator.
10. Remove the output filter and replace the basket.
    Install a new O-ring on the filter nut (lubricate the new O-ring with O-ring lubricant prior to installation) and tighten the brass nut.
11. Add new adhesive to the hopper and heat to application temperature.
12. Turn the motor ON.
13. Actuate each applicator until all flushing fluid is removed and a steady stream of new adhesive flows.

14. Re-adjust the pressure relief valve again to achieve the desired adhesive flow rate.

15. Re-fill the hopper and resume production.

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 7
Troubleshooting

7.1 General Troubleshooting Notes

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

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.

7.2 Handling Printed Circuit Boards (PCBs)

WARNING HIGH VOLTAGE

Before unplugging connectors from the I/O PCBs, ground yourself to the Melter by touching any available unpainted cool metal surface, mounting screws, etc. This will avoid electrical discharge to the PCB assembly when you are removing and replacing connectors.

CAUTION

Printed circuit boards (PCBs) should be handled using the following procedures:

1. Wear a wrist grounding strap. If a grounding strap is not available, frequently touch a bare metal part of the ASU (unpainted frame, mounting screw, etc.) to safely discharge any electrostatic buildup on your body.
2. Handle a PCB by its edges only. Don't grip a PCB across its surface.
3. When removed from the ASU, each PCB must be individually packaged inside a metallized, static drain envelope. Do not place the removed PCB on a table, counter, etc. until it has first been placed in or on a static drain envelope.
4. When handing a PCB to another person, touch the hand or wrist of that person to eliminate any electrostatic charge before you hand the PCB to him.
5. When unwrapping a PCB from its static drain envelope, place the envelope on a grounded, nonmetallic surface.
6. To cushion PCBs for shipment, use only static-drain bubble pack. Do not use foam peanuts or bubble pack not known to be static draining.

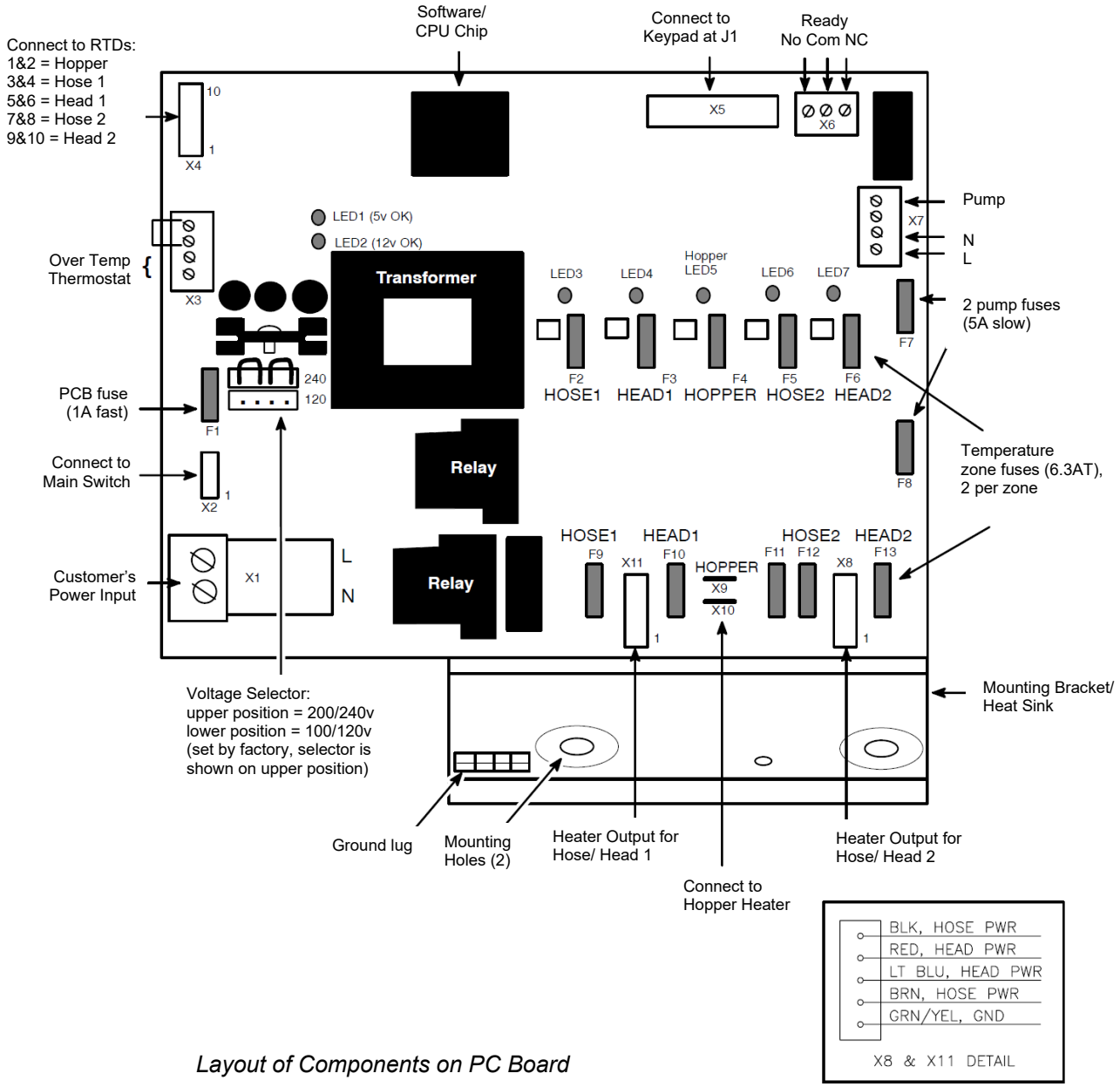
7.3 Printed Circuit Board (PCB)

The PCB contains the controller's software/ CPU chip and non-volatile memory.

The green, temperature zone LEDs cycle on and off as each heater outputs.

The PCB is mounted under the Melter's cover.

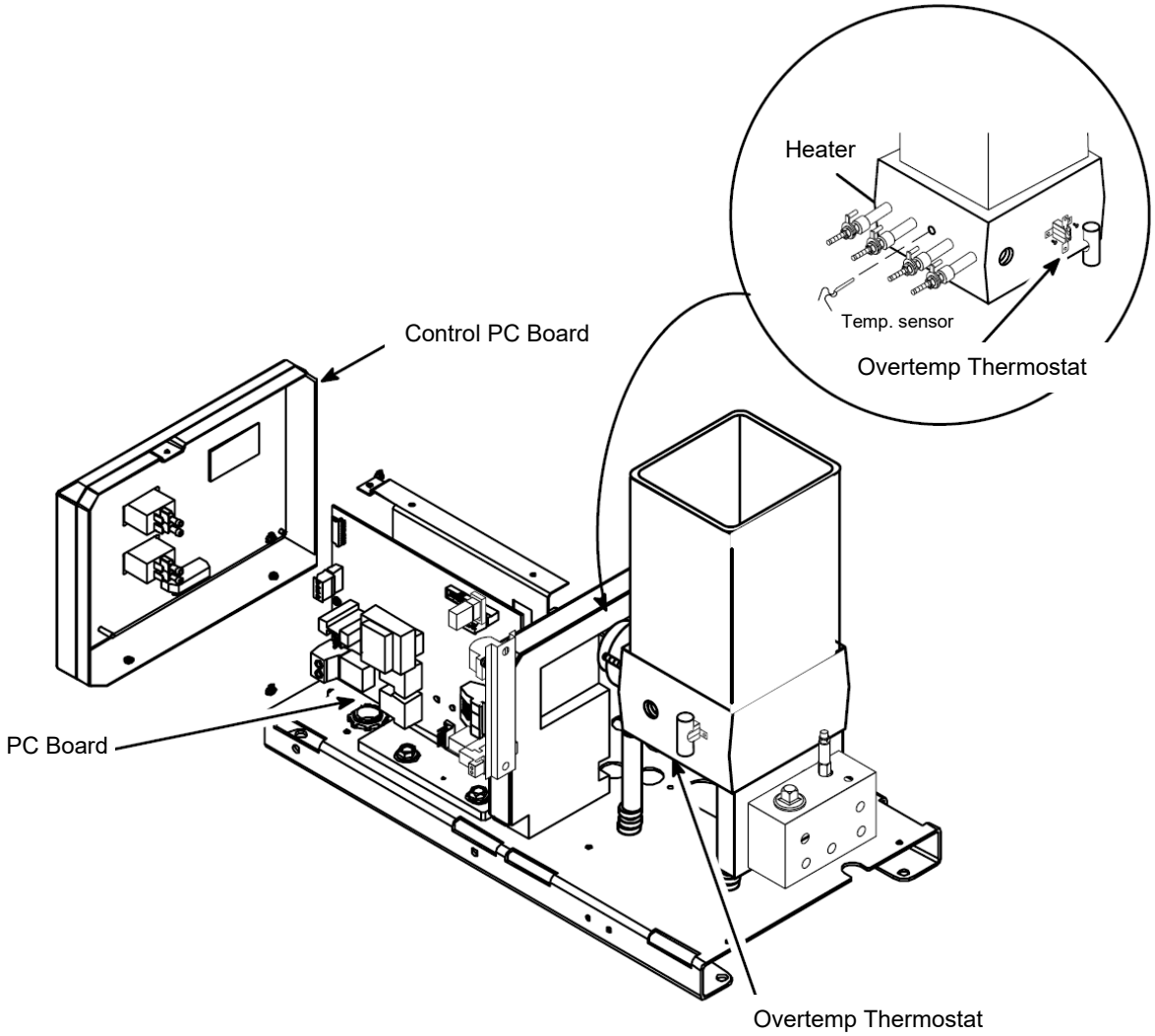
The fuses are designated F1 thru F13 below. See diagram for sizes. The fuses are the only replaceable parts on the pc board. Each temperature zone is fused with two fuses.



Layout of Components on PC Board

7.4 Overtemp Thermostat

The overtemp thermostat cuts off power to all temperature zones if the tank temperature exceeds 224°C (435°F). The overtemp thermostat must be re-set manually, by opening the Melter's front panel and pressing the reset button in the center of the overtemp switch (note: the reset button is protected by a plastic insulator).



Location of Printed Circuit Boards and Overtemp Thermostat

7.5 Resistance Tables

Temperature °F	Temperature °C	Resistance in Ohm
32	0	100
50	10	104
68	20	108
86	30	112
104	40	116
122	50	119
140	60	123
158	70	127
176	80	131
194	90	135
212	100	139
230	110	142
248	120	146
268	130	150
284	140	154
302	150	157
320	160	161
338	170	164
356	180	168
374	190	172
392	200	176
410	210	180
428	220	183

Temperature Sensor Resistance

Hose Length Meter	Hose Length Feet	Resistance in Ohm (120V)	Resistance in Ohm (240V)
1,2	4	102-125	400-490
1,8	6	63-77	291-355
2,4	8	50-61	204-249
3	10	39-48	155-189
3,7	12	31-37	125-153
4,9	16	23,6-29	98-120
7,3	24	n.a.	61-75

Nominal Hose Heater Resistance for DynaFlex Hoses

Watts	Resistance in Ohm (120V)	Resistance in Ohm (240V)
200	72	288
270	53	213
350	41	165
500	29	115
700	n.a.	82

Nominal Head Heater Resistance

Qty. Heaters	2
Resistance in Ohms for each heater	25

Nominal Hopper Heater Resistance

Note: Resistance is measured at ambient temperature (20°C/ 68°F).

7.6 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

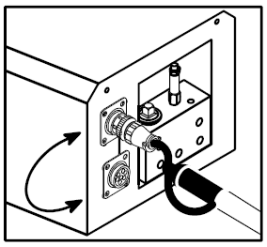
- The Melter is switched on.
- The Melter is supplied with power.
- The Melter is supplied with pneumatic air.
- Pneumatic and electrical connections are correct.
- Adhesive is in the hopper.
- The temperature controller is in operation. The setpoints are correct for the Melter, Heated Hoses and Applicators. All components are heating properly.

Error Messages (see also Chapter 4)

- EO1 = temperature zone has an open sensor.
- EO2 = temperature zone has a shorted sensor.

Hose/ Applicator Troubleshooting Tip

Hose or applicator problems can be isolated by electrically connecting the applicator and hose to an alternate socket on the Melter. If the malfunction goes with the applicator and hose, the problem will usually be in the applicator or hose that was moved. If the malfunction does not move with the applicator and hose, the problem is probably in the Melter.



WARNING HOT SURFACE

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

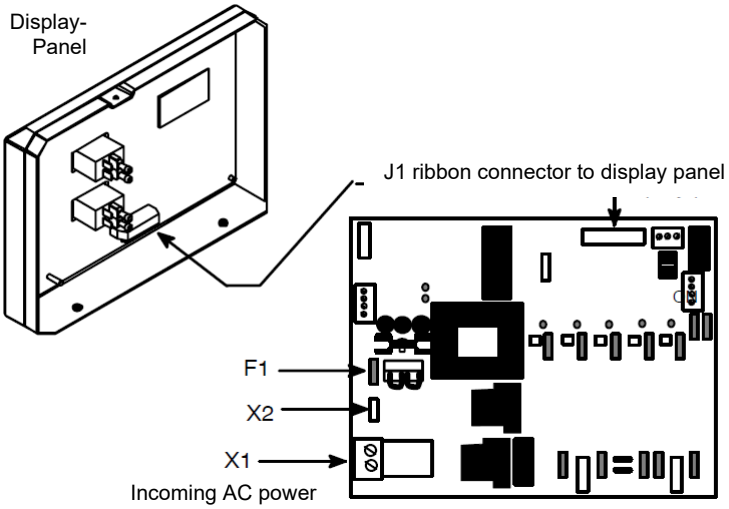
Some of the procedures in the following Troubleshooting Guide require working near hot adhesive.

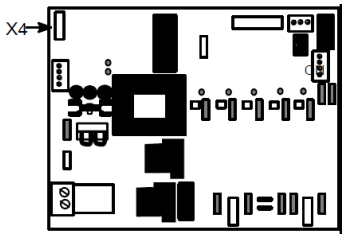
Face shields (preferred) or safety glasses (for minimum protection), heat-resistant protective gloves and long-sleeved clothing must be worn whenever working with or around adhesive application systems.

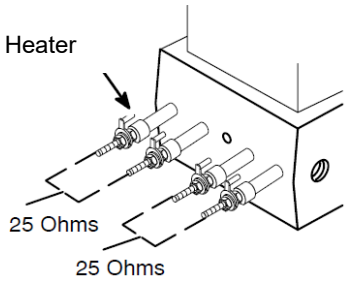
Use proper tools for handling hot melt components.

Problem	Possible Cause	Solution
1. Controller setpoints are not adjustable.	1. Main Power switch OFF. 2. PCB inoperative. 3. Keypad locked.	1. Switch the main switch ON. 2. Replace PCB. 3. Unlock keypad.
2. All channels display error message or wrong actual temperatures.	PCB inoperative.	Replace PCB.

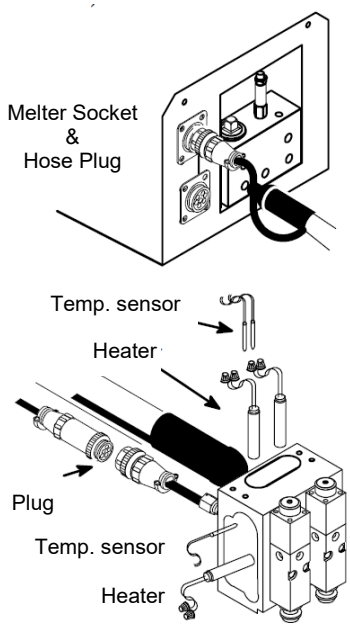
Problem	Possible Cause	Solution
3. System is not working, Display is OFF.	1. Power supply plug at X1 is not plugged in. 2. Ribbon connector J1 is disconnected from back of PCB or display panel. 3. F1 fuse on the PCB is inoperative	1. Check power supply plug connection. 2. Check connection. 3. Insert new fuse, if it blows, the PCB is inoperative.

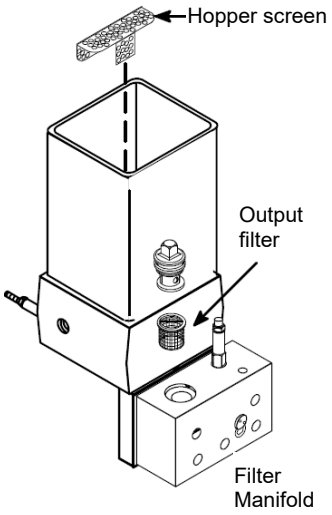
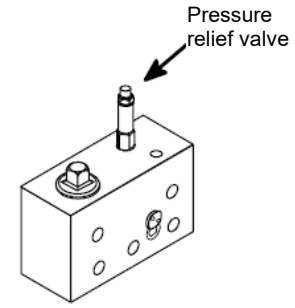
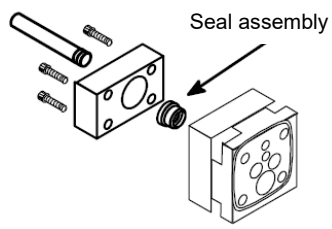


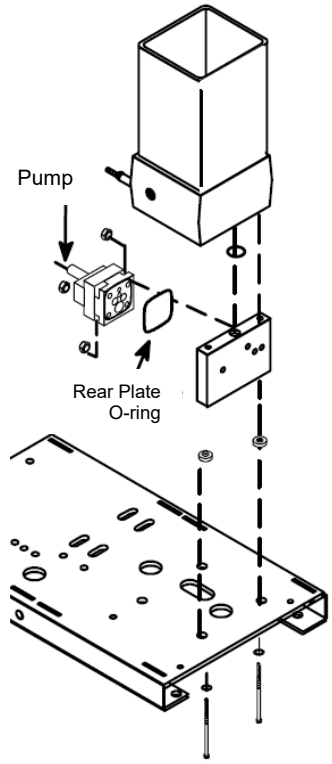
Problem	Possible Cause	Solution
4. Hopper temperature is higher than setpoint (overtemp). 	1. Hopper sensor not fully inserted. 2. Hopper sensor (X4) inoperative. 3. Inoperative PCB.	1. Check hopper sensor. 2. Replace hopper sensor if resistance does not comply with resistance table. 3. Replace PCB..
5. Display for Hopper = EO1.	1. Plug connection X4 on PCB is loose. 2. Temperature sensor inoperative.	1. Restore connection. 2. Replace sensor if resistance does not comply with resistance table.

Problem	Possible Cause	Solution
6. Display for Hopper = EO2.	1. Hopper sensor short circuit. 2. Short circuit at plug connection X4 on PCB. 1. Inoperative PCB.	1. Replace sensor if resistance does not comply with resistance table. 2. Check and eliminate short circuit. 3. Replace PCB.
7. Hopper does not heat, but LED is ON.  	1. Hopper fuses (F4&F11) inoperative on PCB. 2. Hopper heater element is inoperative. 3. Disconnection in hopper heater circuit. 4. Inoperative PCB.	1. Insert new fuse(s) and observe Melter. If fuse(s) blows again, check for a short circuit in heater. *2.* Replace hopper if element's resistance does not comply with resistance table. *Note: remove wires from both heater elements when measuring.* 3. Check and repair (see wiring diagram). 4. Replace PCB.
8. Hopper does not heat, and LED is OFF.	Inoperative Control PCB.	Replace PCB.

Problem	Possible Cause	Solution
9. Hose (or Head) is not heating. Hose (or Head) LED on the PCB is ON. Fuses: F2 & F9 = Hose 1 F3 & F10 = Head 1 F5 & F12 = Hose 2 F6 & F13 = Head 2	1. Disconnection between Melter and Hose (or between Hose and Head). 2. Hose (or Head) fuse(s) on the PCB is inoperative. 3. Loose plug connection on PCB.. 4. Heating element inoperative.	1. Check plug connections. 2. Insert new fuse(s). If fuse blows again, check for a short circuit in heater. 3. Check connectors X8 and X11 and restore connection. 4. Check resistance and compare to resistance table. a. For head: if heater cartridge is inoperative, replace heater. b. For hose: if heating element is inoperative, replace hose.
10. Hose (or Head) is not heating. Hose (or Head) LED on the PCB is OFF.	1. Inoperative PCB. 2. Sequential Startup is active.	1. Replace PCB. 2. Wait until hopper has reached setpoint or re-program the heat-up mode.
11. Hose (or Head) actual temperature is much higher than setpoint.	1. Inoperative Hose (or Head) triac on PCB (corresponding PCB LED is OFF). 2. Inoperative Hose (or Head) temperature sensor (corresponding PCB LED is ON).	1. Replace PCB. 2. Check resistance and compare to resistance table. a. For head: if sensor is inoperative, replace sensor. b. For hose: if sensor is inoperative, replace hose.

Problem	Possible Cause	Solution
12. Display for Hose (or Head) = EO1 	1. No Hose (or Head) is connected 2. Disconnection between Melter and Hose (or between Head and Hose). 3. Disconnection at X4 on PCB. 4. Hose (or Head) sensor is inoperative	1. Connect Hose (or Head) if needed. If not needed, ignore display. 2. Check plug connection. 3. Make proper connection. 4. Check resistance and compare to resistance table. a. For head: if sensor is inoperative, replace sensor. b. For hose: if sensor is inoperative, replace hose.
13. Display for Hose (or Head) = EO2	1. Hose (or Head) sensor short circuit. 2. Short circuit in plug connection between Melter and Hose (or between Hose and Head). 3. Inoperative PCB.	1. Check resistance and compare to resistance table. a. For head: if sensor is inoperative, replace sensor. b. For hose: if sensor is inoperative, replace hose. 2. Make proper connection. 3. Replace PCB.
14. Pump doesn't operate.	1. Motor on/off is off at the controller keypad. 2. Hopper temperature is below setpoint window. 3. No incoming electrical power. 4. System is not ready.	1. Check keypad switch. 2. Pump cannot operate until hopper has reached ready condition. Verify that hopper has reached ready. Re-program hopper operating setpoint and tolerance (hi/low) if necessary. 3. Check to see if ASU temperature control is operating. If not, check for presence of incoming supply voltage. 4. Wait until temperature scale (F/C) light is steady ON (not flashing).

Problem	Possible Cause	Solution
15. Pump runs but there is no adhesive output.	1. ASU is out of adhesive. 2. If pump has been serviced and motor leads reversed, pump will run with no output.	1. Add adhesive to hopper. 2. Check motor wiring to schematic.
16. Low or inconsistent adhesive output.  	1. Filter(s) clogged. 2. Adhesive used is too viscous 3. Clogged hose. 4. Clogged applicators. 5. The adjustable pressure relief valve is opening.	1. Remove and inspect filter basket and hopper screen. 2. Verify that system components are at appropriate temperatures and that the selected adhesive is correct for the application. 3. Inspect hose for kinks or internal plugs of debris or char. Clean or replace hoses as necessary. 4. Inspect applicators for plugged nozzles or filters. Clean or repair applicators as necessary. 5. When fully closed (clockwise) and all applicators are off, adhesive pressure should be around 68 bar (1000 psi). If it is significantly less, the pressure relief valve should be replaced.
17. Adhesive leak at pump shaft seal. 	1. Pump seal is incorrectly positioned inside the seal and bearing assembly. 2. Pump seal inoperative.	1. Remove seal and bearing from pump. Verify that all components are correctly positioned. 2. Remove seal from pump, inspect it and replace it if worn or damaged. Be sure there are no burrs or other sharp edges on pump shaft or on installation tools that could damage a new seal.

Problem	Possible Cause	Solution
18. Adhesive leak at pump-to-hopper interface.  	1. O-ring in pump's rear plate is inoperative. 2. Pump assembly screws are missing or loose. 3. Helicoil insert pulled out of hopper or pump interface plate.	1. Remove seal from pump, inspect it and replace it if worn or damaged. Be sure there are no burrs or other sharp edges in the o-ring groove or on installation tools that could damage a new seal. 2. Verify that all four pump screws are tightly assembled to the pump mounting block. 3. Remove pump and inspect bottom of hopper. Repair or replace hopper or pump mounting block as necessary.

7.7 Operation of the Adjustable Pressure Relief

When the hopper (tank) reaches setpoint, the controller places the hopper in “Ready” condition and power is supplied to the pump/ motor.

An adjustable pressure relief valve is located on the output filter manifold.

When adhesive pressure exceeds the set limit, adhesive flows back to the hopper. Therefore, the greater the setting on the pressure relief valve, the greater the adhesive output.

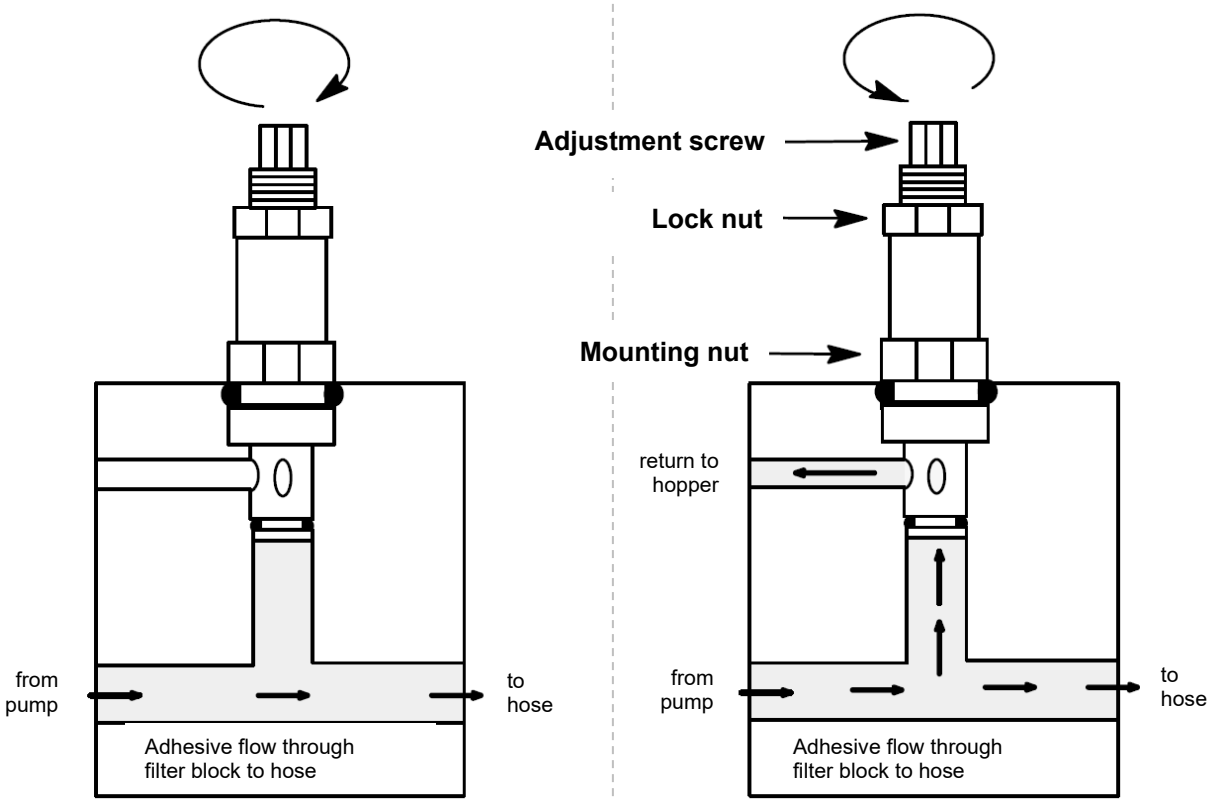
To change the setting of this valve, loosen the lock nut and turn the adjustment screw clockwise to increase pressure or counterclockwise to decrease pressure. The relief valve is factory set at 27 bar (400 psi).

Normally Closed (Unrelieved):

In the drawing below, the valve is closed.

Open (Relieved):

In this drawing, pressure has exceeded the setting of the valve, causing the valve to open and discharge adhesive to the hopper.



Operation of the Adjustable Adhesive Pressure Relief Valve

Chapter 8
Disassembly & Re-assembly Procedures

8.1 Advices for Disassembly Procedures

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

All Disassembly & Re-assembly Procedures must be performed by qualified, trained technicians.

DANGER HIGH VOLTAGE

Once the system is up to temperature, disconnect and lockout all incoming power before proceeding.

Dynamini Melter 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 Melter.

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 this chapter 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.

When needed, cross-reference the exploded-view component drawings in Chapter 10 with each procedure in addition to the instructions and illustrations given in this chapter. Read the “Cautions” under point Re-Assembly Procedures before re-assembling the Melter.

8.2 Advices for Re-Assembly Procedures

Unless noted, the S Series ASU's 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 silicone lube (PN 108689).

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

SOME FITTINGS used for adhesive on the ASU 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 against the pump body (or other surface). Excessive torque may damage straight-threaded parts and the use of power wrenches is not recommended.

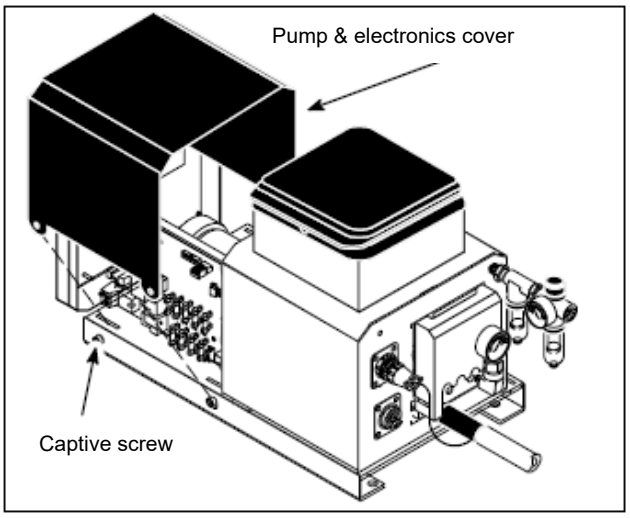
HOT-MELT RESIDUE must be cleaned from parts before they are re-assembled, particularly from threaded parts. As a precaution against adhesive residue preventing proper re-assembly, threaded parts must be re-tightened at operating temperature.

8.3 To Remove the Pump & Electronics Cover

(See illustration in Ch. 10).

1. Loosen the four captive screws (two on each side) along the bottom of the pump and electronics cover.

2. Lift the cover straight up and out of its slots in the base.



8.4 To Remove the Hopper Cover

(See illustration in Ch. 10).

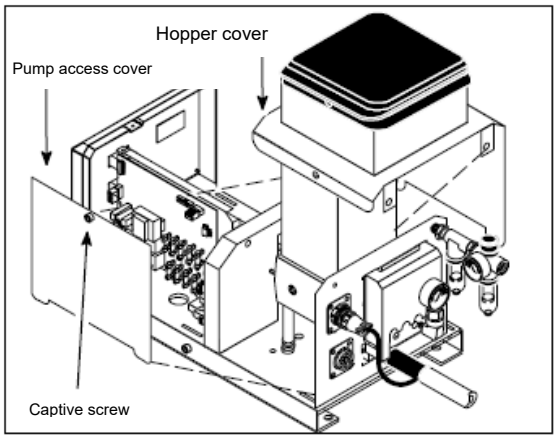
1. Loosen the two captive screws along the bottom of the hopper cover.

2. Remove the access cover screw, then lift the access cover out of its slots in the base.

3. Remove the screw that attaches to the heat shield.

4. Remove the two screws that attach the back panel to the hopper cover.

5. Lift the hopper cover up and out of its slots in the base.



8.5 To Remove the Hopper Lid

(See illustration in Ch. 10).

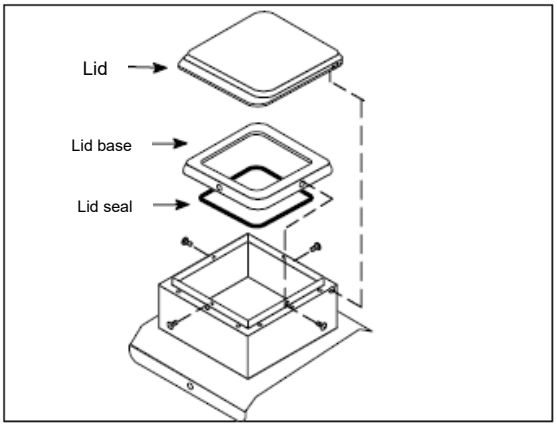
1. Remove the four flat head screws which are located one on each side of the lid base.

2. Pull the lid up to remove.

Lid Seal Replacement: The lid seal (O-ring) is located inside the lid base.

1. Remove the old seal, which rests against the top of the hopper.

2. Install the new seal into the groove provided.



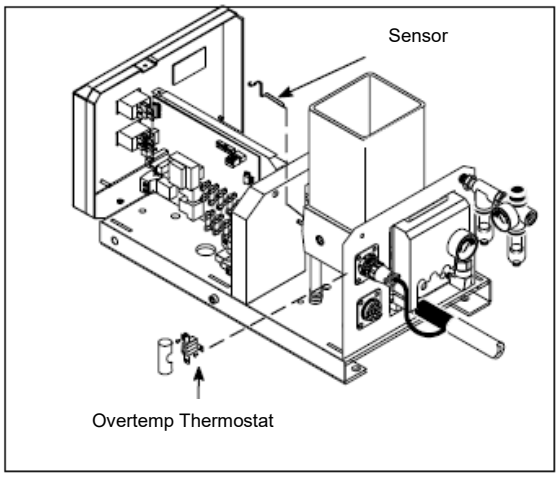
8.6 Thermostat Replacement

(See illustration in Ch. 10).

1. Remove the access cover screw.
2. Lift the access cover out of its slots in the base.

Overtemp Thermostat Replacement:

1. Remove the two screws and slip the terminals and the hopper ground wire off of the thermostat.
2. Remove the thermostat from the base of the hopper.
3. Install new thermostat with two screws and re-install the terminals and hopper ground wire.



8.7 RTD Temperature Sensor Replacement

(See illustration in Ch. 10).

1. Remove the pump and electronics cover. The RTD sensor is centered between the cast-in heaters on the base of the hopper.
2. Slip the sensor out of its adapter.
3. Unplug the sensor wires from pins 1 and 2 at X4 on the Control PCB (see PCB illustration I Ch. 7).

8.8 To Access the Electrical Components

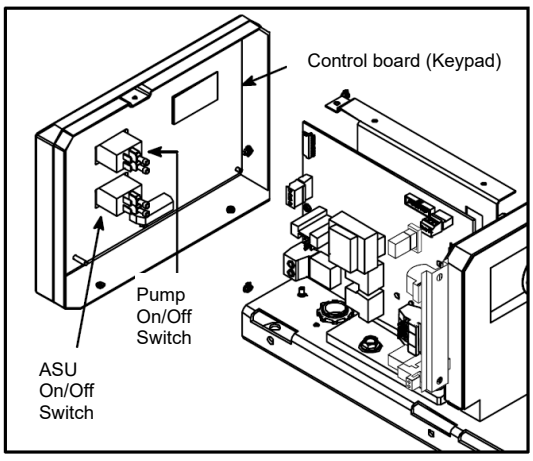
(See illustration on previous page and in Ch. 10).

Remove the pump and electronics cover.

8.8.1 Main On/ Off Switch Replacement:

***Note: there are two main switches (pump and ASU)*. Switches are located on the display panel.**

1. From the back of the switch, free it by squeezing it from either side.
2. Remove the switch through the back of the panel.
3. Disconnect four color-coded plug-in leads from the old switch and connect them to new switch.



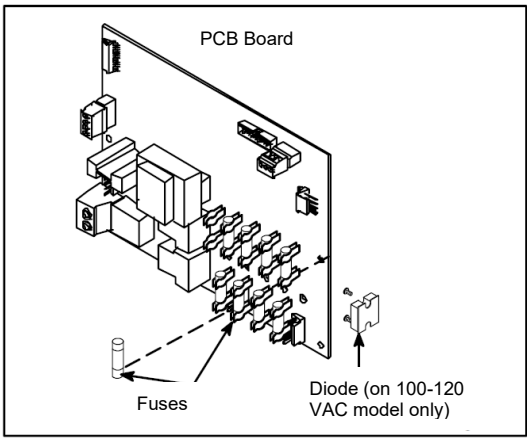
8.8.2 Replacement of Fuses on PC Board

Note: Use fuses as specified in Ch. 7.

Fuses on PC Board: (see also detailed illustration in Ch. 7 sizes and locations of fuses).

Note on PCB fuses: each temperature zone is fused with two fuses, either one of which can blow causing the zone to not heat.

Identify the affected fuse. Grasp the fuse from both sides and pull it away from the PCB.



8.8.3 Diode Replacement

The diode slides onto a screw on the panel divider. Tighten down the two screws.
Note: only the 100-120VAC ASU has a diode.

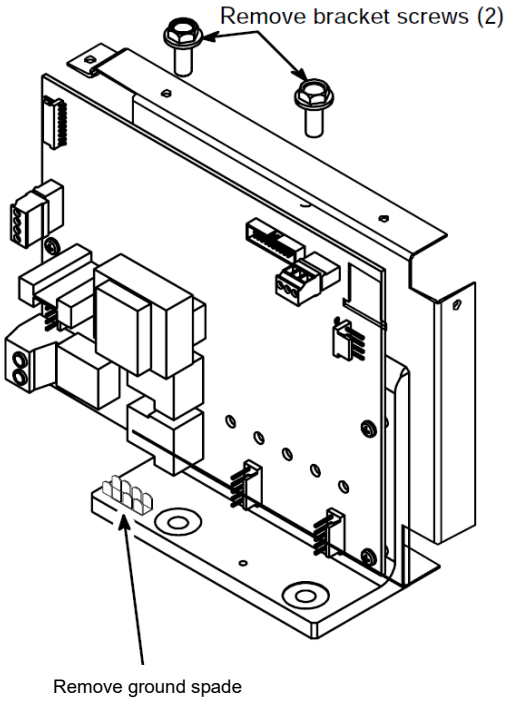
8.8.4 Control (Keypad) Board Replacement

1. Disconnect electrical connections to the printed circuit board and main switch.
2. Remove the four screws in the control board's corners to remove the board.

8.8.5 Printed Circuit Board Replacement

Reference the manual section entitled "Handling Printed Circuit Boards" in Ch. 7 before proceeding.

1. Disconnect the ground spade on the PCB's mounting bracket.
2. Disconnect all electrical connections to the board.
3. Remove the two mounting bracket screws.
4. Lift the old PCB and mounting bracket from the ASU.
   Note: Do not attempt to separate the PCB from its mounting bracket. It is all one assembly.
5. Place the new PCB and mounting bracket in the ASU.
6. Re-install the two mounting bracket screws.
7. Re-install the ground spade on mounting bracket.
8. Re-install electrical connectors onto the board (see Ch. 7, if necessary).



8.9 Pump Disassembly

8.9.1 Notes on Pump Disassembly

WARNING HOT SURFACE

The pump can only be removed when the tank has reached operating temperature.
If the pump is not operable but the heating system will function, raise the temperature of the application system to the operating temperature to aid in the pump disassembly process. Otherwise, a controlled heating method is recommended to melt hardened hot melt adhesive. Never use a torch or an open flame on any of the components of the application system.

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.

WARNING HIGH VOLTAGE

Once the system is up to temperature, disconnect and lockout all incoming power before proceeding.

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

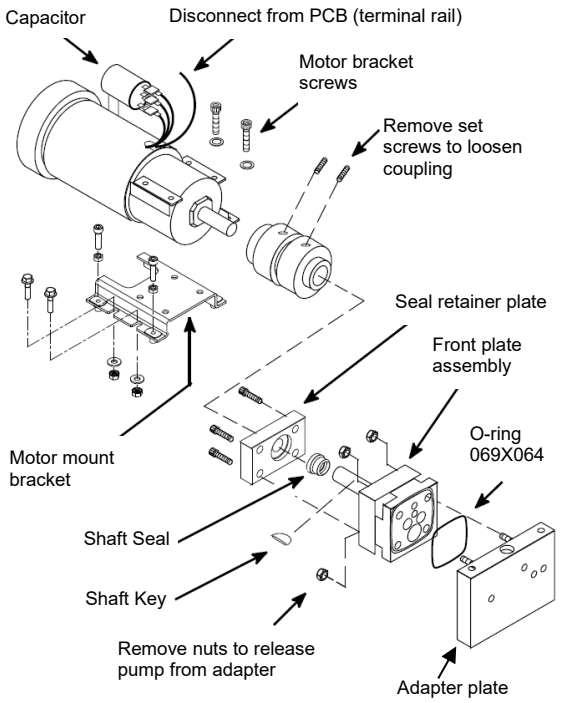
CAUTION, HIGH PRESSURE

BEFORE PERFORMING ANY PUMP REPAIR, YOU MUST PURGE ALL ADHESIVE AND PRESSURE FROM THE DYNAMINI SYSTEM.

Position a heat-resistant container under the filter manifold's purge drain. Carefully loosen the purge screw located in the port of the outlet filter manifold and allow adhesive and pressure to escape. See point "6.5 Purging the Filter Manifold of Adhesive and Pressure" for detailed instructions.

8.9.2 Gear Pump and Motor Removal

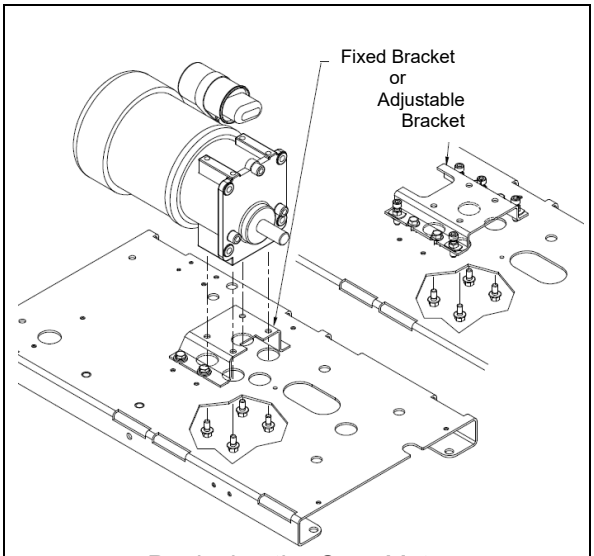
1. Disconnect the motor's electrical cable from the ASU by unplugging it at the circuit board.
2. Remove the motor from the mounting bracket by loosening the four flange-head screws. Access the screws through holes in the base plate as shown (at right, lower illustration). Do not remove the mounting bracket from the base plate.
3. Remove the two set screws located in the coupling.
4. Loosen the coupling and lift out the motor.
5. To replace the gear pump, remove the four nuts and lock washers that hold the pump to the pump adapter plate.
6. Disconnect the coupling.
7. Remove the pump assembly from the end of the unit.
8. For re-assembly: slide new pump onto the four studs. Tighten the four nuts to secure the pump. Torque should be approximately 40.7 Nm (30 ft/lb) at room temperature. With pump and hopper at 177°C (350°F), the maximum allowable torque on these nuts is 33.9 Nm (25 ft/lb).



Gear Pump

8.9.3 Gear Pump Seal (O-ring) Replacement

1. Remove the pump from the ASU (see instructions above).
2. Remove the external pump seal (PN 069X064) from its groove on the back of the pump (this is the seal located between the pump and the adapter plate). Refer to the pump exploded-view illustration in Chapter 10 for your specific pump.
3. Install the new seal.



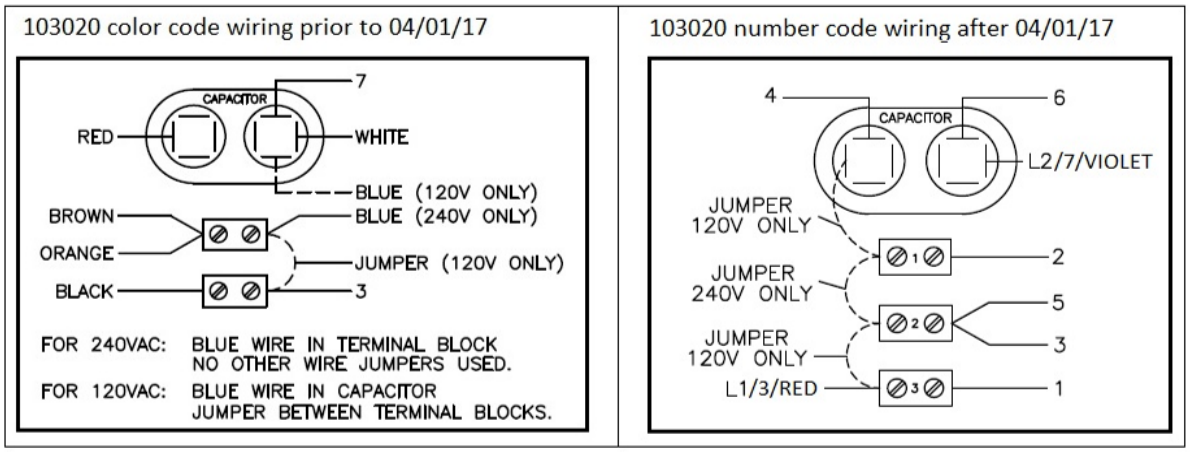
Replacing the Gear Motor

8.9.4 Gear Pump Shaft Seal Replacement

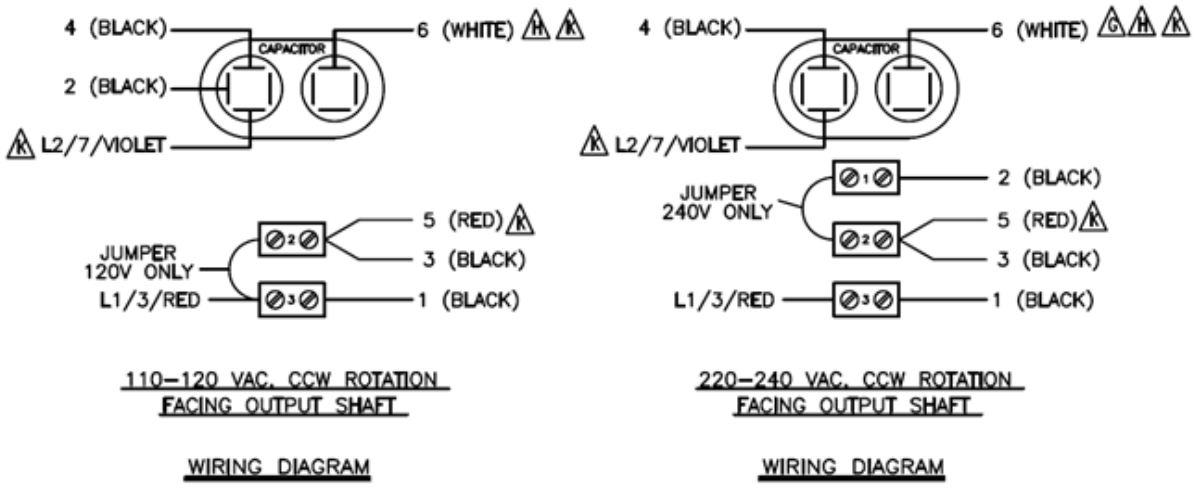
Remove the shaft key and the four socket head cap screws holding the seal retainer plate. The seal (069X061) is located between the retainer plate and the front plate of the pump.

NOTE: The motor wiring diagrams are on the next page.

8.9.5 Old Motor wiring diagram prior 06.2020



8.9.6 New Motor wiring diagram after 06.2020



Chapter 9
Available Options & Accessories

9.1 Pressure Gauge Kit: PN 101175

An optional analog pressure gauge can be mounted on the outlet filter manifold. Reading the adhesive pressure at the manifold, rather than in-line on a hose, allows for more precise monitoring of system pressure. It is also useful for troubleshooting and maintenance.

The gauge is installed at one of the adhesive ports on the manifold (see illustration in Ch. 3). There is no “dedicated” port for the gauge, any one of the three ports on the manifold may be used. Fittings are included in the kit.

9.2 Filter Options

Standard equipment on Dynamini is a 100 mesh filter PN 101247.

Some situations do not call for a fine mesh outlet filter. A “clean” adhesive or one with a long pot life are examples. Systems utilizing lower temperatures or systems running in a clean environment can also utilize a 40 mesh filter.

Option: 40 Mesh Outlet Filter: PN 101246.

9.3 Gear Pumps

For higher tolerances and precision, a choice of gear pumps is available for the Dynamini. Gear pumps give better service for continuous applications or applications which require more control over the volume of adhesive pumped.
Gear pumps available are:

PN 100860: 1.54 ccm/rev single pump
PN 100861: 3.2 ccm/rev single pump
PN 100862: 4.5 ccm/rev single pump
PN 109690: 10 ccm/rev single pump

Gear Pump Repair Kit, PN 103151

PN	Description	Quantity
N00198	O-ring	2
018X031	Ball bearing	5
069X061	Pump shaft seal	1
069X064	O-ring	3
078F017	O-ring	4
078I001	Key, Woodruff	1

9.4 Capacitor Kit: PN 106063

Consists of the following items for the 1/4 HP motor (PN 103020): capacitor, clamp, boot, screw, installation instructions and wiring diagram

9.5 Motor Seal & Gasket Kit: PN 106370

Consists all seals ad gasket for the 1/4 HP motor (PN 103020).

9.6 Troubleshooting Job Aide

A set of six 8.5” x 5.5” illustrated, laminated cards (12 pages front and back) which attach to the Melter and are used for troubleshooting the Dynamini.

9.7 Stand Assembly: PN 111243

This static Stand Assembly comes pre-drilled with front and back mounting plates for the installation of customer-selected auxiliary controls. Designed with square holes for carriage bolts that allow for one-wrench assembly. Assembly instructions enclosed.

9.8 Dual Hose Swirl Kit (240V), PN 111895

A swirl kit is needed for the addition of one or two handheld applicator(s) to the system.

9.9 Pneumatic Pressure Relief Valve Retrofit Kit, PN 116621

ITW Dynatec’s PN 115540 Pneumatic pressure relief valve, up to max. 1000 Psi (68 bar) (contained in the above kit) automatically relieves adhesive pressure whenever the unit is turned off or when pneumatic air is dis-connected. The retrofit kits are detailed in Ch.10.

9.10 Mechanical Pressure Relief Valve Repair Kit, PN 109982

The repair kit contains the parts for repairing the mechanical pressure relief valve, 100-1000 Psi (6.8 - 68 bar) PN 101840.

Chapter 10
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 of the Melter. 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.

10.1 Electrical Panel Assembly

Item	PN	Description	Quantity
1	102241	Front Cover End (part of 111669 Front Panel Assy.)	1
2	102240	Back Cover End	1
3	102239	Base DYNAMINI	1
4	102246	Panel Divider	1
5	105032	Diode (120V models only)	1
6	111668	Printed Circuit Board/ Heat Sink Assembly	1
7	111660	Receptacle And Wiring Harness (240V)	2
8	108297	Screw M8-10 x 20mm	2
9	105562	Ground Lug	2
10	108745	Screw for Ground Spade	2
11	105113	Screw M4 X 8mm	18
12	111677	Ground Spade Assy	1
13	106157	Lock Washer, Int. Tooth	10
14	111363	Control Panel (of 111669 Front Panel Assy.)	4
15	107391	Hex Nut	7
16	108566	Fuse, 6.3AT 5x20mm (on PCB)	10
17	102762	Fuse, 1A-fast 5x20mm (on PCB)	1
18	102763	Fuse, 5A-slow 5x20mm (on PCB)	2
19	105164	Washer	2
20	105199	Straight Conduit Fitting	1
21	102245	Heat shield	1
22	112676	Terminal block	1
23	103537	Screw M3x16mm	2
24	110747	Switch, Rocker, DPDT, sealed	Ref.

* see separate drawings and BOM.

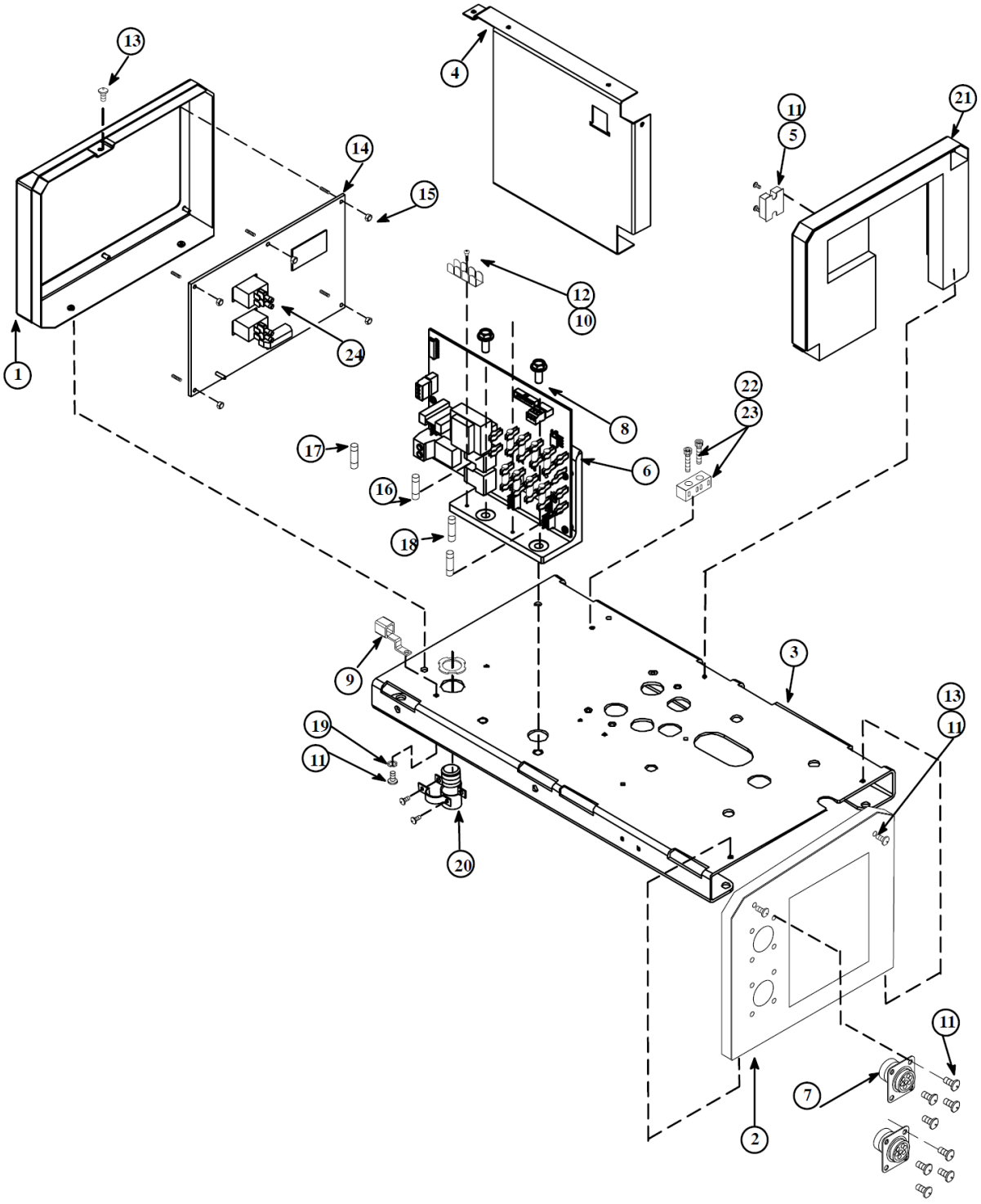


Illustration: Electrical Panel Assembly

10.2 Cabinet Assembly

Item	PN	Description	Quantity
1	102241	Front Cover End	1
2	102240	Rear Cover End	1
3	102242	Hopper Cover (Model 05, 5 Kg/ 11 lb)	1
	103242	Hopper Cover (Model 10, 10 Kg/ 20 lb, not shown)	1
4	102245	Heat shield	1
5	105113	Screw, M4 x 8mm (Keypad panel)	2
6	102239	Base, DYNAMINI	1
7	102247	Pump and Electrical Cover	1
8	102911	Access Cover	1
9	105278	Screw, M4 x 6mm	4
10	102157	Lock Washer, M4, Int. Tooth	2
11	105164	Flat washer, #8	10
12	102843	Hopper Collar Gasket (included in Lid Assembly)	1
13	102614	Cover, Hose, Single Filter	1
14	105113	Screw, M4 x 8mm	6
15	102246	Panel mount	1
16	**103289**	**Lid Assembly (available as an assembly only)**	**1**
17	106198	Lock washer M4,2, M7,6	2

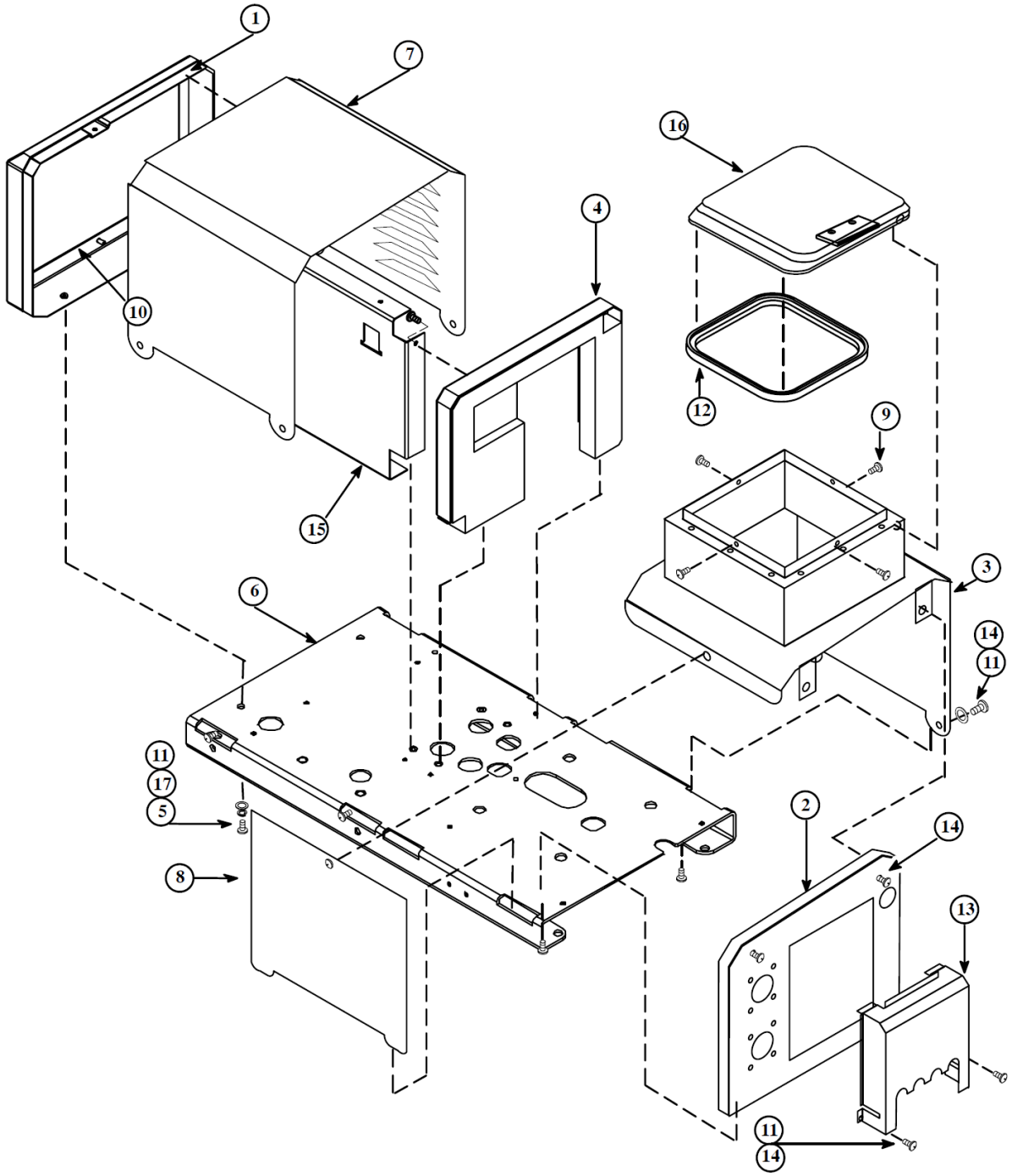


Illustration: Cabinet assembly

10.3 Drive Section

Item	PN	Description	Quantity
1	102244	Gear Pump Mounting Block	1
2	102615	Spacer	2
4	102591	Hopper (Tank), Model 05, 5kg/ 11 lb	1
5	-	Filter and Pressure Relief Section (reference melt section for details)	1
6	-	Gear Pump (reference your order for specific part number)	1
7	102584	Coupling	1
8	102239	Base	1
9	109537	Screw M6x16mm	4
	114969	**Motor Bracket Assembly**	**1**
10	114809	Motor bracket	1
11	-	Screw M6x25mm	4
12	-	Nut M6	4
14	103020	Motor 1/4 HP 115/230, 90rpm	1
15	L00475	Spacer	4
16	105126	Lock nut M8	4
17	105061	Stud M8 x 50mm	2
18	104570	Stud M8 x 150mm	2
20	N00188	O-ring, #-022	1
21	105135	Ceramic Spacer	4
23	100475	Washer, Insulating	1
26	105166	Heat Transfer Block	1
27	105167	Set screw M3	2
28	104073	Stud M10x105mm	4
29	104158	Flange nut M10	4
31	N00191	O-ring 027	1
32	N00688	Flat washer	4
33	-	Nut M6	4
34	-	Washer 9/32x5/8x1/6	4
35	803948	Stud M8 x 40	2
36	106063	Capacitor Kit ((see Ch. 9)	1

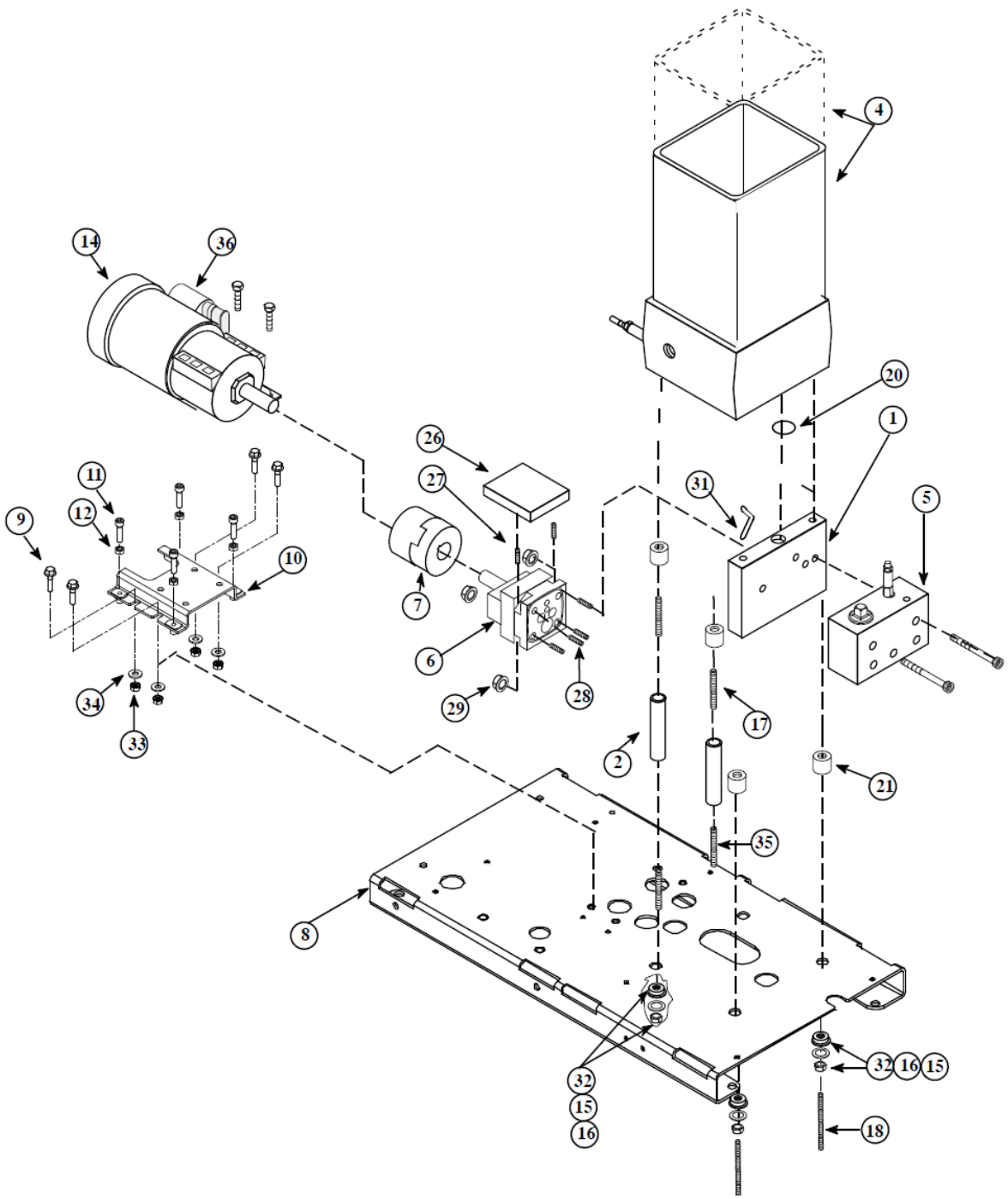


Illustration: Drive Section

10.4 Filter and Melt Section

Item	PN	Description	Quantity
1	102591	Hopper (Tank), Model 05, 5kg/ 11 lb	1
2	104166	Mechanical Overtemp Thermostat Assembly	1
3	105279	Temperature sensor RTD PT100	1
4	not replaceable	Cast-In Heater	4
5	103041	Hopper filter	1
6	-	Nut, M4	8
7	-	Washer, M4	8
8	-	Porcelain Spacer	4
9	102411	Cap, high-temp, 0,60 ID x 1,5L	2
	111670 or 116713 **	**Filter Manifold Assembly**	**1**
10	104852	Drain Plug	1
11	101833	Tamper Proof Retaining Screw, 10-32 x 1/2	1
12	101840	Mechanical pressure relief valve, 100-1000 Psi (6.8 - 68 bar)	1
13	105110	Screw M8x55mm	2
14	N00181	O-ring 014	3
15	101624	BSP Hose Fitting #6 JIC	2
16	102236	Manifold Output Filter	1
17	101625	Plug 1/4-18 BSP	1
18	101247 *	Filter Basket, 100 mesh/ 149 micron	1
	101246 *	Filter Basket, 40 mesh/ 420 micron (option)	1
19	069X058	O-ring 028	1
20	006C024	Filter Nut	1
21	N00754	Flush plug	3
22	N00196	O-ring 111	1
23	L07348	Weir tube, Hopper	1
	101175	**Pressure Gauge Assembly (Option)**	**1**
24	103330	Fitting, Adapter 1/4BSPPx1/4NPT	1
25	101624	Fitting, Adapter #6 JIC x 1/4 BSPP (includes O-ring N00196)	1
26	N07830	Fitting 90° #6 JIC x #6 JIC	1
27	102987	Insulator Cuff	1
28	104325	Fitting adapter #6x1/4NPT (option)	1
29	101174	Pressure Gauge (option)	1

* Filter basket is not included.

** PN 111670 Filter Manifold is with mechanical pressure relief valve PN 101840.
PN 116713 Filter Manifold is with pneumatic pressure relief valve PN 115540.

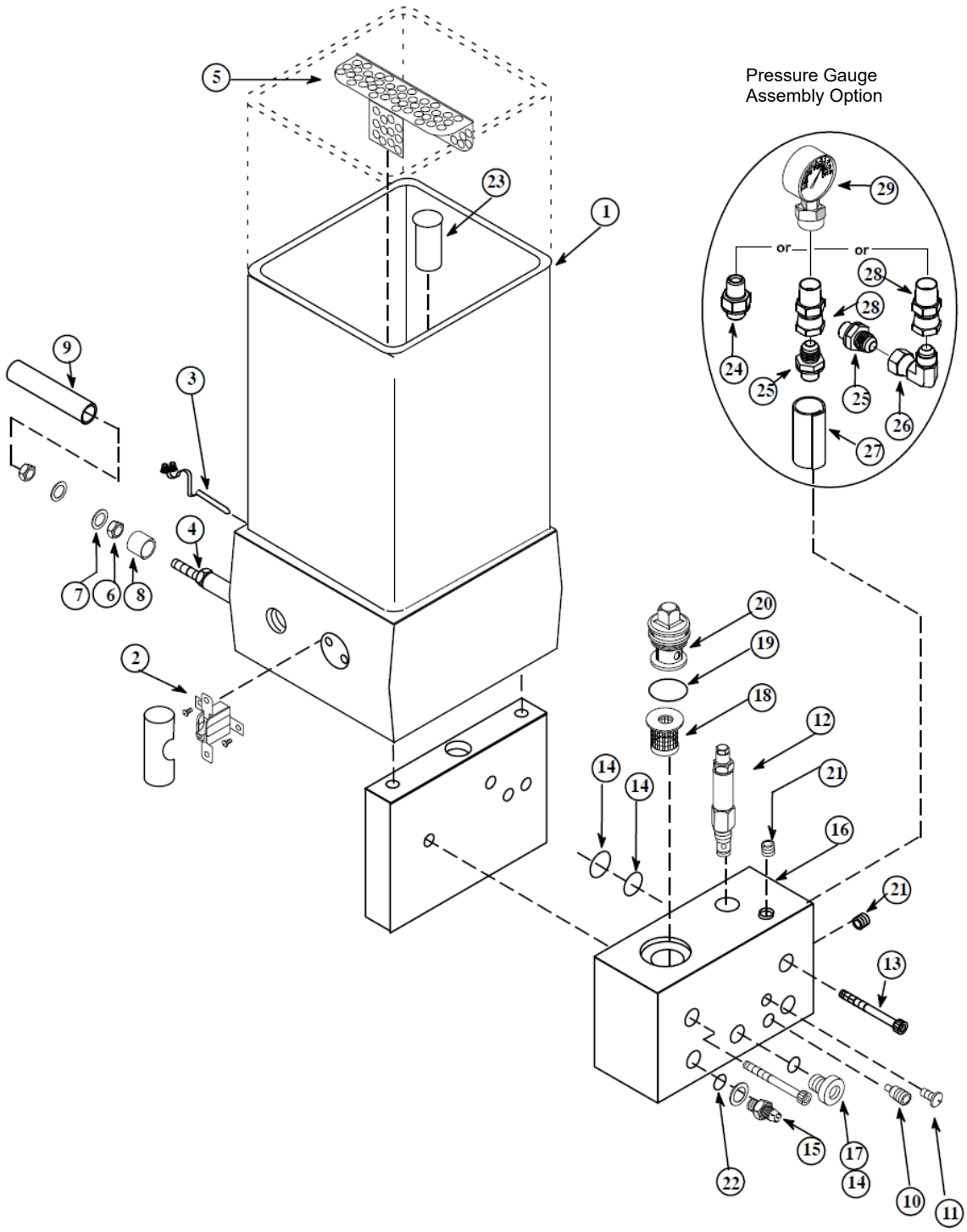


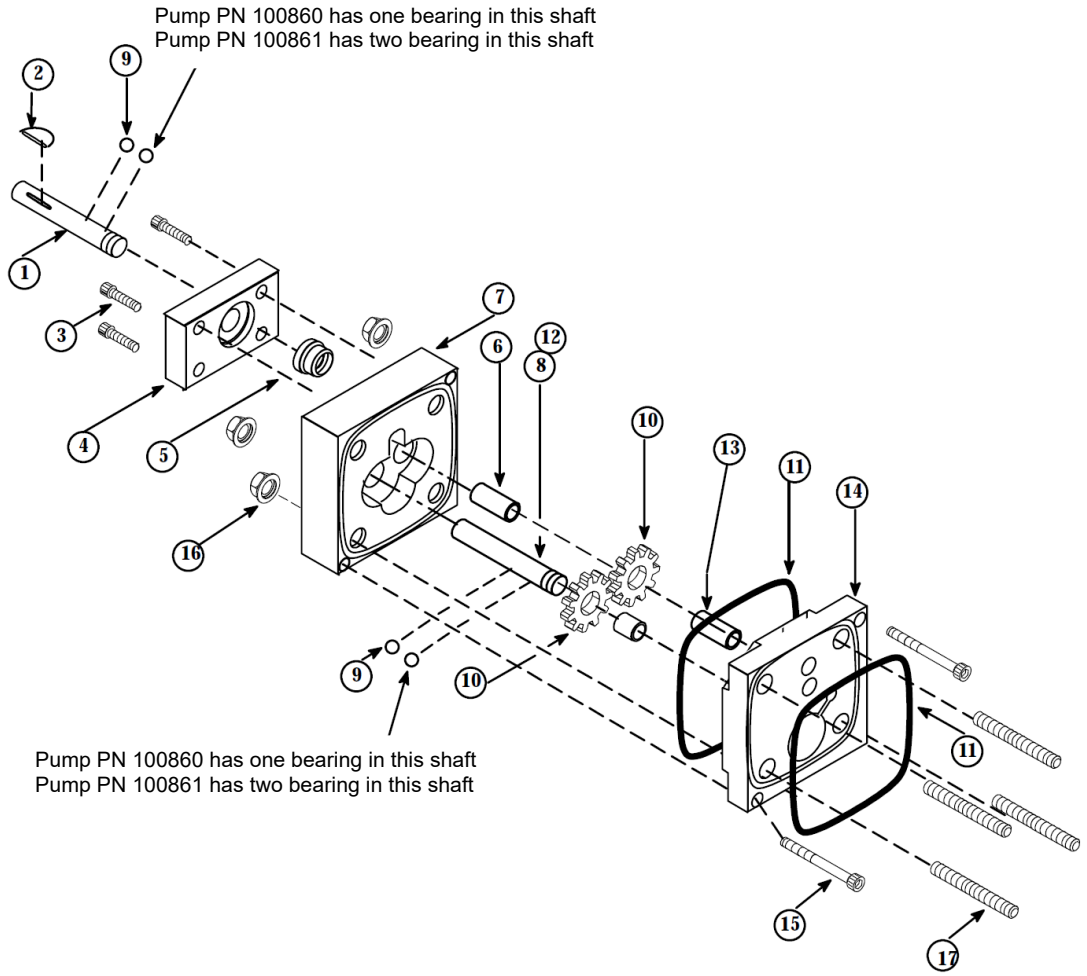
Illustration: Filter and Melt Section

10.5 Gear Pumps

10.5.1 Single Gear Pump Assembly 1.54 ccm/rev, PN 100860 and 3.2 ccm/rev, PN 100861

Item	PN 100860	PN 100861	Description	Quantity
1	012D079	012D077	Drive Shaft	1
2	078I001		Key Woodruff	1
3	101626		Screw M5x12mm	4
4	069X160		Seal Retainer & Bearing Housing	1
5	069X061		Shaft seal	1
6	018X041		Bearing Sleeve	2
7	100866	100867	Front Plate Assembly	1
8	012D080	012D078	Driven Gear Shaft	1
9	018X031		Ball Ø1/8" (see illustration for quantity)	2-4
10	012C020	012C019	Drive Gear	2
11	069X064		O-ring 041	2
12	078F017		Shaft Retaining Ring 1/2“	4
13	018X041		Bearing Sleeve, Rear Plate	2
14	100865		Rear Plate Assembly	1
15	100908		Screw M4x25mm	2
16	104158		Flange nut M10	4
17	104073		Threaded stud M10x105mm	4
-	001U002	001U002	Silicone lube (not shown)	A/R*

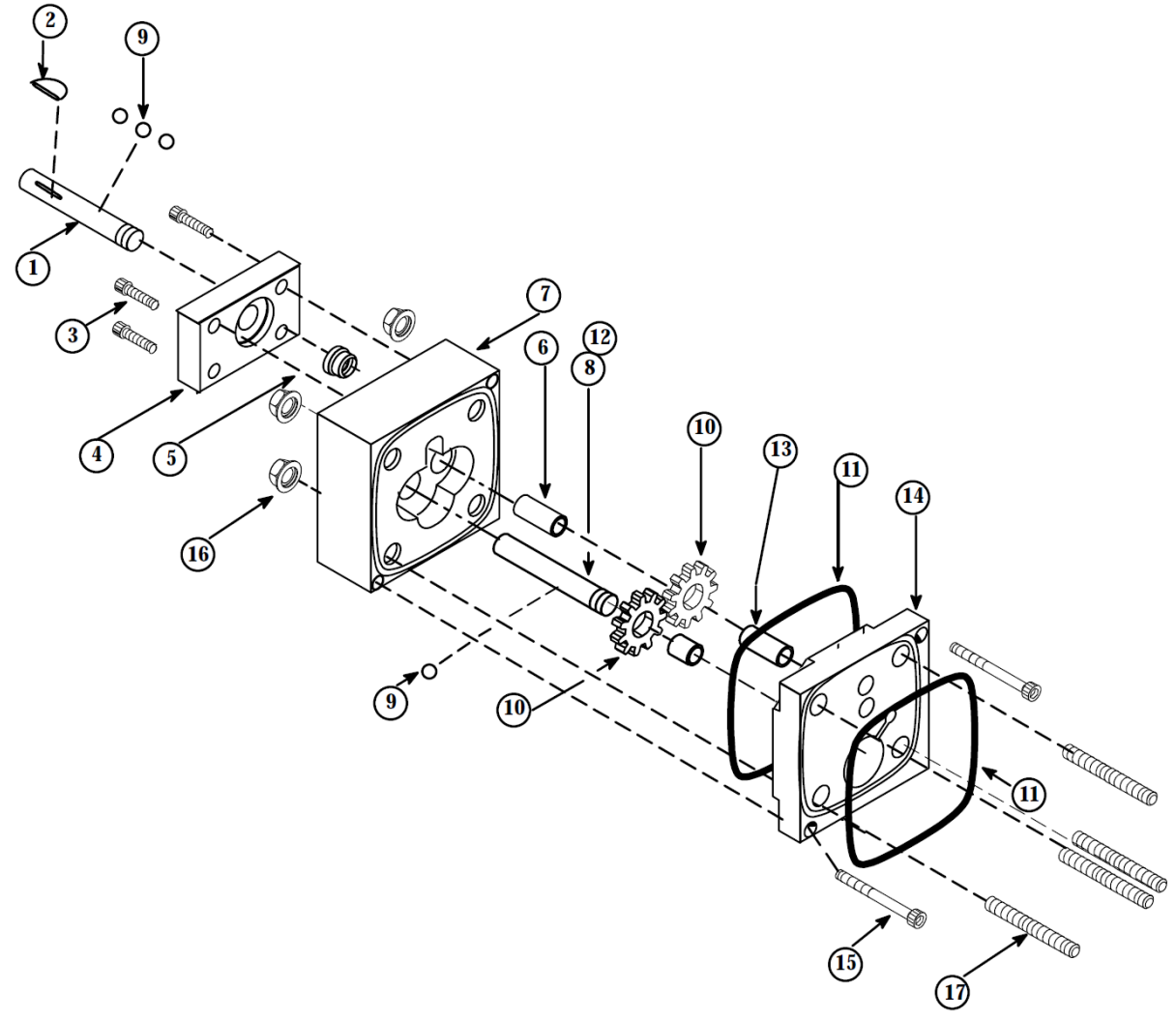
A/R* = As required.



10.5.2 Single Gear Pump Assembly 4.5 ccm/rev, PN 100862

Item	PN	Description	Quantity
1	012D072	Drive Shaft	1
2	078I001	Key, Woodruff	1
3	101626	Screw M5x12mm	4
4	069X160	Seal Retainer & Bearing Housing	1
5	069X061	Shaft seal	1
6	018X041	Bearing Sleeve	2
7	100868	Front Plate Assembly	1
8	012D073	Driven Gear Shaft	1
9	018X031	Ball Ø1/8“	4
10	012C018	Drive gear, 4.5 cm³/U	2
11	069X064	O-ring 041	2
12	078F017	Shaft Retaining Ring 1/2“	4
13	018X041	Bearing Sleeve, Rear Plate	2
14	100865	Rear Plate Assembly	1
15	100908	Screw M4x25mm	2
16	104158	Flange nut M10	4
17	104073	Threaded stud M10x105mm	4
-	001U002	Silicone lube (not shown)	A/R*

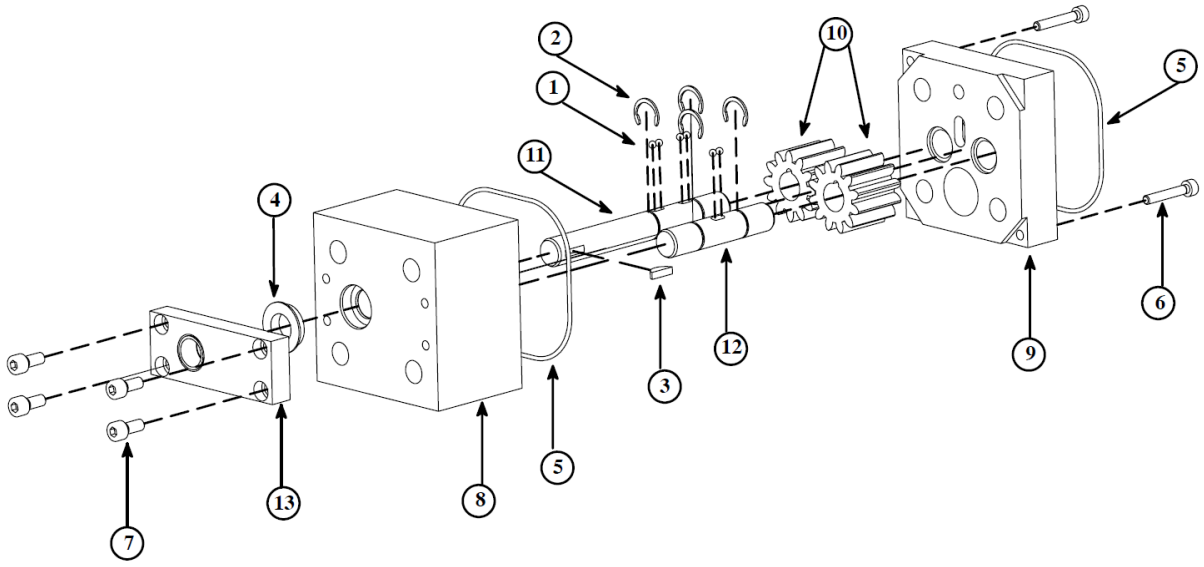
A/R* = As required.



10.5.3 Single Gear Pump Assembly 10 ccm/rev, PN 109690

Item	PN	Description	Quantity
1	018X031	Ball Ø1/8"	6
2	078F017	Shaft Retaining Ring 1/2“	4
3	078I001	Key Woodruff	1
4	069X061	Shaft seal	1
5	069X064	O-ring 041	2
6	108588	Screw M4x25mm	2
7	101626	Screw M5x12mm	4
8	109685	Pump body 10cm³/U	1
9	109686	Rear Bearing Plate 10cm³/U	1
10	109689	Gear 10cm³/U	2
11	109687	Drive Shaft 10cm³/U / 20cm³/U	1
12	109688	Drive Shaft 10cm³/U / 20cm³/U	1
13	069X160	Shaft Seal Retainer	1
-	001U002	Silicone lube (not shown)	A/R*

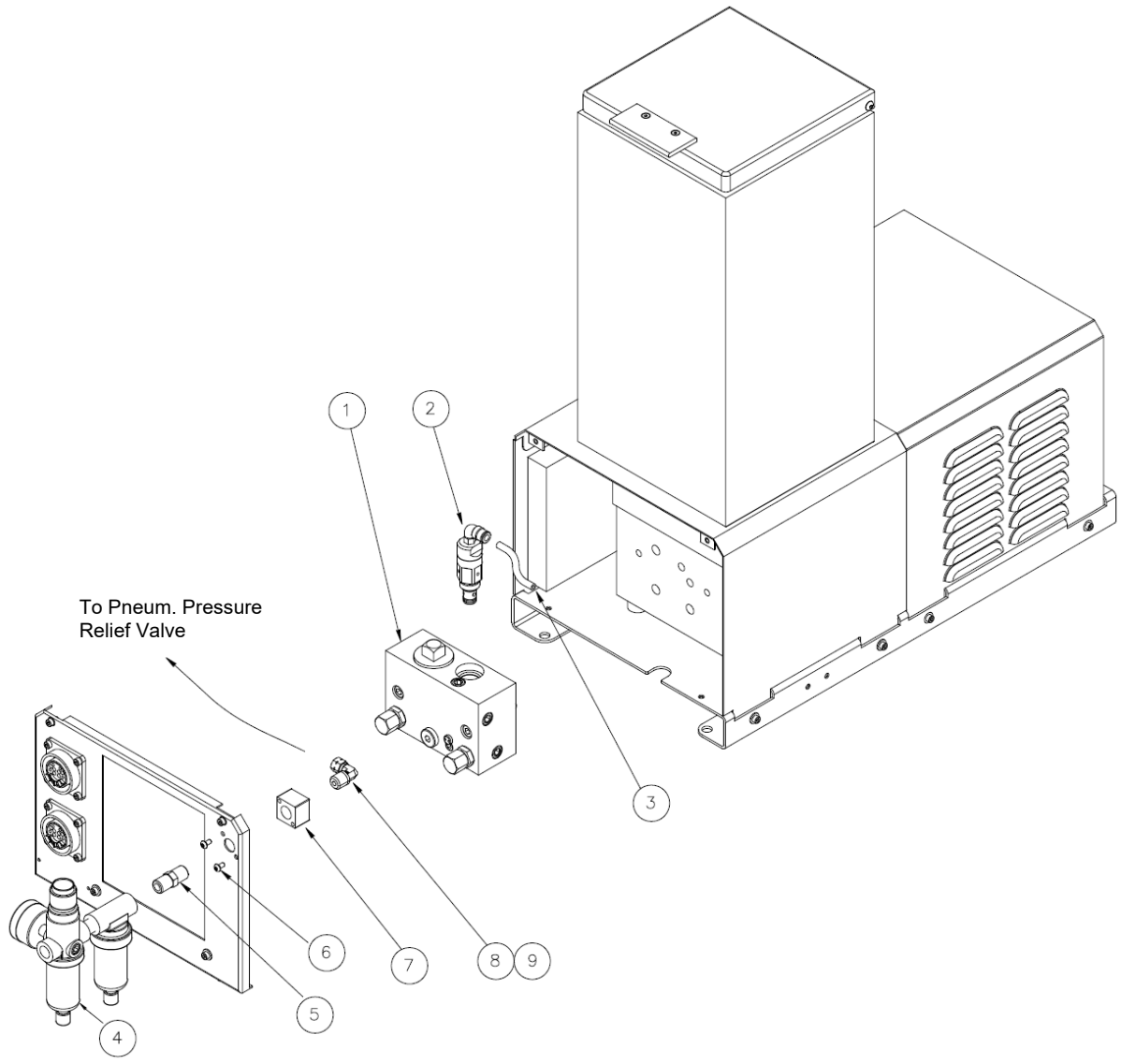
A/R* = As required.



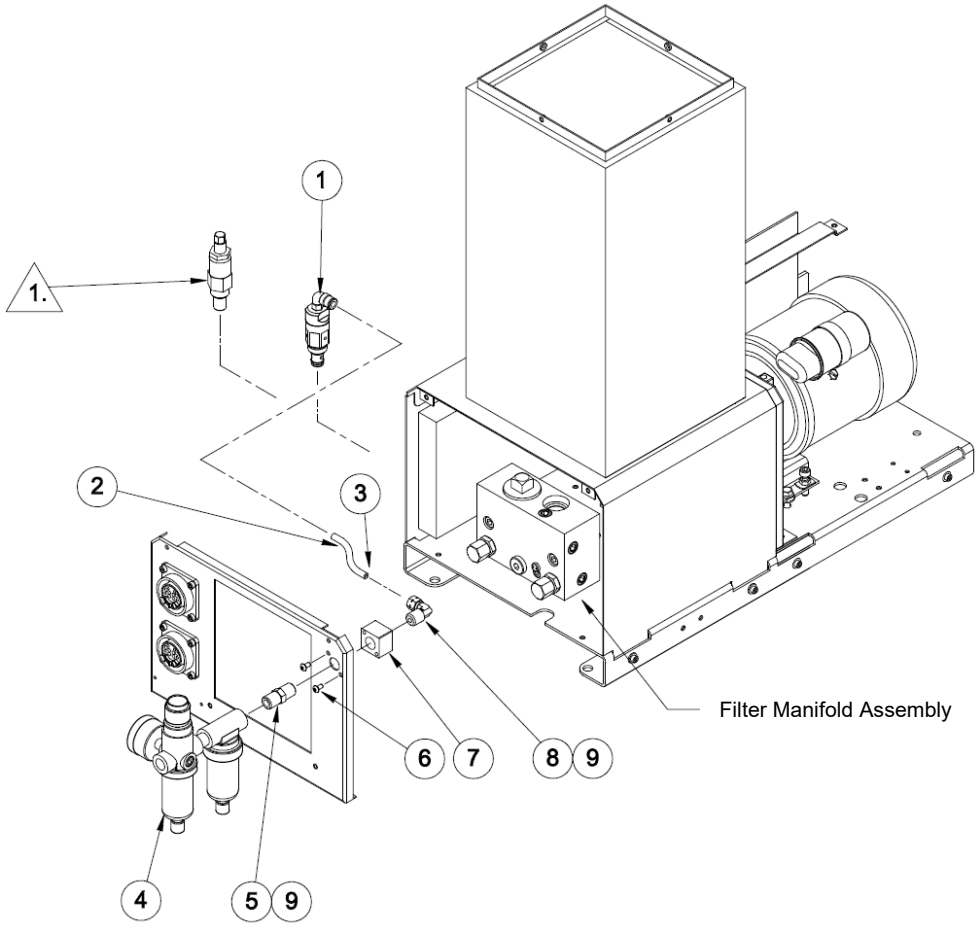
10.6 Pneumatic Accessories, Optional

Item	PN	Description	Quantity
1	116713 *	Filter Manifold Assy, Pneum. Pressure Relief Valve (It includes item 2. For all other components see point “Filter and Melt Assembly”).	1
2	115540	Pneumatic pressure relief valve, up to max. 1000 Psi (68 bar)	1
3	N07677	Teflon-Tubing 1/4” O.D.	210mm (0,7ft)
4	665033	Filter/ Regulator Assy	1
5	072X228	Fitting, Hex nipple, 1/4"-NPT-thread	1
6	-	Screw M4x8mm	2
7	101888	Block, pneumatic transfer	1
8	N00101	Elbow fitting 90°, 1/4"-tube x 1/4"-NPT-thread	1
9	072X383	Air line support (not shown)	1

* Filter basket 100-mesh 101247 is not included.



10.7 Retrofit Kit, PN 116621, for Pneum. Pressure Relief Valve and Installation



BOM Retrofit-Kit, PN 116621:

Item	PN	Description	Quantity
1	115540	Pneumatic pressure relief valve, up to max. 1000 Psi (68 bar)	1
2	N07677	Teflon-Tubing 1/4” O.D.	210mm (0,7ft)
3	072X383	Tube support	1
4	665033	Filter/ Regulator Assy	1
5	072X228	Fitting, Hex Nipple, 1/4NPT	
6	106424	Screw M4x8mm	2
7	101888	Block, pneumatic transfer	1
8	N00101	Elbow fitting 90°, 1/4"-tube x 1/4"-NPT-thread	1
9	N02937	Thread sealant	A/R*

* A/R = as required.

Installation Procedure:

1.	Remove the pneumatic pressure relief valve (item 1) from the Filter Manifold Assembly.
2.	Install the pneumatic pressure relief valve (item 1) in same location.
3.	Coat threads of fittings (items 5 & 8) with thread sealant (item 9) at assembly.
4.	Insert tube support (item 3) into one end of Teflon-Tubing (item 2) and assemble into 90° elbow fitting (item 8). Assemble other of tubing to pneumatic pressure relief valve (item 1).

10.8 Recommended Spare Part Lists

As a general rule, we recommend that you keep on hand the same quantity of following parts as listed on the BOMs**:**

- *Heaters*
- *RTDs, Temperature Sensors*
- *Pressure Sensors*
- *O-rings, Sealings*
- *Filters*
- *Kits*
- *Pumps*
- *Optional Parts; refer to Ch.9.*

10.8.1 Electrical Panel Assembly

Item	PN	Description	Quantity
5	105032	Diode (120V models only)	1
6	111668	Printed Circuit Board/ Heat Sink Assembly	1
14	111363	Control Panel (of 111669 Front Panel Assy.)	4
16	108566	Fuse, 6.3AT 5x20mm (on PCB)	10
17	102762	Fuse, 1A-fast 5x20mm (on PCB)	1
18	102763	Fuse, 5A-slow 5x20mm (on PCB)	2

10.8.2 Drive Section

Item	PN	Description	Quantity
6	-	Gear Pump (reference your order for specific part number)	1
14	103020	Motor 1/4 HP 115/230, 90rpm	1
20	N00188	O-ring, #-022	1
31	N00191	O-ring 027	1
36	106063	Capacitor Kit ((see Ch. 9)	1

10.8.3 Filter and Melt Section

Item	PN	Description	Quantity
2	104166	Mechanical Overtemp Thermostat Assembly	1
3	105279	Temperature sensor RTD PT100	1
5	103041	Hopper filter	1
12	101840	Mechanical pressure relief valve, 100-1000 Psi (6.8 - 68 bar)	1
14	N00181	O-ring 014	3
18	101247 *	Filter Basket, 100 mesh/ 149 micron	1
	101246 *	Filter Basket, 40 mesh/ 420 micron (option)	1
19	069X058	O-ring 028	1
20	006C024	Filter Nut	1
22	N00196	O-ring 111	1

* Filter basket is not included.

10.8.4 Gear Pumps

10.8.4.1 Single Gear Pump Assembly 1.54 ccm/rev, PN 100860 and 3.2 ccm/rev, PN 100861

Item	PN 100860	PN 100861	Description	Quantity
5	069X061		Shaft seal	1
11	069X064		O-ring 041	2
-	001U002	001U002	Silicone lube (not shown)	A/R*

A/R* = As required.

10.8.4.2 Single Gear Pump Assembly 4.5 ccm/rev, PN 100862

Item	PN	Description	Quantity
5	069X061	Shaft seal	1
11	069X064	O-ring 041	2
-	001U002	Silicone lube (not shown)	A/R*

A/R* = As required.

10.8.4.3 Single Gear Pump Assembly 10 ccm/rev, PN 109690

Item	PN	Description	Quantity
4	069X061	Shaft seal	1
5	069X064	O-ring 041	2
-	001U002	Silicone lube (not shown)	A/R*

A/R* = As required.

10.8.5 Retrofit Kit, PN 116621, for Pneum. Pressure Relief Valve and Installation

Item	PN	Description	Quantity
1	115540	Pneumatic pressure relief valve, up to max. 1000 Psi (68 bar)	1
9	N02937	Thread sealant	A/R*

* A/R = as required.

10.8.6 Filter Options

Item	PN	Description	Quantity
	101247	Filter Basket, 100 mesh/ 149 micron (standard)	1
	101246	Filter Basket, 40 mesh/ 420 micron (option)	1

10.8.7 Lubricants and Fluids

Item	PN	Description	Quantity
	001V061	Heat transfer compound, 2.0 ounce (59 ml) container	1
	001V078	High-temp lube, TFE, Krytox, 0.5kg container	1
	108700	High-temp lube, TFE Krytox, 0.25 ounce (7.4 ml) single use tube	
	107324	Antiseize Compound, 0.5kg container	1
	001U002	Silicone lube, 5.3 ounce (157 ml) resealable tube	1
	108689	Silicone lube, 0.25 ounce (7.4 ml) single use tube (tube not resealable)	1
	N02937	Thread Sealant, 16 ounce (473 ml) container	1
	L15653	Kit, Flushing Fluid, 1 gallon (3,78 l) container	1

10.8.8 Other Kits

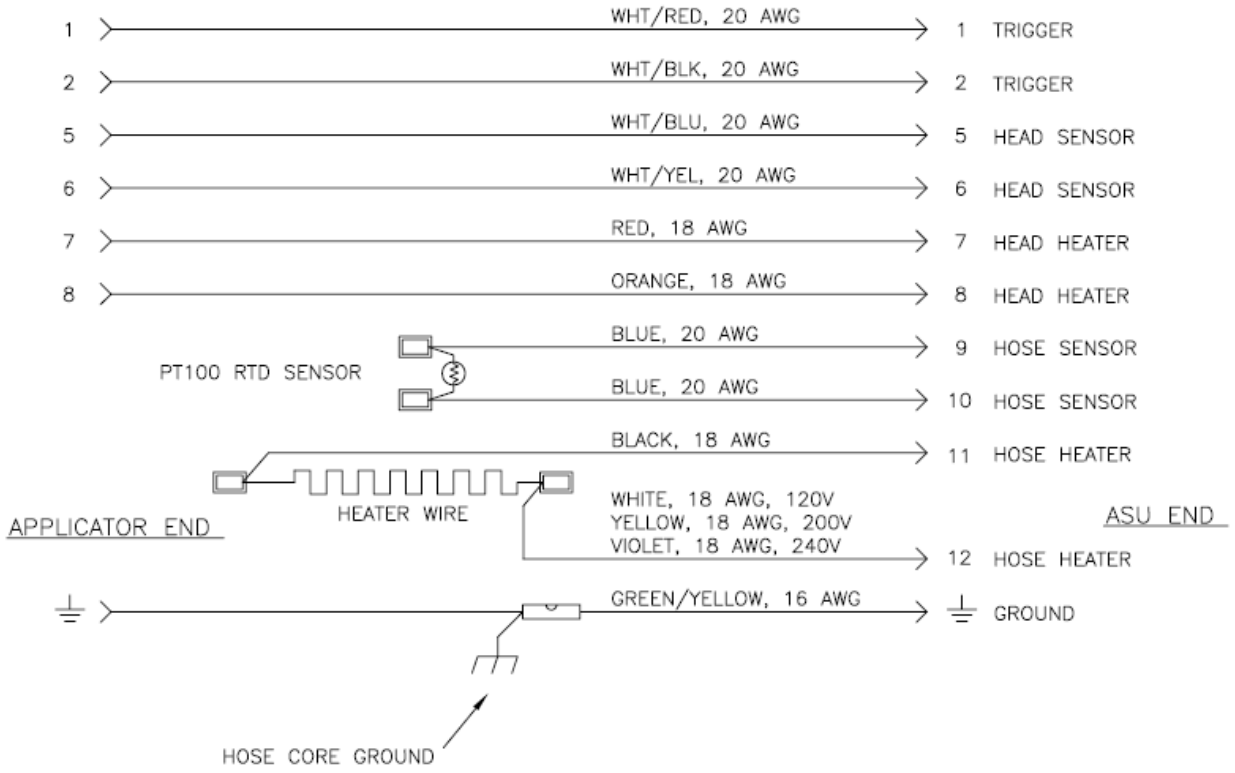
Item	PN	Description	Quantity
	103151 *	Gear Pump Repair Kit	1
	109982 *	Mechanical Pressure Relief Valve Repair Kit	1
	116621 *	Pneumatic Pressure Relief Valve Retrofit Kit	1

* See Ch. 9 for more details.

Chapter 11
Schematics

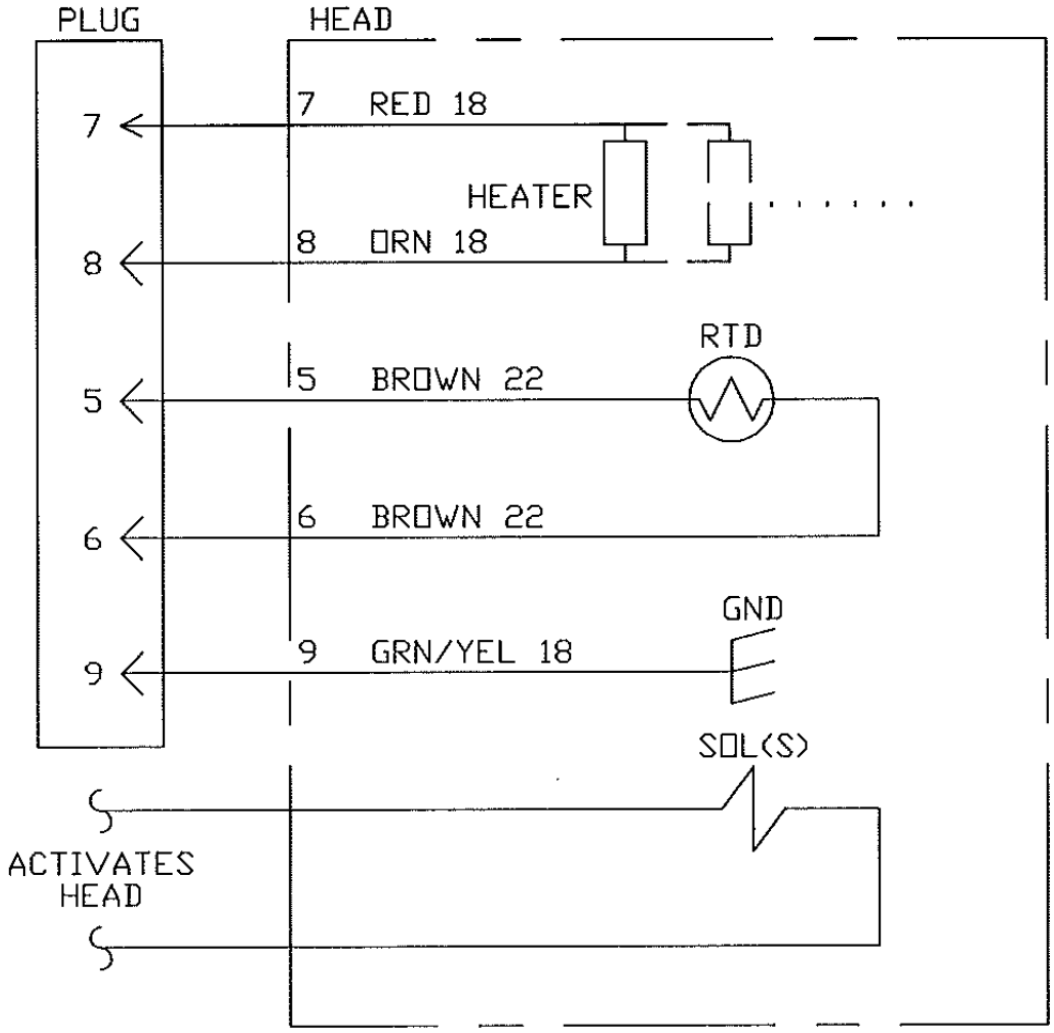
11.1 Hose Schematic, PN 101082, Rev.G

Melter to Applicator



NOTES:
1. All wiring is routed through the hose.
2. Wire sizes shown are for no. 6 and no. 8 hoses up to 24 ft. in length.
   For larger diameter and longer hoses, heater lead wires are 16 AWG.
   Other wire sizes and colors may be changed in special hoses, per customer request.

11.2 Head Schematic, PN 103117, Rev.B



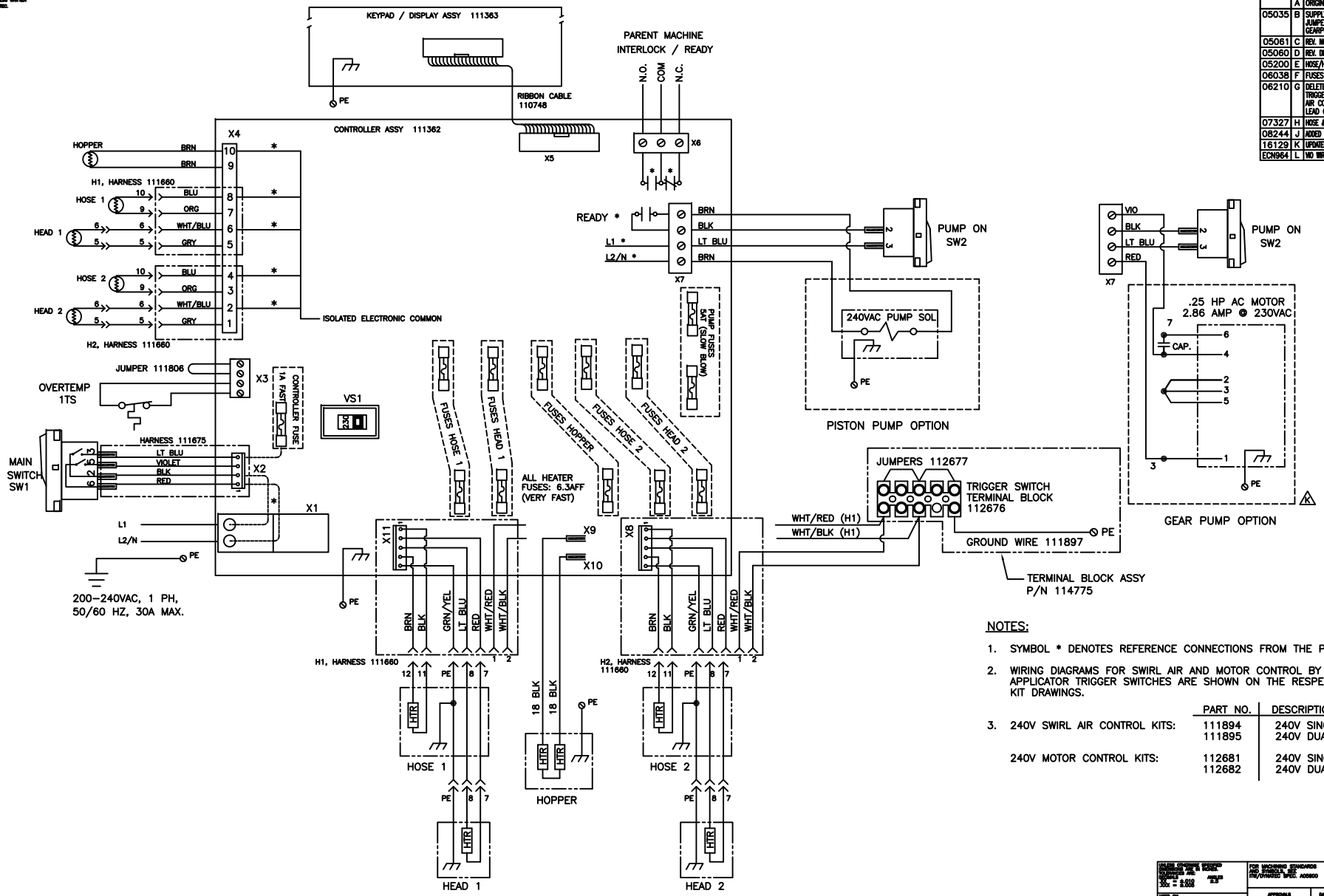
NOTES:
1. All wire MIL-W-22759/10 or 12, minimum 600 Volts, 260 °C.
2. Solenoid(s) voltage and timing method depends on application.
3. RTD will be platinum 100 Ohm.

11.3 Dynamini V2 Schematics, 240VAC, PN 111688 Rev.L

DWG. NO. 111688 SH 1 REV. L

REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
	A	ORIGINAL RELEASE	11.15.04	DH	
05035	B	SUPPLY VOLTAGE WAS 208-240, 24A; JUMPER WAS READY TSTAT; MODIFIED GEARPUMP SCHEMATIC; ADDED NOTE.	01.26.05	PJD	
05061	C	REV. NOTATION, TRIGGER/FT & SWIRL OPTIONS.	2.02.05	PJD	
05060	D	REV. DIAGRAM, TRIGGER/FT & SWIRL OPTIONS.	2.11.05	PJD	
05200	E	HOSE/HEAD HARNESS CHANGED	5.24.05	DH	
06038	F	FUSES UPDATED	1.09.06	DH	
06210	G	DELETED WIRING DIAGRAMS FOR FOOT & TRIGGER SWITCH OPERATIONS & SWIRL AIR CONTROL; ADDED TRIGGER SWITCH LEAD GROUNDING; ADDED NOTES 2 & 3.	4.20.06	PJD	
07327	H	HOSE & HEAD SENSOR CONTACT ID'S REVISED.	10.12.07	PJD	
08244	J	ADDED TERMINAL BLOCK ASSY PART NUMBER	7.1.08	BB	
16129	K	UPDATED SW2 WIRING FOR NEW GEAR MOTOR	5.8.17	KG	
ECN964	L	WD WIRE WAS ON MOTOR TERMINAL 6.	05.26.20	DJT	



NOTES:

1. SYMBOL * DENOTES REFERENCE CONNECTIONS FROM THE PCB.
2. WIRING DIAGRAMS FOR SWIRL AIR AND MOTOR CONTROL BY HAND APPLICATOR TRIGGER SWITCHES ARE SHOWN ON THE RESPECTIVRE KIT DRAWINGS.
3. 240V SWIRL AIR CONTROL KITS:

PART NO.	DESCRIPTION
111894	240V SINGLE
111895	240V DUAL
112681	240V SINGLE
112682	240V DUAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: .XX = ±.010 .XXX = ±.005 ANGLES ±.5°

USED ON

NEXT ASSY.

DO NOT SCALE DRAWING

FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. AD5500

APPROVALS	DATE
DRAWN DH	11.15.04
CHECKED	

COMPUTER DESCRIPTION/CHARACTERS: WIRE DIAG,DMINI,V2,240V

itw Dynatec HENDERSONVILLE, TN

WIRING DIAGRAM, DYNAMINI ASU, VERSION 2, 240VAC

U/M EA | STATUS R | SOURCE

SIZE D | DWG. NO. 111688 | REV. L | GROUP

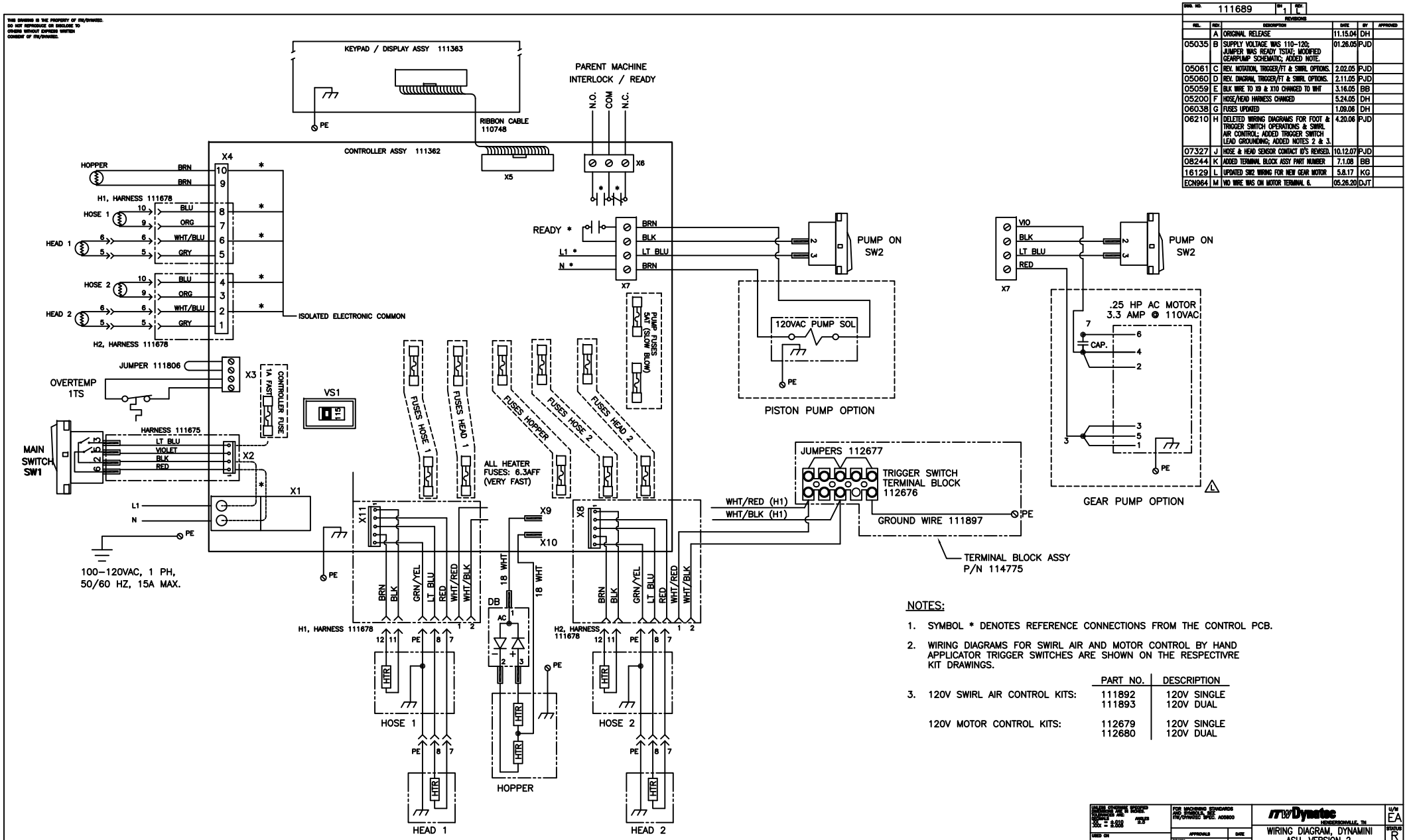
SCALE N.T.S.! CAD DRAWING | SHEET 1 OF 1

11.4 Dynamini V2 Schematics, 120VAC, PN 111689 Rev.M

DWG. NO.	111689	SH 1	REV L

REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
	A	ORIGINAL RELEASE	11.15.04	DH	
05035	B	SUPPLY VOLTAGE WAS 110-120; JUMPER WAS READY TSTAT; MODIFIED GEARPUMP SCHEMATIC; ADDED NOTE.	01.26.05	PJD	
05061	C	REV. NOTATION, TRIGGER/FT & SWIRL OPTIONS.	2.02.05	PJD	
05060	D	REV. DIAGRAM, TRIGGER/FT & SWIRL OPTIONS.	2.11.05	PJD	
05059	E	BLK WIRE TO X9 & X10 CHANGED TO WHT	3.16.05	BB	
05200	F	HOSE/HEAD HARNESS CHANGED	5.24.05	DH	
06038	G	FUSES UPDATED	1.09.06	DH	
06210	H	DELETED WIRING DIAGRAMS FOR FOOT & TRIGGER SWITCH OPERATIONS & SWIRL AIR CONTROL; ADDED TRIGGER SWITCH LEAD GROUNDING; ADDED NOTES 2 & 3.	4.20.06	PJD	
07327	J	HOSE & HEAD SENSOR CONTACT ID'S REVISED.	10.12.07	PJD	
08244	K	ADDED TERMINAL BLOCK ASSY PART NUMBER	7.1.08	BB	
16129	L	UPDATED SW2 WIRING FOR NEW GEAR MOTOR	5.8.17	KG	
ECN964	M	VIO WIRE WAS ON MOTOR TERMINAL 6.	05.26.20	DJT	



NOTES:

1. SYMBOL * DENOTES REFERENCE CONNECTIONS FROM THE CONTROL PCB.
2. WIRING DIAGRAMS FOR SWIRL AIR AND MOTOR CONTROL BY HAND APPLICATOR TRIGGER SWITCHES ARE SHOWN ON THE RESPECTIVRE KIT DRAWINGS.
3.

	PART NO.	DESCRIPTION
120V SWIRL AIR CONTROL KITS:	111892	120V SINGLE
	111893	120V DUAL
120V MOTOR CONTROL KITS:	112679	120V SINGLE
	112680	120V DUAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: .XX = ±.010 .XXX = ±.005 ANGLES ±.5°
USED ON
NEXT ASSY.
DO NOT SCALE DRAWING

FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. AD5500

APPROVALS	DATE
DRAWN DH	11.15.04
CHECKED	

COMPUTER DESCRIPTOR(20 CHARACTERS) WIRE DIAG,DMINI,V2,120V

ITW Dynatec HENDERSONVILLE, TN

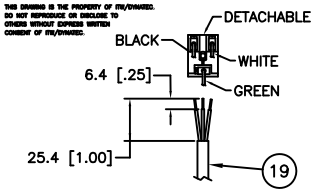
WIRING DIAGRAM, DYNAMINI ASU, VERSION 2, 120VAC

SIZE	DWG. NO.	REV.
D	111689	M

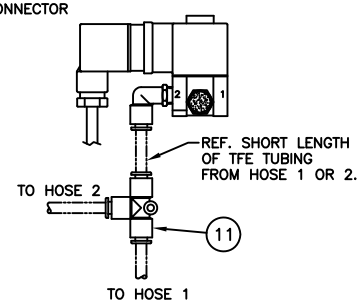
SCALE N.T.S.| CAD DRAWING SHEET 1 OF 1

U/M EA | STATUS R | SOURCE | GROUP

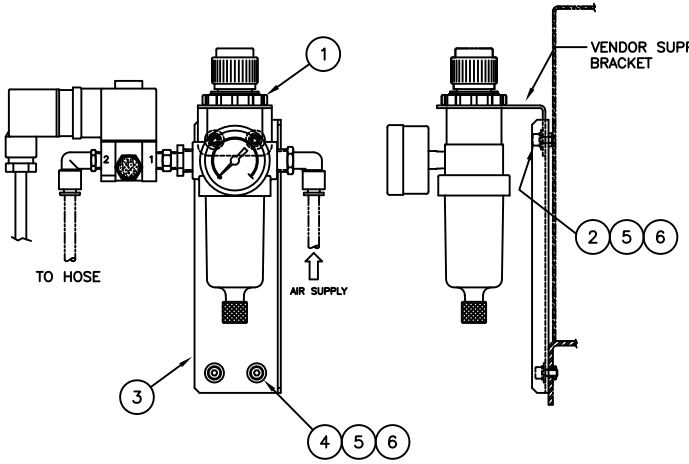
11.5 Swirl-Kit w. Schematic, PN 111892 Rev. J



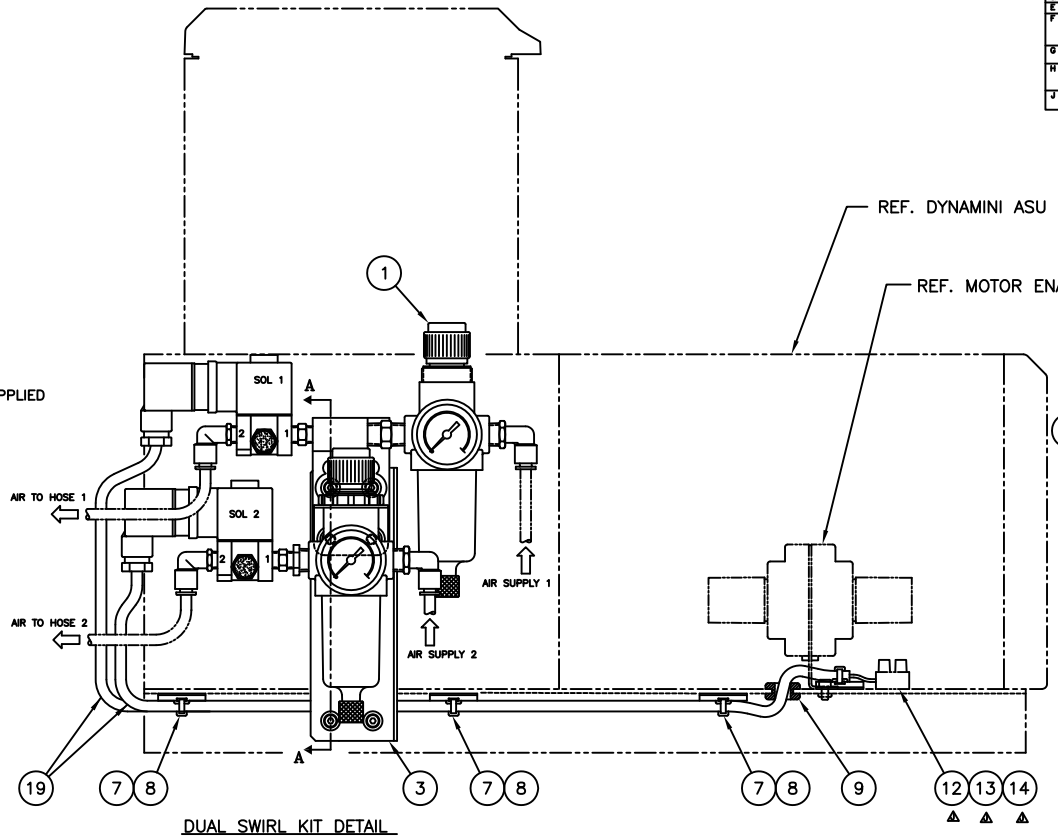
SOL. VALVE WIRING DETAIL



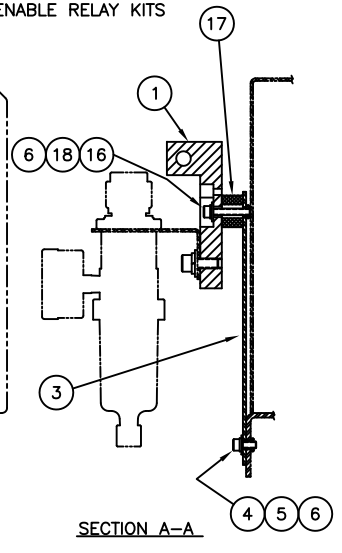
SINGLE SWIRL KIT/2 HOSE DETAIL



SINGLE SWIRL KIT DETAIL



DUAL SWIRL KIT DETAIL



SECTION A–A

NOTES:

1. AIR LINES SHOWN ARE SUPPIED BY OTHERS (SUPPLY AIR, .25 INCH OD) OR ARE PROVIDED AS PART OF SWIRL HOSES (TFE TUBING, .25 OD x .062 WALL).
2. FOR TFE TUBING CONNECTIONS FROM HOSE TO BARB FITTINGS ON MANUAL OR AUTOMATIC APPLICATORS, HEAT TUBING END WITH A FORCED AIR HEAT GUN. SLIDE TUBING ONTO THE BARB FITTING AND LET COOL.
3. ROUTE CABLES UNDER THE ASU BASE PLATE TO ACCESS HOLES NEAR THE. ASU CONTROL PANEL. PROTECT CABLES WITH GROMMETS (ITEM 9) AND SUPPORT CABLES TO SUIT WITH CABLE TIES AND ANCHORS (ITEMS 7 & 8).
4. FOR FIELD INSTALLATION, IF REQUIRED, MOUNT TERMINAL BLOCK (ITEM 12) TO THE BASE INSIDE THE CONTROL ENCLOSURE WITH SCREWS AND NUTS (ITEMS 13 & 14) PROVIDED. SEE TERMINAL BLOCK LOCATION DETAIL ON SHT. 2.
5. TRIM CABLES AND WIRES (ITEM 10) TO SUIT, STRIP WIRE ENDS .25 INCH, AND WIRE TO THE TERMINAL BLOCK AND ASU PER THE APPROPRIATE WIRING DIAGRAM. ADDITIONAL WIRING DIAGRAMS ARE SHOWN ON SHEET 2.
6. ITEMS 2, 4–9, 11–14, & 16–18 TO BE BAGGED TOGETHER FOR HANDLING AND SHIPPING.
7. ONE COPY OF THIS DRAWING, BOTH SHEETS, TO BE INCLUDED WITH EACH SWIRL KIT.

BILL–OF–MATERIAL TABULATION

D'MINI SWIRL KIT PART NO.	NOMINAL DESCRIPTION	VOLTAGE	AIR SUPPLY ASSY ITEM 1 PART NO.	QUANTITY						
				ITEM 2	ITEM 5	ITEM 9	ITEM 16	ITEM 17	ITEM 18	ITEM 19
111892	120V SINGLE	110–120 VAC 50/60 HZ	113109	2	4	1	–	–	–	3.0
111893	120V DUAL	110–120 VAC 50/60 HZ	113111	–	2	2	2	2	2	6.4
111894	240V SINGLE	220–240 VAC 50/60 HZ	113110	2	4	1	–	–	–	3.0
111895	240V DUAL	220–240 VAC 50/60 HZ	113112	–	2	2	2	2	2	6.4

ITEM	PART NUMBER	QTY	U/M	DESCRIPTION
19	N08236	SEE TAB	FT	CABLE,18GA,3C,SV
18	106157	SEE TAB	EA	LOCKWASHER,INT TOOTH,M4
17	105134	SEE TAB	EA	SPCR,INS,.33 ID X.50 THK
16	100908	SEE TAB	EA	SCR,SHC,M4–.7 X 25, ZN P
15	111897	1	EA	GND WIRE AS,TRGRSW LEADS
⚠ 14	–	–	EA	–
⚠ 13	–	–	EA	–
⚠ 12	–	–	EA	–
11	N06504	1	EA	FTG,UNION TEE,1/4 TUBE
10	112678	1	EA	WIRE GRP,DMINI SWRL KITS
9	111898	SEE TAB	EA	GROM,.38ID,.50DX.09,RBR
8	104396	4	EA	CABLE TIE,.1X5.6,BLK NYL
7	N04264	4	EA	CABLE TIE ANCHR,PS BACK
6	105164	4	EA	WASHER,FLAT,#8,BLK
5	106236	SEE TAB	EA	WSHR,LOCK,EXT TOOTH,M4
4	102446	2	EA	SCR,SHC,M4–0.70X10,ZP
3	113107	1	EA	BRKT,2 RGLTR MNT,DMINI
2	105113	SEE TAB	EA	SCR,SHC,M4X8,BLK
1	SEE TAB	1	EA	AIR SUPPLY ASSY

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS. TOLERANCES: X = ±0.25 [±.010 INCH] XX = ±0.01 [±.004 INCH] ANGLES ± 2.5°

FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800

USED ON: DYNAMINI V2 ASU

NEXT ASSY.:

APPROVALS: DRAWN DLB 2.08.05; CHECKED

COMPUTER DESCRIPTION(28 CHARACTERS): SWIRL KIT,DMINI,SNGL,120V

DO NOT SCALE DRAWING

ITW Dynatec, HENDERSONVILLE, TN

U/M: EA

SWIRL KIT, DYNAMINI, SINGLE & DUAL, 120 & 240V

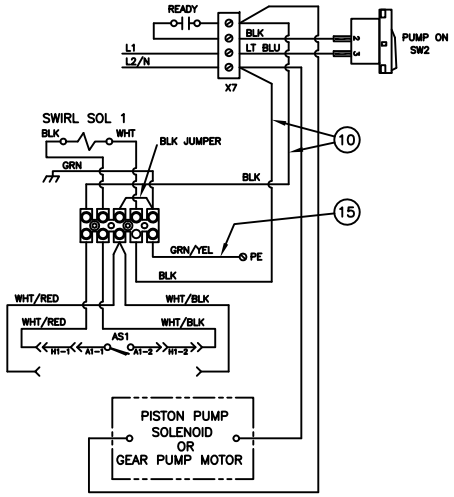
STATUS: M

SOURCE:

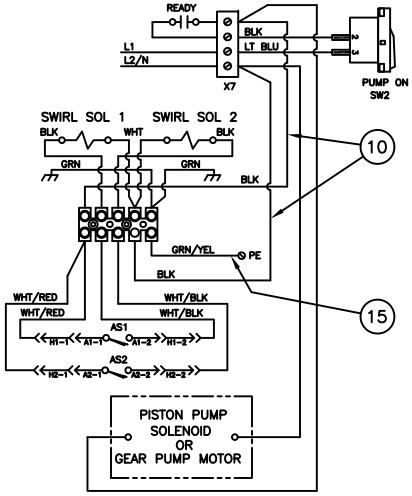
SIZE: D; DWG. NO.: 111892; REV.: J; GROUP:

SCALE 2/3 | CAD DRAWING | SHEET 1 of 2

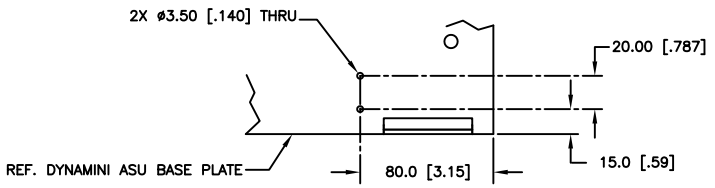
REVISIONS				
REV	DATE	DESCRIPTION	REF DOC	BY
E	9.18.06	REVISED & REDRAWN	040236	FJD
F	2.9.11	ITEM 2 WAS 103483, REVISED QTY FOR ITEMS 4–6, ADDED ITEMS 16 & 17, REVISED NOTE 6, REVISED MOUNTING FOR DUAL SWIRL AIR SUPPLY, ASSY ITEM 14 WAS 103400	11027, 11029	BB
G	6.18.12	ADDED ITEM 19, SOL VLV WIRING DETAIL, & ITEM 19 QTY TAB; REV. NOTE 6.	12199	FJD
H	06JUN19	CONVERTED PARTS LIST TO TABLE & CORRECTED DESCRIPTIONS; CONVERTED REV BLOCK TO TABLE; REMOVED UNUSED REV BLOCK & PARTS LIST FROM SHEET 2	ECN 388	ALM
J	10.29.19	REMOVE LINES 12,13,14; LINE 12 WAS 112876, LINE 13 WAS 103537, LINE 14 WAS 105111	ECN 674	ASA

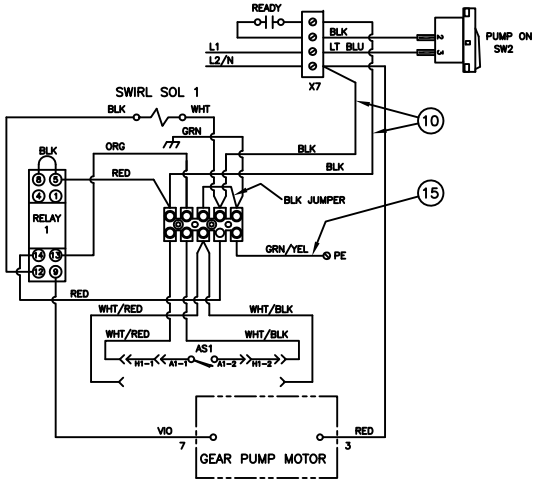


SWIRL AIR CONTROL BY ONE TRIGGER SWITCH

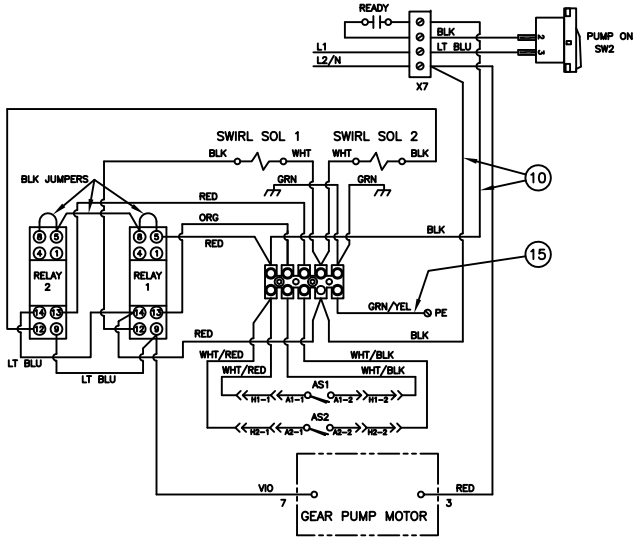


SWIRL AIR CONTROL
BY TWO TRIGGER SWITCHES





MOTOR ENABLE AND SWIRL AIR CONTROL BY ONE TRIGGER SWITCH



MOTOR ENABLE AND SWIRL AIR CONTROL BY TWO TRIGGER SWITCHES

NOTES:

1. REF. DYNAMINI MOTOR ENABLE RELAY KITS:

PART NO.	NOMINAL DESCRIPTION
112679	120V SINGLE
112680	120V DUAL
112681	240V SINGLE
112682	240V DUAL

2. WIRES IDENTIFIED BY COLOR ONLY ARE PROVIDED AS PART OF THE DYNAMINI ASU OR AS PART OF MOTOR ENABLE RELAY KITS.

3. ALL WIRES PROVIDED AS PART OF THE ASU, SWIRL KITS, OR MOTOR ENABLE RELAY KITS WILL NOT BE USED IN ALL SWIRL OR MOTOR CONTROL CONFIGURATIONS.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS. TOLERANCES ARE: X = ±0.25 [±.010 INCH] .XX = ±0.01 [±.004 INCH] ANGLES ± 2.5°

USED ON: DYNAMINI V2 ASU

NEXT ASSY.

DO NOT SCALE DRAWING

FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800

APPROVALS | DATE

DRAWN DLD 2.08.05

CHECKED

COMPUTER DESCRIPTION(20 CHARACTERS): SWIRL KIT,DMINI,SNGL,120V

ITW Dynatec HENDERSONVILLE, TN

SWIRL KIT, DYNAMINI, SINGLE & DUAL, 120 & 240V

U/M: EA | STATUS: M | SOURCE | GROUP

SIZE: D | DWG. NO.: 111892 | REV.: J

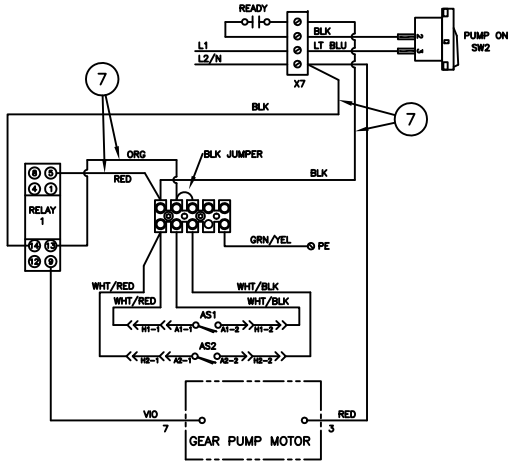
SCALE N.T.S | CAD DRAWING | SHEET 2 of 2

11.6 Motor Enable Kit w. Schematic, PN 112679 Rev. B

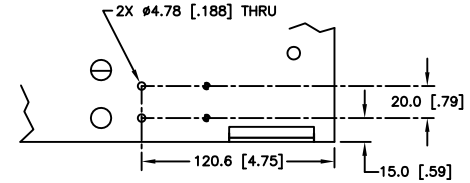
DWG. NO. 112679 SH 1 REV B

REVISIONS

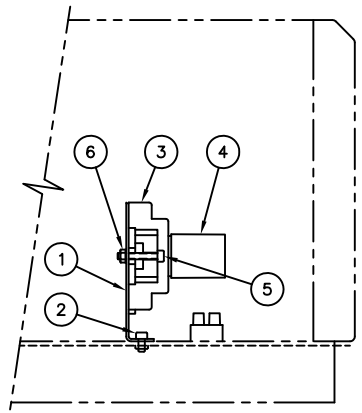
REL.	REV	DESCRIPTION	DATE	BY	APPROVED
06210	A	ORIGINAL RELEASE.	4.20.06	PJD	
07013	B	DELETED DIAGRAM FOR MOTOR ENABLE BY ONE TRIGGER SWITCH.	01.09.07	PJD	



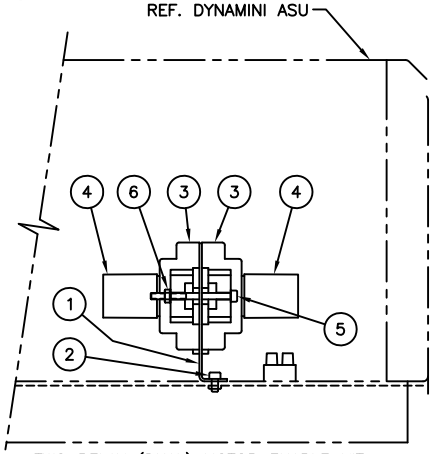
MOTOR ENABLE BY EITHER OF TWO TRIGGER SWITCHES



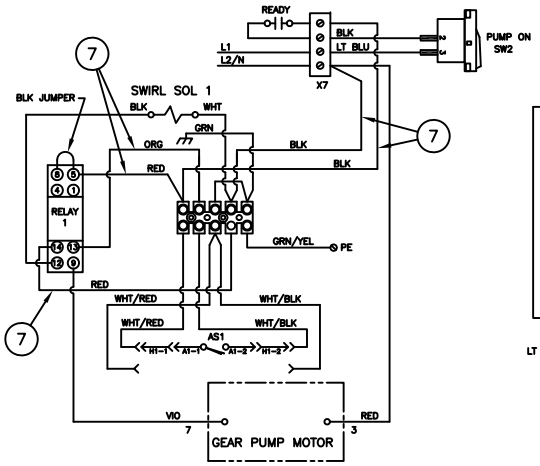
DETAIL, BASE MOD. FOR FIELD INSTALLATION



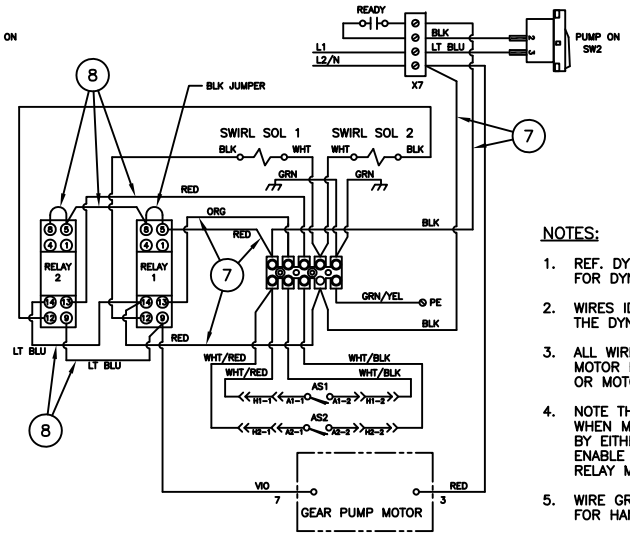
SINGLE RELAY MOTOR ENABLE KIT



TWO RELAY (DUAL) MOTOR ENABLE KIT



MOTOR ENABLE AND SWIRL AIR CONTROL BY ONE TRIGGER SWITCH



MOTOR ENABLE AND SWIRL AIR CONTROL BY TWO TRIGGER SWITCHES

BILL—OF—MATERIAL TABULATION

KIT PART NO.	NOMINAL DESCRIPTION	VOLTAGE	RELAY ITEM 4		SCREW ITEM 5		QUANTITY	
			PART NO.	QTY.	PART NO.	LENGTH	ITEM 3	ITEM 8
112679	120V SINGLE	110–120 VAC 50/60 HZ	048H365	1	108588	25mm	1	0
112680	120V DUAL	110–120 VAC 50/60 HZ	048H365	2	804355	50	2	1
112681	240V SINGLE	220–240 VAC 50/60 HZ	048H210	1	108588	25	1	0
112682	240V DUAL	220–240 VAC 50/60 HZ	048H210	2	804355	50	2	1

NOTES:

1. REF. DYNAMINI SWIRL AIR CONTROL KITS 111892–111895.
   FOR DYNAMINI ASU WIRING DIAGRAMS REF. 111688 (240V) & 111689 (120V).
2. WIRES IDENTIFIED BY COLOR ONLY ARE PROVIDED AS PART OF THE DYNAMINI ASU OR AS PART OF SWIRL AIR CONTROL KITS.
3. ALL WIRES PROVIDED AS PART OF THE ASU, SWIRL KITS, OR MOTOR ENABLE RELAY KITS WILL NOT BE USED IN ALL SWIRL OR MOTOR CONTROL CONFIGURATIONS.
4. NOTE THAT DUAL RELAY MOTOR ENABLE KITS ARE REQUIRED ONLY WHEN MOTOR ENABLE AND SWIRL AIR ARE TO BE CONTROLLED BY EITHER OF TWO TRIGGER SWITCHES. ALL OTHER MOTOR ENABLE CONFIGURATIONS MAY BE ACCOMPLISHED WITH SINGLE RELAY MOTOR ENABLE KITS.
5. WIRE GROUPS (ITEMS 7 & 8) ARE TO BE SEPARATELY BAGGED FOR HANDLING AND SHIPPING.
6. ONE COPY OF THIS DRAWING TO BE INCLUDED WITH EACH MOTOR ENABLE KIT.
7. TWO EXTRA NUTS (ITEM 6) ARE INCLUDED FOR FIELD INSTALLATION. THESE NUTS, AND UNUSED WIRES, MAY BE DISCARDED AFTER FACTORY INSTALLATION.

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
8	112685	SEE TAB	EA	WIRE GROUP, 2ND RELAY KIT
7	112684	1	EA	WIRE GROUP, MOTOR ENABLE KITS
6	107391	4	EA	NUT, M4x0.7, W/ LOCK WASHER
5	SEE TAB	2	EA	SCREW, SHC, M4x0.7
4	SEE TAB	SEE TAB	EA	RELAY, DPDT, 10A, SKT MOUNT
3	048G288	SEE TAB	EA	SOCKET, RELAY
2	105113	2	EA	SCREW, SHC, M4x0.7 x 8
1	112683	1	EA	BRACKET, SOCKET MOUNT

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: X = ±0.25 [±.010 INCH] .XX = ±0.01 [±.004 INCH] ANGLES ±2°

FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. AD5500

ITW Dynatec HENDERSONVILLE, TN

U/M EA

USED ON: DYNAMINI V2 ASU

NEXT ASSY.

APPROVALS: DRAWN PJD 4.18.06; CHECKED

KIT, MOTOR ENABLE, SINGLE & DUAL, D'MINI

STATUS M SOURCE

DO NOT SCALE DRAWING

COMPUTER DESCRIPTOR(S) CHARACTERS: KIT,MTR ENABLE,SNGL,120V

SIZE D DWG. NO. 112679 REV. B GROUP

SCALE 2/3 CAD DRAWING SHEET 1 OF 1

Chapter 12
Appendix

12.1 Air Control Kit PN 100055

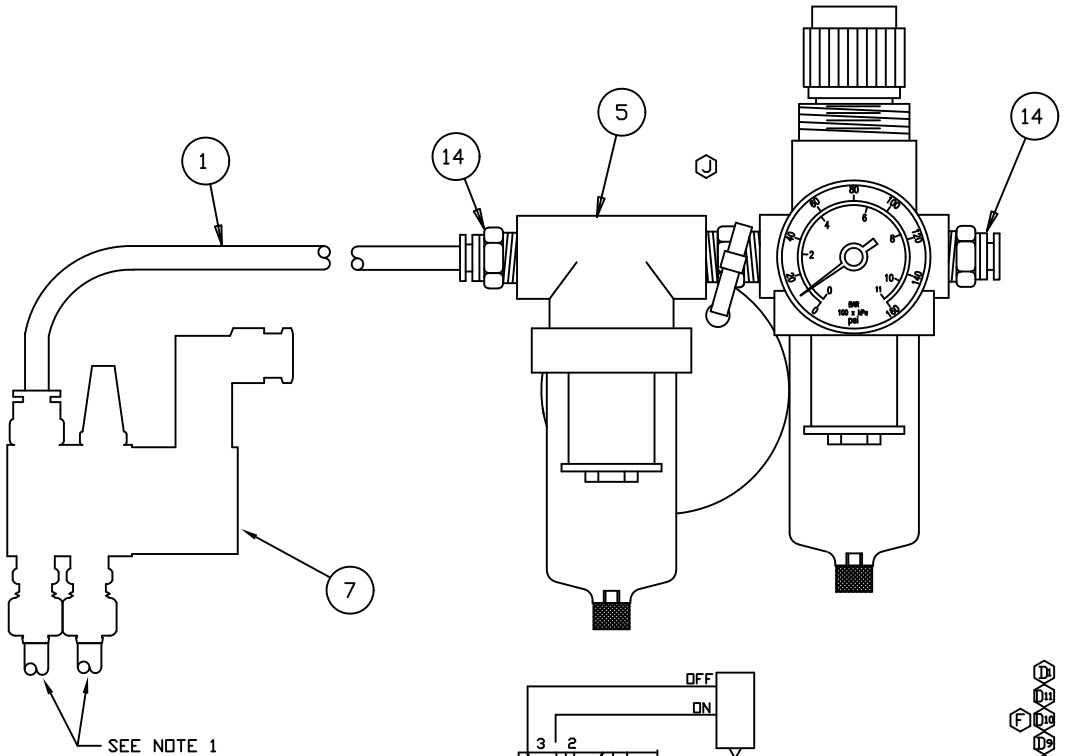
DWG. NO. 100055 SH. 1 REV. K

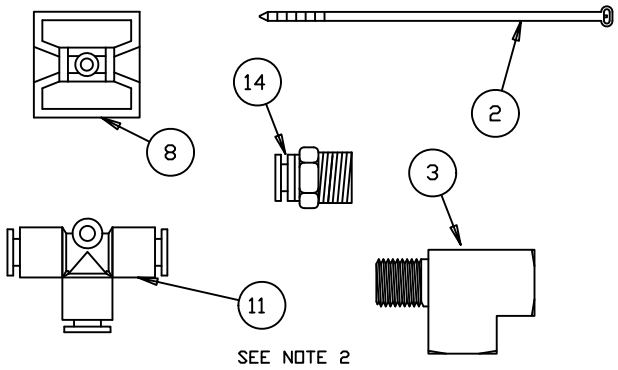
REVISIONS

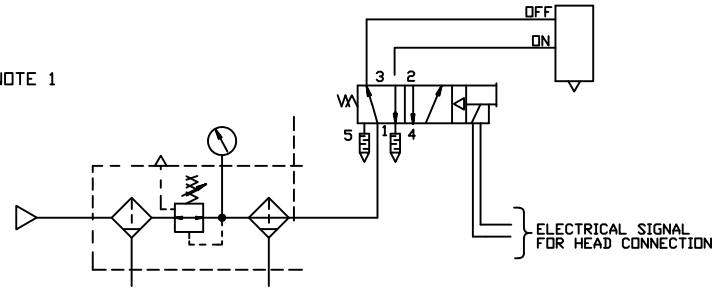
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
02163	G	ADDED ITEM 4	10.14.02	BB	
02584	H	ITEM 5 WAS 100380	10.30.02	BB	
02640	J	CORRECT VIEW OF FILTER	1.31.03	BB	
E436	K	SHOW ITEM 14 AS SPARE; ADD NOTE 2	07.09.19	JC	

REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
	A	ORIGINAL RELEASE	04.22.94	CN	
	B	REQ. VALVE WAS 100041	05.10.94	CN	
	C	N06438 WAS N07677, QTY WAS 20FT 100380 WAS N02774 ITEM 6 WAS 100081 ITEM 12 WAS N01067	07.08.94	CN	
	D	1. WAS N02535 2. QTY WAS 20; 3. WAS N00754 4. WAS N02745; 5. WAS VLV, SOL 6. QTY WAS 5; 7. WAS N06412 8. WAS N06435; 9. WAS N00093 10. QTY WAS 3; 11. WAS N00092	08.26.94	CN	
	E	QTY WAS 5	01.12.95	JT	
00095	F	ITEM 14 WAS QTY 1, ADDED ITEM 3	2.10.00	BB	







PNEUMATIC DIAGRAM FOR A-HEAD & S-HEAD CONTROL

(24VDC)

NOTE:

1. AIR LINES TO HEAD ARE TO BE CUT TO 3.5-4.0 INCHES LONG.
2. BAG ALL LOOSE ITEMS WITH FILTER/REGULATOR ASSY AND MARK WITH ITW DYNATEC PART NUMBER FOR CUSTOMER USE.

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
16				
15				
14	N06430	3	EA	FTG,CONN,M,BRS
13				
12				
11	N06504	1	EA	FTG,TEE,UNION,BRS,PUSH-IN
10				
9				
8	N04264	3	EA	CABLE TIE ANCHOR, ADH BKD
7	REQ. VALVE ASSY	1	EA	ASY,VLV,SOL
6				
5	105610	1	EA	FLTR,ASY,A/C
4	100055-REF	1	REF	DWG ASSY INSTR
3	N04531	1	EA	FTG,TEE,STREET,#04
2	N00318	10	EA	CABLE TIE,.09X3.62 LG WYL
1	N06438	10	FT	TUBING,NYLON,.250D

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX±.03 .XXX±.010 ANGLES ±.5°

FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800

USED ON

NEXT ASSY.

DO NOT SCALE DRAWING

APPROVALS		DATE
DRAWN	C.NEVILLS	4.22.94
CHECKED	JCZ	4.22.94
APPROVED		

ITW Dynatec
HENDERSONVILLE, TN

U/M EA

KIT,FILTER,COALES

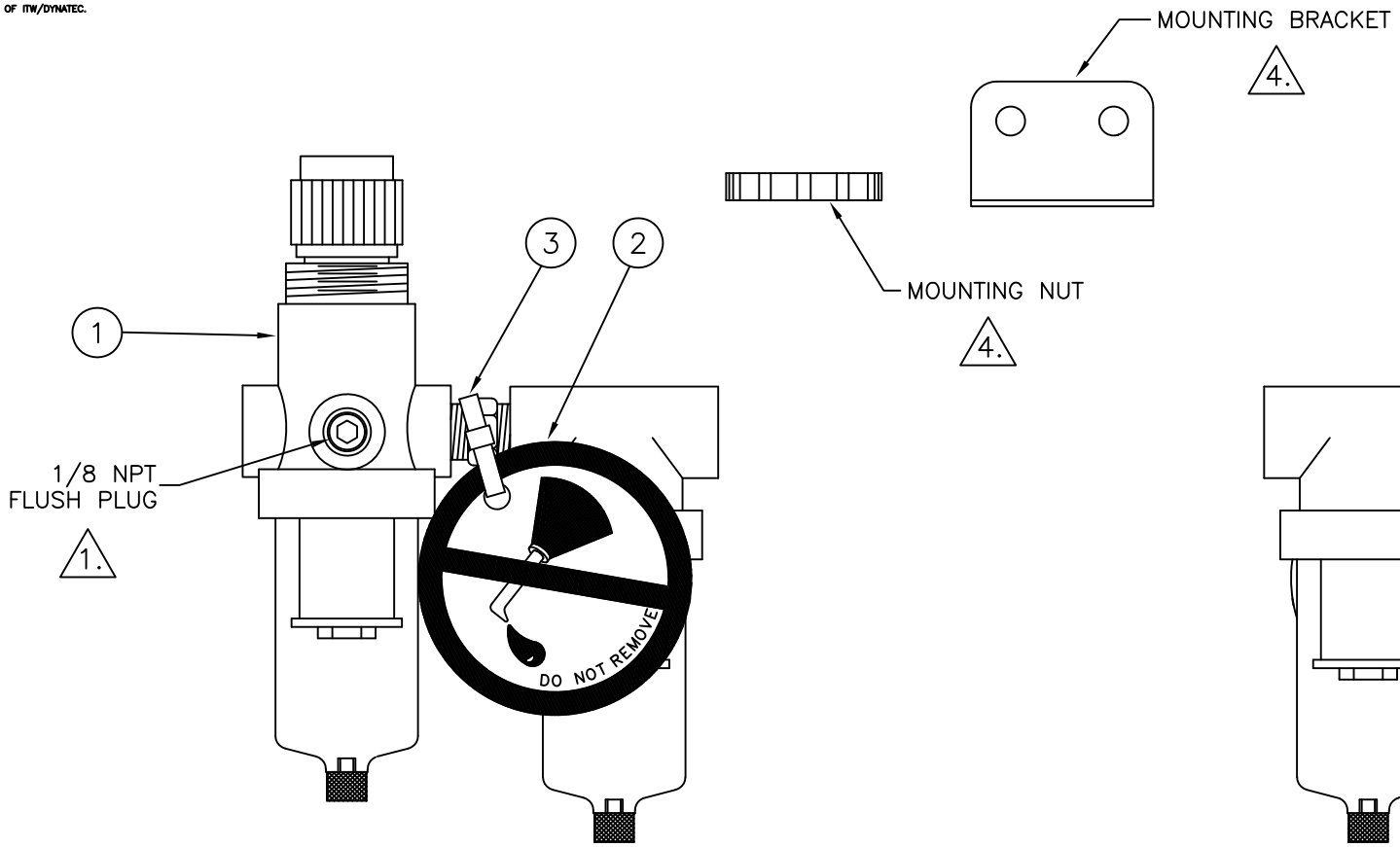
STATUS P

SOURCE P

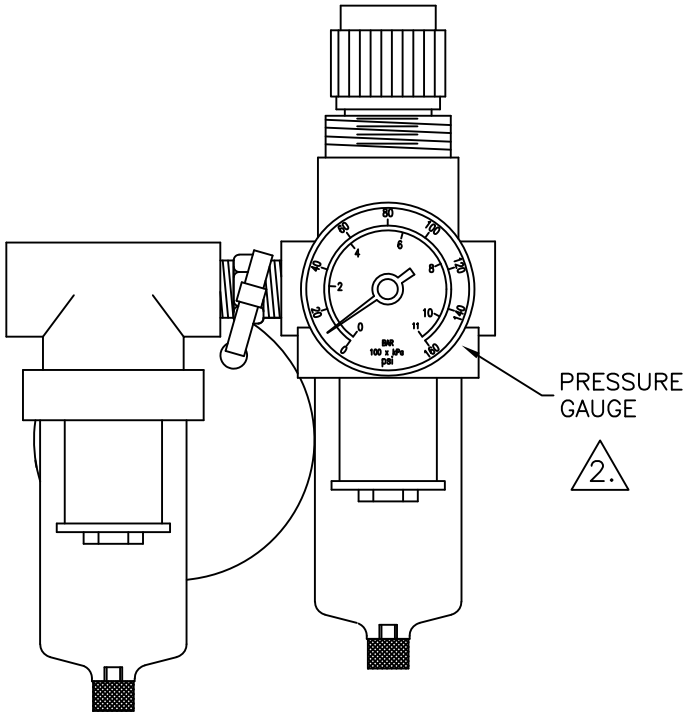
SIZE C DWG. NO. 100055 REV. K GROUP 00

SCALE 1:1 CAD DRAWING SHEET 1 OF 1

REVISIONS				
REV	DATE	DESCRIPTION	REF DOC	BY
A	2.26.98	ORIGINAL RELEASE	N97062	JCZ
B	4.10.02	ITEM 2 WAS 105607	02196	BB
C	10.30.02	DELETED ITEMS 4-9, REVISED NOTES	02584	BB
D	10.14.09	ITEM 3 WAS 048J008	09290	BB
E	26JUL19	NOTE 1 DETAILED FLUSH PLUG INSTALL, NO LONGER NECESSARY	ECN 471	ALM



BACK VIEW



FRONT VIEW

E NOTES:

1.

2. INSTALL GAUGE WITH FACE ORIENTATION AS SHOWN. PLACE TEFLON TAPE ON THREADS PRIOR TO ASSEMBLY.

3. ATTACH THE "DO NOT OIL" TAG (ITEM 2) TO THE FILTER/REGULATOR ASSY USING THE CABLE TIE (ITEM 3).

4. MOUNTING NUT AND BRACKET ARE SUPPLIED WITH FILTER/REGULATOR ASSY (ITEM 1) AND MAY OR MAY NOT BE USED ON ASSEMBLY LINE. IF NOT USED, BAG WITH FILTER/REGULATOR ASSY AND MARK WITH ITW DYNATEC PART NUMBER FOR CUSTOMER USE.

ITEM	PART NUMBER	QTY	U/M	DESCRIPTION
3	N00318	1	EA	CABLE TIE,.09X3.62 LG WY
2	103053	1	EA	TAG,OIL FREE
1	100380	1	EA	FLTR/REG ASY,COALESCING

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX±.03 .XXX±.010 ANGLES ±.5

USED ON: DYNAMELT & DYNAMINI

NEXT ASSY.: —

DO NOT SCALE DRAWING

FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800

APPROVALS	DATE
DRAWN JCZ	2.26.98
CHECKED JCZ	2.26.98

COMPUTER DESCRIPTION(24 CHARACTERS): FLTR/REG AS,DMS/DMIN

ITW Dynatec
HENDERSONVILLE, TN

FILTER/REGULATOR ASSEMBLY

SIZE	DWG. NO.	REV.
C	105610	E

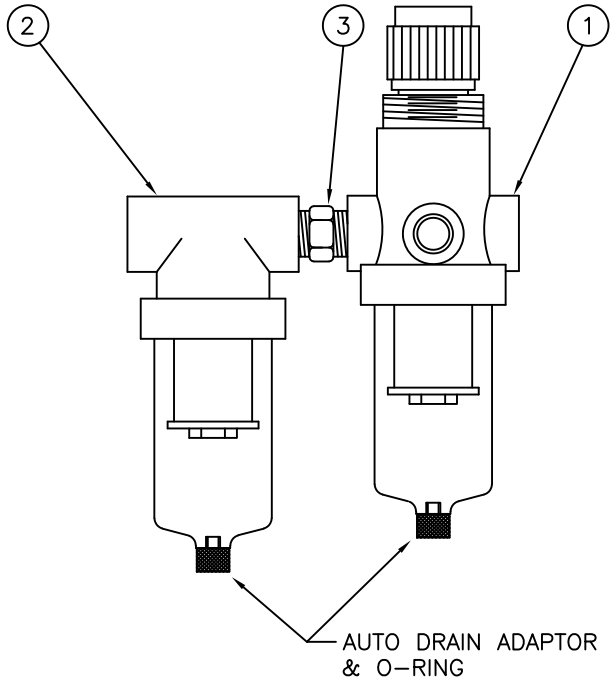
SCALE 1:1 | CAD DRAWING | SHEET 1 of 1

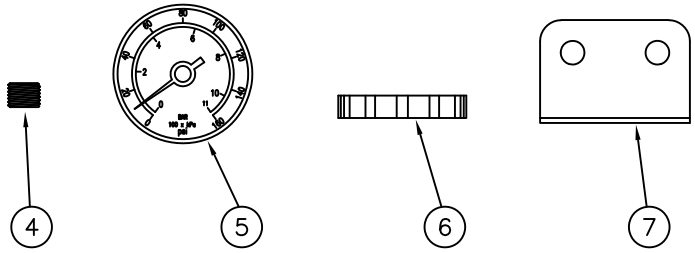
U/M: EA
STATUS: A
SOURCE: G
GROUP: 20

DWG. NO.	SHT.	REV.
100380	1	C

REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
02584	C	REVISED AND REDRAWN	10.30.02	BB	





ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
7	–	1	EA	BRACKET, MOUNTING
6	–	1	EA	NUT, MOUNTING
5	–	1	EA	GAUGE, PRESSURE
4	–	1	EA	PLUG, FLUSH, 1/8 NPT
3	072X228	1	EA	FITTING, PIPE NIPPLE, 1/4 NPT
2	100081	1	EA	FILTER, COALESCING, 1/4 NPT
1	N02774	1	EA	FILTER/REGULATOR, 1/4 NPT

PARTS LIST

NOTES:

1. VENDOR: FLUID POWER; VENDOR P/N CQ491
2. ITEMS 4–7 ARE SUPPLIED UNASSEMBLED AND BAGGED WITH THE FILTER/REGULATOR ASSEMBLY.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± | DECIMALS .XX±.010 .XXX±.005 | ANGLES ±.5

USED ON

NEXT ASSY. 105610

DO NOT SCALE DRAWING

FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800

APPROVALS	DATE
DRAWN BB	10.30.02
CHECKED	

COMPUTER DESCRIPTION(24 CHARACTERS)
FLTR/REG ASY,COALESCING

ITW Dynatec
HENDERSONVILLE, TN

FILTER/REGULATOR ASSEMBLY, COALESCING

U/M EA | STATUS P | SOURCE | GROUP

SIZE B | DWG. NO. 100380 | REV C

SCALE 1:1 | CAD DRAWING | SHEET 1 of 1

12.2 Gear Pumps

Gear Pumps, Safety and Operation

WARNING
These instructions should be read thoroughly by all personnel involved with pump operation prior to pump installation, operation, or maintenance.

ATTENTION
If operation of this pump is critical to your business, we strongly recommend you keep a spare pump in stock at all times. As a minimum, a seal kit (O-rings, gaskets, and shaft seal) should be kept in stock so pump refurbishment after internal inspection can be accomplished.

General Description

ITW Dynatec's metering gear pumps are manufactured to precise tolerances. To retain their high performance, these pumps must be carefully installed and maintained. These pumps are CE (Declaration of Conformity) rated.

The gear pumps are positive-displacement. A single, drive shaft transmits force / torque to one or more driving gears, which then engage and deliver force / torque to one or more driven gears. Fluid is directed into the pump through the inlet stream(s). The fluid fills the exposed spaces between the gear teeth, then is conveyed around the inside of the gear housing as the gears turn. Once the path is completed, the gear teeth mesh together and the fluid is displaced. The fluid flows out of the pump through the discharge port(s). There may be multiple, driven gears, each with its own, associated discharge port. There may be single or dual stream pump assemblies.

This manual will not cover all situations which might arise with regard to installation, operation, inspection and maintenance of the pump supplied. ITW Dynatec assumes the personnel assigned to install, operate and maintain the supplied equipment have sufficient technical knowledge to apply generally accepted safety and operational practices, which may not be otherwise covered.

Gear Pump types

Code	PN	Delivery rate cc/rev	Pump Type	Shaft seal PN
GAS	100860	1.54	Single	069X061
GBS	100861	3.18	Single	069X061
GCS	100862	4.5	Single	069X061
GAD	100863	1.54	Dual	069X061
GBD	100864	3.18	Dual	069X061
SGD	108874 *	2.92	Dual	807729
SHS	108875 *	8.5	Single	807729
GES	109690	10.0	Single	069X061
GFS	109694	20.0	Single high-flow	069X061
GDS	109908	0.55	Single	069X061
GDD	109909	0.55	Dual	069X061
SIS	110289 *	20.0	Single high-flow	808680
SJS	110290 *	30.0	Single high-flow	808680
SKS	110291 *	45.0	Single high-flow	808680
GGS	111253	0.15	Single	069X061
GGD	111254	0.15	Dual	069X061
ZLS	084E372 *	0.16	Single	807729
ZES	084E374 *	0.584	Single	807729
ZLD	084E387 *	0.16	Dual	807729
ZDD	084E388 *	0.297	Dual	807729
ZED	084E389 *	0.584	Dual	807729
ZDS	084E428 *	0.297	Single	807729
ZFS	084E430 *	1.168	Single	807729
ZFD	084E432 *	1.168	Dual	807729
ZGS	084E434 *	2.92	Single	807729

* TSHA = Tool Steel, High Accuracy

General Safety Instruction

WARNING

- Installation, operation, and maintenance instructions must be correctly and strictly followed, otherwise, injury to personnel or serious damage to the pump could result.
- ITW Dynatec cannot accept responsibility for unsatisfactory performance or damage resulting from failure to comply with instructions.
- Only trained operators or trained, specialized personnel may handle or operate the pump.
- Always wear proper personal protective equipment. (i.e. Safety glasses, steel-toed shoes, face shield, protective clothing, gloves, respirator, dust mask, etc., as required for safe practices).
- Do not run the pump dry, or with no inlet fluid flow. Make sure the pump is only operated with, and never without, liquid filling the pump housing.
- Do not remove safety guards or other protective devices prior to installation or during operation.
- Be certain all safety devices, machine safety guards, protective electrical connections, temperature monitoring devices, pressure monitoring devices and sealing apparatus are installed and operational prior to starting the pump.
- Pumps may not be used with foodstuffs.
- Do not allow the pump to change temperature rapidly.
- Do not apply open flame to a pump.
- Do not allow leaking fluid to combust.
- Do not expose the pump to liquid nitrogen or other extremely cold substances.
- Do not attempt to quench a hot pump by applying water or other cool liquid to the surface.

  If the pump is to be preheated or cooled prior to installation, heat or cool the pump to the operating temperature by use of an approved method, such as a band heater, bar heater, oven, cooling or environmental chamber, liquid bath or heating jacket, which can fully reach the operating temperature of the pumping system. Monitor the pump temperature and ensure the target temperature has been met and maintained. Allow ample time to heat-soak the pump thoroughly and evenly (including the seal arrangement).

- The manufacturer’s warranty will be void if any part is replaced, or the pump is modified in any way, without permission from ITW Dynatec.

Installation

WARNING

- Follow all General Safety Instructions.
- Ensure pump is free from protective packing materials and rotates freely.
- Only use the pump as intended, while remaining aware of safety risks, and in adherence to the instructions in this manual.
- **Pump Drive:**
  Drive alignment is very important. Ensure backlash is 0.1mm (0.004”) to avoid shock or radial load. In the event of drive shaft connection, two flexible components must be incorporated into each drive shaft to allow for misalignment. These flexible components must have the capacity to distort over the misalignment range while ensuring that any radial load is minimal. Do not allow shaft to put end thrust on the pump.
- **Rotation:**
  Ensure drive rotates in correct direction. The pump must be checked for smooth operation by hand.
- **Fixing and Lubrication:**
  The pump must be fixed securely to maintain position and alignment. When secured by lubricated bolts, torque them evenly to the suggested torque (see Maintenance).

  Start drive and bring up to speed slowly. Flush with process fluid.

  Note: motor base plate assemblies should be pre-checked in case the drive alignment has been disturbed.
- In order to ensure normal functioning of the pump and system, monitor the pressure at the outlet of the pump. The monitoring locations should be in the outlet port connections.
- Monitor the pump temperature, after installation and during operation. Note sudden changes in temperature which do not correlate with sudden changes in the temperature of the process liquid. If sudden temperature changes occur, shut down the pump operation and contact trained, specialized personnel for inspection and maintenance.
- Rotate the pump drive shaft by hand after mounting and fully tightening the mounting bolts. The shaft should turn freely.

Operation

WARNING

- Follow all General Safety Instructions.
- Measures must be taken to avoid skin contact. Wear protective clothing.
- Downstream pressure can change rapidly once the pump is started. If the downstream flow passages are blocked or valves are closed, the pump will likely reach dead-head condition before valves can be opened or the blockage removed.

  Dead-head condition occurs when the pump reaches maximum pressure achievable at a given speed, with a given fluid viscosity.

  Reaching the dead-head condition may cause the pump to fail, or for piping limits to be exposed. Dead head occurs whenever the pump is operating but the applicators are not dispensing.
- Measure the pump temperature after installation, and monitor temperature during operation. Rapid changes in temperature, while process temperatures and ambient temperatures are stable, signals a pending failure.

Safety Notes on Start-Up

- Check to insure that all process safety devices are in place and operational.
- Be certain the pump is fully lubricated and full of fluid prior to starting the motor.
- Be certain the pump temperature has fully reached the process temperature prior to starting the motor. Heat soak the pump sufficiently to ensure all recesses are at process temperature.
- Pump outlet pressure and speed limits are dependant on fluid viscosity and throughput. Pump inlet pressure is an important feature for lubrication and fluid stability. Materials for pump construction are important for corrosion and wear resistance. Consult ITW Dynatec for detailed applications. Normally the pumps are single or dual output. Typical speed ranges are 10-90 rev/ min.
- To avoid contamination of process fluid, the pump should be flushed out to remove test oil. Precaution must also be taken to flush out pumps at plant shutdown, since congealed fluid can cause seizure, when operating PUR.
- Unless fluid purity can be guaranteed (especially from metal fragments), filtration must be installed before pump inlet, to avoid damage to pump internals.
- During start-up, start the motor with a low speed set point, then gradually increase speed to the intended operating speed. An acceleration rate of 20 rpm / sec or less is recommended; 5 rpm / sec is a good starting point, allowing ample acceleration time for downstream apparatus to fill gradually with fluid, and for pressure to rise slowly.
- If at any time during operation the pump does not appear to be running smoothly, or unusual noise is heard, stop the pump immediately to limit internal damage and contact ITW Dynatec!

Heating, Cooling During Operation

If the pump is to be operated outside of room temperature 10°C (50°F) – 45°C (113°F), care must be taken to ensure the process temperature is met and maintained prior to and during operation. Monitor the pump temperature and ensure the target temperature has been met and maintained. Allow ample time for the pump to adjust and stabilize. Ensure any temperature changes occur gently, thoroughly and evenly (including the seal arrangement).

Protect the pump from thermal shocks of greater than 28°C (50°F). Rapid temperature changes must be avoided.

Shutdown

The pump will need to be purged of the process fluid during shutdown. Use of a purging liquid (an inert, lubricating liquid which is safe to the pump and personnel,) is recommended, rather than simply attempting to drain the process fluid from the pump.

Run the pump slowly during the purging process in order to ensure no damage occurs.

Separate the coupling components, connecting the pump shaft to the gearbox or motor, and turn the pump by hand, or with a wrench, when completing the purging and draining.

If no purging liquid is available, and the pump will be run in order to facilitate draining, be cautious to complete the operation in less than 1 minute.

If the pump is to be stored, or if it will sit for a long period without operation or protection, apply rust preventative oil to all internal and external surfaces.

Restarts

On restart, where the product fluid has hardened and solidified in the pump during the shutdown, the fluid must be softened and made completely liquid again prior to restarting the pump. If the product fluid can be softened by heating, preheat the pump and allow the product to completely melt.

If the product fluid cannot be softened easily, or if the hardening of the product fluid is not reversible, the pump must be cleaned prior to restarting.

WARNING

- Take care the product has not changed properties.
- Ensure the fluid is still capable of providing lubrication to the pump internal components.
- Restart slowly and gradually.
- During preheat; do not let polymer sit inside the pump more than 5 hours, due to the risk of breakdown and conversion of the polymer. Breakdown or conversion would result in unsatisfactory lubrication of the pump bearings at start-up and cause pump failure.

Airborne Noise

- Under normal operating conditions, the airborne noise level will be less than or equal to 70 dB.
- If airborne noise levels above 70 dB are noted, the pump is not operating under normal conditions or component failure is imminent. Contact your ITW Dynatec representative for assistance.

Maintenance

Tightening Torque for High Tensile ISO 12.9 Lubricated Bolts (572°F max. / 300°C max.)

Bolt Size & Qty.	Bolt Location	Torque Nm/ Ft.lbs.
M5 (4)	Retainer cap	7.1/ 5.2
M10, 12 (4)	Mounting bolts	41/ 30 at ambient temperature
M10, 12 (4)	Mounting bolts	24/ 18 at production temperature

Notes: If mounting bolts are torqued at production temperature, they should be re-torqued (to 41 Nm/30 Ft lb.) when machine is at ambient temperature.

1 Nm = 8.85 in/lbs. Torques given above are for Metric and UNF threads. Multiply by 0.8 for UNC and BSF threads. Multiply by 0.8 for BSVV threads (multiply by 0.67 for stainless steel).

ITW Dynatec frequently provides special features at their customer's request. Please consult with ITW Dynatec, quoting job and pump references, if questions arise.

Maintenance Notes

WARNING

- Seal failure will eventually occur. Develop a plan to deal with this situation. Take appropriate safety measures if liquid is hazardous.

- BEFORE starting any maintenance procedure, do the following:
  Shut off all power switches and circuit breakers.
  Remove any electrical service fuses.
  Lock electrical service panel supplying power to system.
  Shut, wire or chain, and lock all valves in pump inlet/outlet hose.
  If applicable, shut off any pneumatic or other fluid supply lines to the pump.

- Visually check equipment frequently for signs of damage or leakage from shaft seals, gaskets or O-rings.
- Be sure all connections are tight.
- If seal leakage is more than about 10 drops per hour per seal, shut down equipment and repair or replace necessary parts.
- Shaft seals have a limited, finite life which is affected by operating conditions and environment. Expect them to wear and eventually fail. When leakage becomes unacceptable, replace the seal unit with the correct replacement unit, one compatible with pump's operating conditions. Dirty liquids will reduce seal life.
- Cleaning fluids and methods are subject to strict Health and Safety regulations. Avoid contact with skin, do not inhale fumes and protect eyes.
- Packing seals should be replaced when all packing follower travel is exhausted or when packing is damaged and leakage cannot be controlled.
- Where pump out-of-service time is of vital concern and down-time must be minimized, kits of spare parts and seals should be acquired before needed and retained on-site.
- Only trained, specialized personnel, using the appropriate Original Installation, Care and Maintenance Instructions, can perform maintenance, which includes, but is not limited to, Inspection, Repair, Assembly and Disassembly.
- Contact ITW Dynatec for information on having personnel trained.

Pump shaft Leakage

If shaft seal leakage is present the seal should be replaced.

If the pump uses Packing seals:

WARNING

- Slight leakage is necessary to lubricate the packing.
- If not appropriately collected, packing leakage may make floor slippery and/or expose personnel to hazardous fluids. Collect packing leakage properly and safely.
- Tighten the packing follower screws in a crossing pattern, gradually, until the packing is evenly compressed and the leakage diminishes to near zero, then loosen each of the screws, gradually, ¼ turn at a time, until slight leakage occurs. Slight leakage is necessary in order to lubricate the packing and the shaft.
- Be certain to adjust the packing follower properly.
- Do not over-tighten the packing follower. Over-tightening will cause damage to the packing and the shaft.
- Other sealing options are available.
- Re-adjust the packing follower several times through the running-in period, until the seal is thoroughly seated and the rate of leakage is stable.

Cleaning

Before removal from machine, the pump should be rotated for a short period (with inlet supply shut off) to discharge process fluid. Care should be taken, when removing and stripping the pump, to allow for any residual fluid. Pump components can be solvent or ultrasonically cleaned by immersion, using a compartmentalized wire basket. Dry in air. Stubborn residues may be removed with a brass wire brush. Avoid burnishing the sharp edges of gear and gear races.

Fluid immersion in rust inhibitor is advised. If components are to be stored for some time, they should be lightly coated with oil.

Troubleshooting

Problem	Possible Cause	Solution
Pump leaks	Screws not tight.	Re-torque screws to recommended tightening torque.
	Seal scratched or worn.	Replace seal.
Pump will not turn.	1. Low pump temperature.	Check temperature sensor and control loop for proper setting/ operation. Allow sufficient heat-up time.
	2. Drive malfunction.	Verify drive is powered. Check to assure all alarm circuits are clear. Check drive motor current and speed settings. Check all drive couplings.
	3. Process conditions changed.	Check process conditions for proper melt temperature, pressures, viscosities and materials.
	4. Foreign particle.	Send pump for repair to ITW Dynatec.
	5. Possible internal damages.	Send pump for repair to ITW Dynatec.
Excessive seal assembly leakage	1. Worn seal plate.	Send pump for repair to ITW Dynatec.
	2. Low temperature pump start.	Increase temperature. Allow heat soak time.
	3. Worn lip seal.	Replace lip seal.
Reduced pump efficiency / Error with pump delivery	1. Worn gears/ bearings/ plates.	Send pump for repair to ITW Dynatec.
	2. Process conditions changed: • Low inlet pressure (cavitation). • High outlet pressure (slippage).	Check and adjust the recommended process conditions.

Reconditioning

Should reconditioning (overhauling) become necessary, return the pump to ITW Dynatec.

Pump Shaft Seal Replacement

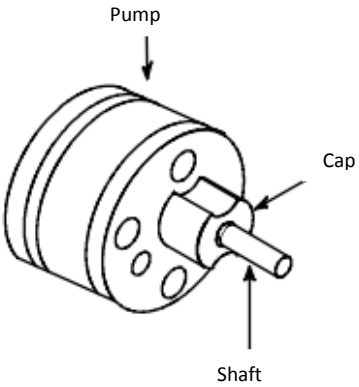
The ITW Part Number for all Tool Steel High Accuracy Pump Shaft Seals (8.5cc and smaller) is PN 807729.

DANGER HOT SURFACE & HIGH VOLTAGE

If the pump is not operable but the heating system will function, raise the temperature of the application system to the operating temperature to aid in the pump disassembly process. Otherwise, a heat gun or other controlled heating method is recommended to melt hardened hot melt material. Never use a torch or an open flame on any of the components of the application system. Once the system is up to temperature, disconnect all incoming power before proceeding.

Pump Shaft Seal (O-ring) Replacement:

In most cases, the pump does not have to be removed from the ASU in order to replace the shaft seal.



1. Disconnect the drive coupling so that the pump may be accessed.
2. Remove the four screws in the pump “cap” and remove the cap
3. Within the cap is the pump shaft seal. Remove the old seal.
4. Clean all pump parts, paying particular attention to the pump shaft seal groove.
5. Lightly lubricate the shaft seal before inserting it in the shaft seal groove.
6. Before re-assembling, wrap a small piece of paper around the shaft so that the shaft’s woodruff key seat does not damage the new seal.
7. Re-assemble. Remove paper
8. Re-tighten four screws.
9. Re-connect drive coupling.
10. Return ASU to operation and check pump for leaks.

Transport / Storage

DANGER

- Death or crushing of limbs caused by falling or overturning loads!
- Bodily harm can occur if excessive weight is lifted or moved incorrectly!
- Protection from hot surfaces and hot liquids must be provided by the operator!

Take care not to drop the pump. Read and consider the weight prior to attempting to lift or move the pump. Do not attempt to lift pumps heavier than 25 kg without the use of a crane or other type of lifting assist device. Only qualified personnel may transport pumps weighing more than 25 kg.

When working with pumps that are hot, wear proper protective equipment and note that hot fluid may flow from the pump. Guard against skin contact with hot fluids, or with a hot pump. Follow all precautions of the fluid manufacturer in the handling of the fluid.

In the event that a pump needs to be stored, always protect the pump against water and other contaminants. Store the pump in a clean, dry, and warm environment. Pumps are delivered filled with suitable lubricant and with protective covers in, or over, all openings. These covers should remain in place during the mounting and alignment procedures, as long as possible. Remove the covers just prior to attaching system hoses to the manifold.

While storing spare parts, always protect the parts from water and contaminants. Store the parts in a clean, dry, and warm environment. Spare parts should be lightly coated with rust preventative oil and sealed in an air tight container.

12.3 Manual Revisions

Revision	Page/ Chapter	Update description
Rev.3.18	-	Piston pump option completely removed.
	Ch.3	Specifications updated. Pump and filter options removed.
	Ch.9	Pumps, Filters and Gauge options removed.
	Ch.10	Pumps, Filters and Gauge options removed.
Rev.8.18	Ch.3	Specifications updated. Optional Pressure Gauge and Signal Isolator added.
	Ch.11	Drawings of Swirl kit and Motor enable added.
Rev.6.20	Ch.8	Wiring diagram for motor 103020 updated.
	Ch.11	Schematics 111688L and 111689M updated.
Rev.7.21	Ch.11	Schematics Swirl kit PN 111892J updated.
Rev.8.21	-	New manual design.
Rev.1.23	Ch.3.2	Specifications: Maximum operating temperatures of 218°C (425°F) added.
Rev.4.23	Ch.1	EC Declaration of Conformity updated.
Rev.7.23	P.1	Manual language added.

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