ITW Dynatec®

Adhesive Application Solutions | ISO 9001 certified

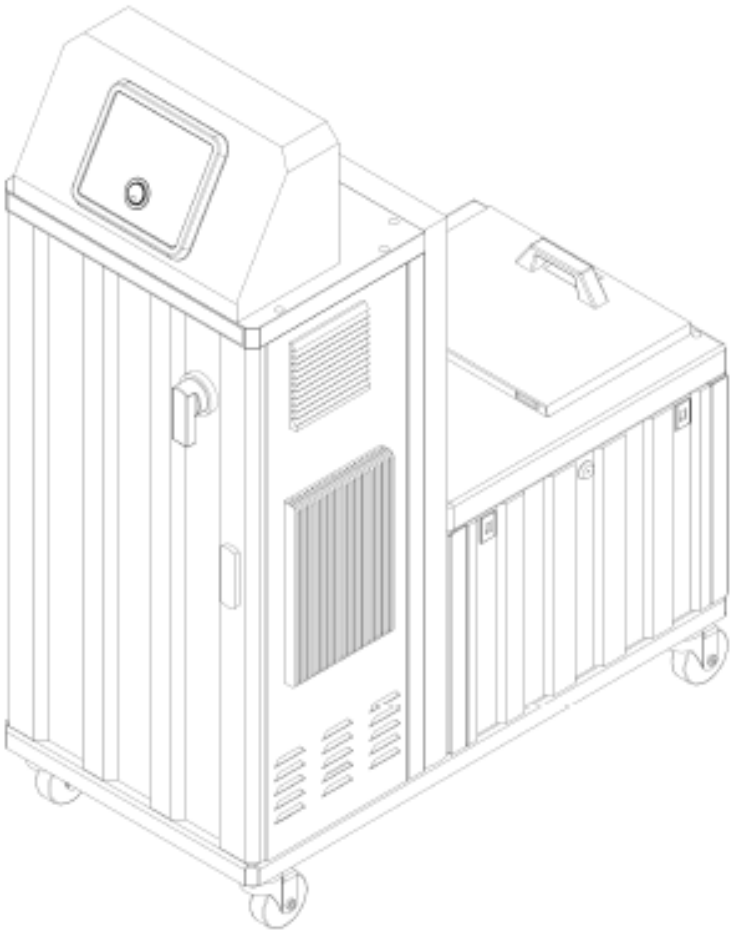
DYNAMELT D15/25/45 Series

Adhesive Melt & Supply Unit

with V6 DynaControl Controller with LCD or Touch Screen Rev.5.21

Technical Documentation, No.20-63, Rev.3.25

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:

AMERICAS

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

EUROPE, MIDDLE EAST & AFRICA

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

ASIA PACIFIC

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

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

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Chapter 1
Declaration of Incorporation / Conformity

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

US - 37075 Hendersonville

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

Andreas Pahl

ITW Dynatec GmbH

IndustriestraBe 28

DE - 40822 Mettmann

Description and identification of the machinery

Product / Article	Adhesive Supply Unit
Project number	D-Series V6
Commercial name	Dynamelt D Series V6 (D15, D25, D45, D50, D90)
Model	D15_D25_D45_D50_D90
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
2011/65/EU	Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment Published in 2011/L 174/88 of 7/1/2011

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

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

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!

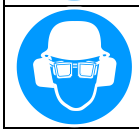
1. Read and follow these instructions.
   Failure to do this could result in severe personal injury or death.
2. Keep the binding rules for accident prevention valid for your country and the place of installation. Also keep the approved qualified technical rules for safety-conscious and professional 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

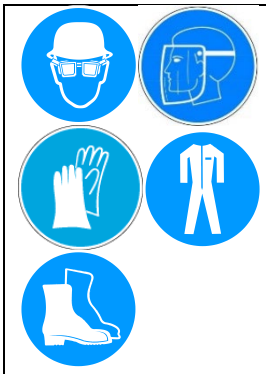
1. Never operate this unit in an explosive environment.
2. Use cleaning compounds recommended by ITW Dynatec or your adhesive supplier only.
3. Flash points of cleaning compounds vary according to their composition, so consult with your supplier to determine the maximum heating temperatures and safety 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 cap or a hose or hydraulic connection is loosened or removed. For this reason, always wear eye protection and protective clothing.

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

5. Keep the given operating pressure.

6. Notify the maintenance personnel immediately, if hoses or components are damaged. Provide for exchanging the defective components immediately.

2.12 Protective Covers

WARNING
DO NOT OPERATE WITHOUT GUARDS IN PLACE

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

2.13 Servicing, maintenance

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

2.14 Cleaning Recommendation

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

2.15 Secure transport

1. Examine the entire unit immediately after receipt, if it has been delivered in perfect condition.

2. Let damages in transit certify by the carrier and announce them immediately to the ITW Dynatec.

3. Use only lifting devices that are suitable for the weight and the dimensions of the equipment (see drawing of the equipment).

4. The unit has to be transported upright and horizontally!

5. The unit has to cool down to room temperature before packaged and transported.

2.16 Treatment for Burns from Hot Melt Adhesives

Measures after being burned:

1. Burns caused by hot melt adhesive must be treated at a burn center. Provide the burn center's staff a copy of the adhesive's M.S.D.S. to expedite treatment.

2. Cool burnt parts immediately!

3. Do not remove adhesive forcibly from the skin!

4. Care should be used when working with hot melt adhesives in the molten state. Because they rapidly solidify, they present a unique hazard. Even when first solidified, they are still hot and can cause severe burns.

5. When working near a hot melt application system, always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body.

6. Always have first-aid information and supplies available.

7. Call a physician and/or an emergency medical technician immediately. Let the burns medicate by a medic immediately.

2.17 Measures in case of fire

1. Please heed that not covered hot parts of the engine and molten hot melt may cause heavy burns. Risk of burns!

2. Work very carefully with molten hot melt. Keep in mind, that already jelled hot melt can be very hot, too.

3. When working near a hot melt application system, always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body!

Measures in case of fire:

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

Firefighting - burning hot melt:

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

EXTINGUISH FIRE

Appropriate extinguishing agents:
Foam extinguisher, Dry powder, Spray, Carbon dioxide (CO_2), Dry sand.

For safety reasons not appropriate extinguishing agents: None.

Firefighting - burning electrical equipment:

Appropriate extinguishing agents:
Carbon dioxide (CO_2), Dry powder.

2.18 Keep attention to environmental protection standards

1. When working on or with the unit, the legal obligations for waste avoidance and the duly recycling / disposals have to be fulfilled.

2. Keep attention, that during installations, repairs or maintenance matters hazardous to water, like adhesive / adhesive scrap, lubricating grease or oil, hydraulic oil, coolant and cleaner containing solvent do not pollute the ground or get into the canalization!

3. These matters have to be caught, kept, transported and disposed in appropriate reservoirs!

4. Dispose these matters according to the international, national and regional regulations.

Chapter 3
Description and Technical Specs

3.1 Applicable Safety Regulations

3.1.1 Intended Use

The Dynamelt D Adhesive Melter 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 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 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 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 of Dynamelt D Melt & Supply Unit

The Dynamelt D Series Melters are available in three hopper sizes and with a choice of dual or single gear pumps. The D15/D25/D45 Melters use a microprocessor temperature control to closely control the temperature of hot-melt adhesive for up to four hoses and four heads. Temperature setpoints are operator-selected for up to 15 zones and the system automatically provides warnings and alarms for operator errors and system malfunctions.

The Dynamelt system provides accurate, proportionate temperature control for the hopper, hoses and applicators. Sequential heating delays may be programmed for turn-on of the hoses and heads. A “standby” temperature may be programmed so that the temperature zones can be maintained at a lower temperature when the Melter is not in active use, enabling rapid return to normal operation. A seven-day scheduler and adhesive level sensor are standard features.

With these flexible temperature programming features, the D15/D25/D45 system increases adhesive life by eliminating prolonged high adhesive temperatures. It reduces energy consumption and brings the system up to normal operating temperatures in the shortest possible time.

The temperature control can interlock the parent machine with preselected adhesive temperatures so that production automatically begins when adhesive temperatures are correct for the application. All system temperature values can easily and quickly be programmed.

Digital readout of system conditions is provided. Optional external audible signals or lights which alert the operator to alarm conditions may be wired in. A security code can restrict access to system programming and parameters. The CPU monitors the electronic circuitry and provides alarms for error conditions.

A choice of single or dual gear pumps, from 0.15 to 10 cc/ rev is available to assure a smooth and precise adhesive flow. The pumps may be driven by a single or dual drive.

The D15/D25/D45’s Teflon-coated hopper 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. Options available include a color touch screen HMI, pressure gauge or transducer, drop-in grid, level control, digital RPM readout (on touch screen models only) and casters.

3.2.1 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/ 39 in)

Physical:

Dimensions ..... see dimensional layouts on following pages
Number of hoses/ applicators ..... 1 to 4
Number of hopper temperature zones.....1 (add 1 or 2 for optional drop-in grids)
Number of pumps .....1 or 2, single or dual
Gear pumps (standard)..... 1.5cc/rev, 3.2cc/rev or 4.5cc/rev
Number of (optional) drop-in grids .....D25 = 1, D45 = 1 or 2
Enclosure ..... rectangular steel, dust and splatter resistant
Hose connections .....universal 15-pin Amphenol connectors at Melter
wrench-secured fluid fittings (#6 JIC)
Hopper (tank) capacity.....D15 = 15 kg/ 33 lb
D25 = 25 kg/ 55 lb
D45 = 45 kg/ 100 lb
Hopper (tank) lid opening.....342 mm x 227 mm
Hopper (tank) construction.....welded aluminum, cast-in heaters, TFE Teflon coated
Filtration .....hopper bottom screen, large pleated pump outlet filter
Weight of base unit, empty .....D15 = 155 kg/ 342 lb
D25 = 155 kg/ 342 lb.
D45 = 182 kg/ 401 lb.
Fluid outputs.....1 to 4 metered, 6 un-metered
Adhesive form ..... accepts most forms

Electrical:

Service Requirements ..... 200-240 VAC/ 60 A*/ 3p/ 50-60 Hz (Delta)
400 VAC/ 30 A*/ 3p/ 50-60 Hz (Wye, Y)
Power consumption, system maximum .....26,700 W
Power consumption, hopper .....2,500 W
Hopper heater type .....cast-in tubular
Temperature control.....microprocessor-based PID
Temperature sensors..... 100 Ohm Platinum RTD standard
Electrical connectors..... durable, latching connectors
Motor .....one or two 1/4 hp, alternating current motor,
direct drive, horizontal orientation
Maximum wattage available for each hose or head .....2,400 W
Maximum wattage available for each auxiliary .....2,400 W
External electrical connectors.....2 (4) Hose, 2 (4) Head, 2 (4) Aux

* Actual circuit breaker current depends on Melter configuration.

Performance:

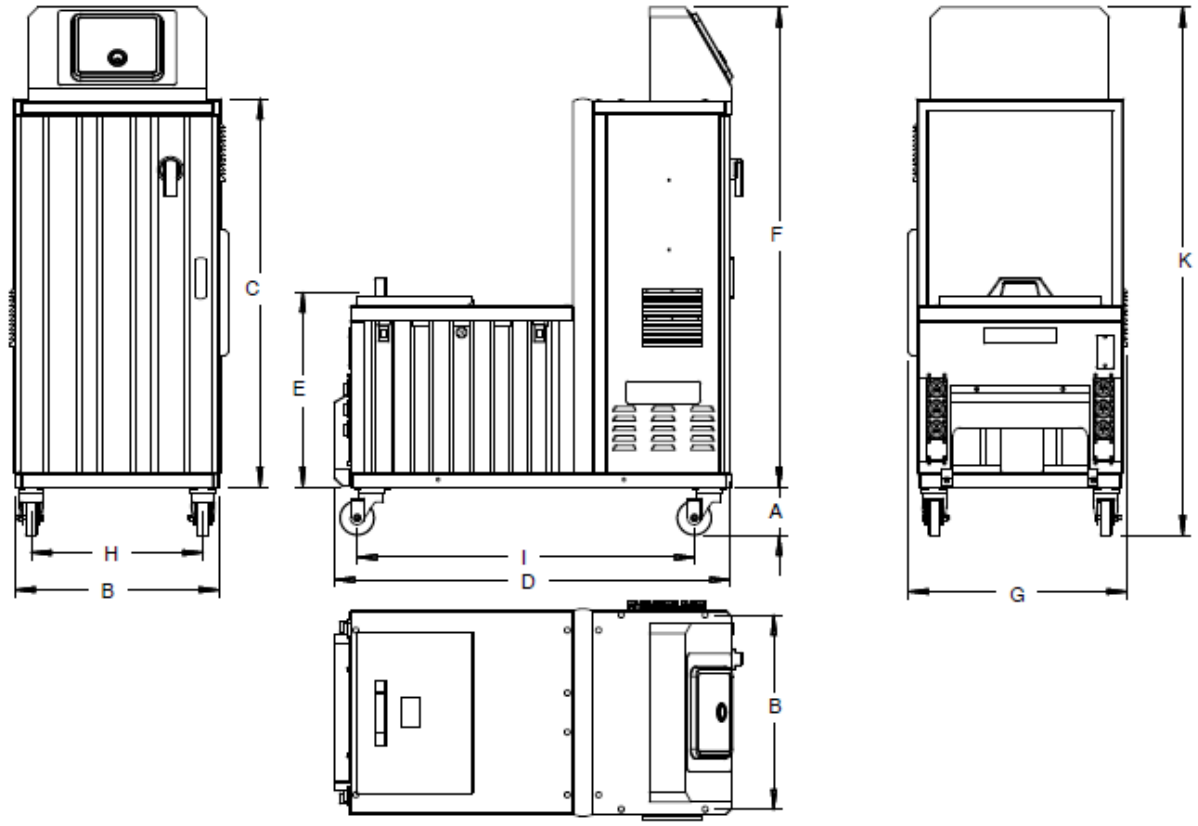
Maximum operating temperatures ..... 218°C (425°F)
Adhesive temperature control range..... 38°C to 218°C (100°F to 425°F)
Adhesive temperature control accuracy ..... ± 1°C (1°F)
Standby adhesive temperature range.....up to 80°C (150°F) lower than setpoint
Hopper ready adhesive temperature deviation (factory set/ field adjustable) . ± 20°C (36°F) from setpoint
Over-temperature cutoff for hopper ..... 218°C (425°F)
Adhesive viscosity ..... 500 to 50.000 centipoise or 50,000 to 100,000 cps at reduced melt rate
Warm-up time, full hopper ..... approximately 30 minutes
Adhesive delivery rate, open line * ..... 0.38 kg/min (0.83 lb/min)(4.5cc gear pump)
Typical adhesive melt rate * .....all standard models = up to 23kg/h (50lb/h)
D25 or D45 w. optional grid = up to 41kg/h (90 lb/h)
D45 w. 2 optional grids = up to 59kg/h (130 lb/h)
Adhesive pressure ..... up to 68 bar (1000 psi) maximum
Maximum recommended pump speed ..... 90 rpm (revolutions per minute)

* depends on adhesive used.

DynaControl V6 Controller:

Power board.....5 zones per board, modular construction
Temperature control zones ..... D15/25/45: 5-15 triac-output
Fuses .....10 on each HD-Power PCB: 10/12 Amp
Display languages..... English, French, German, Spanish, Japanese, Chinese
Operator interface (standard).....LCD graphic display with rotary-knob controller and simple icons
Operator interface (option).....Color touch screen with expanded features
Temperature standby.....yes
High and low temperature alarms.....yes
Ready interlock .....yes
Password protection .....yes
Sequential heating ..... yes (hopper, hose, head staged heating)
Sensor open alarm.....yes
Remote communications capable.....yes
Seven-day scheduler .....yes
Adhesive level sensor .....yes
CE approval .....yes

3.2.2 Dimensions



Dimensions	A	B	C	D	E	F	G	H	I *	K
D15/D25 **mm** D15/D25 **inches**	120 4.72	525 20.7	985 38.8	1015 40.0	500 19.6	1225 48.2	520 20.5	435 17.1	790 31.1	1345 53.0
D45 **mm** D45 **inches**	" "	" "	" "	" "	870 34.3	" "	" "	" "	" "	" "

** Distance between the holes. All mounting holes are 10mm diameter.*

Installation Dimensions: DYNAMELT D15/25/45

3.2.3 Total System Wattage Capacity

Wattage	D15	D25	D45
Hopper	2500 W	2500 W	2500 W
Up to 2 Optional Drop-in Grids (2500 W each)	Not applicable	2500 W	5000 W
Hose + Applicator 1 & 2 (maximum)	3500 W	3500 W	3500 W
Hose + Applicator 3 & 4 (maximum)	3500 W	3500 W	3500 W
Up to 4 AUX Zones (2500 W each)	9600 W	9600 W	9600 W
Total System Wattage:	**19,100 W**	**21,600 W**	**24,100 W**

3.2.4 Wattage Chart D15/D25/D45

The Melters are available in 12 electrically different versions. The following table shows the wattage and circuit breaker amps for each configuration:

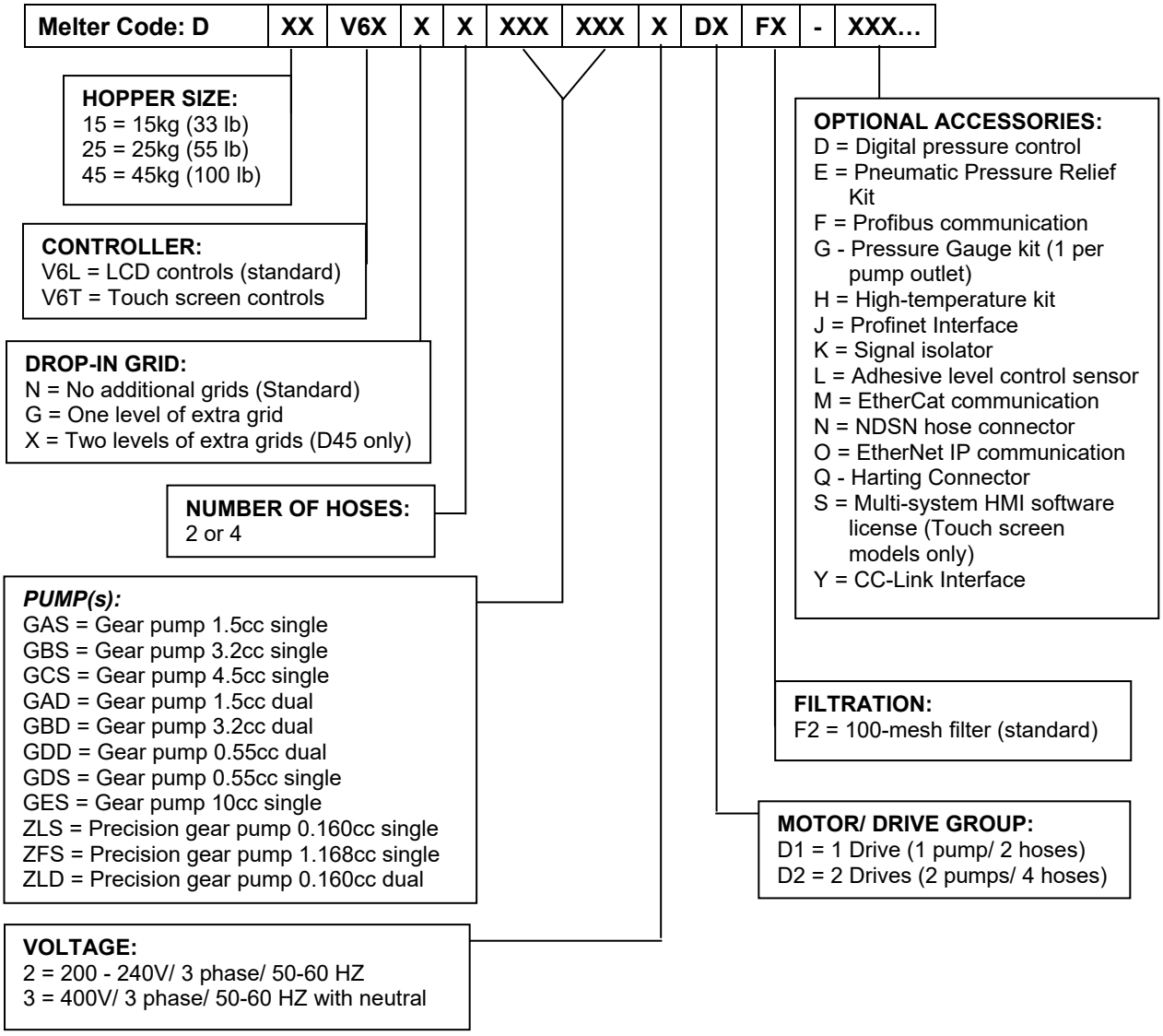
3 Phase 240/400V ("Wye", "Y", 5-wire connection):

	2 Hoses			4 Hoses		
	No Grid	**One Grid**	**Two Grids**	**No Grid**	**One Grid**	**Two Grids**
Total Wattage	10,800 W	13,300 W	15,800 W	19,100 W	21,600 W	24,100 W
Amperes max.	15 A	18.5 A	22 A	26.5 A	32 A	33.5 A
Circuit Breaker	30 A	30 A	30 A	30 A	30 A	60 A

3 Phase 240V ("Delta", 4-wire connection):

	2 Hoses			4 Hoses		
	No Grid	**One Grid**	**Two Grids**	**No Grid**	**One Grid**	**Two Grids**
Total Wattage	10,800 W	12,500 W	15,800 W	19,100 W	21,600 W	24,100 W
Amperes max.	26 A	30 A	38 A	46 A	52 A	58 A
Circuit Breaker	30 A	30 A	60 A	60 A	60 A	60 A

3.2.5 Model Designation Guide



Melter codes are typically compiled without spaces between categories.

Chapter 4
Installation & Start-Up

4.1 Typical Installation

CAUTION

- Before installation, please read this documentation carefully.
- Pay attention to all the installation and connecting advices.
- Heed all safety instructions mentioned in Chapter 2.
- All installation procedures must be performed by qualified, trained technicians.

4.1.1 Placing the Melter

The D15/D25/D45 Series Melters can stand alone on flat surfaces. Access is needed for the main electrical power and the serial communication connections to come in from below the unit and to connect to the V6 Base Module (which is inside the panel box). There is a cutout in the Melter's base plate, directly below the pump shaft, which allows adhesive to drain.

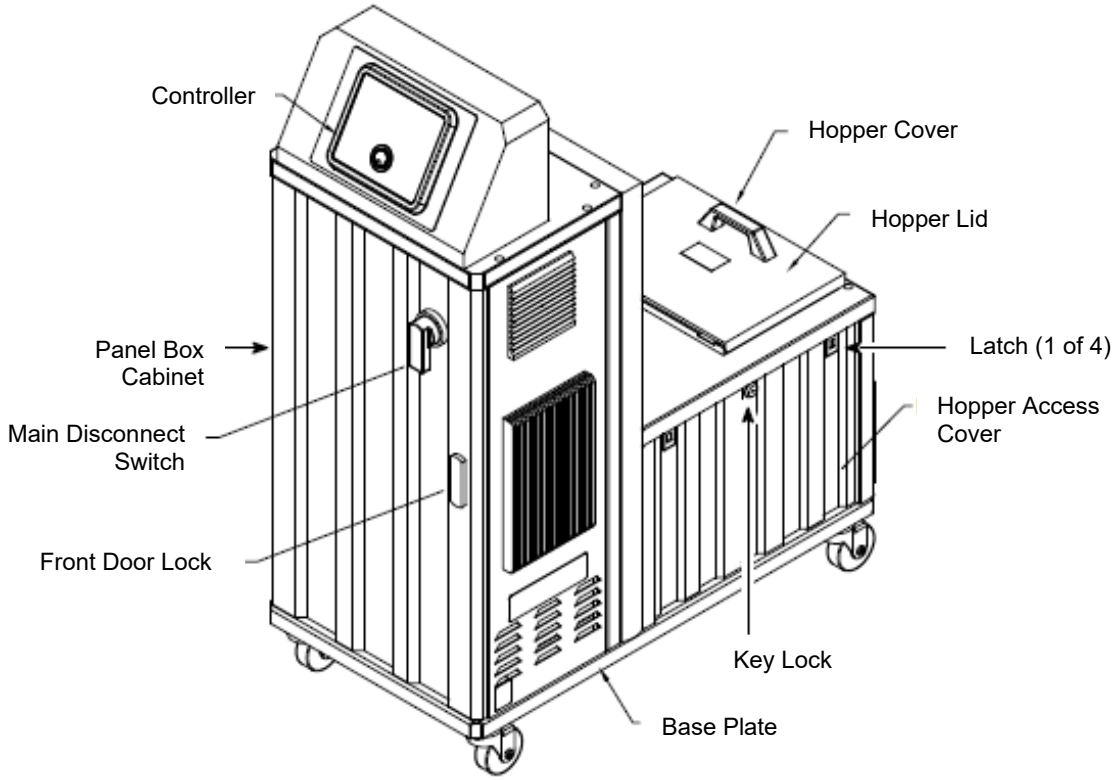
The Melter's hinged hopper lid may be rotated 90 degrees in any direction, so that it can be set up to open in the most convenient direction.

For installation dimensions, see illustration on previous pages.

DANGER – INSTALL ON FLAT SURFACE

Typical equipment configuration includes wheels and brakes, which should be engaged whenever the equipment is not being transported.

DO NOT install equipment on a sloped surface. Transportation of equipment over a sloped surface presents an increased risk of injury in the event of uncontrolled rolling.



DYNAMELT D15/25 Melter

4.1.2 To Open/ Close Panel Box Door

To open:

1. Slide up the cover on the covered key lock.
2. Insert the front door key (supplied) into the covered key lock and turn counter-clockwise to unlock front panel box door. Remove key.
3. Turn the Main On/Off switch clockwise, then counter-clockwise, and pull front door open.

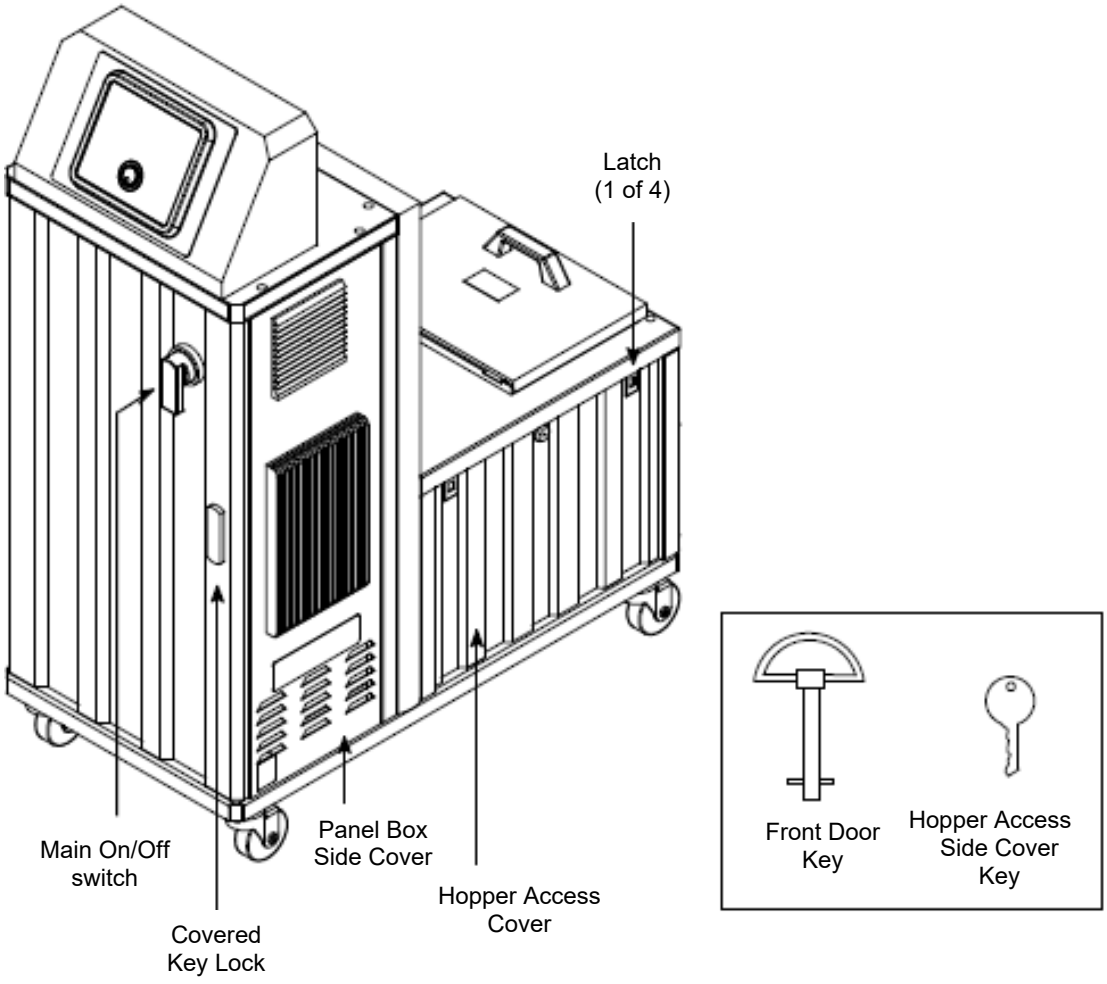
To close and lock:

1. Close front door.
2. Insert front door key and turn clockwise, then counter-clockwise.
3. Turn Main On/Off Switch counter-clockwise.
4. Remove front door key and return Main On/Off key to upright position.

4.1.3 To Open Hopper Access Cover

Hopper Access Cover Side Panels

1. With the key (supplied), unlock the lock on the left or right hopper access cover.
2. Insert a finger in each of the right or left side cover's two latches and push down. The side cover will drop off from the top.
3. Be aware of the grounding wire attached to the cover.



4.1.4 Installation

NOTE: Re-read Chapter 1 “Safety Precautions” before performing any installation procedures. All installation procedures must be performed by qualified, trained technicians.

After the Melter has been properly positioned, the following general sequence should be followed for installation:

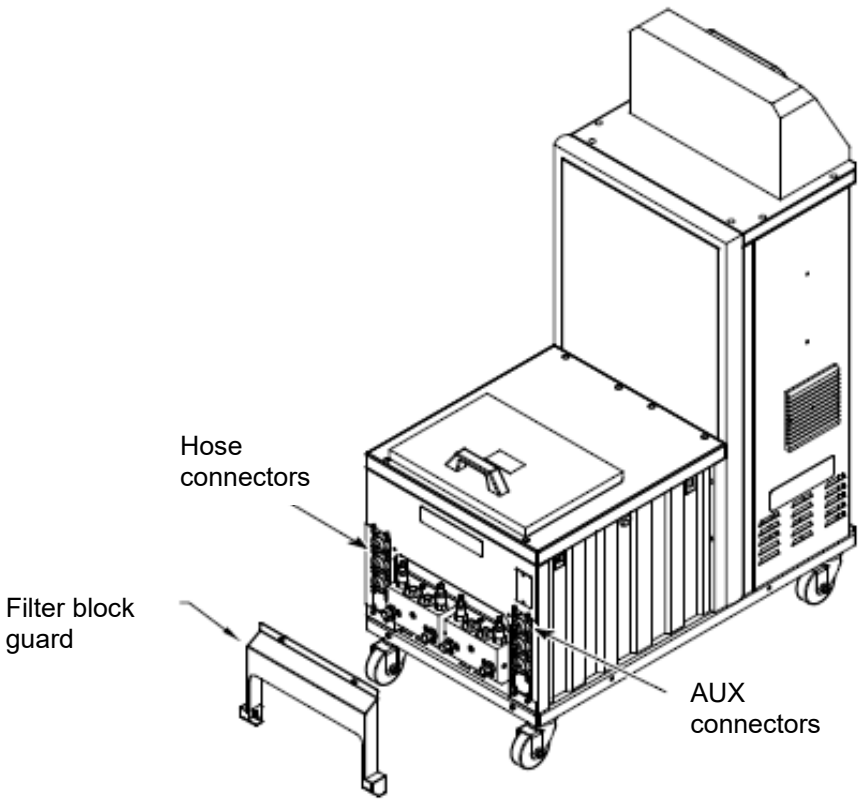
1. Make sure that incoming line power to the Melter and that the unit’s main disconnect switch are turned OFF.

DANGER – HIGH VOLTAGE

Disconnect and lock out 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.

2. Open the panel box door.
   Select correct plug for your Melter’s amperage (refer to instructions on the following page).
   Run the power cord through the hole in the bottom of the base plate.
   In the panel box, at the main circuit breaker, attach the power cord at the switch’s connectors.
   Attach ground wire to ground lug provided in the base plate.

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



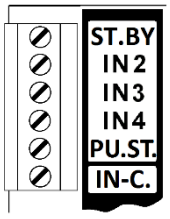
D25 Melter: Rear view

3. At installation, the customer must make the following terminal connections into the Melter's main power (ON/OFF) switch and modules. The modules do not need to be removed from the Melter in order to make connections.

   Refer to the detailed layout drawings of the components in Ch. 7 and/or the schematics in Ch. 11, if needed.

CAUTION: Using the incorrect power supply may cause serious damage to the unit.

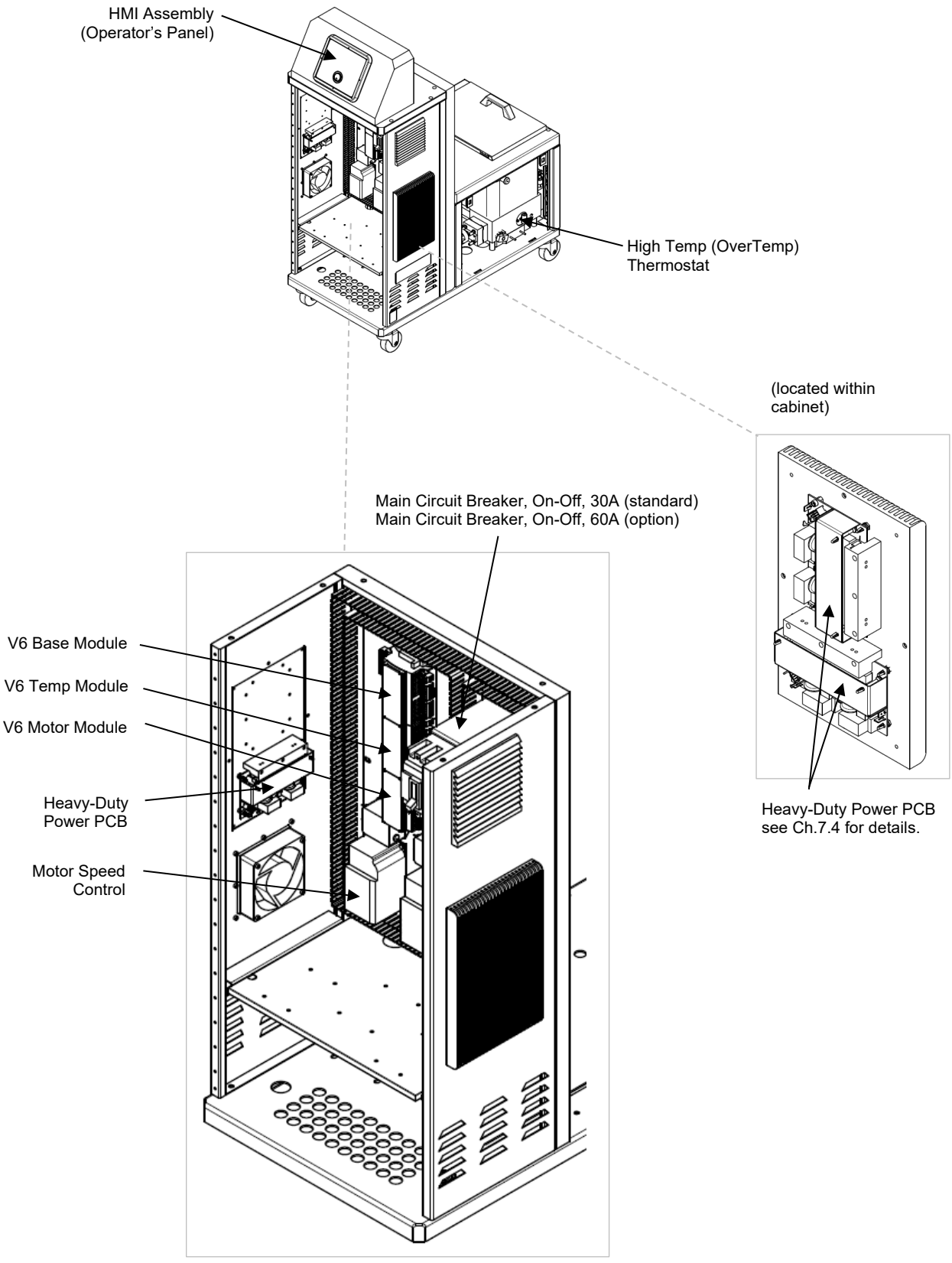
4.1.5 Customer Terminal Connections

Terminal	Circuit	Location
Required connections for 240VAC, 3 PH Delta Melter:		
- -	Input Power from Main Power 240VAC	See terminal block, L1, L2, L3
PE	Ground	See terminal block, PE
Required connections for 400VAC, 3 phase, WYE Melter:		
- -	Input Power from Main Power, 400 VAC	See terminal block, L1, L2, L3
N	Neutral, 400 VAC	See terminal block, N
PE	Ground	See terminal, PE
Non-essential connections; connect if feature is installed:		
RELAY OUTPUT 1	Ready Output Signal (contact closes when ready)	Terminal Block, see R1, R2
RELAY OUTPUT 2	Alarm Output Signal (contact opens when alarm)	Terminal Block, see A1, A2
RELAY OUTPUT 3	Hopper Low Level Signal (contact closes when glue level is low)	Terminal Block, see LS1, LS2
ST.BY IN2 IN3 IN4 PU.ST. IN-C.	Standby Input Recipe Selection 1 Recipe Selection 2 Reserved External Pump Start/Stop (activate to start pump) Common for Inputs	V6 BASE Module, bottom side: 
LINE COM	Line Speed Tracking Voltage (0-10V)	V6 BASE Module, bottom side: 
G+I or L+I	Line Speed Tracking Signal with Signal Isolator (option)	Optional. Install at the left of the Base Module. Refer to schematic for details.

4.1.6 Customer Signal Exchange Interfaces

Signal	D-Unit Terminal Block XC
Motor Start 1	H1/H1
Motor Start 2	H2/H2
Motor Start 3	H3/H3
Motor Start 4	H4/H4
External Standby	E1/E2
Line Speed 0-10V (Motor 1/Master)	S1+/S1-
Line Speed 0-10V (Motor 2)	S2+/S2-
Line Speed 0-10V (Motor 3)	S3+/S3-
Line Speed 0-10V (Motor 4)	S4+/S4-
Line Speed 0-10V (Motor 5)	X
Line Speed 0-10V (Motor 6)	X
Ready	R1/R2
Alarm	A1/A2
Level Control (Low Level)	LS1/LS2

4.1.7 Location of V6 Modules & Printed Circuit Boards (PCBs):



Location of V6 Modules & Printed Circuit Boards (PCBs)

4. The adhesive hoses are connected to the filter manifolds at the back of the machine (see illustration on the next page).

   On a two or four-hose machine, the hose electrical plugs are connected to the bank of receptacles #1 to 4. The optional auxiliary zone cables, if used, are connected to the right bank of receptacles #1 to 4. On a six-hose machine there are no auxiliary zones and hoses #5 and 6 are connected to two receptacles on the right bank.

   The left filter manifold (viewed from the back of the machine) corresponds to pump #1 and the right one to pump #2. Each manifold has four adhesive ports for connection of hoses and optional pressure gauges or pressure transducers.

   When using a single pump, remove the divider plug from the corresponding manifold and connect hose #1 to port #1 and connect the corresponding electrical plug to hose receptacle #1. Connect hose #2 (if used) to port #2 and its plug to receptacle #2.

   When using a dual pump, leave the divider plug in place and connect hoses corresponding with the first glue stream to ports #1 and 3. Connect hoses corresponding to the second glue stream to ports #2 and 4.

   Use the same procedures for the second pump and filter manifold, if applicable.

   Install hoses with a bend radius of no less than 8 inches. Maintain an air space between hoses to avoid hot spots. Use proper belting-type support. Avoid pinching, clamping, squeezing or anything else that would compress the insulation around the hose, resulting in hot spots which shorten hose life.

5. Install the hose manifold (filter block) outlet cover by sliding it into place and attaching with the two screws provided..

4.1.8 Adding Adhesive

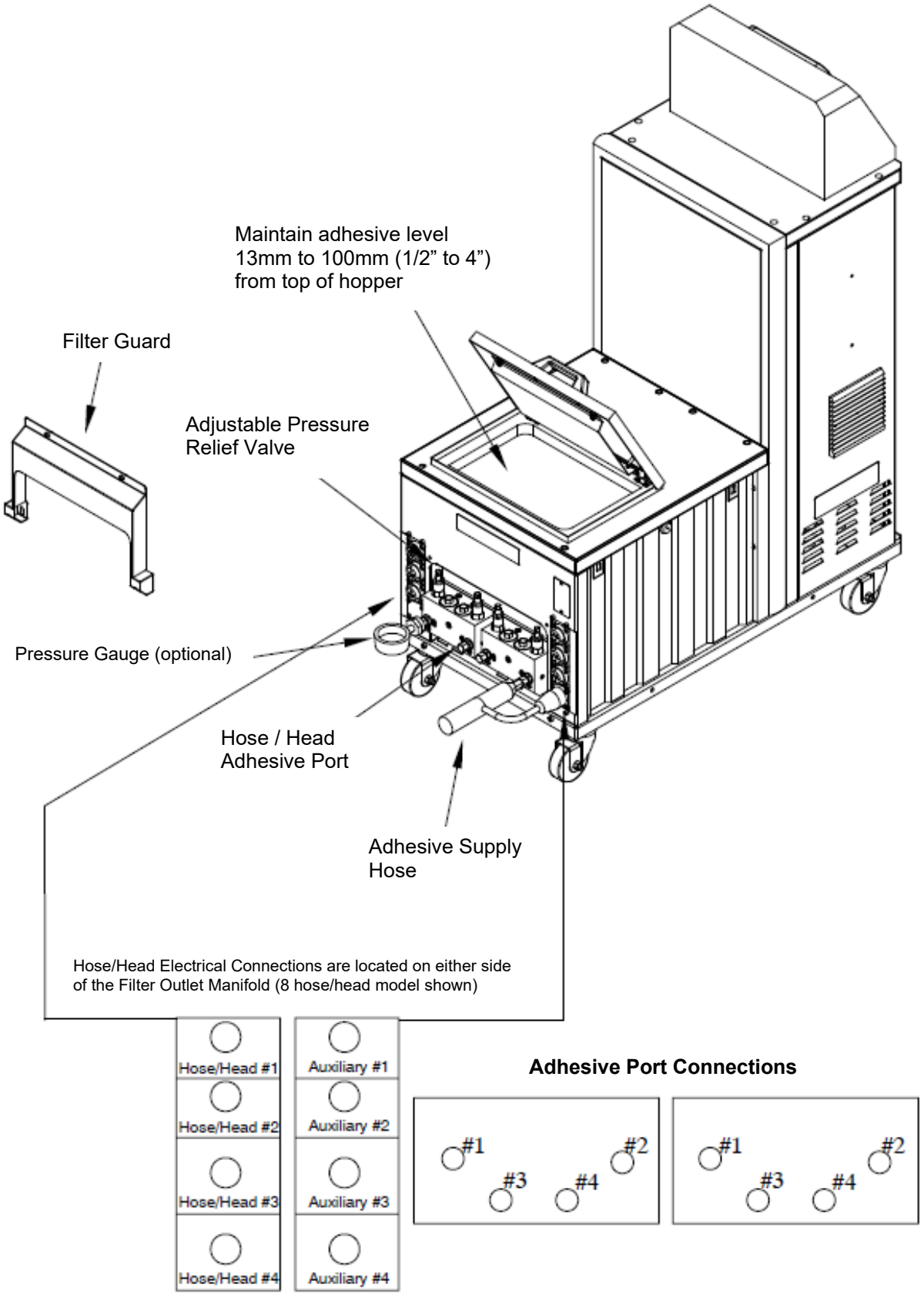
CAUTION: Using adhesive with viscosity over 50,000 centipoise could cause motor stall and/ or pump failure.

The adhesive level in the melt tank should be maintained at 25mm to 100mm (1” to 4”) from the top of the hopper. 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.

4.1.9 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 of this manual for the proper flushing procedure. When in doubt about adhesive compatibility, flush your system.

4.1.10 Hose and Head Electrical and Adhesive Connections



Rear Cover: Hose and Head Electrical and Adhesive Connections

4.1.11 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.
- **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 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

4.1.12 Adjusting the Pressure Relief Valve

The function of the pressure relief valve is to protect the gear pump(s) and the pump drive components from overload and to protect other components from potentially damaging pressure levels. The system will allow pressures up to 1000 psi (70 bar), however, typical factory settings are 500 psi (35 bar).

WARNING! HIGH PRESSURE, HOT ADHESIVE!

NOTE: The following procedure will require the hot melt adhesive to be at a high temperature and the application system to have substantial pressure. Safety glasses, insulated gloves and long-sleeved protective clothing must be worn to prevent the possibility of serious injury from the molten adhesive. Refer to Chapter 2 for further details and First Aid information.

To Adjust Pressure Relief:

Note: This adjustment should be done with a melt pressure gauge or a pressure transducer installed. Failure to use proper equipment can result in excessive pressure levels.

The pressure relief valves are located on the filter manifolds, which are located under the rear manifold cover(s), near where the hoses connect to the Melter.

1. Turn the application system ON and raise the temperatures of all components to normal operating temperatures.

   Note: Position a heat-resistant bucket or other waste receptacle under the applicator(s) so that adhesive will be collected during the adjustment procedure.

2. At the controller, set the motor speed to “0” so that the gear motor is not turning.

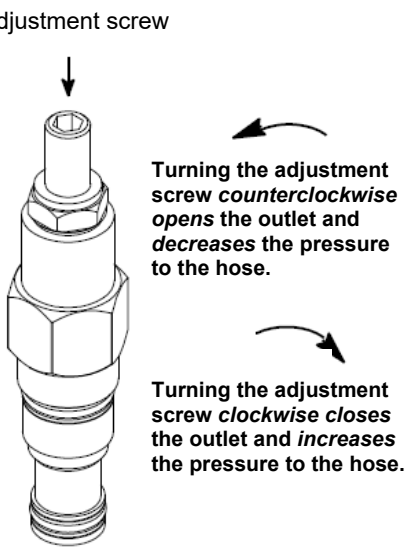
   Note: If using a single pump or if using a dual pump with both output streams combined into one, adjust one of the pressure relief valves fully clockwise to close it off and use the other valve to adjust that pump’s pressure setting.

   If using a dual pump with separate glue streams, set the pressure of each stream with its respective pressure relief valve.

   Reference Note #7 on the Filter manifold drawing (Ch.10) regarding the plug that separates the two pressure chambers, if using a dual pump. This plug must be removed if combining dual streams into one or if using a single output pump.

3. The pressure relief valve’s adjustment screw is at the top of the valve (see diagram). Turn the adjustment screw counterclockwise until it stops.

4. At the controller, turn the motor ON to its maximum operating speed.



Pressure Relief Valve

5. Actuate (open) the valves (modules) on the applicator(s) in order to fill them with adhesive and purge air from the system.

6. Close the valves (modules) (those opened in the last step) to stop the flow of adhesive.

7. Using a wrench, turn the adjustment screw clockwise to increase the pressure to the applicator(s).

CAUTION: Approach desired pressure with caution. Be aware that the higher the adjusted pressure, the more sensitive the adjustment is (i.e., at higher pressures, smaller adjustments to the screw will make larger changes to actual pressure).

8. After desired pressure is achieved, stop turning the adjustment screw.

9. While the motor is operating at maximum speed and the applicator's solenoids are activated, observe the adhesive flow from the applicator(s).

10. Reduce the motor speed, in increments of about 10%, until the adhesive flow begins to decrease.

    Note: Though the speed of the motor is reduced, there will be no change in the amount of adhesive flow coming out of the applicator. This is because the pressure relief is designed to allow only a maximum adhesive pressure regardless of the motor speed past a certain point.

    Then, increase motor speed in smaller increments (1 to 5%) until adhesive flow returns to the desired amount.

    Note: This is the optimum point of operation for the motor, pump and pressure relief. It will also facilitate the best system performance and reduce wear on these components.

    The application system is now adjusted for normal operation.

4.1.13 Field Installation of Controller Options

Customers who choose to modify their adhesive supply unit with ITW Dynatec manufactured options should assure that only qualified technicians perform such installations. The installation of options that require specific procedures and/ or calibration are outlined in this chapter.

Before controller options are installed, always turn the controller's main power switch OFF. In most cases, turning the controller OFF will assure that the controller will retain its programmed parameters and configuration. Re-booting is not necessary.

4.1.14 Level Control, Capacitive

The level control device informs the Melter's operator, via a "Hopper Empty!" message on the controller's System Status display, that the Melter's hopper needs to be refilled. In addition to the display message, the Low-Level situation is also activating a corresponding signal relay.

After a Hopper Empty message is displayed, the operator must press the controller's RETURN button to acknowledge the message and then replenish the glue in the hopper. If the glue is not replenished within ten minutes, the alarm will repeat.

4.1.15 Operation and Calibration of Level Sensor

The level of adhesive in the hopper is monitored by a sensor, mounted in the wall of the hopper and accessed from within the electronics cabinet, which informs the operator of a low adhesive level via a system status message (illustrated below) on the controller's Overview Screen.

After a Hopper Empty message is displayed, the operator must press the controller's RETURN button to acknowledge the message and then replenish the glue in the hopper. If the glue is not replenished within ten minutes, the alarm will repeat.

Calibration

1. Open the electronics cabinet door as described in Chapter 8. Locate the level sensor housing with its calibration button on the side of the hopper.

2. If empty, fill the hopper with adhesive.

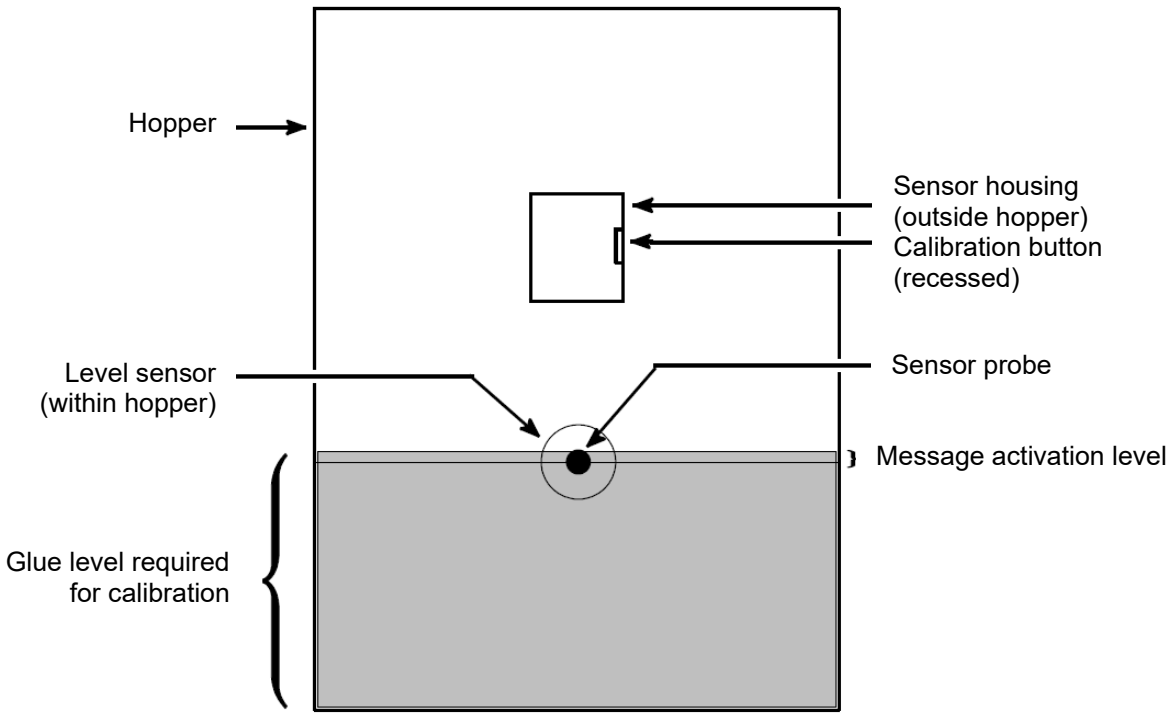
   Turn the Melter On. Allow the adhesive to become molten.

3. Pump adhesive out of the hopper until the molten adhesive reaches a level between the top and the center of the sensor probe. This is the level that will activate the Hopper Empty message.

4. On the level sensor housing, press and hold the calibration button for five seconds.

5. Turn Off the Melter, close the cabinet and re-fill the hopper. Allow sufficient time for the sensor to recognize the level of adhesive.

   Note: in the event removal of the hopper shroud is required, the level sensor housing will need to be removed also (it is attached by two screws/ ground wire). Afterwards, the level sensor must be re-calibrated.



4.2 Typical Start-Up and Shut Down of the Application System Using V6 Controller with LCD

The following simplified sequence assumes that the LCD HMI DynaControl V6 Controller has been programmed.

Start Up Procedures

1. Fill the Melter's hopper with clean hot-melt adhesive to within a couple of centimeters (inches) of the top of the hopper. Close the hopper lid immediately to prevent contaminants from falling in. (Cover your bulk supply of adhesive to prevent contaminants also.)

2. Switch ON the Main Switch. The controller display will come on and the Melter will begin to heat up.

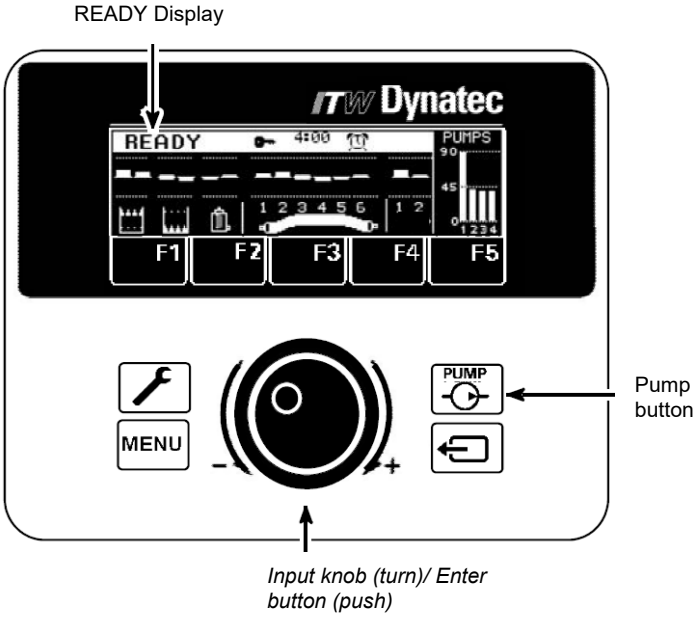
3. Allow adequate time (approximately 20-30 min.) for the adhesive to melt and the temperatures of the heated zones to stabilize.
   The display will indicate when the unit reaches operating temperature:

   The LCD panel will display "READY" in the upper left-hand corner when all zones are within their hi-lo tolerance range of the setpoint temperature. More information about the display can be found in Chapters 4 and 5.

4. When temperatures are ready, the pump/ motor is enabled to pump adhesive.

   a. ***If Pump is in Auto Program:***
   Adhesive will begin to pump when the production line begins to operate.

   b. ***If Pump is in Manual Program:***
   i. Press Pump button.
   ii. Press Manual (F2).
   iii. Select desired speed by turning input knob or select a pre-set speed (F5).
   iv. Adhesive will begin to pump after Ready condition is attained.



Shut Down Procedures

1. ***If Pump is in Auto Program:***
   Turn OFF the Main Switch.

2. ***If Pump is in Manual Program:***
   a. Turn OFF the pump/ motor by depressing the Pump button, then scroll to STOP.
   b. Turn OFF the Main Switch.

3. ***If 7-Day Scheduler is in use: Turn the unit ON and OFF with the Scheduler On/Off:***
   a. Press Menu
   b. Press 7-Day Scheduler (F4)
   c. Press F2 for Sleep Mode (Off). (To cancel Sleep Mode, press the Input knob).

4.3 Typical Start-Up and Shut Down of the Application System Using V6 Controller with Touch Screen

The following simplified sequence assumes that the DynaControl Controller has been programmed.

Start Up Procedures

1. Fill the Melter's hopper with clean hot-melt adhesive to within a couple of centimeters (inches) of the top of the hopper. Close the hopper lid immediately to prevent contaminants from falling in. (Cover your bulk supply of adhesive to prevent contaminants also.)

2. Switch ON the Main Disconnect (the circuit breaker located on the panel box).

3. The Controller and the Touch Panel will start automatically. All system heaters go ON unless they have previously been de-activated (in which case they will be turned OFF) or if heating priorities have been set.

4. Allow adequate time (approximately 20- 30 min.) for the adhesive to melt and the temperatures of the temperature zones to stabilize. Observe the Status Line display at the Main Screen to see when "Not Ready" changes to "Ready".

5. When temperatures are ready, the pump and motor are enabled to pump adhesive.

6. At the Pump Overview Screen, select Auto or Manual Mode for each pump.

   a. *If Pump is in Auto Mode**, select either Pump Control in Linear Line Speed or Pump Control, Pressure Control.*

   To select Pump Control in Linear Line Speed: Adhesive will begin to pump when the production line begins to operate.
   i. Select the pump for programming under the Settings column on the Pump Overview Screen.
   ii. Select Linear Line Speed in the Current Pump Mode menu. Press BACK.
   iii. Set the minimum and maximum setpoint value (RPM). The pump speed is controlled via a 0-10VDC signal provided by an external device (pattern control equipment or parent machine input). The minimum speed is necessary to keep the pump turning in order to maintain a minimum amount of adhesive pressure through the hose and applicator head.
   iv. Select the next pump (if applicable) under the Settings column on the Pump Overview Screen. Repeat steps i through iii until all pumps in the system are programmed.

   To select Pump Control, Pressure Control: Adhesive will begin to pump when the pressure setpoint is reached.
   i. Select the pump for programming under the Settings column on the Pump Overview Screen.
   ii. Select Pressure Control on the Current Pump Mode menu. Press BACK.
   iii. Set the minimum and maximum setpoint value (RPM), the pressure setpoint value and the switch point value. The pump speed is controlled via the pressure signal provided by a pressure sensor.
   iv. Select the next pump (if applicable) under the Settings column on the Pump Overview Screen. Repeat steps i thru iii until all pumps in the system are programmed.

   b. If Pump is in Manual Mode:
   i. Select the pump for programming under the Settings column on the Pump Overview Screen.
   ii. Set the manual setpoint value (RPM) under Manual Mode Settings.

iii. Select the next pump (if applicable) under the Settings column on the Pump Overview Screen. Repeat steps i thru ii until all pumps in the system are programmed.

Shut Down Procedures

At the pump screen:

1. ***If Pump is in Auto Mode:***
a. Press STOP or ALL PUMPS STOP.
b. Turn OFF the Main Disconnect Switch.

2. ***If Pump is in Manual Mode:***
a. Press STOP or ALL PUMPS STOP.
b. Turn OFF the Main Disconnect Switch.

3. ***If the Scheduler is in use:***
Turn OFF the unit with the Control Switch On/Off (i.e., on the Main Screen, press the Control button. Then, at the Control Switch/ Standby Screen, press On/Off).

Note: If the Scheduler is not in operation, use the Main Disconnect Switch to turn the unit OFF to avoid unexpected Melter activation in the event of a power outage.

4.4 Operation of the Melter's Gear Pump

4.4.1 Manual or Automatic Pump Operation

Choose MANUAL, STOP or AUTO gear pump operation via the PUMP button on the DynaControl Overview screen. When the Dynamelt's pump is to be operated manually (that is, without a line following signal), the manual mode is used to control pump speed (and adhesive output). For the gear pump to be operated in the automatic mode, a tach generator, or equivalent, (attached to the parent conveyor line) must be provided and the following set-up procedure should be performed:

1. The tach generator or the signal isolator must be adjusted so that the voltage from the speed controller is 0 to10 VDC (but not more than +10 VDC when the conveyor is at maximum speed). This voltage is measured at the LINE and COMMON terminals on the V6 Base module. The 0-10VDC signal must be connected to the LINE terminal. See customer connector S1, S2.

2. The AUTO setting then changes pump speed for any given 0 to +10 VDC incoming tachometer signal. Voltage will vary given production speed.

The speed can be adjusted (trimmed) in automatic mode by setting maximum and minimum RPM values on the DynaControl keypad.

To make the motor speed adjustment, follow the programming instructions in Chapter 5.

4.4.2 Pump Output Adjustments

When the adhesive in the Melter's hopper has reached a temperature high enough for the pump to operate safely, the controller will place the hopper in "Ready" condition and power will be supplied to the pump. The pump is self-priming.

Pump output is adjusted by the motor speed control on the DynaControl keypad. However, if less pressure is needed, maximum pressure of the pump can be decreased (or increased) by adjusting the pressure relief valve installed on the pump output manifold. To change the setting of this valve, refer to instructions in Chapter 3.

The relief valve is factory set at 28 bar (400 psi) for gear pumps.

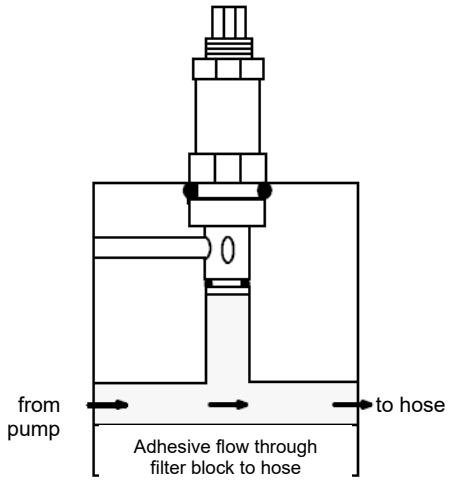
4.5 Adjustable Adhesive Pressure Relief Valve

Dynamelt Melters are outfitted with a high-pressure relief valve located on the outlet filter manifold.

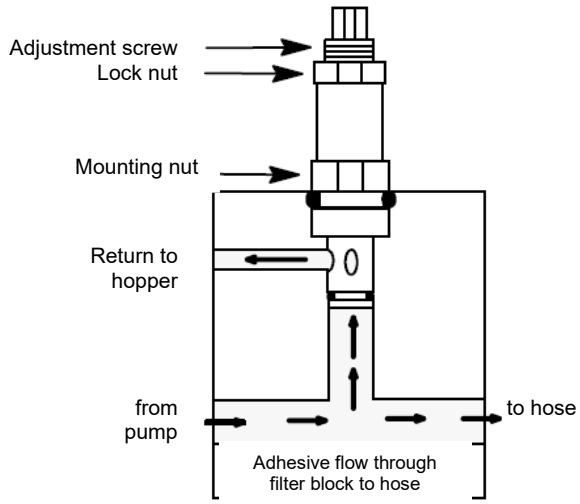
The valve is adjustable, and it does not affect adhesive pressure under normal operating conditions. The adjustable pressure relief valve is factory set at 28 bar (400 psi).

When adhesive pressure exceeds the set limit, the pressure forces the valve to move away from its seat, compressing the spring and allowing adhesive to flow back to the hopper. This adhesive flow reduces pressure. When the pressure falls below the set limit, the spring forces the valve against its seat, cutting off adhesive flow.

Normally Closed (Unrelieved):
In the drawing below, the pressure relief 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.



To Adjust Pressure Relief:

Note: *This adjustment should be done with a melt pressure gauge or a pressure transducer installed. Failure to use proper equipment can result in excessive pressure levels.*

1. Turn the application system ON and raise the temperatures of all components to normal operating temperatures.
2. At the controller, set the motor speed to “0” so that the gearmotor is not turning.
3. Locate the pressure relief assembly on the manifold (where the hoses attach).
4. At the controller, turn the motor ON to desired operating speed.
5. Hold the valve’s mounting nut with a 7/8” (2,22 cm) wrench to prevent it from rotating during procedure.
6. Locate the valve’s adjustment screw and loosen its lock nut with a 3/4” (1,91 cm) - wrench.
7. Actuate (open) the valves (modules) on the applicator(s) in order to fill them with adhesive and purge air from the system.
8. Close the valves (modules) (those opened in the last step) to stop the flow of adhesive.

9. Using a 7/16” (1,11 cm) wrench, turn the adjustment screw clockwise to increase the pressure to the applicator(s) (or counter-clockwise to decrease pressure) until desired pressure is achieved.

CAUTION:
DO NOT adjust the adjustment screw fully clockwise (closed).
Maximum operating pressure should not exceed 1000 PSI (68 bar).

10. After desired pressure is achieved, tighten the lock nut. The system is now adjusted.

4.6 Storage and Disposal of the Application System

Temporary Storage of the Unit

1. Flush 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 Filter and Shutoff Assembly, following instructions detailed in chapter 6.
3. Shut OFF all pressure and power sources.
4. Release residual air pressure (if applicable).
5. Remove all residual adhesive and wipe components clean.
6. Remove all air lines (if applicable) 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 (if applicable).
3. Remove all residual adhesive.
4. Remove all air and adhesive 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
DynaControl V6 Controller

CAUTION: DO NOT damage the HMI's touch panel with sharp-edged tools.

CAUTION: DO NOT damage the touch panel by getting it wet.

CAUTION: Keep the touch panel clean.

5.1 Controller Set-Up

5.1.1 Software & Hardware Versions

The software & hardware versions of your controller and V6 modules are listed on the controller's System Info Screen (if Touch Panel version). At the HMI's Main Screen, press the Settings button. On the Settings Screen, press the System Info button.

5.1.2 Temperature Control Functions in General

The DynaControl microprocessor-based proportional temperature control in the Melter performs a number of functions that help to maintain adhesive setpoints in all temperature zones of the DYNAMELT system. It maintains permanent system values such as the maximum temperature setpoint. It enables the user to program temperature settings and heater on/off sequencing that are appropriate to a specific application. It displays all programmed values, and it includes self-diagnostic malfunction alerts and failure alarms.
Note: Some DynaControl functions are direct temperature conversions between degrees Celsius and Fahrenheit. Other parameters are independently selected values.

5.1.3 Defining DynaControl Temperature Control Terms

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

Default Settings
The factory-set programmable system values that will be in effect if the user does not enter new values. The controller will revert to its defaults whenever it is reset.

EtherNet Serial Communication
A bi-directional data transfer connection to a remote PLC which enables system parameters to be monitored and/ or controlled from the remote station.

Faults/ Alarms
Controller alarms which indicate that the programmed over-temperature values have been exceeded for one or more hopper, hose or head zones or that a zone temperature has fallen beneath its hi-lo tolerance. Alarms may also indicate an open or short-circuited sensor.

Heating Priority

The heating sequence which allows the slower-heating hopper to reach operating temperature without unnecessary use of electricity for faster-heating hoses and applicators. Heating priority is the time period during which the hoses and applicators remain OFF while the hopper (and optional drop-in grids) heat up. Hoses and applicators may be independently programmed. If hopper temperature is above ready temperature when the Melter is turned ON, the hose and applicator priority sequence is bypassed and they will be turned ON. The heating priority is restored after Standby is turned from ON to OFF. Priority heating is not needed for most applications.

Power Modules / Power PCBs

Each power module consists of one printed circuit board (PCB). It provides power to all the temperature zones in the Melter's system. The standard unit's hopper, hoses and applicators are controlled by the Power PCB.

Microprocessor-based Proportional Temperature Control

The built-in control system that controls, monitors and displays all system temperatures.

Over-Temperature Setpoint

The programmable temperatures that will cause alarms to occur when those temperatures are exceeded. Power is not disconnected; the READY contact opens and the alarm contact opens. If an external alarm has been connected, it will activate. The over-temp setpoint is the upper limit of the ready temperature range of each zone.

Pump Enable Temperature

The pump enable temperature protects the pump, pump shaft, motor and motor control board from damage by not allowing the pump to activate until a low limit (the programmed pump enable temperature) is achieved. The pump enable temperature is independent from the zone temperature setpoints. This feature serves as a redundant safety measure.

RTD Sensors

The standard Dynamelt system uses 100-ohm platinum resistance temperature detector sensors for all temperature controls. As an option, the unit can be configured for 120-ohm nickel sensors.

Ramp Compensation

A feature of the touch panel HMI. Programmed parameters automatically regulate the amount of adhesive applied as production speeds accelerate and decelerate.

Recipe

A program recipe is a set of temperature setpoints and parameters which the user has programmed and wishes to store in the controller for future use.

Scheduler

The Scheduler enables the controller to provide scheduling of ON and OFF times of the Dynamelt Melter system by the use of timers. Up to three Scheduler timers may be programmed. The operator may program ON and OFF heating cycles which coincide with his production schedule through the work week. The Scheduler helps conserve electricity usage and also serves as an additional safety feature.

Setpoint

A programmed temperature that has been selected for each of the temperature zones.

Setpoint Limitation

This is a universal maximum temperature for all zones. The programmer cannot program a temperature setpoint higher than the setpoint limitation. If the actual temperature of any zone climbs higher than the setpoint limitation, all heaters will shut down.

Standby Condition

The system condition where the Melter, hose and head temperatures are maintained at predetermined reduced temperature values. Standby temperatures are set lower than setpoint temperatures in order to reduce adhesive degradation and energy consumption when the system is temporarily inactive, and to permit rapid system warm-up when run condition is selected. When standby mode is activated, the controller will display STANDBY.

Temperature Alarm Hysteresis

This is a second, smaller, temperature range and alarm limit programmed in addition to the Temperature Alarm Window which allows the unit to remain in Ready condition as temperatures stabilize after start-up. The Temperature Alarm Hysteresis is a deviation (+/-) from the Temperature Alarm Window.

Temperature Alarm Window

This is the programmable temperature range which allows the unit to go into Ready condition. The Temperature Alarm Window is a deviation (+/-) from the setpoint. The setpoint minus the deviation is the low limit of the window, and the setpoint plus the deviation is the high limit of the window. The Temperature Alarm Window (+/- the Temperature Alarm Hysteresis, if programmed) will trigger high and low temperature alarms when zone temperatures rise or fall outside of the window.

Temperature Zone Enable

The temperature zone enable allows the operator to disable unused temperature zones in such a way that they do not appear on the controller's display and heating is switched OFF.

Temperature Zone Offset

Temperature zone offsets are mathematical factors which compensate for differences in temperature within components. Each temperature zone may be programmed with an offset, if desired. Standard equipment does not usually require temperature offsets.

V6 Base Module

The main control module of the system. It controls and communicates with the temperature control module, the operator interface and all auxiliary modules and I/O devices.

V6 BUS Communication Module

The module which allows remote communication. Several communication protocols (EtherNet, EtherCat, Profibus, etc.) can be adapted by the BUS Module.

V6 Temperature Module

Monitors temperature signals from all heated zones and provides control signals to the HD-Power PCB.

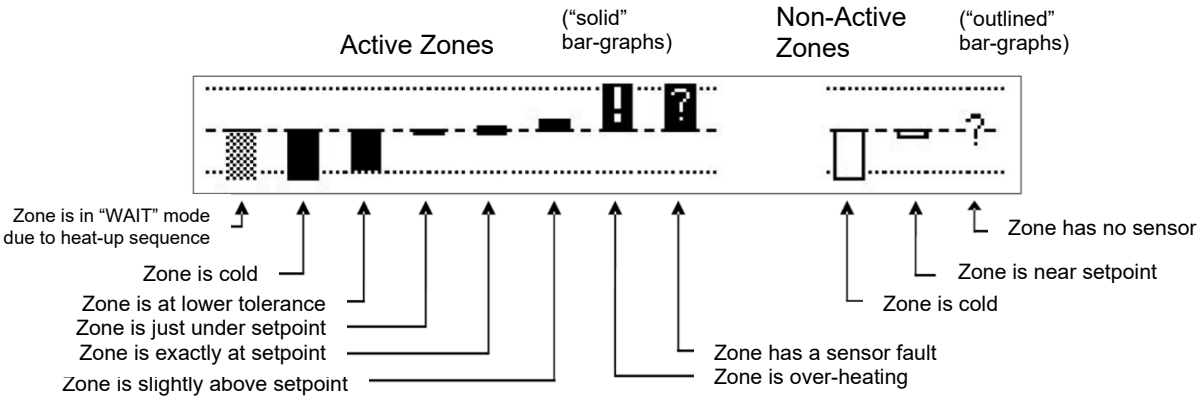
5.1.4 LCD Screen Error Indication Faults & Alarms

The following illustration shows the display that will be activated when one or more error indication alarm conditions occur. The conditions that will trigger an alarm are:

- When a hopper, hose or head has exceeded its selected over-temperature setpoint, which is the setpoint plus its Hi/Lo alarm setting.
- When a hopper, hose or head sensor has an open circuit.

When an alarm condition occurs, the current display will be interrupted only if a sensor failure occurs. If more than one alarm condition occurs simultaneously, all alarm conditions will be displayed sequentially

LCD Error Indication Alarm Display Examples:



Operator Response to LCD Error Indication Alarms

If an alarm occurs during operation, the controller will switch off the internal power to the heaters and an appropriate error indication display will appear.

Pressing the RETURN button resets the error. If several zones display alarms, each must be acknowledged by pressing RETURN. The alarm display is switched off. The operator must either switch OFF the indicated temperature zone(s) (via the DynaControl keypad) or troubleshoot to correct the problem.

Low temperature alarms will not open the main contactor and are only indicated on the bar-graph display and auxiliary alarm output contacts.

A sensor failure is displayed as a "?" on the bar-graph and power is switched off to the zone.

When the actual temperature exceeds the setpoint limitation plus a tolerance of a few degrees, a "!" is displayed on the bar-graph and heater power is switched off.

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5.1.5 Touch Screen Error Indication Faults & Alarms

If a fault/ alarm occurs, the Acknowledge button (on the Main Screen) and the temperature zone will be highlighted in red. The controller will turn off the internal power to the heaters and an appropriate alarm indication will appear in the status line of the controller's display.

The operator must either turn Off the indicated temperature zone(s) or troubleshoot to correct the problem. Then press the Acknowledge button in order to turn on the main contactor and reset the error. If more than one alarm condition occurs simultaneously, the alarms will be displayed sequentially, and each alarm must be acknowledged.

When an alarm occurs, the current display will be interrupted only if a sensor (or a motor drive) failure has occurred. When the actual temperature exceeds the setpoint limitation (plus a tolerance) the over-temperature alarm is displayed, and main power is switched Off.

5.1.6 Error Alarms in Touch Screen Status Line

Among the Faults and Alarms that may be displayed on the controller's status line are:
RTD Fault: a hopper, hose or applicator head RTD sensor has an open circuit.

Temperature Alarm:

1. a temperature zone has exceeded its selected over-temperature setpoint, (which is the setpoint plus the Temperature Alarm Window and Temperature Alarm Hysteresis), or
2. a temperature zone is below its selected under-temperature setpoint (which is the setpoint minus the Temperature Alarm Window and the Temperature Alarm Hysteresis).

- Drive Failure: a motor drive (frequency converter) has a fault.
- Minimum Level: the adhesive level has dropped below the level sensor and the hopper is empty.
- Feedback Failure Motor #: (optional) speed monitor pump addressed.
- Overtemperature: hardware over-temperature indication.
- Communication Error: there is a communication error between the touch panel and controller.
- Parameter CRC Error: parameter memory has been lost. Call ITW Dynatec Technical Service.
- Other Faults or Alarms: call ITW Dynatec Technical Service.

5.1.7 Touch Screen Controller's Log Book

The controller's Log Book Screen provides a list of the last 100 controller alarms, faults and events.

To go to the Log Book, press the Settings button on the Main Screen. Then press the Log Book button on the Settings Screen.

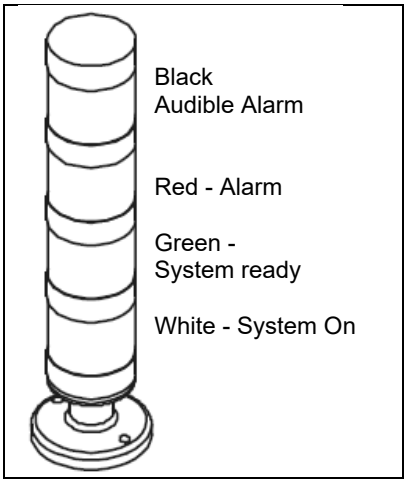
WARNING USE OF SCHEDULER FEATURE

The controller's Scheduler feature allows automatic start-up and shut-down of the unit's heating and rotating components, which may present an unexpected hazard to those unfamiliar with it. Users, service technicians and others in the vicinity of the machine should be made aware of this possibility in order to mitigate the risk of injury.

5.1.8 Optional System Status Lights

This tri-color stack light eases remote monitoring of the system's status. The lower, white light illuminates when the system is turned ON. The middle, green light indicates that the system has warmed up to temperature setpoints ("ready"). The upper, red light illuminates only in an alarm condition and is accompanied by an audible alarm. The audible alarm is housed within the upper (black) section of the stack.

The status lights may be wired to indicate either high/low temperature, low adhesive level or open/short sensor. See Chapter 11 for wiring diagram.



5.1 9 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 177°C (350°F):

- Hose and head temperature: 177°C (350°F).
- Hopper setpoint temperature: 163°C (325°F).
- Hi/ Lo limit deviation: 12°C (20°F).
- Melter operating range: 149°C to 177°C (300°F to 350°F).
- Standby condition temperature (deviation): 30°C (50°F).
- Hopper over-temperature setpoint: 177°C (350°F)
- Mechanical thermostat (for the hopper) over-temperature: 218°C (425°F)

For most operations, temperature fluctuations will be very small and of short duration. For these reasons, the settings above are recommended.

5.1.10 System Values That Are Factory Programmed (not customer programmable)

- Minimum setpoint value: 10°C (50°F).
- Maximum setpoint value (setpoint limitation): 218°C (425°F).
- Maximum alarm deviation: 50° (C or F).
- Minimum alarm deviation: 5° (C or F).
- Maximum standby temperature: 150° (C or F) less than setpoint.
- Minimum standby temperature: 30° (C or F) less than setpoint.
- "Actual" temperature indication range: 0°C to 260°C (32°F to 500°F).

5.1.11 Customer Programmable System Values Preset At 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 DynaControl controller at the factory. They may be changed by reprogramming through the controller.
(These are not the "default" settings, see following section).

- Language: Chinese (when shipment is to a China destination).
- Standby: 82°C (180°F) under setpoint.
- All other system values: controller defaults.

5.1.12 Default Settings of the DynaControl V6 LCD Controller

- Language: English
- Setting for Customer Access Code: “1111”.
- Standby temperature for all zones: 66°C (150°F) lower than programmed setpoints.
- Hi/ lo limit deviation for all temperature zones: + 20°C (36°F).
- Temperature zone offset: 0°C (0°F).
- Setpoint limitation: 218°C (425°F).
- Automatic sleep mode: Off.
- Sequential heat-up: Off.
- Power-On motor Stop: No.
- Power-On heater start: Yes.
- Global setpoints: No.
- Minimum pump speed: 0 RPM).
- Maximum pump speed: 90 RPM.

The ITW Dynatec factory default settings may be re-loaded in the controller per the instructions given in Chapter 5: Zone Configuration (P1 parameter).

5.1.13 LCD Controller Features

One-button Shortcuts

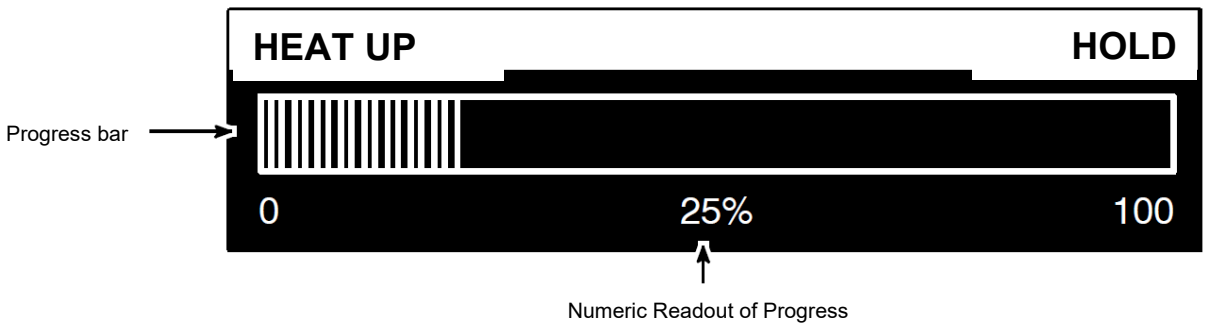
Press the “F” buttons to go to:
F1 = the Hopper temperature zone
F2 = the Hose temperature zone
F3 = the first Applicator temperature zone
F5 = toggle On/ Off

Shortcut to Advance to System Configuration Parameters

Press the System Configuration button (wrench button) on the Overview Screen once to advance to the System Configuration parameters. Press it again, repeatedly, to advance through the pages of parameters.

Initial Heat-up Progress Bar

During heat up from a cold start, press the Input Wheel/ Knob for 5 seconds to see a progress bar which graphically tracks heat-up until Ready status is attained and production can start. The scale shown is 0% to 100% fully heated.



The Melter illustrated above is one-quarter heated.

If you would like to display the controller’s Scan Mode in order to watch the active temperature zones scroll while the unit is heating, press the Input Knob once more.

5.1.14 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 if the automatic heater startup is enabled and if setpoints are programmed unless sequential heat-ups have been set. However, if hopper temperature is above ready temperature when the Melter is turned ON, all hose and head sequential heat-ups will be bypassed and hoses and heads will be turned ON.

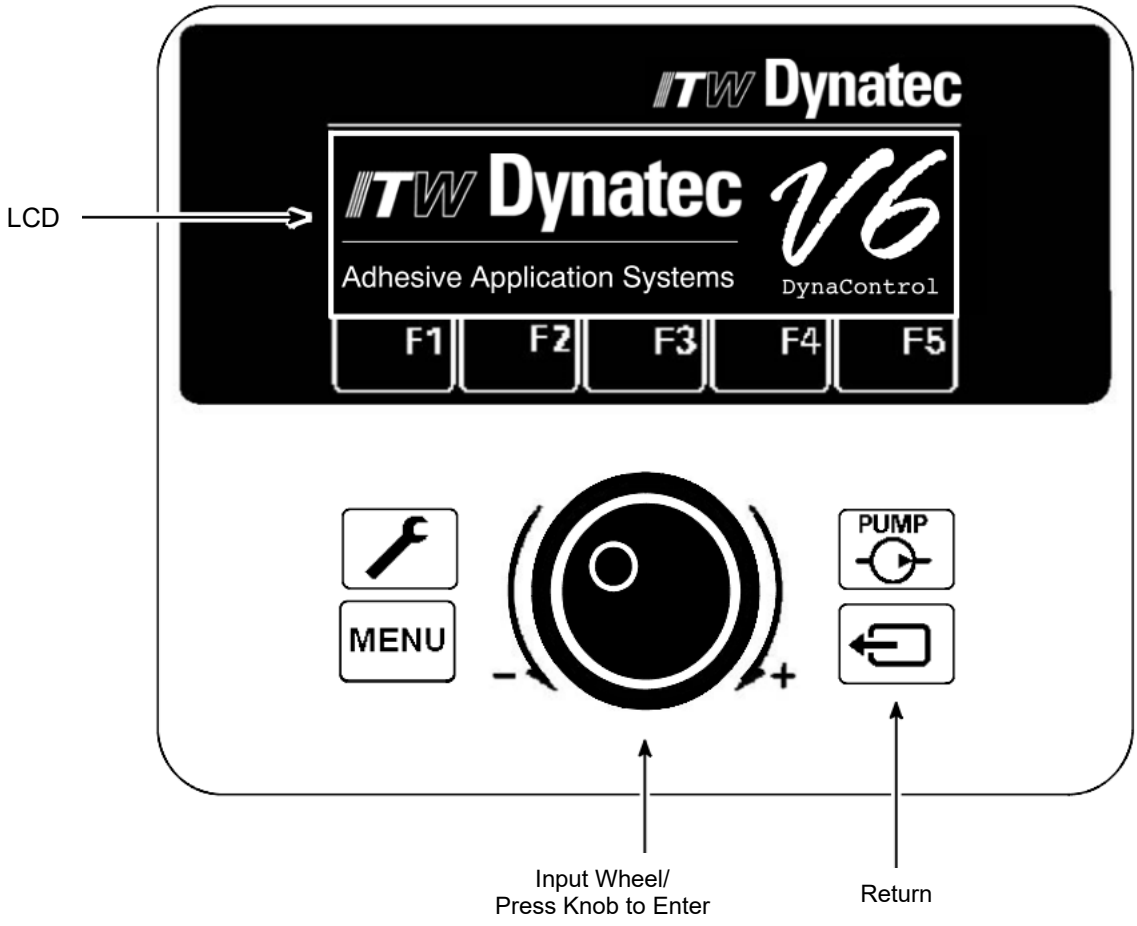
If the system is turned OFF and then ON again, the standby condition will be disabled.

5.2 Controller Programming Instructions, V6 LCD

V.6.00 and Up

5.2.1 DynaControl (DCL) V6 LCD Interface

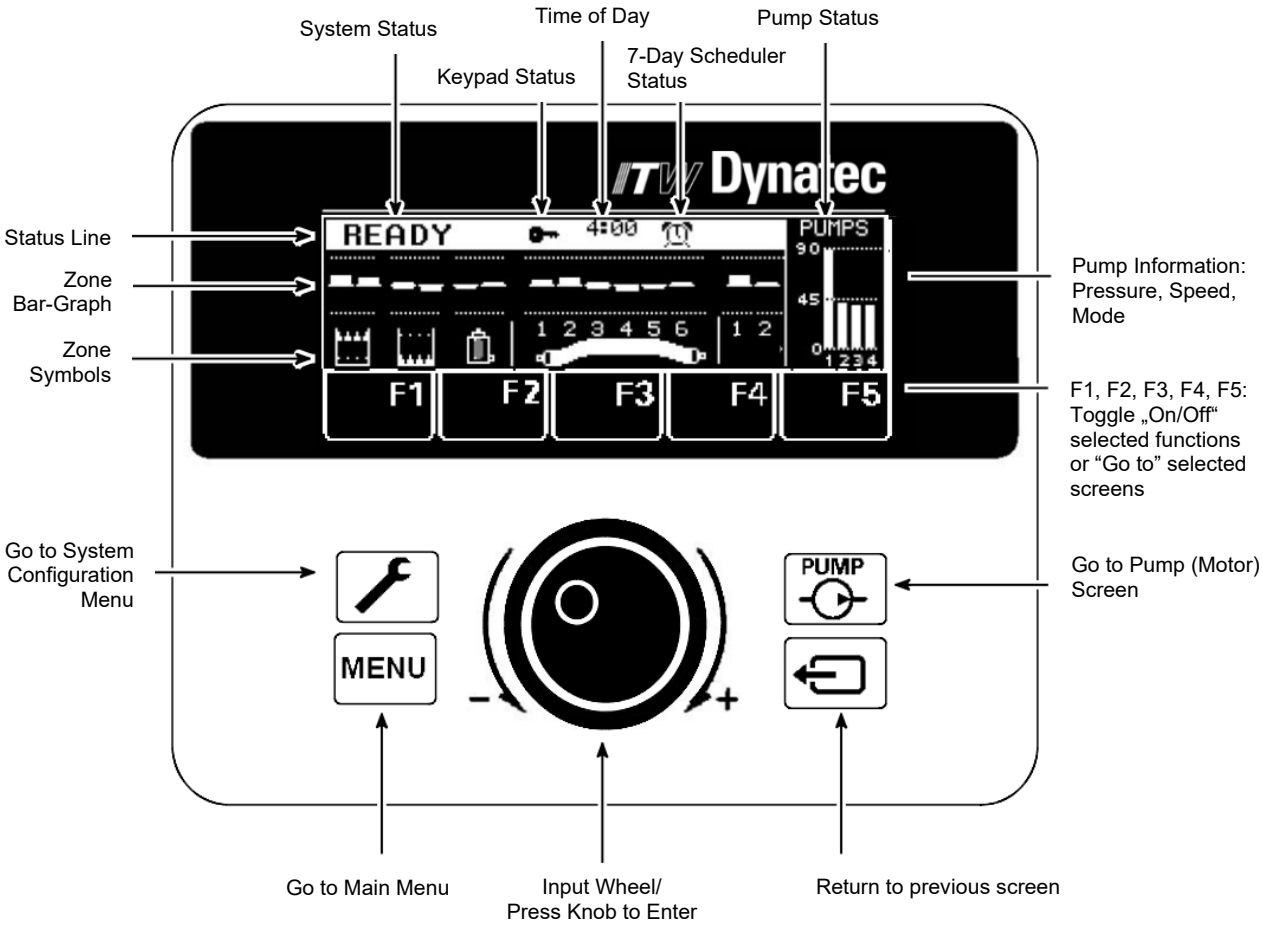
DynaControl V6 controller technology is available as a liquid crystal display (LCD), which allows an instant overview of temperature zone and pump status, and with a combination Input Wheel/Enter Knob to facilitate fast programming. LCD HMI is the standard controller for the D Series Melters.



5.2.1.1 In General

- Press the Return button to return to the Overview Screen (seen on next page).
- This controller utilizes the graphics ■ (indicating YES or ON or selected) and ☐ (indicating NO or OFF or not-selected).
- When there is no operator activity on a screen for approximately 30 seconds, the controller will automatically return to the Overview Screen.

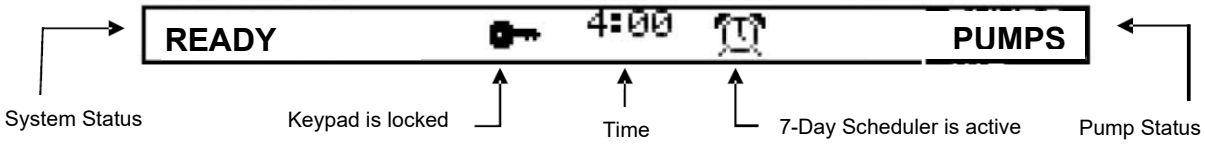
5.2.1.2 Overview Screen Reference



The Overview Screen gives a comprehensive view of the status of each of the temperature zones and the system as a whole. It gives the status, mode and speed of the pump.

5.2.1.3 Status Line

The status line is the top line of the display. It always lists the System Status, the Time-of-Day and the Pump Status. It can also include the status of the Keypad (if locked) and the 7-Day Scheduler (if active). An example of an Overview Screen status line is seen below.



5.2.1.4 System Status

The status of the “system”, i.e. the Melter and its hoses and applicators, is listed as one of the following:

HEAT-UP	No faults present, zones are heating but haven't reached their setpoint window.
READY	No faults present and all zones are within the setpoint window.
ALARM	At least one zone is outside the setpoint window (over or under temp).
STANDBY	The system is in standby mode.
OVER-TEMP	The hopper is in over temperature condition, all power circuits are shut off.
FAULT	A temperature zone has a fault and all power circuits are shut off or the motor drive has faulted.
HOPPER EMPTY	Adhesive in the hopper is low and must be replenished.

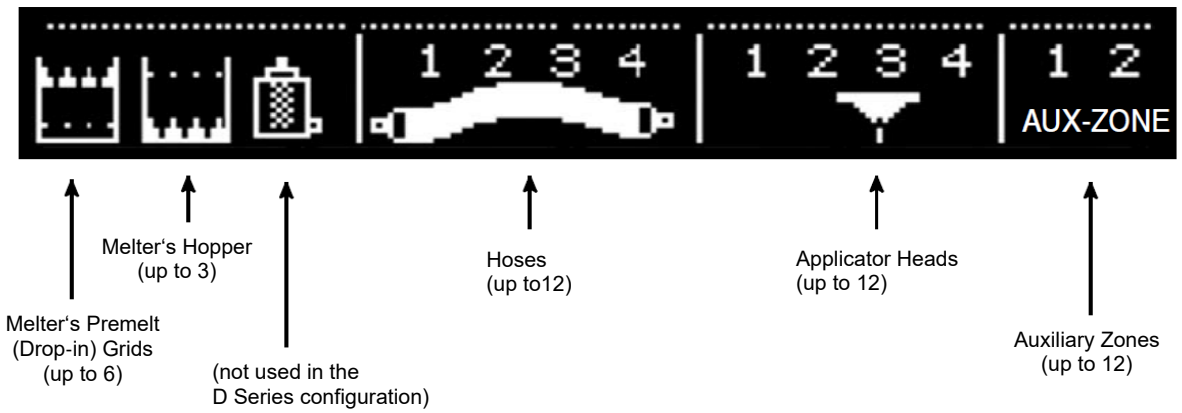
5.2.1.5 Pump Status

The status of the adhesive pump is listed as one of the following:

PUMPS	Pump has start signal and is actually running.
STOP	Pump is in Stop mode.
HOLD	Pump is in Run mode (auto or manual) but a low temperature condition prevents it from running.

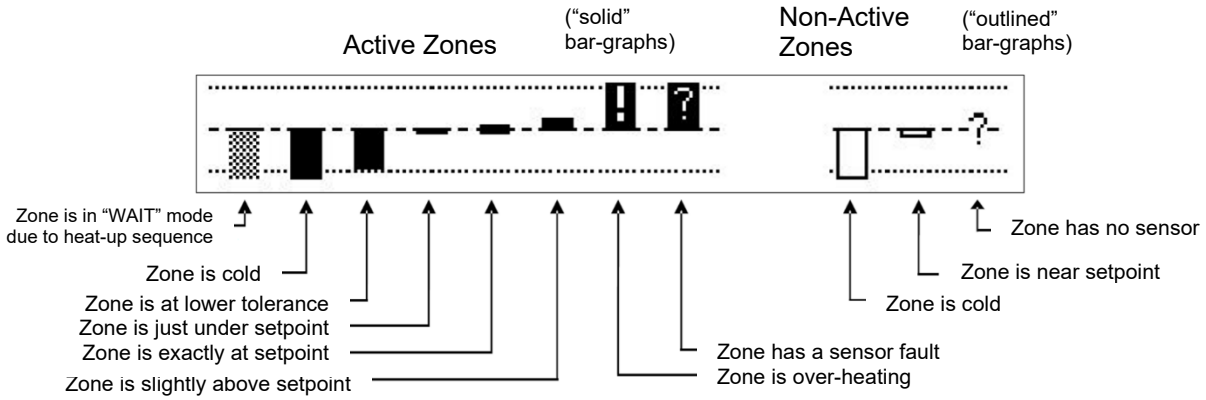
5.2.1.6 Temperature Zone Symbols

Each temperature zone is represented by a symbol on the display, as follows:



5.2.1.7 Bar-Graphs

The temperature status of each zone is shown by a bar-graph. A solid bar-graph indicates that the temperature zone is activated. An outlined bar-graph indicates a temporarily de-activated temperature zone. A question mark indicates that the zone's RTD sensor is not valid. An exclamation mark inside a solid bar-graph means that the temperature of the zone is significantly outside its setpoint window.



5.2.1.8 Scan Mode

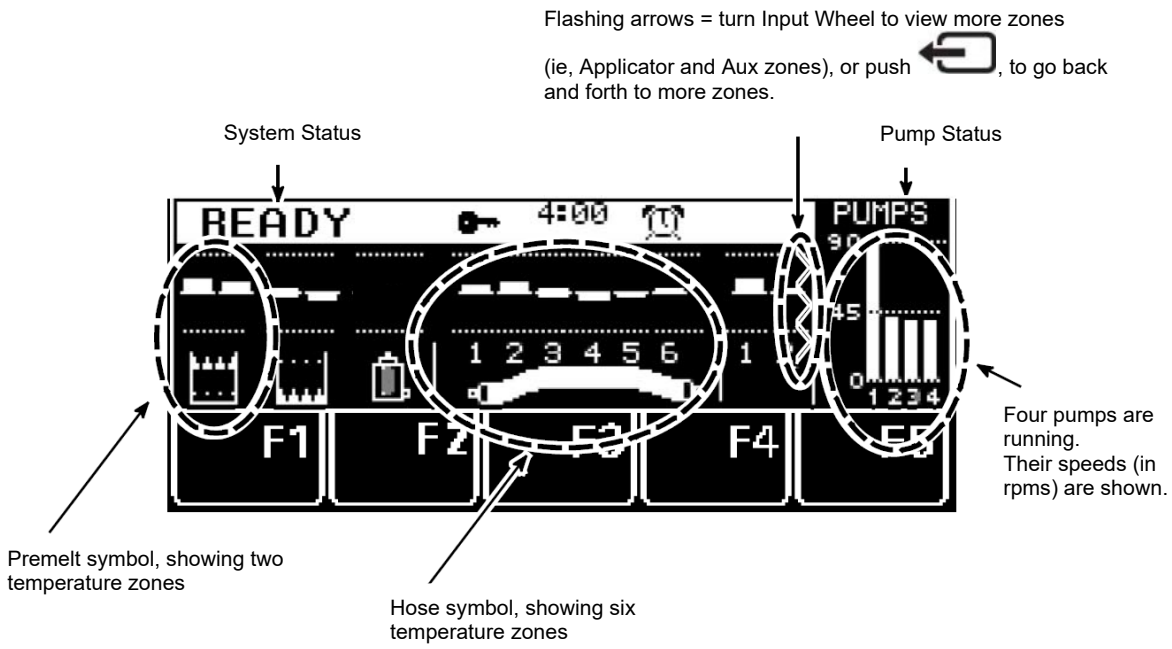
Scan Mode allows the operator to watch the currently active temperature zones scroll one at a time on the Overview Screen. Each zone is displayed with its name, programmed setpoint, actual temperature and bar graph.

- *To activate Scan Mode:* On the Overview Screen, push the input knob.
- *To hold Scan Mode on one particular zone*: Push the input knob again.
- *To exit Scan Mode:* Turn or push the input wheel.

5.2.1.9 Overview Screen Example

The Overview Screen illustrated below illustrates an example of a typical system. This melter has two premelt (drop-in) grids and two hopper heaters for a total of four Melter temperature zones.

The screen also shows six hoses and four pump/ motors. There are additional temperature zones in this system, not seen on this screen, as indicated by the flashing arrows.



5.2.1.10 To Navigate Away from the Overview Screen

Press this button…	To:
System Configuration	Go to the System Configuration Menu to program the temperature unit, language, setpoint limitation, hi/ low tolerance, setback temperature, level control, heat-up sequence, pump enable temperature, access code, 0.5 RPM increments, temperature offset, zone names, power-on configuration or view the logbook.
Menu	Go to the Main Menu screen to program recipes, set-back mode, keypad locking and the 7-day scheduler or to go to the Help Screen.
Pump	Go to the Pump (or Motor) screen to program pump parameters.
Return	Return to the previous screen.
F1, F2, F3, F4	Go to the temperature zones (use as shortcuts).
F5	Go to the Pump/ Motor screen (alternative method)

5.2.1.11 Setup Your System's Parameters

System Parameter Setup refers to the process of programming the controller to meet the specific temperature requirements of your production. Temperature setpoints for each temperature zone must be programmed as well as a standby temperature and high/ low alarm tolerances. Choices must be made for program selection and pump (or motor) conditions. If desired, temperature zone offsets and/ or a temperature zone enable may be selected.

The following is a step-by-step procedure for setting up the DynaControl with your system's parameters.

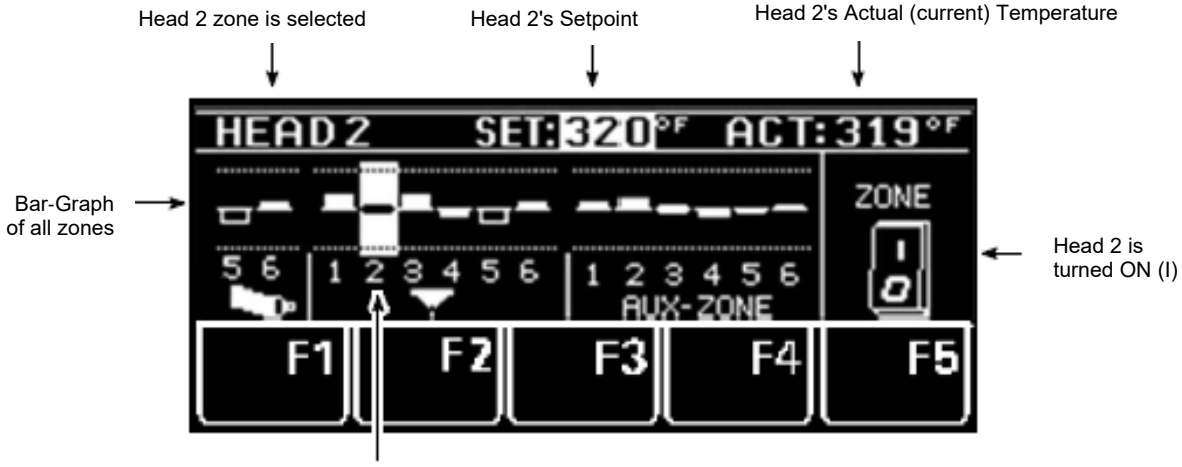
5.2.2 Temperature Zones

5.2.2.1 Selecting Temperature Zones

From the Overview Screen, turn the Input Wheel slowly to view each temperature zone. As the wheel is turned, you will see the names of the individual temperature zones on the top line of the display. Zone names may be re-programmed to suit the user, but ITW Dynatec's typical D Series zone names are: PREMELT (drop-in grid), HOPPER, HOSE, HEAD and AUX.

To select a zone, simply stop turning the wheel when the desired zone's name appears (example below: HEAD 2). To the right, displayed on the top line, is this zone's programmed setpoint (ex. SET: 320°F) and the actual current temperature of the zone (ex. ACT: 319°F).

Below the zone's name is the bar-graph with the selected zone highlighted. Below the bar-graph you can see that this zone is #2 of the system's applicators. At the far right of the display, you can see that this zone is turned ON.



5.2.2.2 Selecting Temperature Setpoints

After selecting a temperature zone, press the Enter Knob to highlight the setpoint. Turn the Input Wheel to your desired setpoint value. To enter the new value, press the Enter Knob. Continue programming by entering a setpoint for each zone.

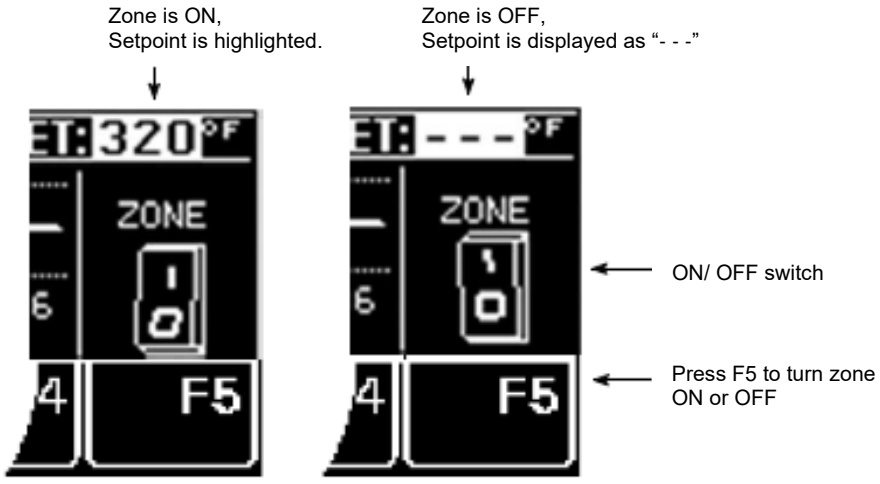
NOTE for systems with multiple Melter zones (i.e. multiple Premelt, Hopper and Filter Block zones): each of the Melter zone pairs are individually controlled by RTD sensors, but require only one temperature setpoint. For example, a system with two Premelt zones, two Hopper zones and two Filter Block zones only requires that one Premelt setpoint be programmed, one Hopper setpoint be programmed and one Filter Block setpoint be programmed. NOTE: on the D Series models, there never more than one Hopper or one Filter Block.

5.2.2.3 Turning a Temperature Zone ON or OFF

When a temperature zone is not used, it can be de-activated (turned OFF). A zone that is turned off no longer heats and is not monitored by the controller for over or under temperatures.

Even when a zone is turned off, the controller remembers its temperature setpoint and it will be restored when the zone is turned back on.

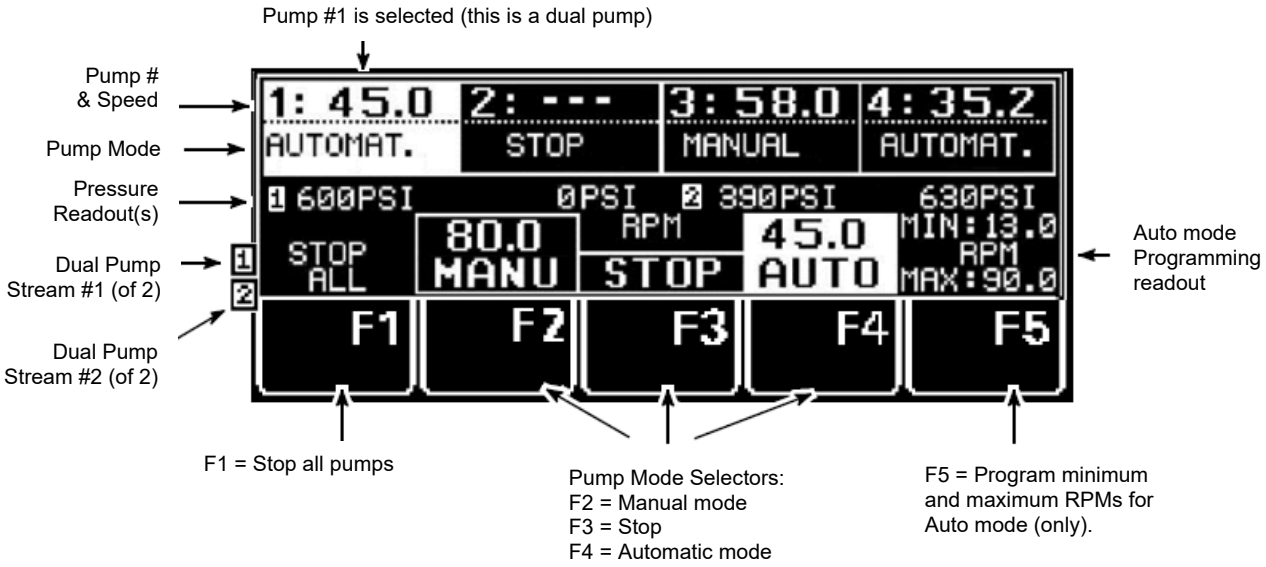
To toggle a temperature zone ON or OFF, press the Enter Knob. Then press F5. You will see the ON/ OFF switch change position. Press the Enter Knob.



5.2.3 Pump Screen

Return to the Overview Screen if necessary, by pressing the RETURN button. Then press the Pump button (or F5) to go to the Pump Screen.

The Pump Screen illustrated below shows the maximum number of pumps (four). The display shows the pump mode and speed for each pump. If the Melter is equipped with the digital pressure readout option, the display also shows the actual pressure (PSI/BAR) of each pump. If dual pumps with pressure readouts are in use, the display toggles between the two pump stream's PSI readouts. In the example below, pumps #1 and 3 are dual pumps.
NOTE: on the D25/45 models, two pumps is the maximum and on the D50/90 models, four pumps is the maximum.



5.2.3.1 Pump Settings

While on the Pump Screen, all changes are immediate; you do not have to press the Enter Knob.
The Pump Screen allows you to program the pump mode (Manual, Stop or Automatic) and the pump speed (on a variable speed-equipped Melter only).

Selecting a Pump

Turn the Input Wheel to scroll through the pumps. The selected pump will be highlighted.

Selecting Pump Mode

Each pump in the system must be programmed with a Pump Mode.
The three choices are:

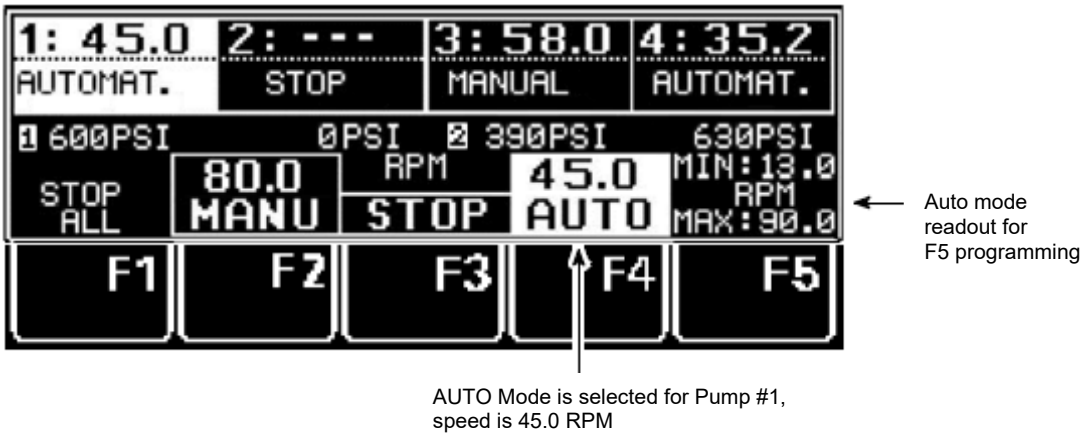
- AUTO Mode = the pump will be started and stopped by a parent machine (production line).
- MANUAL (MANU) Mode = the pump will be started and stopped manually by an operator.
- STOP Mode = the pump is stopped, until AUTO or MANUAL is selected.

To select a pump mode:

1. Use the function buttons:
   F2 = MANUAL Mode, F3 = STOP or F4 = AUTO Mode, or
2. Use the Input Wheel.

If Auto or Stop modes are desired, simply turn the Input Wheel to highlight that function.

However, to select Manual mode, press the Enter Knob before turning the wheel. Pressing the Enter Knob here toggles between mode selection and RPM selection. Once you are in Manual mode and you have highlighted the RPM selection, turn the Input Wheel to your desired RPM value.



Manual Mode Adjustments

In Manual Mode, press the Enter Knob to program the pump speed. Then turn the Input Wheel to increase or decrease the pump speed. (If desired, you may adjust the RPM increments at the “0.5 RPM Increments” parameter on the System Configuration Menu.)

Or press F5 to scroll through the pre-set speed shortcuts. The presets are 0, 30 RPM, 60 RPM or 90 RPM. Press F5 again until desired pre-set is selected. No entry confirmation is necessary.

Auto Mode Adjustments

The Melter’s pump must be programmed with a minimum and maximum percent of full (maximum) speed when Auto mode is used. The maximum speed is used as a scaling factor between the input signal (for example, a PLC or an external 0-10V input) and the percent of full speed value of the pump.

The minimum speed is necessary to keep the pump turning in order to maintain a minimum amount of adhesive pressure through the hose and applicator head.

For instance, if the input signal is 10VDC at 100 meters per minute and the pump percent of full speed is 100% (maximum speed), but the system is putting out too much adhesive, adjusting the MAX value to 50 will allow the pump to slow down and adhesive output will decrease by 50%.

To Adjust: Press the F5 button once to open a minimum RPM input field. Turn the Input Wheel to select desired minimum speed. Press the Enter Knob to confirm. Press F5 again to open the maximum RPM field. Turn the Input Wheel to select desired maximum speed. Press the Enter Knob to enter the value.

F1 = Stop All Pumps

Press the F1 button to stop all the pumps. The controller will memorize the previous setting.

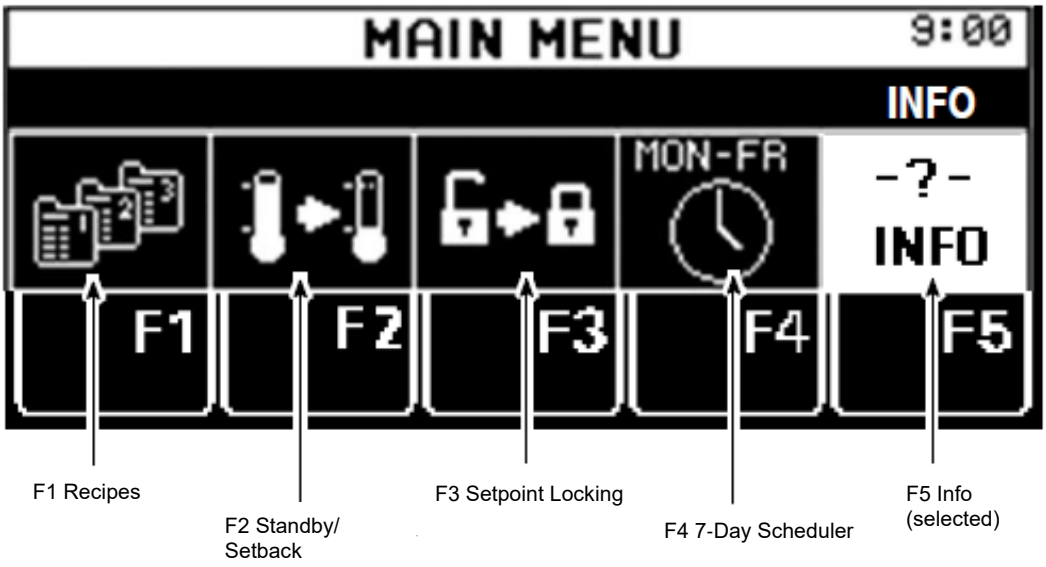
Press F1 again and the pumps will re-start accordingly.

Press the RETURN button to return to the Overview Screen.

5.2.4 Main Menu

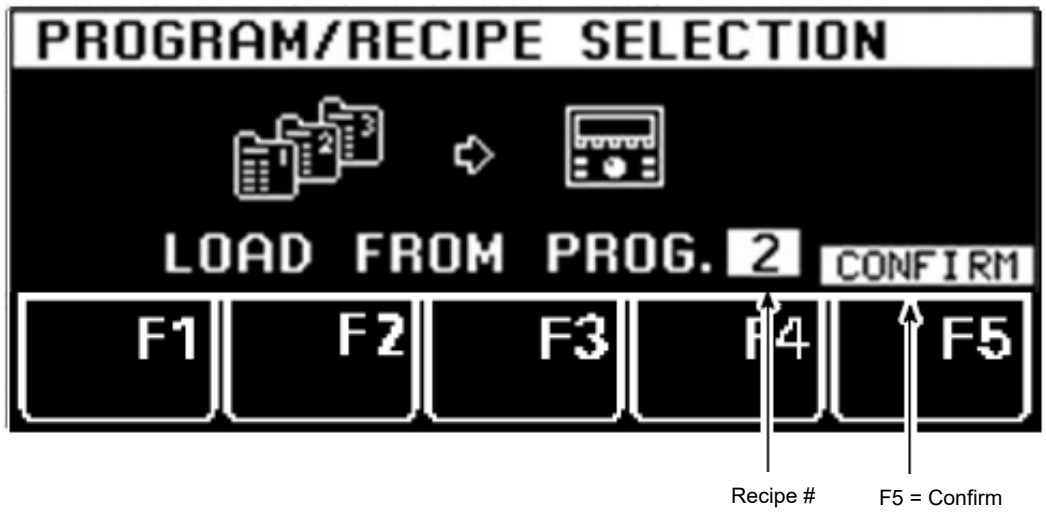
Press the Main Menu button on the Overview Screen to go to the following functions:
F1: Recipe Management
F2: Standby Mode
F3: Setpoint Locking
F4: 7-Day Scheduler
F5: Info Menu

To select a function, press its “F” button (or turn the Input Wheel to highlight the desired function and then press the Enter Knob to select).



5.2.4.1 Recipe Management (F1)

A recipe (or “program”) is a set of temperature setpoints and parameters which the user has programmed and stored in the controller for future use. Up to four recipes may be stored in the DynaControl controller.



To Save a Recipe (SAVE TO PROG):

1. Program the controller as you wish it to be setup for a recipe. Program the following parameters: temperature setpoints, zone On/Off settings and motor mode and speed.

2. Press the Main Menu button, then press F1: Recipe Management. Turn the Input Wheel to SAVE TO PROG. Press the Enter Knob to enter. Turn the Input Wheel to select a program number (up to four recipes may be created and stored). Press F5 to confirm.

To Load a Stored Recipe (LOAD FROMPROG):

1. Press the Main Menu button, then press F1: Recipe Management. Turn the Input Wheel to LOAD FROM PROG. Press the Enter Knob to enter.

2. Select the desired recipe by turning the Input Wheel until its recipe number is highlighted. Press F5 to confirm the selection.

Notes:
1. Recipes that contain temperature zones that do not show valid RTD sensors (i.e., zones with "?" in their bar-graphs) will be turned Off after re-loading, because the controller assumes those zones will not be used.

2. If you have loaded a recipe, any changes you make to the temperature or motor settings are not automatically stored in that recipe. If your changes need to be stored, go to the Recipe Management Screen and follow the steps to SAVE TO PROG.

5.2.4.2 Standby (F2)

In Standby mode, the temperatures of all active temperature zones will decrease by a pre-defined amount and the pump will stop (Note: the pre-defined amount is programmed on page 2 of the System Configuration Menu).

Press the Main Menu button, then press F2 to toggle between Normal mode (setpoints and pump are active) and Standby mode (setpoints are lowered and pump is stopped.) Confirm Standby mode by pressing F2 again. After making a change, a screen message will indicate, "Standby ON" or "Standby Off".

Notes:
Standby can also be activated via an external contact closure (E1, E2 on customer incoming connector terminals) or via the 7-Day Scheduler.

See also Standby Configuration in this chapter.

5.2.4.3 Setpoint Locking (F3)

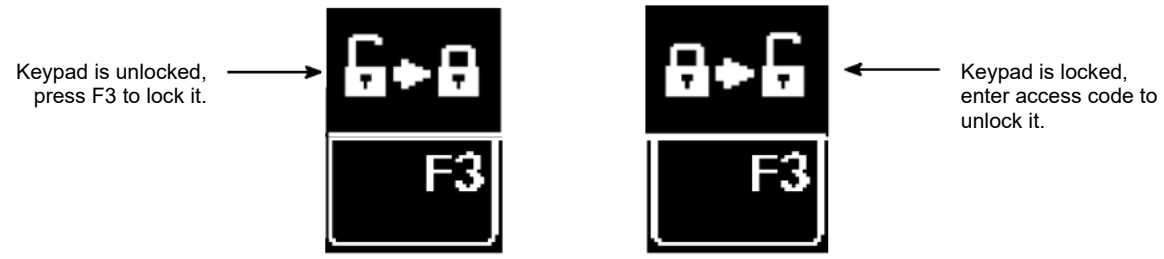
When Setpoint Locking is on, temperature and motor setpoints and the System Configuration Menu are locked and cannot be changed. But even when locked, the pump can be stopped and the setpoints can be monitored.

When Setpoint Locking is on, a small key symbol can be seen on the Overview Screen, near the time-of-day display.

If setpoints are unlocked and you desire to lock them, press the Main Menu button, then press F3 twice.

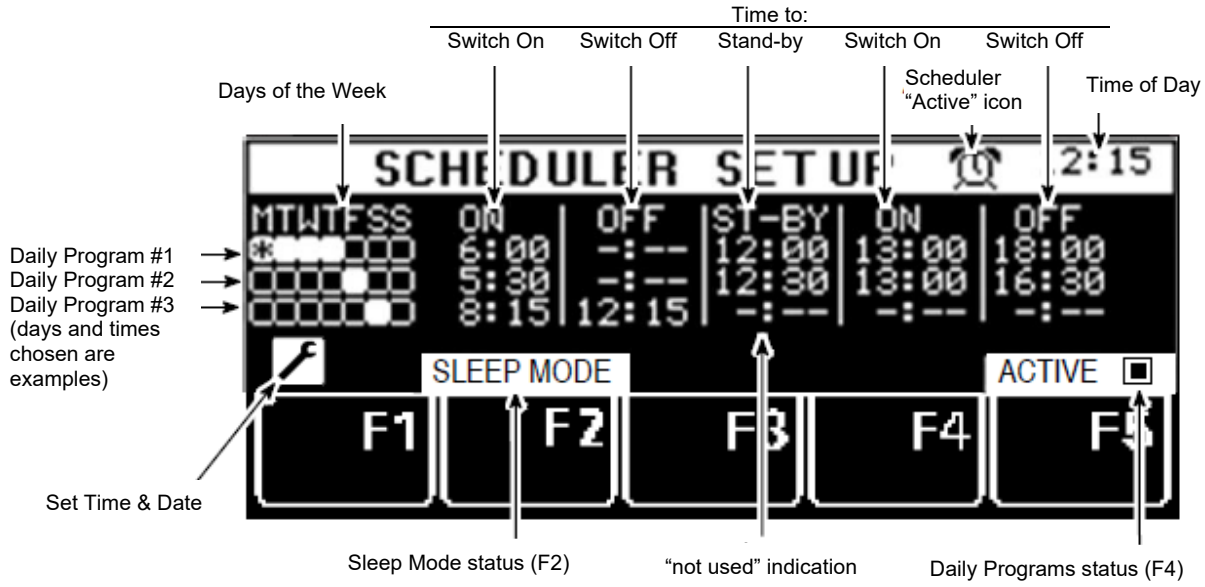
The controller's access code must be keyed-in to unlock setpoints. To do so, press the Main Menu button, press F3, then enter your access code using the F1 thru F5 buttons. For example, if your access code is 2453, press the sequence “F2, F4, F5, F3” (Note: setup an access code on page 3 of the System Configuration Menu).

The Melter is shipped from ITW Dynatec with a default access code of “1111”.



5.2.4.4 7-Day Scheduler (F4)

The 7-Day Scheduler allows the user to program the Melter to automatically switch on or off at pre-programmed times and days of the week. Up to three daily programs may be setup. Each daily program can have two “on” periods with a standby period between them.



Programming Sequence:

Set-up each Daily Program entirely before moving on to the next Daily Program. Up to three Daily Programs may be setup. All time selections are based on a 24-hour clock.

To Program Active Days of the Week:

Turn the Input Wheel to the Days-of-the-Week (Note: if you can no longer see the cursor when turning the wheel, turn the wheel in the opposite direction). The Days-of-the-Week may be toggled Active (registers as “selected” on the display) or Inactive by pressing the Enter Knob.

Each day of the week can only be assigned to one program.

To Program On/ Off Times:

Turn the Input Wheel to select the first Switch-On time; press the Enter Knob to highlight the time. Turn the Input Wheel to program your desired Switch-On time (in hours and minutes) and press the Enter Knob.

Turn the Input Wheel to select a Switch-Off time or a Standby time, then press the Enter Knob to highlight it. As above, turn the Input Wheel to program your desired time (in hours and minutes), then press the Enter Knob.

In the same manner, if desired, program another Switch-On time and/or Switch-Off time.

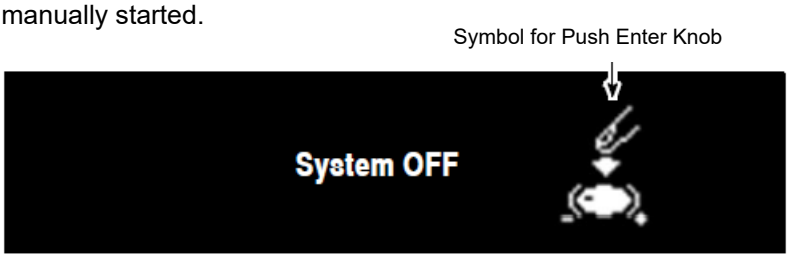
To Program Additional Daily Programs:

Turn the Input Wheel to the second or third set of Days-of-the-Week to program Switch-On and Switch-Off times for Daily Program #2 or #3. Program in the same manner as above.

To Choose Activate, Deactivate or Sleep Mode:

Once the 7-Day Scheduler's Daily Programs are setup, press F5 to Activate. This is indicated by the clock symbol in the status line. To deactivate the scheduler, press F5 again.

Press F2 to put the Melter into SLEEP MODE (indicated below). In this state, the Melter will be activated at the next programmed Switch-On time of the scheduler or it can be manually started.



7-Day Scheduler Examples (as shown on the illustration on the previous page):

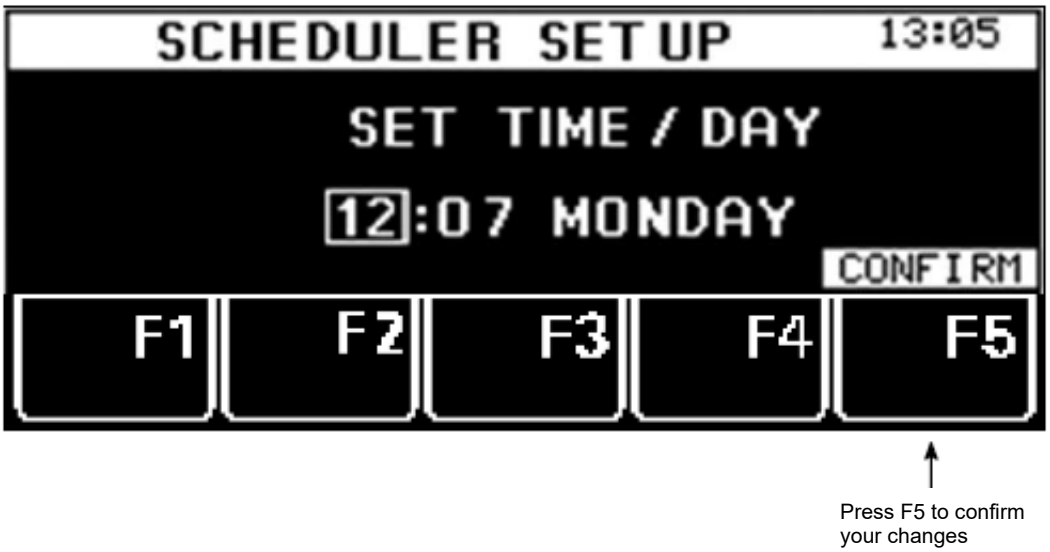
- Daily Program #1: On Mondays, Tuesdays, Wednesdays and Thursdays, the Melter will Switch-On at 6:00am. It will go into Standby at 12:00 noon. It will come out of Standby at 1:00pm and Switch-Off at 6:00pm.

- Daily Program #2: On Fridays, the Melter will Switch-On at 5:30am. It will go into Standby at 12:30pm. It will come out of Standby at 1:00pm and will Switch-Off at 4:30pm.

- Daily Program #3: On Saturdays, the Melter will Switch-On at 8:15am and Switch-Off at 12:15pm.

Set Current Time-of-Day and Day-of-Week

While in the 7-Day Scheduler Set Up screen, press the Configuration button ( ) to set the current time and day.



Turn the Input Wheel to select the item to be changed. Press the Enter Knob. Turn the Input Wheel to the desired time/ day and press F5 to confirm your entry.

Once all 7-Day Scheduler programming is completed, press the return button twice to return to the Overview Screen.

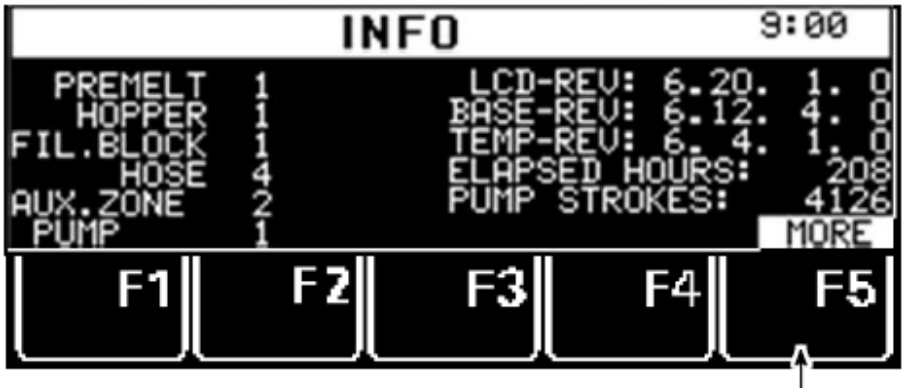
5.2.4.5 Info Menu (F5)

The info screens contain details about the hot melt system and can aid in troubleshooting.

Info Screen #1:

The first Info Screen lists temperature zone and pump configuration. It also provides the revision level of the controller's modules and the elapsed time on the Melter's controller.

Press F5 to go to the next Info Screen.



Press F5 to go to the next Info Screen

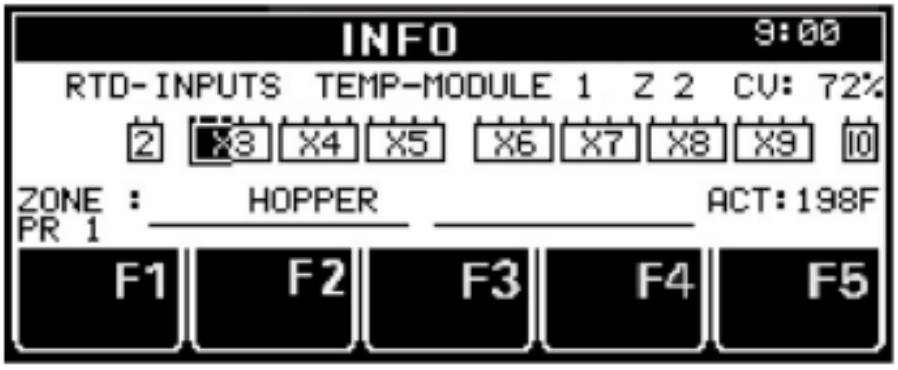
Info Screen #2:

The second Info Screen lists each temperature zone individually. Scroll through the zones using the Input Wheel. The zone's description (i.e., HOPPER) and zone # (i.e., Z 2), actual temperature, heat-up priority (i.e., PR 1) and location of its corresponding RTD sensor is given.

The screen also shows the physical location of the RTD connectors of the temperature module. This information can help in troubleshooting errors in wiring.

All zones are shown here, even those that are not in use on the Melter.

CV in %: CV (Control value) indicates how much power is currently applied to the corresponding heater zone.



Info Screen #3:

The next Info Screen provides set-up information for the unit's optional communication module. If that module is installed on your Melter, the set-up info is provided on a supplemental CD. If the module is not installed, the Info Screens end with Screen #2.

Press RETURN to exit the Info screens and press RETURN again to return to the Overview Screen.

5.2.5 System Configuration Menu

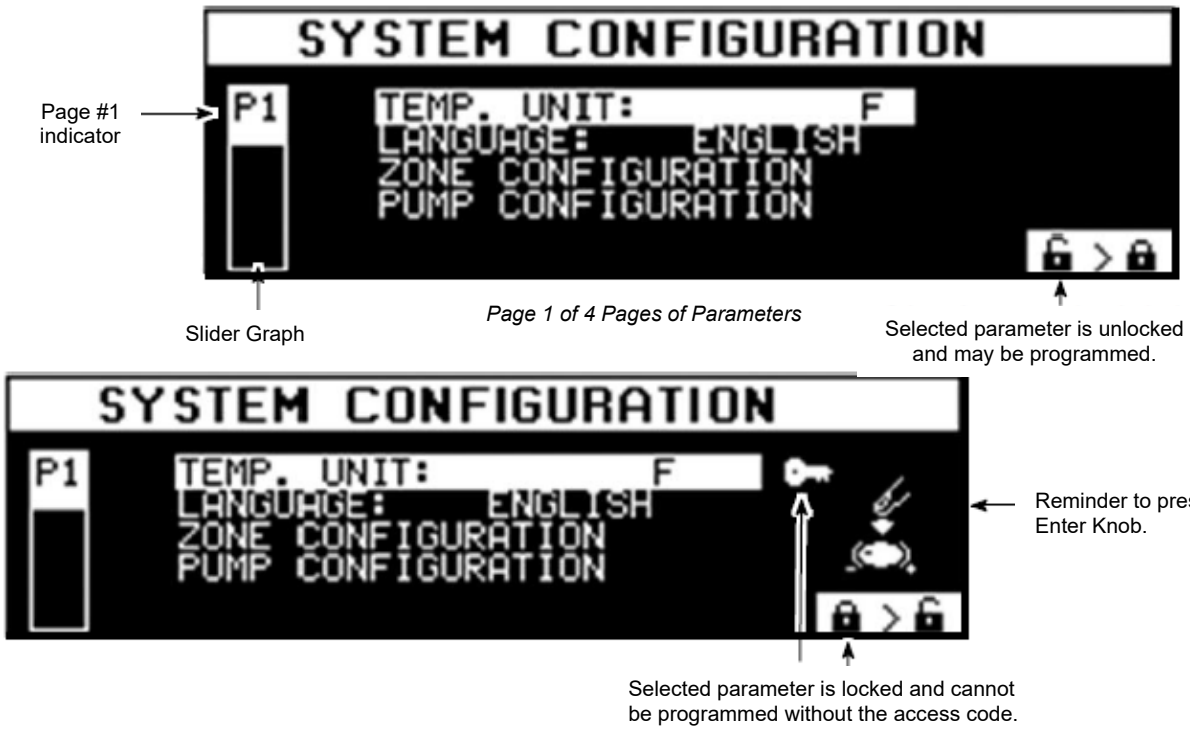
Press the System Configuration Menu button on the Overview Screen to program the following parameters:

- Temperature/ Pressure Conversion: Fahrenheit or Celsius/ PSI or BAR
- Language Selection: English, German, Spanish, French, Chinese or Japanese
- Zone Configuration: typically configured by ITW Dynatec
- Pump Configuration: typically configured by ITW Dynatec
- Setpoint Limitation: sets a limit on the maximum setpoint
- Hi/Low Tolerance: the high and low temperature window which defines the Ready temperature
- Standby Configuration: amount of temperature difference, time delay, activation method and sleep mode for the standby function
- Level Detection: activates or de-activates the low adhesive level detector
- Heat-up Sequence (Priority): simultaneous or sequential heat-up of temperature zones
- Access Code: setup an access code to prevent un-authorized programming
- 0.5 RPM Increment: allows faster manual mode programming of the pump speed
- Temperature Offset: fine-tuning allows compensation for temperature gradients
- Customer Zone Names: allows personalization of the temperature zone's names
- Logbook/ Fault History: records the time and date of controller events and faults
- Power-On Configuration: allows custom settings for pump/motor and heaters at startup
- Global Setpoints: allows easy one-temperature programming of setpoints

5.2.5.1 Accessing the Parameters

There are four pages of configuration parameters. Four parameters are on each page.

Turn the Input Wheel to select the parameter to be programmed. The slider graph (on the left) indicates the page # of the System Configuration Menu. Once you select (highlight) your desired parameter, many parameters can be changed simply by pressing the Enter Knob.



You may also progress through the pages by using the Configuration button ( ) or F1.

When in the System Configuration Menu pages, you may return to the Overview Screen at any time by pressing the RETURN button twice.

5.2.5.2 Temperature/ Pressure Conversion (P1)

After turning the Input Wheel to select the Temperature/ Pressure parameter, toggle between Fahrenheit with PSI or Celsius with BAR readouts by pressing the Enter Knob.

5.2.5.3 Language Selection (P1)

After turning the Input Wheel to select the Language parameter, press the Enter Knob. The current language will flash. Turn the Input Wheel to select a language from the ones listed. Confirm your choice by pressing the Enter Knob.

5.2.5.4 Zone Configuration (P1)

This menu configures the controller's temperature zones by listing the number of each type of zone. Zone configuration is typically done at the ITW Dynatec factory and does not require programming by the user.

The Zone Configuration screen may be used to reload the ITW Dynatec factory default controller parameters. To do so: turn the Input Wheel to select the Zone Configuration parameter and press the Enter Knob. Press and hold the F1 button for five seconds, then press F2 to restore defaults and wait for the controller to reboot.

5.2.5.5 Pump Configuration (P1)

This menu configures the Melter's pump by listing pump type. Most pump parameters are setup at the ITW Dynatec factory. There are two user-programmable pump parameters: Pump Enable Temperature and Individual Pump Control.
NOTE: D15/25/45 models have a maximum of two pumps; D50/90 models have a maximum of four pumps.

Pump Enable Programming:

The Pump Enable Temperature serves as a low limit value. The controller will not allow the pump to come on until its enable temperature is achieved. By doing so, it protects the pump, pump shaft, motor and motor control module.

After pressing the Enter Knob to select the Pump Enable parameter, turn the Input Wheel to increase or decrease the pump enable temperature. Confirm your choice by pressing the Enter Knob.

Individual Pump Control Programming:

When there are multiple pumps on a unit, they may be controlled individually since each pump has its own external contact.

After pressing the Enter Knob to select the Individual Pump Control parameter, turn the Input Wheel to select individual control, if desired, by choosing YES or NO. Confirm your choice by pressing the Enter Knob.

5.2.5.6 Setpoint Limitation (P2)

This parameter sets the maximum temperature zone setpoint. The setpoint limitation is useful for an adhesive with a low melt temperature. In this case, the maximum selectable setpoint could be lowered in order to avoid over-heating the adhesive.

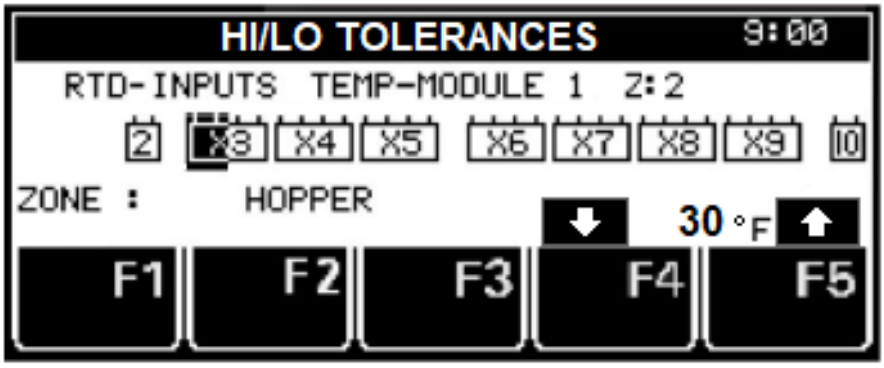
After turning the Input Wheel to select the Setpoint Limitation parameter, press the Enter Knob and then turn the Input Wheel to select your desired setpoint limitation value. Confirm your choice by pressing the Enter Knob.

5.2.5.7 Hi/Lo Tolerance (P2)

The high and low temperature tolerances can be set for each temperature zone. During operation, those tolerances activate the alarm which alert the operator to overtemp and under-temp conditions.

The hi/lo tolerances are a range (+ and -) from the setpoint. Thus, a setpoint of 150°C which has been programmed with a 10°C hi/ lo tolerance will activate an under-temp message when the zone's temperature falls below 140°C and will activate an over-temp alarm when the zone's temperature rises above 160°C. When this zone's temperature is within the tolerances (140°C and 160°C), it is considered “Ready”.

Tolerances can be set individual for each zone. After turning the Input Wheel to select the Hi/Lo Tolerances parameter, press the Enter Knob to access the set-up screen:

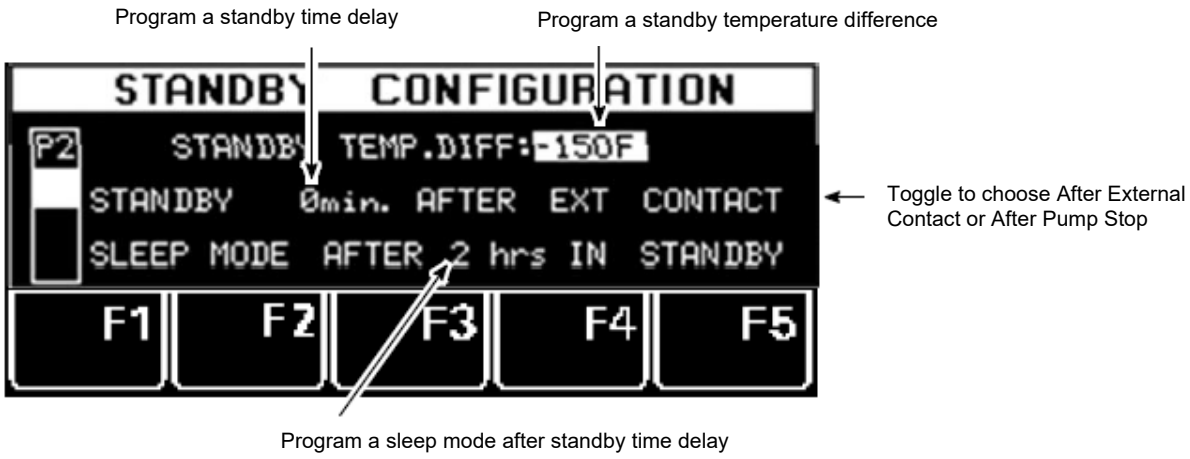


On this screen, use the Input Wheel to select the zone and buttons F4/F5 to change the tolerance for the selected zone. Picture above shows the hopper zone is selected and the tolerance is +/-30°F. It is not necessary to confirm with the Enter Knob. After all zones have been programmed, leave this screen by pressing the Return button.

5.2.5.8 Standby Configuration (P2)

There are four ways to activate standby mode:
1. Manually, at the Main Menu's F2,
2. Automatically, via the 7-Day Scheduler,
3. Remotely, via an external contact (program as described below), or
4. Automatically, after a pump stop (program as described below).

Standby Configuration allows you to select #3 or #4 and program other standby parameters.



Standby Temperature Difference

In Standby mode, the temperatures of all active temperature zones decrease by a programmed amount and the pump(s) stop pumping adhesive.

The programmed decrease in zone temperatures is the standby temperature difference. The standby temperature difference applies to all zones once standby is activated. For example, if the difference temperature is 80°F, and setpoints are 300°F, then all zones will reduce to 220°F (300 - 80 = 220) when standby is activated.

After turning the Input Wheel to select Standby Configuration, press the Enter Knob to advance to the screen. Press the Enter Knob to select the first parameter, i.e. temperature difference. Press the Enter Knob again to highlight the temperature difference value. Then turn the Input Wheel to program your desired value. Confirm your choice by pressing the Enter Knob.

Standby Time Delay and Activation

The standby time delay is the programmed number of minutes until standby takes place after activation by either an external contact (for example: a PLC or an external switch) or by a pump stoppage. The default time delay is 0 minutes (immediately!).
The programmable range of the standby time delay is 0-150 minutes.

Turn the Input Wheel to select the time delay parameter (i.e. Standby X min. After…). Press the Enter Knob. Turn the Input Wheel again to select your desired minutes value. Confirm your choice by pressing the Enter Knob.

Now turn the Input Wheel to select the After Ext Contact/ After Pump Stop field. Press the Enter Knob and then turn the Input Wheel to highlight your choice of activation. Confirm your choice by pressing the Enter Knob.

Sleep Mode After Standby

Sleep mode shuts the Melter off after it has been in standby for a programmed length of time. This length of time can be from one hour to 99 hours. Or you can choose to program the unit to have no sleep mode by programming " - ". When the unit is in sleep mode, the Main Screen displays "System Off, Switch On with Enter Knob".

Turn the Input Wheel to select the Sleep Mode After # Hrs In Standby field. Press the Enter Knob to highlight the hours value. Turn the Input Wheel to select your desired hours value. Confirm your choice by pressing the Enter Knob.

Press the RETURN button to return to the System Configuration Menu.

5.2.5.9 Level Detection (P2)

The level detection sensor triggers an alarm when the liquid adhesive level in the hopper falls below a certain level. Hopper Empty is the alarm message displayed on the controller's status line.

The level detection parameter allows the user to: turn the level sensor function On or Off. After turning the Input Wheel to select the level detection parameter, press the Enter Knob to change the function from activate or deactivate.

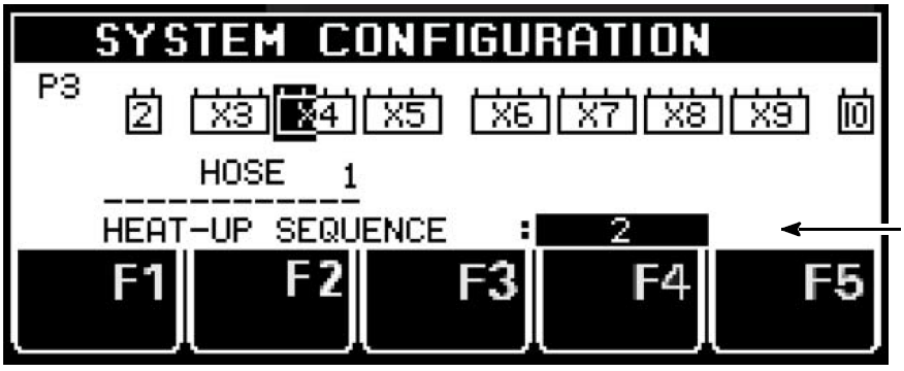
5.2.5.10 Heat-Up Sequence (Priority) (P3)

The controller allows you to choose the heating order of the various temperature zones, so that zones requiring more time to heat up to temperature can be programmed to begin heating before others. This is done by programming each zone with a sequential heating priority.

A "Priority 1" designation means the temperature zone will begin to heat immediately after the Melter is powered on. Zones with higher priority numbers (Priority 2 through Priority 6) do not begin heating until all zones with lower priority values have reached the low limit of their setpoints. Zones which are switched OFF are not applicable.

The most common heating sequence is first hopper, then hose/ head and auxiliary zones. This allows the larger mass of adhesive in the hopper to begin heating first. This sequence (hopper, then hose/ heads and aux zones) is also the controller's default heating sequence.

After turning the Input Wheel to select the Heat-Up Sequence parameter, press F1.On the Heat-Up Sequence screen, turn the Input Wheel to select a desired zone. Press the F4 button to assign a priority number to the selected zone. Turn the Input Wheel to select another zone, if desired, and program its priority by pressing F4. Continue until all zones are programmed. Press the Enter Knob to confirm, then press the RETURN button to return to the System Configuration Menu.



Hose 1 (Z 4) has been programmed as a Priority 2 zone

5.2.5.11 Access Code (P3)

An active access code prevents unauthorized programming of setpoints and other configuration parameters. To utilize the Setpoint Locking feature of the controller, your access code must be keyed in at the Main Menu, F3.

The Dynamelt Melter is shipped from ITW Dynatec with a default code of 1111. To re-program the access code, the current access code must be entered. All access codes must be 4-digit numbers using the digits 1, 2, 3, 4 and 5 only.

After turning the Input Wheel to select the Access Code parameter, enter the current access code using the F1 thru F5 numerals. Press the Enter Knob. Then enter your desired access code using the F1 thru F5 numerals. Confirm your choice by pressing the Enter Knob.

5.2.5.12 0.5 RPM Increment (P3)

When setting the pump RPM in Manual Mode on the Pump Screen, the default increment for RPM is 0.1. If a coarser adjustment is desired, it may be changed to 0.5 RPM at this parameter.

After turning the Input Wheel to select the 0.5 RPM Increment parameter, press the Enter Knob to toggle the parameter active (YES) or inactive (NO).

5.2.5.13 Temperature Offset (P3)

Temperature Zone Offsets are mathematical factors which compensate for differences in temperature within components. Each temperature zone may be programmed with an offset, if desired. Standard equipment does not usually require temperature offsets.

Note: Entering a positive-numbered offset will raise the temperature reading of that zone. Since the controller attempts to equate setpoint and actual temperature, this actually lowers the actual temperature by the amount of the offset.

For example: Setpoint and actual temperature both equal 300°F. An offset of +10°F is programmed. Initially the display will read 310°F, but the controller will lower the output power until the actual temperature value is back to 300°F.

After turning the Input Wheel to select the Temperature Offset parameter, press the Enter Knob to display a list of all temperature zones. Turn the Input Wheel to select a zone for programming and press the Enter Knob. Turn the Input Wheel to program the desired temperature offset for that zone. Press the Enter Knob to confirm your selection.

If desired, turn the Input Wheel to select another zone for programming. Program this zone as outlined above.

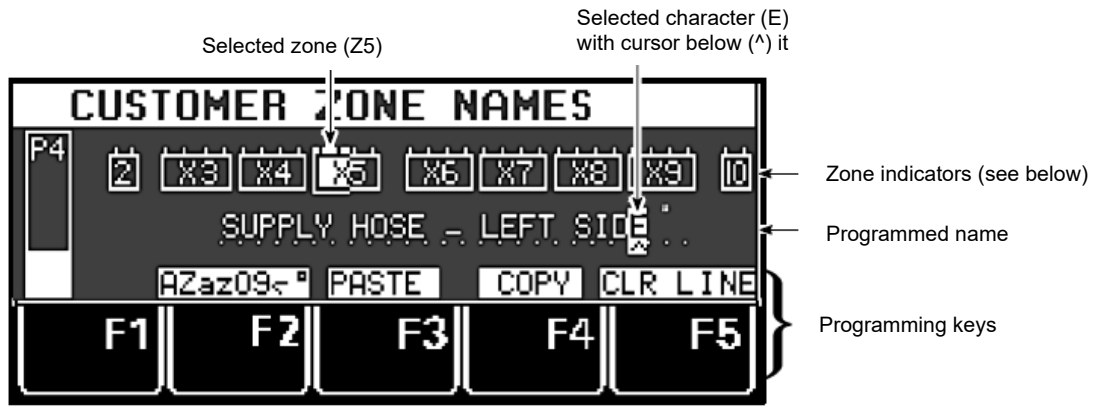
When all desired zones are programmed, press RETURN to go to the System Configuration Menu (page 1), then press RETURN again to go to the Overview Screen.

5.2.5.14 Customer Zone Names (P4)

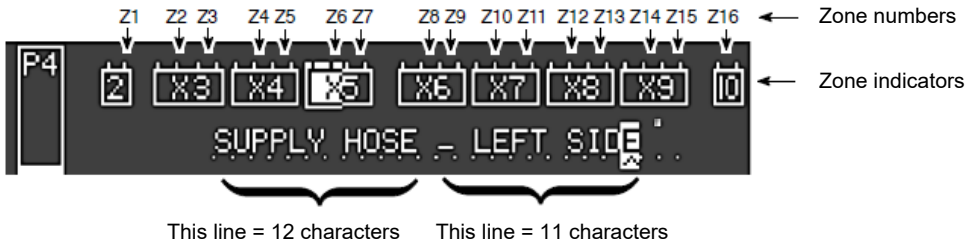
With this configuration parameter, the user may personalize the names of the temperature zones with names that are more descriptive for his application. That is, instead of the factory-set zone names of Z01, Z02, Z03, etc., the customer may prefer temperature zone names such as “TANK”, “HEAD 1”, “FILTER BLOCK”, “SUPPLY HOSE - LEFT”, etc.

After turning the Input Wheel to select the Customer Zone Names parameter, press the Enter Knob to display YES. To enter programming mode, press F3 (Change Text).

Now, by turning the Input Wheel, you can scroll through the zones and see their current zone names (or numbers). These names can be re-programmed one at a time. Each new name may consist of two lines, with a maximum of 12 characters in each line. Note: the factory-set numeric “names” correspond to RTD inputs.



Customer Zone Name Programming Screen



“Supply Hose - Left Side” = Zone #6 (highlighted zone indicator)

Using F2, F3, F4 & F5 Programming Keys:

- F5 = press to Clear the entire zone name.
- F2 = press to select upper or lower case letters, to select numbers or to select special characters.
- F3 & F4 = press to Copy (F4) and Paste (F3) the name of one zone into another.

Programming the Zone Names

NOTE: This feature cannot accommodate Chinese language characters.
After selecting the Customer Zone Names parameter and pressing the Enter Knob to display YES, press F3 (Change Text) to begin programming.

1. Turn the Input Wheel to select desired temperature zone (refer to corresponding RTD). The selected zone is highlighted.
2. Press the Input Knob to confirm zone.
3. Turn the Input Wheel to select the character to be re-programmed.
4. Press the Input Knob to confirm selection. The cursor highlights the selected character.
5. Turn the Input Knob to select the new character.
6. Press the Input Knob to confirm the new character.

7. Repeat steps 3 through 6 to spell desired zone name.
8. Press the Return button to select another zone to program. Repeat steps 1 through 6 for each zone desired.
9. Press Return again when all temperature zone name programming is completed.

5.2.5.15 Logbook/ Fault History (P4)

The Logbook provides a read-only history of the last 65 (maximum) controller faults and events. Controller faults include sensor or temperature errors or motor faults. Examples of an event include switching the Melter on/off or System Ready. The most recent event is recorded at the top of the list (No. 1).

Day, Time and Event are listed for each item in the Logbook. This information can be valuable when troubleshooting controller problems.

After turning the Input Wheel to select the Logbook parameter, press the Enter Knob to display the Logbook. Turn the Input Wheel to scroll through the list.

#1 is most recent entry →

5.2.5.16 Power-On Configuration (P4)

Two start-up parameters are programmed at the Power-On Configuration screen, and they are set by choosing YES or NO:

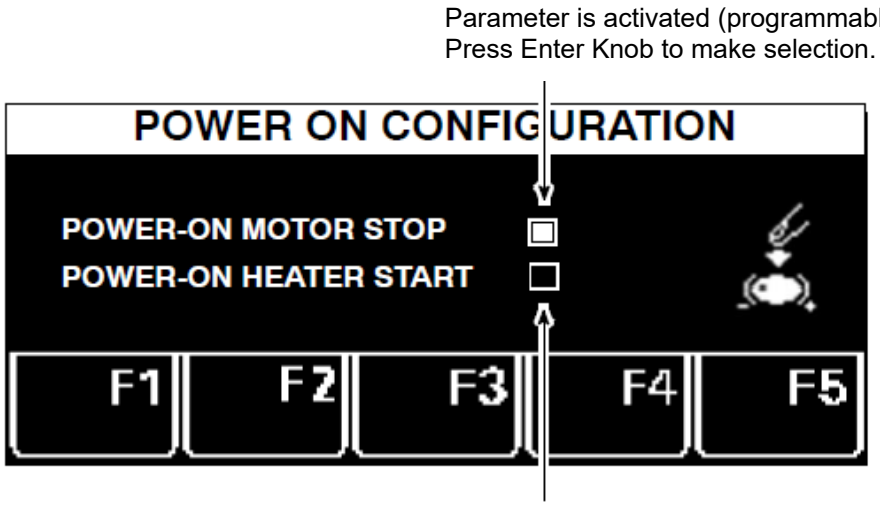
Power-On Motor Stop
At the Power-On Motor Stop parameter, you decide if you prefer the motor to be stopped when the Melter is turned on (if so, choose YES) or if you prefer that the motor remain in its previous mode when the Melter is turned on (choose NO).

Power-On Heater Start
At the Power-On Heater Start parameter, you decide if you prefer that the temperature zones start heating automatically when the Melter is turned on (if so, choose YES) or if the heaters should require a manual start when the Melter is turned on (choose NO). NOTE: If you choose NO, the heaters will not begin to heat until the Enter Knob is pressed at start-up.

From the System Configuration Menu: after turning the Input Wheel to select Power-On Configuration, press the Enter Knob. The first parameter (Power-On Motor Stop) will be activated (see illustration below). Press the Enter Knob to choose YES or NO.

Turn the Input Wheel to activate the second parameter (Power-On Heater Start). Press the Enter Knob to choose YES or NO.

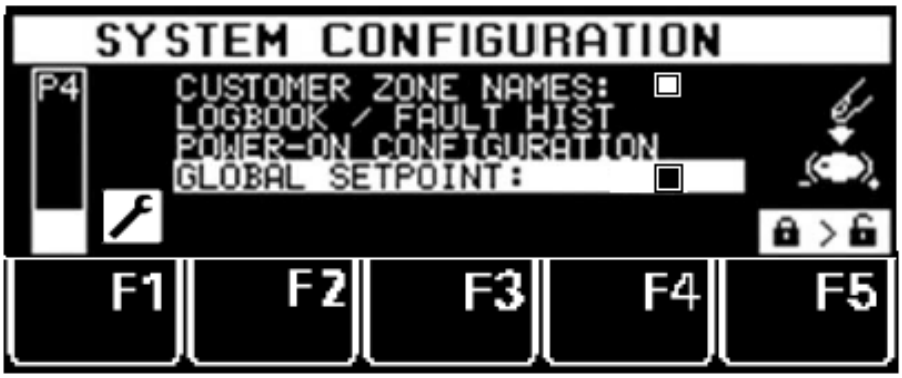
After programming, press RETURN twice to return to the Overview Screen.



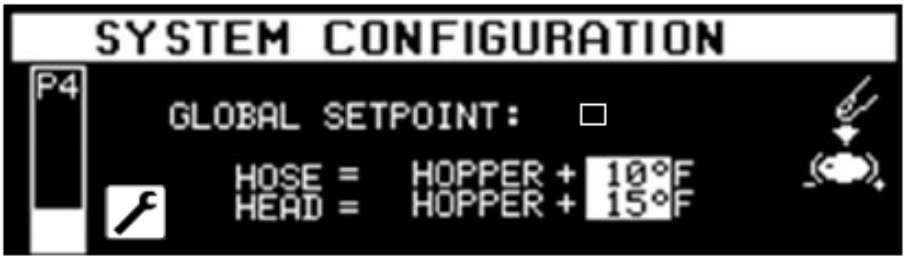
5.2.5.17 Global Setpoints (P4)

Setpoint programming may be simplified by programming Global Setpoints. With this parameter, the user programs a hopper setpoint and the controller configures all of the other zones. However, to do so, it must be appropriate for all your hoses to be programmed to one setpoint, and for all your applicator heads to be programmed to one setpoint.

After turning the Input Wheel to select the Global Setpoints parameter, press the Enter Knob to turn Global Setpoints On/Off.



Then press F3 to open the Global Setpoints menu.



On the Global Setpoints menu, you set up simple mathematical relationships (increases) between the hopper setpoint and the setpoints of the hoses and applicator heads. Pressing the Input Knob increases the temperature of the hose (or head) by 5 degrees, or, if you press again, by 10 degrees (press again for 15 degrees, and press again for 20 degrees). Once setup, all of the hoses will increase over the hopper setpoint by the same amount (0, 5, 10, 15 or 20 degrees) and likewise, all of the heads will increase over the hopper setpoint by the same amount as you program here.

Once Global Setpoints are setup, you simply program the hopper (as described in this chapter) and your hoses and heads will automatically be programmed to the increases you specified on the Global Setpoints menu.

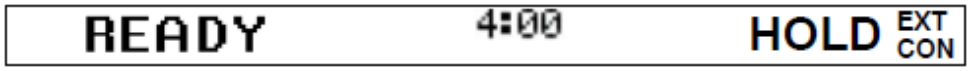
For example: If you setup a Global Setpoint increase of 10 degrees for Hoses and 15 degrees for Heads, and you program your Hopper setpoint to 290 degrees, then the controller will automatically program all of the hoses to 300 degrees and all of the heads to 305 degrees.

When Global Setpoints are turned On and a temperature setpoint is changed, the display will not show the selected zone's name. Instead it will display GLOBAL SET:.

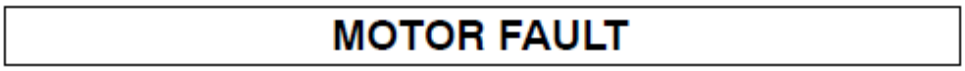
You can still turn individual zones Off and On while using Global Setpoints.

5.2.6 Controller Messages Troubleshooting Guide

The following are examples of System Status or controller display error messages and solutions.

1. 

   The jumper connection from IN6 to COM (or IN6 to 24V) is not made on the Base Module..

2. 

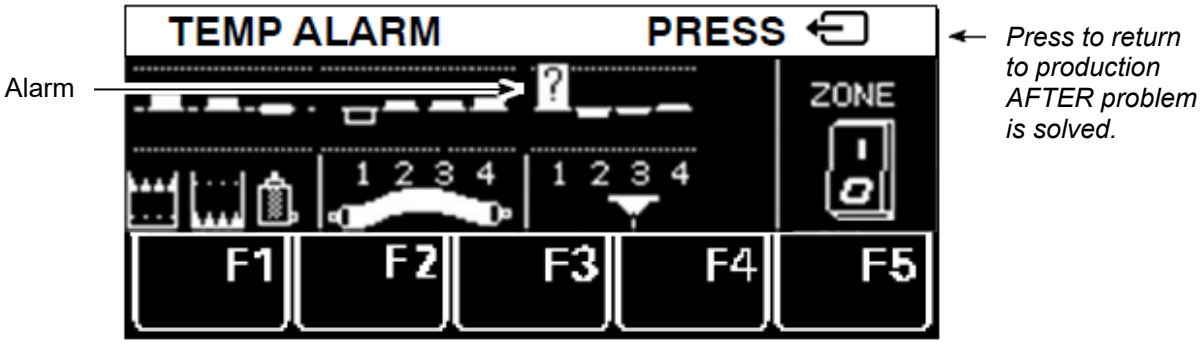
   This fault could be caused by one of the following problems:
   a. there may be a motor short circuit (solution = replace the motor),
   b. there may be a faulty motor drive (solution = replace the motor drive),
   c. there may be a motor overload (contact ITW Dynatec, Technical Service).

3. 

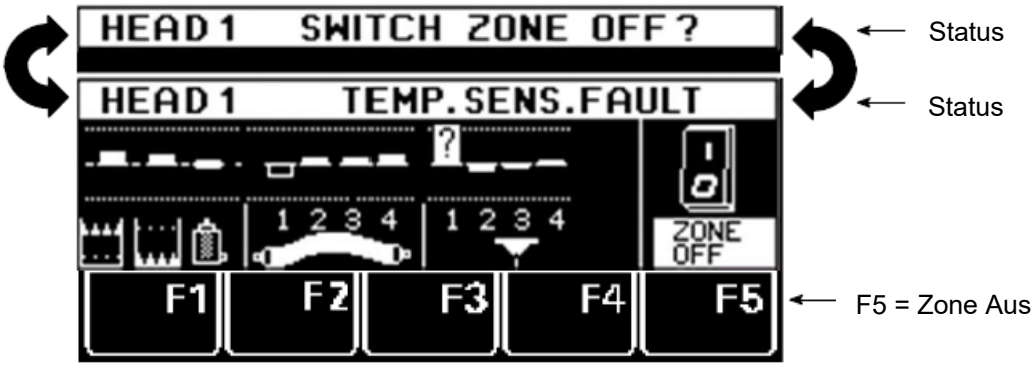
   This fault, seen on the controller display, will result if the V6 modules on the DIN rail are not connected properly. A bus connector, near the rail, connects one module to the next. Modules can become disconnected during transport or during repair procedures.

4. 

   A fault such as this indicates an over-temperature or an RTD sensor fault. The solution is not simply to press the RETURN button to confirm. The solution is to troubleshoot and solve the problem which caused the fault, and then confirm with the RETURN button.

5. 

   The alarm shown above can occur on any screen. Its question mark indicates a problem with the RTD sensor in the Head #1 zone. After about 20 seconds, the following display is shown:



Advance to the temperature zones display to see which zone is affected. The two status lines shown above will alternate in this mode. As seen above, the question mark is placed on the zone with the faulty sensor (i.e., Head #1). After troubleshooting the fault (reference the Error Indication Alarm Troubleshooting Guide on the previous pages of this chapter) and solving the problem with the sensor, press the RETURN button.

Or, if Head #1 is not in use, press F5 to turn the zone Off.

5.3 Controller Programming Instructions, V6 Touch Panel

Rev.5.21

5.3.1 Setup Your System's Parameters

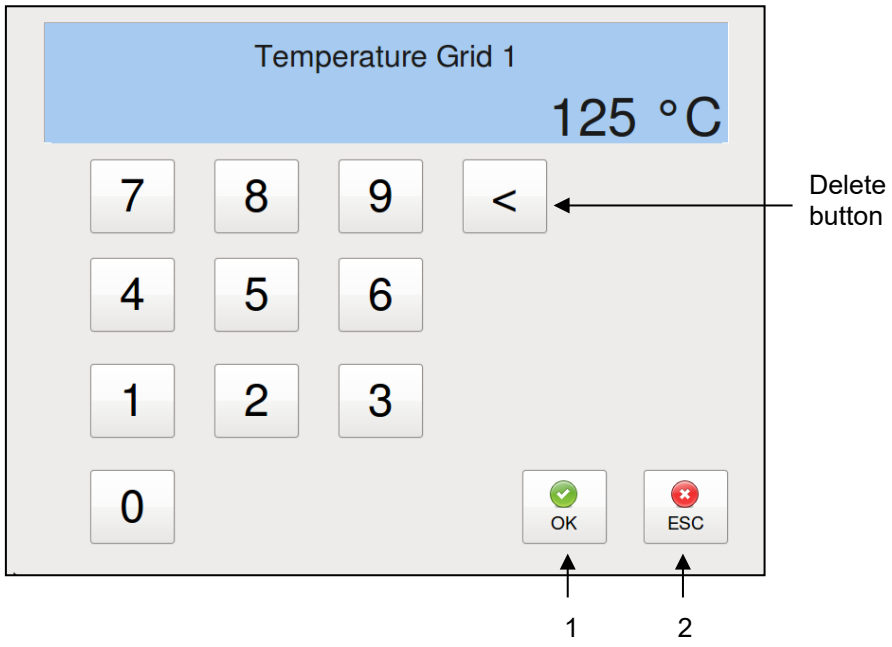
➢ Program the controller parameters to meet the specific temperature requirements of your production. Setpoints for each temperature zone must be programmed as well as a standby temperature, pump enable temperature, temperature alarm window and temperature alarm hysteresis.

➢ Choices must be made for recipe (program) selection, pump (or motor) conditions and heating priority. If desired, temperature zone offsets and/ or a temperature zone enable may be selected.

5.3.2 Numeric Entry Keypad

- Use the numeric entry keypad to enter or change numeric parameters (values).
- In the top window, the temperature zone name and its setpoint value will be displayed.

This is a typical example of the numeric entry keypad:

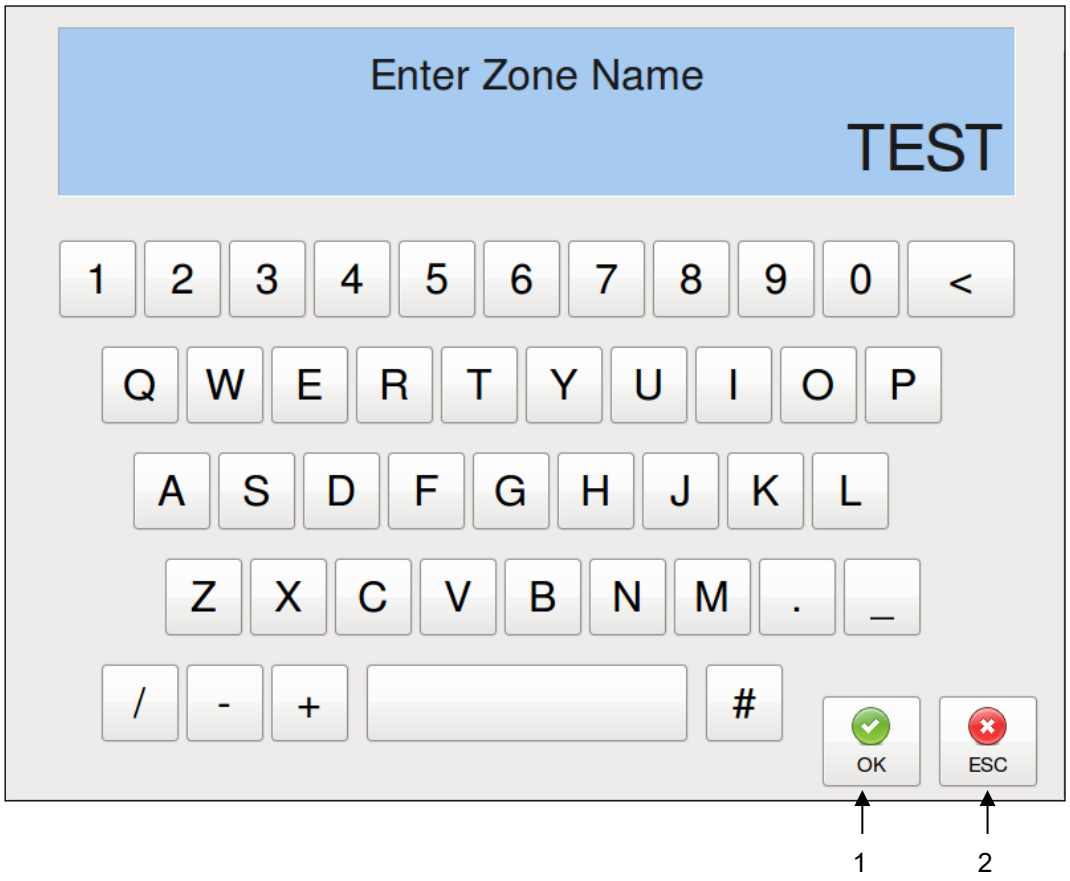


Item	*Description*
1	By pressing the OK button, the entered values will be confirmed and stored in the controller. The numeric entry keypad closes, and you will return to the previous screen.
2	By pressing the ESC button any entered but not yet confirmed values will be discarded and you will return to the previous screen.

5.3.3 Alphabetic Entry Keypad

- Use the alphabetic keypad to enter or change text, e.g. temperature zone names.
- In the top window, the temperature zone name will be displayed.

This is a typical example of an alphabetic keypad:

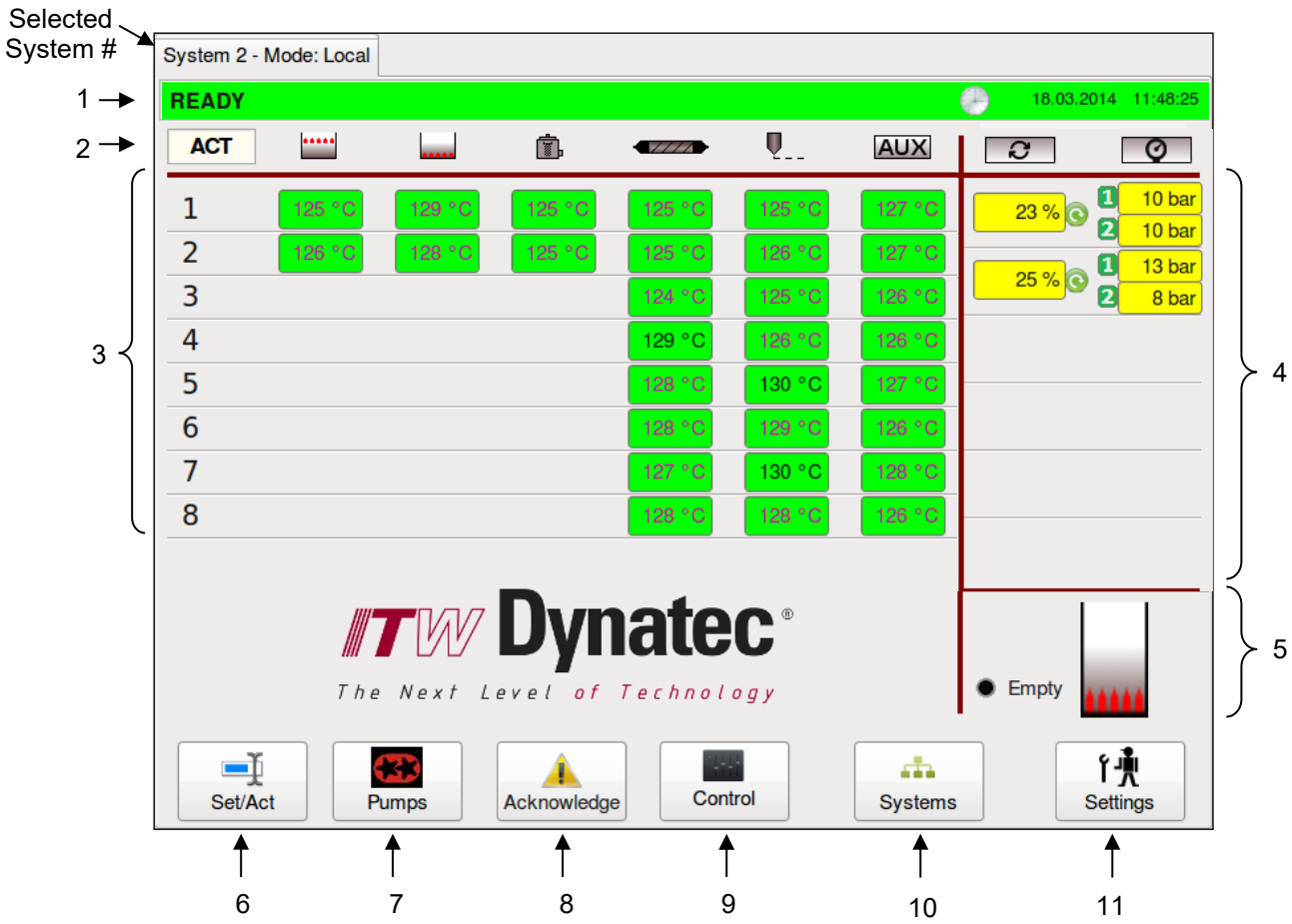


Item	*Description*
1	By pressing the OK button, the entered text will be confirmed and stored in the controller. The alphabetic entry keypad closes, and you will return to the previous screen.
2	By pressing the ESC button any entered but not yet confirmed text will be discarded and you will return to the previous screen.

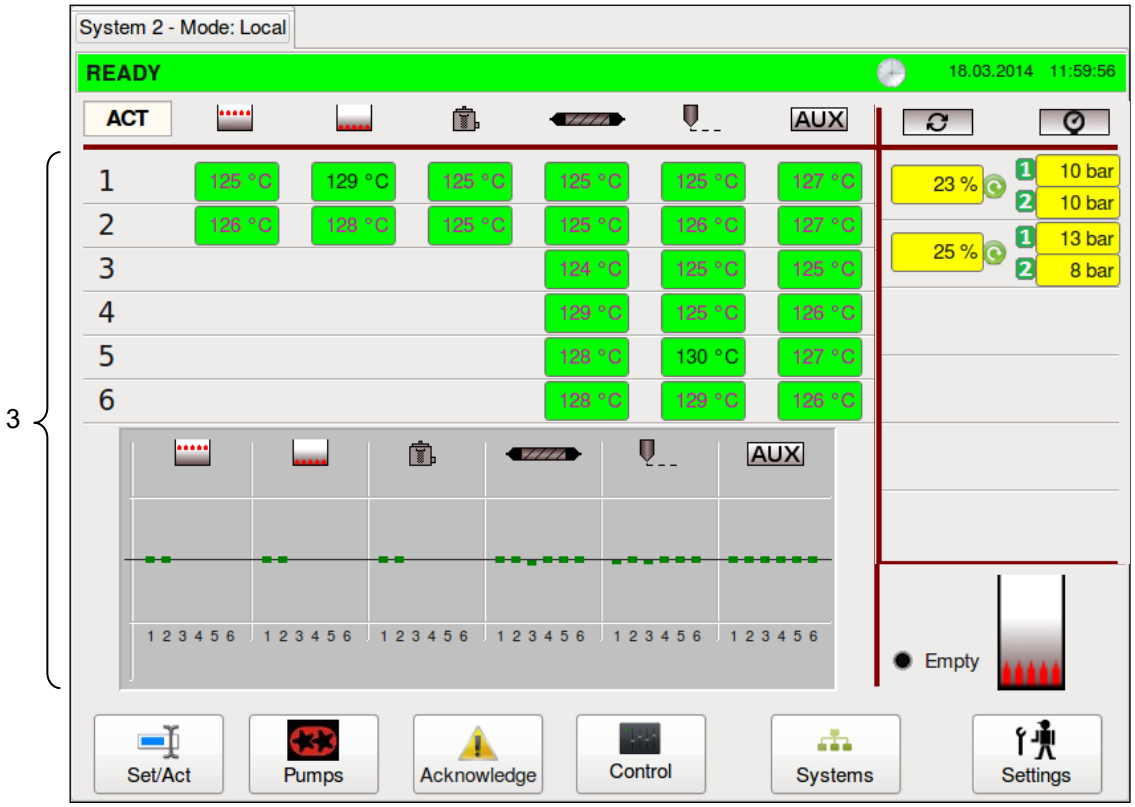
5.3.4 Main Screen

- The Main Screen is displayed automatically when the unit is switched ON.
- The Main Screen provides a comprehensive overview of the status of each of the temperature zones and the system as a whole. It gives the status and speed of the pump, along with any adhesive pressures and level status.

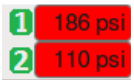
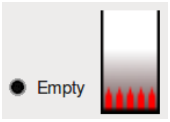
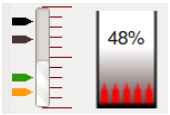
Main Screen, <u>if seven or more zones</u> in any column are activated:



Main Screen, <u>if six or fewer zones</u> in any column are activated:

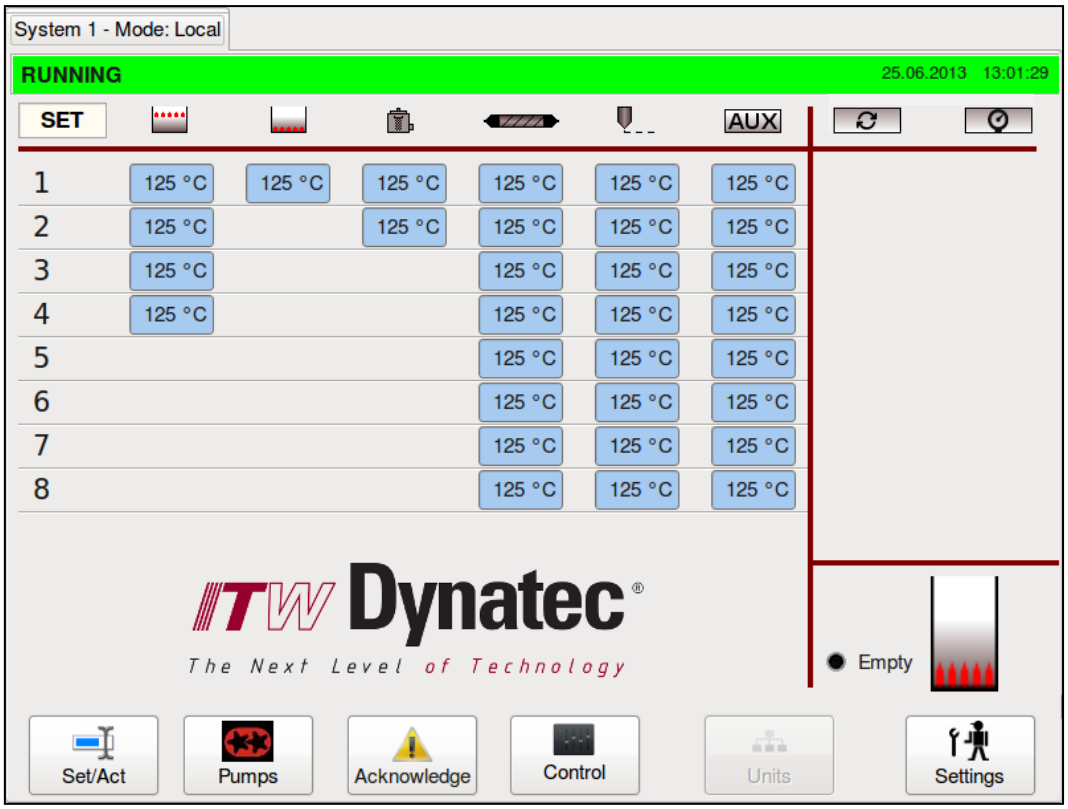


Item	Description
1	**Status Line** Display of the actual status of the unit: • READY = All zones are within their setpoint temperatures and the unit is ready for operation. • RUNNING = All zones are within their setpoint temperatures and the unit/pump is running. • NOT READY = At least one zone has not yet reached its setpoint temperature or has fallen below its set point or it is lower than the set global release temperature. • STANDBY = Standby temperature is activated. • ALARM = Alarms or faults are active. The status line is highlighted green when the system is READY or RUNNING, yellow when NOT READY, grey when in STANDBY and red when in ALARM condition. The status line along with “Systems” button is in orange color if a non-visible system goes into Alarm condition (if f several systems are controlled by the HMI). The „clock“  icon appears if a timer is activated under “Time & Scheduler” screen and disappears if the timer is deactivated. Display of the actual date and time are on the right side of the screen. Depending on the selection of the unit of temperature and pressure (°C and bar or °F and psi) made under Unit & Date Selection, the appearance of the date display is affected also. With the C/bar selection, the date is displayed as ‘day.month.year’ while in F/psi mode, the date is displayed as ‘month/day/year’. The time is displayed as hour.minutes.seconds (i.e., 11:48:25 pm). By pressing the status line you go to the Log Book screen.
2	**Icon Line** ACT / SET: Indicates if the temperature values shown on the display are Actual or Setpoint values. The Actual values will be displayed during production. By pressing the Set/Act button, the Set values can be displayed and edited. The display returns automatically to the Actual values after about 15 seconds if there is no activity. **The icons:**  Pre-Melt Grid  Hopper  Filter manifold Hose  Applicator  Auxiliary components  Pump RPM  Pressures  Decentralized pumps (e.g. Applicator, Metering Station:  A plausible limit value of Input Pressure (a minimum pressure of not less than 2 bar is recommended) has to be entered to avoid a dry run of the pumps; otherwise the pump can be damaged. See point “Extended Pump Mode Settings Screen, Linear Line Speed, Pressure Control”. The appropriate actual values (temperature, pump rpm, pressures) are displayed under the icons.

Item	Description
3	• The actual values of the temperature zones are displayed in columns under the icons. Zone status is indicated by color: the zone field is colored green when the zone reaches setpoint, yellow while the zone is heating up, grey it it has been temporarily switched off and red if in alarm. • When all zones have reached their setpoint values, READY will be displayed in the status line. If zones are still heating up and have not yet reached their setpoint values, NOT READY will be displayed in the status line. • If six or fewer zones in any column are activated, the temperature status of each zone is shown by a bar-graph indicating if the temperature zone is inside its setpoint window (green) or outside (yellow). The bar-graph indication disappears if more than six zones are activated.
4	The appropriate actual values (pump rpm, pressures) are displayed under the icons.  **Primary pressure:** If the system is equipped with a (primary) pressure sensor, the appropriate primary pressure transducer input will be displayed with number 1. The primary pressure input can be controlled via the Pressure Set Point in Pump Control/ Pressure Control Screen.  **Secondary pressure:** If a second pressure sensor is equipped (usually in combination with dual pump outlets), the appropriate pressure transducer input will be displayed with number 2. The secondary pressure input is just a readout function.  **Pressure Discrepancy Alarm:** If the display fields are highlighted red, it indicates that the (optional) pressure discrepancy has detected an excessive difference between the primary and secondary pressure. See point “Extended Pump Mode Settings Screen, Linear Line Speed, Pressure Control” for further information.
5	 If an optional digital level sensor is built-in, Hopper Empty status will be indicated when adhesive drops below the level sensor.
	 If an optional analog probe used the status bar will display the adhesive level along with a percentage of hopper volume.
6	**Set/Act Button** By pressing Set, values may be displayed and edited. The display will automatically return to actual values after about 15 seconds, if there is no display activity.
7	**Pumps Button** Press to go to the Pump Overview screen.
8	**Acknowledge Button** Press to acknowledge an error or alarm.
9	**Control Button** Press to go to the Control screen.
10	**Systems Button** Press to go to the Systems screen, if several systems are controlled by the HMI (Multi-System option).
11	**Settings Button** Press to go to the Settings screen.

5.3.5 Temperature Zones Set Screen

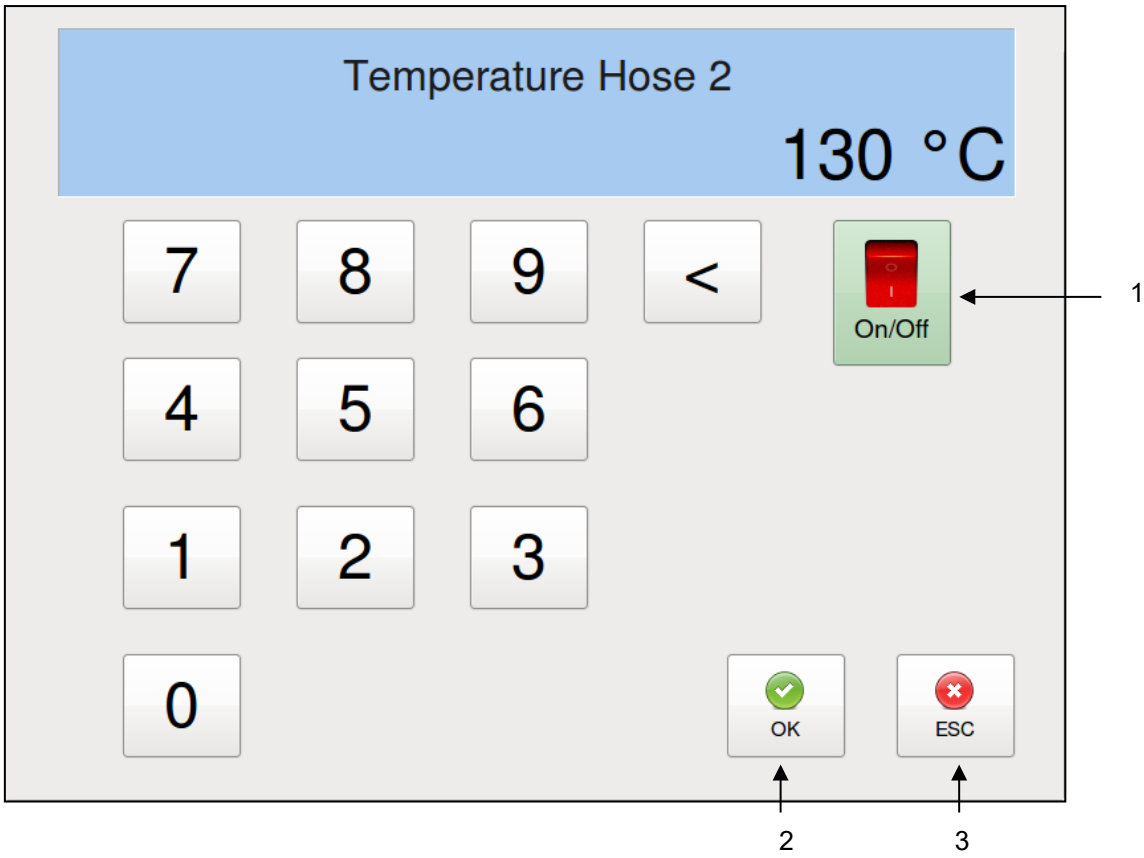
- To go to this screen, press the Set/Act button on the Main Screen.
- The Set screen allows you to program the setpoint temperature for each activated zone. Each zone requires a temperature setpoint.
- When a temperature zone is not used, it can be de-activated (turned OFF) on the Heating Priority screen. A zone that is turned Off no longer heats and is not monitored by the controller for over or under temperatures.



Item	Description
1	**Set values** • Display of the temperature setpoint values. • To edit values: Touch a zone input box and a numeric entry keypad will appear. Enter your new setpoint value and confirm by pressing OK. NOTE: Must be below the maximum setpoint value listed below. • The Set values are displayed for about 15 seconds and, if there is no display activity, the display returns automatically to the Actual values. • The maximum setpoint value is 218°C (424°F).

- See next page for Zone On/Off Switch on the Numeric Entry Keypad.

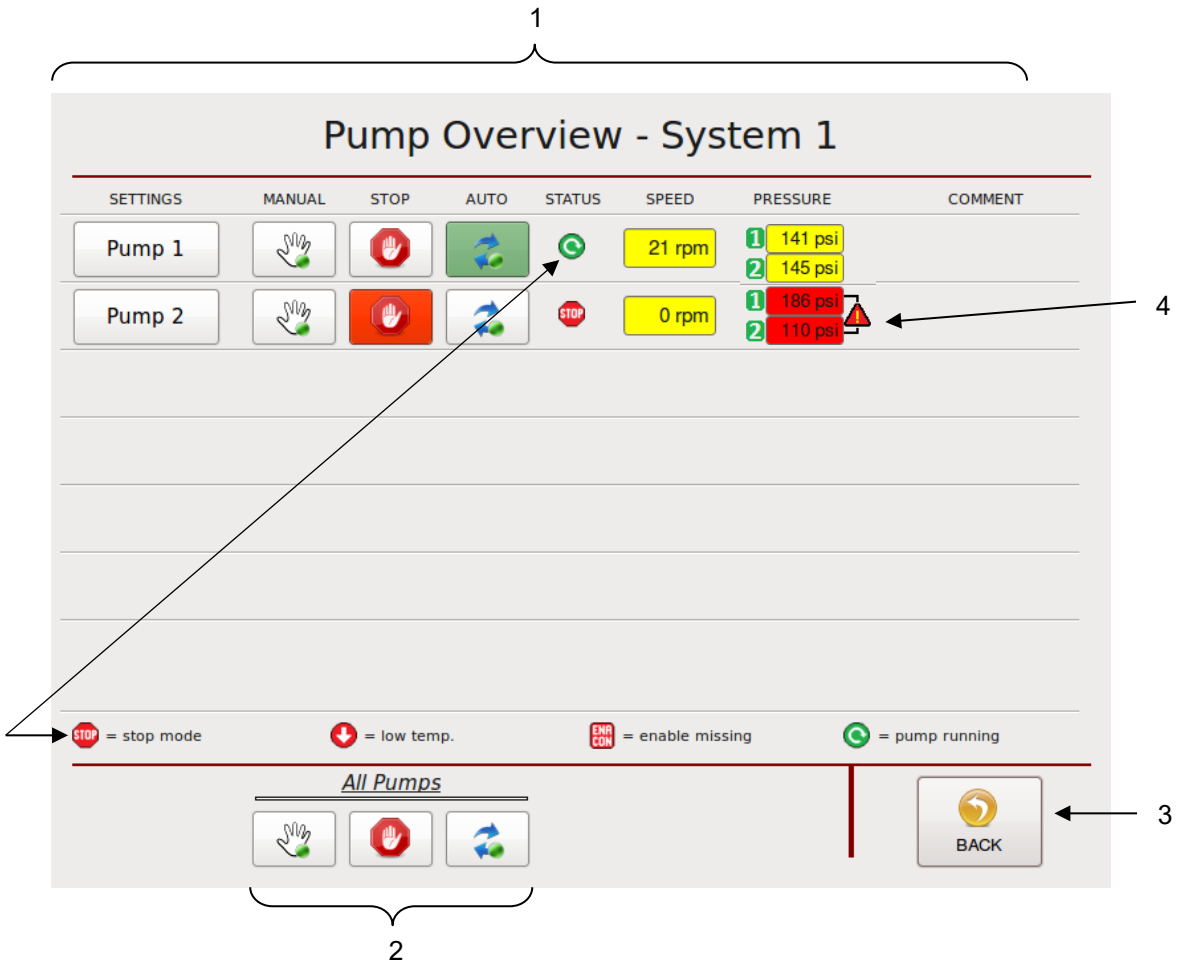
5.3.5.1 Zone On/Off Switch on the Numeric Entry Keypad



Item	*Description*
1	**Zone On/Off Switch** • Zones can be activated/ deactivated temporarily. A system with a hopper zone off or pump/motor zone off will put the system in NOT READY state which does not let the motors run. • The switch is colored light green if ON and light red if OFF.
2	By pressing the OK button, the entered values will be confirmed and stored in the controller. The numeric entry keypad closes, and you will return to the previous screen.
3	By pressing the ESC button any entered but not yet confirmed values will be discarded and you will return to the previous screen.

5.3.6 Pump Overview Screen

- To go to this screen, press the Pumps button on the Main Screen.
- While on the Pump Overview Screen, all changes are immediate (you do not need to confirm).
- The Pump Overview Screen allows you to program the pump mode (Manual, Stop or Automatic). Each pump in the system must be programmed with a Pump Mode.
- Decentralized pumps (e.g. Applicator, Metering Station:  A plausible limit value of Input Pressure (a minimum pressure of not less than 2 bar is recommended) has to be entered to avoid a dry run of the pumps; otherwise the pump can be damaged. See point “Extended Pump Mode Settings Screen, Linear Line Speed, Pressure Control” on next pages.

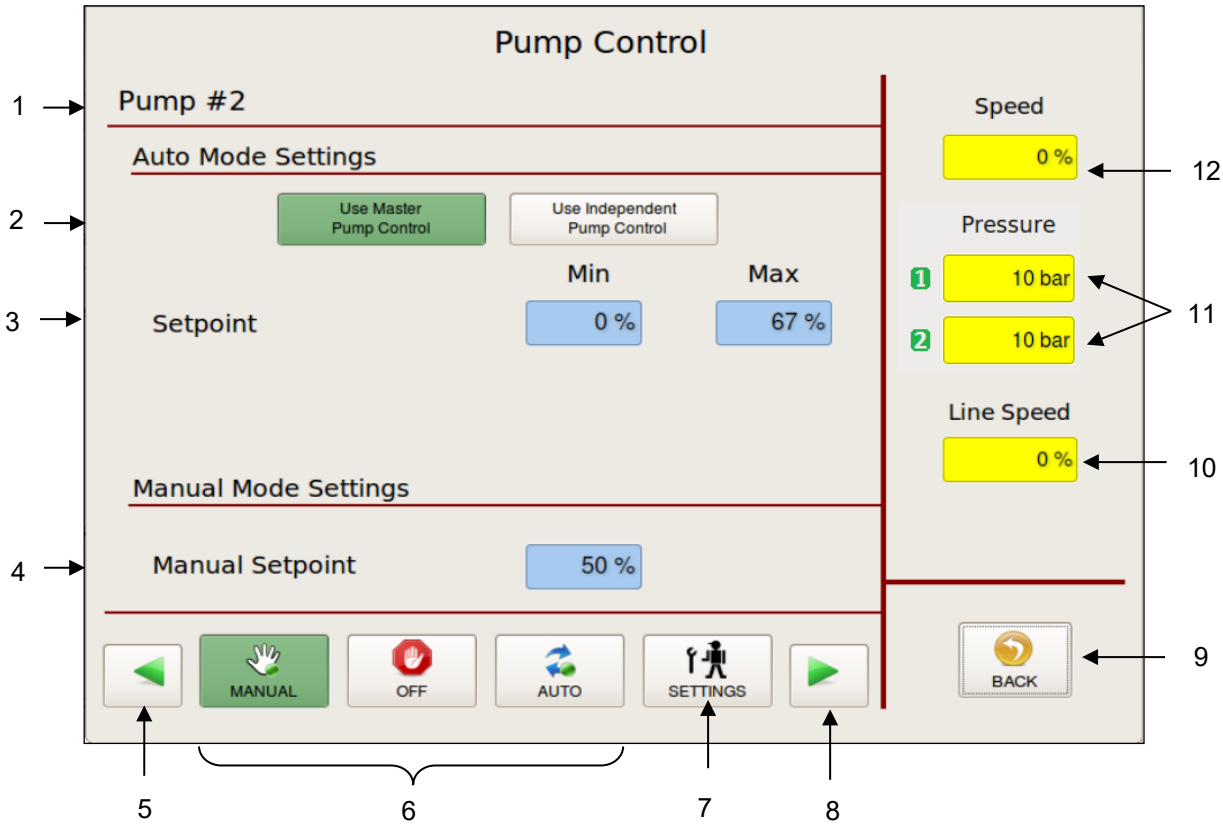


Item	*Description*
1	**Pump Overview** • SETTINGS: Press Pump 1, Pump 2, etc. to go to the appropriate Pump Control screen. • MANUAL: The pump speed is adjusted manually by the operator. When selected the MANUAL icon is highlighted green. • STOP: The pump is stopped, until AUTO or MANUAL is selected. When selected, the STOP icon is highlighted red. • AUTO: The pump speed is controlled via a 0–10VDC signal that is provided by an external device (pattern control equipment or parent machine input). When selected, the AUTO icon is highlighted green. Auto operating parameters for each Pump must be set on the Pump Control Screen. • STATUS: Indicates the pump status. *See icons line/description at the bottom of the screen.* - Stop Mode = Pump is stopped. - Low Temp. = Melter has not reached setpoint temperature. - Enable Missing = Pump enable signal is missing from customer contact. - Pump Running = Pump is running. • RPM: The actual (calculated) RPM of each pump will be displayed. • PRESSURE: The pressure for each pump (if available) will be displayed. See explanation under Main Screen point 4. • COMMENT = The entered pump name will be displayed.
2	**All Pumps Buttons** Press one of the All Pumps buttons (either MANUAL, STOP or AUTO) to set all pumps to the desired function at one time.
3	**BACK Button** Press to return to the previous screen.
4	**Pressure Discrepancy Alarm:** If the display fields are highlighted red, it indicates that the (optional) pressure discrepancy has detected an excessive difference between the primary and secondary pressure. See point “Extended Pump Mode Settings Screen, Linear Line Speed, Pressure Control” for further information.

5.3.6.1 Pump Control Screen/ Linear Line Speed

- To go to this screen, press the Pump 2 field on the Pump Overview screen (to go to the Pump 1, etc. Control screen, press the corresponding field). Then press the Settings button, select Linear Line Speed in the Current Pump Mode menu on the Extended Pump Mode Settings screen and then press the BACK button.
- The Pump Control Linear Line Speed screen allows you to program the Auto Mode Settings (Setpoint minimum/maximum RPM at 0–10VDC external signal control) and Manual Mode Settings (Manual Setpoint RPM).

Pump 2 Example:



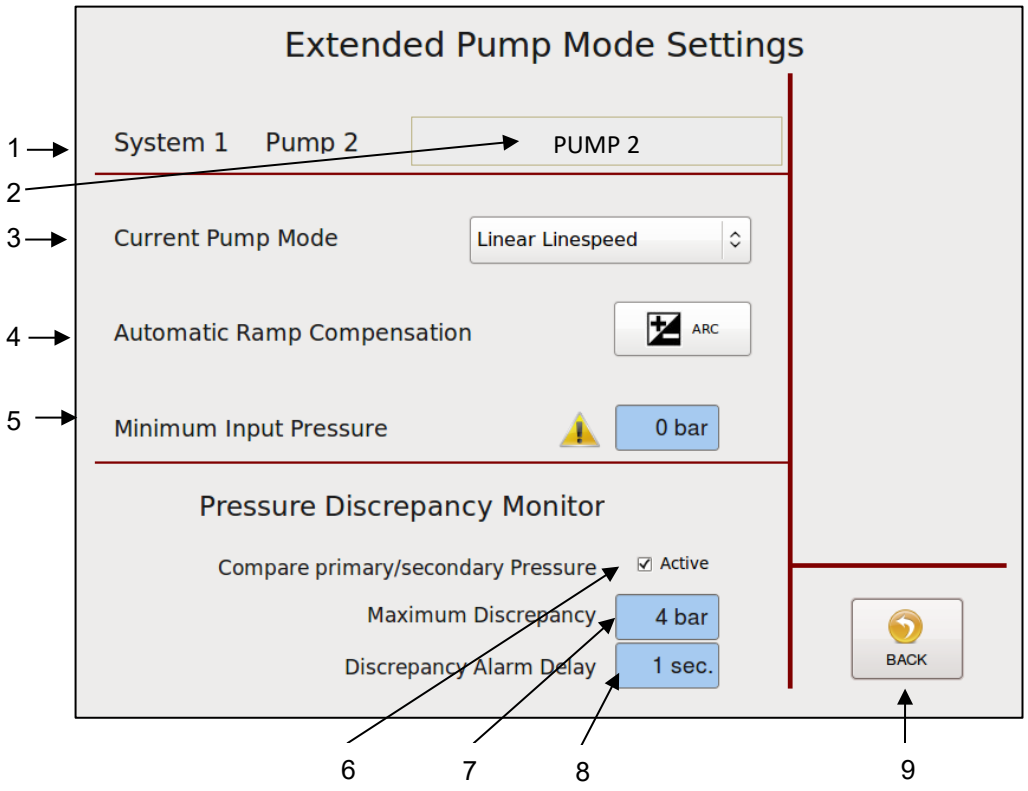
Item	*Description*
1	Pump #2 is the selected pump. All the settings and speeds displayed on this screen correspond to Pump #2.
2	**Auto Mode Settings** Press the according switch for pump control. The activated switch is highlighted green. • **Use Master Pump Control:** The selected pump will use the START/STOP signal and the 0-10V speed signal that pump #1 uses. • **Use Independent Pump Control:** The selected pump will use its own START/STOP signal and 0-10V speed signal.
3	**Auto Mode Settings** **Setpoint** The minimum and maximum setpoint values of the pump are displayed. The programmable range is 0 to 90 rpm or 0 to 100%. By pressing the input field, you can edit the RPM or % values.
4	**Manual Mode Settings** **Manual Setpoint** The manual setpoint value of the pump is displayed. By pressing the input field, you can edit the value.

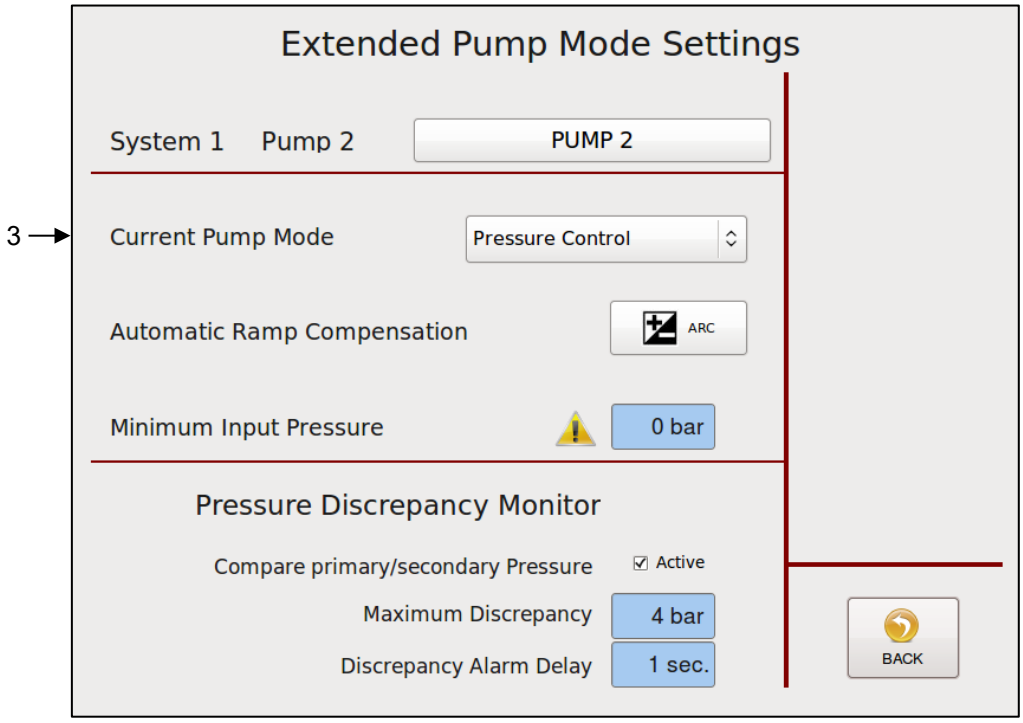
Item	*Description*
5	Press the arrow icon to go to the previous pump screen (i.e., Pump 1, etc.).
6	Set the pump to the desired mode by pressing MANUAL, OFF (STOP) or AUTO. • MANUAL: The pump speed is adjusted manually by the operator. If MANUAL is selected the icon is highlighted green. • OFF (STOP): The pump is stopped, until AUTO or MANUAL is selected. If OFF is selected the icon is highlighted red. • AUTO: The pump speed is controlled via a 0–10VDC signal that is provided by an external device (pattern control equipment or parent machine input). If AUTO is selected the icon is highlighted green. A minimum speed is necessary to keep the pump turning in order to maintain a minimum amount of adhesive pressure through the hose and applicator head. For instance, if the input signal is 10VDC at 100 meters per minute and the pump percentage of full speed is 100% (maximum speed), but the system is putting out too much adhesive, adjusting the MAX pump percentage to 50 will cause the pump to slow down over the parent machine's entire speed range and adhesive output will be decreased.
7	**Settings Button** Press this button to go to the Extended Pump Mode Settings screen where you can select the Current Pump Mode "Linear Line Speed" or "Pressure Control" and you can go to the "Automatic Ramp Compensation" screen.
8	Press the arrow icon to go to the next pump screen (i.e., Pump 3, etc.).
9	**BACK Button** Press to return to the previous screen.
10	**LINE SPEED**: The actual (or calculated) line speed is displayed.
11	**PRESSURE:** The actual pressures are displayed. See explanation under Main Screen point 4.
12	**SPEED**: The actual (or calculated) pump speed is displayed.

5.3.6.2 Extended Pump Mode Settings Screen, Linear Line Speed, Pressure Control

- To go to this screen, press the Settings button on the Pump Control screen.
- The Extended Pump Mode Settings screen allows you to select the Current Pump Mode and to go to the Automatic Ramp Compensation (ARC) screen.

System 1 Pump 2 Example:



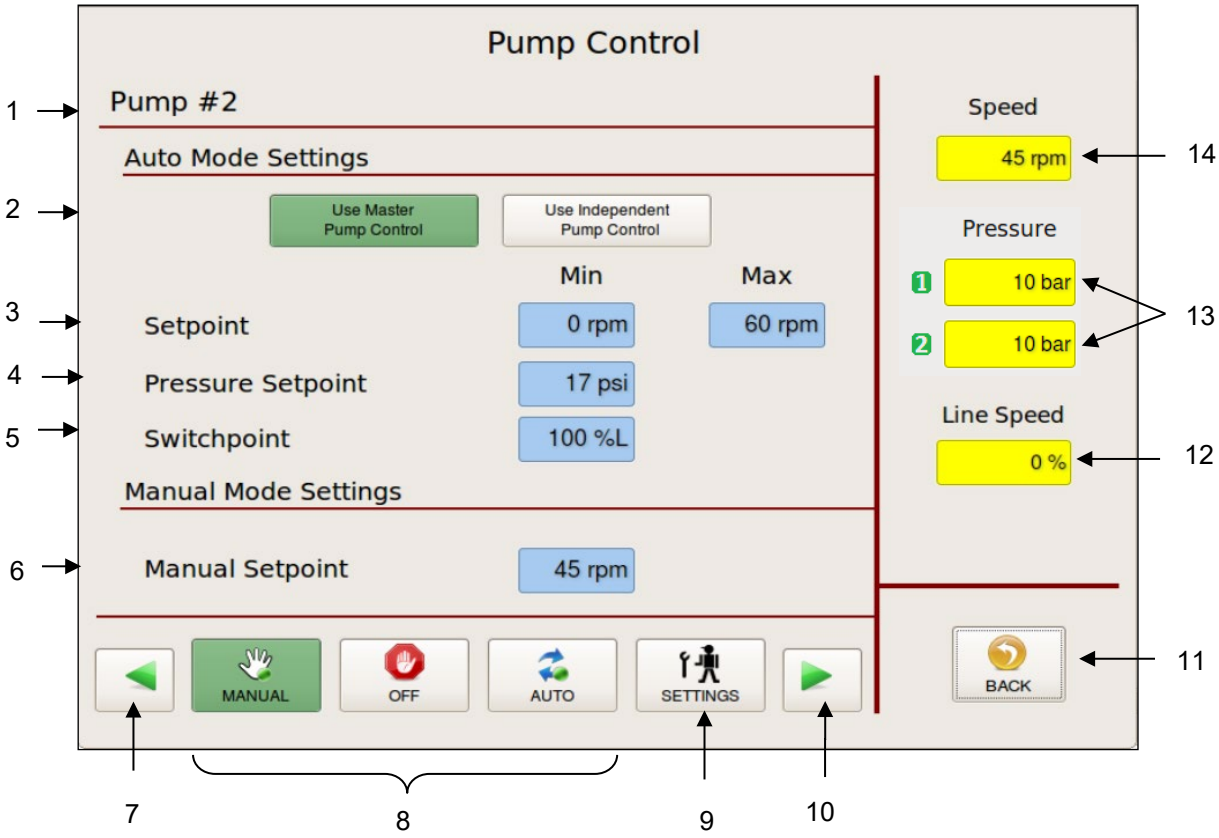


Item	*Description*
1	System 1 Pump 1 is selected.
2	**Pump Name** Touch the input box and an Alphabetic Entry Keypad will appear. Enter your desired pump name and confirm by pressing OK. The entered pump name will be displayed on the Pump Overview Screen.
3	**Current Pump Mode** Press Current Pump Mode to select "Linear Line Speed" or "Pressure Control". Then press the BACK button to go to the appropriate screen.
4	**Automatic Ramp Compensation (ARC) Button** Press to go to the Automatic Ramp Compensation screen.
5	**Optional: Minimum Input Pressure** • This field appears only if the pump is configured for a minimum input pressure lock. • The Minimum Input Pressure is a customer parametrizable value which has to be reached for the according pumps on decentralized pump (Applicator or Metering Station) to be released. •  A plausible limit value of Input Pressure (a minimum pressure of not less than 2 bar is recommended) has to be entered to avoid a dry run of the pumps; otherwise the pump can be damaged.
6	**Pressure Discrepancy Monitor** Check this button if the pressure discrepancy has to be monitored.
7	**Maximum Discrepancy** This is the maximum allowed difference and adjustable between 1-17 bar (15-250 psi). If actual difference is larger, a discrepancy warning will be generated for reference only.
8	**Discrepancy Alarm Delay** A pressure discrepancy warning can be delayed. This way an excessive difference has to be present for a minimum time to cause a warning.
9	**BACK Button** Press to return to the previous screen.

5.3.6.3 Pump Control/ Pressure Control Screen

- To go to this screen, press the Pump 2 field on the Pump Overview screen (to get to the Pump 1, etc. Control screen, press the corresponding field). Then press the Settings button, select Pressure Control in the Current Pump Mode menu on the Extended Pump Mode Settings screen and then press the BACK button.
- If (optional) pressure sensors (transducers) are installed on the unit, the pumps can be pressure controlled. Pressure values (Bar/PSI) will be displayed on the Main Screen.
- A plausible limit value of Input Pressure (a minimum pressure of not less than 2 bar is recommended) has to be entered to avoid a dry run of the pumps; otherwise the pump can be damaged. See point “Extended Pump Mode Settings Screen, Linear Line Speed, Pressure Control” on previous pages.

Pump 2 Example:



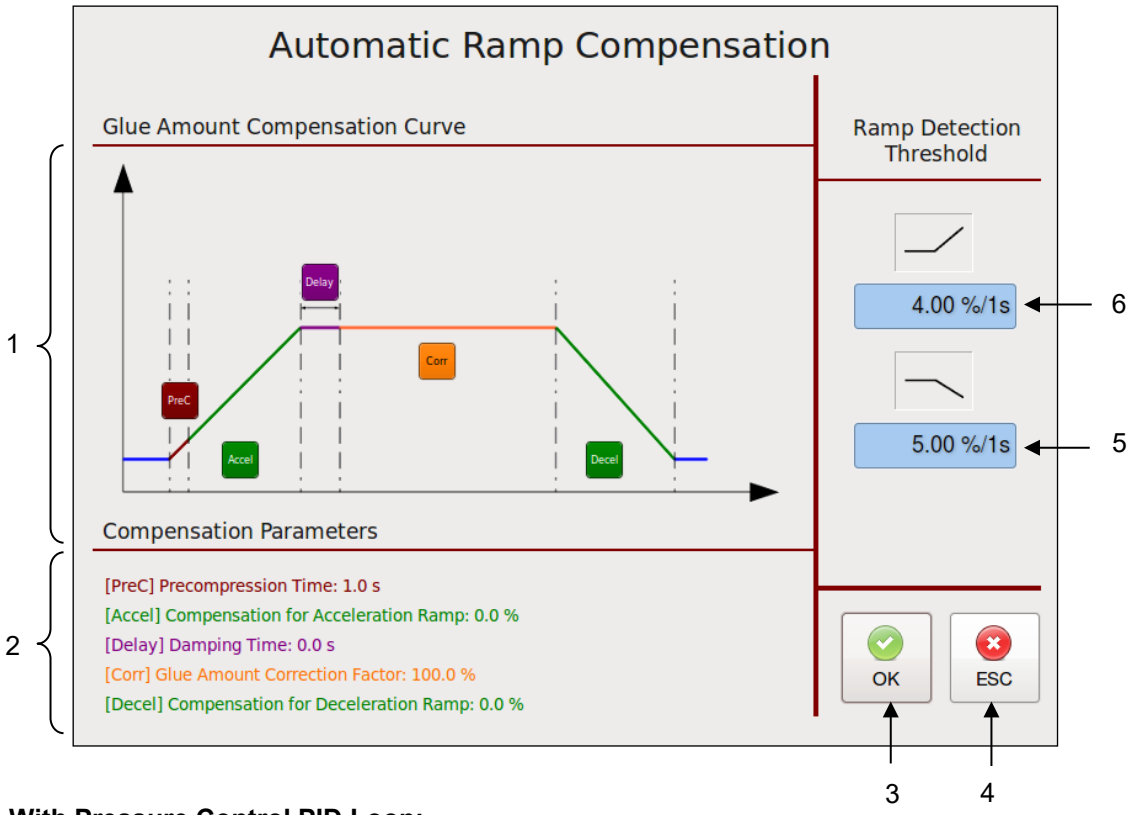
Item	*Description*
1	Pump #2 is the selected pump. All the settings and speeds displayed on this screen correspond to Pump #2.
2	**Auto Mode Settings:** Press the according switch for pump control. The activated switch is highlighted green. • **Use Master Pump Control:** The selected pump will use the START/STOP signal that pump #1 uses. • **Use Independent Pump Control:** The selected pump will use its own START/STOP signal.
3	**Setpoint (if in Auto Mode only)** The minimum and maximum setpoint RPM of the pump are displayed as programmed. Press the input field to edit the values.

Item	*Description*
4	**Pressure Setpoint (if in Auto Mode only)** The pressure setpoint value (BAR/PSI) is displayed as programmed and it controls the primary pressure input (point 13). Press the input field to edit the value.
5	**Switch Point (if in Auto Mode only)** Switch Point is set at a percentage of line speed. In the example shown above, 10%L equals 10% of line speed. Below the Switch Point speed, the system runs in pressure control mode (PID control, in order to maintain the pressure set point). Above the Switch Point speed, the system runs in normal line speed following mode (utilizing the auto min and auto max parameters). The switch point value is displayed as programmed. Press the input field to edit the value.
6	**Manual Setpoint (if in Manual Mode only)** The manual setpoint RPM of the pump is displayed as programmed. Press the input field to edit the value.
7	Press the arrow icon to go to the previous pump screen (i.e., Pump 1, etc.).
8	Set the pump to the desired mode by pressing either MANUAL, OFF (STOP) or AUTO. • MANUAL: The pump speed is adjusted manually by the operator. If MANUAL is selected the icon is highlighted green. • OFF (STOP): The pump is stopped, until AUTO or MANUAL is selected. If OFF is selected the icon is highlighted red. • AUTO: The pump speed is controlled via a 0–10VDC signal that is provided by an external device (pattern control equipment or parent machine input). If AUTO is selected the icon is highlighted green. A minimum speed is necessary to keep the pump turning in order to maintain a minimum amount of adhesive pressure through the hose and applicator head. For instance, if the input signal is 10VDC at 100 meters per minute and the pump percentage of full speed is 100% (maximum speed), but the system is putting out too much adhesive, adjusting the MAX pump percentage to 50 will cause the pump to slow down over the parent machine's entire speed range and adhesive output will be decreased.
9	**Settings Button** Press this button to go to the Extended Pump Mode Settings screen where you can select the Current Pump Mode "Linear Line Speed" or "Pressure Control" and you can go to the "Automatic Ramp Compensation" screen.
10	Press the arrow icon to go to the next pump screen (i.e., Pump 3, etc.).
11	**BACK Button** Press to return to the previous screen.
12	**LINE SPEED**: The actual (or calculated) line speed is displayed.
13	**PRESSURE:** The actual pressures are displayed. The primary pressure input can be controlled via the Pressure Set Point (point 3) set on this screen. The secondary pressure input is just a readout function. See explanation under Main Screen point 4.
14	**SPEED**: The actual (or calculated) pump speed is displayed.

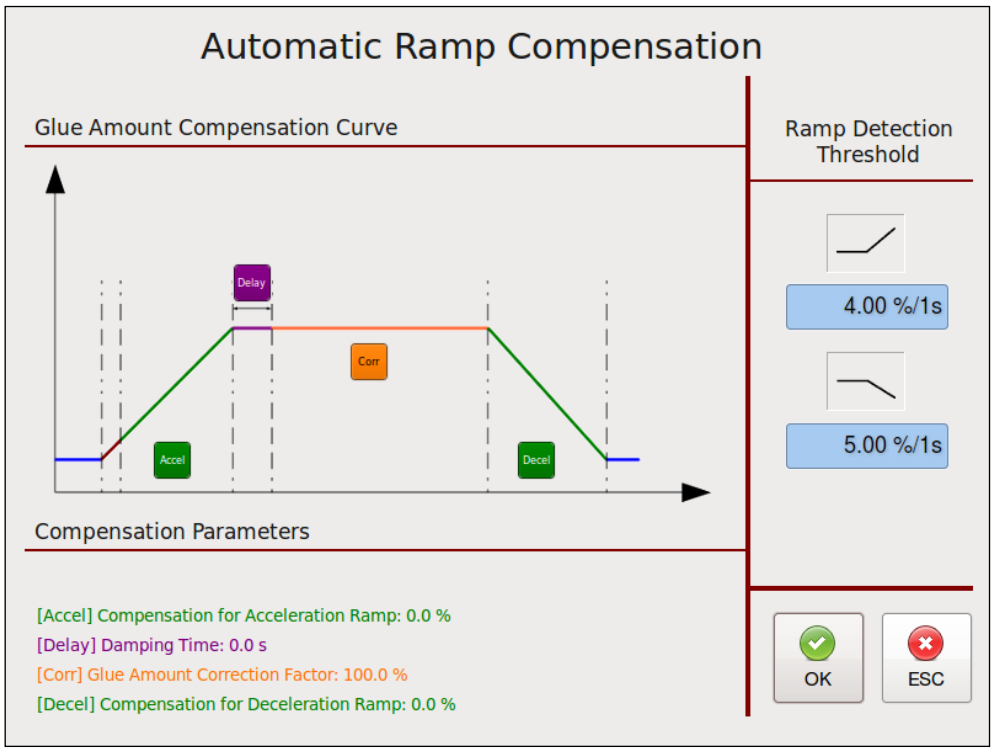
5.3.6.4 Automatic Ramp Compensation

- To go to this screen, press the Automatic Ramp Compensation button on the Extended Pump Mode Settings Linear Line Speed screen.
- The Automatic Ramp Compensation screen allows you to program parameters in order to compensate the adhesive amount when the speed of the main machine accelerates and decelerates.

With Linear Pump Control (Line Speed without Pressure PID Loop):



With Pressure Control PID Loop:

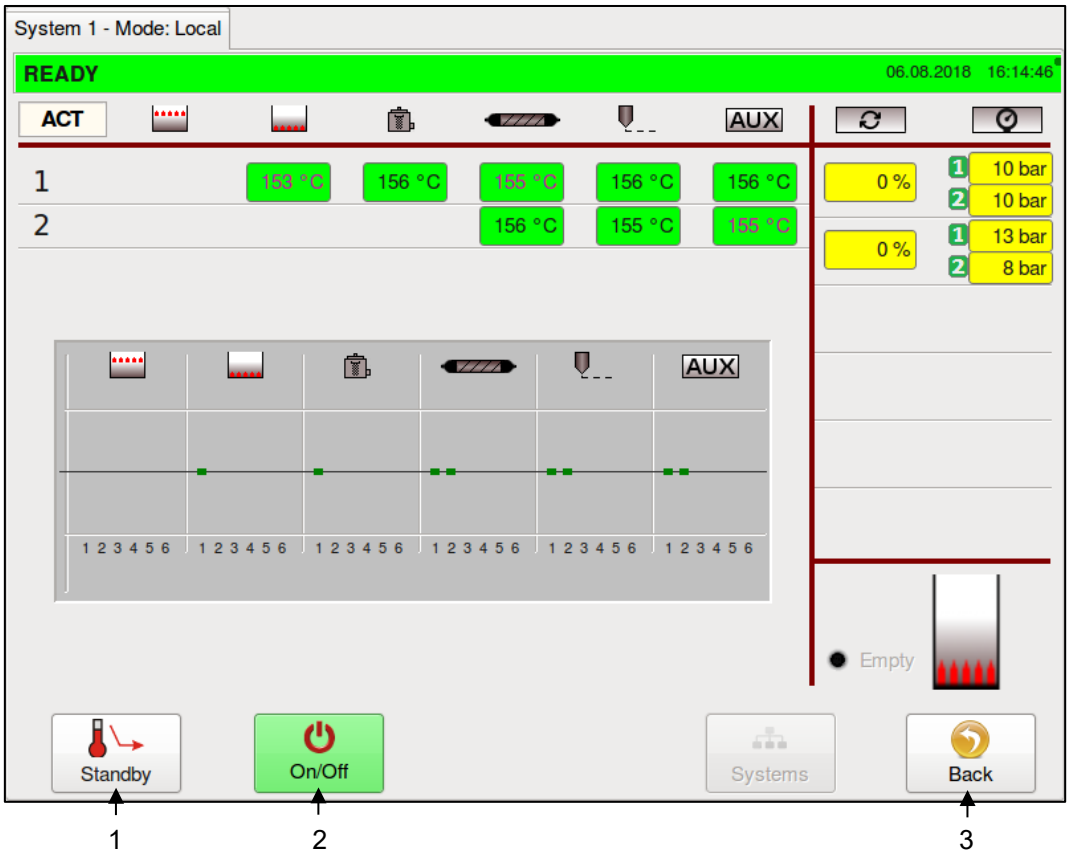


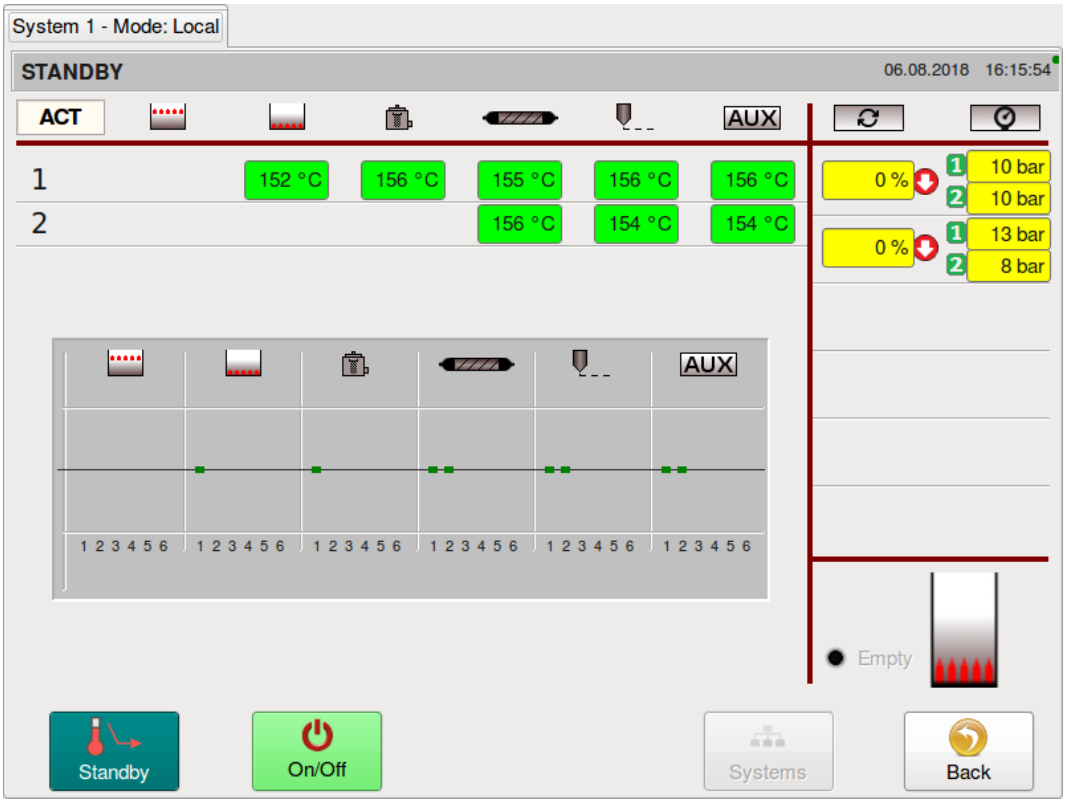
- Ramp Compensation allows tuning of adhesive amounts during acceleration and deceleration of main machine to reduce waste and increase machine efficiency by entering appropriate parameters.
- The colored parameters are related to the different phases of the main machine (see colored graph). A higher value will result in a higher compensation (more glue amount during acceleration, less glue amount during deceleration).
- After setting parameters by visibly checking the product result, further fine tuning might be necessary by checking products from the acceleration/deceleration ramp in a lab.

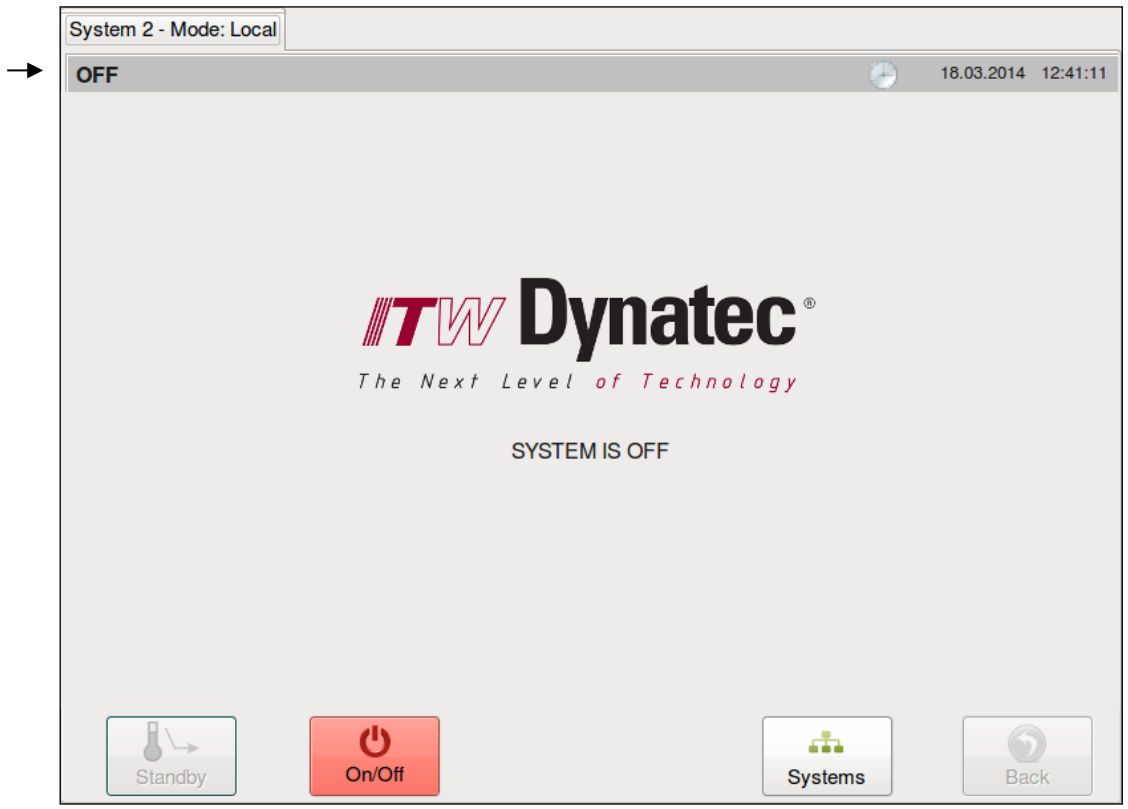
Item	*Description*
1	**Glue Amount Compensation Curve** • **(PreC) Precompression Time** in seconds: When using ramp compensation without pressure control loop, this defines the time the system will pre-compress at 75% pump speed before adhesive application. • **(Accel) Compensation for Acceleration Ramp** in % or rpm: This is the added percentage or rpm of pump speed to compensate the main machine acceleration ramp. • **(Delay) Damping Time** in seconds: within this time the compensation is reduced to the normal application rate in order to prevent an elastic impact. • **(Corr) Glue Amount Correction Factor** in %: Allows an adjustment of pump speed if a speed correction is required due to measured deviations of the adhesive amount. • **(Decel) Compensation for Deceleration Ramp**: This is the subtracted percentage or rpm of pump speed to compensate the main machine deceleration ramp. By pressing the appropriate button, you can edit the value by means of numeric entry keypad.
2	**Compensation Parameters** The compensation parameters values currently in use are displayed.
3	Press the OK button to confirm your entered values and return to the previous screen.
4	Press the ESC button to discard any non-confirmed values and return to the previous screen.
5	**Ramp Detection Threshold for deceleration in %/1s** A main machine deceleration phase is automatically detected when its speed change lies above the given value. By pressing the input field, you can edit the value by means of numeric entry keypad.
6	**Ramp Detection Threshold for acceleration in %/1s** A main machine acceleration phase is automatically detected when its speed change lies above the given value. By pressing the input field, you can edit the value by means of numeric entry keypad.

5.3.7 Control Switch On/Off and Standby Switch

- To go to this screen, press the Control button on the Main Screen.
- This screen allows you to turn the system On or Off and to activate/deactivate standby condition.



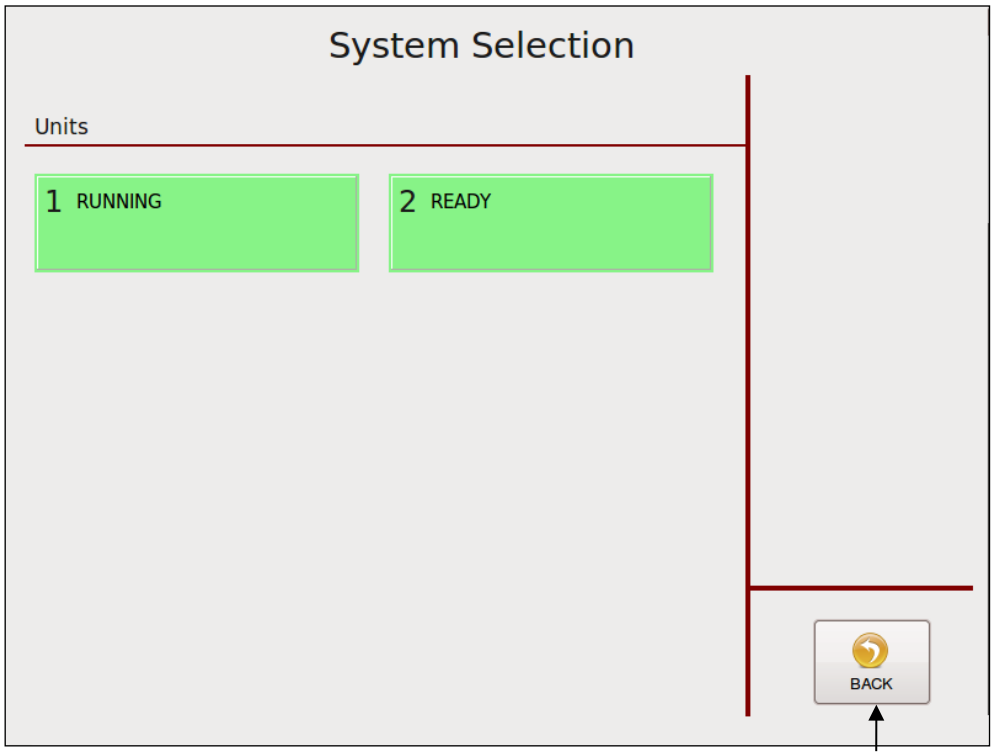




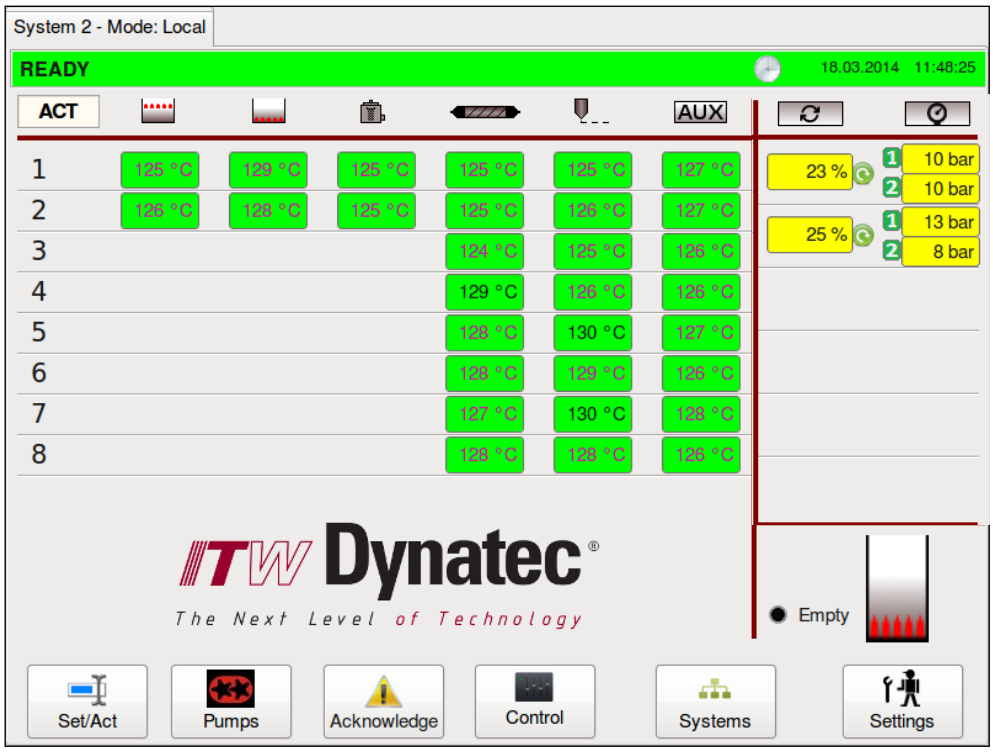
Item	*Description*
1	**Standby Switch** • Press the Standby switch to activate or deactivate the standby condition. When Standby is activated, the button will be highlighted blue. • When Standby is activated, all zone temperatures will be set to the standby value (programmed on the General Settings Screen) and all pumps will be disabled.
2	**On/Off Switch** Press the On/Off button to toggle the system On or Off. When the system is On, the button will be highlighted green. When the system is Off, the button will be highlighted red.
3	**BACK Button** Press to return to the previous screen.

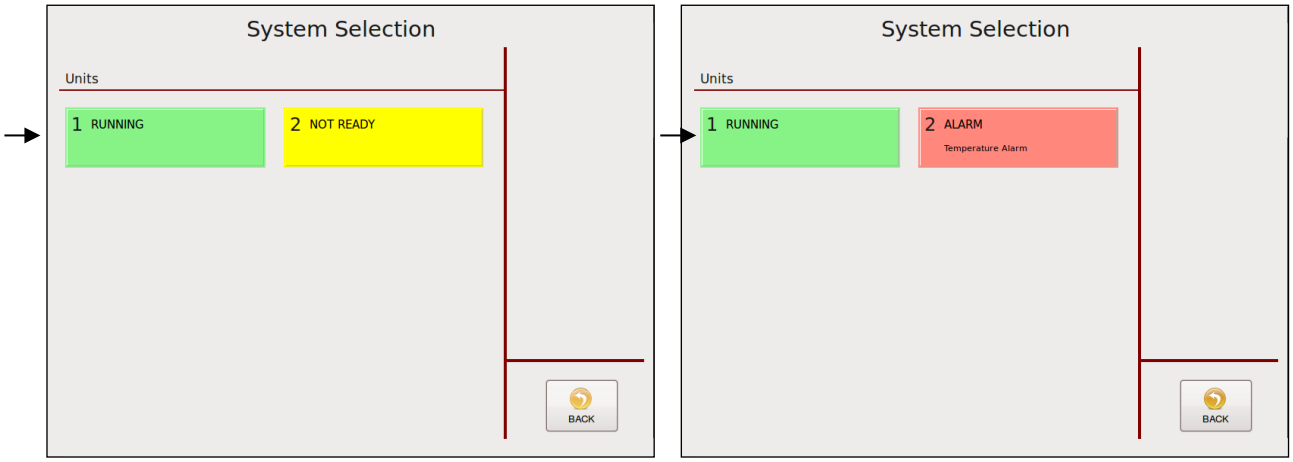
5.3.8 Systems Screen (only if Multi-System option is installed)

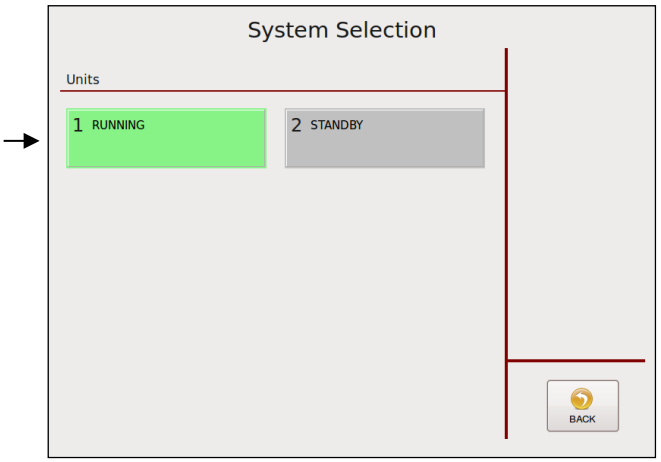
- To go to this screen, press the Systems button on the Main Screen.
- This screen displays all attached systems and allows you to select the desired system to control it.
- For System setup refer to next sub-chapter “Changing the Multi-System Configuration”.



- For example: System #2 is selected. The system # will be indicated over the Status Line.



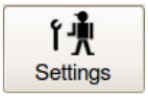




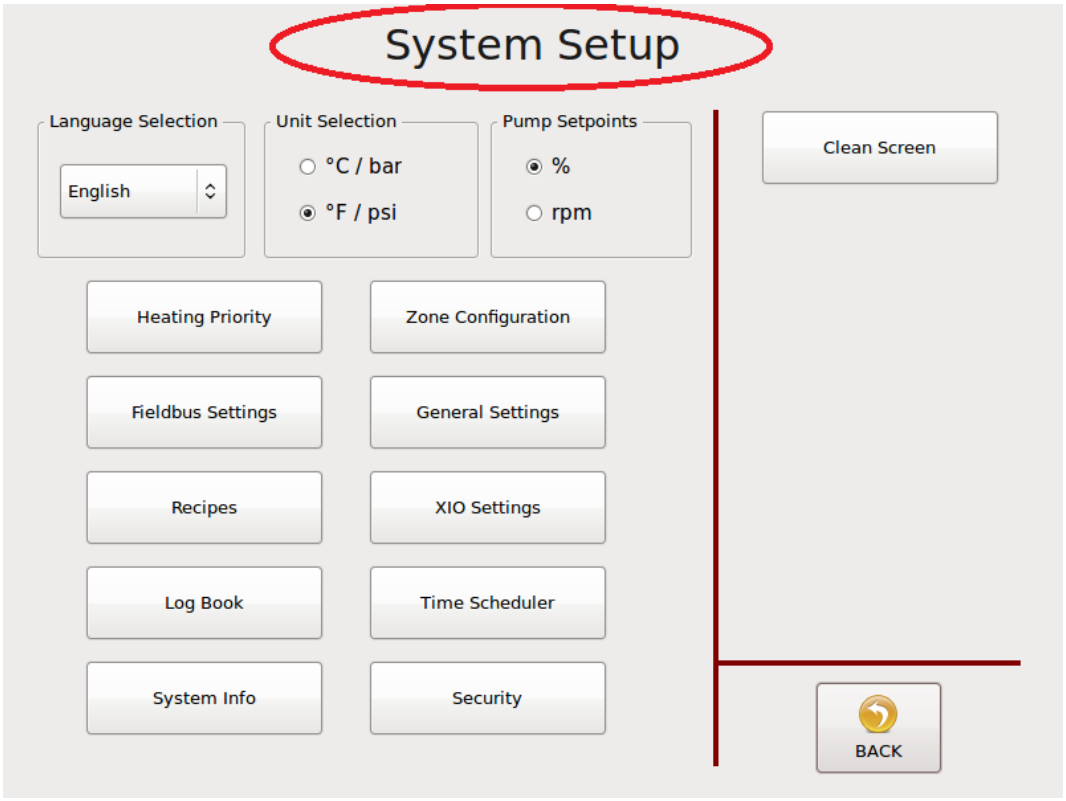
Item	*Description*
1	**System # Button** • Each system is assigned with a number. • Press the desired number to go to the appropriate system to control and to edit its parameters. • The button is highlighted green when the system is RUNNING or READY, yellow when NOT READY, grey when in STANDBY and red when in ALARM condition.
2	**BACK Button** Press to return to the previous screen.

5.3.8.1 Changing the Multi-System Configuration

➢ A Multi-System typically comes factory-configured, but it might be required to change the configuration later on, i.e. removing a unit or adding another unit to the systems.

1. From the main screen, press the ***Settings*** button. 

2. Tap in the red outline area repeatedly until a numeric entry opens.

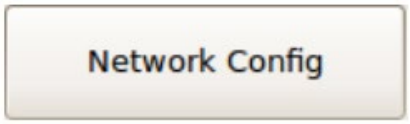


3. On the access code input screen:

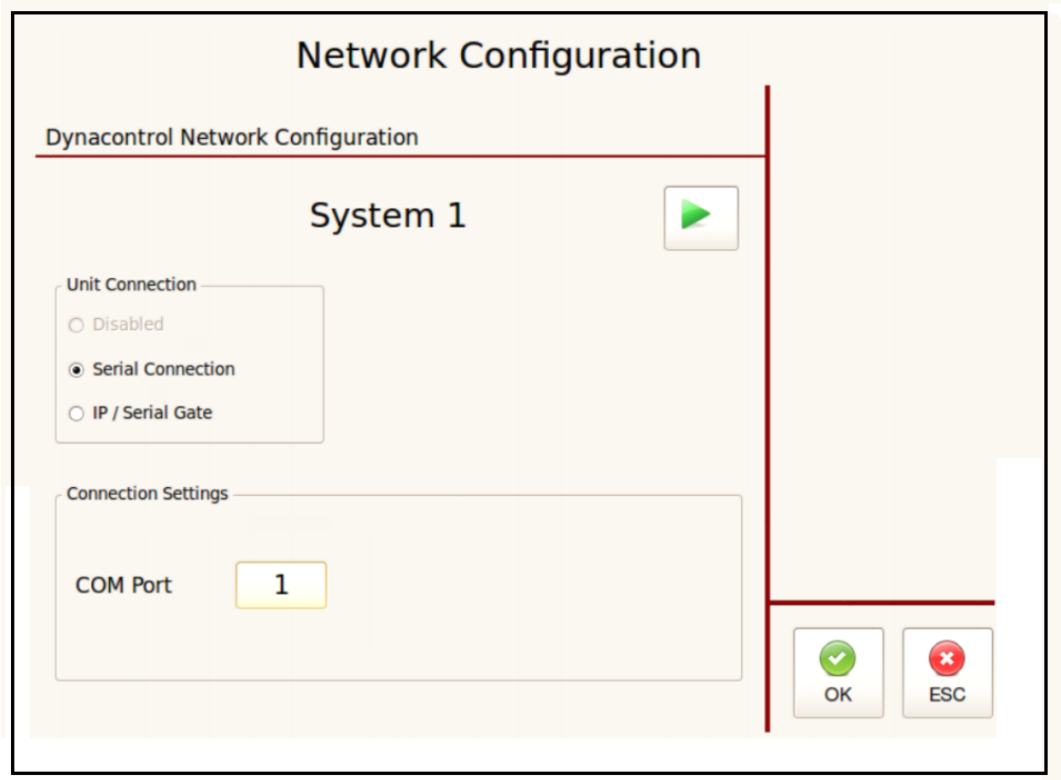
   3a. Leave the entry blank and press ***OK*** when General Settings are not locked via Maintenance access code, or

   3b. Enter Maintenance access code (or factory code if available) and press ***OK*** in case the General Settings are locked.

4. Enter the configuration screen by pressing ***Network Config*** button.



The Network Config screen will open:

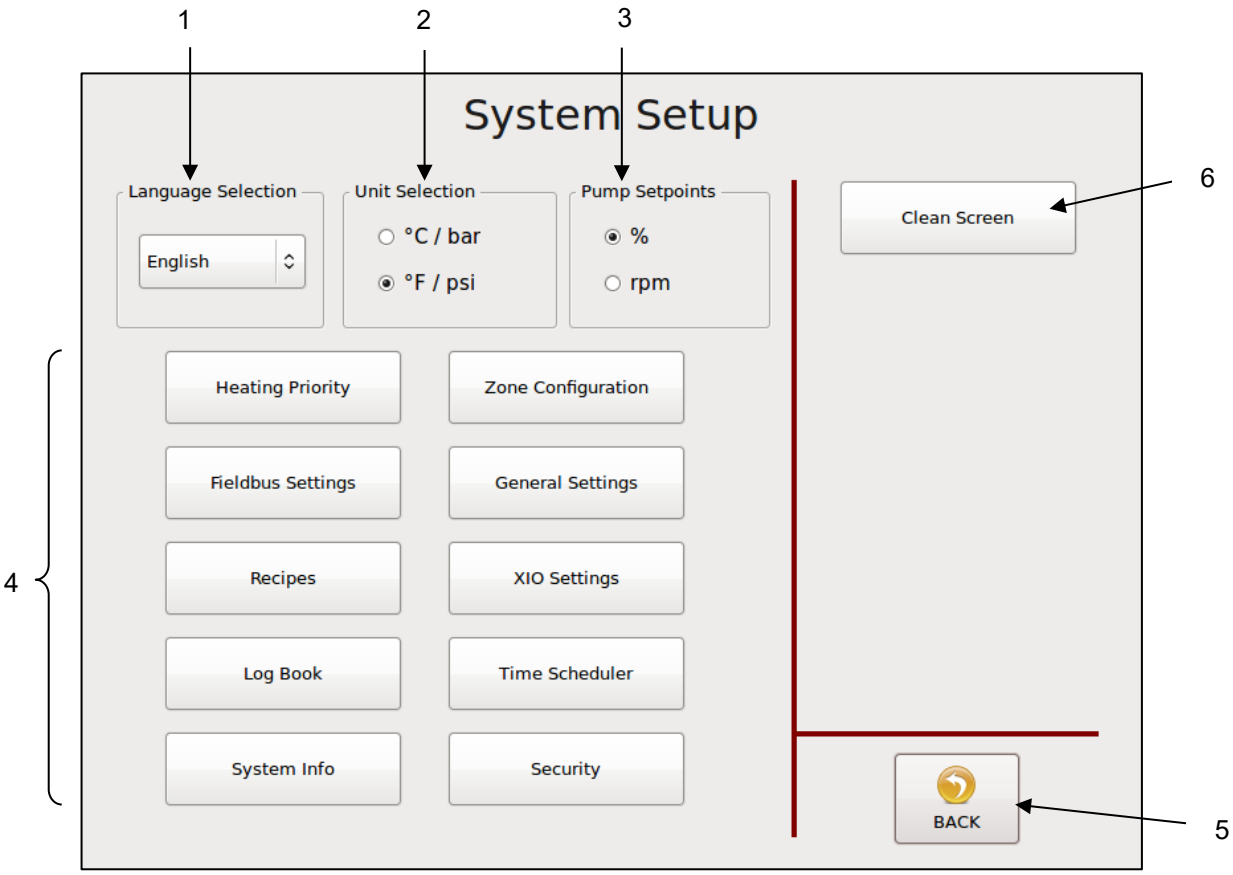


- On this screen the individual systems (Melters) of the Multi-System can be configured.
- Depending on the actual situation two or more systems are configured.
  Select the desired unit by pressing the arrow button:

- For each system select how it is connected. This has to match the actual wiring.
- If a unit has to be removed (or is no longer available), select **Disabled**.
- Units that are connected via Ethernet need to have the corresponding IP address entered.
  The IP-Address can be found written on the unit's Ethernet converter.
- After changing the set-up, leave the screen by pressing **OK**.
  This will lead to automatically re-boot of the unit.
- For further assistance, consult ITW Dynatec technical service.

5.3.9 Settings Screen

- To go to this screen, press the Settings button on the Main Screen.
- This screen allows you to set the parameters displayed: Language, Temperature/ Pressure Units, Pump Setpoints, Heating Priority, Fieldbus, Recipes, Log Book, System Info (to see information about the controller and modules installed), Zone Configuration, General Settings (including Temperature Settings, Standby Settings, Level Control Settings, Pressure Calibration, Customer Zone Names and Support), XIO Settings, Time Scheduler and Security.

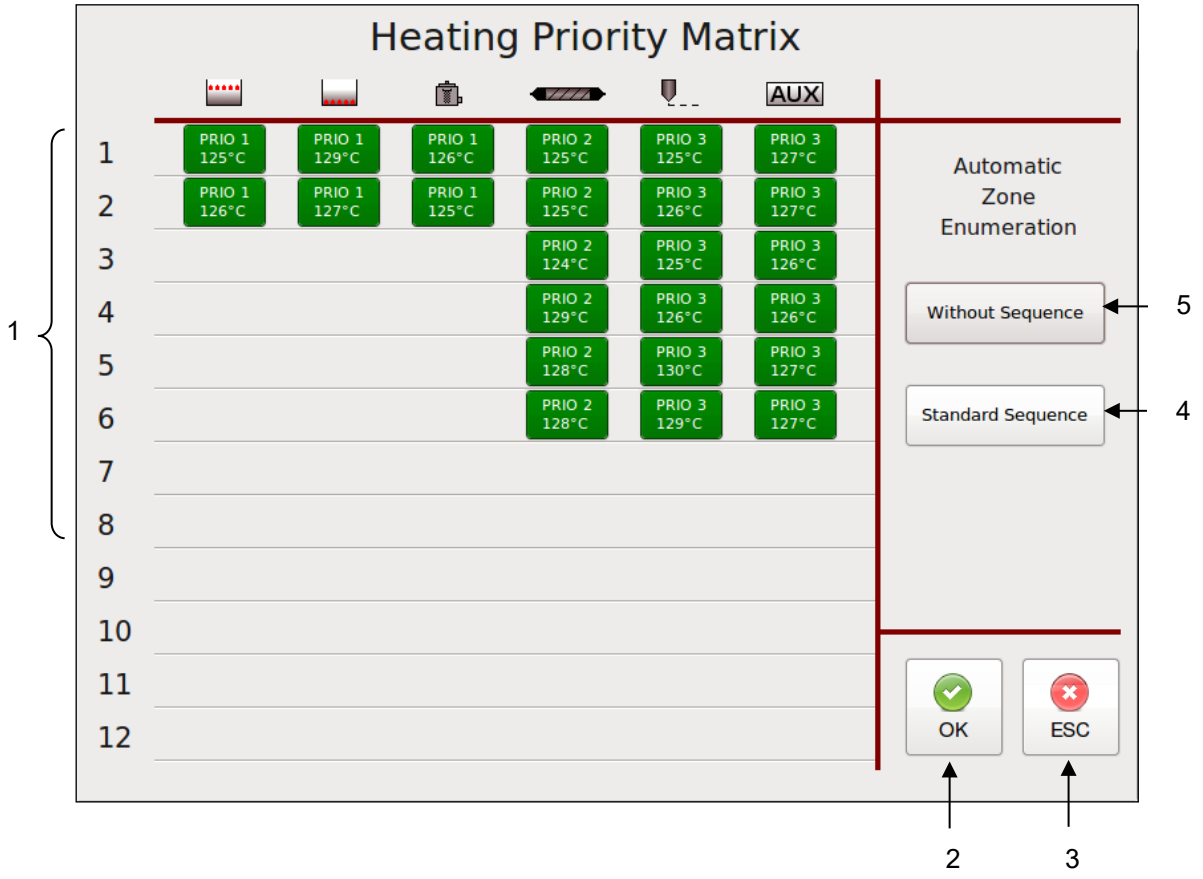


Item	Description
1	**Language Selection Menu** The current language is displayed. Press the button to select any language from the ones listed on the menu.
2	**Unit & Date Selection** Select the unit of temperature and pressure: choose either °C and bar or °F and psi. Depending on the selection made, the appearance of the date display is affected also. With the C/bar selection, the date is displayed as 'day.month.year' while in F/psi mode, the date is displayed as 'month/day/year'.
3	**Pump Setpoints** Select the pump speed setpoints either in RPM or % of production line speed.
4	**All other Setting Buttons** • To go to a desired screen, press the appropriate button. • On the following pages each screen is explained except XIO Settings. • **XIO Settings:** The screens used under XIO Settings are dependent from integrated equipment. See separate add-on at the end of this chapter.
5	**BACK Button** Press to return to the previous screen.
6	**Clean Screen Button** Press this button to clean the screen. Then, the functions of the Touch Panel will be switched off for 20 seconds.

5.3.9.1 Heating Priority Screen

- To go to this screen, press the Heating Priority button on the Settings Screen.
- This screen allows you to set a Heating Priority for each zone. Heating Priority allows the hopper zones to heat to their ready temperatures before the other zones begin heating. In this way, the larger mass of adhesive in the hopper zones (including the grid, hopper and filter manifold) gets a head start on the other zones (hoses, applicators and auxiliary zones).

Heating Priority Matrix Example:

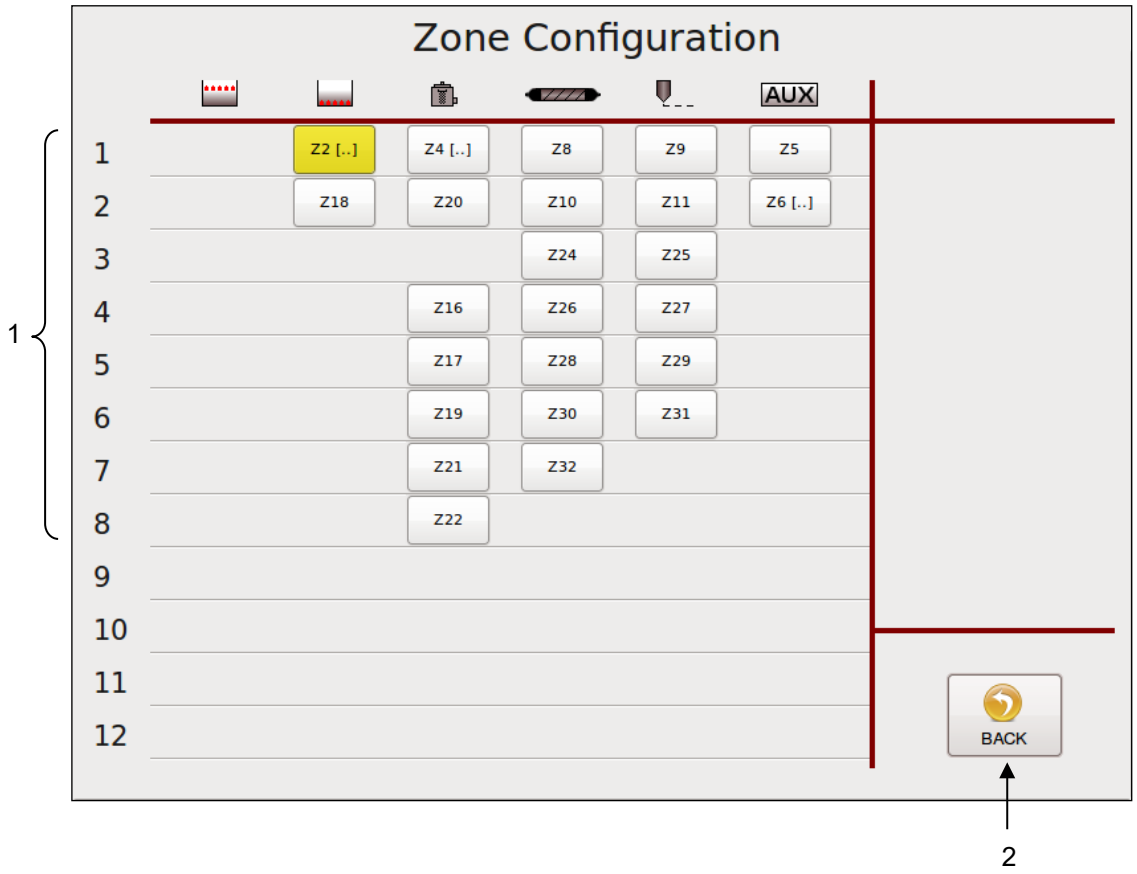


Item	*Description*
1	Touch each zone field to select one of the following three Heating Priorities, or to switch the zone OFF: • PRIO1 = the zone will heat first. • PRIO2 = the zone will begin to heat after the PRIO1 zones have reached their setpoints. • PRIO3 = the zone will begin to heat after the PRIO2 zones have reached their setpoints. • OFF = the zone is OFF. It will not heat and it will not be displayed on the Main screen.
2	Press the OK button to confirm your entered values and return to the previous screen.
3	Press the ESC button to discard any non-confirmed values and return to the previous screen.
4	Press the Standard Sequence button to accept the following standard Heating Priorities: • PRIO1 = grid, hopper and filter manifold • PRIO2 = hoses • PRIO3 = applicators and other auxiliary components Press the OK button to confirm.
5	Press the Without Sequence button to assign all zones to PRIO1. With this setting, all zones will begin to heat after turning on the unit. Press the OK button to confirm.

5.3.9.2 Zone Configuration Screen

- To go to this screen, press the Zone Configuration button on the Settings Screen.
- This screen allows you to enter zone names and to set Offset Temperature and other Control Settings for each zone.

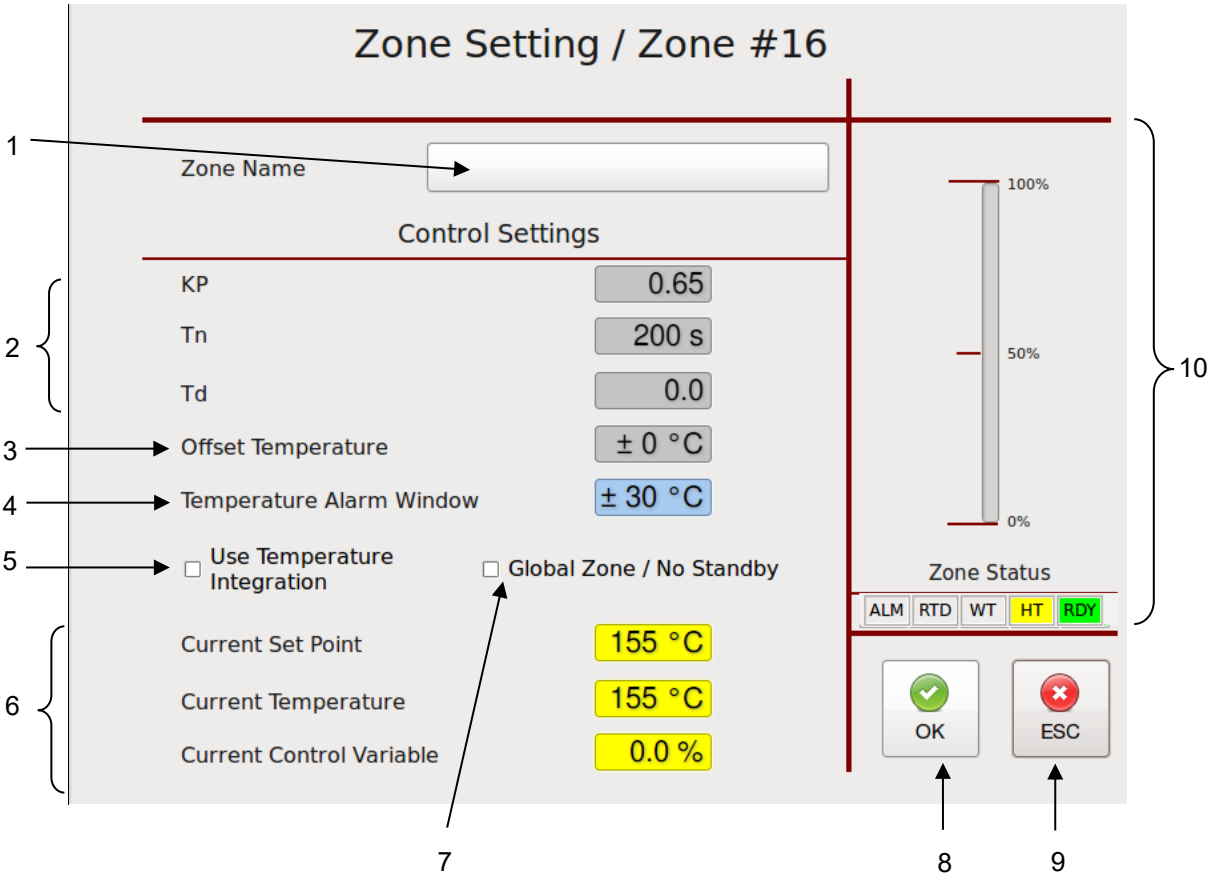
Zone Configuration Screen Example:



Item	*Description*
1	• Touch a zone input box to go to the Zone Settings. • Z2 [..] Zone is highlighted yellow if an Offset Temperature has been set for this zone. • [..] Square bracket is displayed if a custom zone name has been entered for this zone.
2	**BACK Button** Press to return to the previous screen.

5.3.9.3 Zone Settings

➢ To go to this screen, press a zone input box on the Zone Configuration Screen.



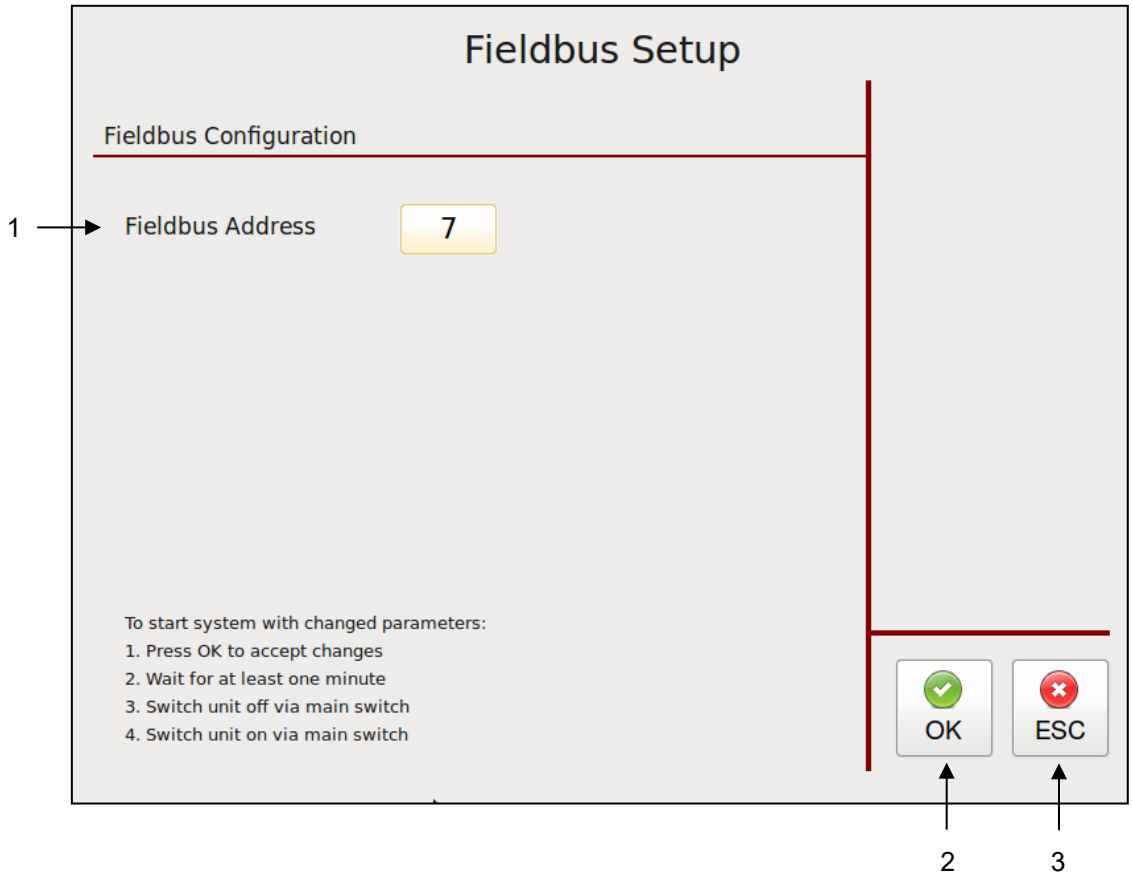
Item	Description
1	**Zone Name** Touch the input box and an Alphabetic Entry Keypad will appear. Enter your desired name and confirm by pressing OK.
2	**Control Settings** • KP, Tn and Td values allow access to the control parameters of PID Controller of the selected zone. • These values can be changed only by using a Maintenance password. See Security screen.
3	**Offset Temperature** • Temperature Offsets are mathematical factors which compensate for differences in temperature within components. Each temperature zone may be programmed with an offset, if desired. Standard equipment does not usually require temperature offsets. Note: Entering a positive-numbered offset will raise the temperature reading of that zone. Since the controller attempts to equate setpoint and actual temperature, this lowers the actual temperature by the amount of the offset. For example: setpoint and actual temperature both equal 150°C (302°F). An offset of +10°C (+10°F) is programmed. Initially the display will read 160°C (312°F), but the controller will lower the output power until the actual temperature value is back to 150°C (302°F). •  Warning icon is displayed if an Offset Temperature has been set for the zone. • This value can be changed only by using a Maintenance password. See Security screen.

Item	Description
4	**Temperature Alarm Window** Here you can define a separate alarm window for this zone. If you do this, this will be indicated by an  in the General Settings / Temp Settings window.
5	**Use Temperature Integration** • Depending on your Temp Module this function can be activated/ deactivated. • If you experience strong variations in actual temperature read-out, an integration function can be activated to eliminate EMC influence.
6	These values are read-only.
7	**Global Zone / No Standby** The function is set individually for each zone. When this function is activated, the zone is defined as a "Global Zone". Global zones are not covered by the temperature reduction (standby) if the unit is switched to standby mode; i.e. even in standby mode, the "global zones" will continue to heat up to the set setpoint temperatures, while the other zones are reduced by the set standby difference.
8	Press the OK button to confirm your entered values and return to the previous screen.
9	Press the ESC button to discard any non-confirmed values and return to the previous screen.
10	**Zone Status** Zone status is indicated. • ALM = is highlighted if zone has an alarm. • RTD = is highlighted if temperature sensor error occurs. • WT = is highlighted if zone is in wait status because of heating priority setting. • HT = is highlighted if zone is heating up. • RDY = is highlighted if zone ready (setpoint temperatures are reached). • Scale = Indication of Current Control Variable of the selected PID control zone.

5.3.9.4 Fieldbus Setup Screen

➢ To go to this screen, press the Fieldbus Settings button on the Settings Screen.

➢ When communicating to a parent machine which utilizes Profibus or EtherNet IP, the unit must have a Fieldbus Address to identify it. When there are additional units in a system, each unit must have its own unique Fieldbus Address.

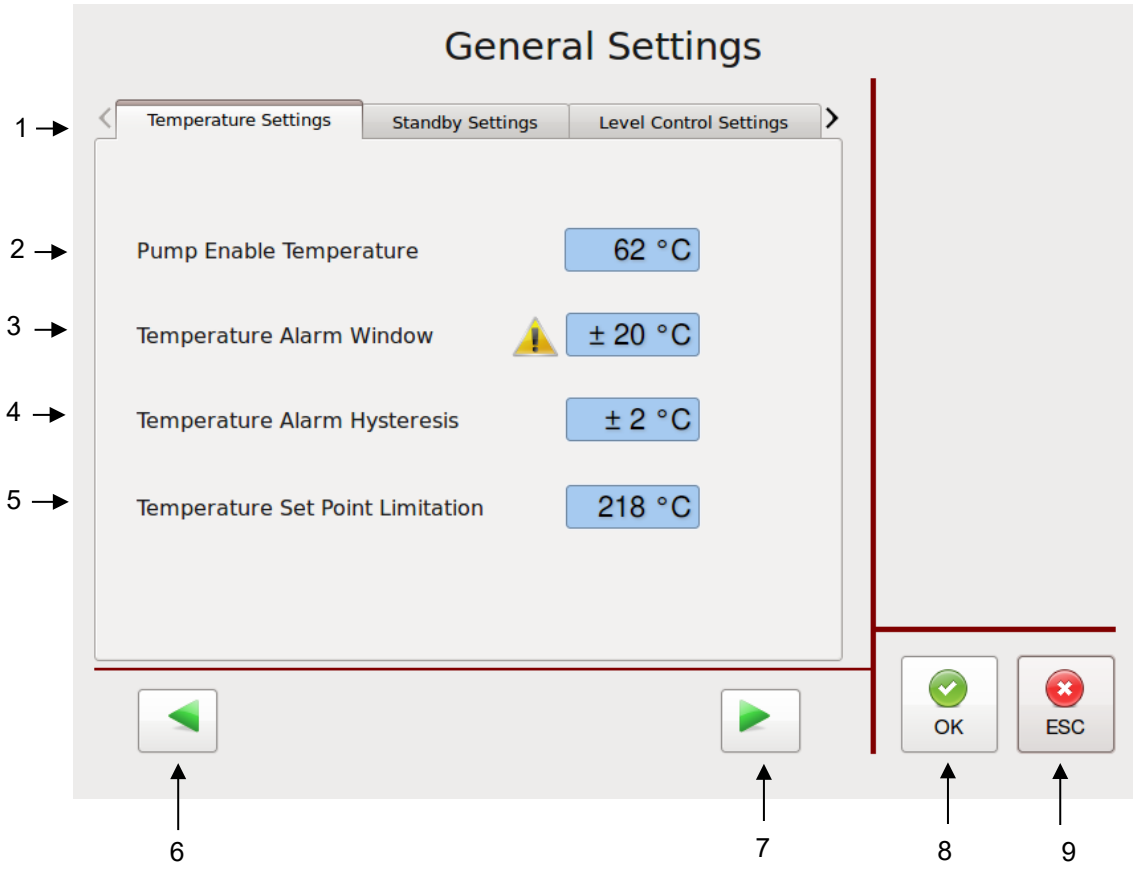


Item	*Description*
1	**Fieldbus Address** Touch the input box and a numeric entry keypad will appear. Enter the Fieldbus Address of the unit. Confirm by pressing OK. After programming the Fieldbus Address, the system must be re-started. To re-start the system with changed parameters: 1. Press OK to accept changes. 2. Wait at least one minute. 3. Switch unit Off via the main switch. 4. Switch unit On via the main switch.
2	Press the OK button to confirm your entered values and return to the previous screen.
3	Press the ESC button to discard any non-confirmed values and return to the previous screen.

5.3.9.5 General Settings Screen

- To go to this screen, press the General Settings button on the Settings Screen.
- This screen allows you to set the parameters shown across the screen's top line (Item #1, shown below).
- Select a desired parameter (Temperature, Standby, Level Control, Pressure Calibration or Customer Zone Names) by pressing its tab or by pressing the arrows at the bottom of the screen.

5.3.9.5.1 Temperature Settings

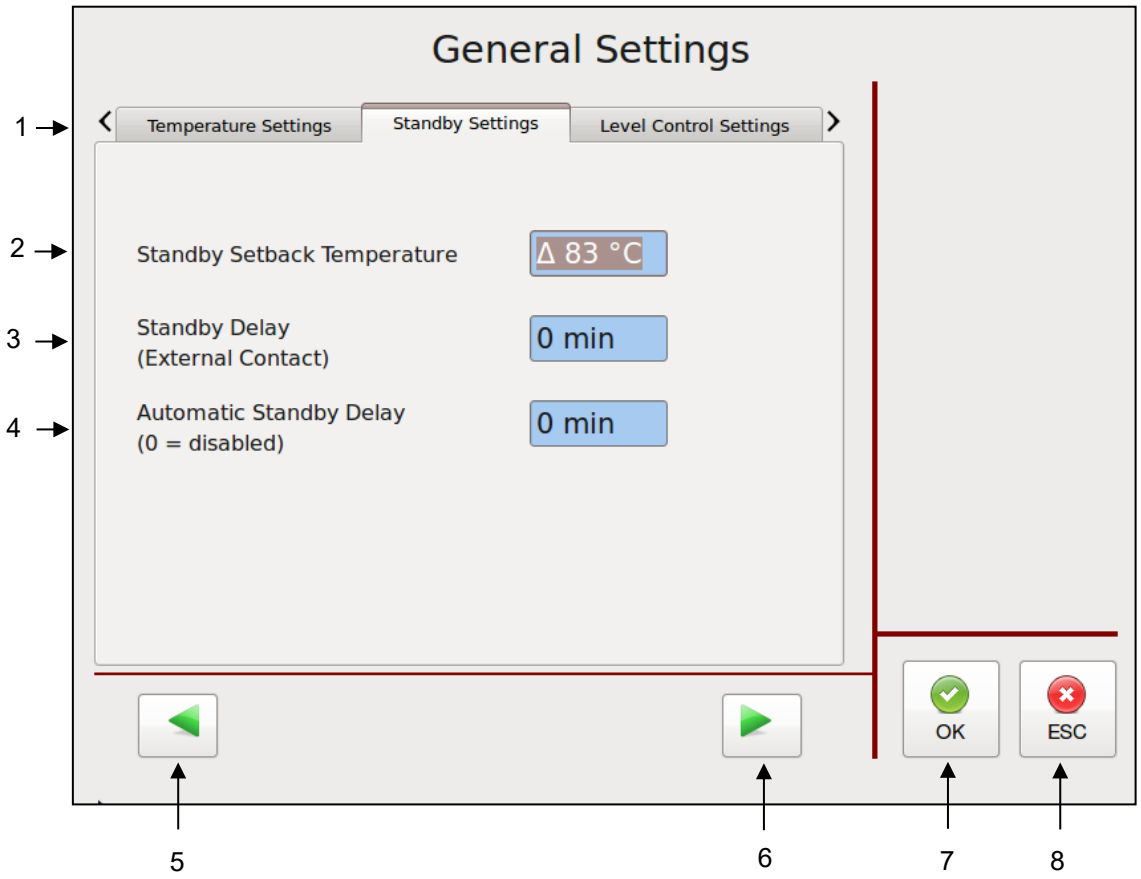


Item	*Description*
1	**Parameter Selection tabs** The Temperature Settings tab has been selected.
2	**Pump Enable Temperature** • The Pump Enable Temperature is a low-limit value (e.g. 100°C / 212°F) which protects the pump, pump shaft, motor and motor control module by preventing the pump from turning on until a minimum adhesive temperature is achieved. Caution should be taken to avoid setting this value too low because attempting to rotate the pump when the adhesive inside it is not molten will result in damage to the pump and, possibly, to the pump motor. The Pump Enable Temperature is independent from the temperature setpoints. The programmable range is 10-200 °C (50- 400°F). • Touch the input box and a numeric entry keypad will appear. Enter your desired Pump Enable Temperature value and confirm by pressing OK.

Item	*Description*
3	**Temperature Alarm Window** • The displayed value is from zone 1.  This indicates that other zones have a different alarm window. • This is the programmable temperature range which allows the unit to go into Ready condition. The Temperature Alarm Window is a deviation (e.g. ± 20°C / 36°F) from the setpoint. The setpoint minus the deviation is the low limit of the window, and the setpoint plus the deviation is the high limit of the window. The programmable range is 0-50 °C (0-90°F). • The Temperature Alarm Window (± the Temperature Alarm Hysteresis, if programmed) will trigger high and low temperature alarms when zone temperatures rise or fall outside of the window. • Touch the input box and a numeric entry keypad will appear. Enter your desired Temperature Alarm Window value and confirm by pressing OK.
4	**Temperature Alarm Hysteresis** • This is a second, smaller, temperature range and alarm limit programmed in addition to the Temperature Alarm Window which allows the unit to remain in Ready condition as temperatures stabilize. The Temperature Alarm Hysteresis is a deviation (e.g. ± 2°C / 3°F) from the Temperature Alarm Window. The Temperature Alarm Window minus the deviation is the low limit of the Temperature Alarm Hysteresis, and the Temperature Alarm Window plus the deviation is the high limit of the Temperature Alarm Hysteresis. The programmable range is 0-10 °C (0-30°F). • The Temperature Alarm Hysteresis will trigger high and low temperature alarms when those temperatures are exceeded. • Touch the input box and a numeric entry keypad will appear. Enter your desired Temperature Alarm Hysteresis value and confirm by pressing OK.
5	**Temperature Set Point Limitation** This is a by customer programmable maximum temperature set point limitation.
6	Press the left-pointing arrow to go to the previous General Settings screen.
7	Press the right-pointing arrow to go to the next General Settings screen.
8	Press the OK button to confirm your entered values and return to the previous screen.
9	Press the ESC button to discard any non-confirmed values and return to the previous screen.

5.3.9.5.2 Standby Settings

➢ To go to this screen, press the General Settings button on the Settings Screen.



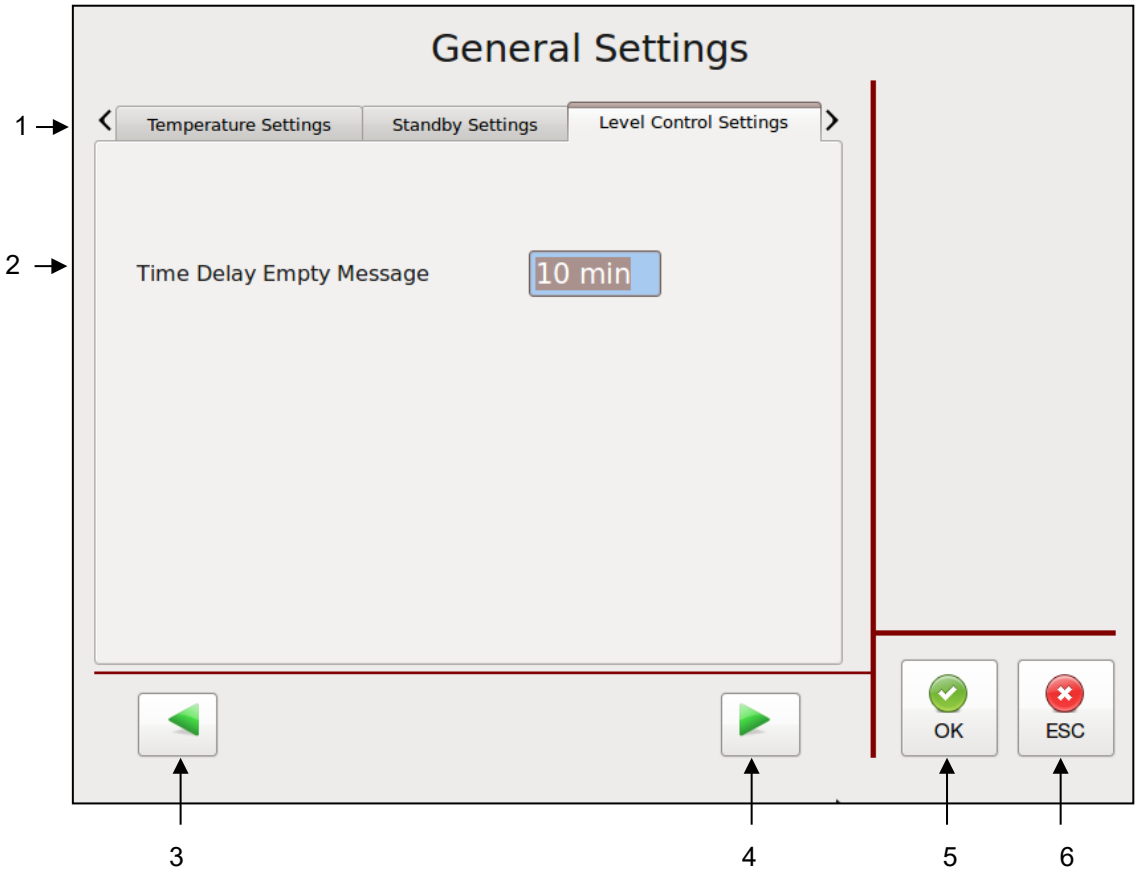
Item	Description
1	**Parameter Selection tabs** The Standby Settings tab has been selected.
2	**Standby Setback Temperature** • This is the system condition where the hopper, hose and head temperatures are maintained at predetermined reduced temperature values. Standby Setback Temperatures are set lower than setpoint temperatures (e.g. 83°C / 149°F) in order to reduce adhesive degradation and energy consumption when the system is temporarily inactive, and to permit rapid system warm-up when run conditions are selected. When standby mode is activated, the controller will display STANDBY. The programmable range is 0-150 °C (0-270°F). • Touch the input box and a numeric entry keypad will appear. Enter your desired Standby Setback Temperature value and confirm by pressing OK.
3	**Standby Delay (External Contact)** • The Standby Delay is the programmed number of minutes until the unit goes into standby mode after activation by an external contact (for example: a PLC or an external switch). The programmable range is 0-150 minutes. • Touch the input box and a numeric entry keypad will appear. Enter your desired Standby Delay value and confirm by pressing OK.
4	**Automatic Standby Delay (0 = disabled)** • The Automatic Standby Delay is the programmed number of minutes until the unit goes into standby mode after the unit has heated-up and the pump is stopped (no adhesive feeding activity). The programmable range is 0-1440 minutes. Enter 0 to disable the feature. • Touch the input box and a numeric entry keypad will appear. Enter your desired Automatic Standby Delay value and confirm by pressing OK.

Item	Description
5	Press the left-pointing arrow to go to the previous General Settings screen.
6	Press the right-pointing arrow to go to the next General Settings screen.
7	Press the OK button to confirm your entered values and return to the previous screen.
8	Press the ESC button to discard any non-confirmed values and return to the previous screen.

5.3.9.5.3 Level Control Settings

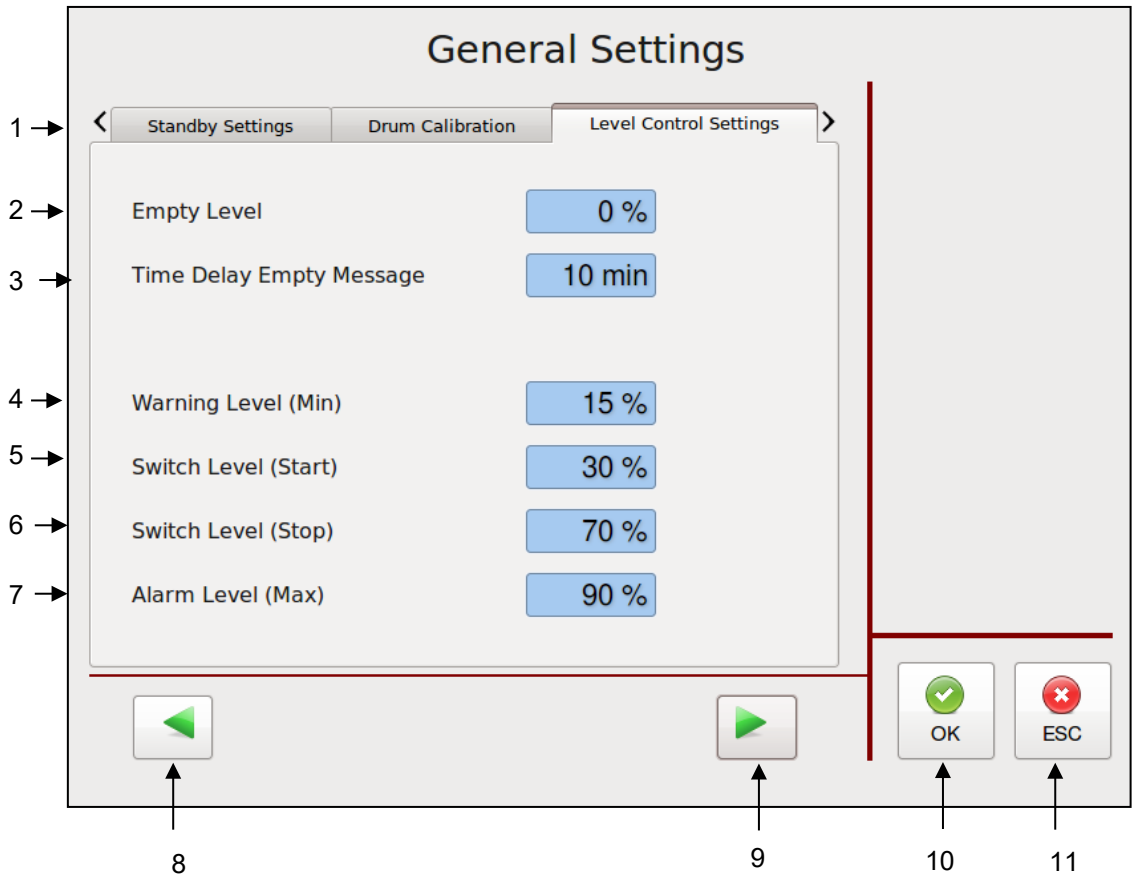
➢ To go to this screen, press the General Settings button on the Settings Screen.

If Digital Level Sensor is installed:



Item	*Description*
1	**Parameter Selection tabs** The Level Control Settings tab has been selected.
2	**Time Delay Empty Message** • This is a programmable time delay for reappearance of the level control's Empty message. The level control device informs the operator via a "Minimum Level" message on the display that the hopper needs to be refilled. After expiration of the time delay, the message Minimum Level will be indicated on the display. The programmable range is 0-31 minutes. • Touch a zone input box and a numeric entry keypad will appear and the values can be edited. Enter the value and confirm by pressing OK.
3	Press the left-pointing arrow to go to the previous General Settings screen.
4	Press the right-pointing arrow to go to the next General Settings screen.
5	Press the OK button to confirm your entered values and return to the previous screen.
6	Press the ESC button to discard any non-confirmed values and return to the previous screen.

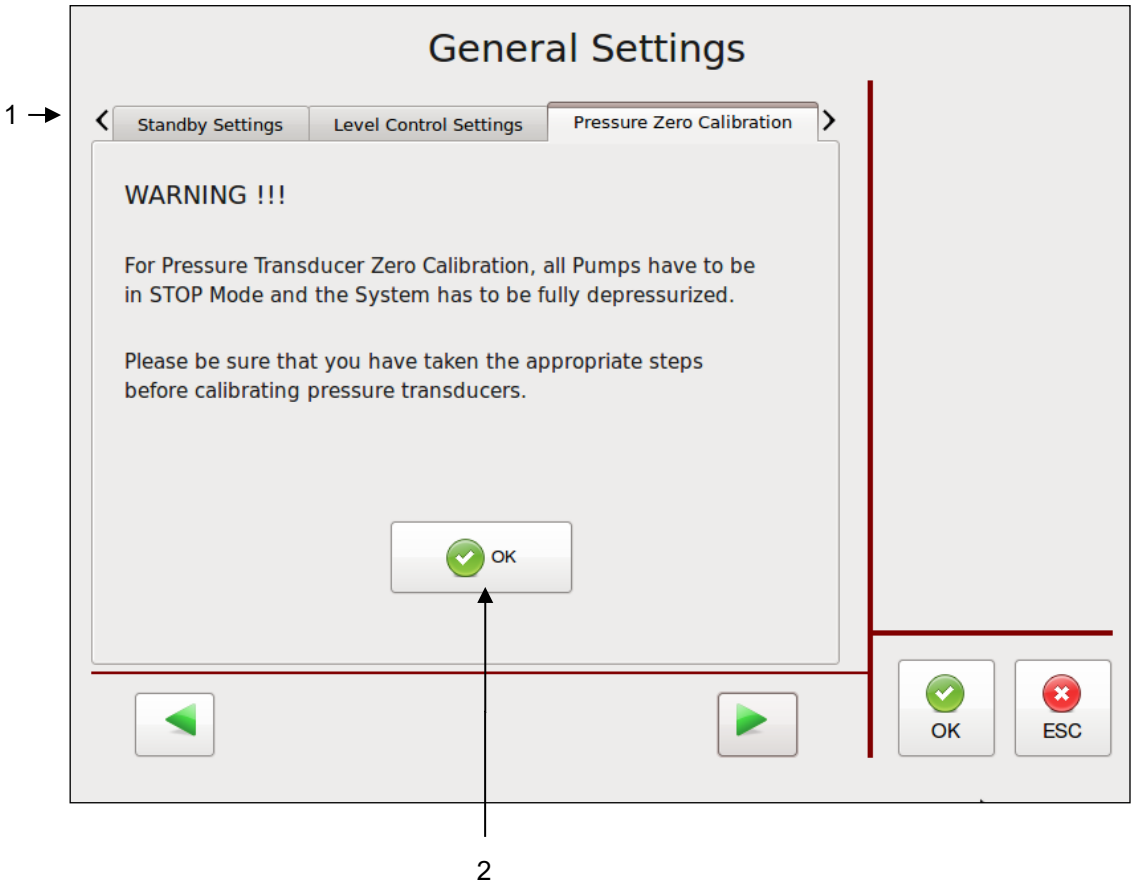
If Analog Level Sensor is installed:



Item	*Description*
1	**Parameter Selection tabs** The Level Control Settings tab has been selected.
2	**Empty Level** If fill level is lower than this parameter an empty message will be generated.
3	**Time Delay Empty Message** • This is a programmable time delay for reappearance of the level control's Empty message. The level control device informs the operator via a "Minimum Level" message on the display that the hopper needs to be refilled. After expiration of the time delay, the message Minimum Level will be indicated on the display. The programmable range is 0-31 minutes. • Touch a zone input box and a numeric entry keypad will appear and the values can be edited. Enter the value and confirm by pressing OK.
4	**Warning Level (Min)** Template-dependent parameter (not used in standard configuration).
5	**Switch Level (Start)** If system is configured as refiller control this parameter defines the refill start level.
6	**Switch Level (Stop)** If system is configured as refiller control this parameter defines the refill stop level.
7	**Alarm Level (Max)** Template-dependent parameter (not used in standard configuration).
8	Press the left-pointing arrow to go to the previous General Settings screen.
9	Press the right-pointing arrow to go to the next General Settings screen.
10	Press the OK button to confirm your entered values and return to the previous screen.
11	Press the ESC button to discard any non-confirmed values and return to the previous screen.

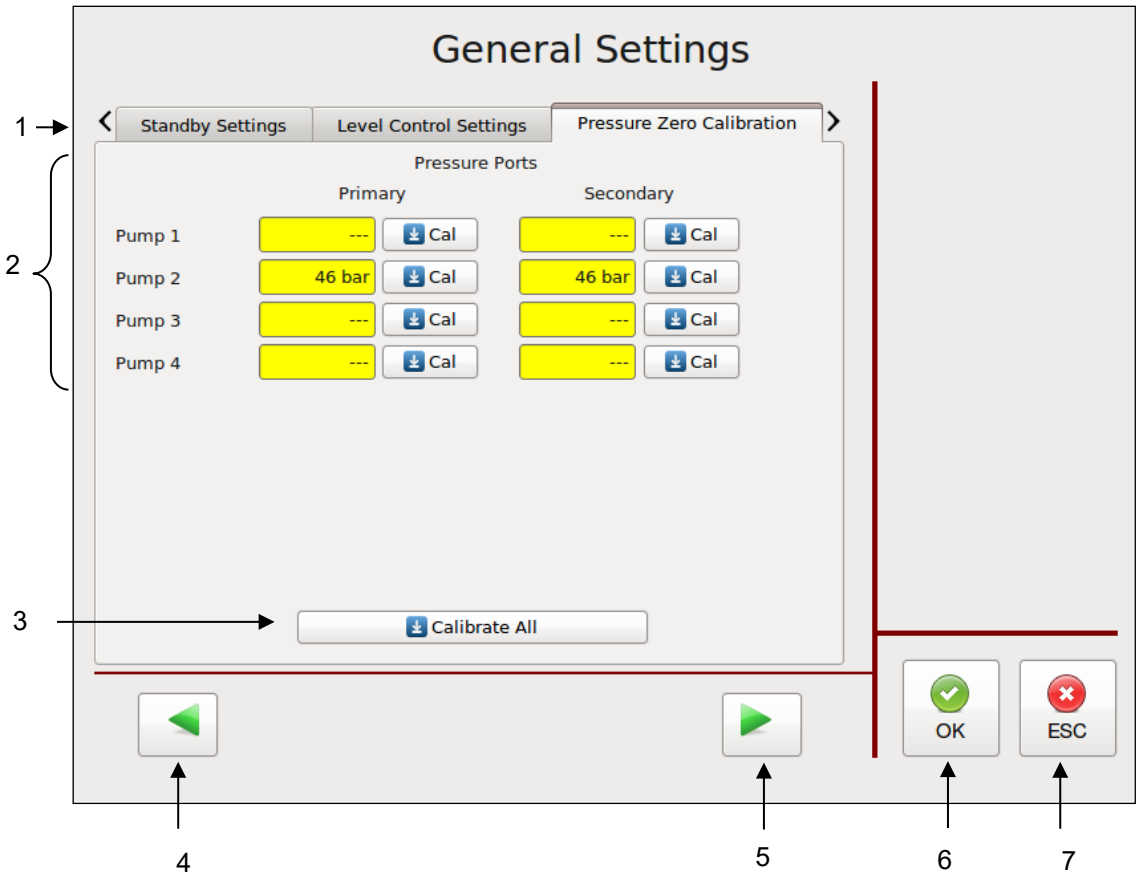
5.3.9.5.4 Pressure Zero Calibration

➢ To go to this screen, press the General Settings button on the Settings Screen.



Item	*Description*
1	**Parameter Selection tabs** The Pressure Zero Calibration tab has been selected.
2	**OK Button** Before calibrating the (optional) pressure transducers, all pumps must be in STOP mode and the system must be fully depressurized. After taking the appropriate steps, confirm this by pressing the OK button. You will then go to the Calibrating Screen.

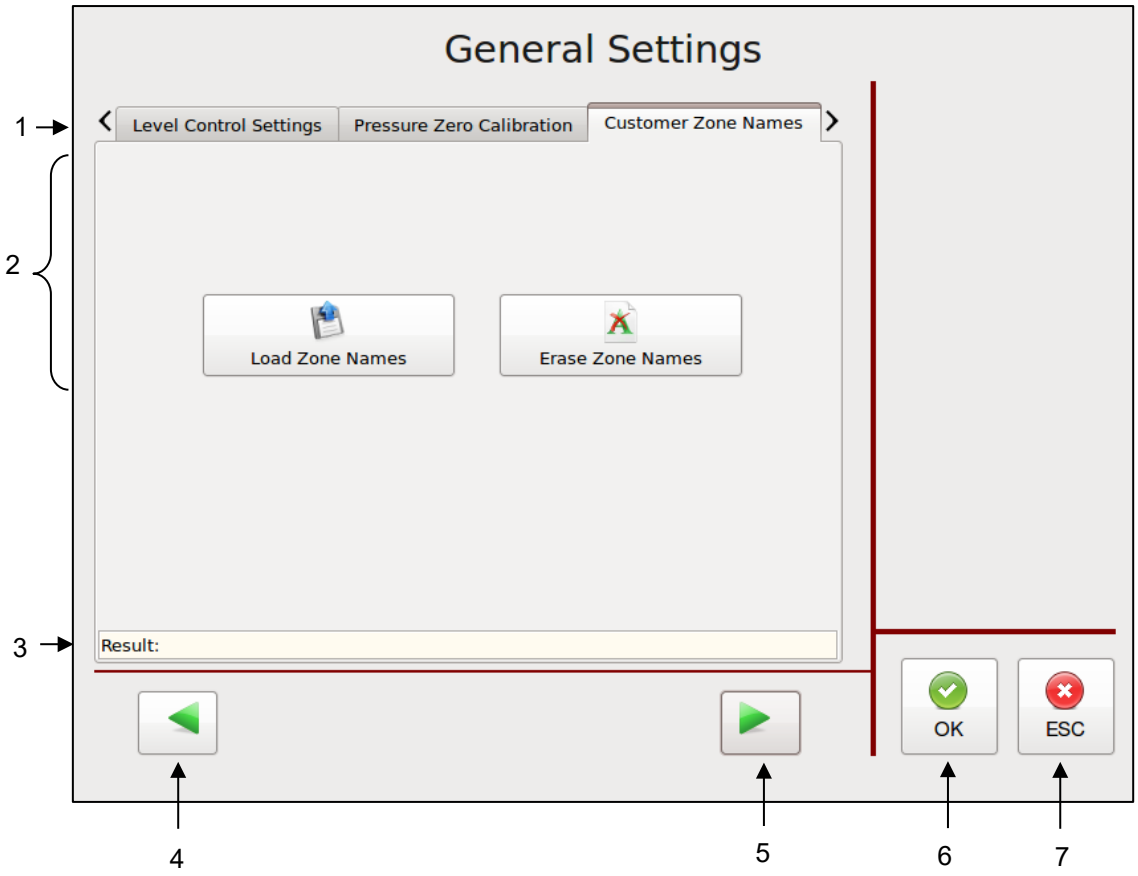
5.3.9.5.5 Calibrating Screen



Item	*Description*
1	**Parameter Selection tabs** The Pressure Zero Calibration tab has been selected.
2	**Pressure Zero Calibration** If (optional) pressure sensors are installed on the unit, the pumps can be pressure controlled. Pressure values will be displayed on the Main Screen. Refer to Pump Control, Pressure Control. Primary and Secondary Pressure Ports are displayed on the screen. Calibrate each pump to zero by pressing the appropriate "Cal" button. Note: before calibrating pressure transducers, all pumps must be in STOP mode and the system must be fully depressurized.
3	**Calibrate All** Press the Calibrate All button to calibrate all pumps to zero at one time. Note: before calibrating pressure transducers, all pumps must be in STOP mode and the system must be fully depressurized.
4	Press the left-pointing arrow to go to the previous General Settings screen.
5	Press the right-pointing arrow to go to the next General Settings screen.
6	Press the OK button to confirm your entered values and return to the previous screen.
7	Press the ESC button to discard any non-confirmed values and return to the previous screen.

5.3.9.5.6 Customer Zone Names

- To go to this screen, press the General Settings button on the Settings Screen.
- Use the Customer Zone Names Editor program (provided on CD) and a thumb drive (not provided) to make changes.

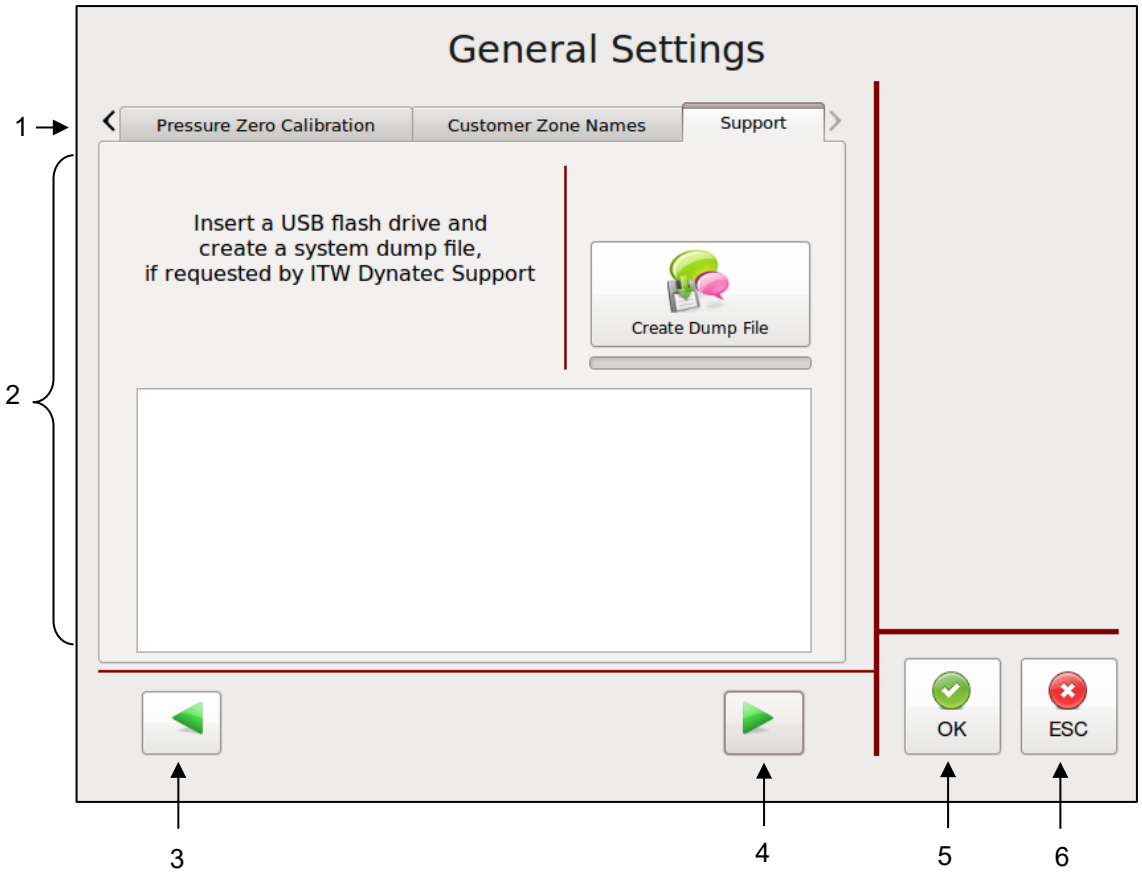


Item	*Description*
1	**Parameter Selection tabs** The Customer Zone Names tab has been selected.
2	**Customer Zone Names** If activated, you can Load or Erase Zone Names by pressing the appropriate button. With the Customer Zone Names feature, the user may personalize the names of the temperature zones with names that are more descriptive for his application. A CD with the Customer Zone Names Editor program is supplied with your unit. The program allows the character sets of many different languages. To utilize this feature: 1. Install the program from the CD into your computer. 2. Write your personalized zone names in this program. 3. Load your personalized program onto a thumb drive. 4. Insert the thumb drive into the V6 touch panel. 5. Load the new names into the controller by pressing “Load Zone Names” on the Customer Zone Names screen (seen above). 6. Activate the names by pressing “Activate Customer Zone Names”. Later you may deactivate (or re-activate) the names by pressing “Activate Customer Zone Names” again. When personalized names are deactivated, the ITW Dynatec default zones names become active. You may also press Erase Zone Names to delete your loaded zone names and you may load a new group of names utilizing the Customer Zone Names Editor program again.

Item	*Description*
3	**Result** A message will confirm if the names were successfully loaded, activated or deactivated, or if there was an error in loading the names.
4	Press the left-pointing arrow to go to the previous General Settings screen.
5	Press the right-pointing arrow to go to the next General Settings screen.
6	Press the OK button to confirm your entered values and return to the previous screen.
7	Press the ESC button to discard any non-confirmed values and return to the previous screen.

5.3.9.5.7 Support

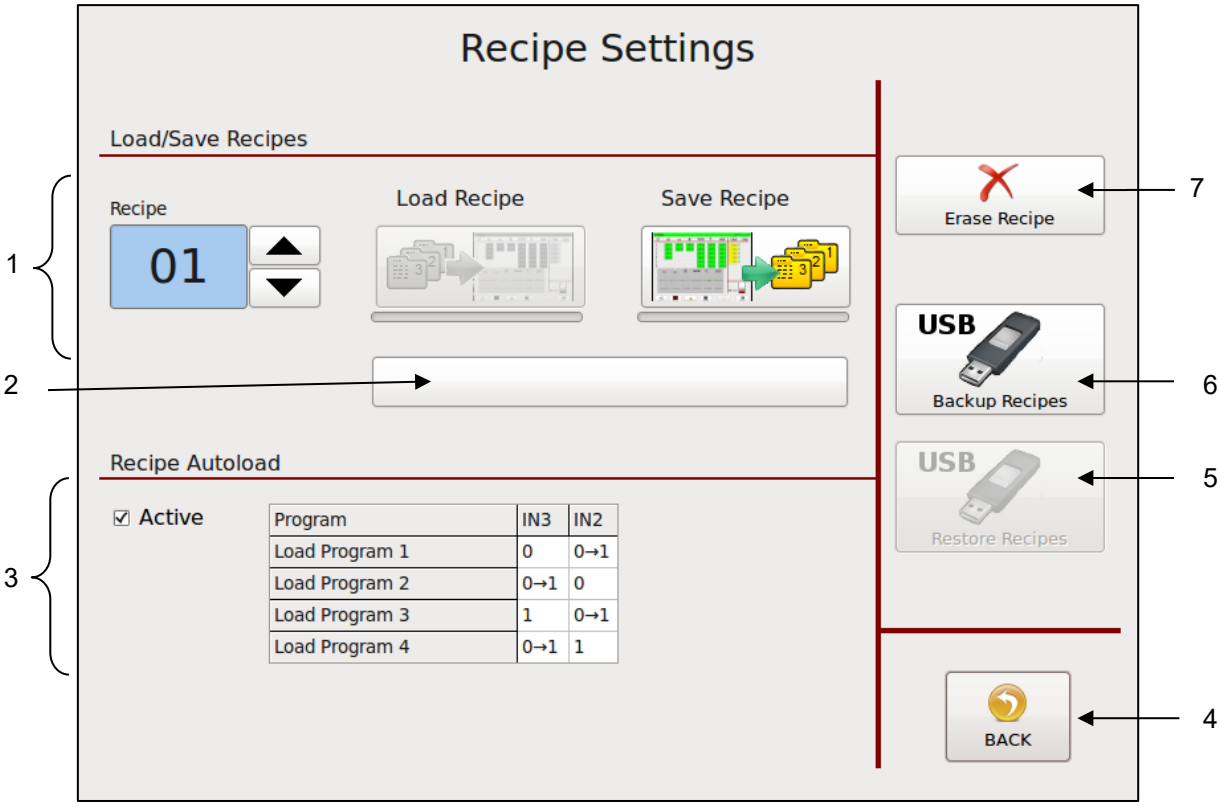
- To go to this screen, press the General Settings button on the Settings Screen.
- Use the Customer Zone Names Editor program (provided on CD) and a thumb drive (not provided) to make changes.



Item	Description
1	**Parameter Selection tabs** The Support tab has been selected.
2	If requested by ITW Dynatec Support, you can insert USB Flash Drive to create a system dump file. This file can be sent to ITW Dynatec for offline diagnostics.
3	Press the left-pointing arrow to go to the previous General Settings screen.
4	Press the right-pointing arrow to go to the next General Settings screen.
5	Press the OK button to confirm your entered values and return to the previous screen.
6	Press the ESC button to discard any non-confirmed values and return to the previous screen.

5.3.9.6 Recipes Screen

- To go to this screen, press the Recipes button on the Settings Screen.
- This screen allows you to create recipes (or “programs”). A recipe is a set of temperature set points and parameters which the user has programmed and stored in the controller for future use. Up to ten recipes may be stored in the V6 controller.

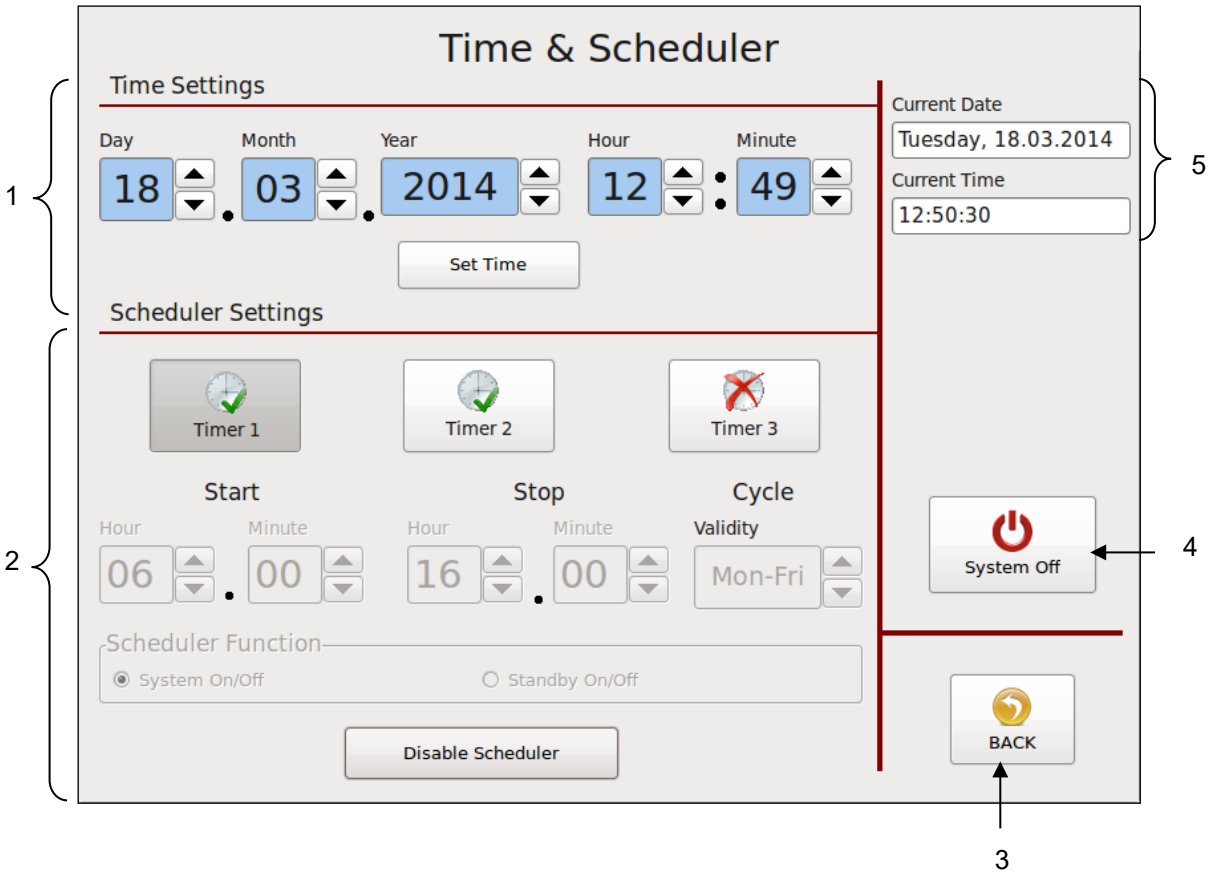


Item	*Description*
1	**To Create and Save a Recipe:** 1. Program the controller as you wish it to be setup for a recipe. Program the following parameters: temperature settings, zone On/Off settings, motor mode and speed. 2. Using the up and down arrows, select a number to assign to your recipe. 3. Press “Save Recipe”  button. The recipe will be saved. **To Load a Saved Recipe:** 1. Using the up and down arrows, select a recipe number. 2. Press the “Load Recipe”  button. The recipe will be loaded, and the saved parameters will be set.
2	**Recipe Name** Touch the input box and an Alphabetic Entry Keypad will appear. Enter your desired name and confirm by pressing OK.
3	**Recipe Autoload** This function may be activated or deactivated by pressing the Active button. If activated, up to four recipes (always the first four saved recipes) can be loaded individually and automatically by addressing the digital inputs IN3 and IN2 on the Controller-Module via a parent machine controller, as indicated on the table shown above.

Item	Description
4	**BACK Button** Press to return to the previous screen.
5	**Restore Recipes** This button is visible only if USB Flash Drive is inserted into the Touch Panel. Press this button to restore recipe collection from USB Flash Drive into the Touch Panel.
6	**Backup Recipes** This button is visible only if USB Flash Drive is inserted into the Touch Panel. Press this button to save recipe collection from Touch Panel to the USB Flash Drive.
7	**Erase Recipe** 1. Using the up and down arrows, select the number of the recipe you wish to erase. 2. Press Erase Recipe to delete the recipe from the controller/ Touch Panel.

5.3.9.7 Time & Scheduler Screen

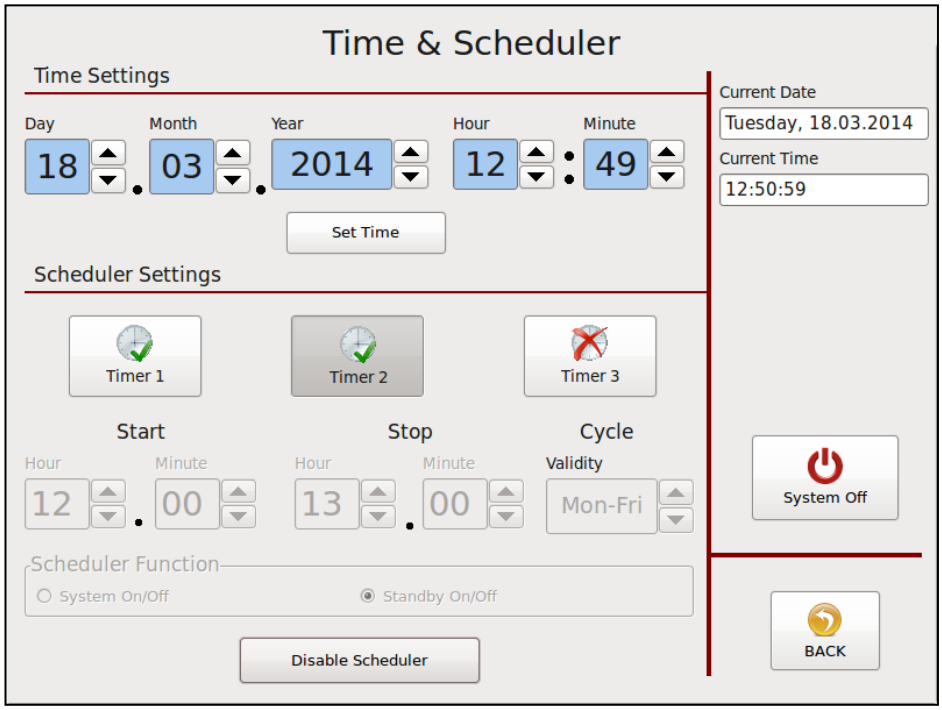
- To go to this screen, press the Time & Scheduler button on the Settings Screen.
- This screen allows you to set the current date and time, and program the scheduler.



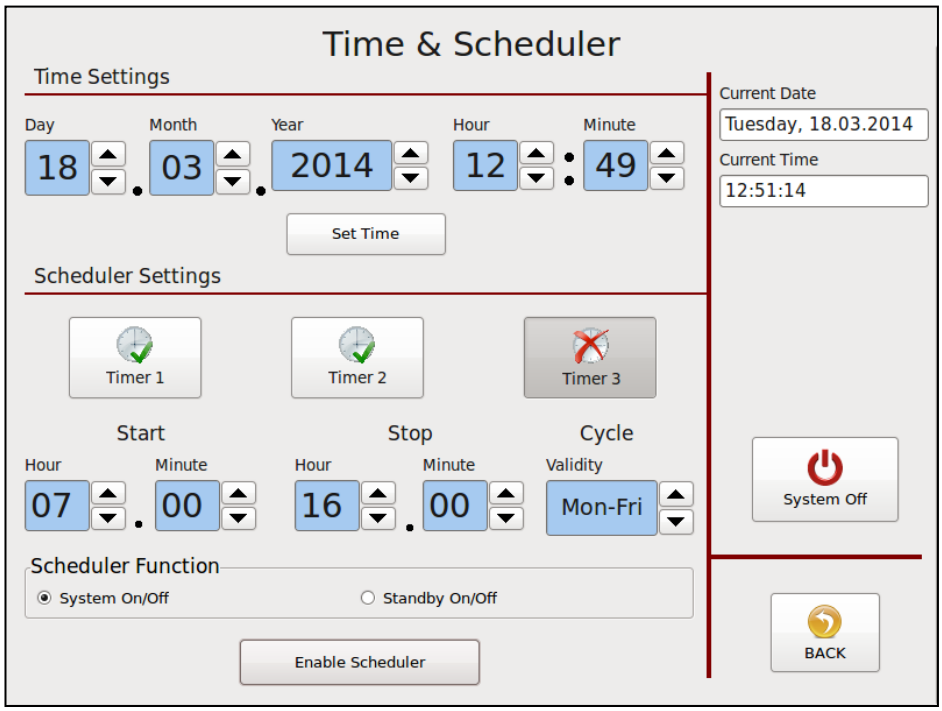
Item	Description
1	**Time & Date Settings** The Time and Date are set with the buttons across the top of the screen. Using the up and down arrows, choose the current Day, Month, Year, Hour and Minute. To confirm these values, press Set Time. Afterwards, the current date and time will be displayed at right (item #5).
2	**Scheduler Settings** The controller's scheduler will automatically turn On the unit at the programmed start time and turn it Off at the programmed stop time on the programmed days (cycle). Up to three scheduler timers may be programmed either for System On/Off or for Standby On/Off. Each scheduler timer is programmed with a start time, a stop time and a cycle. Three cycles are available: Monday thru Friday, Saturday & Sunday or Sunday thru Saturday (i.e., every day). **For example:** The display illustrated above shows Timer 1 programmed and activated. It is programmed for System On/Off with a Start time of 06:00, a Stop time of 16:00 and a Cycle of Mon-Fri.

Item	Description
2	**Programming** • Select a timer for programming by pressing Timer 1, Timer 2 or Timer 3. • Select either System On/Off or Standby On/Off. • Using the up and down arrows, set the start time hour and minute. The scheduler will automatically turn On the unit at this time. • Using the up and down arrows, set the stop time hour and minute. The scheduler will automatically turn Off the unit at this time. • Using the up and down arrows, set the cycle. The scheduler will automatically turn the unit On and Off on these days. • By pressing the Enable Scheduler button, the programmed parameters will be confirmed and the selected timer is activated. To change a timer program, first select the desired timer. Then press the Disable Scheduler button. Now the selected timer can be re-programmed with new parameters as described above. The „clock“  icon appears in the status line on main screen if a timer is activated and disappears if the timer is deactivated.
3	**BACK Button** Press to return to the previous screen.
4	**Turn System Off** Press System Off to turn the system Off. Refer to "Control switch On/Off and Standby".
5	**Current Date & Time** Display of the current date and time as programmed into the controller.

Example:
The display on the right shows Timer 2 programmed and activated for Standby On/Off with a Start time of 12:00, a Stop time of 13:00 and a Cycle of Mon-Fri.

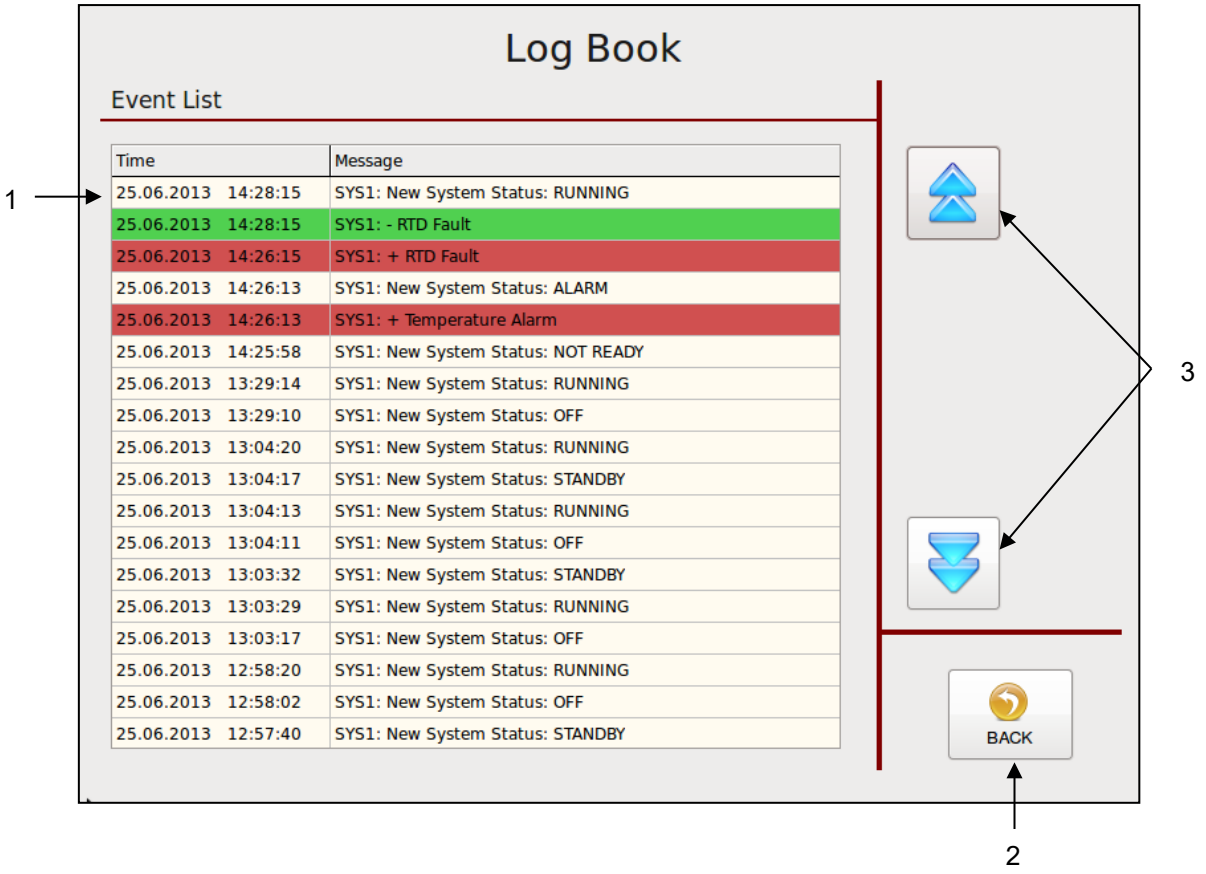


Example:
The display on the right shows that Timer 3 is not programmed and not activated:



5.3.9.8 Log Book Screen

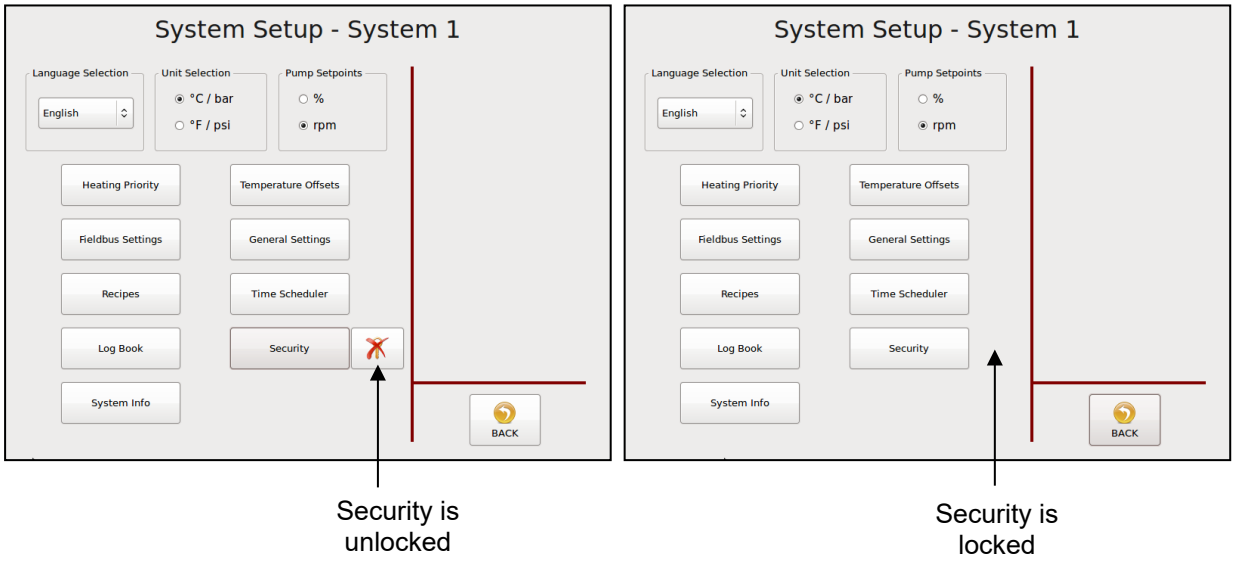
- To go to this screen, press the Log Book button on the Settings Screen.
- The Log Book provides a read-only history of the last 100 (maximum) controller faults and events.
- If several systems are controlled by the HMI, all events will be listed here.



Item	*Description*
1	The most recent event is recorded at the top of the Event List. • **Examples of events:** System Status OFF, READY, RUNNING, STANDBY, NOT READY, Recipe loaded. • **Examples of controller faults:** RTD Fault, Temperature Alarm, Minimum Level, Drive Failure, Parameter CRC Error, Over-temperature, Communication error. See point "Faults, Alarms".
2	**BACK Button** Press to return to the previous screen.
3	**Scroll Buttons** Press the arrow buttons to scroll up and down through the Event List.

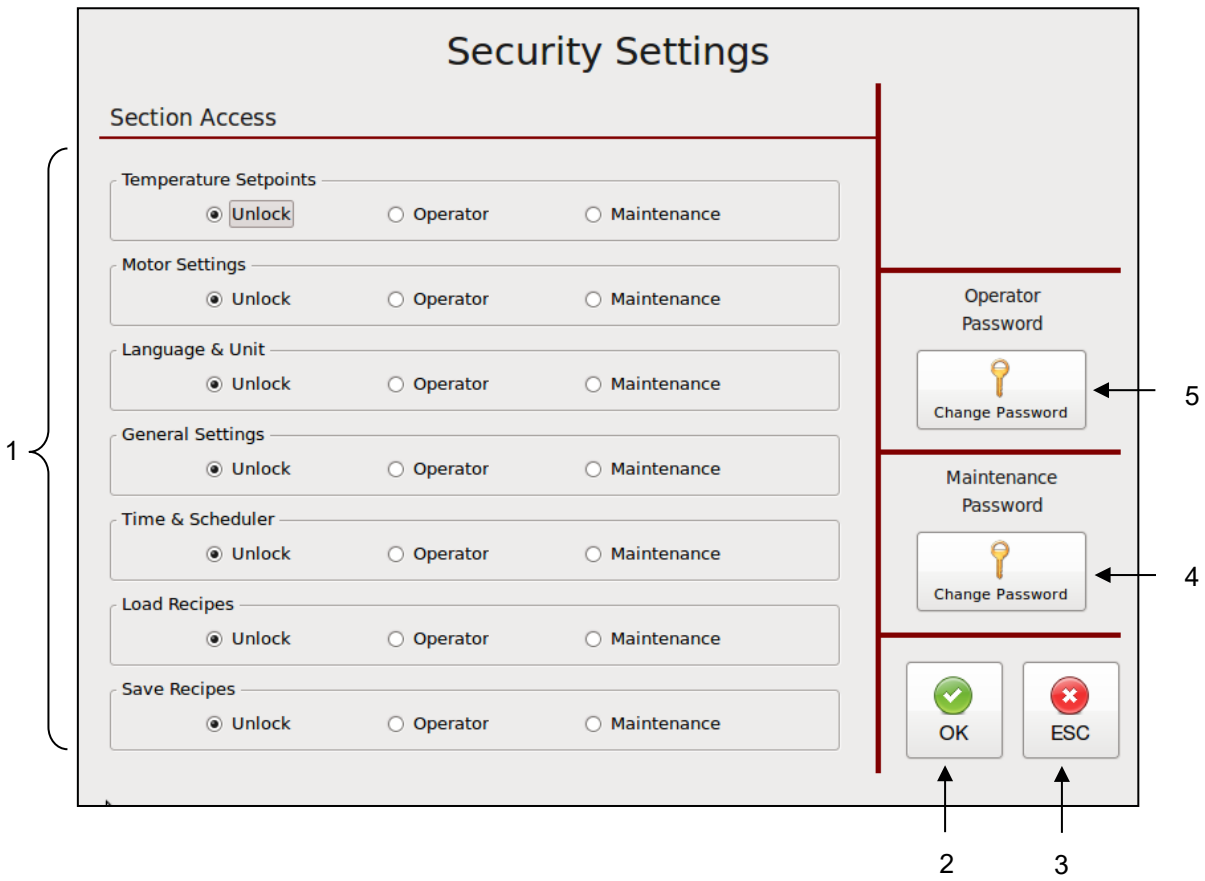
5.3.9.9 Security Screen

- To go to this screen, press the Security button on the Settings Screen.
- This screen allows you to set securities (with password) for access and for changing parameters.



Item	*Description*
	• **Security unlocked** = access to the Security Settings is unlocked and settings may be changed by all users. The crossed-out Key icon, shown above, means Security is unlocked. After pressing the Key button, it will disappear, and the Security Settings will be locked. • **Security locked** = access to the Security Settings is locked and settings may only be changed by entering a password.

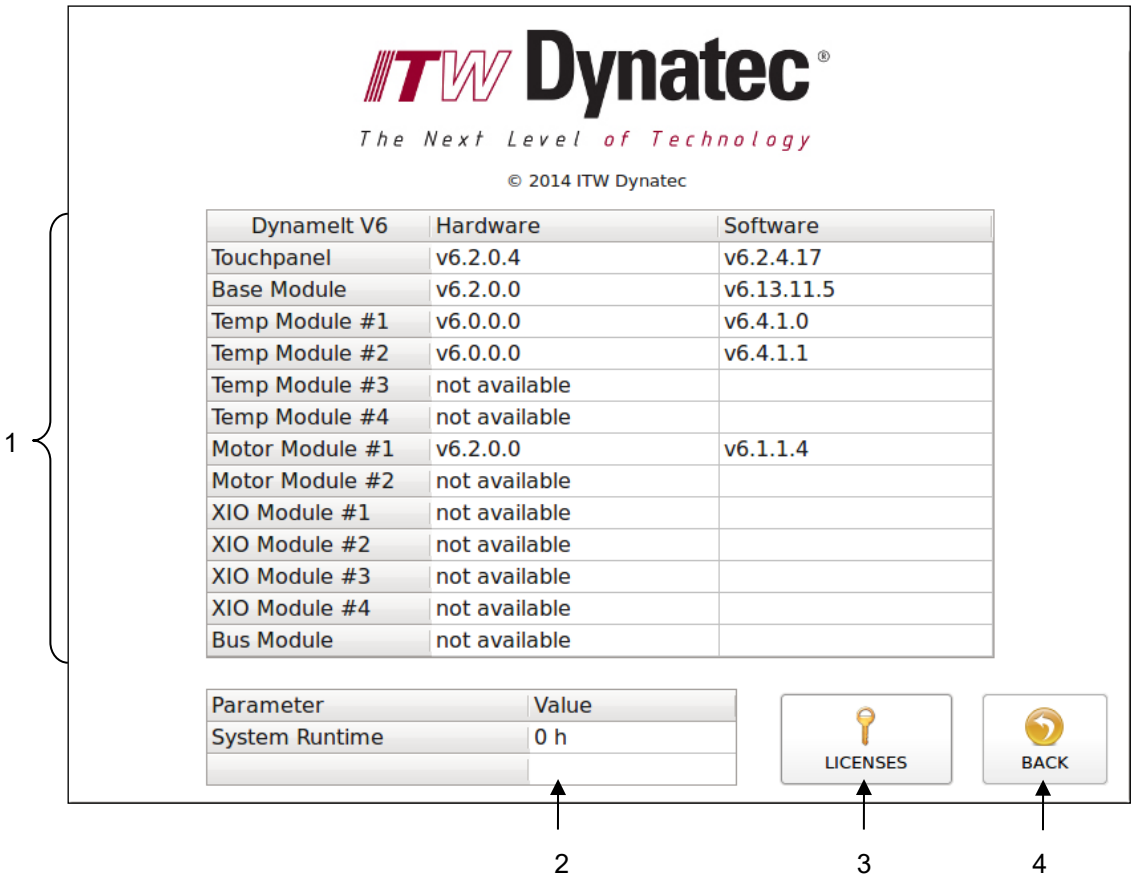
Continued on next page.



Item	*Description*
1	**Section Access** Press the buttons to select access to each parameter as follows: • **Unlock** = the parameter may be changed by all users. • **Operator** = the parameter may be changed by Operator personnel only, by using an Operator password. • **Maintenance** = the parameter may be changed by Maintenance personnel only, by using a Maintenance password.
2	Press the OK button to confirm your entered values and return to the previous screen.
3	Press the ESC button to discard any non-confirmed values and return to the previous screen.
4	**Change Maintenance Password Button** Touch the Change Password button and a numeric entry keypad will appear. Enter desired numeric password (at least one digit). Press OK to confirm.
5	**Change Operator Password Button** Touch the Change Password button and a numeric entry keypad will appear. Enter desired numeric password (at least one digit). Press OK to confirm.

5.3.9.10 System Info Screen

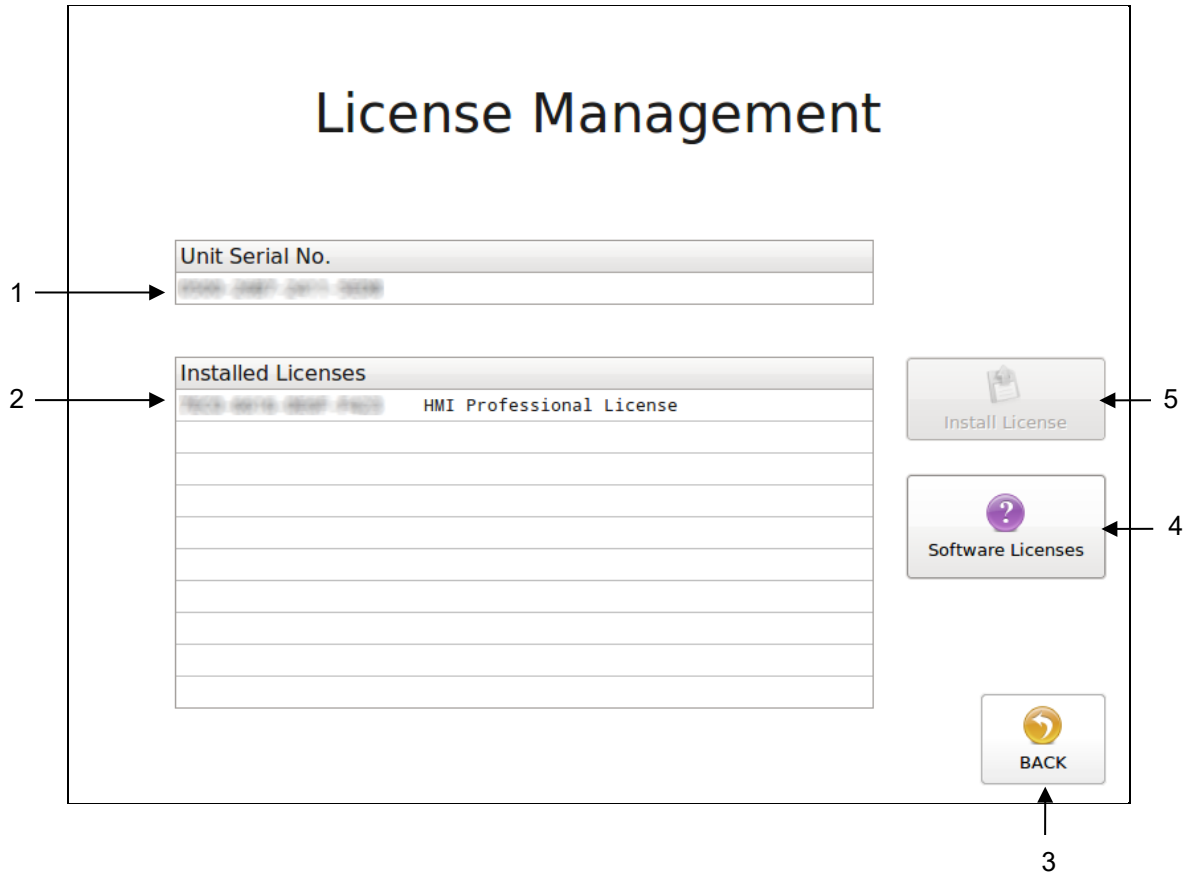
- To go to this screen, press the System Info button on the Settings Screen.
- This screen displays information about the V6 controller and its modules. The screen is read-only.



Item	*Description*
1	Information about the controller and its modules is displayed. The illustration above shows an example only.
2	The real System Runtime respectively pump runtime is displayed. The runtime of each day will be added.
3	**Licenses Button** Press to go to the License Management screen.
4	**BACK Button** Press to return to the previous screen.

5.3.9.10.1 License Management Screen

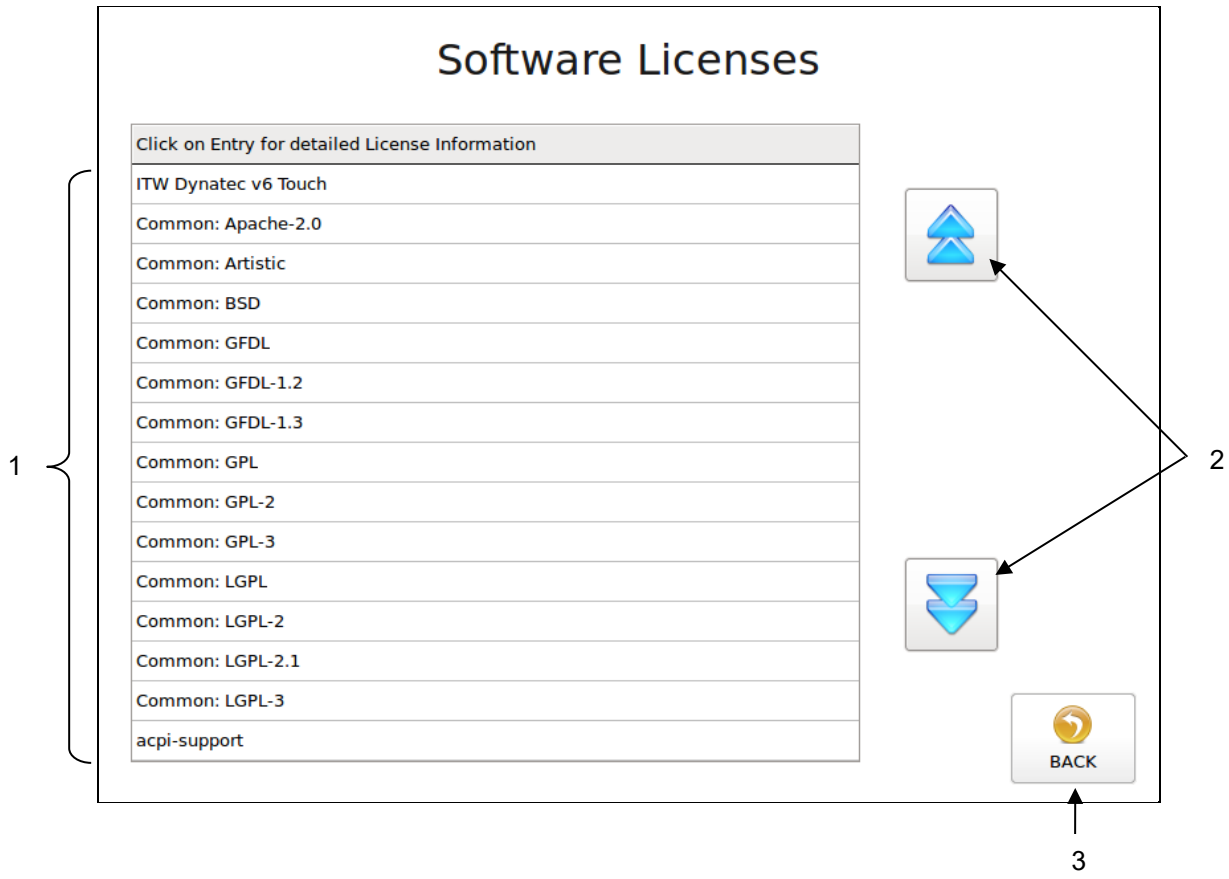
- To go to this screen, press the Licenses button on the System Info Screen.
- To purchase licenses with additional features, please contact ITW Dynatec Customer Service and provide your unit's serial number (provided on this screen). You will receive an USB Flash Drive with the license.



Item	*Description*
1	**Unit Serial No.** The serial number of your unit is displayed.
2	**Installed Licenses** The licenses installed on this unit are displayed (e. g. HMI Professional License). Note: The HMI Basic License with basic functions is installed on all units. The following licenses are available: • HMI Advanced License: activates additional features. • HMI Professional License: activates all available features. • HMI Feature License ARC: activates the Automatic Ramp Compensation (ARC) feature. • HMI Feature License Multi-System: activates the Multi-System feature.
3	**BACK Button** Press to return to the previous screen.
4	**Software Licenses Button** Press to see the used Open Source Licenses.
5	**Install License Button** To install a new license: After connecting the USB Flash Drive to your controller/ touch panel, press the Install License button on this screen to install the new license. After installation, the new license will be displayed on the Installed Licenses list. Afterwards, remove the flash drive from the controller.

5.3.9.10.2 Software Licenses

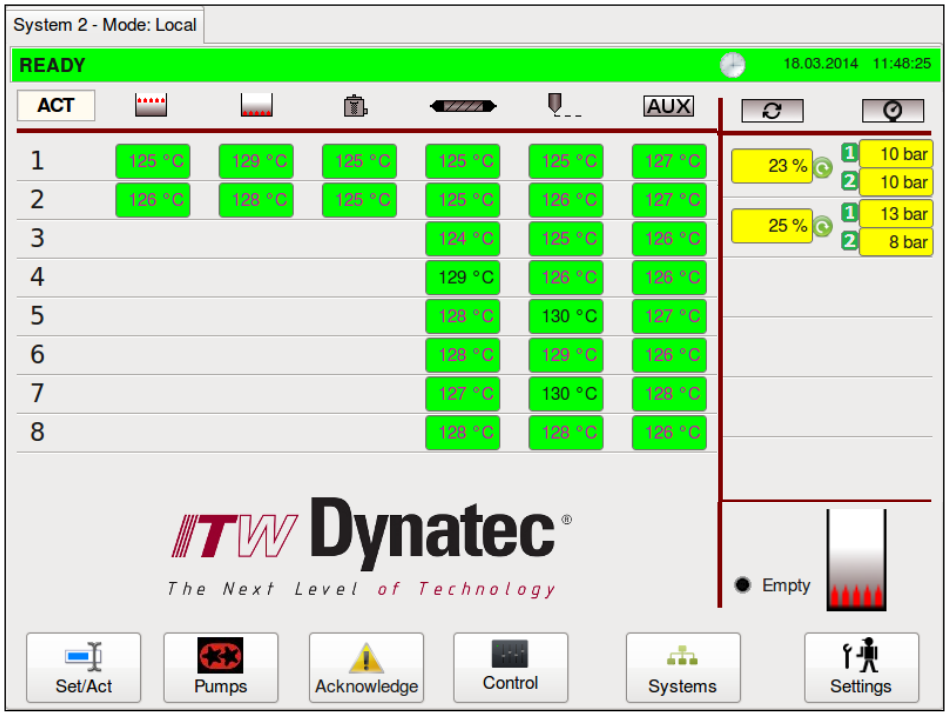
➢ To go to this screen, press the Software Licenses button on the License Management Screen.



Item	*Description*
1	**Display Software Licenses** Click on Entry for detailed license information.
2	**Scroll Buttons** Press the arrow buttons to scroll up and down through licenses.
3	**BACK Button** Press to return to the previous screen.

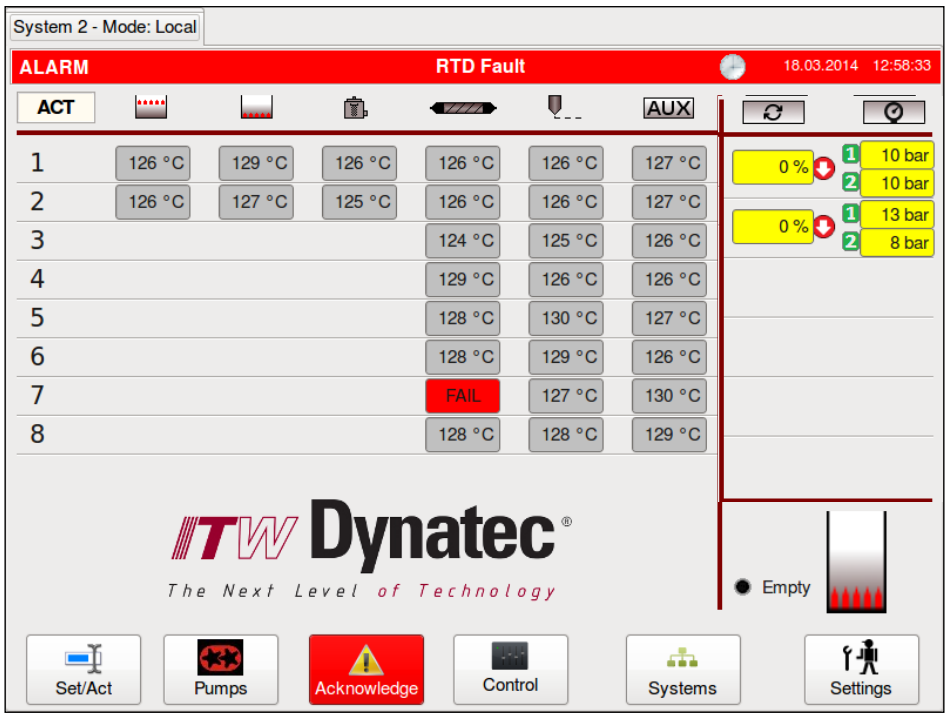
5.3.10 Acknowledge Button

➢ The Acknowledge Button is on the Main Screen & Temperature Zones Set Screen.



1: no faults or alarms indicated

Fault/ alarm Description in Status Line →



1: Fault indicated

Item	Description
1	**Acknowledge Button** If a fault/ alarm is indicated, the affected temperature zone and the Acknowledge button will be highlighted red. When this occurs, follow these steps: • Correct and clear the faults/ alarms. • Press the Acknowledge button in order to switch On the main contactor.

5.3.11 Faults/ Alarms

Among the Faults and Alarms that may be displayed are:

- **RTD Fault** = a hopper, hose or head sensor has an open circuit.
- **Temperature Alarm** = a temperature zone has exceeded its selected over-temperature setpoint, (which is the setpoint plus the Temperature Alarm Window and Temperature Alarm Hysteresis) or when it is below its selected under-temperature setpoint (which is the setpoint minus the Temperature Alarm Window and the Temperature Alarm Hysteresis).
- **Drive Failure** = a motor drive (frequency converter) has a fault.
- **Minimum Level** = adhesive level has dropped below the level sensor and the hopper is empty.
- **Feedback Failure Motor #** = (optional) speed monitor pump addressed.
- **Overtemperature** = hardware over-temperature indication.
- **Communication Error** = Communication error between the touch panel and controller.
- **Parameter CRC Error** = parameter memory is lost. Call ITW Dynatec Technical Service.
- **Other Faults or Alarms** = Call ITW Dynatec Technical Service.

When an alarm condition occurs, the current display will be interrupted only if a sensor (or motor drive) failure occurs. If more than one alarm condition occurs simultaneously, all alarm conditions will be displayed sequentially.

5.3.12 Operator Response to Error Indication Alarms

If an alarm occurs during operation, the controller will switch off the internal power to the heaters and an appropriate alarm indication will appear in the status line of the display.

Pressing the Acknowledge button resets the error. If several zones display alarms, each must be acknowledged. The operator must either switch OFF the indicated temperature zone(s) or troubleshoot to correct the problem.

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 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!

Summary of Preventive Maintenance Schedule & 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 for leaking adhesive under the base plate, caused by a worn pump seal. • 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	• Inspect Filter and Shutoff Assembly. Clean or replace as required. • 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

The DYNAMELT D series Melter enclosure is finished with an extremely durable polyurethane paint. The enclosure may be cleaned with a variety of industrial cleaners following manufacturers' directions. To prevent discoloration or deterioration of the Melter's finish, avoid prolonged contact with strong solvents.

The molded plastic lid and control and hose panels may be cleaned with mineral spirits.

6.4 Preventive Maintenance

6.4.1 Preventive Maintenance Schedule

The Dynamelt D requires periodic maintenance to function reliably.

The System Runtime indication of the controller (under System Info Screen, Touch Screen) can aid in determining a maintenance schedule. Refer also to 6.2 Maintenance Plan.

The hopper is fitted with a coarse screen to prevent large debris from entering the system. Normally this screen does not require cleaning.

The Melter parts that require regular, periodic maintenance are as follows:

6.4.2 Purging the Filter Manifold (Output Filter) of Adhesive and Pressure

As a safety precaution, the Melter's system should be purged of pressure and adhesive before attempting to change 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.
- 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!
- Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

HIGH PRESSURE! HOT ADHESIVE!

- **Position a heat-resistant container under the manifold's purge drain before proceeding.**
- **During the purging procedure, hot adhesive can come out of the manifold under high pressure.**
- **Avoid splashing hot adhesive.**
- **Stand clear of the Melter until all pressure is relieved.**

Refer to the illustration Output Filter Manifold on next page while following these instructions.

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

1. Locate the bleed valve (purge screw) on the output filter manifold.

2. With a hex key screwdriver (M5 Allen wrench), slowly loosen the purge screw (do not attempt to remove it) which is in the bleed valve's port. Allow the adhesive and pressure to escape out of the manifold. The adhesive will flow into the heat-resistant container positioned below the manifold.

3. After all adhesive has run out, re-tighten the purge screw.

6.4.3 Output Filter

The output filter should be replaced monthly during the first few months of operation. After you gain experience with your system, you can determine how often you need to replace it. The output filter is located on the output filter manifold on the hose connection panel of the Melter. See illustration of the output filter on next page.

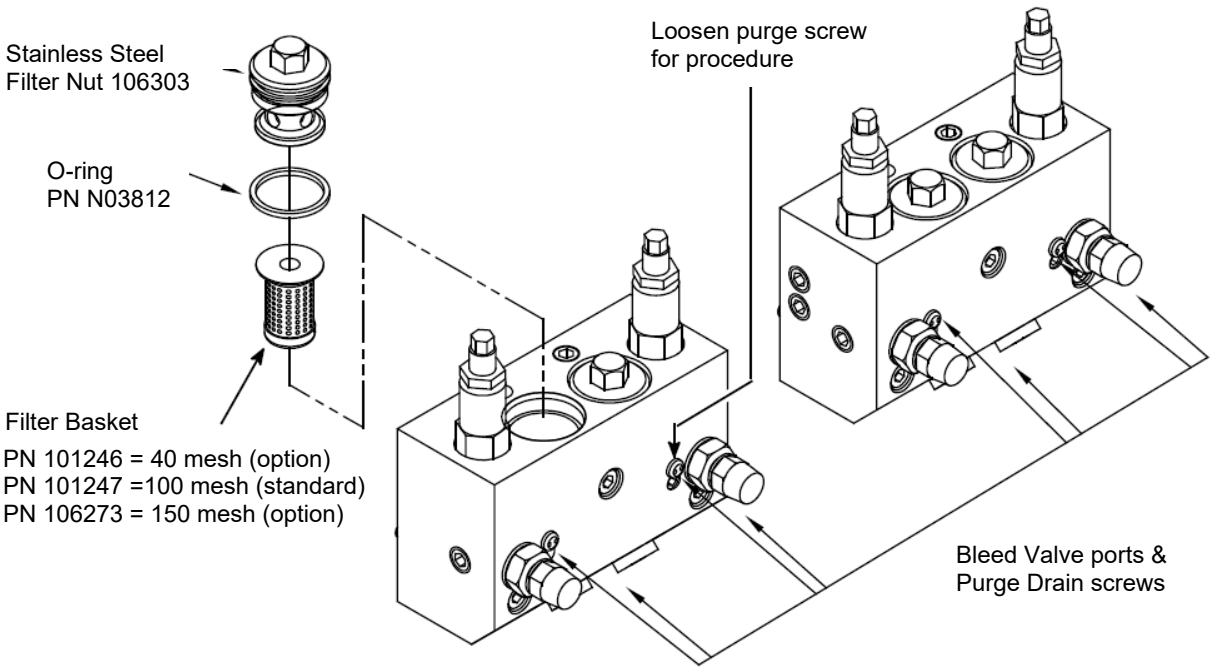
Use the following procedure to replace the output filter:

WARNING! HIGH VOLTAGE! HIGH PRESSURE!

- Heed all security advices given in Chapter 6.1.
- All electrical connections should be made by qualified electrical personnel.
- Care must be taken to assure proper grounding prior to any dis-assembly.
- Lockout and tag the electrical sources as required.
- When covers are removed, high voltage sources create an electrocution hazard.
- Wear appropriate safety equipment when working with high voltage sources.

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!

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



Output Filter Manifold (located at the Hose Connection Panel)

To replace the Output Filter:

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. Before proceeding, relieve system pressure as described under “Purging the Filter Manifold (Output Filter) of Adhesive and Pressure” on previous page!
6. Unscrew and remove the stainless-steel filter nut (15.8 mm or 5/8” nut) with a 5/8” wrench.
7. With needle nose pliers, pull the filter basket out of the manifold body.

The filter will be covered with hot adhesive and must be handled with proper tools.

8. Clean the filter basket or replace if necessary. Check for char and debris inside the filter basket.
9. Before replacing the filter basket, replace the O-ring on the filter nut. Apply O-ring lubricant (PN 001U002) to the new O-ring.
10. Apply a coat of anti-seize to the threads of the filter nut.
11. Re-install the filter basket and the filter nut. Tighten the filter nut until it is seated firmly against the manifold body, taking care not to cut the O-ring as it enters the manifold.
12. 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.

6.4.4 Hose Fittings

All hose fittings should be checked for tightness after every three months of operation. Use 11/16” wrenches to remove and hold the fitting cover and fitting.

NOTE: Do not rotate fitting when glue is cold!

6.4.5 Fasteners

Check that all fasteners and screws are tight after the first ten hours of operation. Thereafter, re-check all fasteners after every three months of operation.

6.4.6 Filter and Shutoff Assembly, Cleaning and Replacement

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!

Use the output filter manifold's purge valve to relieve adhesive pressure before performing any filter maintenance. See the section titled "Purging the Filter Manifold of Adhesive and Pressure" for detailed instructions.

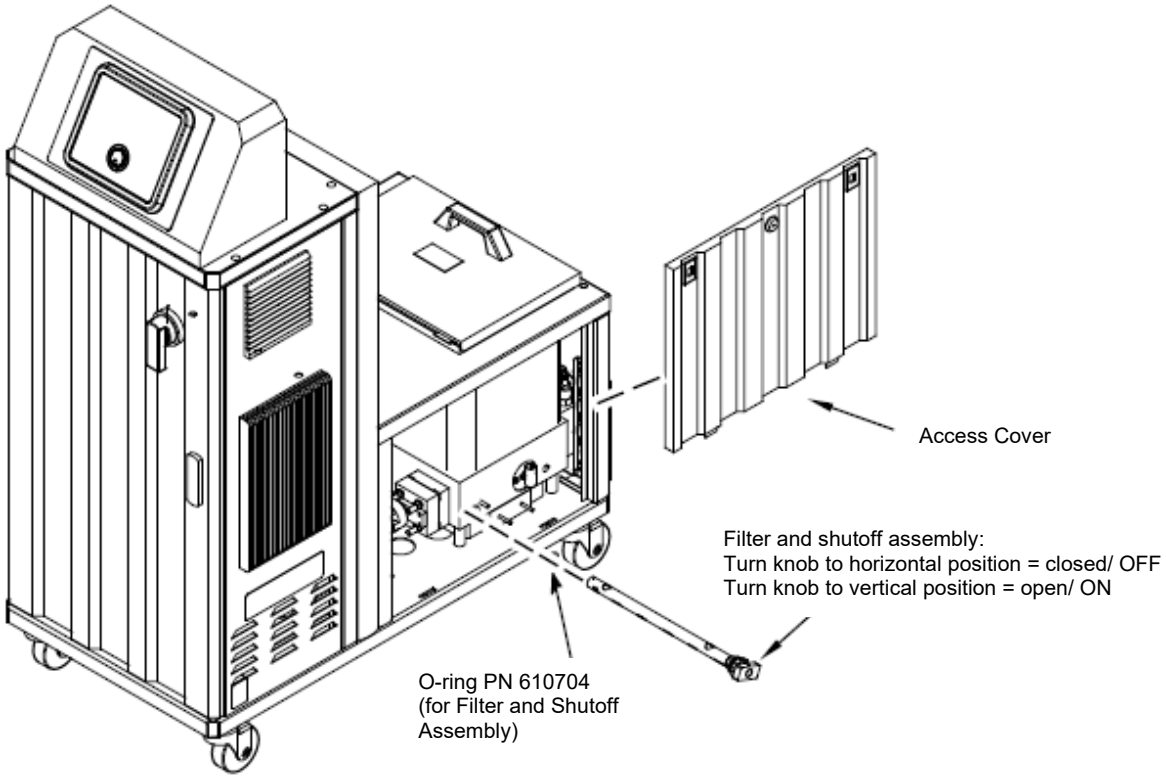
During the purging procedure, hot adhesive can come out of the manifold under high pressure. Avoid splashing hot adhesive. Stand clear of the ASU until all pressure is relieved.

The filter cartridge will be covered with hot adhesive and must be handled with proper tools. Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

NOTE on Function:

- This assembly is installed in the hopper (tank) in the adhesive channel to the pump. It functions as a pre-filter and filters debris and it prevents them from entering into the adhesive system. During production it must always be turned ON (open, to vertical position).
- Turn this assembly to the OFF (close, to horizontal position), for example during pump replacement, to prevent that the adhesive flows out of the tank (shutting-off the adhesive flow).

See the illustration below for location of the Filter and Shutoff Assembly.



Heed all security advices given in Chapter 6.1.

1. Pump all adhesive out of the hopper.
2. Turn the pump/ motor OFF.
3. Switch the unit pressureless.
4. Lower the temperature of the application system to the adhesive's softening point.

WARNING HOT SURFACE

The ASU will still be hot during this procedure.
Use insulated gloves and protective clothing when removing the filter and shutoff assembly.

5. Remove the access cover via two slide latches. Do not pull out the ground wire attached.
6. Wearing gloves, unscrew the filter retaining nut with a 32 wrench and pull the Filter and Shutoff Assembly out.
7. Immerse the clogged filter in flushing fluid (PN L15653) to loosen contaminants. Remove filter from fluid and use a hot air gun (if necessary) and rags to clean all contaminants from the filter.
   NOTE: If the filter cannot be cleaned, replace the entire assembly.
8. Install a new O-ring on the filter and shutoff assembly. Apply a coat of anti-seize compound onto the threads of the filter retaining nut and re-install the filter and shutoff assembly into the hopper.
9. When re-installing the filter assembly, turn the filter's cut out hole toward the pump. Align the filter knob in its "open" (vertical) position.
   Install the set screw (roll pin) until it bottoms. Do not overtighten!
10. Replace the access cover and restore the Melter to normal operation.

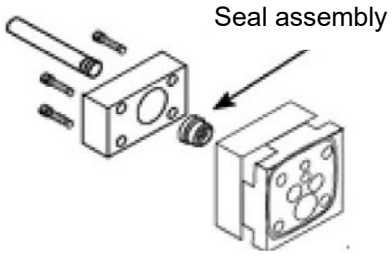
After finishing the maintenance or repair works:

- 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.

6.4.7 Pump Shaft Leak

There is a cutout in the base plate, directly below the pump shaft, which will allow adhesive from a leaking pump to exit the Melter. Inspect the area under the base plate cutout every month for adhesive.

A leaking pump shaft indicates a worn pump seal. See instructions in Chapter 8 for replacement of this seal.



Gear Pump

6.4.8 Flushing the System

Contaminated adhesive, accumulation of residue in the system and hopper, or changing the adhesive formulation may require the system to be flushed. To flush the system, have at least 6 liters (1.5 gallons) of flushing fluid on hand (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!

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

The Melter should be at operating temperature.

1. Pump out as much of the molten adhesive from the hopper as possible.
2. Reduce the motor/pump speed to zero.

   Note: the hose used in the following process is merely for the convenience of depositing flushing fluid. This procedure does not have to be repeated for each hose in the system.
3. Use a 11/16” wrench to disconnect one of the supply hose’s adhesive feeds from its applicator head, while holding the applicator’s fitting. Do not disconnect the electrical power to the head (since that would disable the pump). Put the hose in a secured position within a heat-resistant container, which will catch the used flushing fluid.
4. 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 adhesive remaining in the hopper.

WARNING HOT ADHESIVE

Do not set hopper temperature too high or fluid could boil and splash.

5. Slowly increase the motor/pump speed. Pump as much of the flushing fluid through the hopper, pump and adhesive supply hose into the flushing container.

WARNING HOT ADHESIVE

Avoid splashing the flushing fluid from the end of the hose.

6. Reduce the motor/pump speed to zero.

7. Add new adhesive to the hopper and allow it to reach application temperature.

8. Slowly increase the motor/pump speed.

9. Actuate each of the heads until all the flushing fluid is removed and a steady stream of new adhesive flows.

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 PN 001U002 prior to installation) and tighten the brass nut.

11. Re-adjust the motor/pump speed for the desired flow.

12. Re-fill the hopper with adhesive. The system is now ready for production.

6.4.9 Panel Box Fan's Exhaust Filter

An air-circulating fan and exhaust grill are mounted in the side panels of the electrical panel box assembly (PBA). The exhaust grill (mounted in the upper side panel) contains a filter, which should be cleaned periodically.

Replacement and/ or Cleaning of Fan Filter

1. The exhaust grill assembly may be pulled out of the panel box from the outside of the panel box assembly. The exhaust grill is hinged at its top. Open the grill and remove the filter.

2. Wash filter in water up to 40°C (104°F) with a mild detergent added, if necessary. Or vacuum, beat or carefully blow the filter with compressed air.

To clean greasy substances:

- Wash filter in benzine, trichloroethylene or warm water with a grease solvent added.
- Do not wring or use a sharp jet of water or compressed air.

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 Dynamelt Melter uses electrical power that can be life threatening.

WARNING HOT SURFACE

The Melter uses hot-melt adhesives that can cause serious burns.

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.

CAUTION

Printed circuit boards (PCBs) are prone to damage from static electrical charges during handling. Read the section on "Handling Printed Circuit Boards" before handling or attempting service on Dynamelt's PCBs.

The DynaControl includes malfunction self-diagnostics, alerts and error indication alarms. The error indication alarms (the alarms displayed on the DynaControl readout) are triggered whenever there is a sensor failure and whenever there is an over-temperature condition. The operation of the error indication alarms is described in Chapter 5 of this manual.

7.1.1 Preliminary Checks: Verify the following before proceeding:

1. The Melter is switched on.
2. The Melter is supplied with power.
3. The Melter is supplied with pneumatic air (if applicable).
4. Pneumatic and electrical connections are correct.
5. Adhesive is in the hopper.
6. The temperature controller is in operation. The setpoints are correct for the Melter, Heated Hoses and Applicators. All components are heating properly.

7.1.2 Error Messages

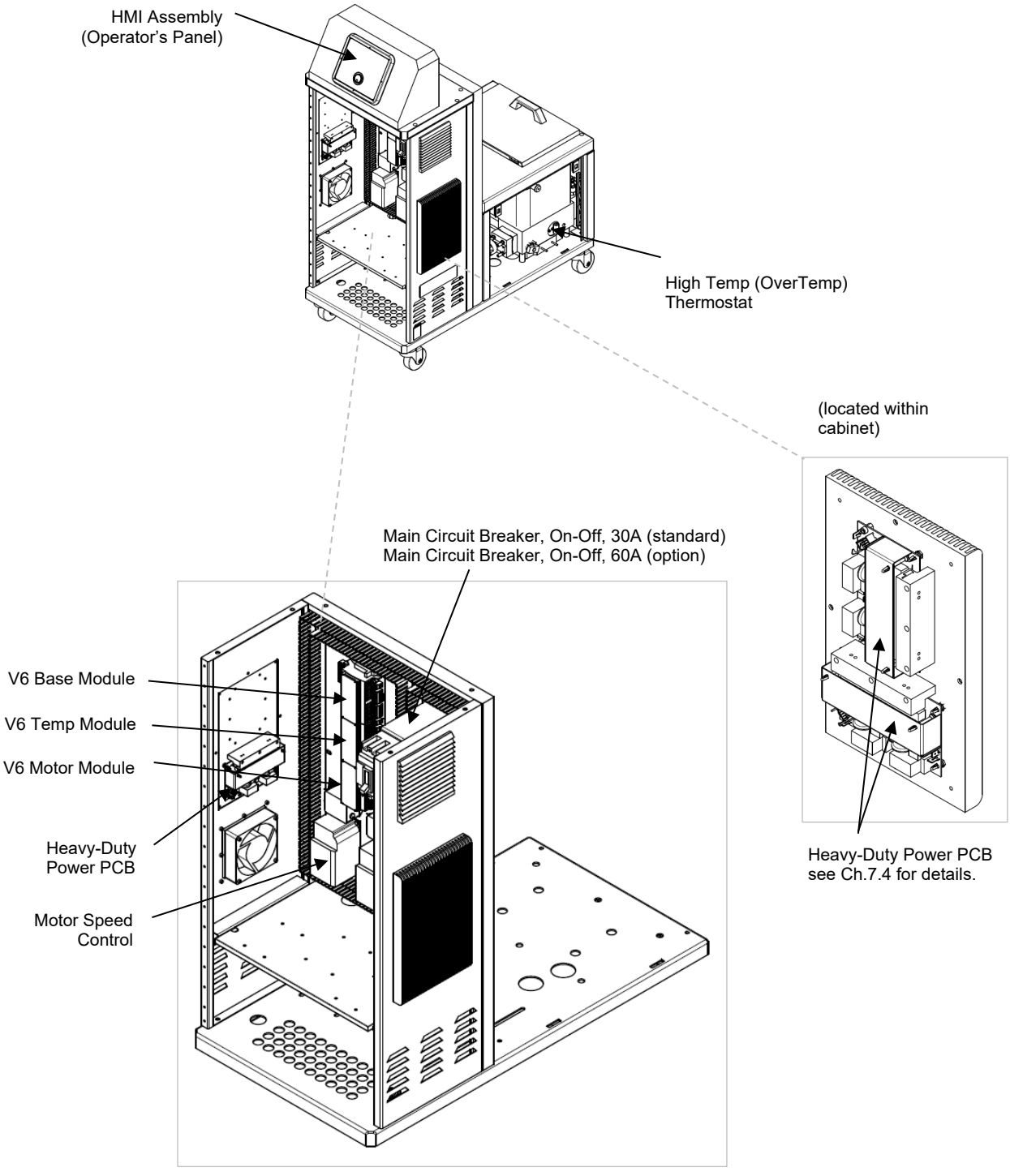
The controller indicates an error by displaying the word FAULT or ALARM in either the System Status or the Pump Status fields of the HMI.

7.1.3 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.

Before disconnecting a hose or Applicator, always turn its temperature zone OFF at the controller. This will avoid controller alarms and possible system shutdown.

7.1.4 Location of Components



7.1.5 High-Temperature Redundant Overtemperature Thermostat

The Melter includes a mechanical (redundant) overtemperature thermostat that acts as a safety backup. If the Melter's hopper temperature should exceed 232°C (450°F), the thermostat will cause the Melter's power relays to open and power to the hopper and all hoses and heads will be cut off. The mechanical thermostat must be manually re-set after the hopper temperature falls below 204°C (400°F).

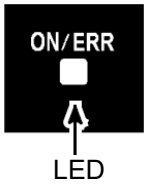
The overtemperature thermostat is located on the front side of the hopper, behind the access cover. To reset: turn OFF the Melter's main power switch; loosen the captive screw to remove the access cover; push the center of the thermostat's insulator to re-set; restart the Melter.

7.1.6 Lithium Battery on Operator's Panel Printed Circuit Board

The operator display panel's printed circuit board contains a lithium battery which powers the seven-day scheduler's clock. The normal life of this battery is about ten years. When the battery needs replacement, the scheduler's clock does not function, but other controller features remain intact. Return the board to ITW Dynatec for battery replacement.

7.1.7 DynaControl V6 Modules

The DynaControl V6 control package is built from encapsulated modules that snap onto the DIN rail within the Melter. The modules communicate via a proprietary serial communication. Each module has a status LED (ON/ERR). This LED shows the module's status, as follows:



- Blinking green = Everything o.k. Communication is working.
- Solid red = Communication fault.
- No Light = Module is defective or no voltage supply.

7.1.8 7-Day Scheduler Use with Pendant Control

Units which are controlled via the optional pendant controller must remain connected to the pendant if the 7-Day Scheduler feature is employed. The 7-Day Scheduler will not function when the pendant controller is disconnected.

7.1.9 Handling Printed Circuit Boards (PCBs)

The Dynamelt Melter and DynaControl controller utilize several modules and printed circuit boards (PCBs). These boards are extremely sensitive to electrostatic charges. When working near or with these components, the following procedures must be followed to avoid damage to them.

DANGER HIGH VOLTAGE

Before unplugging connectors from the modules or 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 assembly when you are removing and replacing connectors.

CAUTION

Modules and 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 Melter (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 Melter, each PCB must be individually packaged inside a metalized, 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.

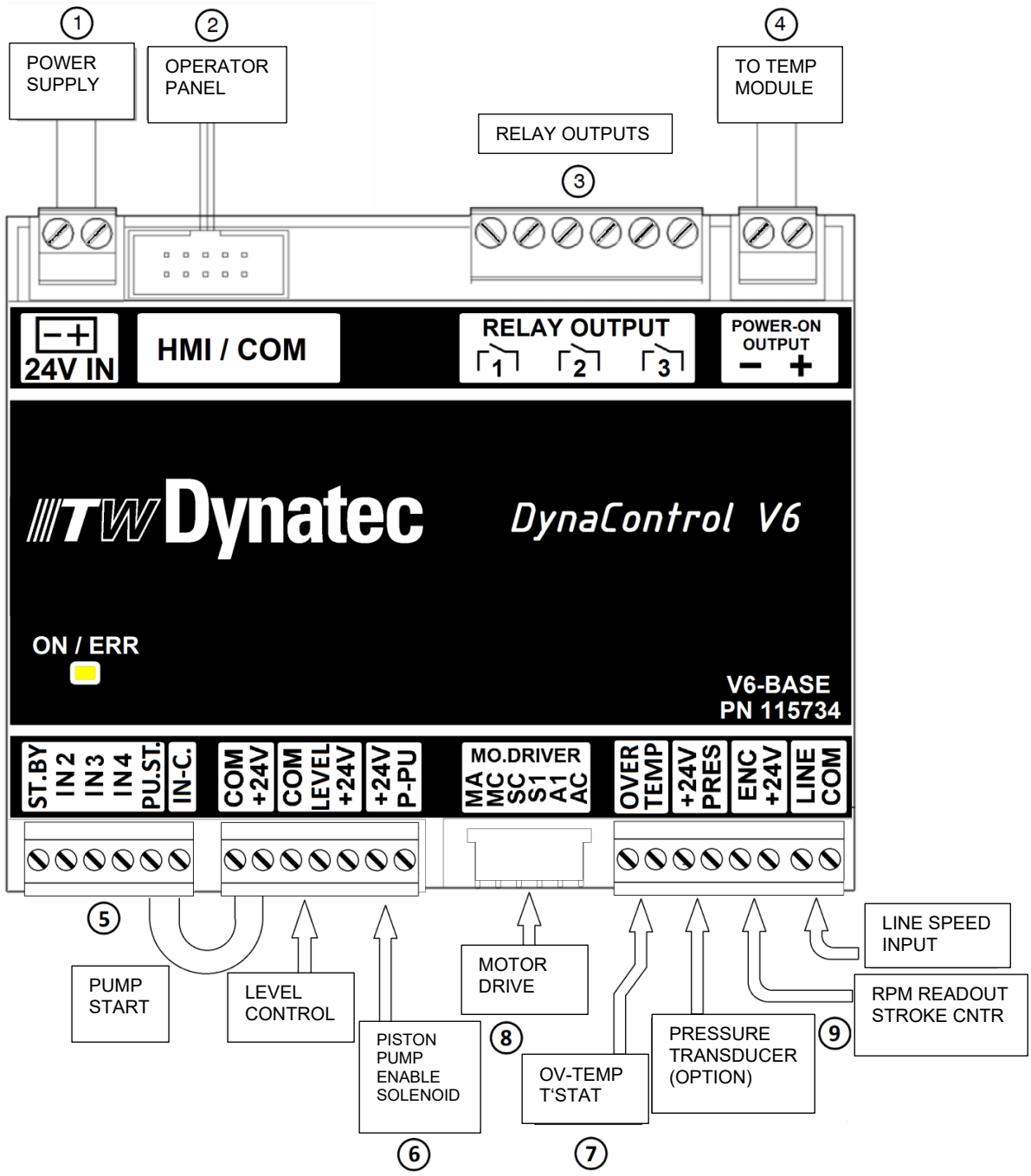
6. To cushion modules or PCBs for shipment, use only static-drain bubble pack. Do not use foam peanuts or bubble pack not known to be static draining.

The following pages detail the Melter’s modules and PCBs.

7.2 V6-Base Module PN 115734

The V6 Base Module is the main control module of the DynaControl V6 controller. Most of the internal and external components are connected to the Base module. The Base module is always the first module on the DIN-rail.

ITW Dynatec recommends using dry contacts for connecting to DynaControl V6!



V6 Base Module, cont.

Description of Components

The following items are referenced to the illustration on previous page:

- **Item #1** The controller runs on standard 24VDC. The supply voltage, coming from the 24VDC power supply, is connected to this terminal. The input is polarity sensitive.

- **Item #2** The operator's panel connects to this header via a ribbon cable. There are several types of operator's panels available. They are interchangeable.

- **Item #3** This connector provides customer accessible relay contacts. There are three pairs of dry contacts which are designed for maximum 240 VAC/1A.

  The default functions of the relays are:

  Relay 1: Ready Signal
  This contact closes once the system is in ready condition (ready condition = all active temperature zones are within their tolerances and there is no other alarm message pending). Normally open.

  Relay 2: Alarm Signal
  This contact opens whenever a critical situation arises. A critical situation could be a defective temperature sensor, an over or under temperature situation, a motor driver fault, etc. Normally closed.

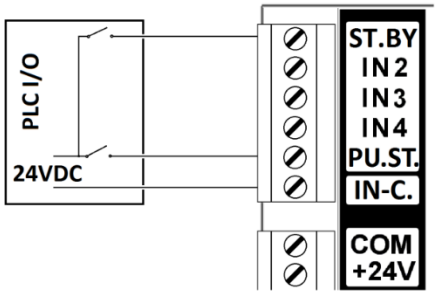
  Relay 3: Hopper Empty Signal
  This contact closes when the adhesive level in the hopper drops below a certain level. It can be used to indicate this situation via an external light or an audible alarm. Normally open.

  Note: Depending on the controller's settings, one or more of the relay outputs may be re-programmed for different purposes. In this case, refer to corresponding set-up instructions.

- **Item #4** This connector is used for a module-to-module connection. It provides the power-on signal to the power board through the TEMP board. In the case of a critical alarm, this 24 VDC signal will drop, cutting off the heater power on the power boards. This signal may also control the main contactor.

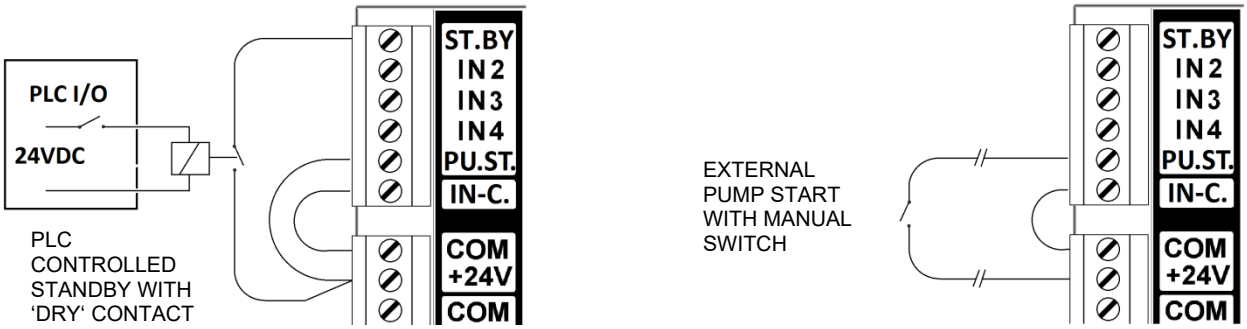
- **Item #5** This connector accepts external signals that can be used to control the Melter. The inputs require 24VDC signals. Although the internal 24VDC can be used to provide voltage for the inputs, it is recommended to use external 24VDC. For this purpose, the common of the signal inputs is available on terminal IN-C. and is isolated from the internal 24VDC.

  All inputs are not polarity sensitive. That means the common (IN-C.) can either be positive or negative.



V6 Base Module, cont.

Alternatively, it is possible to use the external inputs via 'dry' contacts:



WARNING:
The Melter's internal 24VDC is grounded. It is not recommended to connect external 24VDC with the internal. If this cannot be avoided, it is important that the ground potential of the external and that of the Melter is equal. If this is not the case, damage to the V6 control modules is possible.

Inputs ST.BY, PU.ST. IN2 and IN3 are dedicated for default functions.
Input 4 is for future use.

Input ST.BY: External Standby/ Setback

Activating this input sets the Melter in Standby Mode.
In standby mode, all temperature zones will lower their temperatures by a programmed amount. Opening that contact will return to normal mode.

Input IN2 & IN3: External Program/ Recipe Selection

By activating these inputs, it is possible to load one of four programs (recipes) into the controller.

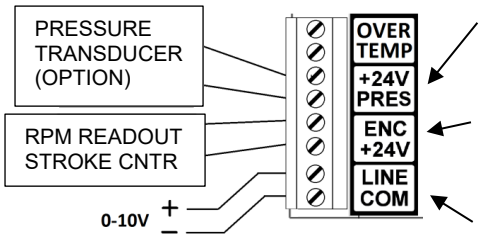
The two inputs are coded in the following way:
- Activate input2 while input3 is not activated: **Load Program 1**
- Activate input3 while input2 is not activated: **Load Program 2**
- Activate input2 while input3 is activated: **Load Program 3**
- Activate input3 while input2 is activated: **Load Program 4**

Notes: the controller loads the new program when the corresponding input is activated. Deactivating an input does not affect the process.

It is possible to load a new program manually, independent from the input situation.

- **Item #6** This item is not applicable.
- **Item #7** This input is connected to the over-temperature thermostat on the hopper. In the unlikely event that that hopper temperature exceeds 450°F (232°C), the thermostat will open and cause the power to all the heaters to be cut off. A corresponding alarm message will appear on the controller's display. The thermostat must be manually re-set after the hopper temperature falls below 400°F (204°C).
- **Item #8** This connects to the motor driver.
  MB / MC: Alarm contact indicating driver fault (N.C.).
  SC / S1: Pump start signal.
  A1 / AC: 0-10V pump speed signal.

- **Item #9**



If the Melter is equipped with a digital pressure read-out, it connects to this terminal. The transducer type is two-wire 4-20mA.

In order to monitor the actual speed, an RPM reading device (gear pumps) or stroke counter (piston pumps) can be connected to this terminal.

In order for a gear pump to follow the line speed of a parent machine, a 0-10VDC voltage is required. This input voltage is connected to these terminals. The input is polarity sensitive. When an optional signal isolator is installed, the line speed input is located on the signal isolator.

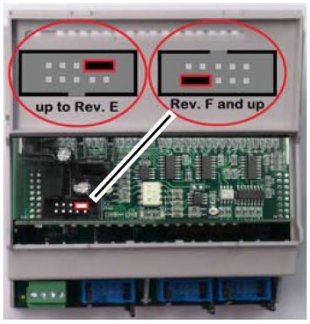
Warning: The line speed input is grounded. If the line tracking voltage has a different ground potential, it is recommended to use a signal isolator. Otherwise, damage to the V6 modules is possible.

7.3 V6-Temperature Module PN 115735

The V6 TEMP module is mounted next to the V6 base Module on the Din-rail. It requires 24VDC supply voltage. It is responsible for the temperature control of all heated temperature zones. The RTD temperature sensors connect to this module and the TEMP module provides corresponding output signals to the power boards. Depending on the configuration of the Melter, the RTDs may be PT100 (DynaControl) or NI120 (NDSN). Configuration is determined by a jumper located within the module (see below, to left of module illustration).

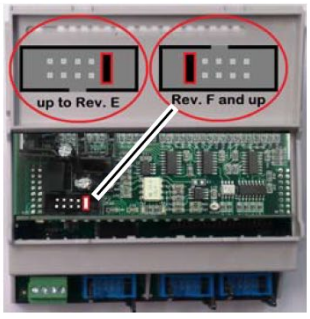
Each of the maximum 15 zones has a status LED which shows its heating status in the following manner:

- if the zone is switched off, the LED is Off,
- if the zone is heating, the LED is On,
- if the zone is near or at the setpoint temperature, the LED blinks.

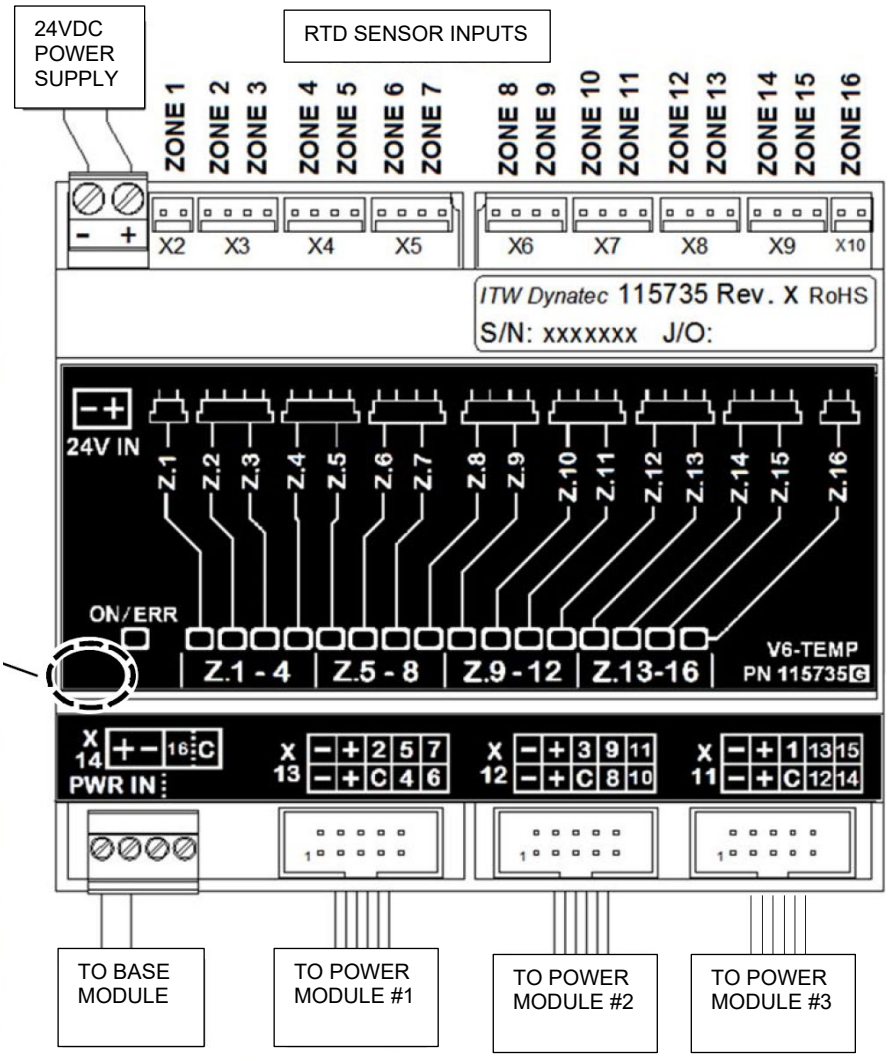


DynaControl RTD Melter: Jumper positioned horizontally, as above.

Approx. location of the jumper inside the module.



NDSN RTD Melter: Jumper positioned vertically, as above.



Heater Control output.

7.3.1 Standard System Zone Tables

Dynamelt D15, D25, D45

Zone 1	Pre-Melt Grid 1
Zone 2	Hopper
Zone 3	Pre-Melt Grid 2
Zone 4	Hose 1
Zone 5	Head 1
Zone 6	Hose 2
Zone 7	Head 2
Zone 8	Hose 3
Zone 9	Head 3
Zone 10	Hose 4
Zone 11	Head 4
Zone 12	Aux 1
Zone 13	Aux 2
Zone 14	Aux 3
Zone 15	Aux 4
Zone 16	<unused>

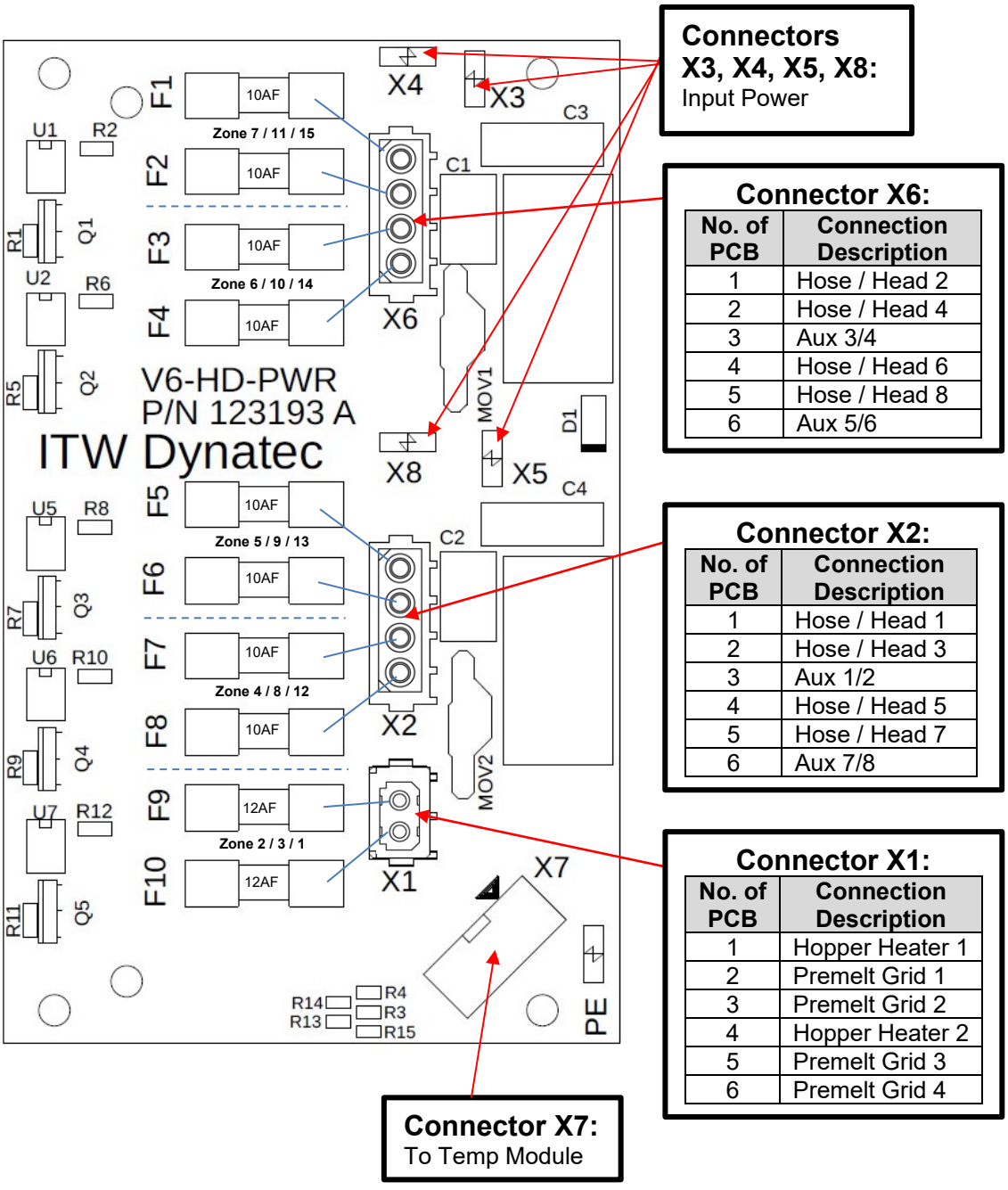
7.4 V6 Heavy-Duty Power PCB, PN 123193

The V6 HD-Power PCB (HD = Heavy-Duty) provides controlled power to the heaters of five zones. It receives its control signals from the V6 Temperature module. There are three of these PCBs on a D15/25/45 Melter.

The fuses of the HD-Power PCB are located underneath a protective cover. The cover should only be removed after the Melter is switched Off and disconnected from the main power supply. After checking or replacing fuses, the cover must be re-installed. All heater circuits are fused on both legs with a 10AF/12AF fuse. Always replace fuses with the same type of fuse. The maximum total load current of the board is 40 Amps (20 per phase).

Options:

- PN 680870 HD-Power PCB Kit includes one HD-Power PCB 123193 with heat sink, etc.
- PN 680871 HD-Power PCB Kit includes two HD-Power PCBs 123193 with heat sink, etc.



Connector X6:

No. of PCB	Connection Description
1	Hose / Head 2
2	Hose / Head 4
3	Aux 3/4
4	Hose / Head 6
5	Hose / Head 8
6	Aux 5/6

Connector X2:

No. of PCB	Connection Description
1	Hose / Head 1
2	Hose / Head 3
3	Aux 1/2
4	Hose / Head 5
5	Hose / Head 7
6	Aux 7/8

Connector X1:

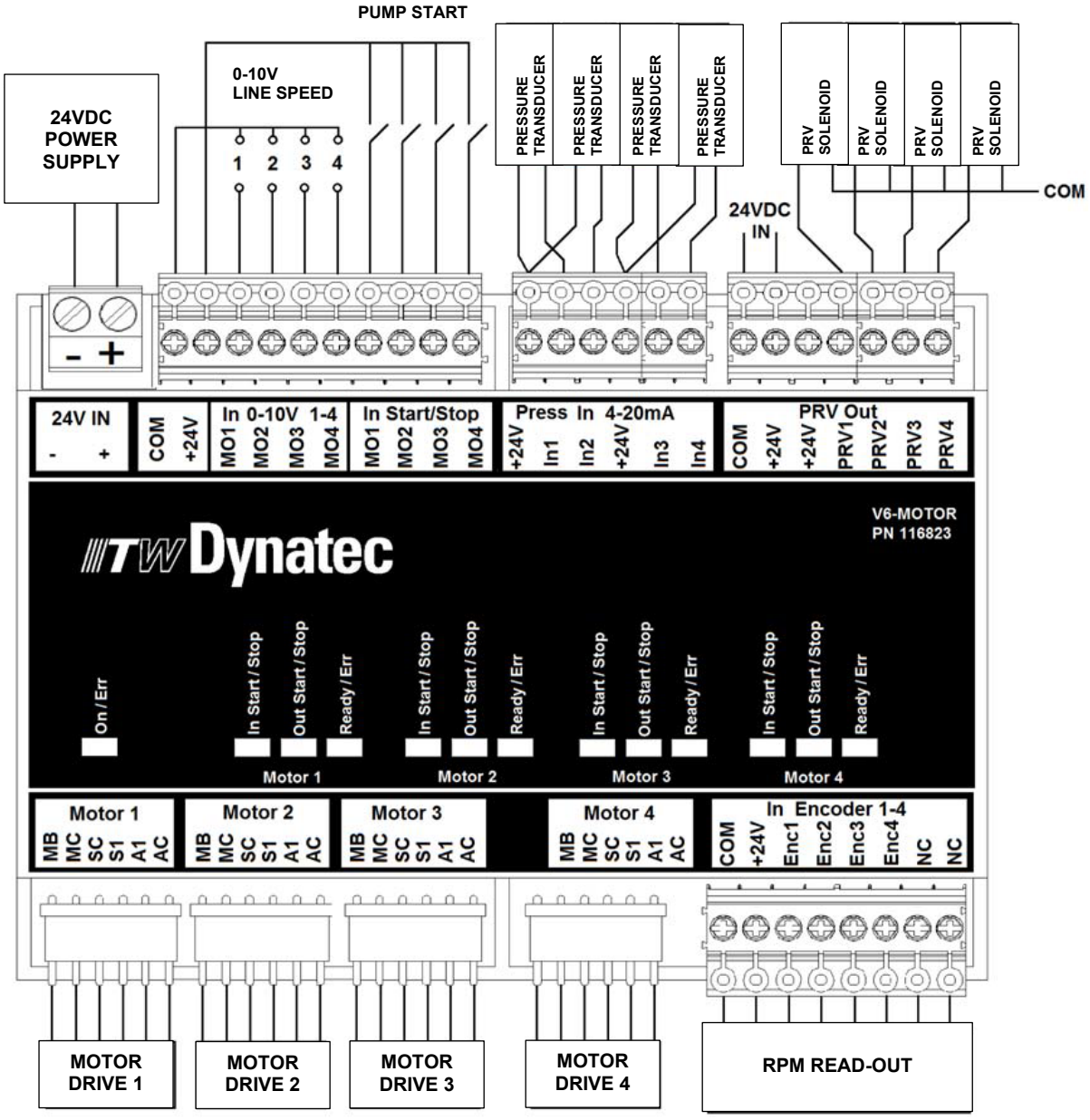
No. of PCB	Connection Description
1	Hopper Heater 1
2	Premelt Grid 1
3	Premelt Grid 2
4	Hopper Heater 2
5	Premelt Grid 3
6	Premelt Grid 4

7.5 V6-Motor Module PN 116823

A maximum of two V6 MOTOR modules may be installed on the Melter. Each motor module controls up to four motors. Each motor control output is associated with an enable contact and an encoder input. A wide variety of encoders (i.e. a ring kit) may be adapted to the input.

Each motor may be assigned its individual line speed input, but it is also possible to use a common line speed input. This also applies to the pump enable input. Each motor module has four pressure transducer inputs; transducer type is 4-20mA. One or two pressure transducers may be assigned to each motor.

- Motor #1 on the first Motor Module = pump #2 in the system (pump #1 is on the Base Module).
- Motor #1 on the second Motor Module = pump #6 in the system.



7.6 Motor Speed Control Drive

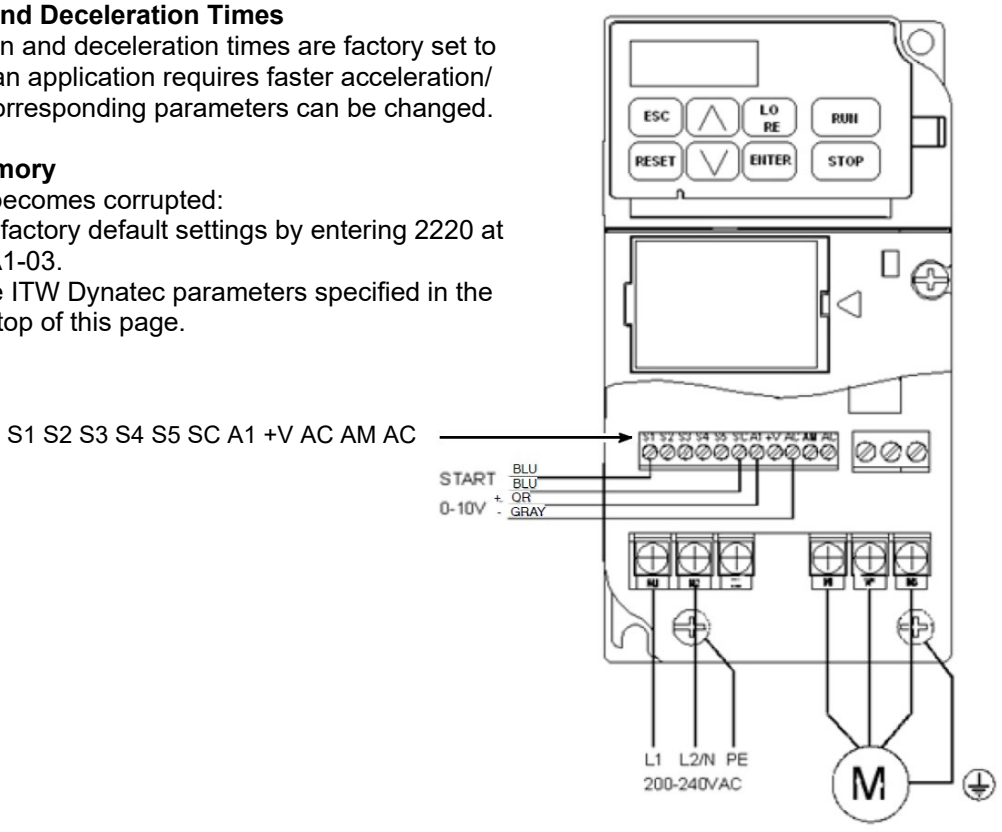
The Motor Speed Control is mounted on the divider panel within the electronics compartment of the Melter. This variable-frequency drive is factory-set and normally does not require adjustments. The following is a list of parameters that Dynatec programs to optimize performance, but which differ from the drive's default parameters.

Parameter	Value	Description
B1-17	01	Starts the motor even when the enable signal precedes power up.
C1-01	3.0	The time it takes to ramp the pump speed up from 0 to maximum.
C1-02	1.0	The time it takes to ramp the pump speed down from maximum to 0.
C6-02	3	Carrier Frequency 8kHz.
E1-04	62*	Calibrates the maximum speed. See note below for details.
E1-08	16.0	Middle Output Frequency Voltage.
E1-09	2.0	Allows the motor turn down to 1% minimum.
E1-10	9.5	Minimum Output Frequency Voltage.
E2-01	1.5 (1/4HP) or 3.6 (1HP)	Full load amperes, maximum motor current.
L1-01	02	Prevents false tripping at low speeds.
L2-01	02	Does not stop the motor when under-voltage is detected (power up after short interruption).
H2-01	10e	Alarm output on fault, inverted

* Due to component tolerances, the maximum speed of the pump might vary. In order to calibrate the maximum speed, parameter E1-04 can be fine-tuned. Valid range is 61 to 63. Set motor speed to 100%and adjust parameter E1-04 so that the pump is turning exactly 90rpm.

Acceleration and Deceleration Times
The acceleration and deceleration times are factory set to 10 seconds. If an application requires faster acceleration/ deceleration, corresponding parameters can be changed.

Corrupted Memory
If the memory becomes corrupted:
1. Restore the factory default settings by entering 2220 at parameter A1-03.
2. Re-enter the ITW Dynatec parameters specified in the chart at the top of this page.

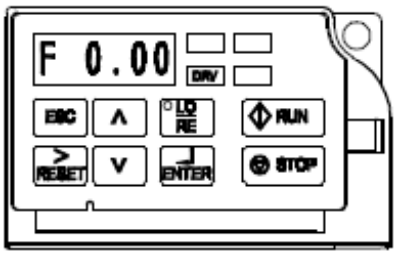


Layout of Motor Control Drive

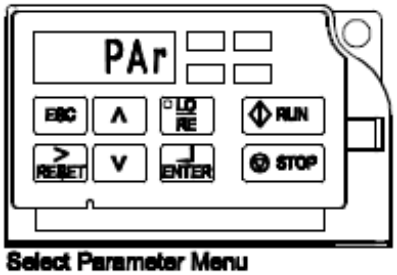
7.6.1 Accessing, Programming and Monitoring Motor Control Parameters

To Access and Change Parameter Values

J1000 Digital Operator power-up state →

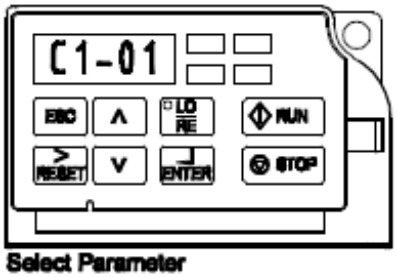


Step 1. Press the v key once. The digital operator shows the parameter menu (PAr), then press the ENTER key.



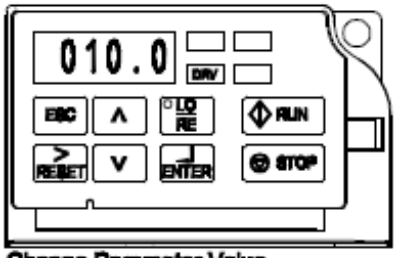
Select Parameter Menu

Step 2. Press the RESET key to select the digit you would like to change. Next use the ^ and v keys to select the parameter group, sub-group or number, then press the ENTER key.



Select Parameter

Step 3. Press the RESET key to select the digit you would like to change. Modify the parameter value using the ^ and v key and press the ENTER key to save the new value.



Change Parameter Value

To access other drive signals, refer to the Yaskawa technical manual, available at:
https://www.yaskawa.com/products/drives/industrial-ac-drives

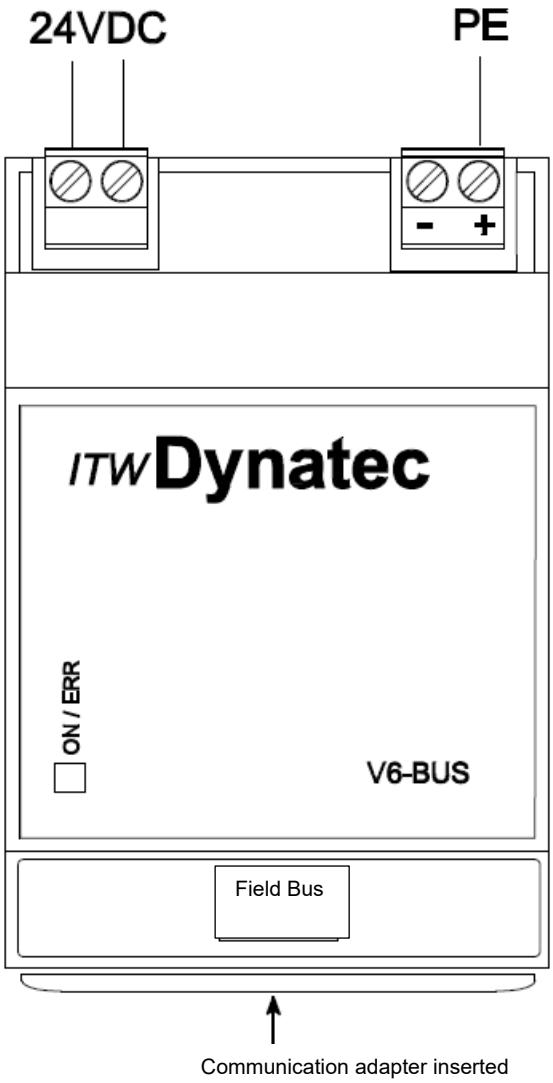
7.7 Optional Printed Circuit Boards

Wiring diagrams and other details on the following optional PCBs can be found on the main Melter's schematics in Chapter 11:

- Adhesive Level Sensor (hopper low level detection)
- Signal Isolator (gear pump auto mode)
- Trigger Switch Pump Enable (hand-held applicators/ swirl kits)
- EtherNet/ IP, EtherCat or Profibus (communications protocols)

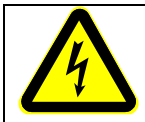
7.8 Optional V6-BUS Communications Module, PN 118125

The V6 BUS module is used with a communications protocol adapter to provide functionality so that the Melter may be operated remotely. Several communication adapters are available, including Ether-Net IP, EtherCat and Profibus.



7.9 Heater and Sensor Resistance Values

The resistance values given in the four tables on the following pages will aid in troubleshooting if a sensor or heater malfunction is suspected.



DANGER HIGH VOLTAGE

Before unplugging connectors from the 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.

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

- **The "Temperature Sensor Resistance" table** gives values for various temperatures. If you know the approximate temperature of the suspected sensor, you can check to see if the sensor resistance approximates the value given in the table by unplugging the affected head or hose connection and measuring resistance across the affected pins (see wiring diagram in Chapter 11 for pin numbers).

Temperature Sensor Resistance (0.00385 PT 100 RTD):

Temperature °F	°C	Resistance in Ohms
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

- **The "Nominal Hose Heater Resistance" table** gives the heater resistance for hoses. A suspected hose heater problem can be quickly isolated by measuring hose heater resistance and comparing it to the correct resistance for your hose length and voltage as shown.

Nominal Hose Heater Resistance for #6 DynaFlex-Hoses:

Hose Length		Resistance in Ohms (240V)
Meter	Feet	
1.2	4	466-544
1.8	6	279-326
2.4	8	236-275
3	10	189-221
3.7	12	155-181
4.9	16	118-137
7.3	24	77-90

- **The "Nominal Head Heater Resistance" table** gives values for several different head wattages. A suspected head heater problem can be isolated by measuring head heater resistance and comparing it to the resistance for the appropriate wattage of your system.

Nominal Head Heater Resistance:

Watts	Resistance in Ohms (240V)
200	288
270	213
350	165
500	115
700	82

- **The "Nominal Hopper Heater Resistance" table** gives heater resistance for the hopper heaters of each model and for the (optional) drop-in grids.

Nominal Hopper Heater Resistance:

	Melter	Drop-in Grid
Quantity Heaters	2	1 or 2
Resistance in Ohms for each Heater: 200-240 V 400 V	 19.4-24 each 57.8-66.7 each	 22 each

7.10 Error Indication Alarm Troubleshooting Guide

The operation of error indication alarms is described in Chapter 5. When checking for correct equipment operation in the following guide, be aware that all heaters will go off immediately after an error indication alarm occurs if the operator takes no action. With the exception of the fuses, there are no user-replaceable parts on the printed circuit boards. If there is a non-fuse failure on any of the PCBs, the PCB must be replaced.

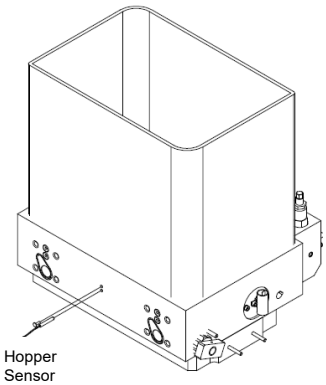
NOTE: While troubleshooting refer to Modul and PCB illustrations in this chapter.

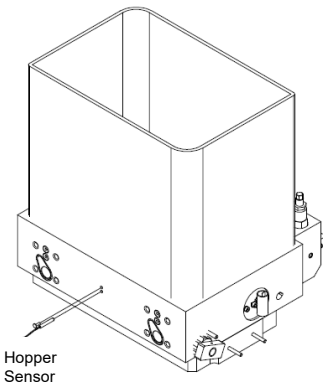
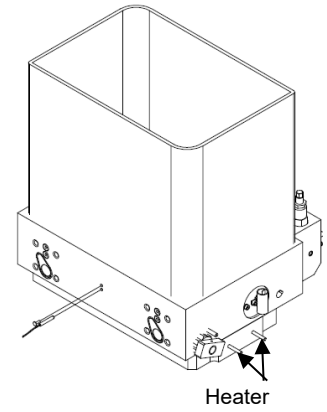
Heed all security advices given in Chapter 6.1.
Refer to the schematics in Ch. 11 for V6 module connection details.

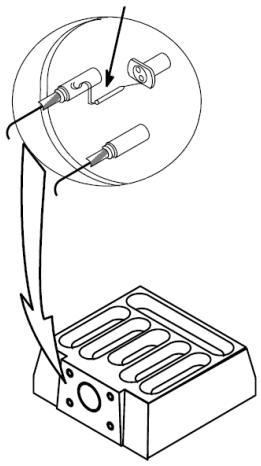
NOTE: The temperatures measured on the outer surface may deviate significantly from the temperatures set and displayed. This can lead to a false conclusion (e.g. defective heating). Such a difference is normal and depends also largely on the materials used.

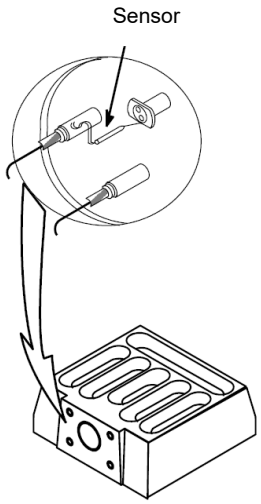
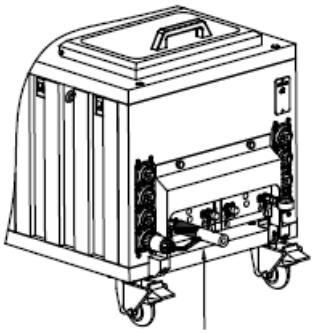
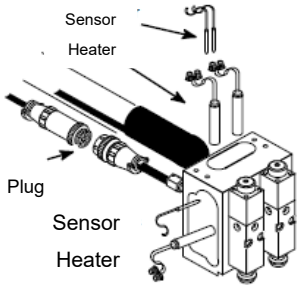
DANGER HIGH VOLTAGE

Some of the procedures in the following Troubleshooting Guide require potentially dangerous electricity to be present. Only qualified service personnel should perform these procedures.

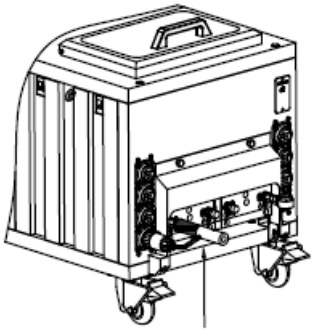
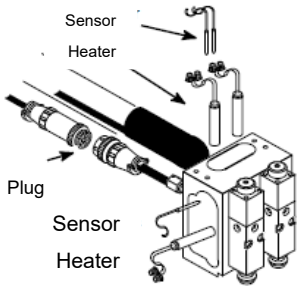
Problem	Possible Cause	Solution
1. Hopper (Tank) Overtemp  Hopper Sensor	1. Setpoints have been programmed without enough deviation.	1. Re-program setpoints, allowing a larger deviation between the high and low limits.
	2. Hopper sensor inoperative.	2. Replace hopper sensor if resistance does not comply with the resistance table in this manual.
	3. Hopper control triac on V6 Power Module is inoperative.	3. If the hopper status LED on the Temperature Module is Off and the hopper temperature continues to rise, the triac on the power module has failed. The module must be replaced.
2. Hopper Sensor Open	1. Sensor cable has become unplugged from V6 Temperature Module.	1. Verify that hopper sensor cable is properly connected at X3 on the V6 Temperature Module.
	2. Hopper sensor inoperative.	2. Replace hopper sensor if resistance does not match resistance table in this chapter.

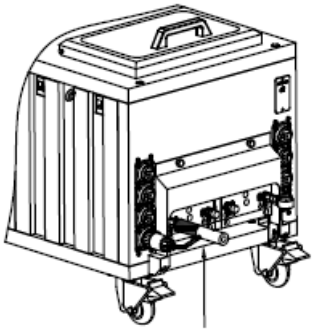
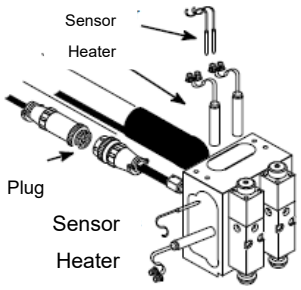
Problem	Possible Cause	Solution
3. Hopper Sensor Short  	1. Short-circuit caused by debris where sensor plugs into the V6 Temperature Module.	1. Verify that sensor plug is clean and correctly connected at X3 on the V6 Temperature Module.
	2. Pinched sensor lead wire.	2. Visually inspect sensor lead wire for break, kink, damage, etc. If no obvious damage, use an Ohmmeter to measure continuity from the sensor lead to the plug at the V6 Temperature Module. Repair or replace any damaged wire.
	3. Hopper sensor inoperative.	3. Replace hopper sensor if resistance does not comply with resistance table in this chapter.
4. Hopper Heater Open  	1. Disconnection in hopper heater circuit.	1. Inspect hopper heater wiring for proper connections.
	2. Disconnection between Power Module and the Temperature Module.	2. Verify that all connections are properly made between the Power Module and V6 Temperature Module.
	3. Melter circuit breaker (on the front panel) is inoperative.	3. Visually and electrically inspect for a short circuit to ground in the hopper heater circuit. This will be limited to between the hopper triac on the Power Module and the hopper heater.
	4. Open hopper heater element.	4. Remove both lead wires from hopper heater plate. Use an ohmmeter to measure resistance across the plate. Infinitely high resistance values indicate an open heating element and heater plate which must be replaced.

Problem	Possible Cause	Solution
5. (Optional) Drop-in Grid Overtemp Sensor 	1. Setpoints have been programmed without enough deviation.	1. Re-program setpoints, allowing a larger deviation between the high and low limits.
	2. Grid sensor inoperative.	2. Examine grid sensor assembly for intermittent break in sensor lead. Remove sensor bulb from grid. Replace grid sensor if resistance does not comply with the resistance table in this chapter.
	3. Grid control solid state relay inoperative.	3. Use a clamp-on ammeter to monitor current on Power PCB. If grid zone is switched OFF, the current will read 0 amps. If current still flows, replace shorted solid-state relay..
6. (Optional) Drop-in Grid Sensor Open	1. Sensor cable has become unplugged from Temperature Module.	1. Verify that grid sensor cable is properly connected at X3 (or X2) on the V6 Temperature Modules.
	2. Drop-in grid sensor inoperative.	2. Replace sensor if resistance does not comply with the resistance table in this chapter.
7. (Optional) Drop-in Grid Sensor Short	1. Short-circuit caused by debris where sensor plugs into the Temperature Module.	1. Verify that sensor plug is clean and correctly connected at X3 (or X2) on the V6 Temperature Module.
	2. Pinched sensor lead wire.	2. Visually inspect sensor lead wire for break, kink, damage, etc. If no obvious damage, use an ohmmeter to measure continuity from the sensor lead to the plug at X3 8or X2) on the V6 Temperature Module. Repair or replace any damaged wire.
	3. Drop-in grid sensor inoperative.	3. Replace sensor if resistance does not comply with the resistance table in this chapter.

Problem	Possible Cause	Solution
8. (Optional) Drop-in Grid Heater Open 	1. Disconnection in grid's heater circuit.	1. Inspect grid's heater wiring for proper connections on Power PCB.
	2. Check the fuses for each drop-in grid on Power Board.	2. Remove system power, then remove the fuse from the grid circuit. Check fuse visually or with an ohmmeter
	3. Open drop-in grid heater element.	3. Remove all lead wires from both grid heater elements. Use an ohm meter to measure resistance across each element. Infinitely high resistance values indicate an open heating element and grid must be replaced.
9. Hose/ Head (No.*) Overtemp ** Check each Hose/Head circuit on the system.*  Melter socket and hose plug 	1. Hose/ Head tolerance (high/low limits) incorrectly programmed.	1. Re-program setpoints to allow a larger deviation.
	2. Hose/ Head triac on Power Module is inoperative.	2. If a hose or head status LED on the V6 Temperature Module is OFF, and the corresponding temperature continues to rise, the corresponding triac on its V6 Power Module has failed. The module must be replaced.
	3. Disconnection between the Power Module and the Temperature Module.	3. Verify that Power Module is properly connected to the Temperature Module.
	4. Hose/ Head sensor circuit inoperative.	4. a. Visually examine hose/head socket connection where hose/ head attaches to Melter. Verify that pins are properly seated. If pins or plug housing are damaged, repair or replace hose. If socket is damaged, repair or replace harness. b. If hose-to-Melter plug and socket are okay, hose may have intermittent short or open circuit. Repair or replace hose, hose harness or V6 Power Module as appropriate. Alternately, problem can be isolated by connecting the affected hose to a different Melter hose socket to tell whether the problem is in the

		hose or in the V6 Power Module. c. If head-to-hose and hose-to-Melter plugs and sockets are okay, head sensor may have an intermittent short or open circuit. Examine connections inside the service block area of the head and monitor head sensor resistance with an ohmmeter while flexing sensor leads. Repair or replace an inoperative sensor.

Problem	Possible Cause	Solution
10. Hose/ Head (No.*) Not Heating (Sensor Circuit Open) ** Check each Hose/Head circuit on the system.*  Melter socket and hose plug  	1. Disconnection between hose and Melter.	1. Visually examine connection where hose plugs into Melter socket for proper contact and seating. If pins or housings are damaged, repair or replace hose or hose harness (in Melter).
	2. Hose sensor harness unplugged from Power Module.	2. Verify that affected hose is properly connected to the V6 Power Module. Replace or repair damaged hose harness as necessary.
	3. Hose/ Head sensor circuit inoperative.	3. Replace head sensor if resistance does not comply with resistance table in this chapter. Use hose schematic to check hose sensor resistance at Melter socket. Repair or replace hose, hose harness or V6 Power Module as appropriate.

Problem	Possible Cause	Solution
11. Hose/ Head (No.)* Not Heating (Sensor Circuit Shorted) ** Check each Hose/Head circuit on the system.*	1. Debris at connection between hose/ head and Melter.	1. Visually inspect hose plug and Melter socket for cleanliness and proper contact and seating of pins.
	2. Debris at connection between hose/ head harness and Power Module.	2. Visually inspect that the affected hose plug at V6 Power Module is clean and properly installed.
	3. Hose/ Head sensor circuit inoperative.	3. Using the hose schematic, check hose sensor resistance at Melter socket. An ohmmeter can be used to isolate a pinched wire in the hose harness. When cause is isolated, repair or replace sensor, hose, hose harness, V6 Power Module as appropriate.
12. Hose/ Head (No.*) Not Heating (Heater Circuit Open)  Melter socket and hose plug  	1. Disconnection between hose/ head and Melter.	1. Visually examine effected hose plug and Melter socket for cleanliness and proper contact and seating. Refer to the wiring diagram for pin identification. The problem can be isolated by plugging the affected hose/ head into another Melter socket. If the new hose number is then displayed as malfunctioning, the problem is in the hose that was moved. Repair or replace hose, head or Melter hose/ head harness as appropriate.
	2. Disconnection between hose/ head harness and Power Module.	2. Verify that the hose harness is properly inserted into its plug on the V6 Power Module. Check for loose leads, debris and proper contact.
	3. Disconnection between cartridge heater and cable assembly inside head.	3. Visually inspect wiring inside head. Verify that cartridge heater leads are properly connected in the service block area.
	4. Open head heater element.	4. Use an ohmmeter to measure resistance of head cartridge heater. Refer to resistance table in this chapter for resistance values. Infinitely high resistance indicates an open heater. Replace cartridge heater as appropriate.
	5. Head/ hose fuse on Power Module is inoperative.	5. If fuse is found to be blown, do not replace it without first finding cause. Look for a short circuit to ground in the head

		heater circuit, particularly inside the head at the connections in the service block area. If replaced fuse also blows, Power Module may be the cause. However, fuse failure is usually due to a problem in the head heater circuit, not the Power Module.
	6. Open wiring inside Melter.	6. Visually inspect Melter wiring and use an ohmmeter and the wiring diagram to locate open wires in head heater circuit. Repair or replace Melter hose/ head harness or other Melter wiring as necessary.

Problem	Possible Cause	Solution
13. AUX (No.*) Overtemp	1. Aux tolerance (high/ low) setpoints incorrectly programmed.	1. Re-program tolerance to allow a larger deviation..
	2. Aux solid state relay is inoperative.	2. Use a clamp-on ammeter to monitor current on Power PCB. If Aux current does not cycle on and off, then relay is inoperative and must be replaced.
	3. Aux sensor circuit inoperative.	3. a. Visually examine Aux socket connections. Verify that pins are properly seated. If pins or plug housings are damaged, repair or replace hose. If socket is damaged, repair or replace harness. b. If Aux-to-Melter plug and socket are okay, Aux may have intermittent short or open circuit. Repair or replace Aux, Aux harness or solid-state-relay as appropriate. c. If Aux sockets and cables to Melter plugs and sockets are okay, Aux sensor may have an intermittent short or open circuit. Examine connections at the Aux device and monitor Aux sensor resistance with an ohmmeter while flexing sensor leads. Repair or replace an inoperative sensor.

Problem	Possible Cause	Solution
14. AUX (No.*) Sensor Open	1. Disconnection between Aux connector and Melter.	1. Visually examine connector for proper contact and seating. If pins or housings are damaged, repair or replace Aux harness (in Melter).
	2. Aux sensor harness unplugged from the V6 Temperature Module.	2. Verify that affected Aux is properly connected to Temp Module. Replace or repair damaged Aux harness as necessary.
	3. Aux sensor circuit inoperative.	3. Replace Aux sensor if resistance does not comply with resistance table. Use schematic to check Aux sensor resistance at Melter socket, repair or replace Aux, Aux harness or Temperature Module as appropriate.
15. AUX (No.*) Sensor Short	1. Debris at connection between Aux and Melter.	1. Visually inspect Aux plug and Melter socket for cleanliness and proper contact and seating of pins.
	2. Debris at V6 Temperature Module.	2. Visually inspect that the affected Aux plug at the Temperature Module is clean and properly installed.
	3. Aux sensor circuit inoperative.	3. Using the schematic, check Aux sensor resistance at Melter socket. An ohmmeter can also be used to isolate a pinched wire in the Aux harness. When cause is isolated, repair or replace sensor, Aux, Aux harness or the Temperature Module as appropriate.
16. AUX (No.*) Heater Open	2. Disconnection between Open Aux and Melter.	1. Visually examine affected Aux plug and Melter socket for cleanliness and proper contact and seating. Refer to wiring diagram for pin identification. The problem can be isolated by plugging the affected Aux into another Melter socket. If the new Aux number is then displayed as malfunctioning, the problem is in the Aux that was moved. Repair or replace Aux or Melter Aux harness as appropriate.
	3. Disconnection between Aux harness and Power PCB.	2. Verify that the Aux harness is properly inserted into its Power PCB plug. Check for loose leads, debris and proper contact.

	4. Open Aux heater element.	3. Use an ohmmeter to measure resistance of Aux cartridge heater. Refer to resistance table for resistance values. Infinitely high resistance indicates an open heater. Replace cartridge heater as appropriate.
	5. Aux fuse on Power PCB inoperative.	4. If fuse is found to be blown, do not replace it without first finding cause. Look for a short circuit to ground in the Aux heater circuit, particularly at the Aux device. Fuse failure is usually due to a problem in the Aux heater circuit, not the solid-state relays.

7.11 Troubleshooting the Melter's Gear Pump

No special tools are needed for working on the Melter's pump. See Chapter 8 of this manual for disassembly/ assembly procedures for the gear pump, and Chapter 10 for locating pump parts on the component illustrations (exploded-view drawings).

7.11.1 Gear Pump Priming/ Start-Up

The pump is self-priming.

CAUTION

DO NOT continue to run the pump if no glue is coming out. This could damage the pump since it uses the glue as a lubricant. Stop and troubleshoot.

7.11.2 Gear Pump Troubleshooting Guide

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.

Heed all security advices given in Chapter 6.1.

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.

WARNING HOT SURFACE & HOT ADHESIVE

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

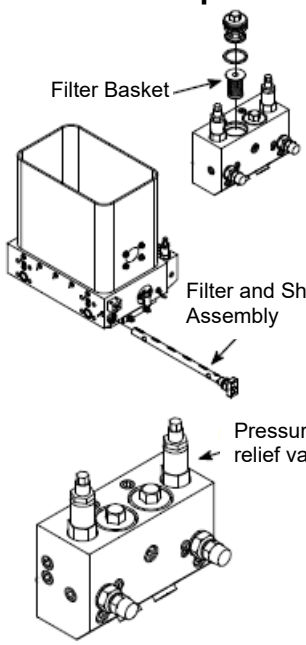
Some of the procedures in the following Troubleshooting Guide require working near hot adhesive.

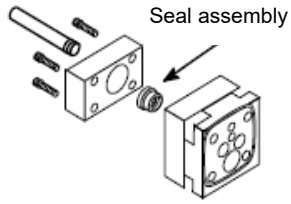
Face shields (preferred) or safety glasses (for minimum protection), heat-resistant protective gloves and long-sleeved clothing must be worn whenever working with or around adhesive application systems.

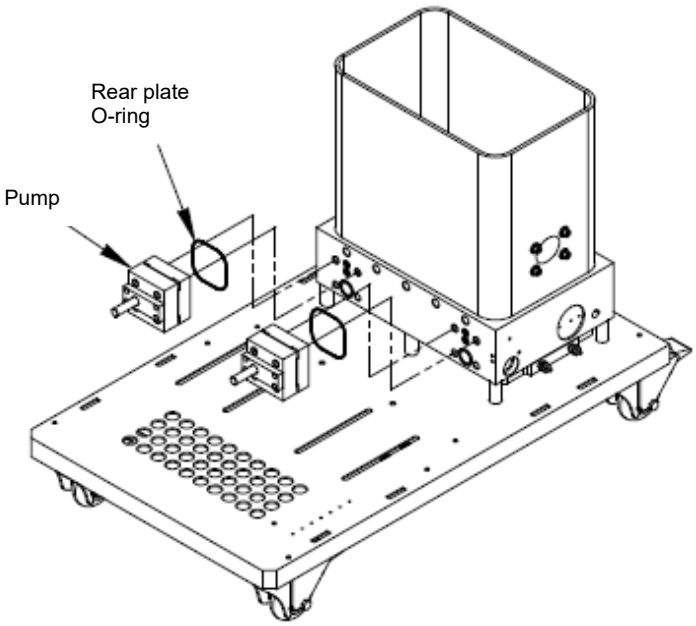
Use proper tools for handling hot melt components.

Note: *Each motor in the system can run independently (or dependently). Each motor may have its own operating parameters. Therefore, each motor should be troubleshot independently.*

Problem	Possible Cause	Solution
1. Pump doesn't operate in "Manual" mode.	1. Pump RUN/STOP is set to STOP at the controller keypad.	1. Check keypad setting.
	2. Hopper temperature is below ready setpoint.	2. Pump cannot operate until hopper has reached ready condition. Verify that hopper has reached ready. Re-program hopper operating setpoint and ready setpoint if necessary.
	3. No incoming electrical power.	3. Check to see if Melter temperature control is operating. If not, check for presence of incoming supply voltage.

Problem	Possible Cause	Solution
2. Pump doesn't operate in "Manual" mode, hopper is at Ready condition.	1. "Manual" pump is set at zero RPM (at keypad).	1. Re-program pump.
	2. If pump RUN/STOP is being controlled by a remote switch (i.e., a hand-held applicator), the switch or switch circuit may be open.	2. Check condition of the remote switch (the hand-held applicator).
	3. Faulty motor controller.	3. If the control is faulty, it must be replaced.
3. Pump doesn't operate in "Auto" mode, hopper is at Ready condition.	1. Parent machine is not running.	1. Check parent machine.
	2. "Auto" motor is set at zero (at controller keypad).	2. Re-program pump.
	3. No incoming line following signal.	3. Check for presence of 0 to 10 VDC control signal at LINE and COMMON terminals on V6 Base module. If signal is not present, check connection at tachometer drive connections. If control signal is present there, the problem is within the Melter.
4. Pump runs but there is no adhesive output.	1. Melter is out of adhesive.	1. Add adhesive to hopper.
	2. If pump has been serviced and leads reversed, pump will run backwards with no output.	2. Check pump wiring to schematic.
5. Low or inconsistent adhesive output. 	1. Filter(s) clogged.	1. Remove and inspect filter basket and Filter and Shutoff Assembly.
	2. Adhesive used is too viscous.	2. Verify that system components are at appropriate temperatures and that the selected adhesive is correct for the application.
	3. Clogged hose.	3. Inspect hose for kinks or internal plugs of debris or char. Clean or replace hoses as necessary.
	4. Clogged applicators.	4. Inspect applicators for plugged nozzles or filters. Clean or repair applicators as necessary.
	5. The fixed pressure relief valve is opening.	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.

Problem	Possible Cause	Solution
6. Adhesive leak at pump shaft seal.  	1. Pump seal is incorrectly positioned inside the seal and bearing assembly.	1. Remove seal and bearing from pump. Verify that all components are correctly positioned.
	2. Pump seal inoperative.	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.
7. Adhesive leak at pump-to-hopper interface.	1. O-ring in pump's rear plate is inoperative.	1. Remove seal from pump, inspect it and replace it if worn or damaged. Be sure there are no burrs or other sharp edges on the rear plate o-ring groove that could damage a new o-ring.
	2. Pump retaining nuts are missing or loose.	2. Verify that all four pump retaining nuts are tightly assembled to the studs.
	3. Helicoil insert pulled out of hopper.	3. Remove pump and inspect hopper. Repair or replace hopper as necessary.



Chapter 8
Disassembly & Re-assembly Procedures

8.1 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

The Dynamelt Melter uses electrical power that can be life threatening.

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

WARNING HOT SURFACE

The Dynamelt Melter uses hot-melt adhesives that can cause serious burns.

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.

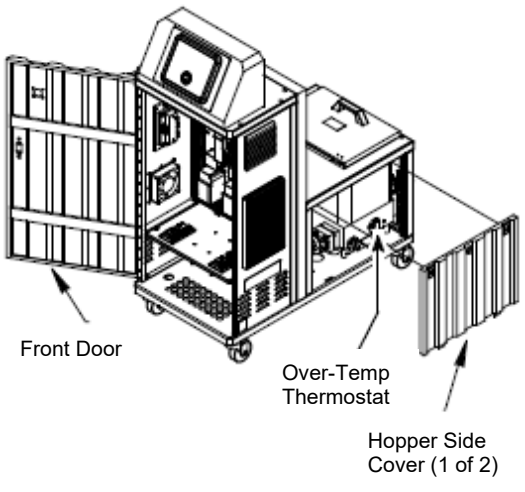
Use proper tools for handling hot melt components.

Note: Use the exploded-view drawings referenced with each procedure in conjunction with the instructions outlined in this chapter. Read the cautions "Re-assembly Procedures" in this chapter before re-assembling the Melter.

8.2 To Remove Rear Cover (Hopper)

1. Loosen 8 button head screws, 2 screws along the bottom of the rear cover and the screw near the top corner of the hopper side cover.

2. Lift cover up and off.



8.3 Mechanical Thermostat (Over-temp) Replacement

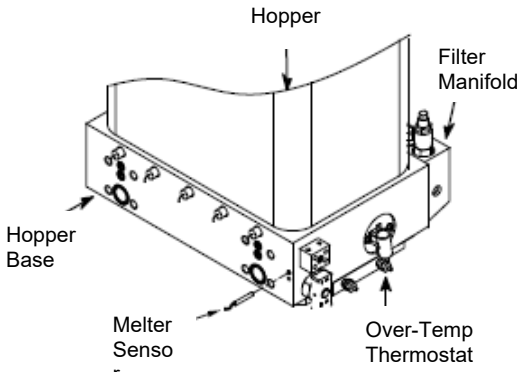
Use the latches to remove the right-side hopper cover.
Remove the 2 screws and slip the terminals and the hopper ground wire off of the thermostat before removing the thermostat from the base of the hopper.

8.4 To Access the RTD Sensors

Use latches to remove the hopper access side cover.

a. RTD for Melter: Each Melter has one RTD located in the base of the hopper. This RTD slips into its adapter and is easily plugged in electrically.

b. RTD for Drop-in Grid: (see Ch.10. for diagram) If the optional drop-in grid is installed, there is a second RTD located in the grid. This RTD slips into its adapter and is easily plugged in electrically.

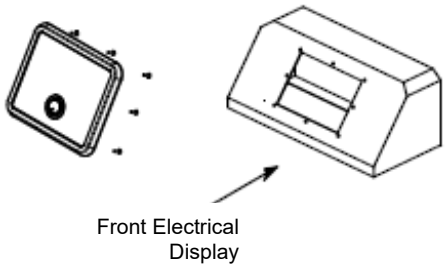


8.5 To Access the Electrical Components

(See illustrations in Chapter 10).
Verify again that the main power is OFF. Open the front (panel box) door.

a. To Remove Front Electrical Display

1. Loosen 4 screws (2 per side) along bottom of the front electrical display.
2. Lift the display straight up and off.



b. Main On/ Off (Circuit Breaker) Replacement:

The main on/off switch is located on the front of the panel box door but is removed from within the panel box. It is mounted in the panel box so it makes contact with the main switch.

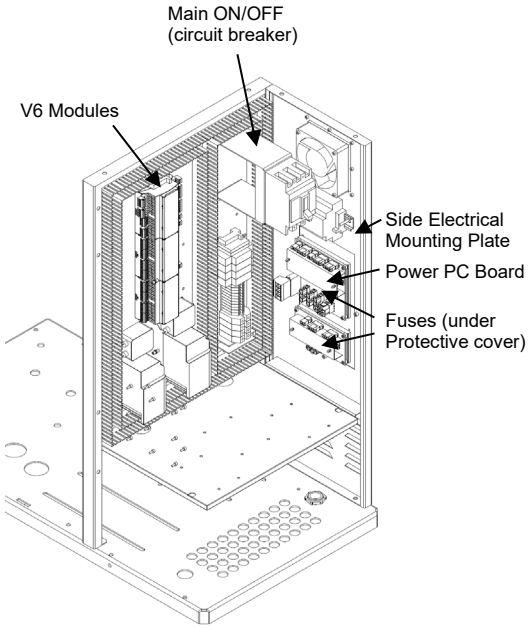
1. Remove 4 screws from circuit breaker to release it from the Melter. Remove all wires from it.
2. Re-wire the new circuit breaker to the same locations and mount into Melter with 4 screws.

c. Fuse Replacement:

The circuit breaker fuses (10AF) and the Power PCB fuses (10/12AF) can be accessed without removing the boards from the Melter. These are mounted on the side electrical mounting plates inside the panel box.

d. Relay Replacement:

Located within the panel box on the left side (of ASUs with grids and/or auxiliary wattage). Release each relay via two M4 screws. To reinstall, plug new relays into side electrical mounting plate and tighten M4 screws.



View Within Panel Box Assembly

e. Module Replacement:

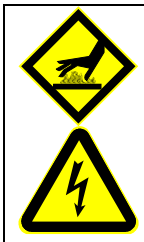
Reference the section entitled “Handling Printed Circuit Boards” in Chapter 7.
The V6 Modules are installed on a DIN rail.
To remove a module, first unplug all connectors attached to it.

1. Unscrew the end stop of the DIN rail nearest to the desired module and slide it off the rail.
2. Gently slide the modules apart on the rail (you may need to unplug some connectors to do this).
3. Each module is “locked” onto the rail by two orange connectors at the top and bottom of the module. With a flat-blade screwdriver, slide the upper orange connector up until it clicks open, and slide the lower orange connector down until it clicks open. Then the module may be lifted off the rail.

f. Opening Modules

There are various electrical components located within the modules. To open a module, use two fingers to pull straight up on the top (lid) of the module. Position your fingers toward the outside edge (not the center) of the module. Do not use a tool as it could damage the module's plastic casing.

8.6 To Access the Pump or Motor



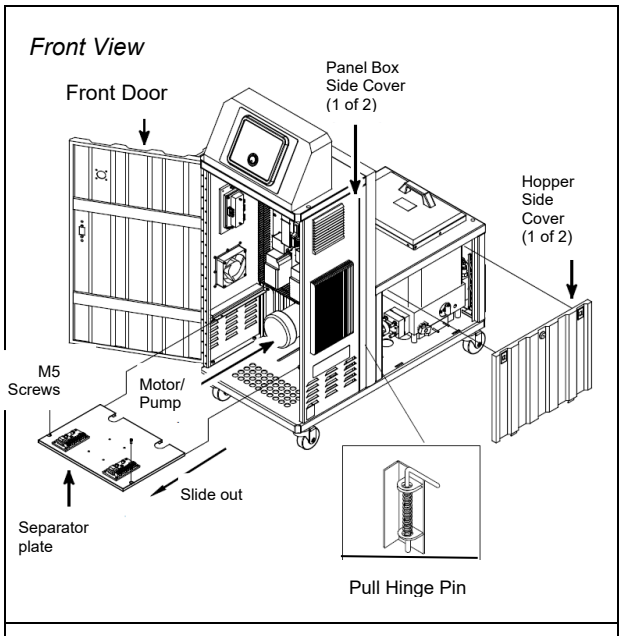
WARNING HOT SURFACE & HIGH VOLTAGE

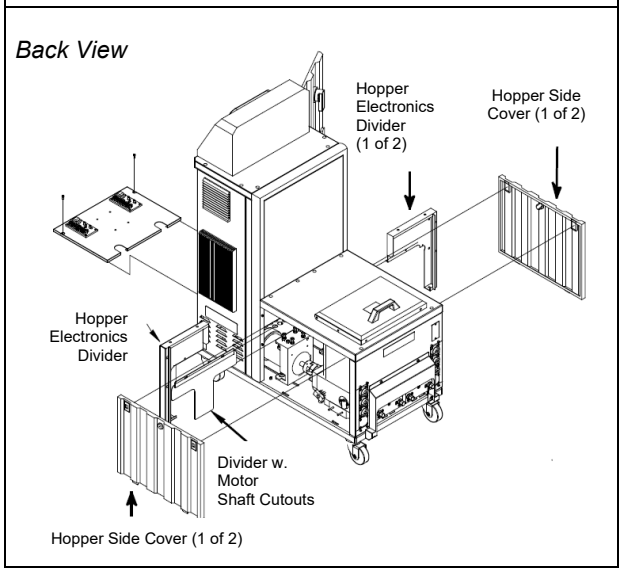
If the pump is not operable but the heating system will function, raise the temperature of the application system to the operating temperature to aid in the pump disassembly process. Otherwise, a heat gun or other controlled heating method is recommended to melt hardened hot melt material.
Never use 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.

- Open the Melter's front door.
- Turn the rotary handle switch OFF.
- Turn OFF the Filter and Shutoff Assembly.

Gear Pump and Motor Removal:

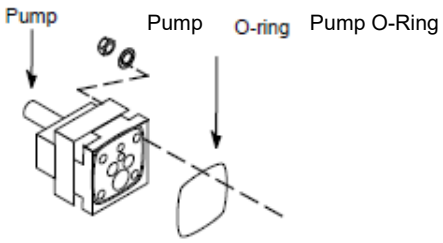
1. Loosen the two M5 screws and slide out the separator plate.
2. Open the side doors.
3. Loosen the two M8 screws and move the L-shaped motor support frame out to the maximum position.
4. Remove the two hopper/ electronics dividers by loosening their M6 screws.
5. Remove the two plugs and loosen the M6 bolts. Remove the divider plate that has the motor shaft cutouts.
6. Pull out the desired motor/ pump(s).





8.7 Pump O-ring Replacement

1. Remove the pump from the Melter (see instructions on previous page).
2. Remove the external pump seal from its groove on the back of the pump.
3. Reference the pump exploded-view illustration (in Chapter 10) for your specific pump.
4. Install the new seal.
5. Re-assemble components.



8.8 Re-Assembly Procedures

Unless noted, the Melter'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:

WARNING HOT SURFACE

In order to protect personnel and equipment, it is important to replace all insulation whenever it is removed from the Melter.

CAUTION:

- In general, all O-RINGS AND SEALS should be replaced whenever hot-melt equipment is re-assembled. All new O-rings should be lubricated with o-ring lube (PN 001V078).
- TAPERED PIPE THREADS are found on air line fittings used with the pump air supply (if applicable) 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 Melter 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 should 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 should always be re-tightened at operating temperature.

Chapter 9
Available Options & Accessories

9.1 Pressure Gauge Assembly 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). Though there is no “dedicated” port for the gauge, ports #2 or #4 are preferred. Fittings and adapter are included in the assembly.

9.2 Drop-in Grids PN 680089

The drop-in grid is an extra heated grid which is installed near the bottom of the Melter’s hopper. The additional grid allows faster melting of adhesive for applications requiring higher melt rates and higher volumes of adhesive.

9.3 Filter Options

Some situations call for a finer mesh outlet filter. A “dirty” adhesive or one with a short pot life are examples. Systems utilizing very high temperatures or systems running in a dusty environment also benefit from a 150-mesh filter. Standard equipment is a 100-mesh filter.

Part Number	Description
101246	40-Mesh Filter
101247 *	**100-Mesh Filter**
106273	150-Mesh Filter

* standard

9.4 Pressure Transducer Assembly: PN 680545

A pressure transducer is an electronic probe that allows the melted adhesive’s pressure to be processed by the Melter’s control system and displayed on the HMI. They are used to monitor system operating pressures and their limits. They troubleshoot clogged nozzles and filters.

9.5 Level Control Assembly: PN 680614

This device informs the operator, via a message on the DynaControl’s readout and an audible signal, that the hopper’s adhesive level is low. It may also be wired to stop production, turn on an alarm light or signal a PLC at a low adhesive level.

9.6 Pneumatic Pressure Relief Valve (PPRV) Kit: PN 680424

The pneumatic pressure relief valve kit provides gear pump units with a method to automatically relieve adhesive pressure (to zero) by turning off air supply to the Melter.

9.7 Pressure Relief Valve Repair Kit: PN 109982

The kit contains the following three items needed to repair the
PN 101840 Mechanical Pressure Relief Valve up to max. 68 bar (1000 psi), or
PN 115540 Pneumatic Pressure Relief Valve up to max. 68 bar (1000 psi):

PN	Description	Qty
N00179	O-ring 012	1
N01601	O-ring 908	1
N05733	Backup Ring, 012	1

9.8 Pumps and Accessories

For higher tolerances and precision, several gear pumps are available for the Melter. Gear pumps give better service for continuous applications or applications which require more control over the volume of adhesive pumped. See Appendix “Pumps” for further details.

9.9 Gear Pump Repair Kit, PN 103151

The kit contains the following items needed to repair all Dynatec manufactures gear pumps from 0.15cc to 10cc. See list of pumps supported by this kit.

Gear Pump Repair Kit PN 103151 BOM:

PN	Description	Qty
018X031	Bearing ball 1/8 dia.	6
069X061	Shaft seal, Dynatec pump	1
069X064	O-ring 041	3
069X225	O-ring 042	1
078F017	Retaining ring, ext., .50D	4
078I001	Key Woodruff #404	1
N00188	O-ring 022	1
N00198	O-ring 113	2

List of gear pumps supported by the kit 103151:

PN	Description	Code
111253	0.15cc single	GGS
111254	0.15cc dual	GGD
109908	0.55cc single	GDS
109909	0.55cc dual	GDD
100860	1.5cc single	GAS
100863	1.5cc dual	GAD
100861	3.2cc single	GBS
100864	3.2cc dual	GBD
100862	4.5cc single	GCS
109690	10cc single	GES

9.10 DynaControl V6 Controller Options

9.10.1 HMI Selection

LCD Controller PN 115719

The LCD (liquid crystal display) controller is available with the complete line of DynaControl features. It features an intuitive, multi-line, graphic display and operates via an input wheel.

Touch Screen Controller PN 118135

The V6 color touch screen controller is available with an expanded line of DynaControl features. A variety of customer-selected devices may be integrated into the HMI utilizing VNC desktop sharing. An optional XIO module allows programmable I/O for custom applications. Up to ten units may be controlled remotely by each touch panel.

LCD Pendant Control Assembly PN 680520

The Pendant Control option gives the DynaControl keypad mobility via an up to 30-meter (100 ft) cable. The Pendant Control Panel Kit replaces the standard built-in keypad. An optional re-set switch and on/off light can be mounted on the front panel.

9.10.2 V6 Communications Adapters

V6 EtherNet Assembly PN 680619
V6 Profibus Kit PN 680618
V6 EtherCAT Kit PN 680620
V6 ProfiNet Kit PN 121436
V6 CC-Link Kit PN 825747

The V6 communications bus module adapts the Melter to full remote operation so that all system parameters can be transmitted and received.

9.10.3 Multi-Melter-System w. Central HMI Kit: PN 118945

This option allows several Melters (a maximum of ten) to be controlled by one V6 HMI touch panel, mounted in one of the units. Each Melter to be controlled is installed with a kit, which contains a cable, a RS232 converter and hardware.

9.11 Signal Isolator PN 680910

The signal isolator is standard and factory configured. A signal isolator conditions a parent machine’s production line’s DC speed voltage or current reference to allow the Melter’s gear pump to track the application’s line speed. It accepts 0-10V, 0-5V, 4-20mA inputs and outputs a proportional 0-10V signal to DynaControl’s electronics.

Chapter 10
Component Illustrations 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.

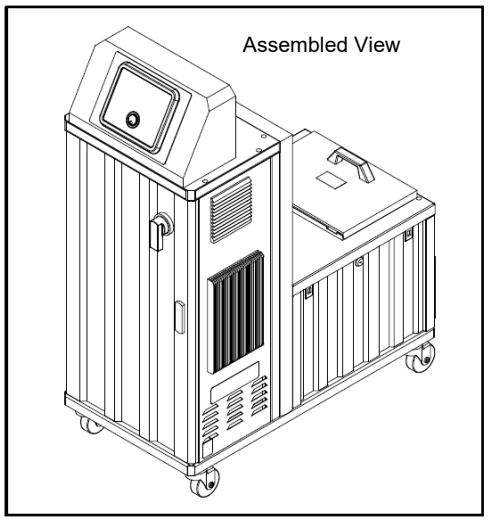
This chapter contains the component illustrations (exploded-view drawings) for each assembly of the Melter. These drawings are useful for finding part numbers as well as for use when maintaining or repairing the equipment.

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 Typical Mechanical Panel Box Assembly

Item	Part Number	Description	Quantity
1	680161	Base plate	1
2	680473	Heat sink	1
3	680455	Side cover (right)	1
4	680169	Front door	1
5	610129	Front door lock	1
6	610202	Rotary Handle & Shaft (incl. Circuit breaker)	1
7	106531	Flat head screw M3x8mm	19
8	680901	Side cover (left)	1
9	680431	Filter cover 150x150mm	2
10	680174	Electrical mounting plate	1
11	680186	Bracket	1
12	610130	Bracket, CB Mount	1
13	101626	Screw M5X12mm	18
	106318	External Tooth Lock Washer M6	14
14	680165	Top cover	1
15	115893	V6-LCD HMI PCB asy	1
	118135	V6 Touch Panel asy (optional, not shown)	1
16	115792	Screw, 4-8x3/8	8
17	680453	Bezel, Display	1
	680621	Bezel, HMI, Touch Panel (optional, not shown)	1
18	680454	Front electrical divider panel	1
19	680163	Middle panel D45	1
20	680164	Rear electrical divider panel	1
	680178	Rear electrical divider panel	1
21	680552	Top cover hopper D25 V6	1
	680512	Top cover hopper D15 V6	1
22	104662	Screw M6X16mm	28
	111345	Split lock washer M6	28
	610141	Flat washer M6	25
23	610167	Hole plugs	12
24	680549	Lid base D24/45 V6	1
	680513	Lid base D15	1
25	680646	Hinge CL252	2
26	110734	Screw M4x8mm	4
	108352	Nut	4
	106198	Washer M4, spring lock	4
	680731	Flat washer M4	4
27	600730	Handle, hopper lid	1
28	106242	Screw M5x16mm	2
29	680551	Lid, outer cover D25/45	1
	680514	Lid, outer cover D15	1
30	680550	Heat shield, lid D25/45	1
	680515	Heat shield, lid D15	1
31	105113	Screw M4x8mm	4
	106236	External Tooth Lock Washer M4	4

	106234	Washer M4	4
32	680133	Spring	4
33	106110	Nut M5	4
34	078E001	Rivet	2
35	104588	Data tag	1
36	102080	Label Warning Danger	1
37	610185	Screw M5x10mm	2
38	048K769	Label Hot Warning 3x1.5	1
39	610135	Cover, filter manifold	1
40	610136	Cover, connector hole	2
41	105113	Screw M4x8mm	40
42	610133	Bracket, connector bank, Amphenol	2
43	610131	Plate slide latches	4
44	620120	Hopper side cover D25	2
	620125	Hopper side cover D45	2
45	610132	Key lock	2
46	680399	Divider panel hopper side D25	1
	680400	Divider panel hopper side D25	1
47	680223	Flash Panel	1
48	680198	Caster ø3"	1
49	106237	External Tooth Lock Washer M8	16
50	610715	Screw M8x20mm	16
51	680167	Rear panel D25	1
	680179	Rear panel D45	1
52	102446	Screw M4x10mm	8
53	681001	Flat washer M5	1
54	106318	Spring lock washer M5	1



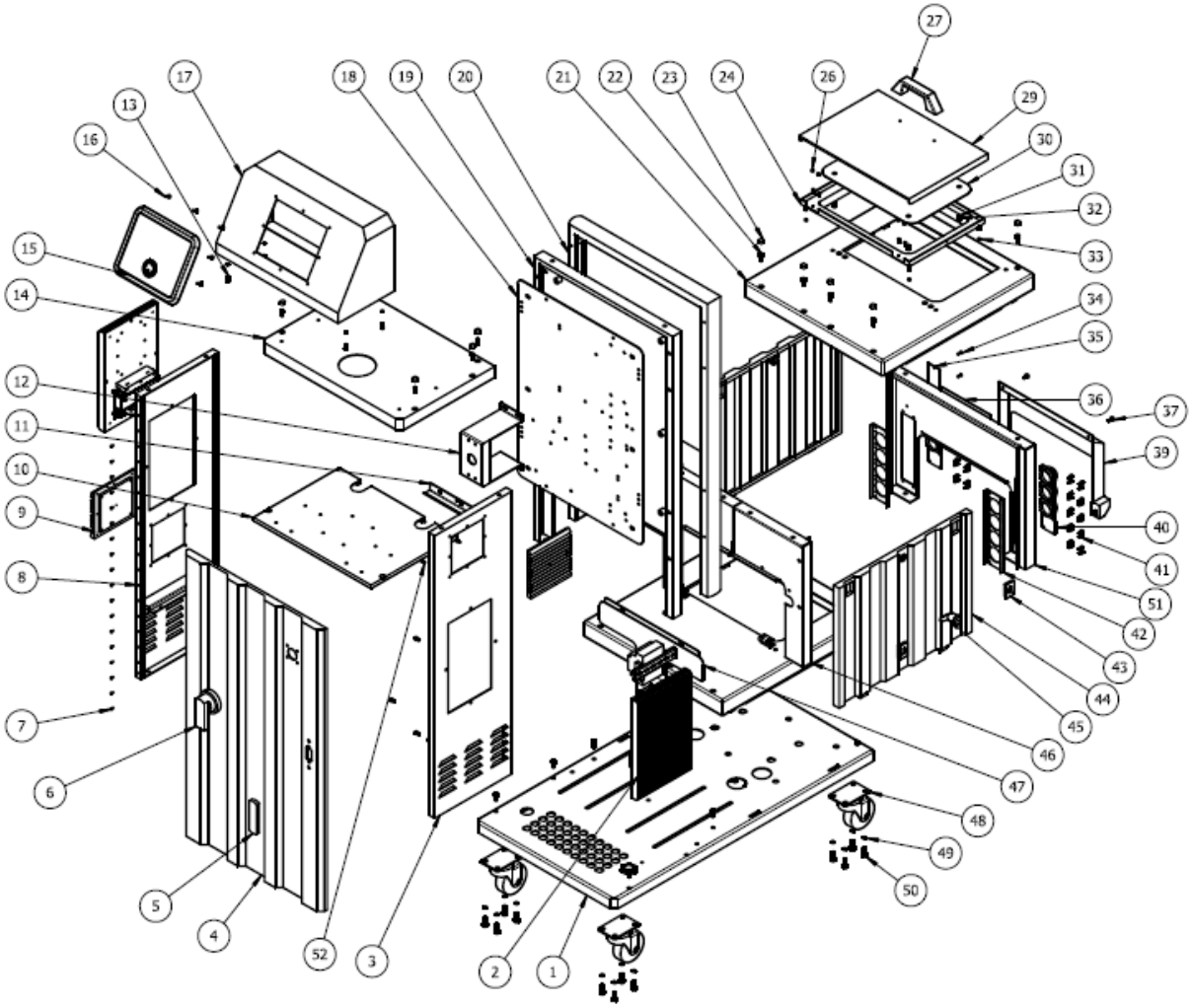


Illustration: Typical Mechanical Panel Box Assembly

10.2 Typical Electrical Panel Box Assembly

Item	Part Number	Description	Quantity
1	109515	Conduit cable clamp	1
2	680161	Base plate	1
3	680174	Electrical panel, horizontal	1
4	610164	Screw M4x16mm	14
5	106236	External Tooth Lock Washer M4	14
6	123274	Motor Speed Control, VF, 230V, 3PH,1/2HP, Yaskawa (programmed version of motor control PN 115138)	2
7	680901	Side panel, electrical cabinet (left)	1
8	106978	Filter 240V	2
9	680430	Fan 120x120x38mm	2
10	680431	Filter cover 150x150mm	2
11	680851	Heat sink bar, for Heavy Duty Power PCB	3
12	680899	Heat sink plate, for Heavy Duty Power PCB	2
13	-	-	-
14	-	-	-
15	680212	Wire duct and cover unit	1
16	680454	Electrical panel front	1
17	680163	Divider panel	1
18	610130	Bracket, CB mount	1
19	680853	Power Supply, 24VDC, 6.25A	1
20	102446	Screw M4x10mm	8
21	680139	Terminal rail 150mm	1
22	680455	Side cover (right)	1
23	680254	Ground block, dual ray	1
24	680244	Distribution block, 35mm IN, 6x6 Out, Xi	1
25	610914	Terminal block 125A	3
26	680492	Terminal ray 280mm	1
27	610917	Terminal block 32A	12
28	680665	Fuse block 10A	4
	680718	Fuse 25A	4
29	680716	Fuse block 1A	2
	680717	Fuse 1A	2
30	680132	Circuit breaker ON/OFF 30A (standard)	1
	610201	Circuit breaker ON/OFF 60A (optional)	1
31	610915	End stop terminal rail	5
32	680491	Terminal rail 360mm	1
33	115734	V6 Base module	1
34	115735	V6 Temperature module	1
35	116823	V6 Motor module	1
36	610916	Terminal block, ground	1
37	123193	V6 Heavy Duty Power PCB	3
38	N07384	Screw, pan head, M4X25	2

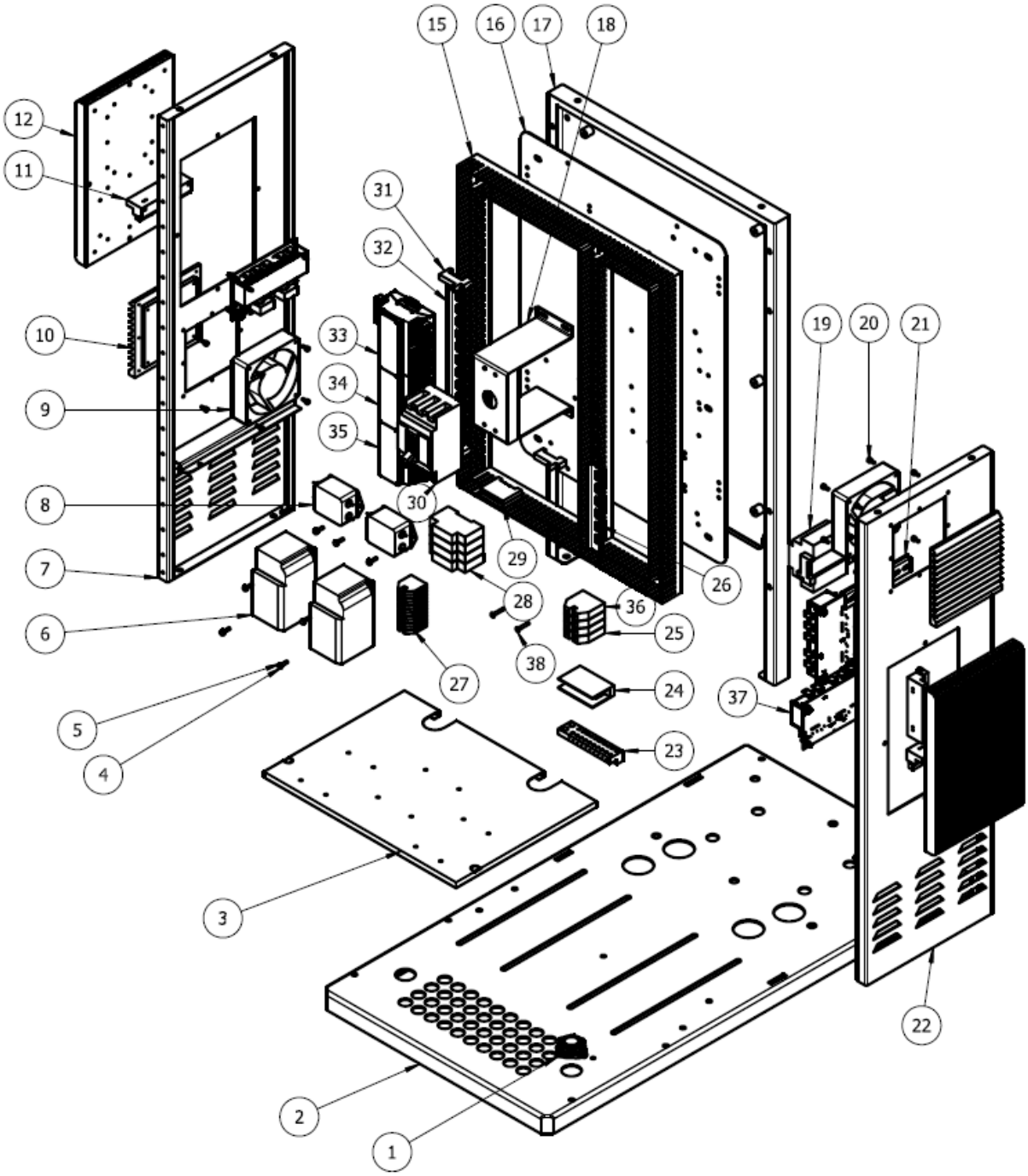


Illustration: Typical Electrical Panel Box Assembly

10.3 Typical Grid & Melt Section

Item	Part Number	Description	Quantity
1	610304	Heater plate, 2500W	1
2	610715	Screw M8x20	4
3	107183	Temperature sensor PT100	1
4	106137	Screw	1
5	069X058	O-ring 028	2
6	610712	O-ring 9.5X1.8	4
7	610703	Fitting plug G5/8	1
8	610701	Hopper D25	1
	610722	Hopper D45	1
	680510	Hopper D15	1
9	104166	Mechanical O/T Thermostat Assembly (option)	1
10	106236	External Tooth Lock Washer M4	3
11	108698	Screw M4x6mm	3
12	610704	O-ring 24x3 (for Filter and Shutoff Assembly)	1
13	610705	Screw M6x30mm	1
14	610702 *	Filter and Shutoff Assembly	1
15	102411	Insulator, Heater Plate	2
		Grid Block-Off Assembly	
16	N00192	O-ring 032	1
17	105149	Block-off plate (used instead of drop-in grid)	1
	680089	**Drop-In Grid (option)**	
18	680953	Drop-In Grid	1
19	N00192	O-ring 032	1
20	106174	Sensor adapter	1
21	108297	Screw M8x20mm	4
22	107183	Temperature sensor PT100	2
23	N00181	O-ring 014	4
24	107526	Stand-off Support 3”	1

* see separate drawing and BOM.

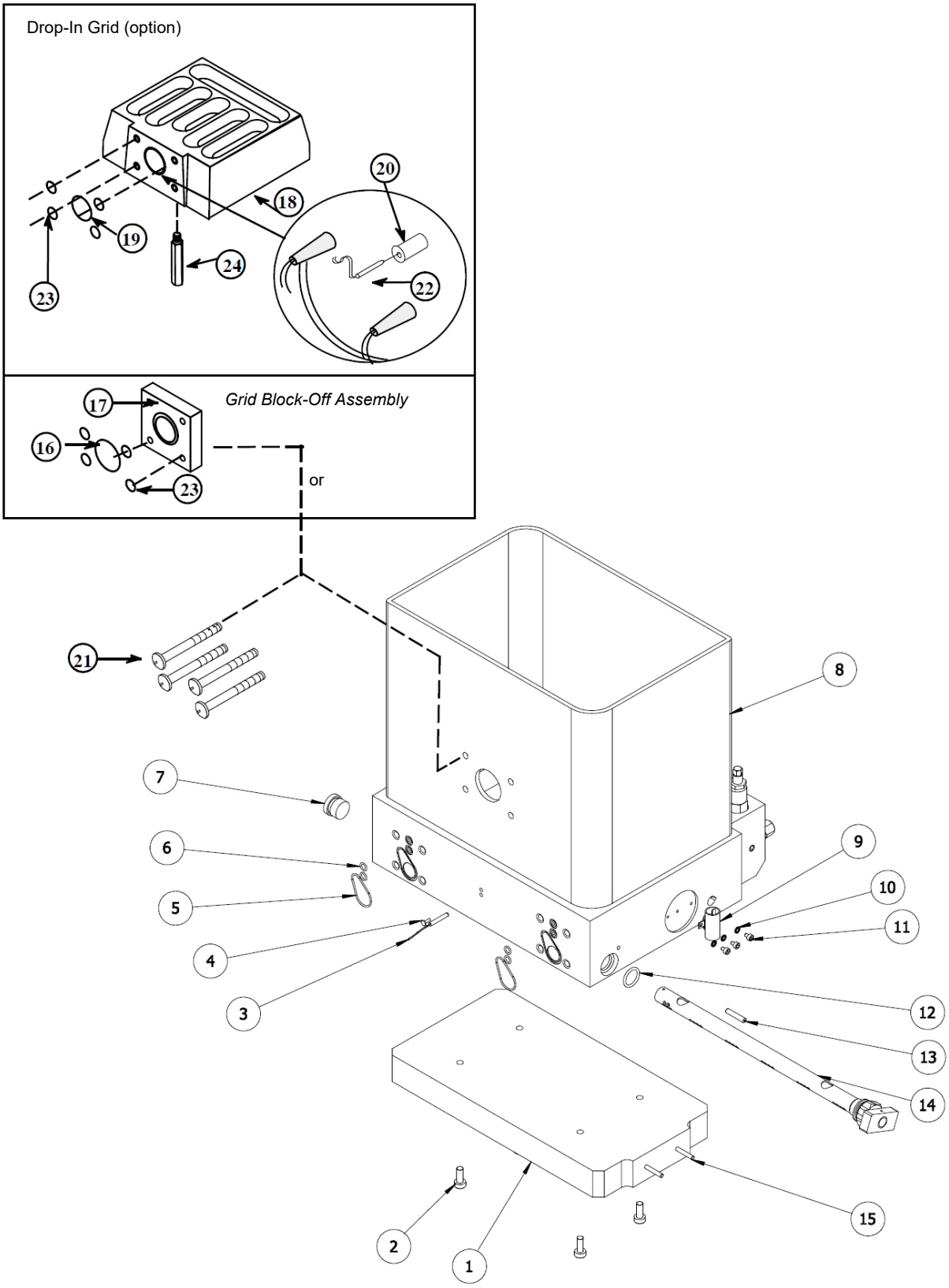


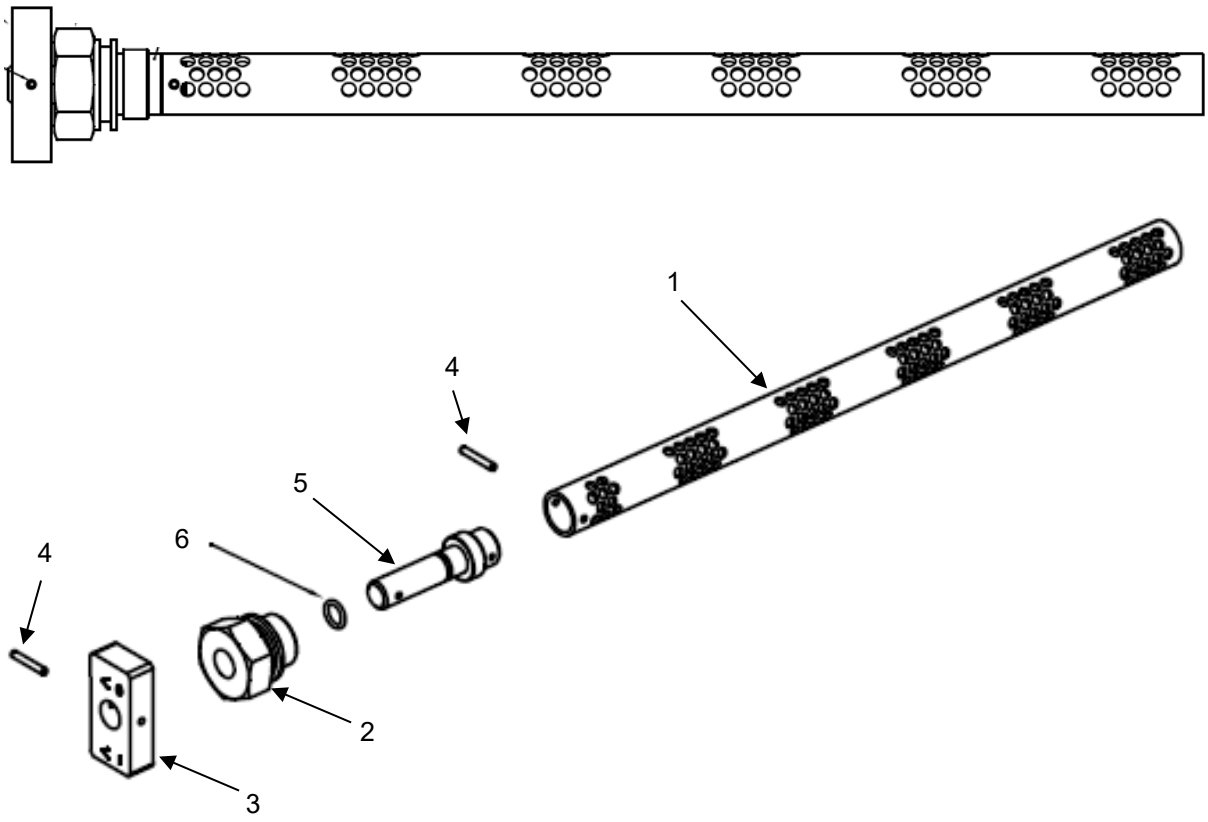
Illustration: Typical Grid & Melt Section

10.3.1 Filter and Shutoff Asy, PN 610702

NOTE: This assembly drawing is shown for reference only! The filter and shutoff assembly must be ordered as entire assembly. Only the O-rings and the lube can be ordered separately.

Item	Part Number	Description	Quantity
1	-	Filter cartridge (tube)	1
2	-	Nut	1
3	-	Knob	1
4	-	Roll pin 3x20	2
5	-	Stem	1
6	610712	O-ring Ø 9.5 X 1.8mm	1
-	001V078	High-temp lube, TFE, Krytox GPL206 (not shown)	A/R*

A/R* = As required.



10.4 Filter Manifold assemblies, PN 680029 (right) and PN 680030 (left)

Item	Part Number	Description	Quantity
1	106303	Filter nut	2 or 4
2	101840	Mechanical Pressure Relief Valve, 6,8 – 68 bar (100-1000 psi)	2 or 4
	or 680416	Plug asy, for pressure relief valve (see drawing on next pages)	
3	101247	Filter basket 100-mesh	2 or 4
4	610712	O-ring 9,5x1,8	8
5	104733	Plug, pressure transducer, 1/2--20	2 or 4
6	N00753	Flush plug 1/8 NPT	3 or 6
7	680049	Dowel pin 8x20mm	2 or 4
8	N00754	Flush plug 1/4 NPT	4 or 8
9	610804	Filter manifold, left	1
10	104852	Set screw M10x12mm	2 or 4
11	101833	Screw temper-proof head 10--32x1/2	2 or 4
12	N03812	O-ring 125	2 or 4
13	610821	Block-off plate (used only with 1 drive system	1
14	N07429	Screw M8x30mm	2
15	107345	Screw M8x25mm	1
16	610803	Filter manifold, right	1
17	610816	Flat washer (included in item 19)	2 or 4
18	N00198	O-ring 5-005 (included in item 19)	2 or 4
19	103623	Fitting, straight #6 JIC x G3/8	2 or 4
20	N08024	Fitting, cap #06	2 or 4
21	103626	Fitting, plug 3/8	2 or 4
22	109793	Screw M8x65mm	1 or 2
23	610805	Screw M8x70mm	2 or 4
	101175	**Pressure gauge assembly (optional) (items 25-30)**	**1**
25	101174	Pressure gauge (optional)	1
26	104325	Fitting, adapter #6 x 1/4 NPT	1
27	105914	Fitting, adapter 3/8 x 1/4 NPT	1
28	103623	Fitting, adapter, #6 x 3/8	1
29	N07830	Fitting 90° #6 JIC male x #6 JIC female	1
30	102987	Insulator cuff	1

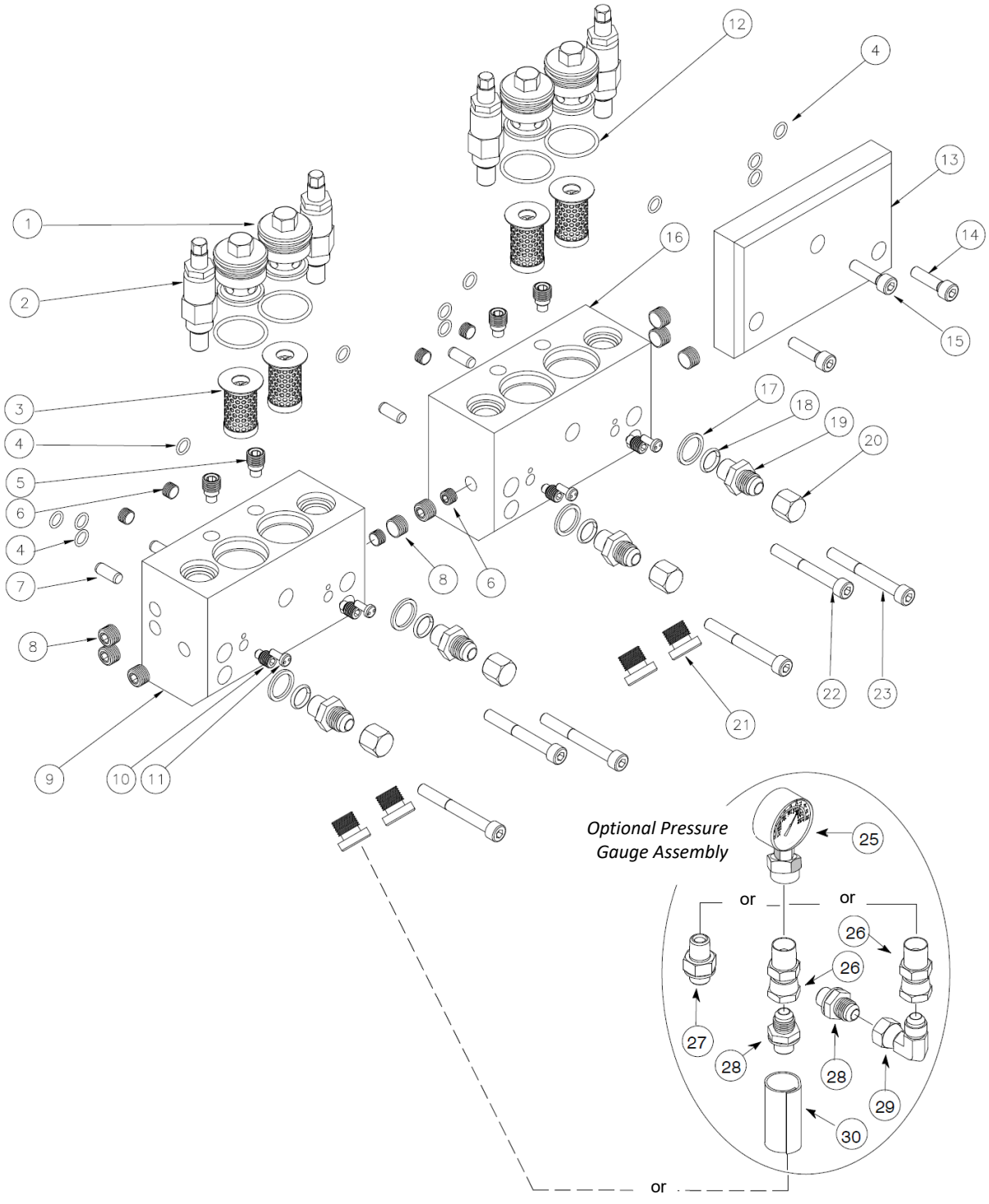
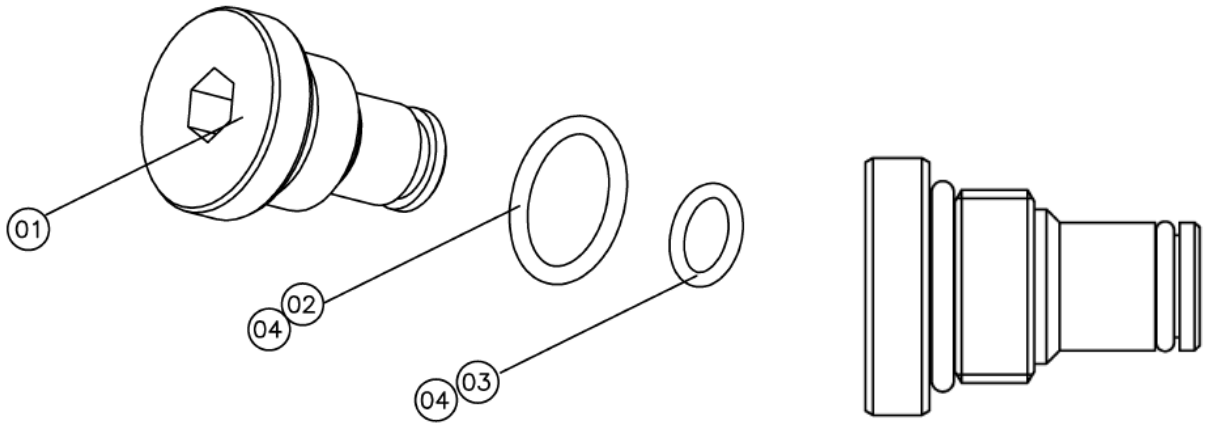


Illustration: Filter Manifold assemblies, PN 680029 (right) and PN 680030 (left)

10.5 Plug asy, for pressure relief valve, PN 680416

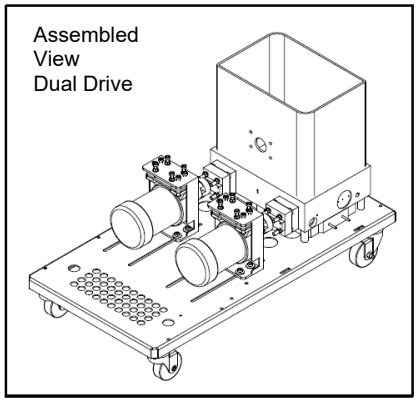
Item	Part Number	Description	Quantity
01	810070	Plug, PRV port, 3/4-16	1
02	N01601	O-ring 908	1
03	N00179	O-ring 012	1
04	001U002	Silicone lube, DOW 112 (not shown)	A/R*

A/R* = As required.



10.6 Drive Assembly

Item	Part Number	Description	Quantity
1	610101	Base plate	1
2	680137	Gear motor 240V 3PH, 0.25HP	2
3	610715	Screw M8x20mm	8
4	-		
5	610109	Motor nut plate	2
6	610108	Motor mounting bracket	1 or 2
7	680129	Coupling	2
8	610209	Socket set screw cup point	4
9	104158	Flange nut M10	8
10	104072	Stud M10x100	8
	104073	Stud M10x105	8
	114890	Stud M10x110	8
11	100861	Pump (shown for reference only)	2
12	069X064	O-ring, #041	2
13	103518	Screw M10x30mm	4
14	107538	Lock washer M10	10
15	610169	Flat washer M10	10
16	012G009	Block-Off plate	1
17	680510	Hopper D15	1
	610701	Hopper D25	1
	610722	Hopper D45	1
18	610204	Spacer L=40mm	6
19	104072	Stud M10x100	6
20	610122	Spacer L=8,5mm	6
21	610210	Hex flange nut, grade A	6
22	-		
23	N07429	Screw M8x30mm	10 or 16
24	-		
25	610146	Hex flange nut M8x1.25	8 or 12
26	107538	Lock washer M10, hi-collar	8



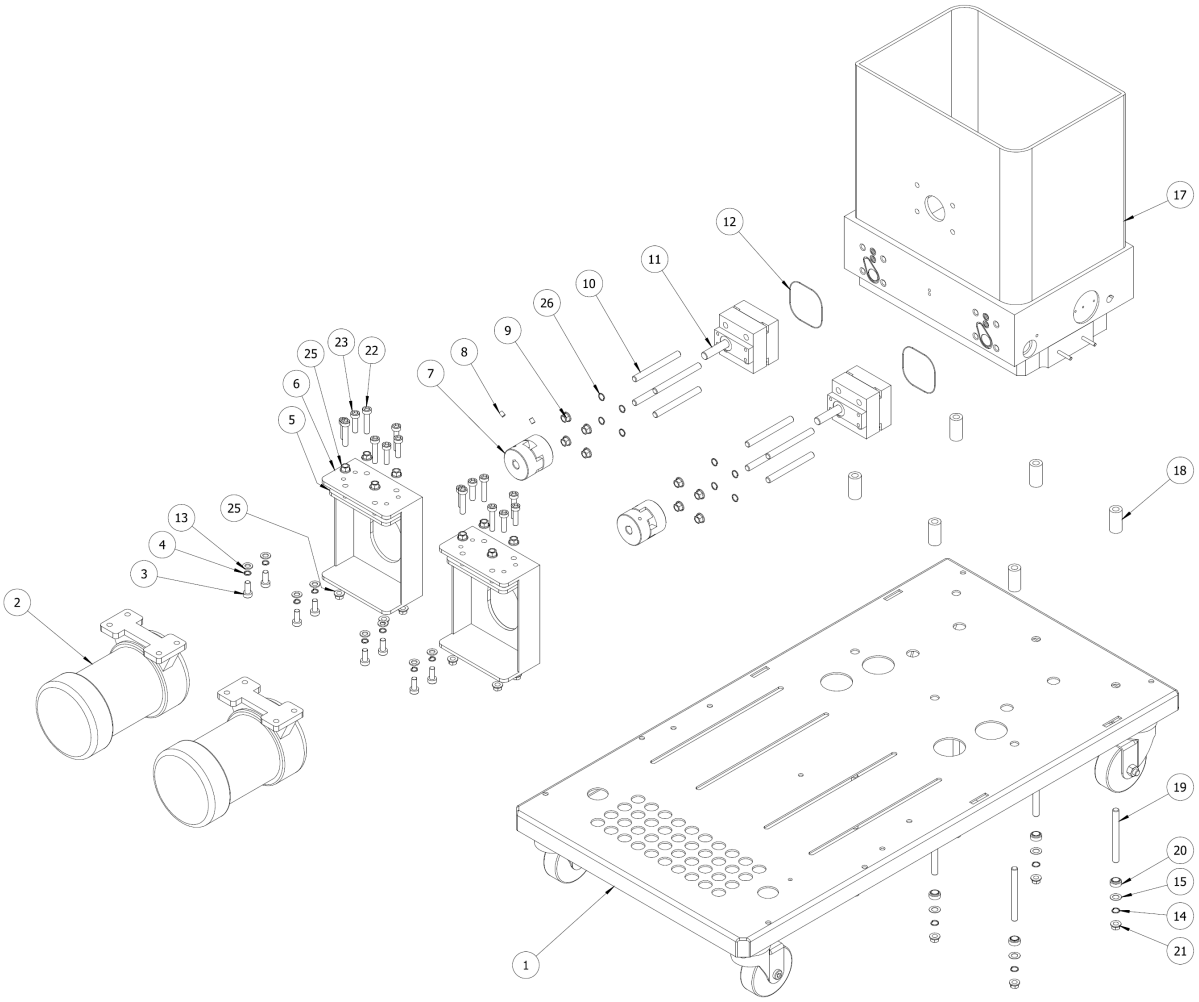


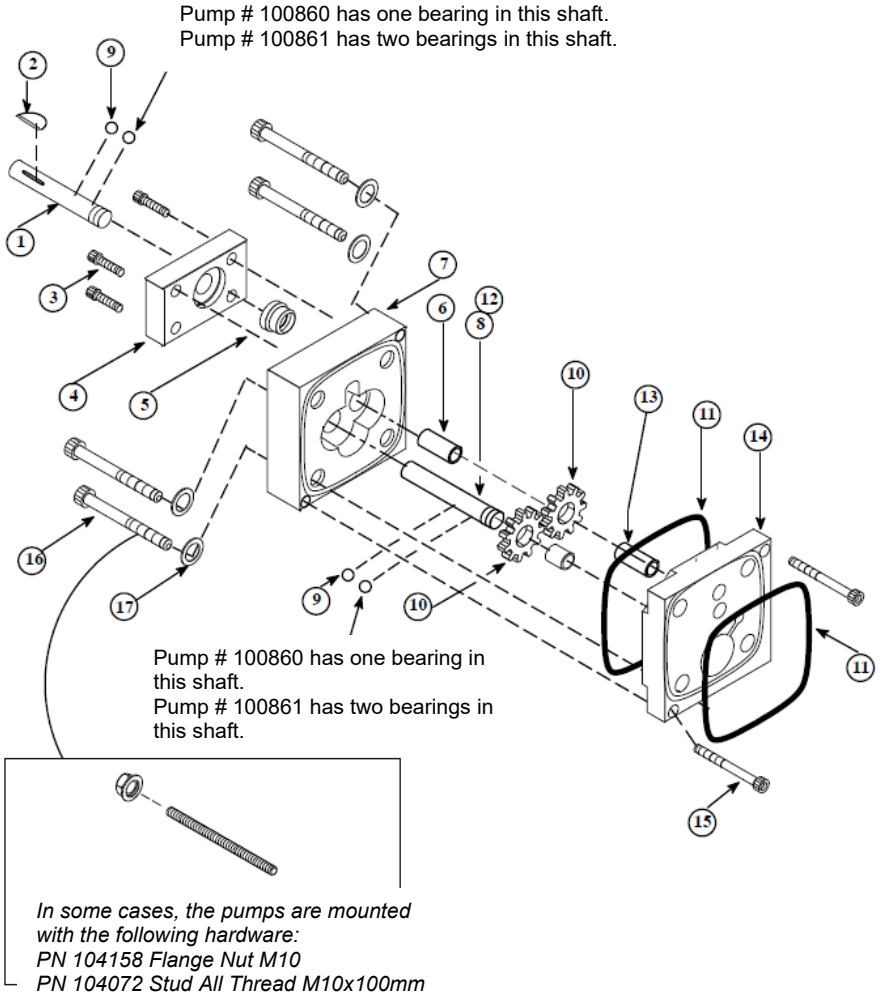
Illustration: Drive Assembly

10.7 Gear Pumps

10.7.1 Single Gear Pump Assembly 1.54 cc/rev, PN 100860 and 3.2 cc/rev, PN 100861

Item	Part Number 100860	Part Number 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, 1/8” Diameter (see illustration for quantity)	2-4
10	012C020	012C019	Drive Gear	2
11	069X064		O-ring 041, Pump Seal	2
12	078F017		Shaft Retaining Ring	4
13	018X041		Bearing Sleeve, Rear Plate	2
14	100865		Rear Plate Assembly	1
15	100908		Screw M4x25mm	2
16	104775	104776	Screw M10x75mm / M10x80m	4
17	-		Flat washer M10	4
-	001U002	001U002	Silicone lube, DOW 112 (not shown)	A/R*

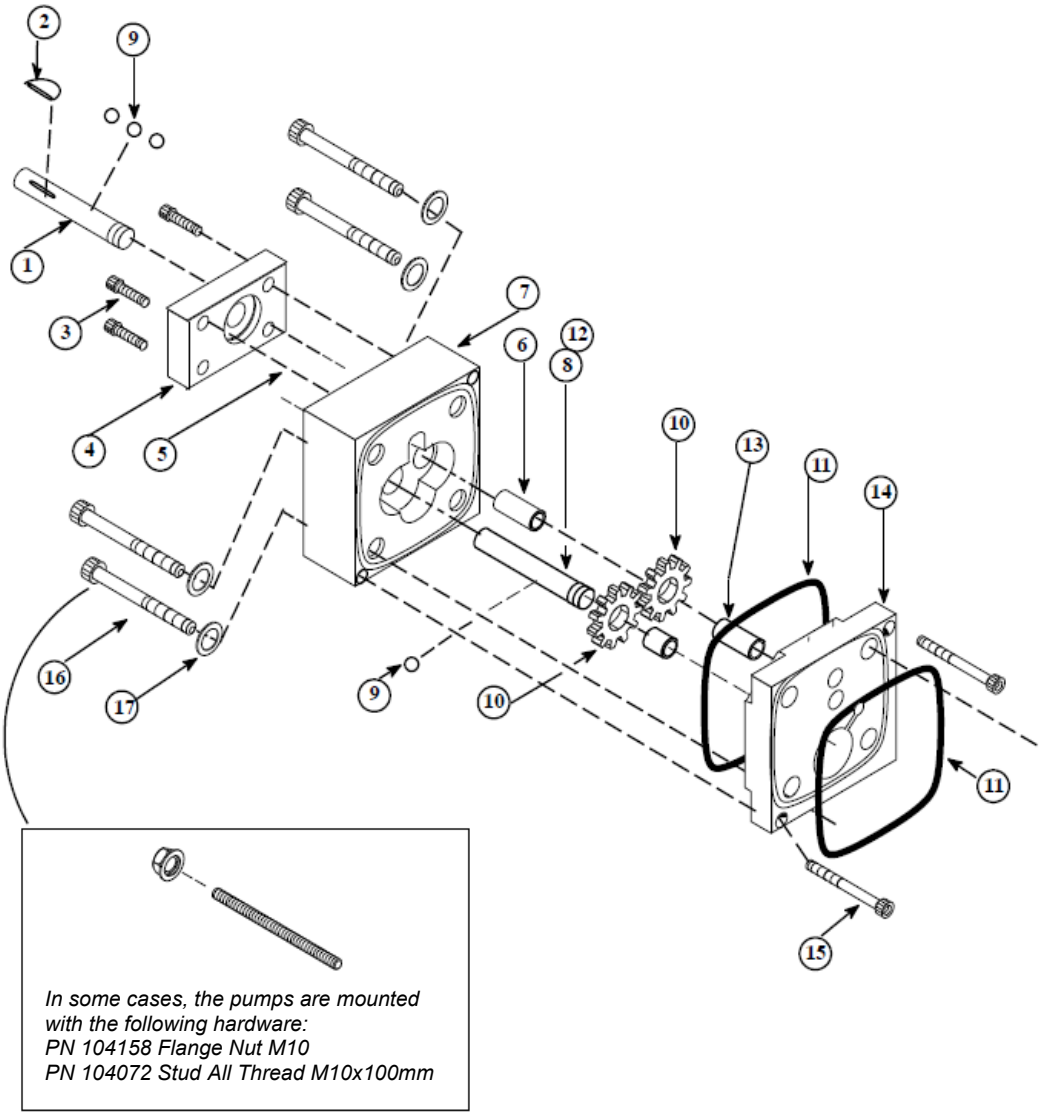
A/R* = As required



10.7.2 Single Gear Pump Assembly 4.50 cc/rev., PN 100862

Item	Part Number	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, 1/8” Diameter	4
10	012C018	Drive Gear	2
11	069X064	O-ring 041, Pump Seal	2
12	078F017	Shaft Retaining Ring	4
13	018X041	Bearing Sleeve, Rear Plate	2
14	100865	Rear Plate Assembly	1
15	100908	Screw M4x25mm	2
16	104776	Screw M10x80m	4
17	-	Flat washer M10	4
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

A/R* = As required

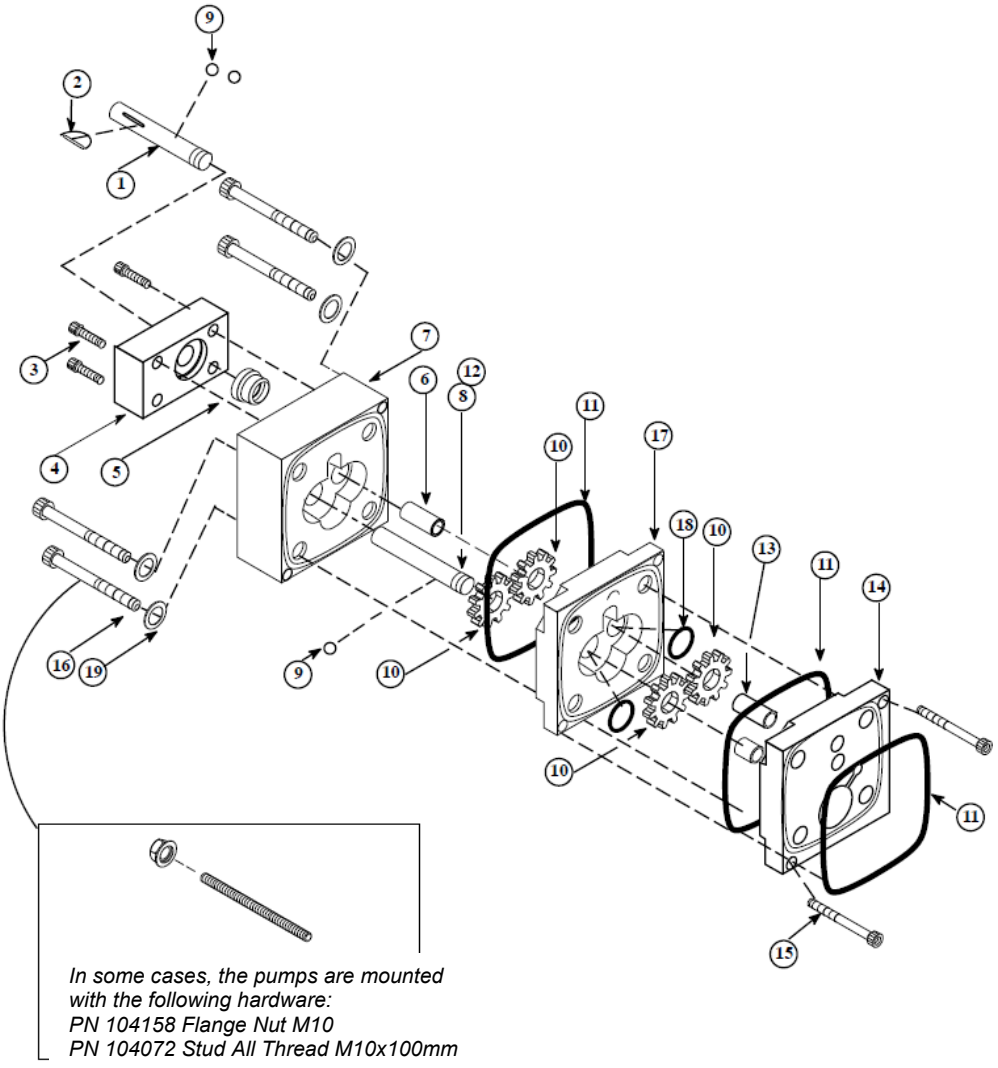


In some cases, the pumps are mounted with the following hardware:
PN 104158 Flange Nut M10
PN 104072 Stud All Thread M10x100mm

10.7.3 Dual Gear Pump Assembly 1.54 cc/rev., PN 100863

Item	Part Number	Description	Quantity
1	012D083	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	Front Plate Assembly	1
8	012D082	Driven Gear Shaft	1
9	018X031	Ball, 1/8” Diameter	3
10	012C020	Drive Gear	4
11	069X064	O-ring 041, Pump Seal	3
12	078F017	Shaft Retaining Ring	4
13	018X041	Bearing Sleeve, Rear Plate	2
14	100865	Rear Plate Assembly	1
15	101692	Screw M4x35mm	2
16	-	Screw M10x85mm	4
17	100869	Middle Plate	1
18	N00198	O-ring 113	2
19	-	Flat washer M10	4
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

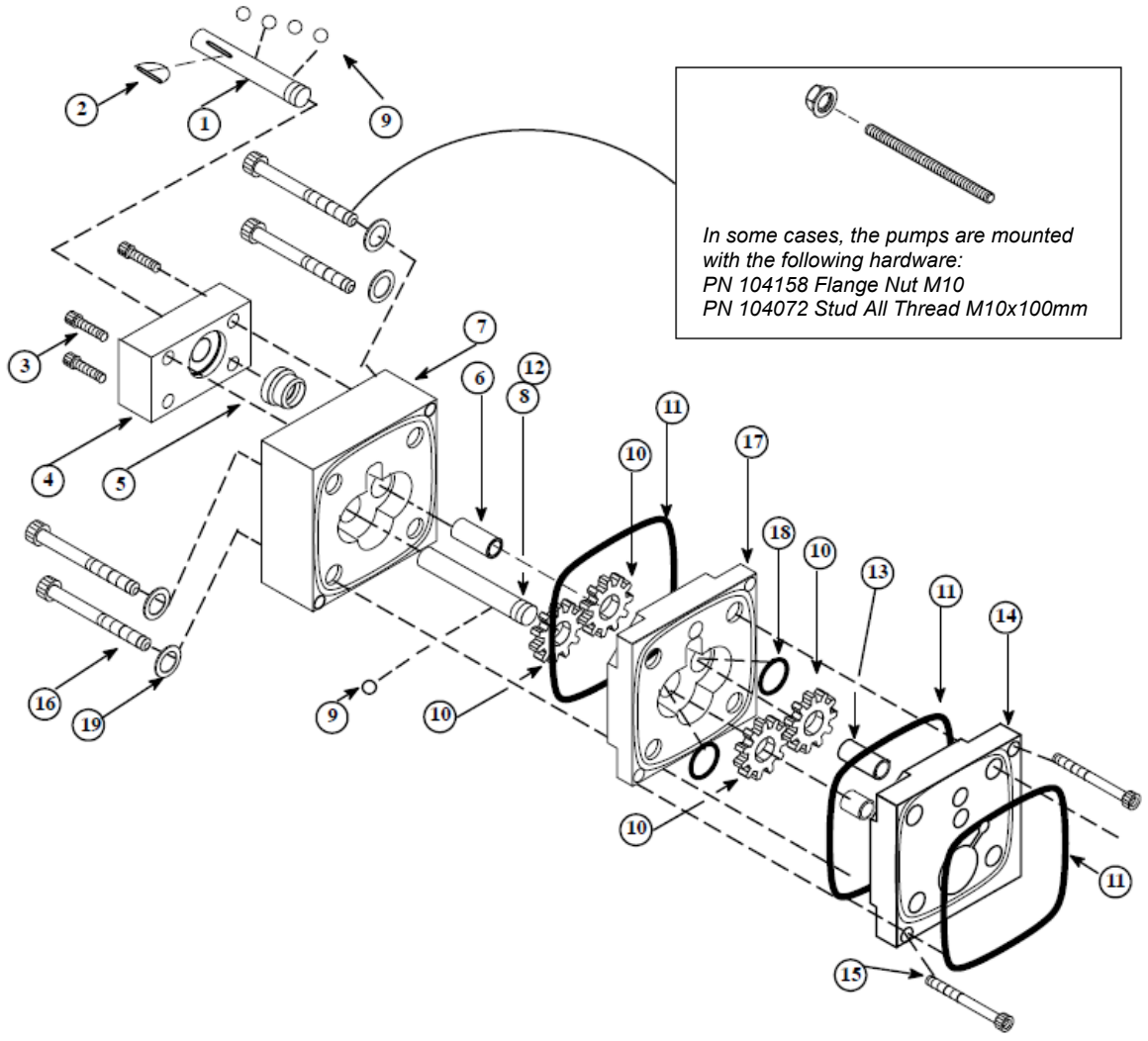
A/R* = As required.



10.7.4 Dual Gear Pump Assembly 3.2 cc/rev., PN 100864

Item	Part Number	Description	Quantity
1	012D088	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	100867	Front Plate Assembly	1
8	012D087	Driven Gear Shaft	1
9	018X031	Ball, 1/8" Diameter (see illustration for quantity)	5
10	012C019	Drive Gear	4
11	069X064	O-ring 041, Pump Seal	3
12	078F017	Shaft Retaining Ring	4
13	018X041	Bearing Sleeve, Rear Plate	2
14	100865	Rear Plate Assembly	1
15	101691	Screw M4x40mm	2
16	-	Screw M10x85mm	4
17	100870	Middle Plate	1
18	N00198	O-ring 113	2
19	-	Flat washer M10	4
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

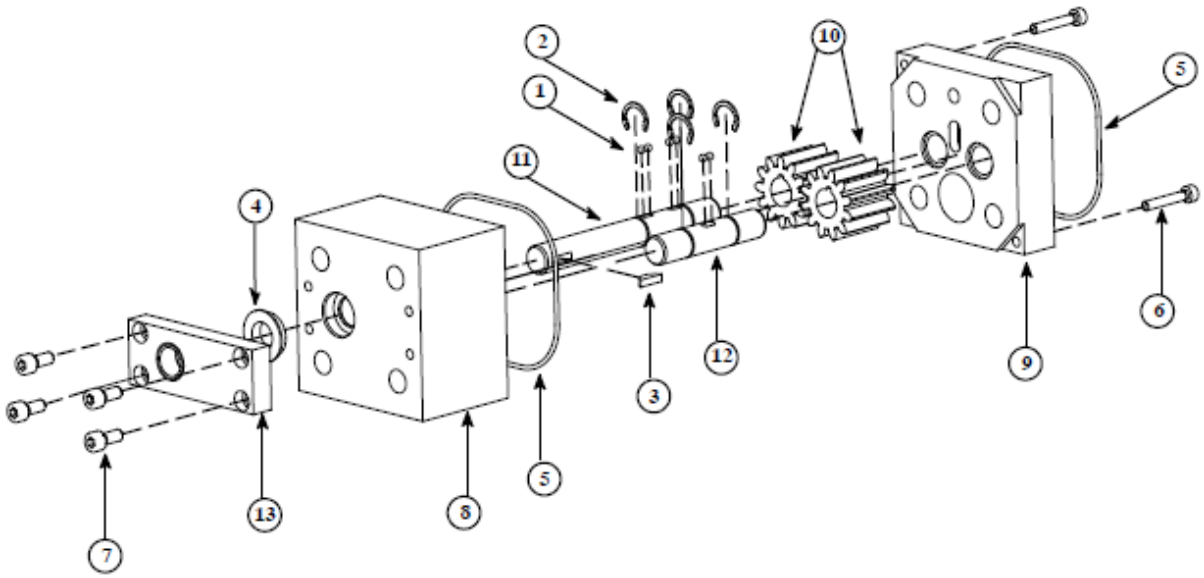
A/R* = As required



10.7.5 Single Gear Pump Assembly 10 cc/rev., PN 109690

Item	Part Number	Description	Quantity
1	018X031	Ball Bearing, 1/8 Diameter	6
2	078F017	Snap Ring, 1/2”	4
3	078I001	Key Woodruff	1
4	069X061	Shaft Seal	1
5	069X064	O-ring 041, Pump Seal	2
6	108588	Screw M4x25mm	2
7	101626	Screw M5x12mm	4
8	109685	Pump Body	1
9	109686	Rear Bearing Plate	1
10	109689	Gear.	2
11	109687	Drive Shaft	1
12	109688	Driven Shaft	1
13	069X160	Shaft Seal Retainer	1
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

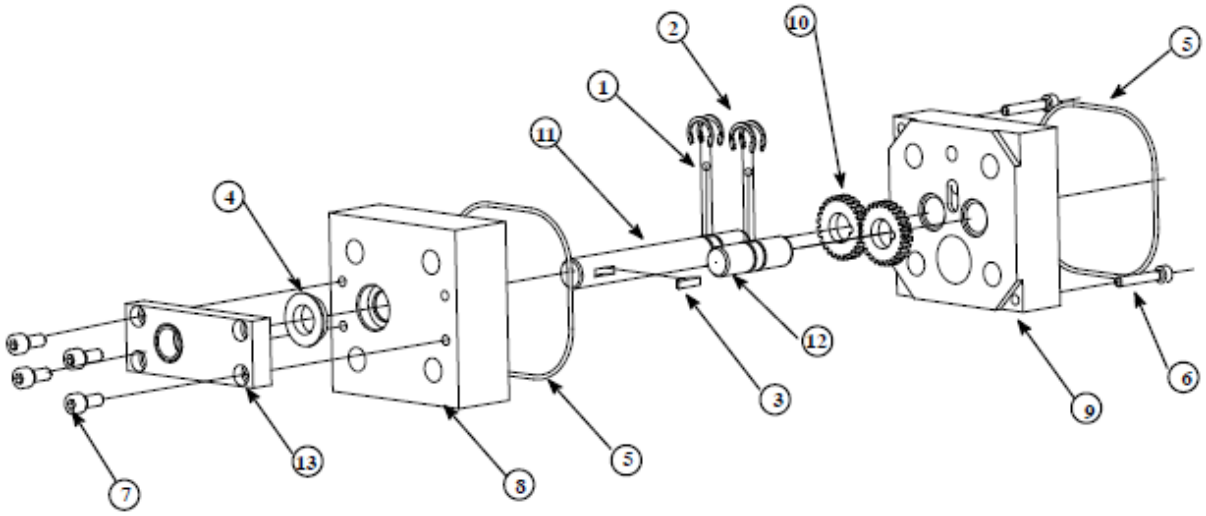
A/R* = As required



10.7.6 Single Gear Pump Assembly 0.15 cc/rev., PN 111253

Item	Part Number	Description	Quantity
1	018X031	Ball Bearing, 1/8 Diameter	6
2	078F017	Snap Ring, 1/2”	4
3	078I001	Key Woodruff	1
4	069X061	Shaft Seal	1
5	069X064	O-ring 041, Pump Seal	2
6	100908	Screw M4x25mm	2
7	101626	Screw M5x12mm	4
8	111251	Front Plate	1
9	100865	Rear Bearing Plate	1
10	111250	Drive Gear	2
11	012D079	Drive Shaft	1
12	012D080	Driven Shaft	1
13	069X160	Shaft Seal Retainer	1
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

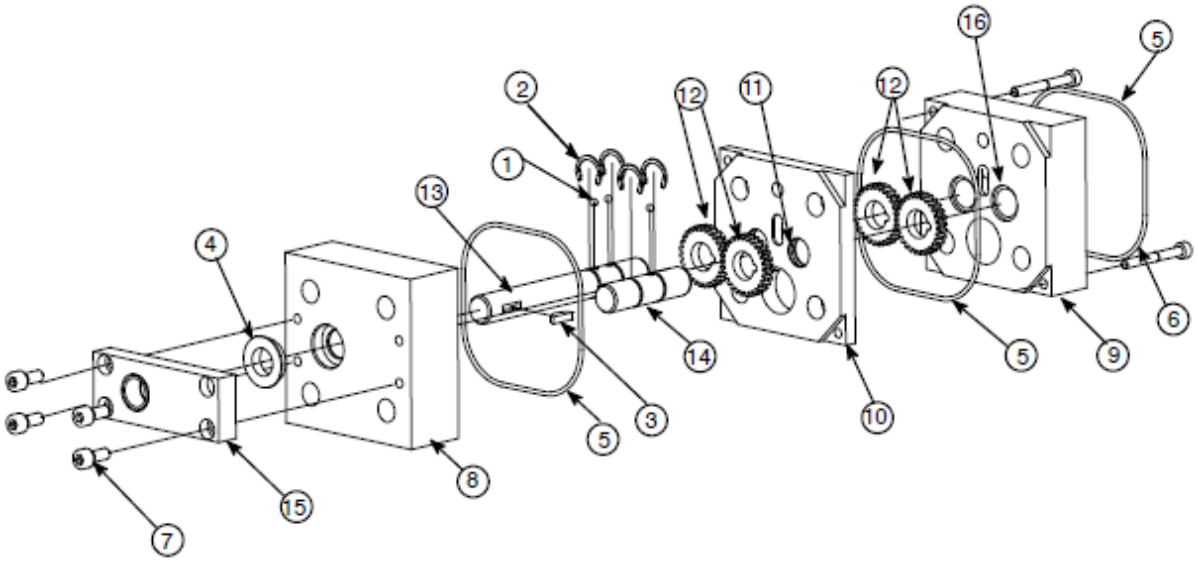
A/R* = As required



10.7.7 Dual Gear Pump Assembly 0.15 cc/rev., PN 111254

Item	Part Number	Description	Quantity
1	018X031	Ball Bearing, 1/8 Diameter	6
2	078F017	Snap Ring, 1/2”	4
3	078I001	Key Woodruff	1
4	069X061	Shaft Seal	1
5	069X064	O-ring 041, Pump Seal	2
6	101692	Screw M4x35mm	2
7	101626	Screw M5x12mm	4
8	111251	Front Plate	1
9	100865	Rear Bearing Plate	1
10	111252	Plate, middle gear	1
11	N00198	O-ring 113	2
12	111250	Gear	4
13	012D083	Drive Shaft	1
14	012D082	Driven Shaft	1
15	069X160	Shaft Seal Retainer	1
16	N00198	O-ring 113	2
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

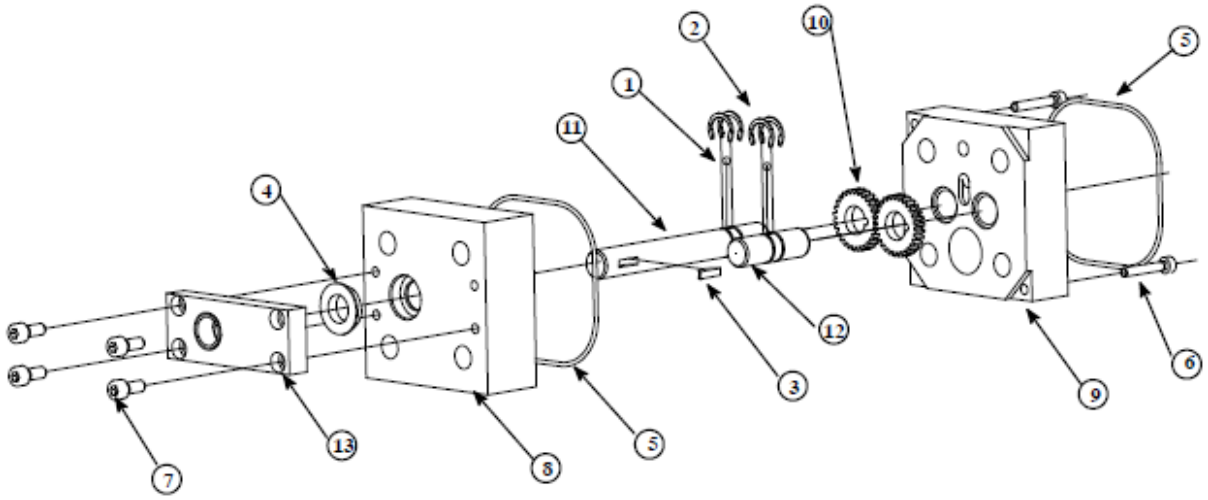
A/R* = As required



10.7.8 Single Gear Pump Assembly 0.55 cc/rev., PN 109908

Item	Part Number	Description	Quantity
1	018X031	Ball Bearing, 1/8 Diameter	6
2	078F017	Snap Ring, 1/2”	4
3	078I001	Key Woodruff	1
4	069X061	Shaft Seal	1
5	069X064	O-ring 041, Pump Seal	2
6	100908	Screw M4x25mm	2
7	101626	Screw M5x12mm	4
8	109906	Front Plate	1
9	100865	Rear Bearing Plate	1
10	109907	Gear	2
11	012D079	Drive Shaft	1
12	012D080	Driven Shaft	1
13	069X160	Shaft Seal Retainer	1
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

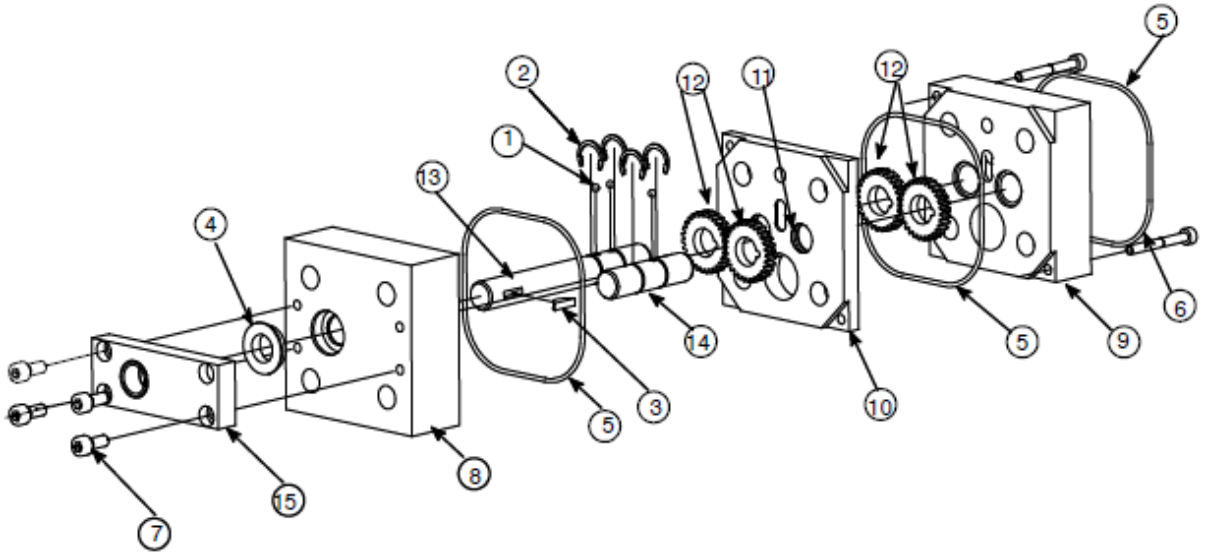
A/R* = As required



10.7.9 Dual Gear Pump Assembly 0.55 cc/rev., PN 109909

Item	Part Number	Description	Quantity
1	018X031	Ball Bearing, 1/8 Diameter	6
2	078F017	Snap Ring, 1/2”	4
3	078I001	Key Woodruff	1
4	069X061	Shaft Seal	1
5	069X064	O-ring 041, Pump Seal	2
6	101692	Screw M4x35mm	2
7	101626	Screw M5x12mm	4
8	109906	Front Plate	1
9	100865	Rear Bearing Plate	1
10	109905	Plate, middle gear	1
11	N00198	O-ring 113	2
12	109907	Gear	2
13	012D083	Drive Shaft	1
14	012D082	Driven Shaft,	1
15	069X160	Shaft Seal Retainer	1
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

A/R* = As required



10.8 Pneumatic Pressure Relief Valve Kit, PN 680424

Item	Part Number	Description	Quantity
1	680421	Mounting plate	1
2	680419	Filter & Gauge Kit	1
3	680273	Solenoid 24V	4
4	680279	Precise pressure gauge IR2010-02BG	4
5	115540	Pneumatic Pressure Relief Valve, max. up to 68 bar (1000 psi)	4
6	-	Tube O.D.=10mm	-
7	-	Fitting, 3 holes, 10mm-8mm-8mm	1
8	-	Fitting, 3 holes, 8mm-6mm-8mm	6
9	-	Tube o.D.=8mm	-
10	-	Tube o.D.=6mm	-
11	-	Fitting 90°, O.D.=8mm-6mm	2
12	-	Tube O.D.=6mm	-
13	N00093	Fitting 1/8 NPT, O.D.1/4	12

Tabulator

	Quantity				
Part Number	Description	1 Unit	2 Units	3 Units	4 Units
-	Fitting, 3 holes, 8mm-6mm-8mm	1	2	4	6
115540	Pneumatic Pressure Relief Valve, max. bis 68 bar (1000 psi)	1	2	3	4
680279	Precise pressure gauge IR2010-02BG	1	2	3	4
680273	Solenoid 24V	1	2	3	4

Notes:

1. The diagram shows 2 dual pump configuration. The option should according the detailed configuration of the single or dual pump on the Melter, that is:
   Each single pump: one solenoid and one precise air control gauge.
   Each dual pump: two solenoids and two precise air control gauges.

2. Adjust the air pressure using a pressure gauge installed on the manifold.

3. The nominal pressure ratio (adhesive to air) of the pneumatic pressure relief valve is 14:1.

4. Do factory setup to get 400 psi (28 bar) output of the adhesive pressure on the pressure gauge, 100 psi (7 bar) from precise gauge circle and 300 psi (20 bar) from the solenoid circle.

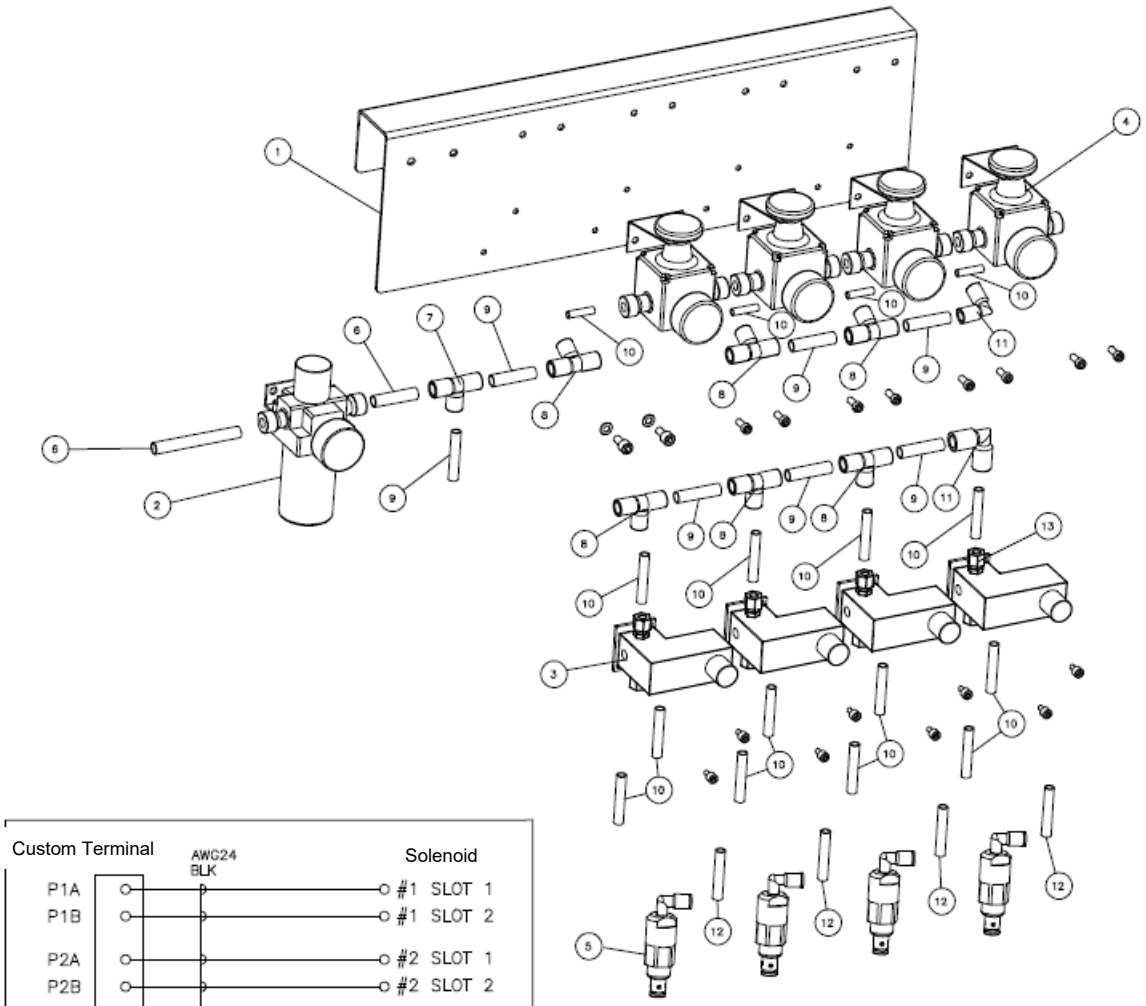


Illustration: Pneumatic Pressure Relief Valve Kit, PN 680424

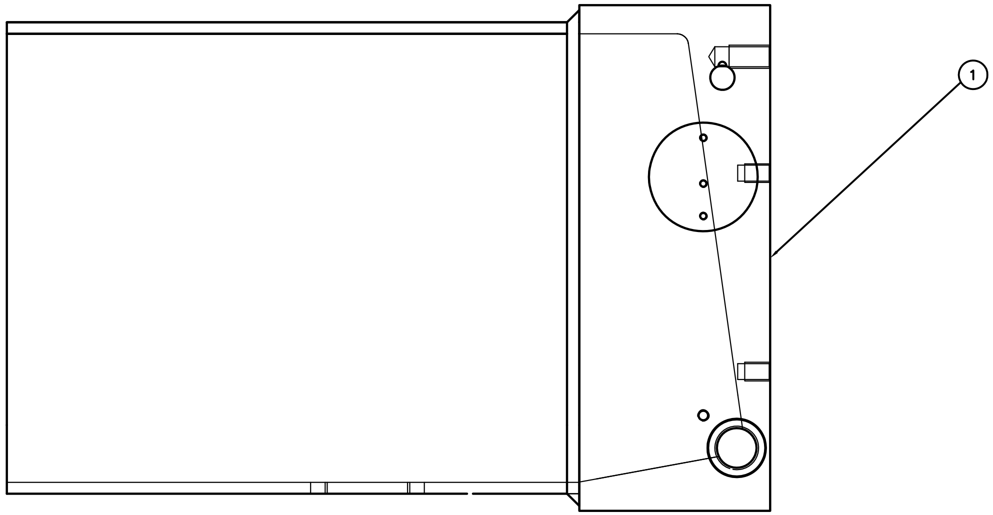
10.9 Level Control asy, PN 680614, with mounting drawings 665040, 665036, 665037

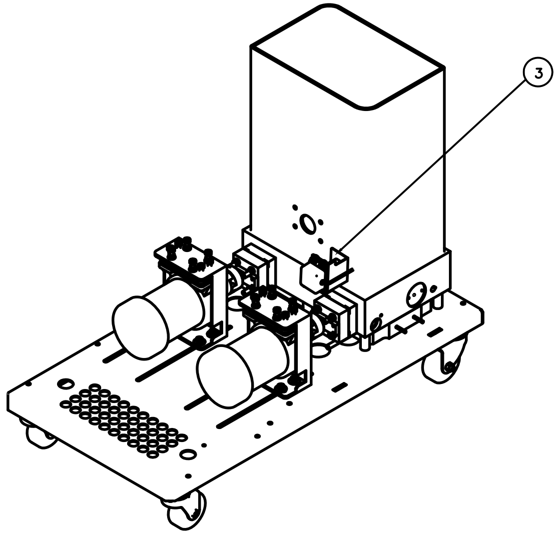
Item	Part Number	Description	Quantity
1	665040	Hopper D15	1
	665036	Hopper D25	1
	665037	Hopper D45	1
	665038	Hopper D50	1
	665039	Hopper D90	1
2	150020	Level sensor kit	1
3	150105	Level sensor bracket	1

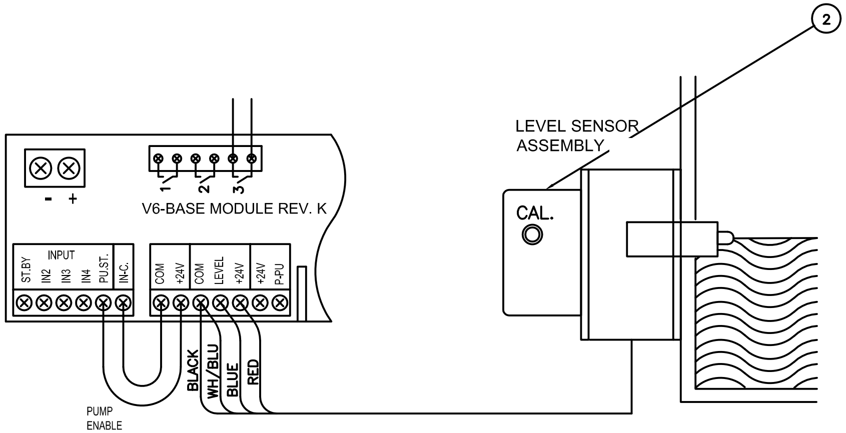
DWG. NO. 680614 SH 1 REV. B

REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
--	A	ORIGINAL RELEASE	1.23.14	HP	
	B	CHANGED TO SR LEVEL SENSOR	6.16.16	SS	







CUSTOMER SERVICE INFORMATION
FOR HOPPER REPLACEMENT

MODEL	HOPPER, LEVEL CONTROL
D15	665040
D25	665036
D45	665037
D50	665038
D90	665039

NOTES:

1. DRILL AND TAP FOR M22x1.5 HOLE IN HOPPER. SEE DRAWINGS OF REPLACE HOPPER FOR LOCATION.

2. PLUG THE SENSOR CABLE INTO THE AMPLIFIER AND SECURE (DO NOT CUT CABLE).

3. WIRE INTO ASU AS SHOWN. FERRULES ARE INSTALLED ON EACH END OF 22GA WIRES.

4. CHANGE PARAMETER OF LEVEL CONTROL IN FACTORY SETUP TO ACTIVE.

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
3	150105	1	EA	LEVEL SENSOR BRACKET
2	150020	1	EA	LEVEL SENSOR KIT
1	SEE TABLE	REF	EA	HOPPER

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:
DECIMALS ANGLES
.X±0.25 ±.5°
.XX±0.1

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

ITW Dynatec
HENDERSONVILLE, TN

U/M: EA

STATUS:

SOURCE:

USED ON: D25/D45

APPROVALS / DATE
DRAWN: HP 1.23.14
CHECKED:

NEXT ASSY.:

LEVEL CONTROL ASSY

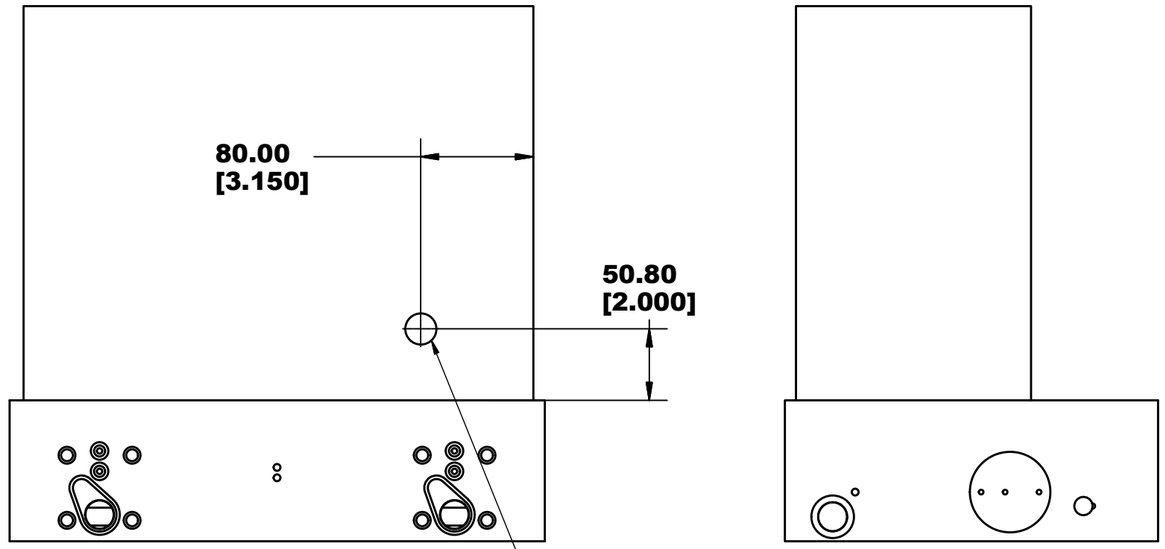
COMPUTER DESCRIPTION(25 CHARACTERS): LEVEL CTRL ASY,D25/D45

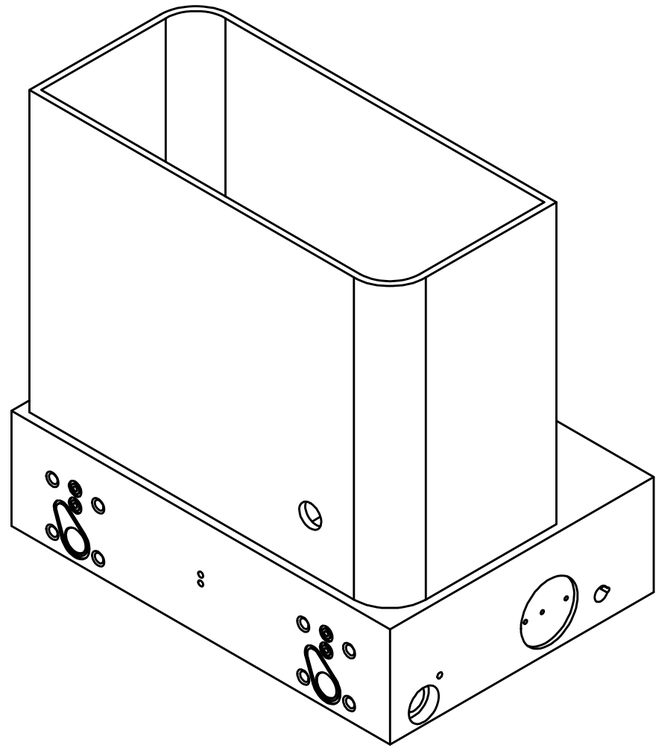
SIZE: D DWG. NO. 680614 REV. B GROUP:

DO NOT SCALE DRAWING

SCALE 1:1 CAD DRAWING SHEET 1 of 1

REVISIONS					
REL	REV	DESCRIPTION	DATE	BY	APPROVED
	A	ORIGINAL RELEASE		SS	





metric
SI

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS [INCHES] TOLERANCES ARE: (MM)DECIMALS (IN)DECIMALS ANGLES X. ± 0.5 .XX ± .010 ± .5 .X ± 0.25 .XXX ± .005 .XX ± 0.10	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	ITW Dynatec HENDERSONVILLE, TN
USED ON	APPROVALS / DATE	D15 Hopper SR sensor 665040
	DRAWN SS 20170705	
NEXT ASSY.	CHECKED	
DO NOT SCALE DRAWING	COMPUTER DESCRIPTION(24 CHARACTERS)	SIZE D · DWG. NO. · REV A · SCALE 1:1 · CAD DRAWING · SHEET 1 OF 1

U/M EA · STATUS · SOURCE · GROUP

REVISIONS					
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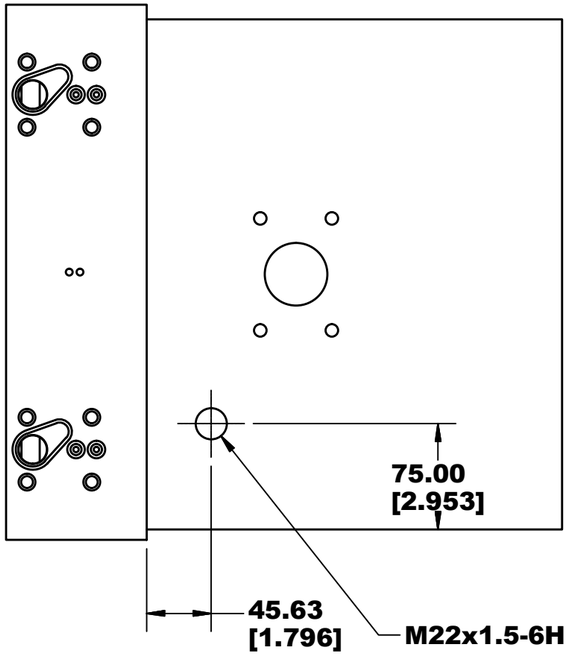
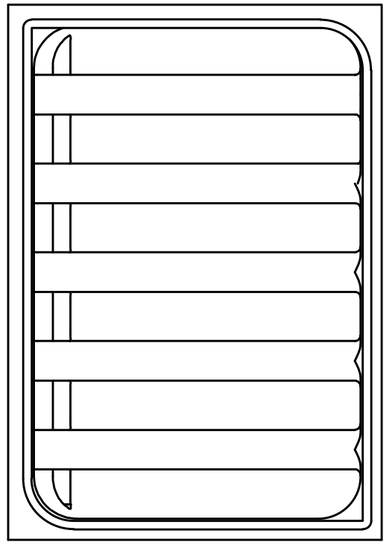
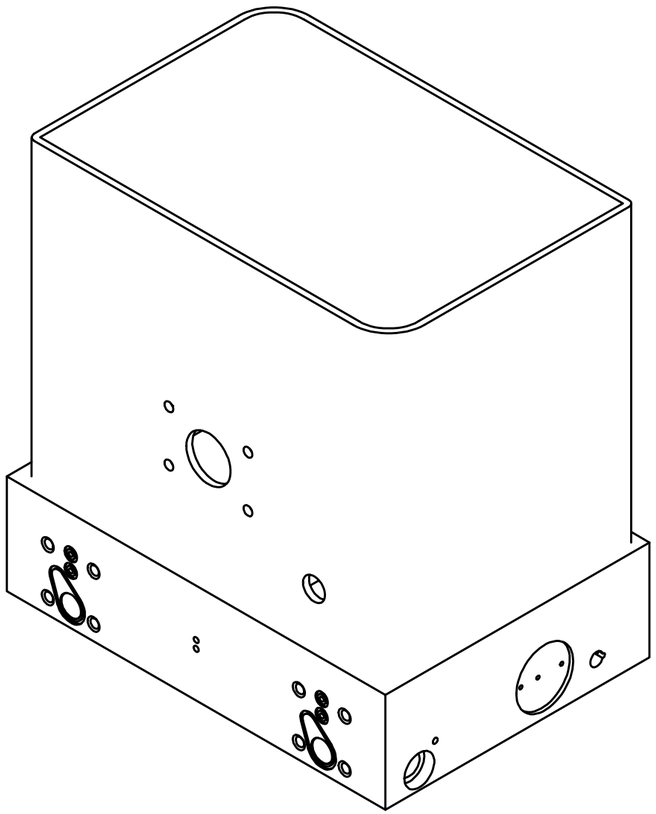
	B	DIMENSION CHANGE TO 75		SS	





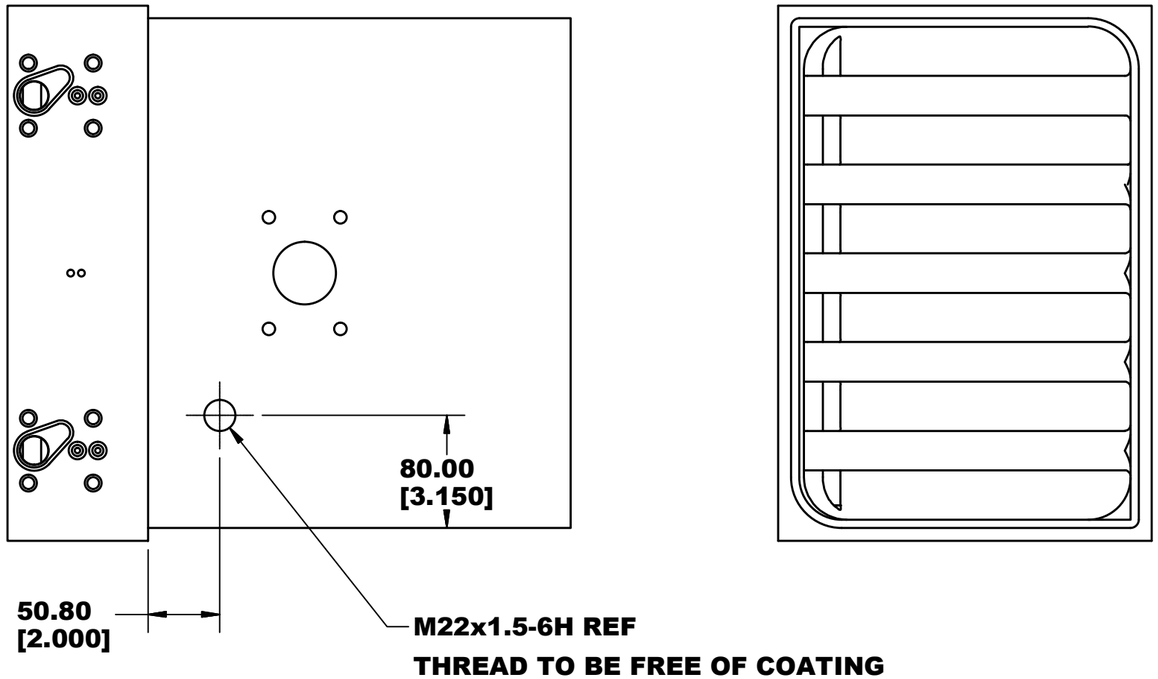


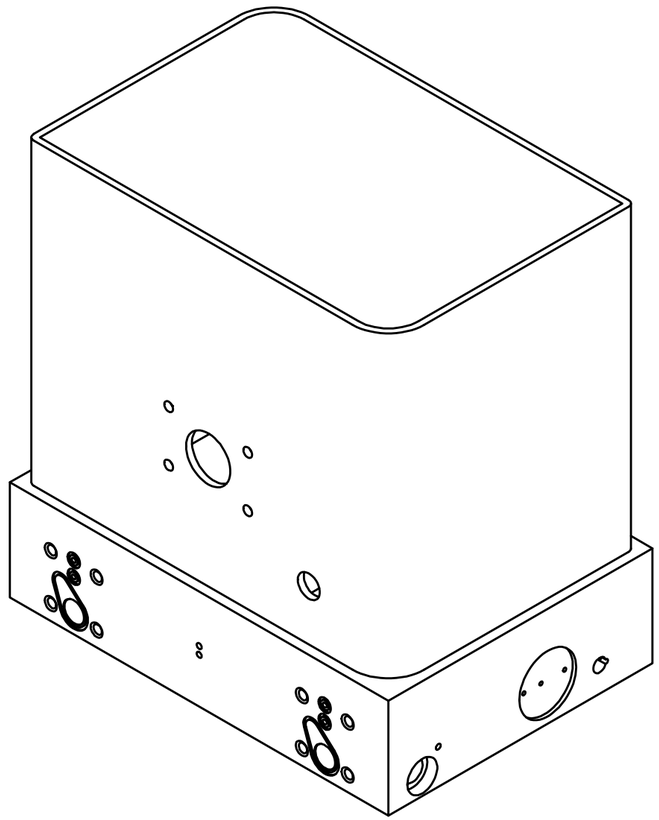
metric
SI

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS [INCHES] TOLERANCES ARE: (MM)DECIMALS (IN)DECIMALS ANGLES X. ± 0.5 .XX ± .010 ± .5 .X ± 0.25 .XXX ± .005 .XX ± 0.10	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	ITW Dynatec HENDERSONVILLE, TN
USED ON	APPROVALS / DATE	D25 Hopper SR sensor 665036
NEXT ASSY.	DRAWN SS 20161227	
DO NOT SCALE DRAWING	CHECKED	
	COMPUTER DESCRIPTION(24 CHARACTERS)	SIZE D · DWG. NO. · REV B · SCALE 1:1 · CAD DRAWING · SHEET 1 OF 1

U/M EA · STATUS · SOURCE · GROUP

REVISIONS					
REL	REV	DESCRIPTION	DATE	BY	APPROVED
	A	ORIGINAL RELEASE		SS	





UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS [INCHES]
TOLERANCES ARE:
(MM)DECIMALS (IN)DECIMALS ANGLES
X. ± 0.5 .XX ± .010 ± .5
.X ± 0.25 .XXX ± .005
.XX ± 0.10

USED ON

NEXT ASSY.

DO NOT SCALE DRAWING

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

APPROVALS	DATE
DRAWN SS	20170317
CHECKED	

COMPUTER DESCRIPTION(24 CHARACTERS)

ITW Dynatec HENDERSONVILLE, TN

D45 Hopper SR sensor 665037

U/M: EA
STATUS:
SOURCE:
GROUP:

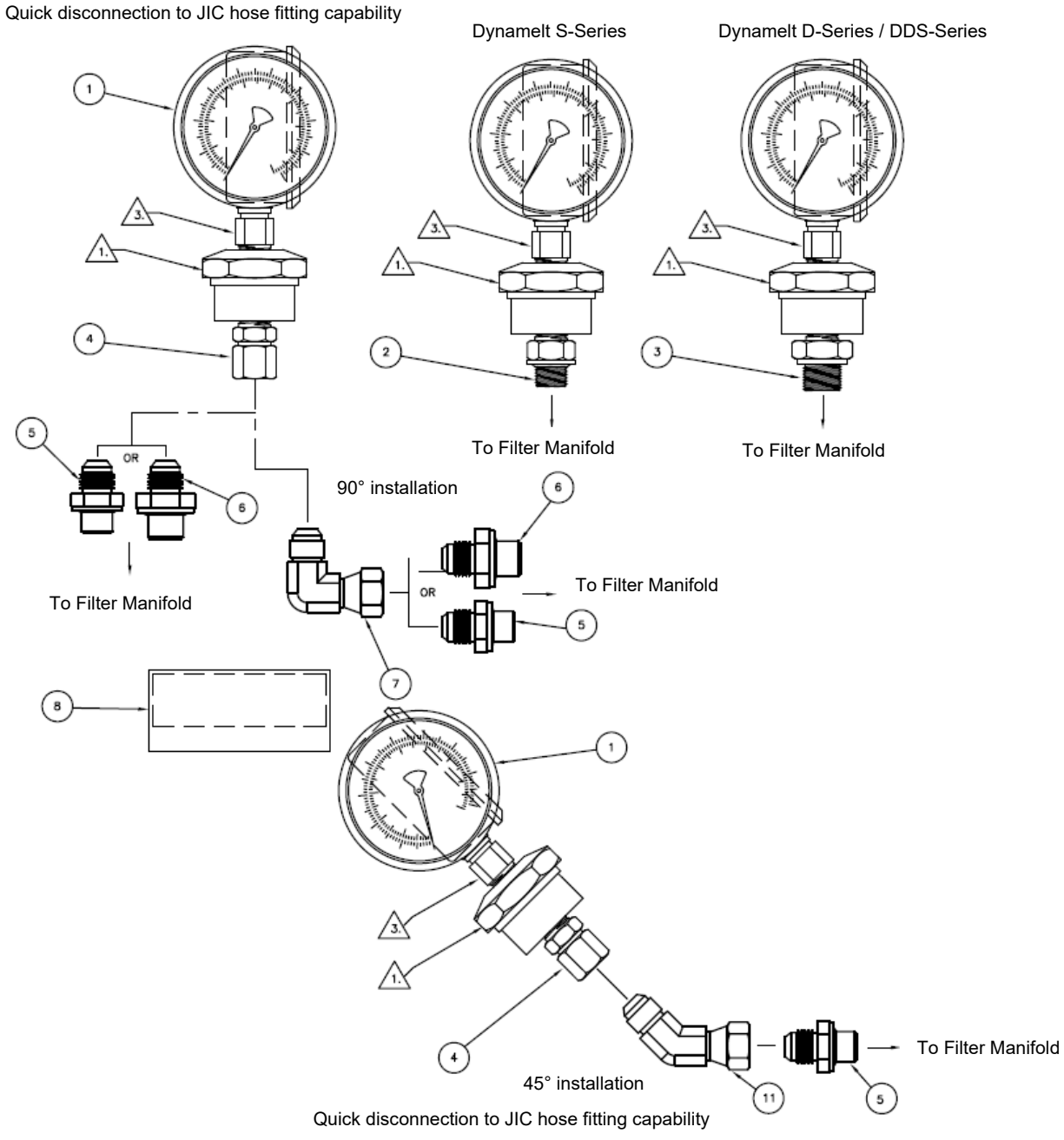
SIZE D | DWG. NO. | REV A

SCALE 1:1 | CAD DRAWING | SHEET 1 OF 1

metric
SI

10.10 Pressure Gauge Kit (optional), PN 101175

Item	Part Number	Description	Quantity
1	101174	Pressure gauge / seal, 1000 psi (68 bar)	1
2	103330	Fitting, adaptor, G1/4X1/4NPT,ST	1
3	105914	Fitting, adaptor, 3/8 BSPPX1/4NP	1
4	104325	Fitting, adaptor, SWL,6JX1/4MPT	1
5	101624	Fitting, adaptor, G1/4X06,STL	1
6	103623	Fitting, adaptor, G3/8X06,STL	1
7	N07830	Swivel Fitting, DN8 90°, 06FJX06MJ,STL	1
8	102987	Cuff, filter insulating	1
9	101248	Label, Warning pressure gauge (not shown)	1
10	N07054	Corrugated box, 4X4X8 (not shown)	1
11	N07831	Swivel Fitting, DN8 45°, #6 male x #6 female	1



10.11 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.*

10.11.1 Typical Mechanical Panel Box Assembly

Item	Part Number	Description	Quantity
15	115893	V6-LCD HMI PCB asy	1
	118135	V6 Touch Panel asy (optional, not shown)	1

10.11.2 Typical Electrical Panel Box Assembly

Item	Part Number	Description	Quantity
6	123274	Motor Speed Control, VF, 230V, 3PH,1/2HP, Yaskawa (programmed version of motor control PN 115138)	2
8	106978	Filter 240V	2
9	680430	Fan 120x120x38mm	2
19	680853	Power Supply, 24VDC, 6.25A	1
28	680665	Fuse block 10A	4
	680718	Fuse 25A	4
29	680716	Fuse block 1A	2
	680717	Fuse 1A	2
30	680132	Circuit breaker ON/OFF 30A (standard)	1
	610201	Circuit breaker ON/OFF 60A (optional)	1
33	115734	V6 Base module	1
34	115735	V6 Temperature module	1
35	116823	V6 Motor module	1
37	123193	V6 Heavy Duty Power PCB	3

10.11.3 Typical Grid & Melt Section

Item	Part Number	Description	Quantity
1	610304	Heater plate, 2500W	1
3	107183	Temperature sensor PT100	1
5	069X058	O-ring 028	2
6	610712	O-ring 9.5X1.8	4
9	104166	Mechanical O/T Thermostat Assembly (option)	1
12	610704	O-ring 24x3 (for Filter and Shutoff Assembly)	1
14	610702 *	Filter and Shutoff Assembly	1

		Grid Block-Off Assembly	1
16	N00192	O-ring 032	1
	680089	**Drop-In Grid (option)**	**1**
19	N00192	O-ring 032	1
22	107183	Temperature sensor PT100	2
23	N00181	O-ring 014	4

* see separate drawing and BOM.

10.11.3.1 Filter and Shutoff Asy, PN 610702

NOTE: This assembly drawing is shown for reference only! The filter and shutoff assembly must be ordered as entire assembly. Only the O-rings and the lube can be ordered separately.

Item	Part Number	Description	Quantity
6	610712	O-ring Ø 9.5 X 1.8mm	1
-	001V078	High-temp lube, TFE, Krytox GPL206 (not shown)	A/R*

A/R* = As required.

10.11.4 Filter Manifold assemblies, PN 680029 (right) and PN 680030 (left)

Item	Part Number	Description	Quantity
1	106303	Filter nut	2 or 4
2	101840	Mechanical Pressure Relief Valve, 6,8 – 68 bar (100-1000 psi)	2 or 4
	or 680416	Plug asy, for pressure relief valve (see drawing on next pages)	
3	101247	Filter basket 100-mesh	2 or 4
4	610712	O-ring 9,5x1,8	8
12	N03812	O-ring 125	2 or 4
18	N00198	O-ring 5-005 (included in item 19)	2 or 4

10.11.5 Plug asy, for pressure relief valve, PN 680416

Item	Part Number	Description	Quantity
01	810070	Plug, PRV port, 3/4-16	1
02	N01601	O-ring 908	1
03	N00179	O-ring 012	1
04	001U002	Silicon lube DOW112	A/R*

A/R* = As required.

10.11.6 Drive Assembly

Item	Part Number	Description	Quantity
2	680137	Gear motor 240V 3PH, 0.25HP	2
11	100861	Pump (shown for reference only)	2
12	069X064	O-ring, #041	2

10.11.7 Gear Pumps

10.11.7.1 Single Gear Pump Assembly 1.54 cc/rev, PN 100860 and 3.2 cc/rev, PN 100861

Item	Part Number 100860	Part Number 100861	Description	Quantity
5	069X061		Shaft Seal	1
11	069X064		O-ring 041, Pump Seal	2
-	001U002	001U002	Silicone lube, DOW 112 (not shown)	A/R*

A/R* = As required

10.11.7.2 Single Gear Pump Assembly 4.50 cc/rev., PN 100862

Item	Part Number	Description	Quantity
5	069X061	Shaft Seal	1
11	069X064	O-ring 041, Pump Seal	2
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

A/R* = As required

10.11.7.3 Dual Gear Pump Assembly 1.54 cc/rev., PN 100863

Item	Part Number	Description	Quantity
5	069X061	Shaft Seal	1
11	069X064	O-ring 041, Pump Seal	3
18	N00198	O-ring 113	2
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

A/R* = As required

10.11.7.4 Dual Gear Pump Assembly 3.2 cc/rev., PN 100864

Item	Part Number	Description	Quantity
5	069X061	Shaft Seal	1
11	069X064	O-ring 041, Pump Seal	3
18	N00198	O-ring 113	2
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

A/R* = As required

10.11.7.5 Single Gear Pump Assembly 10 cc/rev., PN 109690

Item	Part Number	Description	Quantity
4	069X061	Shaft Seal	1
5	069X064	O-ring 041, Pump Seal	2
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

A/R* = As required

10.11.7.6 Single Gear Pump Assembly 0.15 cc/rev., PN 111253

Item	Part Number	Description	Quantity
4	069X061	Shaft Seal	1
5	069X064	O-ring 041, Pump Seal	2
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

A/R* = As required

10.11.7.7 Dual Gear Pump Assembly 0.15 cc/rev., PN 111254

Item	Part Number	Description	Quantity
4	069X061	Shaft Seal	1
5	069X064	O-ring 041, Pump Seal	2
11	N00198	O-ring 113	2
16	N00198	O-ring 113	2
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

A/R* = As required

10.11.7.8 Single Gear Pump Assembly 0.55 cc/rev., PN 109908

Item	Part Number	Description	Quantity
4	069X061	Shaft Seal	1
5	069X064	O-ring 041, Pump Seal	2
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

A/R* = As required

10.11.7.9 Dual Gear Pump Assembly 0.55 cc/rev., PN 109909

Item	Part Number	Description	Quantity
4	069X061	Shaft Seal	1
5	069X064	O-ring 041, Pump Seal	2
11	N00198	O-ring 113	2
-	001U002	Silicone lube, DOW 112 (not shown)	A/R*

A/R* = As required

10.11.8 Pneumatic Pressure Relief Valve Kit, PN 680424

Item	Part Number	Description	Quantity
3	680273	Solenoid 24V	4
5	115540	Pneumatic Pressure Relief Valve, max. up to 68 bar (1000 psi)	4

10.11.9 Level Control asy, PN 680614, with mounting drawings 665040, 665036, 665037

Item	Part Number	Description	Quantity
2	150020	Level sensor kit	1
3	150105	Level sensor bracket	1

10.11.10 Other Parts & Kits

Note: *See also optional parts and kits in Ch. 9.*

10.11.10.1 Filter-Kits and Options

Item	PN	Description	Quantity
	101247	Filter basket 100-mesh / 149-micron (standard)	4
	106273	Filter basket 150-mesh (optional)	4
	610702	Filter and Shutoff Assembly	1

10.11.10.2 Electrical Parts

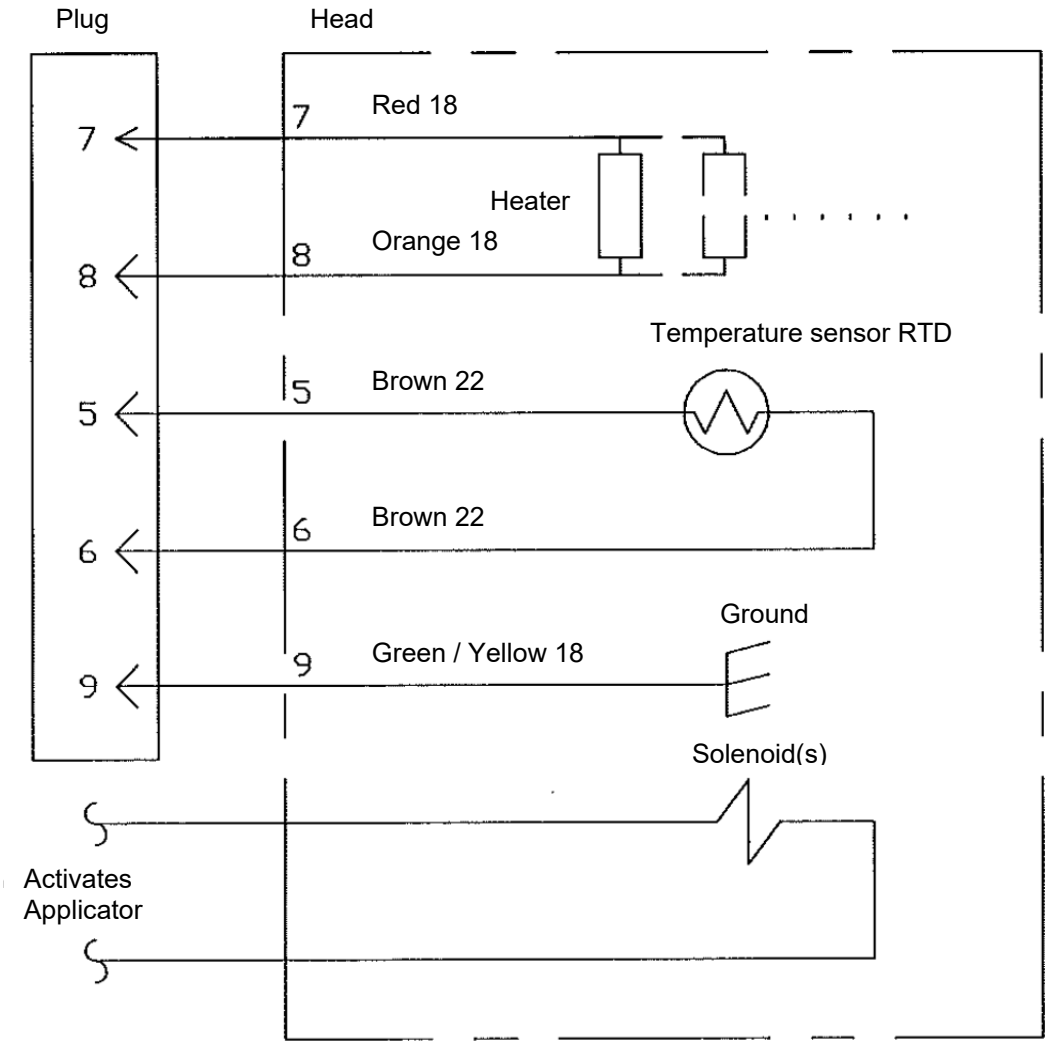
Item	PN	Description	Quantity
	112568	Fuse, 10AF, fast-acting (Power PCBs)	20
	119975	Fuse, 12AF, fast-acting (Power PCBs)	5
	106519	Hi Temp Over-Temp Thermostat Assy. (option)	1

10.11.10.3 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	1
	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

Chapter 11
Schematics & Engineering Drawings

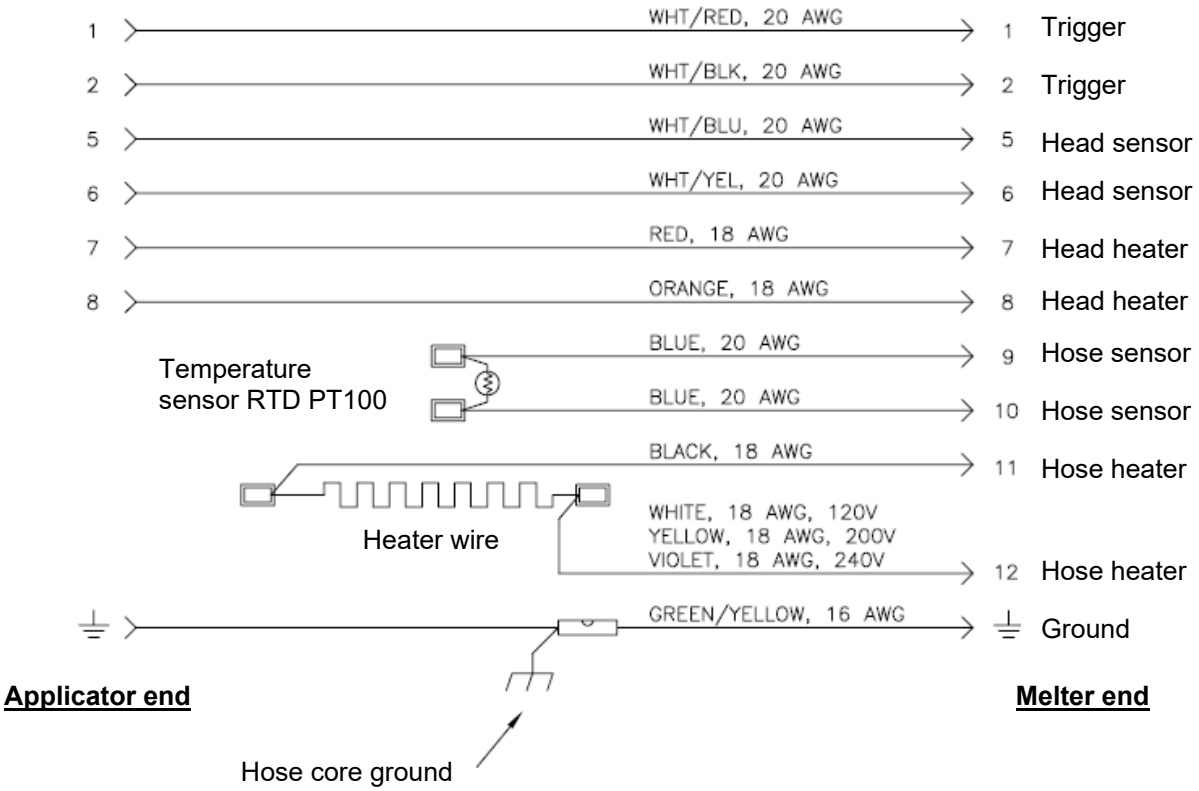
11.1 Head Schematic, PN 103117, Rev.B, DynaControl



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. Temperature sensor RTD is 100 Ohm Platinum.

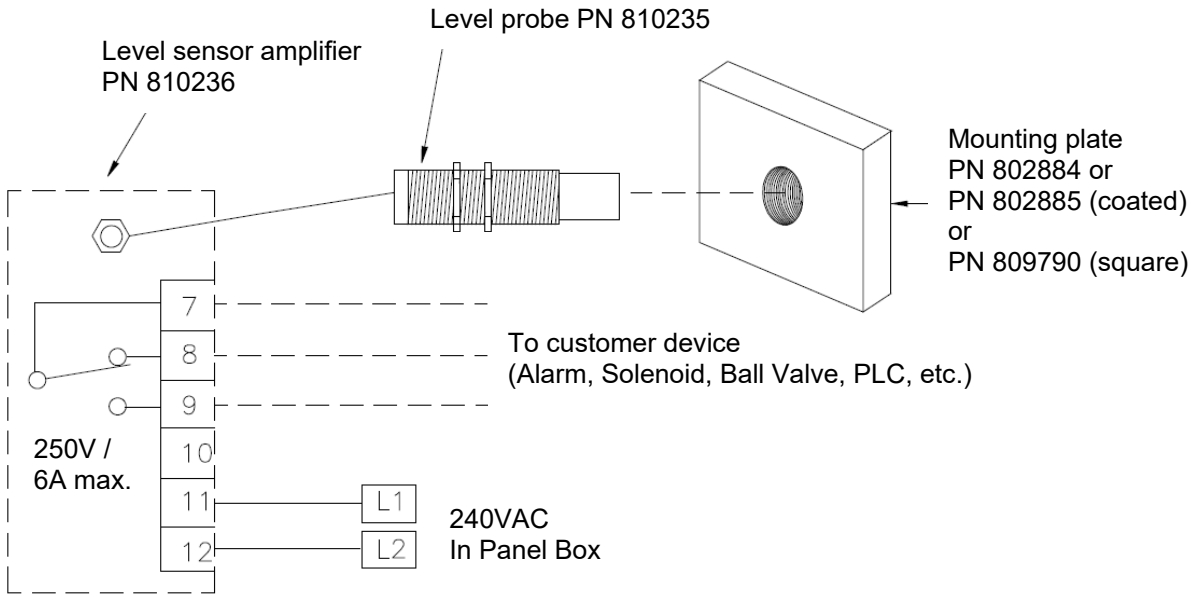
11.2 Hose Schematic, PN 101082, Rev.G, DynaControl

Melter to Applicator



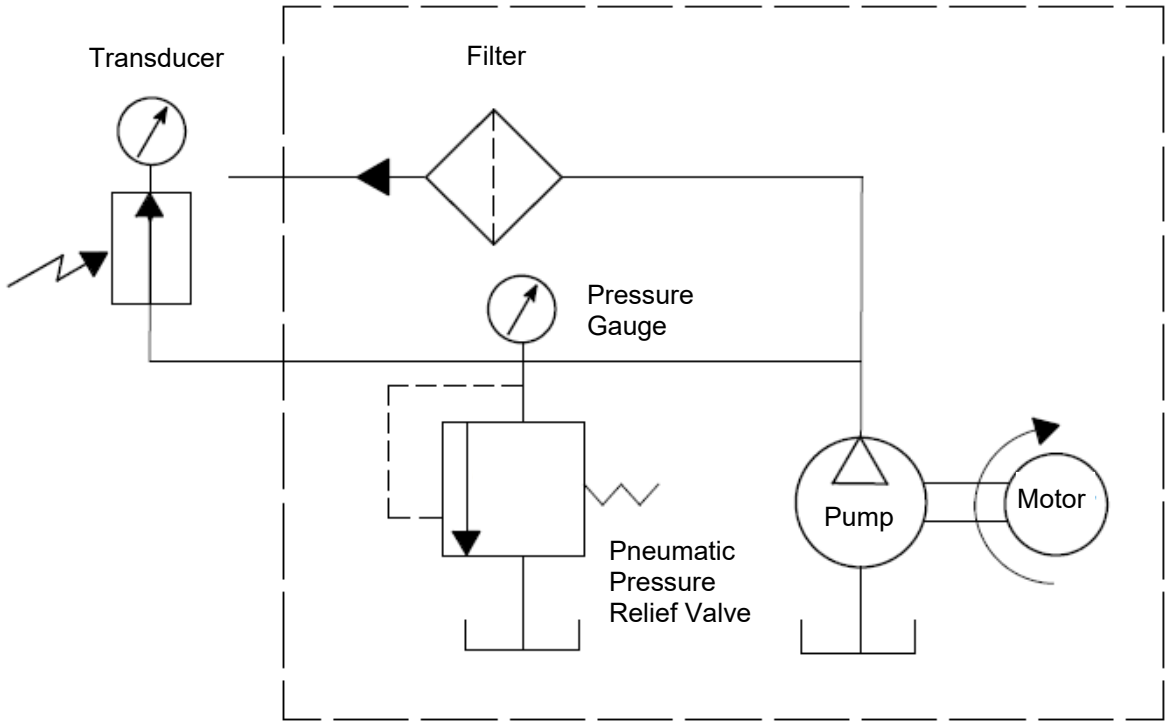
NOTES:
1. All wiring is routed through the hose.
2. Wire sizes shown are for no. 6 and no. 8 hoses up to 24 ft. in length.
   For larger diameter and longer hoses, heater lead wires are 16 AWG.
   Other wire sizes and colors may be changed in special hoses, per customer request.

11.3 Level Control Schematic PN 802972 REV.C



11.4 Typical Hydraulic Schematic

Single pump, Motor, Pneumatic Pressure Relief Valve, Filter, optional Transducer and optional Pressure Gauge



11.5 Schematics D15/25/45 V6, PN 118521J

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
ECR2064	J	SEE PAGE #4	6.20.23	BG	

0 1 2 3 4 5 6 7 8 9

ADHESIVE SUPPLY UNIT D15/25/45 DynaControl V6

POWER SUPPLY:	3 PHASE, "4 WIRE-DELTA", PE, 50/60HZ	3 PHASE, "5 WIRE-WYE", PE, 50/60HZ
VOLTAGE:	240VAC / 50-60HZ	400VAC / 50-60HZ
MAX. WATTAGE:	24.1KW	22.0KW
MAX. CURRENT:	58A	32A

INDEX

COMPONENT DESIGNATORS

A	CONTROL GEAR, PLC, MODULE
B	THERMOSTAT
F	FUSE, CIRCUIT BREAKER
G	POWER SUPPLY
H	INDICATOR, LAMP
K	CONTACTOR, RELAY
KN	SAFETY RELAY, E-STOP
M	MOTOR
Q	MAIN SWITCH
R	RESISTOR, RTD
S	SWITCH, PROXIMITY SWITCH
X	TERMINAL, TERMINAL STRIP
XS	PLUG/SOCKET CONNECTION
Y	SOLENOID

EXAMPLE: -K20.5
- 5 — COLUMN 5
- 20 — ON PAGE 20 (SHEET 2)
- K — CONTACTOR

D15/25/45 V6

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION: SCHEM, D15/25/45, V6

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

ITW Dynatec HENDERSONVILLE, TN

COVER SHEET AND INDEX

STATUS	SIZE	DRAWN BY	CHECKED BY	THIS PAGE	NEXT PAGE
S	B	D.HEERDT	–	10	20

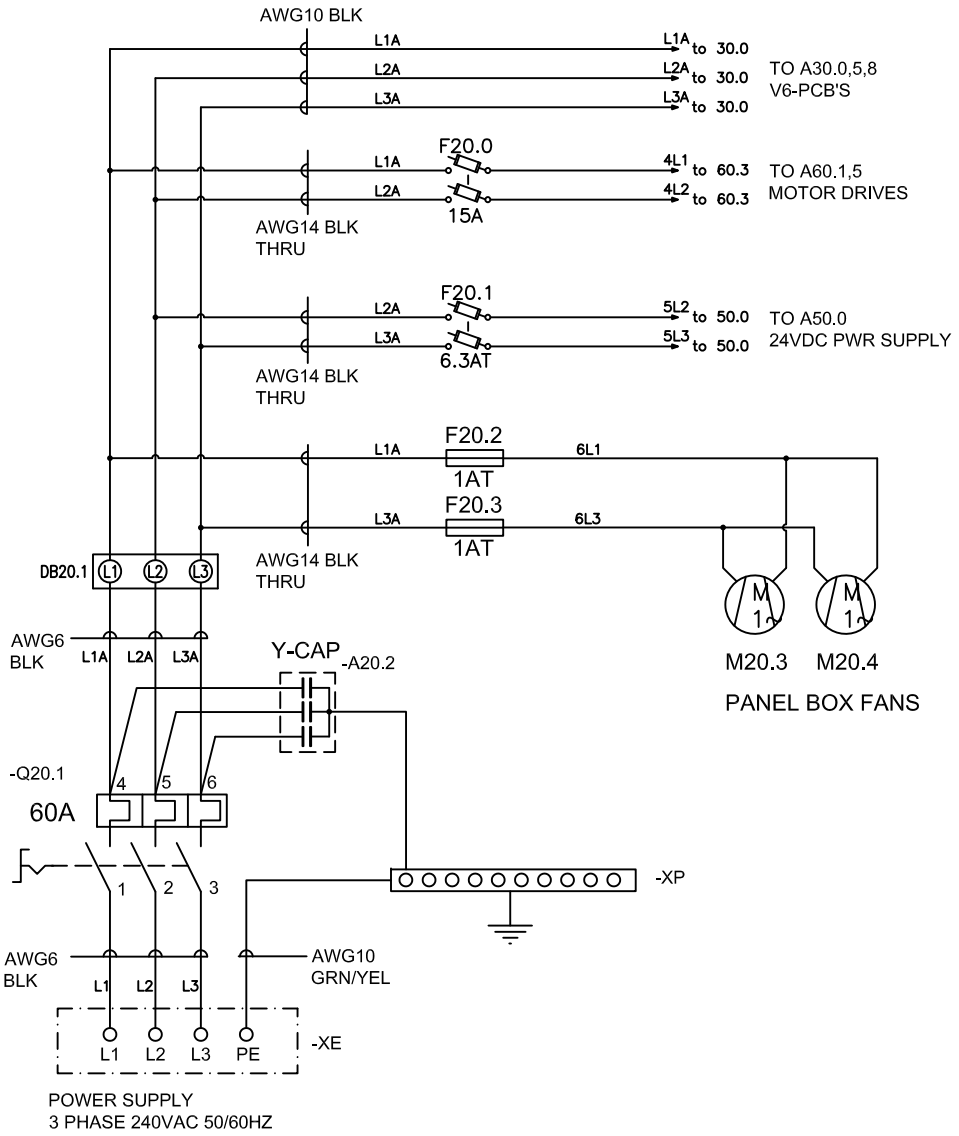
SOURCE	REV.	DATE	SHEET	OF SHEETS	DRAWING NO.
	J	08.17.11	1	10	118521

DWG. NO. 118521 SH 2 REV. J

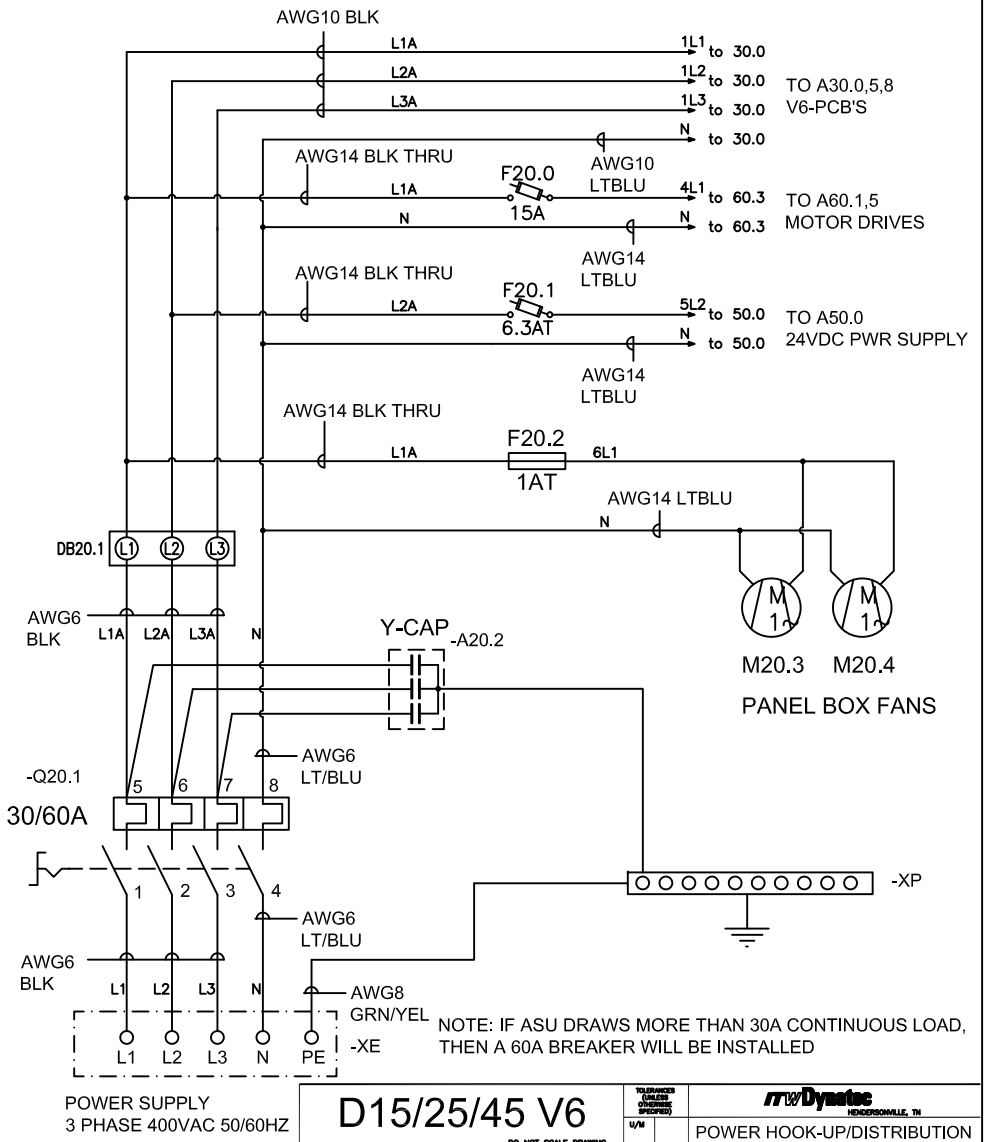
REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
ECR2064	J	SEE PAGE #4	6.20.23	BG	

240VAC 3 PHASE (DELTA)



400VAC 3 PHASE + N (WYE)

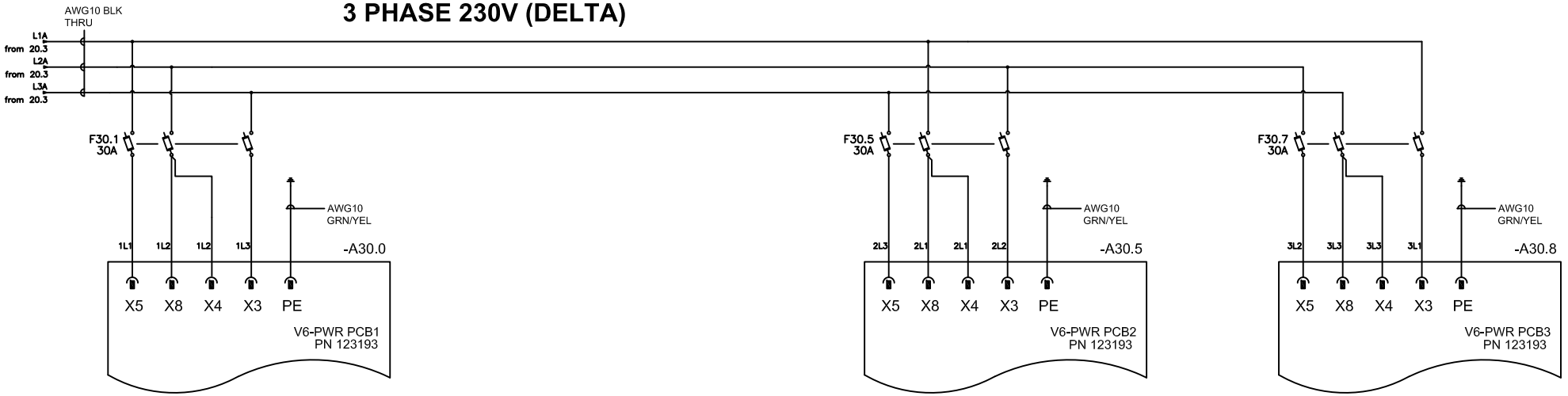


D15/25/45 V6	TOLERANCES (UNLESS OTHERWISE SPECIFIED) U/M	ITW Dynatec HENDERSONVILLE, TN	
DO NOT SCALE DRAWING	STATUS S	SIZE B	POWER HOOK-UP/DISTRIBUTION
COMPUTER DESCRIPTION(25 CHARACTERS) SCHEM, D15/25/45, V6	NEXT ASSY. FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	SOURCE	REV. J
		DRAWN BY: D.HEERDT	CHECKED BY: –
		DATE: 08.17.11	SHEET 2 OF SHEETS 10
		THIS PAGE 20	NEXT PAGE 30
		DRAWING NO. 118521	

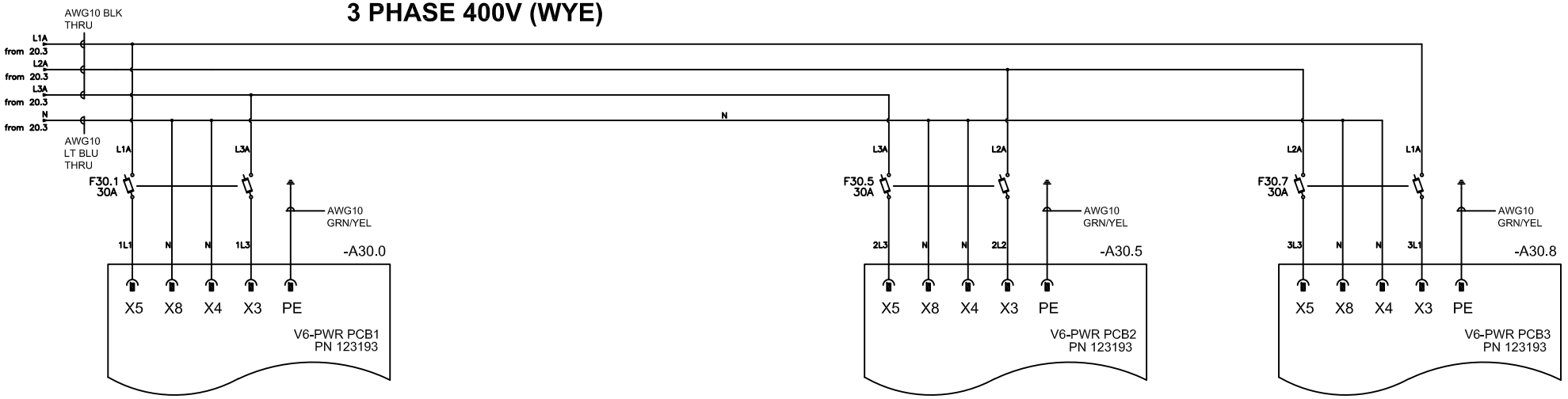
REVISIONS				
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
ECR2064	J	SEE PAGE #4	6.20.23	BG	

0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

3 PHASE 230V (DELTA)



3 PHASE 400V (WYE)



D15/25/45 V6	DO NOT SCALE DRAWING	TOLERANCES (UNLESS OTHERWISE SPECIFIED) U/M	ITW Dynatec HENDERSONVILLE, TN		
			POWER PCBs		
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	STATUS S	SIZE B	DRAWN BY: D.HEERDT	CHECKED BY: –	THIS PAGE 30	NEXT PAGE 40
SCHEM, D15/25/45, V6	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	SOURCE	REV. J	DATE: 08.17.11	SHEET 3 OF SHEETS 10	DRAWING NO. 118521	

DWG. NO. 118521 SH 4 REV. J

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
ECR2064	J	GRID HEATER WIRE SIZE AWG 12 TO 14	9.20.23	BG	

0 1 2 3 4 5 6 7 8 9

PN 680484
TO V6-TEMP X13
to 50.9
SEE SHEET 3 FOR APPROPRIATE WIRING CONFIGURATION
CBL11
-A30.0
X7 X4 X3 X8 X5
V6-PWR PCB1 PN 123193
F1 F2 F3 F4 F5 F6 F7 F8 F9 F10
X6 X2 X1
BLU RED BRN BLK BLU RED BRN BLK AWG16 AWG14
CBL1 CBL2 CBL3
7 8 PE 12 11
HEAD 2 HEATER
HOSE 2 HEATER
-XS40.0
PN 680458
7 6
HEAD 1 HEATER
HOSE 1 HEATER
-XS40.2
PN 680458
5 4
BLK BLK
HOPPER HEATER
2
PN 680463

PN 680484
TO V6-TEMP X12
to 50.10
SEE SHEET 3 FOR APPROPRIATE WIRING CONFIGURATION
CBL12
-A30.5
X7 X4 X3 X8 X5
V6-PWR PCB2 PN 123193
F1 F2 F3 F4 F5 F6 F7 F8 F9 F10
X6 X2 X1
BLU RED BRN BLK BLU RED BRN BLK AWG16 AWG14
CBL4 CBL5 CBL6
7 8 PE 12 11
HEAD 4 HEATER
HOSE 4 HEATER
-XS40.3
PN 680459
11 10
HEAD 3 HEATER
HOSE 3 HEATER
-XS40.5
PN 680459
9 8
AWG14
BLK BLK
GRID 1 HEATER
3

PN 680483
TO V6-TEMP X11
to 50.11
SEE SHEET 3 FOR APPROPRIATE WIRING CONFIGURATION
CBL13
-A30.8
X7 X4 X3 X8 X5
V6-PWR PCB3 PN 123193
F1 F2 F3 F4 F5 F6 F7 F8 F9 F10
X6 X2 X1
BLU RED BRN BLK BLU RED BRN BLK AWG16 AWG14
CBL7 CBL8 CBL9
8 7
AUX 4 HEATER
-XS40.6
AUX 3 HEATER
-XS40.7
15 PN 680461 14
AUX 2 HEATER
-XS40.8
AUX 1 HEATER
-XS40.9
13 PN 680460 12
BLK BLK
GRID 2 HEATER
1

D15/25/45 V6

DO NOT SCALE DRAWING

SCHEM, D15/25/45, V6

TOLERANCES (UNLESS OTHERWISE SPECIFIED) U/M

STATUS S SIZE B SOURCE REV. J

ITW Dynatec HENDERSONVILLE, TN

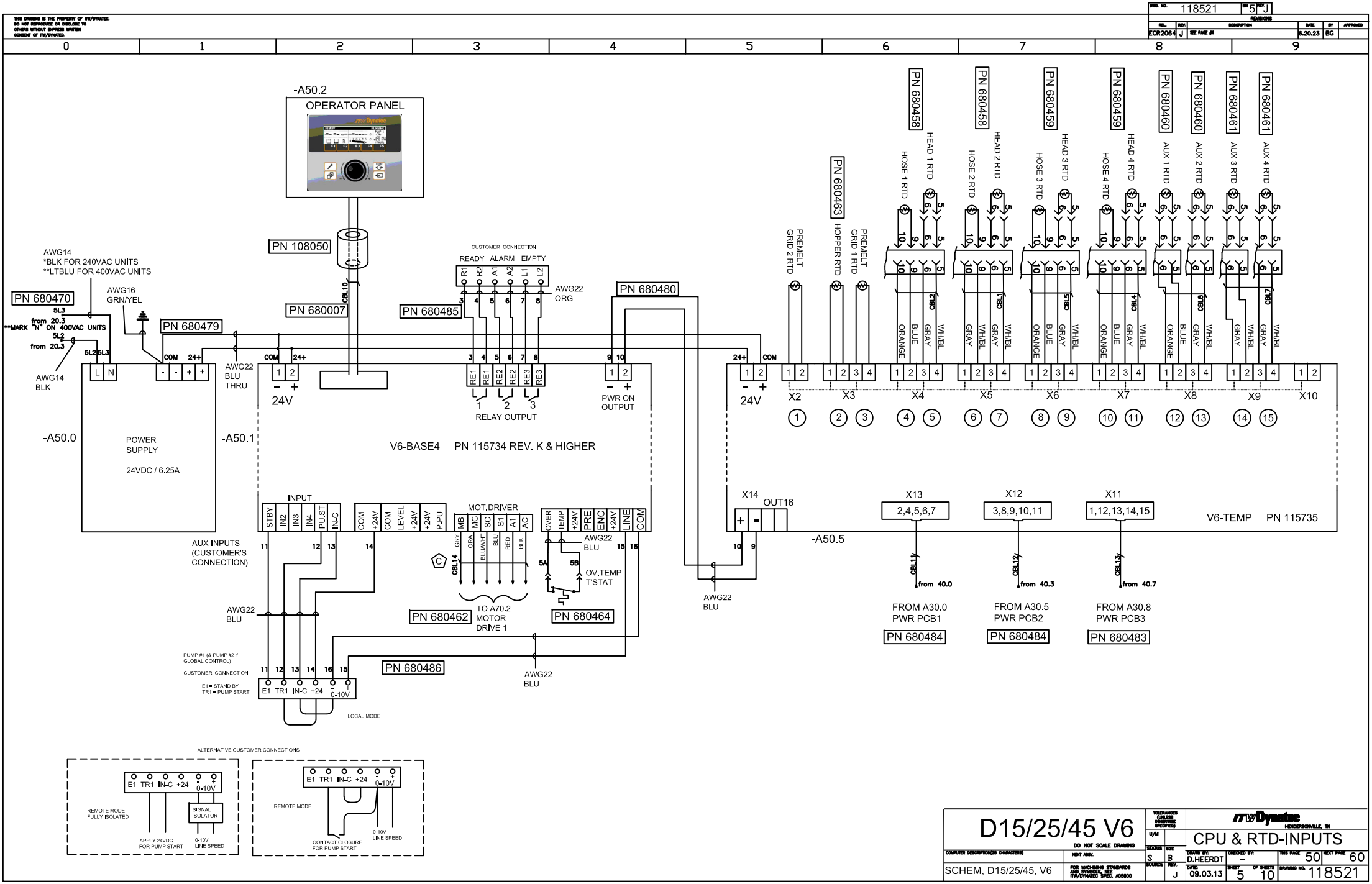
HEATER CIRCUITS / HS-HD-AUX-Z.

DRAWN BY: D.HEERDT CHECKED BY: – THIS PAGE 40 NEXT PAGE 50

DATE: 9.3.13 SHEET 4 OF SHEETS 10 DRAWING NO. 118521

DWG. NO. 118521 SH 5 REV. J

REVISIONS				
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
ECR2064	J	SEE PAGE #4	6.20.23	BG	



D15/25/45 V6

DO NOT SCALE DRAWING

SCHEM, D15/25/45, V6

ITW Dynatec HENDERSONVILLE, TN

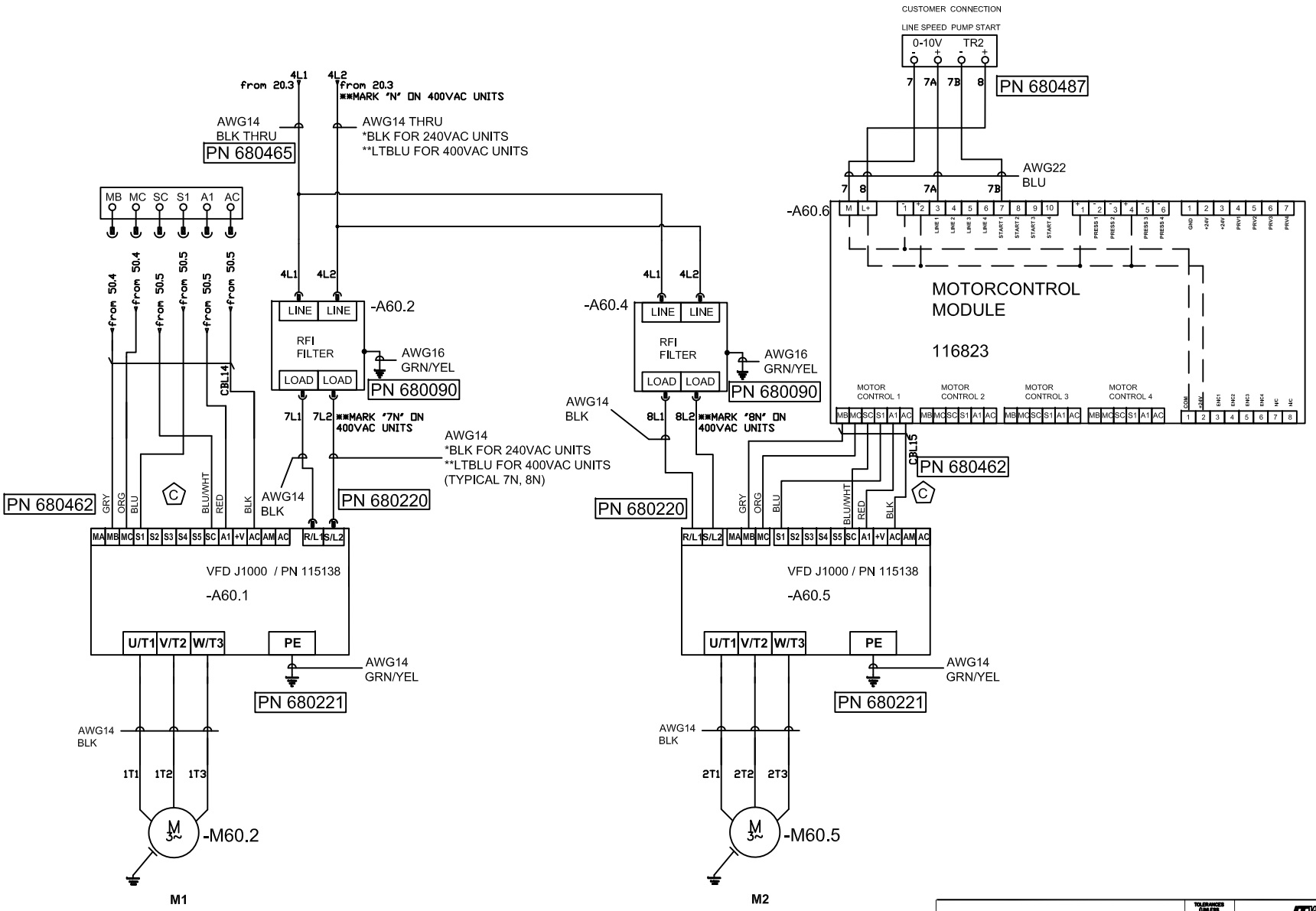
CPU & RTD-INPUTS

DRAWN BY:	D.HEERDT
CHECKED BY:	–
DATE:	09.03.13
SHEET	5 OF SHEETS 10
THIS PAGE	50
NEXT PAGE	60
DRAWING NO.	118521

DWG. NO. 118521 SH 6 REV. J

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
ECR2064	J	SEE PAGE #4	8.20.23	BG	

0 1 2 3 4 5 6 7 8 9



D15/25/45 V6	DO NOT SCALE DRAWING	TOLERANCES (UNLESS OTHERWISE SPECIFIED) U/M		itw Dynatec HENDERSONVILLE, TN	
				MOTOR CIRCUITS	
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	STATUS S	SIZE B	DRAWN BY: D.HEERDT	CHECKED BY: –
SCHEM, D15/25/45, V6	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05600	SOURCE	REV. J	DATE: 08.17.11	SHEET 6 OF SHEETS 10

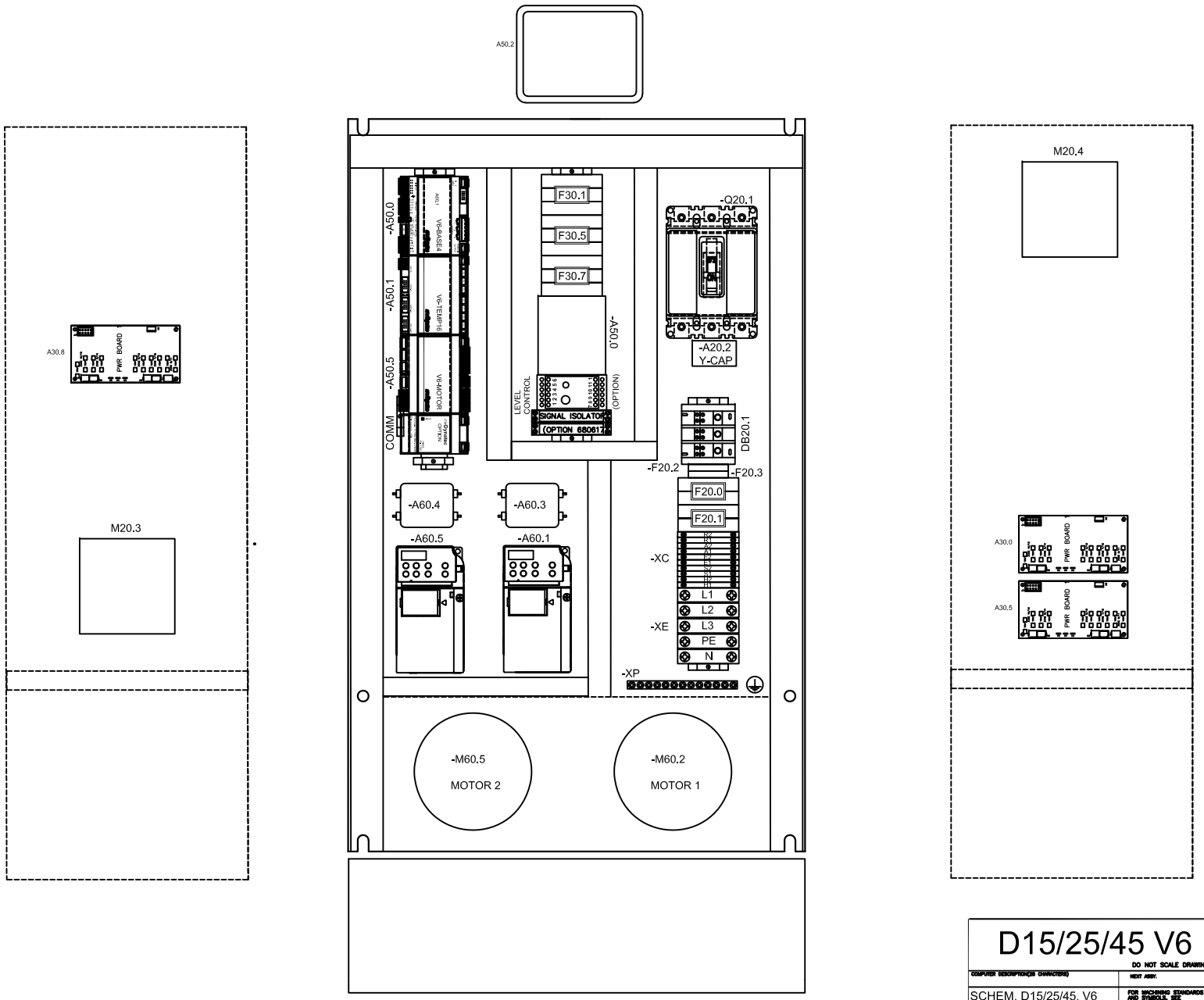
THIS PAGE 60 NEXT PAGE 70

DRAWING NO. 118521

DWG. NO. 118521 SH 7 REV. J

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
ECR2064	J	SEE PAGE #4	9.20.23	BG	

0	1	2	3	4	5	6	7	8	9

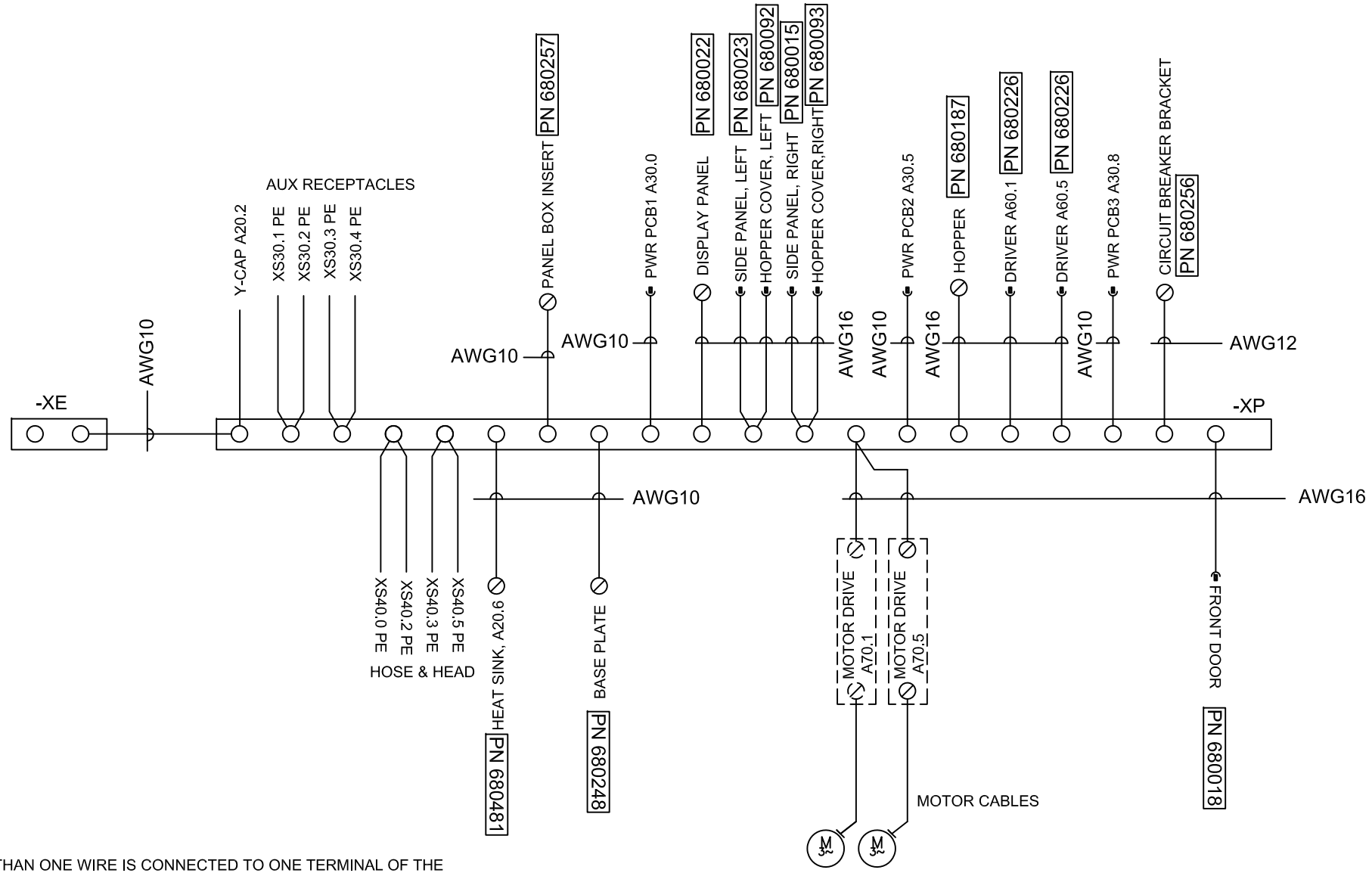


D15/25/45 V6		TOLERANCES (UNLESS OTHERWISE SPECIFIED)		ITW Dynatec HENDERSONVILLE, TN	
DO NOT SCALE DRAWING		U/M		PANEL BOX LAYOUT	
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	STATUS	SIZE	DRAWN BY: D.HEERDT	CHECKED BY: –
SCHEM, D15/25/45, V6	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	S	B	THIS PAGE 70	NEXT PAGE 80
		SOURCE	REV. J	DATE: 08.17.11	SHEET 7 OF SHEETS 10
				DRAWING NO. 118521	

DWG. NO. 118521 REV. J

REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
ECR2064	J	SEE PAGE #4	6.20.23	BG	



NOTE:

IF MORE THAN ONE WIRE IS CONNECTED TO ONE TERMINAL OF THE GROUND BAR, THOSE WIRES HAVE TO BE CRIMPED TOGETHER IN ONE APPROPRIATE FERRULE.

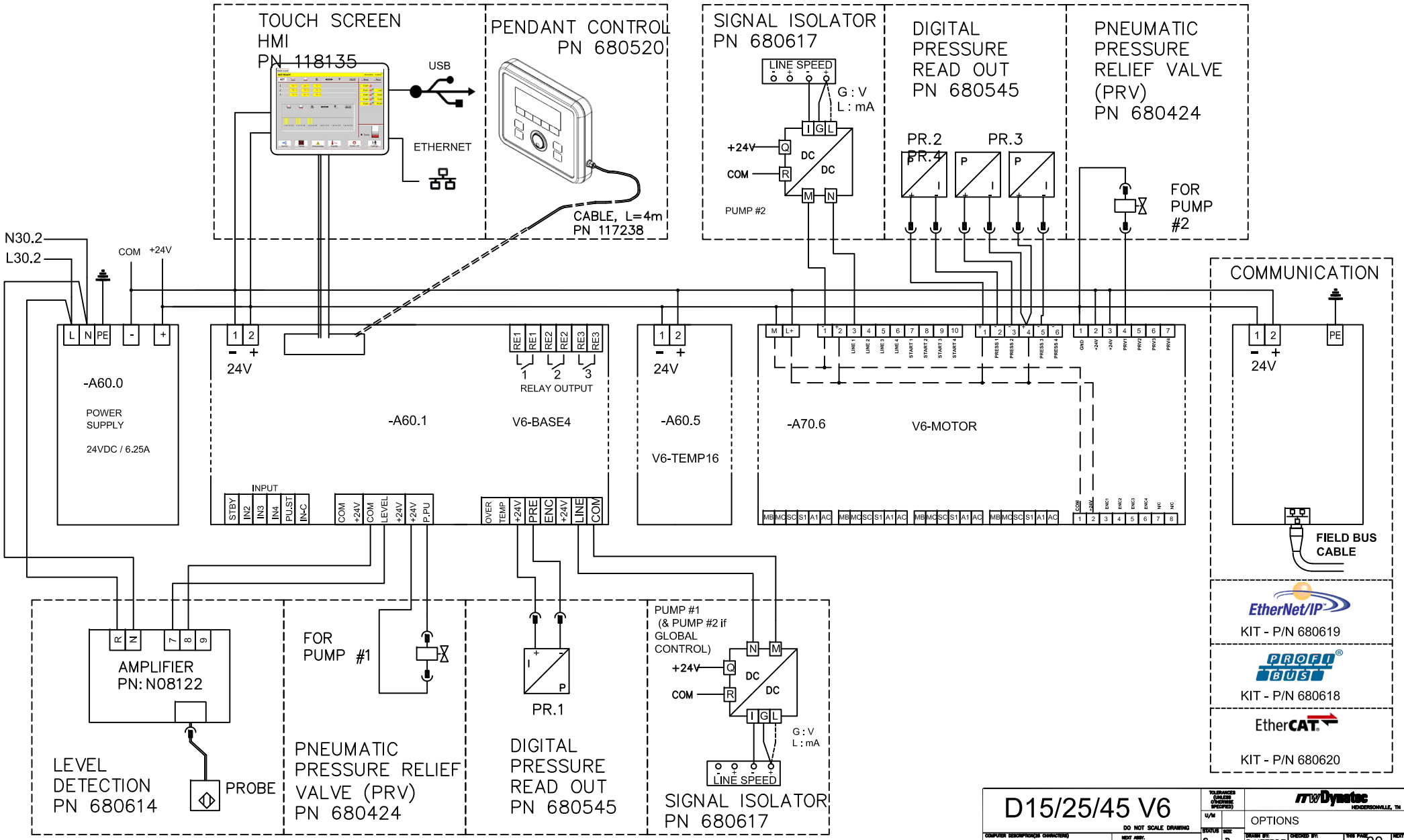
ALL GROUND WIRE HAVE TO BE YELLOW/GREEN.
ALL GROUND TERMINALS HAVE TO BE APPROPRIATELY LABELED.

D15/25/45 V6	TOLERANCES (UNLESS OTHERWISE SPECIFIED) U/M	ITW Dynatec HENDERSONVILLE, TN	
DO NOT SCALE DRAWING		D15/25/45 , GROUNDING SCHE.	
COMPUTER DESCRIPTION(25 CHARACTERS) / NEXT ASSY.	STATUS S / SIZE B	DRAWN BY: D.HEERDT	CHECKED BY: –
SCHEM, D15/25/45	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05600	SOURCE / REV. J	DATE: 05.07.08
		THIS PAGE 80	NEXT PAGE 90
		SHEET 8 OF SHEETS 10	DRAWING NO. 118521

DWG. NO. 118521 SH 9 REV. J

REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
ECR2064	J	SEE PAGE #4	9.20.23	BG	



D15/25/45 V6	DO NOT SCALE DRAWING	TOLERANCES (UNLESS OTHERWISE SPECIFIED) U/M	ITW Dynatec HENDERSONVILLE, TN		
			OPTIONS		
COMPUTER DESCRIPTION(30 CHARACTERS)	NEXT ASSY.	STATUS S	SIZE B	DRAWN BY: D.HEERDT	CHECKED BY: –
SCHEM, D15/25/45, V6	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	SOURCE	REV. J	DATE: 9.3.13	SHEET 9 OF SHEETS 10

THIS PAGE 90 NEXT PAGE

DRAWING NO. 118521

DWG. NO. 118521 REV. 10 J

REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
ECR2064	J	SEE PAGE #4	6.20.23	BG	

0 1 2 3 4 5 6 7 8 9

REFERENCE	QTY	DESCRIPTION	PN	MANUFACTURER / PN
-XE	1	TERMINAL BLOCK, POWER ENTRY		
-Q20.1	1	MAIN SWITCH / CIRCUIT BREAKER		32A / 63A 600V
-A30.0	3	POWER PCB	123193	
-A30.5				
-A30.8				
-A50.0	1	DC POWER SUPPLY		
-XS40.0	8	CONNECTOR, FEMALE SOCKET, 13+PE		
-XS40.2				
-XS40.3				
-XS40.5				
-XS40.6				
-XS40.7				
-XS40.8				
-XS40.9				
-A50.5	1	TEMP MODULE	115735	
-A50.1	1	BASE MODULE	115734	
-A50.2	1	KEYPAD / DISPLAY PCB		
-A60.3	2	LINE FILTER, 1PH	680090	
-A60.4				
-A60.1	2	MOTOR DRIVE BOARD	115138	
-A60.5				
-M60.2	2	MOTOR, AC, 3PH		
-M60.5				
-XP	1	GROUND BLOCK		
-XC	1	CUSTOMER CONNECTION		
-A50.0	2	SIGNAL ISOLATOR PCB (OPTION)		
-A50.9				
-A70.6	1	MOTOR MODULE	116823	
OV.TEMP	1	OVER TEMP. THERMOSTAT		

REFERENCE	QTY	DESCRIPTION		MANUFACTURER / PN
-A20.2	1	Y-CAP ASSEMBLY		
-DB20.1	1	DISTRIBUTION BLOCK, 3-PH		

D15/25/45 V6

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS): SCHEM, D15/25/45

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED): U/M

STATUS: S SOURCE:

SIZE: B REV.: J

ITW Dynatec HENDERSONVILLE, TN

D15/25/45 V6, BOM

DRAWN BY: D.HEERDT DATE: 05.07.08

CHECKED BY: –

THIS PAGE: 100 NEXT PAGE: –

SHEET 10 OF SHEETS 10

DRAWING NO. 118521

11.6 Schematics V6 Profinet Option, PN 121436

/ +24V

/ +0V

-A994.1

- | + | 1 | 2

24V | PE

FELDBUS-MODUL
FIELD BUS MODULE
BUS DE TERRAIN - MODULE
BUS DE CAMPO MÓDULO
P/N 117382

-A994.2

DP

Profibus Einschub
Profibus insert
insert de Profibus
inserto de Profibus
P/N 117484

-A1000.6

Hilscher NL 51N-DPL

X1

+ | -

24V

SYS

COM

X2 | X3

DP | PN

Profinetanschluss zur SPS
Profinet connection to PLC
connexion de Profinet à CPL
conexión de Profinet a CPP

PN_ToSPS /

OPTION
OPCIÓN

			Datum	21.12.2017	ITW Dynatec		V6-Profinet Option	=	
			Bearb.	mstapel	V6-Profinet Option			+	
			Gepr					P/N: 121436	Blatt 1
Änderung	Datum	Name	Urspr		Ersatz von	Ersetzt durch			Blatt 1

ITW Dynatec® THE NEXT LEVEL OF TECHNOLOGY

Chapter 12
Appendix

12.1 DynaControl V6 / Fieldbus Option

The V6 Fieldbus options allows any V6-based unit to be monitored and controlled remotely.

Available options are:
- Profibus
- ProfiNet
- Ethernet/IP
- EtherCAT
- CC-Link

Although those fieldbuses are different in several aspects, the data exchange between the remote controller (typically PLC) and the hot melt equipment is always the same. The data exchange is based on parameter tables (Input and Output Data).

The structure of the I/O tables allows easy access to commonly used information but also access to more in depth parameters if required.

The first half of the I/O tables are used to exchange important:

Input:
- Melter control: on/off/Standby
- Pump control: on/off pump speed
- Local or remote access

Output:
- System Status: ready, heating, warnings, alarm etc.
- Pump status: Run, Hold, actual pump speed
- Level indication
- Pressure read out

Those parameters are directly accessible without special PLC logic.

The second half of the I/O tables are used for block transfer. The block transfer can be used to exchange more detailed information. This is an on-demand transfer and requires PLC code to manage the transfer.

Following Blocks are available:
- Detailed system status
- Actual Temperature for each zone
- Read back of temperature set points
- Current temperature status
- Actual pressure for secondary transducers
- Temp. zone sequencing and zone on/off
- Pump speed manual setpoints
- Pump speed automatic scaling
- Pressure loop parameters

If parameters have to be changed that are not available within the predefined Blocks above, it is possible to create custom blocks. With this it is possible to access virtually every internal parameter. Since this requires special knowledge this is out of the scope of the standard documentation. If required a special technical instruction sheet is available on request.

Local access vs. remote access:
Once the system is controlled via field bus, the fieldbus takes priority over parameter change via HMI. In order to make local changes (on Melter's HMI) possible the PLC can grant access to those parameters.

The access is separated into global control and Line speed control.

12.2 Coalescing Filter Kit, PN 100055

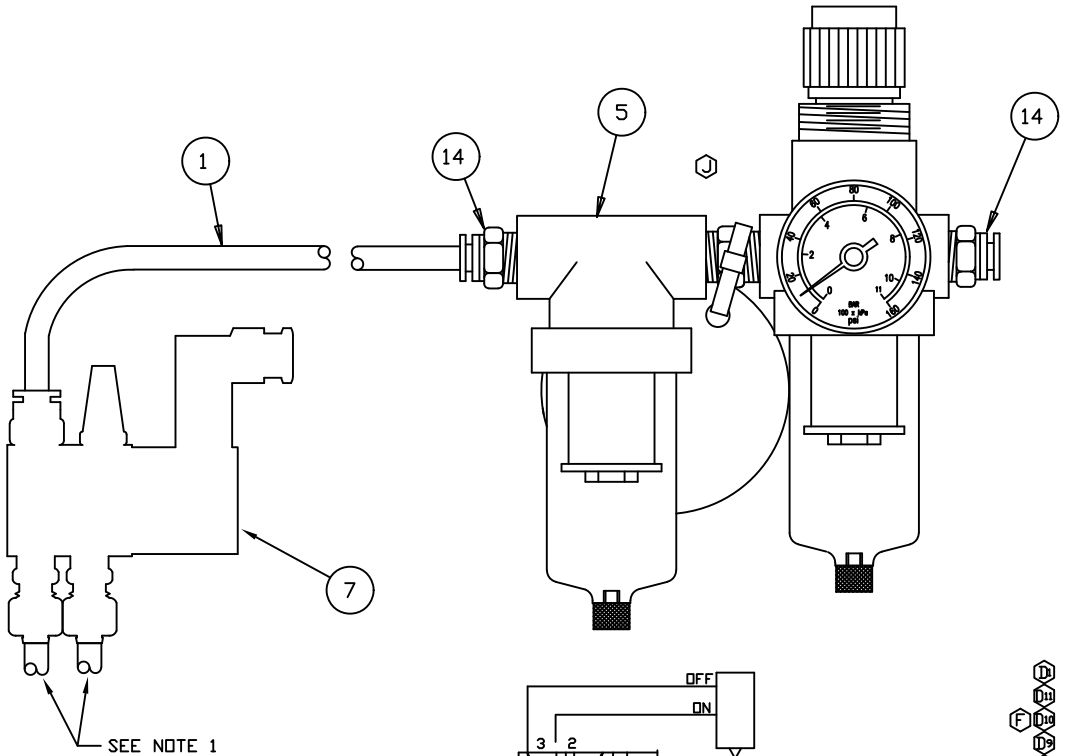
DWG. NO. 100055 SH. 1 REV. K

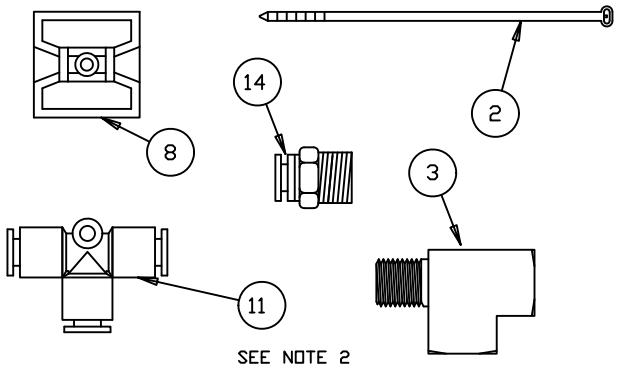
REVISIONS

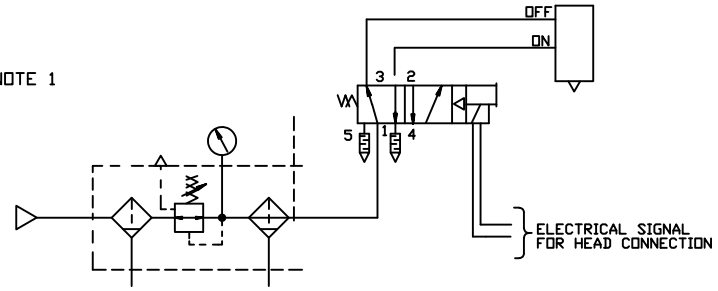
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
02163	G	ADDED ITEM 4	10.14.02	BB	
02584	H	ITEM 5 WAS 100380	10.30.02	BB	
02640	J	CORRECT VIEW OF FILTER	1.31.03	BB	
E436	K	SHOW ITEM 14 AS SPARE; ADD NOTE 2	07.09.19	JC	

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

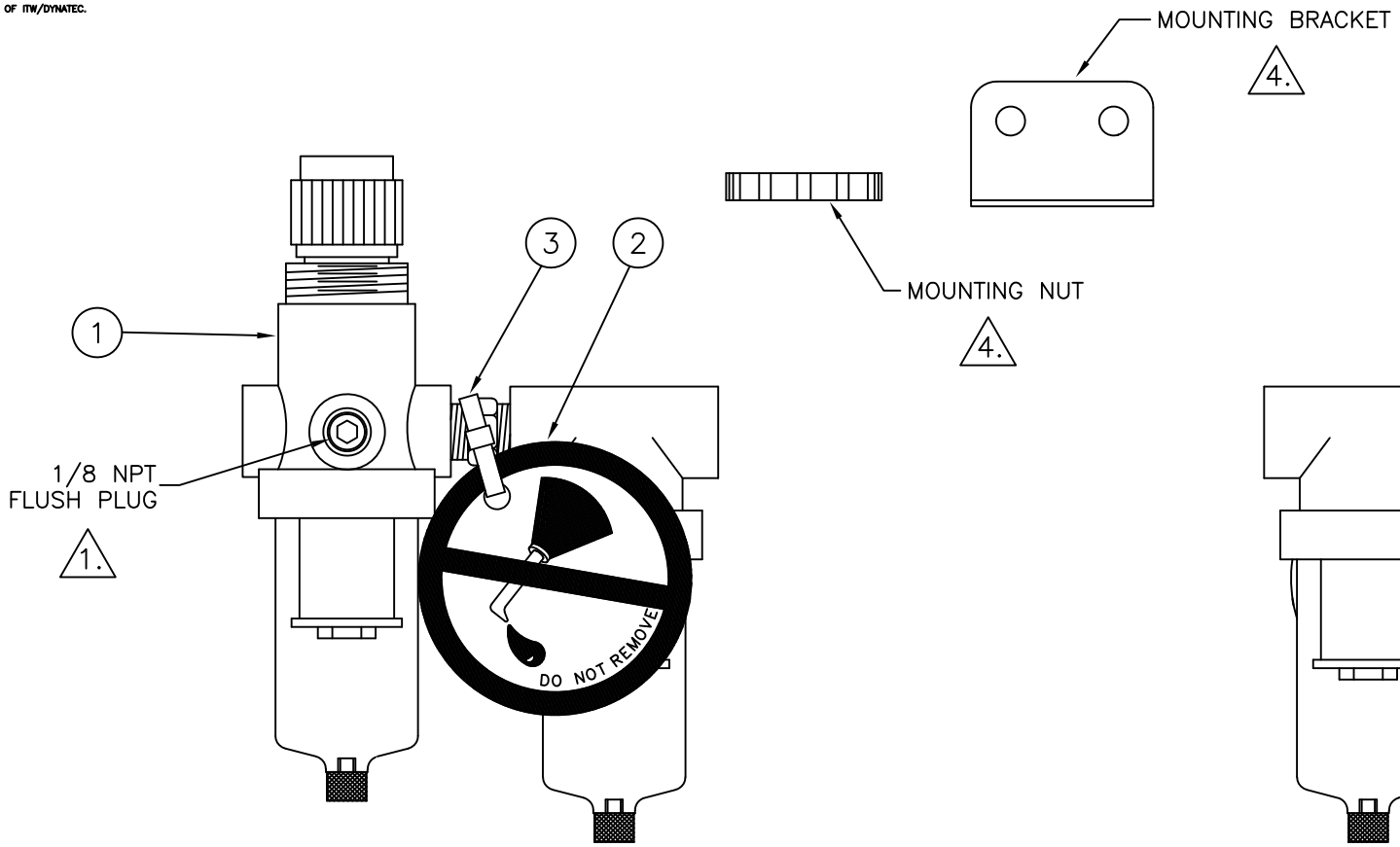
STATUS P

SOURCE P

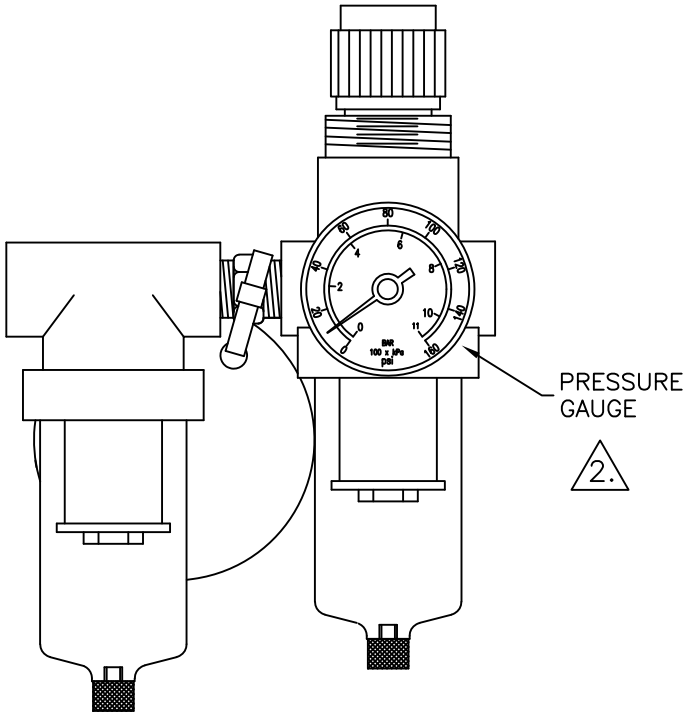
SIZE C DWG. NO. 100055 REV. K GROUP 00

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

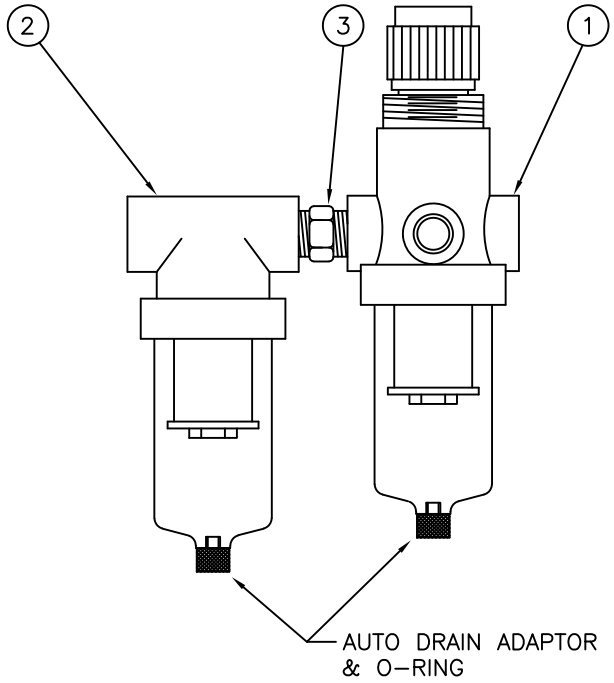
SCALE 1:1 | CAD DRAWING | SHEET 1 of 1

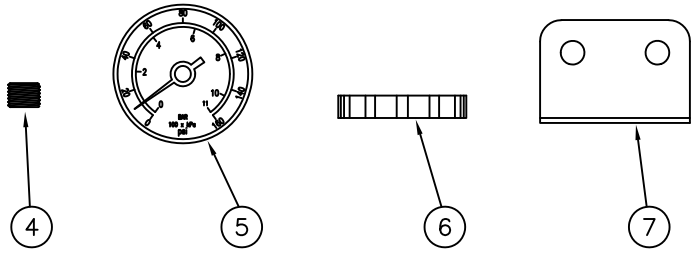
U/M: EA
STATUS: A
SOURCE: G
GROUP: 20

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

12.3 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

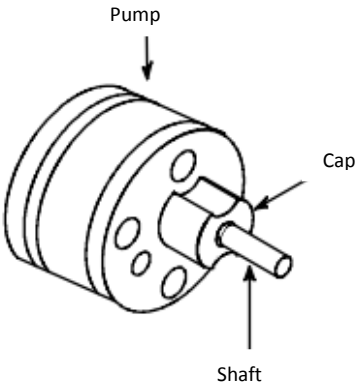
The ITW Part Number for all Tool Steel High Accuracy Pump Shaft Seals (8.5cc and smaller) is PN 807729.

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.

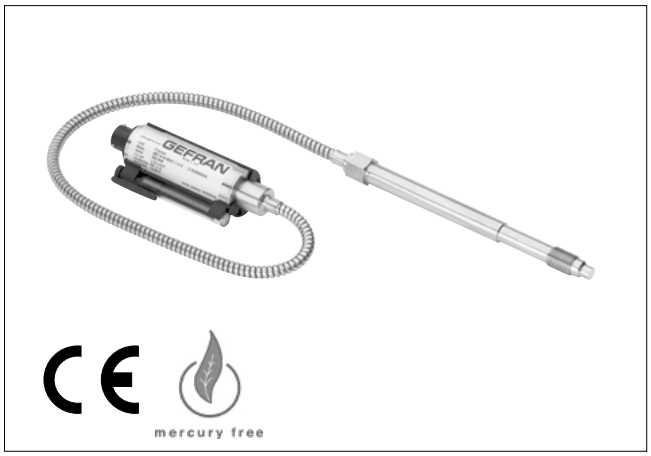
While storing spare parts, always protect the parts from water and contaminants. Store the parts in a clean, dry, and warm environment. Spare parts should be lightly coated with rust preventative oil and sealed in an air tight container.

12.4 Pressure Transducer

GEFRAN

OIL FILLED MELT PRESSURE TRANSMITTERS

WE SERIES *Output 4...20mA*



The WE series of Gefran, are pressure transmitters for using in High temperature environment.
The main characteristic of this series is the capability to read temperature of the media up to 315°C.
The constructive principle is based on the hydraulic trasmission of the pressure.
The fluid-filled system assures the temperature stability.
The phisical measure is transformed in a electrical measure by means the strain-gauge technology.

MAIN FEATURES

- Pressure ranges from:
  0-35 to 0-1000 bar / 0-500 to 0-15000 psi
- Accuracy: < ±0.25% FSO (H); < ±0.5% FSO (M)
- Fluid-filled system for temperature stability
- Oil filling meets FDA requirements CFR 178.3620 and CFR 172.878
- Oil filling volume:
  WE0 (30mm³); WE1, WE2, WE3 (40mm³)
- 1/2-20UNF, M18x1.5 standard threads; other types available on request
- Other diaphragms available on request
- Autozero function on board / external option
- Drift Autocompensation function (SP version)
- 17-7 PH corrugated diaphragm with GTP+ coating

GTP+ (advanced protection)
Coating with high resistance against corrosion, abrasion and high temperature

AUTOZERO FUNCTION

All signal variations in the absence of pressure can be eliminated by using the Autozero function.
This function is activated by closing a magnetic contact located on the transmitter housing.
The procedure is permitted only with pressure at zero.

AUTOCOMPENSATES INFLUENCE OF MELT TEMPERATURE

Thanks to internal self-compensation, the WSP series transmitter cancels the effect of pressure signal variation caused by variation of Melt temperature.
This reduces at the minimum the read error caused by heating of the filling fluid (typical of all sensors built with "filled" technology).

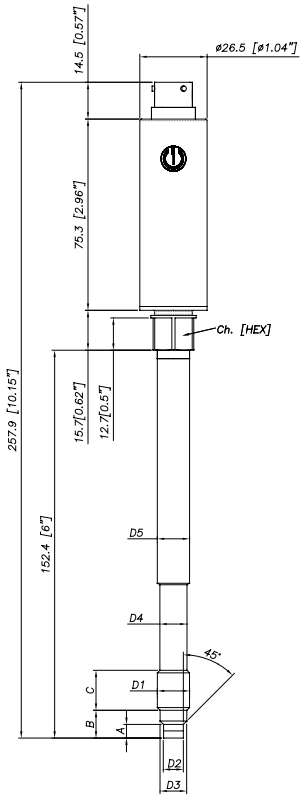
TECHNICAL SPECIFICATIONS

Accuracy (1)	**H** <±0.25%FSO (100...1000 bar) **M** <±0.5%FSO (35...1000 bar)
Resolution	Infinite
Measurement range	0..35 to 0..1000bar 0..500 to 0..15000psi
Maximum overpressure (without degrading performances)	2 x FS 1.5 x FS above 500bar/7500psi
Measurement principle	Extensimetric
Power supply	10...30Vdc
Maximum current absorption	32mA
Insulation resistance (at 50Vdc)	>1000 MOhm
Output signal Full Scale (FSO)	20mA
Zero balance (tollerance ± 0.25% FSO)	4mA
Zero signals adjustment (tollerance ± 0.25% FSO)	"Autozero" function
Span adjustment within ± 5% FSO	See Manual
Maximum allowed load	See diagram
Response time (10...90% FSO)	~ 1ms
Output noise (RMS 10-400Hz)	< 0.025% FSO
Calibration signal	80% FSO
Output short circuit ingress and reverse polarity protection	YES
Compensed temperature range	0...+85°C
Operating temperature range	-30...+105°C
Storage temperature range	-40...+125°C
Thermal drift in compesated range: Zero / Calibration / Sensibility	< 0.02% FSO/°C
Diaphragm maximum temperature	315°C / 600°F
Zero drift due to change in process temperature (zero)	< 0.04 bar/°C
Zero drift temperature for Autocompensated version (SP) within the temperature range 20°C-315°C inclusive the drift temperature of the housing	< 0.005 bar/°C 100 ≤ p < 500 bar 0.0022 %FS/°C p ≥ 500 bar
Standard Material in contact with process medium	Diaphragm: • 17-7PH corrugated diaphragm with GTP+ Stem • 17-4 PH
Thermocouple (model WE2)	STD: type "J" (isolated junction)
Protection degree (with 6-pole female connector)	IP65

FSO = Full scale output
(1) BFSL method (Best Fit Straight Line): includes combined effects of Non-Linearity, Hysteresis and Repeatability.

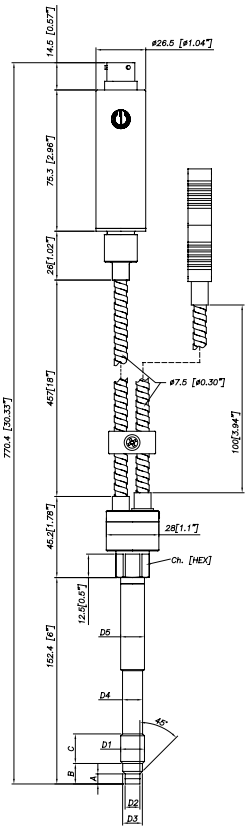
MECHANICAL DIMENSIONS

WE0

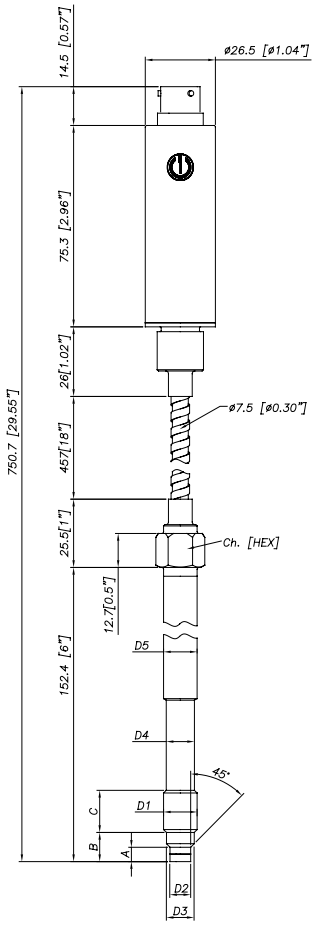


D1	1/2 - 20UNF
D2	ø7.8 -0.05 [ø0.31" -0.002]
D3	ø10.5 -0.025 [ø0.41" -0.001]
D4	ø10.67 [ø0.42"]
D5	ø12.7 [ø0.5"]
A	5.56 -0.26 [0.22" -0.01]
B	11.2 [0.44"]
C	15.74 [0.62"]
Ch [Hex]	16 [5/8"]

WE2

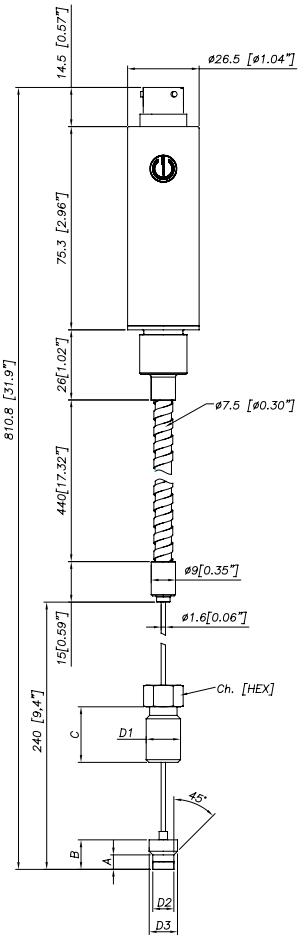


WE1



D1	M18x1.5
D2	ø10 -0.05 [ø0.394" -0.002]
D3	ø16 -0.08 [ø0.63" -0.003]
D4	ø16 -0.4 [ø0.63" -0.016]
D5	ø18 [ø0.71"]
A	6 -0.26 [0.24" -0.01]
B	14.8 -0.4 [0.58" -0.016]
C	19 [0.75"]
Ch [Hex]	19 [3/4"]

WE3



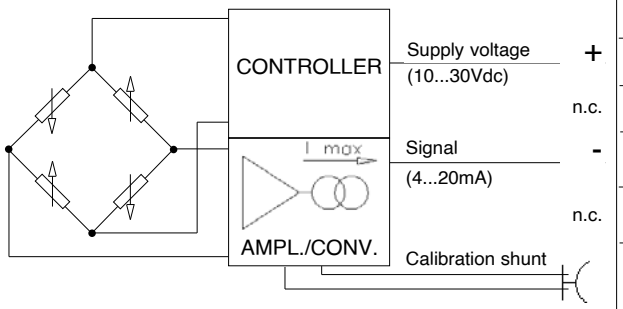
Exposed capillary	
D1	1/2-20UNF
D2	.307/.305" [7.80/7.75mm]
D3	.414/.412" [10.52/10.46mm]
A	.125/.120" [3.18/3.05mm]
B	.318/.312" [8.08/7.92mm]
C	.81" [20.6mm]

NOTE : dimensions refer to rigid stem length option "4" (153 mm – 6")

WARNING : For installation use a maximum tightening torque of 56 Nm(500 in-lb)

ELECTRICAL CONNECTIONS

CURRENT OUTPUT (4...20mA, two wires)



MAGNETIC AUTOZERO

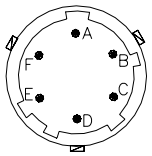
6-pin	8-pin
A	B
C	A
B	D
D	C
E - F	E - F
	G - H

EXTERNAL AUTOZERO

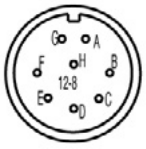
6-pin	8-pin
A	B
C	A
B	D
D	C
E - F	E - F
	G - H

Shield drain wire is tied to connector via cable clamp

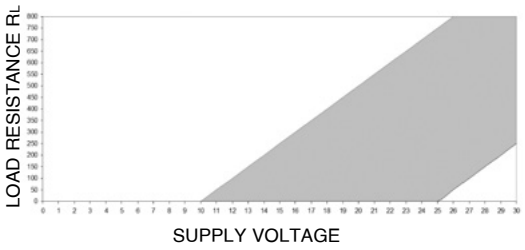
6 pin connector
VPT07RA10-6PT2
(PT02A-10-6P)



8 pin connector
PC02E-12-8P Bendix

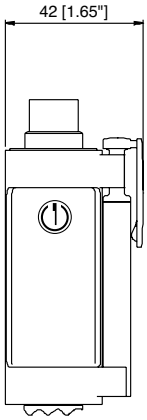


LOAD DIAGRAM



The diagram shows the optimum ratio between the load and supply voltage of the 4...20mA transmitter. For a correct use, choose any combination of load resistance and supply voltage, in the shaded area.

AUTOZERO FUNCTION



The Autozero function is activated through a magnetic contact (external magnet supplied with the sensor).
See the manual for a complete Autozero function explanation.

ACCESSORIES

Connectors

6-pin mating connector (IP65 protection degree)	**CON300**
8-pin mating connector	**CON307**

Extension cables

6-pin connector with 8m (25ft) cable	**C08WLS**
6-pin connector with 15m (50ft) cable	**C15WLS**
6-pin connector with 25m (75ft) cable	**C25WLS**
6-pin connector with 30m (100ft) cable	**C30WLS**
8-pin connector with 8m (25ft) cable	**E08WLS**
8-pin connector with 15m (50ft) cable	**E15WLS**
8-pin connector with 25m (75ft) cable	**E25WLS**
8-pin connector with 30m (100ft) cable	**E30WLS**
Other lengths	**consult factory**

Accessories

Mounting bracket	**SF18**
Dummy plug for 1/2-20UNF	**SC12**
Dummy plug for M18x1.5	**SC18**
Drill kit for 1/2-20UNF	**KF12**
Drill kit for M18x1.5	**KF18**
Cleaning kit for 1/2-20UNF	**CT12**
Cleaning kit for M18x1.5	**CT18**
Fixing pen clip	**PKIT309**
Autozero pen	**PKIT312**

Thermocouple for WE2 model

Type “J” (153mm - 6” stem)	**TTER 601**

Cable color code 6 wires	
Conn.	**Wire**
A	Red
B	Black
C	White
D	Green
E	Blue
F	Orange

Cable color code 8 wires	
Conn.	**Wire**
A	White
B	Red
C	Green
D	Black
E	Blue
F	Orange
G	n.c.
H	n.c.

ORDER CODE

W -□-□-□-□-□-□□□□-□-□-□-□- **000**

Autocompensation (*)	**SP**
Standard	**-**

(*) available for ranges > to 100bar
(*) not available for WE3 version

OUTPUT SIGNAL	
4...20mA	**E**

CONFIGURATION	
Rigid stem	**0**
Rigid stem + flexible	**1**
With thermocouple	**2**
Exposed capillary	**3**

CONNECTOR	
Standard	
6 pin	**6**
8 pin	**8**

ACCURACY CLASS	
0.25% FSO (ranges ≥ 100 bar/1500 psi)	**H**
0.5% FSO	**M**

RANGE			
bar		psi	
35	**B35U**	**500**	**P05C**
50	**B05D**	**750**	**P75D**
70	**B07D**	**1000**	**P01M**
100	**B01C**	**1500**	**P15C**
200	**B02C**	**3000**	**P03M**
350	**B35D**	**5000**	**P05M**
500	**B05C**	**7500**	**P75C**
700	**B07C**	**10000**	**P10M**
1000	**B01M**	**15000**	**P15M**

000= Standard version
Special or customized versions available on request

E	External autozero
-	Magnetic autozero

FLEXIBLE LENGTH (mm / inches) (*)		
Standard (WE0)		
0	none	
Standard (WE1, WE2)		
D	457mm	18”
E	610mm	24”
F	760mm	30”
Standard (WE3)		
L	711mm	28”
Available on request		
A	76mm	3”
B	152mm	6”
C	300mm	12”

RIGID STEM LENGTH (mm / inches) (*)		
Standard (WE0, WE1, WE2)		
4	153mm	6”
5	318mm	12.5”
Standard (WE3)		
0	none	
Available on request		
1	38mm	1.5”
2	50mm	2”
3	76mm	3”
6	350mm	14”
7	400mm	16”
8	456mm	18”

(*) max combined stem/flexible length is 914mm - 36”

THREAD	
Standard	
1	1/2 - 20 UNF
4	M18 x 1.5

Examples

WE2-6-M-B07C-1-4-D-000
Melt pressure transmitter with type “J” thermocouple, 4...20mA output, 6-pin connector, 1/2-20UNF thread, 700 bar full scale, 0,5% accuracy class, 153 mm (6”) rigid stem, 457mm (18”) flexible capillary.

WSPM0-6-M-P03M-1-4-0-000
Melt pressure transmitter autocompensated version, rigid stem, 4...20mA output, 6-pin connector, 1/2-20UNF thread, 3000 psi full scale, 0,5% accuracy class, 153 mm (6”) rigid stem.

Sensors are manufactured in compliance with:
- EMC compatibility directive
- RoHS directive

Electrical installation requirements and Conformity certificate are available on our web site: www.gefran.com

GEFRAN spa
via Sebina, 74
25050 PROVAGLIO D’ISEO (BS) - ITALIA
tel. 0309888.1 - fax. 0309839063
Internet: http://www.gefran.com

Manual Revisions

Revision	Page/Chapter	Update description
Rev.11.18	Ch.3	Model Designation Guide updated according to D-series PLS Version 02May2018.
Rev.12.18	Ch.11	Schematics 118521 (page 5/10 and 7/10) updated.
Rev.2.19	Ch.5	V6 LCD: CV% added to Info screen. V6 Touch: Pump status icons added to Pump Overview screen.
	Ch.11	V6 Profinet-Kit 121151 replaced with 121436.
Rev.5.19	Ch.11	Plug asy 680416 for pressure relief valve added to the spare part list 680029, and drawing 680416 added.
	Appendix	Pump Rev.4.19 updated.
Rev.10.19	Ch.5	V6 LCD display update
	Ch.9	Gear pump repair kit 103151 updated.
	Ch.10	Level sensor 680614 mounting drawing added.
Rev.3.20	Ch.4	Customer Signal Exchange Interfaces added.
Rev.4.20	-	Manual new design.
Rev.5.20	Ch.3	Model Designation Guide updated.
	Ch.5	Changing the Multi-System Configuration to V6 controller.
Rev.11.20	Ch.4&7	Description of fuse 112568 to 10AF and fuse 119975 to 12AF updated. PCBs illustration 823306 to 10AF and 12AF updated.
Rev.1.21	Ch.11	Schematics 118521F updated.
Rev.5.21	Ch.5.2 & 5.3	V6 LCD & V6 Touch updated. New Global Zone setting.
Rev.11.21	Ch.7.4	Power PCB 115732 and Power Aux PCB 115733 are replaced by Heavy-Duty Power PCB, PN 123193.
	Ch.10.1	Mechanical Panel Box asy updated.
	Ch.10.2	Electrical Panel Box asy updated.
	Ch.10.3	Grid 104802 replaced by 680953.
	Ch.11	Schematics 118521G updated.
Rev.10.22	Ch.3	Model Designation Guide updated.
	Ch10	Notes 20cc gear pump removed, as the D-series hopper is not designed for the 20cc pump.
Rev.12.22	Ch.11	Schematics 118521H updated.
Rev.1.23	Ch.3.2	Specifications: Maximum operating temperatures of 218°C (425°F) added.
Rev.6.23	P.1	Manual language added.
	Ch.1	Declaration of Conformity updated.
	Ch.11	Schematics 118521J updated.
Rev.3.25	Ch.3.2.1	Specifications / Lid opening dimension added.

ITW Dynatec Service Parts and Technical Service:

AMERICAS

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

EUROPE, MIDDLE EAST & AFRICA

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

ASIA PACIFIC

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

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