



Adhesive Application Solutions | ISO 9001 certified

DM55 DynaDrum Bulk Adhesive Melter

With Piston Pump & Controller V6 Touch Panel Rev.2.19

Technical Documentation, No. 21-18, Rev.2.19

Information about this manual



Read all instructions before operating this equipment!

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



NOTICE:

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

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

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Pressure Transducer

Chapter 1

Declaration of Conformity

EC declaration of conformity

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

Manufacturer

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

Andreas Pahl
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Description and identification of the machinery

Product / Article	Bulk Adhesive Supply Unit
Type	Drum Unloader with V6 controls
Project number	DM55_V6_032515
Commercial name	Drum Unloader
Model	DM55 MKIII
Function	Melting and delivery of hot melt adhesives from 55 gallon drums

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
2014/35/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
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

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

ISO 12100-2012	Safety of machinery - General principles for design - Risk Assessment and risk reduction
EN 349:1993+A1:2008	Safety of machinery - Minimum gaps to avoid crushing of parts of the human body
EN ISO 13849-2:2012	Safety of machinery - Safety-related parts of control systems - Part 2: Validation (ISO 13849-2:2012)
EN 60204-1:2006/AC:2010	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN ISO 13850:2015	Safety of machinery — Emergency stop function — Principles for design (ISO 13850:2015)
EN ISO 13849-1:2015	Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2015)

Hendersonville, 9/13/2018

Place, Date

S. Shirgaonkar

Signature
Shishir Shirgaonkar
Engineering Director

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Chapter 2

Safety Instructions

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.

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.

Safety Symbols in this Manual

1. DANGERS, WARNINGS and CAUTIONS are found throughout this manual. DANGERS and WARNINGS mean that failure to observe the specific instructions may cause injury to personnel.
2. CAUTIONS mean that failure to observe the specific instructions may damage the equipment.

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. 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.
6. Always install the equipment on a flat surface.
7. Never attempt to lift or move the unit when there is molten adhesive in the system.
8. Promptly wipe up fluid spills to avoid potential slips or falls.
9. In case of an emergency or exceptional incident, press the emergency stop button in order to stop the unit quickly.
10. Use the unit only as it is intended to.
11. Never let the unit run unattended.
12. Operate the unit only in a faultless and fully functional condition. Check and make sure that all safety devices work in proper form!

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.

Choice of Adhesive

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.



DANGER HARMFUL FUMES

PUR adhesives emit fumes (MDI and TDI) that can be dangerous to anyone exposed to them. These fumes cannot be detected by the sense of smell. ITW Dynatec strongly recommends that a power-vented exhaust hood or system be installed over any PUR system.

Consult with your adhesive manufacturer for specifics about required ventilation. See also the Special Considerations for Using Reactive HMPUR Adhesives section in this chapter.

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

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

Special Safety Considerations When Using Reactive HMPUR Adhesives

Reactive hot melt PUR (HMPUR) adhesives are known for superior adhesion to numerous substrates and their exceptional heat, cold and moisture-resistance qualities. They are an excellent choice for the difficult-to-bond substrates used in a wide range of environments. HMPUR adhesives chemically cross-link (i.e., cure or thermal-set) to reach maximum bond strength, typically over a period of 24 to 48 hours after being exposed to moisture and/or high temperatures.

The advantages of using HMPURs, however, come with special handling requirements. The adhesive must remain sealed off from the environment and maintained at low temperatures until it is dispensed, otherwise there is a risk that the adhesive will cross-link within the glue application equipment, rendering it impervious to melting when it is re-heated. Most importantly, when over-heated, many HMPURs release gases that can be hazardous to humans. Therefore, adequate ventilation must be available to prevent injury to personnel in the workspace. ITW Dynatec PN 114367 Vent Hood is required.

The following is a list of general operational considerations for the use of HMPURs in ITW Dynatec equipment. In addition, it is important to contact your adhesive manufacturer to discuss and verify precautions that must be implemented to prevent damage to equipment and injury to personnel who are working with their products.

1. Assure the workspace has adequate ventilation.

2. Assure the entire adhesive delivery system is sealed from the environment to the greatest extent possible to prevent moisture-related adhesive cross-linking.
3. Assure all air is evacuated from the adhesive delivery system as soon as possible after it has been introduced (i.e., when changing hoses, replacing filters, changing adhesive supplies, etc.) to prevent moisture-related cross-linking.
4. The ITW Dynatec equipment should not be left dormant (sealed at ambient temperature) with PUR inside for longer than recommended by your adhesive manufacturer. The ITW Dynatec system, especially applicators and nozzles, should be thoroughly purged of adhesive using a PUR purge material if the system will be left dormant for extended time periods.
5. HMPUR viscosity increases the longer it remains molten within a system and can cross-link due to temperature exposure. Assure the molten adhesive does not sit within the ITW Dynatec equipment at operating temperature for more than a cumulative total of 2 to 4 hours. Utilization of the Temperature Standby feature will ensure a temperature drop occurs automatically.
6. Turn off any gear pumps in the system if it will not be used for a period of five minutes or more. Doing so will reduce potential glue degradation.
7. When using spray applicators, the nozzles must be thoroughly cleaned on a regular basis to prevent the adhesive from cross-linking inside or on the surface of the air passageways.
8. The adhesive applicators must be either fully sealed or thoroughly cleaned with PUR purge material if the system is to be idle for more than two hours. Otherwise, HMPUR adhesive present in the exposed orifices of the applicator could potentially cross-link, clogging them.
9. Recommended adhesive application temperatures should never be exceeded. Higher application temperatures may result in higher adhesive viscosities and thermal-related cross-linking.
10. The use of air dryers such as ITW Dynatec PN 117944 or 117974 are recommended in humid environments.

There are many advantages to using HMPURs. However, the proper handling of these unique adhesives is imperative to assure success without damage to equipment or injury to personnel. ITW Dynatec equipment has been engineered to minimize the effort required to assure safe and proper handling of HMPURs.

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

Please consult with your ITW Dynatec representative to discuss these topics in further detail, if necessary.

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.

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.

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.

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.

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.

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).

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.)!

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.

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.

Measures in case of fire

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

Measures in case of fire:

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

Firefighting - burning hot melt:

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



EXTINGUISH FIRE

Appropriate extinguishing agents:

Foam extinguisher, Dry powder, Spray, Carbon dioxide (CO₂), Dry sand.

For safety reasons not appropriate extinguishing agents: None.

Firefighting - burning electrical equipment:

Appropriate extinguishing agents:

Carbon dioxide (CO₂), Dry powder.

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 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.

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Chapter 3

Description and Technical Specs

3.1 Applicable Safety Regulations

Intended Use

The ITW Dynatec DM55 DynaDrum™ Bulk Adhesive Melter may be used only to melt and convey 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.

Unintended Use, Examples

The Bulk Melter may not be used under the following conditions:

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

The Bulk Melter may not be used to process the following materials:

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

Do not use the platen

- As a press.
- To lift loads.
- To heat objects.

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 Bulk Melter components.
- Risk of burns when conducting maintenance and repair work for which the Melter 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 Melter.
- Risk of pinching parts of the body between platen and container. Ensure that, during operation, no one else is near the bulk melter.
- The safety valve may malfunction due to hardened or charred material.

Technical changes

Any kind of technical changes having impact to the security or the operational liability of the unit 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.

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-unit.

Setting-up operation

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

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

3.2 Description

The ITW Dynatec DM55 DynaDrum™ Bulk Adhesive Melter is a stationary melter that combines a heated platen, pump and all controls needed to melt and dispense hot melt adhesives, sealants, PURs or coatings from a standard 55-gallon steel drum.

The controller provides accurate, proportionate temperature control for the platen, hoses and applicators. A “standby” temperature may be programmed so that the temperature zones can be independently maintained at a lower temperature when the unit is not in active use, enabling rapid return to normal operation.

An extremely dependable, pressure-balanced piston pump is standard. This air-operated pump insures a high pressure adhesive output from a low pressure, compressed air input. The Bulk Melter can be utilized as a bulk-transfer unit or as a stand-alone unit. It can supply one or two hand-held applicators, distribution manifolds or applicator heads.

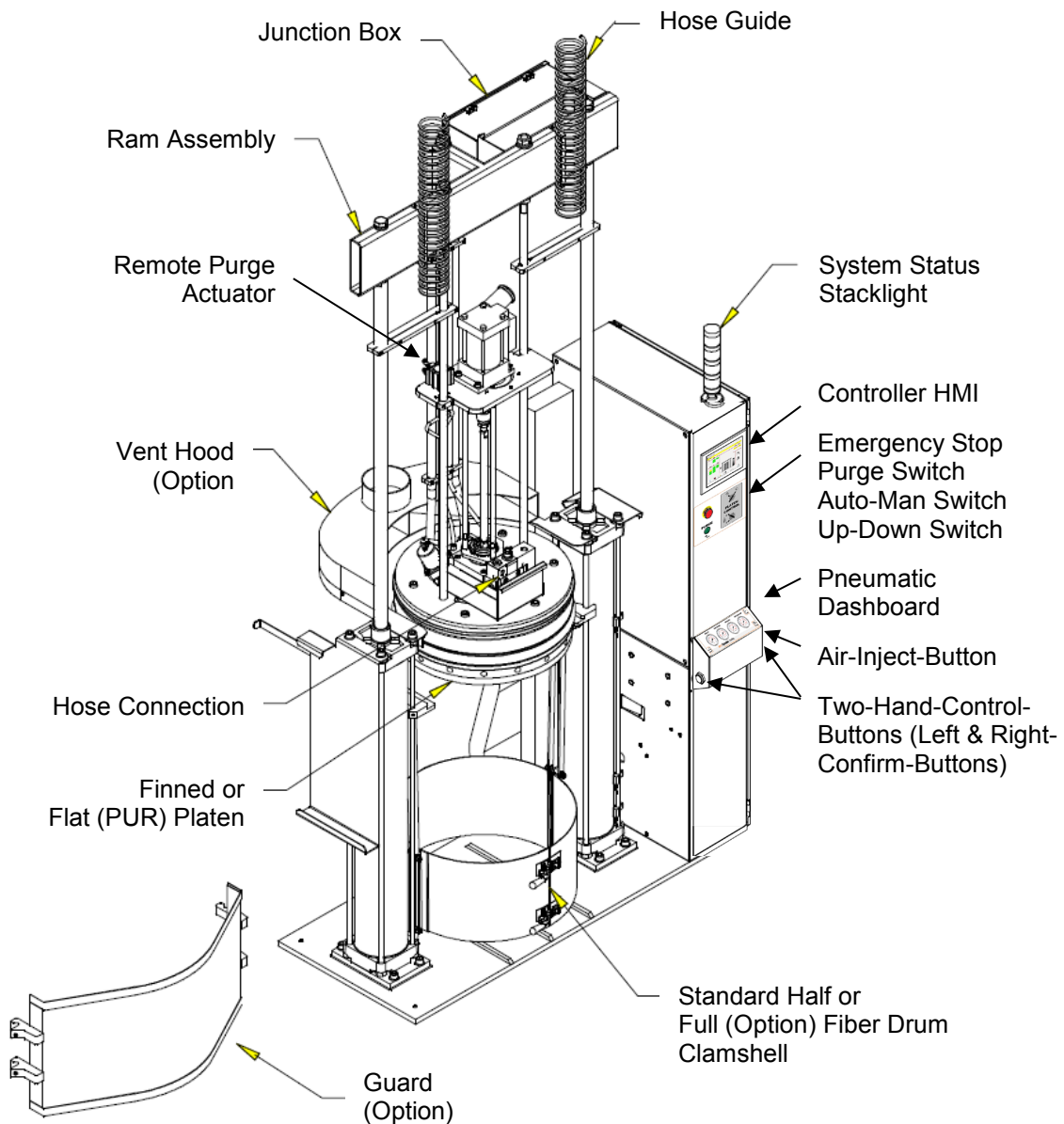


Illustration: DM55 with Piston Pump Components

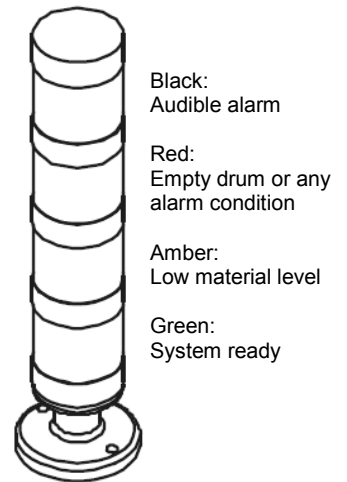
Two-Hand-Control-Buttons (Left & Right-Confirm-Buttons)

The platen will not move until the two-hand (mechanical) buttons are depressed simultaneously. This prevents the operator from placing one or more of their own hands and/or arms at the pinch point between the platen and the drum of adhesive. See Chapter 5.2 Setting-up operation.

System Status Lights

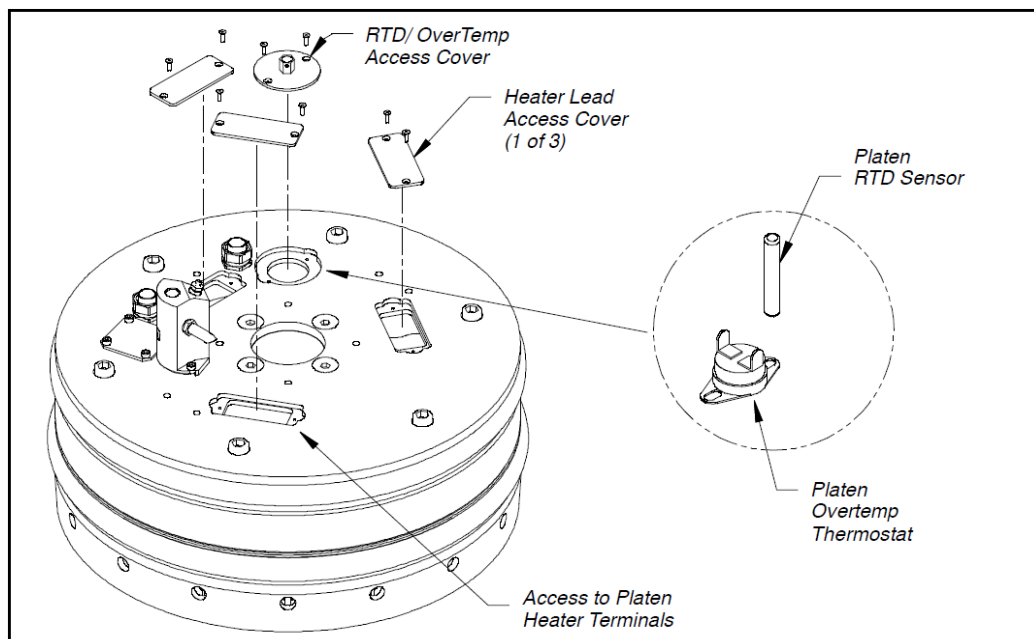
The stack lights ease remote monitoring of the system's status. They are mounted on top of the panel box assembly.

- On the tri-color stack light, the lower, green light illuminates when the system has warmed up to temperature setpoints.
- The middle, amber light illuminates when the level of material in the drum is low. This is the operator's signal that a fresh drum of adhesive will soon be needed.
- The upper, red light illuminates when the drum is empty or there is an alarm condition and is accompanied by an audible alarm.
- The horn is housed within the upper (black) section of the stack.



Mechanical High-Temperature Protection

The Bulk Melter includes a mechanical (redundant) over-temperature thermostat that acts as a safety backup. If the unit's manifold temperature should exceed 232°C (450°F), the thermostat will cause the Melter's circuit breaker to open and power to the manifold, platen, valve heater and hose(s) will be cut off. The mechanical thermostat automatically re-sets after the manifold temperature falls below 204°C (400°F).



RTD Sensors

The standard Dynamelt system uses 100-ohm platinum resistance temperature detector sensors for all temperature controls.

3.3 Specifications

Environmental:

Storage/ shipping temperature	-20°C to 60°C (-4°F to 140°F)
Ambient service temperature	-0°C to 45°C (32°F to 113°F)

Physical:

Dimensions	see dimensional layouts on following page
Weight	771kg (1700 lb)
Drum size	208 liters (standard U.S. 55 gallon)
Drum diameter.....	564mm-570mm (22.2-22.5 inches), with or without chines
Piston pump/ air motor ratio (standard).....	15:1, pressure-balanced, Vector
Controller	HMI with Touch Panel
Hose	application specific

Performance:

Temperature range	38°C to 204°C (100°F to 400°F)
Warm-up time	32 minutes
Melt rate, maximum*	up to 272 kg/hr (600 lb/hr), depending on adhesive used
Adhesive delivery	Continuous or On-Demand
Adhesive viscosity*	100 to 50.000 mPa. Sec. (centipoise)
* Flow rates of various materials are dependent on their physical characteristics	
Adhesive pressure, maximum	69 bar maximum (1000 psi maximum)
Maximum output rate: piston pump (standard)	272 kg/hr (600 lb/hr)
Drum change time	less than 5 minutes

Electrical:

Supply voltage (standard)	200-240 VAC/ 3p/ 50-60 Hz
(optional)	400 VAC/ 3p+N/ 50-60 Hz
(optional)	480 VAC/ 3p/ 50-60 Hz
Power requirements (240V), non-continuous	100 Amp, 3p
Power requirements (400V)	63 Amp, 3p
Power requirements (480V)	50 Amp, 3p
European power requirements (400V)	"Wye", "Y" or 5-wire connection must be customer-supplied

Wattage, maximum:

Platen	36,000 Watts max.
Piston pump	1170 Watts max.
Hand-held applicator	200 Watts max.
Hose, applicator	1000 Watts max.
Hose, transfer	2000 Watts max.

Piston Pump Pressurized Air:

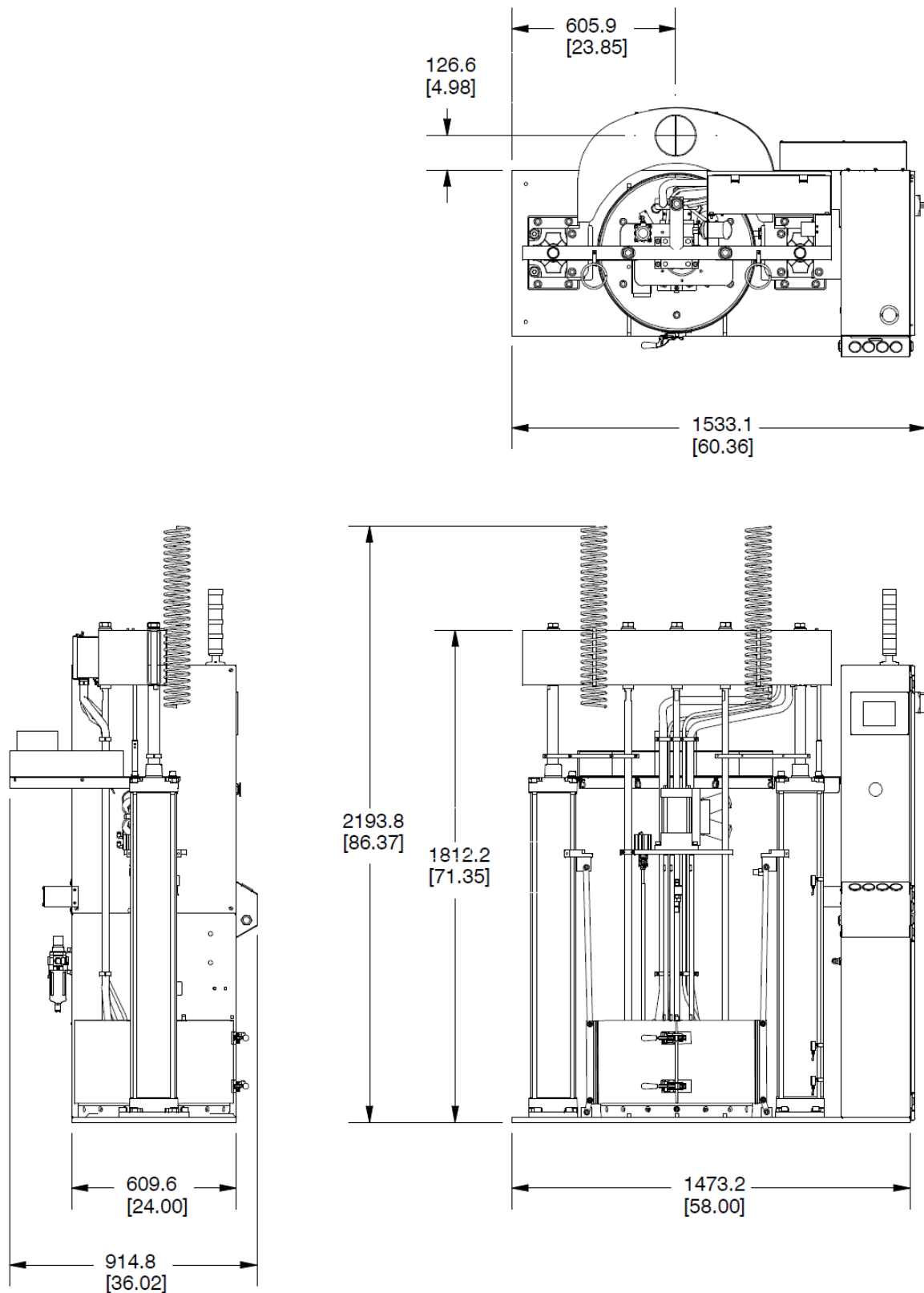
Maximum air pressure supply	8.22 bar (120 psig)
Maximum recommended pump speed	60 cycles per minute
Air consumption at 60 pump cycles per minute	548 liters/ minute @ 4.5 bar (19.4 CFM at 66 psig)

Air Requirements:

Operating air pressure range	1.4 to 5.5 bar (20 to 80 psi)
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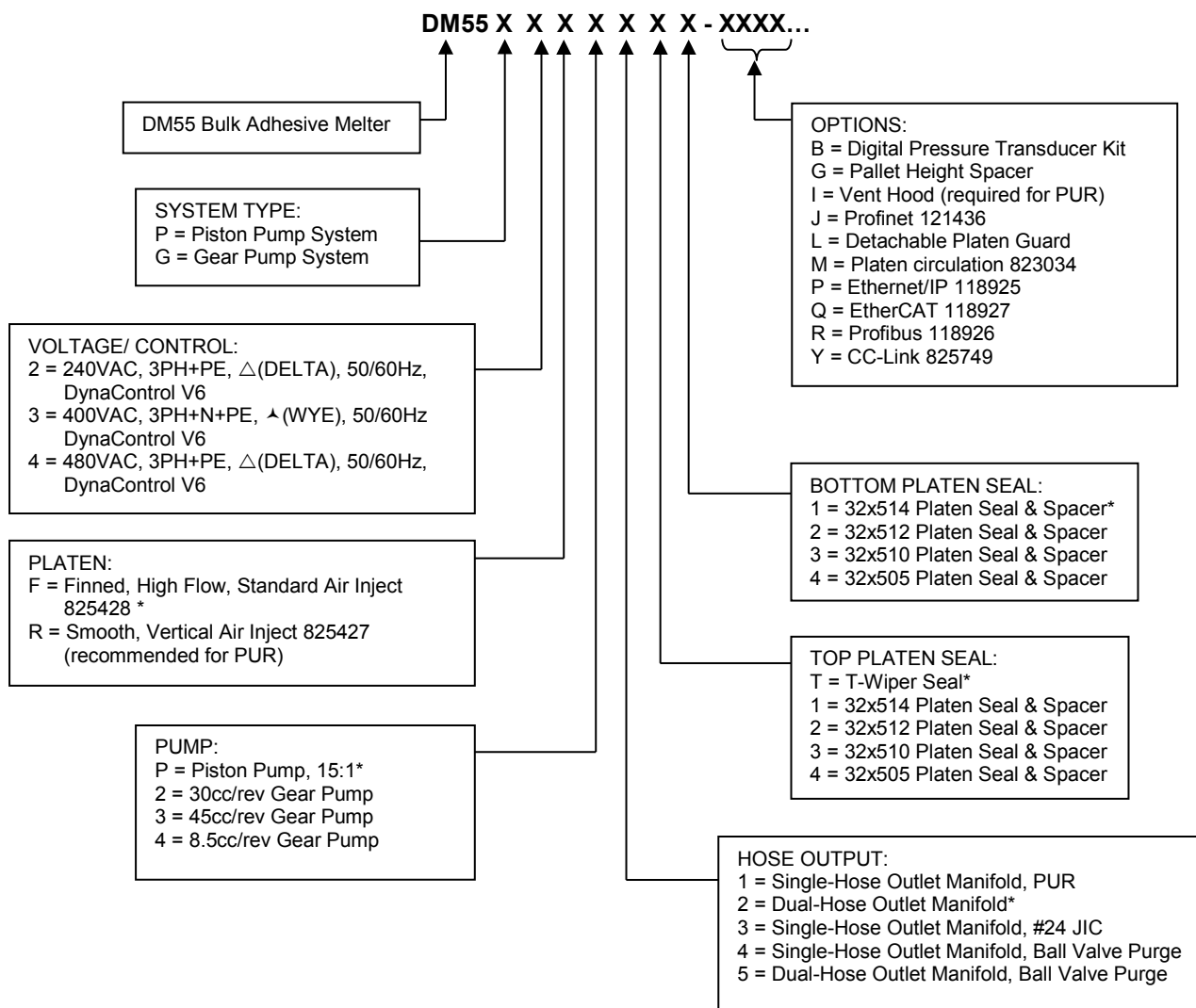
HMI V6 Controller with Touch Panel:

Supply voltage	24VDC
Display type	color, graphic, Touch Panel
Temperature control zones	solid state relay output
Discrete I/O	yes
Analog input (pump speed tracking, RTD inputs)	yes
Individual high and low temp alarms	yes
Display language	Multi
Operator interface	HMI with 8" touch panel
Temperature standby	yes
High and low temp alarms	yes
Ready interlock	yes
Password protection	yes
Sequential heating	yes
Alarm output	yes
Sensor open alarm	yes
Seven-day scheduler	yes
EtherNet/IP, Profibus, EtherCAT, Modbus/TCP interface	yes



Bulk Melter Installation Dimensions

3.4 Model Designation Guide



* Standard.

Chapter 4

Installation



CAUTION

- Before setting up, please read this documentation carefully.
- DO NOT operate the Melter in an ambient temperature of less than 32°F (0°C) or higher than 113°F (45°C).
- Pay attention to all the installation and connecting advices.
- Heed all safety instructions mentioned in chapter 2.

4.1 Conditions for set-up and mounting

Place requirement

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

Mounting and alignment

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

Electrical connection

- Necessary electrical connection has to be provided. See electrical schematics. Electrical power is connected to the upper disconnect circuit breaker terminals located in the control panel box. A conduit opening must be customer-provided in the panel box for the power leads.
- Never connect or disconnect plug-and-socket connections under load!

Pneumatic connection



- Provide the necessary pneumatic connection. 80 psi (5.5 bar) minimum air pressure is required.
- Air pressure is supplied through a 1/2" NPT fitting located at the pneumatic control panel. The air supply line should be a minimum of 1/2". Air pressure requirements are 80 psi minimum of clean, dry air. Optional air dryers are available.
- In any case the air has to be clean and dry! See advice in chapter 4.3 „Quality of compressed air“.
- Please heed that units with high air demand may not be used at the same time with the same air supply.



Advices:

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

4.2 Installation



CAUTION

- All work on or with this unit is only permitted for skilled personnel!
 - Pay attention to the electrical schematics!
 - Only with an air pressure of 80 psi (5.5 bar) minimum a perfect performance is secured!
 - All motors have to be attached according to the data sheet of the manufacturer.
 - All heating elements have to be mounted and operated secured and according to the valid regulations.
1. Position the Bulk Melter so that it is convenient for drum loading and with easy access to the work area. Provide adequate access to the control panel. Be certain there is a minimum of 9 feet (2.95m) of overhead clearance.
 2. Bolt Melter and panel box securely to the floor with 1/2" dia. x 3" anchor bolts and flat washers.



WARNING

To prevent injury to personnel, the Bulk Melter and control panel box must be firmly secured to the floor.

3. Connect air supply line (minimum size 1/2") to the pneumatic control panel located on the right rear of the unit. Incoming supply must be clean, dry air. Any separators or additional filters are the responsibility of the customer.
4. The piston pump shaft seal is designed to perform without throat seal liquid. Most applications tend to be detrimental in the use of these liquids, as they are prone to collect debris from the plant environment and can contaminate the seal. However, a wet cup is provided in the Bulk Melter for applications where it is advantageous to use such liquids.

Prior to operation, fill the piston pump recess (cavity) half full with throat seal liquid (see Ch. 11 Recommended Spare Parts List for part nos.), mineral oil or a compatible solvent for your application. Consult ITW Dynatec for compatibility with the piston pump shaft seal and bearing. No disassembly is required to access the cavity.

5. Locate the main disconnect switch on the upper right corner of the controller's panel box. Refer to electrical schematic in Chapter 13 for proper wiring connections.



DANGER HIGH VOLTAGE

To prevent serious or fatal injury, unit must be installed in accordance with all applicable codes and be properly grounded.

All electrical connections should be made by qualified electrical personnel. Wear appropriate safety equipment when working with high voltage sources.

6. Positively identify the line voltage and be certain that it matches the voltage on the electrical data plate.



CAUTION

Incorrect voltage will cause severe damage to the equipment.

7. Connect the ground wire (green) to the ground bar in the lower right corner of the panel box. Connect the other power leads to the circuit breaker line terminals as shown on the electrical schematics.

8. Connect delivery hoses and applicator(s) if applicable. See their respective manuals for installation instructions.



Heed the following for the installation of the heated hoses:

- Heated hoses may be damaged by overheating, if they are laid faulty.
- The heated hoses may not be stacked one on the other!
- The heated hoses may not be pressed together and / or bound.
- Put the hoses separated next to each other!
- The connections for supply resp. return hoses may not be mixed up.
- It is essential that the hoses will be laid without twisting!
- Heated hoses may not be fastened with binders or similar.
- Heated hoses may not be laid on a sharp edge.
- When using a balancer, a hose support with a radius of 400mm has to be mounted.
Reason: The sensor cables and heating cables within the hoses can be damaged. As they cannot be repaired the hose would have to be changed completely.

9. Connect all cables of the hoses according to the electrical schematics.
10. Interconnect the components with the foreseen Profibus (or EtherNet, etc.) interface cables (if applicable).

4.3 Quality of compressed Air



CAUTION

- In any case, the air has to be clean and dry!
- The min. requirement for compressed air supply to solenoids to control 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 m ³	Mass concentration		Vapor pressure dew point °C	Liquid g/m ³	Total oil content (liquid, aerosol and mist) mg/m ³
	0.1-0.5 µm	0.5-1 µm	1-5 µm			
0	As stipulated by the equipment user, stricter requirements than class 1.					
1	≤ 20,000	≤ 400	≤ 10	-	≤ -70	0.01
2	≤ 400,000	≤ 6,000	≤ 100	-	≤ -40	0.1
3	-	≤ 90,000	≤ 1,000	-	≤ -20	1
4	-	-	≤ 10,000	-	≤ +3	5
5	-	-	≤ 100,000	-	≤ +7	-
6	-	-	≤ 5	≤ +10	-	-
7	-	-	5-10	-	≤ 0.5	-
8	-	-	-	-	0.5 - 5	-
9	-	-	-	-	5 - 10	-
X	-	-	-	> 10	> 10	> 10

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Chapter 5

Setting-up Operation, Daily Operation

5.1 Advices for the setting-up operation



WARNING

Start with set-up operation not until

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

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

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

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

Heed all safety instructions mentioned in chapter 2.

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



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



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



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



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



CAUTION

During operating the unit, heed the following:

- Heed all safety instructions mentioned in chapter 2.
- Install an appropriate protection device to avoid unintended contact with heated parts and with spilling out Hotmelt. The protection device has to prevent also the operator against not reaching into the adhesive application and against injuring.
- Set the working temperatures strictly within the temperature range given by the adhesive manufacturer. Do not exceed this temperature range.
- Switch the unit off during longer production breaks.
- Switch the unit to standby during shorter production breaks.
- Avoid voltage fluctuation.
- The air supply has to be clean and dry.

- In case of an emergency or exceptional incident, press the emergency stop button in order to stop the unit quickly.



ADVICE

The unit is ready for operation, when

- all temperatures are within the tolerances,
- the pump is switched on.



Risk of tripping over cables and heated hoses!



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

5.2 Setting-up operation, daily operation

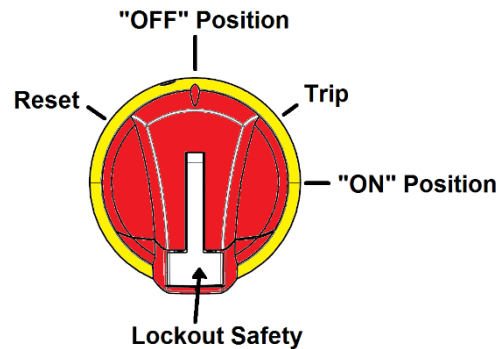
Open/ Close the Main Panel Box Door

To open:

1. Turn main switch to OFF.
2. Release the two panel box door screws.
3. Pull door open.

To close:

1. Turn main switch to OFF.
2. Close door.
3. Fasten the panel box door shut with a screw driver.



Main Switch

To Turn Main Power On/Off

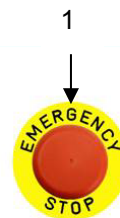
1. Verify that panel box door is locked closed.
2. To turn main power on, turn the main switch to "ON".
3. To turn main power off, turn the main switch to "OFF".

Operating Switches and Buttons

1. Emergency Stop Pushbutton

An Emergency Stop button is located beneath the controller screen, on the control panel.

In case of an emergency or exceptional incident, press the emergency stop button in order to stop the unit quickly. When activated, the Melter's material pumping and heating stop and the platen stops in place. Pull out this button for restarting the unit and acknowledge on Touch Panel.



2. Purge Button

By manually pressing this button the purge valve will be opened and allow air/ adhesive to come out of the valve in order to release trapped air from under the platen.

The purge valve is automatically activated 5 seconds later after the Air Inject is activated.

PURGE

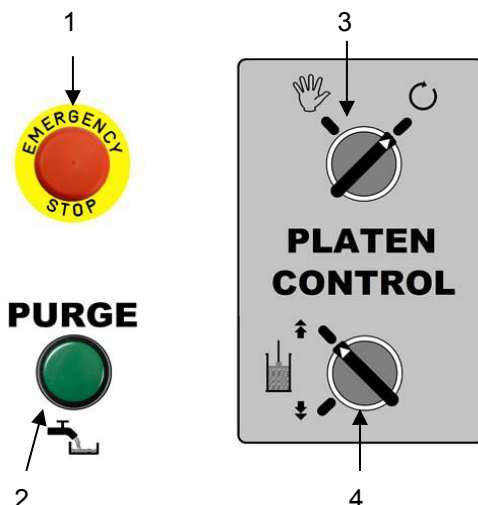


3. Auto/Man-Switch

This switch toggles the Melter's operating mode to automatic or manual.

4. Up/Down-Switch

This switch toggles the platen's direction to up or down.



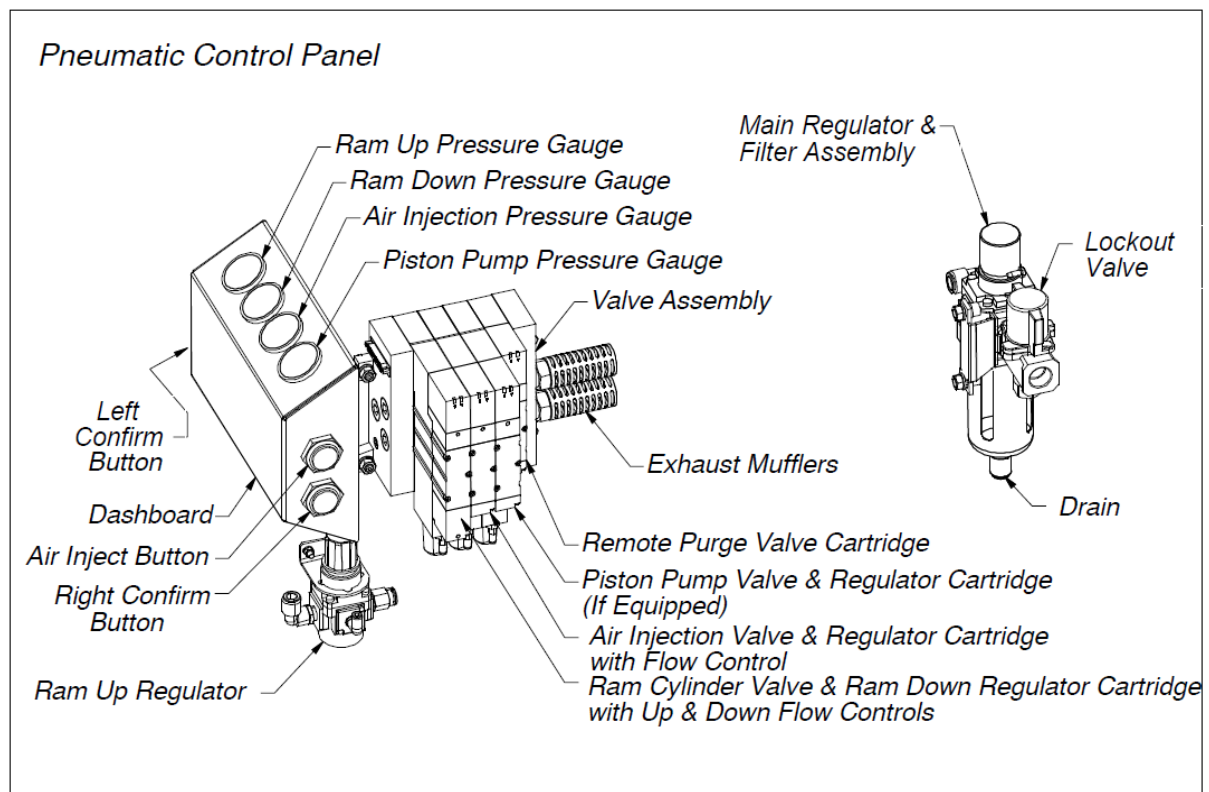
Procedure to Resume Production after Use of Emergency Stop

1. Twist and/or pull out the Emergency Stop Button to reset.
2. Acknowledge alarm message on Touch Panel.

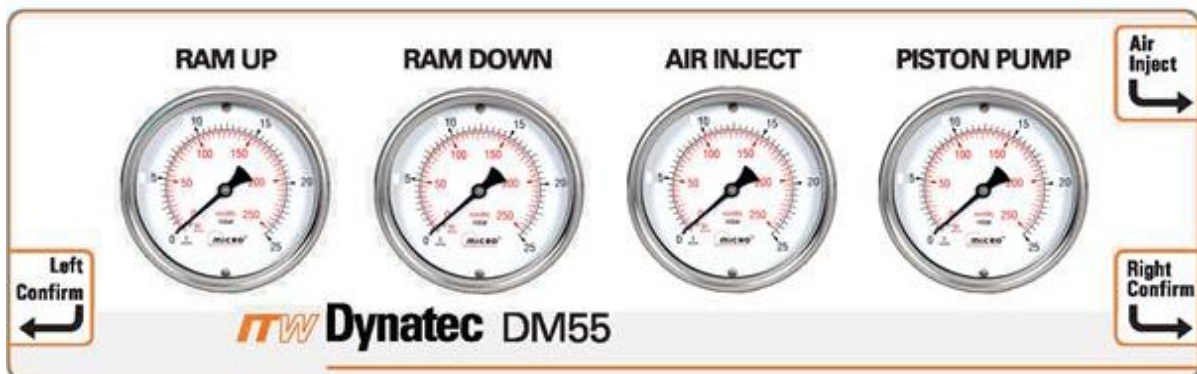
Preparing a New Drum for melting

- The adhesive level in a new drum must be at least 4" below the top rim of the drum. This will allow the platen to be inserted and the platen seal to contact the drum.
- If a heated platen is pushed into adhesive before seal contact is made, overflow will occur.

Pneumatic Controls



Panel on Panel Box:



See description of buttons on next page.

Description/ Location	Function	Indication
Ram Down Regulator/ Gauge on pneumatic control panel (PCP), regulator in pneumatic panel box (PPB)	Regulators adjust force to raise (Ram Up) and lower (Ram Down) the platen	Right: increases pressure Left: decreases pressure Recommended setting: 40-60 psi
Air Inject Pressure Gauge on PCP, regulator in PPB	Regulator adjusts force of air injection valve	Right: increases pressure Left: decreases pressure Recommended setting: 5 psi
Ram Up Regulator Gauge on PCP & regulator in PPB	Fine-tunes force to raise the platen	Right: increases pressure Left: decreases pressure Recommended setting: 10-12psi
Left & Right-Confirm-Buttons (Two-Hand-Control-Buttons)/ 2 buttons on sides of PCP	By pressing these switches simultaneously the platen will be lowered or lifted manually or automatically depending on Auto/Man-Switch's position and Up/Down-Switch's position.	Flashing arrows on controller screen indicate direction of movement.
Air Inject Momentary Button/ Right side of PCP	By manually pressing this button, air will be injected into the drum to retract platen.	The Air Inject is automatically activated after pressing both Two-Hand-Control-Buttons (Left & Right-Confirm-Buttons) for lifting the platen (in Auto mode and in manual mode) and it is automatically deactivated when platen has reached top position.
Main Air Prep Regulator/ Mounted behind PPB	Regulates the incoming air pressure needed for operation/ switches from supply air to exhaust air for lock-out/ tag-out.	Supply setting: 80 psi (5.5 bar) minimum.
Ram Up & Down Speed Controllers/ Below valve assembly	Regulates the speed of the up and down movement of the ram cylinders (Note: set pressures before setting speeds)	A meter/ out flow control. Set per your application. Set at initial installation. (Not intended for operator's continued use.)

Operator Adjustments



WARNING HIGH PRESSURE PRESENT

The following procedure will require the 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 hot adhesive.

Controller

See Chapter 6 for complete information and programming of the controller. Program temperature set points, alarms, level control, etc., appropriate for your production.

System Pressure

System pressure is regulated by the piston pump air pressure setting, material viscosity and the pump pressure relief valve setting.

The system pressure relief valve is typically factory set to 500 psi (35 bar). It is located on the back side of the controller's panel box.

Prior to system pressure relief valve adjustment, turn the system ON and raise the temperatures of all components to normal operating temperatures. At the controller, first set the pump/ motor OFF so that the motor is not turning. Then set the pump/ motor ON. Locate the air prep assembly exhaust valve (red). Open (actuate) the valves on the applicators in order to fill them with adhesive and purge air from the system. Then close the valves to stop adhesive flow.

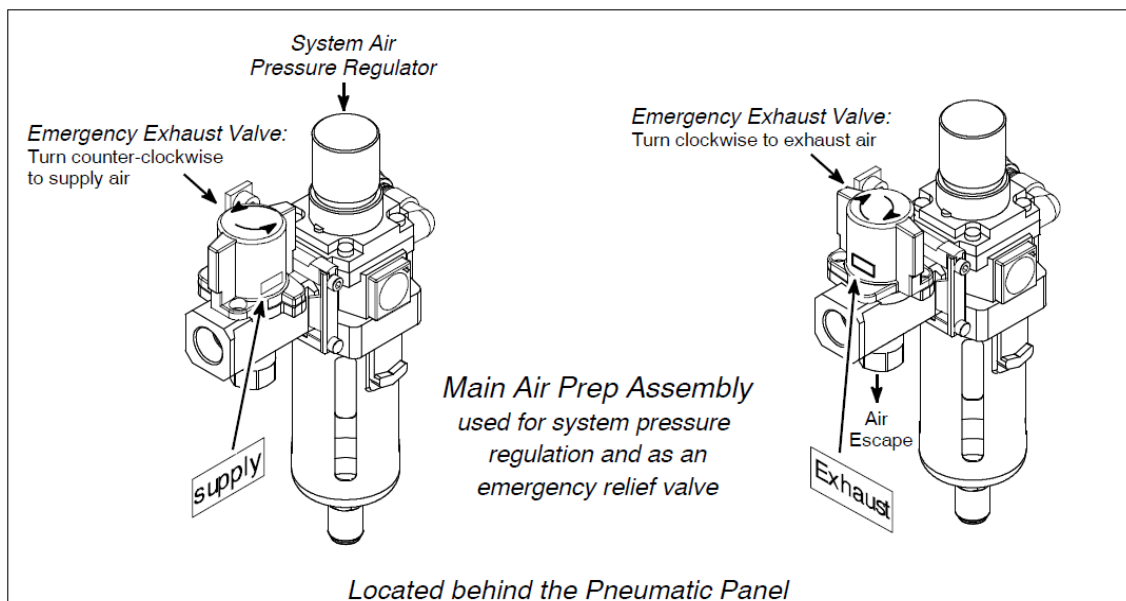
To adjust the pressure relief valve turn the adjustment dial counterclockwise to decrease pressure or clockwise to increase pressure. After desired pressure is achieved, tighten the lock nut.



CAUTION

Maximum operating pressure should not exceed 1000 psi.

DO NOT set the adjustment screw fully clockwise (closed) or serious pump damage will result.



Platen Retract Air Pressure (Air Injection)

To remove the platen from the drum, it may be necessary to create a positive pressure in the drum. This is accomplished by pressing the Air Inject push button while simultaneously raising the platen. The Air Inject feature is particularly useful when the platen is removed prior to reloading the Bulk Melter with a new drum of adhesive.

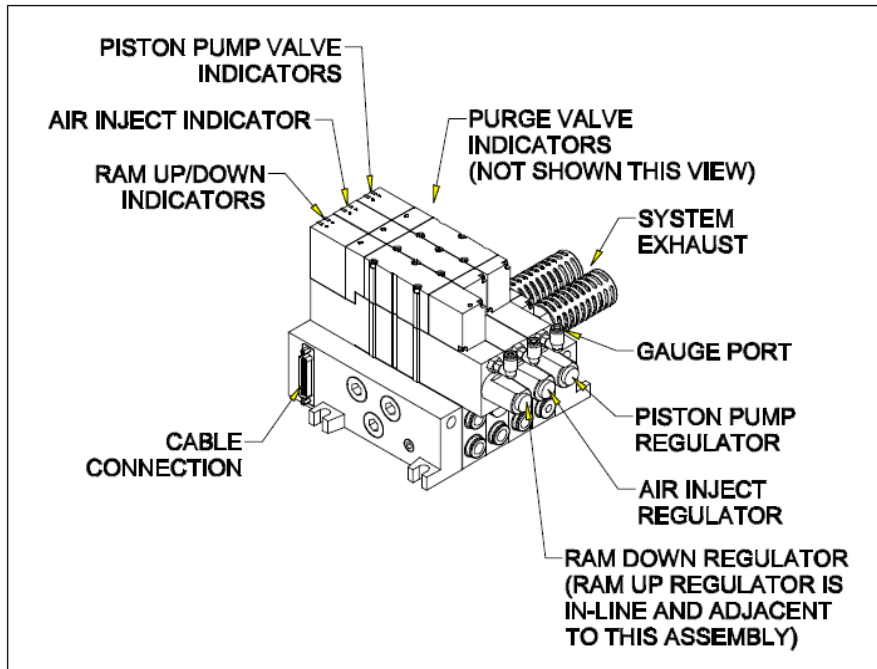
Air pressure is adjusted by the Main Air Prep Assembly air regulator located inside the pneumatic panel box. Pressure should not exceed 5 psi (0.3 bar).



CAUTION

Air Injection is activated automatically during Ram Up movement!

If Air Injection is not used, the purge valve must be opened during Ram Up in order to prevent a vacuum condition inside the drum.



Pump Pressure Regulator

When adhesive demand changes, pump speed and delivery may need adjustment. This is accomplished by changing the pump pressure. Manually turn the handle of the pressure regulator mounted on the piston pump's air motor assembly as needed.

Ram Up Regulator

The ram up regulator is piped in-line of the bottom side of the cylinder and it provides a secondary and reduced pressure for the Ram Up function. The factory pre-set is between 10-12psi (0.7 - 0.8 bar). The ram up regulator prevents the unit from developing excessive stored energy (force) in the event the platen becomes stuck inside a drum during an Auto Ram Up cycle.

If a platen becomes stuck in a drum, extreme caution should then be used by operating the unit in Manual Mode and making necessary and temporary minor adjustments to the ram up regulator as well as the air injection regulator. Be sure to reset the default values before the platen seal breaches the top of the drum.

The ram up regulator is adjusted by pulling up on the regulator dial and turning either clockwise or counter-clockwise. Push the regulator dial down to lock the setting.

Platen Position Sensor

The level detector may be adjusted digitally via the HMI by the continuous platen position (string-pot) sensor.

Startup Sequence and Caution**CAUTION**

Considerations for PUR and other materials which exhibit high expansion and contraction characteristics relative to temperature:

- In normal modes of operation, most hot melt adhesives do not exhibit high enough expansion rates during start-up to pose any issues. The hoses of hot melt systems are designed to accumulate and absorb volume and pressure changes during start-up.
- But in the special case of adhesives with high expansion rates, the following sequential start-up procedure must be followed to avoid hose or other equipment failure.
- **Note:** In all steps, heat the zone to at least the minimum softening point of the adhesive before advancing to the next step. This procedure always allows expansion pressure to have an exit path and prevent excessive trapped pressure, potential hose failure and/or seal failure.
 1. Heat the applicator head.
 2. Open the applicator's module(s).
 3. Heat the supply hose to the applicator.
 4. Heat the metering station (if applicable).
 5. Heat the primary supply hoses from the Bulk Melter.
 6. Heat the Bulk Melter's platen and pump.
- Shut down of a system processing these materials is the reverse order of the above.

Bulk Melter Startup Procedure, Daily Operation**CAUTION**

Before startup, be certain that the main switch and all motors and switches (of pumps, applicators and hand-held applicators) are in the OFF position.

**WARNING****EYE PROTECTION & PROTECTIVE CLOTHING REQUIRED**

Always wear safety eye protection, protective gloves and long-sleeved clothing when working on or operating the unit.

1. Check the complete unit and the traverse paths for safety. Fix visible damages immediately.
2. Before switching the unit on, make sure that the starting unit could hurt no one!
3. Remove all material or other things not needed for the production from the workspace of the unit!
4. Check and make sure that all safety devices are working in proper form!
5. Switch the main switch on. Upon powering up, the following will occur:
 - The controller will automatically boot up.
 - If drum is empty: the drum empty horn will sound and the red light will come on and an alarm message will be displayed on the Touch Panel.
 - If drum adhesive is low: the drum low amber light will come on and an alarm message will be displayed on the Touch Panel.

6. Program the controller (see Chapter 6).

Program temperature set points, alarms, level control, etc., appropriate for your production.

Heed following advices:

- The maximum operating temperature is 204°C (400°F).
 - Use only adhesives recommended by the adhesive manufacturer! Before changing from one type of adhesive to another (even within the same product line of one manufacturer), the unit has to be cleaned respectively purged to avoid possible chemical reactions.
 - Set the temperatures of the particular heating zones in the controller according to the adhesive that is in use. Always keep the temperature range given by the adhesive manufacturer. Wrong temperature settings could cause the burning of the adhesive within the system and unsatisfactory adhesion.
 - Keep the adhesive tank always closed, so that through the open tank lid no dirt particles at all (foil residues, dust, etc.) could get into the adhesive system. The consequences of dirt would be:
 - breakdowns
 - higher contamination of the adhesive filter,
 - the adhesive film formation will be disabled,
 - the adhesive film contains those dirt particles,
 - the adhesive film tends to tear open.
7. Carry out a drum calibration (see Chapter 6) at the first Bulk Melter startup and each time when the drum size is changed.
 8. Switch the System OFF by pressing the Control button on the Main Screen and the Control Switch Off.
 9. Adjust the adhesive pressure at the pressure regulator.

Verify that operating air pressures are within the following parameters.



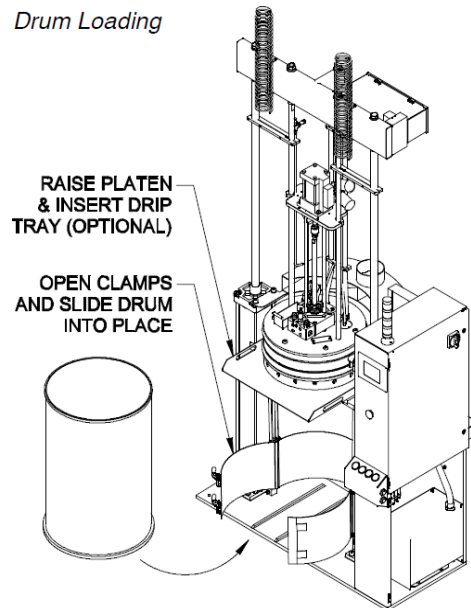
CAUTION

- **A lower pressure setting may be required with low viscosity materials to prevent sinking the platen.**
- **Excessive ram force may “face off” (block) high viscosity materials and starve (cavitate) the pump. It may also cause material to bypass the seal.**
- Operating air pressure: 60-80 psi (4.2 - 5.5 bar)
- Air Inject air pressure: 5 psi (0.3 bar)
- Ram operating air pressure: 20-80 psi (1.4 - 5.5 bar)

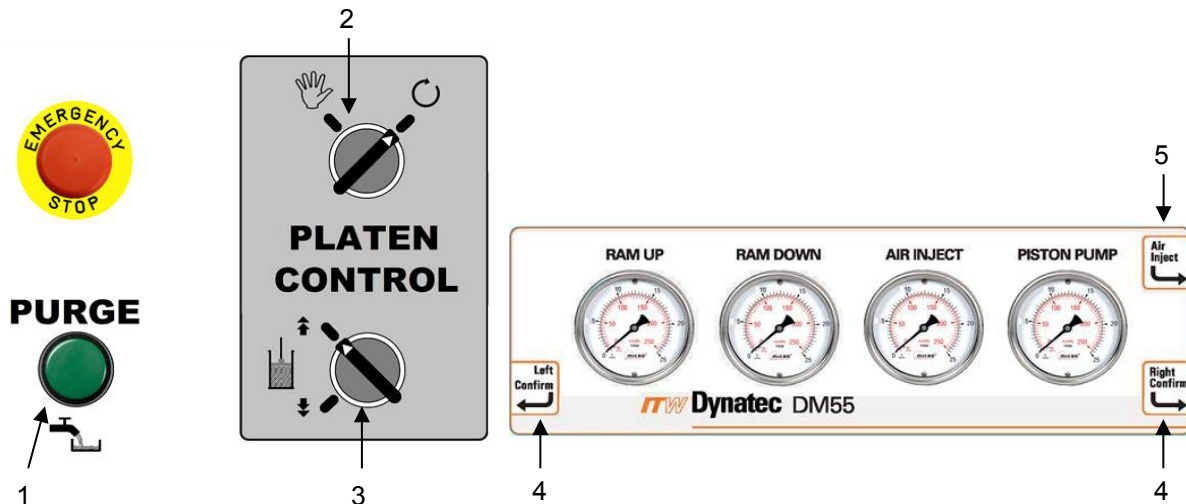
10. Open the clamshell before raising the ram/platen.

To change a drum, see Chapter "Drum Change-Out" on next pages.

Drum Loading



11. Switch the Up/Down-Switch (3) to Up.



12. Switch the Auto/man-switch (2) to Man.

13. Press both Left & Right-Confirm-Buttons (4) to raising the platen full UP.



CAUTION

Be sure that the hose(s) are free to move with the platen.

14. Slide the drip tray (optional) onto the drip tray rails under the platen.
15. Rotate clamshell doors open. Clean any debris from the unit's base plate.
16. Slide an opened drum of material into the unit. Be sure that the drum is resting against the rear of the clamshell.



Keep away (your hands, head, etc.) from platen and piston pump!
Limbs may be drawn in. Risk of crushing!

17. Close clamshell and lock the drum in place using the clamp handles.



CAUTION

A fiber drum requires a full clamshell for operator safety. Partial clamshells should only be used with steel drums.

Be sure that the drum of adhesive is held securely by the clamshell before continuing.

18. Switch the System ON by pressing the Control Switch On at the Touch Panel.

All activated zones start heating.

When temperatures are ready (System Ready), the platen can be lowered into the drum.



CAUTION

- **Before starting the production, keep the required heat-up phase of the adhesive respectively of the Bulk Melter/platen, so that sufficient adhesive can be molten and supplied to the Applicator.**
- **The unit is ready for operation, when all temperatures are within the tolerances.**

19. When System is Ready, Switch the Up/Down-Switch (3) to Down.

20. Switch the Auto/man-switch (2) to Man.

21. Remove the drip tray (optional).

22. To move the platen down press both Left & Right-Confirm-Buttons (4) and the Purge button (1) alternately and several times.
Repeat this procedure until no air and just adhesive comes out of the purge valve.



CAUTION

DO NOT leave the valve open during operation or material will flood the top of the platen.

23. Press the Pumps button on the Main screen and go to the Pump Overview screen to set the pump mode to Auto (Manual, Stop or Automatic).

24. Adjust the air pressure for the Bulk Melter's piston pump to obtain desired flow.

25. Switch the Auto/man-switch (2) to Auto.

26. Press both Left & Right-Confirm-Buttons (4) simultaneously.

- The system is now ready for Auto Mode operation.
- Monitor the controller to determine when to replace an empty drum.
- After the first ten hours of operation, check all set screws, socket head and cap screws for tightness.
- See Chapter 7.7 Special Maintenance for PUR Applications.

Manual Mode

Manual Mode is used during drum changes or maintenance only.

Empty Level (See Chapter 6 Controller/ Level Control Settings)

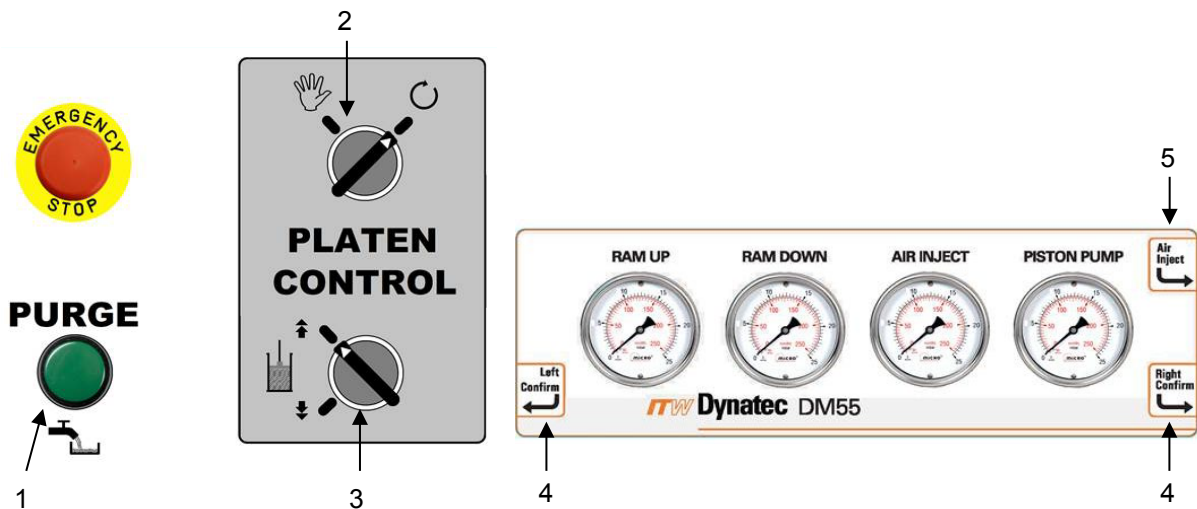
If fill level is lower than the programmable Empty Level parameter an empty message will be generated.

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 drum needs to be changed. After expiration of the time delay, the message Minimum Level will be indicated on the display. The programmable range is 0-31 minutes.
- NOTE: If alarm is not acknowledged in between 5 minutes the pump will come to a standstill.

Drum Change-Out

1. When the material in the drum is low, the Bulk Melter will notify the operator to prepare a new drum for melting via a Drum Low message on the Touch Panel and an amber status light. See Chapter 6 Controller/ Level Control Settings.
2. When the drum is empty, the Bulk Melter will notify the operator to replace the drum via an Empty message on the Touch Panel and the following events:
 - The drum empty horn will sound and the red status light will come on,
 - The ram will stop and The pump will turn off after 5 minutes,
 - The system will go into Standby when programmed accordingly.
3. To raise the platen out of the drum:
 - Switch the Up/Down-Switch (3) to Up.



- Switch the Auto/man-switch (2) to Auto.
- Press both Left & Right-Confirm-Buttons (4) simultaneously to automatically raising the platen full UP.
 The Air Inject is automatically activated after pressing both Left & Right-Confirm-Buttons (4) for raising the platen (in Auto mode and in manual mode) and it is automatically deactivated when platen has reached top position.
 By manually pressing the air inject button (5), air will be injected into the drum. After starting air inject the purge valve will be activated 5 seconds later.



CAUTION

Be sure that the hose(s) are free to move with the platen.

DO NOT allow the drum to rise with the platen as it may cock off center and be difficult to remove.

DO NOT attempt to raise or lower platen unless platen is at operating temperature.

4. Slide the drip tray (optional) onto the drip tray rails.
5. Open the clamshell and slide the empty drum out of the unit.



WARNING HOT SURFACE

DO NOT grasp the drum by its lip as severe burns from molten material may occur.



WARNING EYE PROTECTION & PROTECTIVE CLOTHING REQUIRED

Always wear safety eye protection, protective gloves and long-sleeved clothing when working on or operating the unit.



Keep away (your hands, head, etc.) from platen and piston pump!
Limbs may be drawn in. Risk of crushing!

- Proceed as described under Chapter “Bulk Melter Startup Procedure” on previous pages starting from step 15.

5.3 Switching the unit off



CAUTION! RISK OF BURNS AND INJURY!

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



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

Execute following steps for switching the unit off:

1. Switch all pumps respectively motors off.
2. Switch the controller off.
3. Switch the main switch off!

Removing dirt:



Remove dirt from all unit components immediately.

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

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

Chapter 6

Controller V6 Touch

for DynamelT DM55 – Rev.8.18

6.1 Controller Set-Up

Helpful Tips for the User

- When the Bulk Melter is turned ON, all temperature setpoints and other operating parameters will be exactly where they were when the Bulk Melter was turned off.
- When the Bulk Melter is turned ON, all system heaters go ON unless they have previously been de-activated (in which case they will be turned OFF) or if sequential heat-up have been set. However, if platen temperature is above ready temperature when the Bulk Melter is turned on, all hose and head sequential heat-up will be bypassed and hoses and heads will be turned ON.



CAUTION

- **DO NOT** damage the HMI's touch panel with sharp-edged tools.
- **DO NOT** damage the touch panel by getting it wet.
- Keep the touch panel clean.



DANGER HIGH VOLTAGE

Never open the control panel without switching off the main disconnect switch to ensure that it is disconnected from its power source.

Temperature Control Functions in General

- The DynaControl microprocessor-based proportional temperature control in the Bulk Melter performs a number of functions that help to maintain adhesive setpoints in all temperature zones of the Bulk Melter system.
- It maintains permanent system values (fixed proportional and integration values that have been programmed at the factory, such as the maximum temperature set point).
- 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.

Software & Hardware Versions

The software & hardware versions of your Controller and V6 modules are listed on the Controller's System Info Screen. At the HMI's Main Screen, press the Settings button. On the Settings Screen, press the System Info button.

Defining DynaControl Temperature Control Terms

SSRs & Aux Power Modules

The SSRs and V6 Aux Power Module provide power to all the temperature zones in the ASU's system. The platen power is controlled via SSRs and hoses and applicators are controlled by the Aux Power Module.

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 Temperature Module

Monitors temperature signals from all heated zones and provides control signals to the SSRs and Auxiliary PCBs (modules).

Default Settings

The factory-set programmable system values that will be in effect if the user does not enter new values.

Temperature Control Range

The temperature limits within which the ASU (Adhesive Supply Unit), hoses and applicators may be programmed and maintained.

Ready Temperature

The programmable temperature which allows the ASU pump to turn ON. The default ready temperature range is a deviation from the setpoint. The setpoint minus the deviation is the low limit of the range, and the setpoint plus the deviation is the high limit of the range.

Set points

The temperatures that you have selected and programmed for each of the temperature zones.

Set point Limitation

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

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.

Standby Condition

The system condition where the ASU, 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.

Error Indication Alarms

Controller alarms which indicate that the programmed over-temperature values have been exceeded for one or more platen, 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.

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.

Sequential Heating

The heating sequence allows the slower-heating platen to reach operating temperature without unnecessary use of electricity for faster-heating hoses and applicators.

Sequential heating is the time period during which the hoses and applicators remain OFF while the platen heats up. Hoses and applicators may be independently programmed. If platen temperature is above ready temperature when the ASU is turned ON, the hose and applicator sequence is bypassed and they will be turned ON. Sequential heating is restored after Standby is turned from ON to OFF. Sequential heating is not needed for most applications and can delay total system warm-up time.

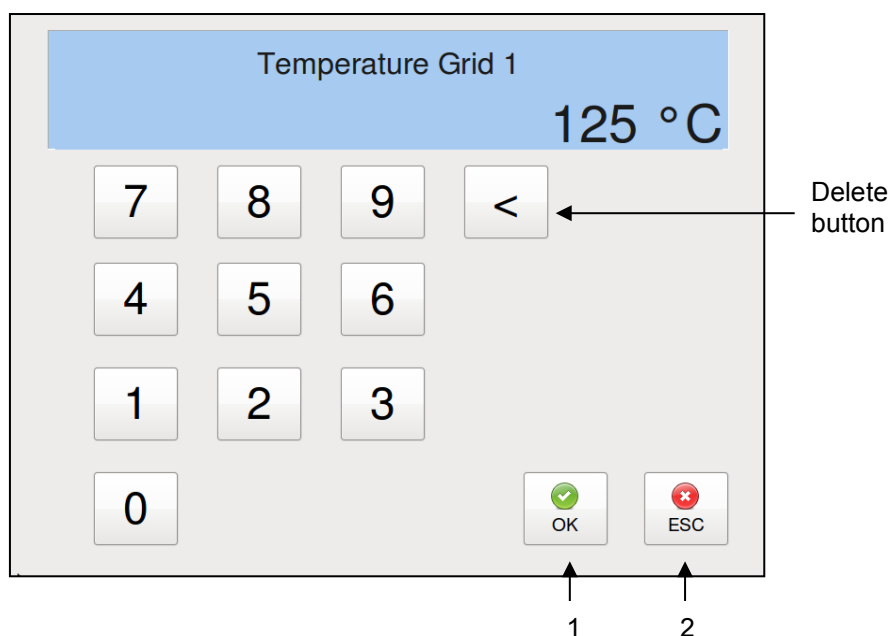
6.2 Program Your System's Parameters

- Program the controller parameters to meet the specific temperature requirements of your production. Set points 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.

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 set point value will be displayed.

This is a typical example of the numeric entry keypad:

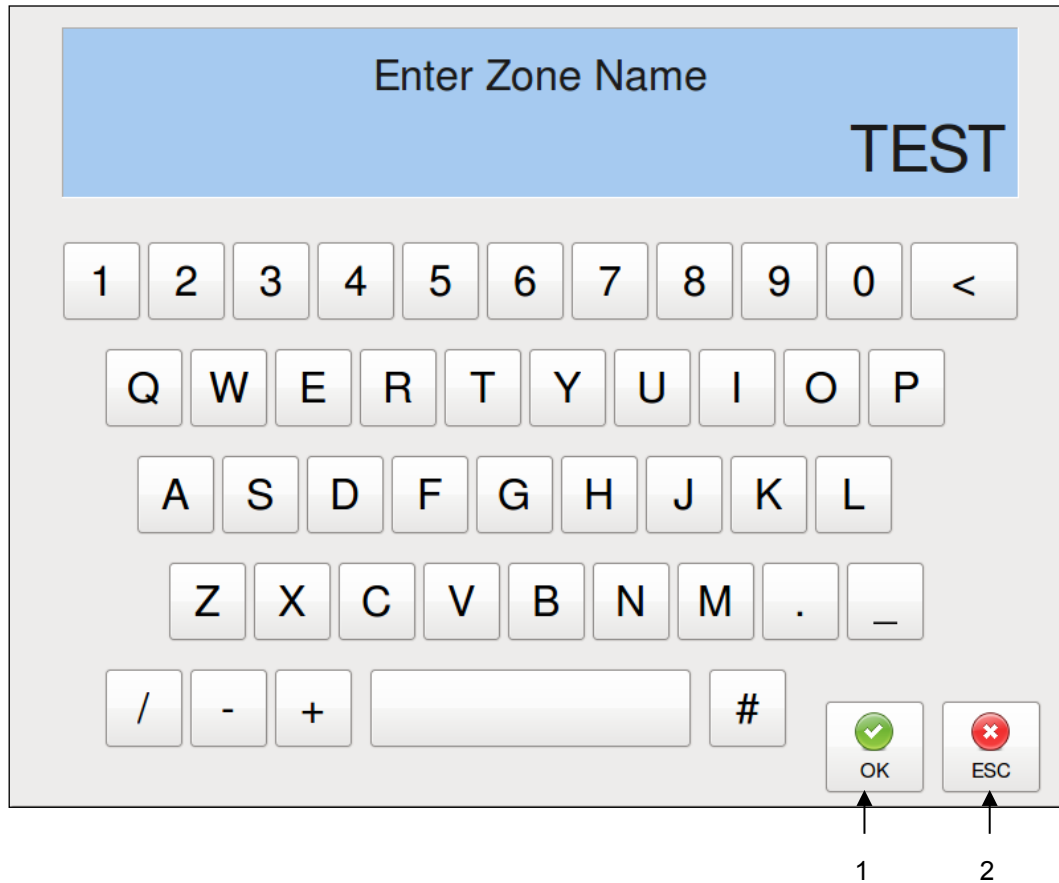


Item	Description
1	By pressing the OK button the entered values will be confirmed and stored in the controller. The numeric entry keypad closes and you will return to the previous screen.
2	By pressing the ESC button any entered but not yet confirmed values will be discarded and you will return to the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

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.

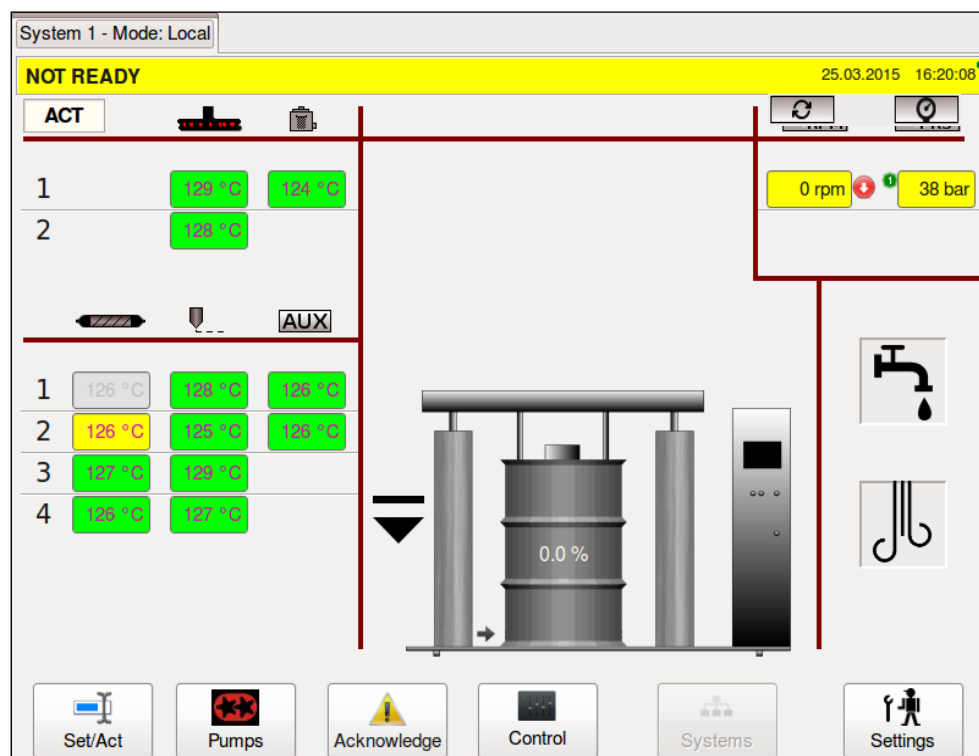
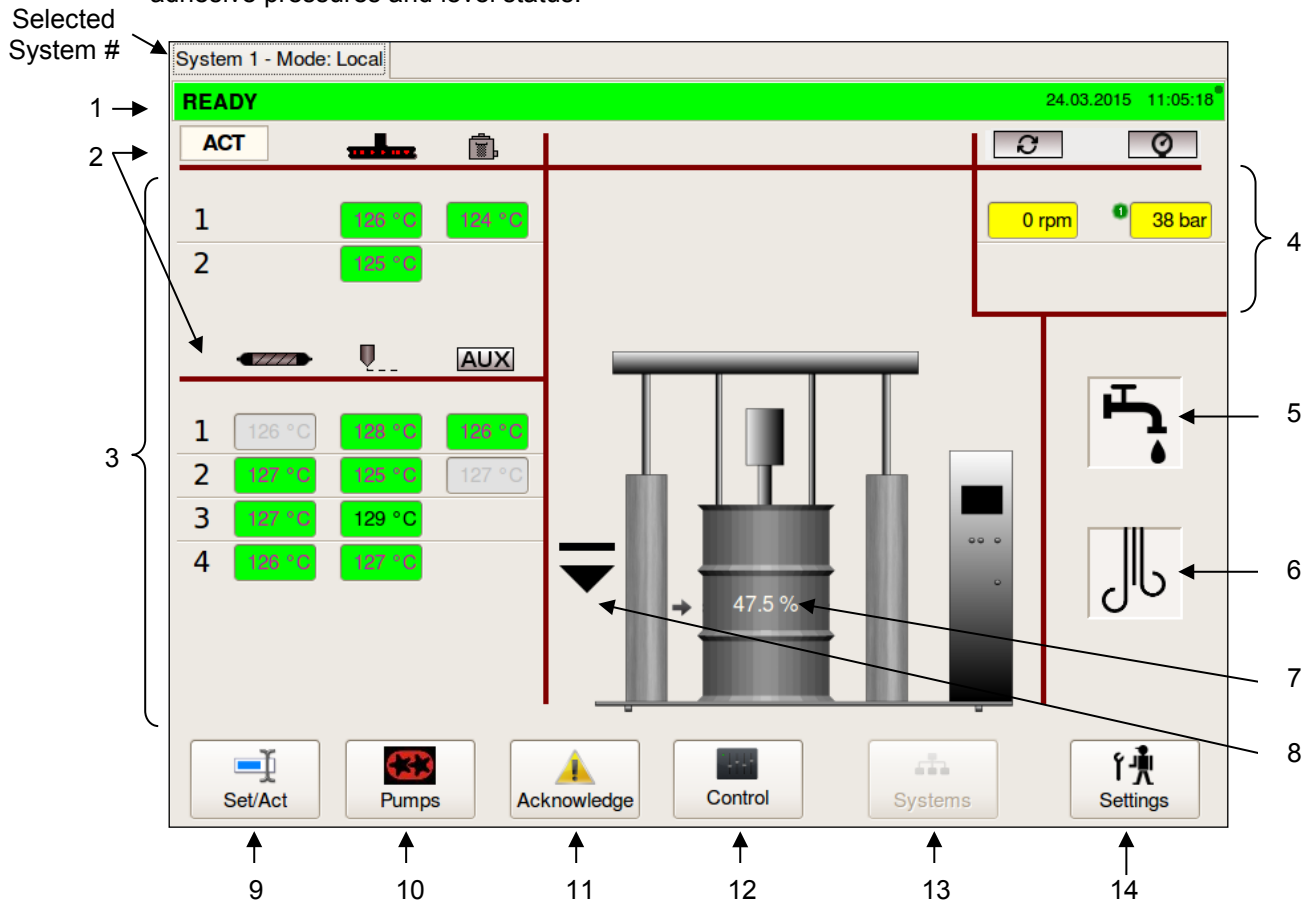
This is a typical example of an alphabetic keypad:



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.

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.



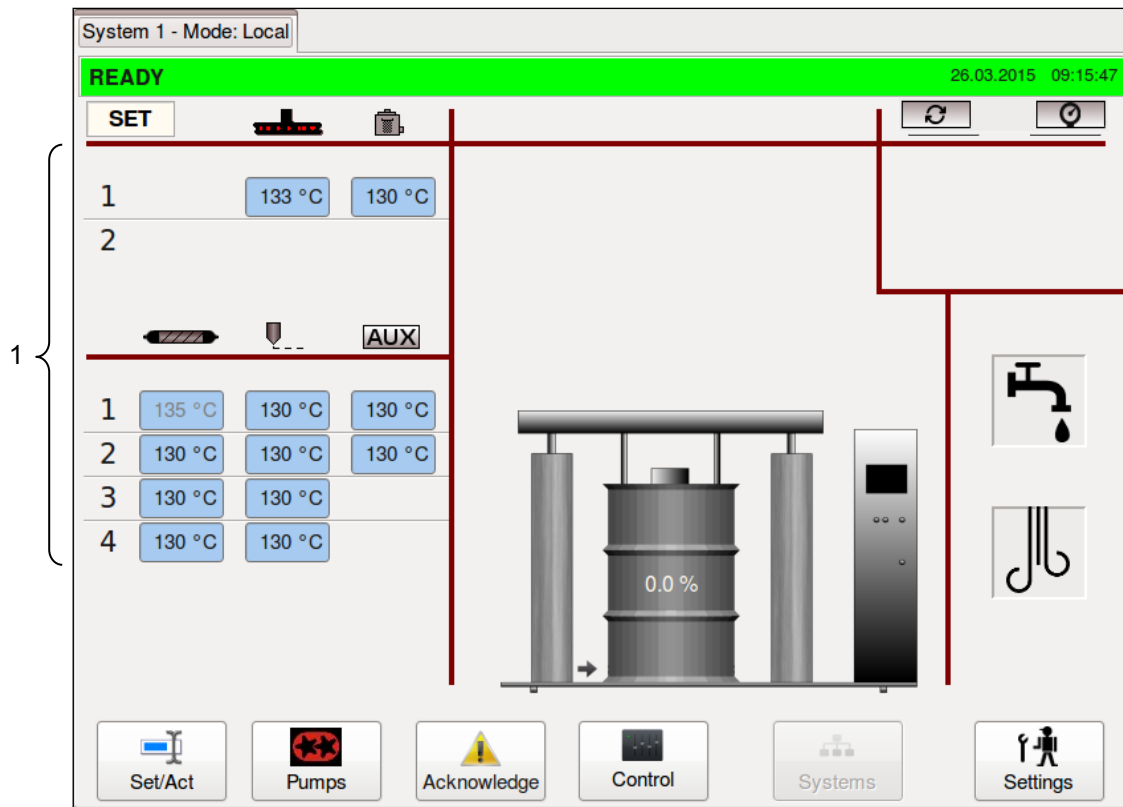
Item	Description
1	Status Line Display of the actual status of the unit: • READY = All zones are within their set point temperatures and the unit is ready for operation. • RUNNING = All zones are within their set point temperatures and the unit/pump is running. • NOT READY = At least one zone has not yet reached its set point 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 <u>green</u> when the system is READY or RUNNING, <u>yellow</u> when NOT READY, <u>grey</u> when in STANDBY and <u>red</u> 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 (ie, 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 Set point 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:  Platen  Filter block  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 set point, yellow while the zone is heating up, grey if it has been temporarily switched off and red if in alarm. - When all zones have reached their set point values, READY will be displayed in the status line. If zones are still heating up and have not yet reached their set point values, NOT READY will be displayed in the status line. - Under the  Platen icon two temperature zones are displayed, one for platen surface (1) and one for platen core (2); a cascaded PID-control controls the set point of the core temperature; both zones have only one set point temperature.
4	The appropriate actual values (pump rpm, pressures) are displayed under the icons. M1 M1 will be displayed if Bulk Melter is operated with piston pump (option). In this case the piston pump is controlled by pressure regulator.  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	Purge Valve Signal - The purge valve is automatically activated 5 seconds later after the Air Inject is activated. - By manually pressing purge valve button on the panel box the purge valve will be opened and allow air/ adhesive to come out of the valve. - If activated it is highlighted green.
6	Air Inject Signal - The Air Inject is automatically activated after pressing both Two-Hand-Control-Buttons (Left & Right-Confirm-Buttons) for lifting the platen (in Auto mode and in manual mode) and it is automatically deactivated when platen has reached top position. After starting air inject the purge valve will be activated 5 seconds later. - By manually pressing the air inject button, air will be injected into the drum. - If activated it is highlighted green.
7	Fill Level Value Display The fill level value of adhesive in the drum is displayed (estimated value).
8	 This arrow flashes and indicates the platen is lifting.  This arrow flashes and indicates the platen is lowering.
9	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.

<i>Item</i>	<i>Description</i>
10	Pumps Button Press to go to the Pump Overview screen.
11	Acknowledge Button Press to acknowledge an error or alarm.
12	Control Button Press to go to the Control screen.
13	Systems Button Press to go to the Systems screen, if several systems are controlled by the HMI.
14	Settings Button Press to go to the Settings screen.

Temperature Zones Set Screen

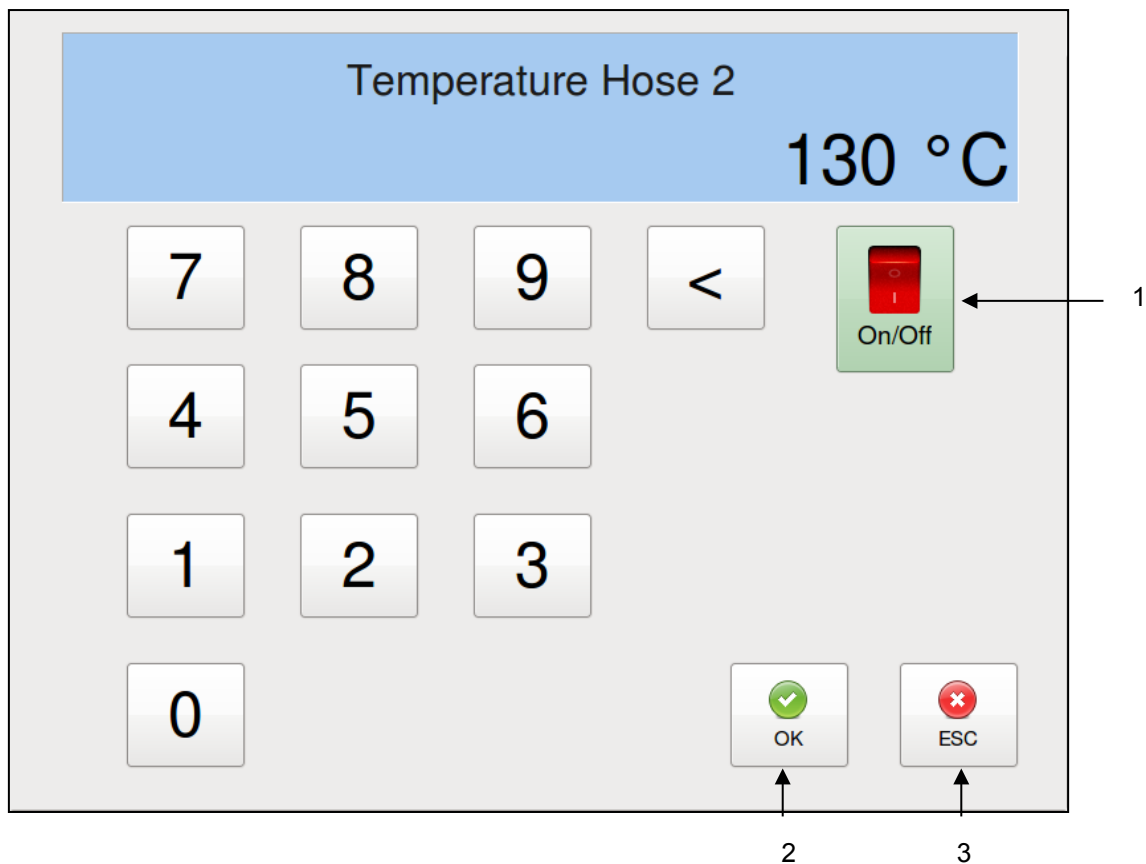
- To go to this screen, press the Set/Act button on the Main Screen.
- The Set screen allows you to program the set point temperature for each activated zone. Each zone requires a temperature set point.
- When a temperature zone is not used, it can be de-activated (turned OFF) on the Heating Priority 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 set point values. - To edit values: Touch a zone input box and a numeric entry keypad will appear. Enter your new set point value and confirm by pressing OK. NOTE: Must be below the maximum set point 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 set point value is 218°C (424°F).

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

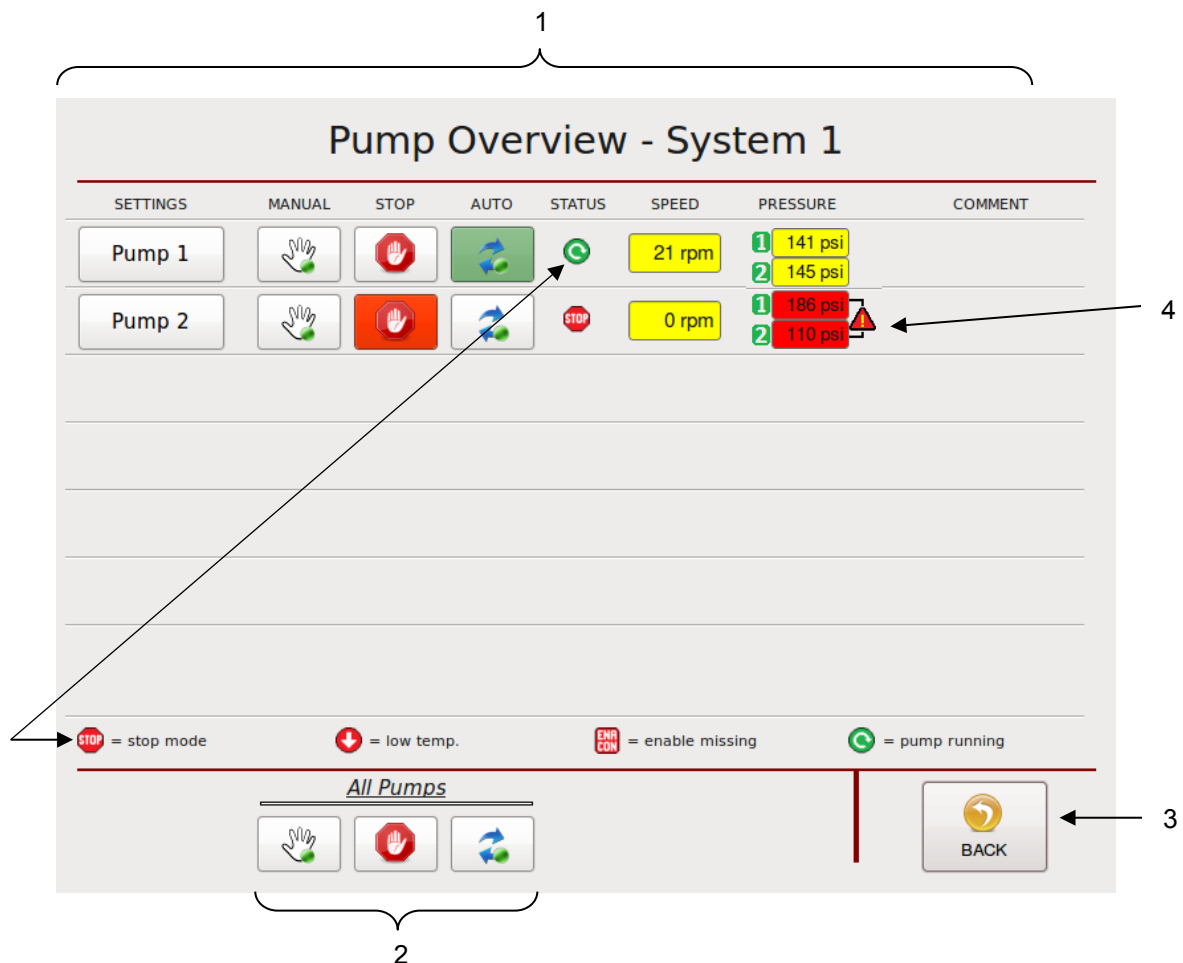
Zone On/Off Switch on the Numeric Entry Keypad



Item	Description
1	Zone On/Off Switch - Zones can be activated/ deactivated temporarily. Some zones (e.g. Platen) cannot be deactivated. - 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.

Pump Overview Screen

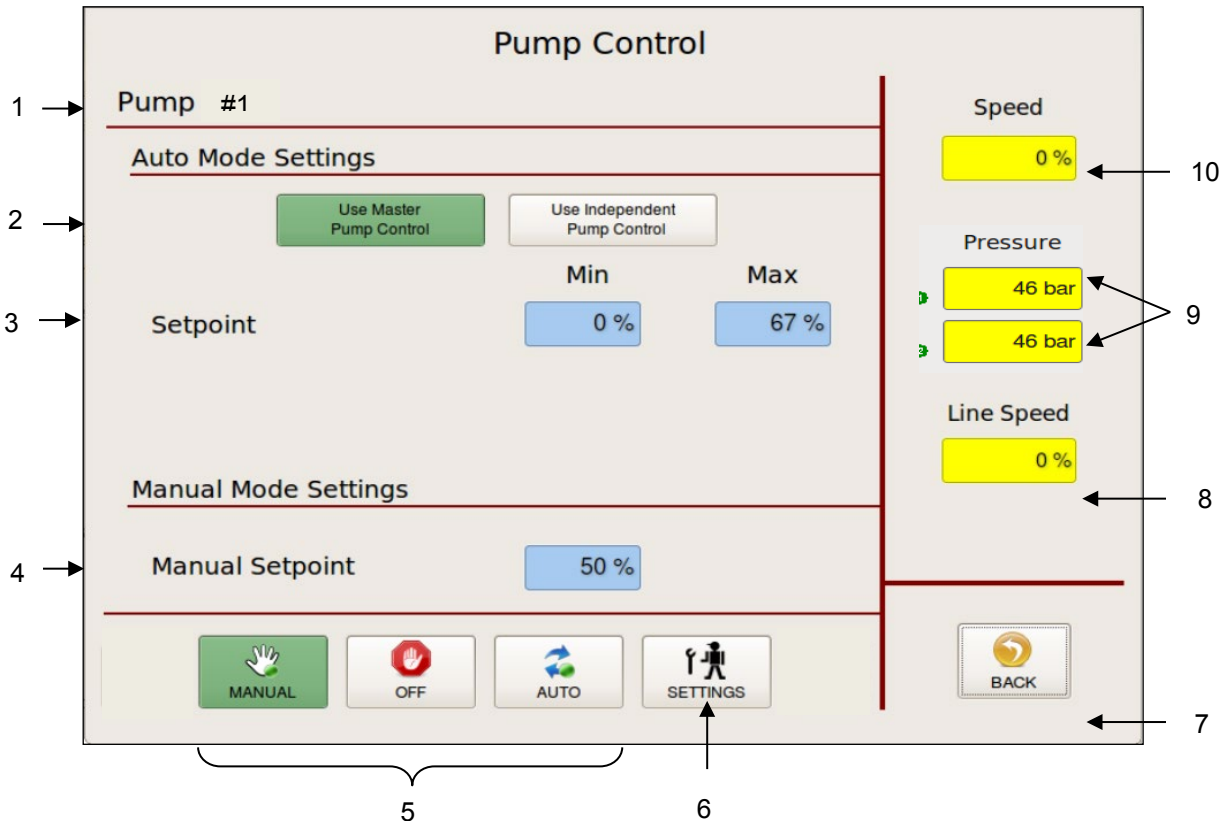
- To go to this screen, press the Pumps button on the Main Screen.
- While on the Pump Overview Screen, all changes are immediate (you do not need to confirm).
- The Pump Overview Screen allows you to program the pump mode (Manual, Stop or Automatic). Each pump in the system must be programmed with a 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 ASU 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. <i>See icons line/description at the bottom of the screen.</i> - 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.

Pump Control Screen/ Linear Line Speed

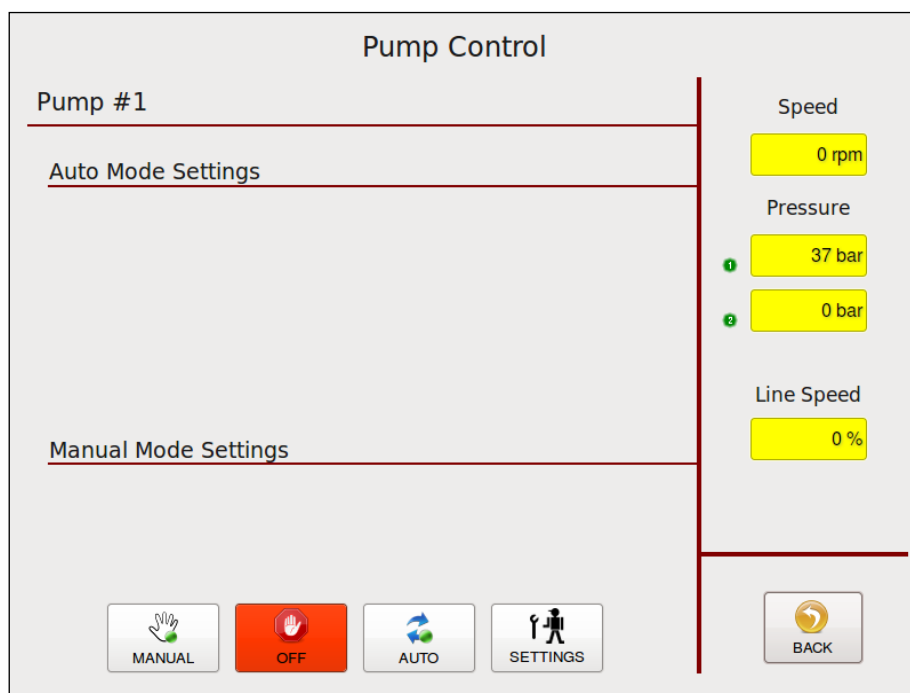
- To go to this screen, press the Pump 2 field on the Pump Overview screen (to go to the Pump 1, etc. Control screen, press the corresponding field). Then press the Settings button, select Linear Line Speed in the Current Pump Mode menu on the Extended Pump Mode Settings screen and then press the BACK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

Pump 1 Example at DM55 with Gear Pump:

Item	Description
1	Pump #1 is the selected pump. All the settings and speeds displayed on this screen correspond to Pump #1.
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.

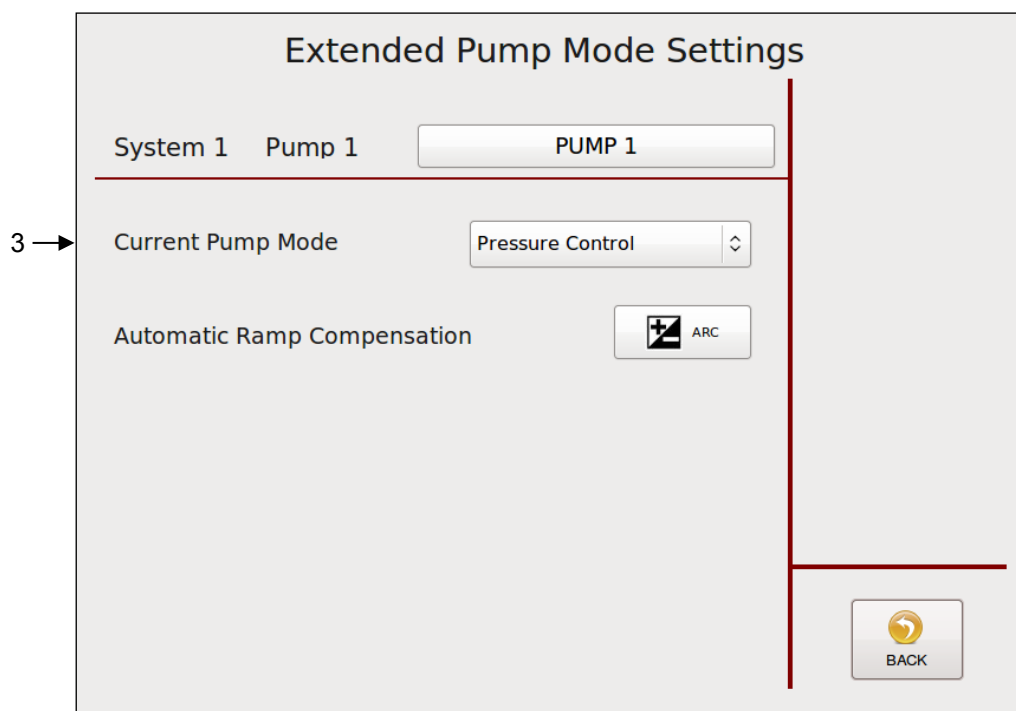
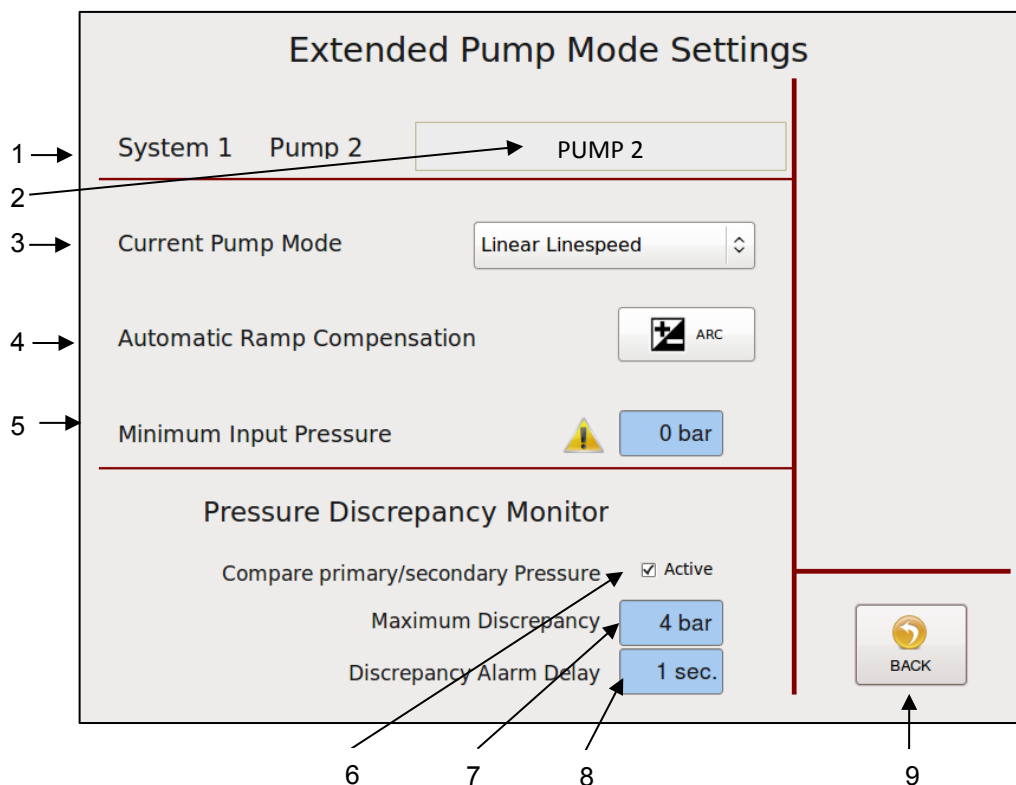
Item	Description
5	Set the pump to the desired mode by pressing MANUAL, OFF (STOP) or AUTO. - MANUAL: The pump speed is adjusted manually by the operator. If MANUAL is selected the icon is highlighted green. - OFF (STOP): The pump is stopped, until AUTO or MANUAL is selected. If OFF is selected the icon 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.
6	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.
7	BACK Button Press to return to the previous screen.
8	LINE SPEED: The actual (or calculated) line speed is displayed.
9	PRESSURE: The actual pressures are displayed. See explanation under Main Screen point 4.
10	SPEED: The actual (or calculated) pump speed is displayed.

Pump Control Screen Example at DM55 with Piston Pump:



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 1 Example at DM55 with Gear Pump:

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.

Extended Pump Mode Settings Screen Example at DM55 with Piston Pump:

Extended Pump Mode Settings

System 1 Pump 1

PUMP 1

Current Pump Mode

Auto On/Off

Automatic Ramp Compensation

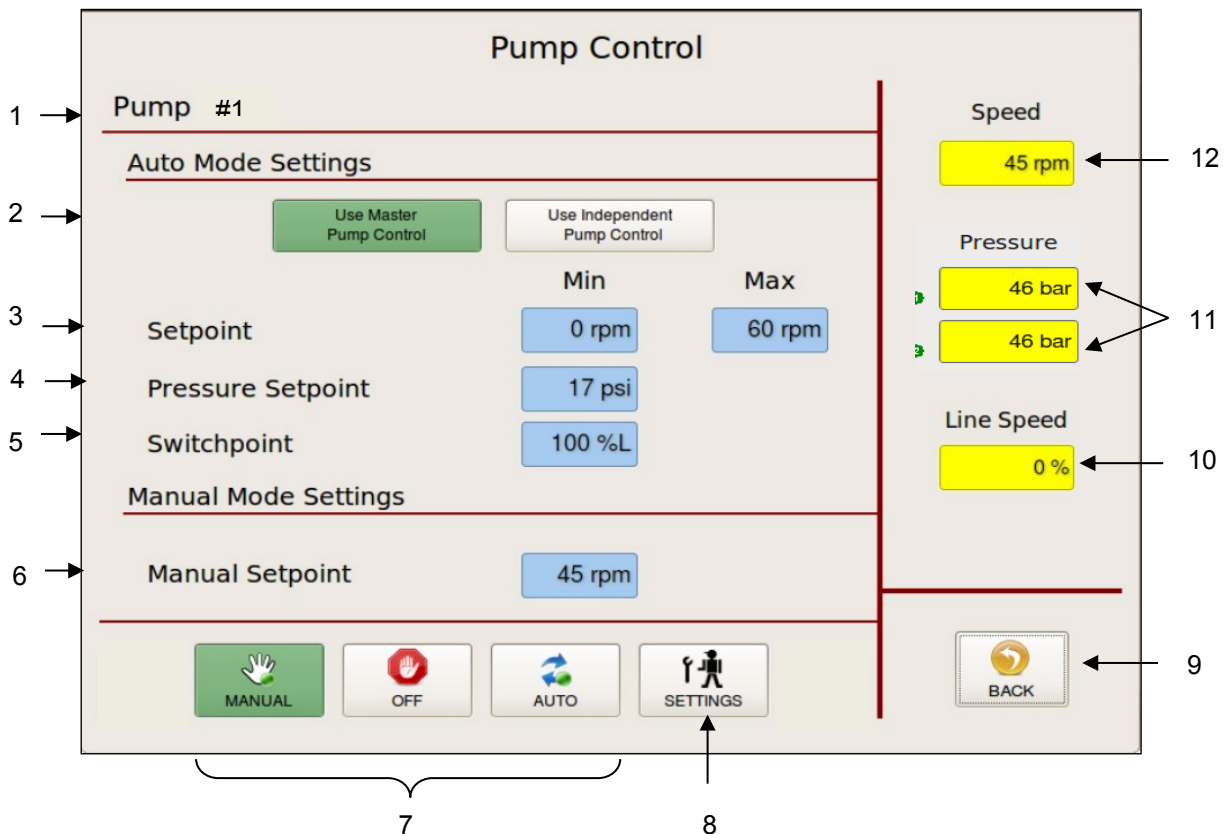
 ARC

 BACK

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.

Pump 1 Example at DM55 with Gear Pump:



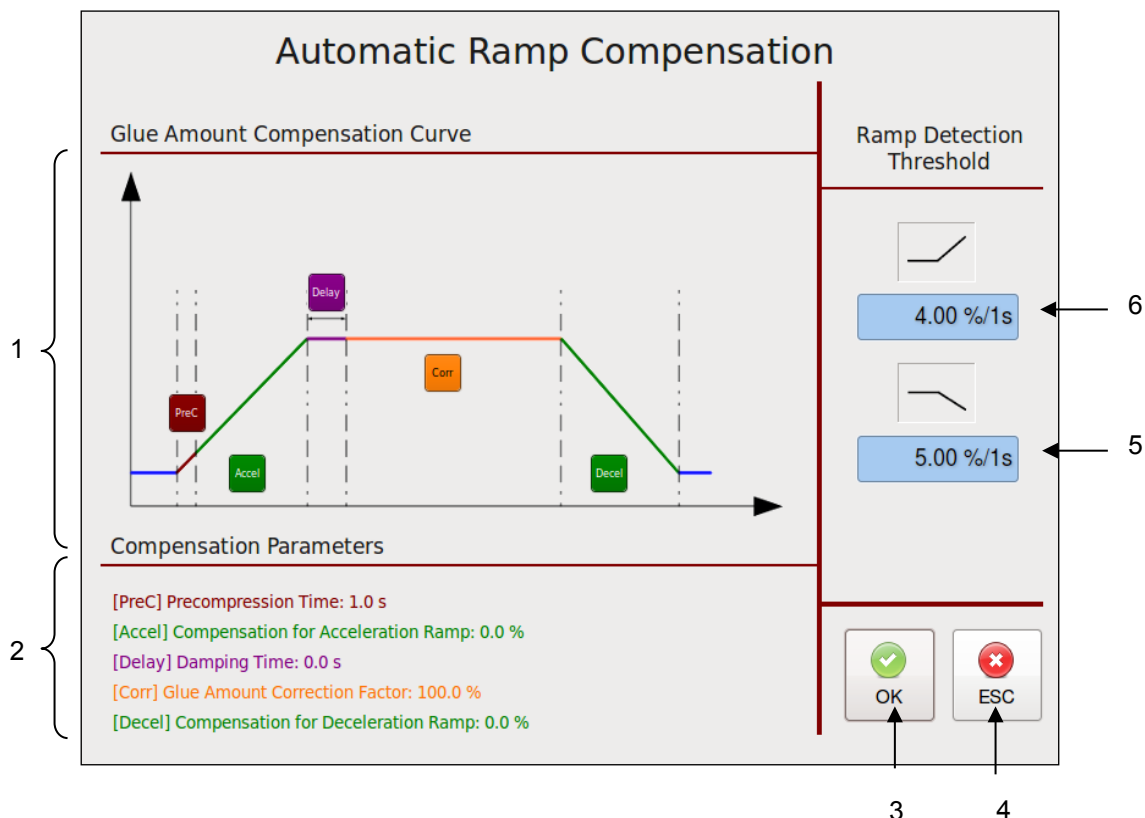
Item	Description
1	Pump #1 is the selected pump. All the settings and speeds displayed on this screen correspond to Pump #1.
2	Auto Mode Settings: Press the according switch for pump control. The activated switch is highlighted green. • Use Master Pump Control: The selected pump will use the START/STOP 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 11). 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	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.
8	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.
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. 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.
12	SPEED: The actual (or calculated) pump speed is displayed.

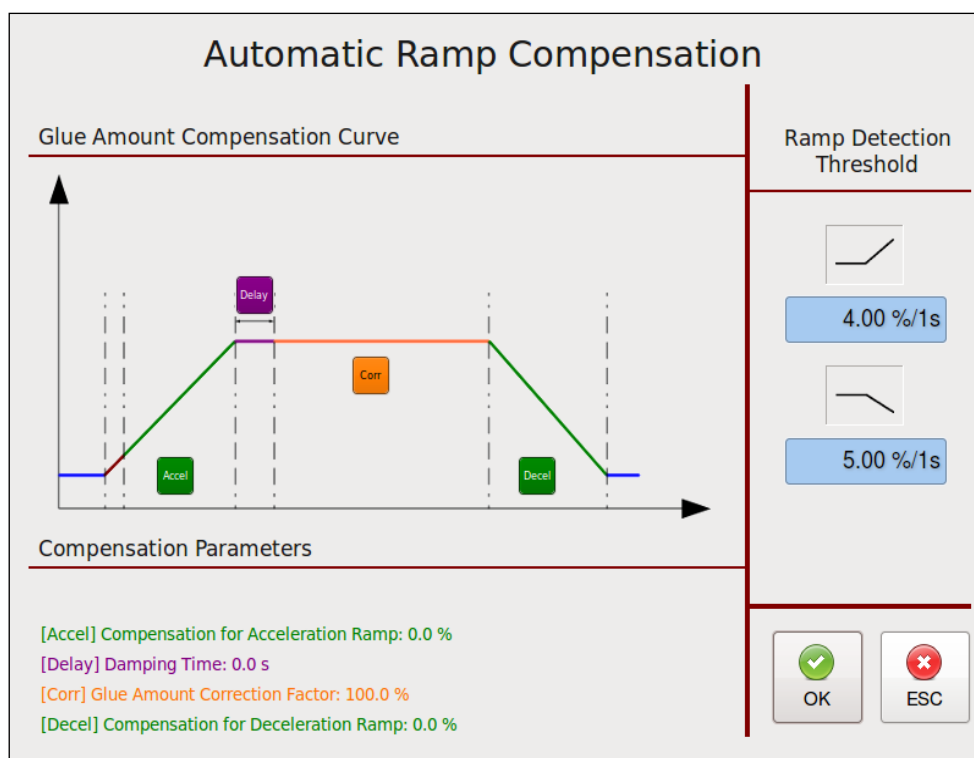
Automatic Ramp Compensation at DM55 with Gear Pump

- 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:

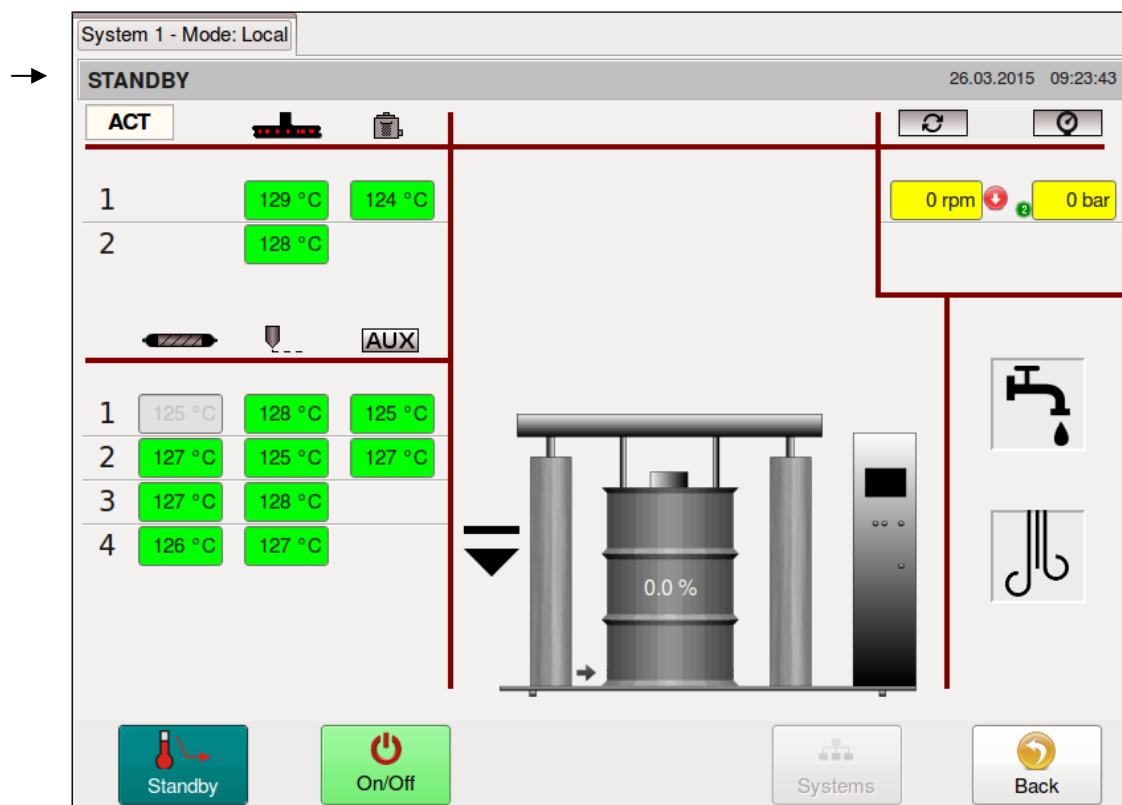
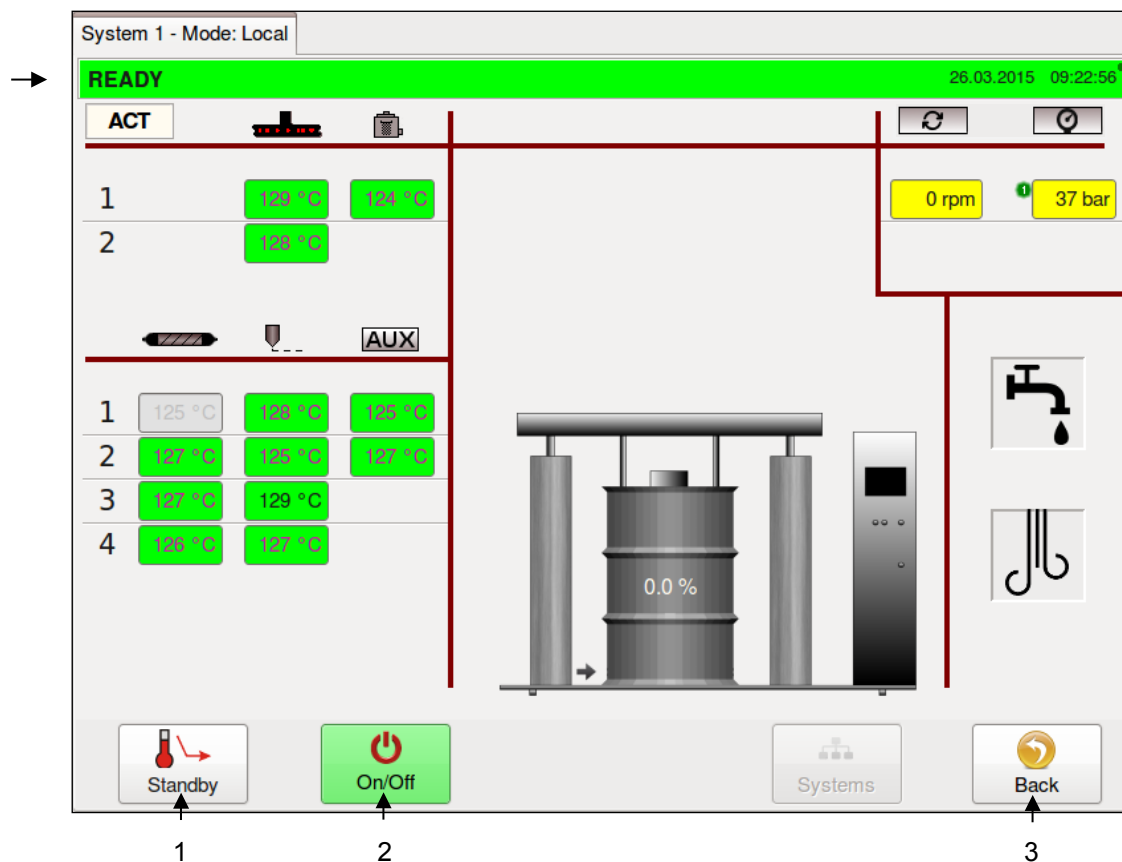


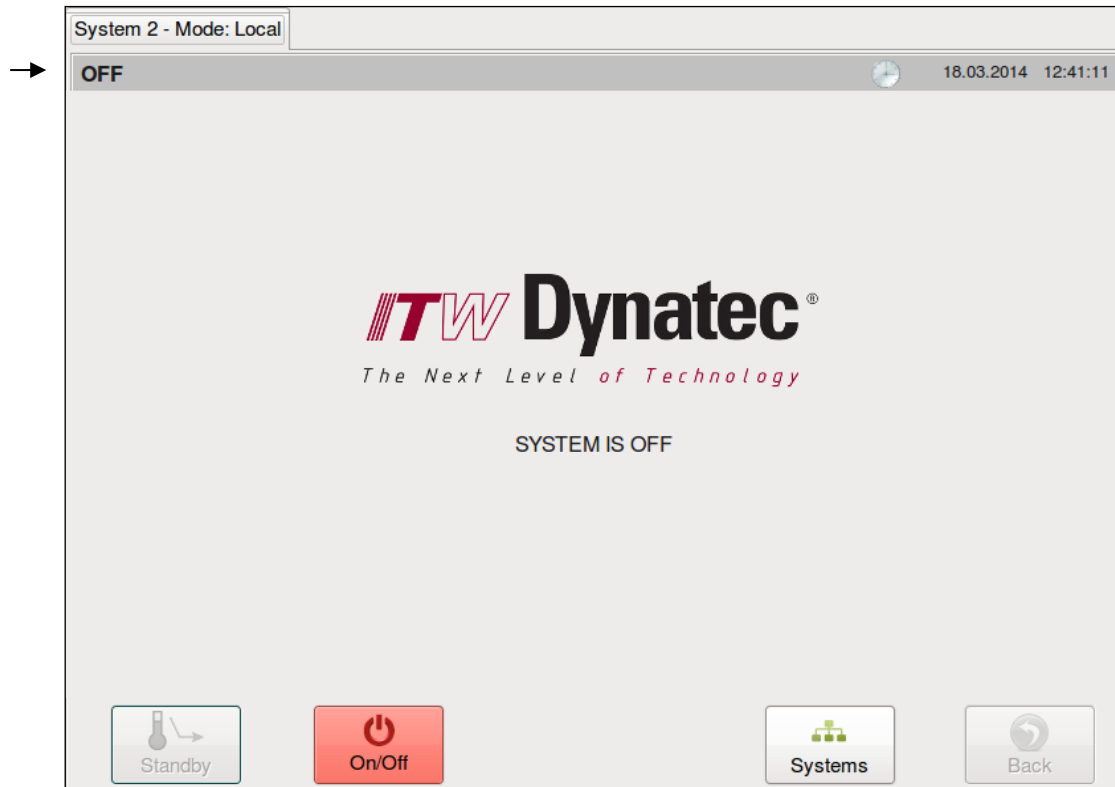
- Ramp Compensation allows tuning of adhesive amounts during acceleration and deceleration of main machine to reduce waste and increase machine efficiency by entering appropriate parameters.
- The colored parameters are related to the different phases of the main machine (see colored graph). A higher 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.

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.

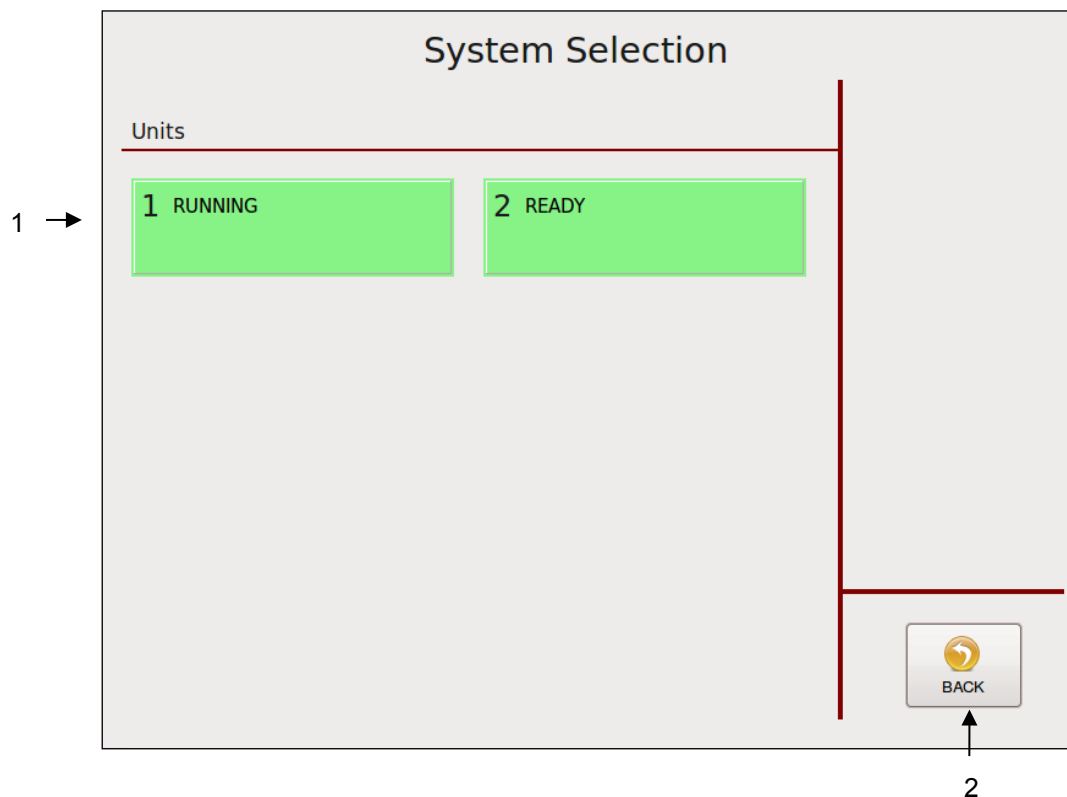




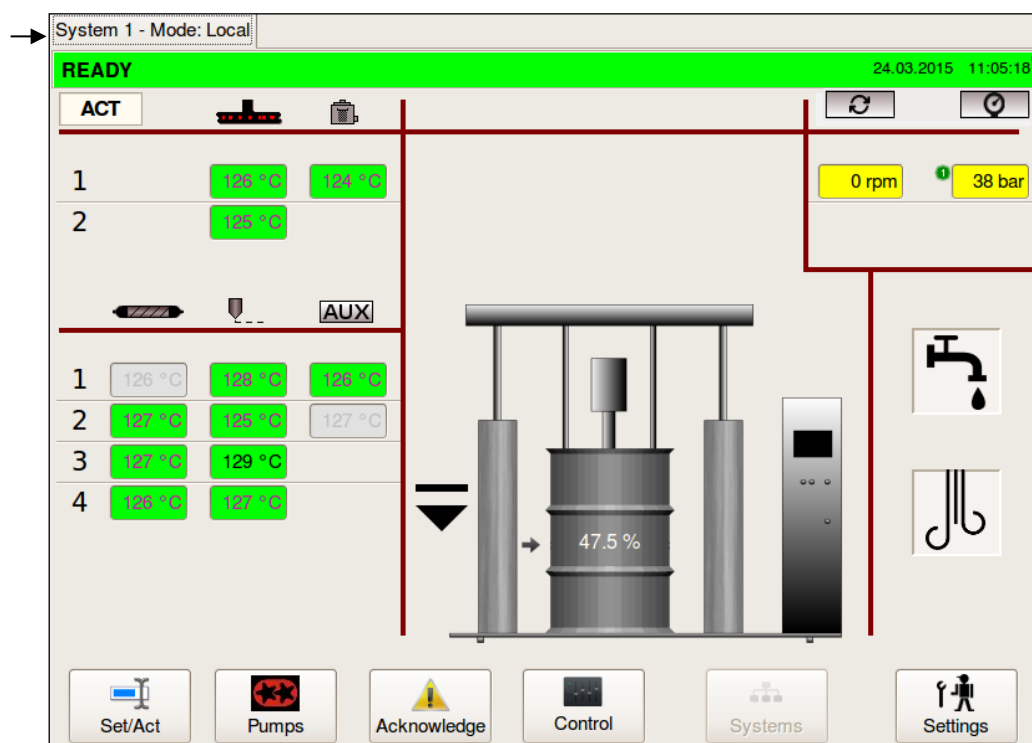
Item	Description
1	Standby Switch - Press the Standby switch to activate or deactivate the standby condition. When Standby is activated, the button will be highlighted blue. - When Standby is activated, all zone temperatures will be set to the standby value (programmed on the General Settings Screen) 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.

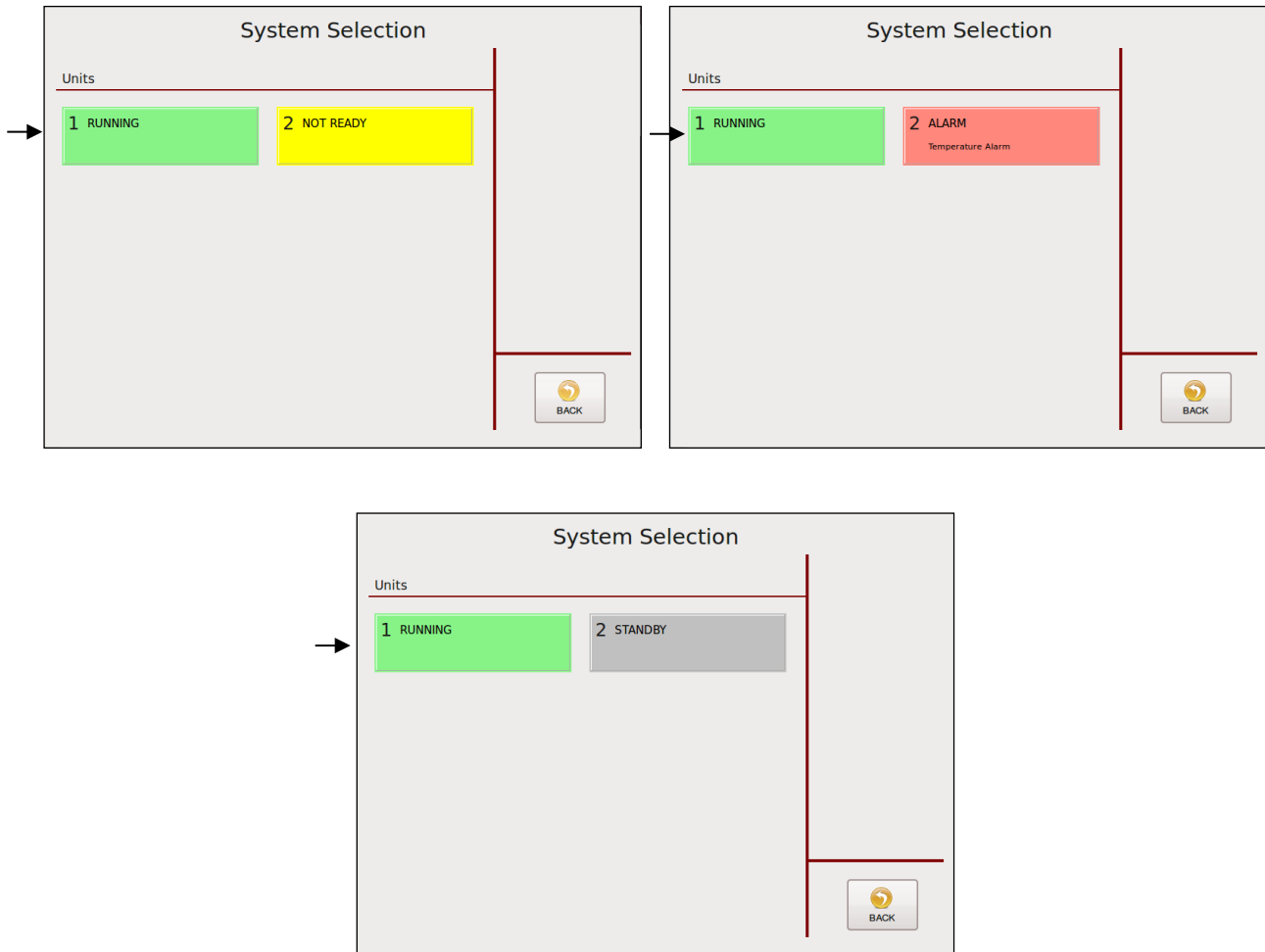
Systems Screen

- 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 example: System #1 is selected. The system # will be indicated over the Status Line.

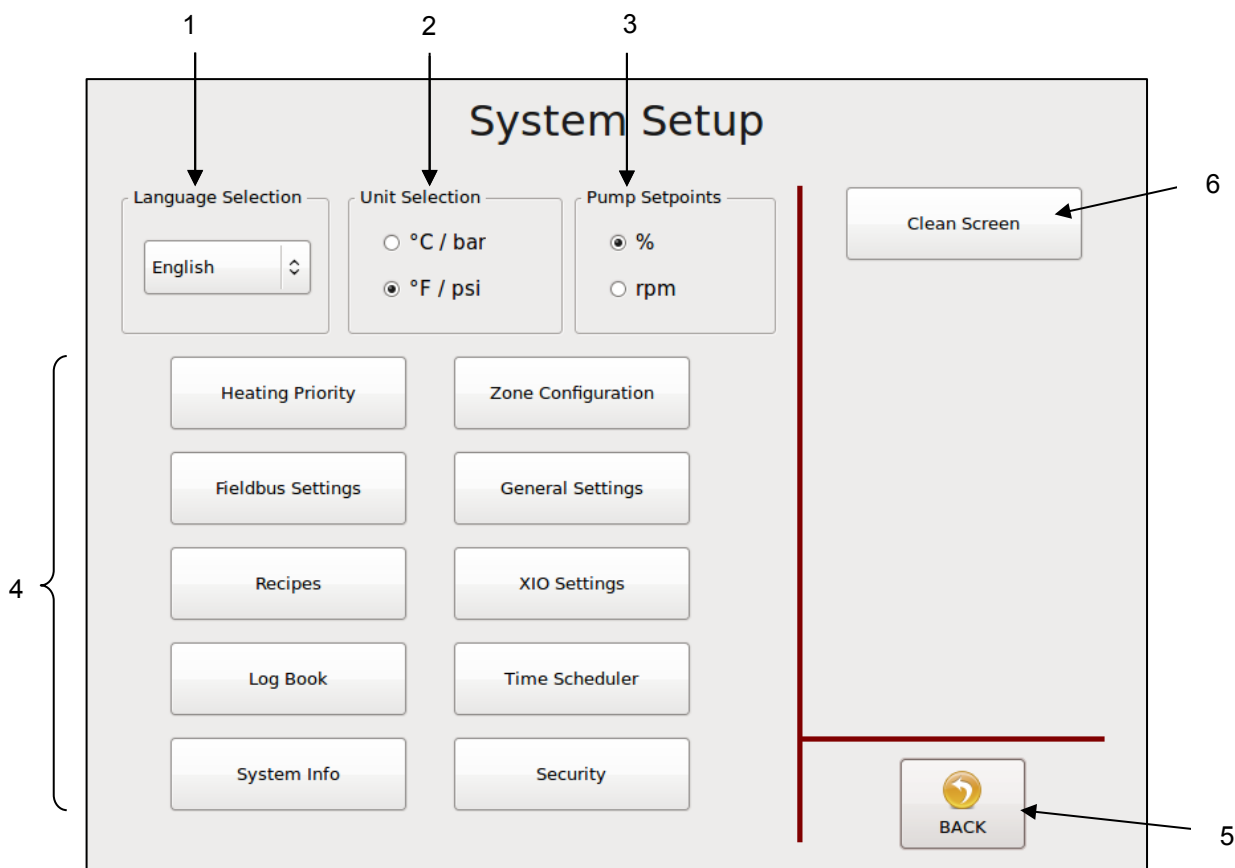




Item	Description
1	System # Button - Each system is assigned with a number. - Press the desired number to go to the appropriate system to control and to edit its parameters. - The button is highlighted <u>green</u> when the system is RUNNING or READY, <u>yellow</u> when NOT READY, <u>grey</u> when in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

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. 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.

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 platen zones to heat to their ready temperatures before the other zones begin heating. In this way, the platen zones (including filter block) get a head start on the other zones (hoses, applicators and auxiliary zones).

Heating Priority Matrix Example:

The screenshot shows the 'Heating Priority Matrix' screen. It features a 12x5 grid of zone settings. The columns are labeled with icons: a platen (red dots), a filter block (battery), a hose (hatched), an applicator (arrow), and an auxiliary zone (AUX). The rows are numbered 1 to 12. A bracket on the left groups rows 1 through 8. The grid contains green buttons with 'PRIO 1' and a temperature. To the right of the grid is a section titled 'Automatic Zone Enumeration' containing two buttons: 'Without Sequence' and 'Standard Sequence'. At the bottom right are 'OK' and 'ESC' buttons. Arrows and numbers 2, 3, 4, and 5 point to these buttons respectively.

	Platen	Filter Block	Hose	Applicator	AUX
1	PRIO 1 129°C	PRIO 1 124°C	PRIO 1 126°C	PRIO 1 128°C	PRIO 1 126°C
2	PRIO 1 128°C	PRIO 1 127°C	PRIO 1 127°C	PRIO 1 125°C	PRIO 1 127°C
3			PRIO 1 127°C	PRIO 1 129°C	
4		PRIO 1 126°C	PRIO 1 126°C	PRIO 1 127°C	
5		PRIO 1 126°C	PRIO 1 127°C	PRIO 1 126°C	
6		PRIO 1 127°C	PRIO 1 129°C	PRIO 1 128°C	
7		PRIO 1 127°C	PRIO 1 127°C		
8		PRIO 1 129°C			
9					
10					
11					
12					

Automatic Zone Enumeration

Without Sequence

Standard Sequence

OK

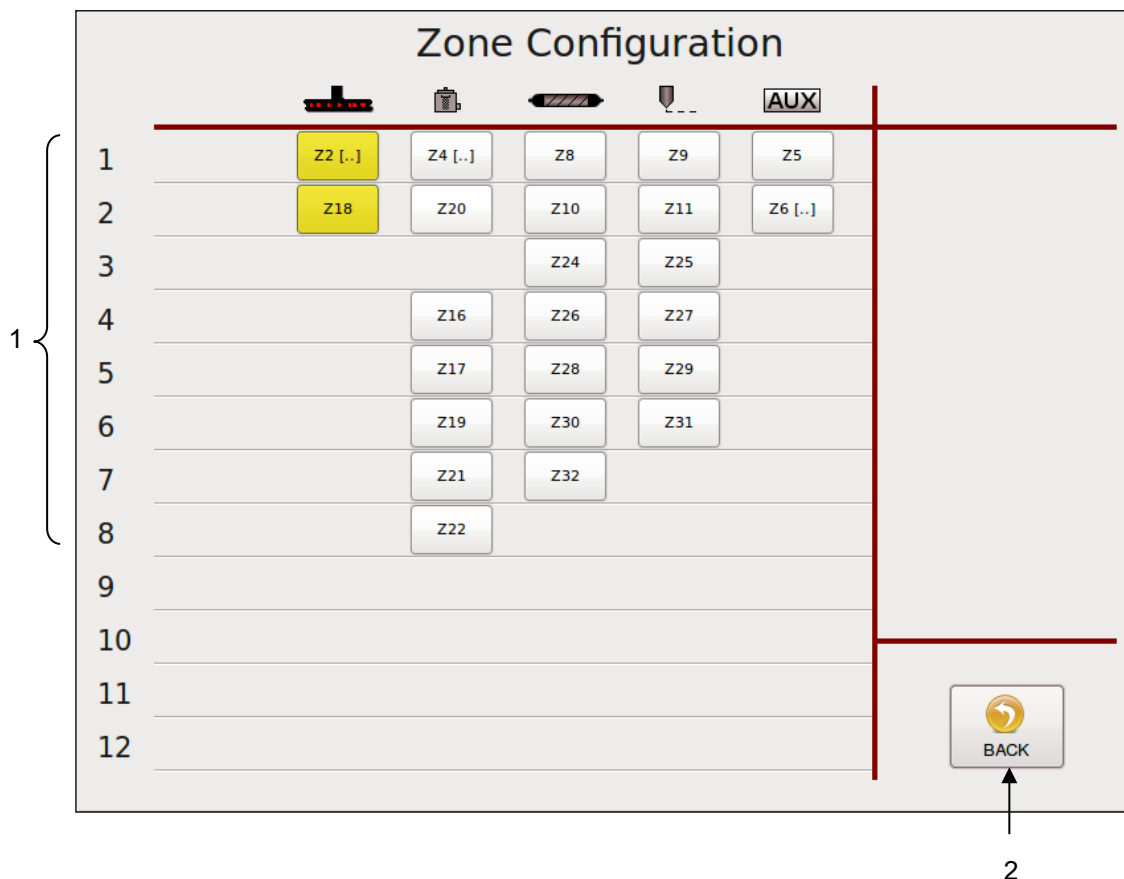
ESC

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 set points. • PRIO3 = the zone will begin to heat after the PRIO2 zones have reached their set points. • 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 = platen and filter block • 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.

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.

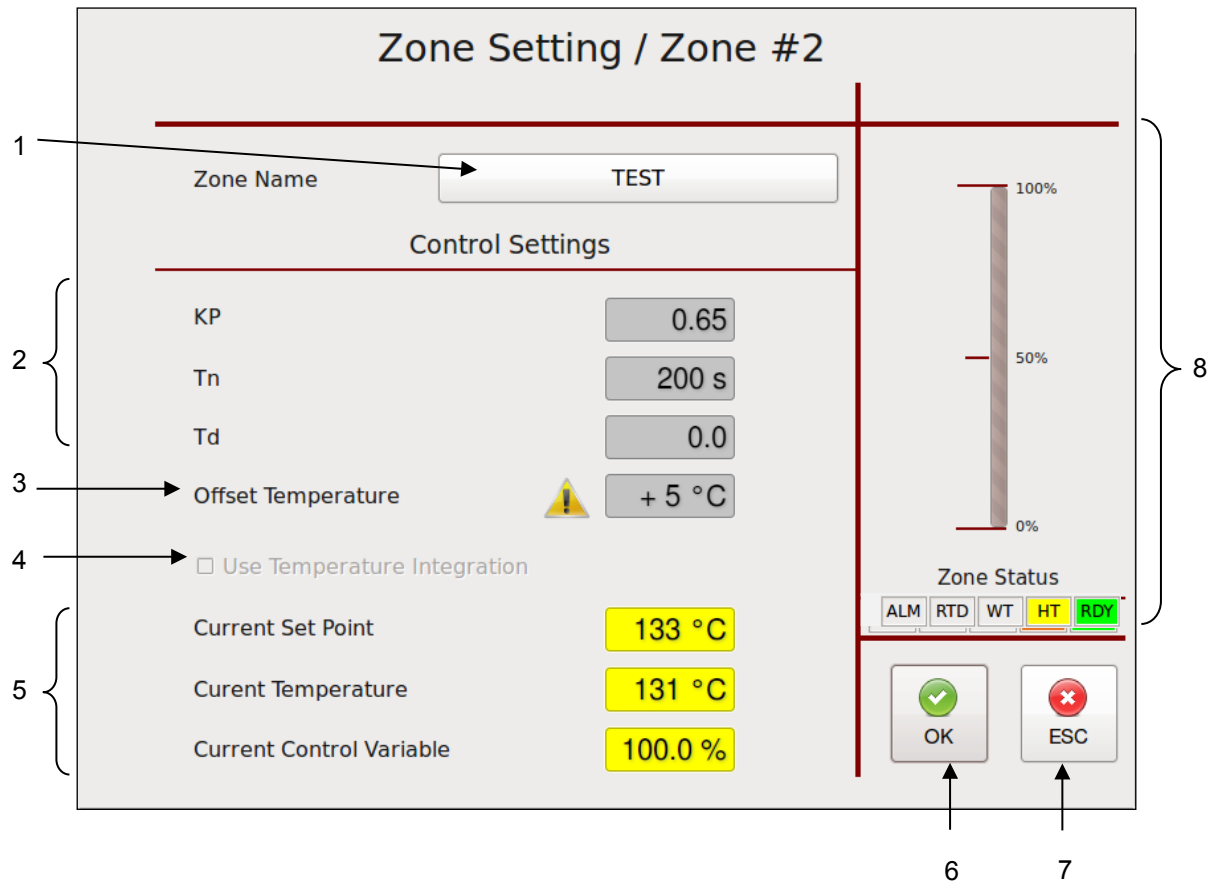
Zone Configuration Screen Example:



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.

Zone Settings

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

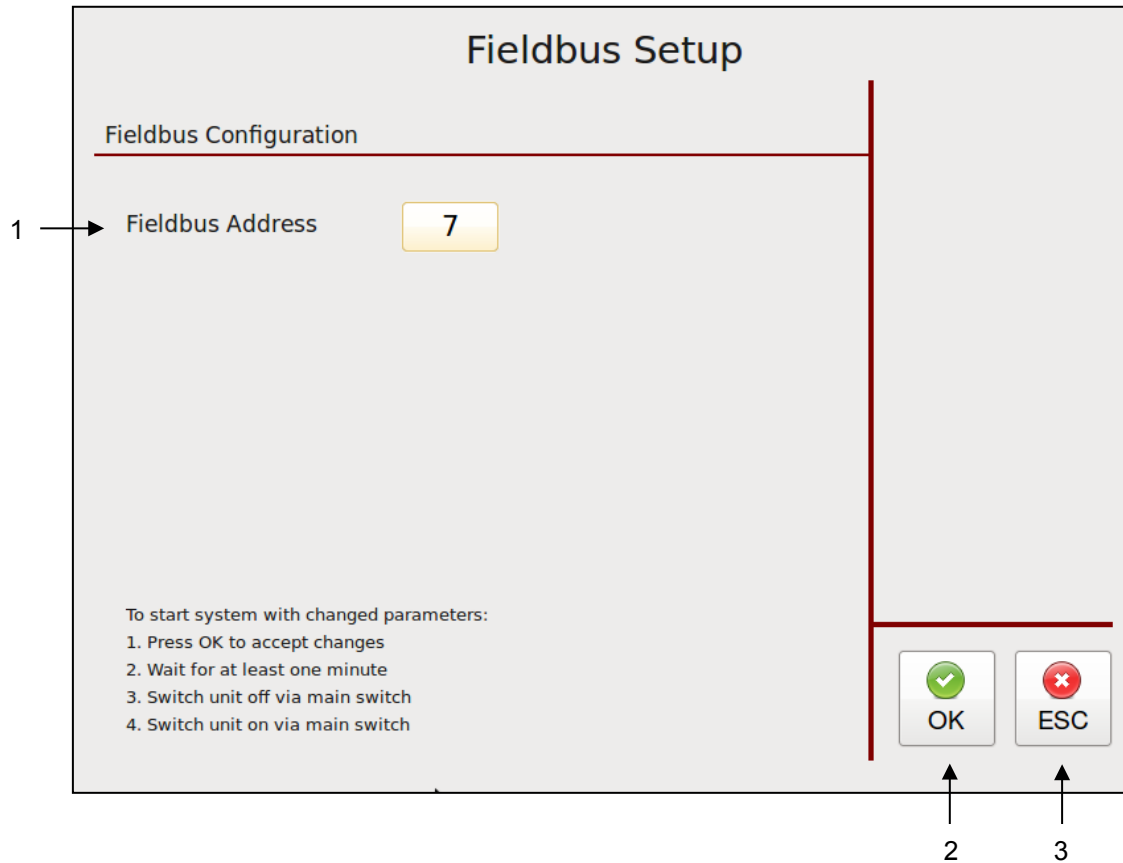


Item	Description
1	Zone Name Touch the input box and an Alphabetic Entry Keypad will appear. Enter your desired name and confirm by pressing OK.
2	Control Settings • KP, Tn and Td values allow access to the control parameters of PID Controller of the selected zone. • These values can be changed only 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 set point and actual temperature, this lowers the actual temperature by the amount of the offset. For example: set point 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	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.
5	These values are read-only.
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.
8	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 (set point temperatures are reached). - Scale = Indication of Current Control Variable of the selected PID control zone.

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.

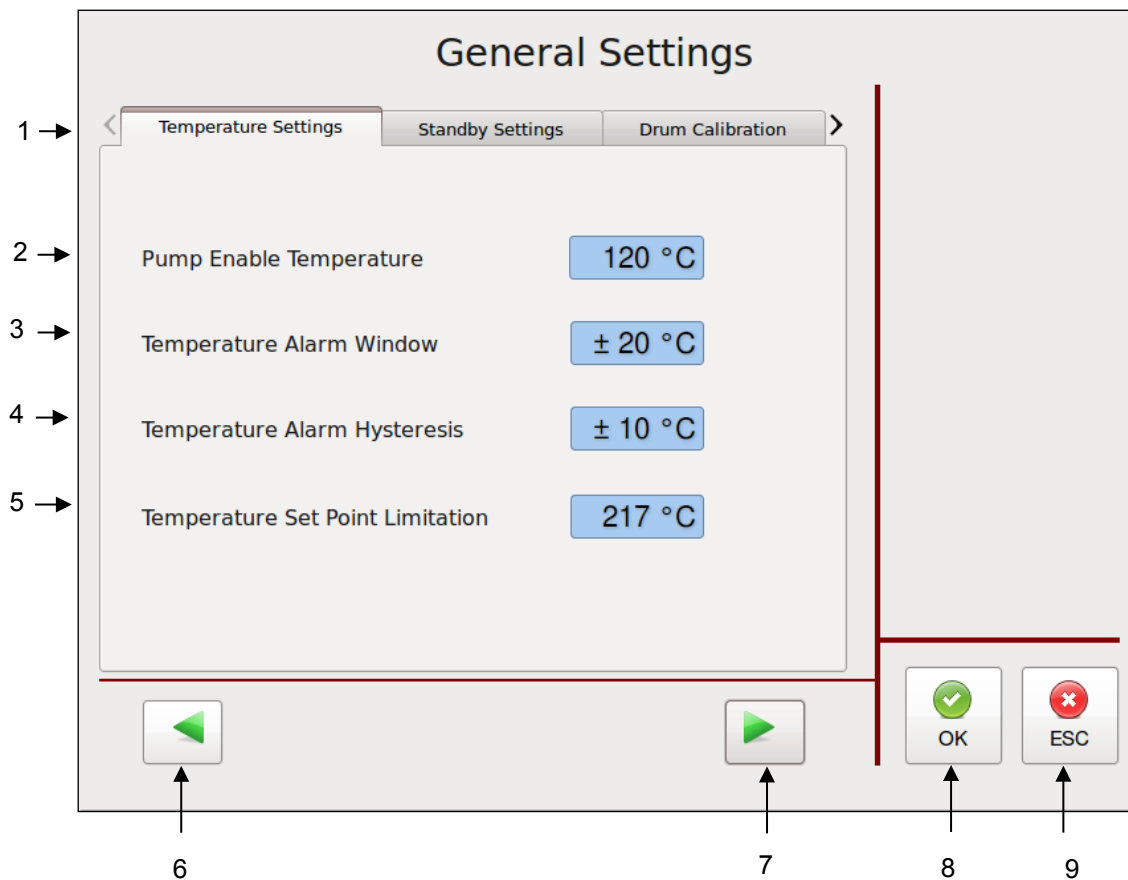


Item	Description
1	Fieldbus Address Touch the input box and a numeric entry keypad will appear. Enter the Fieldbus Address of the unit. Confirm by pressing OK. After programming the Fieldbus Address, the system must be re-started. To re-start the system with changed parameters: 1. Press OK to accept 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.

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, Drum Calibration, Level Control, Pressure Calibration or Customer Zone Names) by pressing its tab or by pressing the arrows at the bottom of the screen.

Temperature Settings

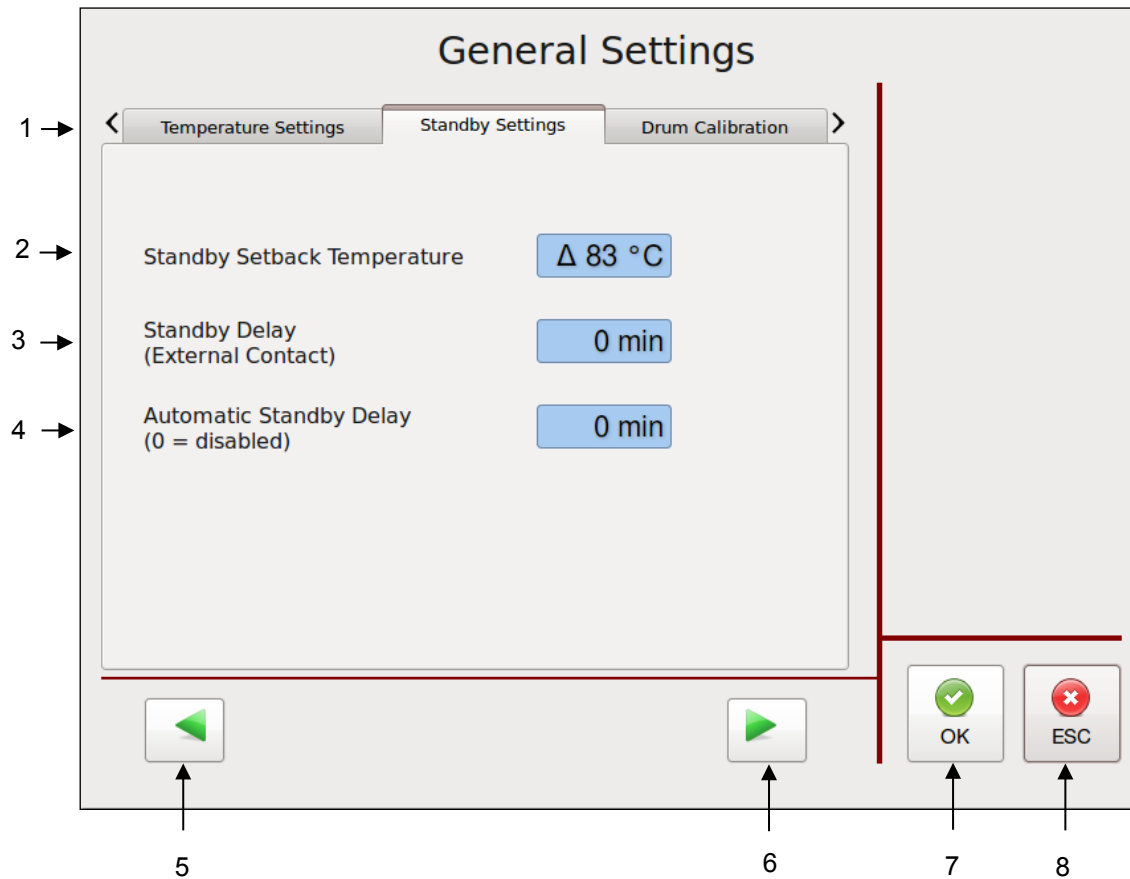


Item	Description
1	Parameter Selection tabs The Temperature Settings tab has been selected.
2	Pump Enable Temperature - The Pump Enable Temperature is a low-limit value (e.g. 100°C / 212°F) which protects the pump, pump shaft, motor and motor control module by preventing the pump from turning on until 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 set points. 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 - This is the programmable temperature range which allows the unit to go into Ready condition. The Temperature Alarm Window is a deviation (e.g. $\pm 20^{\circ}\text{C}$ / 36°F) from the set point. The set point minus the deviation is the low limit of the window, and the set point plus the deviation is the high limit of the window. The programmable range is $0\text{-}50^{\circ}\text{C}$ ($0\text{-}90^{\circ}\text{F}$). - The Temperature Alarm Window ($\pm$ 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. $\pm 2^{\circ}\text{C}$ / 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 $0\text{-}10^{\circ}\text{C}$ ($0\text{-}30^{\circ}\text{F}$). - 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.

Standby Settings

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



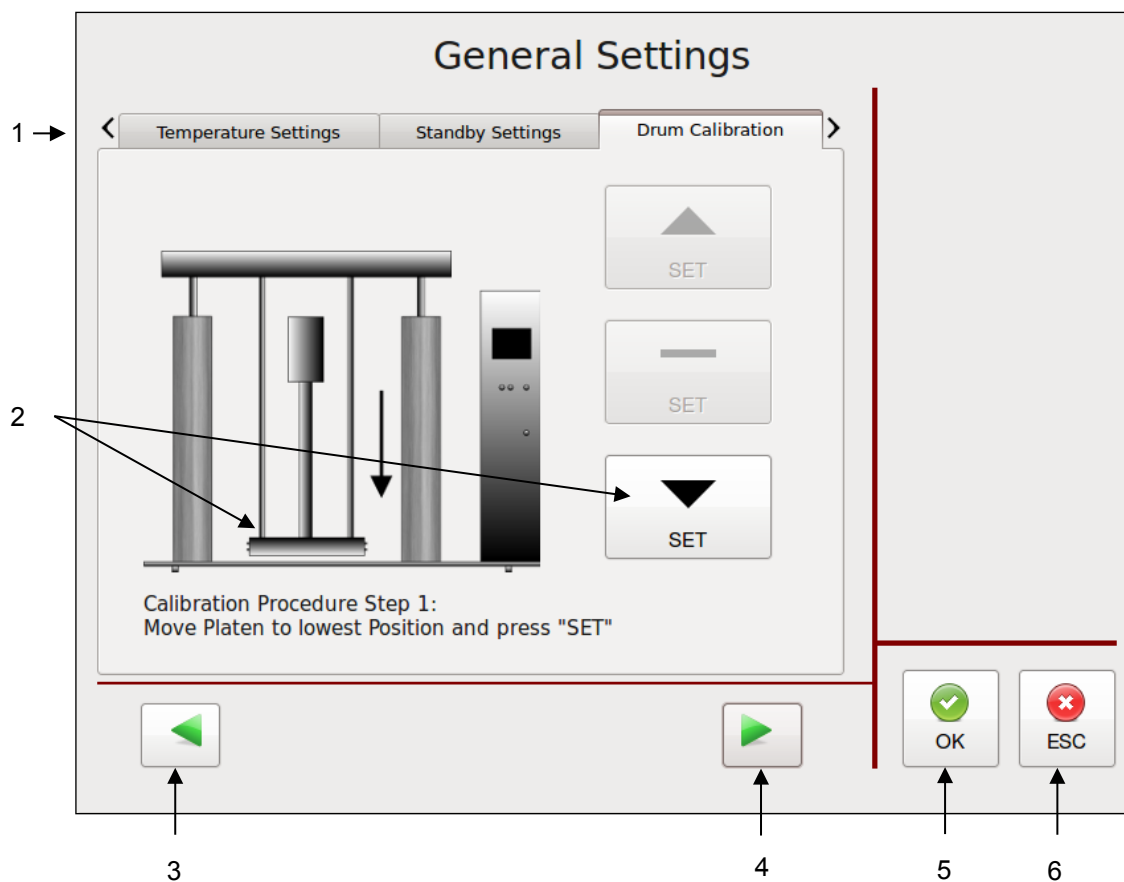
Item	Description
1	Parameter Selection tabs The Standby Settings tab has been selected.
2	Standby Setback Temperature - This is the system condition where the platen, hose and head temperatures are maintained at predetermined reduced temperature values. Standby Setback Temperatures are set lower than set point 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.

<i>Item</i>	<i>Description</i>
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.

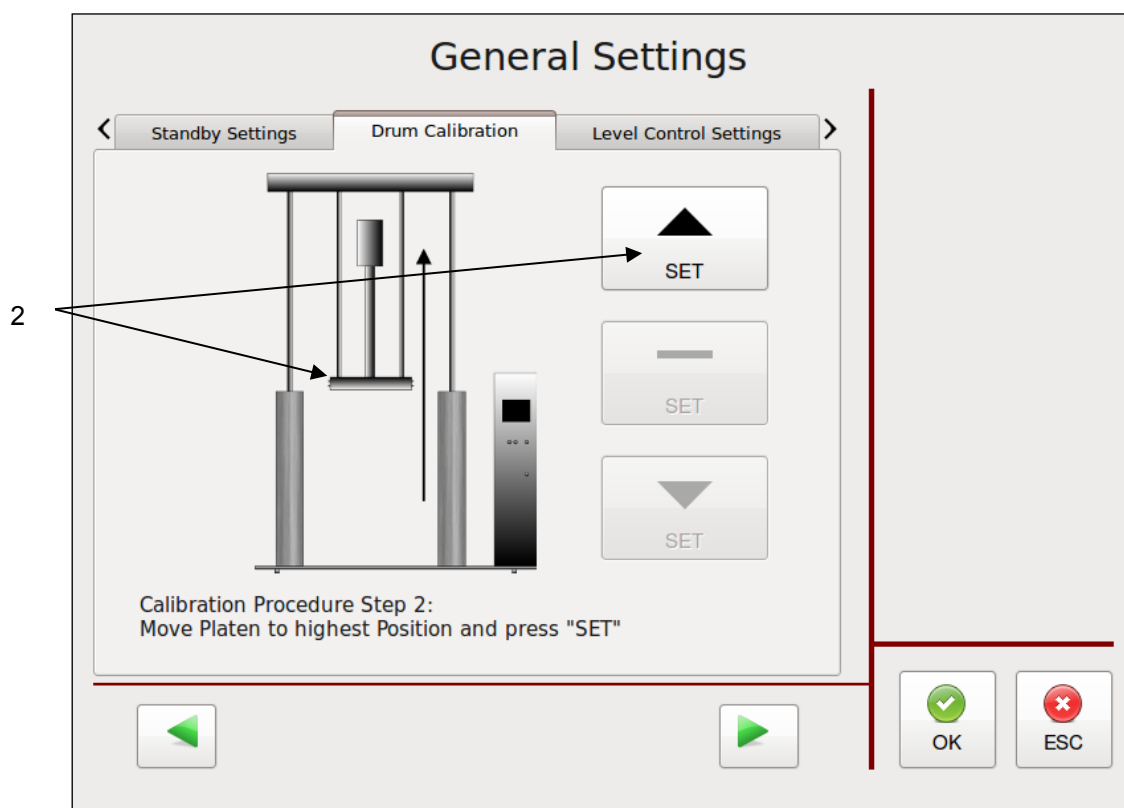
Drum Calibration

➤ To go to this screen, press the General Settings button on the Drum Calibration.

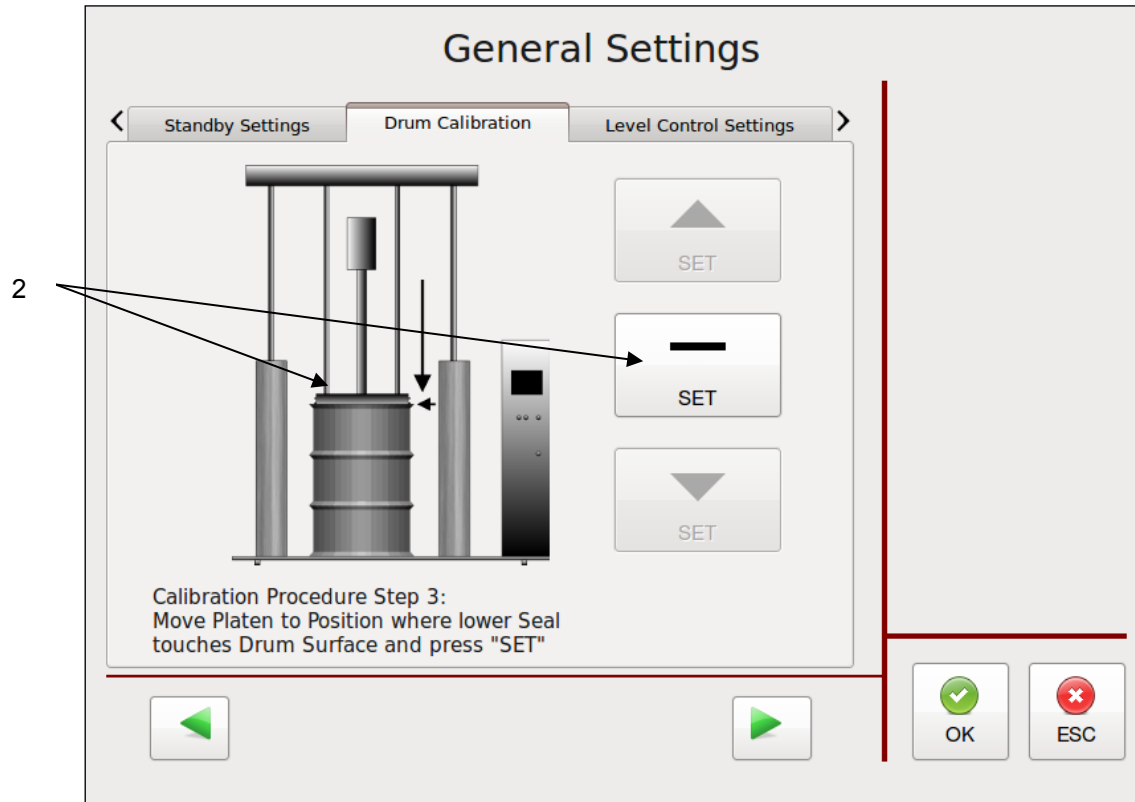
Step 1:



Step 2:



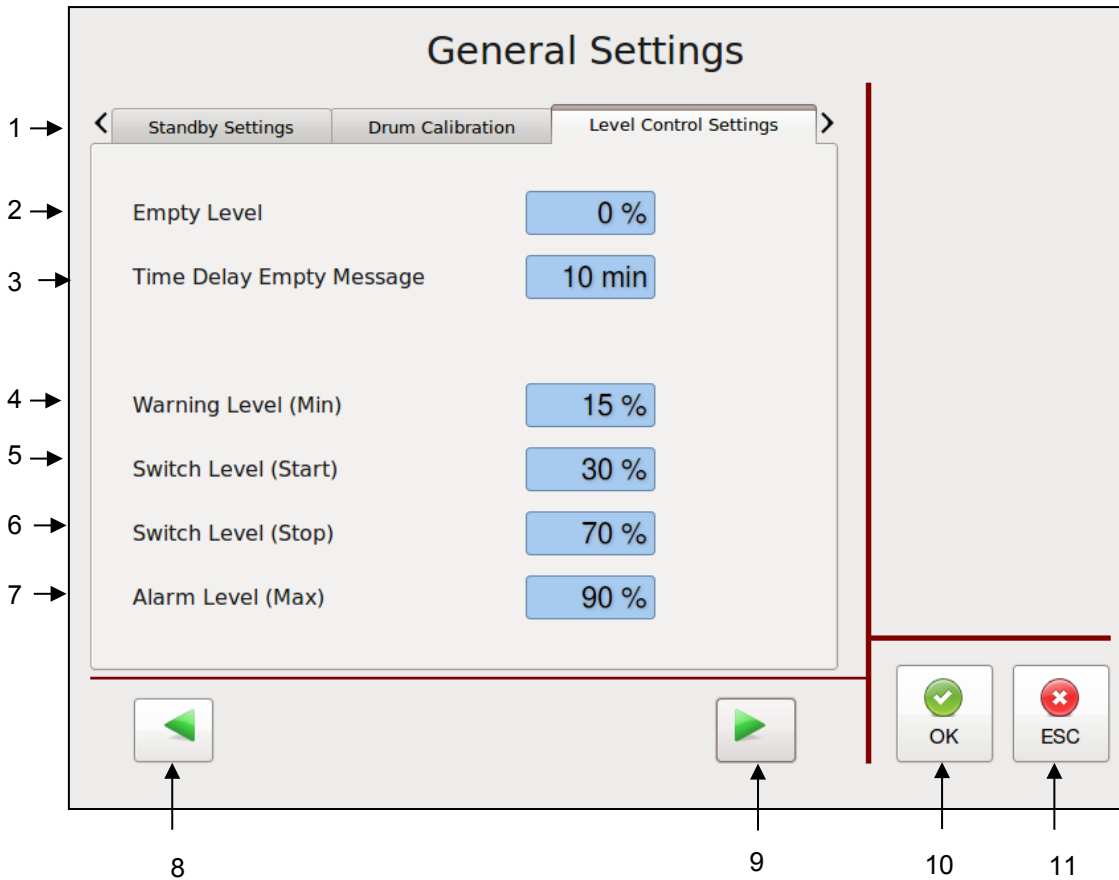
Step 3:



Item	Description
1	Parameter Selection tabs The Standby Settings tab has been selected.
2	Calibration Procedure Note: This procedure is needed only if drum size has been changed. Step 1: Move platen to lowest position and press SET button. Step 2: Move platen to highest position and press SET button. Step 3: Move platen to position where lower seal touches drum surface and press SET button.
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.

Level Control Settings

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

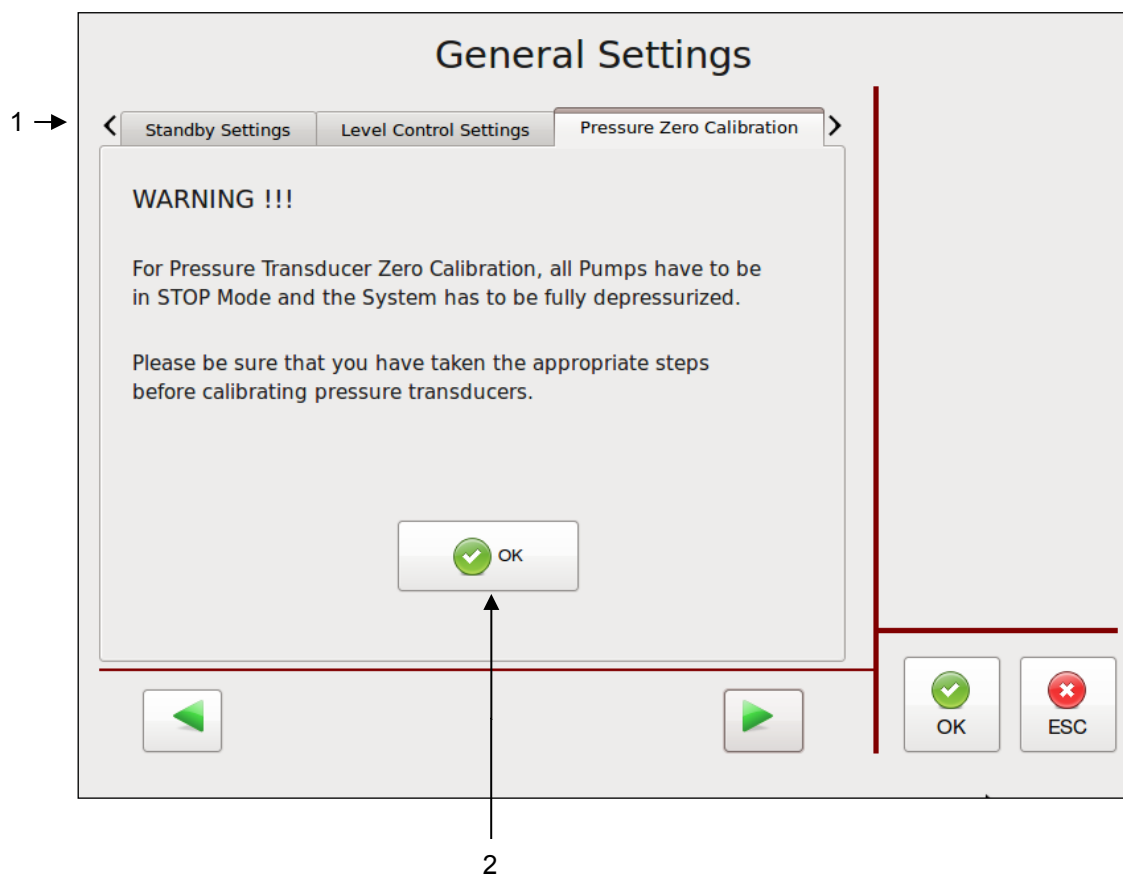


Item	Description
1	Parameter Selection tabs The Level Control Settings tab has been selected.
2	Empty Level If fill level is lower than this parameter an empty message will be generated.
3	Time Delay Empty Message - This is a programmable time delay for reappearance of the level control's Empty message. The level control device informs the operator via a "Minimum Level" message on the display that the drum needs to be changed. After expiration of the time delay, the message Minimum Level will be indicated on the display. The programmable range is 0-31 minutes. - If alarm is not acknowledged in between 5 minutes the pump will come to a standstill. - 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) This is the drum low level. An orange alarm light will indicate when level falls below this value.
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.

<i>Item</i>	<i>Description</i>
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.

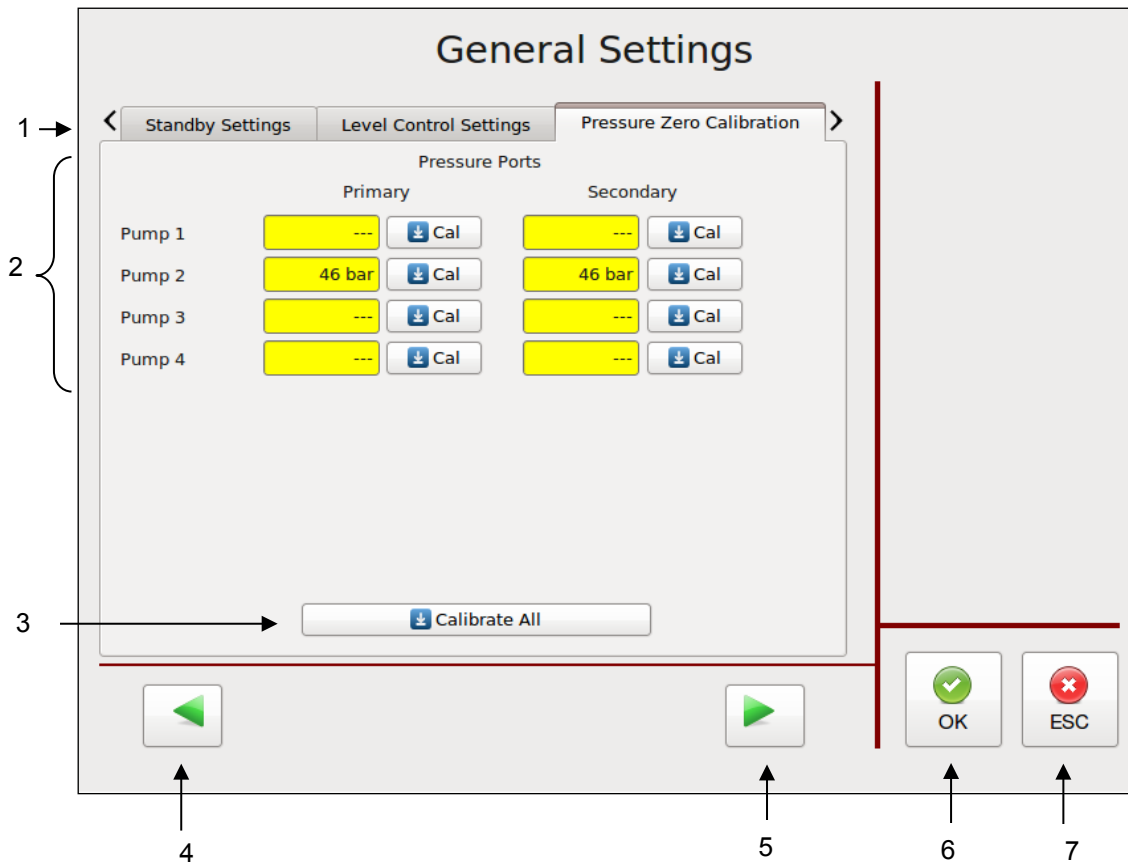
Pressure Zero Calibration

➤ 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.

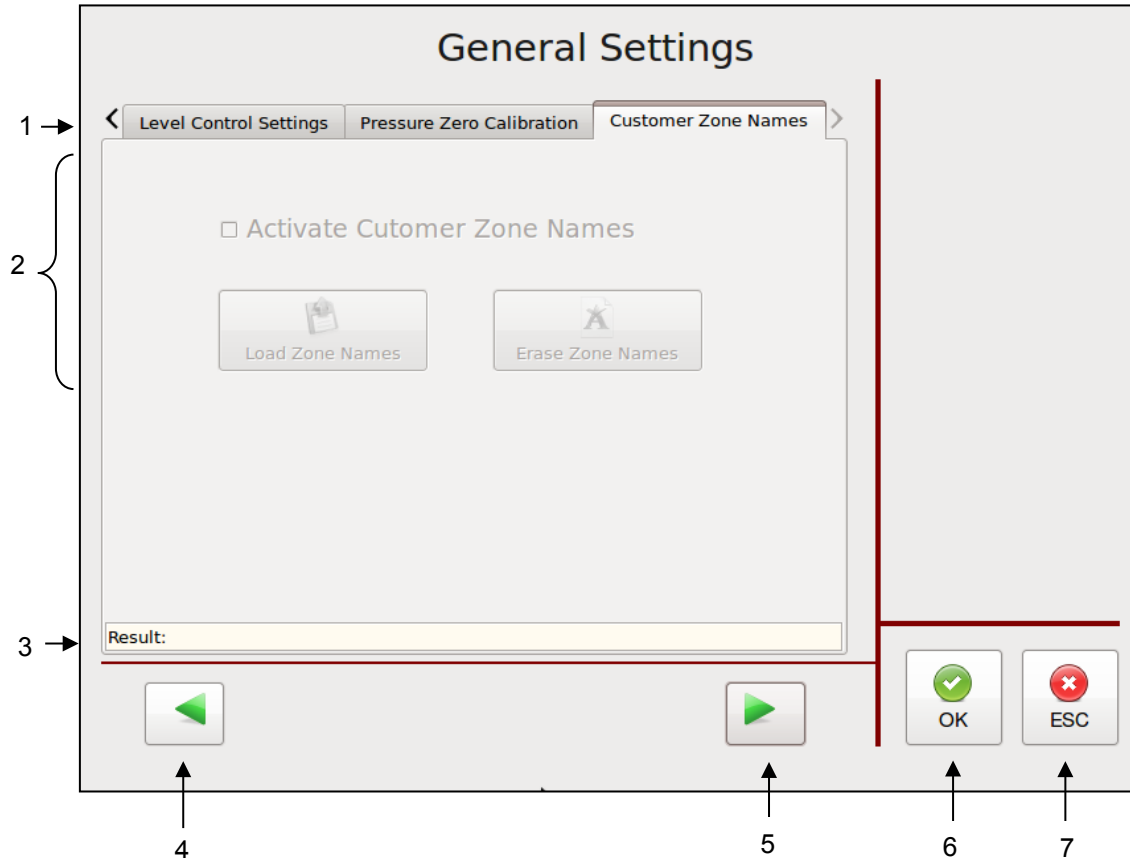
Calibrating Screen



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.

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.

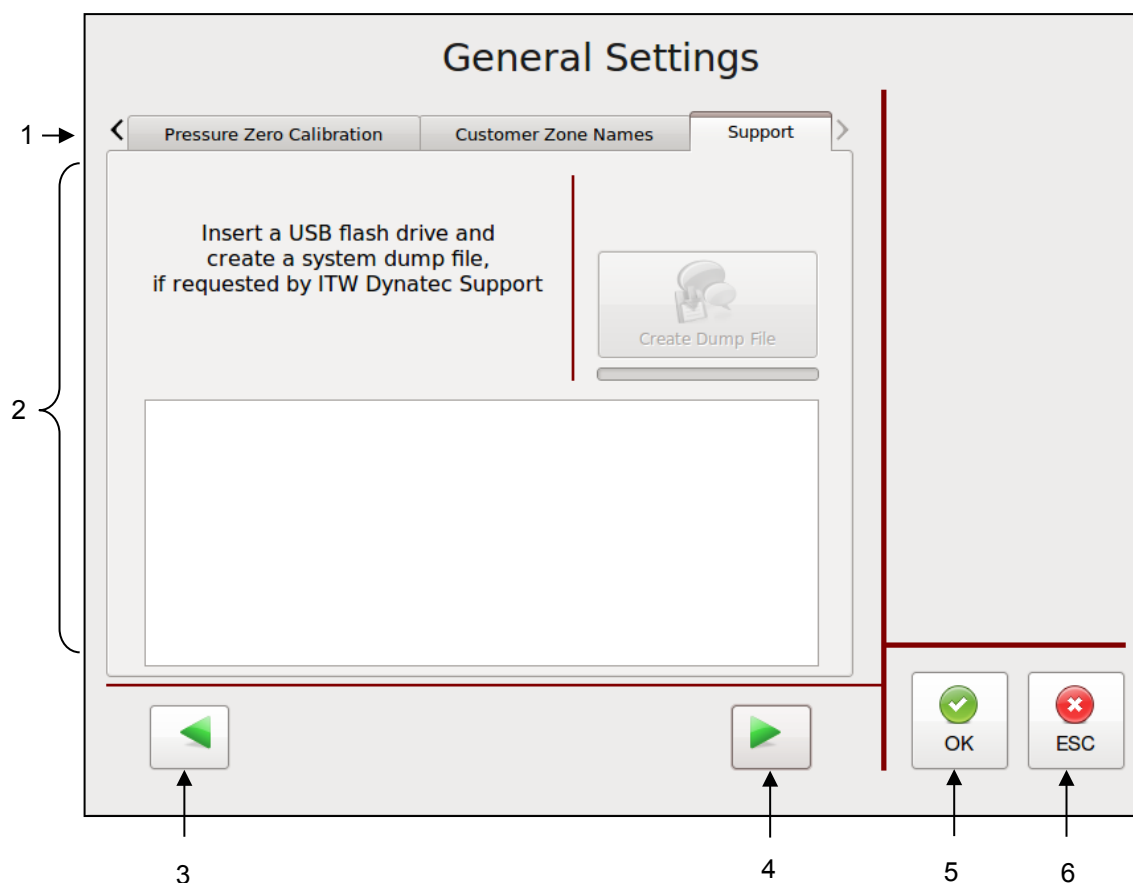


Item	Description
1	Parameter Selection tabs The Customer Zone Names tab has been selected.
2	Customer Zone Names If activated, you can Load or Erase Zone Names by pressing the appropriate button. With the Customer Zone Names feature, the user may personalize the names of the temperature zones with names 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.

Support

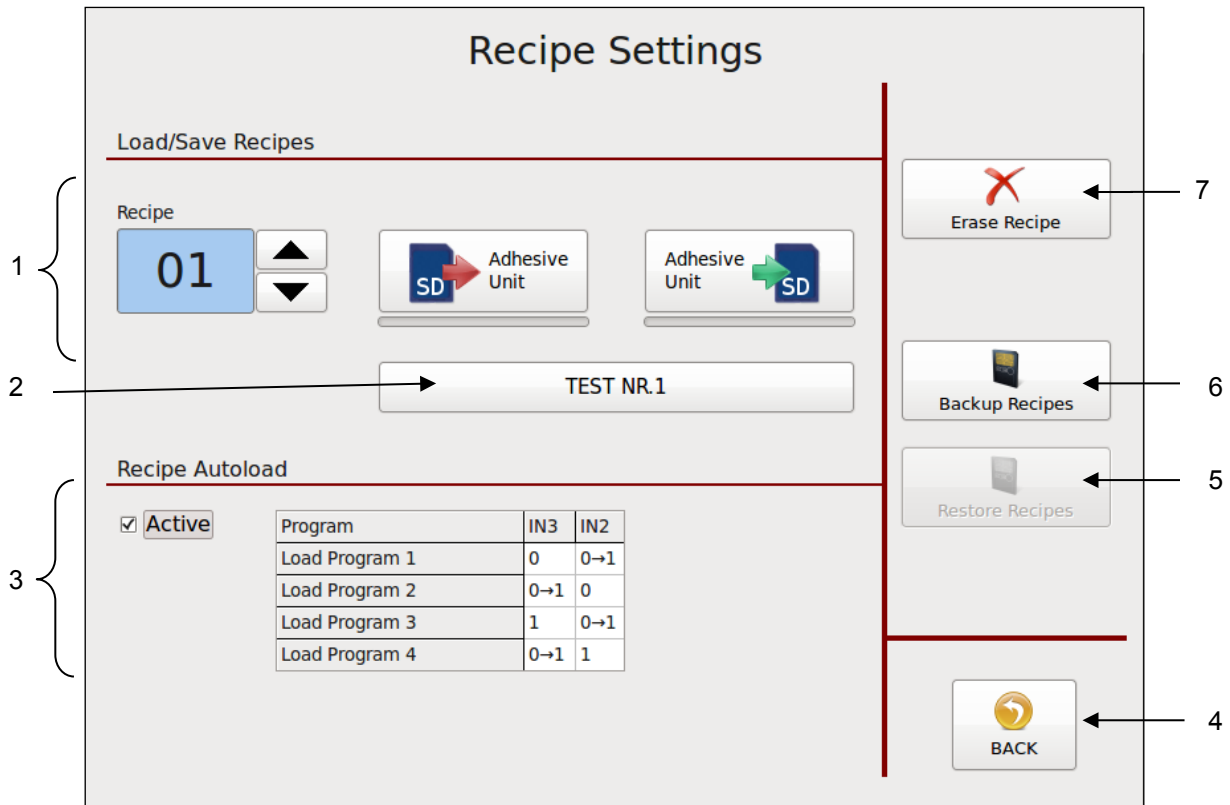
- To go to this screen, press the General Settings button on the Settings Screen.
- Use the Customer Zone Names Editor program (provided on CD) and a thumb drive (not provided) to make changes.



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 send 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.

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.

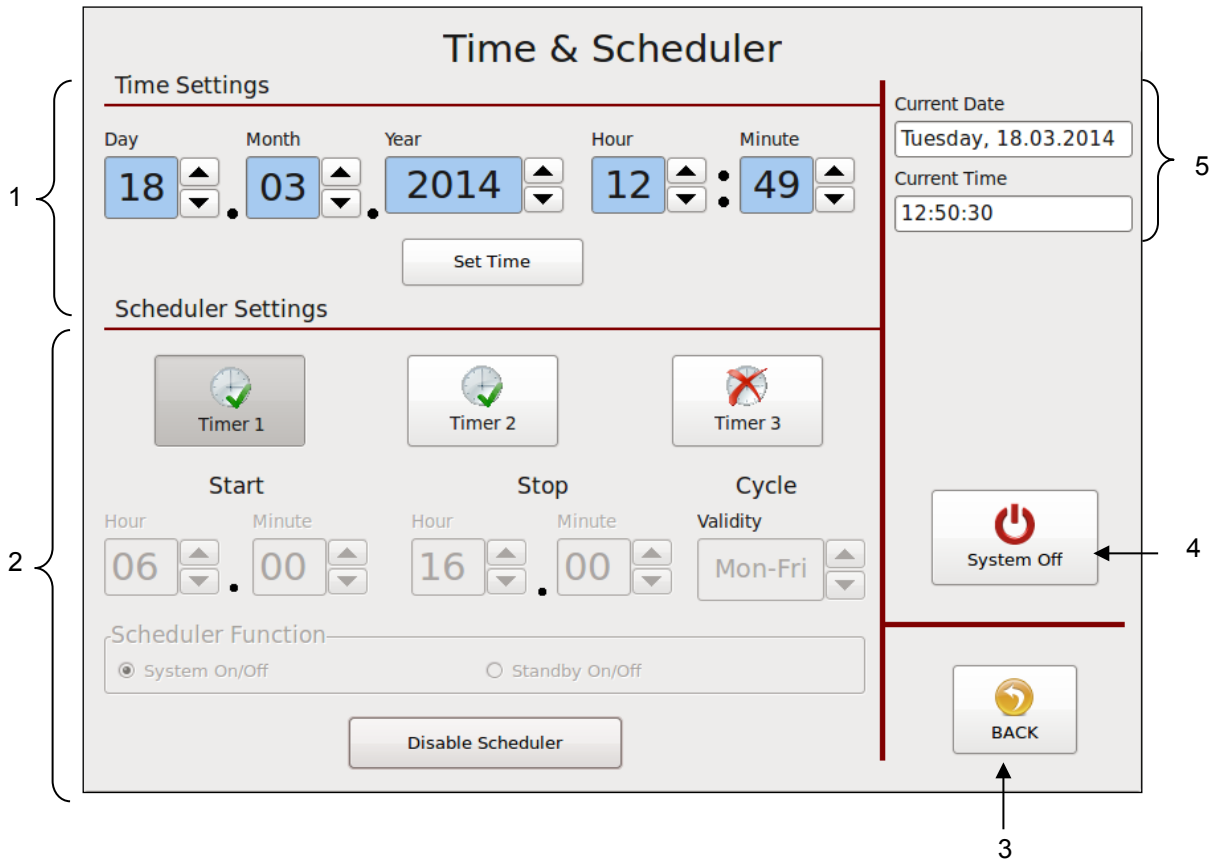


Item	Description
1	To Create and Save a Recipe: 1. Program the controller as you wish it to be setup for a recipe. Program the following parameters: temperature settings, zone On/Off settings, motor mode and speed. 2. Using the up and down arrows, select a number to assign to your recipe. 3. Press the “Adhesive Unit to SD”  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 “SD to Adhesive Unit”  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.

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 (ie, 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.

Time & Scheduler

Time Settings

Day
18

Month
03

Year
2014

Hour
12

Minute
49

Set Time

Scheduler Settings


 Timer 1


 Timer 2


 Timer 3

Start

Hour
12

Minute
00

Stop

Hour
13

Minute
00

Cycle

Validity
Mon-Fri

Scheduler Function

☐ System On/Off
☒ Standby On/Off

Disable Scheduler

Current Date
Tuesday, 18.03.2014

Current Time
12:50:59


 System Off


 BACK

Example:

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

Time & Scheduler

Time Settings

Day: 18, Month: 03, Year: 2014, Hour: 12, Minute: 49

Set Time

Scheduler Settings

Timer 1

Timer 2

Timer 3

Start: Hour 07, Minute 00

Stop: Hour 16, Minute 00

Cycle: Mon-Fri

Scheduler Function

☒ System On/Off ☐ Standby On/Off

Enable Scheduler

Current Date: Tuesday, 18.03.2014

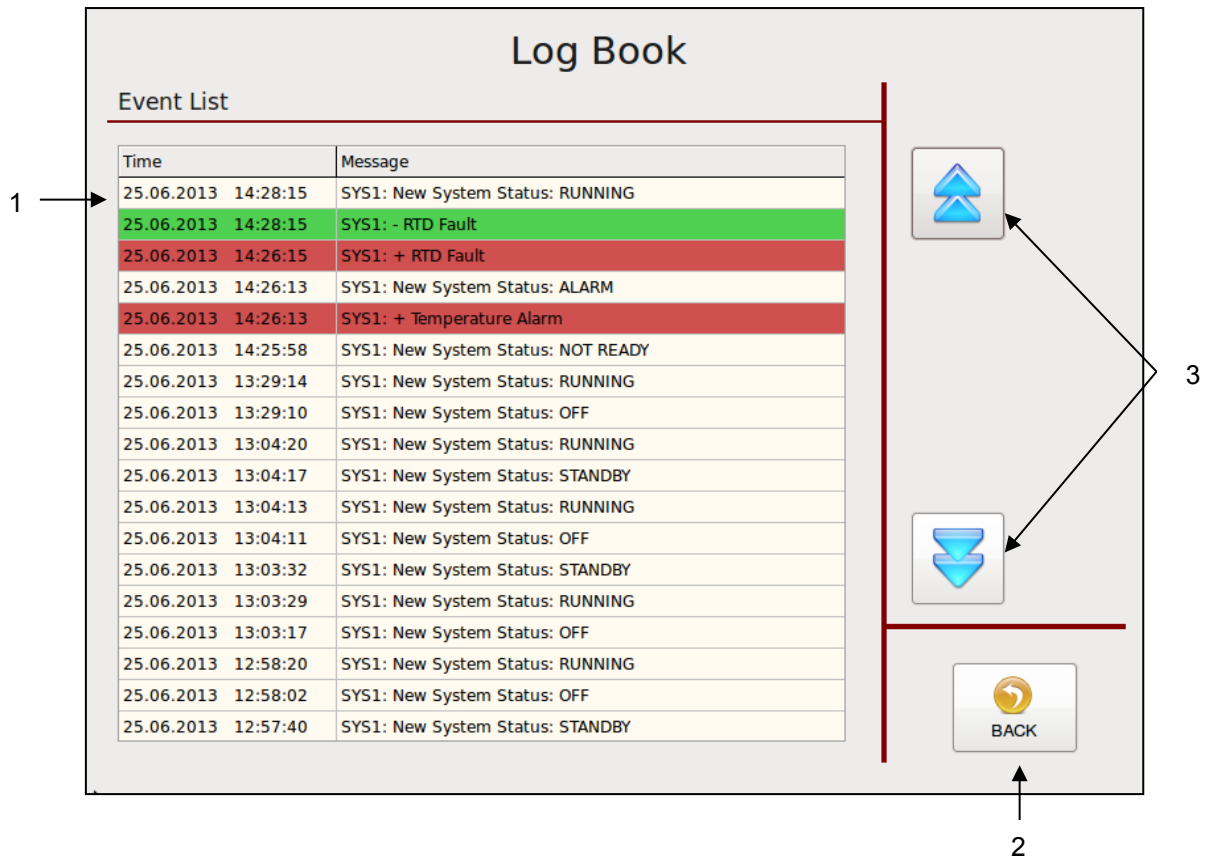
Current Time: 12:51:14

System Off

BACK

Log Book Screen

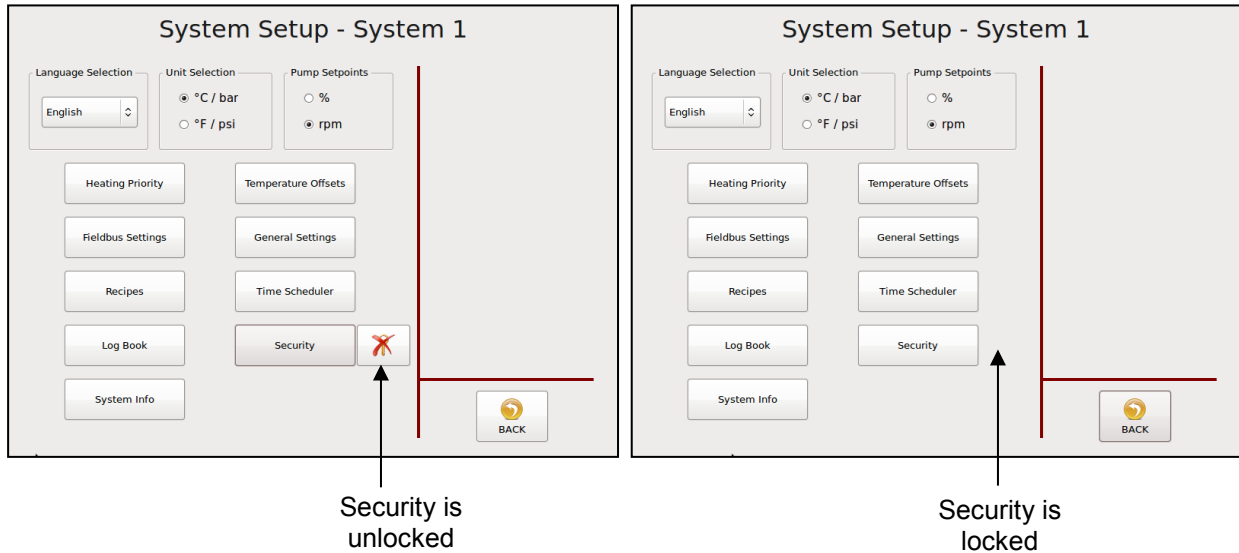
- To go to this screen, press the Log Book button on the Settings Screen.
- The Log Book provides a read-only history of the last 100 (maximum) controller faults and events.
- If several systems are controlled by the HMI, all events will be listed here.



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.

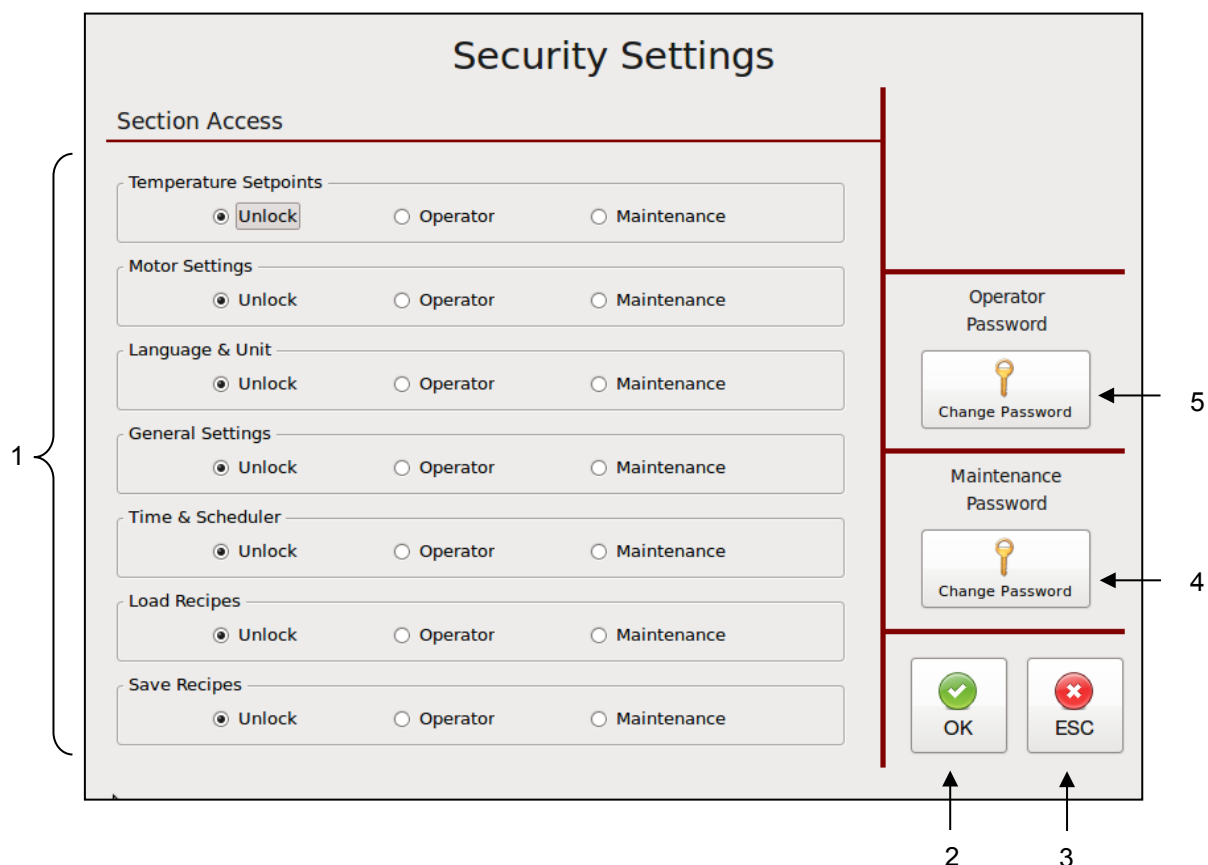
Security Screen

- 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.

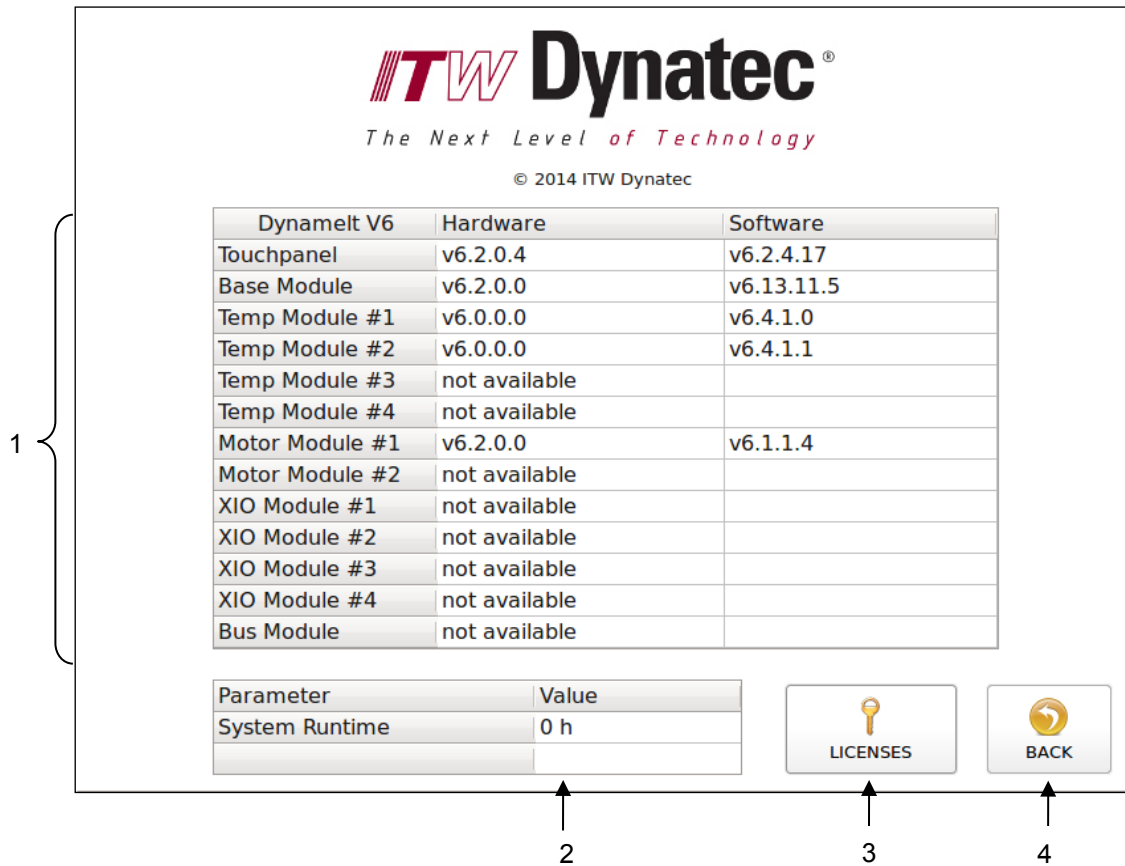
Continued on next page.



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.

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.

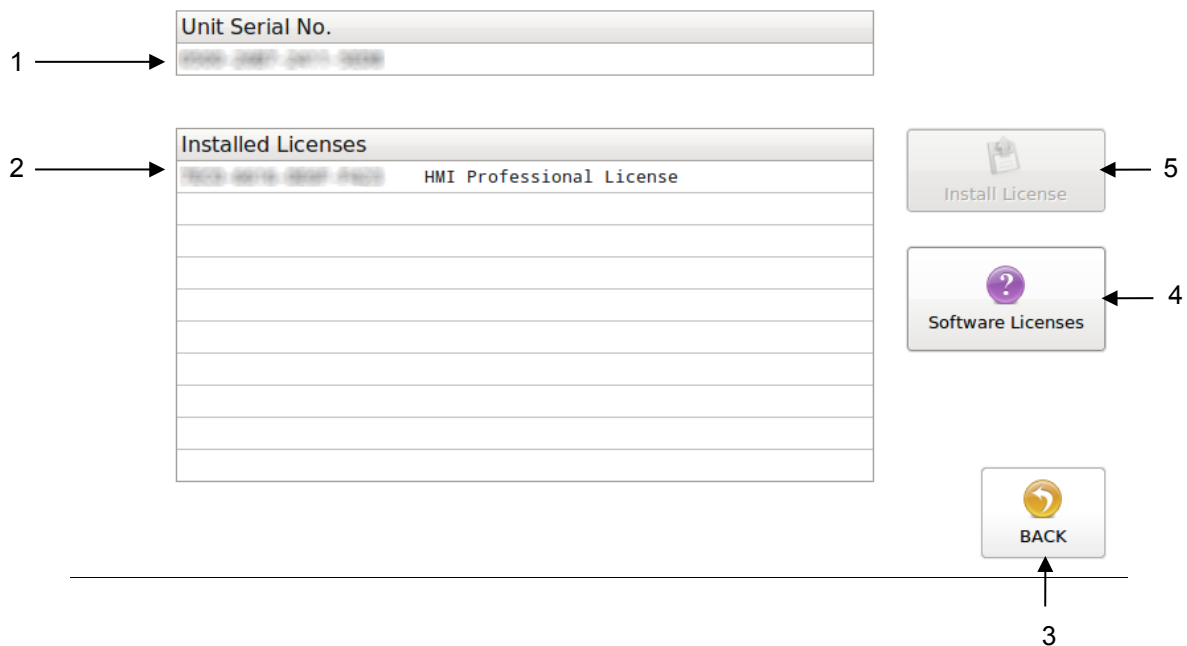


Item	Description
1	Information about the controller and its modules is displayed. The illustration above shows an example only.
2	The real System Runtime respectively pump runtime is displayed. The runtime of each day will be added.
3	Licenses Button Press to go to the License Management screen.
4	BACK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

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.

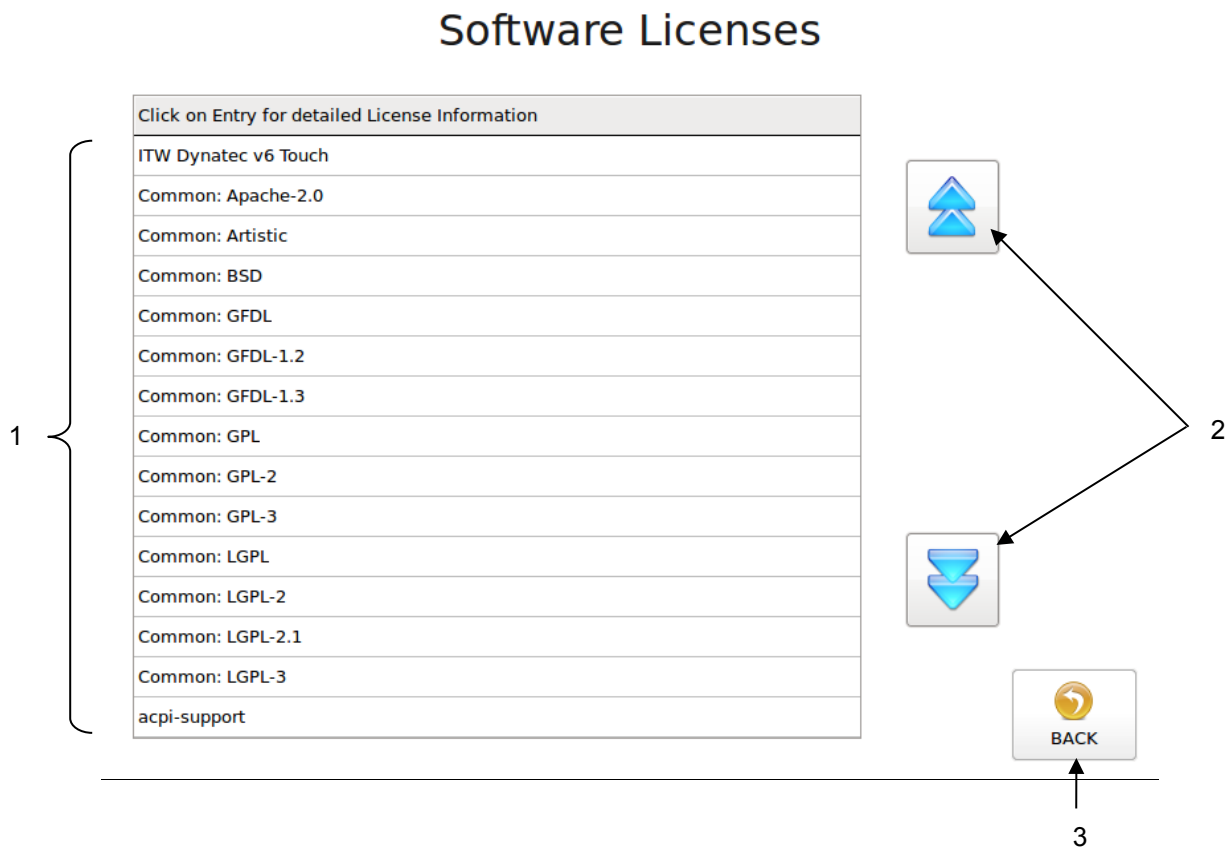
License Management



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.

Software Licenses

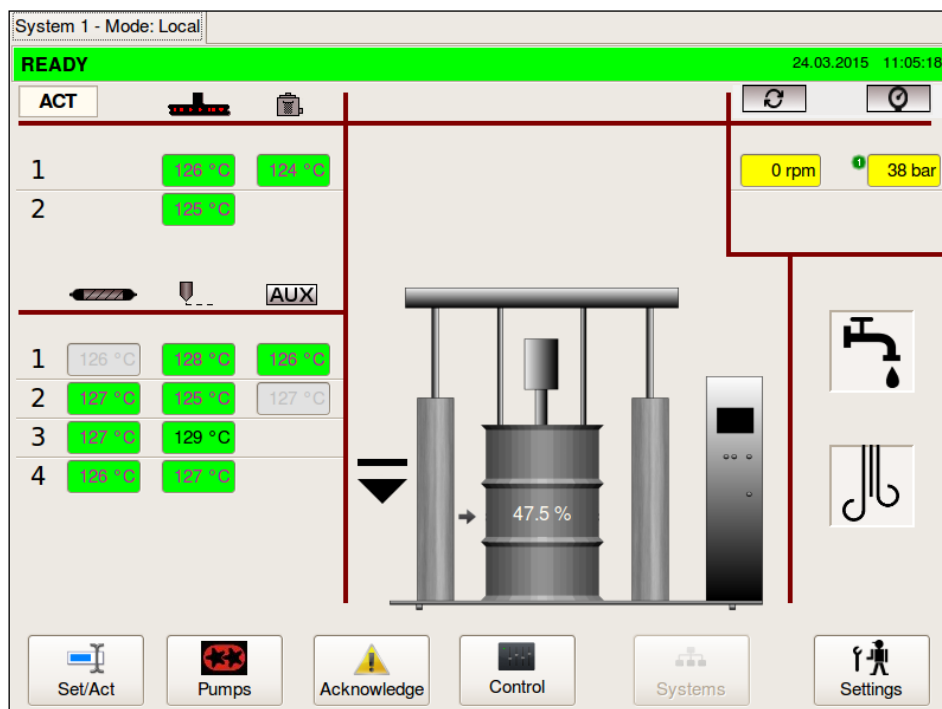
- To go to this screen, press the Software Licenses button on the License Management Screen.



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.

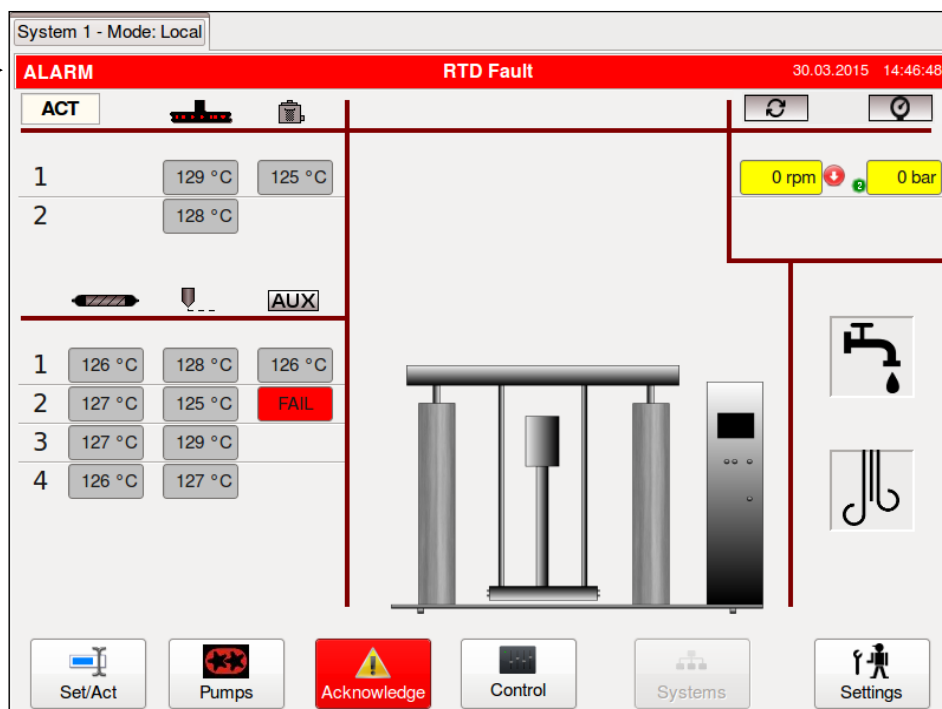
Acknowledge Button

- 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.

Faults/ Alarms

Among the Faults and Alarms that may be displayed are:

- **RTD Fault** = a platen, hose or head sensor has an open circuit.
- **Temperature Alarm** = a temperature zone has exceeded its selected over-temperature set point, (which is the set point plus the Temperature Alarm Window and Temperature Alarm Hysteresis) or when it is below its selected under-temperature set point (which is the set point 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 drum 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.
- **Feedback Failure Purge Valve** = Purge Valve doesn't work properly (optional)
- **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.

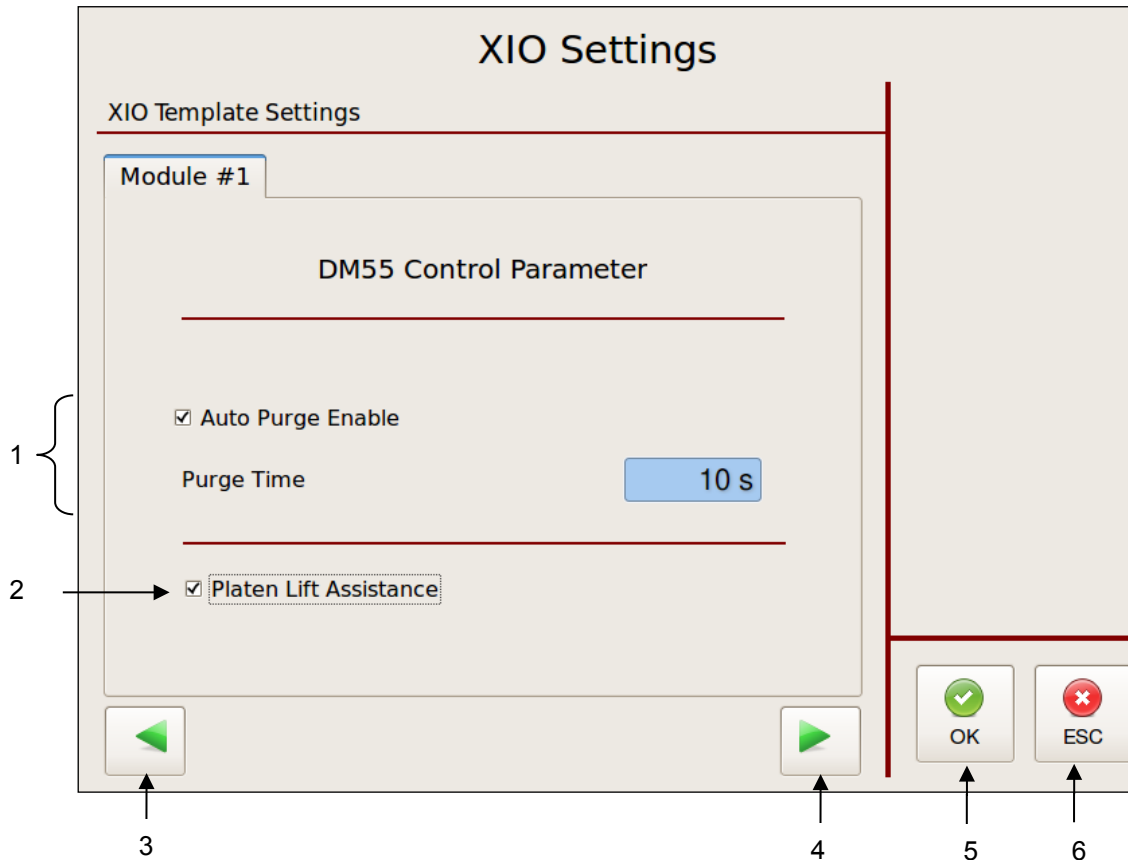
Operator Response to Error Indication Alarms

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.

XIO Template Settings, Module #1

- To go to this screen, press the XIO Settings button on the Settings Screen.



Item	Description
1	Auto Purge Enable - This feature is needed when reactive adhesives (PUR) are used. It will control an optional valve to purge the adhesive. - When this feature is enabled: every time the pump is started the PUR-purge valve is opened for an adjustable duration (= Purge Time) - This option requires V6-XIO revision B or higher.
2	Platen Lift Assistance - In normal operation the air inject function helps to separate the platen from the adhesive surface when the platen is moved upwards and after 5 seconds the purge valve automatically opens to equalize the pressure below the platen to the ambient air pressure. - In some cases it might be necessary to use the air inject pressure for a longer time to assist in raising the platen out of the drum. - When the Platen Lift Assistance is checked, the purge valve will not open after 5 seconds. It will open once the platen is getting close to leave the drum. - Default configuration is: Auto Purge not enabled, No Platen Lift Assistance
3	Press the left-pointing arrow to go to the previous XIO Module screen.
4	Press the right-pointing arrow to go to the next XIO Module 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.

6.3 Modules and Printed Circuit Boards (PCBs)

The Bulk Melter DM55 and DynaControl controller utilize several printed circuit boards (PCBs). These boards are extremely sensitive to electrostatic charges. When working near or with any PCBs, the following procedures must be followed to avoid damage to them.



DANGER HIGH VOLTAGE

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



CAUTION

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

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

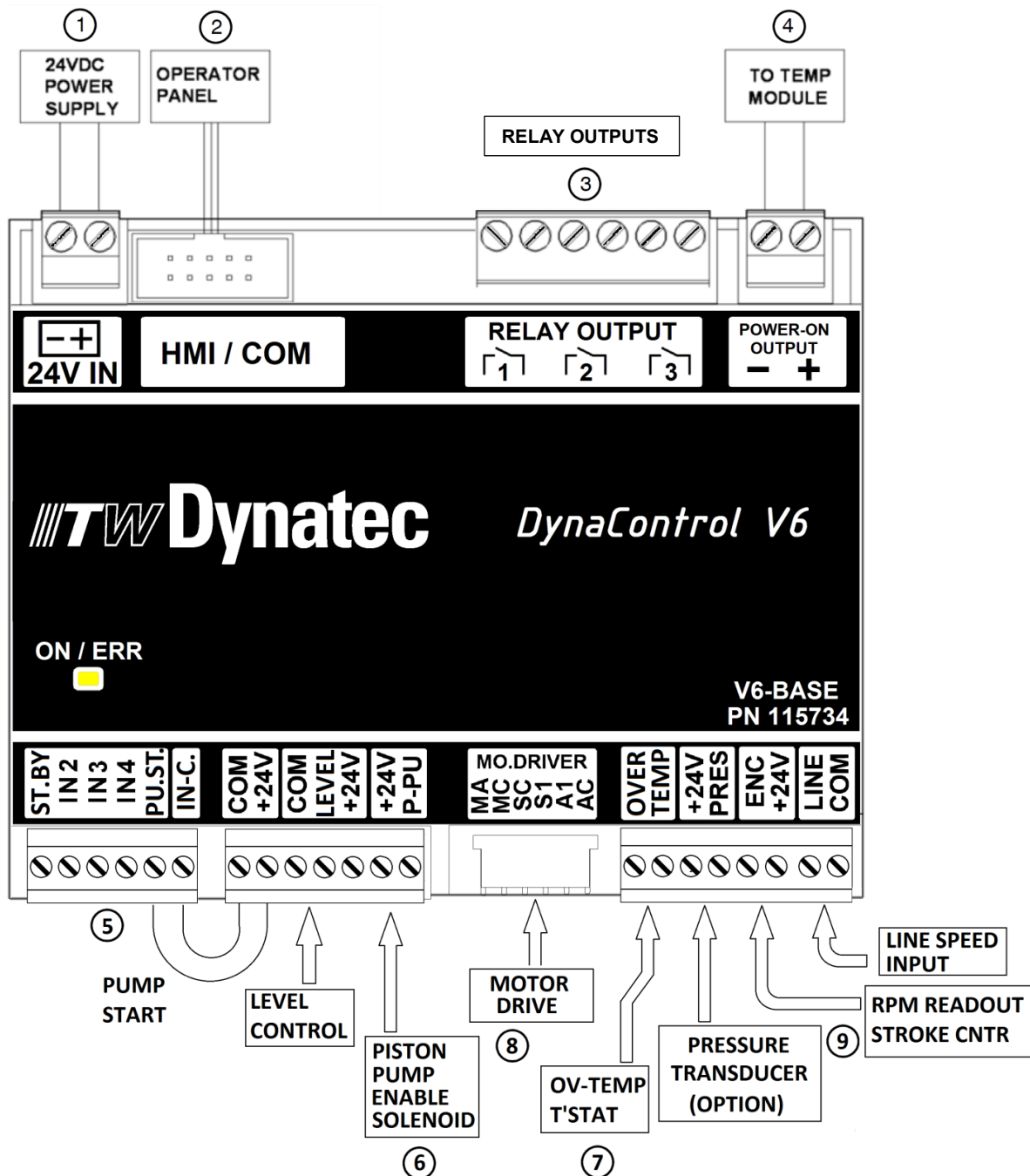
The following pages detail the Modules and PCBs.

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 top (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. A Drum Empty alarm message will not remove the Ready condition.

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.

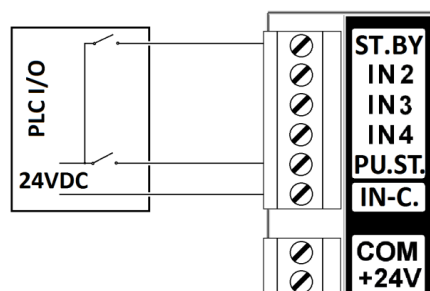
Relay 3: Drum Empty Signal

This contact closes when the adhesive level in the drum 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.

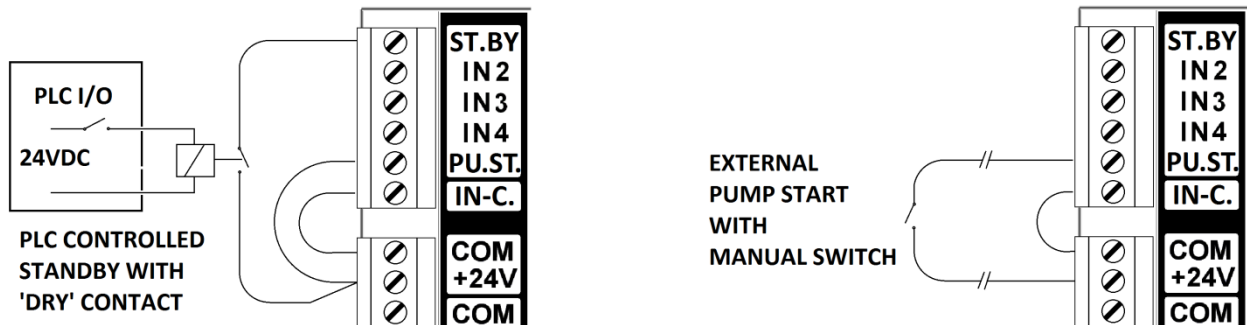
- **Item #4** This connector is used for a module-to-module connection. It provides the power-on signal to the power board through the TEMP board. In the case of a critical alarm, this 24 VDC signal will drop, cutting off the heater power on the power boards. This signal may also control the main contactor.
- **Item #5** This connector accepts external signals that can be used to control the ASU. 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 ASU'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 ASU 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 ASU 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:

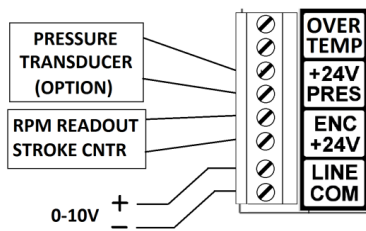
- Activate input2 while input3 is not activated: Load Program 1
- Activate input3 while input2 is not activated: Load Program 2
- Activate input2 while input3 is activated: Load Program 3
- Activate input3 while input2 is activated: Load Program 4

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 to all ASUs.
- **Item #7** This input is connected to the over-temperature thermostat on the platen. In the unlikely event that that platen 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 platen 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 ASU 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, a 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.

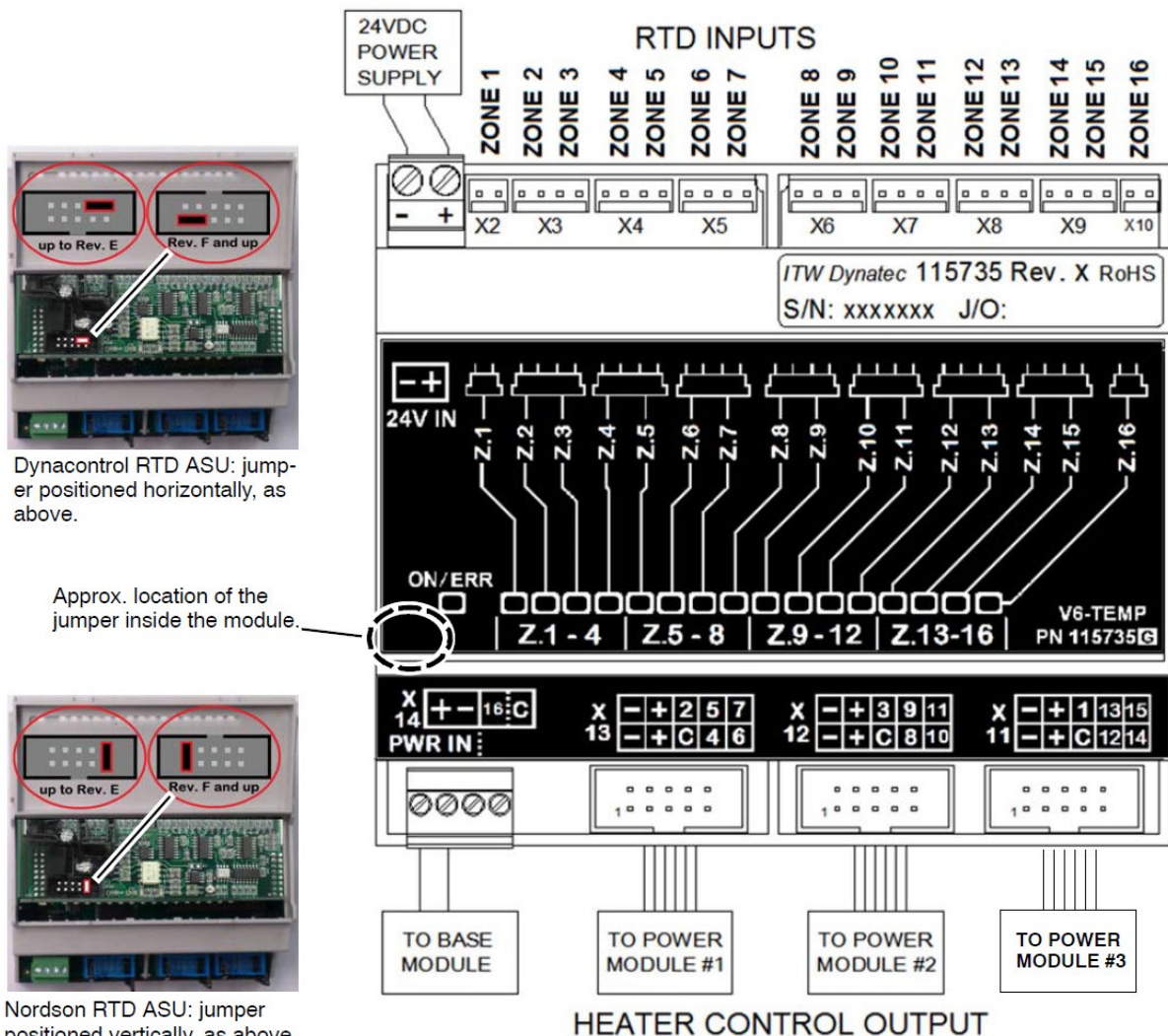
Warning: The line speed input is grounded. If the line tracking voltage has a different ground potential, it is recommended to use a signal isolator. Otherwise, damage to the V6 modules is possible.*

V6 Temperature Module PN 115735

The V6 TEMP module(s) 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 ASU, the RTDs may be PT100 (DynaControl) or NI120 (Nordson). 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.



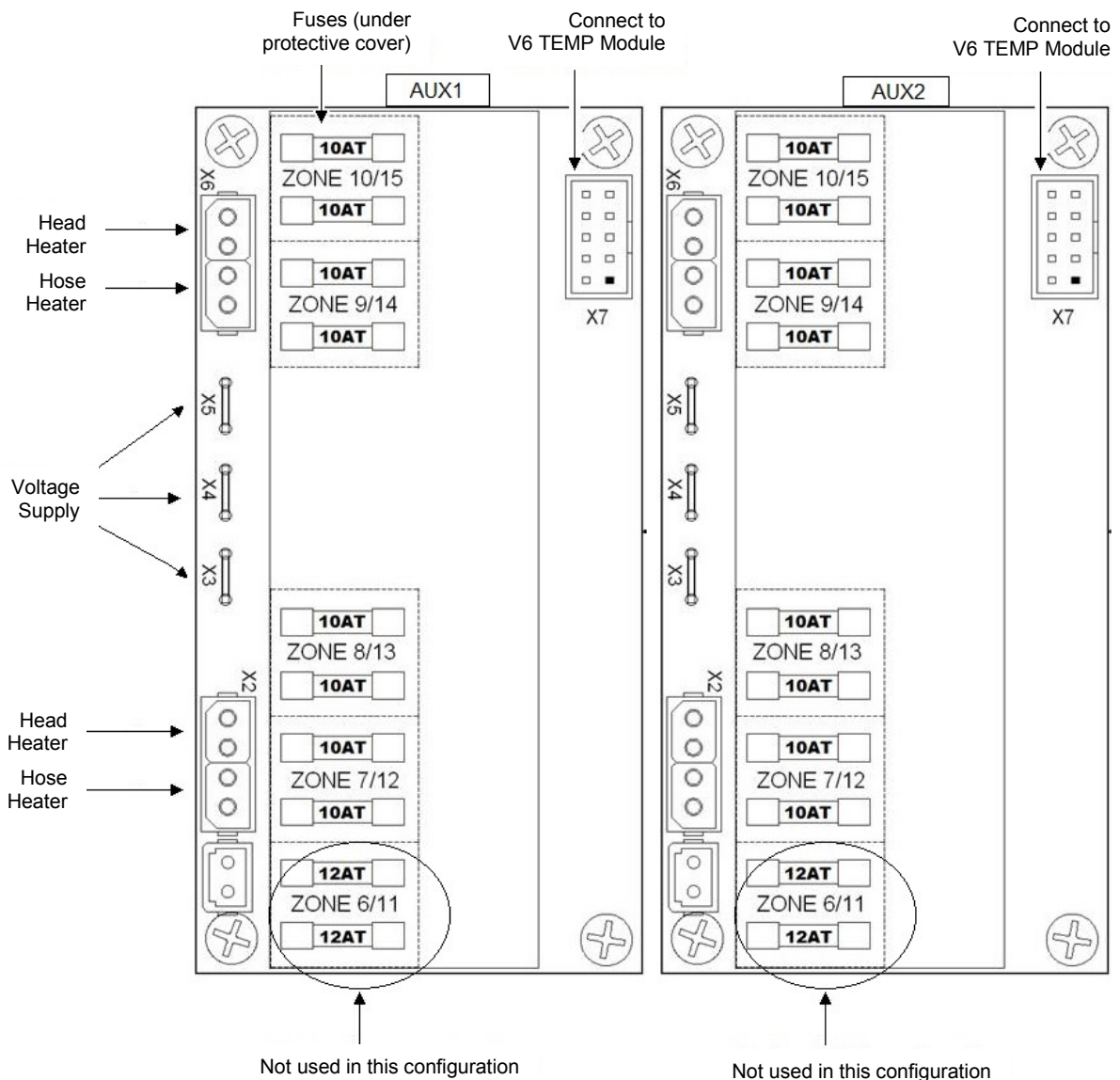
Standard V6 Zone Table, Drum Unloader DM55

Zone 1	Platen - Face
Zone 2	Aux 1
Zone 3	Aux 2
Zone 4	Pump Block
Zone 5	<unused>
Zone 6	Hose 1
Zone 7	Head 1
Zone 8	<unused>
Zone 9	<unused>
Zone 10	Hose 2
Zone 11	Head 2
Zone 12	<unused>
Zone 13	<unused>
Zone 14	<unused>
Zone 15	<unused>
Zone 16	Platen - Core

V6 Power Module PN 823306

Each V6 Power module consists of two identical PCBs which together provide controlled power to the heaters of eight zones. It receives its control signals from the V6 TEMP module. Depending on the configuration of the ASU, there may be several V6 Power modules in the system. Connections are made to both sides of the module.

The fuses are located underneath a protective cover. The cover should only be removed after the ASU 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 10A fuse. Always replace fuses with the same type of fuse. The maximum total load current of the board is 40 Amps (20 per phase).

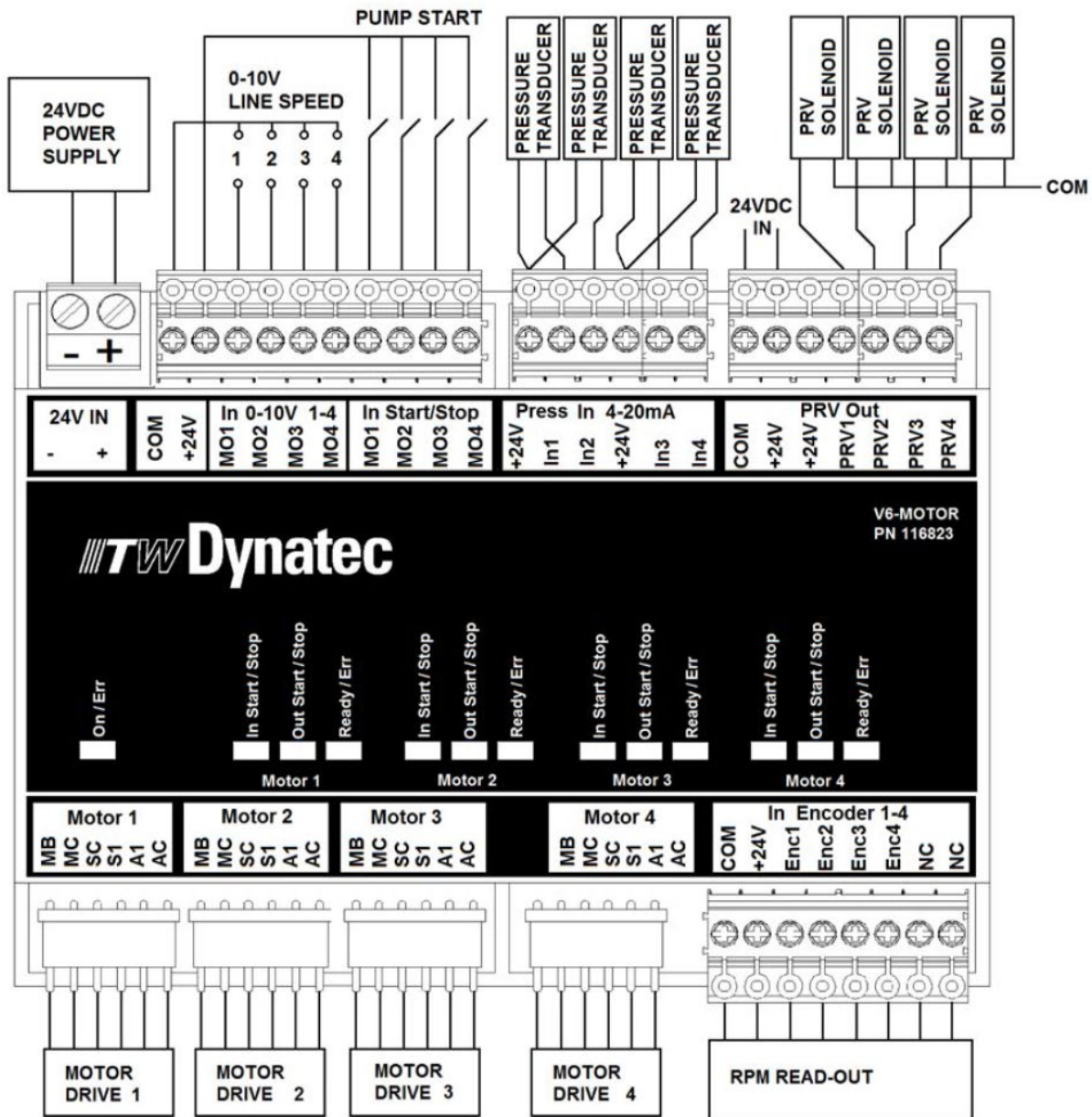


V6 Motor Module PN 116823

A maximum of two V6 MOTOR modules may be installed on the ASU. 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 (ie. a ring kit) may be adapted to the input.

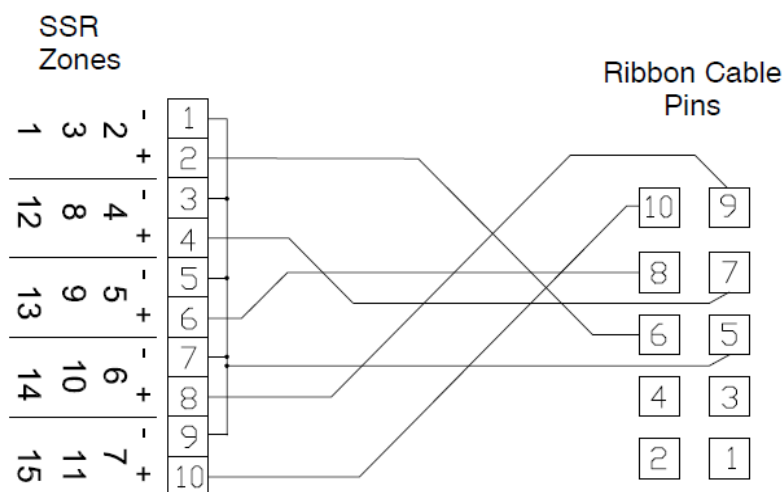
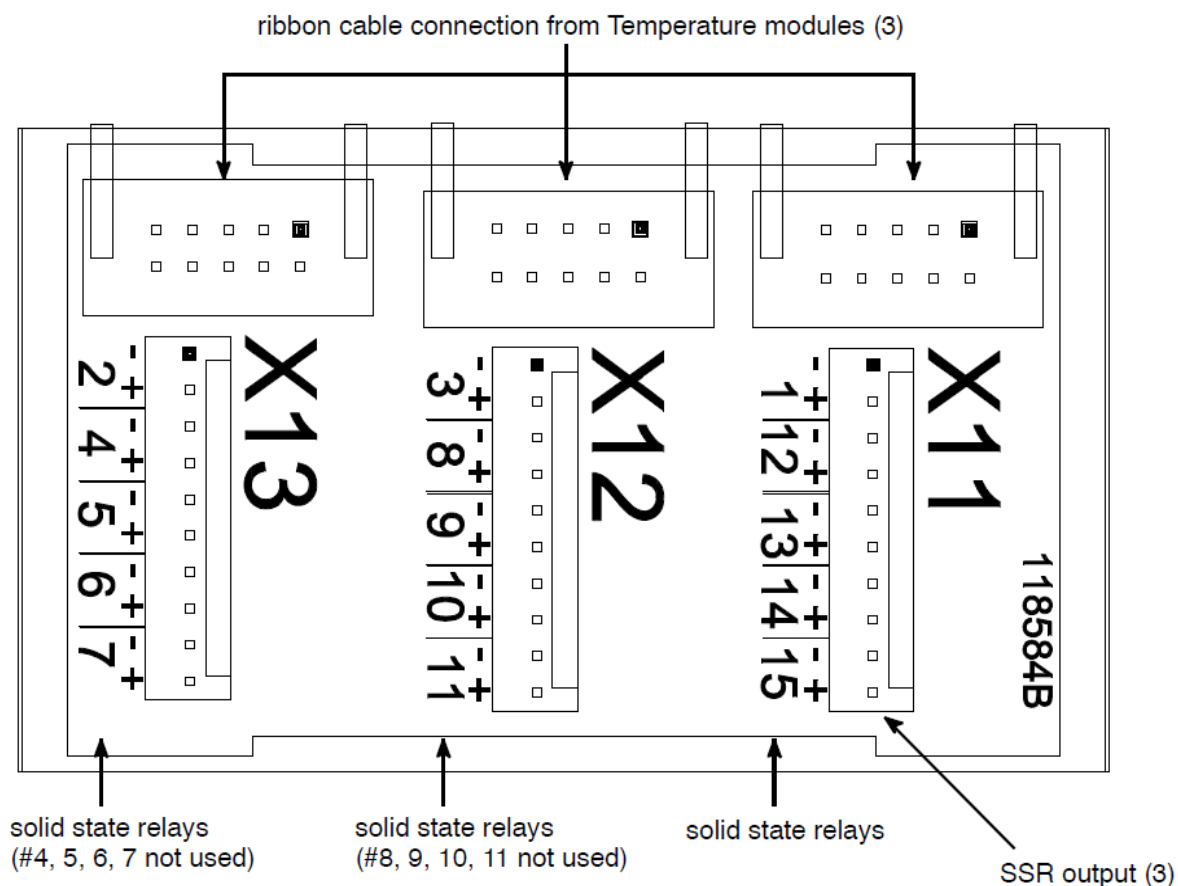
Each motor may be assigned its individual line speed input, but it is also possible to use a common line speed input. This also applies to the pump enable input. Each motor module has four pressure transducer inputs; transducer type is 4-20mA. One or two pressure transducers may be assigned to each motor.

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



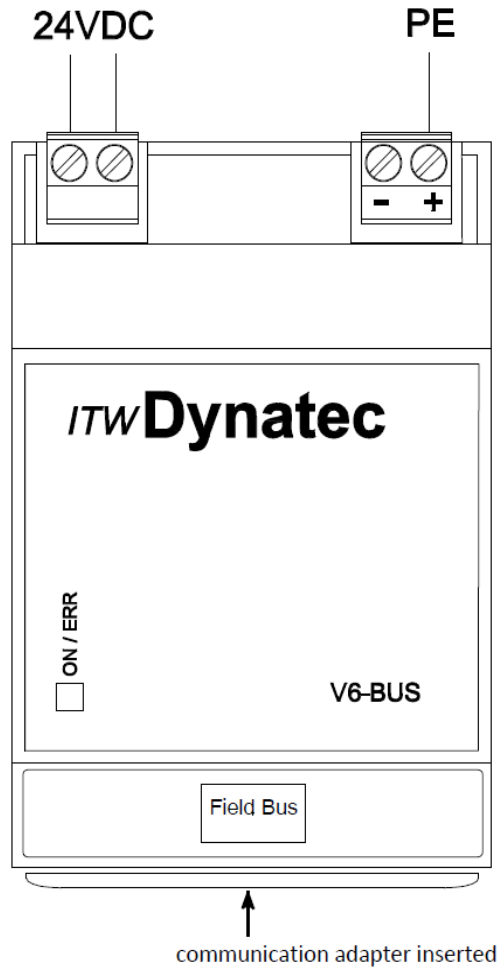
V6 Solid State Relay (SSR) Adapter PCB Assembly PN 118584

The V6 SSR-Adapt Assembly allows 24VDC solid state relays to be connected to the V6 control system. The adapter connects to ribbon cable from #X13, X12 and X11 on the V6 Temperature Module to the V6 Power Modules.



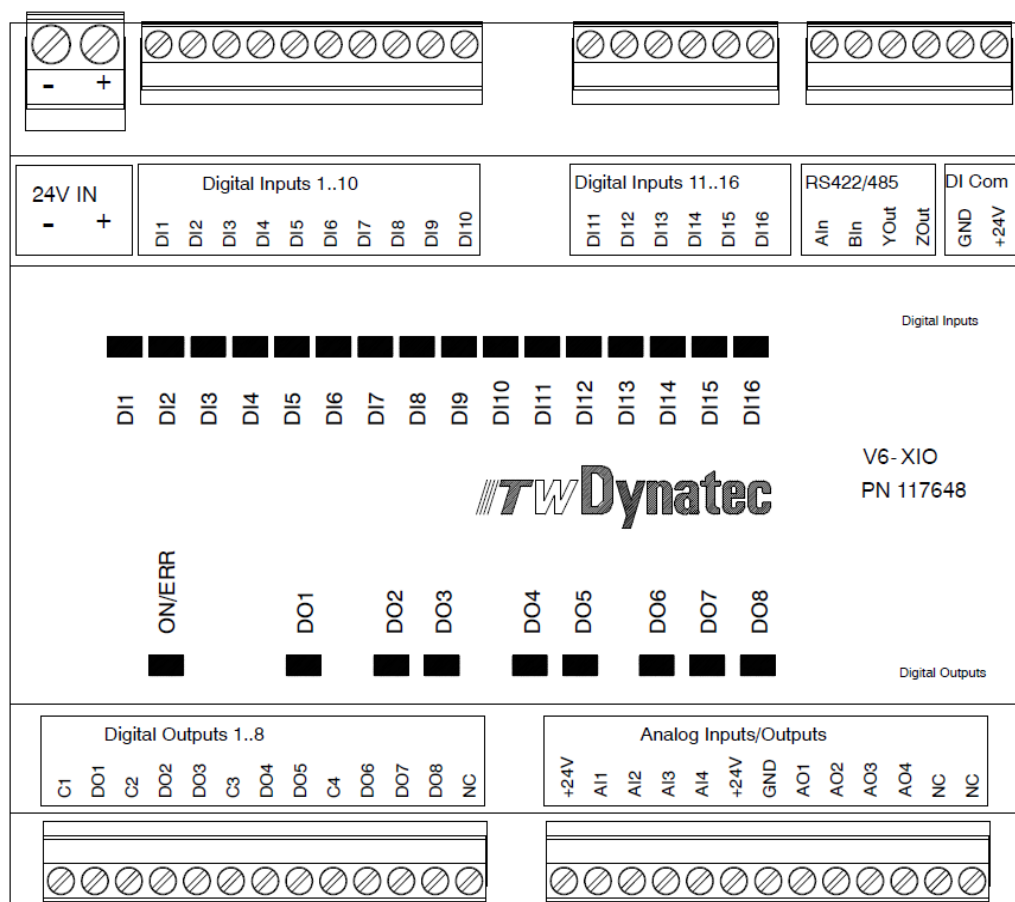
Optional V6 BUS Communications Module PN 118125

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



V6 Extended I/O Module PN 117648

The V6-XIO Module provides additional inputs and outputs that can be configured for applications that need more I/Os than the Base Module supplies.

**Optional Printed Circuit Boards**

Electrical schematics and other details on the following optional PCBs can be found on the main ASU schematic in Chapter 13:

- Adhesive Level Sensor (drum low level detection)
- Stack Light (system status lights)
- Signal Isolator (gear pump auto mode)
- Trigger Switch Pump Enable (hand-held applicators/ swirl kits)

Chapter 7

Maintenance and Repair Notes

7.1 Security advices for maintenance and repair



Heed all security advices given in chapter 2.

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!



High Voltage! Risk of injury and mortal danger!



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



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



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

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!

Prior to disassembly of mechanical components, a complete set of O-rings, seals and high temperature lubricant should be on hand. One quart of flushing fluid (PN L15653 = 1 gallon) and an electrical-type heated air gun will reduce the time required to clean components of the unit.

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.

7.2 Maintenance plan



CAUTION

Heed all security advices given in chapter 7.1.

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 tank under the components. Hot adhesive may come out.

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 Bulk Melter and components from dirt.
Once a week	- Check platen seal for wearing and replace if necessary. - Check air supply connections for leaks and tighten if loose or replace if necessary. - Check piston pump inlet check valve for leaks and clean if necessary. See Ch. 7.4. - Check the solenoid valves for proper function and replace it if necessary.
Once a month	Check monthly or as required the Supply Air Filter/ Regulator for water accumulation and drain if necessary. See Ch. 7.5.
Every 3 months	- Check the air injection valve for plugging and clean it. - Check pump mounting bolts for tightness and tighten to 30 ft/lbs evenly with torque wrench. - Check all platen cover bolts for tightness and tighten to 25 ft/lbs evenly with torque wrench. - 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 Bulk Melter. - Complete check-up for wearing.
Every two years	Complete maintenance.
Motor	Motor will never need lubrication.

7.3 Piston Pump Oil Cavity

The DM55's piston pump has been designed with a dry-running pump shaft seal and is used successfully in both hot melt and PUR systems. However, there is a small oil cavity above the bearing shaft seal assembly that may be maintained with throat seal lube (PSA or PUR, see spare parts list) if the customer or the pumping material require further barrier. Consult ITW Dynatec for compatibility of any other barrier materials prior to use as it may damage the seal and void the warranty.

No disassembly is required to access the cavity. Operate the piston pump at the minimum pressure required to reduce wear as increased pressure beyond the needed range rarely increases performance.

7.4 Piston Pump Inlet Check Valve Cleaning

Charred adhesive or other "trash" in the pump inlet check valve may cause the piston pump to leak or become plugged with adhesive. In this case, the lower end of pump body must be exposed, the check valve inspected and cleaned.

Prior to disassembly, heat the unit above the softening point of the material in the pump. Switch pump motor OFF. Activate the applicator to relieve pressure. Elevate the platen to make work easier.



WARNING



Heed all security advices given in chapter 7.1.

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!

- Disconnect main electrical power.
- Disconnect air pressure at air control panel.
- Provide safety blocking under the platen.

Note: a drum with a lid and fiber separator sheet between the lid and platen may be used as a safety block to prevent lowering of the platen.

1. Loosen coupler and swing the stainless steel connection shaft up clear of the pump. Remove coupling from top of connection shaft.
2. Loosen four pump air motor bracket bolts.
3. Loosen four bolts which mount the pump to the platen cover. Raise the pump body up and out of the platen.



WARNING HOT SURFACE & HOT ADHESIVE

Hot, molten material may flow from the pump.

CAUTION: For high viscosity materials, it may be necessary to heat the platen to full operating temperature. The high viscosity material may make the pump difficult to remove.

4. Inspect inside the lower end of the pump body. Clean any char or plugged adhesive from the inlet check valve area.
5. Reassemble pump to melter in reverse order.

7.5 Draining of Supply Air Filter/ Regulator

Drain water accumulation from the bowl of the air filter/ regulator monthly (or as needed). The filter/ air regulator is located on the outside, back of the control panel box assembly.

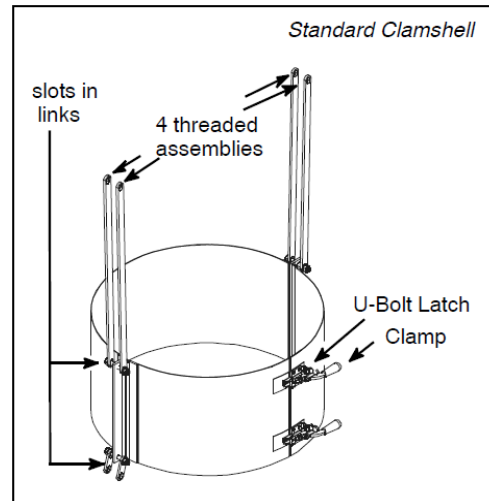
1. Locate the quarter-turn valve underneath the filter/ regulator.
2. Empty the contents of the bowl.

7.6 Clamshell Adjustments

Adjustments to the standard and (optional) full clamshells are performed similarly.

Tightness

- The clamshell's "grip" on the drum may be loosened or tightened by adjusting the U-bolt latches on each of the clamps equally.
- Loosen the U-bolt's two screws.
- To loosen the fit of the clamp to the drum, extend the U-bolt. To tighten the fit, retract the U-bolt.



Alignment

- A properly set-up Bulk Melter will align automatically, left to right, due to the hanging nature of the clamshell assembly in conjunction with the slots in the attaching links.
- Forward or rearward adjustment can be made by equally adjusting the four threaded assemblies at each corner of the clamshell.
- Clockwise rotation will bring the clamshell forward. Counter-clockwise rotation will move the clamshell rearward. Adjustments must be equal on all four assemblies.

7.7 Special Maintenance for PUR Applications

1. Never leave the platen exposed to the atmosphere any longer than necessary for a drum change. Doing so could cause cross-linking (curing of the adhesive).
2. Never introduce PUR adhesives into an ITW Dynatec Bulk Melter that is not outfitted with appropriate optional equipment.
3. Never melt PUR adhesives without a proper ventilation system.
4. If the Bulk Melter must be taken out of service, purge the unit with appropriate purging material.
5. Periodically perform the following purge procedure:
 Note: this procedure is not required for units equipped with the optional pneumatic pressure relief.
 - a. Lower the relief valve's setting by backing out its adjustment screw to its lowest setting.
 - b. Slowly pump purge material through the valve and back to the pump inlet. The operator should monitor the pressure closely and stop the unit immediately if the pressure spikes (possibly indicating the presence of congealed or cured material).
 - c. After purging the unit completely, return the relief valve to its "run" setting and shut down.

7.8 Piston Pump Assembly Replacement



WARNING



Heed all security advices given in chapter 7.1.

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!

Prior to disassembly:

- Heat the unit above the softening point of the material being pumped by the unit.
- Switch pump motor OFF.
- Activate the applicator to relieve pressure.
- Elevate the platen to full UP position to make work easier.
- Disconnect main electrical power.
- Disconnect air pressure at air control panel.
- Provide safety blocking under the platen.



WARNING

Place safety blocking (lid and fiber separator sheet between the lid and platen) under the platen to prevent platen lowering of platen.

Disassembly and replacement:

1. Loosen alignment coupler and swing the stainless steel connection shaft up clear of the pump. Remove coupling from top of connection shaft.
2. Remove four pump air motor bracket bolts.
3. Remove four bolts which mount the pump to the platen cover. Remove the pump.



WARNING HOT SURFACE & HOT ADHESIVE

Hot, molten material may flow from the pump.

CAUTION: For high viscosity materials, it may be necessary to heat the platen to full operating temperature. The high viscosity material may make the pump difficult to remove.

4. After the pump is removed, use a clean, soft cloth to wipe all the material out of the pump cavity.
5. Inspect the O-rings on the end of the pump.
6. Prior to installation of the new pump assembly, remove and inspect the pump adapter O-rings. When installing new O-rings, liberally coat the pump adapter sides with lubricant.
7. Re-install the pump assembly in reverse order of disassembly outlined above.



CAUTION

Observe the “arrows” stamped on the pump adapter that show in which direction to install.

8. Pump replacement is now complete. Prior to startup, read startup instructions in Chapter 5.

7.9 Pump Disassembly



WARNING



Heed all security advices given in chapter 7.1.

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!

Prior to disassembly:

- Heat the unit above the softening point of the material being pumped by the unit.
- Switch pump motor OFF.
- Activate the applicator to relieve pressure.
- Elevate the platen to full UP position to make work easier.
- Disconnect main electrical power.
- Disconnect air pressure at air control panel.
- Provide safety blocking under the platen.



WARNING

Place safety blocking (lid and fiber separator sheet between the lid and platen) under the platen to prevent platen lowering of platen.

Disassembly and replacement:

Referencing the component illustrations of the 114350 Piston Pump Assembly, perform the following procedures:

1. Remove the piston pump according to the "Piston Pump Assembly Replacement" procedures on previous page.
2. Place the pump assembly on a workbench lined with release paper or another non-stick material.
3. Remove the inlet check valve assembly (Item 10, PN 116381) at the bottom of the pump. Disassemble the assembly by removing the retaining pin and ball. Clean and reassemble.
4. Carefully remove the -337 O-ring (Item 22, PN 114360) on the bottom of the pump body. Clean and inspect. (Replace any damaged O-rings found while working through this procedure).
5. Remove the pump outlet manifold bolts (Item 17, PN 109793) and manifold (Item 16, PN 114300 or other optional manifold supplied). Remove pressure relief assembly (Item 38, PN 801241).
6. Remove the hose manifold connector tube (Item 41, PN 116183). Inspect the O-rings for damage and clean or replace.
7. Remove the relief outlet nozzle assembly (Items 35, 36 & 37) on the bottom of the pump. Inspect and clean. Using a long brush, ensure that the connection holes from the relief outlet nozzle assembly to the outlet manifold's relief cavity are clear and clean.
8. Bend down the tangs of the bearing lock washer (Item 20, PN 114354) which lock the bearing lock nut (Item 19, 114357). Remove the lock nut, lock washer and tie rod plate. Set aside.

9. From the top of the pump and while the shaft is still hot and any adhesive still molten, gently push the pump shaft assembly (Item 23, PN 114306) out through the bottom of the pump, taking care not to touch the seal pack with the shaft threads. Disassemble the outlet check valve (piston assembly) by unscrewing the outlet check seat (piston) from the shaft using a 1-1/16" (27mm) wrench on the piston and a 20mm wrench on the pump shaft.
DO NOT hold the shaft by its diameter.

The shaft is super-finished and must not be scratched or marred in any way or pump shaft seal leakage will occur. The outlet check seat (piston) is held in place by an O-ring (Item 43, PN N01601). Inspect the O-ring and replace if necessary.

10. Using C-clip pliers, remove the internal retaining clip (Item 42, PN 114351) above the shaft seal housing (Item 2, PN 114281). Using a plastic or wooden rod, insert rod into the bottom of the pump and tap the bottom of the shaft seal housing (Item 2, PN 114281) and remove from the top.
11. Using C-clip pliers, remove the internal retaining clip (Item 5, PN 113738) holding the pump seal spacer, seal and shaft bearing in place. Remove the pump seal spacer (Item 4, PN 113737) and shaft seal. Using the wooden rod from the top, tap the shaft bearing (Item 3, PN 114282 contains both the seal and matching bearing) out of the bottom, being careful not to damage the housing. Clean the pump housing internally and inspect for wear or damage inside.
12. Replace with a new shaft bearing and seal, taking care to make sure the seal-loading spring is facing down in relation to the pump. Reinstall the spacer and retaining ring. Re-install the shaft seal housing assembly into the pump body and reinstall the retaining ring.
13. Tape the threaded end of the pump shaft and carefully reinstall the pump shaft with outlet check assembly into the bottom of the pump and through the seal assembly, taking care not to damage the pump seal.
14. Re-install the inlet check valve assembly, tie rod plate, bearing lock washer and bearing lock nut. Tap the lock nut 1/8 turn past hand tight and bend at least one tang on the bearing lock washer into one of the recesses in the bearing lock nut to secure.
15. Re-install the outlet manifold assembly.
16. Re-install pump into the platen assembly.

7.10 Platen Removal



WARNING



Heed all security advices given in chapter 7.1.

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!

Prior to disassembly:

- Heat the unit above the softening point of the material being pumped by the unit.
- Switch pump motor OFF.
- Activate the applicator to relieve pressure.
- Disconnect main electrical power.
- Disconnect air pressure at air control panel.
- Provide safety blocking under the platen.

Disassembly and replacement:

1. Remove the drum. Insert a fiber sheet on the floor of the unit and lower the platen completely.
2. Remove the piston pump and air motor (see instructions in Ch. 7.8 Piston Pump Assembly Replacement).
3. Remove the ten bolts holding the platen face and disassemble the platen assembly.
4. Disconnect all the electrical connections under the platen cover (via ceramic terminals or the nuts on the posts) and the pneumatic connections (via barbed fittings).
5. Loosen the nuts and washers securing the three platen truss rods. Unscrew the platen truss rods from the platen core.
6. The platen core is now loose for removal.

Platen Reassembly:

Note: all mating surfaces must be cleaned of material (adhesive), RTV sealant, or foreign matter prior to reassembly.

Reassembly is the reverse of the disassembly procedure (above).

7.11 Platen Seal Replacement



WARNING



Heed all security advices given in chapter 7.1.

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!

Prior to disassembly:

- Heat the unit above the softening point of the material being pumped by the unit.
- Switch pump motor OFF.
- Activate the applicator to relieve pressure.
- Elevate the platen to full UP position to make work easier.
- Disconnect main electrical power.
- Disconnect air pressure at air control panel.
- Provide safety blocking under the platen.



WARNING

Place safety blocking (lid and fiber separator sheet between the lid and platen) under the platen to prevent platen lowering of platen.

- There are two seals installed on the Bulk Melter's platen. The type of seals or wipers used on each Bulk Melter is specific to the application. Seal kits are available from ITW Dynatec (see Ch. 11).

Clean the Seal Grooves

1. Using a wooden or plastic tool (to prevent damage to the seal), clean all material from the seal grooves.
2. Lubricate ram plate grooves, bands and seals before assembly. Lubricate the seals with a lubricant that is compatible with the material to be pumped. Check with your material supplier to verify compatibility.

Replace T-Wiper, Hose or High Pressure O-ring Seal

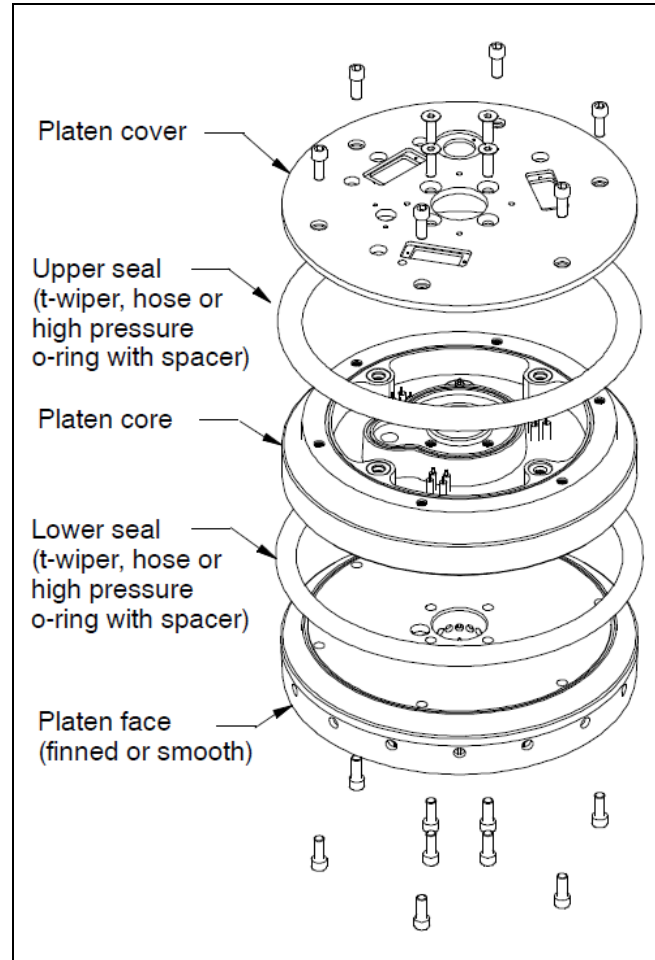
1. Raise the platen up out of the drum. Remove the drum from the base. Wipe any fluid from the platen.
2. Remove the seal's clamps. Warming the platen will aid removal.
3. Carefully cut the old seal and remove it.

4. To Install a T-Wiper Seal:

- a. Pull the t-wiper over the platen assembly. Roll the wiper ring down to the top ring groove.
- b. Install the first upper clamp over the wiper ring, placing it in the top groove of the wiper.
- c. Secure the top clamp using the screw in the clamp. Tighten the clamp just until it no longer slides along the seal against the force of the screwdriver tightening it.

Note: To avoid damaging the wiper ring and/or clamp, do not over-tighten the screw in the clamp.

- d. Install the second upper clamp onto the bottom of the wiper ring on the top groove of the wiper.
- e. Secure the bottom clamp using the screw in the clamp.

**To Install a Steam Hose Seal:**

- a. Separate the steam hose (black) seal at its butt-joint. Bend back the strapping covering the clamp. Loosen the clamp by unscrewing the worm gear. Remove the seal.
- b. Thread the strapping through the new seal. Install the new seal on the platen. Position the two seals so that their butt-joints are 180 degrees apart. Insert the end of the strap through the clamp and tighten by screwing the worm gear.
- c. Beginning in the middle of the seal, stretch and tap the wiper around each side of the platen with a rubber mallet until the ends of the wiper are butted tightly together.

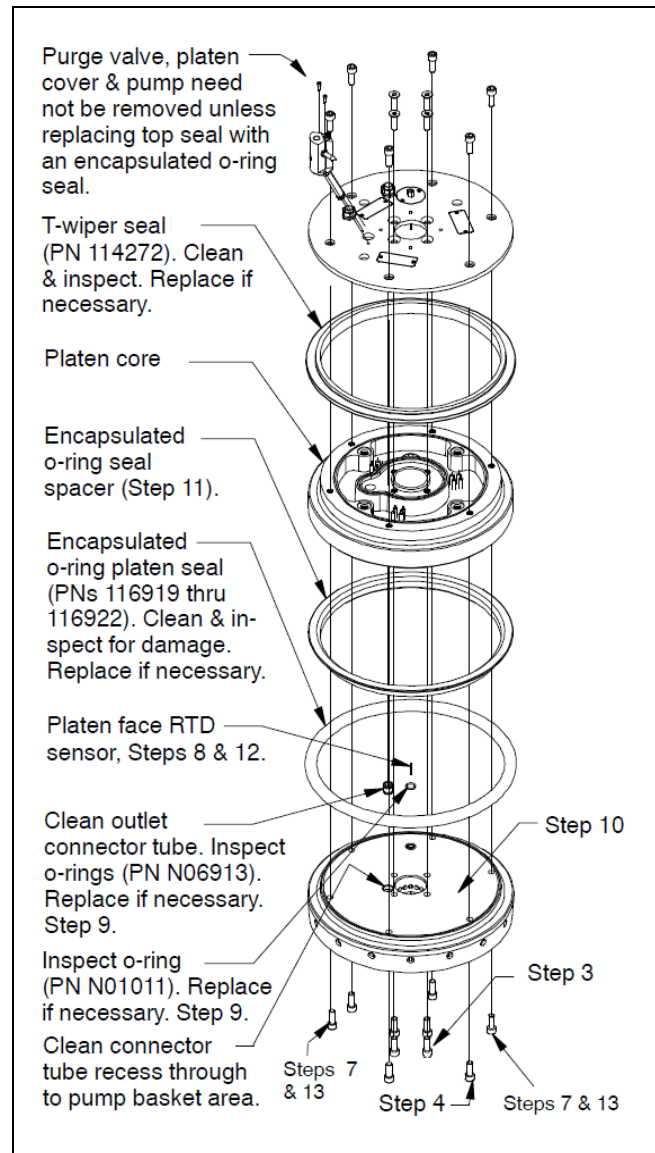
**CAUTION**

Make sure the seals/ wipers are lubricated. Without lubrication, they will not seat properly and will tear.

5. Conduct a test for leaks prior to putting the machine back into operation. At operating temperature and pressure, lower the platen into a barrel of adhesive for five to ten minutes. Inspect the edges of the platen for adhesive leakage.

Replace Encapsulated O-ring Seal and Spacer

1. With the platen at operating temperature and in the full Up position, shut down the unit and lock out/ tag out both electrical and pneumatic supply.
2. Using a safety knife, cut off and remove the old O-ring seal.
3. Remove the four M16 bolts in the center bolt pattern of the bottom of the platen face.
4. Remove four of the six M16 bolts in the outer bolt pattern of the bottom of the platen face, leaving one bolt on the left and one on the right side.
5. Unlock, power up and slowly, in manual mode, lower the platen assembly onto a set of sturdy wooden blocks positioned to provide access to the remaining two bolts.
6. With the platen resting securely on the blocks, shut down the unit and lock out/ tag out both electrical and pneumatic supply.
7. Remove the remaining two bolts holding the platen face to the platen core.



8. Unlock, power up and slowly, in manual mode, raise the platen assembly making sure the RTD sensor is removed from the platen face and the wiring is not pulled. Do not move the platen face on the blocks, to assure it remains in proper position for the re-install. Raise the platen core to the full Up position and out of the way. Shut down the unit and lock out/ tag out both electrical and pneumatic supply.
9. Clean all surfaces free of adhesive build-up and debris on both platen face surfaces and seal surfaces. Inspect and clean the pump outlet connector (PN 114309) and RTD O-ring (PN N01011).
10. Re-apply a thin layer of thermal paste (PN 001V062) to the contact surface of the platen core to ensure proper thermal transfer.
11. Re-install seal spacer in the same direction as removed (with angle facing up) and new O-ring seal. Fitment will be tight and may require allowing the seal and spacer to heat soak on top of the hot platen face for several minutes before attempting to install.

12. Unlock, power up and slowly, in manual mode, lower the platen assembly back down onto the platen face, taking care that the RTD sensor (right rear side) is properly reinstalled, wiring is not pinched and the pump outlet connector is properly aligned (left center) until the platen core is resting fully onto the platen face. Shut down the unit and lock out/ tag out both electrical and pneumatic supply.
13. Re-install the two bolts on either side of the outer edge to secure the platen face.
14. Unlock, power up and slowly, in manual mode, raise the platen assembly making sure the platen face is secure. Raise to the full Up position, shut down and lock out/ tag out both electrical and pneumatic supply.
15. Re-install all remaining bolts and torque 30lbs/ft.
16. Unlock, power up and turn on heating zones. Ensure that the unit heats properly and interfaces a drum properly before resuming production.

7.12 Electrical Parts Replacement

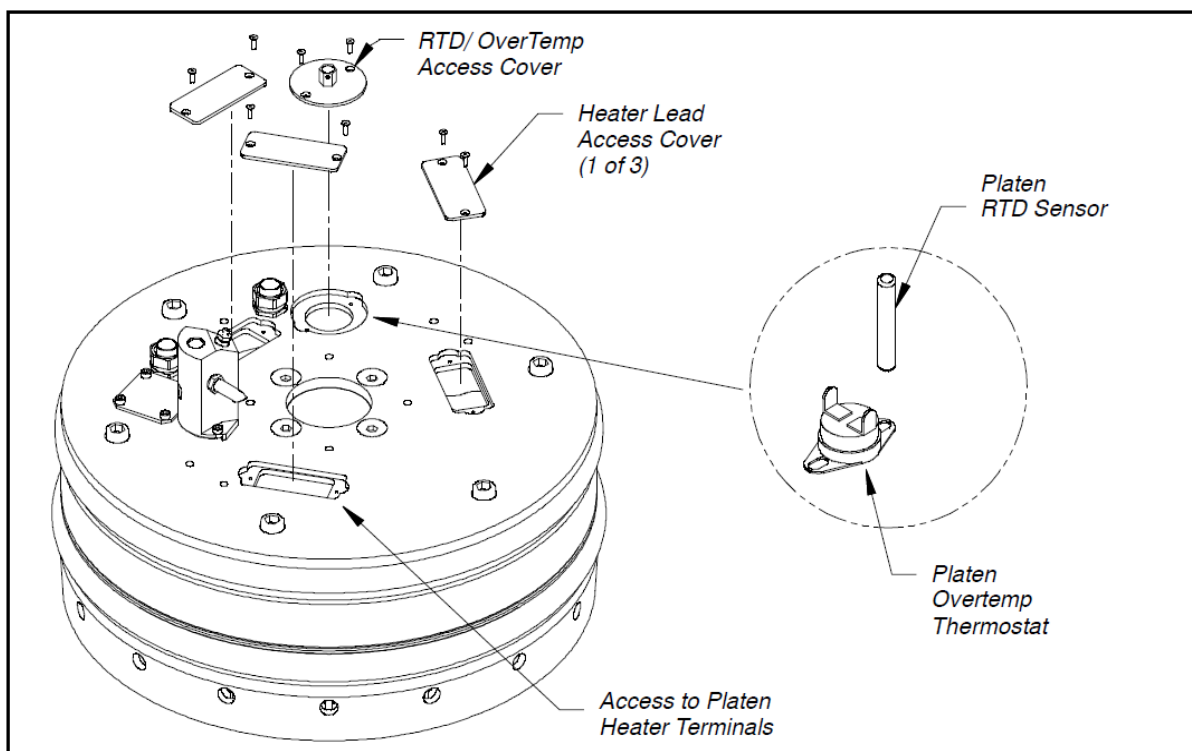


DANGER HIGH VOLTAGE

Disconnect incoming electrical power.
Turning OFF the Bulk Melter's circuit breaker will not reduce the danger of electrical shock at the terminals or connections at the circuit breaker.

To Access Electrical Parts within the Platen Core

The platen core is located on top of the platen. Within it are located the thermostat disc, two RTD sensors (one RTD is in the platen core and one is in the platen face) and the six cast-in heaters. Each of these parts is accessed through inspection covers located on the platen cover.



Thermostat Disc Replacement

Located under the round inspection cover, the over-temp (NC) thermostat disc is removed via two mounting screws which hold it to the platen core. Pull off the two quick-disconnect connectors. Use thermal paste (PN 001V062 heat transfer compound) during re-installation.

Note on Cast-in Heaters

The platen core contains six cast-in heaters which should last the life of the Bulk Melter. When troubleshooting, each top element should read 9.93 Ohms (+10%/-5%) and each bottom element should read 9.10 Ohms (+10%/-5%) at room temperature.

RTD Sensor Replacement

There are RTD sensors in the platen core, located under the round Inspection Cover. One RTD is in the platen core and one is in the platen face.

Carefully pull the sensor out. Follow the sensor's leads to the ceramic terminal block in the overhead junction box. Unscrew leads and remove sensor. Install new sensor, coating with thermal paste (PN 001V062 heat transfer compound).

To Access Electrical Components inside the Panel Box

Verify again that the main power is OFF. On the outside of the panel box, use the main disconnect switch to open panel box door.

Note: see diagram in chapter 13 for panel box component layout.

1. **Fuse Replacement:** Fuses are located on the inside of the panel box assembly, mounted on the terminal rail.
2. **Solid State Relays:** The solid state relays are located on the inside of the panel box assembly, mounted on the right-hand side panel.

Chapter 8

Troubleshooting

8.1 Troubleshooting Notes



Please re-read all security advices given in chapter 2 before troubleshooting. All troubleshooting or repair procedures must be performed by qualified, trained technicians.

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.

In general: If failure occurs, check first:

- Check all the electrical and pneumatic connections.
- Verify that the main power switch of the unit is ON.
- Verify that the pump is functioning and the application heads have the required air pressure.
- Verify that the temperature controller is in operation and that the set points are correct for the Melter, Heated Hoses, Applicator and all other components connected to the unit.
- Check to see if all components are heating properly.

Verify the following before proceeding in troubleshooting:

1. The equipment is switched on.
2. The equipment is supplied with power.
3. The equipment is supplied with clean, dry pneumatic air.
4. Pneumatic and electrical connections are correct.
5. A drum is loaded into the Bulk Melter and there is adhesive in it.

Hose/ Valve Heater Troubleshooting Tip

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

High-Temperature Redundant Overtemp Thermostat

The Bulk Melter includes a mechanical (redundant) overtemp thermostat that acts as a safety backup. If the unit's manifold temperature should exceed 232°C (450°F), the thermostat will cause the Bulk Melter's circuit breaker to open and power to the manifold, platen, valve heater and hose(s) will be cut off. The mechanical thermostat automatically re-sets after the manifold temperature falls below 204°C (400°F).

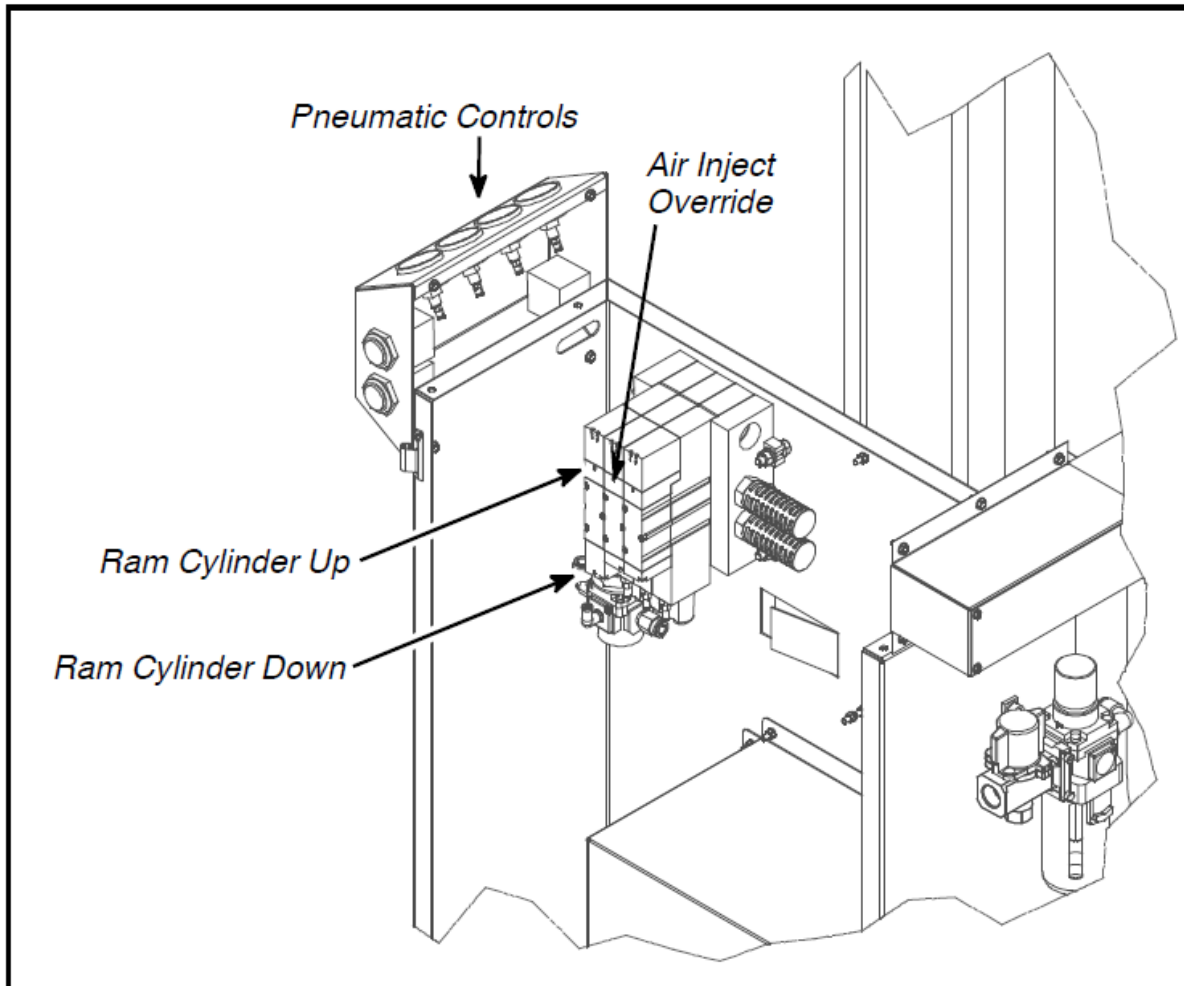
Restoring Level Detector Synchronicity

The level detector sensors may get out of sync due to power interruptions or due to manual movement of the ram when the controller is not turned on.

To restore synchronicity, manually cycle the ram using the ram cylinder valve located behind the pneumatic control board (see illustration). Depress the Ram Cylinder Up pushbutton at the top of the valve while manually moving the ram to its upper limit. Then depress the Ram Cylinder Down pushbutton while manually moving the ram to its lower limit.

To Manually Remove Ram from Drum of Adhesive

If it becomes necessary to manually remove the ram from a drum of adhesive, depress the Air Injection Override pushbutton (at the top of the air inject valve, see illustration) and the Ram Cylinder Up pushbutton on the ram cylinder valve before manually raising the ram.



8.2 Mechanical Troubleshooting Guide (for Piston Pump Models)

Note: This troubleshooting table is only a guideline. The possibility of having more than one problem occurring at one time can obscure the problem and its resulting symptoms.

Problem	Possible Cause	Solution
No flow from applicator when pump is running.	1. Excessive ram force into drum is facing off liquid flow to pump inlet.	1. Reduce ram pressure.
	2. Insufficient ram force not charging liquid flow to pump inlet.	2. Increase ram pressure.
	3. Platen insufficiently purged.	3. Complete full purge cycle.
	4. Cold adhesive in hose or manifold.	4. Check temperature of all zones. Allow to heat for several minutes before continuing.
	5. Applicator not energized.	5. Check solenoid for proper output. Replace solenoid as required.
	6. Applicator faulty or fouled.	6. Inspect and repair (or replace) applicator.
	7. Piston pump check valves fouled (off-beat stroking will be evident).	7. Disassemble, clean and reassemble pump inlet and outlet check valve assemblies.
	8. Piston Pump air motor pressure set too low.	8. Increase air motor pressure.
	9. Temperature set too low.	9. Increase temperature.
	10. Blockage in hose, applicator or manifold.	10. Disassemble, clean and reassemble.
	11. Material viscosity too high.	11. Increase temperature to reduce viscosity. Change to a lower viscosity material.

Continue next page...

Problem	Possible Cause	Solution
Pump will not run.	- Unit is not in Ready mode. - Pump not enabled. - Missing pump enable contact circuit jumper or remote contact not closed. - Air pressure too low. Air motor is stalled. - Unit not in Auto mode. - Solenoid is not energized. - Pump jammed. - Temperature set too low.	- Allow unit to warm up. - At pump screen: enable the pump. - Add pump enable circuit jumper or close the remote contact. - Increase air motor pressure. - Start Auto mode. - Inspect solenoid circuit and check for output. Replace solenoid if required. - Disconnect pump from air motor and check air motor. Disassemble, repair and reassemble either pump or air motor as require. - Increase temperature.
Pump output too low.	- Pump air motor pressure too low. - Material viscosity too high. - Blockage in hose, applicator, pump or manifold. - Excessive ram force into drum is facing off liquid flow to pump inlet. - Pump check valves are stuck in open position. - Debris at inlet of pump.	- Increase pressure. - Reduce material viscosity by increasing temperature. Change to a lower viscosity material. - Disassemble, clean and reassemble. - Reduce ram pressure. - Disassemble, clean and reassemble. - Disassemble, clean and reassemble.
Pump runs fast, but no material flow.	- Platen insufficiently purged. - Pump setting is exceeding the platen melt rate. - Pump check valves are stuck in open position. - Drum empty or incorrect drum empty sensor position.	- Complete purge cycle. - Reduce pump pressure or increase operating temperature. - Disassemble, clean and reassemble. - Raise sensor adjustment.

Continue next page...

Problem	Possible Cause	Solution
Pump leaks at shaft.	Defective shaft seal.	Replace.
Pump leaks at base.	Defective bottom O-ring.	Replace.
Pump leaks at manifold.	Defective manifold O-ring.	Replace.
Material leaks past platen seal.	1. Defective seal. 2. Material viscosity low.	1. Replace. 2. Reduce temperature or change to a higher viscosity material.
Drum is difficult to remove from platen.	1. Temperature too low. 2. Ram Up pressure too low. 3. Damaged drum. 4. Drum diameter out of specifications. 5. Clamshell too tight.	1. Increase platen temperature. 2. Increase Ram Up pressure (15 psi max). 3. Do not use damaged drums. 4. Check diameter (22.2" min - 22.5" max). 5. Loosen clamshell adjustment.
Premature platen seal failure.	1. Physical damage: seal cut by dented drum lip. 2. Chemical reaction. 3. Excessive ram pressure/speed on retract. 4. Over temperature. 5. Under temperature causing seal to drag through unmelted material.	1. Replace seal. Do not use dented drums. 2. Replace seal. Review chemical compatibility. 3. Replace seal. Reduce Ram Up pressure/speed. 4. Replace seal. Reduce temperature below 400°F (200°C). 5. Increase temperature to material softening point.

8.3 Electrical Troubleshooting Guide

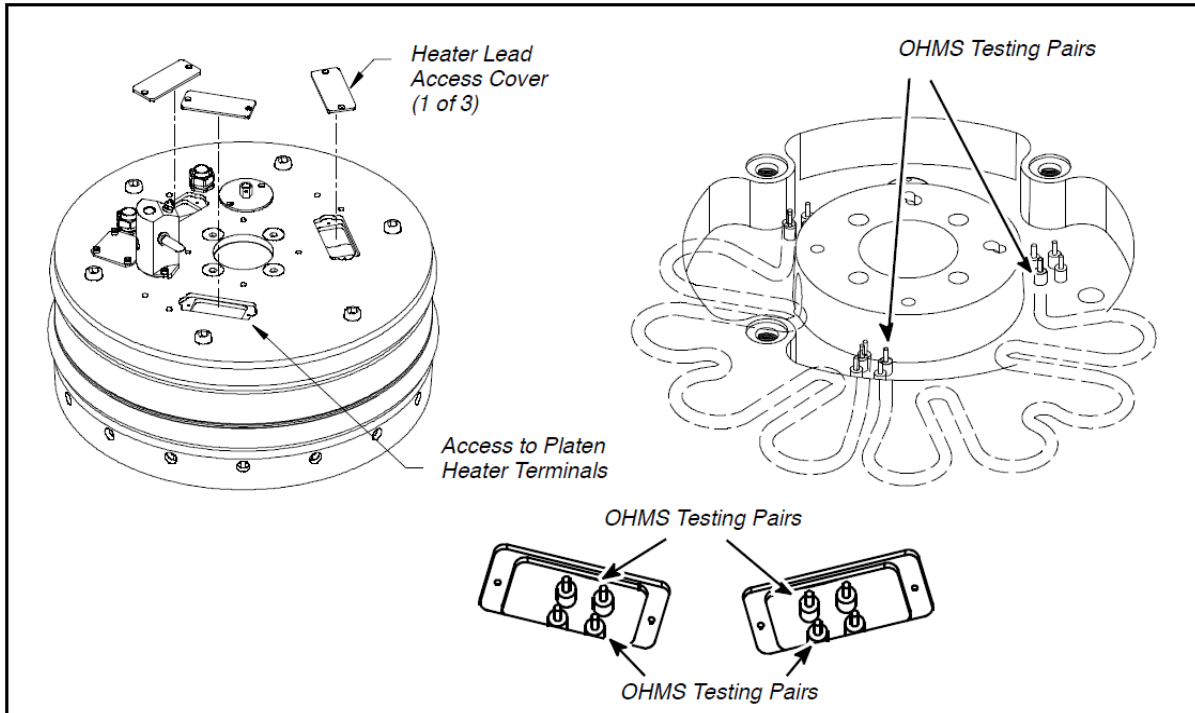
Note: This troubleshooting table is only a guideline. The possibility of having more than one problem occurring at one time can obscure the problem and its resulting symptoms.

Problem	Possible Cause	Solution
Unit does not heat.	1. System not ON. 2. Temperature zone not ON. 3. Temperature not set. 4. Unit in Standby mode. 5. Circuit breaker tripped. 6. Temperature controller inoperative.	1. Turn system to ON. 2. Turn zone to ON. 3. Set temperature. 4. Turn Standby mode OFF. 5. Reset circuit breaker. 6. Replace.
Unit too hot. Over temperature alarm ON.	1. Temperature controller set too high or is out of calibration. 2. Temperature setting too close to over-temperature switch setting. 3. Short circuit in system.	1. Reset or re-calibrate. 2. Reduce temperature. 3. Find and correct.
Unit will not go into System Ready status.	1. Inoperative RTD sensor. 2. Unused temperature zone is turned ON. 3. Open circuit breaker in heater circuit.	1. Replace. 2. Turned unused zone(s) OFF. 3. Test circuit breaker and troubleshoot heaters if necessary.
Unit heats slowly or does not reach operating temperature.	1. Low voltage. 2. Heater failure.	1. Correct the low voltage condition. 2. Test and replace.
Unit remains in Standby mode.	1. A standby delay time has not been programmed. 2. Remote control contact is open.	1. Program a value other than "0" into the Standby Delay timer. See also Temperature Screen Programming (Ch. 6). 2. Close contact.

8.4 Heaters in Platen Core

The platen core is located beneath the platen cover. An ohm reading for these heaters can be made by removing the three heater inspection covers.

Six 6,000 Watt, cast-in heaters are installed within the platen core. An ohmmeter may be used to verify if they are operable. A reading of 8.91 - 10.75 ohm indicates a heater is good (allow a 5% increase if the heaters have been in use). These heaters are not replaceable and should last the life of the Bulk Melter.



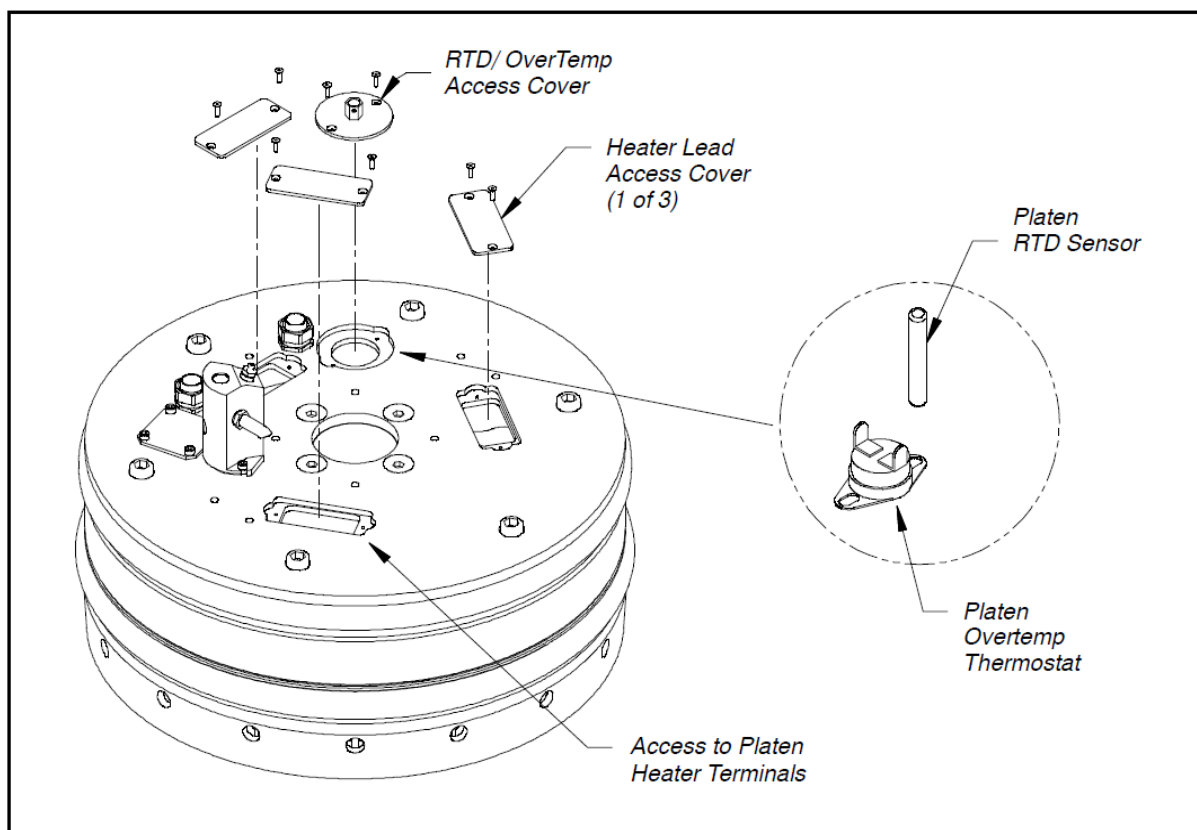
8.5 Heaters in Piston Pump

Two 585 Watt, replaceable, 240VAC cartridge heaters are installed in the piston pump body. An ohmmeter may be used to verify if they are operable. A reading of 98.5 ohms indicates a heater is good. The total for these two heaters (1170 Watts) is 197 ohms in series.

8.6 RTD Sensors in Platen Core & Piston Pump

There is a PT100 RTD sensor in both the platen core and in the body of the piston pump. Resistance of these sensors may be measured with an ohmmeter and should be 110 ohms at 25°C (a tolerance of $\pm 5\%$ is allowed at ambient temperature).

An ohm reading for the sensor in the platen core can be made by removing the (round) Sensor Inspection Cover on the platen cover. See drawings for location of the pump sensor.

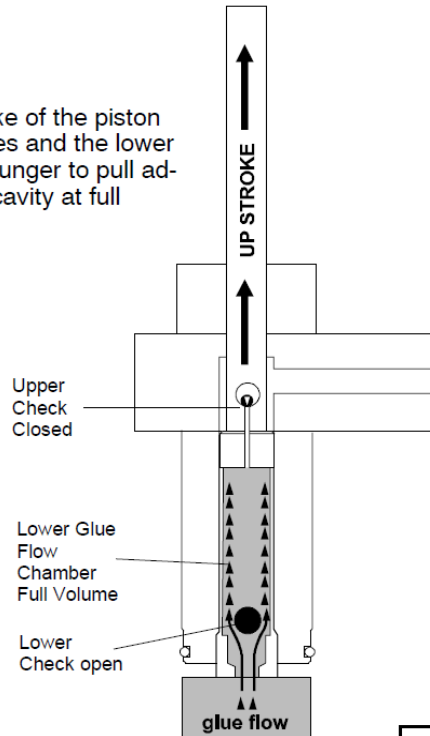


8.7 Piston Pump Flow Diagram

The illustrations below demonstrate how adhesive flows through the piston pump.

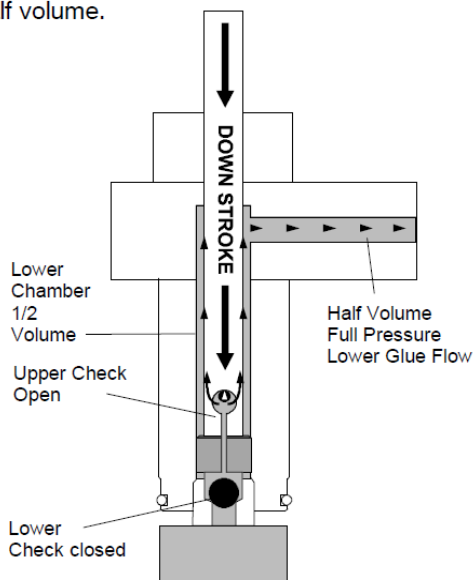
Step 1, upper drawing:

On the first (priming) upstroke of the piston pump, the upper check closes and the lower check opens, allowing the plunger to pull adhesive into the lower pump cavity at full volume.



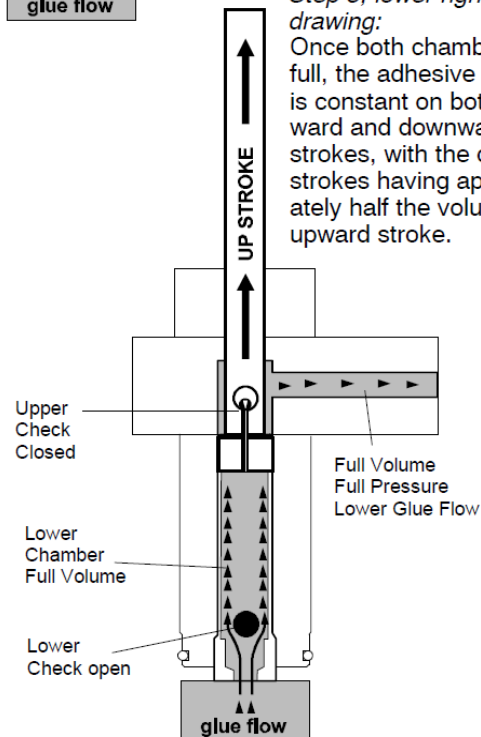
Step 2, lower left drawing:

On the downstroke of the piston pump, the upper check opens and the lower check closes, forcing adhesive up into the shaft cavity and causing it to escape through the outlet in the shaft. The adhesive then spills into the upper pump chamber at half volume.



Step 3, lower right drawing:

Once both chambers are full, the adhesive pressure is constant on both the upward and downward strokes, with the downward strokes having approximately half the volume of the upward stroke.



8.8 Motor Speed Control Drive

The Motor Speed Control is mounted on the divider panel within the electronics compartment of the ASU. 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

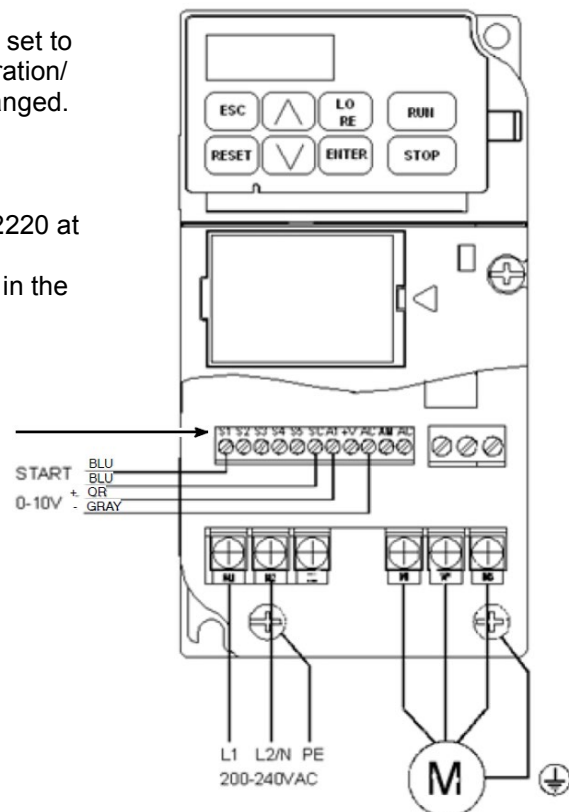
The acceleration and deceleration times are factory set to 10 seconds. If an application requires faster acceleration/ deceleration, corresponding parameters can be changed.

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.

S1 S2 S3 S4 S5 SC A1 +V AC AM AC



Layout of Motor Control Drive

8.9 Accessing, Programming and Monitoring Motor Control Parameters

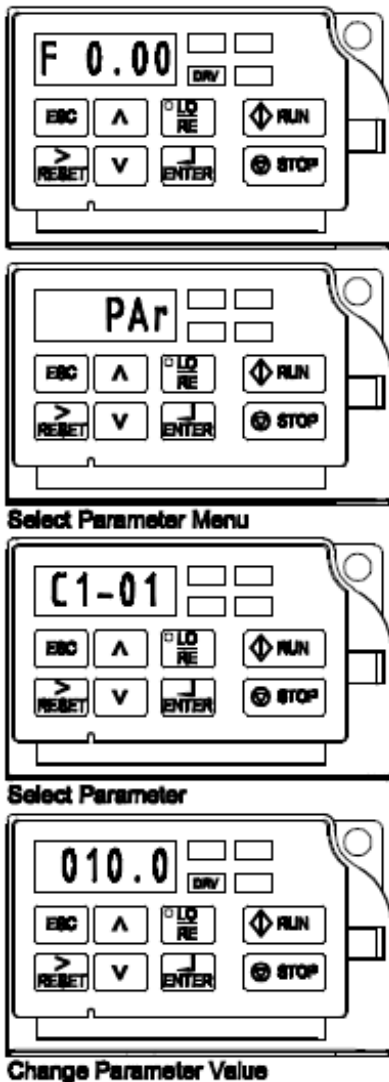
To Access and Change Parameter Values

J1000 Digital Operator power-up state →

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

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

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



The diagram illustrates the sequence of screens on the J1000 Digital Operator. It starts with the power-up state showing 'F 0.00'. Pressing the 'V' key leads to the 'PAR' (Parameter Menu) screen. Pressing the 'ENTER' key leads to the 'Select Parameter Menu' screen, which displays 'C1-01'. Pressing the 'RESET' key leads to the 'Select Parameter' screen, which displays '010.0'. Finally, pressing the 'RESET' key leads to the 'Change Parameter Value' screen, which displays '010.0'.

To access other drive signals, refer to the Yaskawa technical manual, available at:
<http://www.yaskawa.com/site/products.nsf/productGroup/ACDrives.html>

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Chapter 9

Drawings and Bill of Materials

Notes



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 ITW Dynatec DM55 DynaDrum Bulk Adhesive Melter. These drawings are useful for finding part numbers as well as for use when maintaining or repairing the unit.

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.

Frame and Panel Box Assemblies

Item No.	Part Number	Description	Qty. per Unit
1	114006	Drip pan	1
2	114126	Clamshell assy.	1
3	114367	Vent hood	1
4	114468	Hose support	2
5	115957	Screw M16x40	24
6	115287	Half clamshell	1
7	115935	Crossbar	1
8	115947	Cylinder	2
9	115950	Screw M24x260	2
10	115951	Washer M24	2
11	115952	Washer M24	2
12	115938	Drip tray	2
13	115962	Hoop bracket	1
14	115958	Washer M16	12
15	116039	Screw M16x25	4
16	115936	Pedestal	1
17	823191	Controller assy. DM55, V6, 480V Piston Pump	1
	823189	Controller assy. DM55, V6, 240V Piston Pump	1
	823190	Controller assy. DM55, V6, 400V Piston Pump	1
	823171	Controller assy. DM55, V6, 480V Gear Pump	1
	823169	Controller assy. DM55, V6, 240V Gear Pump	1
	823170	Controller assy. DM55, V6, 400V Gear Pump	1
18	817184	XFMR, 5KVA, 480/240V, 3PH enclosed	1
19	115945	Junction box	1
20	115941	Mounting cable track	1
21	114453	Stacklight 3pos. 24VDC	1
22	116040	Bracket, stabilizer	2
23	114440	Cable track assy.	1
24	116153	Dashboard	1
25	048J088	Conduit fitting 3/4"	1
26	048J016	Conduit 3/4" seal-tite	2
27	115934	Base plate	1
28	048J071	Conduit fitting 3/4"X90D	1

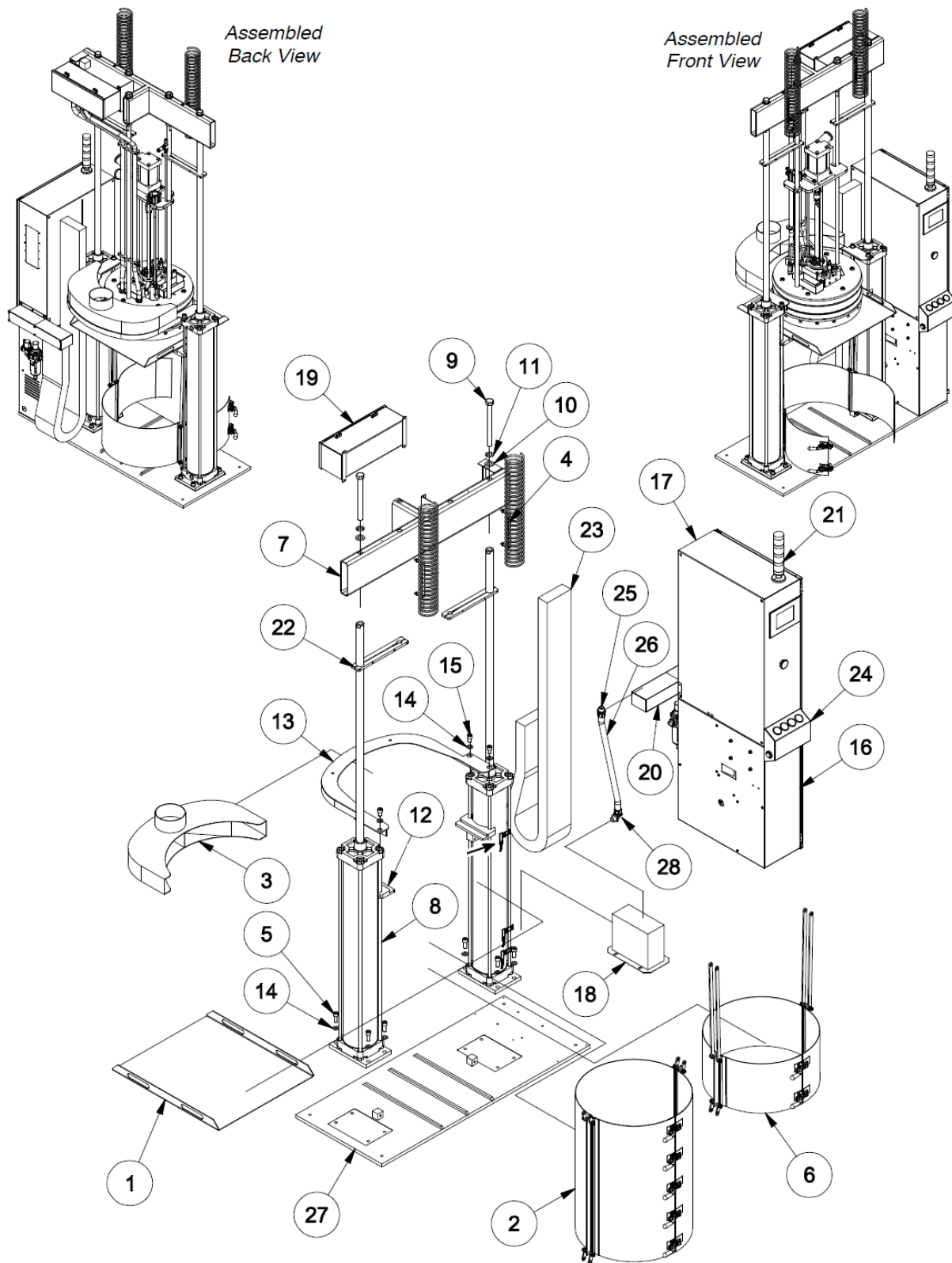


Illustration: Frame and Panel Box Assemblies

Platen and Connector Kit Assemblies

Item No.	Part Number	Description	Qty. per Unit
1	113990	Platen Truss Rod	3
2	113980	1"- 8 UNC Hex Nut	3
3	113981	1" Flat Washer, SAE, Narrow	3
4	113982	1" Lock Washer	3
5	113985	M20 Flat Washer (truss rods)	3
6	114370	Platen Cover Assembly	1
7	113986	Platen cover	1
8	113989	O-ring, -282	1
9	113988	Heater Inspection Cover, rectangular	3
	114372	Gasket for Inspection Cover, rectangular (not shown)	3
10	113987	Sensor Inspection Cover, round	1
	114371	Gasket for Inspection Cover, round (not shown)	1
11	114380	M4 x 12mm FHC Screw	8
12	809274	Steel Conduit Fitting	2
13	113998	M6 x 1.0 x 30mm SHC Screw	6
14	113999	M6 Split Lock Washer	6
15	116230	Emergency Valve Stem	1
16	114556	Connection Kit	1
17	113982	Lock Washer 1"	3
18	113980	Hex Nut, Full 1"-8	3
19	N06487	3/4 UNF Hex Jam Nut	1
20	116924	Truss Rod	3
21	114315	Coupler, Cylinder Rod End, 3/4-16 UNF	1
22	114327	Connecting Rod	1
23	114329	Cotter Pin, 1/8 x 1.75, SST	1
24	113981	Flat Washer, 1"	3
25	114474	M10 x 60mm SHC Screws (for piston pump mounting)	4
26	113977	Finned Platen Face (standard)	1
	116468	Platen Face, High Viscosity	1
27	114091	Smooth Platen Face (smooth-face option) PUR, Nedox 615	1
	117781	Platen Face, High Flow, PUR, Nedox 615	1
28	114309	Assembly, Tube, Purge	1
29	N06913	O-ring, -118	2
30	114770	O-ring, 66 inch	1
31	113975	Platen Core	1
32	103121	M4 Nut	12
33	106236	M4 External Tooth Lock Washer	12
34	805406	Thermostat, Disc	1
35	106137	M3-0.5 x 8mm SHC Screw	2
36	107881	Terminal Block, 2-position, Ceramic	2
37	N06703	Temperature Sensor, PT100, .187 x 1.25	2
38	114475	M16 x 150mm SHC Screw	4
39	104251	Heater, 12.5 x 99mm, 240V 585W, 1	2
40	114295	Platen Vent Valve Assembly	1
41	115959	Platen Seal, Smooth	2
	815714	Platen Seal, Wound	2
42	114350	Piston Pump Assembly (see following illustration)	1
43	114314	Air motor Assembly	1
44	114315	Air motor	1
45	114465	Purge Tray	1
46	116230	Stem, Purge	1
47	115296	Fitting Conn, 3/8NPTx3/8T	1
48	116204	Motor Bracket Assembly	1
49	114769	O-ring, -268	1
50	106156	Set Screw, 4Mx6, SH	1
51	048J05	8 Fitting, 3/8" Cond, 9/16-18	1
52	107645	Conduit, 5/16", 12 in. long	1
53	115961	Clamp, Worm, Seal	2
54	114476	Screw, SHCS, M16x2x150	6
55	114844	O-ring Backup, -310 Teflon	1
56	114573	O-ring 310, Viton	1
57	117041	Removable Center Basket (PUR)	1
58	N04326	O-ring -214, 70 Duro Viton	1

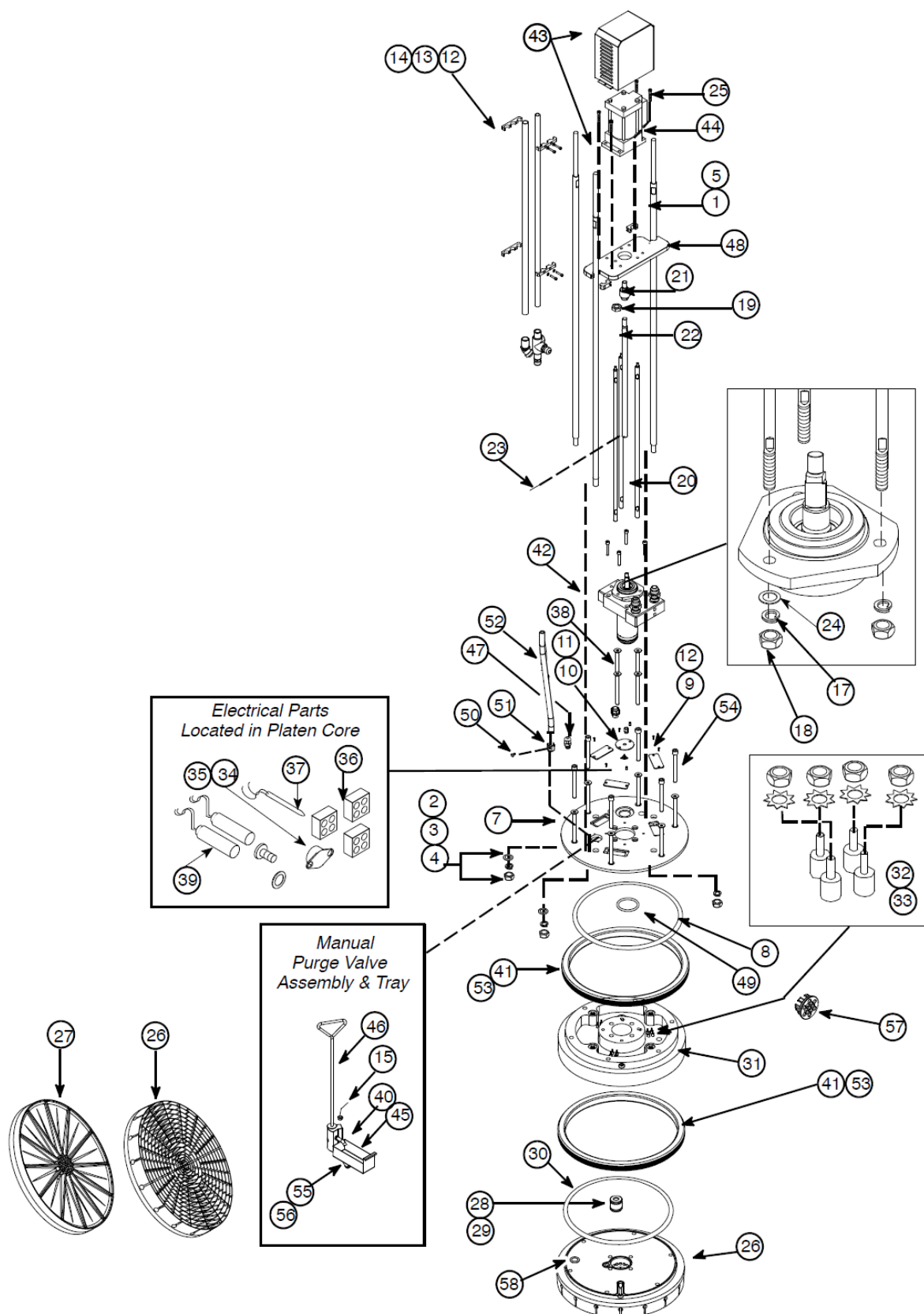
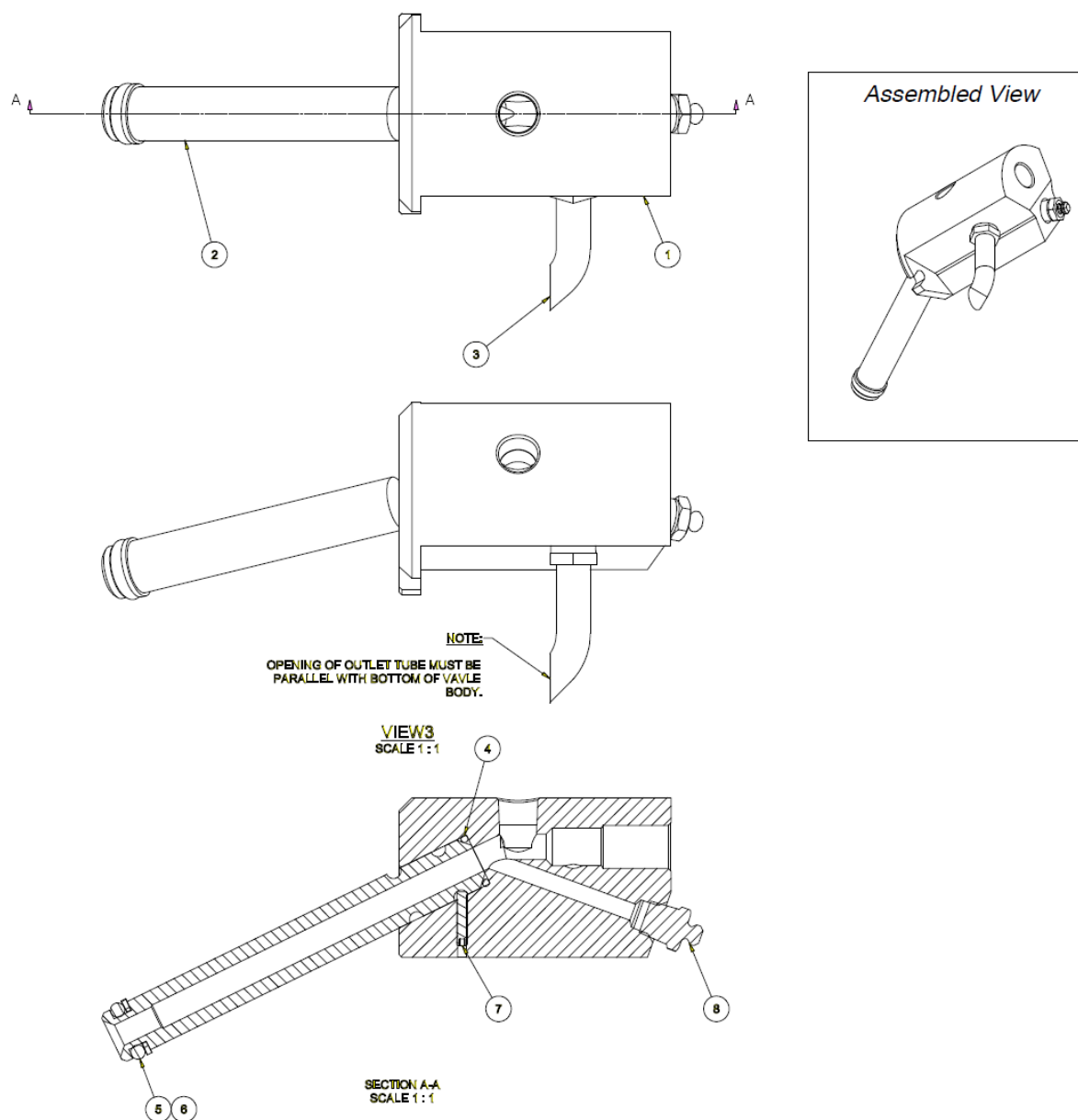


Illustration: Platen and Connector Kit Assemblies

Platen Vent Valve Assembly, PN 114295

Item No.	Part Number	Description	Qty. per Unit
1	118580	Valve body	1
2	118357	Seat tube	1
3	116862	Outlet tube	1
4	N00199	O-ring -114, 70 Duro Viton	1
5	114573	O-ring -310, 75 Duro Viton	1
6	114844	O-ring, backup, -310, Teflon	1
7	107792	Screw M4x20	1
8	117669	Fitting 1/4NPT, grease	1



Piston Pump Assembly, PN 114350

Item No.	Part Number	Description	Qty. per Unit
1	114279	Body, piston pump	1
	114280	Pump shaft seal assy (sold as assy only), includes:	1
2		Housing, pump shaft seal	1
3		Bearing seal assy	1
4		Spacer, pump seal, vect/dm55	1
5		Ring, ret,int,5008-137	1
6		O-ring, -128, 75 Duro, Viton	1
7	114303	Pin, dowel, M6x36	1
8	113691	Ball 0.812 dia	1
9	N03770	O-ring, 3-920, 75 Duro, Viton	1
10	116381	Seat, inlet chk vlv,ext	1
11	114341	Enclosure, pmp htr,vect	1
12	805406	Thermostat, NC, Fenwall	1
13	104251	Heater, 12.5x99mm, 240V, 585W	1
14	804355	Screw, M4x0.7 x 50	1
15	106137	Screw, M3x0.5 x 8	1
16	114300	Dual hose manifold, pstn, standard	1
	114787	Single-outlet manifold, option	1
	118279	Single-outlet manifold w. Ball valve purge, PUR option	1
	118280	Dual-outlet manifold w. Ball valve purge, PUR option	1
17	109793	Screw, M8 x 1.25 x 65	1
18	114352	Washer, lock, hi-collar, M8	1
19	114357	Nut, bearing lock	1
20	114354	Washer, bearing lock	1
21	114323	Plate, tie rod	1
22	114360	O-ring, -337, 75 Duro, Viton	1
23	114306	Pump shaft assy.	1
24	N00004	Ball, 0.625 dia	1
25	114307	Seat, out chk,vect	1
26	048J229	Plug, 9/16-18	1
27	048J058	Fitting, 3/8" cond, 9/16-18	1
28	106156	Screw, M4x6, blk ox	1
29	803173	Fitting, plg, 1/2-14bspp,soc,s	1
30	N06703	Sensor, rtd, pt,.1875x1.25l	1
31	107881	Terminal block, 2 pos,ceramic	1
32	107389	Screw, php, M4x8 w/wshr	1
33	114353	Gasket, encl,pmp,vect	1
34	N00179	O-ring,-012, Viton,70 Duro	1
35	057B309	Stem guide nozzle adapter	1
36	N00178	O-ring, -011, Viton,70 Duro	1
37	CN1448	Nozzle,1,.040,.100eng,h200	1
38	808217	Relief valve, adj.,0-750 psi	1
	116486	Pneumatic pressure relief valve (option)	1
39	815541	Fitting, plg,g1/8p,soc,s	1
40	113654	O-ring, -123, Viton, 75 Duro	1
41	116183	Connection, hose manifold	1
42	114351	Ring, ret,int,5000-175	1
43	N01601	O-ring, 3-908, 70 Duro Viton	1

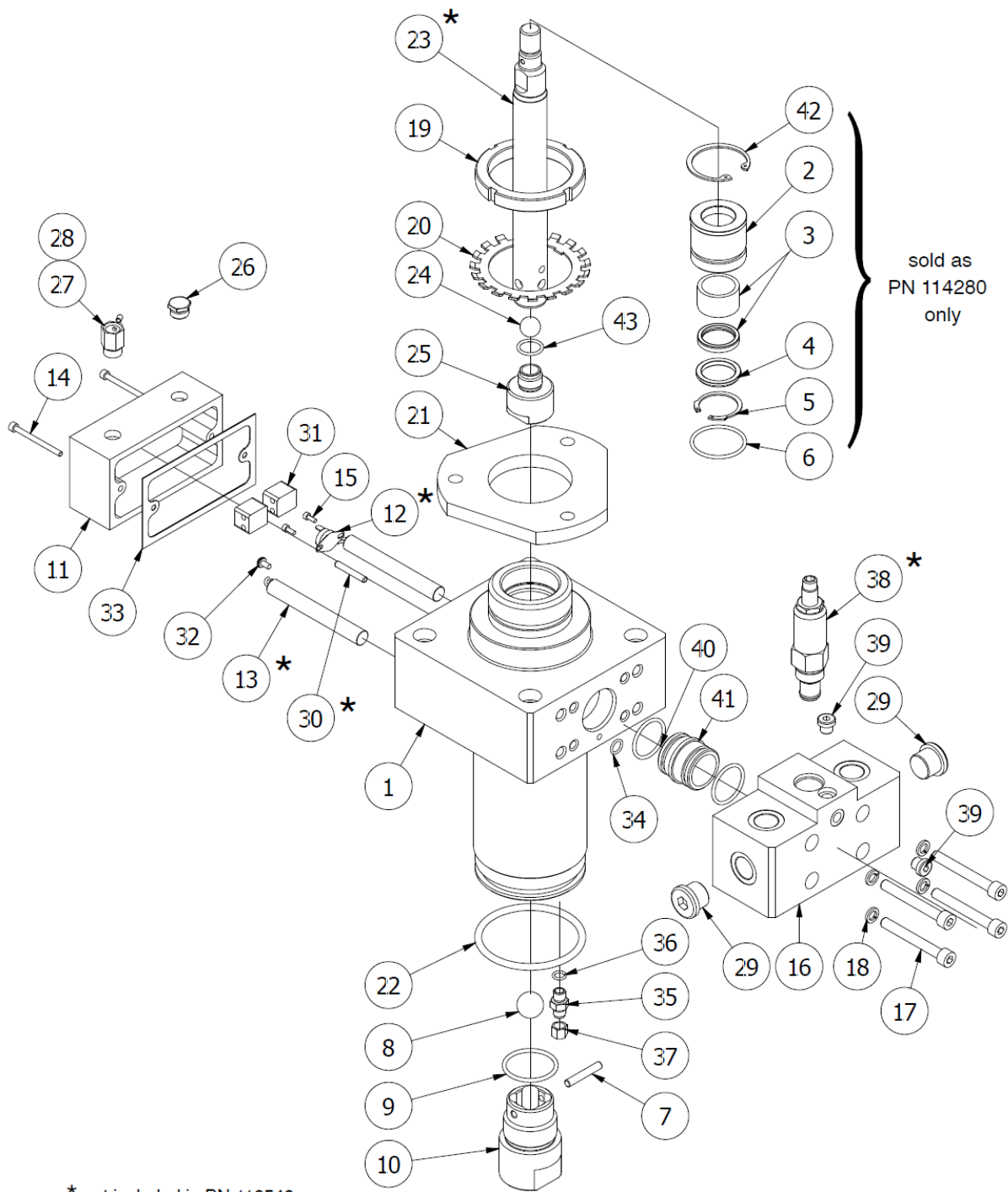
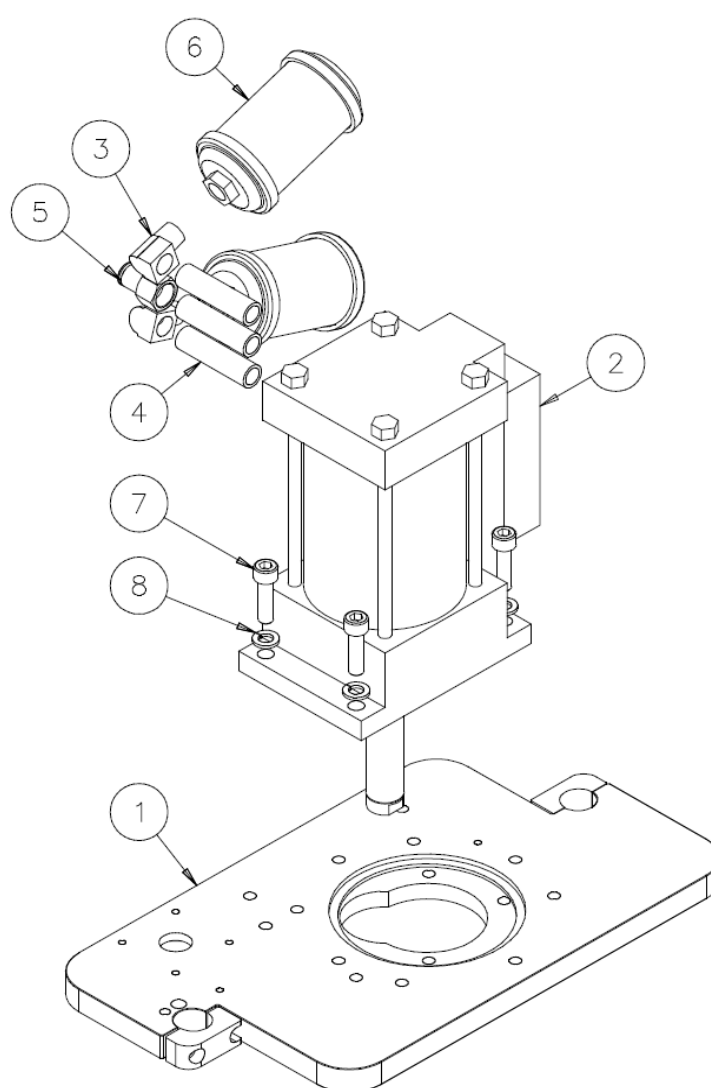


Illustration: Piston Pump Assembly

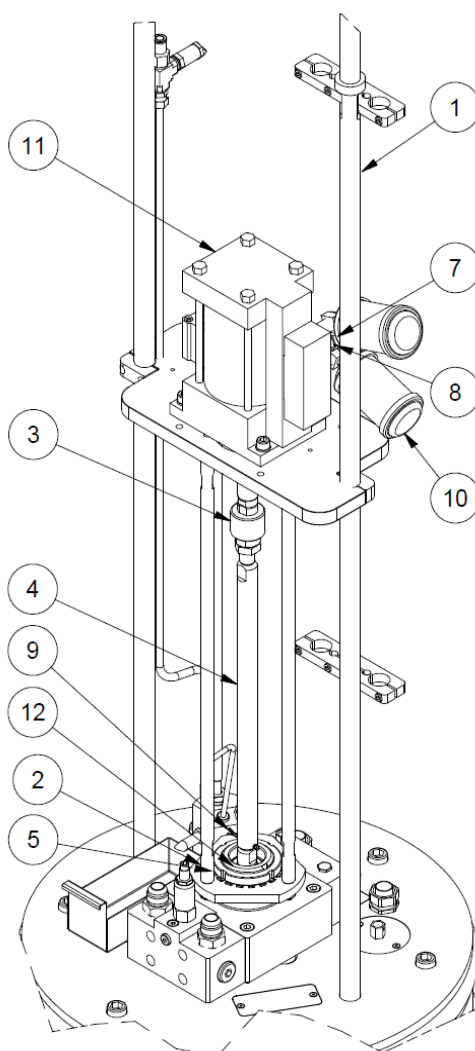
Air Motor Assembly, PN 114314

Item No.	Part Number	Description	Qty. per Unit
1	116204	Motor bracket	1
2	114315	Air motor, piston pump	1
3	112317	Fitting 3/8 NPT	3
4	113127	Fitting 3/8 NPTx2-1/2	3
5	072X495	Connection straight 3/8T-3/3 NPTF	1
6	116211	Muffler, air motor	2
7	107476	Screw M10x35	4
8	106755	Washer M10	7



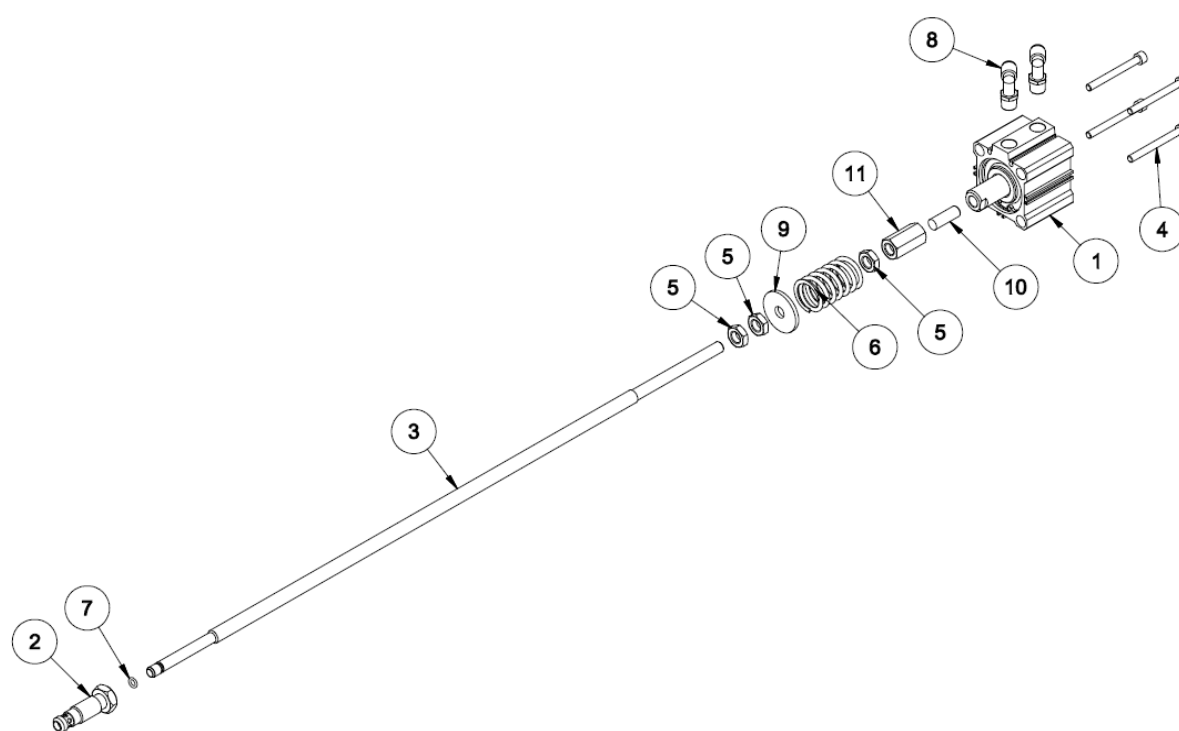
Piston Pump/ Air Motor Connection Replacement Parts

Item No.	Part Number	Description	Qty. per Unit
1	113990	Platen truss rod	3
2	114325	Rod, piston pump	3
3	114328	Coupler, cyl rod, 3/4-16	1
4	114327	Rod, connection, piston pump	1
5	114357	Washer, bearing lock, MB13	1
7	113127	Fitting, NIP, 3/8 NPT x 2-1/2	3
8	072X495	Connection straight 3/8 T-3/3 NPTF	2
9	114329	Cotter 1/8 x 1 3/4	1
10	116211	Muffler	2
11	114315	Air motor, piston pump	1
12	114354	Nut, bearing lock	1



Remote Purge Kit, PN 116401

Item No.	Part Number	Description	Qty. per Unit
1	116409	Cylinder 50mm x 25mm compact	1
2	116402	Adapter REM purge	1
3	116403	Stem REM purge	1
4	102602	Screw M6x60	4
5	808415	Hex Nut M10	3
6	116194	Spring	1
7	N00177	O-ring -010, Viton 70 Duro	1
8	116491	Fitting 1/4T x 1/4 UNI	2
9	116193	Washer 10x39mm	1
10	116750	Screw M10x30	1
11	116749	Nut, coupling, M10	1



Piston Pump Pneumatic Assembly, 5 PSI Air Inject, PN 823064

Item No.	Part Number	Description	Qty. per Unit
1	114008	Air Prep. Assembly	1
2	823066	Valve assembly	1
3	114033	Tubing 3/8"	A/R*
4	115382	Valve, speed control, 3/8T	3
5	116207	Regulator, 0-123 PSI	1
6	116209	Fitting 4mm x 1/8 UNI	2
7	114010	Gauge 0-160 PSI	1
8	116205	Fitting 4mm x M5	4
9	116052	Fitting, bush, 3/4 BSP x 3/8 NPT	4
10	N06503	Fitting, union tee, 3/8 tube	2
11	116206	Fitting 4mm x 5M	2
12	N06496	Fitting 3/8 NPT	1
13	823025	Safety valve 5 PSI, 3/8 NPT	1
14	N06502	Fitting 1/4 MPT x 3/8 tube	3
15	116208	Bracket	2
16	114013	Gauge 0-30 PSI	2
17	N06425	Gauge 0-60 PSI	1
18	N06501	Fitting 3/8 MPT x 3/8 tube	4
19	116419	Tubing, poly, 4mm	A/R*
20	105763	Tubing, nylon, 1/2"	A/R*
21	775-005	Tubing, poly clear, 1/4"	10
22	115296	Fitting, 3/8 NPT x 3/8 T	1
23	072X495	Straight connection, 3/8 T - 3/3 NPTF	2
24	N01478	Tubing, al	A/R*
25	108298	Screw M8 x 30mm	4
26	105060	Hex Nut M8	6
27	106321	Washer, flat, M8	6
28	114031	Screw M8 x 16mm	2
29	N07369	Screw M6 x 8mm	4
30	105865	Nut M6	4
31	106786	Washer M3,M6,M0.8	9
32	107247	Screw M6 x 10mm	5
33	107390	Nut M6	4
34	809796	Rubber coated loop strap	4
35	114035	Fitting 1/4" NPT x 3/8 tube	2
36	823079	Pneumatic schematic	REF**
37	116482	Cable assembly	1
38	117642	Locking ring, regulator, SMC AR40	1
39	823021	Locking ring, regulator, AR30	2
40	823022	Precision regulator, 0-30 PSI	1
41	823024	Exhaust controller, 3/8 tube x 3/8 NPT	1
42	072X495	Female push-lock 3/8 tube x 3/8 NPT	2
43	115297	Check valve 3/8 NPT	1
44	N06146	Muffler, pneumatic exhaust, 3/8 NPT	1
45	823077	Fitting, push-in union "Y", 3/8 tube	1

* A/R = As required / ** Ref = See Ch. 12 PN 823079 for Pneumatic Schematic

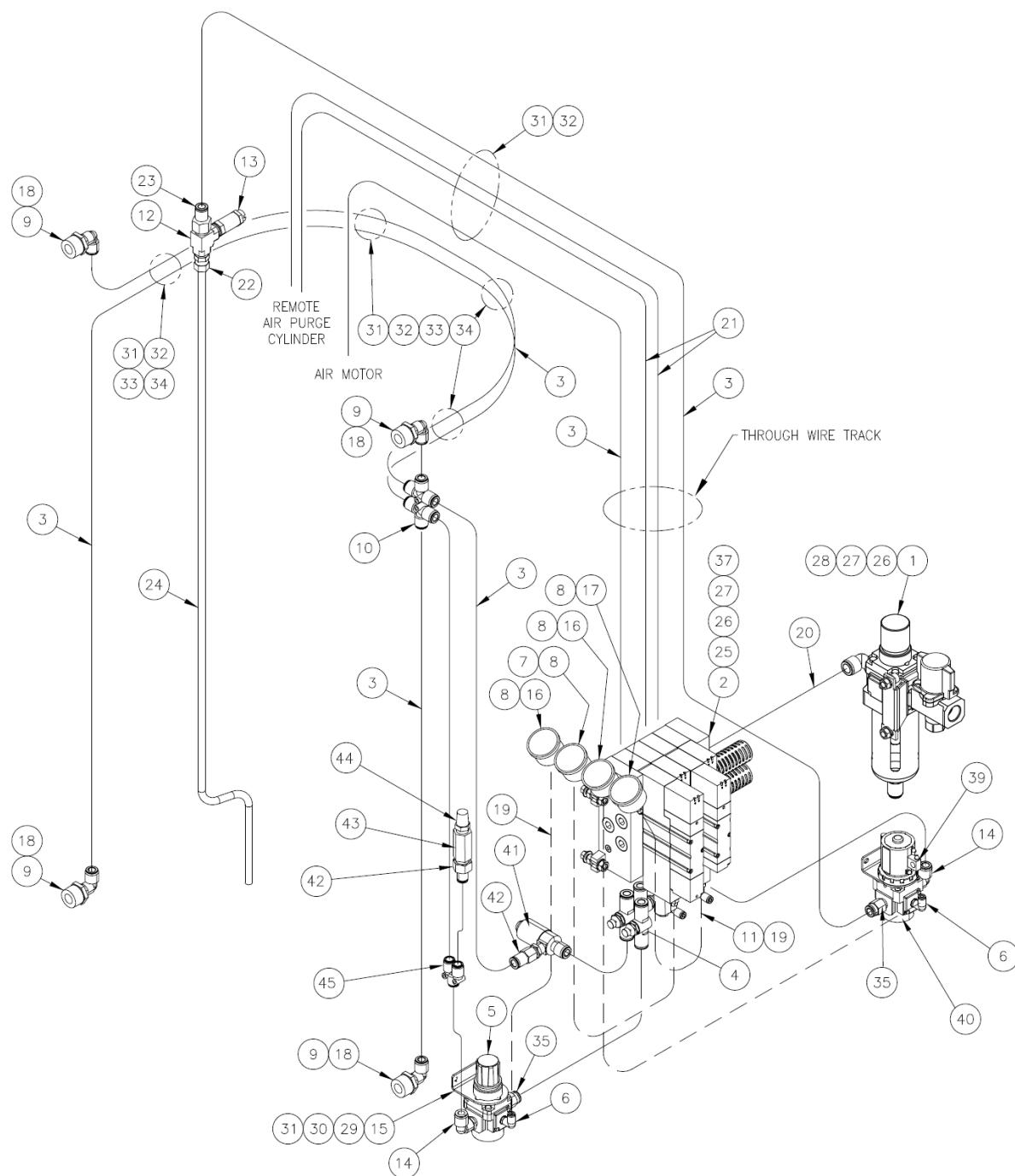
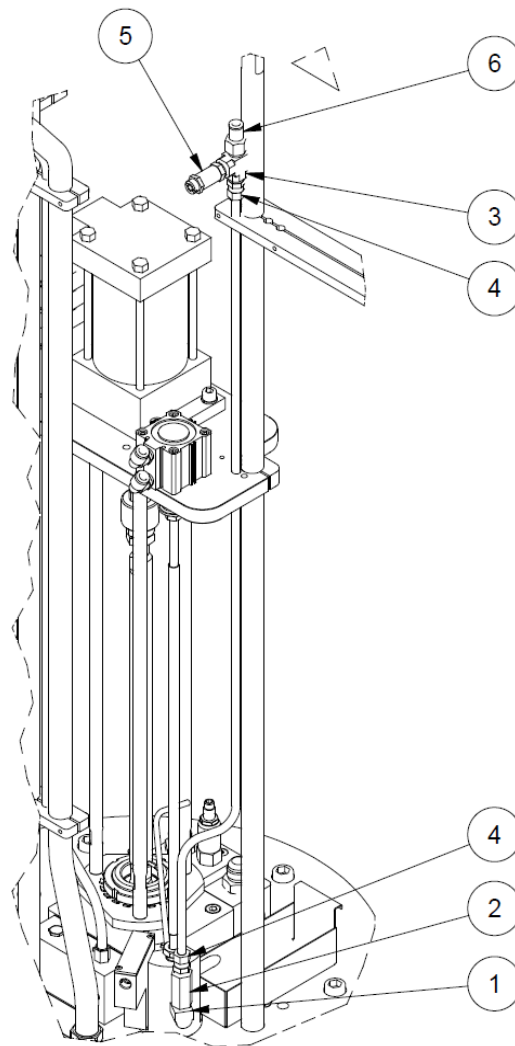


Illustration: Piston Pump Pneumatic Assembly, 5 PSI Air Inject, PN 823064

Air Injection Replacement Parts

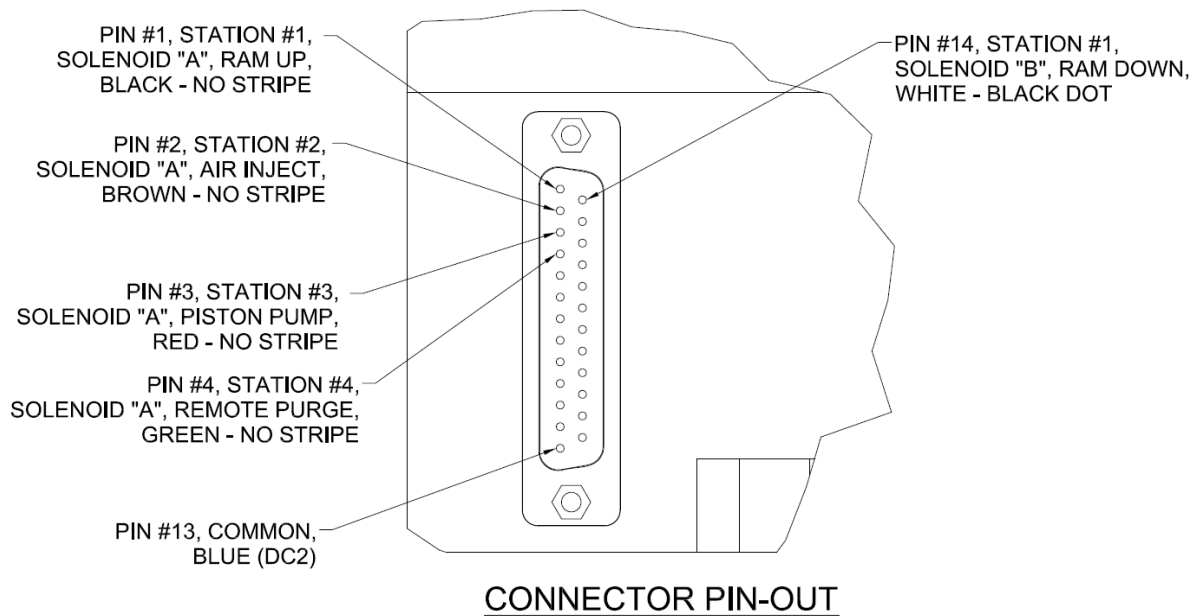
Item No.	Part Number	Description	Qty. per Unit
1	112317	Fitting 3/8 NPT	3
2	115297	Check valve, 3/8 NPT	1
3	N06496	Fitting 3/8 NPT	1
4	115296	Fitting 3/8 NPT	2
5	115298	Valve, safety, 20psi, 3/8 NPT	1
6	072X495	Connection straight 3/8 T - 3/3 NPTF	2

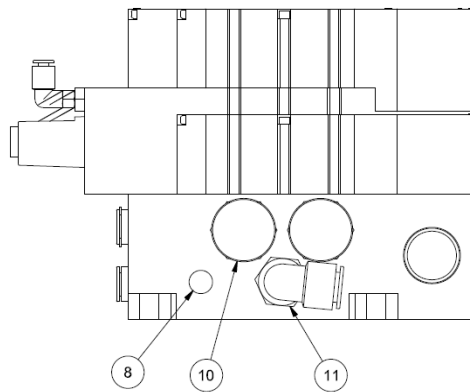
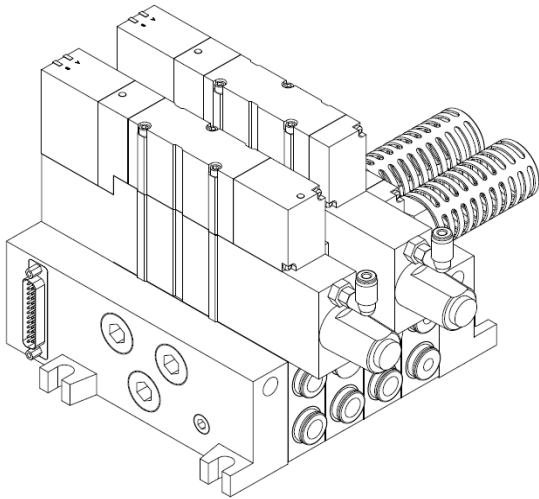


See Ch. 12 for pneumatic layout drawing.

Piston Pump Valve Assembly, PN 823066

Item No.	Part Number	Description	Qty. per Unit
1	116057	4 pos manifold, 1/2 NPT	1
2	116058	Valve 3 pos. closed, 24 VDC	1
3	116059	Valve 2 pos. 24 VDC	3
4	116061	Fitting 3/4" BNK INSR	2
5	116062	Fitting 3/8" T - 3/8" INSR	4
6	N00756	Fitting, plug, 1/2 NPT	3
7	N00753	Fitting, plug, 1/8 NPTF	1
8	116063	Silencer, 1/8 NPT	1
9	116400	Fitting 1/4" T - 3/8" INSR	2
10	117632	Silencer 1/2" INSR	2
11	115106	Fitting 90° 1/2 NPT - 1/2 tube	1
12	116060	Regulator 0.85 MPa	2
13	116206	Fitting 4mm x M5 fem.	2





VIEW A-A

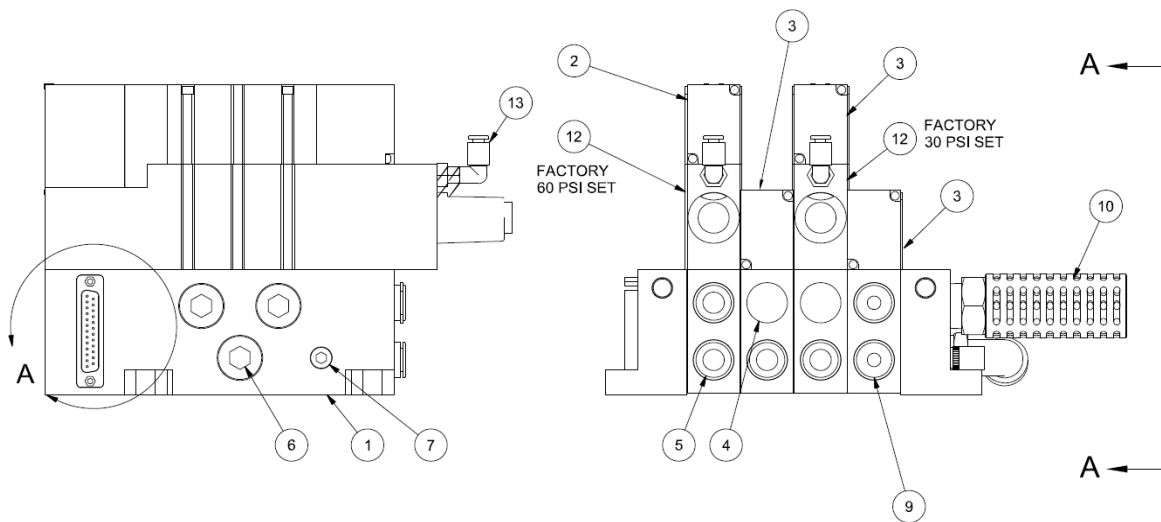
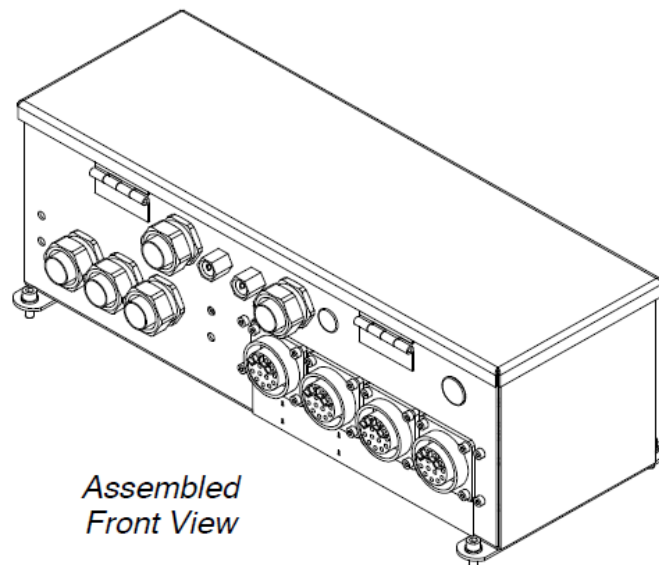
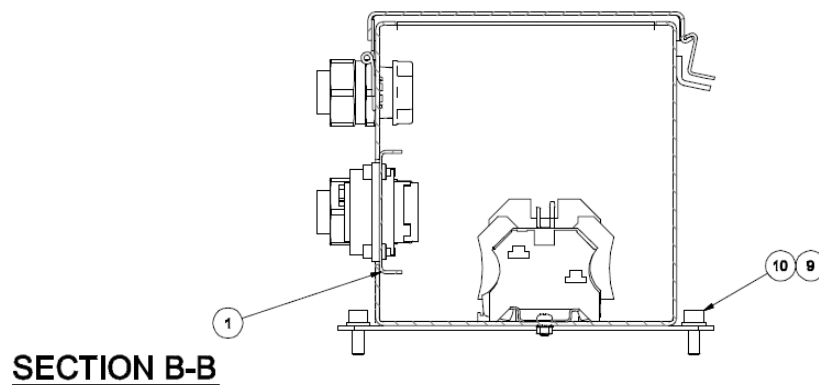
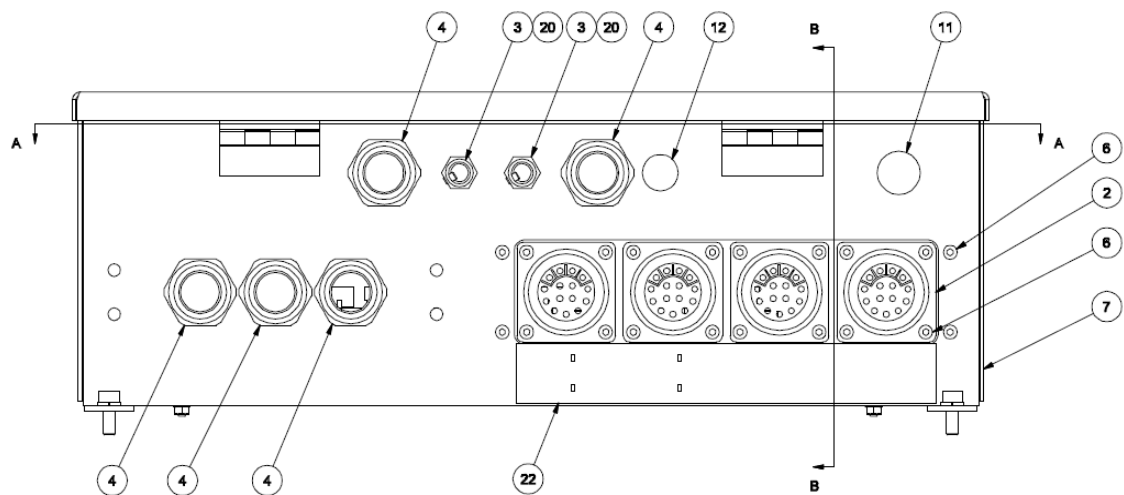
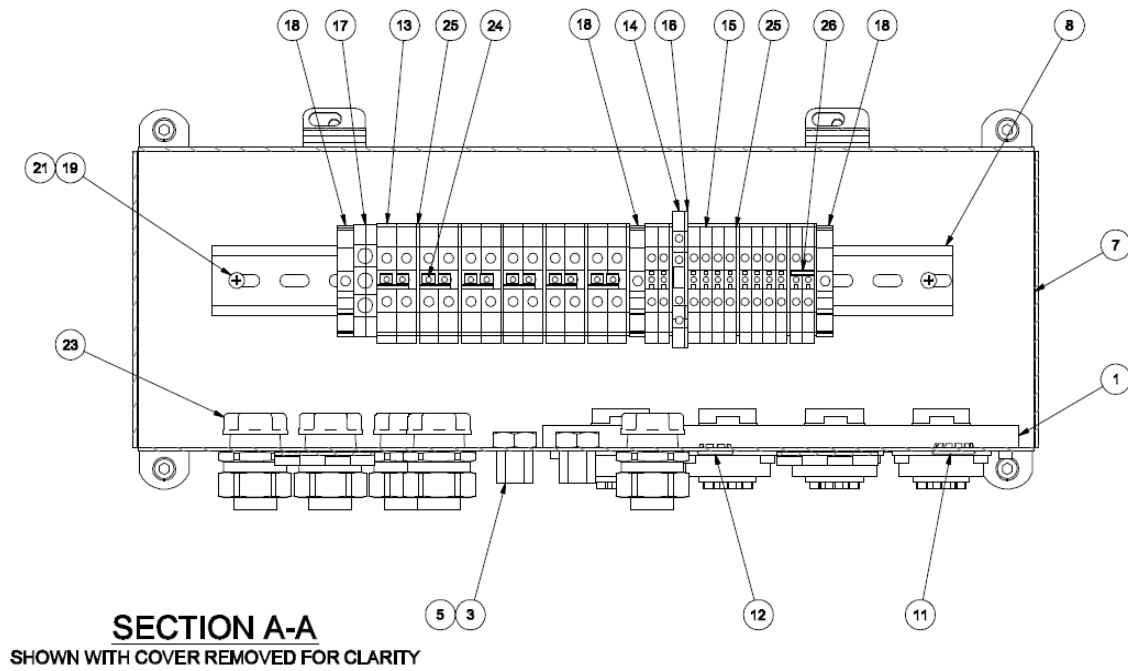


Illustration: Piston Pump Valve Assembly, PN 823066

Junction Box Assembly, Piston Pump, PN 115945

Item No.	Part Number	Description	Qty. per Unit
1	103866	Bracket, Amphenol	1
2	101074	Connection 15-P RCPT	4
3	107751	Fitting 5/16" cond., 9/16-18	2
4	809274	Fitting 3/4"	5
5	078D022	Nut 9/16-18	2
6	102446	Screw M4x10	20
7	115944	Junction box	1
8	048F104	Rail, terminal mount, H32	19
9	113999	Washer M6	4
10	104662	Screw M6x16	4
11	N00220	Plug, hole snap-in 0.875	1
12	106227	Plug, hole snap-in 9/16	1
13	103382	Terminal block 65A	12
14	104193	Terminal block 4PL 30A	1
15	105253	Terminal block single RK254	12
16	814294	Barrier, end, yellow	1
17	103663	Terminal block #6	1
18	105256	End stop, DIN rail, ES35	3
19	105117	Screw M4x8	2
20	106156	Screw M4x6	2
21	107391	Nut M4	2
22	105340	Label, output, M25/M50,AUX	1
23	048J064	Bushing 3/4"	5
24	103381	Jumper bar 50,50A terminal block	6
25	105254	Endplate	10
26	103440	Jumper bar 70, for 105253	1
27	808044	Harness, Hose/Head/MSeries,9 (not shown)	2
28	808045	Harness, AUX/Head/MSeries,9 (not shown)	2





Chapter 10

Options & Accessories

Level Control Kit without Heated Ball Valve & Actuator Option, PN 806573

Used to automatically meter the flow of material from the Bulk Melter to the ASU. The kit consists of a level control assembly and a modified Dynamelt M ASU lid assembly.

Heated 1" Ball Valve Option, PN 805732

Used with the PN 806573 Level Control Kit, the heated ball valve automatically opens the valve to refill the hopper after manually being actuated.

Ball Valve Air Actuator Option, PN 806387

Used with the PN 806573 Level Control Kit and the PN 805732 Heated Ball Valve. The ball valve actuator automatically actuates the ball valve to open the valve to refill the hopper.

Pump Option

The standard pump for the Bulk Melter with Piston Pump is a PN 114350 Piston Pump Assembly.

Full Clam Shell Option, PN 114126

The optional full-sized clam shell is recommended for all fiber drum applications. It is designed to give support to and hold in place the fiber drum as its glue is emptied by the Bulk Melter. It also guards against the spills that can occur when there are defects in the drum.

Vent Hood Option, PN 114367

The vent hood kit provides for the connection of a stainless steel exhaust duct to carry away adhesive fumes generated during drum exchange. The kit does not provide an exhaust fan or tubing. Required for PUR adhesives.

Pressure Transducer Kit PN 114717, Transducer only PN 811475

A pressure transducer is an electronic probe that allows the melted adhesive's pressure to be processed by the ASU's control system. They are used to monitor system operating pressures and their limits. A variety of transducers are available.

Pallet Spacer Option, PN 114725

Pallet spacers (qty. 2) raise the Bulk Melter an additional five inches off the factory floor in order to facilitate pallet loading of the machine. Customer-provided extended floor anchors (qty. 4) are required.

Purge Valve Heater Option, PN 115502

Used in low temperature (less than 135°C/ 275°F) applications to keep the purge valve at operating temperature. The optional purge valve heater is a single cartridge heater that mounts onto the purge valve and functions as an auxiliary temperature zone.

Platen Options

- PN 113977 Platen Face, Finned: standard.
- PN 114091 Platen Face, Smooth: built without fins for adhesives with lower softening points, including PUR or aggressive adhesives.
- PN 116468 Platen Face, High Viscosity.

Platen Seal Options

- The Bulk Melter configuration consists of two platen seals, one above the platen core and one below it.
- The PN 114056 T-Wiper Seal is the seal used above the platen and a second seal (chosen from the following chart) is below it.
- All other configurations are application specific and require consultation with ITW Dynatec engineering.
- **PN 115960 Seal Kit, Smooth, consists of:**

Part Number	Description	Qty. per Unit
115959	Smooth Platen Seal	1
L01389	Hose Clamp Assy.	1

- **PN 114272 T-Wiper Kit, consists of:**

Part Number	Description	Qty. per Unit
114056	T-Wiper Seal	1
114712	T-Wiper Band Clamp	2

- **PN 116488 Wound (Steam Hose) Seal Kit, consists of:**

Part Number	Description	Qty. per Unit
815714	Steam Hose Seal	1
L01389	Hose Clamp Assy.	1

- **Encapsulated O-ring Seal (standard):**

Part Number	Description	Qty. per Unit
116922	Platen Seal, 505.6mm (requires PN 116881 Seal Spacer) Fits drum diameters 22.0 inch (559.0 mm) to 22.5 inch (572.0 mm).	1

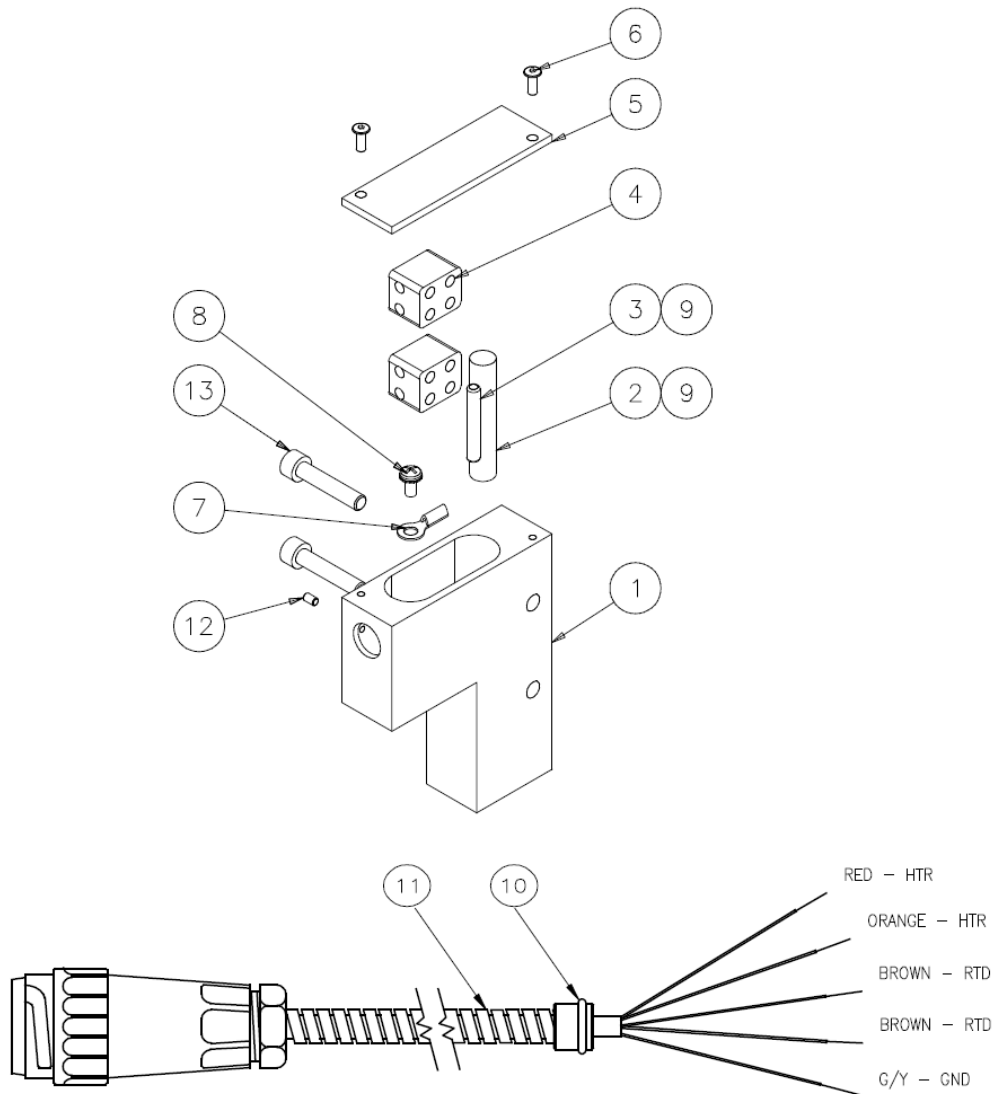
Platen Guard, PN 116967

An expanded metal, removable guard that spans the vertical distance from the top of the drum to the top of the platen cover (when in the fully-up position). Prevents accidental pinch point and protects against potential splatter.

Purge Valve Heater, PN 115502

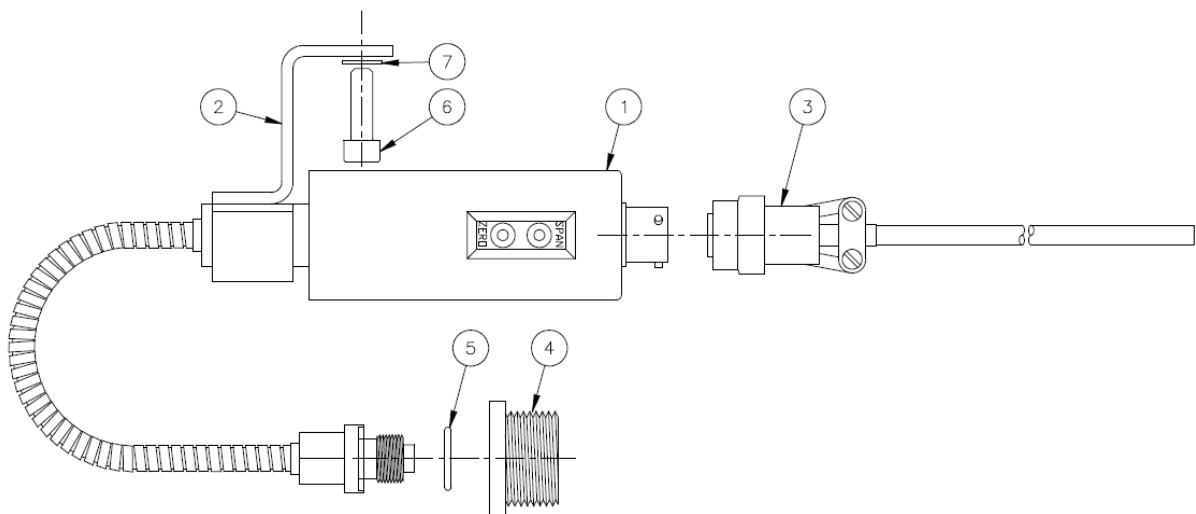
Item No.	Part Number	Description	Qty. per Unit
1	115501	Purge valve heater body	1
2	036A015	Heater 3/8x2, 240V, 150W	1
3	N07958	RTD Sensor, PT100	1
4	107881	Terminal block, 2 pos.	2
5	115504	Cover	1
6	078A197	E-BHCS, 6-32 x .38	2
7	048G018	Terminal ring	1
8	107389	Screw M4x8	1
9	001V062	R-Compound, 1lb	A/R*
10	N00179	O-ring -012, Viton, 70 Duro	1
11	115503	Cable assembly 240V	1
12	103470	Screw M3x5	1
13	113998	Screw M6x30	2
14	001U002	Lube, silicone, DOW112	A/R*

* A/R = As required.



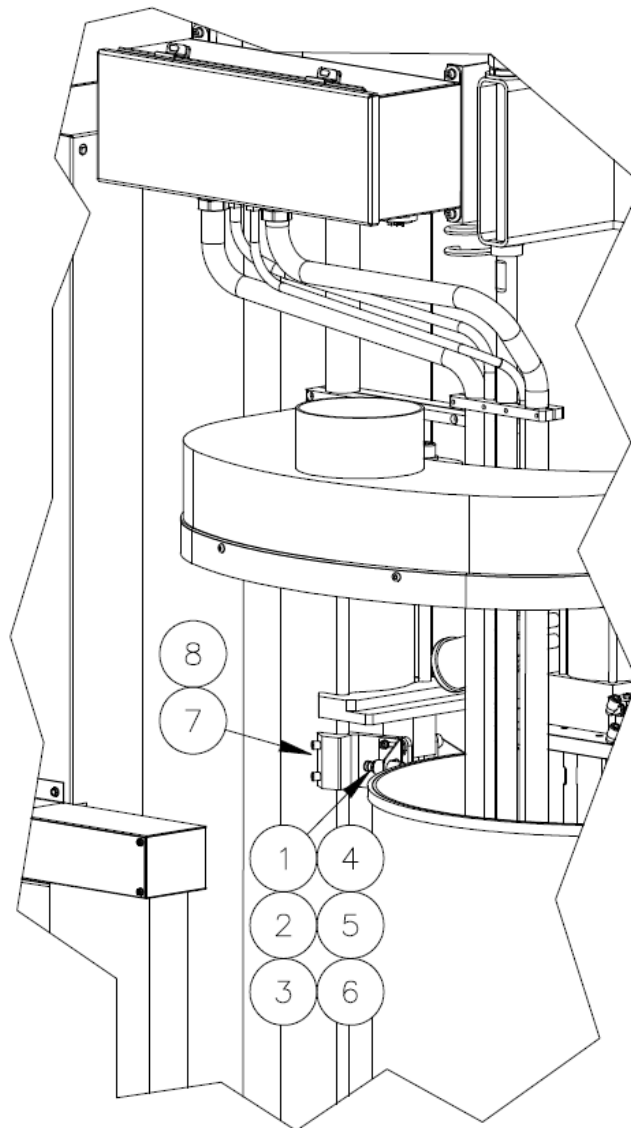
Pressure Transducer Kit, PN 114717

Item No.	Part Number	Description	Qty. per Unit
1	811475	Pressure transducer, 4-20 mA	1
2	113827	Bracket	1
3	042X158	Cable assembly	1
4	813713	Adapter 1/2 BSP - 1/4 BSPP	1
5	N00182	O-ring -015 Viton, 75 Duro	1
6	101156	Screw M6x20	2
7	106324	Washer, flat, M6	2



Drum-Present Sensor Kit, PN 114811

Item No.	Part Number	Description	Qty. per Unit
1	114443	Proximity sensor	1
2	114444	Proximity sensor cable	1
3	114810	Bracket, drum present sensor	1
4	101626	Screw M5x12	2
5	114030	Washer, lock, M5	2
6	111965	Washer, flat, M5	2
7	116785	Bracket, drum present	1
8	116750	Screw M10x30	2

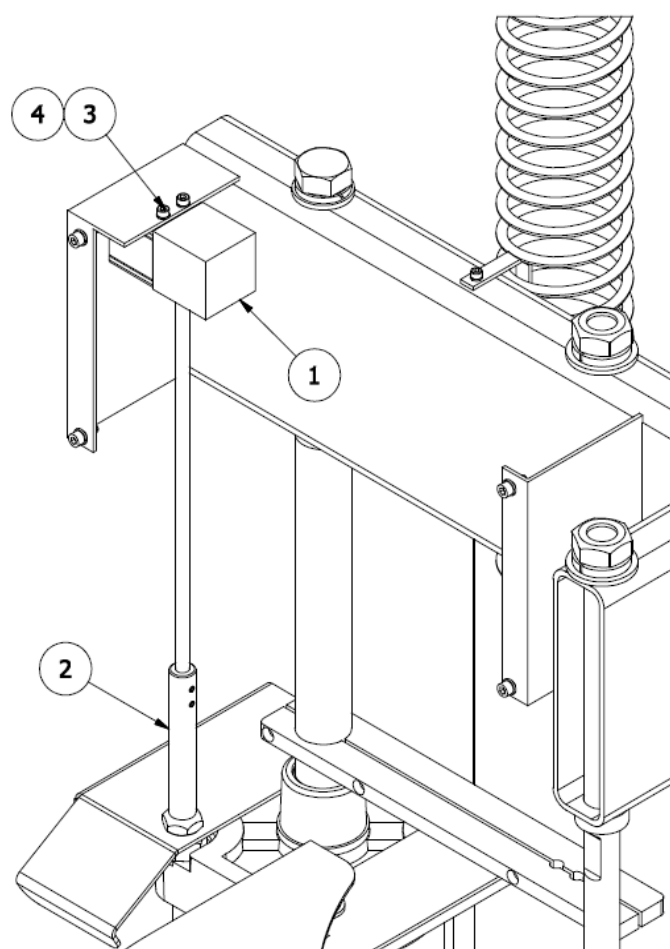


Note:

A Position Sensor Kit (cable or ultrasonic) must be installed to use the optional drum present sensor feature of the Bulk Melter (see the following page).

Cable Position Sensor Kit, PN 114812

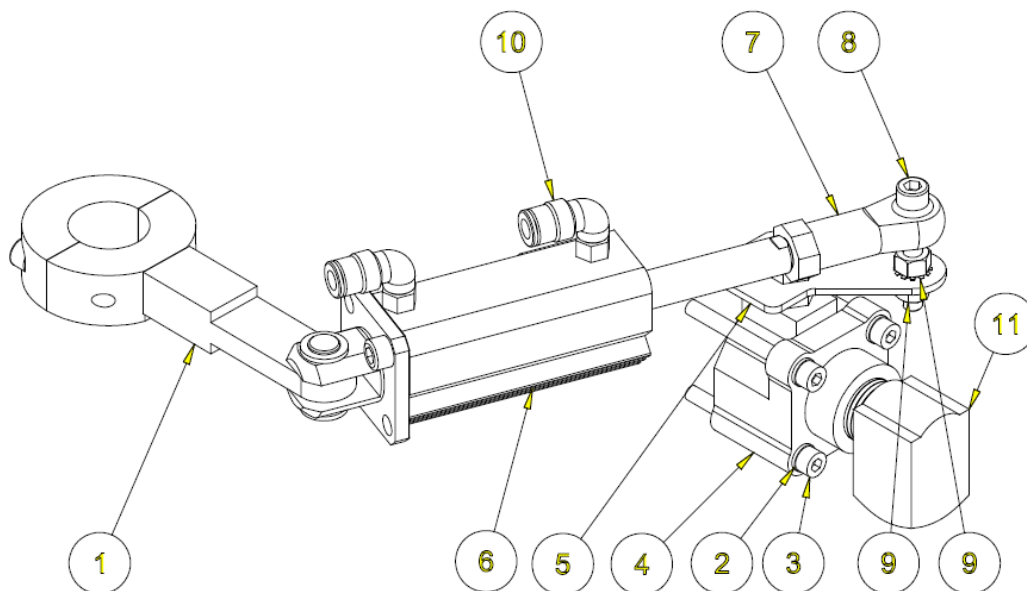
Item No.	Part Number	Description	Qty. per Unit
1	119863	Cable Transducer, Volt Dev.	1
2	119864	Mounting assembly, cable transducer	1
3	101626	Screw M5x12	2
4	114030	Washer, lock, M5	2
5	114818	Cable assembly, M12, 8 pin, fem, 4m	1
6	100587	Nut, lock, PG-7, NPB	1
7	100588	STR RLF, PG-7, ELDG	1

**Note:**

Some items are installed in junction box and are not shown.

Ball Valve Purge Kit, PN 114757

Item No.	Part Number	Description	Qty. per Unit
1	114758	Ball valve prg cyl mounting	1
2	114030	Washer, lock, M5	4
3	106243	Screw M5x50	4
4	114768	Ball valve, 3PC, SS, high temp	1
5	114767	Valve hdl for 3PC	1
6	114761	Pneumatic cylinder 25x50	1
7	114763	Rod eye pneumatic cylinder	1
8	812342	Screw M6x40	1
9	107390	Nut M6	2
10	115438	Fitting, el 1/4"TBX10-32	2
11	118392	Fitting, street elbow, 1/2"NPT	1

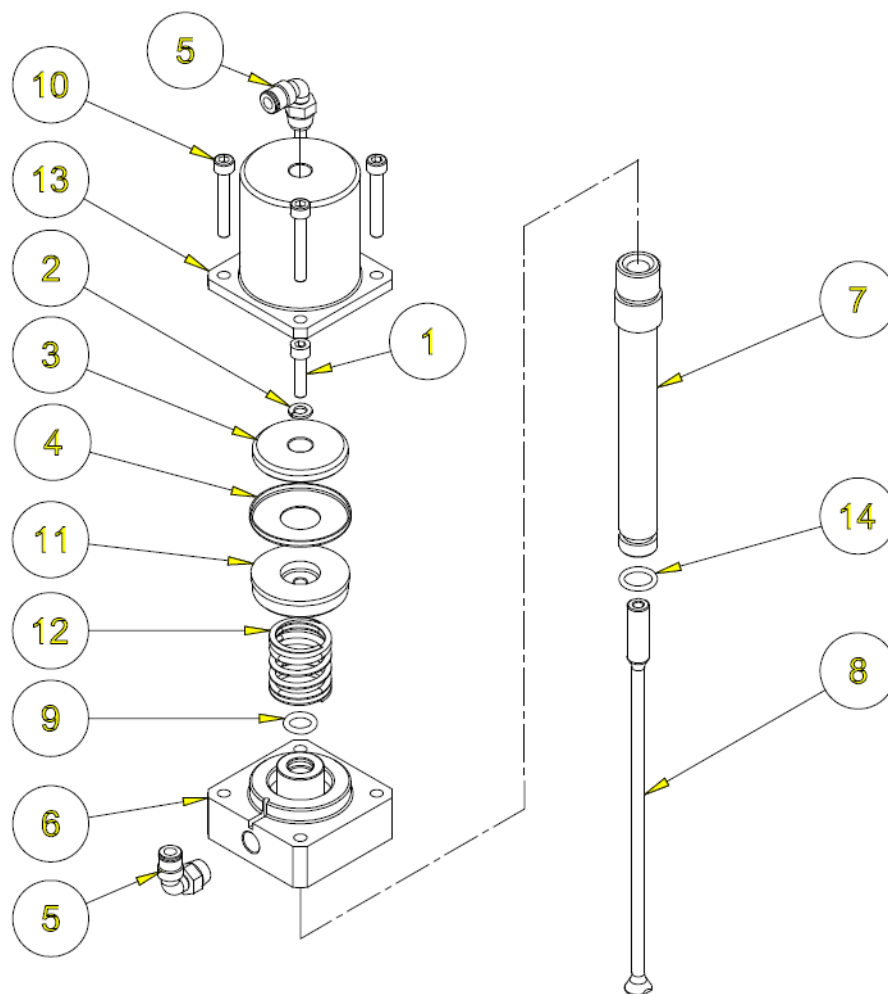


Note:

This kit must be used in conjunction with piston pump outlet manifolds 118279 or 118280 or for gear pump outlet manifolds 114752 or 118258 only!

Vertical Air Inject Valve, PN 116859

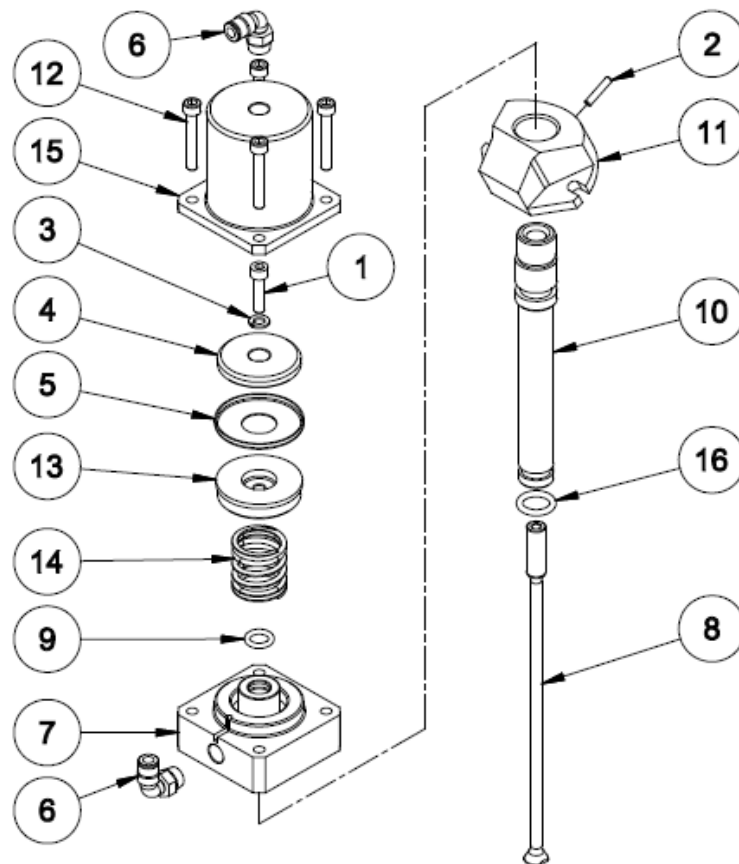
Item No.	Part Number	Description	Qty. per Unit
1	104663	Screw M6x25	1
2	111345	Washer, lock, M6	1
3	111715	Cap, piston	1
4	111716	Seal, lip, piston	1
5	114361	Fitting 90°, 1/4 T x 1/4 NPT,NPB	2
6	116858	Base	1
7	116860	Seat	1
8	116861	Stem	1
9	116873	O-ring, 11mm id x 3mm	1
10	812342	Screw M6x40	4
11	812871	Piston	1
12	812872	Spring	1
13	812873	Cylinder	1
14	N00198	O-ring -113, Viton, 70 Duro	1



Angled Air Inject, PN 117812

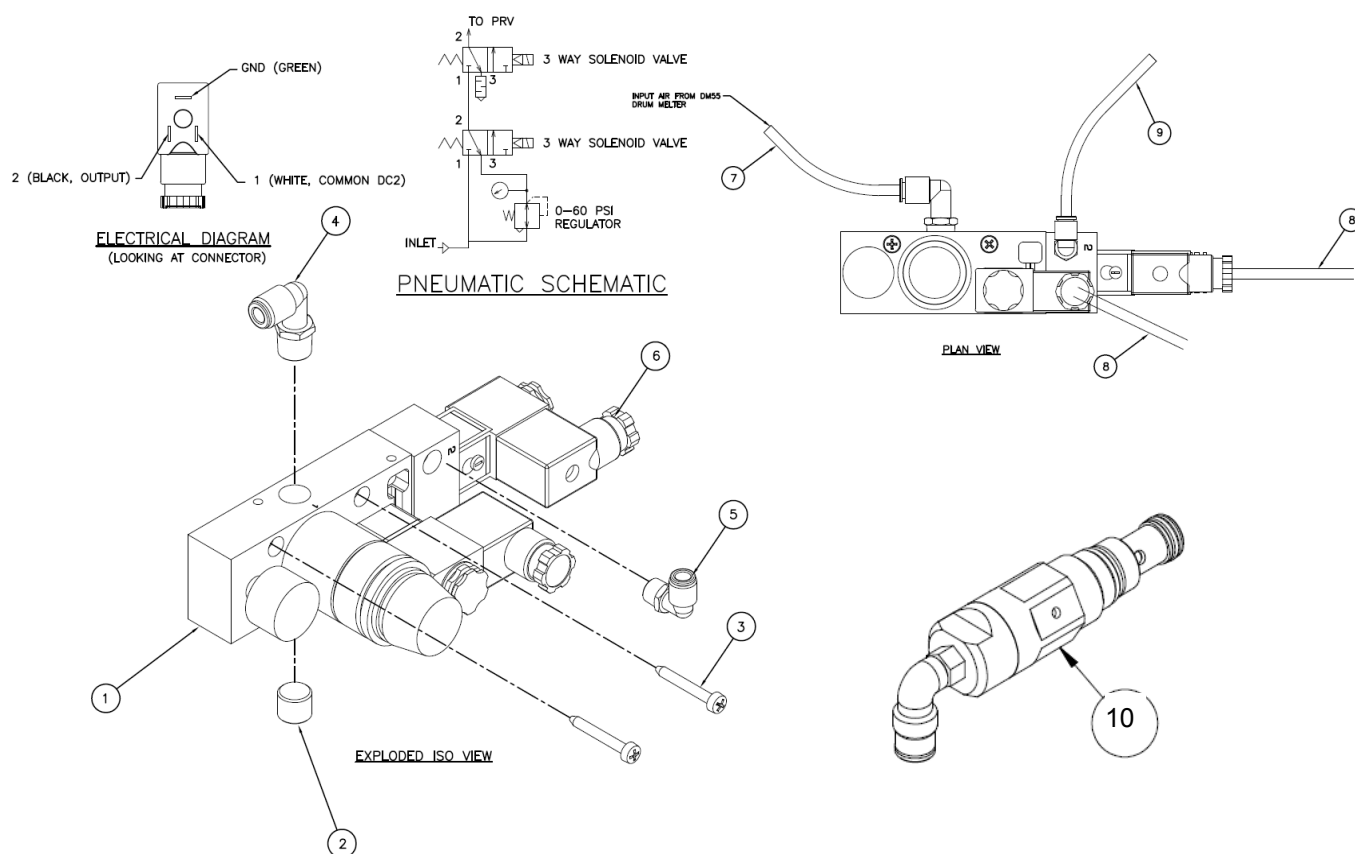
Item No.	Part Number	Description	Qty. per Unit
1	104663	Screw M6x25	1
2	107792	Screw M4x20	1
3	111345	Washer, lock, M6	1
4	111715	Cap, piston	1
5	111716	Seal, lip, piston	1
6	114361	Fitting 90°, 1/4 T x 1/4 NPT,NPB	2
7	116858	Base	1
8	116861	Stem	1
9	116873	O-ring, 11mm id x 3mm	1
10	117813	Seat	1
11	117814	Mounting	1
12	812342	Screw M6x40	4
13	812871	Piston	1
14	812872	Spring	1
15	812873	Cylinder	1
16	N06389	O-ring -208, Viton, 70 Duro	1

Replacement for Legacy Models



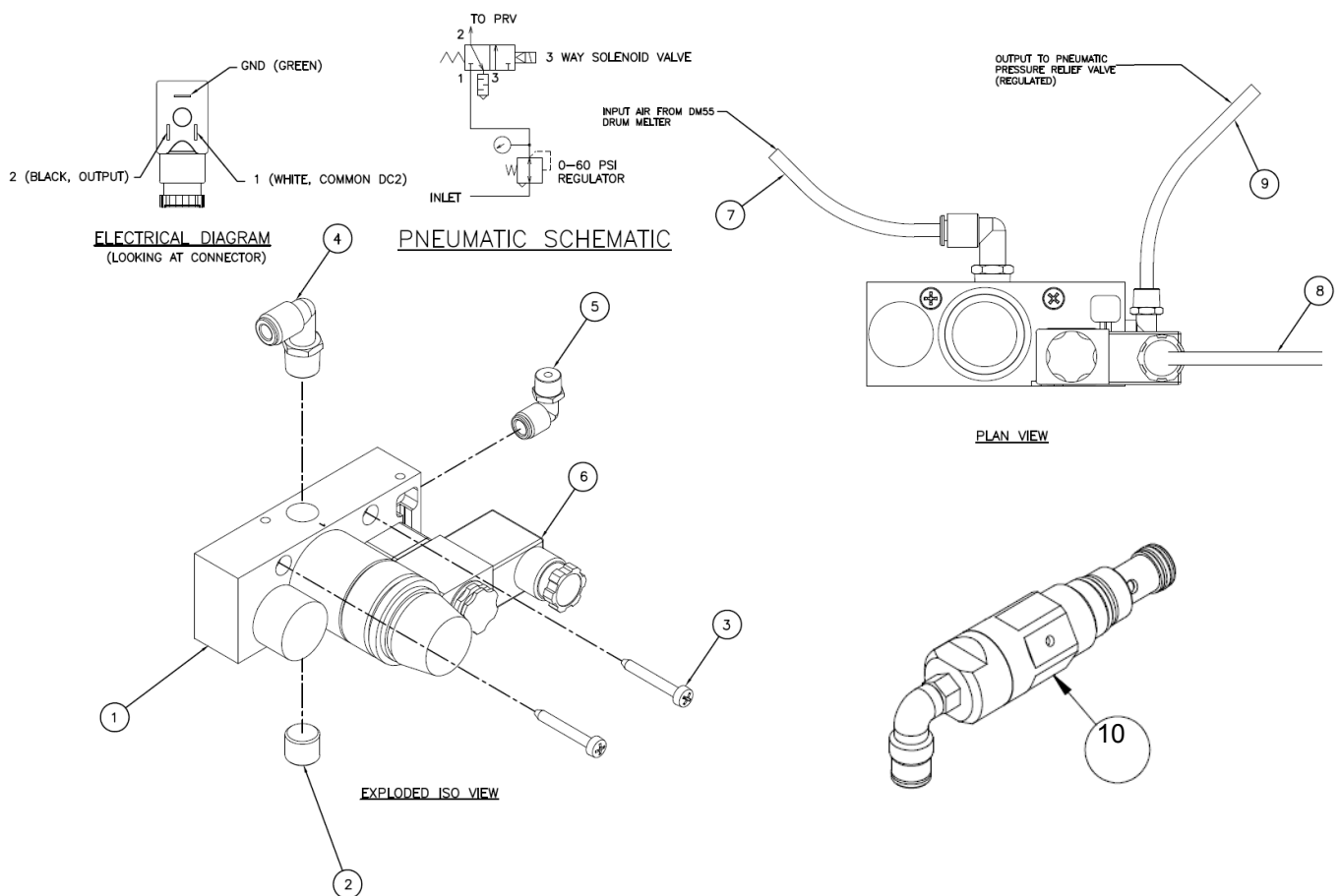
Pressure Relief Assembly, 3 Position, PN 823034

Item No.	Part Number	Description	Qty. per Unit
1	823032	Manifold, PPR 3 P	1
2	N00754	Fitting, plug, 1/4 NPTF	1
3	823029	Screw M8x18mm	2
4	N06412	Fitting, elbow, 1/4 NPT male x 1/4 tube	1
5	N06436	Fitting, elbow, 1/8 NPT male x 1/4 tube	1
6	823030	Connection 24V	2
7	775-005	Tubing 1/4" clear poly	3
8	N08236	Cable 18GA, 3 conductor, SV	12
9	N07677	Tubing, TFE, 1/4 inch o.d. X 1/8 i.d.	16
10	116486	Valve assembly, pneu P/R, T-162A	1



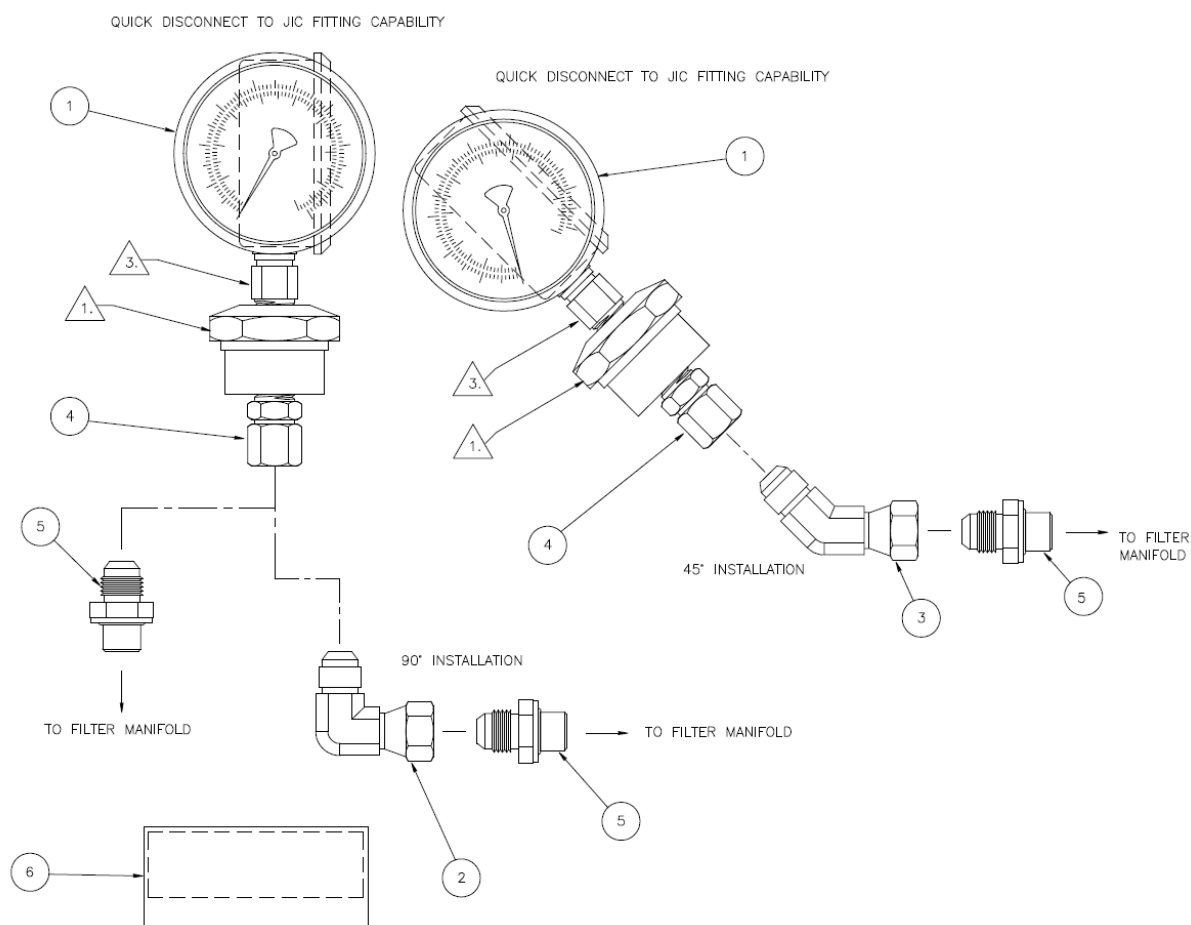
Pressure Relief Assembly, 2 Position, PN 823033

Item No.	Part Number	Description	Qty. per Unit
1	823031	Manifold, PPR 2 P	1
2	N00754	Fitting, plug, 1/4 NPTF	1
3	823029	Screw M8x18mm	2
4	N06412	Fitting, elbow, 1/4 NPT male x 1/4 tube	1
5	N06436	Fitting, elbow, 1/8 NPT male x 1/4 tube	1
6	823030	Connection 24V	1
7	775-005	Tubing 1/4" clear poly	3
8	N08236	Cable 18GA, 3 conductor, SV	6
9	N07677	Tubing, TFE, 1/4 inch o.d. X 1/8 i.d.	16
10	116486	Valve assembly, pneu P/R, T-162A	1



Pressure Gauge Assembly, Easy Spin, PN 819685

Item No.	Part Number	Description	Qty. per Unit
1	101174	Pressure gauge	1
2	N07830	Fitting 90°, #6 male x #6 female	1
3	N07831	Fitting 45°, #6 male x #6 female	1
4	104325	Fitting, adaptor, #6 x 1/4 NPT	1
5	101624	Fitting, adaptor, #6 x 1/4 BSPP	1
6	102987	Insulator cuff	1
7	101248	Warning label (not shown)	1
8	N07054	Corrugated box, 4x4x8 (not shown)	1

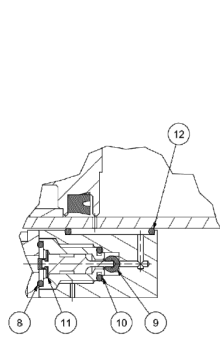
**Optional V6 Communications Adapters/ PCBs:**

- V6 EtherNet/ IP Kit, PN 118925
- V6 Profibus Kit, PN 118926
- V6 EtherCAT Kit, PN 118927
- V6 ProfiNet Kit, PN 121436
- Modbus/TCP

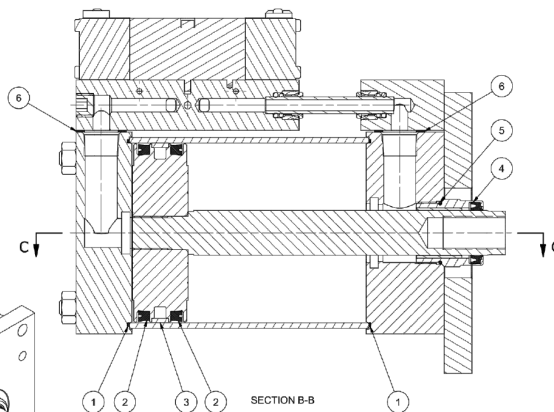
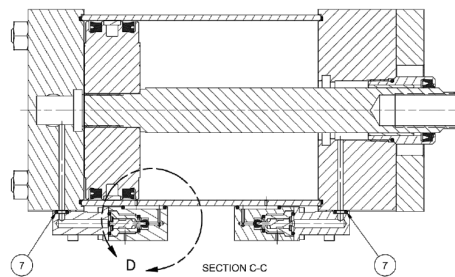
The V6 communications bus module adapts the ASU to full remote operation so that all system parameters can be transmitted and received.

Air Motor Rebuild Kits

Item No.	Part Number	Description	Qty. per Unit
1	823736	KIT,AIRMOTOR,RBLD,SEAL	
2	823737	KIT,AIRMOTOR,RBLD,BUSH	
3	823738	KIT,SIGNAL VALVE,RBLD	
4	823739	VALVE,AIRMOTOR,V45	
5	823740	VALVE,AIRMOTOR,PILOT	
6	N04099	SNSR,STROKE,114315 AMTR	



DETAIL D (2X)

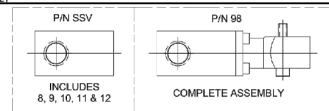


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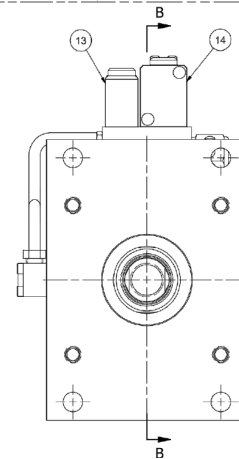
Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	40-TSH	4"B Tube Seal
2	2	60033-80	4"B Piston Seal
3	1	60627	4"B Wearing
4	1	W-57-08	1"R Wiper/Seal
5	1	60254	1.25 x 1.38 x .06 (2-026) Buna-N O-Ring
6	2	60311	3-1/4B. And 4B. U/A GSKT For V44/45 VLV
7	2	60007	.19 x .31 x .06 (2-008) Buna-N O-Ring
8	2	60082	.38 x .50 x .06 (2-012) Buna-N O-Ring
9	2	60222	.180 Diameter Ball Seal
10	2	60127	.25 x .38 x .06 (2-010) Buna-N O-Ring
11	2	60762	Stroke Signal Valve Stem Seal
12	2	60126	.63 x .75 x .06 (2-016) Buna-N O-Ring
13	1	V415533A-X0020	Norgren Mini Iso Star 5/2 Air Pilot Valve
14	1	V45A533A-X0020	Norgren Series V45 Valve

NOTES:
1. PISTON SEAL KIT, A/JK-403, INCLUDES DETAILS 1,2 AND 3
2. ROD BUSHING KIT, RBK-25, INCLUDES DETAILS 4, 5 AND BUSHING / HOUSING
3. ASSEMBLY

ITW P/N
823736



ITW P/N
N04099



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Chapter 11

Recommended Spare Part Lists

Mechanical Parts

Part Number	Description	Qty. per Unit
114272*	T-Wiper Seal Kit	1
115948	Cylinder Seal Kit	1
114309	Pump Out Tube Assembly	1
N06703	RTD Sensor PT100	1
114844	O-ring, Backup, 310, Teflon	1
114465	Purge Tray	1
113989	O-ring 282	1
N06913	O-ring 118	2
805406	Thermostat Disc	1
114573	O-ring 310	2
114769	O-ring 268	2
116862	Outlet Tube, Purge	1

* Platen Seal Kits are application dependent. See chart in Ch. 10 for selection.

Parts within the Controller Panel Box (240V, 400V or 480V)

Part Number	Description	Qty. per Unit
048i126	Fuse holder .4x1.5in	2
820929	Fuse 6A LPCC	2
112568	Fuse 10A (Power anx Aux-Power PCBs)	20
119975	Fuse 12A (Power anx Aux-Power PCBs)	5
115734	V6 Base Module	1
115735	V6 Temp Module	1
118135	V6 Touch Panel	1
117648	V6 XIO Module	1
823306	V6 Power Board(2) w/ Heatsink	1
118925	V6 Ethernet/IP Module	1
805634	Solid State Relay,3P	2 (240V/400V) 1 (480V)
813043	Power Supply,4.2A,24VDC	1
821247	Relay, DPDT	1-8
821934	50A Main Circuit Breaker (480V)	1
821935	70A Main Circuit Breaker (400V)	1
821936	100A Main Circuit Breaker (240V)	1
816055	Circuit breaker 50A 3P (240V only)	2
823067	Circuit breaker 30A 3P (240V only)	1

811581	Circuit breaker 30A 2P (400V only)	1
824845	Circuit breaker 30A 3P (400V only)	2
104207	Circuit breaker 15A 2P (480V only)	1
104392	Circuit breaker 30A 2P (480V only)	1

Parts for Piston Pump Models

Part Number	Description	Qty. per Unit
114307	Outlet Check Valve Seat	1
805406	Thermostat, NC, 450 deg.	1
N06703	Temperature Sensor PT100	1
114280	Pump Shaft Seal Assy.	1
104251	Heater, 585W, 240v	1
116381	Seat, Inlet Check, Ext.	1
N00004	Ball, 0.625, Stainless Steel	1
113691	Ball, SST, 0.812 dia.	1
116382	Inlet Check Valve, Ext.	1
114351	Retaining Ring	1
A69X134	O-ring 128	1
114360	O-ring 337	2
N01601	O-ring 908	1
113654	O-ring 123	2
N00178	O-ring 011	1
N00179	O-ring 012	1
N03770	O-ring 920	1
114303	Dowel Pin, SST, M6x36	1
115134	Throat Seal Lube, PP (PUR)	1
114666	Throat Seal Lube, PP, HiT (PSA)	1

Pneumatic Parts

Part Number	Description	Qty. per Unit
115297	Check Valve, 3/8 NPT, Brs	1
114010	Panel Gauge, 0-160	1
114013	Panel Gauge, 0-30	1
116060	Regulator, 0.85 MPA	1
116058	Three-position Valve, closed	1
808217	Relief Valve, 0-750 PSI	1
114008	Air Prep Assembly	1
115298	Safety valve, 20 psi	1
115382	Speed Control Valve	1
116207	Regulator, Panel Mount 0-1MPa	1
N06425	Pressure Gauge 0-60 (Piston Pump)	1
116059	Two-position Valve	1
116486	Pneu. Pressure Relief Valve (option)	1

Miscellaneous

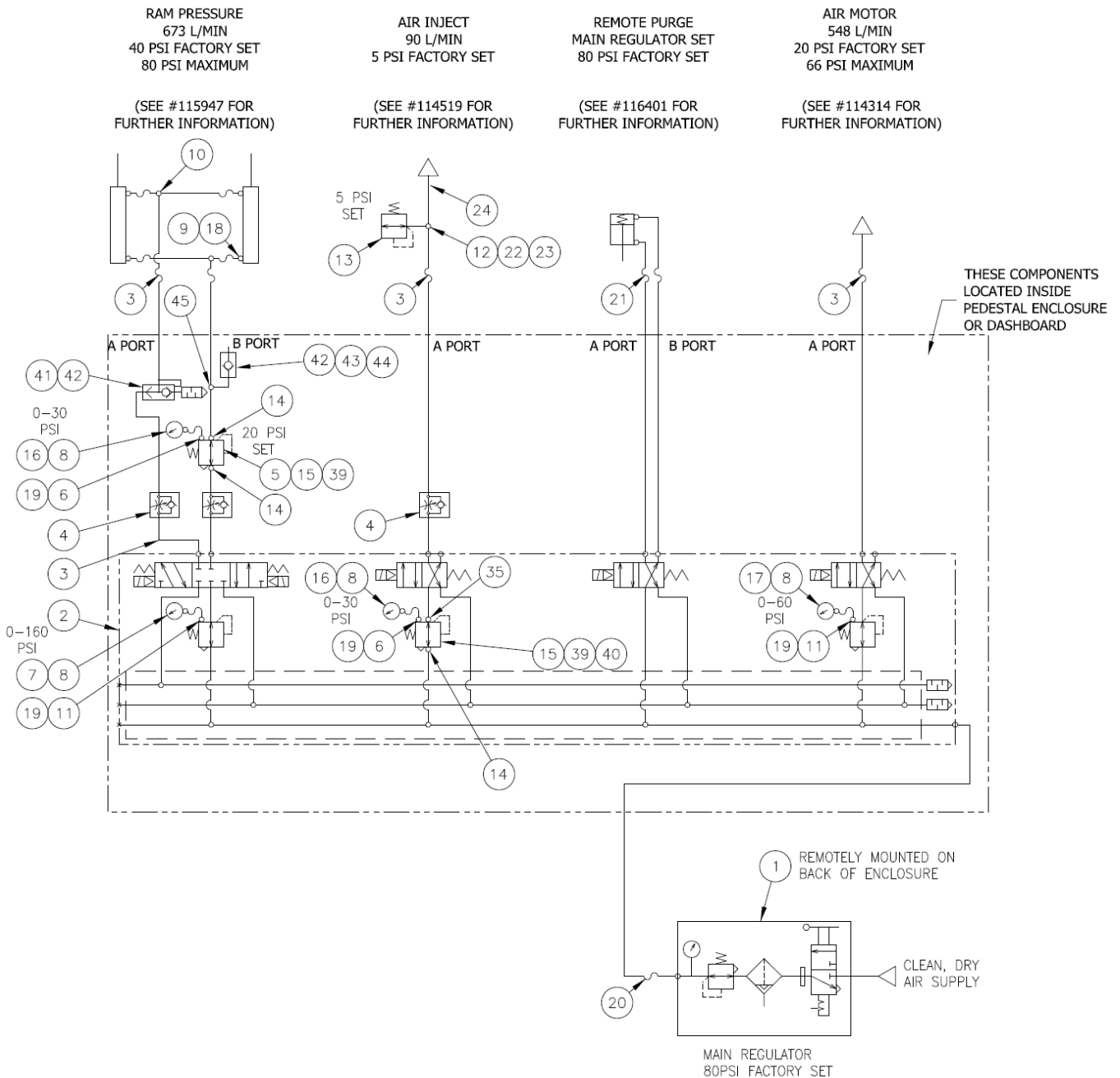
Part Number	Description	Qty. per Unit
108700	TFE Lubricant	1
L15653	Kit, Flushing Fluid, 1 gallon	1
107324	Anti-seize compound	1
001V062	Heat-transfer compound	1

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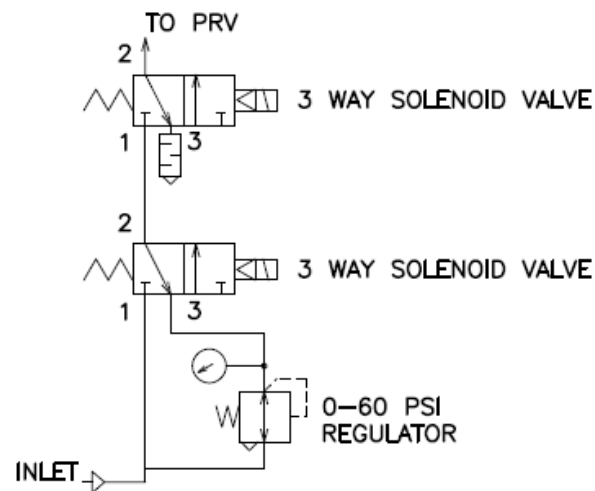
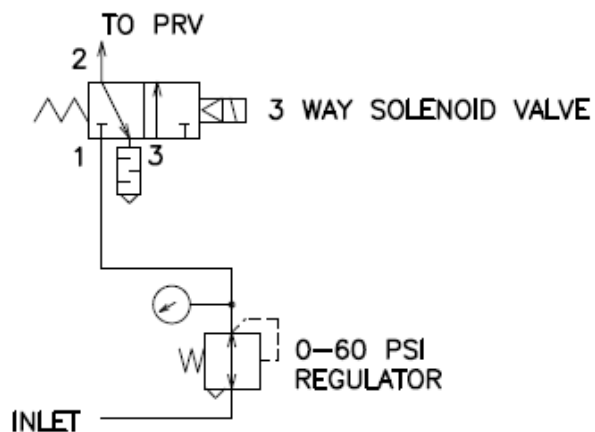
Chapter 12

Pneumatic Schematics

Pneumatic Schematic, Piston Pump, 5 PSI Air Inject, PN 823079



See Ch. 9, Piston Pump Pneumatic Assembly for Bill of Materials, PN 823064

Pressure Relief Assembly, 3 Position (optional), PN 823034**Pressure Relief Assembly, 2 Position (optional), PN 823033**

Chapter 13

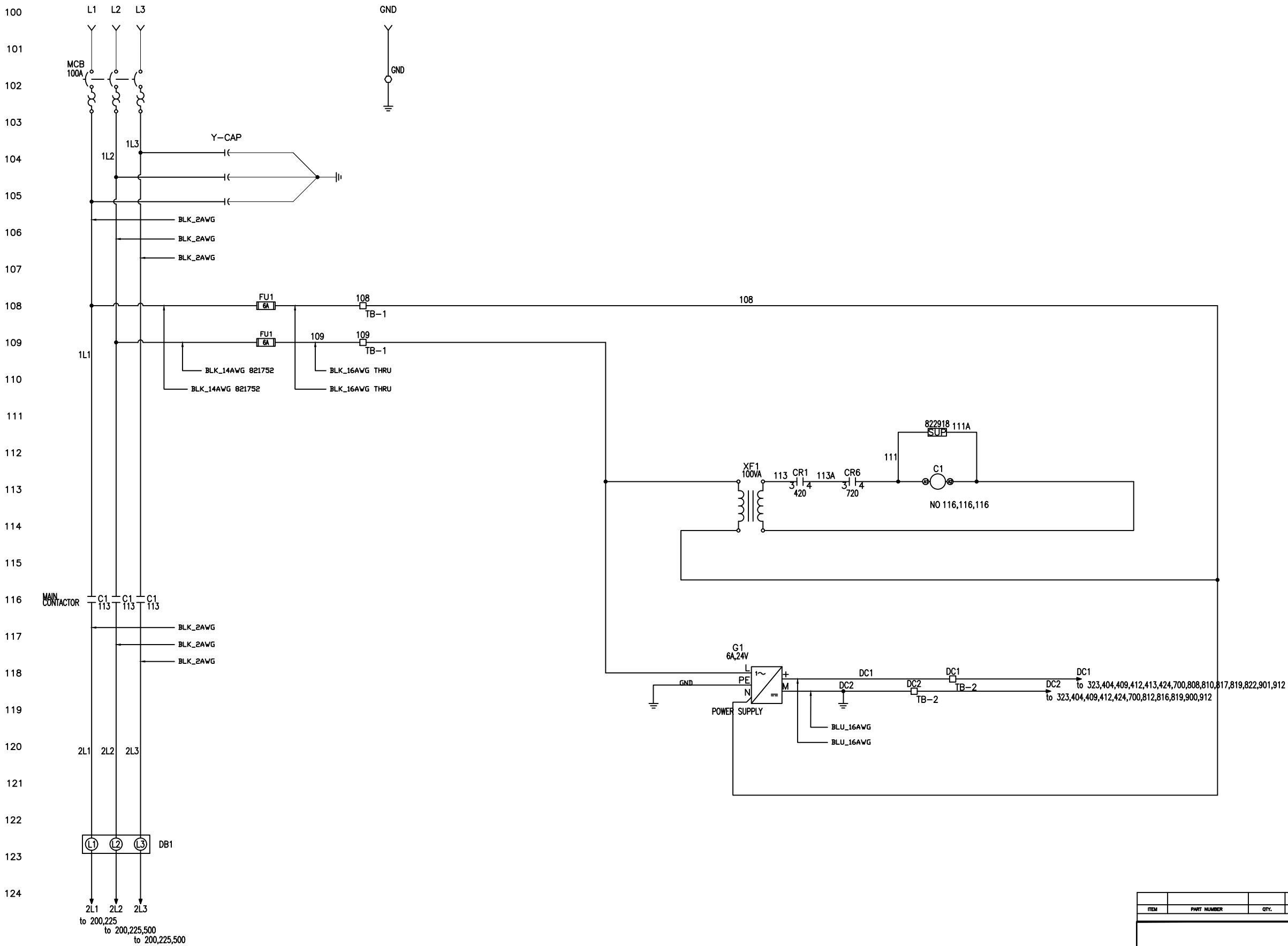
Electrical Schematics

13.1 Bulk Melter DM55 240V

Schematics, 240V, PN 823172

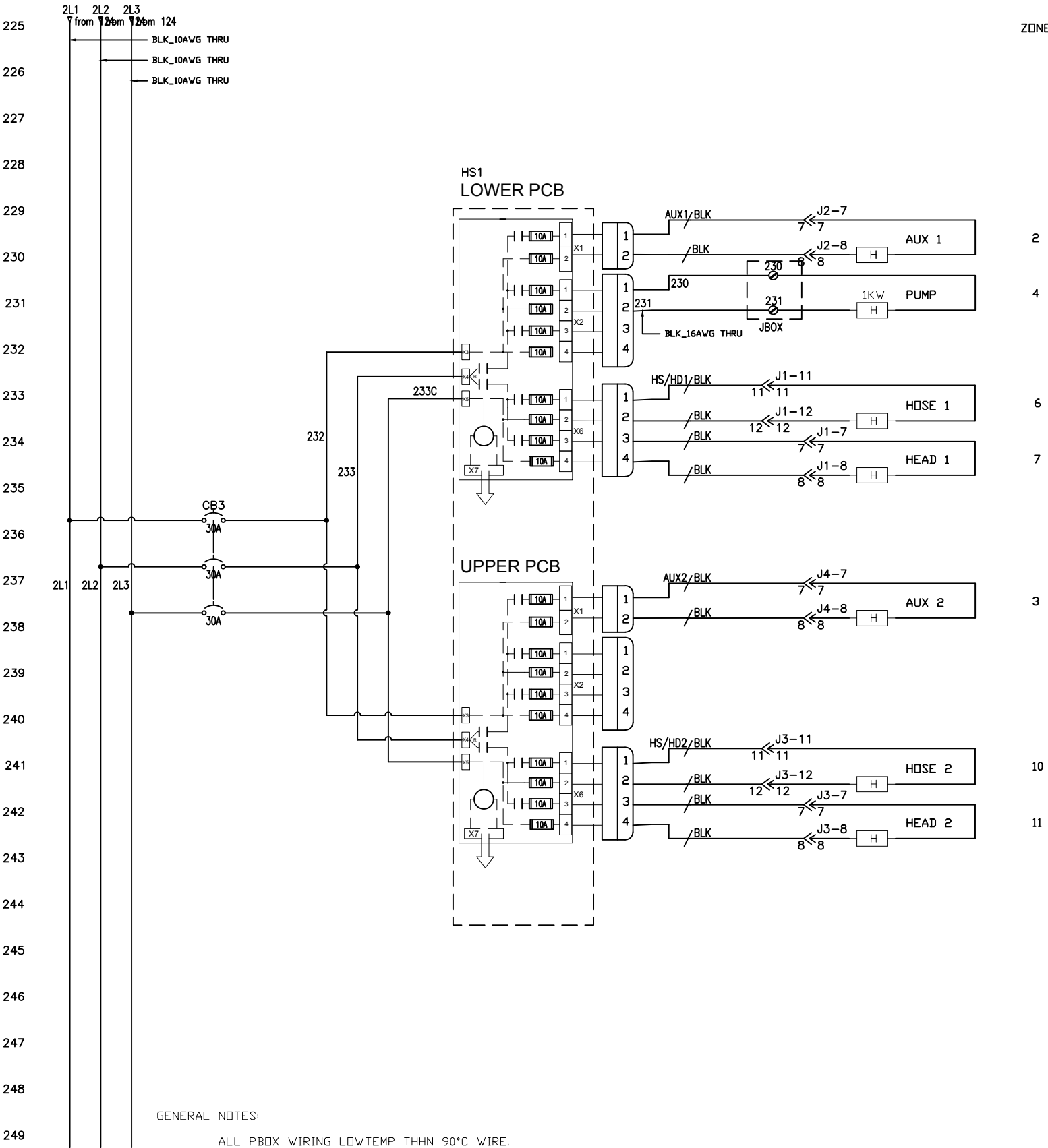
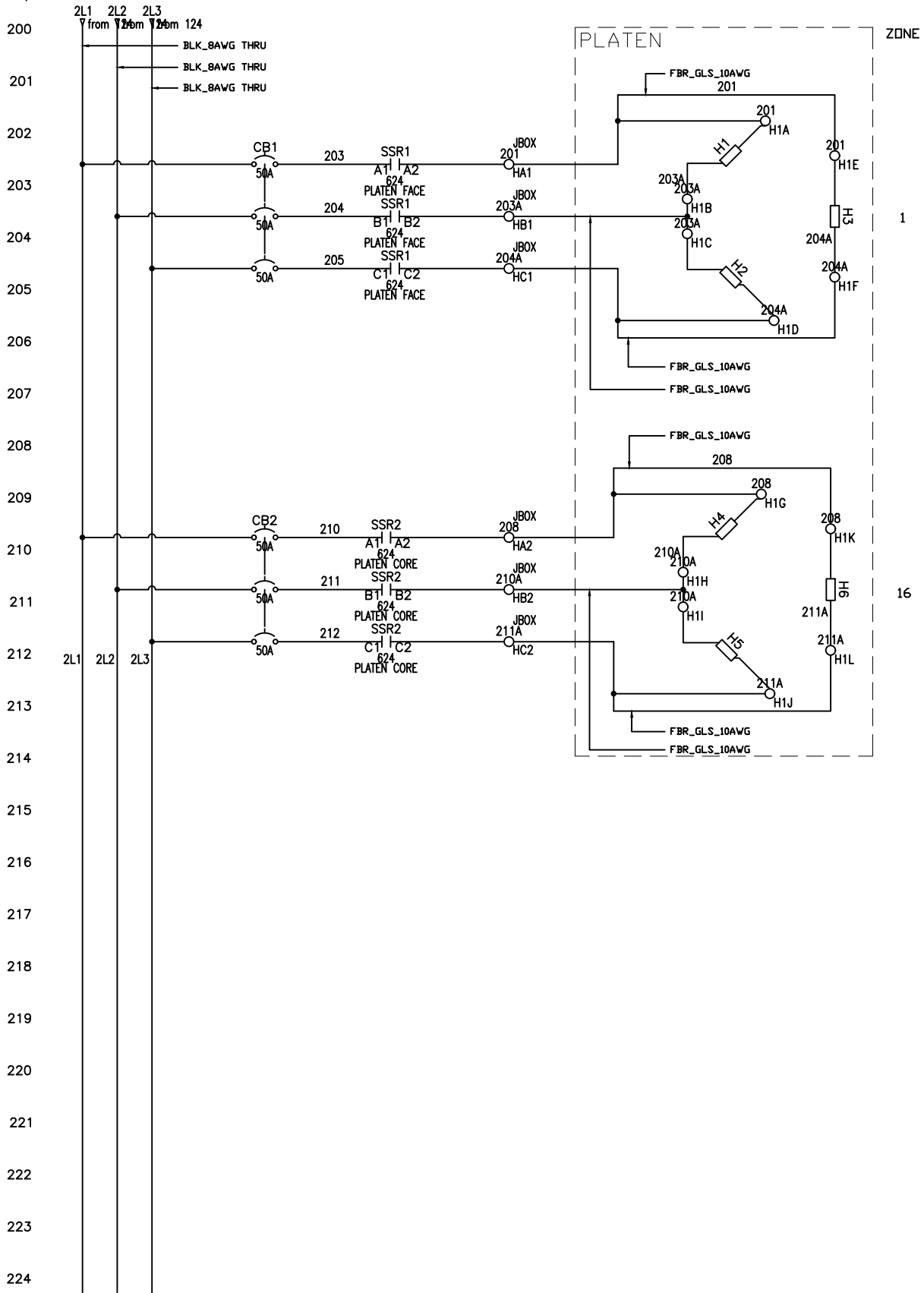
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REVISIONS						
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED	
17050	N	CONVERTED TO ACAD	07.31.17	BFG		
CCN688	P	REMOVED SPDIB WIRING STUB	09.11.17	BFG		
CCN702	Q	CORRECTIONS PER ASSEMBLY	09.22.17	BFG		
CCN816	R	RMV FU2 FRM LAYOUT,NOT IN SCHM	01.25.18	BFG		
CCN926	T	CLARIFIED PLATEN WIRING	05.03.18	BFG		
CCN980	U	ADDED CR3 NC CONTACT TO 416	06.01.18	BFG		
CCN1073	V	CRRCTD PLTN HGHT SNRS WIRING	08.27.18	BFG		
CCN1286	W	ADDED COMM PORT GRAPHIC,Pg9	12.04.18	BFG		
CCN1287	X	CORRECTED COMM PORT,Pg9	12.06.18	BFG		

[illegible]

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REVISIONS				
REL.	REV.	DESCRIPTION	DATE	BY



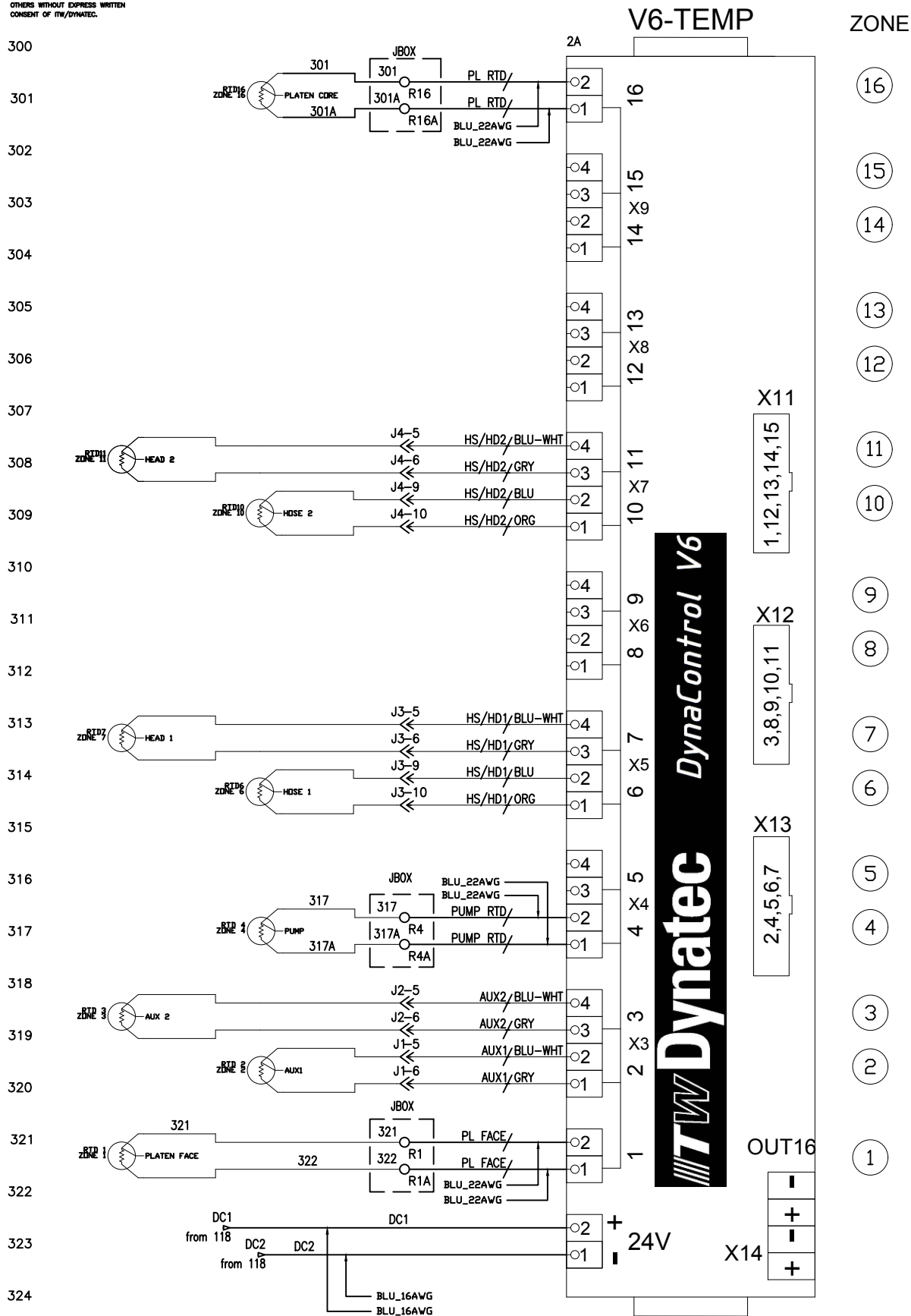
GENERAL NOTES:

- DENOTES TERMINAL IN PBOX
○ DENOTES TERMINAL IN JBOX
— APPLY WIRE NUMBERS TO BOTH ENDS OF WIRE.
— DENOTES DEVICES EXTERNAL TO PBOX.
— WIRE ALL GROUND CONNECTIONS PER DRAWING 804704.
— THIS IS A GENERAL SCHEMATIC. NOT ALL DEVICES MAY BE PRESENT. SEE ORDER FOR NUMBER OF HOSES, HEADS, AUX, AND MOTORS.

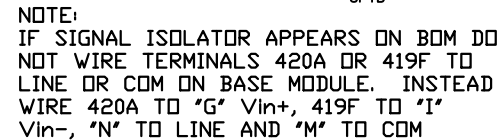
ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED)		
NEXT ASSY.		U/M	STATUS	SIZE
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800		SOURCE	REV. X	
COMPUTER DESCRIPTION(25 CHARACTERS)		TITLE: DM55,V6,240V HEATER CIRCUITS		
		SCALE:	DRAWN BY: BFQ	CHECKED BY:
		DATE: 03.23.15	SHEET 2	OF SHEETS 11
		DRAWING NO. 823172		

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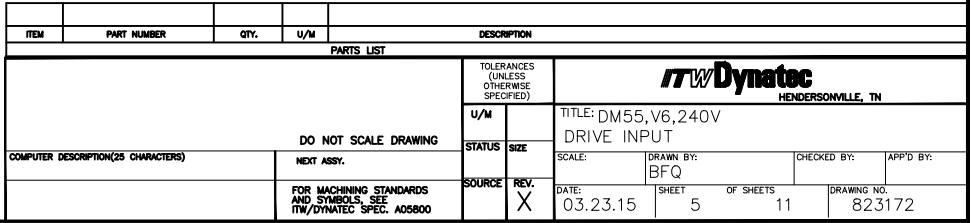
REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION	
PARTS LIST					
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)	
				U/M	
COMPUTER DESCRIPTION(25 CHARACTERS)		NEXT ASSY.		 HENDERSONVILLE, TN	
				TITLE: PM55,V6,240V RTD INPUTS	
		STATUS		SIZE	
				SCALE: DRAWN BY: Bfq CHECKED BY: APP'D BY:	
		SOURCE		REV. X	DATE: 03.23.15 SHEET 3 OF SHEETS 11 DRAWING NO. 823172



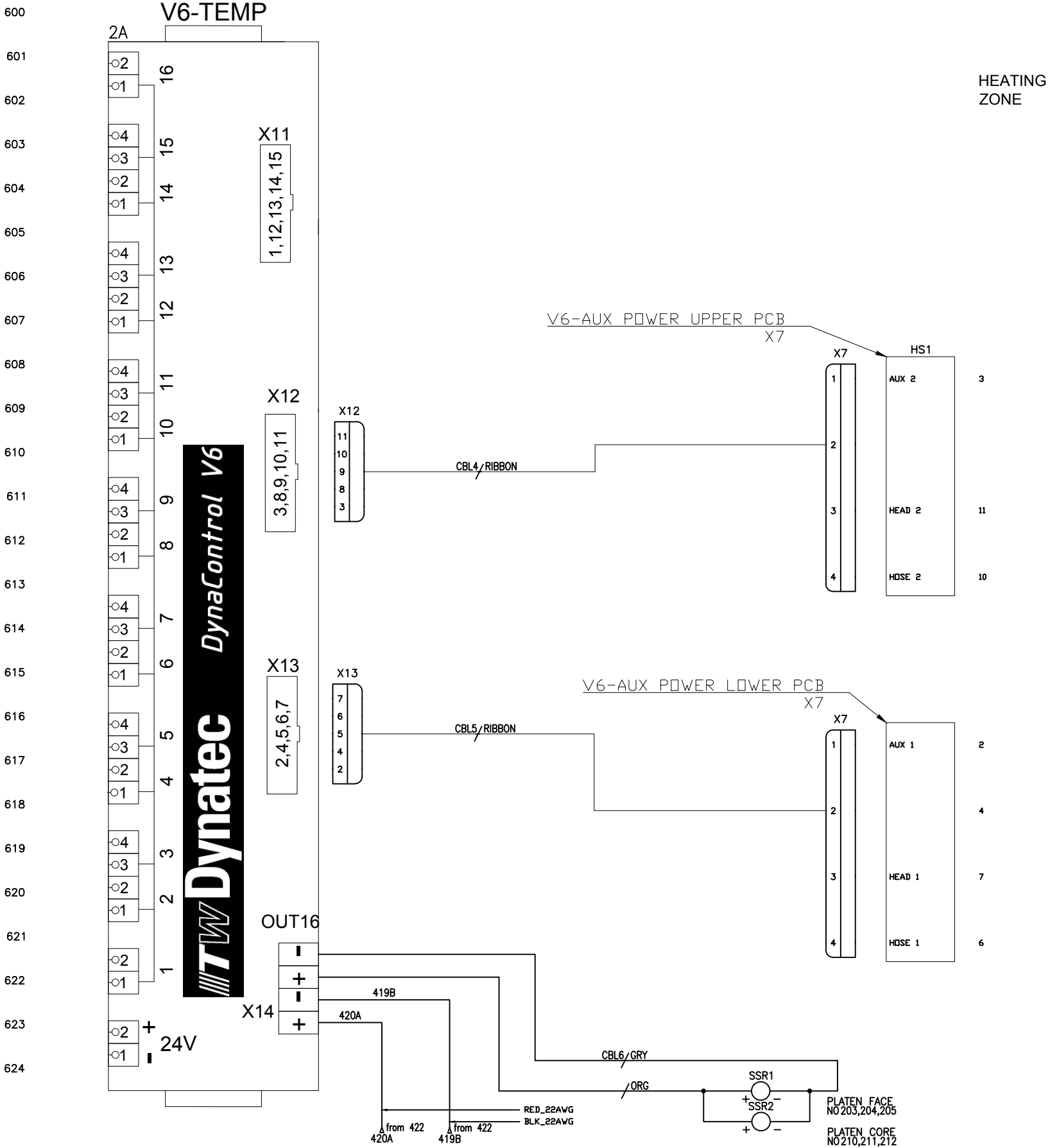
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REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

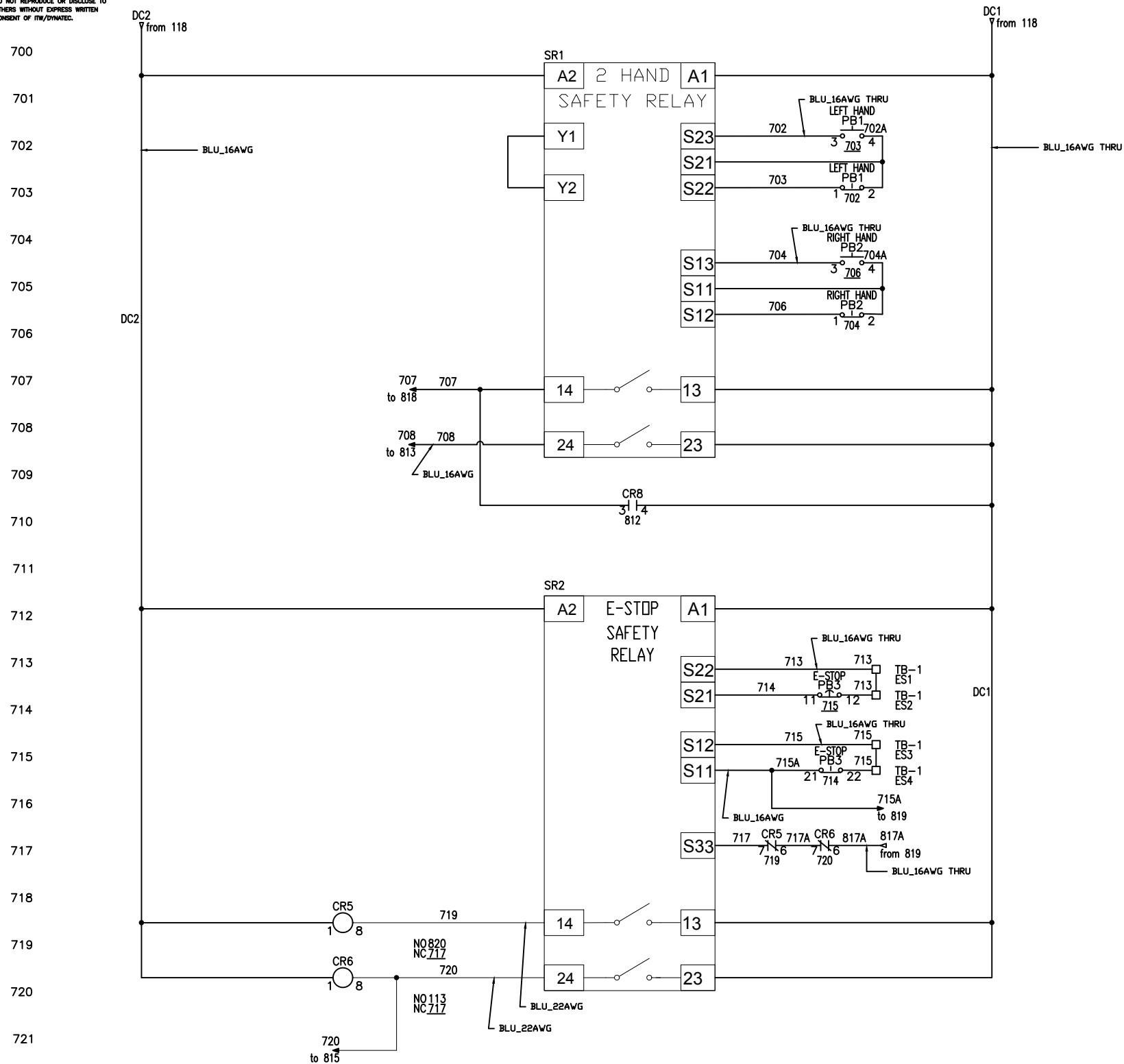
NOTE:
LABEL ZONES AS SHOWN, SOME ZONE NUMBERS ARE
UNUSED.
EX: ZONE 1



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION		
PARTS LIST						
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)		
				ITW Dynatec HENDERSONVILLE, TN		
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	U/M		TITLE: PM55,V6,240V SSR OUTPUTS		
		STATUS	SIZE			
		SCALE:		DRAWN BY:	CHECKED BY:	APP'D BY:
		Bfq				
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800		SOURCE	REV. X	DATE: 03.23.15	SHEET 6 OF SHEETS 11	
				DRAWING NO. 823172		

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REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

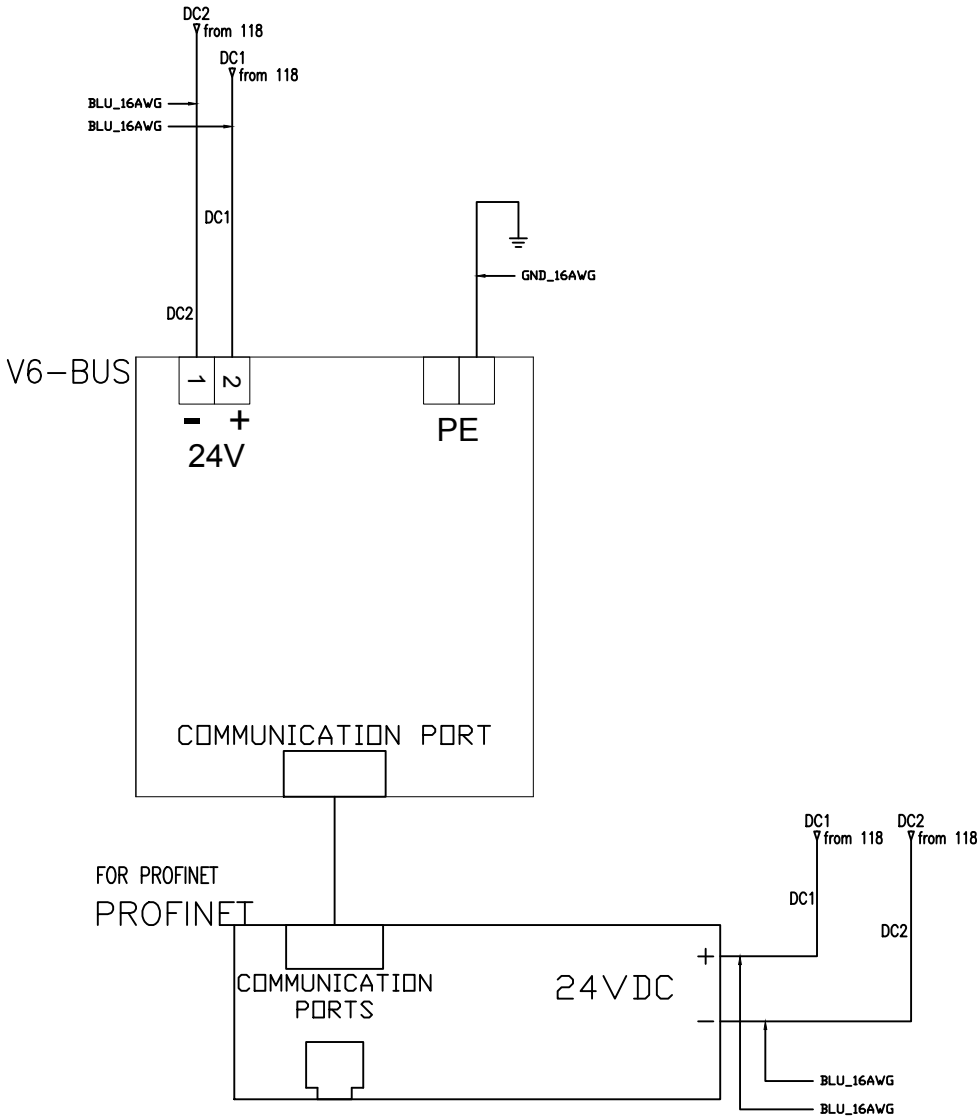


ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION			
PARTS LIST							
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)		 HENDERSONVILLE, TN	
				U/M	SIZE		
COMPUTER DESCRIPTION(25 CHARACTERS)		NEXT ASSY.		STATUS	TITLE: DM55,V6,240V SAFETY RELAYS		
				SOURCE	REV. X	SCALE:	DRAWN BY: BFQ
		FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800		DATE:	03.23.15	SHEET 7 OF SHEETS 11	DRAWING NO. 823172

[illegible]

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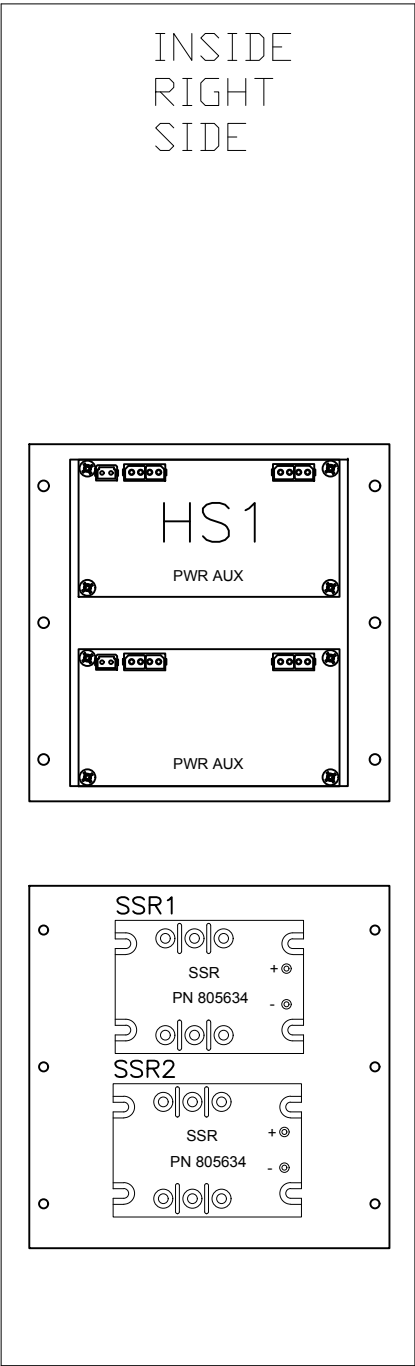
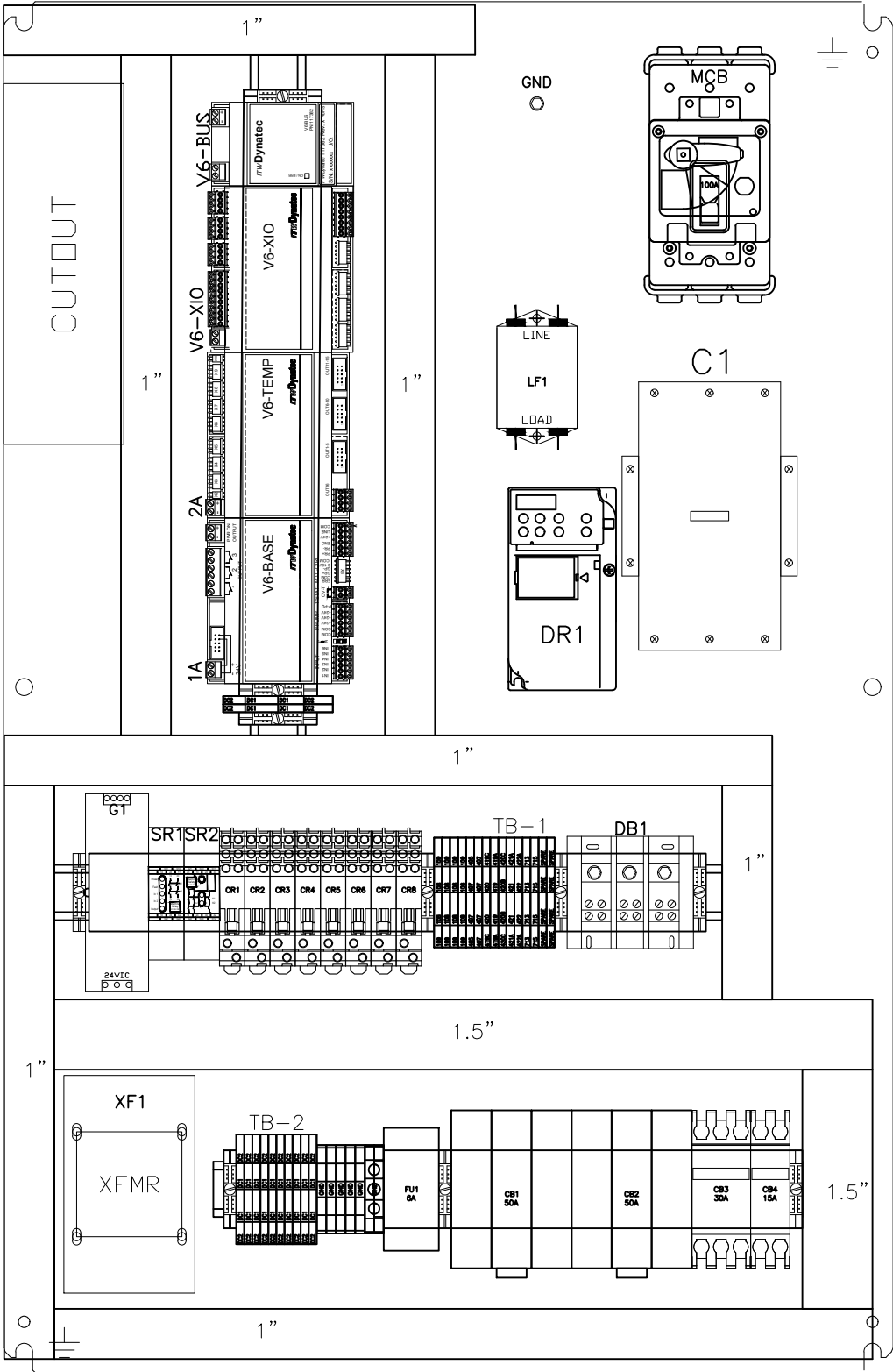
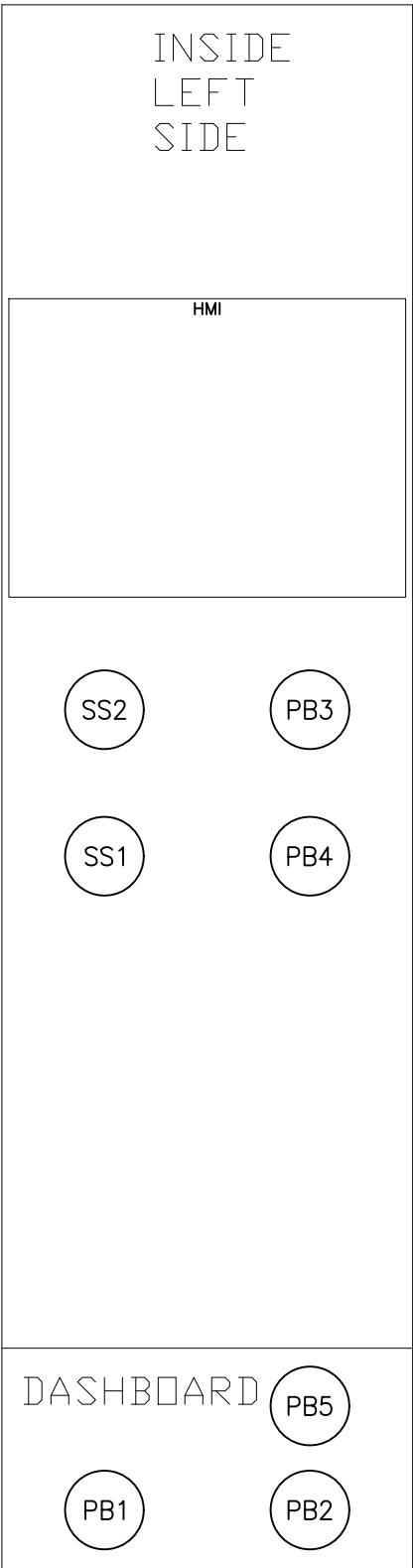
REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION			
PARTS LIST							
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)		 HENDERSONVILLE, TN	
				U/M	SIZE		
COMPUTER DESCRIPTION(25 CHARACTERS)		NEXT ASSY.		STATUS	TITLE: DM55,V6,240V OPTIONS		
				SOURCE	REV. X	SCALE:	DRAWN BY: BFQ
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800				DATE:	SHEET 9 OF SHEETS 11		DRAWING NO. 823172
				03.23.15			

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REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
TB-1					
LOWER TERMINAL			UPPER TERMINAL		
WIRE	DESC		WIRE	DESC	
109	240VAC		108	240VAC	
109	240VAC		108	240VAC	
109	240VAC		108	240VAC	
109	240VAC		108	240VAC	
405	STBY2		407	STBY1	
407	ENIB		407	ENIA	
419A	RDY2		419	RDY1	
419C	SP1B		420	SP1A	
420C	LDW2		420B	LDW1	
421A	ALM2		421	ALM1	
422A	EMPTY2		422	EMPTY1	
713	ES2		713	ES1	
715	ES4		715	ES3	
	SPARE			SPARE	
	SPARE			SPARE	
TB-2					
LOWER TERMINAL			UPPER TERMINAL		
WIRE	DESC		WIRE	DESC	
ALL TERMINALS					
DC2	0VDC		DC1	+24VDC	



ITEM TAG	PN	DESCRIPTION	
1A	115734	V6 BASE MODULE	
2A	115735	V6 TEMP MODULE	
C1	821747	MAIN CONTACTOR	125A
C1	822087	IP20 FOR C1	
C1	822918	SUPPRESSOR FOR C1	
CB1,2	816055	50A,3P CIRCUIT BREAKER	
CB3	824510	30A,3P CIRCUIT BREAKER	GEAR PUMP ONLY
CB4	104207	15A,2P CIRCUIT BREAKER	
CR1-CR8	821247	CONTROL RELAY	
CR1-CR8	821249	CONTROL RELAY BASE	
DB-1	821749	FINGER SAFE DB,175A	
DR1	815223	VFD,1HP	GEAR PUMP ONLY
FU1	818596	DUAL PDLE FUSE BLDCK	
FU1	820929	6A LPCC FUSE	
G1	119156	POWER SUPPLY,24V,6A	
GND	822900	GROUND POST	
HMI	118135	V6 TOUCH DISPLAY	
HS1	823306	V6 POWER BOARD	
LF1	107856	LINE FILTER	GEAR PUMP ONLY
MCB	821936	MAIN CIRCUIT BREAKER	100A
MCB	821941	IP20 FOR MCB	
PB1,2,4,5	823178	GREEN 22MM,ND,MOM PB	
PB1,2,4,5	823179	NC CONT BLOCK	
PB3	114707	E-STOP	
SR1	114705	2 HAND CONTROL	
SR2	114706	E-STOP CONTROL	
SS1,2	823188	2 PDS SELECTOR SWITCH	
SSR1,2	805634	3 PHASE SSR	
SSR1,2	812241	IP20 FOR 3P SSR	
TB-1,2	105251	DUAL TERMINAL,10A	
TB-G	104193	GROUND TERMINAL,DUAL	
V6-BUS	118125	V6 BUS MODULE	
V6-XIO	117648	V6 XIO MODULE	
XF1	823402	1/4 ISD TRANSFORMER	
XF1	823403	IP20 FOR XF1	

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)
COMPUTER DESCRIPTION(25 CHARACTERS)				U/M
NEXT ASSY.				STATUS
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800				SIZE
				SOURCE
				REV. X
				DATE: 03.23.15
				SHEET 10 OF SHEETS 11
				DRAWING NO. 823172

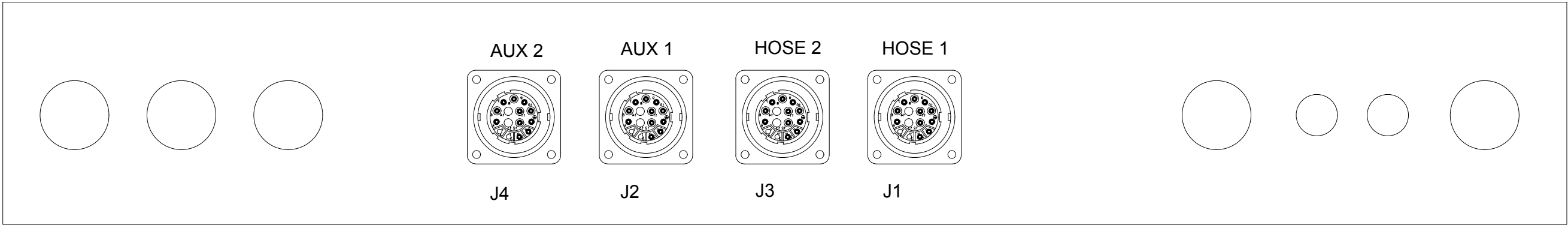
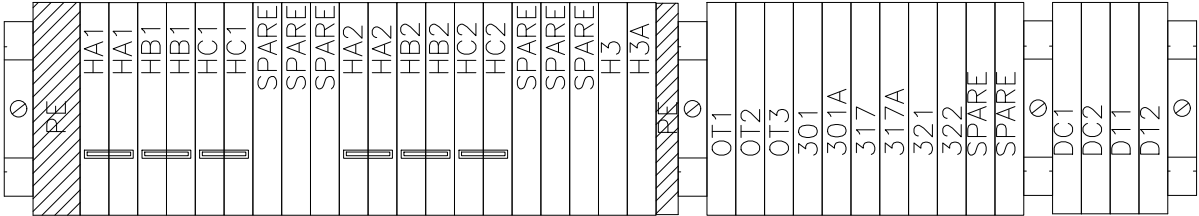
ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,240V LAYOUT

SCALE: DRAWN BY: BFQ CHECKED BY: APP'D BY:

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REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



PLATEN RESISTANCE AT TERMINALS:

HA1-HB1	6.4	ΩHMS
HA1-HC1	6.4	ΩHMS
HB1-HC1	6.4	ΩHMS
HA2-HB2	6.4	ΩHMS
HA2-HC2	6.4	ΩHMS
HB2-HC2	6.4	ΩHMS

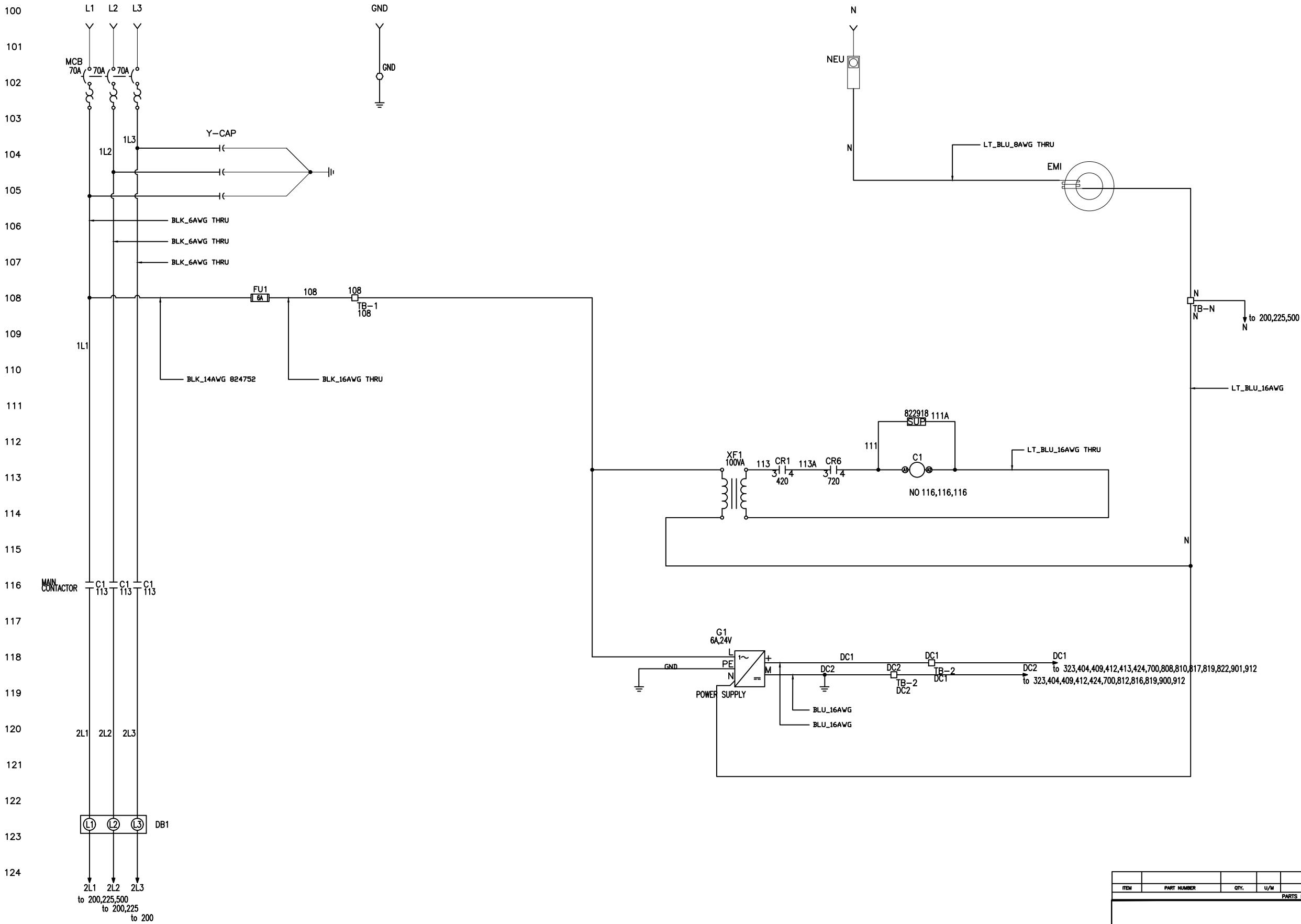
ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)
				U/M
COMPUTER DESCRIPTION(25 CHARACTERS)				STATUS
				SIZE
NEXT ASSY.				SCALE:
				DRAWN BY:
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800				CHECKED BY:
				APP'D BY:
SOURCE				DATE:
				SHEET
REV. X				OF SHEETS
				DRAWING NO.
TITLE: DM55,V6,240V J BOX TERMINALS				11
				823172

13.2 Bulk Melter DM55 400V

Schematics, 400V, PN 823173

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REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
CCN490	L	UPDATED TO AUTOCAD ELECTRICAL	02.06.17	BFQ	
CCN512	M	ADDED 3 ADDTL N TERMS TO JBOX	03.01.17	BFQ	
CCN534	N	MOVED DIN RAIL,ADDED HOLES FOR 1.5HP DRIVE	03.23.17	BFQ	
CCN702	P	CORRECTIONS PER ASSEMBLY	09.22.17	BFQ	
CCN926	R	CLARIFIED PLATEN WIRING	05.03.18	BFQ	
CCN980	T	ADDED CR3 NC CONTACT TO 416	06.01.18	BFQ	
CCN1073	U	CORRECTD PLTN HGHT SNSR WIRING	08.27.18	BFQ	
CCN1286	V	ADDED COMM PORT GRAPHIC,PG9	12.04.18	BFQ	
CCN1287	W	CORRECTED COMM PORT,PG9	12.06.18	BFQ	



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)
COMPUTER DESCRIPTION(25 CHARACTERS)				U/M
NEXT ASSY.				STATUS
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800				SIZE
				SOURCE
				REV.
				DATE
				SHEET
				OF SHEETS
				DRAWING NO.
				823173

ITW Dynatec

HENDERSONVILLE, TN

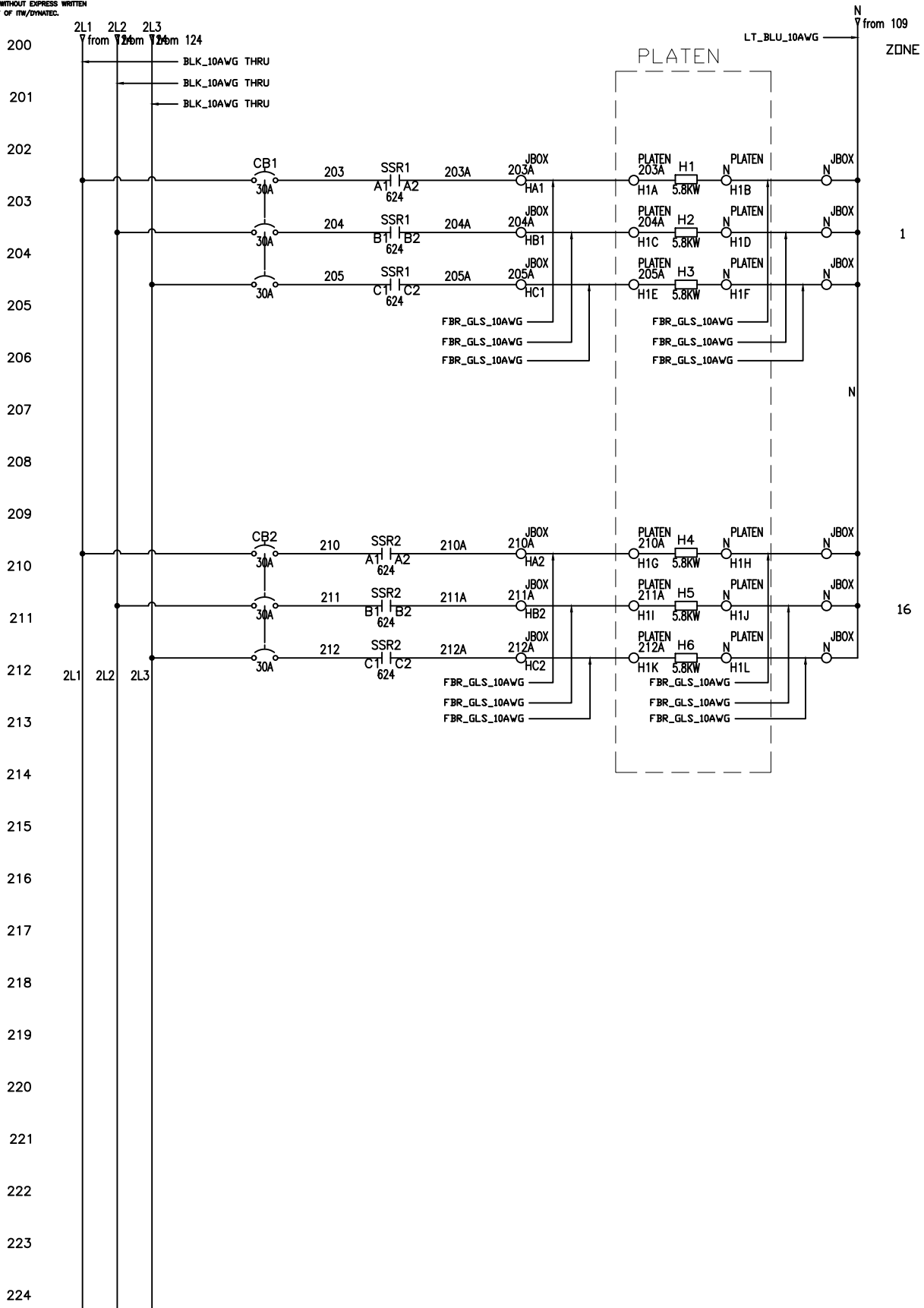
TITLE: DM55,V6,400V
POWER DISTRIBUTION

SCALE: DRAWN BY: CHECKED BY: APP'D BY:

DATE: 03.23.15 SHEET 1 OF SHEETS 11 DRAWING NO.

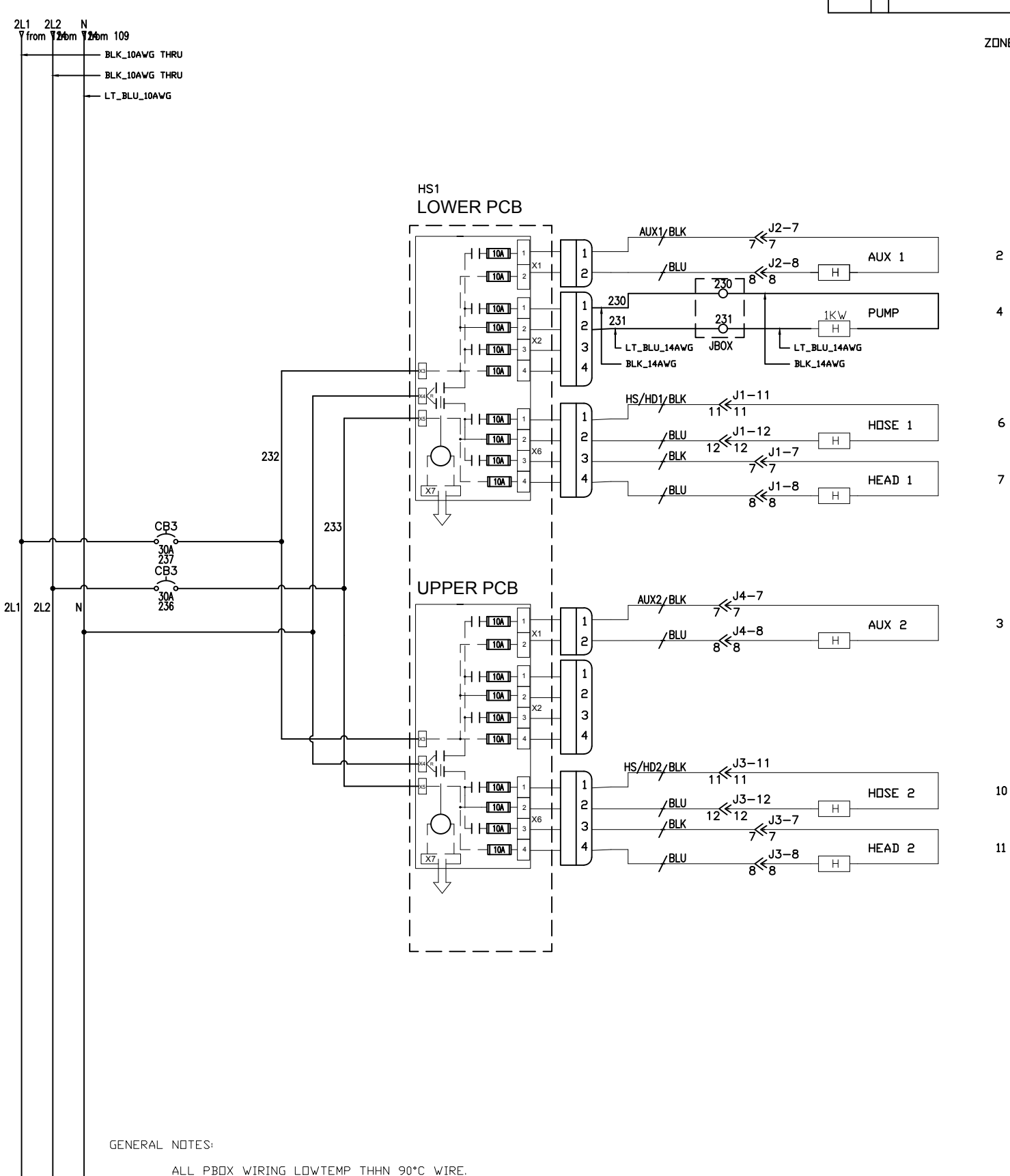
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REVISIONS				
REL.	REV.	DESCRIPTION	DATE	BY



GENERAL NOTES:

- DENOTES TERMINAL IN PBOX
- DENOTES TERMINAL IN JBOX
- APPLY WIRE NUMBERS TO BOTH ENDS OF WIRE.
- DENOTES DEVICES EXTERNAL TO PBOX.
- WIRE ALL GROUND CONNECTIONS PER DRAWING 804704.
- THIS IS A GENERAL SCHEMATIC. NOT ALL DEVICES MAY BE PRESENT. SEE ORDER FOR NUMBER OF HOSES, HEADS, AUX, AND MOTORS.



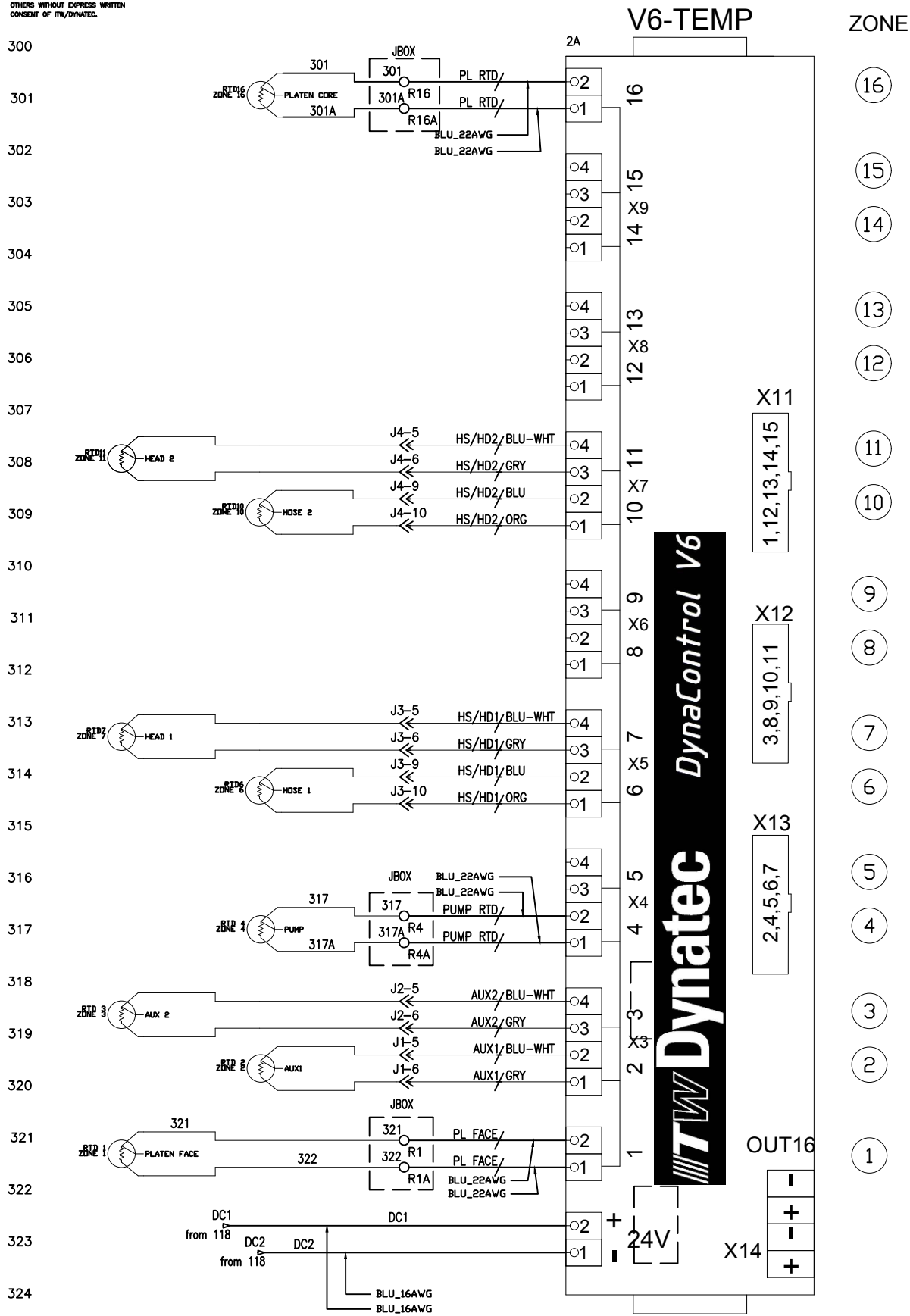
GENERAL NOTES:

ALL PBOX WIRING LOWTEMP THHN 90°C WIRE.
ALL EXTERNAL WIRING HITEMP TFE 260°C
OR EQUIV.
□ DENOTES TERMINAL IN PBOX
○ DENOTES TERMINAL IN JBOX
— APPLY WIRE NUMBERS TO BOTH ENDS OF WIRE.
— DENOTES DEVICES EXTERNAL TO PBOX.
— WIRE ALL GROUND CONNECTIONS PER DRAWING 804704.
— THIS IS A GENERAL SCHEMATIC. NOT ALL DEVICES MAY BE PRESENT. SEE ORDER FOR NUMBER OF HOSES, HEADS, AUX, AND MOTORS.

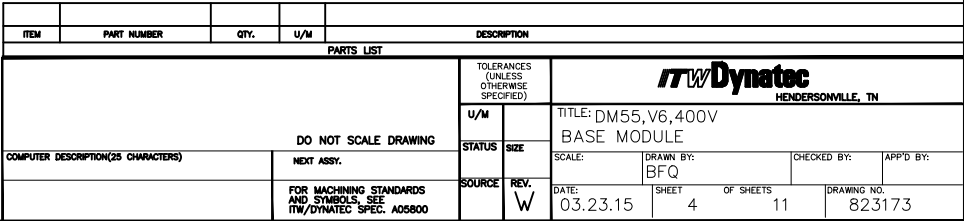
ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION				
PARTS LIST								
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)		 HENDERSONVILLE, TN		
				U/M	SIZE			
COMPUTER DESCRIPTION(25 CHARACTERS)		NEXT ASSY.		STATUS	TITLE: DM55,V6,400V HEATER CIRCUITS			
				SOURCE	REV.	SCALE:	DRAWN BY:	CHECKED BY:
		FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800			W	DATE: 03.23.15	SHEET 2 OF SHEETS 11	DRAWING NO. 823173

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REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



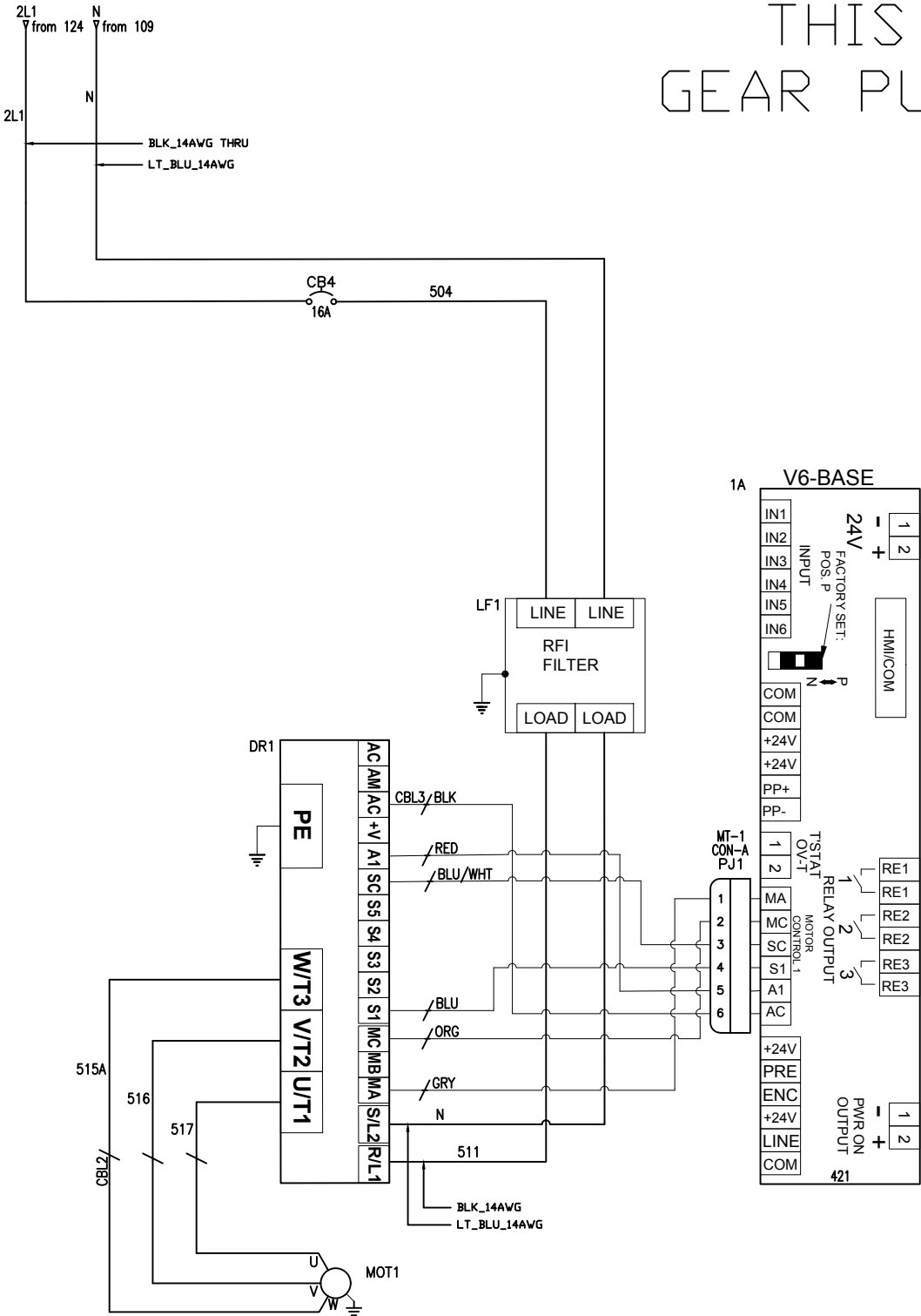
ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION	
PARTS LIST					
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)	
				U/M	
COMPUTER DESCRIPTION(25 CHARACTERS)		NEXT ASSY.		 HENDERSONVILLE, TN	
				TITLE: DM55,V6,400V RTD INPUTS	
		STATUS		SCALE:	
				DRAWN BY: Bfq	
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800		SOURCE		CHECKED BY:	
				APP'D BY:	
		REV. W		DATE: 03.23.15	
				SHEET 3 OF SHEETS 11	
				DRAWING NO. 823173	



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REVISIONS				
REL.	REV.	DESCRIPTION	DATE	BY

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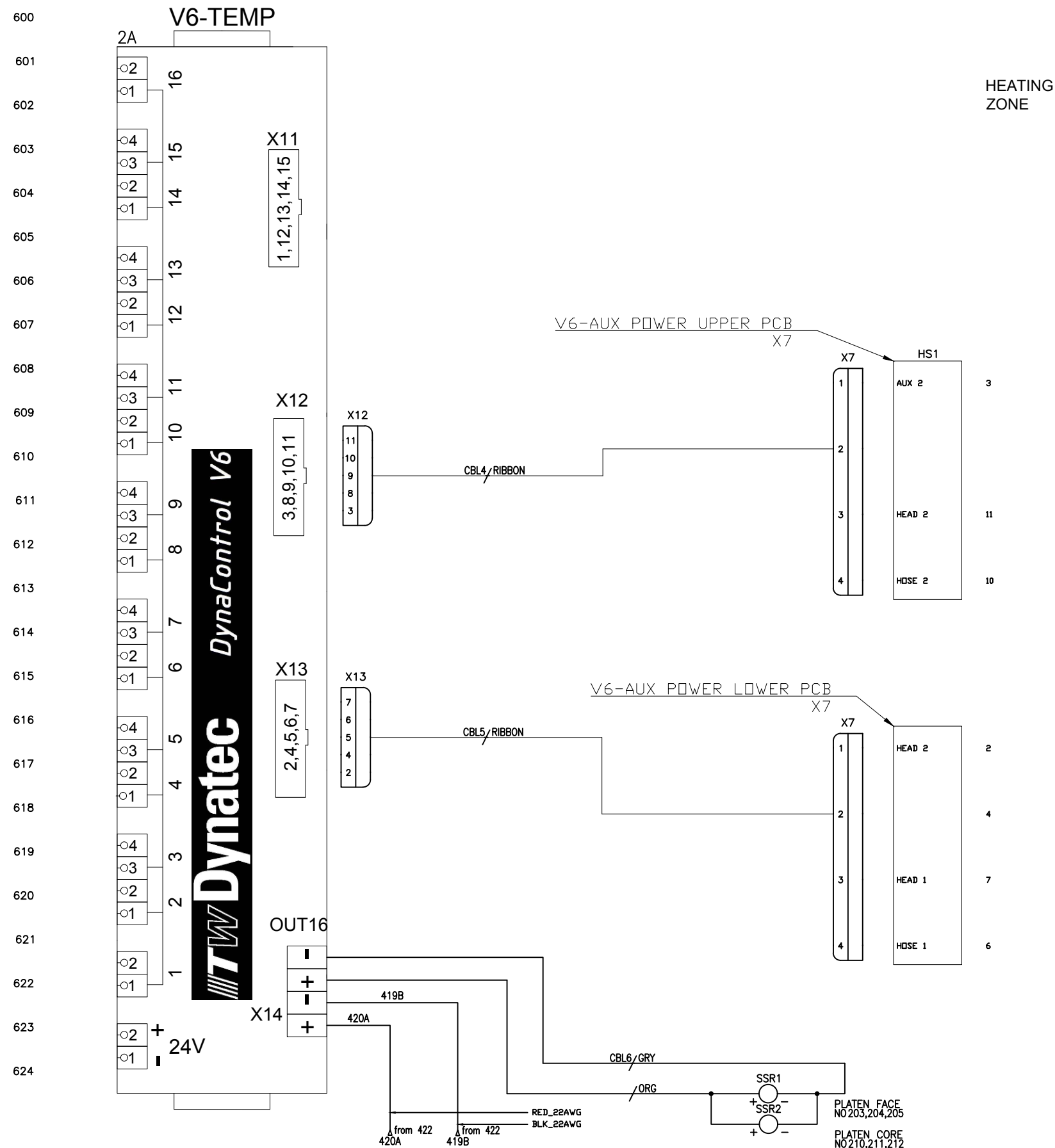


ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED)		
NEXT ASSY.		U/M	SIZE	STATUS
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800		SOURCE	REV.	DATE
			W	03.23.15
				SHEET 5 OF SHEETS 11
				DRAWING NO. 823173

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REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

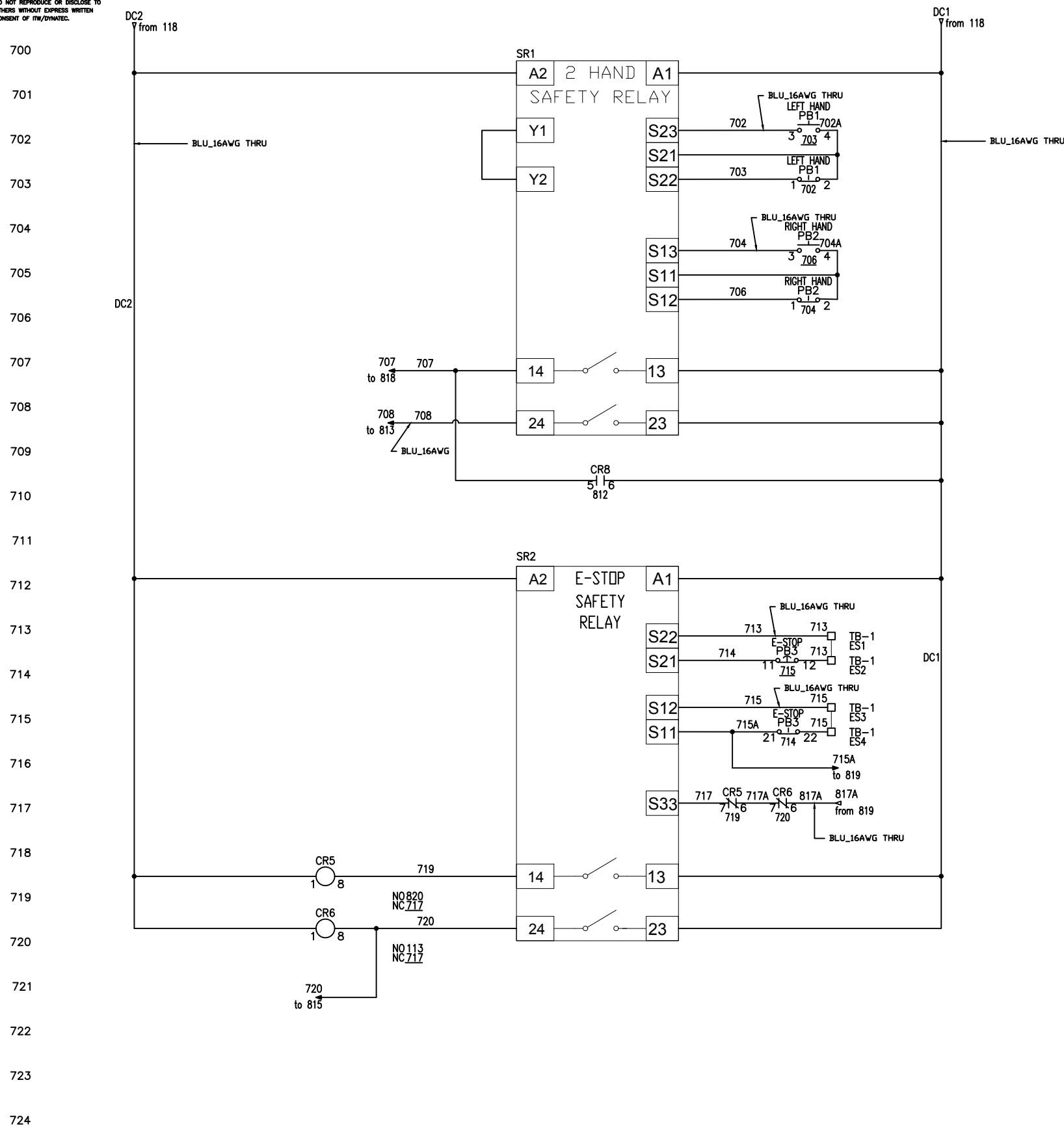
NOTE:
LABEL ZONES AS SHOWN, SOME ZONE NUMBERS ARE
UNUSED.
EX: ZONE 1



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION					
PARTS LIST									
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)		 HENDERSOVILLE, TN			
				U/M	SIZE				
COMPUTER DESCRIPTION(25 CHARACTERS)		NEXT ASSY.		STATUS	SIZE	TITLE: DM55,V6,400V SSR OUTPUTS			
FOR MACHINING STANDARDS AND SYMBOLS SEE ITW/DYNATEC SPEC. A05800				SOURCE	REV. W	SCALE:	DRAWN BY:	CHECKED BY:	APP'D BY:
						DATE: 03.23.15	SHEET 6	OF SHEETS 11	DRAWING NO. 831173

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REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

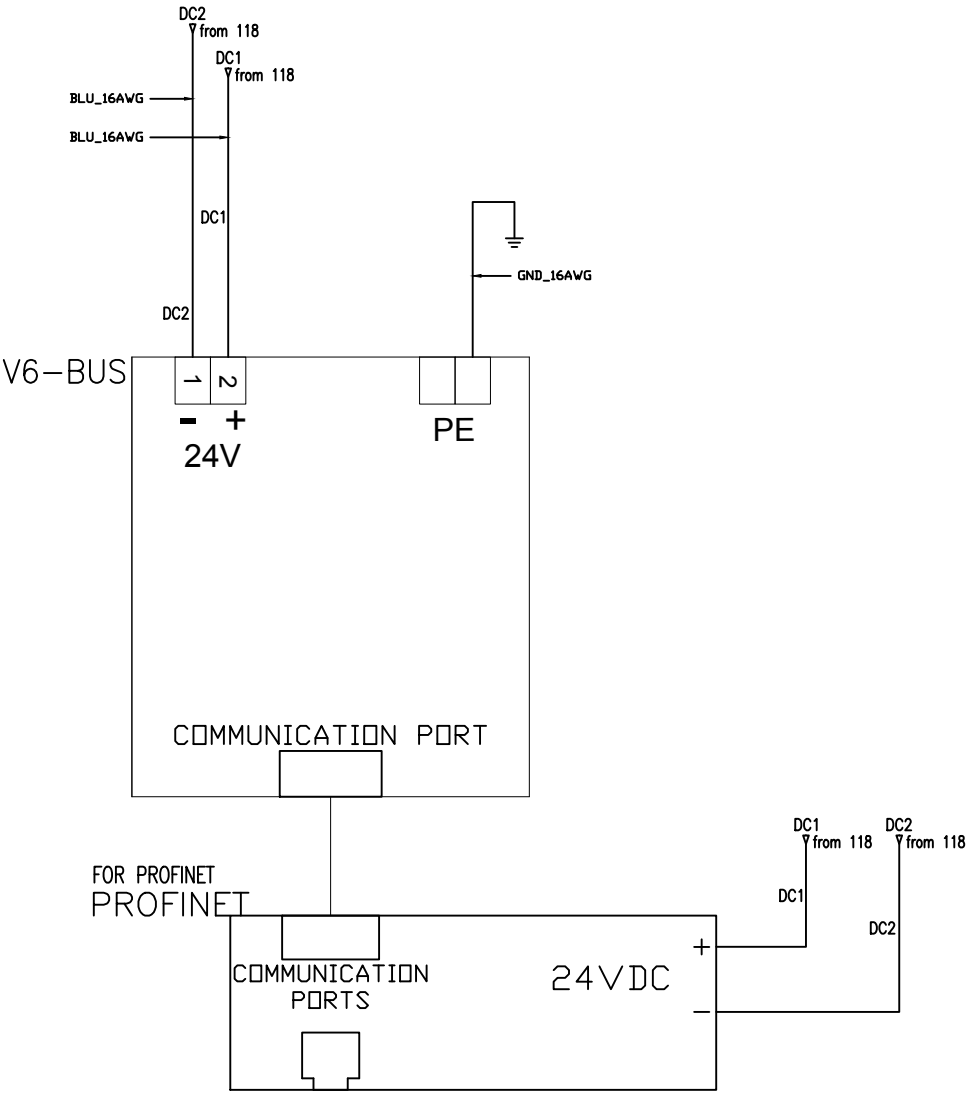


ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION	
PARTS LIST					
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)	
				 HENDERSONVILLE, TN	
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	U/M	TITLE: DM55,V6,400V	
			STATUS	SIZE	SAFETY RELAYS
			SOURCE	REV. W	SCALE: DRAWN BY: BFO
			DATE: 03.23.15		CHECKED BY: AP'D BY:
			SHEET 7 OF SHEETS 11		DRAWING NO. 823173

ITEM		PART NUMBER		QTY.		U/M		DESCRIPTION											
PARTS LIST																			
DO NOT SCALE DRAWING								TOLERANCES (UNLESS OTHERWISE SPECIFIED)		 HENDERSONVILLE, TN									
								U/M											
COMPUTER DESCRIPTION(25 CHARACTERS)								STATUS		SIZE		TITLE: DM55,V6,400V XIO MODULE							
								NEXT ASSY.								SOURCE		REV. W	
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800												DATE: 03.23.15		SHEET 8		OF SHEETS 11		DRAWING NO. 823173	

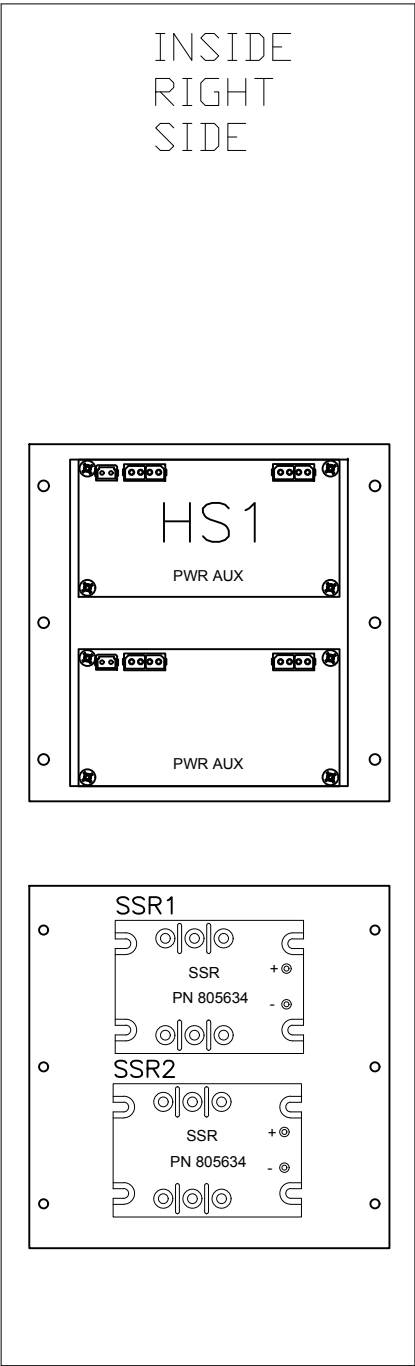
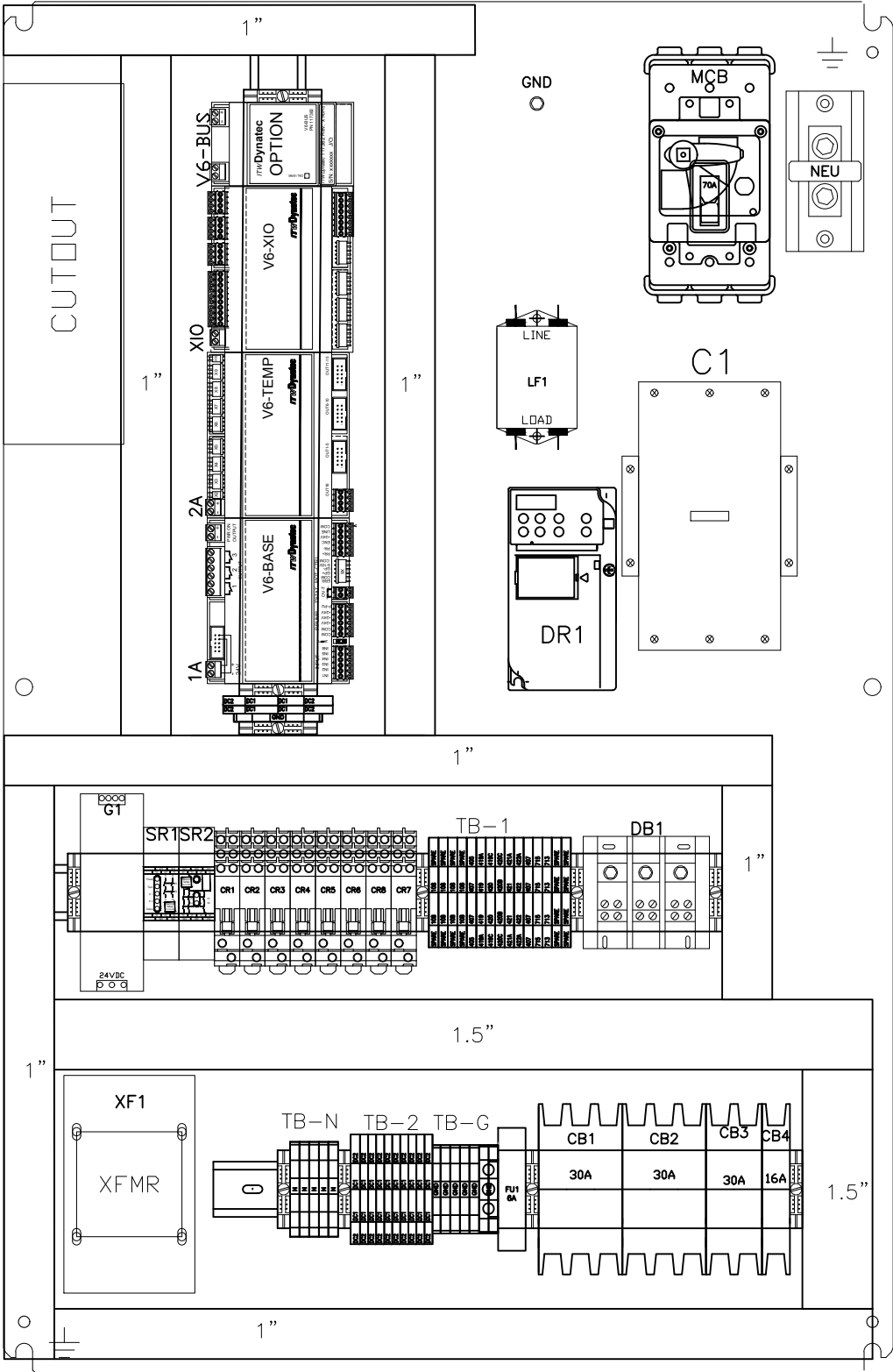
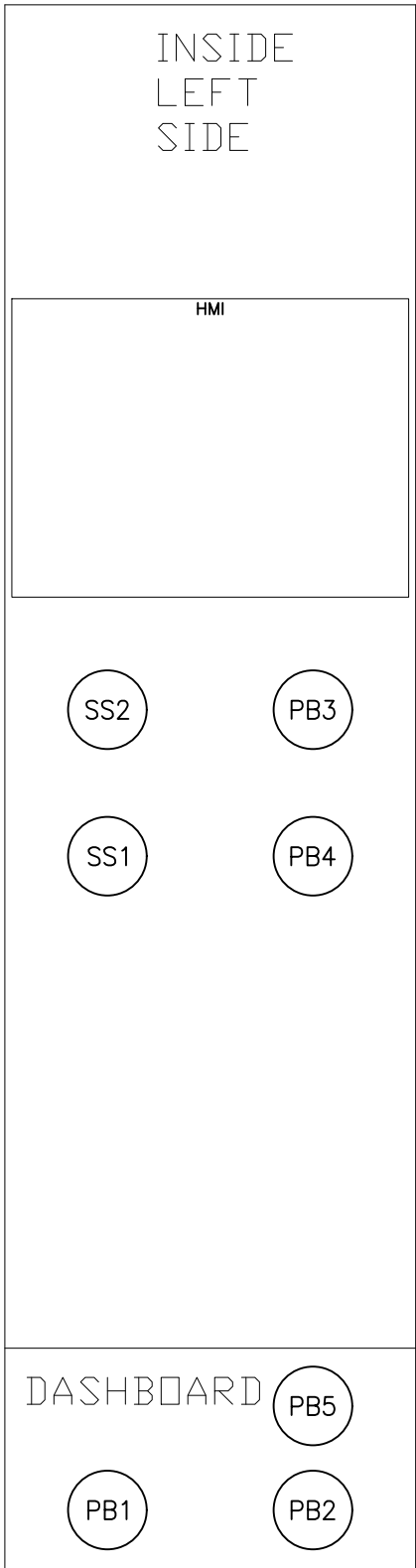
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REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)
				U/M SIZE
COMPUTER DESCRIPTION(25 CHARACTERS)		NEXT ASSY.		STATUS
				SIZE
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800		SOURCE		REV.
				W
TITLE: DM55,V6,400V OPTIONS		SCALE:		DRAWN BY:
				BFQ
DATE: 03.23.15		SHEET 9		CHECKED BY:
				APP'D BY:
DRAWING NO. 823173		OF SHEETS 11		DATE:
				03.23.15

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REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
TB-1					
LOWER TERMINAL			UPPER TERMINAL		
WIRE	DESC		WIRE	DESC	
SPARE	SPARE		108	240VAC	
SPARE	SPARE		108	240VAC	
SPARE	SPARE		108	240VAC	
SPARE	SPARE		108	240VAC	
405	STBY2		407	STBY1	
407	EN1B		407	EN1A	
419A	RDY2		419	RDY1	
419C	SP1B		420	SP1A	
420C	LOW2		420B	LOW1	
421A	ALM2		421	ALM1	
422A	EMPTY2		422	EMPTY1	
713	ES2		713	ES1	
715	ES4		715	ES3	
	SPARE			SPARE	
	SPARE			SPARE	
TB-2					
LOWER TERMINAL			UPPER TERMINAL		
WIRE	DESC		WIRE	DESC	
ALL TERMINALS					
DC2	DC2		DC1	DC1	

TAG	PN	BOM DESCRIPTION	NOTES
1A	115734	V6 BASE MODULE	
2A	115735	V6 TEMP MODULE	
C1	821747	MAIN CONTACTOR	125A
C1	822087	IP20 FOR C1	
C1	822918	SUPPRESSOR FOR C1	
CB1,2	824845	30A,3P CIRCUIT BREAKER	
CB3	811581	30A,2P CIRCUIT BREAKER	
CB4	811301	16A,1P CIRCUIT BREAKER	GEAR PUMP ONLY
CR1-CR8	821247	CONTROL RELAY	
CR1-CR8	821249	CONTROL RELAY BASE	
DB-1	821749	FINGER SAFE DB,175A	
DR1	815223	VFD,1HP	GEAR PUMP ONLY
FU1	0481126	SINGLE POLE FUSE BLOCK	
FU1	820929	6A LPCC FUSE	
G1	119156	POWER SUPPLY,24V,6A	
GND	822900	GROUND POST	
HMI	118135	V6 TOUCH DISPLAY	
HS1	823306	V6 POWER BOARD	
LF1	107856	LINE FILTER	GEAR PUMP ONLY
MCB	821935	MAIN CIRCUIT BREAKER	70A
MCB	821941	IP20 FOR MCB	
NEU	104780	1:1 INPUT BLOCK	
PB1,2,4,5	823178	GREEN 22MM,NO,MOD PB	
PB1,2	823179	NC CONT BLOCK	
PB3	114707	E-STOP	
SR1	114705	2 HAND CONTROL	
SR2	114706	E-STOP CONTROL	
SS1,2	823188	2 POS SELECTOR SWITCH	
SSR1,2	805634	3 PHASE SSR	
SSR1,2	812241	IP20 FOR 3P SSR	
TB-1,2	105251	DUAL TERMINAL,10A	
TB-G	104193	GROUND TERMINAL,DUAL	
TB-N	103379	50A TERMINAL	
V6-BUS	118125	V6 BUS MODULE	
V6-XIO	117648	V6 XIO MODULE	
XF1	823402	1:1 ISO TRANSFORMER	
XF1	823403	IP20 FOR XF1	

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)
NEXT ASSY.				U/M
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800				STATUS
				SIZE
				SOURCE
				REV.
				W
				DATE:
				03.23.15
				SHEET
				10
				OF SHEETS
				11
				DRAWING NO.
				823173

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,400V
LAYOUT

SCALE:

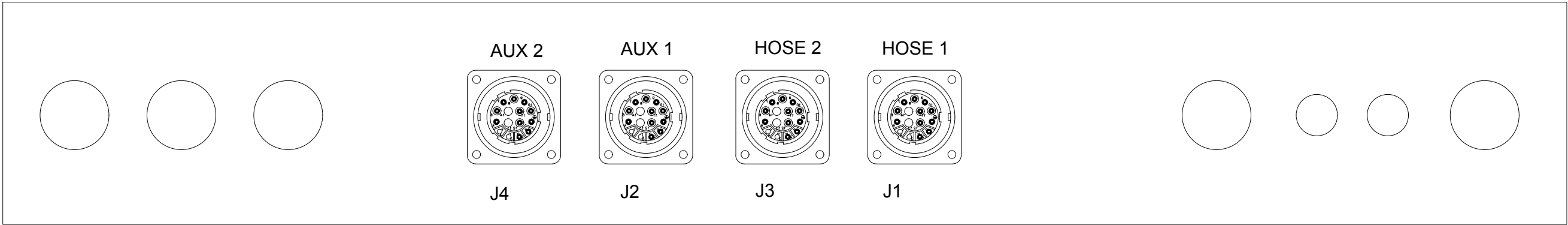
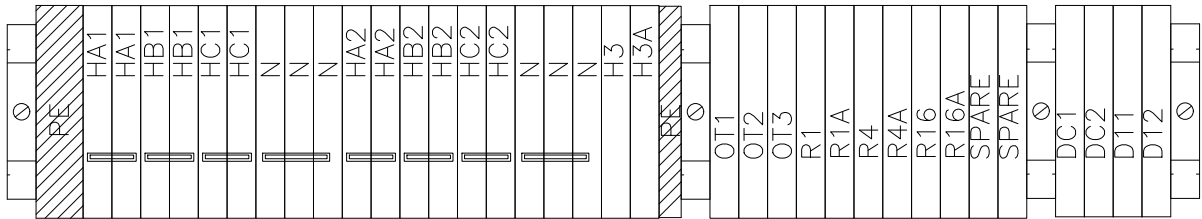
DRAWN BY:
BFQ

CHECKED BY:

APP'D BY:

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REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



PLATEN RESISTANCE AT TERMINALS:

HA1-HB1	9.6	ΩHMS
HA1-HC1	9.6	ΩHMS
HB1-HC1	9.6	ΩHMS
HA2-HB2	9.6	ΩHMS
HA2-HC2	9.6	ΩHMS
HB2-HC2	9.6	ΩHMS

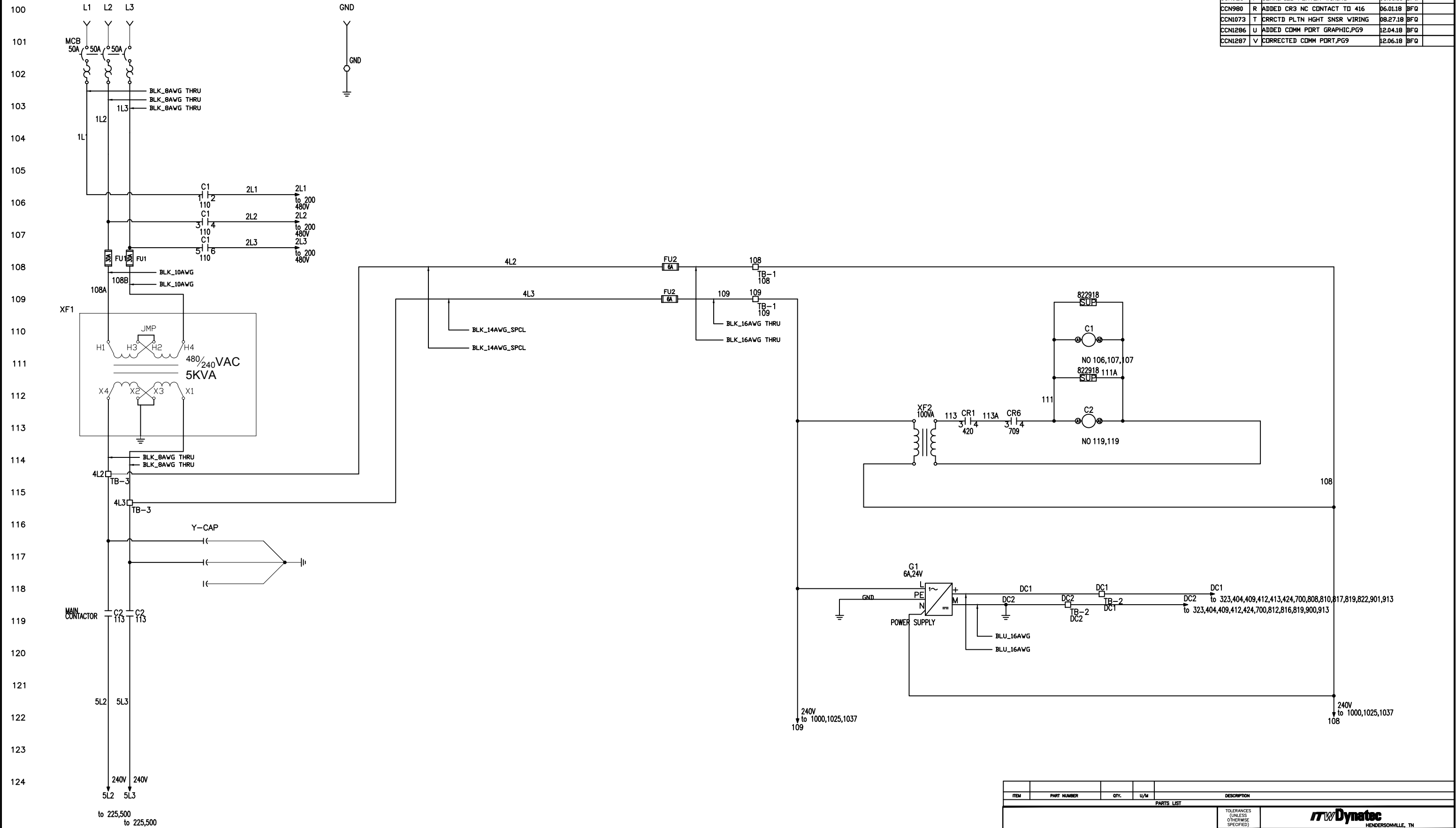
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PARTS LIST				
DO NOT SCALE DRAWING NEXT ASSY. FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800				TOLERANCES (UNLESS OTHERWISE SPECIFIED)
				U/M SIZE STATUS SOURCE REV. W
COMPUTER DESCRIPTION(25 CHARACTERS)		TITLE: DM55,V6,400V J BOX TERMINALS		
		SCALE:	DRAWN BY: BFQ	CHECKED BY: ---
		DATE: 03.23.15	SHEET 11	OF SHEETS 11
		DRAWING NO. 823173		

13.3 Bulk Melter DM55 480V

Schematics, 480V, PN 823174

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REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
17050	L	CONVERTED TO AC/DC	07.31.17	BFQ	
CCN686	M	CHNGD XFMR FS TO 30A,WIRE 10AWG	09.07.17	BFQ	
CCN702	N	CORRECTIONS PER ASSEMBLY	09.22.17	BFQ	
CCN926	P	CLARIFIED PLATEN WIRING	05.03.18	BFQ	
CCN980	R	ADDED CR3 NC CONTACT TO 416	06.01.18	BFQ	
CCN1073	T	CORRECTD PLTN HGHT SNSR WIRING	08.27.18	BFQ	
CCN1286	U	ADDED COMM PORT GRAPHIC,PG9	12.04.18	BFQ	
CCN1287	V	CORRECTED COMM PORT,PG9	12.06.18	BFQ	



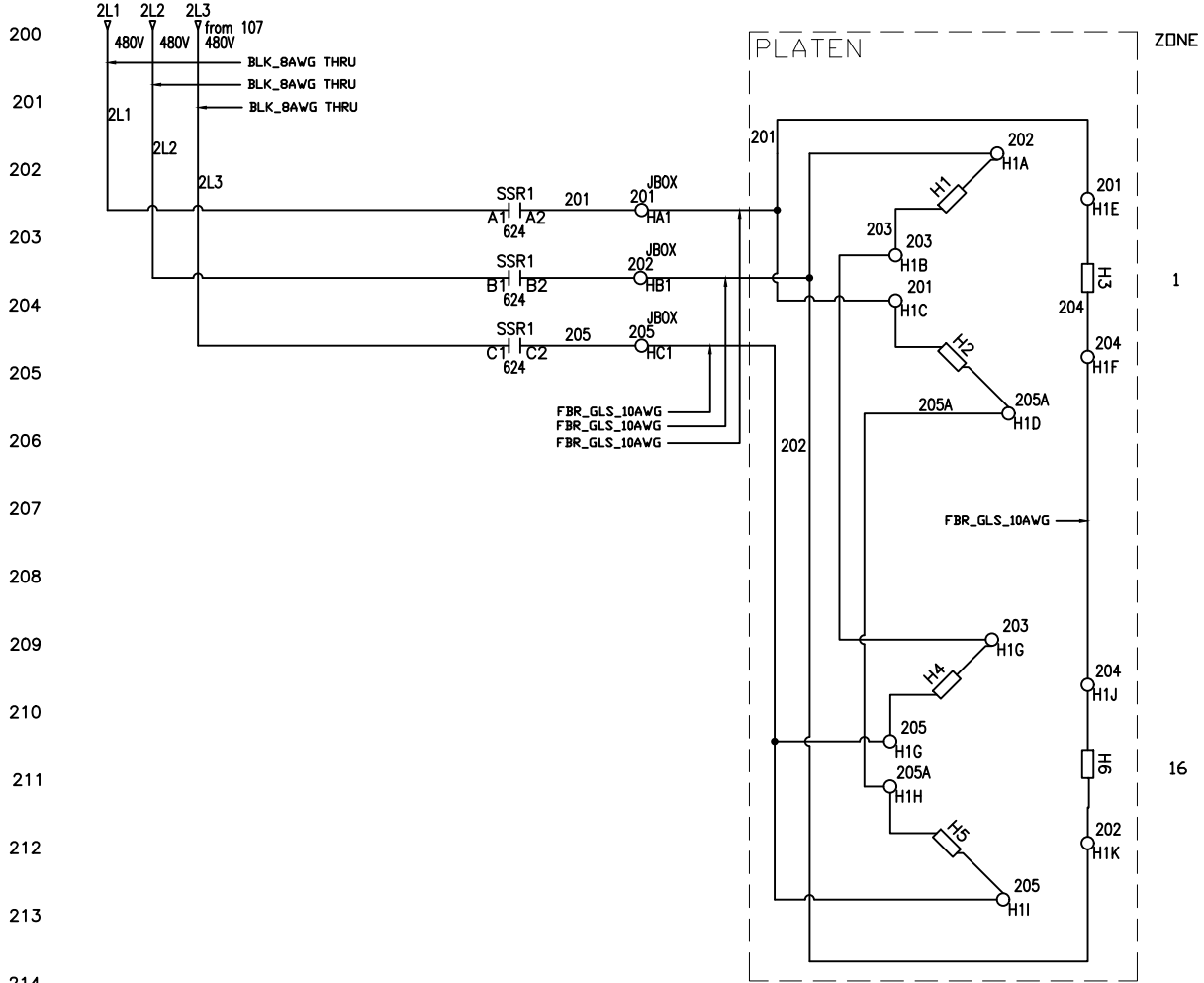
ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)
COMPUTER DESCRIPTION(25 CHARACTERS)				U/M
NEXT ASSY.				STATUS
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800				SIZE
SOURCE				REV.
DATE: 08.14.15				SCALE: 1 OF SHEETS
SHEET 1				CHECKED BY: —
DRAWING NO. 823174				APPR'D BY:

ITW Dynatec
HENDERSONVILLE, TN

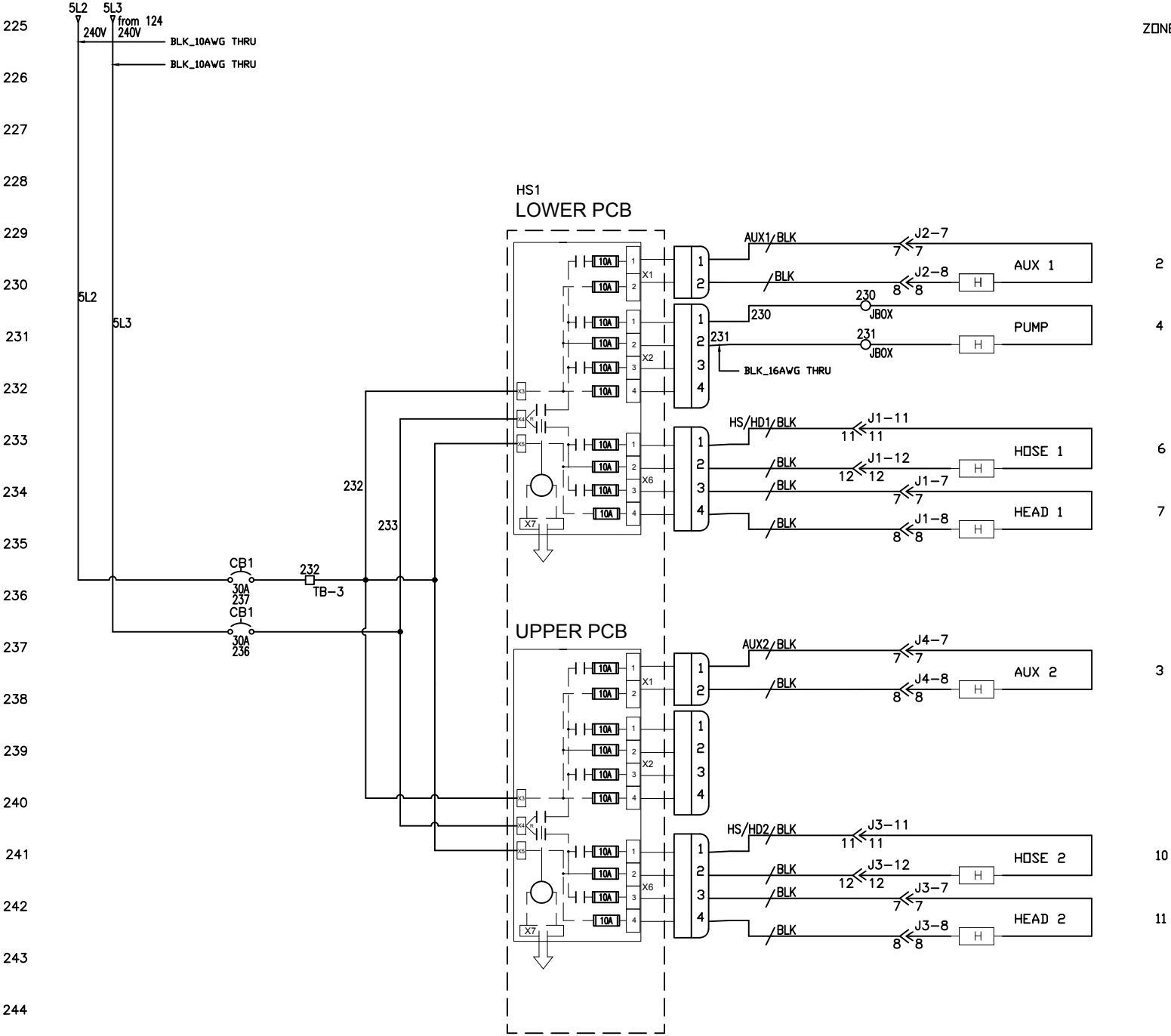
TITLE: DM55,V6,480V
POWER DISTRIBUTION

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REVISIONS				
REL.	REV.	DESCRIPTION	DATE	BY



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GENERAL NOTES:

- DENOTES TERMINAL IN PBOX
- DENOTES TERMINAL IN JBOX
- APPLY WIRE NUMBERS TO BOTH ENDS OF WIRE.
- DENOTES DEVICES EXTERNAL TO PBOX.
- WIRE ALL GROUND CONNECTIONS PER DRAWING 804704.
- THIS IS A GENERAL SCHEMATIC. NOT ALL DEVICES MAY BE PRESENT. SEE ORDER FOR NUMBER OF HOSES, HEADS, AUX, AND MOTORS.

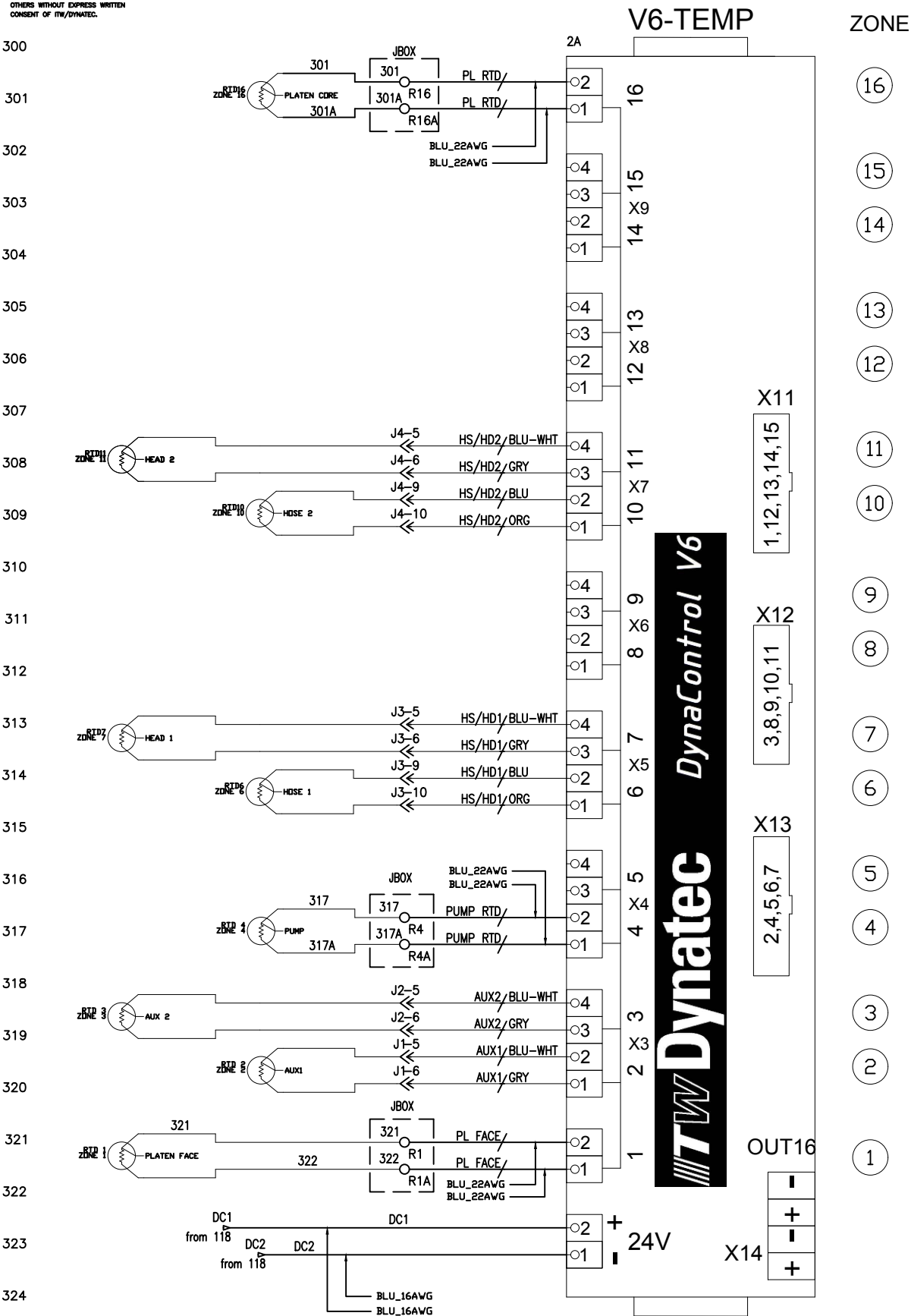
ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
COMPUTER DESCRIPTION(25 CHARACTERS)		DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED)
		NEXT ASSY.	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	U/M STATUS SIZE
		SOURCE	REV. V	DATE: 08.14.15
		SHEET 2	OF SHEETS 11	DRAWING NO. 823174

ITW Dynatec
HENDERSONVILLE, TN

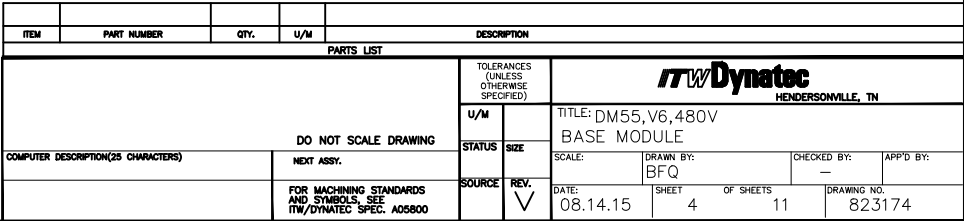
TITLE: DM55,V6,480V
HEATER CIRCUITS
SCALE: DRAWN BY: BFQ
CHECKED BY: —
APPR'D BY: —

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REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



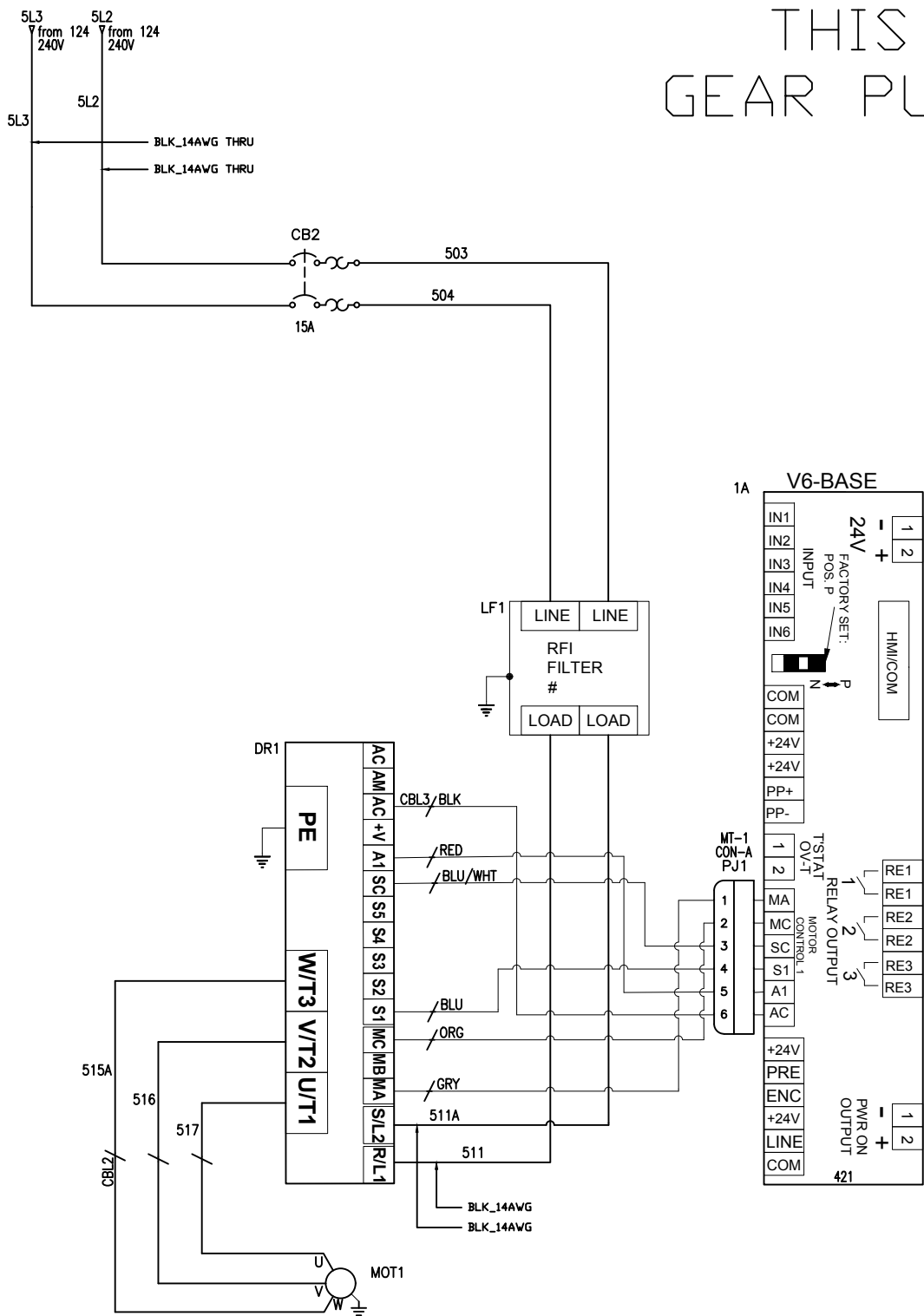
ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION					
PARTS LIST									
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)		 HENDERSONVILLE, TN			
				U/M	SIZE				
COMPUTER DESCRIPTION(25 CHARACTERS)		NEXT ASSY.		STATUS	SIZE	TITLE: DM55,V6,480V RTD INPUTS			
				SOURCE	REV.	SCALE:	DRAWN BY: BFQ	CHECKED BY: —	APP'D BY:
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800				V		DATE:	SHEET	OF SHEETS	DRAWING NO.
						08.14.15	3	11	823174



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REVISIONS				
REL.	REV.	DESCRIPTION	DATE	BY

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GEAR PUMP ONLY

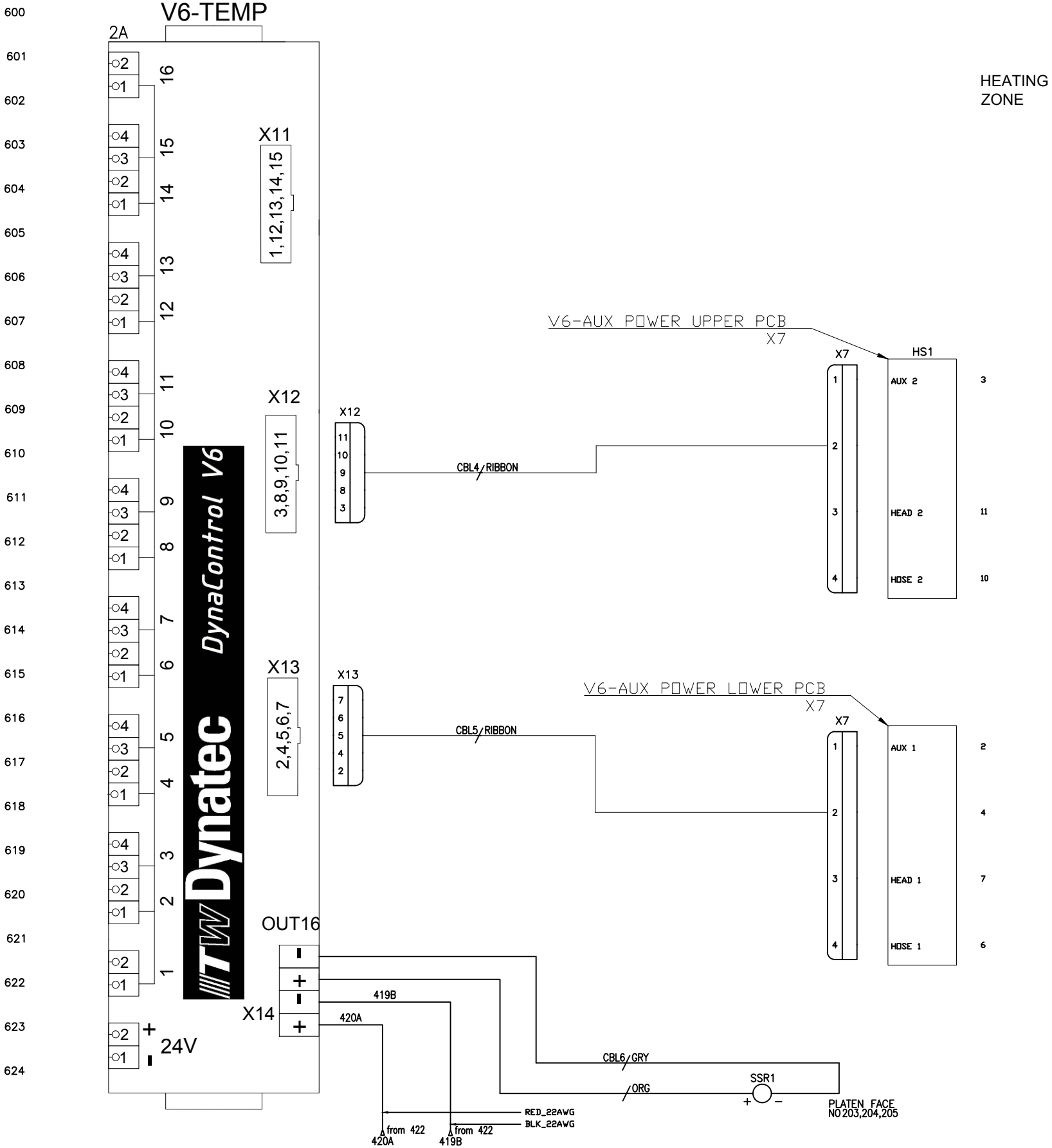


ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)
NEXT ASSY.				U/M
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800				SIZE
SOURCE				STATUS
REV. V				DATE
08.14.15				SHEET
5				OF SHEETS
11				DRAWING NO.
823174				

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REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

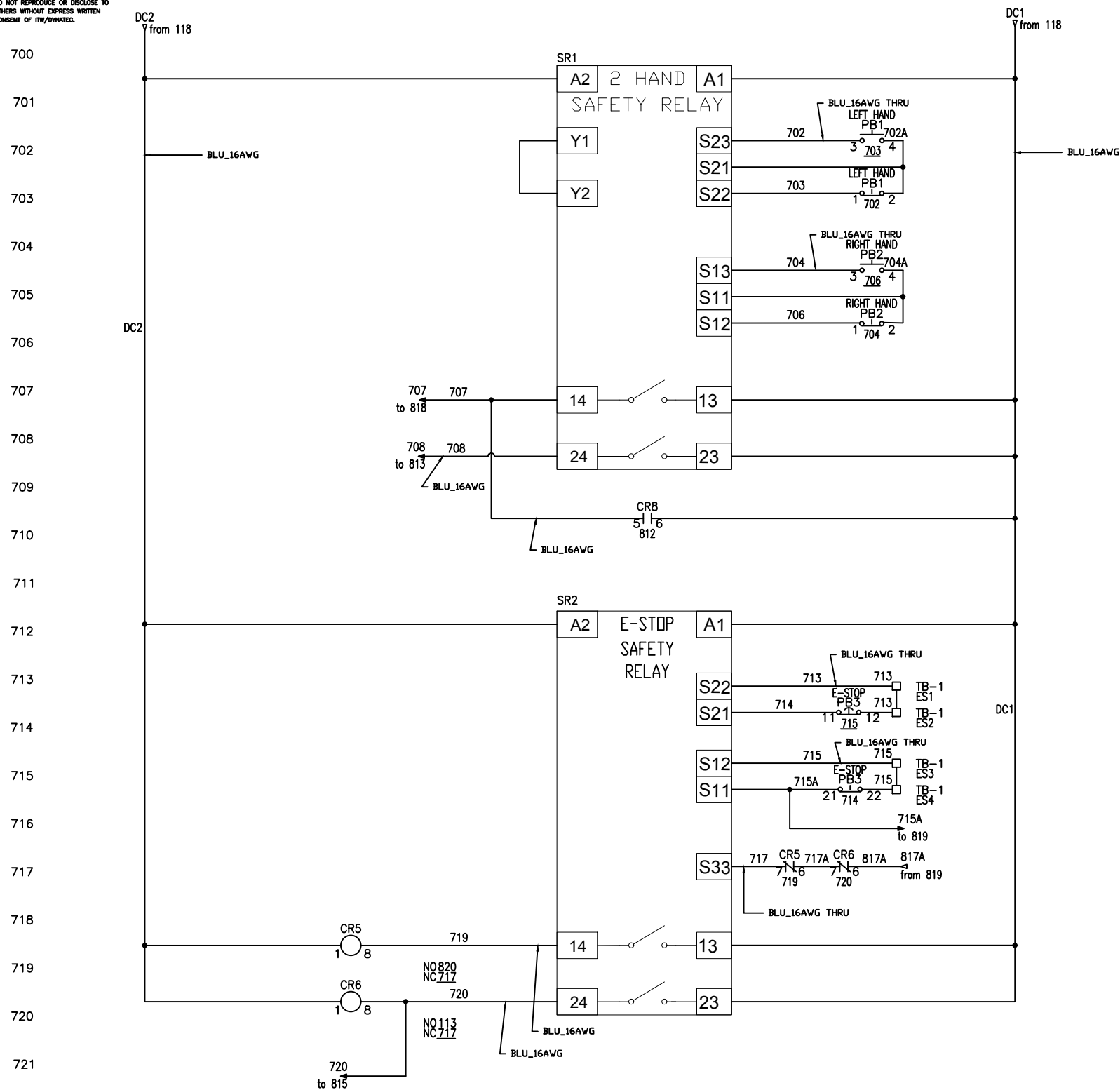
NOTE:
LABEL ZONES AS SHOWN, SOME ZONE NUMBERS ARE
UNUSED.
EX: ZONE 1



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED)		
NEXT ASSY.		U/M	SIZE	STATUS
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800		SOURCE	REV.	DATE
COMPUTER DESCRIPTION(25 CHARACTERS)		DRAWN BY: BFO		
CHECKED BY: -		APPROVED BY: -		
DATE: 08.14.15		SHEET 6 OF SHEETS 11		
DRAWING NO. 823174		DRAWING NO. 823174		

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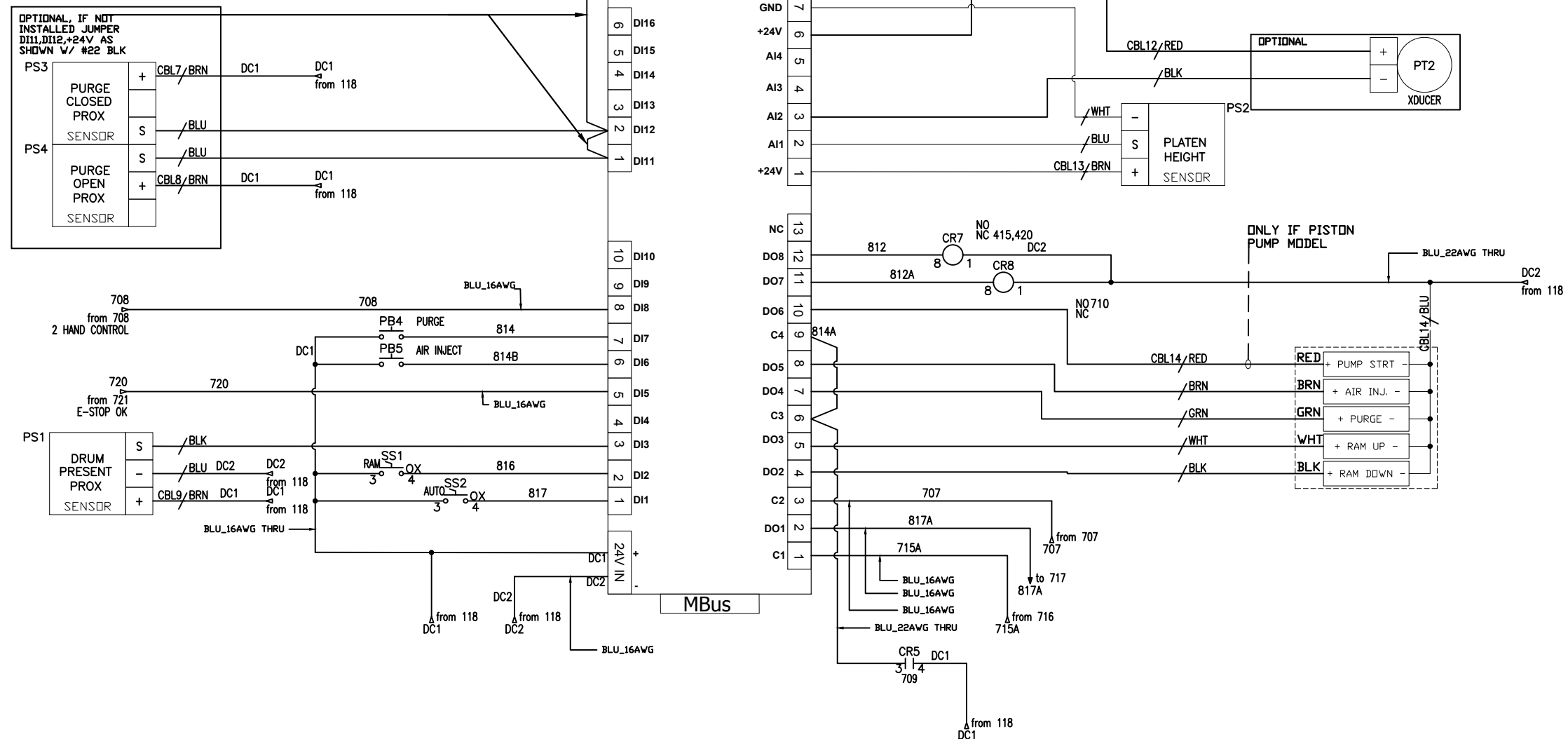
REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION	
PARTS LIST					
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)	
				 HENDERSONVILLE, TN	
COMPUTER DESCRIPTION(25 CHARACTERS)		NEXT ASSY.		U/M	TITLE: DM55,V6,480V
				STATUS	SIZE
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800		SOURCE		REV.	SCALE: DRAWN BY: BFO
					DATE: 08.14.15
				DRAWING NO. 823174	

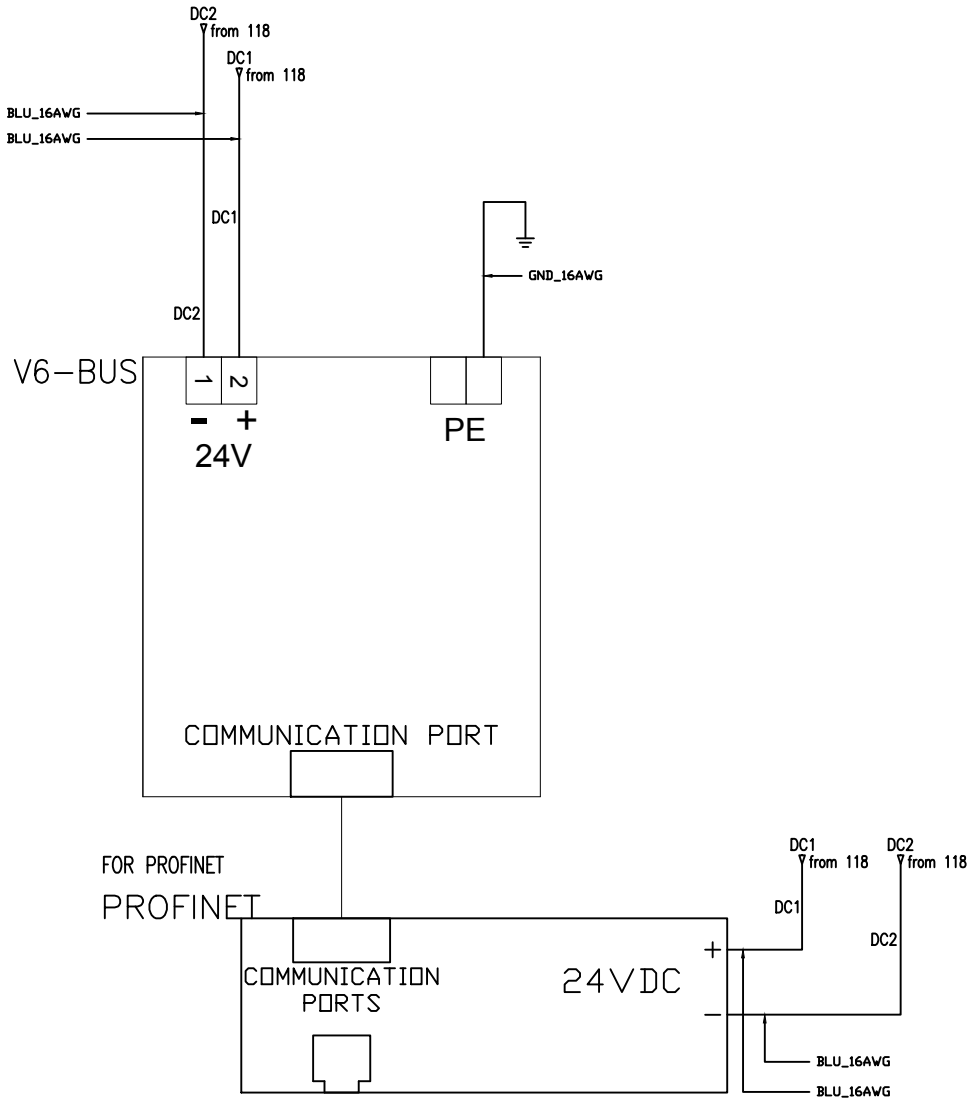
824

V6-XIO MODULE #XIO
MBus

[illegible]

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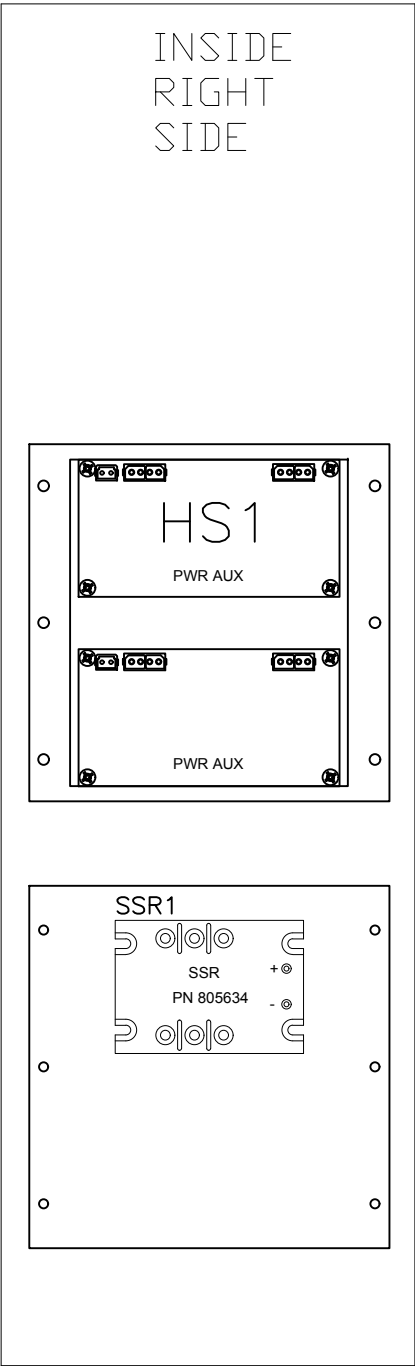
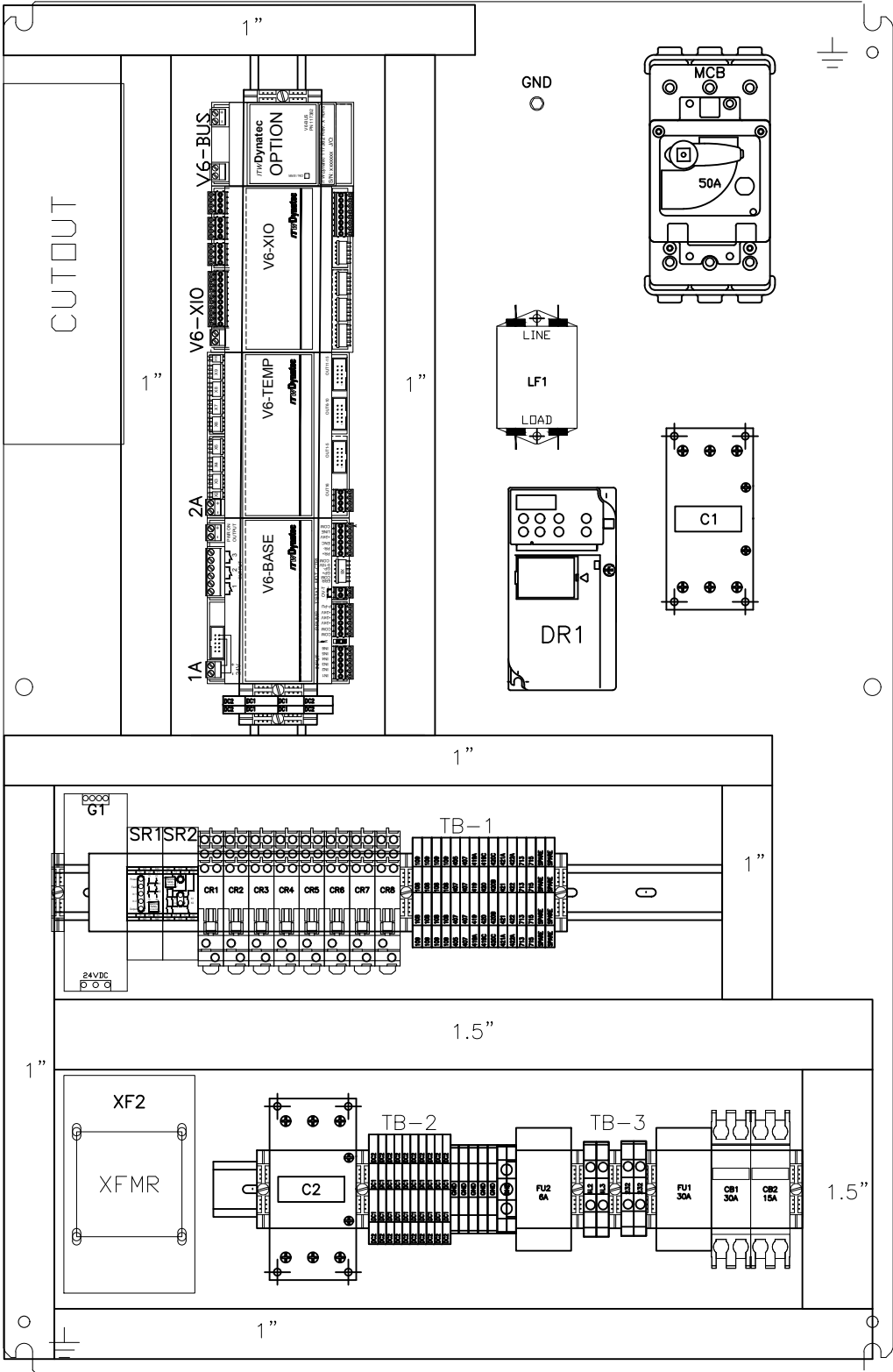
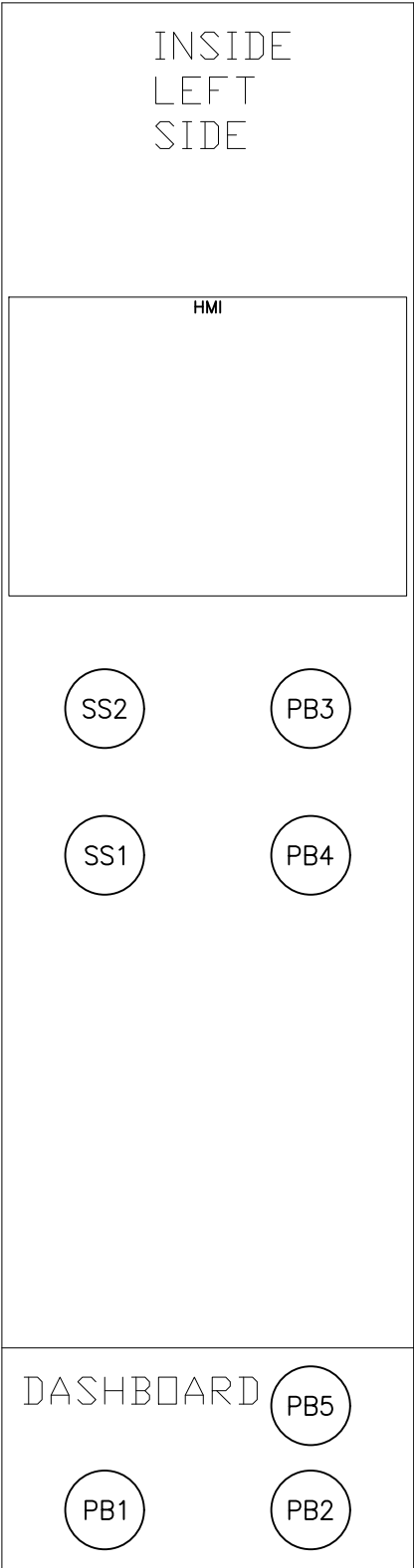
REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)
NEXT ASSY.				U/M
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800				SIZE
SOURCE				REV.
				DATE
				SHEET
				OF SHEETS
				DRAWING NO.
				823174

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REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
TB-1					
LOWER TERMINAL			UPPER TERMINAL		
WIRE	DESC		WIRE	DESC	
109	240VAC		108	240VAC	
109	240VAC		108	240VAC	
109	240VAC		108	240VAC	
109	240VAC		108	240VAC	
405	STBY2		407	STBY1	
407	EN1B		407	EN1A	
419C	SP1B		420	SP1A	
419A	RDY2		419	RDY1	
420C	LDW2		420B	LDW1	
421A	ALM2		421	ALM1	
422A	EMPTY2		422	EMPTY1	
713	ES2		713	ES1	
715	ES4		715	ES3	
SPARE	SPARE		SPARE	SPARE	
SPARE	SPARE		SPARE	SPARE	
TB-2					
LOWER TERMINAL			UPPER TERMINAL		
WIRE	DESC		WIRE	DESC	
ALL TERMINALS			ALL TERMINALS		
DC2	DC2		DC1	DC1	
TB-3					
	4L2		240VAC		
	4L3		240VAC		
	232		240VAC		
	232		240VAC		



ITEM TAG	PN	DESCRIPTION	
1A	115734	V6 BASE MODULE	
2A	115735	V6 TEMP MODULE	
C1,C2	821693	CONTACTOR	63A
C1	822086	IP20 FDR C1,C2	
C1	822918	SUPPRESSOR FDR C1	
CB1	104392	30A,2P CIRCUIT BREAKER	
CB2	104207	15A,2P CIRCUIT BREAKER	CB3 GEAR PUMP ONLY
CR1-CR8	821247	CONTROL RELAY	
CR1-CR8	821249	CONTROL RELAY BASE	
DR1	815223	VFD,1HP	GEAR PUMP ONLY
FU1,FU2	818596	DUAL POLE FUSE BLOCK	
FU1	804534	30A LPCC FUSE	
FU2	820929	6A LPCC FUSE	
G1	119156	POWER SUPPLY,24V,6A	
GND	822900	GROUND POST	
HMI	118135	V6 TOUCH DISPLAY	
HS1	823306	V6 POWER BOARD	
LF1	107856	LINE FILTER	GEAR PUMP ONLY
MCB	821934	MAIN CIRCUIT BREAKER	50A
MCB	821941	IP20 FDR MCB	
NEU	104780	1:1 INPUT BLOCK	
PB1,2,4,5	823178	GREEN 22MM,ND,MDM PB	
PB1,2,4,5	823179	NC CONT BLOCK	
PB3	114707	E-STOP	
SR1	114705	2 HAND CONTROL	
SR2	114706	E-STOP CONTROL	
SSI,2	823188	2 PDS SELECTOR SWITCH	
SSR1,2	805634	3 PHASE SSR	
SSR1,2	812241	IP20 FDR 3P SSR	
TB-1,2	105251	DUAL TERMINAL,10A	
TB-3	103379	50A TERMINAL	
TB-G	104193	GROUND TERMINAL,DUAL	
V6-BUS	118125	V6 BUS MODULE	
V6-XIO	117648	V6 XIO MODULE	
XF2	823402	1:1 ISD TRANSFORMER	
XF2	823403	IP20 FDR XF1	

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
DO NOT SCALE DRAWING				TOLERANCES (UNLESS OTHERWISE SPECIFIED)
COMPUTER DESCRIPTION(25 CHARACTERS)				U/M
NEXT ASSY.				STATUS
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800				SIZE
				SOURCE
				REV.
				DATE
				SHEET
				OF SHEETS
				11
				DRAWING NO.
				823174

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,480V
LAYOUT

SCALE: BFO

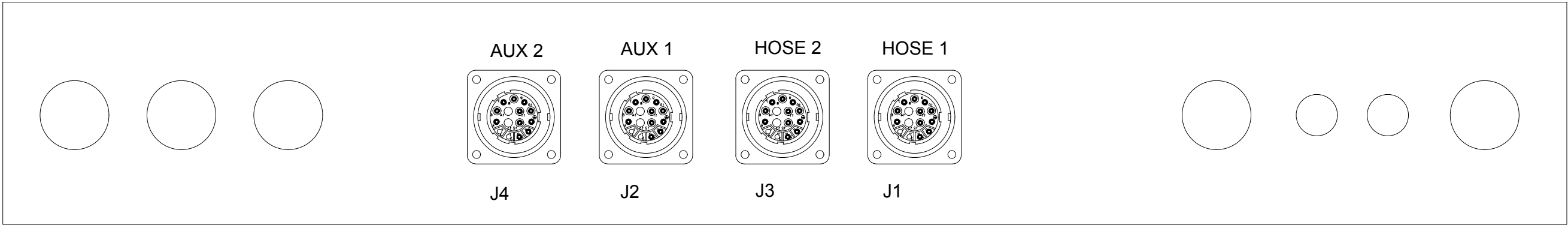
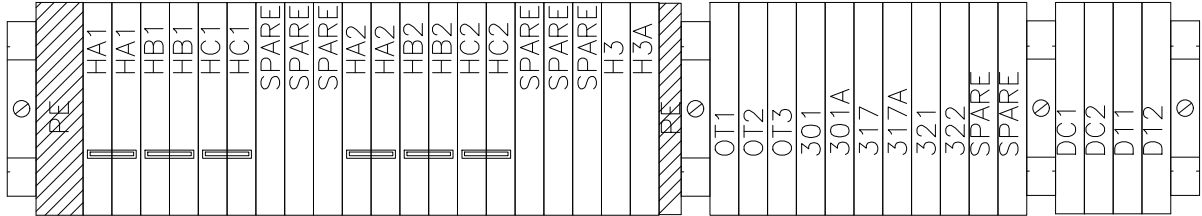
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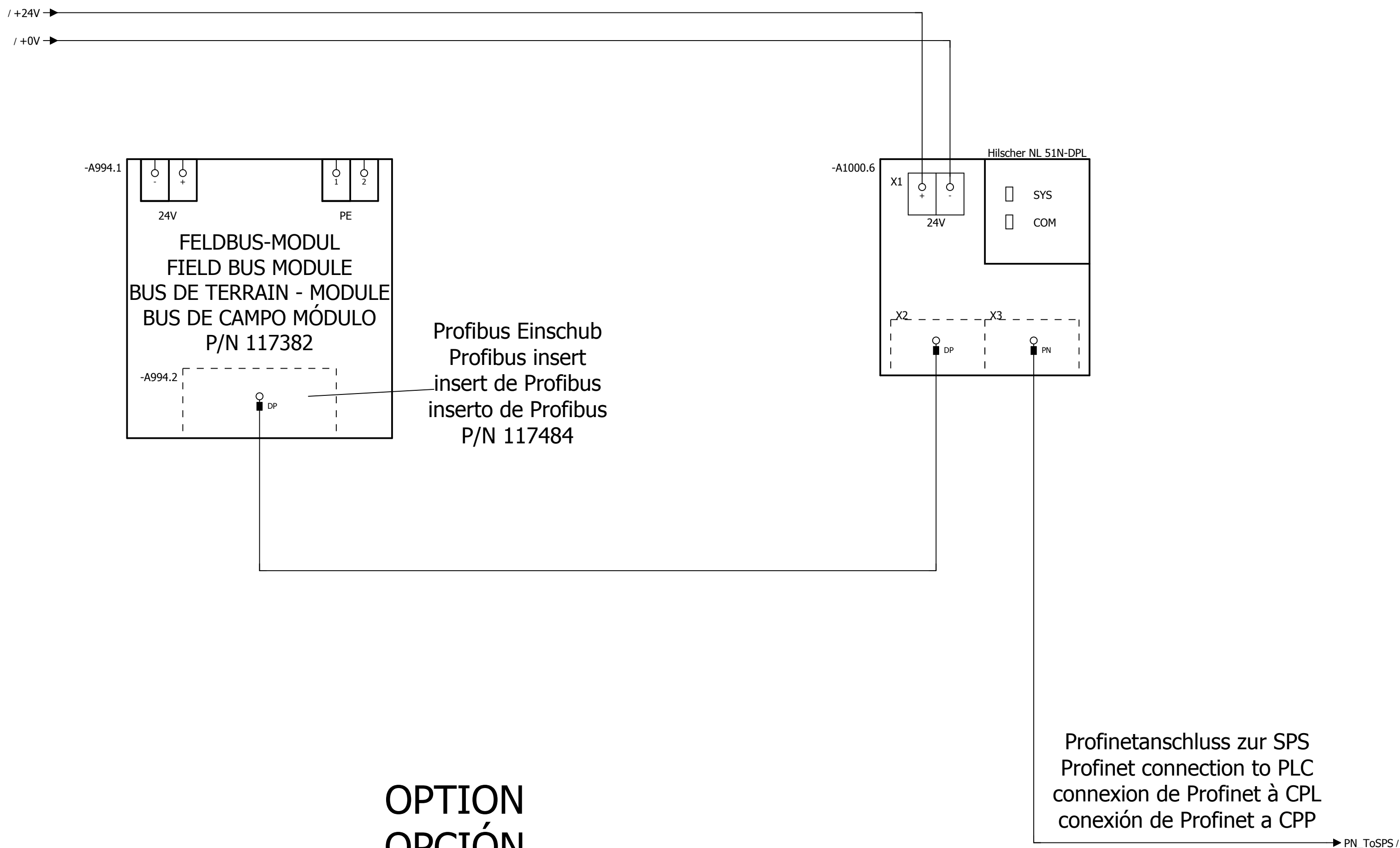
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REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



PLATEN RESISTANCE AT TERMINALS:
HA1-HB1 12.8 OHMS
HA1-HC1 12.8 OHMS
HB1-HC1 12.8 OHMS

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				
DO NOT SCALE DRAWING NEXT ASSY. FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800				TOLERANCES (UNLESS OTHERWISE SPECIFIED)
				U/M STATUS SIZE SOURCE REV. V
COMPUTER DESCRIPTION(25 CHARACTERS)		TITLE: DM55,V6,480V J BOX TERMINALS		
		SCALE:	DRAWN BY: BFQ	CHECKED BY: —
		DATE: 08.14.15	SHEET 11	OF SHEETS 11
		DRAWING NO. 823174		



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Chapter 14

Appendix

DynaControl V6 / Fieldbus Options

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:

- ASU 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.

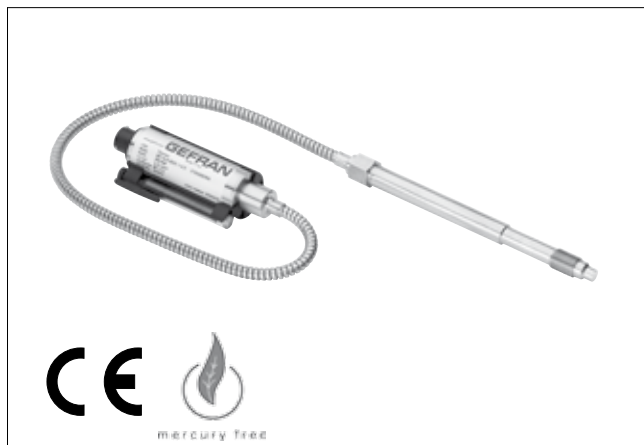
Following Blocks are available:

- 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 ASU's HMI) possible the PLC can grant access to those parameters. The access is separated into global control and Line speed control.



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 transmission of the pressure.

The fluid-filled system assures the temperature stability.

The physical 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: $< \pm 0.25\%$ FSO (H); $< \pm 0.5\%$ 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 for ranges below 100 bar-1500 psi

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

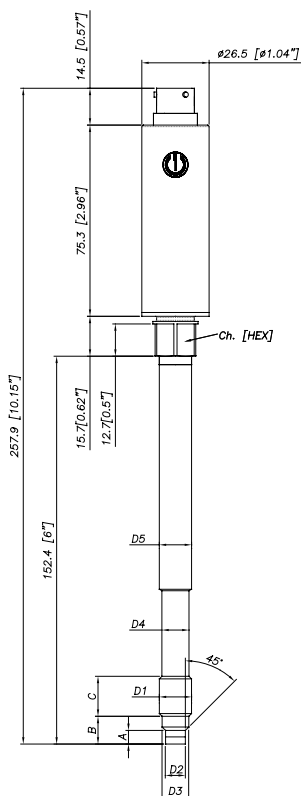
Accuracy (1)	H $< \pm 0.25\%$ FSO (100...1000 bar) M $< \pm 0.5\%$ FSO (35...1000 bar)
Resolution	Infinite
Measurement range	0..35 to 0..1000bar 0..500 to 0..15000psi
Maximum overpressure (without degrading performances)	2 x FS 1.5 x FS above 500bar/7500psi
Measurement principle	Extensimetric
Power supply	10...30Vdc
Maximum current absorption	32mA
Insulation resistance (at 50Vdc)	>1000 MOhm
Output signal Full Scale (FSO)	20mA
Zero balance (tolerance $\pm 0.25\%$ FSO)	4mA
Zero signals adjustment (tolerance $\pm 0.25\%$ FSO)	"Autozero" function
Span adjustment within $\pm 5\%$ 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
Compensated temperature range	0...+85°C
Operating temperature range	-30...+105°C
Storage temperature range	-40...+125°C
Thermal drift in compensated 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.

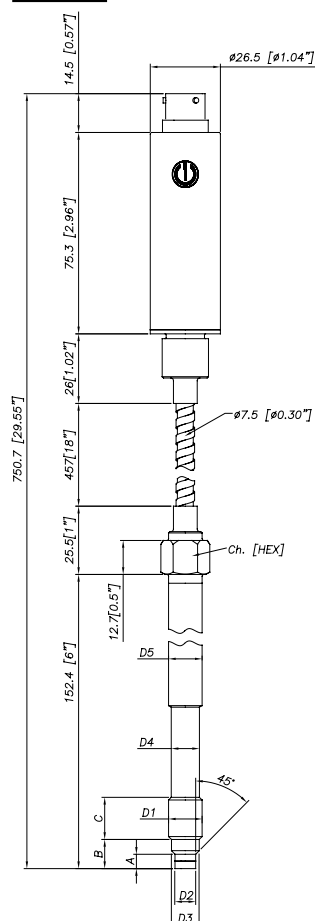
MECHANICAL DIMENSIONS

WE0

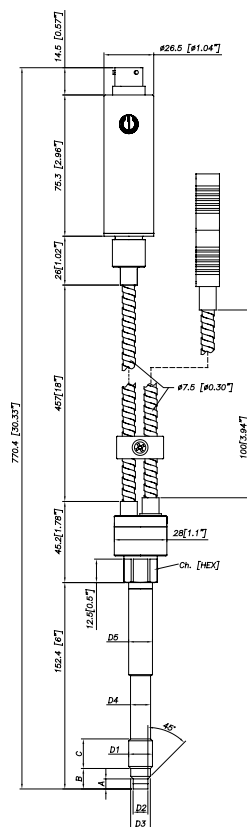
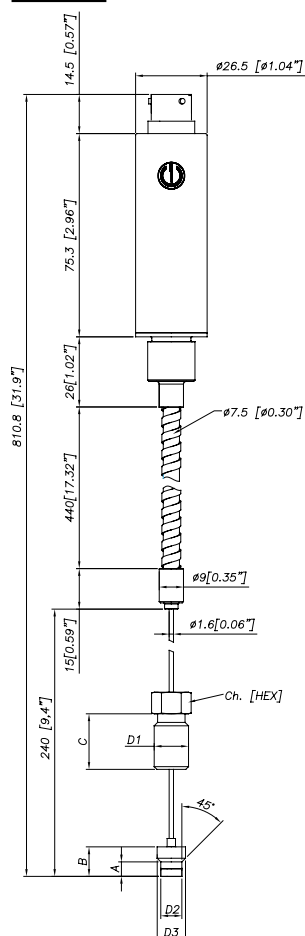


D1	1/2 - 20UNF
D2	$\phi 7.8 \pm 0.05$ [$\phi 0.31'' \pm 0.002$]
D3	$\phi 10.5 \pm 0.025$ [$\phi 0.41'' \pm 0.001$]
D4	$\phi 10.67$ [$\phi 0.42''$]
D5	$\phi 12.7$ [$\phi 0.5''$]
A	5.56 ± 0.26 [$0.22'' \pm 0.01$]
B	11.2 [$0.44''$]
C	15.74 [$0.62''$]
Ch [Hex]	16 [$5/8''$]

WE1



D1	M18x1.5
D2	$\varnothing 10$ -0.05 [$\varnothing 0.394''$ -0.002]
D3	$\varnothing 16$ -0.08 [$\varnothing 0.63''$ -0.003]
D4	$\varnothing 16$ -0.4 [$\varnothing 0.63''$ -0.016]
D5	$\varnothing 18$ [$\varnothing 0.71''$]
A	6 -0.26 [$0.24''$ -0.01]
B	14.8 -0.4 [$0.58''$ -0.016]
C	19 [$0.75''$]
Ch [Hex]	19 [$3/4''$]

WE2**WE3**

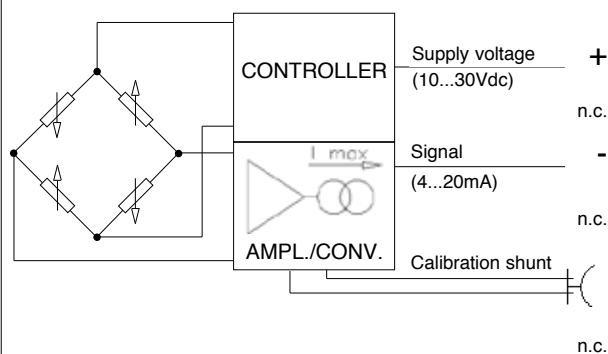
Exposed capillary	
D1	1/2-20UNF
D2	.307/.305" [7.80/7.75mm]
D3	.414/.412" [10.52/10.46mm]
A	.125/.120" [3.18/3.05mm]
B	.318/.312" [8.08/7.92mm]
C	.81" [20.6mm]

NOTE : dimensions refer to rigid stem length option “4” (153 mm – 6”)

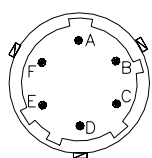
WARNING : For installation use a maximum tightening torque of 56 Nm(500 in-lb)

ELECTRICAL CONNECTIONS

CURRENT OUTPUT (4...20mA, two wires)



6 pin connector
VPT07RA10-6PT2
(PT02A-10-6P)



8 pin connector
PC02E-12-8P Bendix



MAGNETIC AUTOZERO

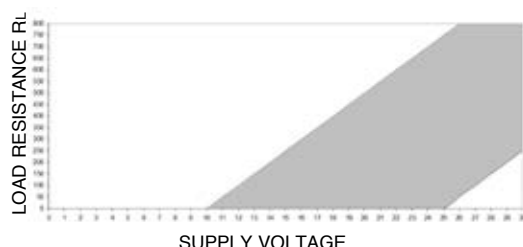
6-pin	8-pin
A	B
C	A
B	D
D	C
E - F	E - F
	G - H

Shield drain wire is tied to connector via cable clamp

EXTERNAL AUTOZERO

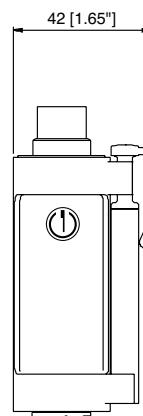
6-pin	8-pin
A	B
C	A
B	D
D	C
E - F	E - F
	G - H

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)

8-pin mating connector

Extension cables

6-pin connector with 8m (25ft) cable

6-pin connector with 15m (50ft) cable

6-pin connector with 25m (75ft) cable

6-pin connector with 30m (100ft) cable

8-pin connector with 8m (25ft) cable

8-pin connector with 15m (50ft) cable

8-pin connector with 25m (75ft) cable

8-pin connector with 30m (100ft) cable

Other lengths

Accessories

Mounting bracket

Dummy plug for 1/2-20UNF

Dummy plug for M18x1.5

Drill kit for 1/2-20UNF

Drill kit for M18x1.5

Cleaning kit for 1/2-20UNF

Cleaning kit for M18x1.5

Thermocouple for WE2 model

Type "J" (153mm - 6" stem)

CON300
CON307

C08WLS
C15WLS
C25WLS
C30WLS
E08WLS
E15WLS
E25WLS
E30WLS
consult factory

SF18
SC12
SC18
KF12
KF18
CT12
CT18

TTER 601

Cable color code 6 wires		Cable color code 8 wires	
Conn.	Wire	Conn.	Wire
A	Red	A	White
B	Black	B	Red
C	White	C	Green
D	Green	D	Black
E	Blue	E	Blue
F	Orange	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 reserves the right to make any kind of design or functional modification at any moment without prior notice.

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GEFRAN

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Revisions

Revision	Page/ Chapter	Description
Rev.11.18	p.26	Model Designation Guide updated according to PLS "Unloader Product Line Configurator – Vers. 11 July 2018".
	Ch.13	Schematics updated.
Rev.12.18	Ch.5	V6 Controller updated (Rev.8.18).
	Ch.13	Schematics updated.
Rev.2.19	Ch.5	V6 Touch: Pump status icons added to Pump Overview screen.
	Ch.11	V6 Profinet-Kit 121151 replaced with 121436.

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