ITW Dynatec®

Adhesive Application Solutions | ISO 9001 certified

DM55 DynaDrum Bulk Adhesive Melter

With Gear Pump & Controller V6 Touch Panel

Technical Documentation, No. 21-19, Rev.4.25

English – Original Instructions

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

Information about this manual

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

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

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

ITW Dynatec Service Parts and Technical Service:

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Chapter 1
Declaration of Conformity

EC declaration of conformity

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

Original

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

ITW Dynatec

31 Volunteer Drive

US - 37075 Hendersonville

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

Andreas Pahl

ITW Dyantec GmbH

Industriestra Be 28

DE - 40822 Mettmann

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 MKII
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
2011/65/EU	Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment Published in 2011/L 174/88 of 7/1/2011

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

EN ISO 13849-2:2012	Safety of machinery - Safety-related parts of control systems - Part 2: Validation (ISO 13849-2:2012)
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)
EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)
EN ISO 13854:2019	Safety of machinery - Minimum gaps to avoid crushing of parts of the human body (ISO 13854:2017)
EN 60204-1:2018	Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2016, modified)

Hendersonville, 3/7/2023

Place, Date

Signature
Heidi Rushton
VP/GM

Signature
Michael Wallner
Operations Manager EMEA & Asia

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Chapter 2
Safety Instructions

2.1 General Considerations

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

Read and adhere to the manual!

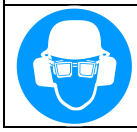
1. Read and follow these instructions.
   Failure to do this could result in severe personal injury or death.
2. Keep the binding rules for accident prevention valid for your country and the place of installation. Also keep the approved qualified technical rules for safety-conscious and professional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

2.2 Warning Labels

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

2.3 Safety Symbols in this Manual

Mandatory signs

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

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

Warning signs

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

	**Caution, danger spot!** This sign points to possible dangers for life and physical condition or to possible risks for machine and material or to possible risks for environment. The word **"DANGER"** in addition with this points to possible dangers of life The words **"WARNING" and "CAUTION"** in addition with this sign point to possible risks of injury. The word **"ADVICE"** in addition with this sign points to possible risks for machine, material or environment.

	**Danger, high voltage!** This sign points to possible dangers for life and physical condition caused by electricity. **Risk of injury, mortal danger!**
	**Caution, hot surface!** This sign points to possible risks of burns. **Risk of Burns!**
	**Caution, high pressure!** This sign points to possible risks of injury caused by high pressure. **Risk of injury!**
	**Caution, rotating rolls!** This sign points to possible risks of injury caused by inrunning nip (at rolls). **Risk of injury!**

Prohibition signs

	**Fire danger!** **Smoking prohibited!**

	**Fire danger!** **Fire and open flames prohibited!**

2.4 Safe Installation and Operation

Read and adhere to the manual!

1. Read this manual before applying electrical power to the equipment. Equipment may be damaged by incorrect electrical connections.

2. To avoid possible failure of hoses, make sure all hoses are routed to avoid kinking, tight radius turns (8” or less) and abrasive contact. Hot-melt hoses should not have prolonged contact with heat-absorbing surfaces such as cold floors or metal troughs. These heat-absorbing surfaces can alter adhesive flow and cause incorrect calibration. Hoses should never be covered with materials that prevent heat dissipation, such as insulation or sheathing. Hoses should be spaced apart from each other, not making direct contact.

3. Do not use adhesive that is dirty or that may be chemically contaminated. Doing so can cause system clogging and pump damage.

4. When adhesive hand-held applicators or other movable applicators are used, never point them at yourself or at any other person. Never leave a hand-held applicator's trigger unlocked when not actually in use.

5. 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!

	**Smoking, fire and open flames prohibited! Fire danger!** Make absolutely sure that there is no smoking and no fire being lit in the work area!

2.5 Explosion/ Fire Hazard

1. Never operate this unit in an explosive environment.

2. Use cleaning compounds recommended by ITW Dynatec or your adhesive supplier only.

3. Flash points of cleaning compounds vary according to their composition, so consult with your supplier to determine the maximum heating temperatures and safety precautions.

2.6 Choice of Adhesive

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.

2.7 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.

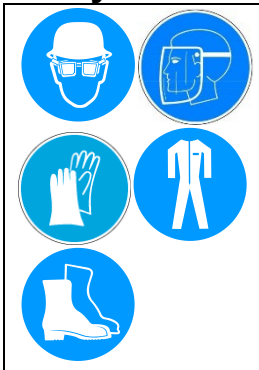
10. The use of air dryers such as ITW Dynatec PN 117944 or 117974 are recommended in humid environments.

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.

2.8 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 287.1 or safety glasses with side shields which conform to ANSI Z87.1 or EN166.
3. Failure to wear a face shield or safety glasses could result in severe eye injury.
4. It is important to protect yourself from potential burns when working around hot melt adhesive equipment.
5. Wear heat-resistant protective gloves and long-sleeved, protective clothing to prevent burns that could result from contact with hot material or hot components.
6. Always wear steel-reinforced safety shoes.

2.9 Electrical

DANGER HIGH VOLTAGE

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

2.10 Lockout/ Tagout

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

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

2.11 High Temperatures

WARNING HOT SURFACE

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

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

2.12 High Pressure

WARNING HIGH PRESSURE PRESENT

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

2. To prevent serious injury from molten adhesive under pressure when servicing the equipment, disengage the pumps and relieve the adhesive system's hydraulic pressure (i.e. trigger the heads, hand-held applicators, and/or other application devices into a waste container) before opening any hydraulic fittings or connections.

3. IMPORTANT NOTE: Even when a system's pressure gauge reads “0” psi, residual pressure and trapped air can remain within it causing hot adhesive and pressure to escape without warning when a filter cap or a hose or hydraulic connection is loosened or removed. For this reason, always wear eye protection and protective clothing.

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

5. Keep the given operating pressure.

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

2.13 Protective Covers

WARNING
DO NOT OPERATE WITHOUT GUARDS IN PLACE

1. Keep all guards in place!

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

3. Never get your extremities and/or objects into the danger area of the unit. Keep your hands away from running parts of the unit (pumps, motors, rolls or others).

2.14 Servicing, maintenance

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

2.15 Secure transport

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

2.16 Treatment for Burns from Hot Melt Adhesives

Measures after being burned:

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

2. Cool burnt parts immediately!

3. Do not remove adhesive forcibly from the skin!

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

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

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

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

2.17 Measures in case of fire

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

2.18 Keep attention to environmental protection standards

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

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

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

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

Chapter 3
Description and Technical Specs

3.1 Applicable Safety Regulations

3.1.1 Intended Use

The 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.

3.1.2 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.

3.1.3 Residual Risks

In the design of the Melter, every measure was taken to protect personnel from potential danger. However, some residual risks cannot be avoided.
Personnel should be aware of the following:

- Risk of burns from hot material.
- Risk of burns from hot 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.

3.1.4 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.

3.1.5 Using foreign components

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

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

3.1.6 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 (208 liters) 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.

A variety of gear pumps are available. Standard pumps include 20ccm, 30ccm and 45ccm. Smaller pumps are also available as an option. 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.

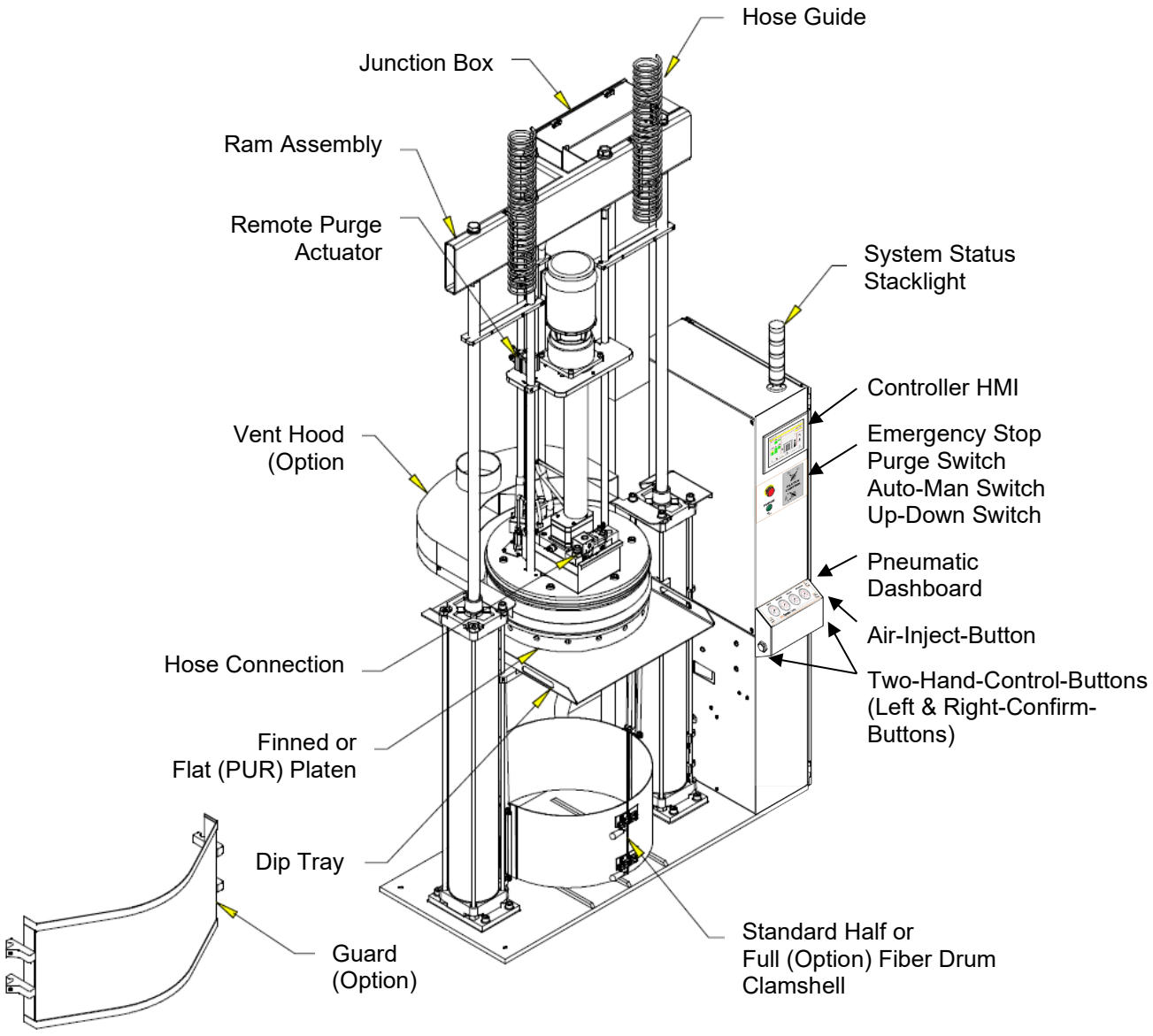


Illustration: DM55 with Gear Pump Components

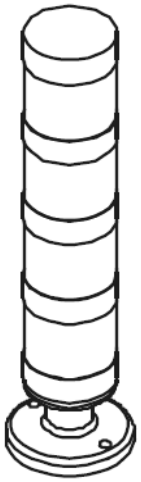
3.2.1 Two-Hand-Control-Buttons (Left & Right-Confirm-Buttons)

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.

3.2.2 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.



Black:
Audible alarm

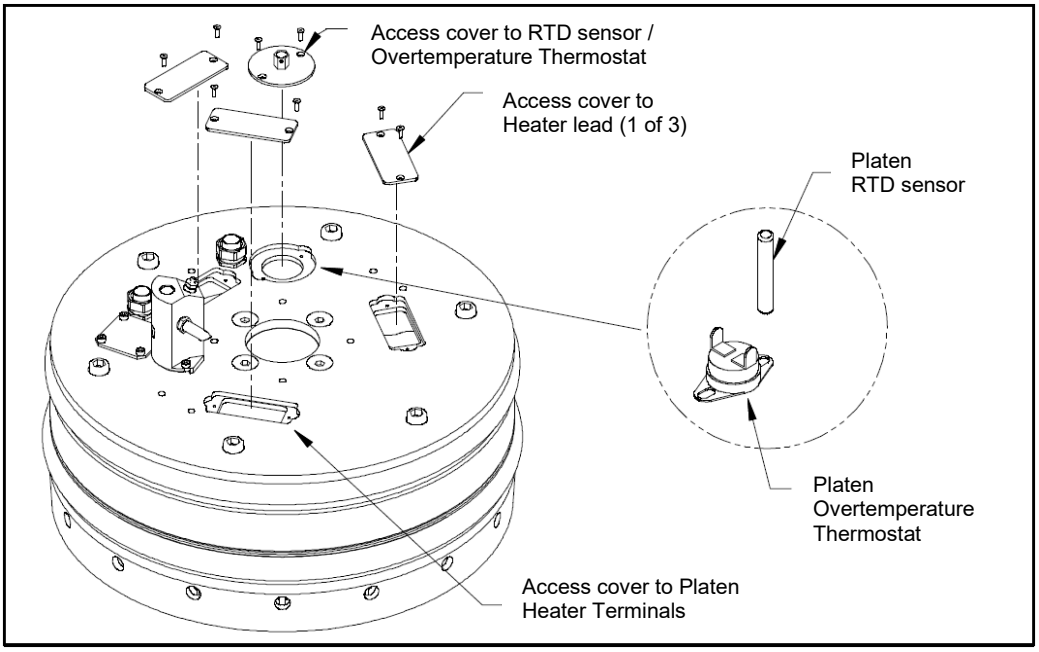
Red:
Empty drum or any alarm condition

Amber:
Low material level

Green:
System ready

3.2.3 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).



3.2.4 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
Gear pumps..... 20ccm, 30ccm or (optional high output) 45ccm
Motor ..... 1 HP, variable speed, AC, brushless
Controller..... HMI with Touch Panel
Hose ..... application specific

Performance:

Maximum operating temperature ..... 204°C (400°F)
Temperature range ..... 38°C to 204°C (100°F to 400°F)
Warm-up time ..... 20 minutes
Melt rate, maximum* ..... up to 272 kg/h (600 lb/h), 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: gear pump 30ccm (optional) ..... 154 kg/h (340 lb/h)
Maximum output rate: gear pump 45 ccm (optional, high output) ..... 227 kg/h (500 lb/h)
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 Watt max.
Pump ..... 1170 Watt max.
Transfer block (for optional gear pump)..... 1170 Watt max.
Hand-held applicator ..... 200 Watt max.
Hose, applicator ..... 1000 Watt max.
Hose, transfer ..... 2000 Watt max.

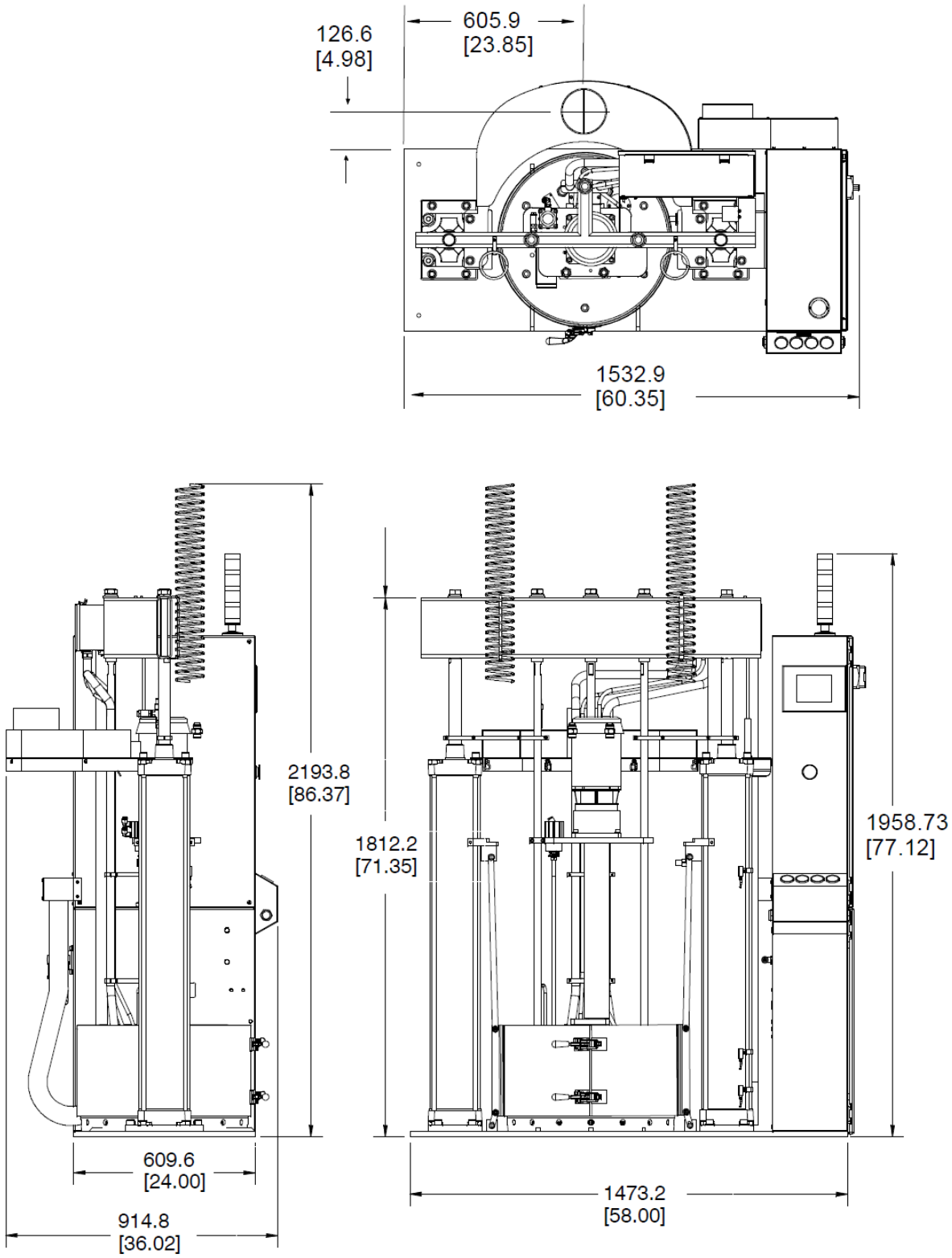
Air Requirements:

Operating air pressure range ..... 1.4 to 5.5 bar (20 to 80 psi)

HMI V6 Controller with Touch Panel:

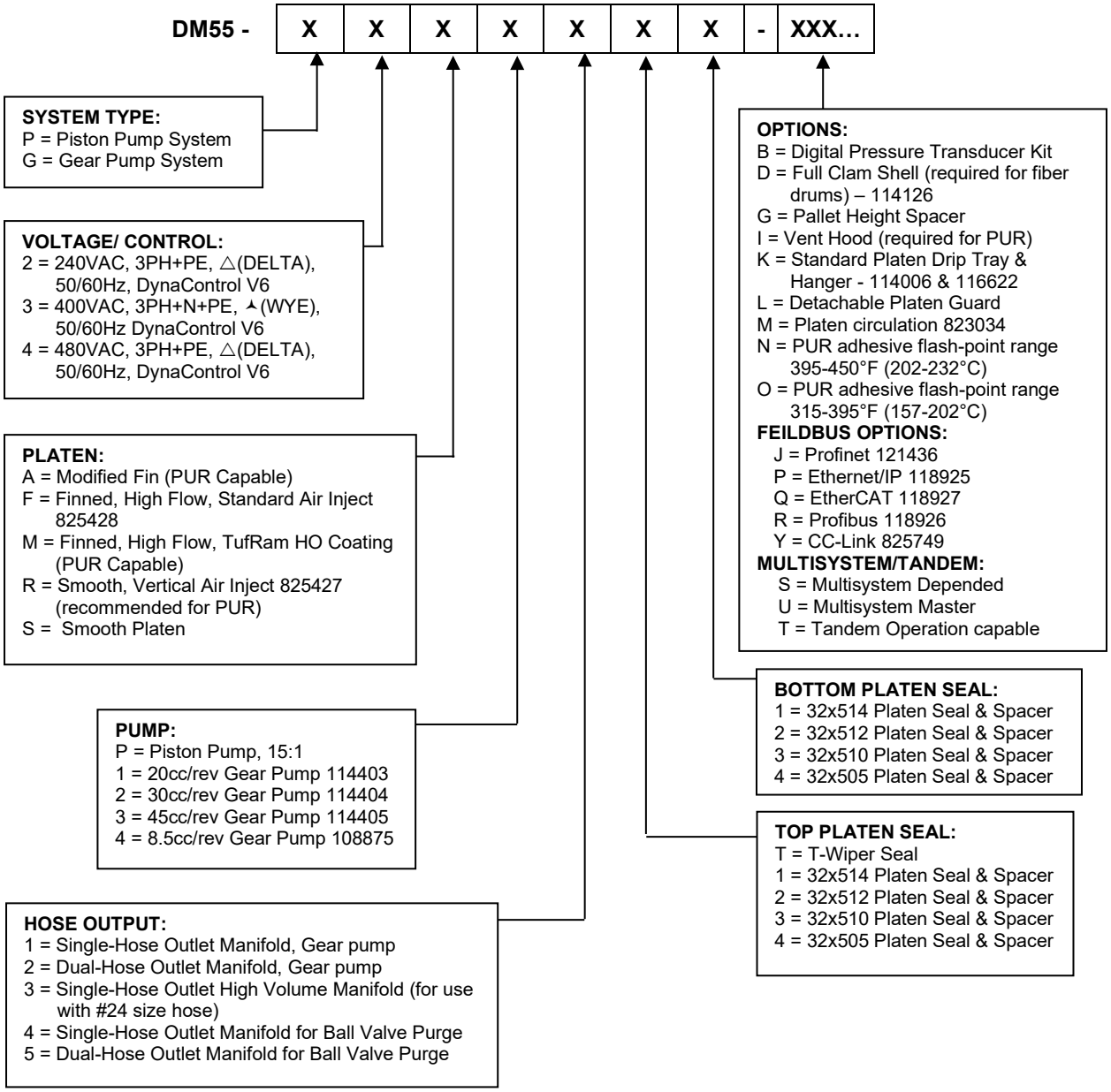
Supply voltage 24VDC
Display type ..... color, graphic, Touch Panel
Temperature control zones ..... solid state relay output
Discrete I/O ..... yes
Analog input (pump speed tracking, RTD inputs) ..... yes
Individual high and low temp alarms ..... yes
Display language ..... Multi
Operator interface ..... 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

3.3.1 Dimensions



Bulk Melter Installation Dimensions

3.4 Model Designation Guide



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 dimensions in Ch.3.3.

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.

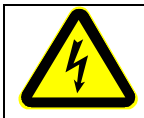
2. Bolt Melter and panel box securely to the floor with 1/2” dia. x 3” anchor bolts and flat washers.

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. 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.

5. 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.

6. 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.

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

CAUTION

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.

8. Connect all cables of the hoses according to the electrical schematics.

9. 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 m³			Mass concentration	Vapor pressure dew point	Liquid	Total oil content (liquid, aerosol and mist)
	0.1-0.5 µm	0.5-1 µm	1-5 µm	mg/m³	°C	g/m³	mg/m³
0	As stipulated by the equipment user, stricter requirements than class 1.						
1	≤ 20,000	≤ 400	≤ 10	-	≤ -70	-	0.01
2	**≤ 400,000**	**≤ 6,000**	**≤ 100**	**-**	≤ -40	-	0.1
3	-	≤ 90,000	≤ 1,000	-	≤ -20	-	**1**
4	-	-	≤ 10,000	-	**≤ +3**	-	5
5	-	-	≤ 100,000	-	≤ +7	-	-
6	-	-	-	≤ 5	≤ +10	-	-
7	-	-	-	5-10	-	≤ 0.5	-
8	-	-	-	-	-	0.5 - 5	-
9	-	-	-	-	-	5 - 10	-
X	-	-	-	> 10	-	> 10	> 10

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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 only if
- 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

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

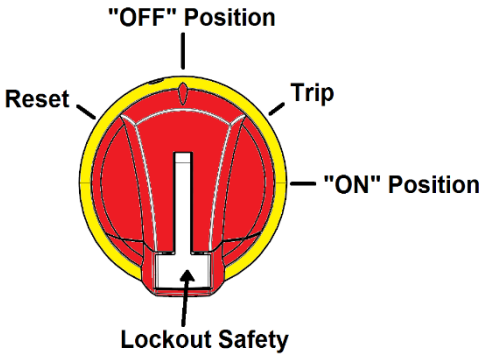
5.2.1 Open/ Close the Main Panel Box Door

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

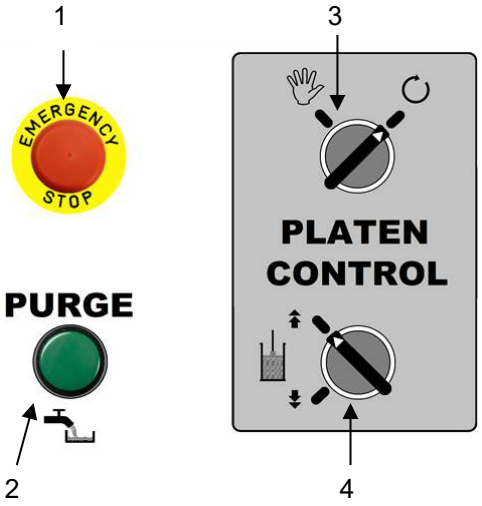
5.2.2 To Turn Main Power On/Off

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”.

5.2.3 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.



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.

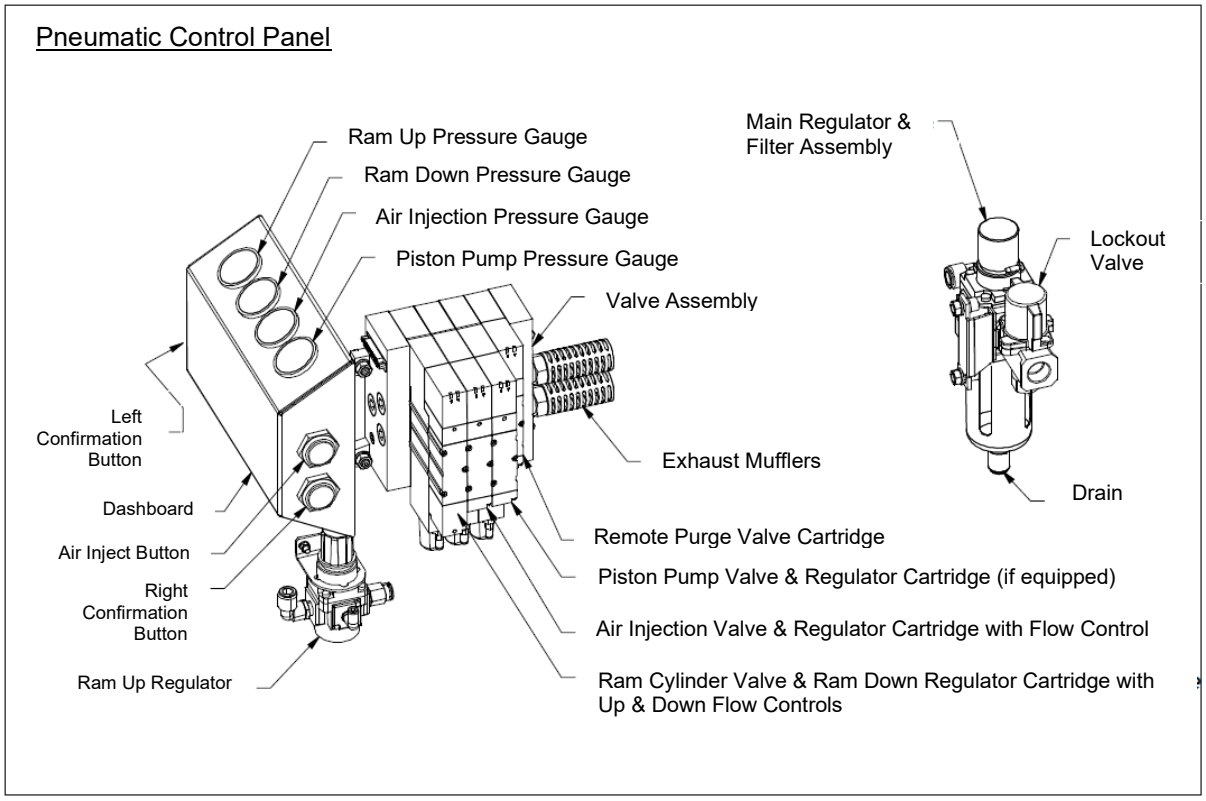
5.2.4 Procedure to Resume Production after Use of Emergency Stop

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

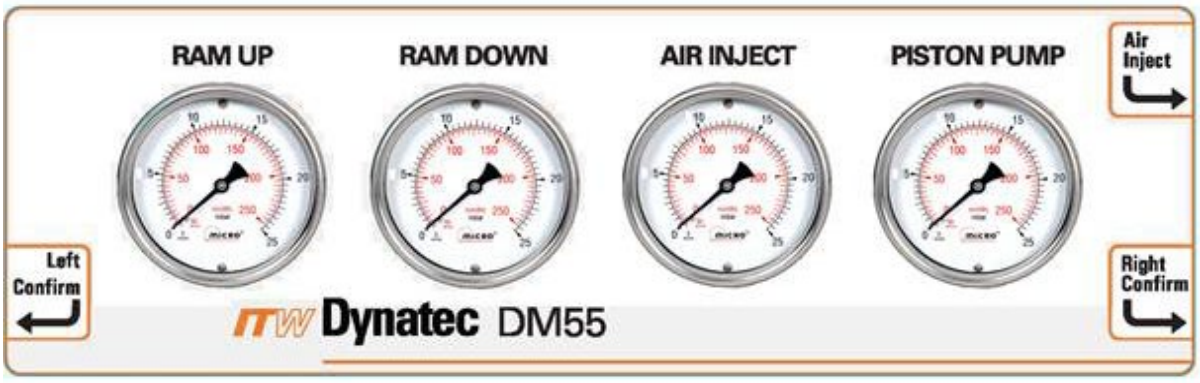
5.2.5 Preparing a New Drum for melting

- 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.

5.2.6 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 (2,7 – 4,1 bar)
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 (0,3 bar)
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 (0,7-0,8 bar)
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.)

5.2.7 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 pump/ motor speed, material viscosity, pump pressure relief valve setting and by the motor current limit setting. The motor current limit is factory set and does not require further adjustment.

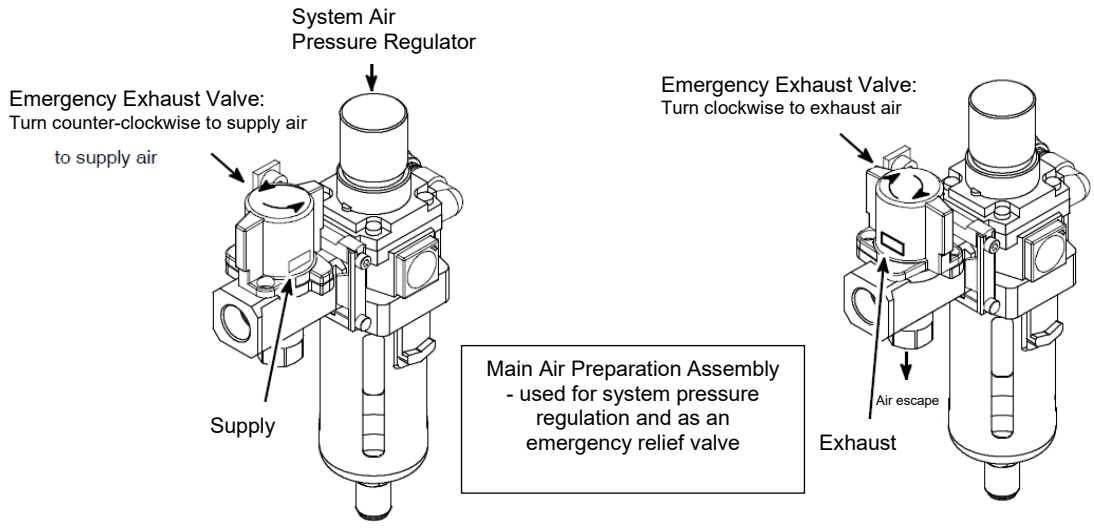
The system pressure relief valve is typically factory set to 500 psi (35 bar). It is located on the back side of the controller's panel box.

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



Located behind the Pneumatic Panel

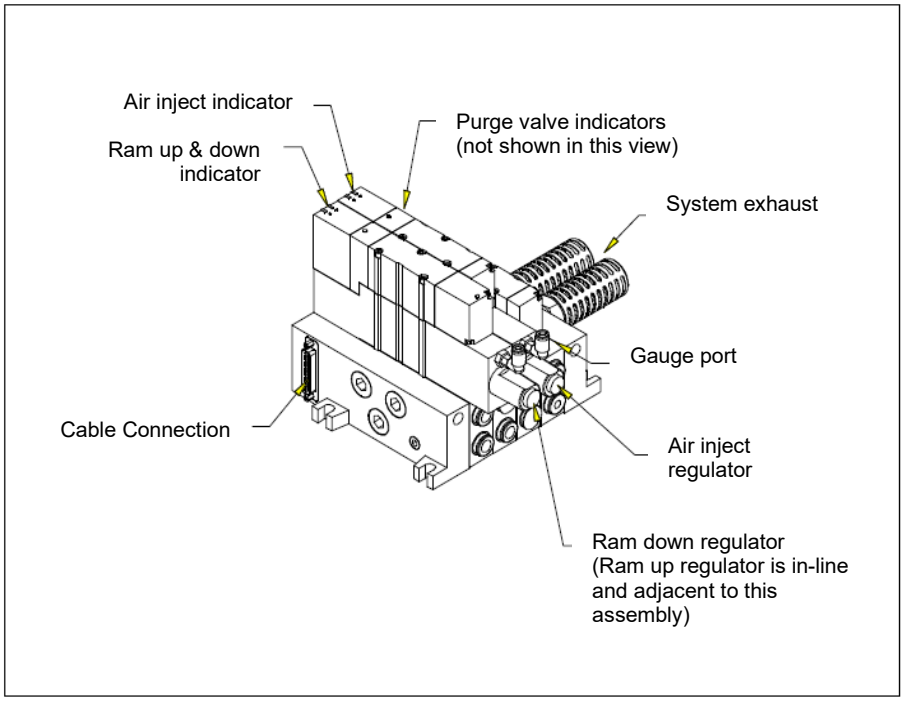
Platen Retract Air Pressure (Air Injection)

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.



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.

5.2.8 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.

5.2.9 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

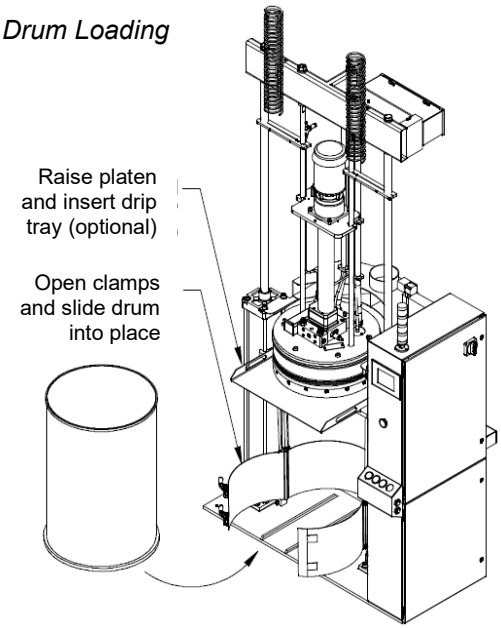
- **A lower pressure setting may be required with low viscosity materials to prevent sinking the platen.**
- **Excessive ram force may "face off" (block) high viscosity materials and starve (cavitate) the pump. It may also cause material to bypass the seal.**

- 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)

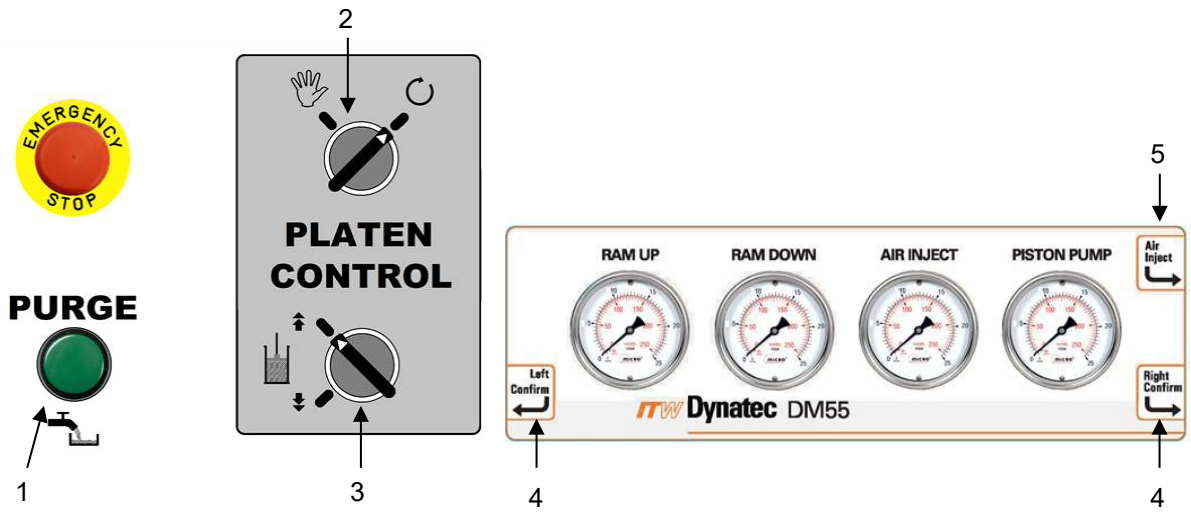
10. Open the clamshell before raising the ram/platen.

    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.

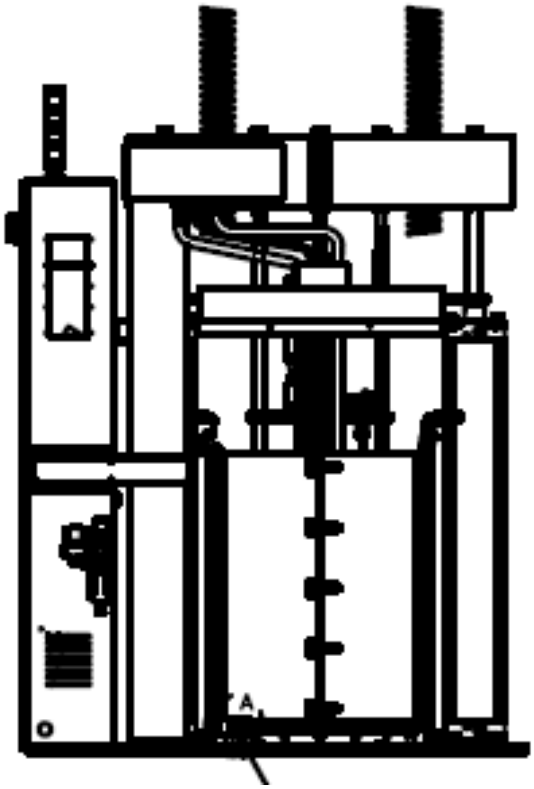
15. Rotate clamshell doors open. Clean any debris from the unit's base plate.

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

16. Slide an opened drum of material into the unit. Be sure that the drum is resting against the rear of the clamshell in order to be detected by the drum detection

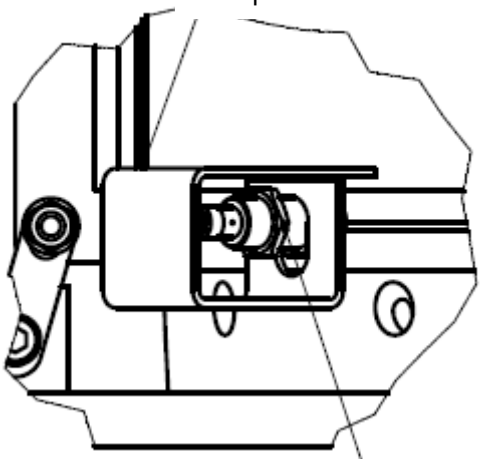
sensor located on the bottom/backside of the drum clamshell. If the drum is detected, the “drum icon” will be shown on the V6 controller’s main screen.

NOTE: The pump can’t operate without a drum being detected. If the drum is placed in the drum unloader but not detected, check the drum detection sensor and adjust the sensor to allow the drum to be detected and shown on the V6 controller’s main screen.



Drum detection sensor located on the bottom/backside of the drum clamshell

A welded sensor guard is incorporated with clamshell



Adjust the distance of sensor using locknut so that the drum is detected.

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

25. 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 7.5 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.

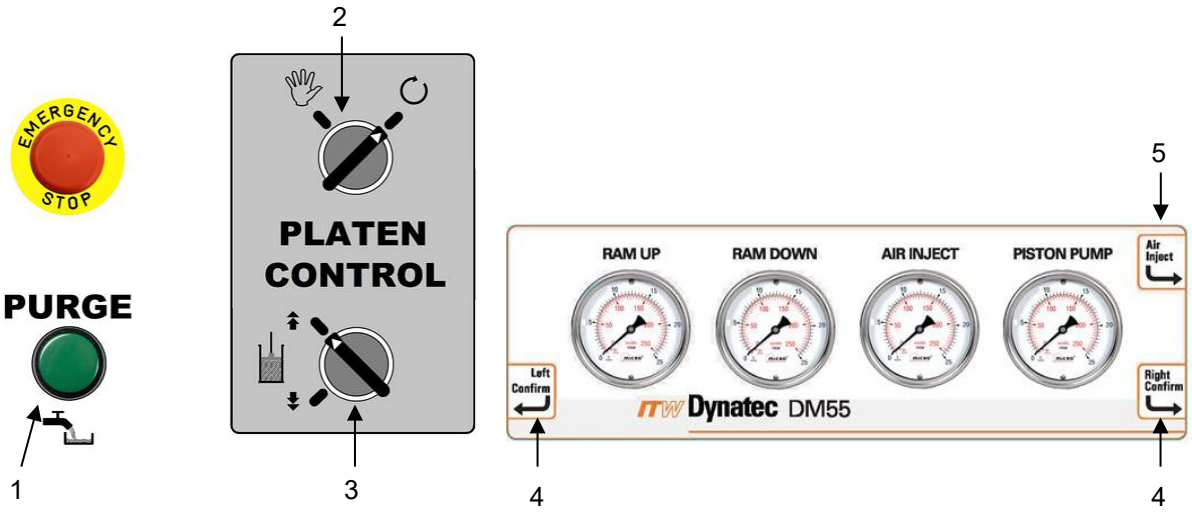
5.2.10 Drum Change-Out

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!

Notes on PUR adhesives

PUR adhesives react with air humidity; care must therefore be taken that they do not harden inside the drum melter / complete system.

If PUR adhesive solidifies in a unit, the unit must be replaced. Always purge the system to remove used PUR adhesive following the adhesive manufacturer's instructions and maintenance schedule.

To prevent clogging of components, purge the system with an appropriate PUR cleaner immediately after stopping production.

Removing dirt:

Remove dirt from all unit components immediately.

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

WARNING: 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

6.1 Controller Set-Up

6.1.1 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.

6.1.2 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.

6.1.3 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.

6.1.4 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 Security advice

CAUTION

- Do not damage Touch Panel with sharp edged tools or similar!
- Do not besprinkle Touch Panel!
- Keep the Touch Panel always clean!

The Controller and the Touch Panel start automatically when switching on the main switch and pressing the button „Controller ON".

The Touch Panel is self-explanatory.

➢ Press the particular function field and the appropriate function will be activated.

➢ Press the desired function and the value can be entered or changed.

All settings and controller can be done using the Touch Panel; e.g. for
- temperatures,
- times,
- speed, etc.

6.3 Program Your System's Parameters

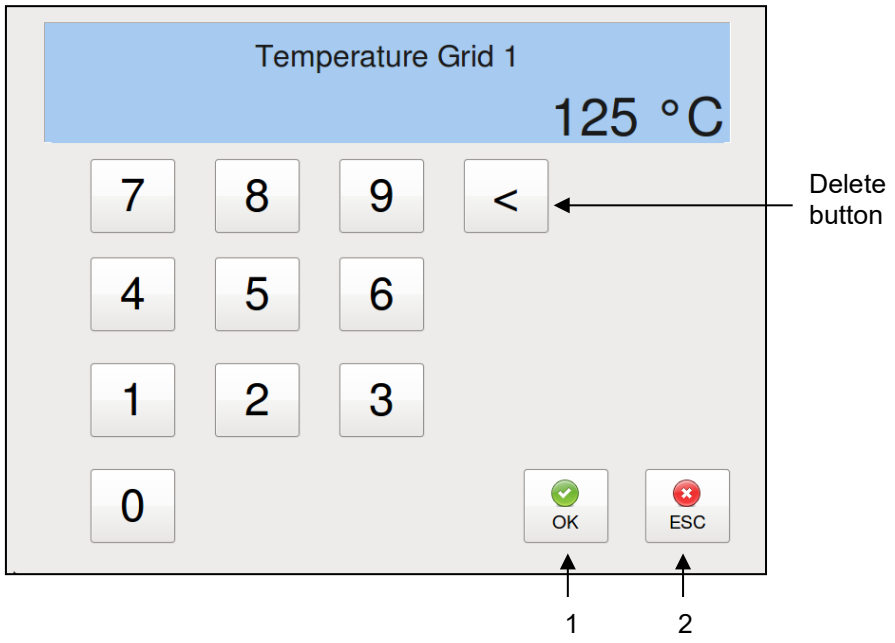
➢ Program the controller parameters to meet the specific temperature requirements of your production. Set points for each temperature zone must be programmed as well as a standby temperature, pump enable temperature, temperature alarm window and temperature alarm hysteresis.

➢ 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.

6.4 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:

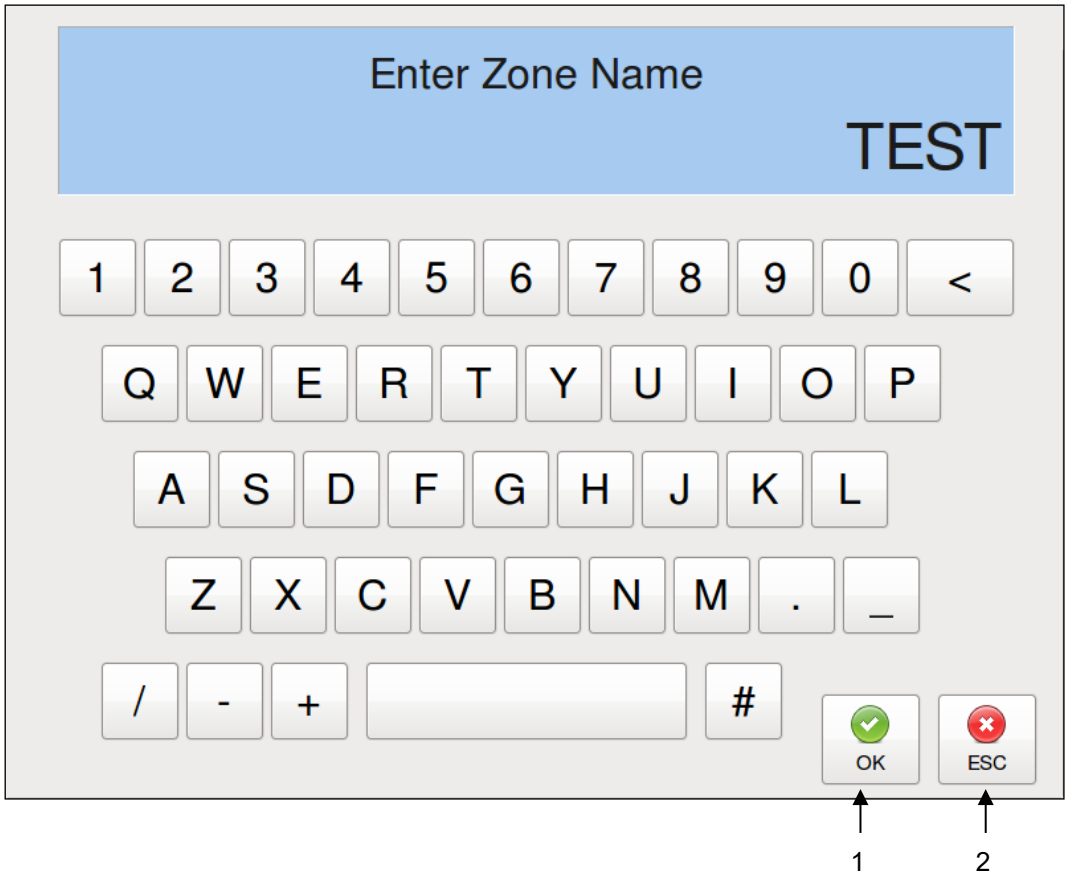


Item	*Description*
1	By pressing the OK button the entered values will be confirmed and stored in the controller. The numeric entry keypad closes and you will return to the previous screen.
2	By pressing the ESC button any entered but not yet confirmed values will be discarded and you will return to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

6.5 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.

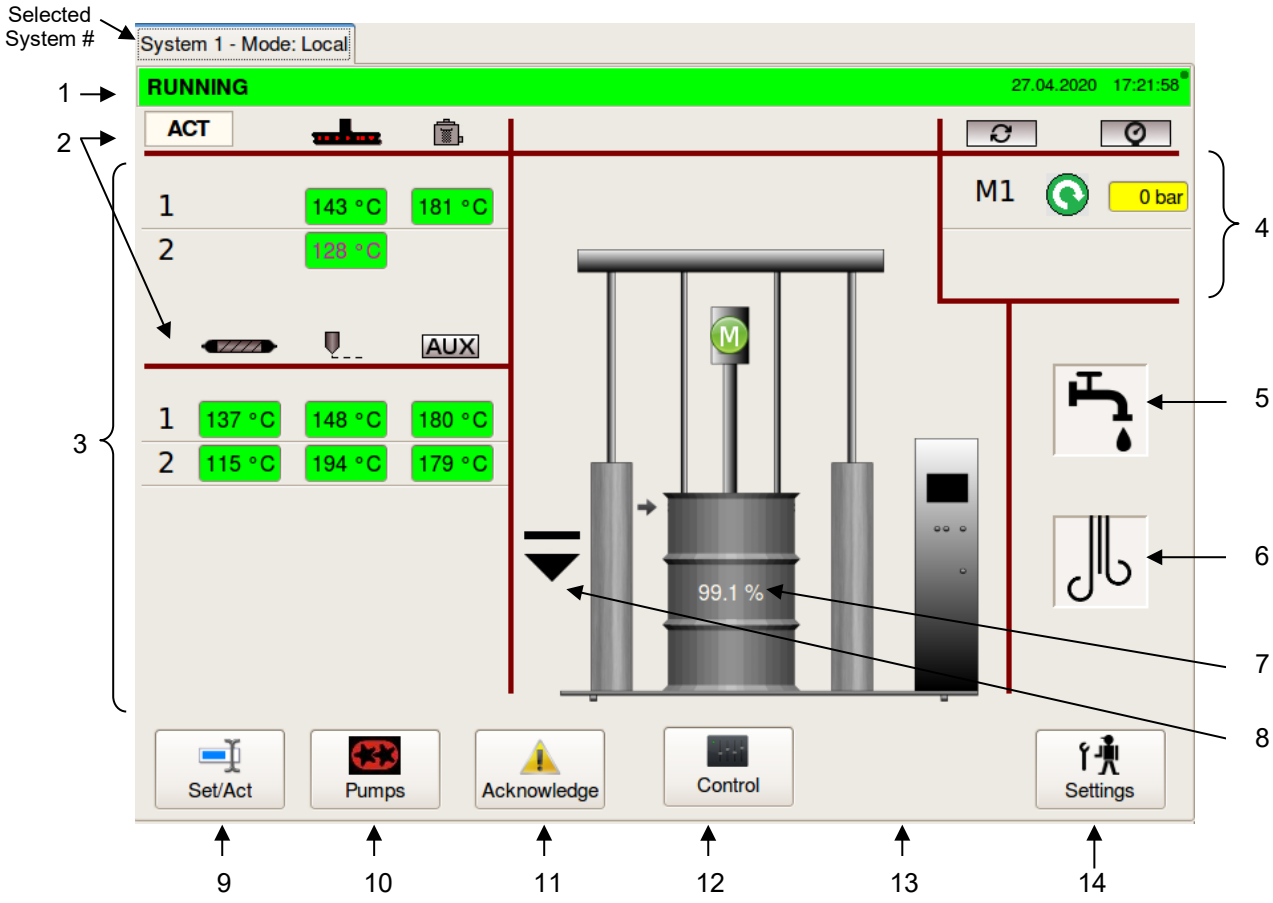
This is a typical example of an alphabetic keypad:

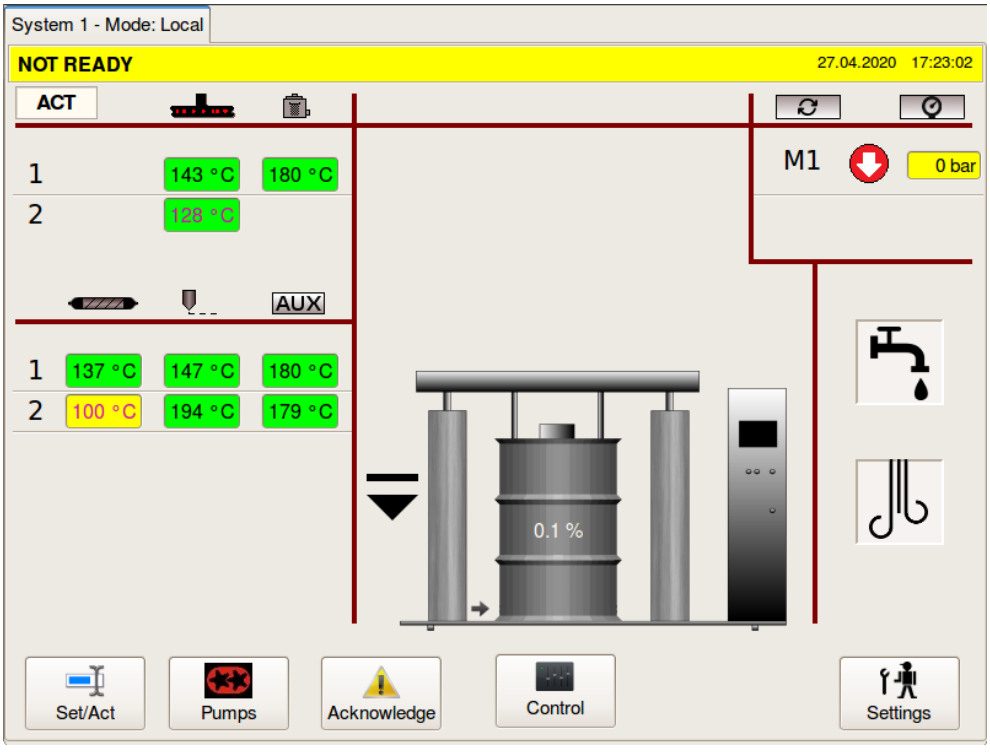


Item	*Description*
1	By pressing the OK button the entered text will be confirmed and stored in the controller. The alphabetic entry keypad closes and you will return to the previous screen.
2	By pressing the ESC button any entered but not yet confirmed text will be discarded and you will return to the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

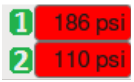
6.6 Main Screen

- 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.





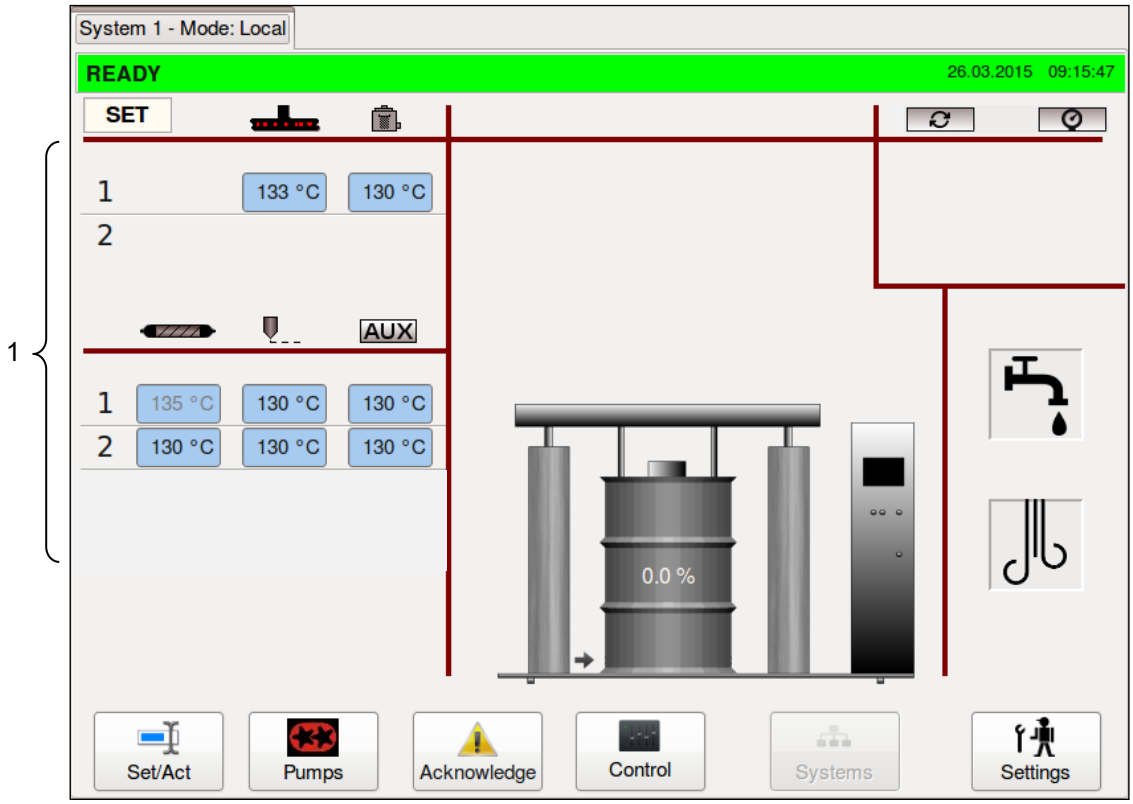
Item	*Description*
1	**Status Line** Display of the actual status of the unit: • READY = All zones are within their set point temperatures and the unit is ready for operation. • RUNNING = All zones are within their set point temperatures and the unit/pump is running. • NOT READY = At least one zone has 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 green when the system is READY or RUNNING, yellow when NOT READY, grey when in STANDBY and red when in ALARM condition. The status line along with “Systems” button is in orange color if a non-visible system goes into Alarm condition (if f several systems are controlled by the HMI). The „clock“  icon appears if a timer is activated under „Time & Scheduler“ screen and disappears if the timer is deactivated. Display of the actual date and time are on the right side of the screen. Depending on the selection of the unit of temperature and pressure (°C and bar or °F and psi) made under Unit & Date Selection, the appearance of the date display is affected also. With the C/bar selection, the date is displayed as ‘day.month.year’ while in F/psi mode, the date is displayed as ‘month/day/year’. The time is displayed as hour.minutes.seconds (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 it 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 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). **Drum Icon Display** The “drum icon” will be shown if the drum is detected. Slide an opened drum of material into the unit. Be sure that the drum is resting against the rear of the clamshell in order to be detected by the drum detection sensor located on the bottom/backside of the drum clamshell. NOTE: The pump can’t operate without a drum being detected. If the drum is placed in the drum unloader but not detected, check the drum detection sensor and adjust the sensor to allow the drum to be detected and shown on the V6 controller’s main screen. Refer to Ch.5.2, Bulk Melter Startup Procedure, Daily Operation.

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.
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 (Multi-System option).
14	**Settings Button** Press to go to the Settings screen.

6.7 Temperature Zones Set Screen

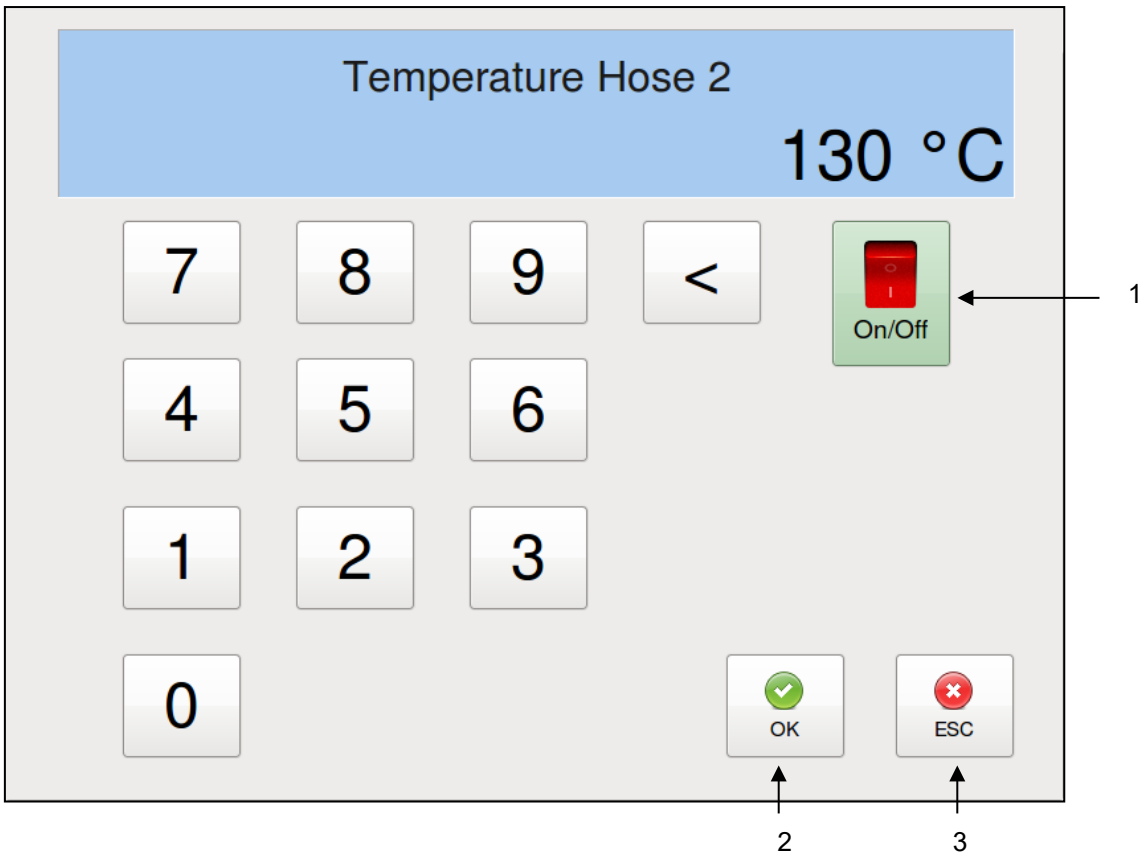
- To go to this screen, press the Set/Act button on the Main Screen.
- The Set screen allows you to program the set point temperature for each activated zone. Each zone requires a temperature set point.
- When a temperature zone is not used, it can be de-activated (turned OFF) on the Heating Priority 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: The value 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.

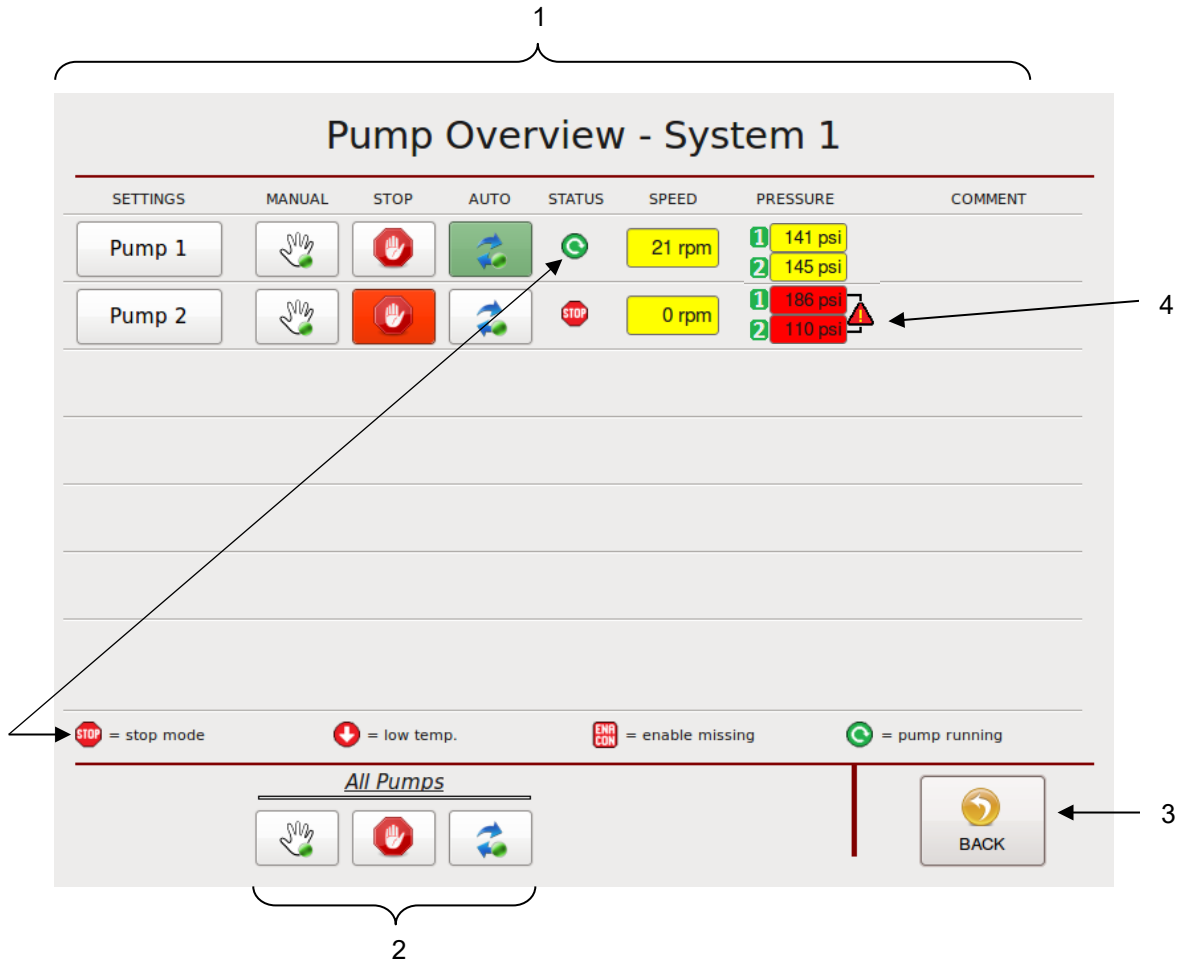
6.7.1 Zone On/Off Switch on the Numeric Entry Keypad



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.

6.8 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.

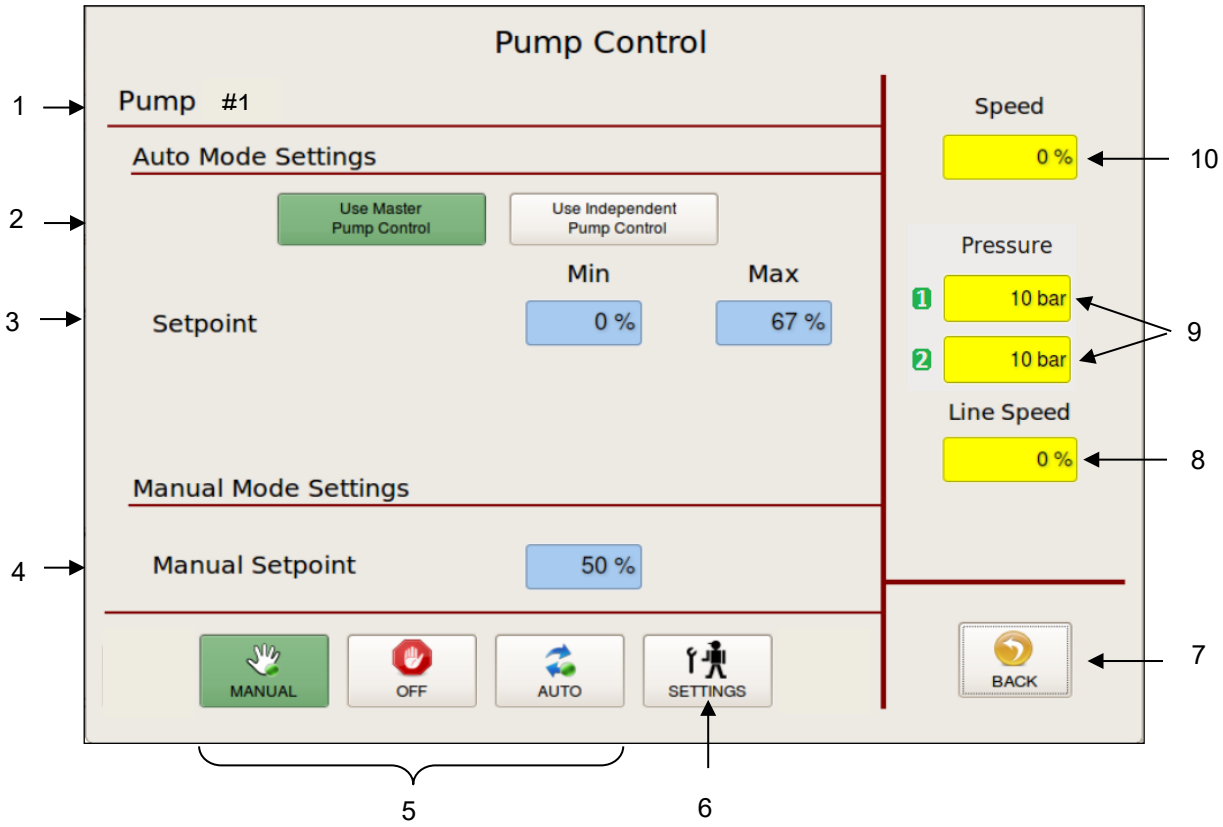


Item	*Description*
1	**Pump Overview** • SETTINGS: Press Pump 1, Pump 2, etc. to go to the appropriate Pump Control screen. • MANUAL: The pump speed is adjusted manually by the ASU operator. When selected the MANUAL icon is highlighted green. • STOP: The pump is stopped, until AUTO or MANUAL is selected.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

6.8.1 Pump Control Screen/ Linear Line Speed

- To go to this screen, press the Pump 1 field on the Pump Overview screen (to go to the Pump 2, 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).

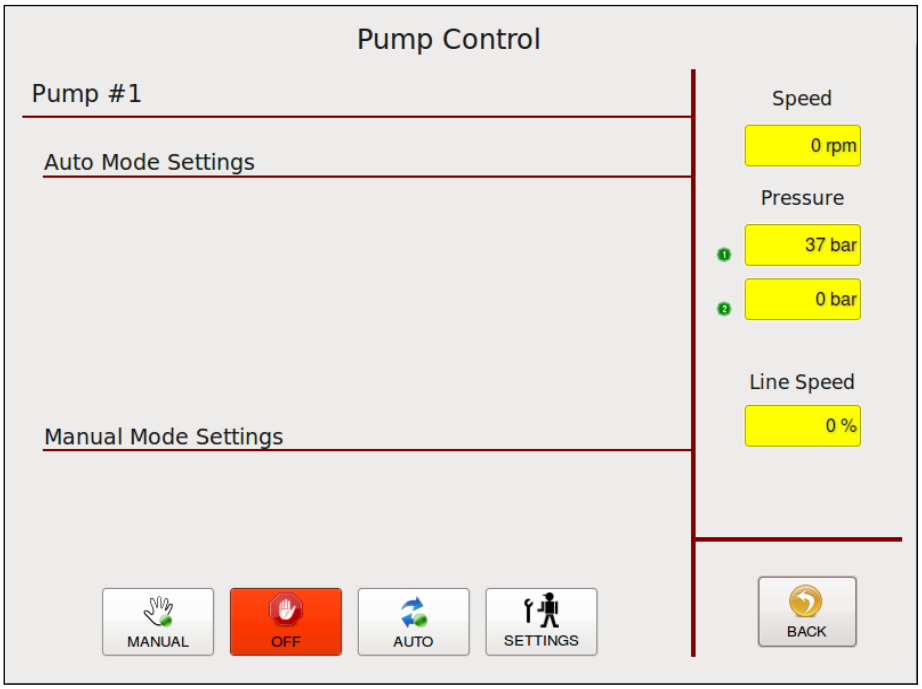
Pump 1 Example at DM55 with Gear Pump:



Item	*Description*
1	Pump no.1 is the selected pump. All the settings and speeds displayed on this screen correspond to Pump no.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 no.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.

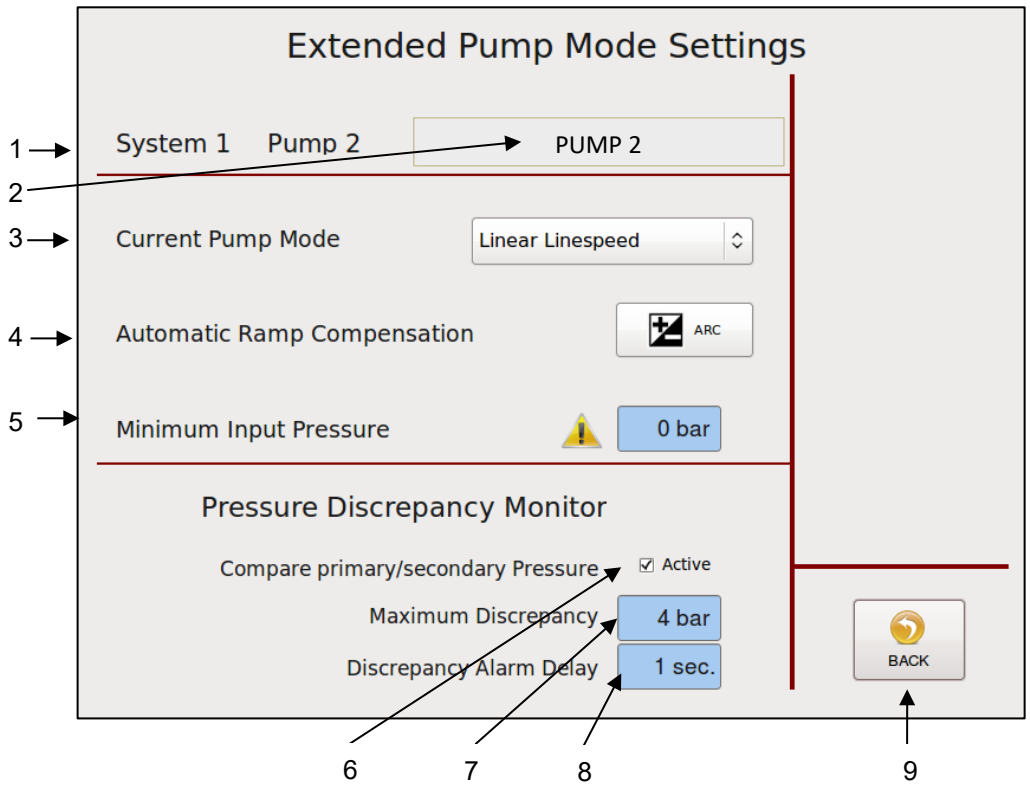
Pump Control Screen Example at DM55 with Piston Pump:

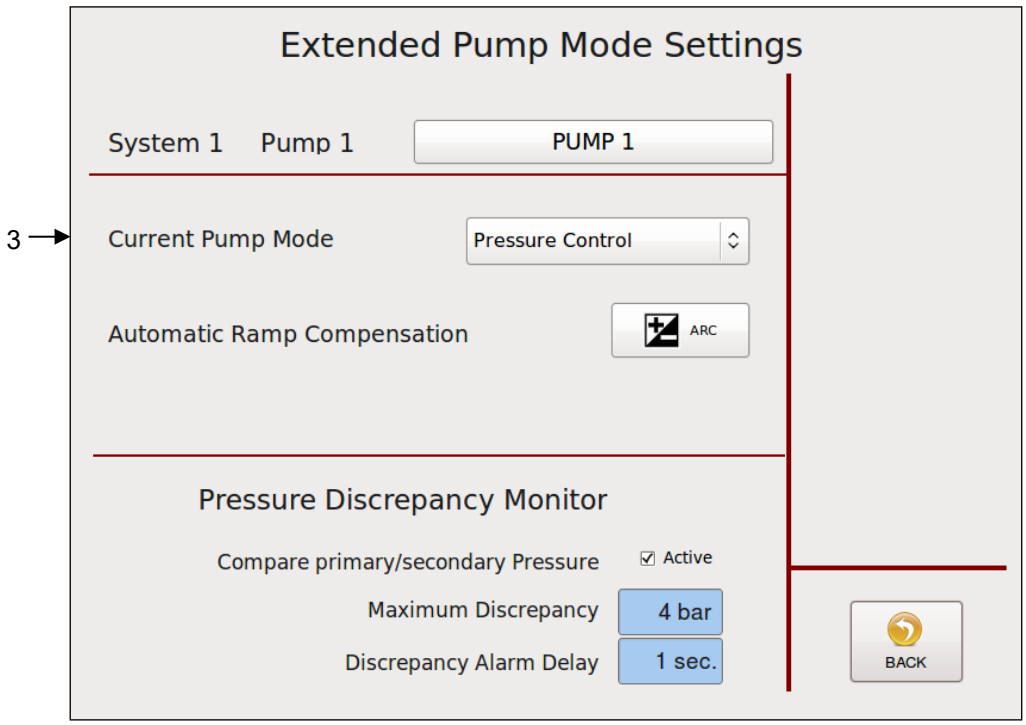


6.8.2 Extended Pump Mode Settings Screen, Linear Line Speed, Pressure Control

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

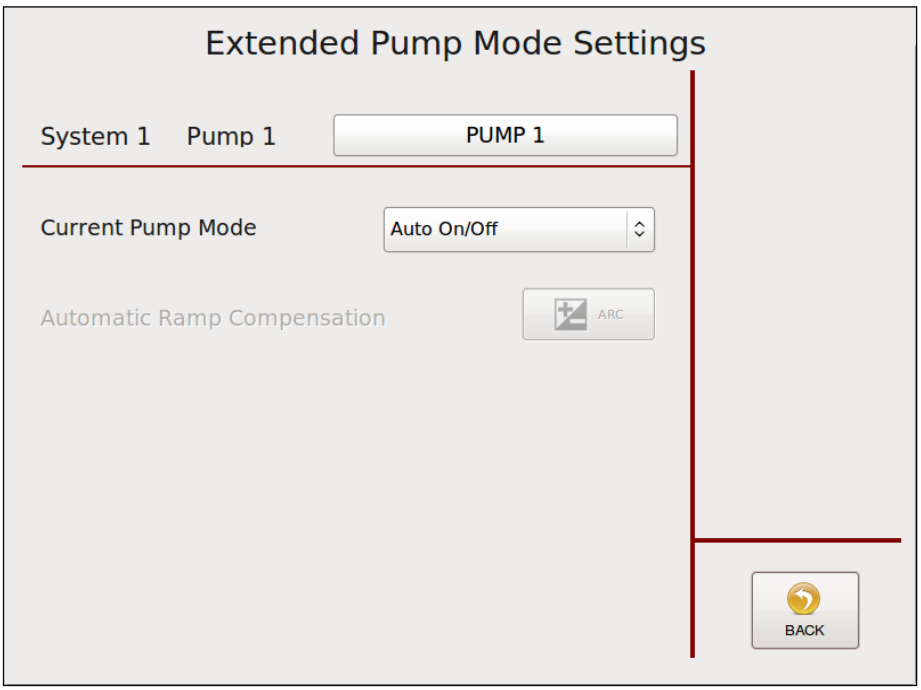
System 1 Pump 1 Example at DM55 with Gear Pump:





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.

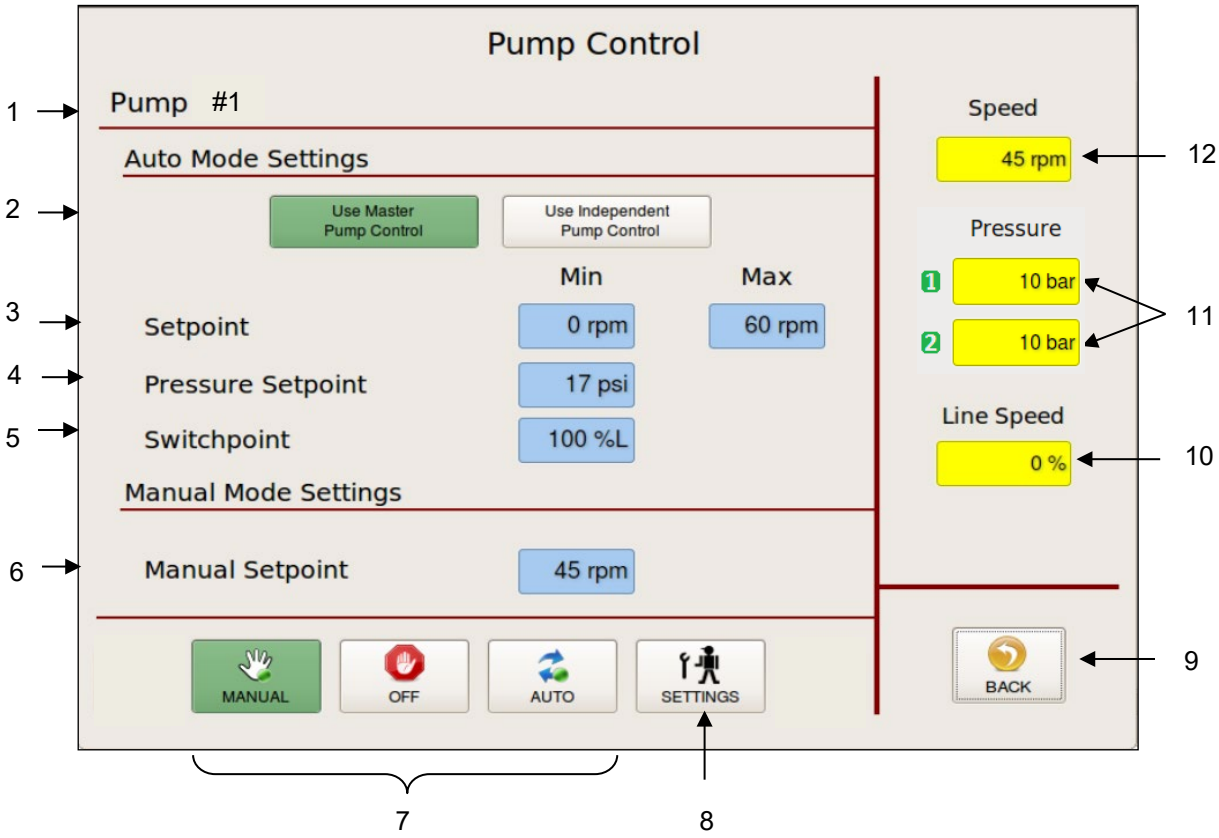
Extended Pump Mode Settings Screen Example at DM55 with Piston Pump:


Extended Pump Mode Settings
System 1
Pump 1
PUMP 1
Current Pump Mode
Auto On/Off
Automatic Ramp Compensation
ARC
BACK

6.8.3 Pump Control/ Pressure Control Screen

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

Pump 1 Example at DM55 with Gear Pump:



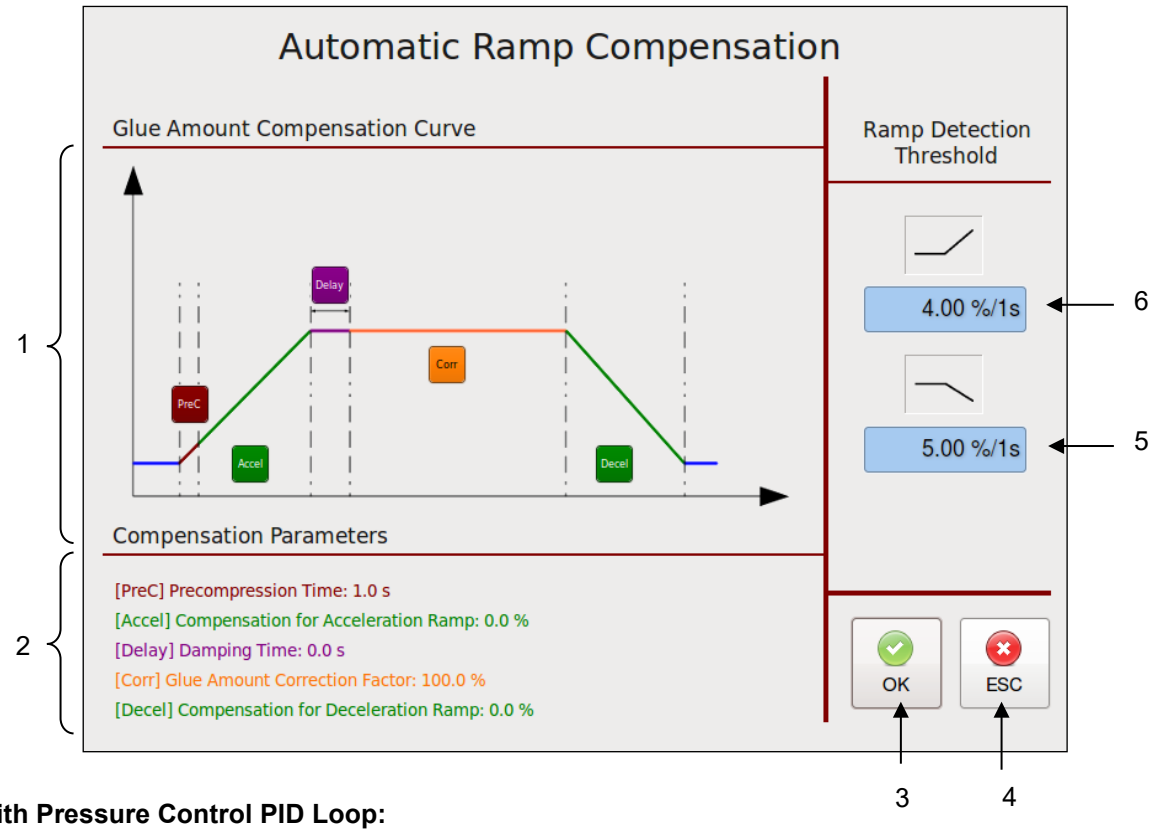
Item	*Description*
1	Pump no.1 is the selected pump. All the settings and speeds displayed on this screen correspond to Pump no.1.
2	**Auto Mode Settings:** Press the according switch for pump control. The activated switch is highlighted green. • **Use Master Pump Control:** The selected pump will use the START/STOP signal that pump no.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 4) 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.

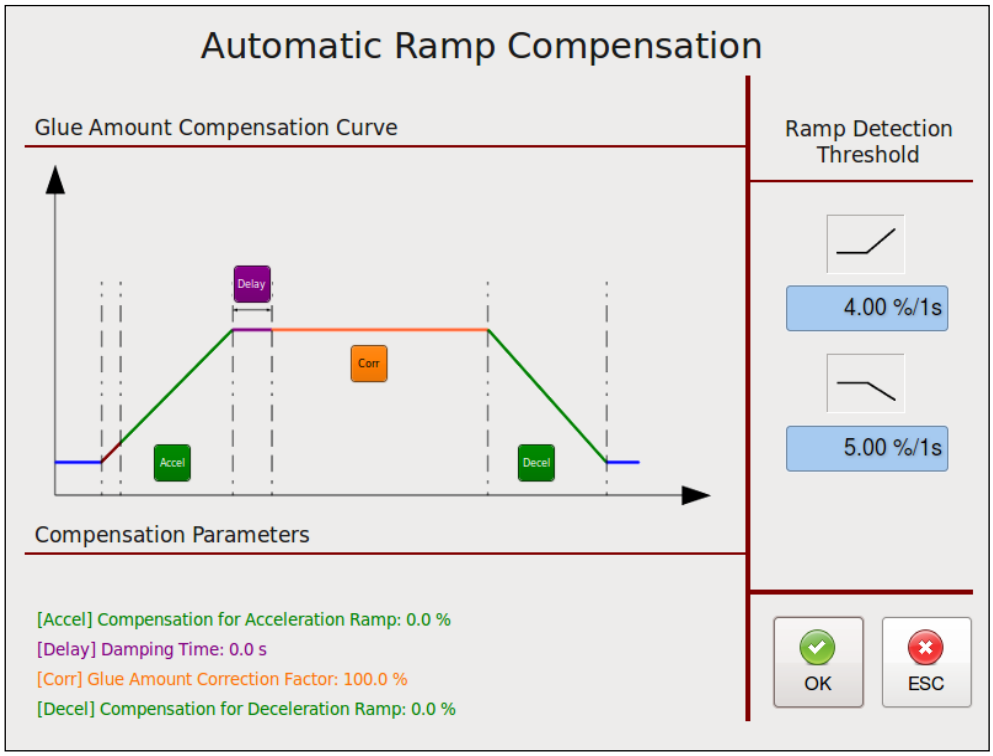
6.8.4 Automatic Ramp Compensation at DM55 with Gear Pump

- 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:

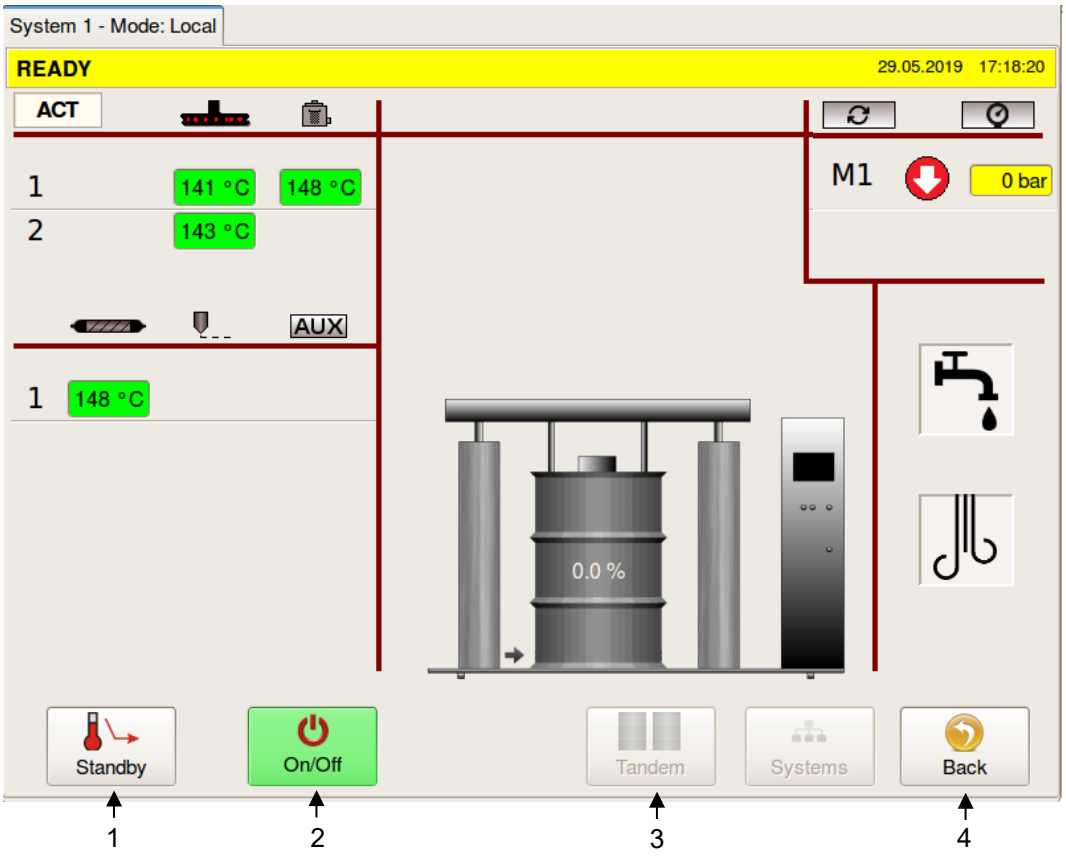


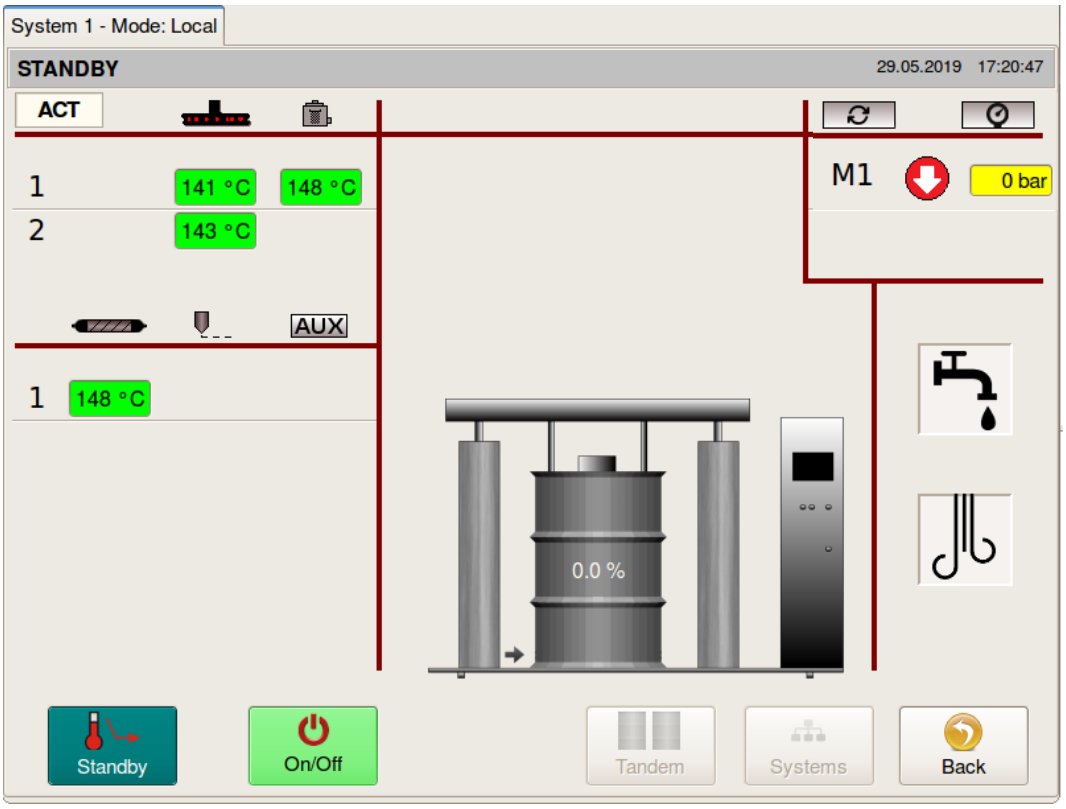
- Ramp Compensation allows tuning of adhesive amounts during acceleration and deceleration of main machine to reduce waste and increase machine efficiency by entering appropriate parameters.
- The colored parameters are related to the different phases of the main machine (see colored graph). A higher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

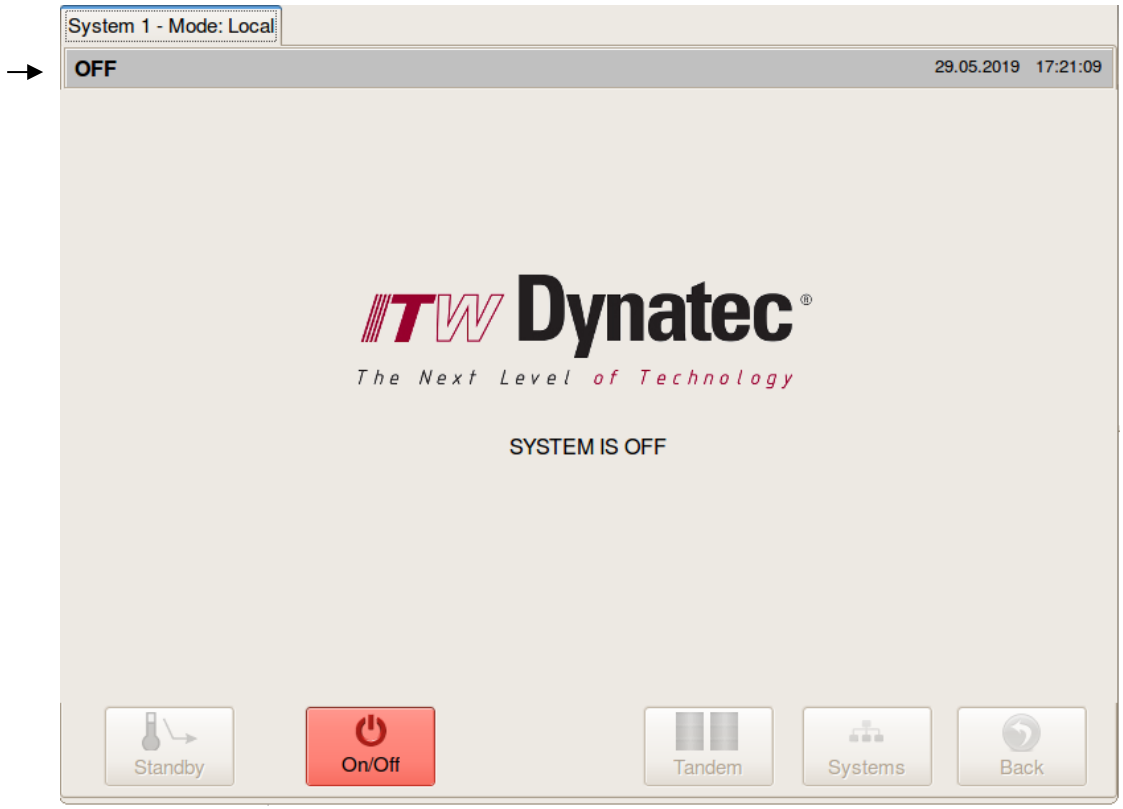
Item	*Description*
1	**Glue Amount Compensation Curve** • **(PreC) Precompression Time** in seconds: When using ramp compensation without pressure control loop, this defines the time the system will pre-compress at 75% pump speed before adhesive application. • **(Accel) Compensation for Acceleration 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.

6.9 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.



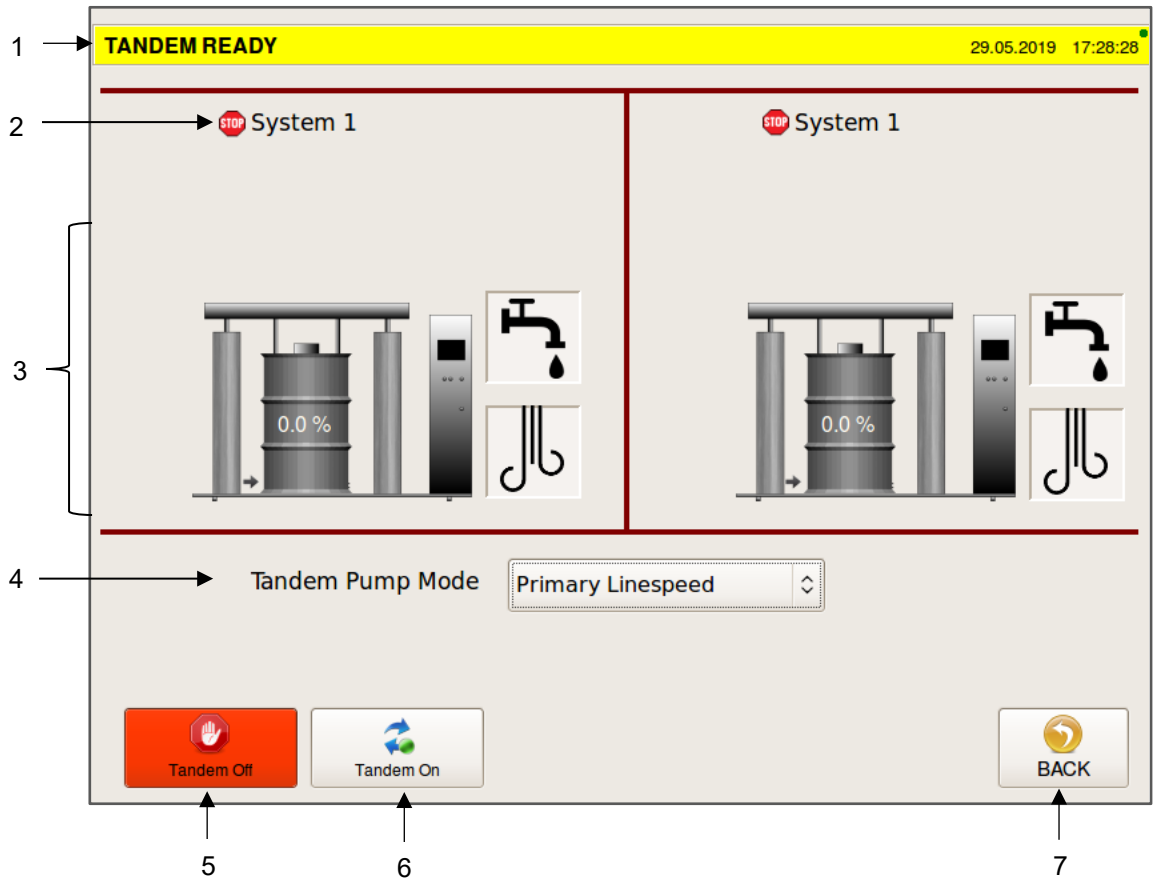




Item	*Description*
1	**Standby Switch** • Press the Standby switch to activate or deactivate the standby condition. When Standby is activated, the button will be highlighted blue. • When Standby is activated, all zone temperatures will be set to the standby value (programmed on the General Settings Screen) 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	**Tandem Button** Press to go to Tandem Operation screen.
4	**BACK Button** Press to return to the previous screen.

6.10 Tandem Operation

- To go to this screen, press the Tandem button on the Control screen.
- This screen allows you to control the tandem functionality of two drum unloaders.
- NOTE: For enable and disable the tandem configuration, refer to the next two sub-chapters.



Item	Description
1	**Status Line** Display the actual status of the system: • TANDEM READY = All global zones are within their setpoint temperatures. • TANDEM RUNNING = All global and local zones are within their setpoint temperature and tandem operation is enabled. • TANDEM NOT READY = At least one global zone has not yet reached its set point temperature or has fallen below its set point. • STANDBY = Both drum unloaders are in standby mode. • ALARM = Alarms or faults are active. The status line is highlighted green when one unit is READY or RUNNING, yellow when a warning is present, grey when in STANDBY and red when in ALARM condition. Display of the actual date and time are on the right side of the screen. By pressing the status line, you go to the Log Book screen.

Item	Description
2	**System Header** Display of which systems are connected in tandem. The indicator beside the header indicates the status of the individual unit:  Pump is running  Pump is stopped  Run condition is requested, but not met  System in alarm
3	**Unit Display** Status of the unit as indicated on the overview screen. The following are displayed: • Unit Fill Level • Purge Valve Status • Air Inject Status Refer to main screen.
4	**Tandem Pump Mode** Allows for selection of the tandem's system pump mode. Options: • Individual Control: Functions as normal; Linespeed and pressure are derived locally. • Primary Linespeed: The 2nd unit gets its linespeed from the 1st unit. • Primary Pressure: The 2nd unit gets it primary pressure from the 1st unit. **NOTE: This does not affect the actual pump settings. Pumps on the individual units must be configured prior to activating tandem mode.**
5	**Tandem Off Button** Disables tandem operation.
6	**Tandem On Button** Enables tandem operation.
7	**Back Button** Returns to the previous screen.

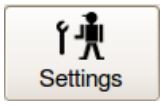
6.10.1 Enabling Tandem Configuration

Primary Drum Unloader:

1. Select one unit to be the primary drum unloader.

   If line-speed or control pressure are being supplied to a single unit, that unit should be the “primary”; otherwise the selection is trivial.

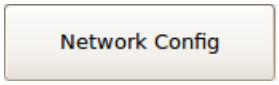
2. From the main screen, hit the “Settings” button in the bottom-right.



3. Tap the right side of the screen header “System Setup” until a numeric entry opens.

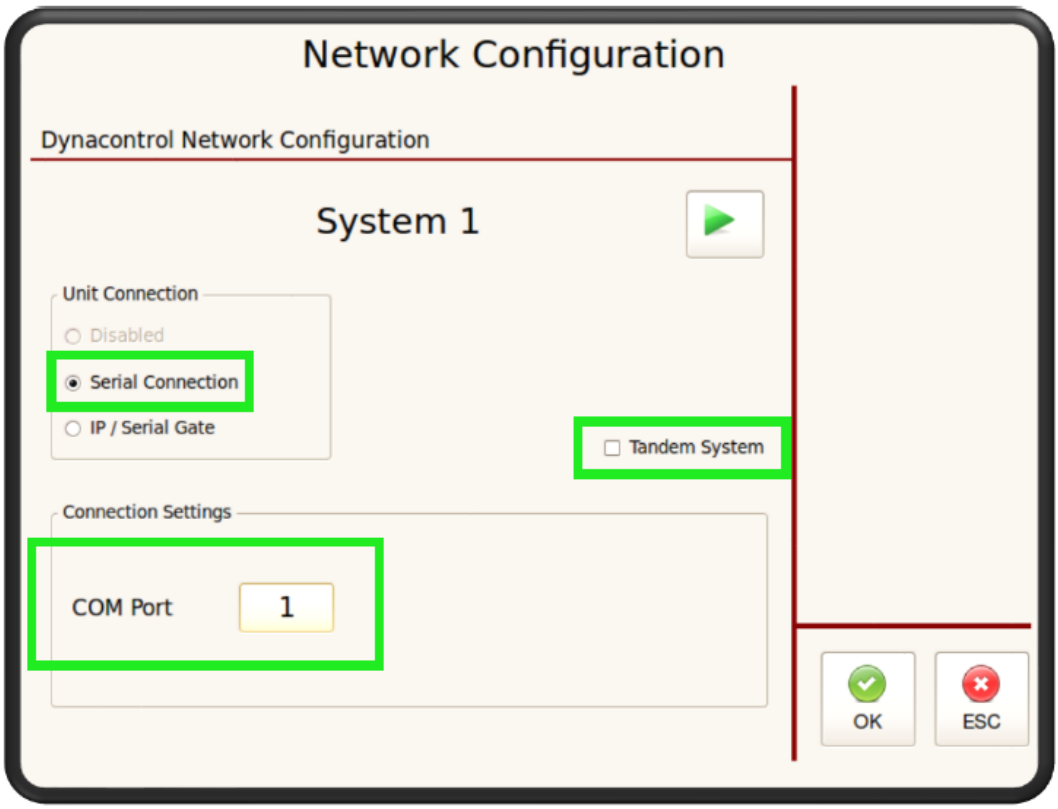
4. Enter either the factory code or maintenance password. If no maintenance password has been set, leave the entry blank and hit “Ok”.

5. Navigate to the “Network Config” screen by hitting the button on the right-hand panel.



6. With “System 1” selected, hit the “Serial Connection” button, and under “Connection Settings” enter “1” for “COM Port”.

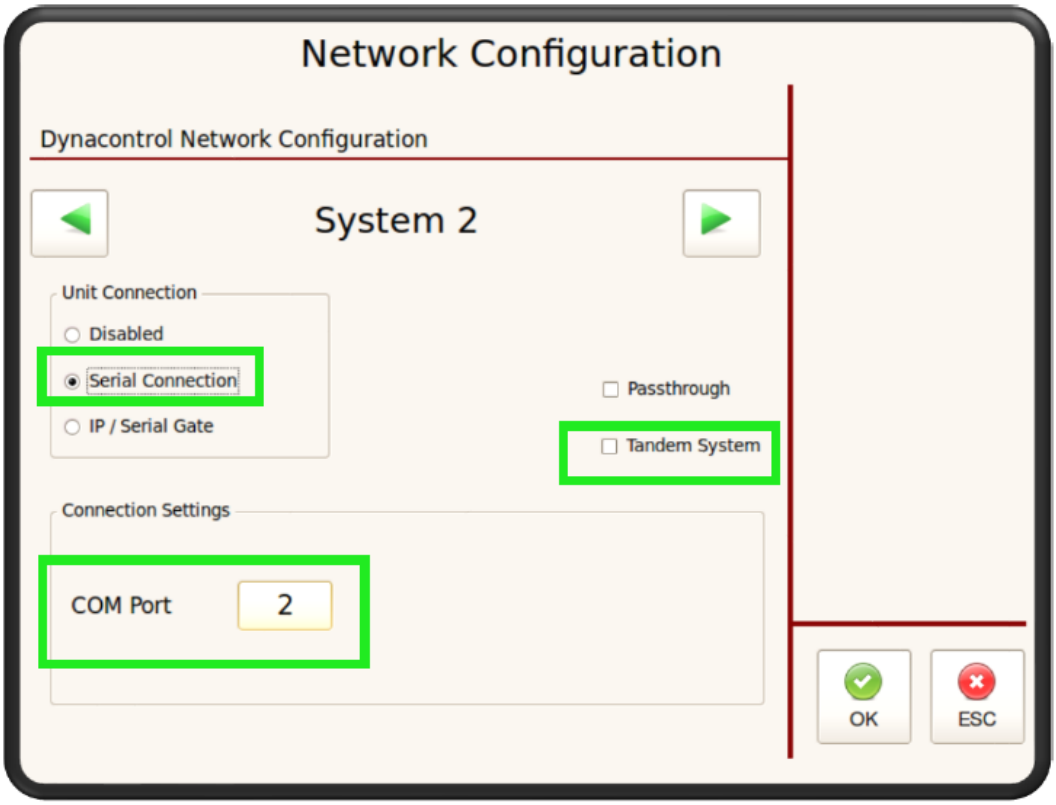
7. With “System 1” selected, check the “Tandem System” box.



8. Navigate to “System 2” by hitting the right-facing arrow.

9. With “System 2” selected, hit the “Serial Connection” button, and under “Connection Settings” enter “2” for “COM Port”.

10. With “System 2” selected, check the “Tandem System” box.



11. Confirm the changes by hitting the ”OK” button in the bottom-right. The HMI will restart.

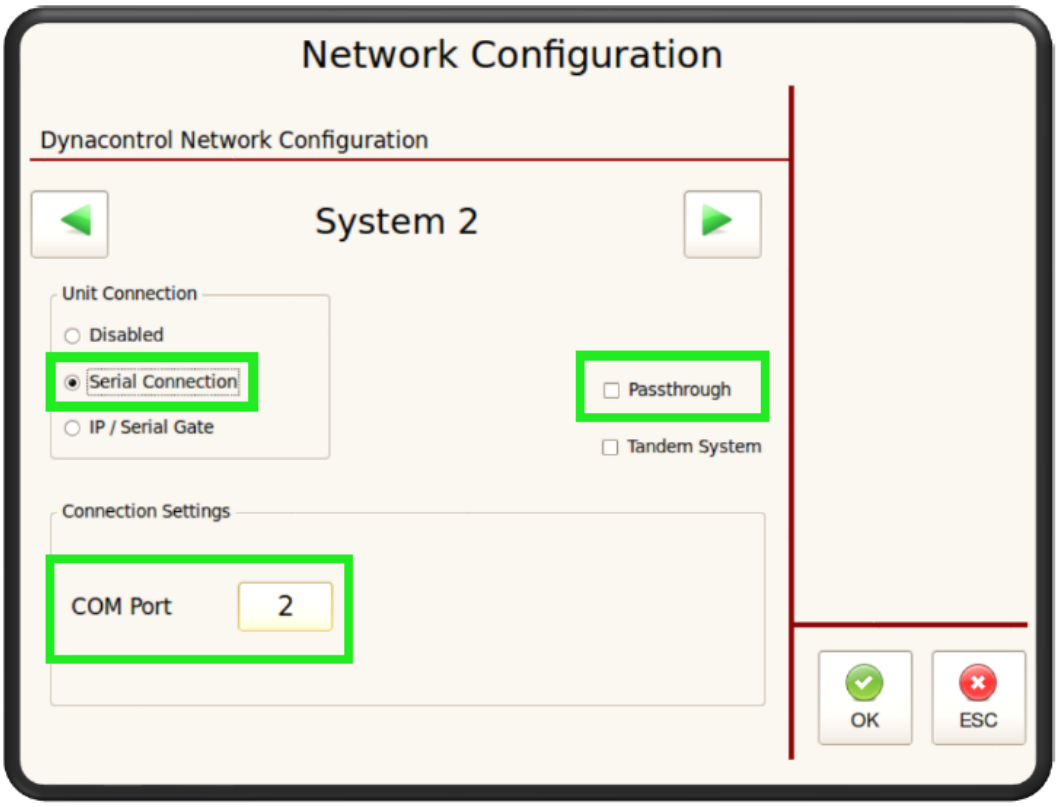
Secondary Drum Unloader:

12. Repeat steps 1 through 5 for the secondary unit.

13. Navigate to “System 2” by hitting the right-facing arrow.

14. With “System 2” selected, hit the “Serial Connection” button, and under “Connection Settings” enter “2” for “COM Port”.

15. With “System 2” selected, check the “Passthrough” box.

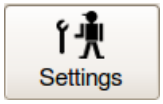


16. Confirm the changes by hitting the “OK” button in the bottom-right. The HMI will restart.

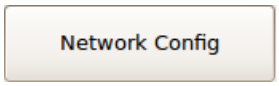
6.10.2 Disabling Tandem Configuration

Primary Drum Unloader:

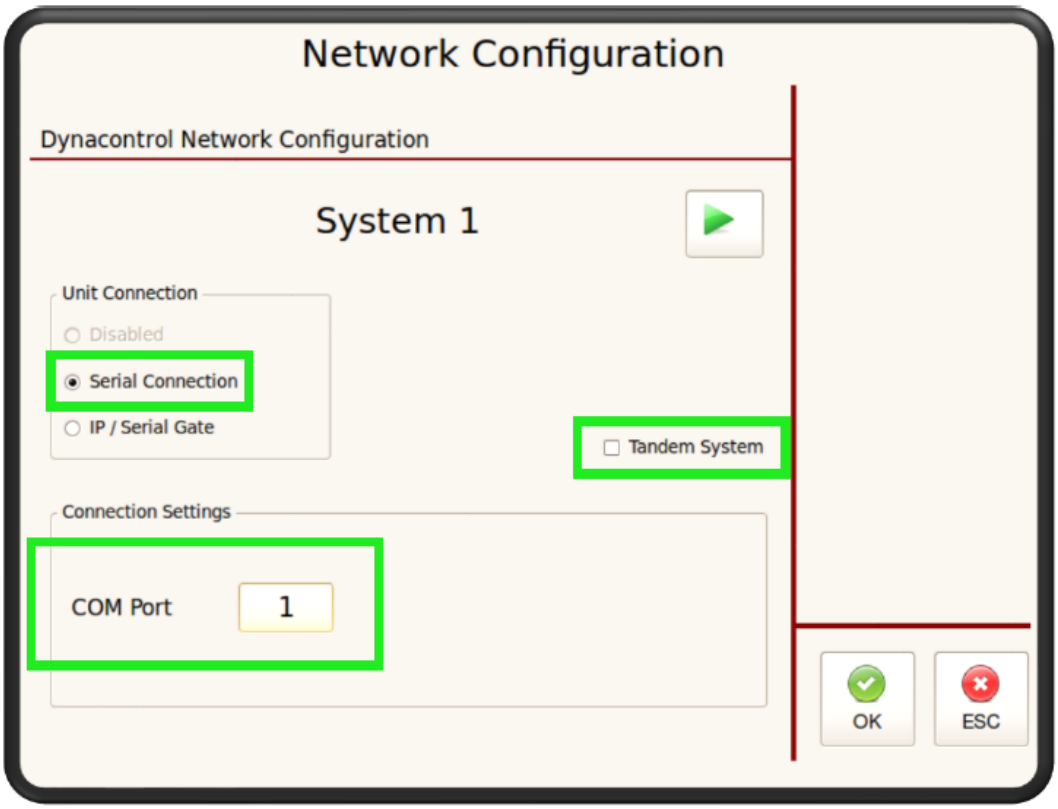
1. From the main screen, hit the “Settings” button in the bottom-right.



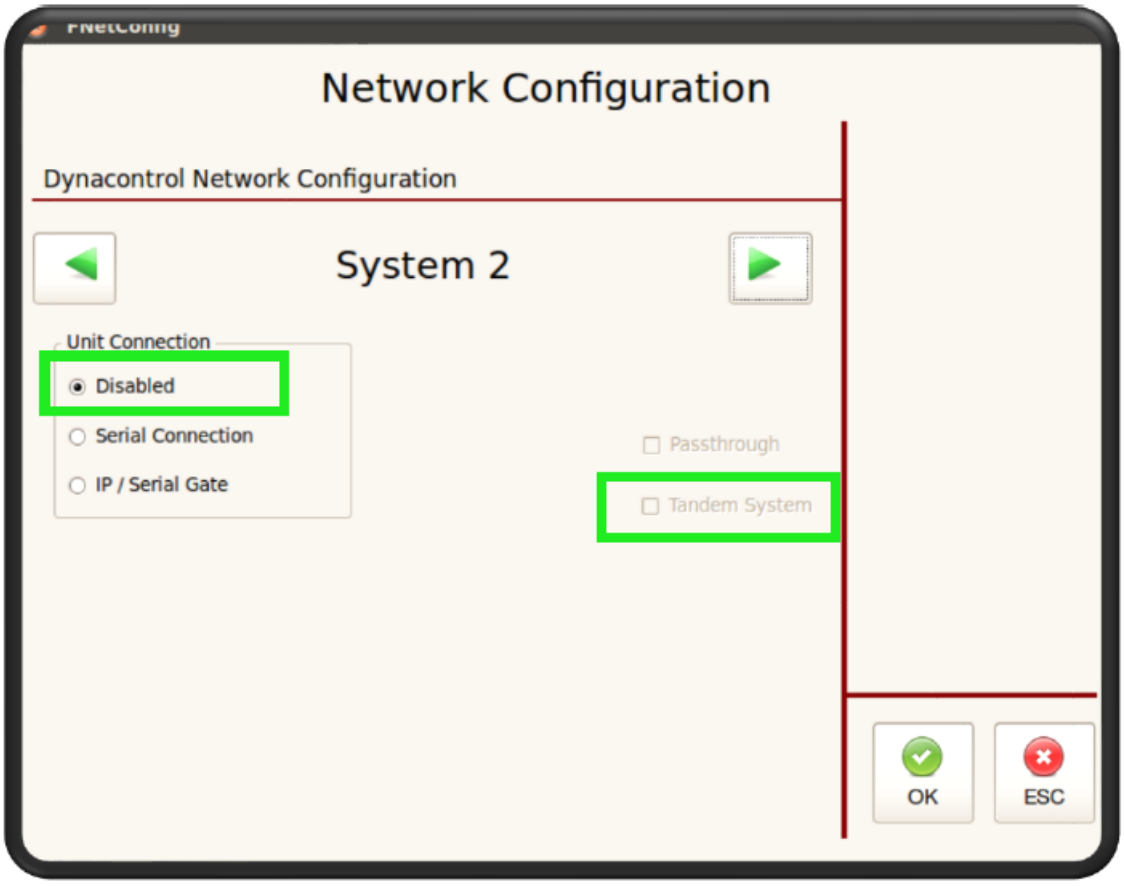
2. Tap the right side of the screen header “System Setup” until a numeric entry opens.
3. Enter either the factory code or maintenance password. If no maintenance password has been set, leave the entry blank and hit “OK”.
4. Navigate to the “Network Config” screen by hitting the button on the right-hand panel.



5. With “System 1” selected, hit the “Serial Connection” button, and under “Connection Settings” enter “1” for “COM Port”.
6. With “System 1” selected, uncheck the “Tandem System” box.



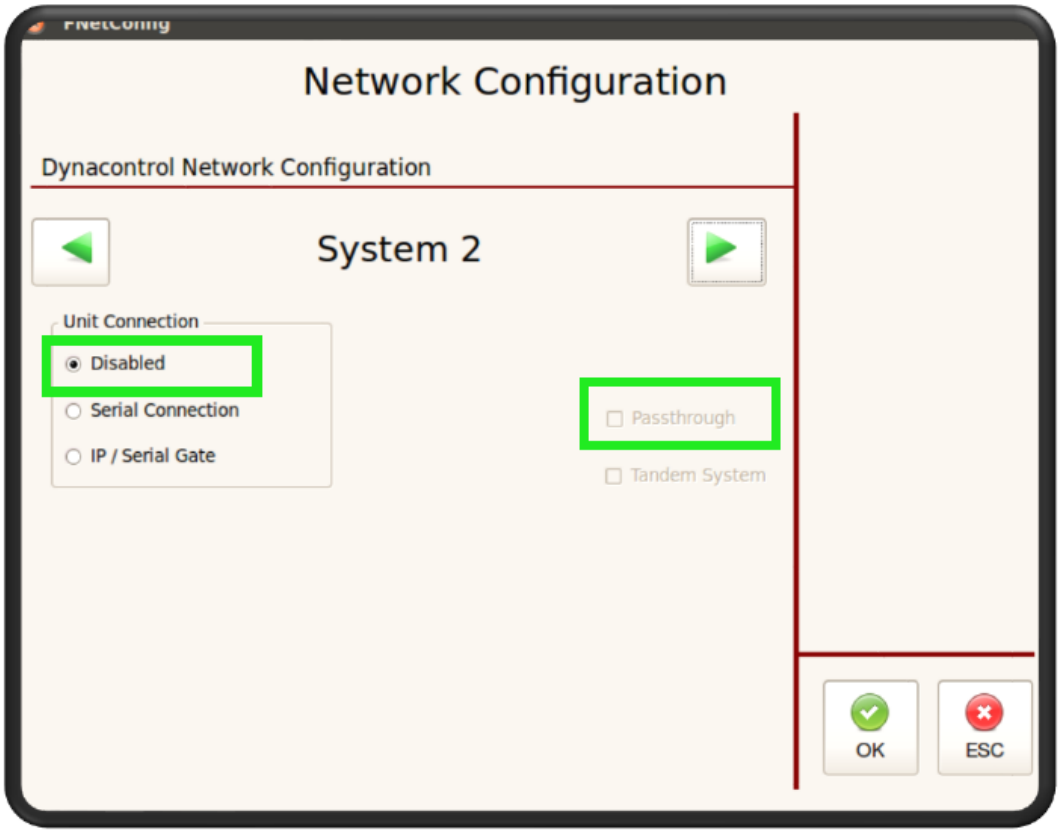
7. Navigate to “System 2” by hitting the right-facing arrow.
8. With “System 2” selected, uncheck the “Tandem System” box.
9. With “System 2” selected, hit the “Disabled” button.



10. Confirm the changes by hitting the ”OK” button in the bottom-right. The HMI will restart.

Secondary Drum Unloader:

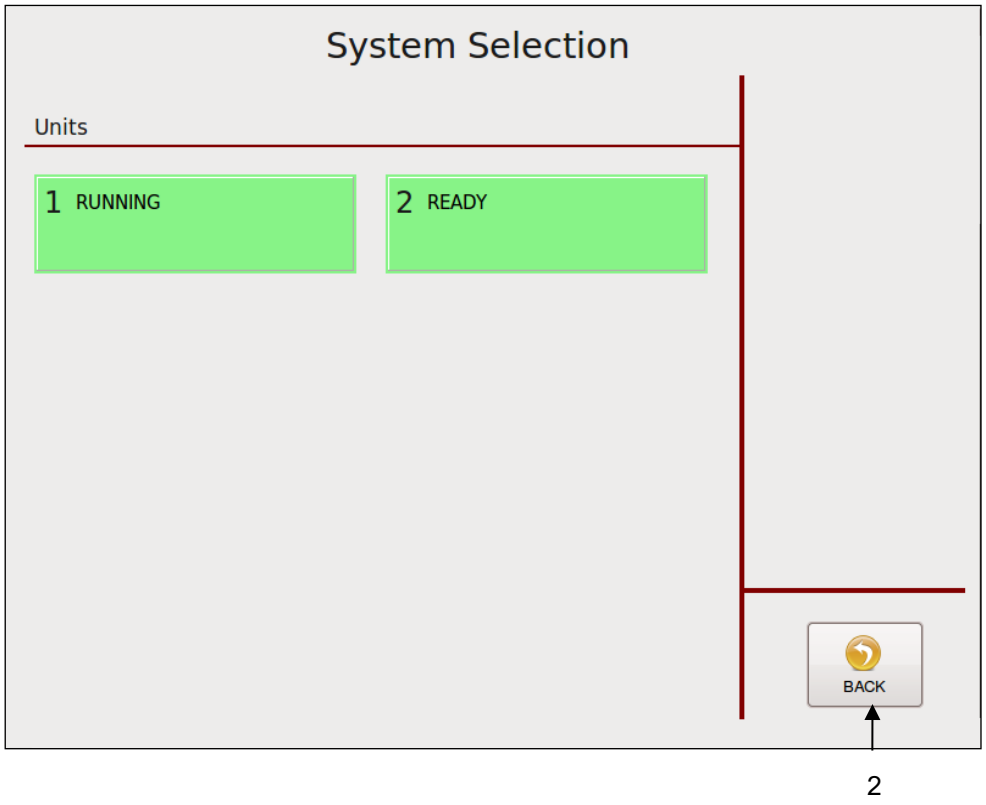
11. Repeat steps 1 through 5 for the secondary unit.
12. Navigate to “System 2” by hitting the right-facing arrow.
13. With “System 2” selected, uncheck the “Passthrough” box.
14. With “System 2” selected, hit the “Disabled” button.



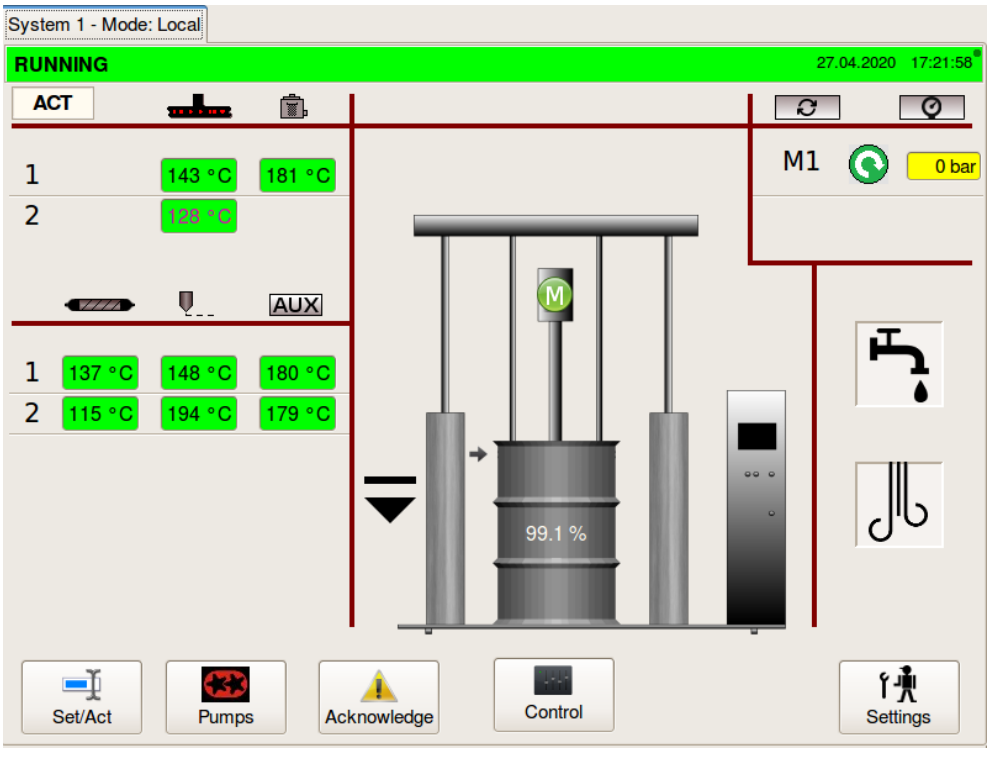
15. Confirm the changes by hitting the “OK” button in the bottom-right. The HMI will restart.

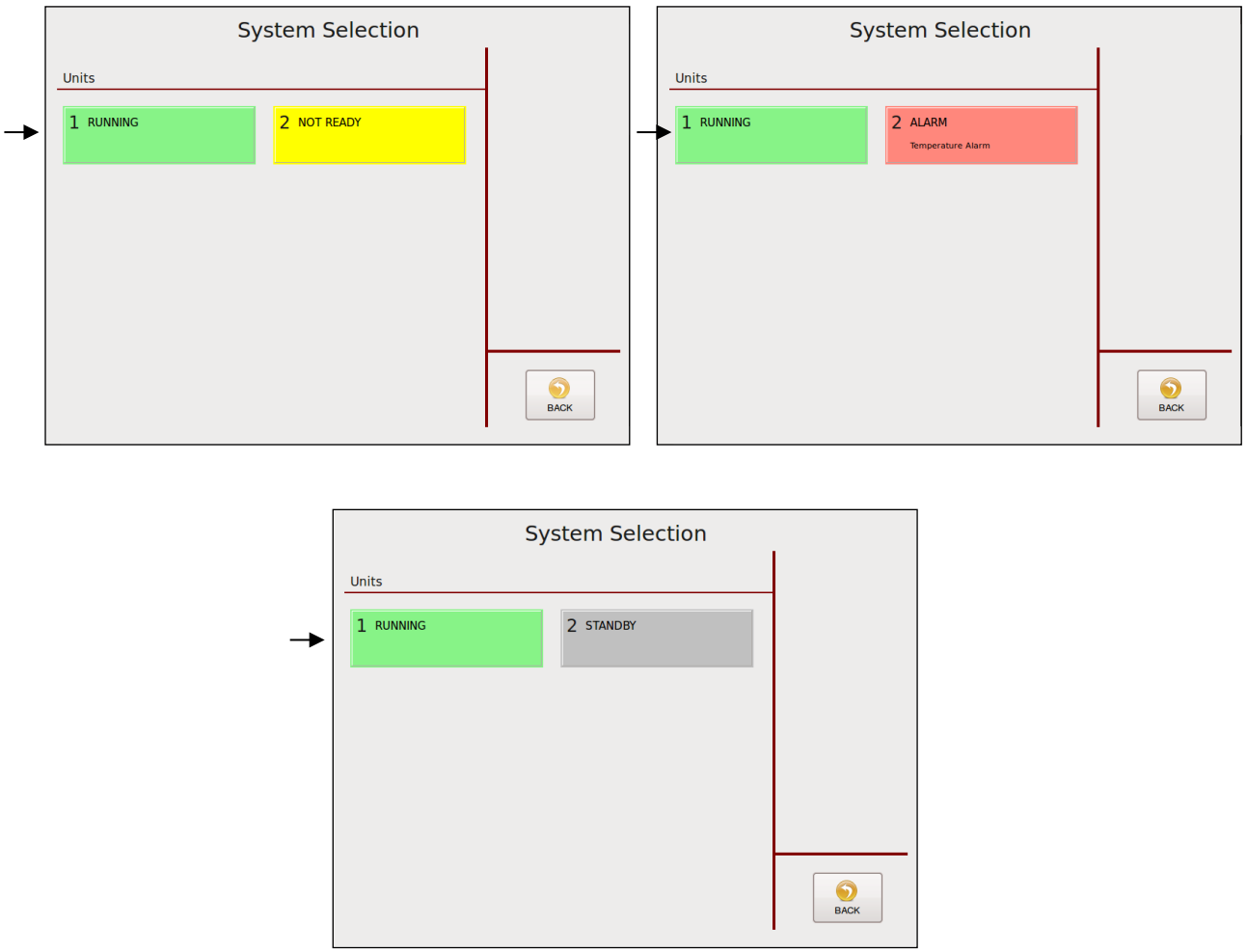
6.11 Systems Screen (only if Multi-System option is installed)

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



- For example: System no.1 is selected. The system no. will be indicated over the Status Line.

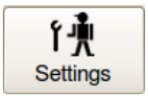




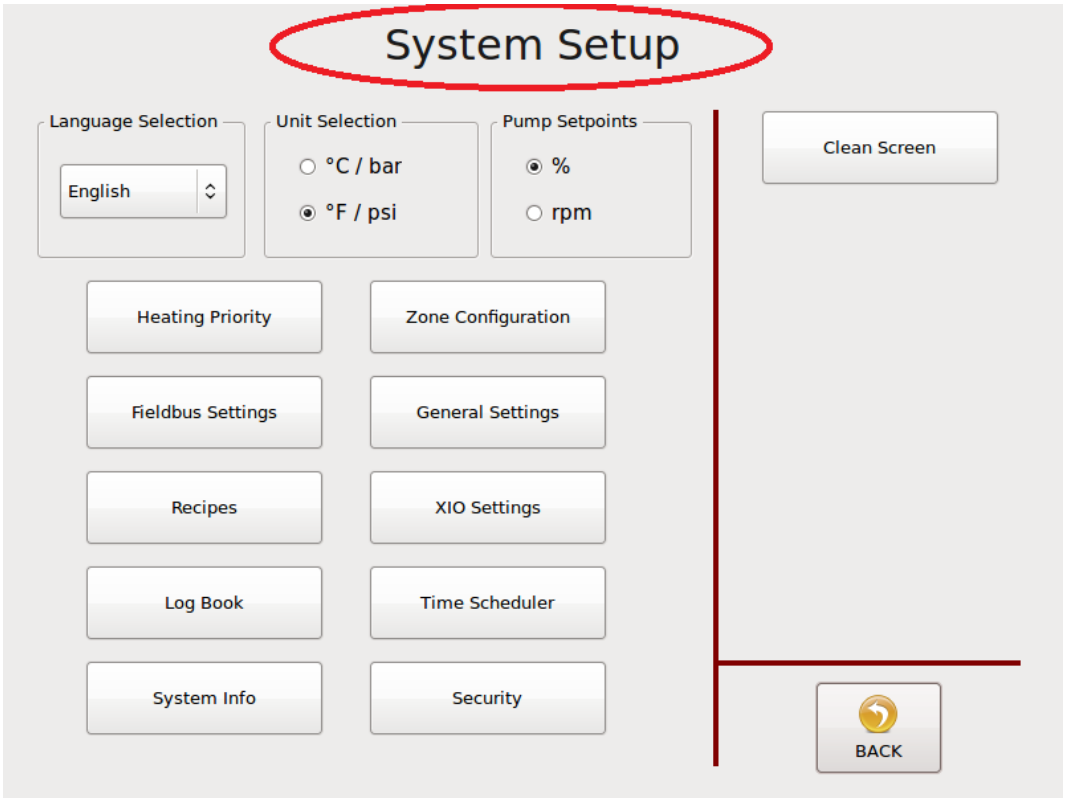
Item	*Description*
1	**System no. Button** • Each system is assigned with a number. • Press the desired number to go to the appropriate system to control and to edit its parameters. • The button is highlighted green when the system is RUNNING or READY, yellow when NOT READY, grey when in STANDBY and red when in ALARM condition.
2	**BACK Button** Press to return to the previous screen.

6.11.1 Changing the Multi-System Configuration

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

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

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

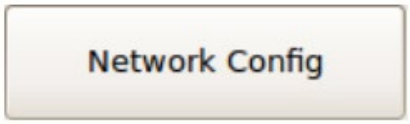


3. On the access code input screen:

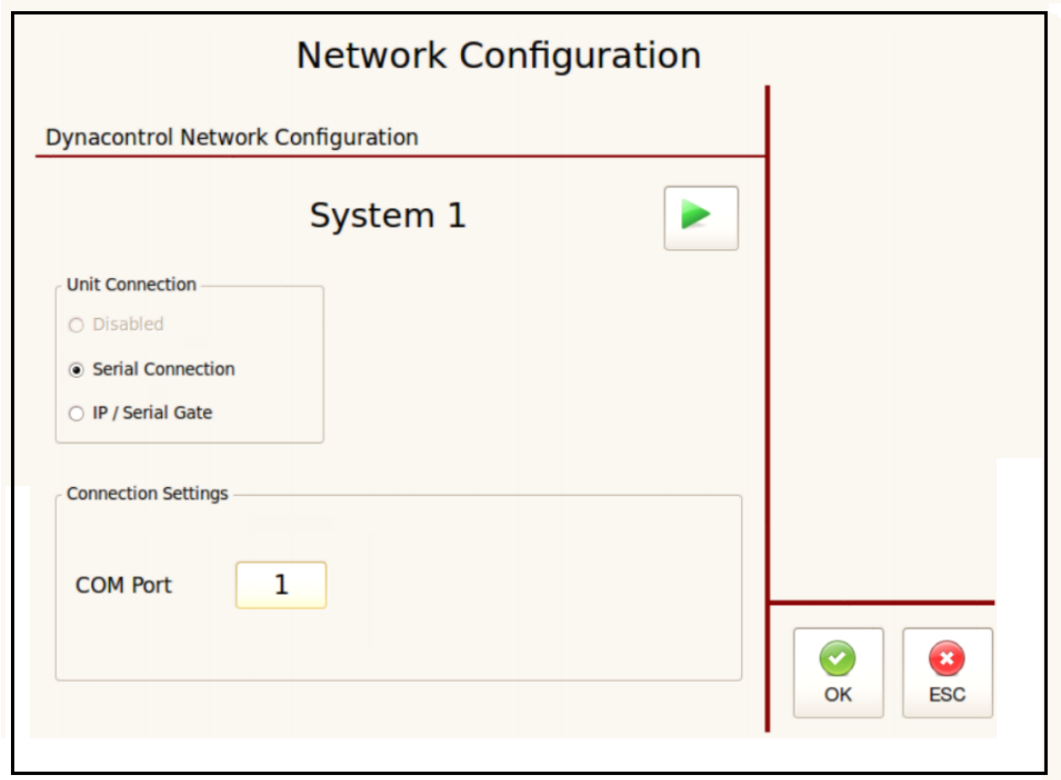
   3a. Leave the entry blank and press ***OK*** when General Settings are not locked via Maintenance access code, or

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

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



The Network Config screen will open:

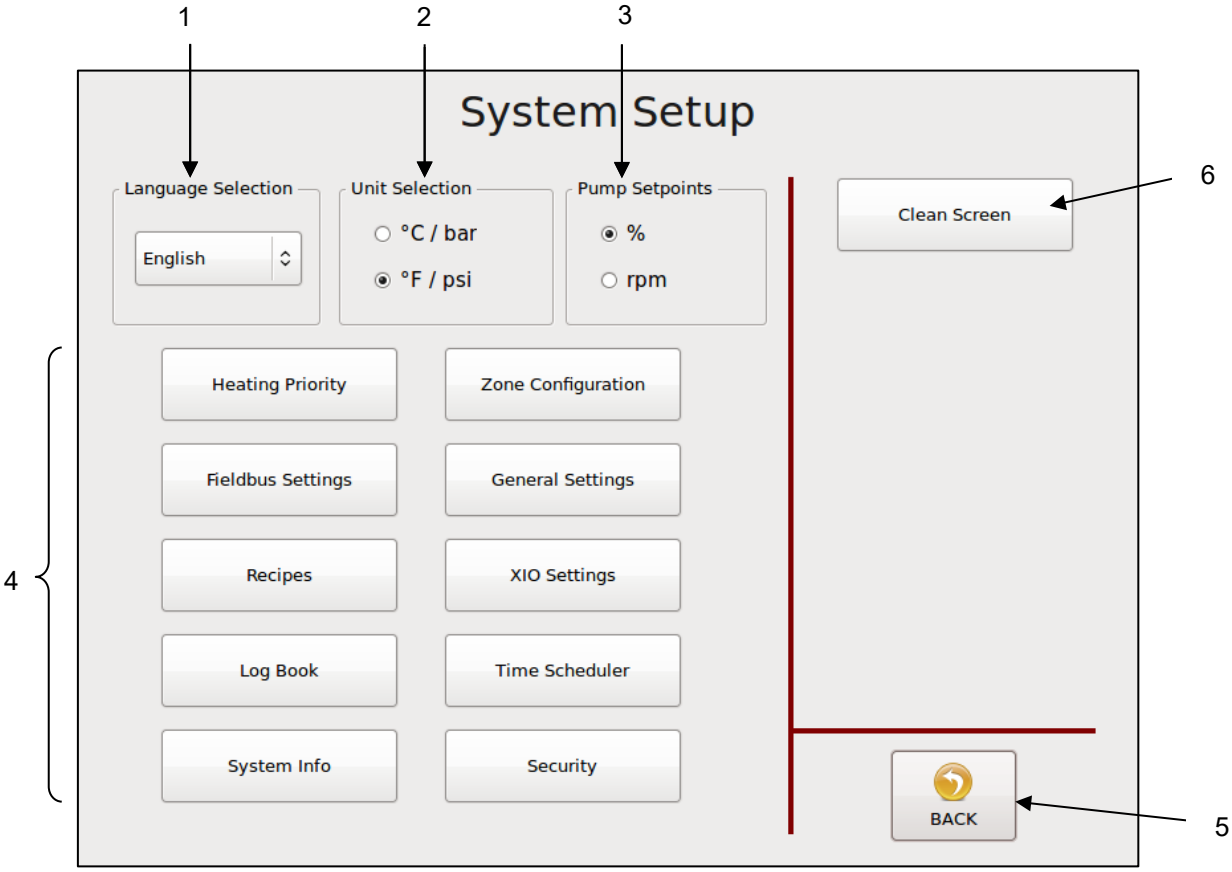


- On this screen the individual systems (Melters) of the Multi-System can be configured.
- Depending on the actual situation two or more systems are configured.
  Select the desired unit by pressing the arrow button:

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

6.12 Settings Screen

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

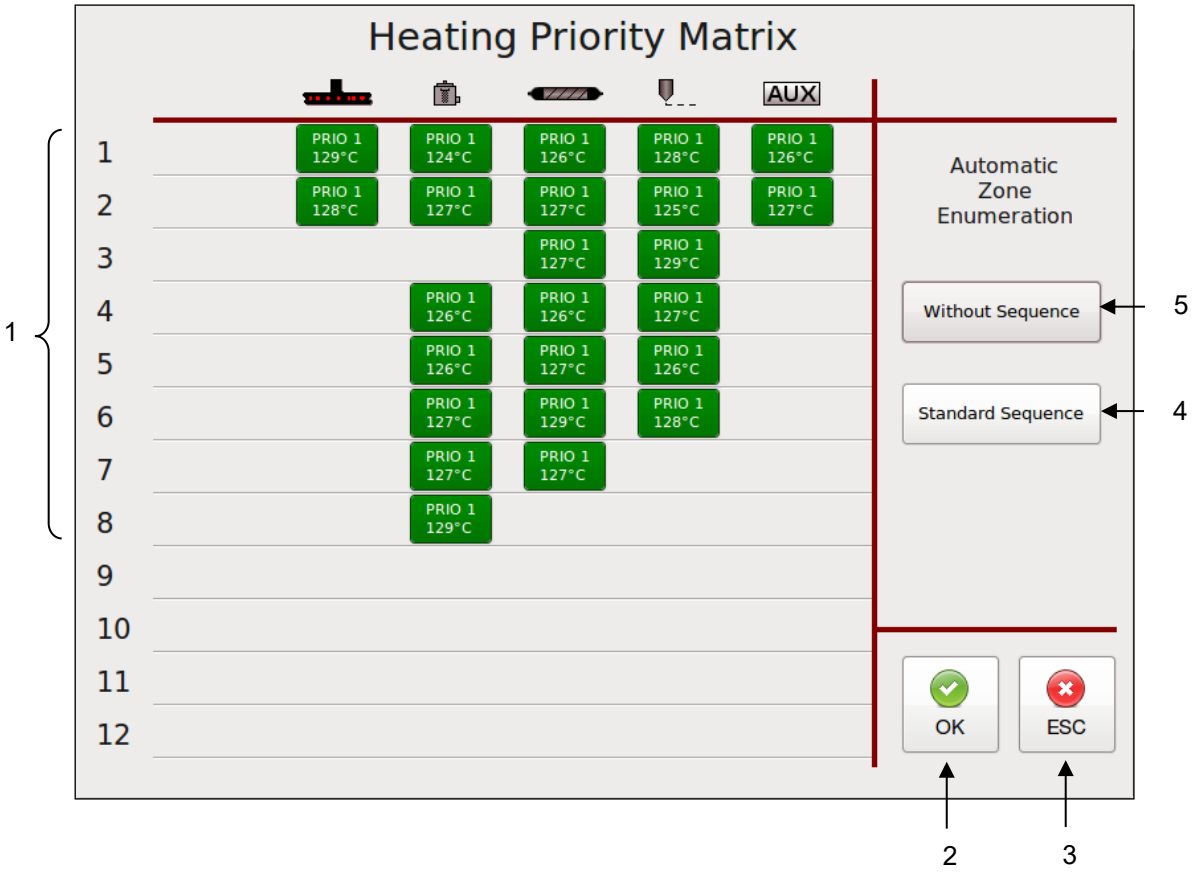


Item	*Description*
1	**Language Selection Menu** The current language is displayed. Press the button to select any language from the ones listed on the menu.
2	**Unit & Date Selection** Select the unit of temperature and pressure: choose either °C and bar or °F and psi. Depending on the selection made,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

6.12.1 Heating Priority Screen

- To go to this screen, press the Heating Priority button on the Settings Screen.
- This screen allows you to set a Heating Priority for each zone. Heating Priority allows the 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:

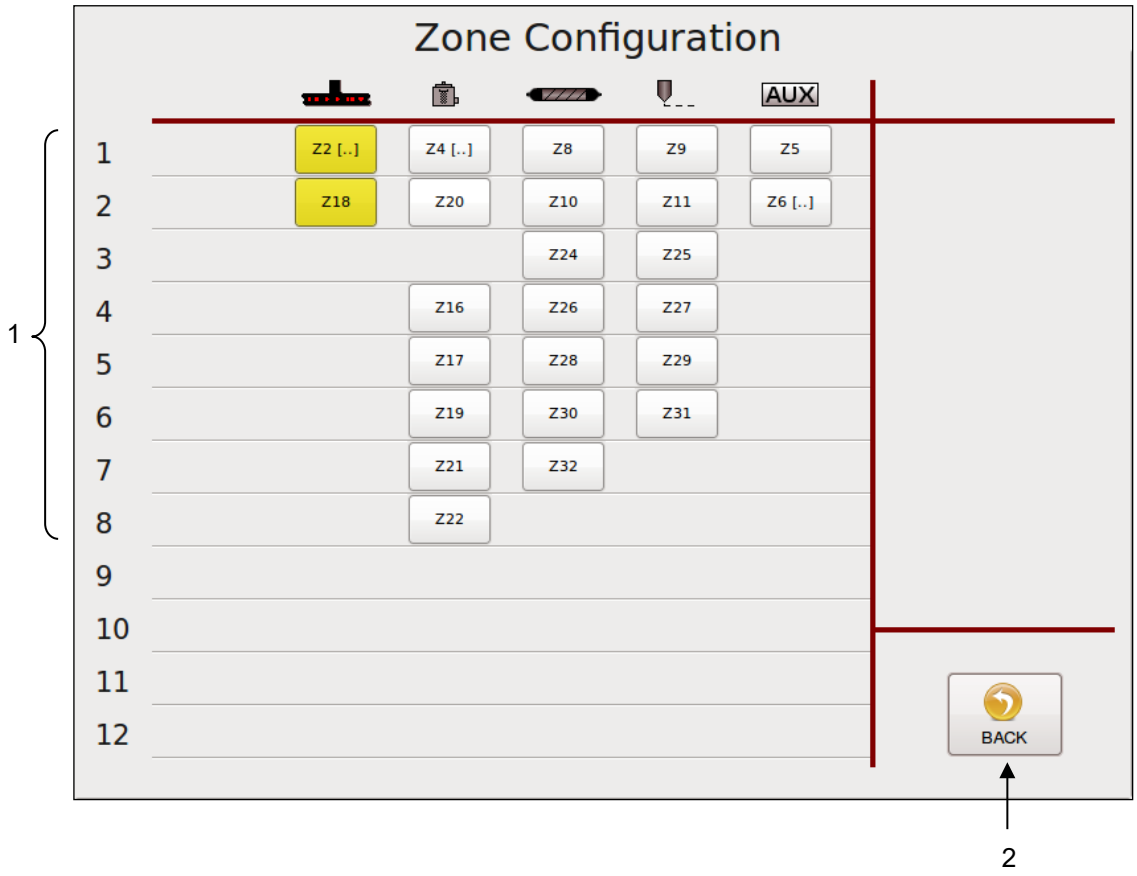


Item	Description
1	Touch each zone field to select one of the following three Heating Priorities, or to switch the zone OFF: • PRIO1 = the zone will heat first. • PRIO2 = the zone will begin to heat after the PRIO1 zones have reached their set points. • PRIO3 = the zone will begin to heat after the PRIO2 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.

6.12.2 Zone Configuration Screen

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

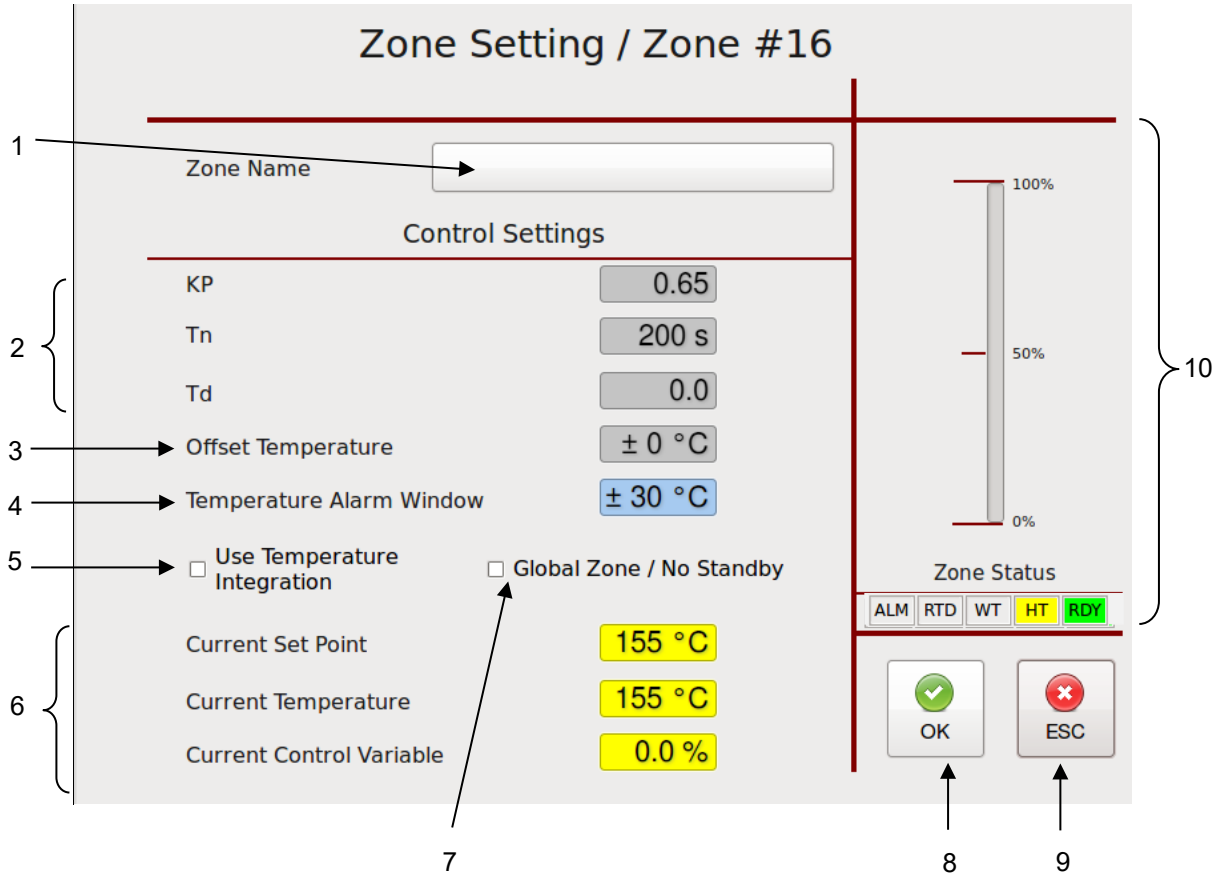
Zone Configuration Screen Example:



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

6.12.3 Zone Settings

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



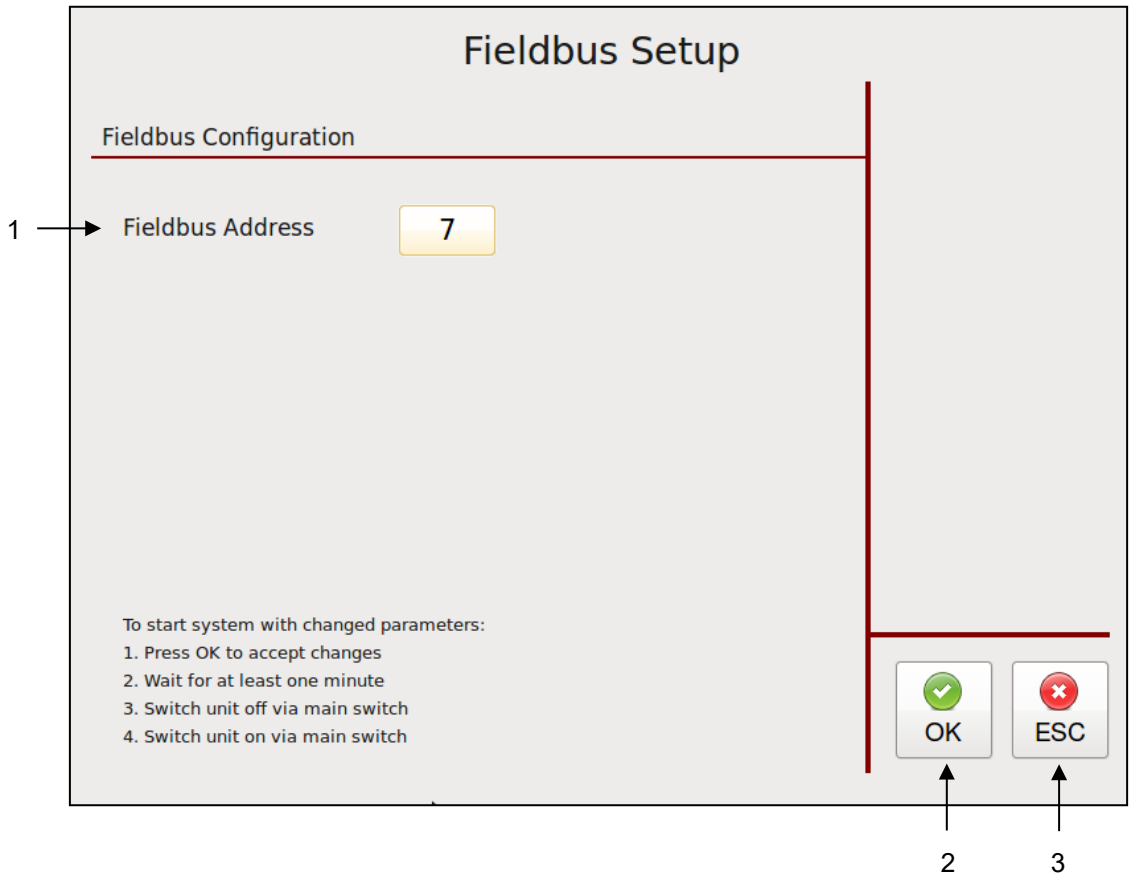
Item	Description
1	**Zone Name** Touch the input box and an Alphabetic Entry Keypad will appear. Enter your desired name and confirm by pressing OK.
2	**Control Settings** • KP, Tn and Td values allow access to the control parameters of PID Controller of the selected zone. • These values can be changed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

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

6.12.4 Fieldbus Setup Screen

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

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

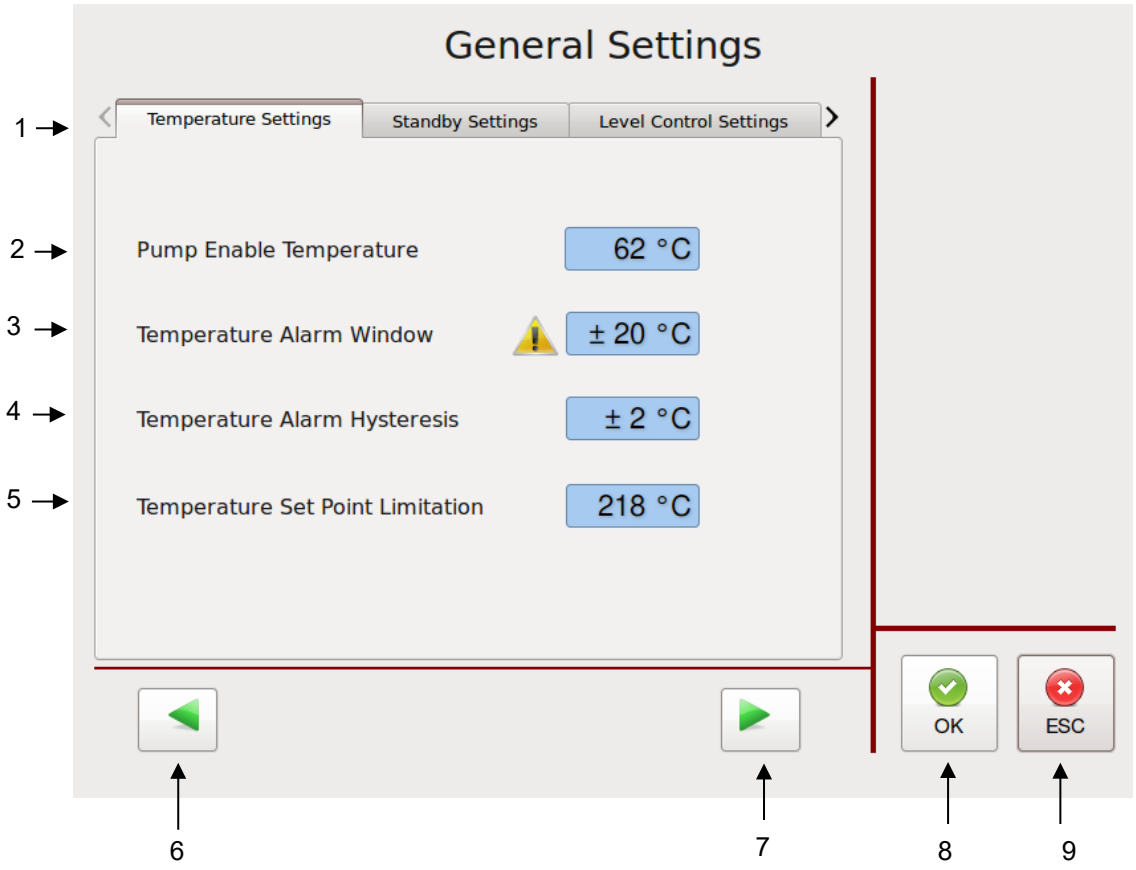


Item	Description
1	**Fieldbus Address** Touch the input box and a numeric entry keypad will appear. Enter the Fieldbus Address of the unit. Confirm by pressing OK. After programming the Fieldbus Address, the system must be re-started. To re-start the system with changed parameters: 1. Press OK to accept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

6.12.5 General Settings Screen

- To go to this screen, press the General Settings button on the Settings Screen.
- This screen allows you to set the parameters shown across the screen's top line (Item no.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.

6.12.5.1 Temperature Settings

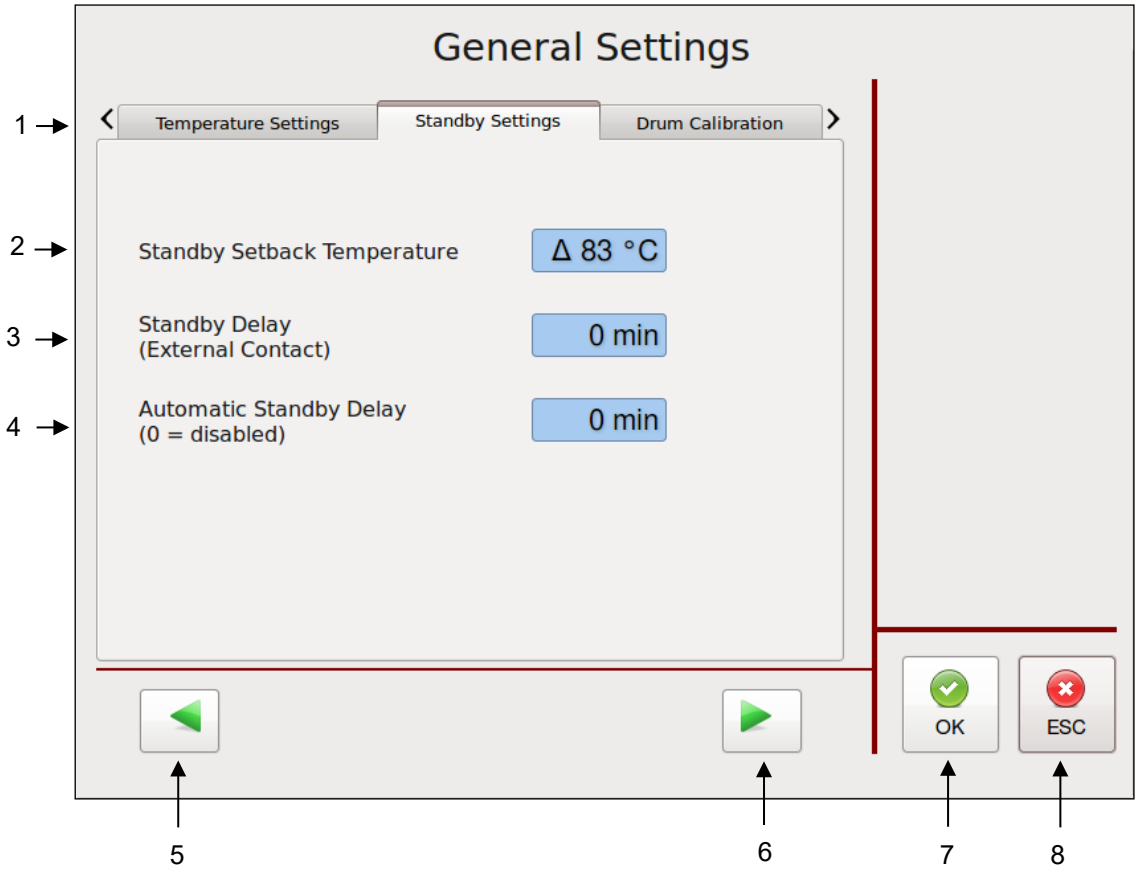


Item	Description
1	**Parameter Selection tabs** The Temperature Settings tab has been selected.
2	**Pump Enable Temperature** • The Pump Enable Temperature is a low-limit value (e.g. 100°C / 212°F) which protects the pump, pump shaft, motor and motor control module by preventing the pump from turning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

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

6.12.5.2 Standby Settings

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



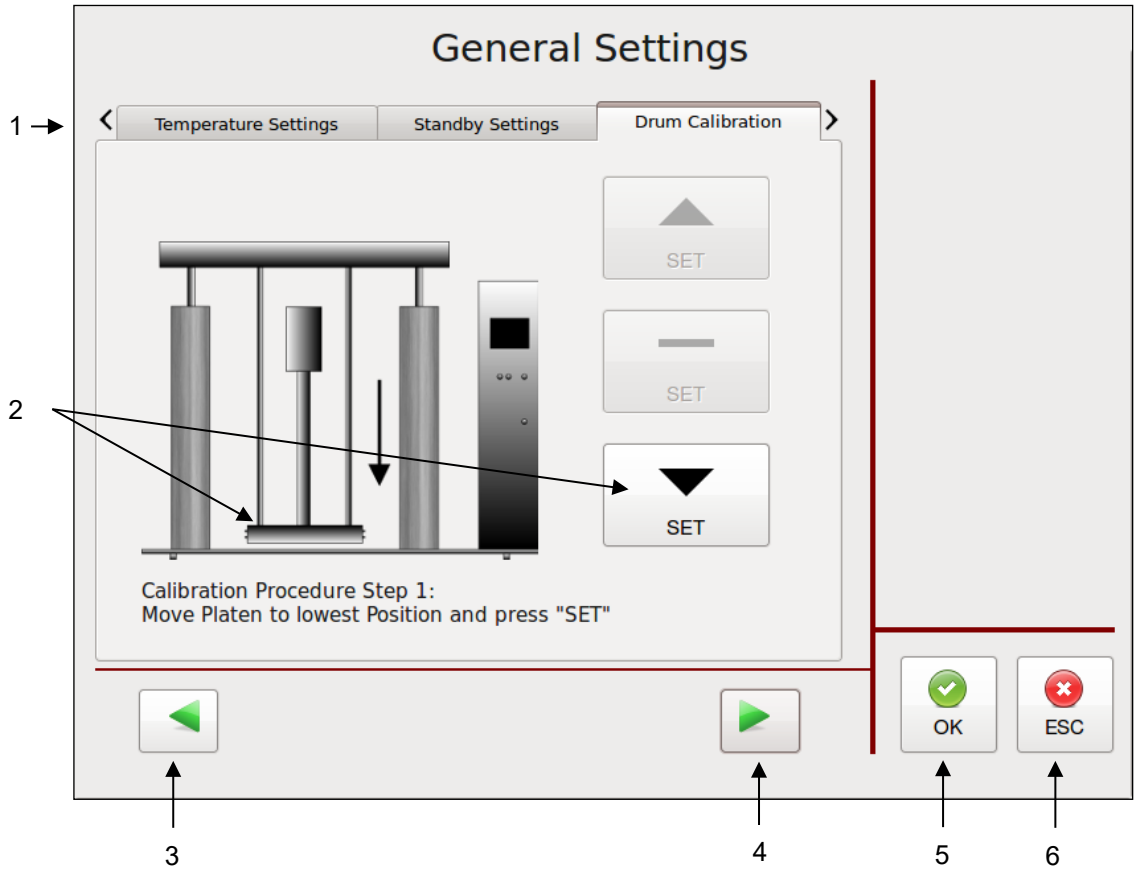
Item	*Description*
1	**Parameter Selection tabs** The Standby Settings tab has been selected.
2	**Standby Setback Temperature** • This is the system condition where the platen, hose and head temperatures are maintained at predetermined reduced temperature values. Standby Setback Temperatures are set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

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

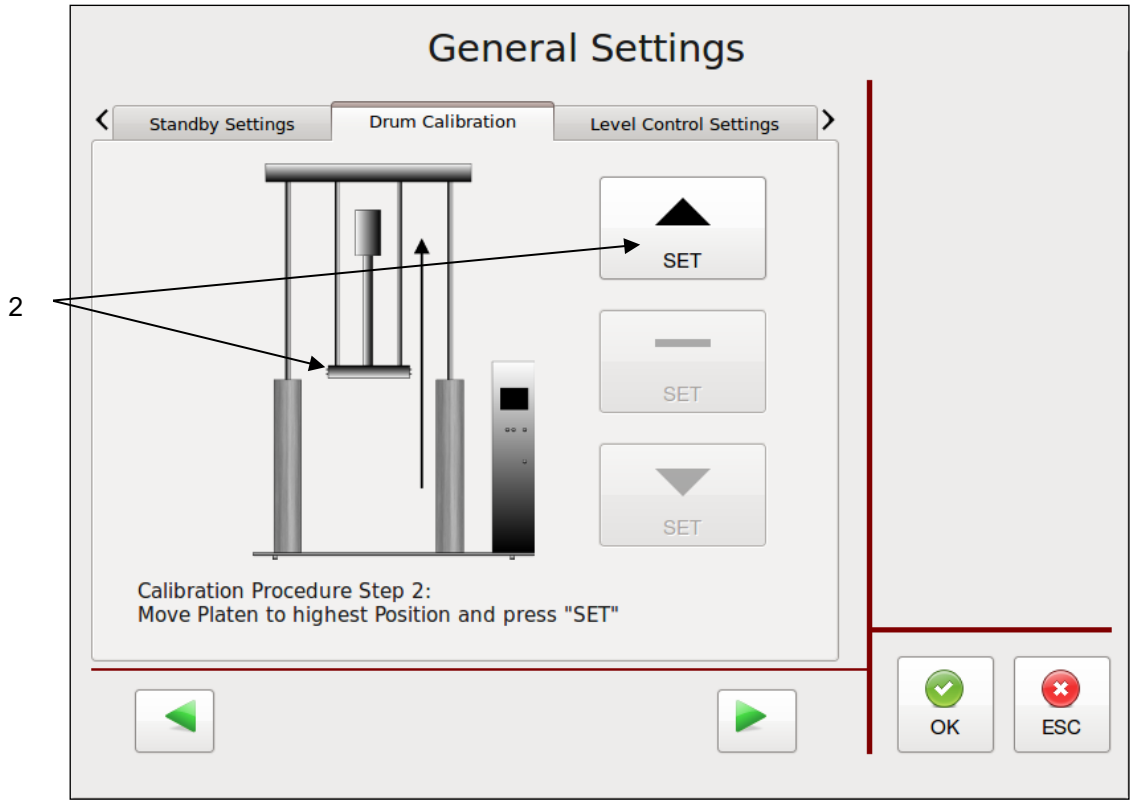
6.12.5.3 Drum Calibration

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

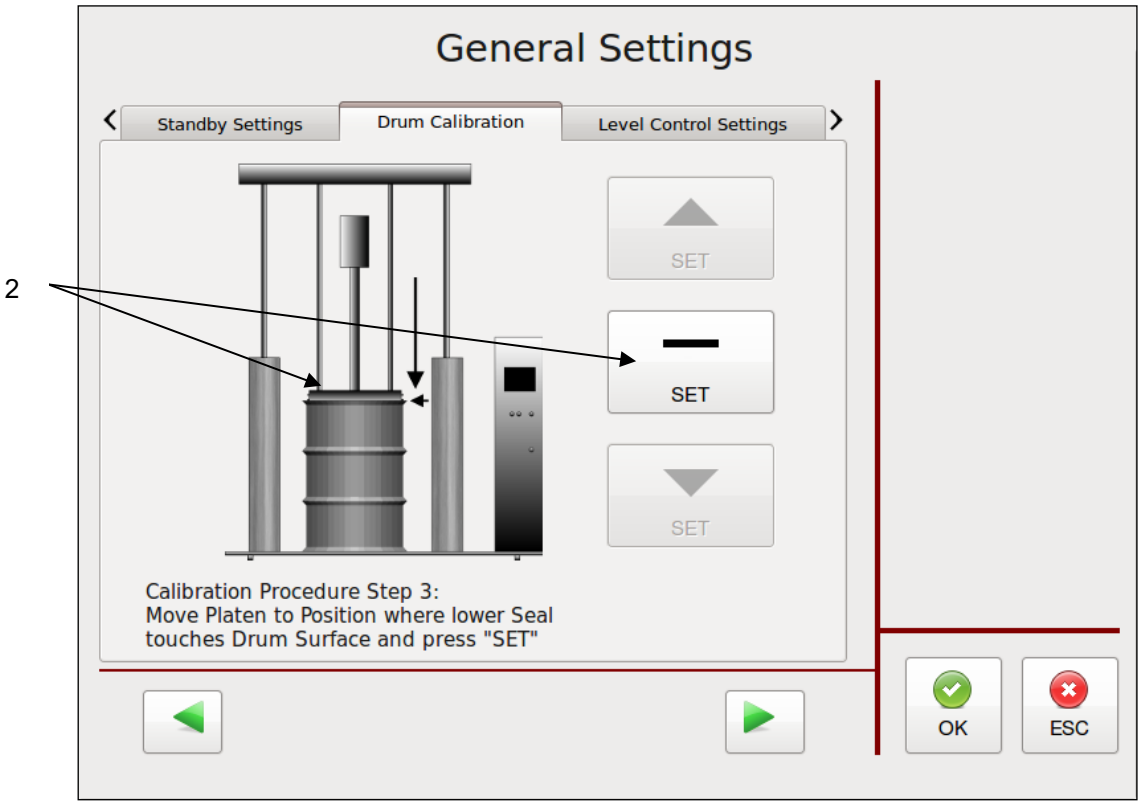
Step 1:



Step 2:



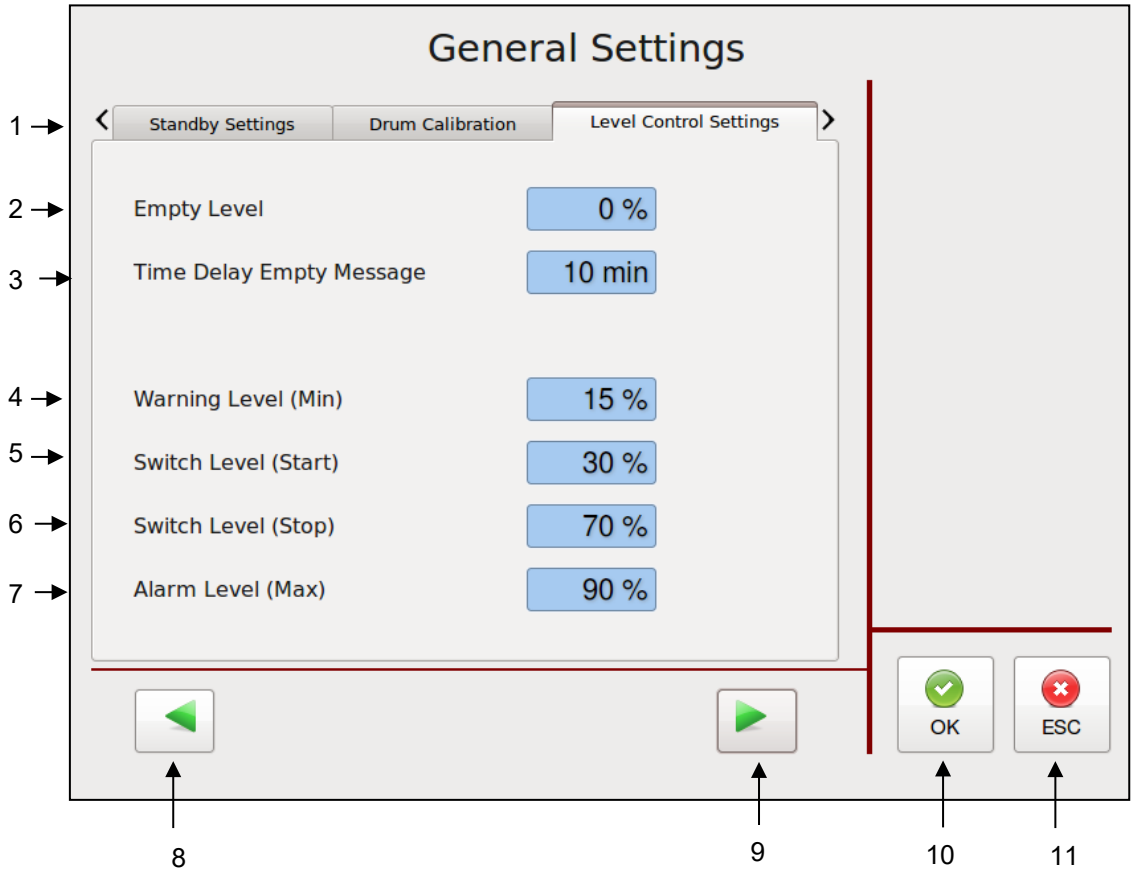
Step 3:



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.

6.12.5.4 Level Control Settings

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

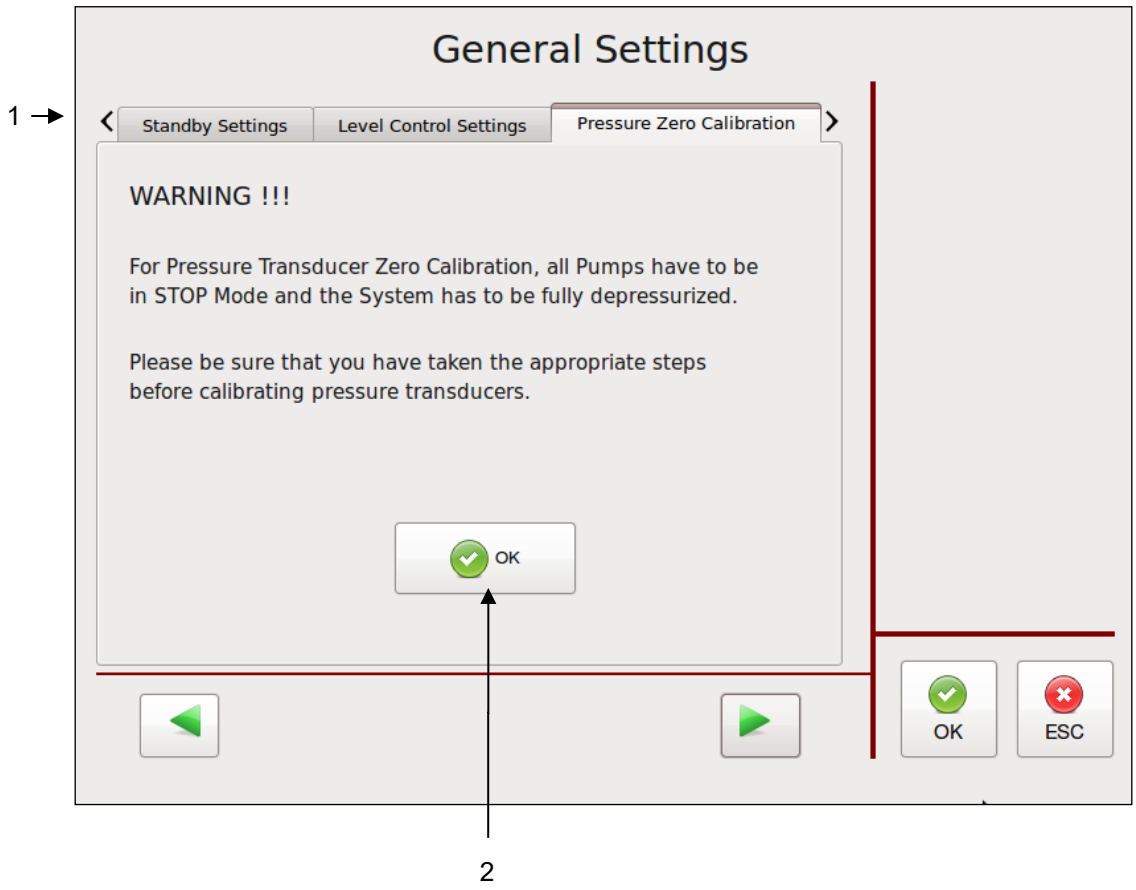


Item	*Description*
1	**Parameter Selection tabs** The Level Control Settings tab has been selected.
2	**Empty Level** If fill level is lower than this parameter an empty message will be generated.
3	**Time Delay Empty Message** • This is a programmable time delay for reappearance of the level control's 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.

Item	Description
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.

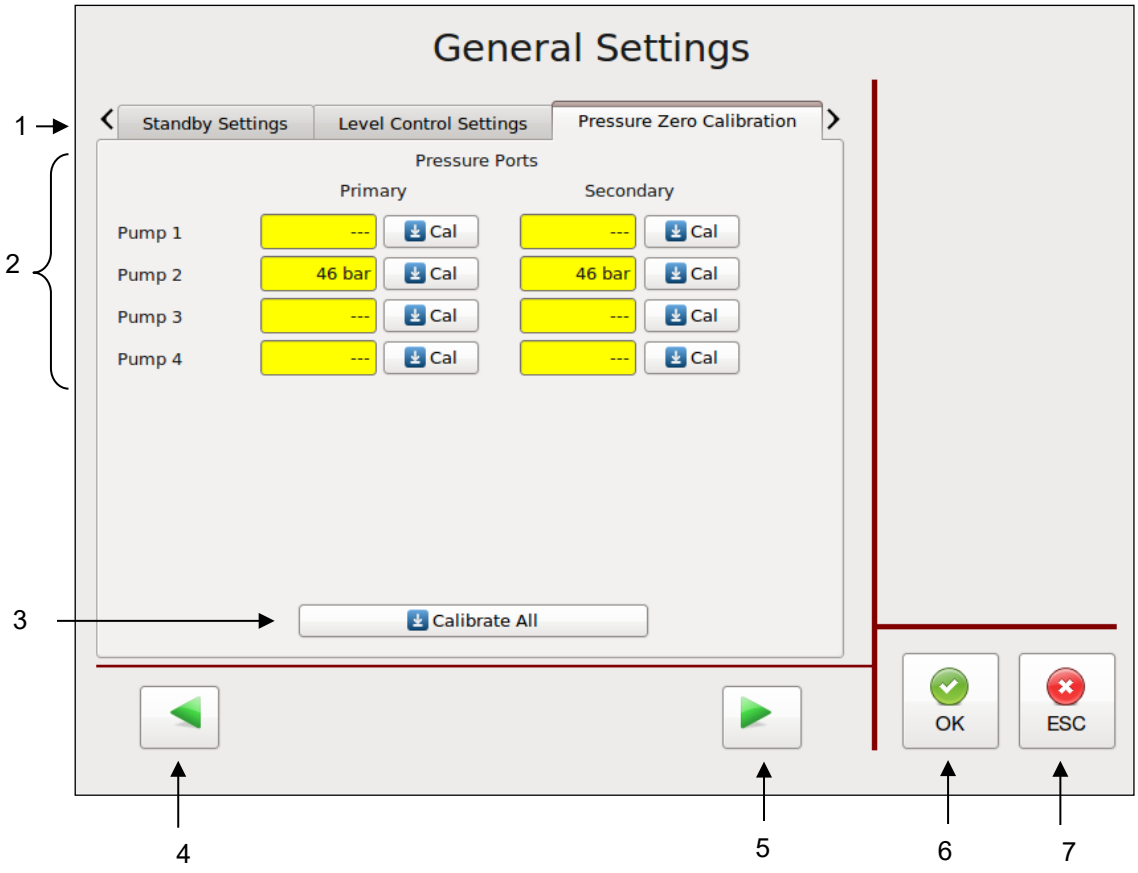
6.12.5.5 Pressure Zero Calibration

➢ 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.

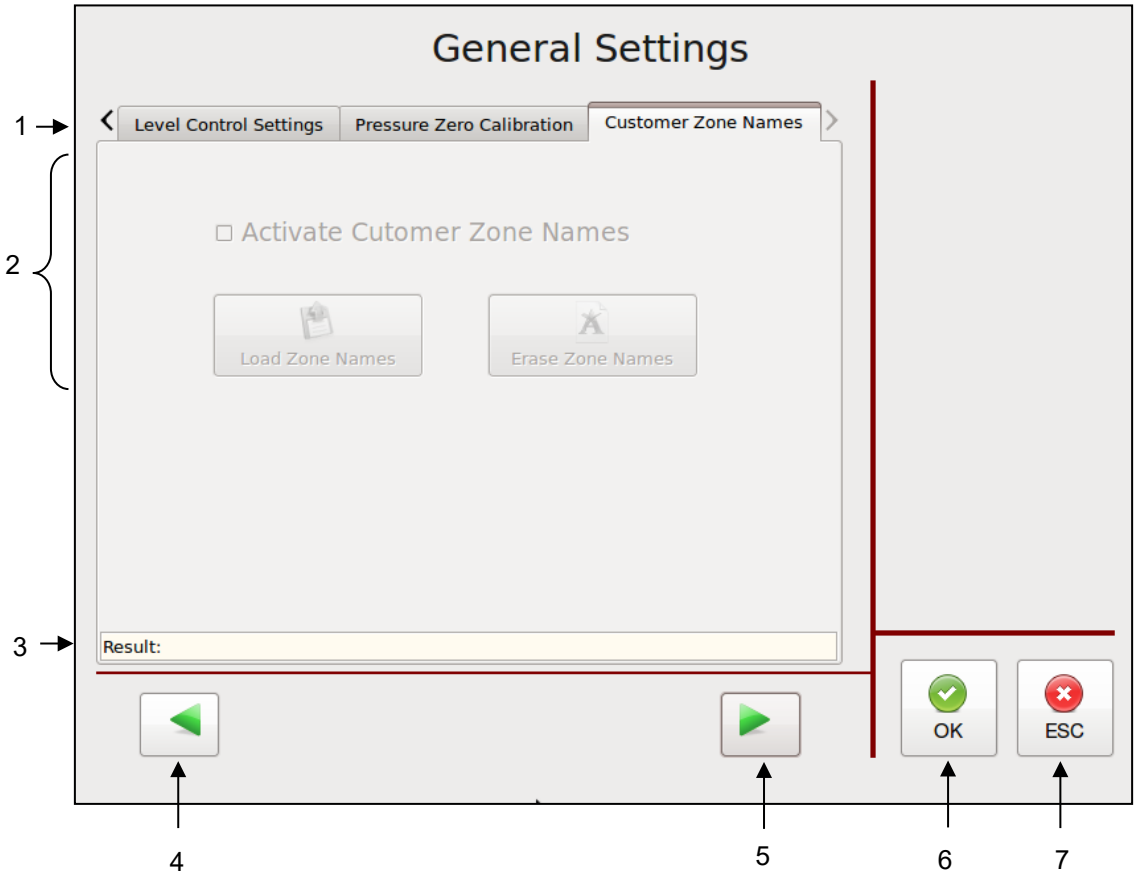
6.12.5.6 Calibrating Screen



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.

6.12.5.7 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.

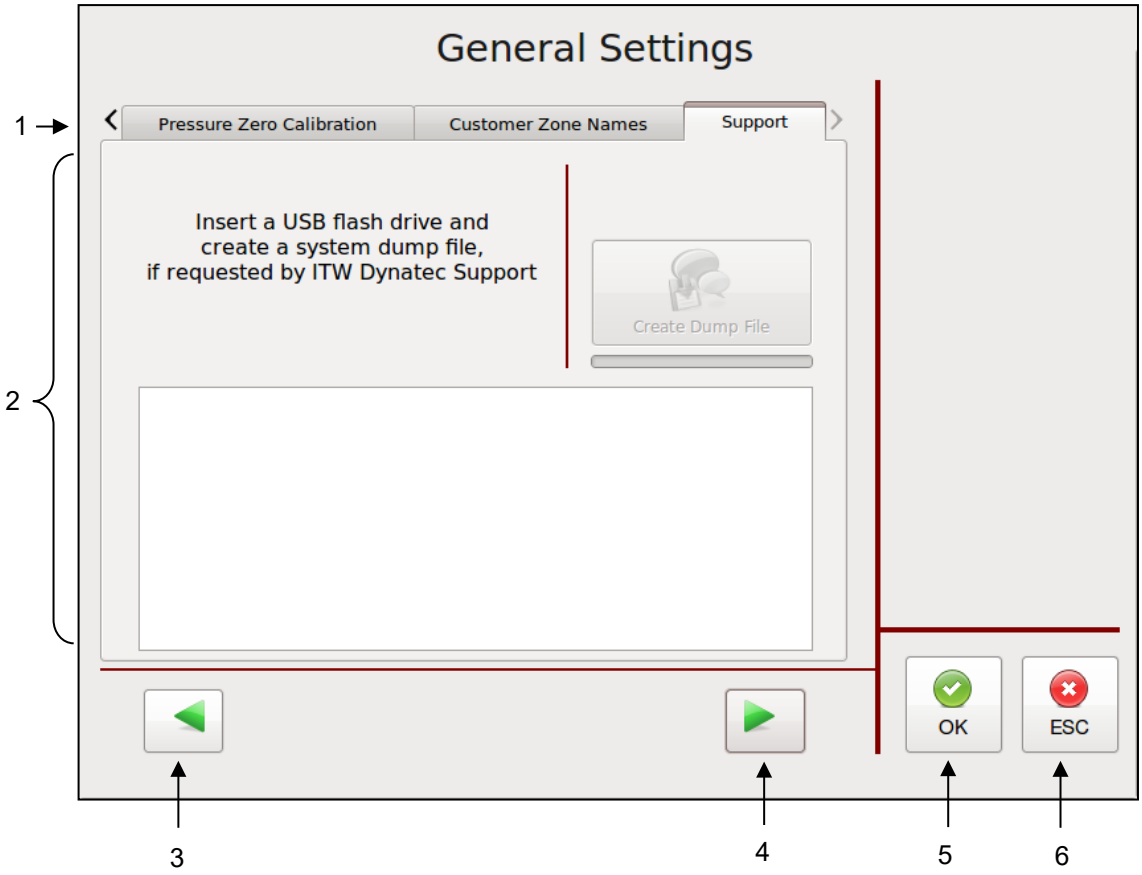


Item	*Description*
1	**Parameter Selection tabs** The Customer Zone Names tab has been selected.
2	**Customer Zone Names** If activated, you can Load or Erase Zone Names by pressing the appropriate button. With the Customer Zone Names feature, the user may personalize the names of the temperature zones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

6.12.5.8 Support

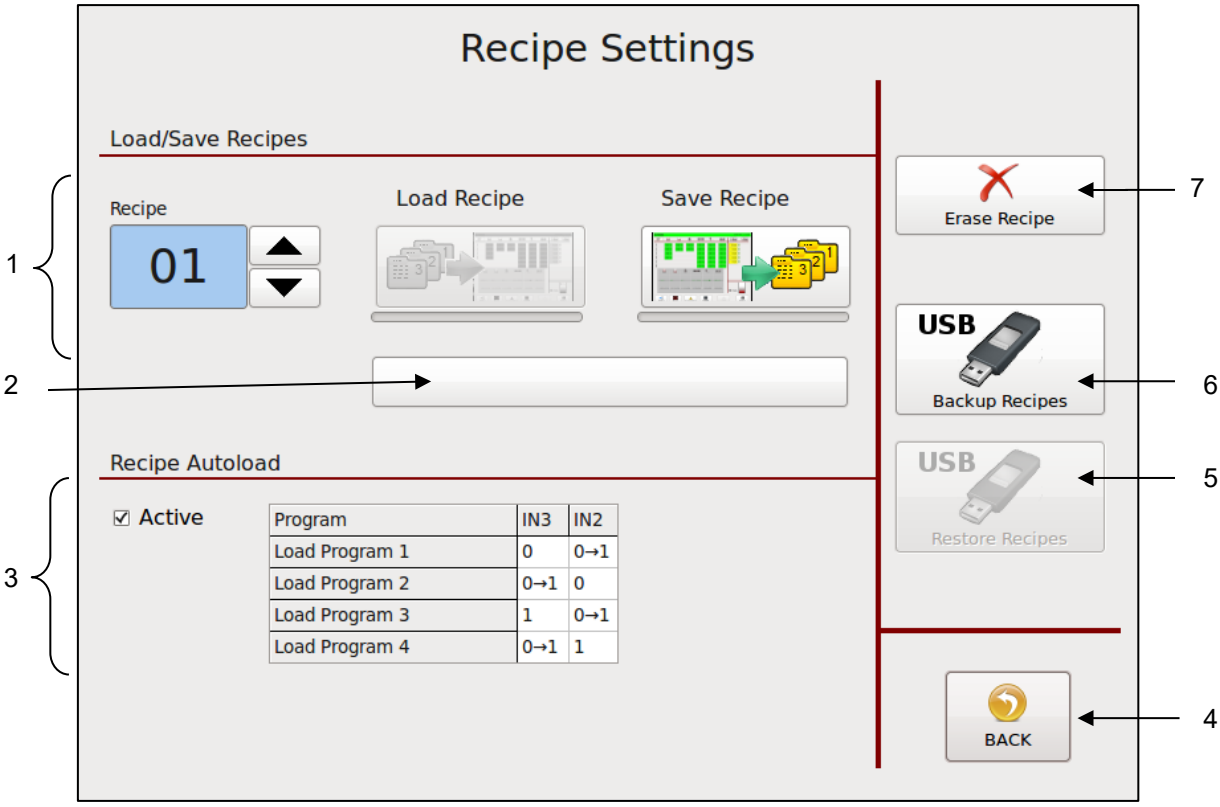
- To go to this screen, press the General Settings button on the Settings Screen.
- Use the Customer Zone Names Editor program (provided on CD) and a thumb drive (not provided) to make changes.



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.

6.12.6 Recipes Screen

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

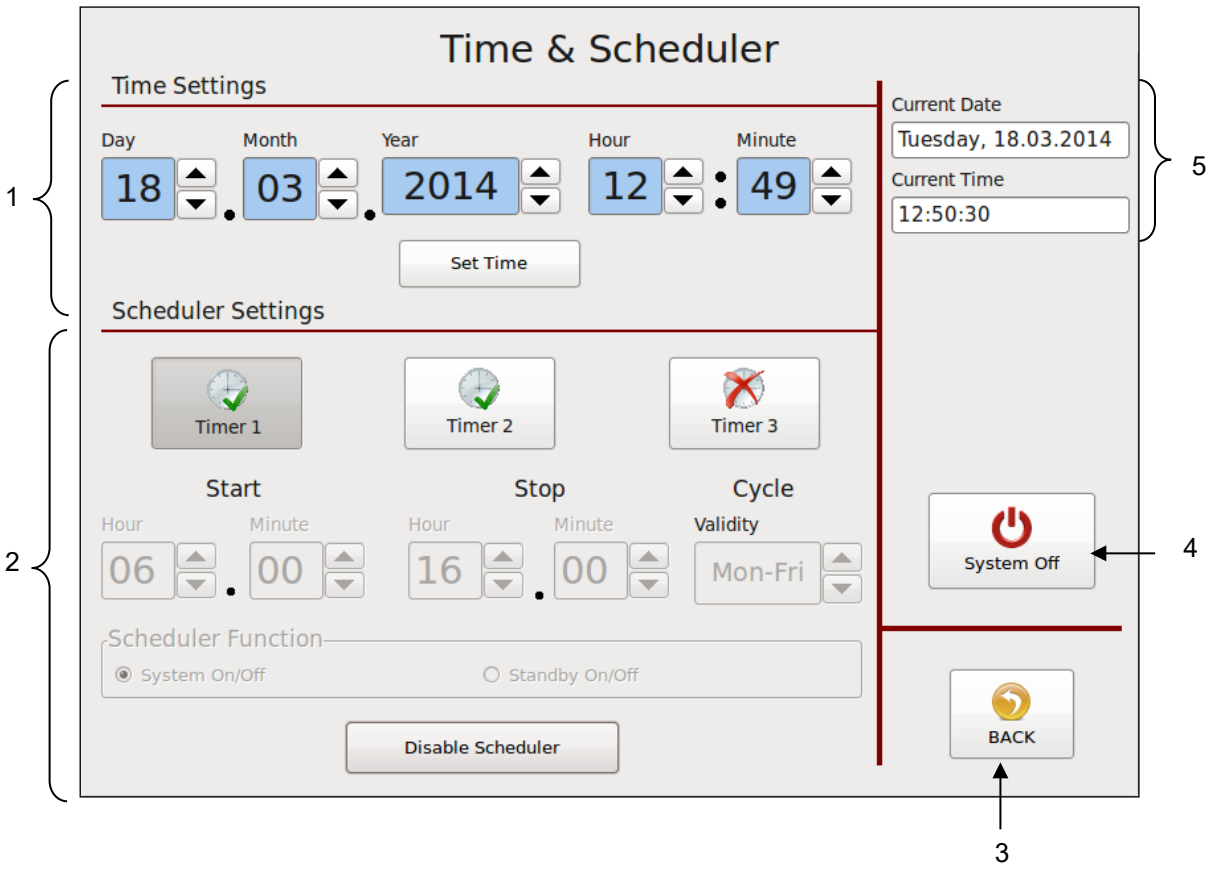


Item	*Description*
1	**To Create and Save a Recipe:** 1. Program the controller as you wish it to be setup for a recipe. Program the following parameters: temperature settings, zone On/Off settings, motor mode and speed. 2. Using the up and down arrows, select a number to assign to your recipe. 3. Press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

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

6.12.7 Time & Scheduler Screen

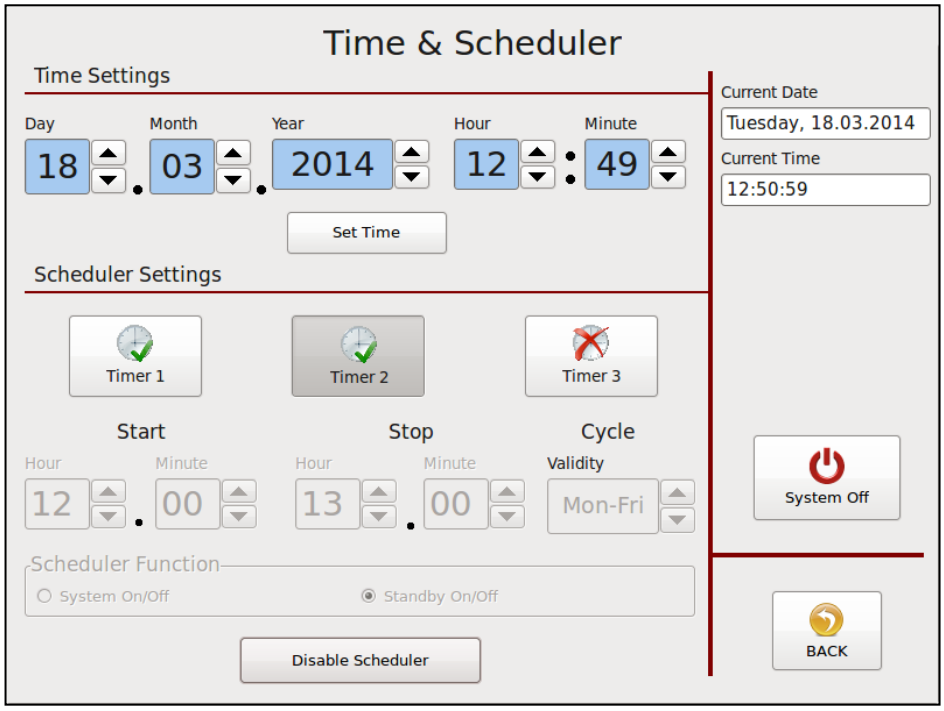
- To go to this screen, press the Time & Scheduler button on the Settings Screen.
- This screen allows you to set the current date and time, and program the scheduler.



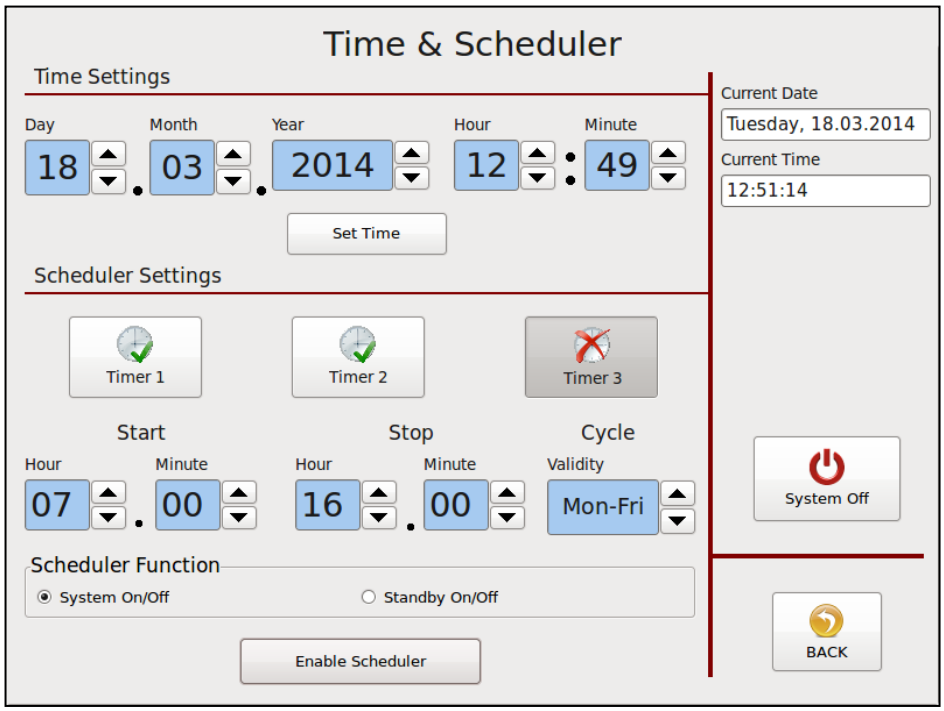
Item	Description
1	**Time & Date Settings** The Time and Date are set with the buttons across the top of the screen. Using the up and down arrows, choose the current Day, Month, Year, Hour and Minute. To confirm these values, press Set Time. Afterwards, the current date and time will be displayed at right (item no.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.

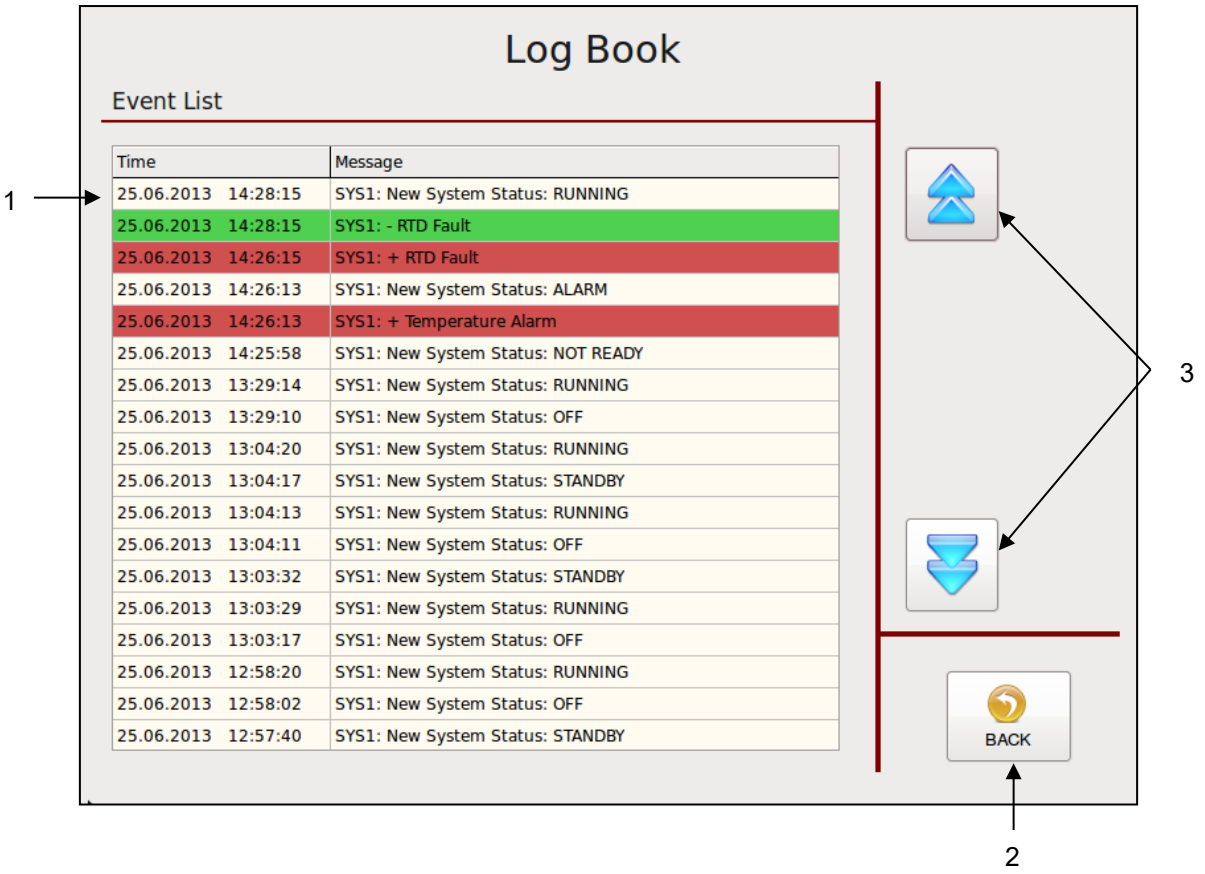


Example:
The display on the right shows that Timer 3 is not programmed and not activated:



6.12.8 Log Book Screen

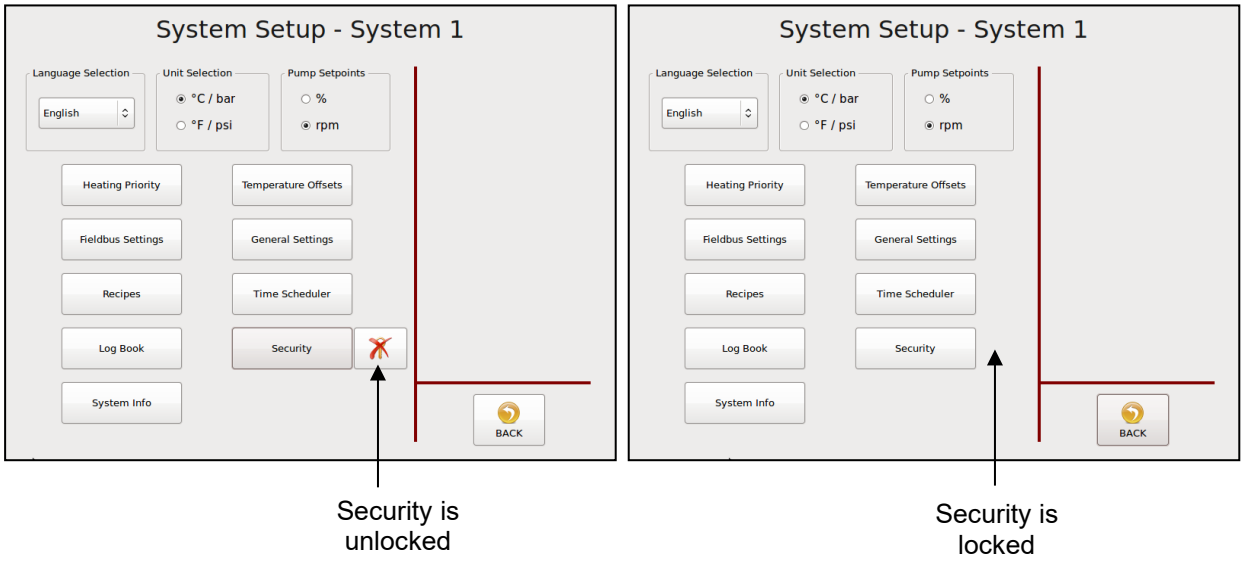
- To go to this screen, press the Log Book button on the Settings Screen.
- The Log Book provides a read-only history of the last 100 (maximum) controller faults and events.
- If several systems are controlled by the HMI, all events will be listed here.



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

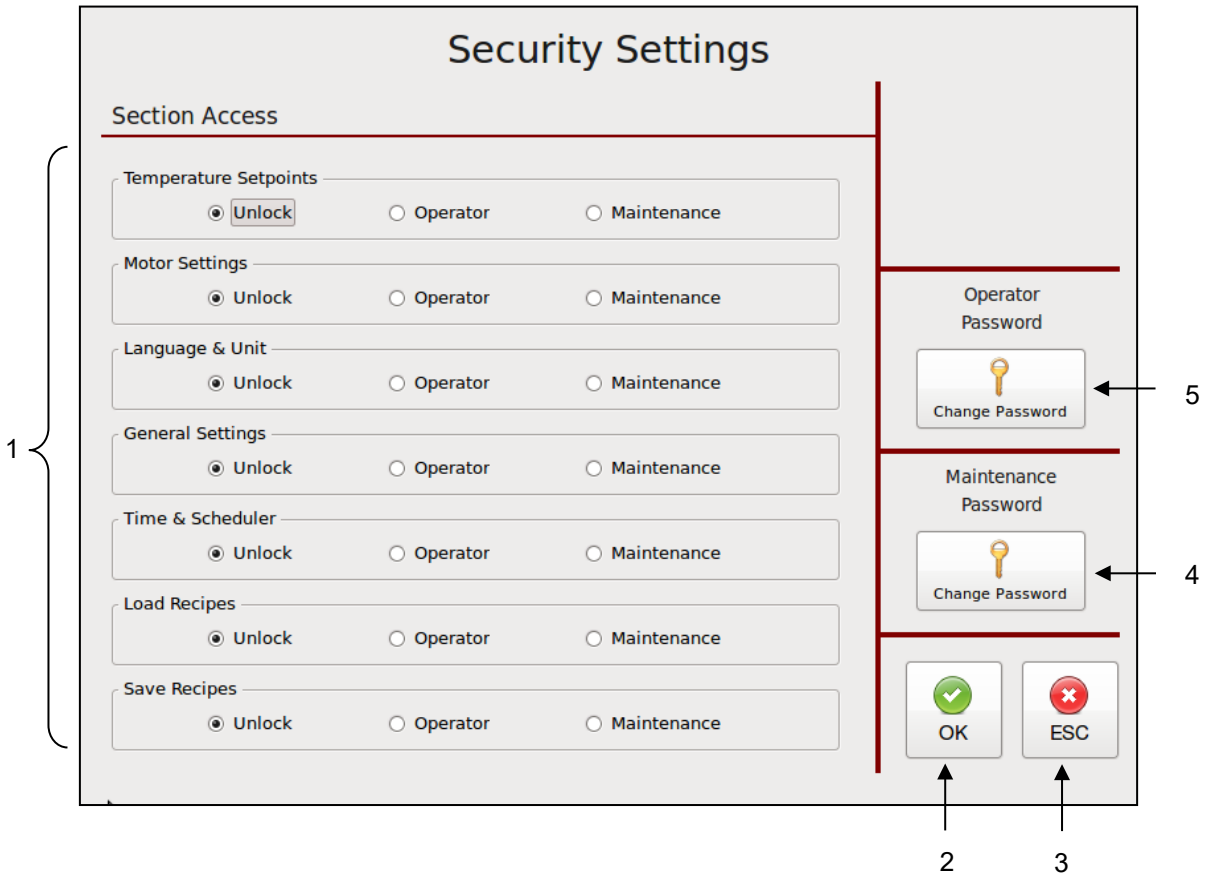
6.12.9 Security Screen

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



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

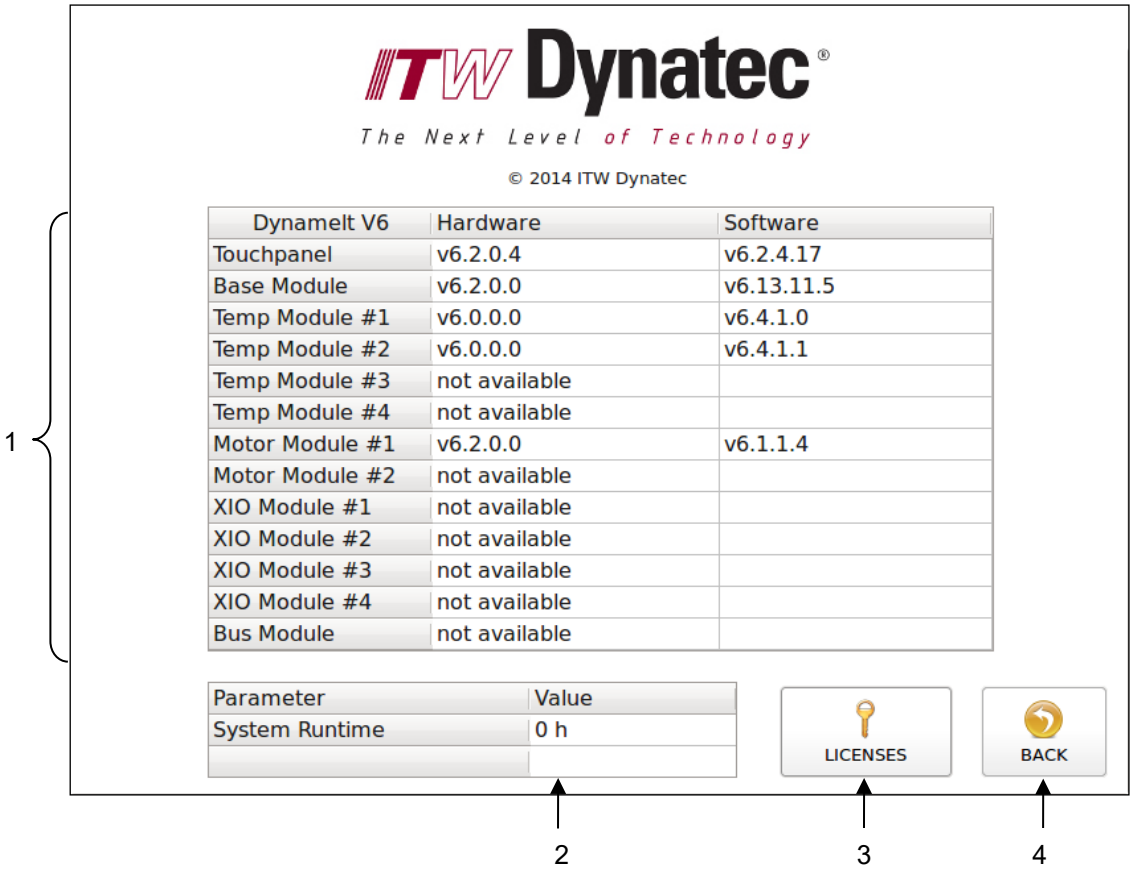
Continued on next page.



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

6.12.10 System Info Screen

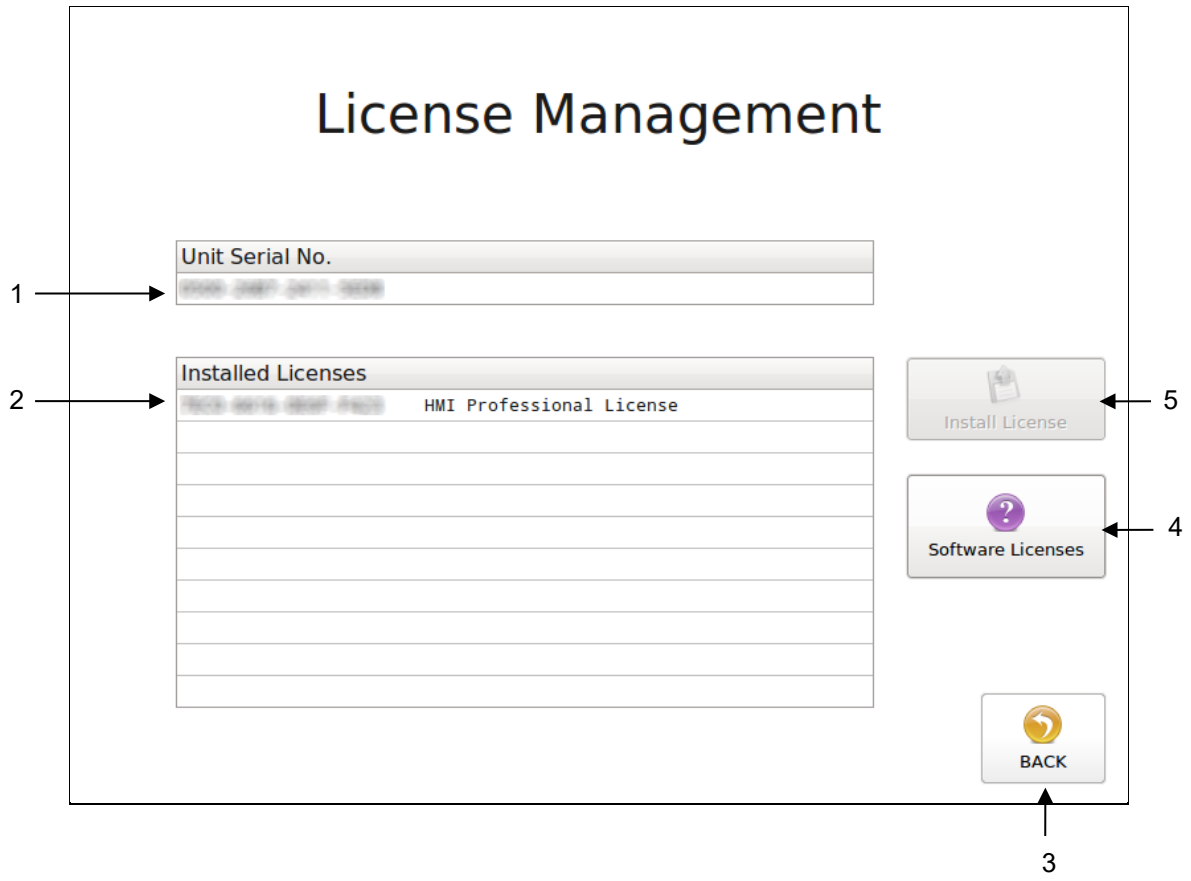
- To go to this screen, press the System Info button on the Settings Screen.
- This screen displays information about the V6 controller and its modules. The screen is read-only.



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

6.12.10.1 License Management Screen

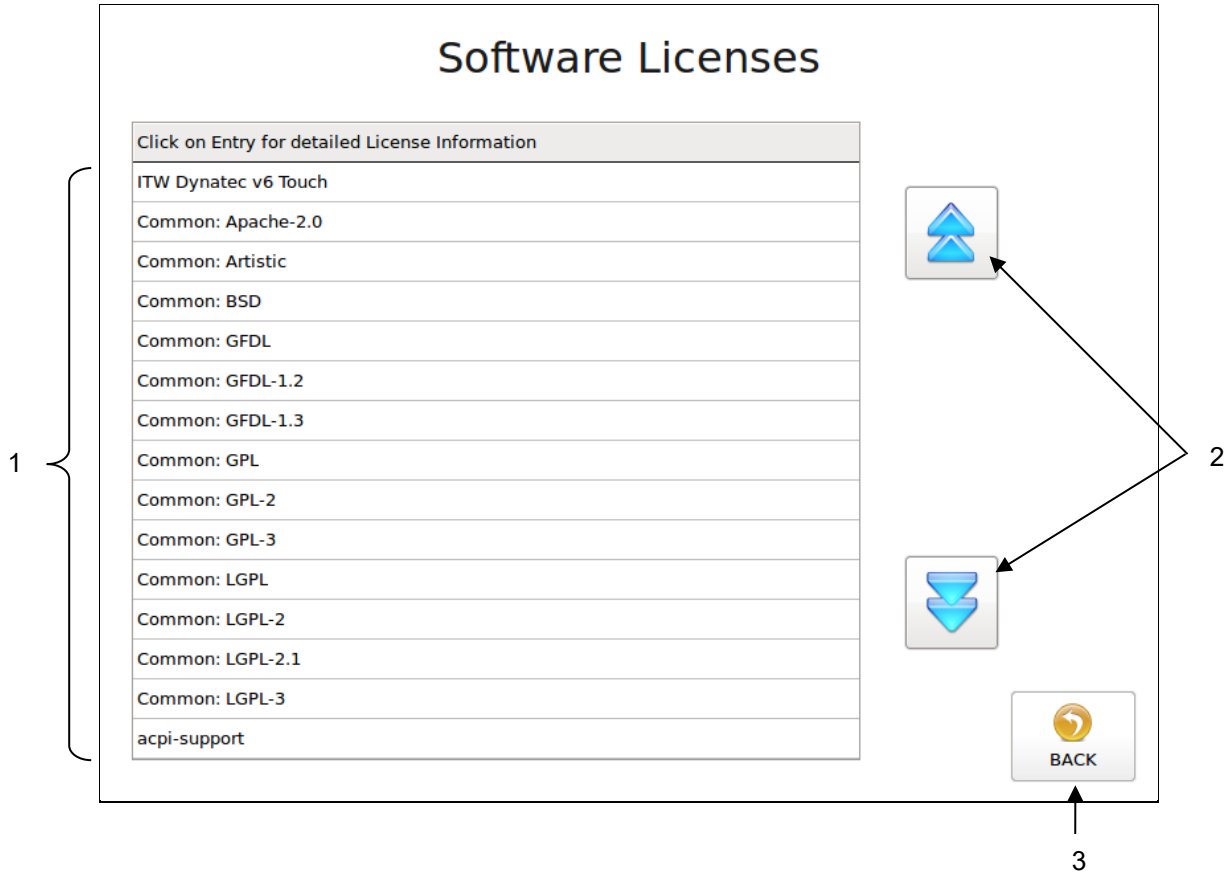
- To go to this screen, press the Licenses button on the System Info Screen.
- To purchase licenses with additional features, please contact ITW Dynatec Customer Service and provide your unit's serial number (provided on this screen). You will receive an USB Flash Drive with the license.



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

6.12.10.2 Software Licenses

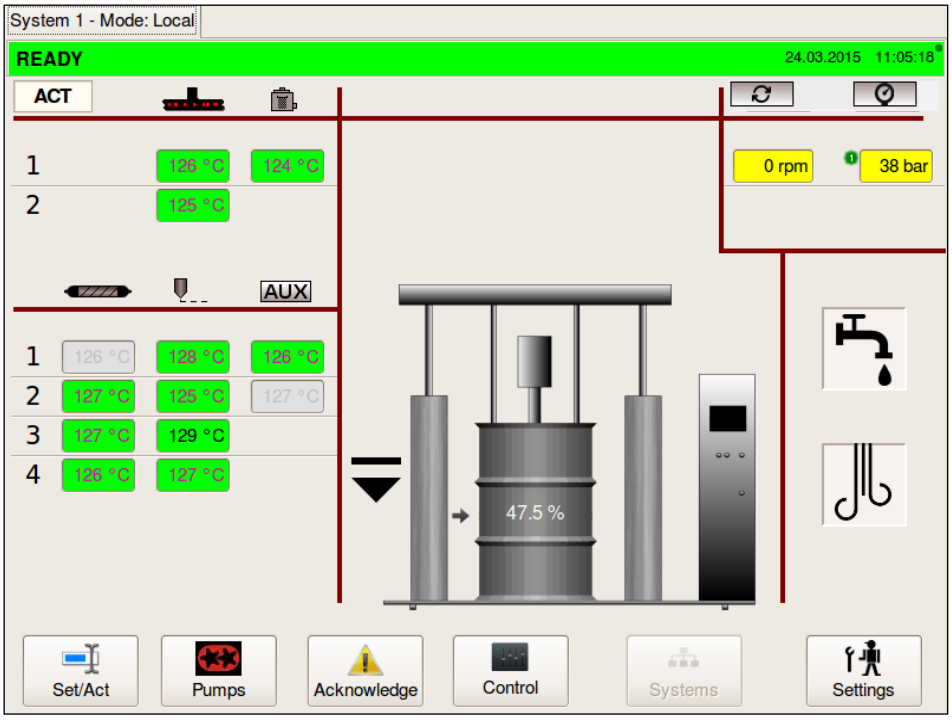
➢ To go to this screen, press the Software Licenses button on the License Management Screen.



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

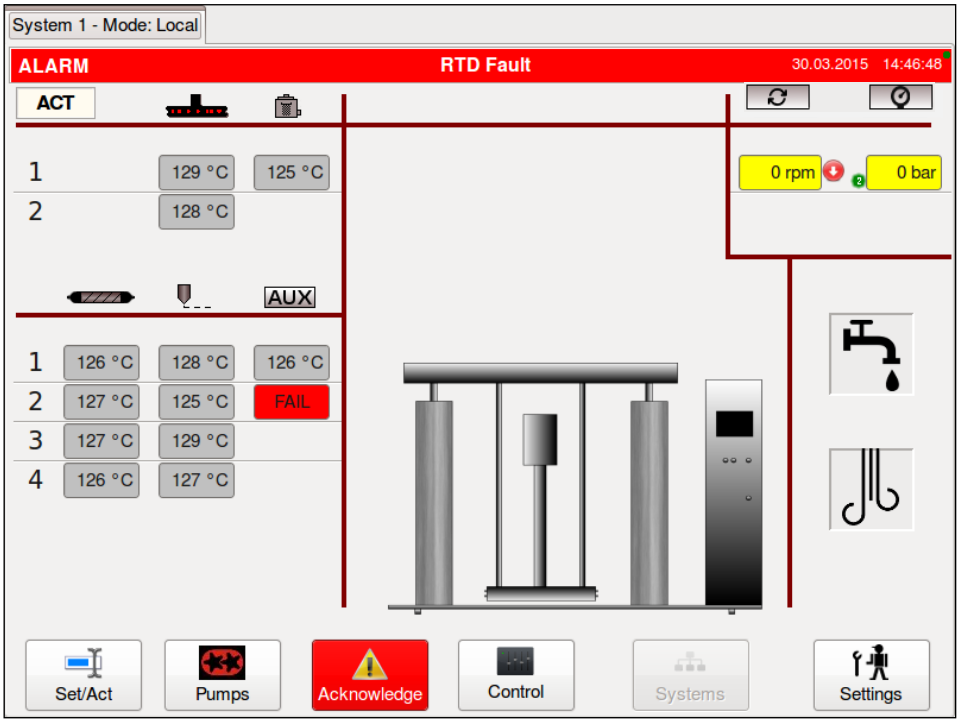
6.13 Acknowledge Button

➢ 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.

6.14 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 no.** = (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.

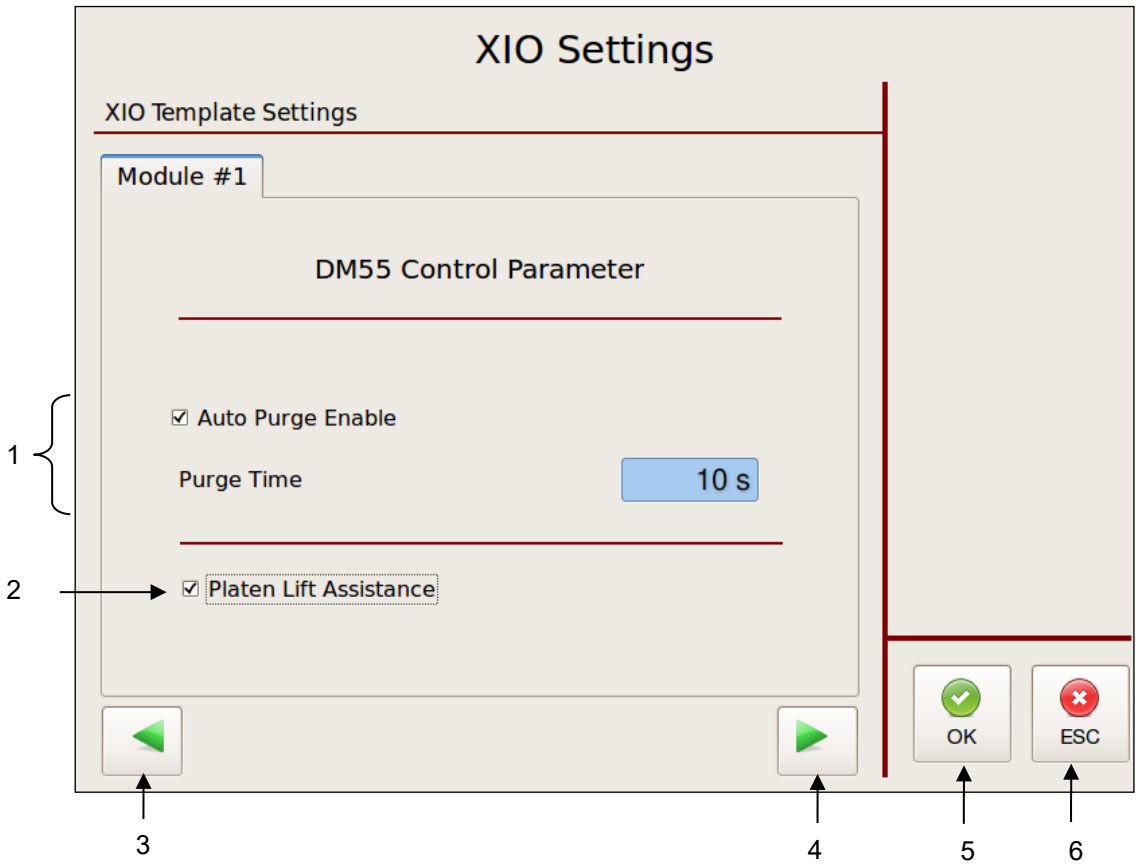
6.15 Operator Response to Error Indication Alarms

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.

6.16 XIO Template Settings, Module no.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.

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 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. 7.3.
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 (40 Nm) evenly with torque wrench. • Check all platen cover bolts for tightness and tighten to 25 ft/lbs (34 Nm) 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 Draining of Supply Air Filter/ Regulator

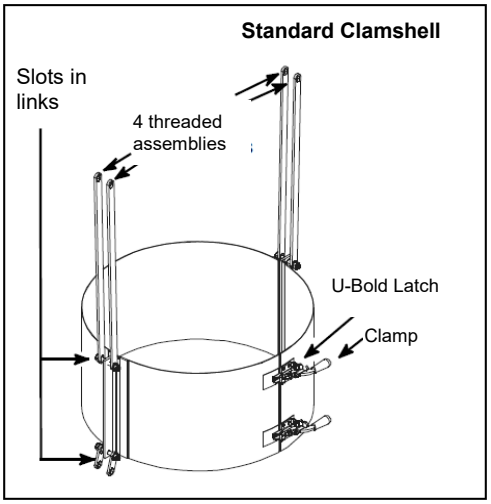
Drain water accumulation from the bowl of the air filter/ regulator monthly (or as needed). The filter/ air regulator is located on the outside, back of the control panel box assembly.

1. Locate the quarter-turn valve underneath the filter/ regulator.

2. Empty the contents of the bowl.

7.4 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.

7.5 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.
   d. Now, the purge material is in the channels and it could contaminate the system. When purging the system again with PUR adhesive, make sure that the pneumatic pressure relief valve is also purged. When purging the pneumatic pressure relief valve, the valve must be purged with min. pressure and then with max. pressure, so that only PUR adhesive is also in the pressure relief valve, and no residues of purge material contaminate the system.

7.6 Gear Pump Replacement

Disassembly:

CAUTION

Do not disassemble the pump. If necessary, any ITW Dynatec pump requiring maintenance can be returned to the factory for complete repair and overhaul.

Prior to replacement:

- Heat the unit above the softening point of the material being pumped by the unit.
- Switch pump motor OFF.
- Activate the applicator and or purge valve 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 (lid and fiber separator sheet between the lid and platen) under the platen to prevent lowering of platen.

Replacement:

WARNING

Heed all security advices given in chapter 7.1.

Maintenance and repair work is only permitted for skilled personnel!

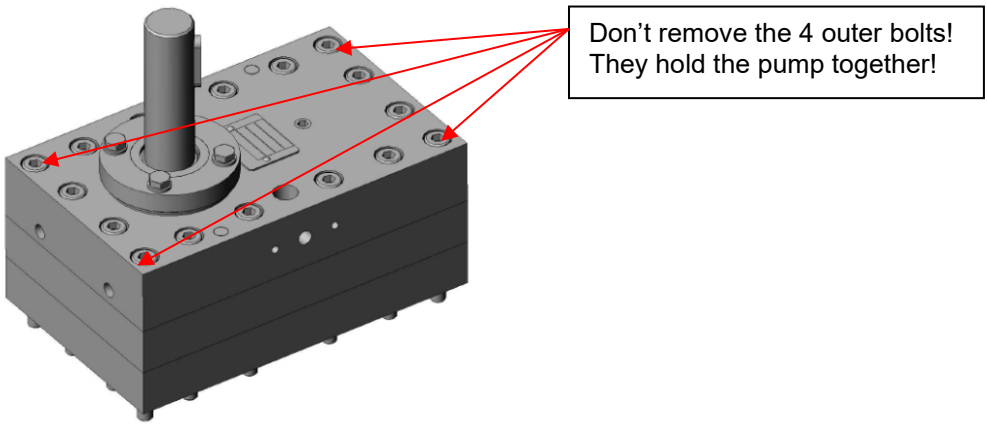
Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing (sleeves) that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns!

WARNING

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

1. Loosen spider couplers and swing the drive shaft up clear of the pump. Remove coupling from top of pump shaft. (Use caution to keep the square shaft keys for reassembly).

2. Remove the four pump mounting M10 socket head cap screws holding the pump to the manifold and remove the pump. (Use caution not to damage pump face or adaptor plate surfaces).



CAUTION

Do not damage the pump plate! It has finished sealing surfaces! Do not scratch above it with sharp-edged tools, otherwise the pump will get leaky and inoperable! Use only lint-free cleaning cloth and suitable cleaner for cleaning!

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.

3. After the pump is removed, use a clean, soft cloth to wipe all the material out of the pump cavity, from the pump and mating surface.

4. Remove the pump adapter and remove the O-rings on both sides and clean the O-ring grooves.

5. Prior to installation of the new pump assembly, install the new pump adapter O-rings. When installing new O-rings, liberally coat the pump adapter and O-rind sides with lubricant.

6. Re-install the pump in reverse order of disassembly outlined above and torque the four pump mounting M10 socket head cap screws evenly to 30 ft./lbs (40 Nm) with torque wrench.

CAUTION

The rotating direction of the pump coupling has to be clockwise (right) facing pump shaft. Observe the “arrows” stamped on the pump adapter that show in which direction to install.

Pay attention: If pump and motor are not properly adjusted the pump might be damaged! No guarantee!

7. Pump replacement is now complete. Reinstall the pump shaft and couplings insuring the square shaft keys are in place and set screws are tight.

8. Prior to startup, read startup instructions in Chapter 5.

7.7 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 (lid and fiber separator sheet between the lid and platen) under the platen to prevent lowering of 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 pump and motor (see instructions in Ch. 7.6 Gear Pump 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).

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

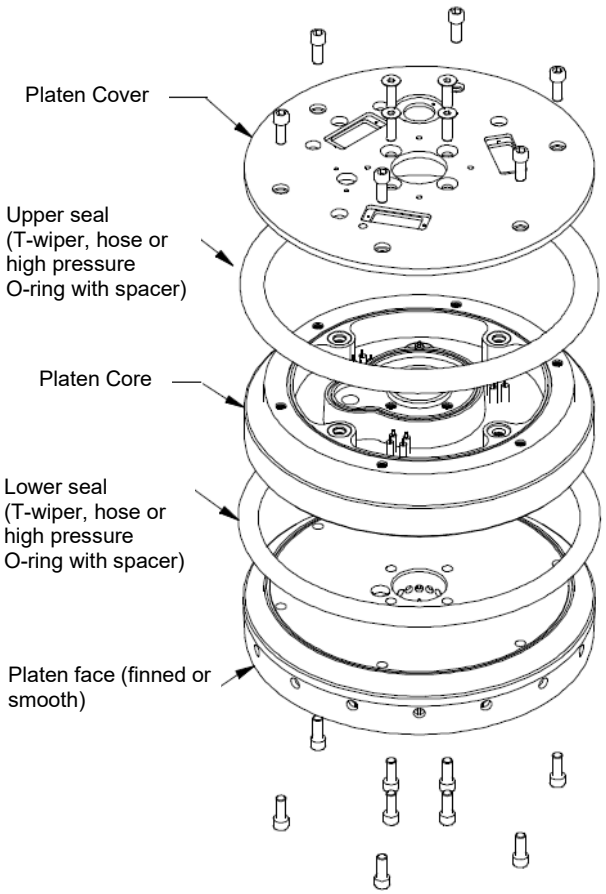
b. Install the first upper clamp over the wiper ring, placing it in the top groove of the wiper.

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.

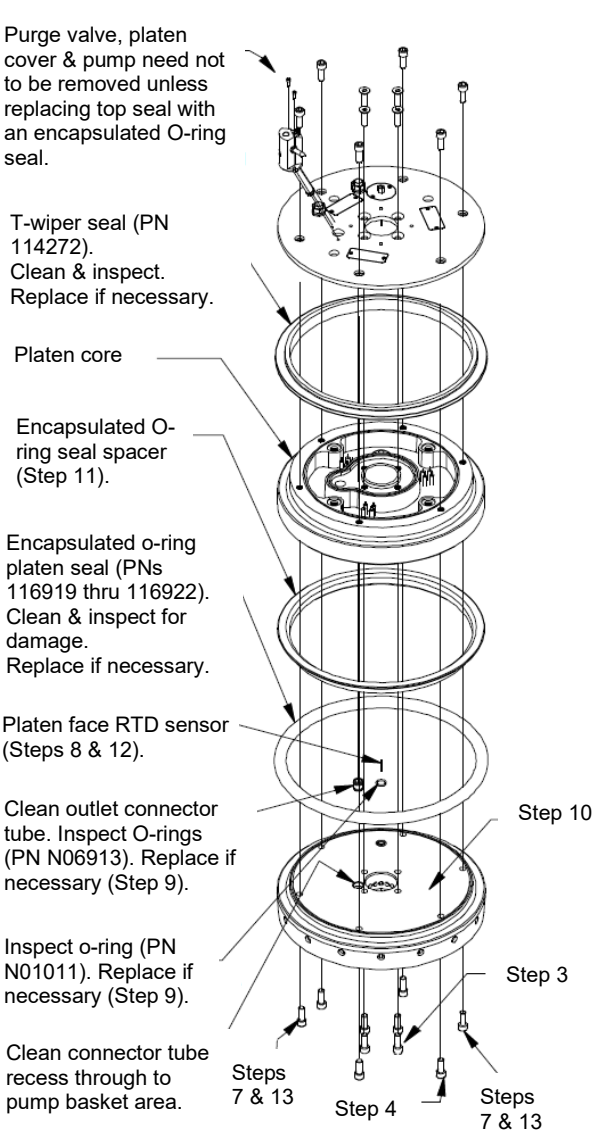
3. Remove the four M16 bolts in the center bolt pattern of the bottom of the platen face.

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 (40 Nm).

16. Unlock, power up and turn on heating zones. Ensure that the unit heats properly and interfaces a drum properly before resuming production.

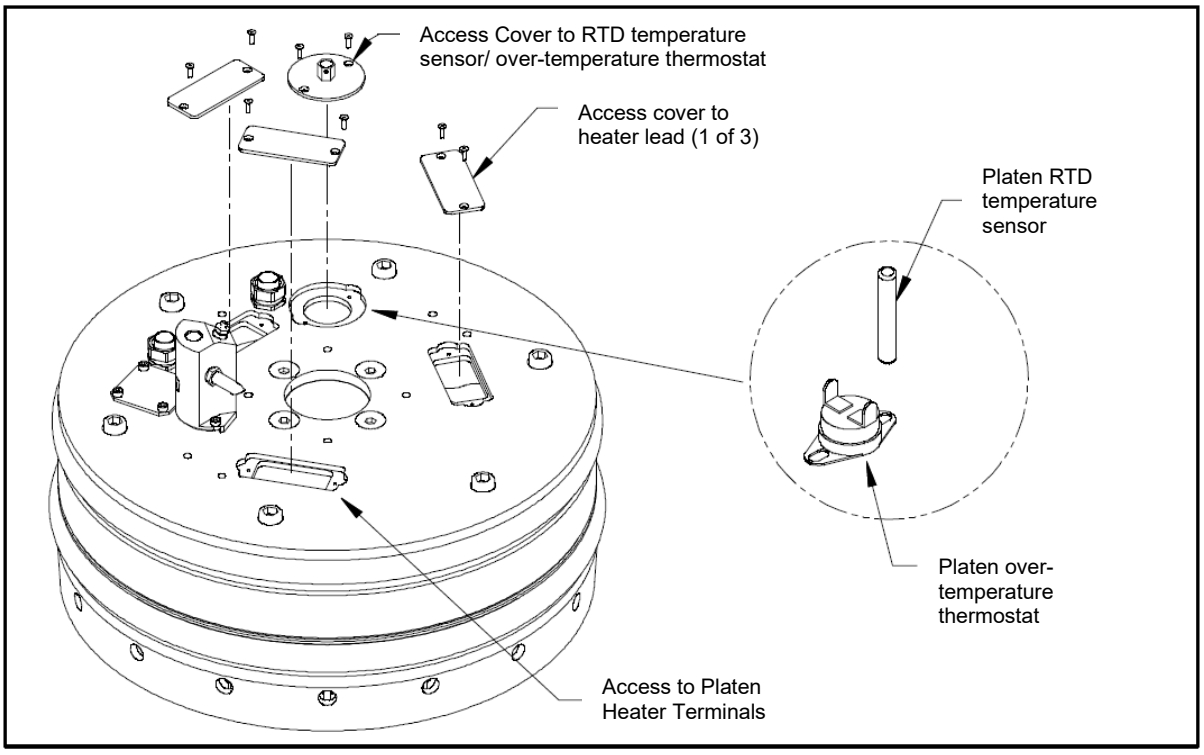
7.9 Electrical Parts Replacement

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 Ohm (+10%/-5%) and each bottom element should read 9.10 Ohm (+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.

Thermostat Disc, Heaters and Sensor Replacement in the Optional Gear Pump Assembly

Located in the transfer block on the top of the platen, these electrical parts are accessed by removing the two screws and gasket of the pump heater wiring enclosure. They are then exposed within the transfer block.

7.10 Modules and Printed Circuit Boards (PCBs) for Controller V6 Touch

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.

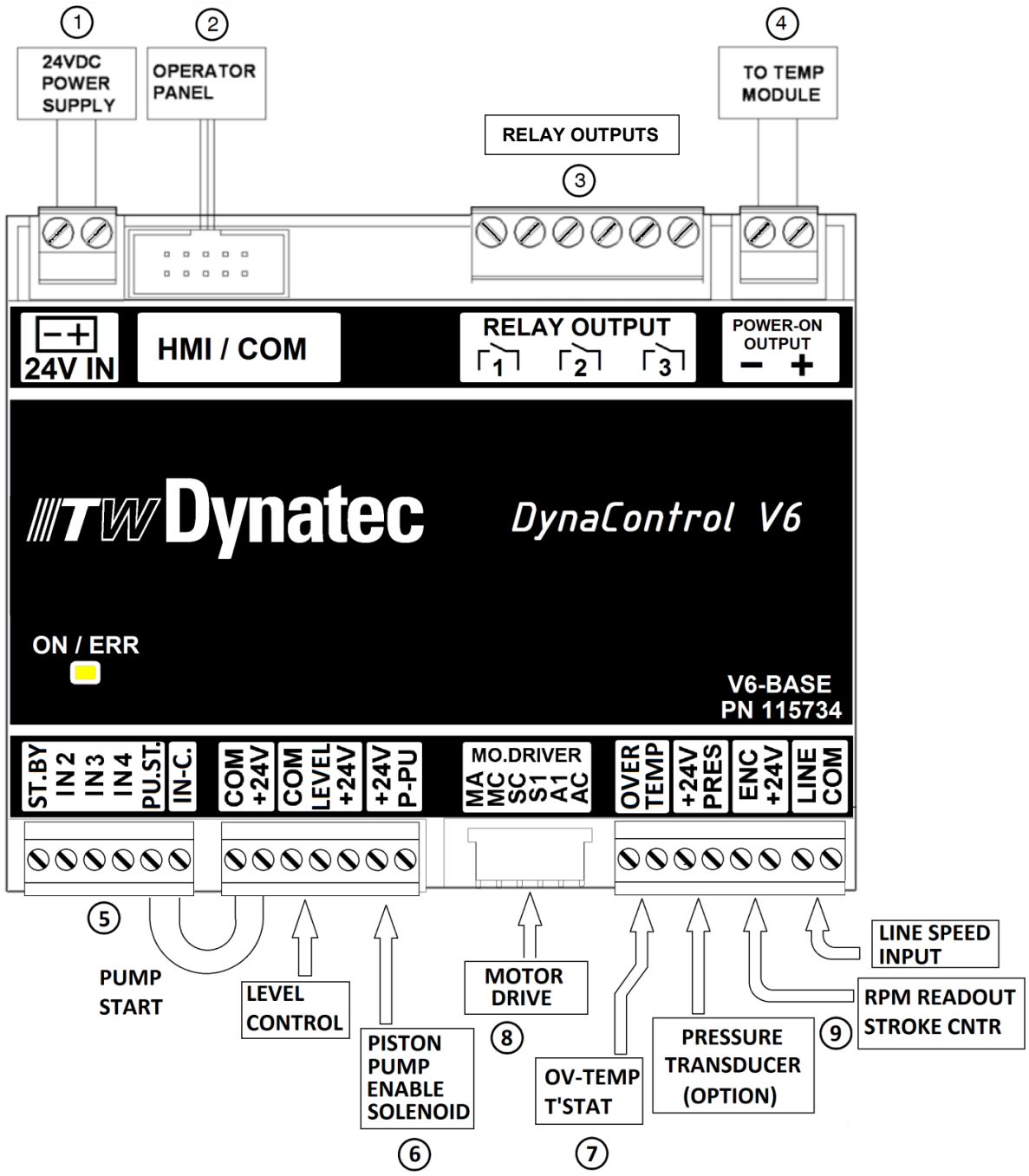
6. To cushion PCBs for shipment, use only static-drain bubble pack. Do not use foam peanuts or bubble pack not known to be static draining.

The following pages detail the Modules and PCBs.

7.10.1 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,** continuous:*

Description of Components

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

- **Item no. 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 no. 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 no. 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.

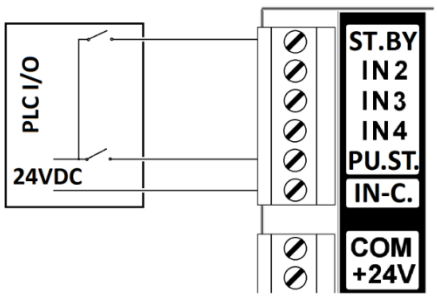
  Relay 3: Drum Empty Signal
  This contact closes when the adhesive level in the drum drops below a certain level. It can be used to indicate this situation via an external light or an audible alarm. Normally open.

  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 no. 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.

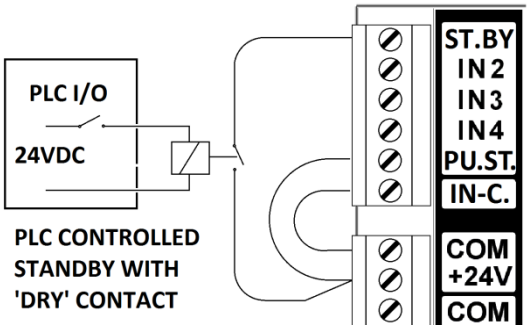
- **Item no. 5:** This connector accepts external signals that can be used to control the ASU. The inputs require 24VDC signals. Although the internal 24VDC can be used to provide voltage for the inputs, it is recommended to use external 24VDC. For this purpose the common of the signal inputs is available on terminal IN-C. and is isolated from the internal 24VDC.

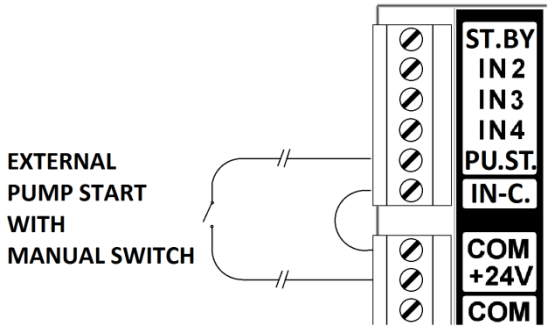
  All inputs are not polarity sensitive. That means the common (IN-C.) can either be positive or negative.



V6 Base Module, *continuous:*

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.

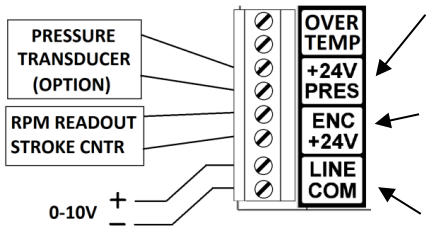
The two inputs are coded in the following way:
Activate input2 while input3 is not activated: Load Program 1
Activate input3 while input2 is not activated: Load Program 2
Activate input2 while input3 is activated: Load Program 3
Activate input3 while input2 is activated: Load Program 4

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 no. 6:** This item is not applicable to all ASUs.
- **Item no. 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 no. 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 no. 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.

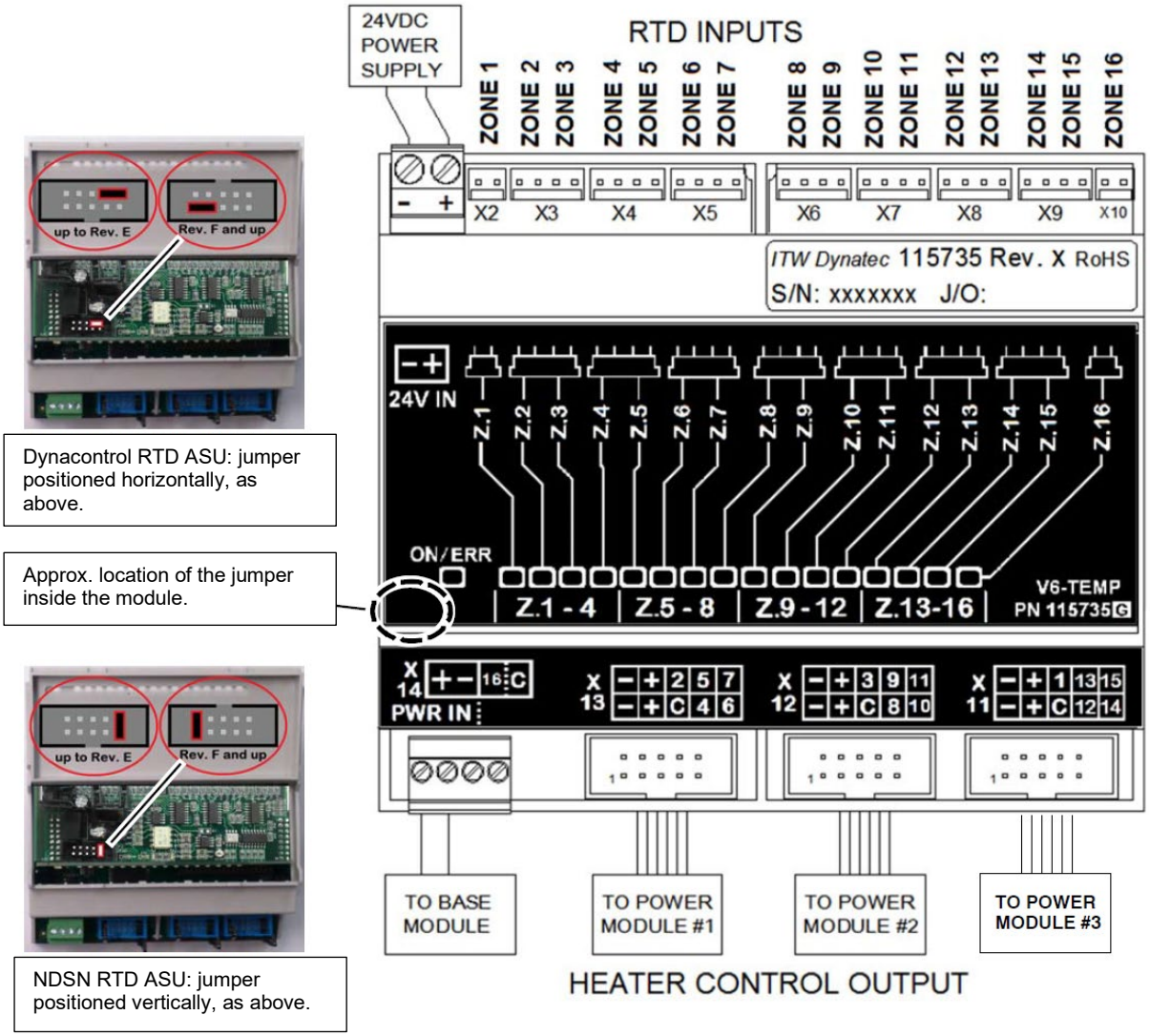
Warning: The line speed input is grounded. If the line tracking voltage has a different ground potential, it is recommended to use a signal isolator. Otherwise, damage to the V6 modules is possible.

7.10.2 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 (NDSN). Configuration is determined by a jumper located within the module (see below, to left of module illustration).

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

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



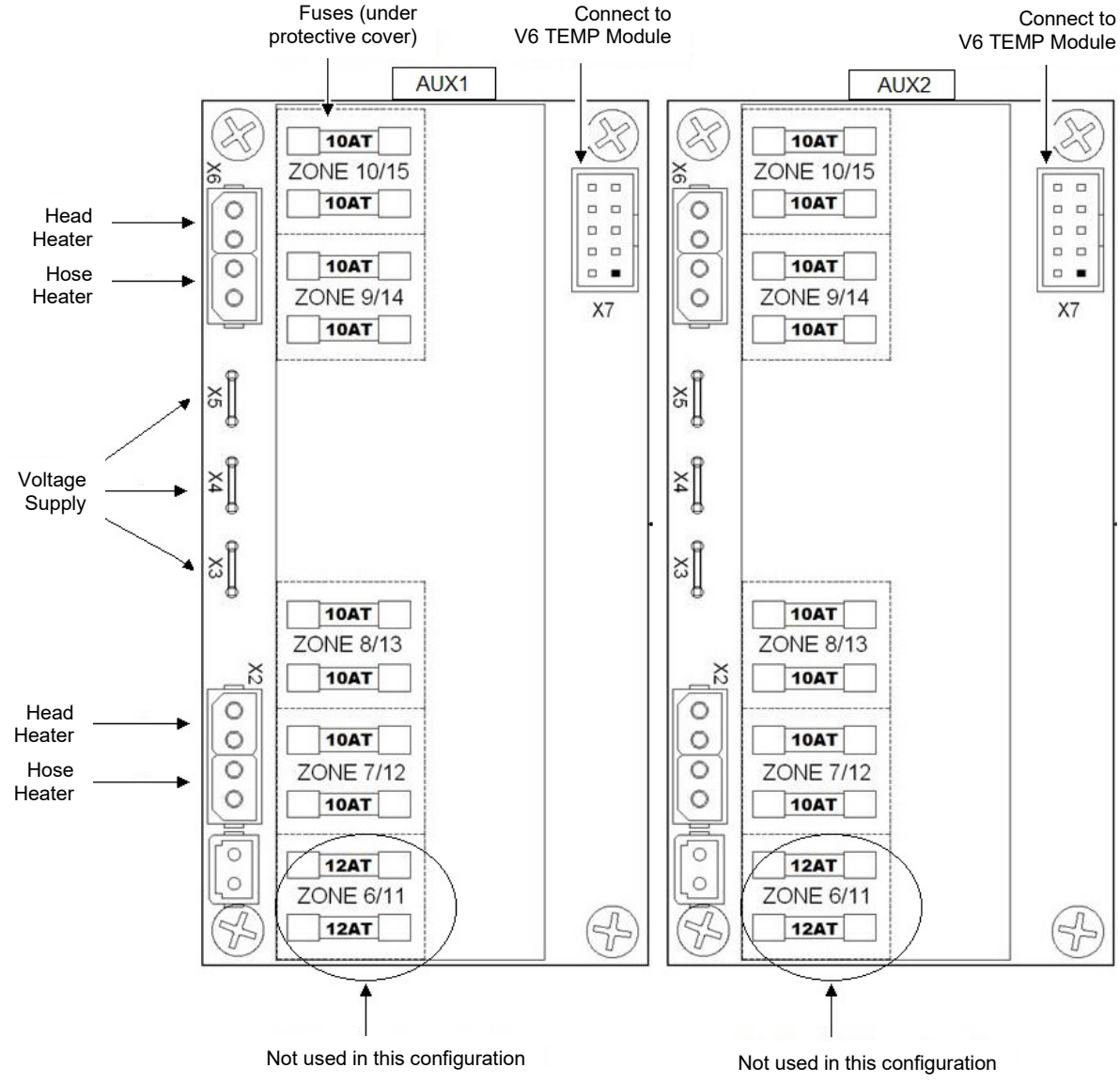
7.10.2.1 Standard V6 Zone Table, Drum Unloader DM55

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

7.10.3 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).

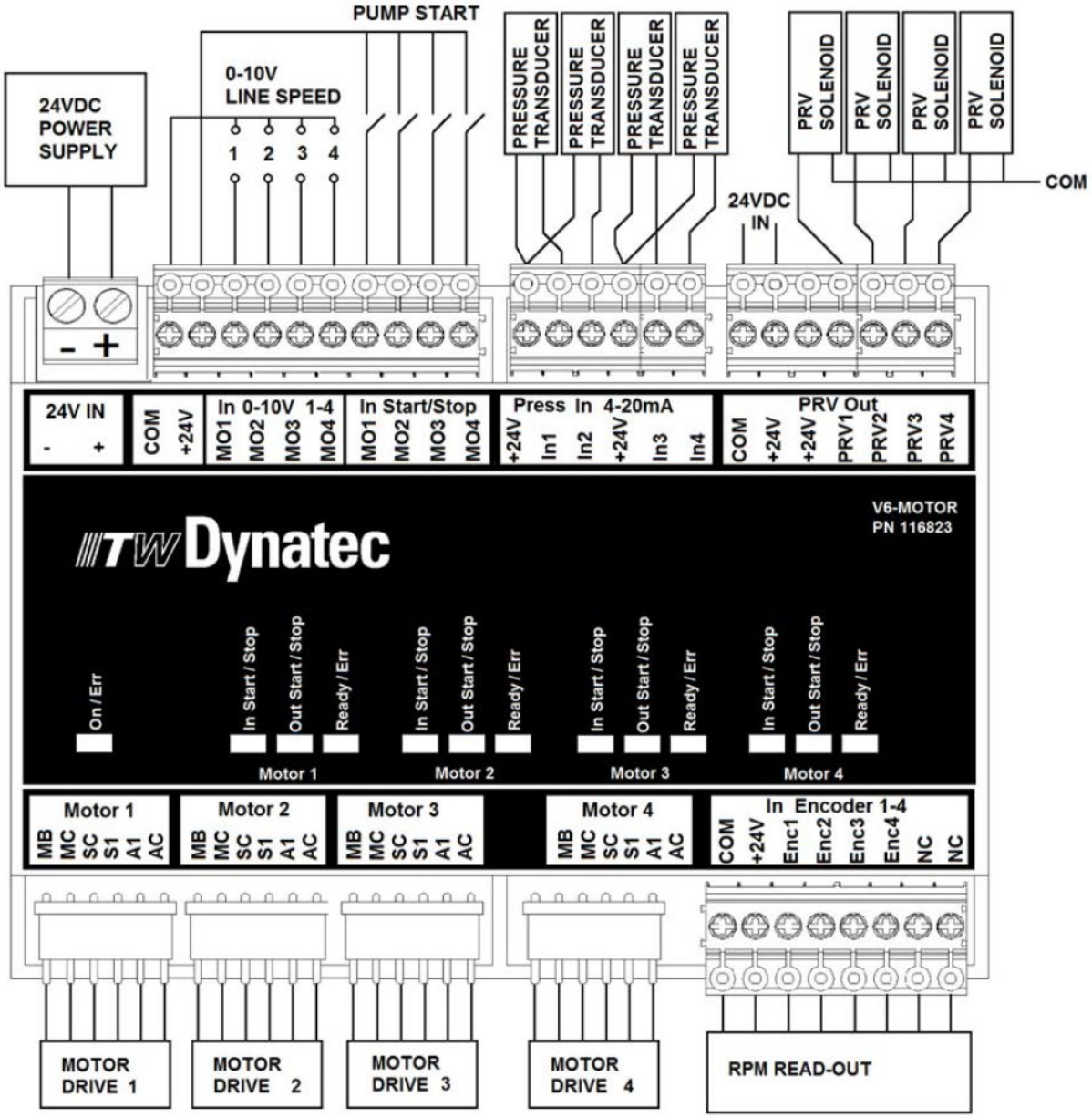


7.10.4 V6 Motor Module PN 116823

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.

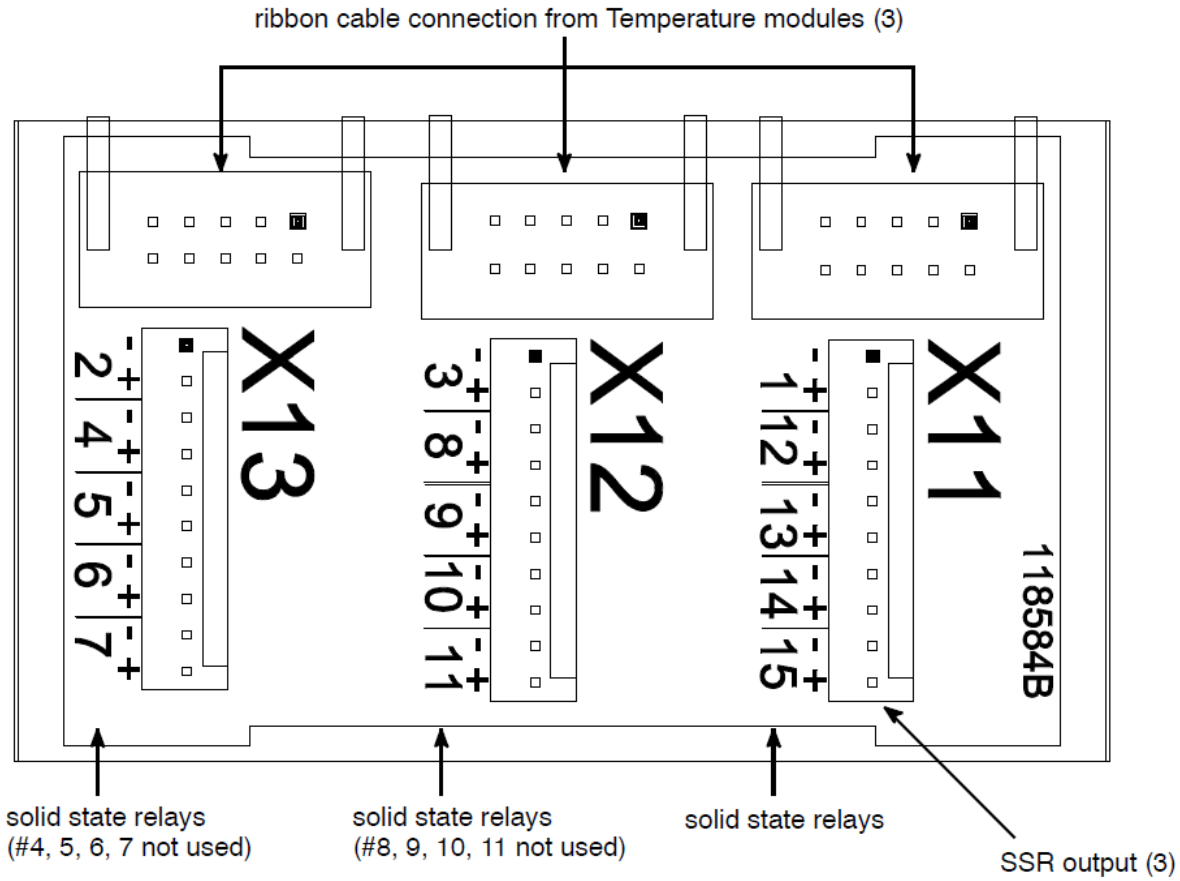
Each motor may be assigned its individual line speed input, but it is also possible to use a common line speed input. This also applies to the pump enable input. Each motor module has four pressure transducer inputs; transducer type is 4-20mA. One or two pressure transducers may be assigned to each motor.

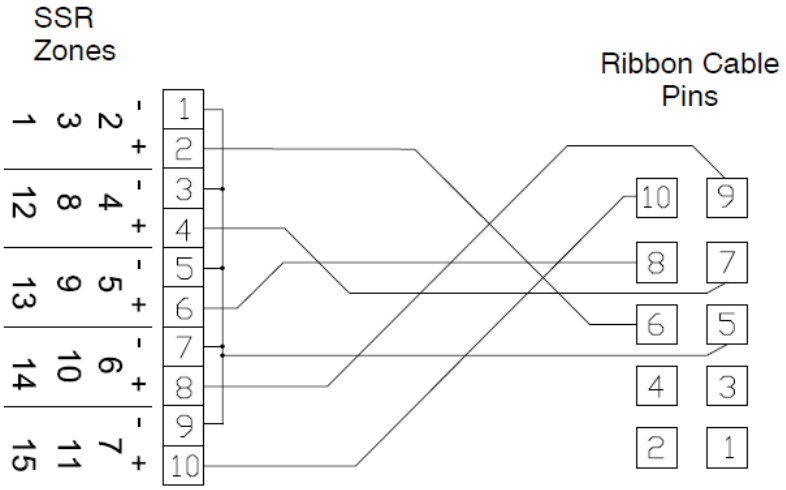
Motor no.1 on the first Motor Module = pump no.2 in the system (pump no.1 is on the Base Module).



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

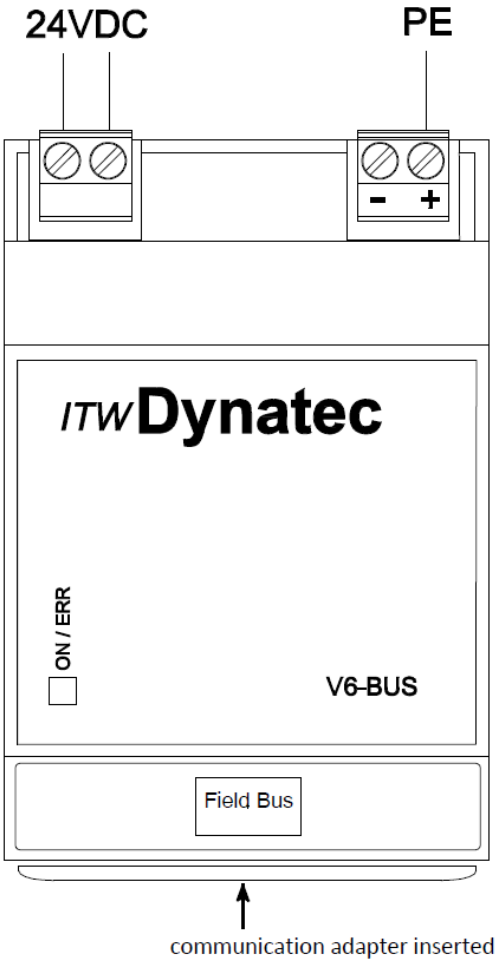
TheV6 SSR-Adapt Assembly allows 24VDC solid state relays to be connected to theV6 control system. The adapter connects to ribbon cable from no.X13, X12 and X11 on the V6 Temperature Module to the V6 Power Modules.





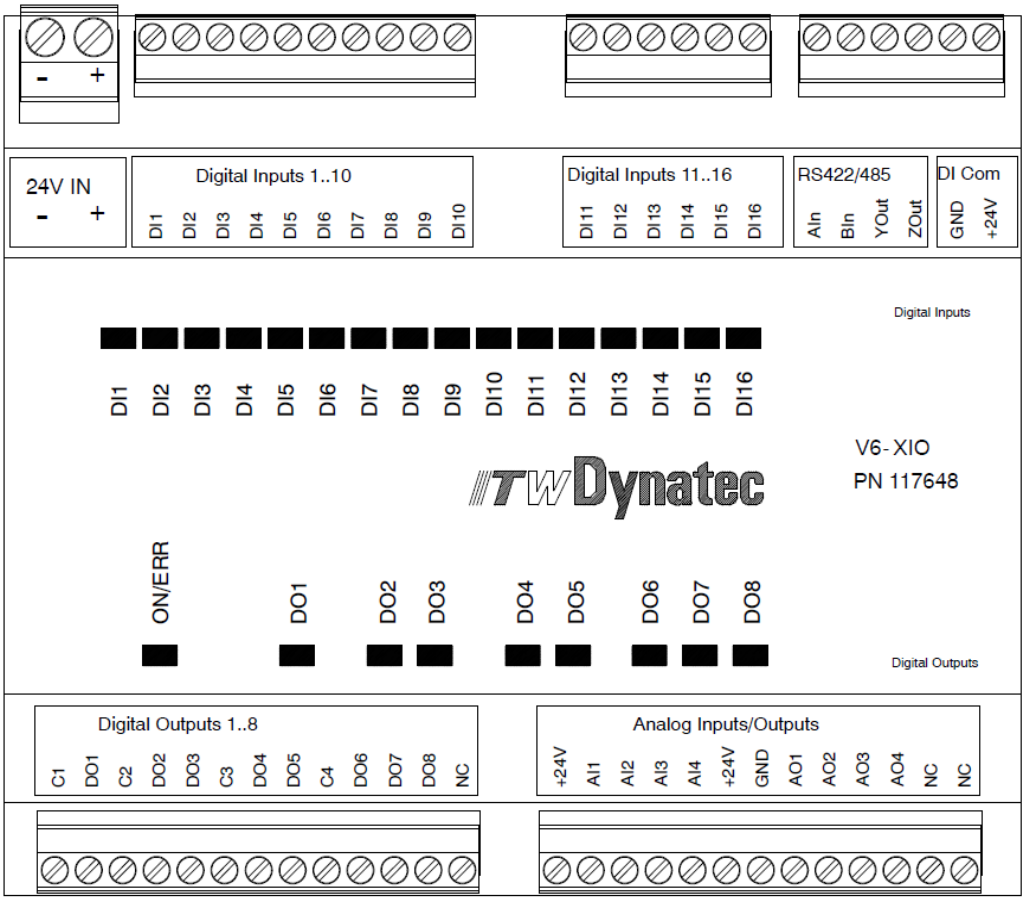
7.10.6 Optional V6 BUS Communications Module PN 118125

TheV6 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 EtherNet IP, EtherCat and Profibus.



7.10.7 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.



7.10.8 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 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).

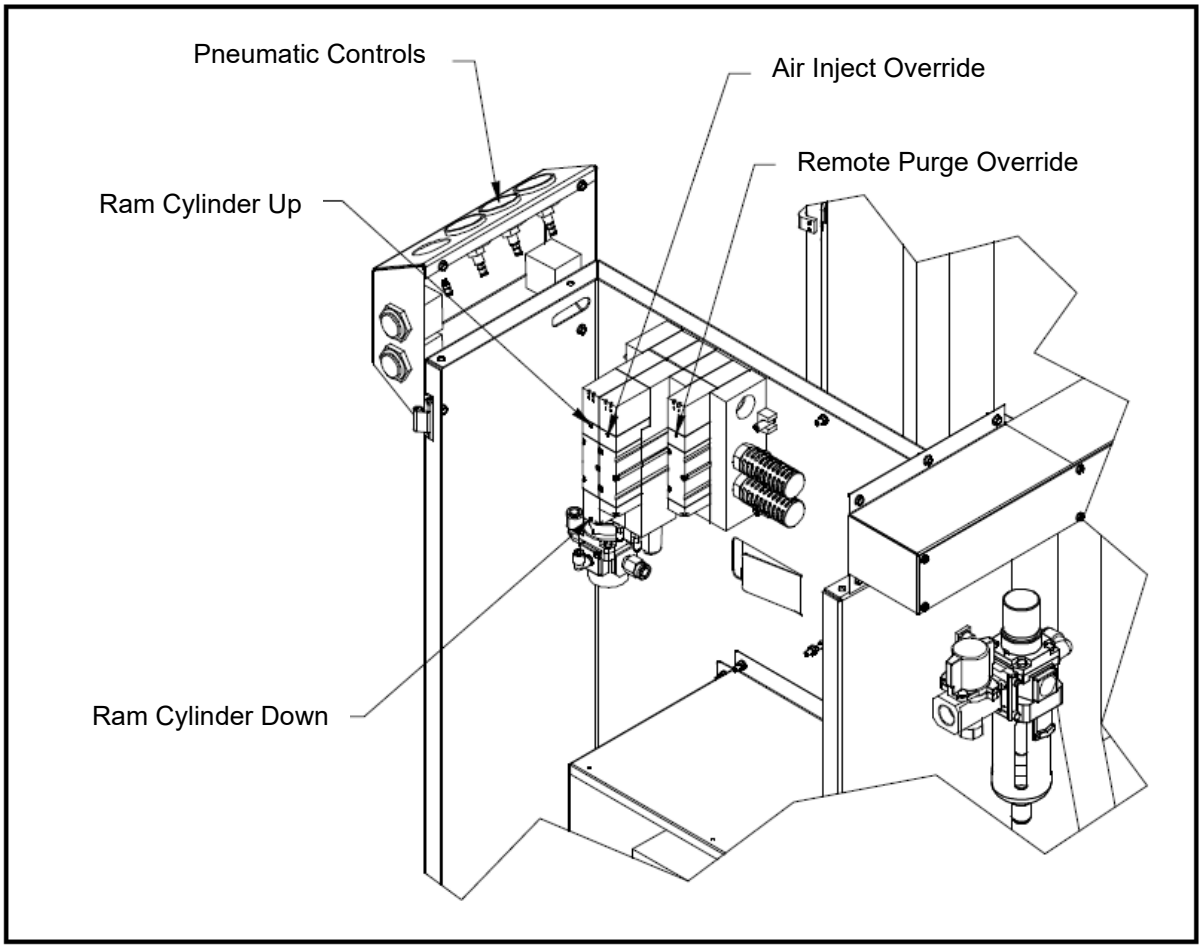
Restoring Level Detector Synchronicity

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 Gear 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. Broken gear.	7. Replace gear pump.
	8. Relief pressure set too low.	8. Increase pressure relief setting.
	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.	1. Unit is not in Ready mode. 2. Pump not enabled. 3. Missing pump enable contact circuit jumper or remote contact not closed. 4. Unit not in Auto mode. 5. Drive fault. 6. Temperature set too low. 7. Motor breaker tripped. 8. Drive shaft key sheared. 9. Pump jammed. 10. Pump speed too low.	1. Allow unit to warm up. 2. At pump screen: enable the pump. 3. Add pump enable circuit jumper or close the remote contact. 4. Start Auto mode. 5. Check drive for fault. 6. Increase temperature. 7. Reset breaker. 8. Replace key (be sure pump is not jammed). 9. Disassemble, inspect, and reassemble. 10. Increase speed.
Pump output too low.	1. Material viscosity too high. 2. Blockage in hose, applicator, pump or manifold. 3. Excessive ram force into drum is facing off liquid flow to pump inlet. 4. Debris at inlet of pump. 5. Platen insufficiently purged.	1. Reduce material viscosity by increasing temperature. Change to a lower viscosity material. 2. Disassemble, clean and reassemble. 3. Reduce ram pressure. 4. Disassemble, clean and reassemble. 5. Complete full purge cycle.
Pump runs fast, but no material flow.	1. Platen insufficiently purged. 2. Pump setting is exceeding the platen melt rate. 3. Pump check valves are stuck in open position. 4. Drum empty or incorrect drum empty sensor position.	1. Complete purge cycle. 2. Reduce pump pressure or increase operating temperature. 3. Disassemble, clean and reassemble. 4. Raise sensor adjustment.

Continue next page…

Problem	Possible Cause	Solution
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

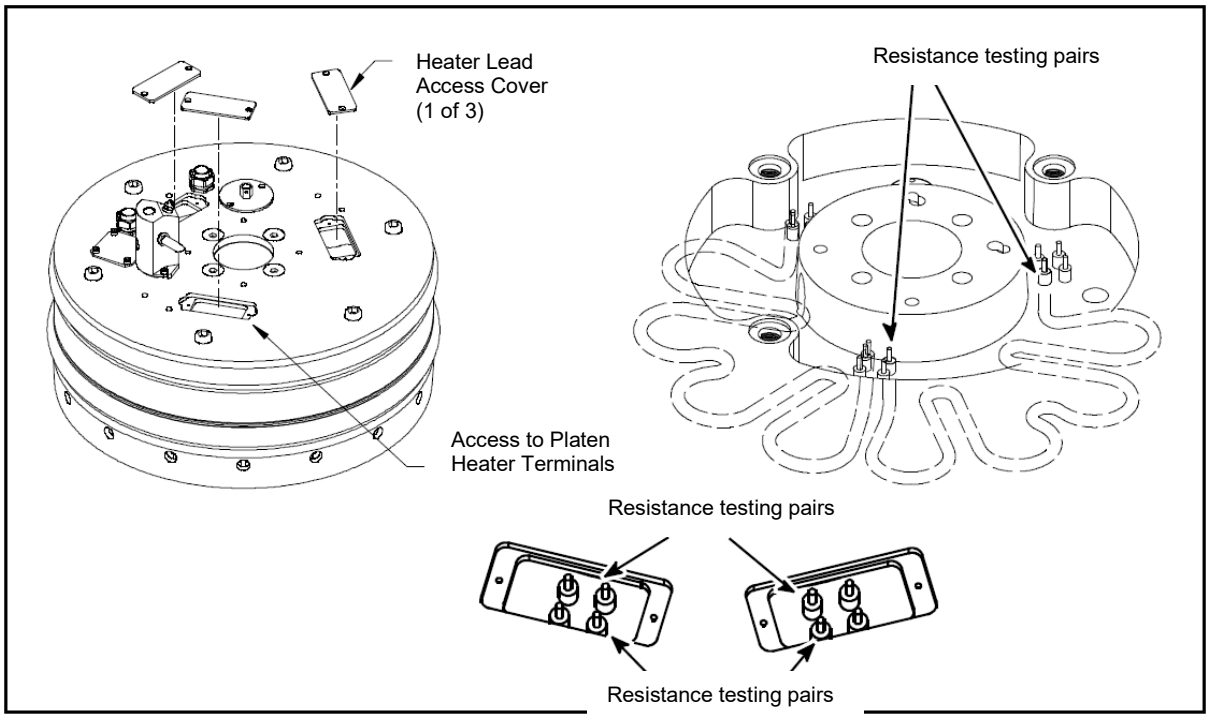
Note: This troubleshooting table is only a guideline. The possibility of having more than one problem occurring at one time can obscure the problem and its resulting symptoms.

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. A resistance (in ohm) reading for these heaters can be made by removing the three heater inspection covers.

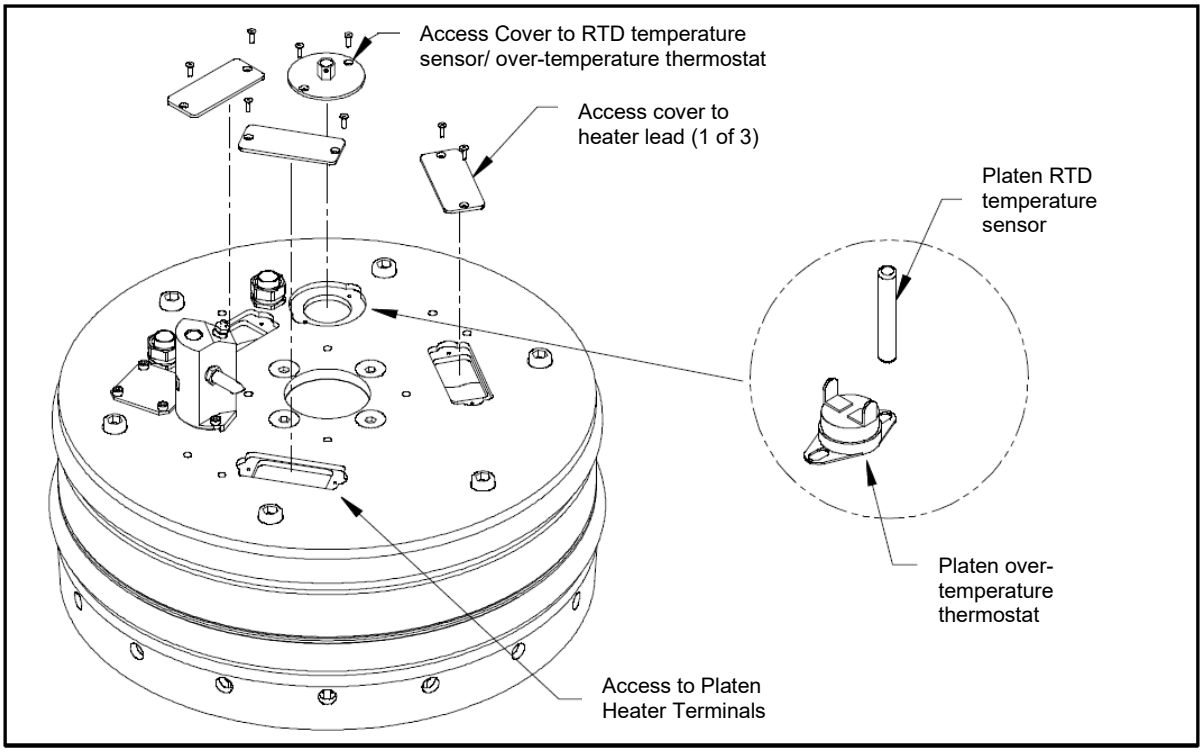
Six 6,000 Watt, cast-in heaters are installed within the platen core. An ohmmeter may be used to verify if they are operable. A reading of 8.91 - 10.75 ohm indicates a heater is good (allow a 5% increase if the heaters have been in use). These heaters are not replaceable and should last the life of the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



8.5 RTD Sensors in Platen Core

There is a PT100 RTD sensor in both the platen core. Resistance of these sensors may be measured with an ohmmeter and should be 110 Ohm at 25°C (a tolerance of ± 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.



8.6 Heaters, RTD Sensor and Thermostat in Optional Gear Pump Transfer Block

Two heaters, one sensor and one thermostat are located in the transfer block of the gear pump assembly, which is on top of the platen. Resistance of the sensor may be measured with an ohmmeter and should be 110 Ohm at 25 °C (a tolerance of ± 5% is allowed at ambient temperature).

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

8.7 Motor Speed Control Drive

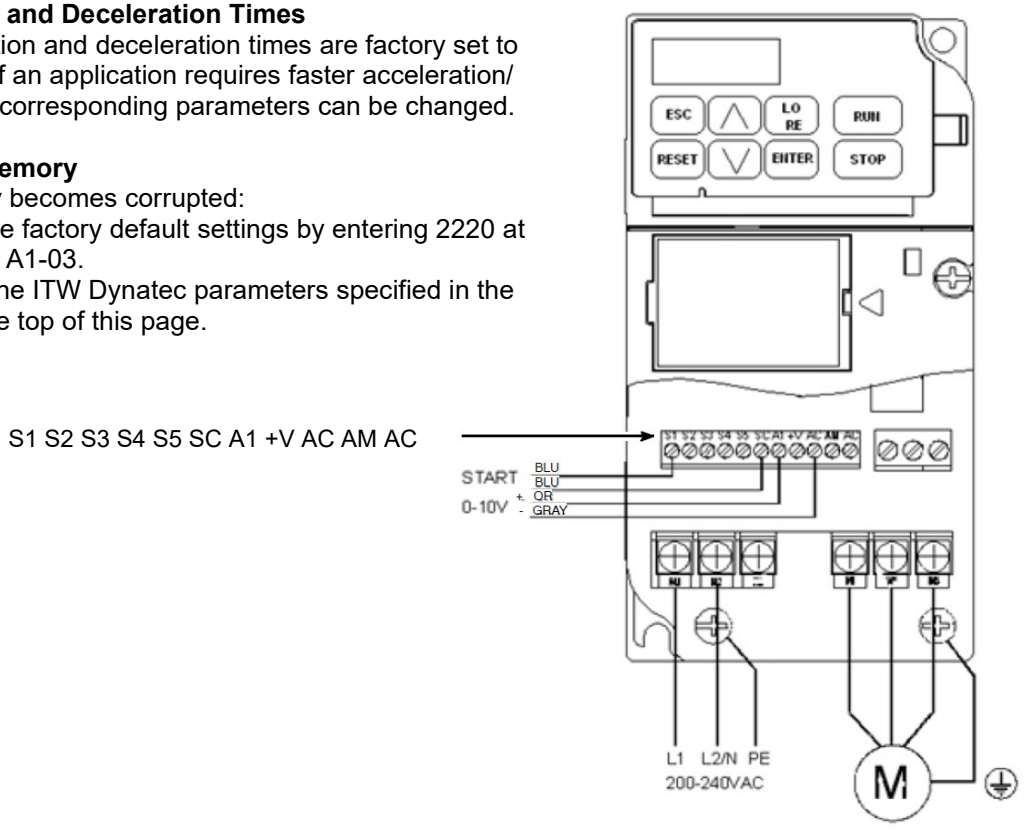
The Motor Speed Control is mounted on the divider panel within the electronics compartment of the ASU. This variable-frequency drive is factory-set and normally does not require adjustments. The following is a list of parameters that Dynatec programs to optimize performance, but which differ from the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

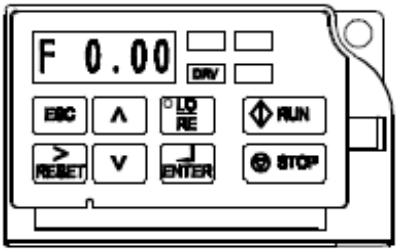


Layout of Motor Control Drive

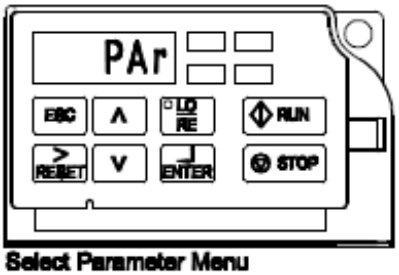
8.8 Accessing, Programming and Monitoring Motor Control Parameters

To Access and Change Parameter Values

J1000 Digital Operator power-up state →

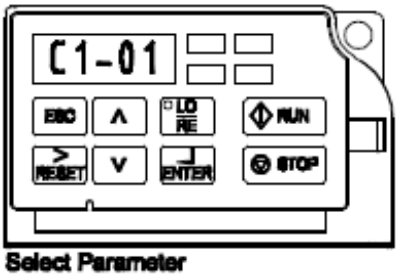


Step 1. Press the v key once. The digital operator shows the parameter menu (PAr), then press the ENTER key.



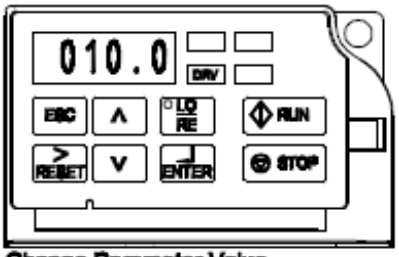
Select Parameter Menu

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



Select Parameter

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



Change Parameter Value

To access other drive signals, refer to the Yaskawa technical manual, available at www.yaskawa.com.

Chapter 9
Drawings and Bill of Materials

9.1 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.

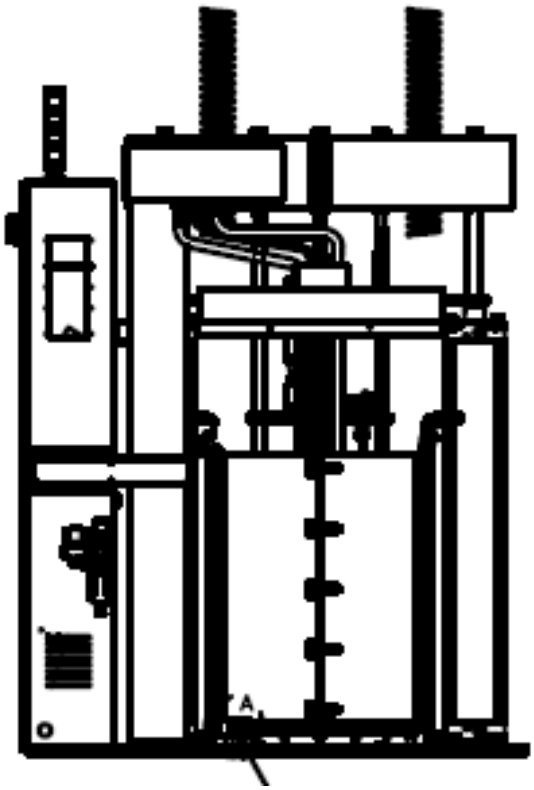
This chapter contains the component illustrations (exploded-view drawings) for each assembly of the ITW Dynatec DM55 DynaDrum Bulk Adhesive Melter. These drawings are useful for finding part numbers as well as for use when maintaining or repairing the unit.

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.

9.2 Base Assembly DM55 V6, PN 823758

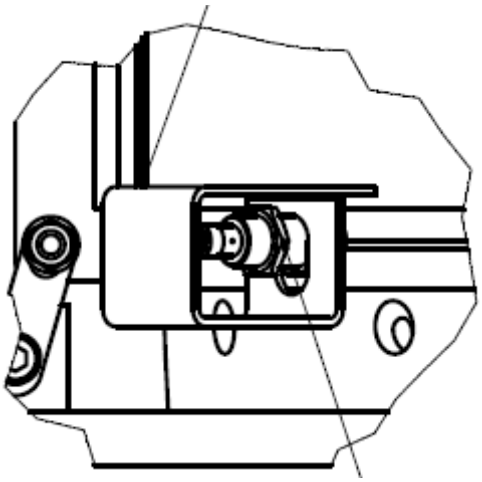
Item No.	Part Number	Description	Quantity
2	114465	Purge tray (not shown)	1
3	114519 *	Platen core asy, standard air inject	1
	118234 *	Platen core asy, vertical & separate air inject	1
4	114556	Platen connection kit	1
5	115945	Junction-Box	1
6	115949	Frame assembly	1
7	114440	Cable track assembly (not shown)	1
8	115941	Track mounting (not shown)	1
9	823750	Adjustment rod assembly, transducer cable	1
10	823748	Transducer cable assembly, 0-10V	1
11	114443	Proximity sensor, drum detection	1
12	114444	Cordset, proximity sensor	1

* See separate drawing/ BOM.



Drum detection sensor located on the bottom/backside of the drum clamshell

A welded sensor guard is incorporated with clamshell



Adjust the distance of sensor using locknut so that the drum is detected.

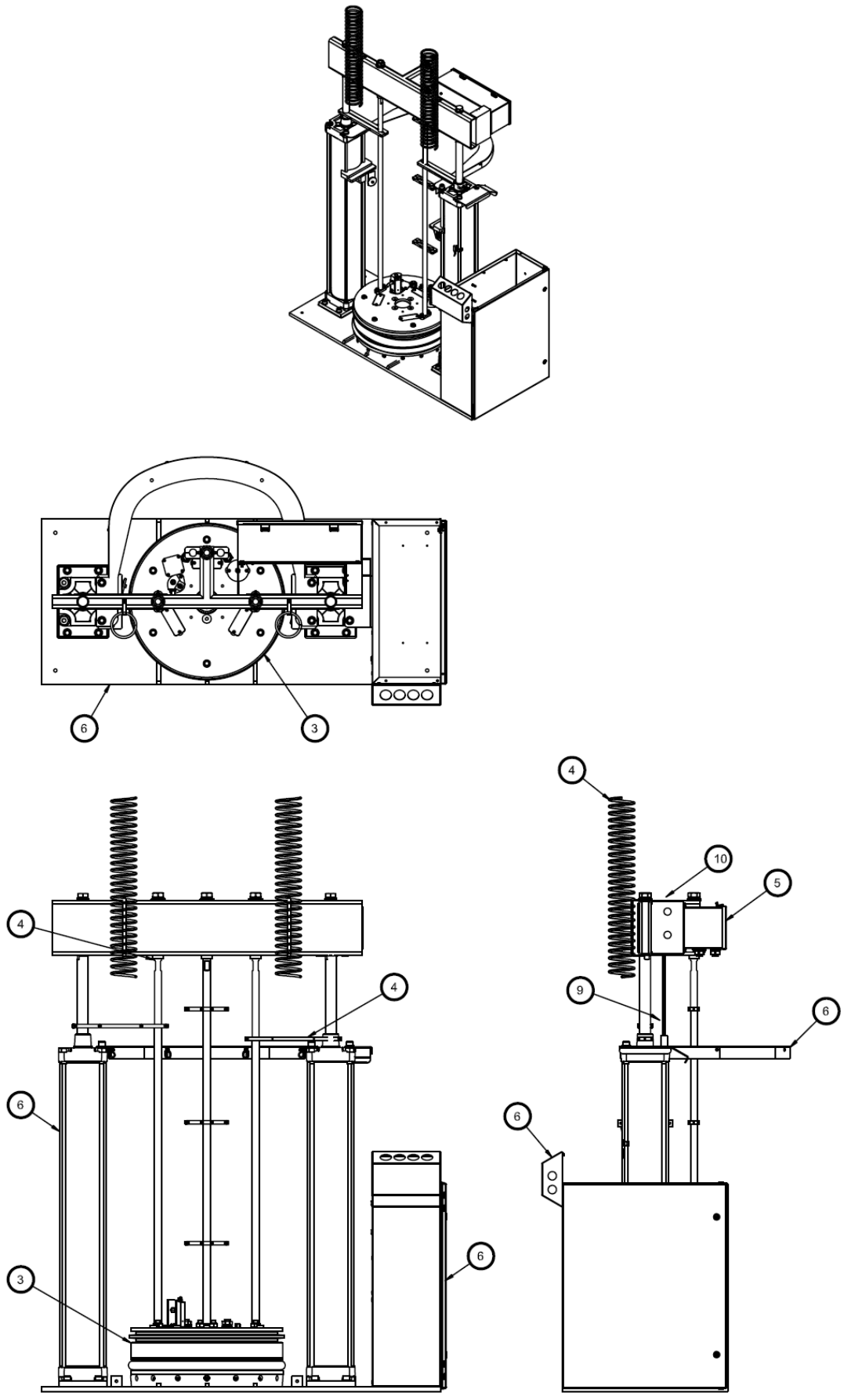
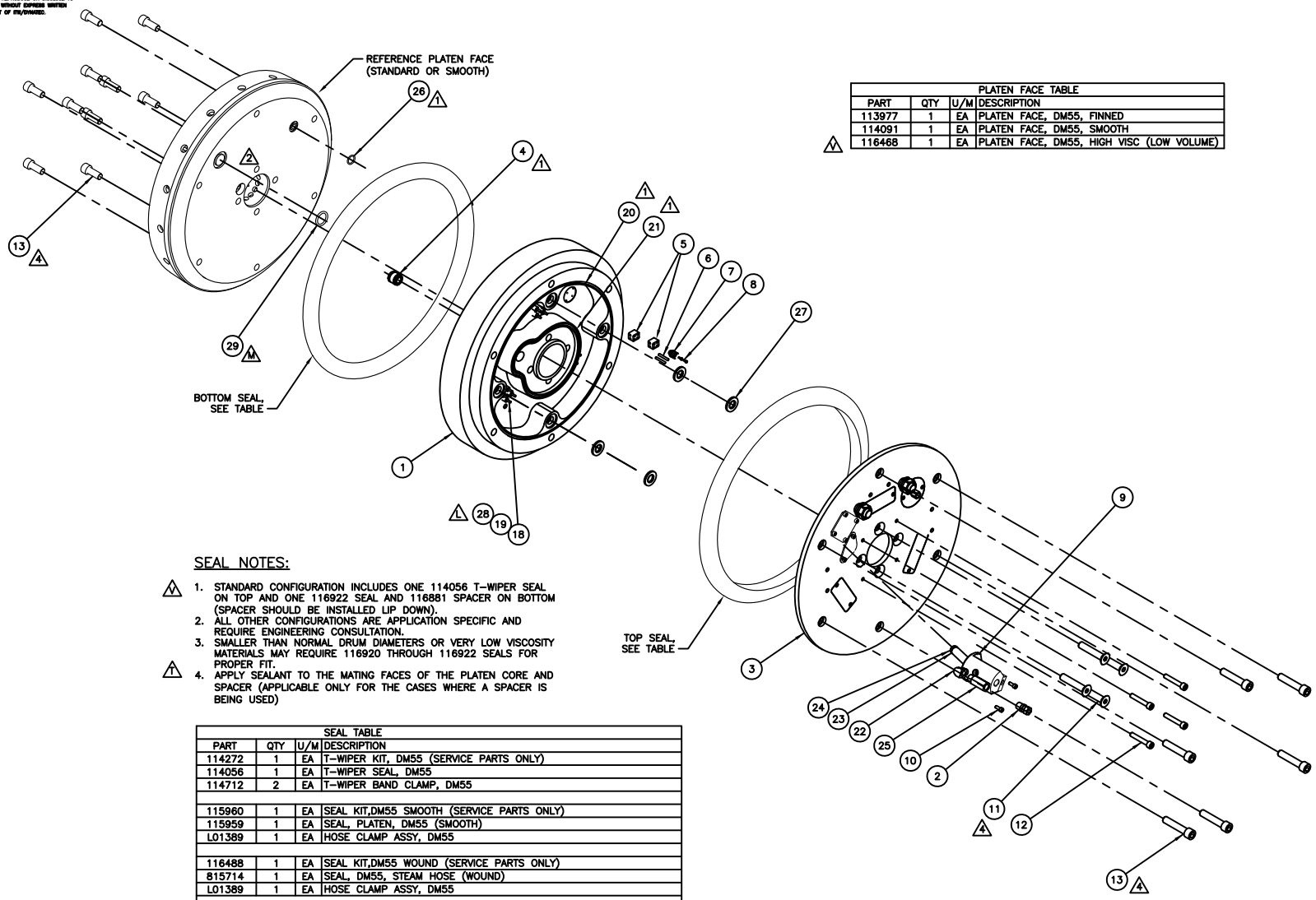


Illustration: Base Assembly DM55 V6, PN 823758

9.3 Platen core asy, Standard air inject, Option, PN 114519 V



PLATEN FACE TABLE			
PART	QTY	U/M	DESCRIPTION
113977	1	EA	PLATEN FACE, DM55, FINNED
114091	1	EA	PLATEN FACE, DM55, SMOOTH
116468	1	EA	PLATEN FACE, DM55, HIGH VISC (LOW VOLUME)

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
N0712	A	ORIGINAL RELEASE.	04.04.08	EEG	EEG
08115	B	ADDED M4 NUTS & LOCK WASHERS	04.10.08	EEG	EEG
08295	C	REVISED O-RINGS	08.07.08	EEG	EEG
08298	D	ADDED PURGE VALVE SEAL & FTGS	08.12.08	EEG	EEG
09107	E	CHANGED SEALS	04.30.09	EEG	EEG
10168	F	REVISED ASY, BOLTS, PURGE VLV	07.07.10	EEG	EEG
10240	G	ADDED 116230	09.22.10	EEG	EEG
11025	H	ADDED SECOND "CASCADING" RTD	01.19.11	EEG	EEG
11178	J	ADDED O-RING PLATEN SEALS	07.14.11	EEG	EEG
11215	K	REVISED APPEARANCE	08.10.11	EEG	EEG
12033	L	ADDED RING TERMINALS	02.08.12	EEG	EEG
13027	M	ADDED O-RING ITEM 29	02.04.13	EEG	EEG
C890	N	CHNGD QTY ITEM 27, REMVD ITEM 14	04.05.18	CLR	EEG
C1045	P	CHNGD QTY ITEM 5	08.06.18	NK	
C1191	R	DELETED ITEMS 18,19	10.11.18	PK	
E239	T	REVISED SEAL NOTES, ADDED ITEM 30	03.07.19	NK	
E660	U	ITEM 12 WAS 114474	10.23.19	ASA	
ECN2013	V	CORRECTED PLATEN FACE PNS	04.30.24	CGH	

NOTES:

1. ASSEMBLE PLATEN ON TABLE FACE DOWN. INSTALL O-RINGS USING LUBE (ITEM #15) TO SECURE.
2. ALIGN THE SEAL PRIOR TO PLACING THE CORE ON THE FACE. COAT FACE OF PLATEN FACE WITH HEAT TRANSFER COMPOUND (ITEM #17) PRIOR TO ASSEMBLY WITH PLATEN CORE.
3. ASSEMBLE ALL WIRING AND PNEUMATIC CONNECTIONS PRIOR TO PLACING PLATEN COVER ASSEMBLY (ITEM #3).
4. ASSEMBLE PLATEN BOLTS (ITEM #11 & 13) WRENCH TIGHT USING ANTI-SIEZE COMPOUND (ITEM #16) TO 30LBS/FT TORQUE. DO NOT OVER-TIGHTEN.

SEAL NOTES:

1. STANDARD CONFIGURATION INCLUDES ONE 114056 T-WIPER SEAL ON TOP AND ONE 116922 SEAL AND 116881 SPACER ON BOTTOM (SPACER SHOULD BE INSTALLED LIP DOWN).
2. ALL OTHER CONFIGURATIONS ARE APPLICATION SPECIFIC AND REQUIRE ENGINEERING CONSULTATION.
3. SMALLER THAN NORMAL DRUM DIAMETERS OR VERY LOW VISCOSITY MATERIALS MAY REQUIRE 116920 THROUGH 116922 SEALS FOR PROPER FIT.
4. APPLY SEALANT TO THE MATING FACES OF THE PLATEN CORE AND SPACER (APPLICABLE ONLY FOR THE CASES WHERE A SPACER IS BEING USED)

SEAL TABLE			
PART	QTY	U/M	DESCRIPTION
114272	1	EA	T-WIPER KIT, DM55 (SERVICE PARTS ONLY)
114056	1	EA	T-WIPER SEAL, DM55
114712	2	EA	T-WIPER BAND CLAMP, DM55
115960	1	EA	SEAL KIT,DM55 SMOOTH (SERVICE PARTS ONLY)
115959	1	EA	SEAL, PLATEN, DM55 (SMOOTH)
L01389	1	EA	HOSE CLAMP ASSY, DM55
116488	1	EA	SEAL KIT,DM55 WOUND (SERVICE PARTS ONLY)
815714	1	EA	SEAL, DM55, STEAM HOSE (WOUND)
L01389	1	EA	HOSE CLAMP ASSY, DM55
116919	1	EA	SEAL, PLATEN, DM55, 514MM
116920	1	EA	SEAL, PLATEN, DM55, 512MM
116921	1	EA	SEAL, PLATEN, DM55, 510MM
116922	1	EA	SEAL, PLATEN, DM55, 505.6MM

SEAL SPACER TABLE(NOT SHOWN)			
PART	QTY	U/M	DESCRIPTION
116881	1	EA	SPACER, SEAL, DM55, 514MM
116882	1	EA	SPACER, SEAL, DM55, 512MM
116883	1	EA	SPACER, SEAL, DM55, 510MM
116884	1	EA	SPACER, SEAL, DM55, 505.6MM

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
30	823003	A/R	EA	RTV,ULTRA BLACK,PERMATEX
29	N04326	1	EA	O-RING,-214,70 DURO VITON
28	117385	13	EA	TERM,RING,12-10,#10,HIGH TEMP
27	113985	4	EA	WSHR, FLAT, M20, ZINC
26	N01011	1	EA	O-RING, -212, 70 DURO, VITON
25	115297	1	EA	VLV, CHK, 3/8NPT, BRS
24	114573	1	EA	O-RING,-310,75DURO,VITON
23	114844	1	EA	O-RING, BACKUP,-310,TEFLON
22	112317	1	EA	FTG, ST ELB, 3/8NPT, BRS
21	114769	1	EA	O-RING,-268,75DURO,VITON
20	113989	1	EA	O-RING,16.51",75DURO,VITON
19	-	-	-	-
18	-	-	-	-
17	001V061	A/R	REF.	CMPND,HT XFER
16	107324	A/R	REF.	COMPOUND, ANTI-SEIZE
15	001U002	A/R	REF.	LUBE, SILICONE PASTE, DOW 112
14	-	-	-	-
13	115957	16	EA	SCR,SHCS,M16 x 40,ZN
12	104775	4	EA	SCR,SCS,M10-1.5x75
11	116051	4	EA	SCR, FHCS, M16x2x50
10	104662	2	EA	SCR, SHCS, M6x1x16
9	114295	1	EA	ASY, PURGE VALVE
8	106137	2	EA	SHCS,M3-0.5X8,ALLOY
7	805406	1	EA	TSTAT,DISC,NC,OPEN 450F
6	N06703	2	EA	SNSR,RTD,PT100,.187X1.25
5	107881	3	EA	TERM BLK, 2 POS, CERAMIC
4	114309	1	EA	TUBE ASY, PUMP OUTLET CONNECTOR
3	114370	1	EA	ASY, PLATEN COVER
2	115296	1	EA	FTG,CONN,3/8NPT X 3/8T
1	113975	1	EA	PLATEN CORE

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: .xx = ±.010 .xxx = ±.005 ANGLES ±2°

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

ITW Dynatec HENDERSONVILLE, TN

U/M EA

STATUS P

SOURCE

APPROVALS / DATE

DRAWN EEG 04.04.08

CHECKED

USED ON DM55

NEXT ASSY. PARENT

COMPUTER DESCRIPTION(28 CHARACTERS) ASY,PLATEN CORE,DM55

DO NOT SCALE DRAWING

ASY, PLATEN CORE, DM55

SIZE D DWG. NO. 114519 REV U

GROUP

SCALE 1:1 CAD DRAWING SHEET 1 of 1

9.4 Platen core asy, Vertical & Separate air inject, Option, PN 118234 D

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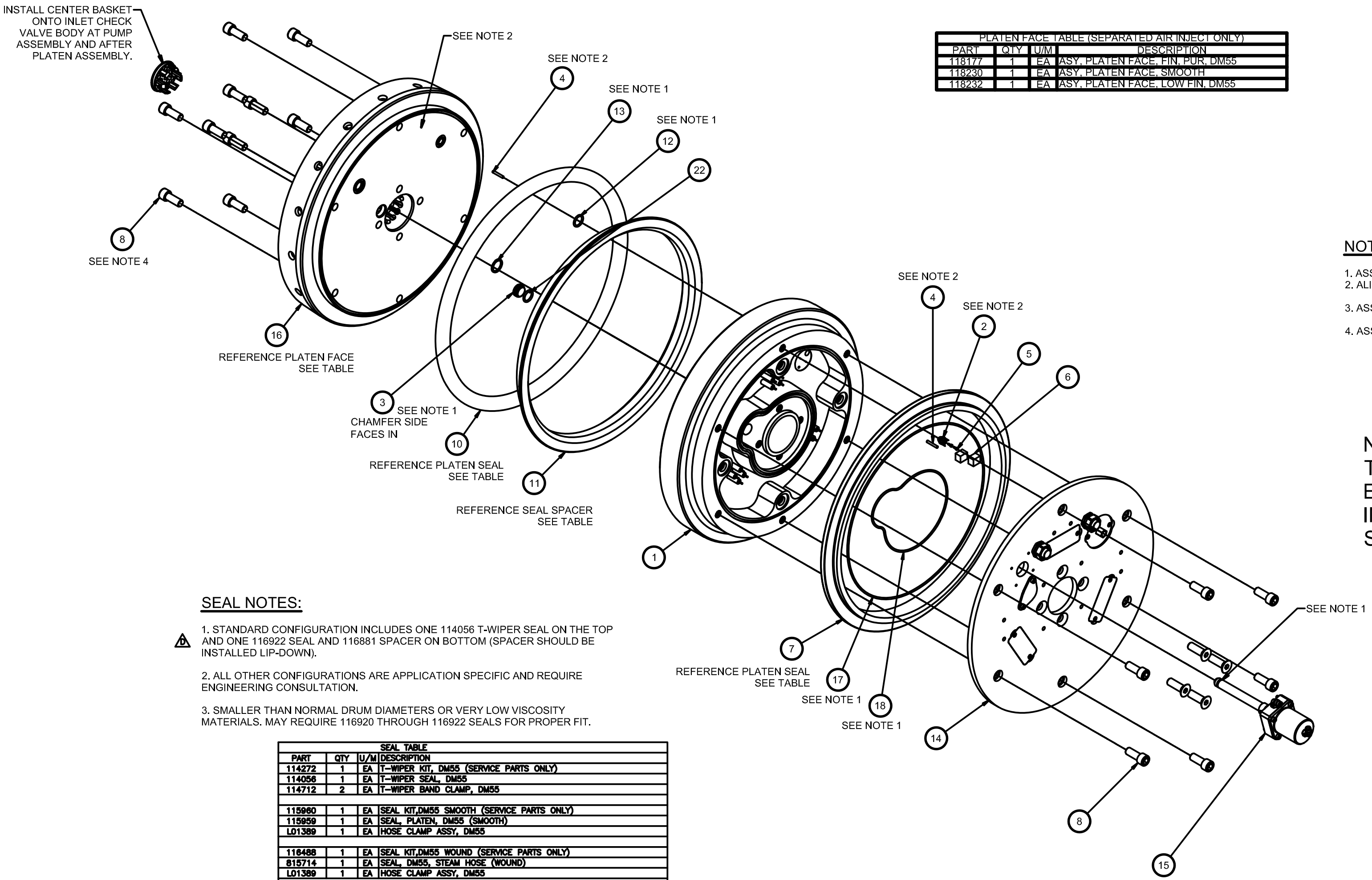
REVISIONS					
REL	REV	DESCRIPTION	DATE	BY	APPROVED
13027	A	ORIGINAL RELEASE	02.07.13	EEG	EEG
E16088	B	3 WAS 114309, ADDED ITEM 22	08.07.17	NK	
ECR397	C	PLATEN SPACER TABLE DELETED	05.20.19	PK	
ECN2014	D	UPDATED SEAL/SPACER TABLE	04.30.24	CH	

PLATEN FACE TABLE (SEPARATED AIR INJECT ONLY)			
PART	QTY	U/M	DESCRIPTION
118177	1	EA	ASY, PLATEN FACE, FIN, PUR, DM55
118230	1	EA	ASY, PLATEN FACE, SMOOTH
118232	1	EA	ASY, PLATEN FACE, LOW FIN, DM55



NOTES:

1. ASSEMBLE PLATEN ON TABLE FACE DOWN. INSTALL O-RINGS USING LUBE (ITEM #19) TO SECURE.
2. ALIGN THE SEAL PRIOR TO PLACING THE CORE ON THE FACE. COAT FACE OF PLATEN FACE WITH HEAT TRANSFER COMPOUND (ITEM #20) PRIOR TO ASSEMBLY WITH PLATEN CORE.
3. ASSEMBLE ALL WIRING AND PNEUMATIC CONNECTIONS PRIOR TO PLACING PLATEN COVER ASSEMBLY (ITEM #14).
4. ASSEMBLE PLATEN BOLTS (ITEM #8 & 9) WRENCH TIGHT USING ANTI-SIEZE COMPOUND (ITEM #21) TO 30LBS/FT TORQUE. DO NOT OVER-TIGHTEN.

NOTE:

THIS ASSEMBLY IS FOR PLATEN ASSEMBLIES EQUIPPED WITH 116859 VERTICAL AIR INJECTION ONLY! FOR STANDARD ASSEMBLY, SEE 114519.

SEAL NOTES:

1. STANDARD CONFIGURATION INCLUDES ONE 114056 T-WIPER SEAL ON THE TOP AND ONE 116922 SEAL AND 116881 SPACER ON BOTTOM (SPACER SHOULD BE INSTALLED LIP-DOWN). (D)

2. ALL OTHER CONFIGURATIONS ARE APPLICATION SPECIFIC AND REQUIRE ENGINEERING CONSULTATION.

3. SMALLER THAN NORMAL DRUM DIAMETERS OR VERY LOW VISCOSITY MATERIALS. MAY REQUIRE 116920 THROUGH 116922 SEALS FOR PROPER FIT.

SEAL TABLE			
PART	QTY	U/M	DESCRIPTION
114272	1	EA	T-WIPER KIT, DM55 (SERVICE PARTS ONLY)
114056	1	EA	T-WIPER SEAL, DM55
114712	2	EA	T-WIPER BAND CLAMP, DM55
115960	1	EA	SEAL KIT,DM55 SMOOTH (SERVICE PARTS ONLY)
115959	1	EA	SEAL, PLATEN, DM55 (SMOOTH)
L01389	1	EA	HOSE CLAMP ASSY, DM55
116488	1	EA	SEAL KIT,DM55 WOUND (SERVICE PARTS ONLY)
815714	1	EA	SEAL, DM55, STEAM HOSE (WOUND)
L01389	1	EA	HOSE CLAMP ASSY, DM55
116919	1	EA	SEAL, PLATEN, DM55, 514MM
116920	1	EA	SEAL, PLATEN, DM55, 512MM
116921	1	EA	SEAL, PLATEN, DM55, 510MM
116922	1	EA	SEAL, PLATEN, DM55, 505.6MM

(D)

SEAL SPACER TABLE(NOT SHOWN)			
PART	QTY	U/M	DESCRIPTION
116881	1	EA	SPACER, SEAL, DM55, 514MM
116882	1	EA	SPACER, SEAL, DM55, 512MM
116883	1	EA	SPACER, SEAL, DM55, 510MM
116884	1	EA	SPACER, SEAL, DM55, 505.6MM

ITEM	PART NUMBER	QTY	U/M	DESCRIPTION
22	N06913	1		O-RING,-118,75DURO,VITON
21	107324	A/R	REF	COMPOUND, ANTI-SEIZE
20	001V061	A/R	REF	CMPND,HT XFER
19	001U002	A/R	REF	LUBE, SILICONE PASTE, DOW 112
18	114769	1	EA	O-RING,-268,75DURO,VITON
17	113989	1	EA	O-RING,-282, 70 DURO VITON
16	SEE PLATEN FACE TABLE	1	REF	ASY, PLATEN FACE
15	116859	1	EA	ASY,AIR INJECT VLV,DM55 V
14	114370	1	EA	ASY,PLATEN CVR,DM55
13	N04326	1	EA	O-RING,-214,70 DURO VITON
12	N01011	1	EA	O-RING,-212,70 DURO VITO
11	116881	REF	EA	PLATEN SEAL SPACER
10	SEE SEAL TABLE	1	REF	PLATEN SEAL, BOTTOM
9	116051	4	EA	SCR,FHC,M16-2.0X50
8	115957	16	EA	SCR,SHC, M16 x 40, ZN
7	SEE SEAL TABLE	1	REF	PLATEN SEAL, TOP
6	107881A1	2	EA	
5	106137	2	EA	SCR,SHC,M3x0.5 x 8
4	N06703	2	EA	SNSR,RTD,PT,.1875X1.25L
3	116885	1	EA	PLUG,PURGE HOLE,DM55,1.063 DIA. X .50 IN THK
2	805406	1	EA	T-STAT,NC,FENWALL
1	113975	1	EA	PLATEN CORE CSTG, DM55

Parts List

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

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

ITW Dynatec HENDERSONVILLE, TN

U/M: EA

APPROVALS		DATE
DRAWN	EEG	02.07.13
CHECKED	EEG	02.07.13

USED ON: DM55

NEXT ASSY.: PARENT

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(24 CHARACTERS): ASY,PLATEN,VERT AI,DM55

ASY, PLATEN CORE, VERT AIR INJECT, DM55

STATUS / SOURCE / GROUP

SIZE: D | DWG. NO.: 118234 | REV: C

SCALE: N/A | CAD DRAWING | SHEET: 1 OF 1

SI

9.5 Frame and Panel Box Assemblies

Item No.	Part Number	Description	Quantity
1	114006	Drip pan	1
2	114126	Clamshell asy.	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 mounting	2
13	115962	Hoop bracket	1
14	115958	Washer M16	12
15	116039	Screw M16x25	4
16	115936	Pedestal	1
17	823191	Panel Box asy. DM55 V6 480V Piston Pump	1
	823189	Panel Box asy. DM55 V6 240V Piston Pump	1
	823190	Panel Box asy. DM55 V6 400V Piston Pump	1
	823171	Panel Box asy. DM55 V6 480V Gear Pump	1
	823169	Panel Box asy. DM55 V6 240V Gear Pump	1
	823170	Panel Box asy. 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 asy.	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

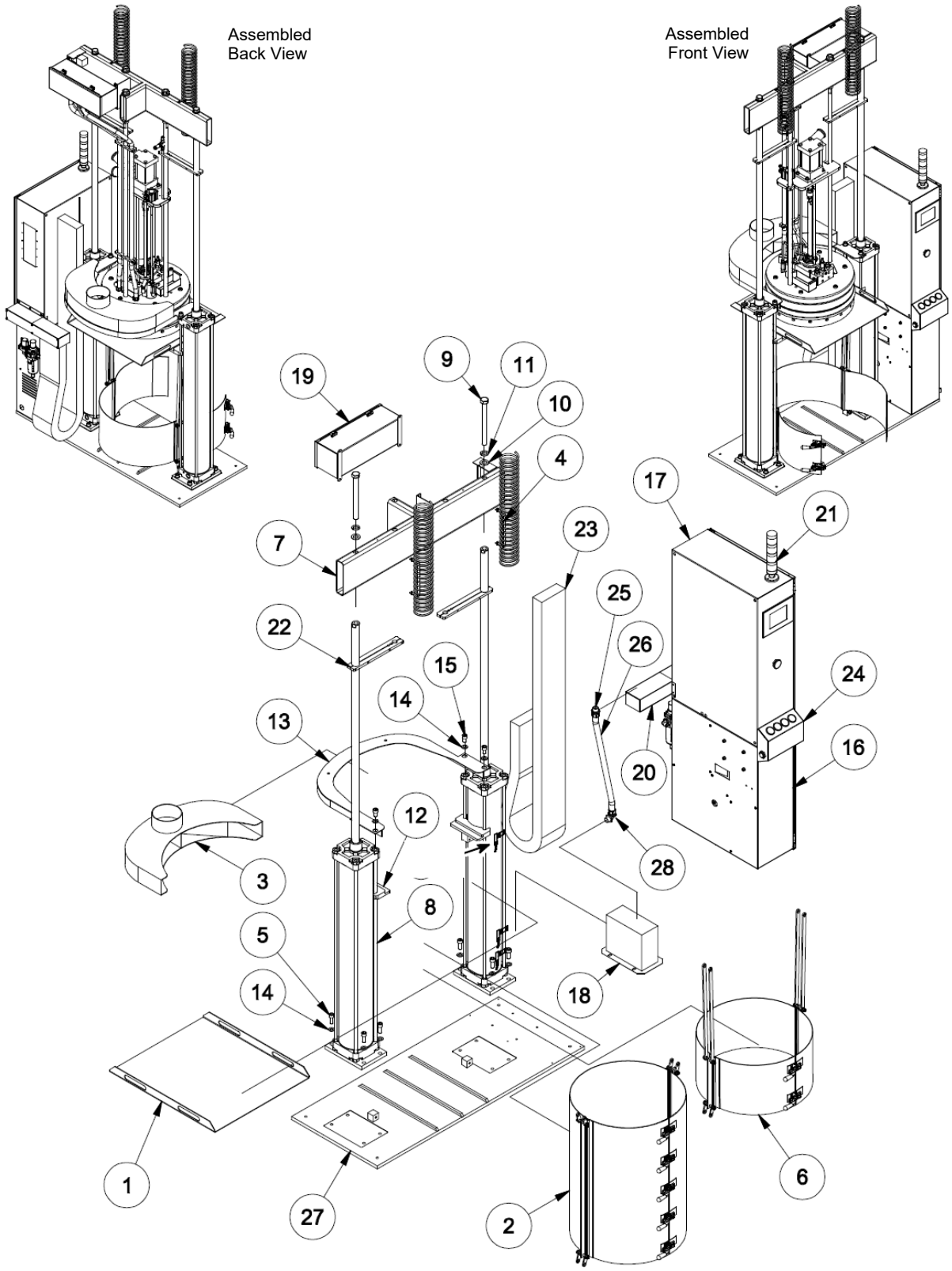


Illustration: Frame and Panel Box Assemblies

9.6 Platen Assembly with Standard Air Inject

Item No.	Part Number	Description	Quantity
1	113975	Platen core	1
2	113977	Platen face, finned (standard)	1
	114091	Platen face, smooth (PUR material, NEDOX 615)	1
	116468	Platen face, high viscosity	1
	117781	Platen face, finned, high flow (PUR material, NEDOX 615)	1
3	116922 *	Platen seal, 32X505mm (standard)	1
	114272 *	T-Wiper kit, DM55	1
	115960 *	Platen Seal Kit, Smooth, MK3 steam hose	1
	116488 *	Platen Seal Kit, Wound, steam hose	1
4	114309	Tube asy, pump out conn.	1
5	115957	Screw M16x40mm	16
6	N01011	O-ring -212, 70 Duro Viton	1
7	113986	Platen cover	1
8	805406	Thermostat, NC, Fenwall	1
9	116051	Screw M16x50mm	4
10	809274	Fitting 3/4”	2
11	113988	Inspection cover, rectangular	3
	114372	Gasket for inspection cover, rectangular (not shown)	3
12	114380	Screw M4x12mm	8
13	113987	Inspection cover, round	1
	114371	Gasket for inspection cover, round (not shown)	1
14	048J058	Fitting 3/8”	2
15	113998	Screw M16x30mm	16
16	116040	Bracket, stabilizer	2
17	113997	Clamp asy	2
18	N06703	RTD Sensor, PT	2
	114295 *	**Platen Vent Valve Asy, DM55 (items 19A – 24)**	**1**
19A	114573	O-ring -310, 75 Duro Viton	1
19B	114844	O-ring, backup, -310, Teflon	1
20	118508	Platen vent body	1
21	118357	Seat tube	1
22	N00199	O-ring -114, 70 Duro Viton	1
23	116862	Outlet tube, purge	1
24	107792	Screw M4x20mm	1
25	116230	Stem, Purge	1
26	104662	Screw M6x16mm	2
27	116402	Adapter, rem purge	1
28	116403	Stem, rem purge	1
29	106513	Nut M12	3
30	116193	Washer, flat, 10x39mm	1
31	116194	Spring 1.25”x3.0”	1
32	116409	Cylinder 50x25mm, compact	1
33	102602	Screw M6x60mm	4
34	072X495	Straight connection 3/8T-3/8NPTF	1
35	115298	Safety valve 20 psi, 3/8NPT	1
36	N06496	Fitting, st tee, 3/8NPT, BRS	1
37	115296	Fitting, connection, 3/8NPT x 3/8T	1
38	-	Aluminum tubing 3/8”	A/R*
39	114465	Purge tray	1
40	115297	Check valve 3/8NPT, BRS	1
41	112317	Fitting 3/8NPT, BRS	1
42	117041	Removable center basket, (PUR)	1
43	N04326	O-ring -214, 70 Duro Viton	1

* see separate drawing and/or BOM.
A/R* = As required.

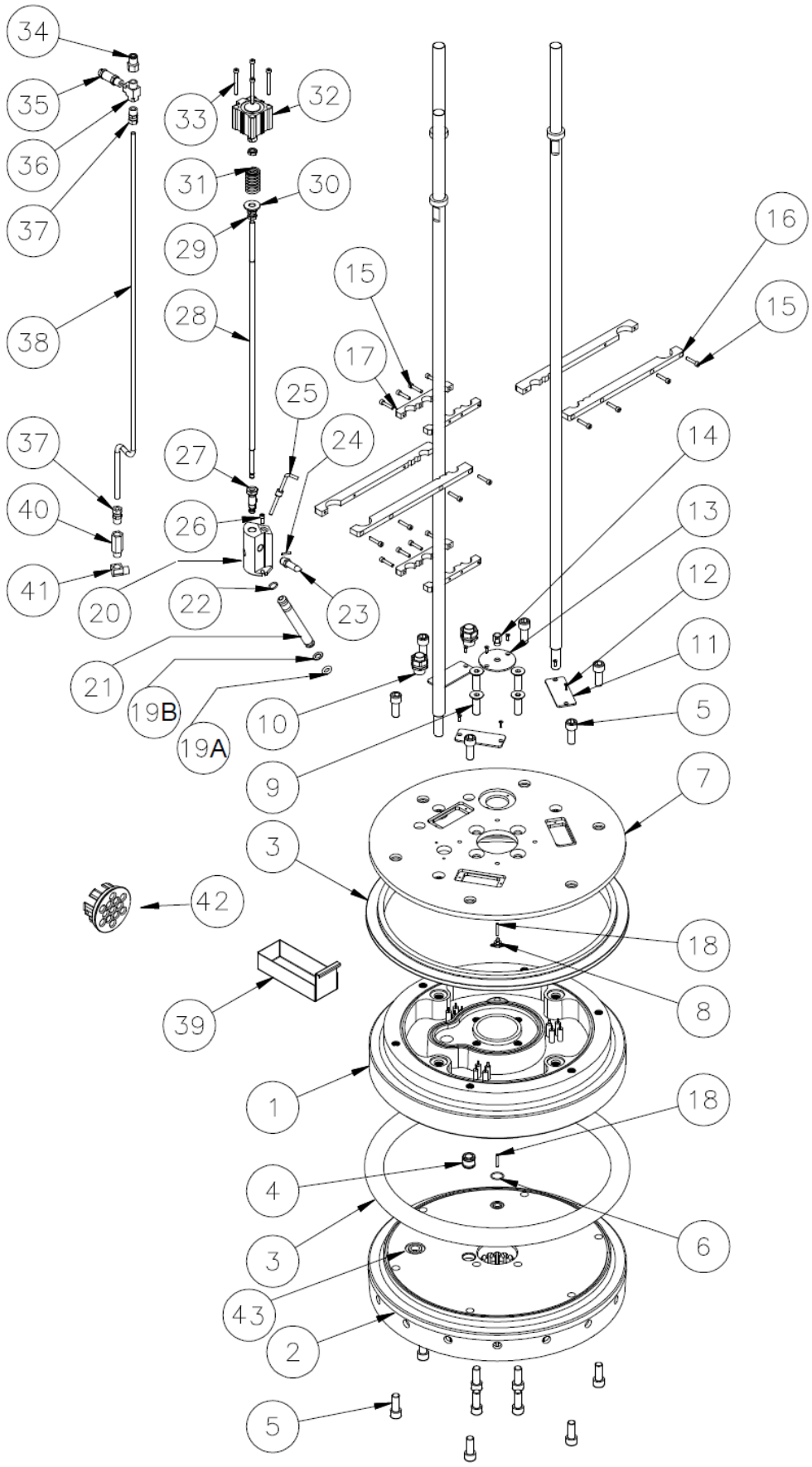
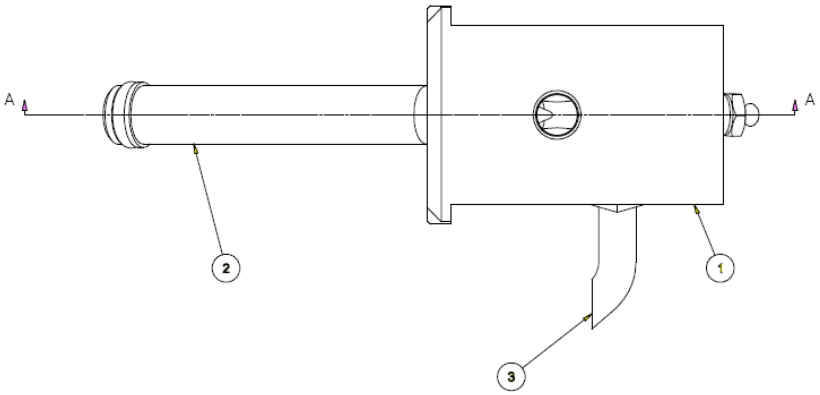
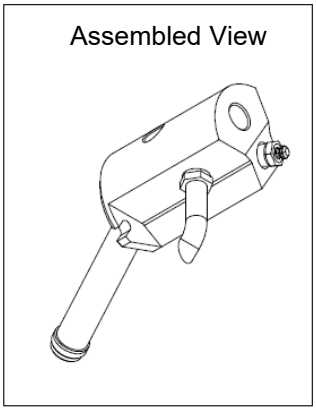


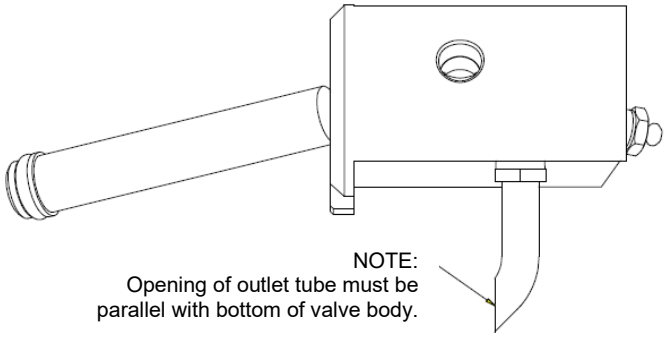
Illustration: Platen Assembly with Standard Air Inject

9.7 Platen Vent Valve Assembly, PN 114295

Item No.	Part Number	Description	Quantity
1	118508	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

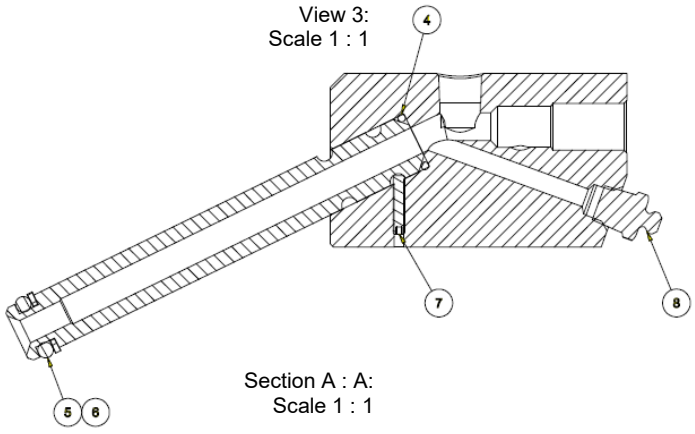






NOTE:
Opening of outlet tube must be parallel with bottom of valve body.

View 3:
Scale 1 : 1



Section A : A:
Scale 1 : 1

9.8 Gear Pump Assembly, PN 114683

Item No.	Part Number	Description	Quantity
1	114482	Gear pump block asy	1
2	104775	Screw M10x75mm	4
3 *	001U002	Lube, silicone paste, DOW112	A/R*
4	N01010	O-ring -021, 70 Duro Viton	1
5	069X064	O-ring -041, 70 Duro Viton	1
6	069X270	O-ring -025, 75 Duro Viton	2
7	806040	Adapter, plate, 2N EB-522	1
8 *	107324	Compound, anti-seize, temperature resistant	A/R*
9	114684	Screw M10x120mm	4
10	107538	Washer, lock, M10	12
11	107429	Coupling, jaw-type, 3/4”	1
12	106875	Coupling, open spider, bronze	2
13	106714	Coupling, jaw-type, 1”	3
14	078I013	Key, shaft, 1/4”x1/4”x7/8”	2
15	805084	Shaft, drive	1
16	805500	Guard	1
17	114528	Shaft GD BKT	2
18	104662	Screw M6x16mm	4
19	106319	Washer M6	2
20	106324	Washer, flat, M6	2
21	107390	Nut M6	2
22	114521	Shelf, motor gear	1
23	114317	Clamp, air motor shelf	2
24	104663	Screw M6x25mm	4
25	805083	Vert. Gear reducer, 20:1	1
26	801679	Motor AC, 3P, 240V, 1HP, K25	1
27 *	001V062	R-compound	A/R*
28	106767	Screw M10x45mm	4

* Not shown
A/R* = As required.

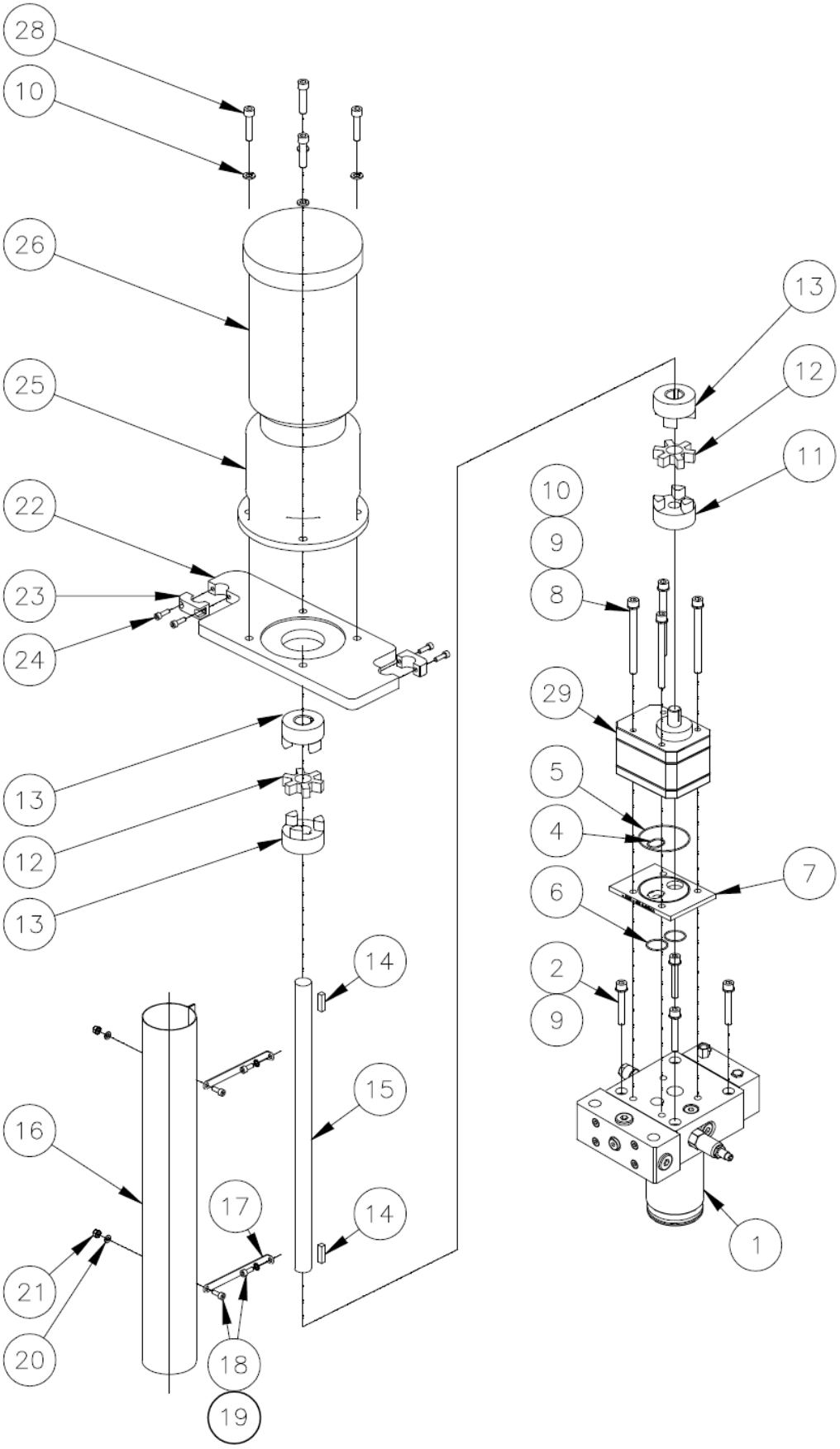


Illustration: Gear Pump Assembly, PN 114683

9.9 Optional Gear Pump Assemblies

Item No.	Part Number	Description	Quantity
1	114482 *	Gear pump block asy	1
2	069X270	O-ring -025, 75 Duro Viton	2
3	806040	Adapter, plate, 2N EB-522	1
4	069X064	O-ring -041, 70 Duro Viton	1
5	N01010	O-ring -021, 70 Duro Viton	1
6	110289	Gear pump, single, 20ccm	1
	110290	Gear pump, single, 30ccm	1
	110291	Gear pump, single, 45ccm	1
7	107538	Washer, lock, M10	4
8	114684	Screw M10x120mm	4
9	107429	Coupling, jaw-type, 3/4”	1
10	106875	Coupling, open spider, bronze	2
11	106714	Coupling, jaw-type, 1”	3
12	078I013	Key, shaft, 1/4”x1/4”x7/8”	2
13	805084	Shaft, drive	1
14	805500	Guard	1
15	114528	Shaft GD BKT	2
16	113999	Washer M6	2
17	104662	Screw M6x16mm	4
18	106324	Washer, flat, M6	2
19	107390	Nut M6	2
20	116204	Motor bracket asy	1
21	103518	Screw M10x30mm	4
22	106755	Washer M10,M18,M2	4
23	106470	Reducer, gear, 20:1	1
24	801679	Motor AC, 3P, 240V, 1HP, K25	1
25	804774	Cord grip	1
26	804066	Cable	1
27	107324	Compound anti-seize, temperature resistant	A/R*
28	001U002	Lube, silicone paste, DOW112	A/R*
29	116746	Coupling, 1-1/8”, L099-11344	1

* See following pages for exploded-view drawing and BOM.
A/R* = As required.

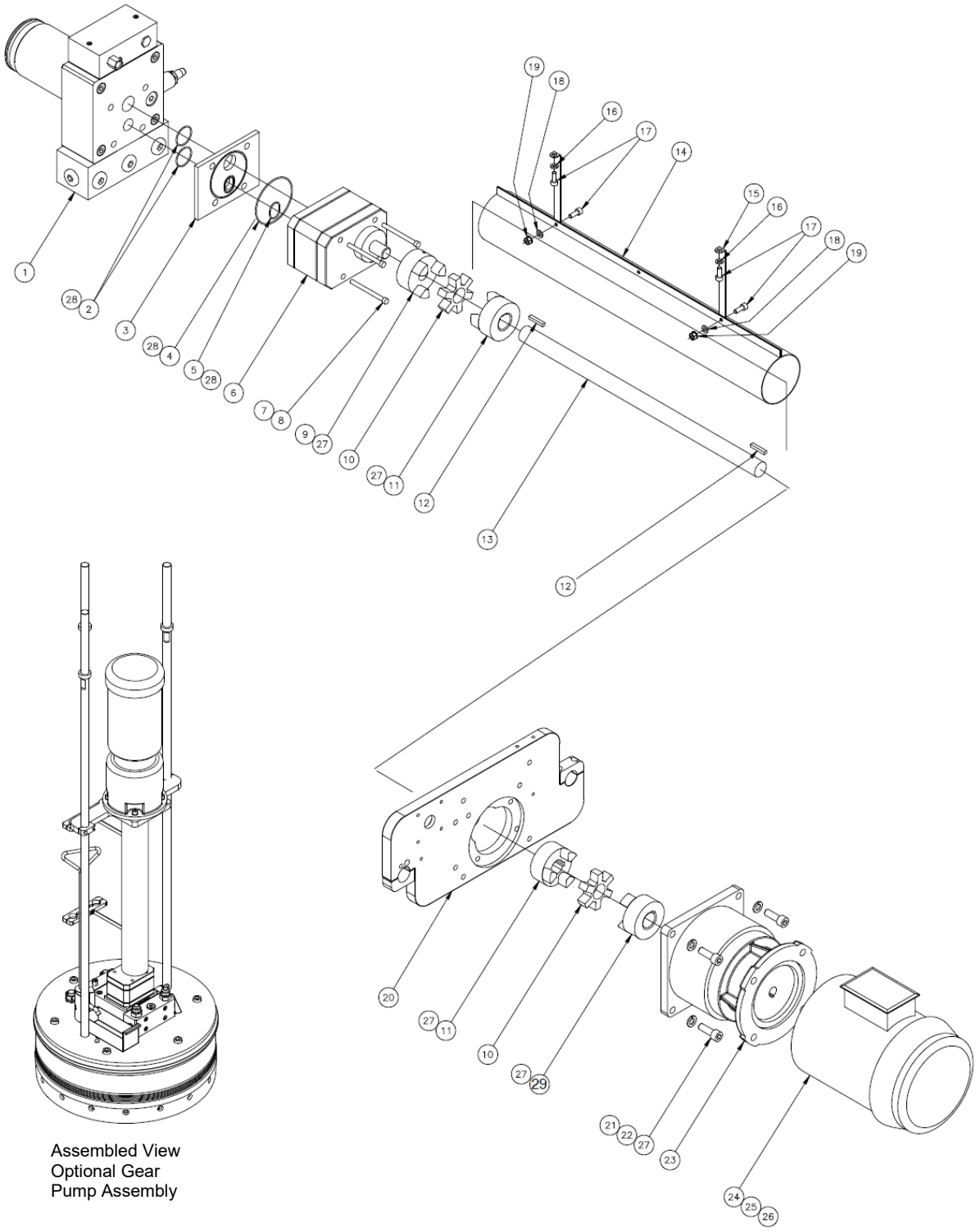


Illustration: Optional Gear Pump Assemblies

9.10 Gear Pump Mounting Block Assembly, PN 114482

Item No.	Part Number	Description	Quantity
1	114480	Mount block, gear pump	1
2	115113	**Gear pump / Hose outlet manifold options:** Single outlet manifold	1
	114481	Dual outlet manifold	1
	114752	Single outlet manifold with ball valve purge (PUR)	1
	118258	Dual outlet manifold with ball valve purge (PUR)	1
	818323	Single outlet manifold, high volume #24 hose	1
3	114341	Enclosure, pump heater	1
4	114353	Gasket, wire enclosure	1
5	808217	Mechanical Pressure Relief Valve, adjustable, 0-750 psi (0-51 bar) (standard)	1
	118257	Pneumatic Pressure relief kit (option): 116486 Pneum. pressure relief valve, T-162A, 14:1, 2-stage, 1/4"tube 118256 Pneum. pressure relief assembly, 3-position *	1
6	001U002	Lube, silicone, paste, DOW112	A/R*
7	103626	Fitting, plug, 3/8 BSPP	2
8	803173	Fitting, plug, G1/2	2
9	See table below	Mounting screws	4
10	114352	Washer, lock, M8	4
11	107324	Compound, anti-seize, temperature resistant	A/R*
12	116183	Connection, hose manifold	1
13	804355	Screw M4x50mm	2
14	114360	O-ring -337, 75 Duro Viton	1
15	104251	Heater 12.5x99mm, 240V, 485W	2
16	N06703	RTD Sensor, PT100	1
17	805406	Thermostat, snap disc, NC, open 450°F	1
18	106137	Screw M3x8mm	2
19	107881	Terminal block, 2-position, ceramic	3
20	107389	Screw M4x8mm	1
21	048J229	Plug 9/16-18	1
22	048J058	Fitting 3/8”	1
23	078A055	Screw 10-24 X 3/16	1
24	107820	Purge valve asy, 1/4 BSPP	1
25	See table below	Hose fitting	A/R*
26	101625	Fitting, plug, G1/4	1
27	N00182	O-ring -15	1
28	113654	O-ring -123	2
29	116381	Seat, inlet check, extended	1
30	N03770	O-ring -920	1

* = see separate drawing and BOM.
A/R* = As required.

Gear Pump Outlet Manifold Tabulation

Manifold PN	Hose Size	Item 25 Hose Fitting PN	Item 9 Mounting Screws PN
115113 114481 114752 118258	06	803984 Fitting, straight #6JICX1/2-14BSPP	109793 Screw M8x65mm
115113 114481 114752 118258	08	804155 Fitting, straight #8JICX1/2-14BSPP	109793 Screw M8x65mm

Manifold PN	Hose Size	Item 25 Hose Fitting PN	Item 9 Mounting Screws PN
115113 114481 114752 118258	12	803142 Fitting, straight #12JICX1/2-14BSPP	109793 Screw M8x65mm
115113 114481 114752 118258	16	812948 Fitting, straight #16JX1/2-14 BSPP	109793 Screw M8x65mm
818323	24	072X396 Fitting, straight #24JIC-1*NPT	810250 Screw M8x110mm

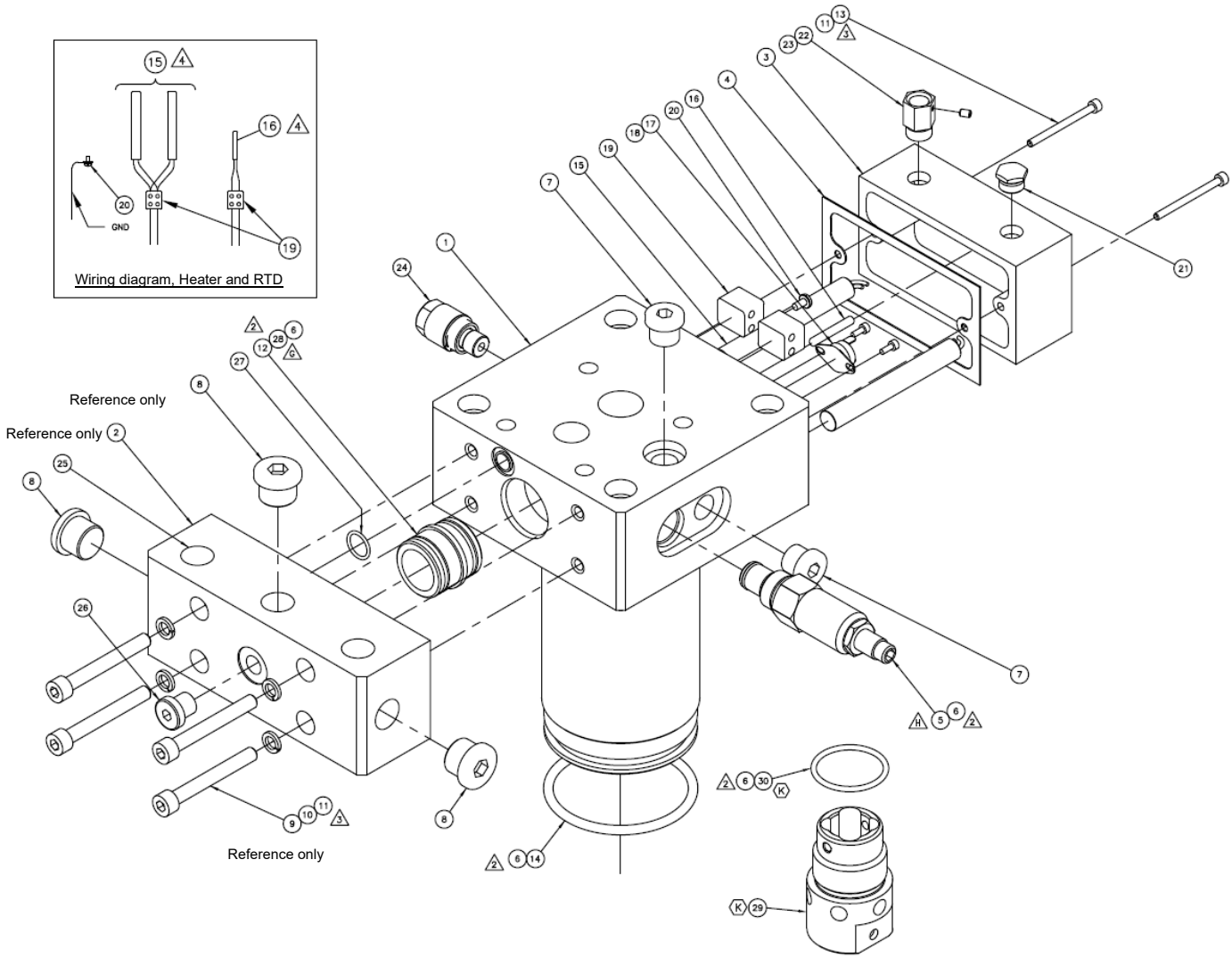


Illustration: Gear Pump Mounting Block Assembly, PN 114482

Notes:

1. Dimensions are in millimeters. Dimensions in brackets are in inches.

2 Apply silicone lubricant (item 6) to O-rings as noted.

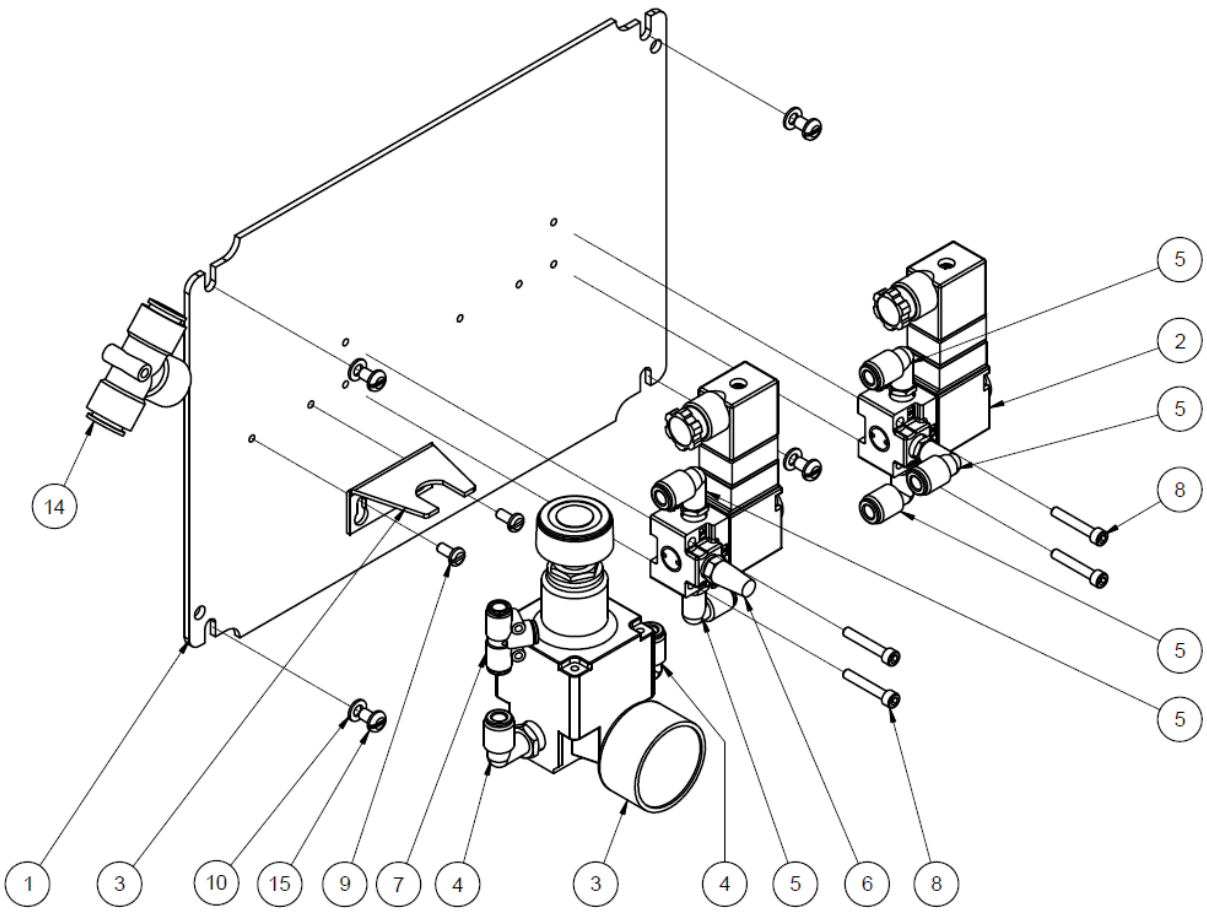
3 Apply anti-seize compound (item 11) to screws where noted.

4 Wiring details for heaters, RTD sensor, overtemp thermostat and ground wire are provided at the next assembly level.

5 #24 fitting must be used only in conjunction with 818323 manifold and 810250 mounting screws. See sales order for manifold and fitting(s).

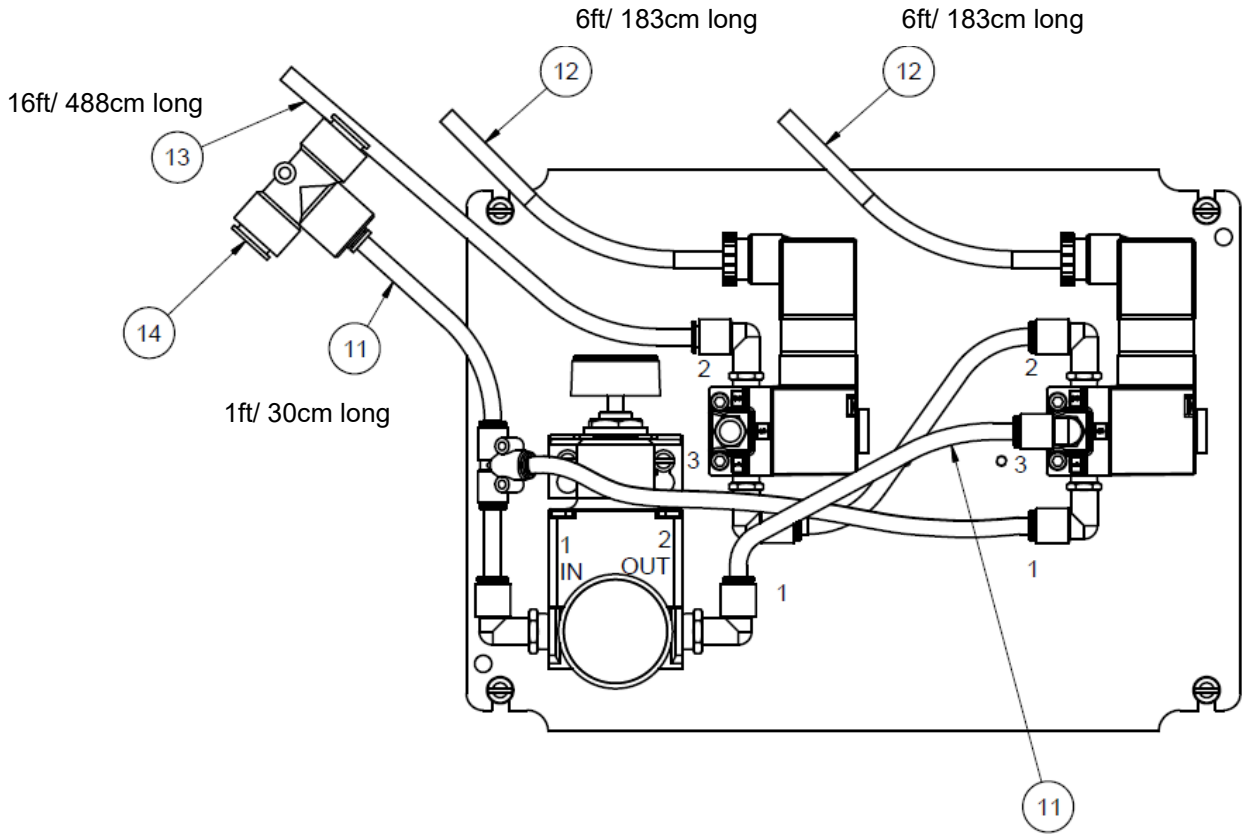
9.11 Pneum. pressure relief assembly, 3-position, PN 118256B

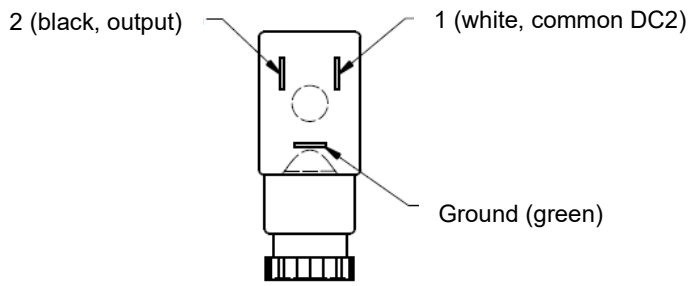
Item No.	Part Number	Description	Quantity
1	817806	Insert panel	1
2	030A049	Solenoid 3-way 1/8NPT, 24VDC	2
3	118643	Precision regulator 0-60 psi (0-4 bar), 1/4NPT	1
4	N06412	Fitting, electric, 1/4 MPT x 1/4 tube	2
5	N06436	Fitting, elbow, 1/4 tube x 1/8NPT	5
6	N02745	Muffler, pneum. Exhaust, 1/8NPT	1
7	N06504	Fitting, union tee, 1/4 tube	1
8	078A157	Screw 8-32x1	4
9	N02312	Screw 8-32x3/8	2
10	111965	Washer, flat, M5	4
11	775-005	Tubing, 1/42 poly, clear	4
12	N08236	Cable 18GA, 3C, SV	12
13	N07677	Tubing, TFE, .25 OD x .125 long	16
14	118259	Fitting, tee, 1/2x1/4, branch, tube	1
15	107208	Screw M5x8mm	4



See next page also.

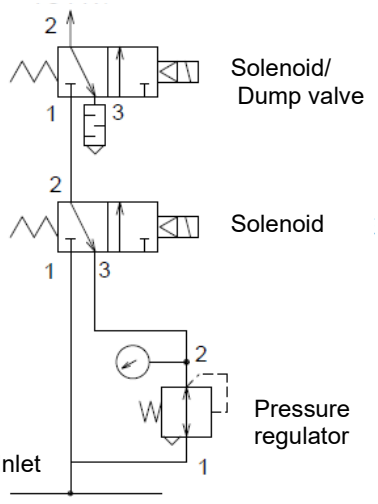
Splice 1/2" tee into existing 1/2" supply.
Inside of pedestal base at installation.





Electrical diagram
(Looking at connector)

To Pressure relief valve



Pneumatic schematic

9.12 Gear Pump Kit, 0.1-10ccm Pumps, PN 818446

Item No.	Part Number	Description	Quantity
1	114482	Mount block asy, gear pump	1
2	N00190	O-ring -024, 75 Duro Viton	2
3	815707	Pump adapter plate, 0-10ccm	1
4	069X058	O-ring -028, 75 Duro Viton	2
5	N00179	O-ring -012, 70 Duro Viton	2
6	See order	Gear pump, 0.1-10ccm	1
7	107538	Washer, lock, M10	4
8	N00841	Screw M10x120mm	4
9	106874	Coupling, jaw-type, 1/2”	1
10	106875	Coupling, open spider, bronze	2
11	106714	Coupling, jaw-type, 1”	2
12	078I013	Key, shaft 1/4x1/4x7/8	2
13	805084	Shaft, drive	1
14	805500	Guard	1
15	114528	Shaft GD BKT	2
16	113999	Washer M6	2
17	104662	Screw M6x16mm	4
18	106324	Washer, flat, M6	2
19	107390	Nut M6	2
20	116204	Motor bracket asy	1
21	103518	Screw M10x30mm	4
22	106755	Washer M10,M18,M2	4
23	116470	Reducer, gear, 20:1	1
24	801679	Motor, AC, 3P, 240V, 1HP, K25	1
25	804774	Cord grip, AC Motor wire	1
26	804066	Cable	1
27	107324	Compound, anti-seize, temperature resistant	A/R*
28	001U002	Lube, silicone paste, DOW112	A/R*
29	048G056	Wire nut	4
30	N02279	Terminal, 16-14#	1
31	048J018	Bush, 1/2”	1
32	116746	Coupling, 1-1/8”	1
33	106767	Screw M10x45mm	4

A/R* = As required.

Notes:

1. Apply silicone lubricant (item 28) to O-rings as noted.
2. Apply anti-seize compound (item 27) to screw threads and drive shafts as noted.
3. Torque motor bolts (item 21) and pump bolts (item 8) to 50 lbs/ft (68Nm). Do not overtighten threads inserts!
4. Item 20 old stock 114522 bracket must be used in conjunction with item 23 old stock 805083 Falk gearbox. Item 20 new stock 116204 bracket must be used in conjunction with item 23 new stock 116470 Brother gearbox. 116204 bracket and 116470 Brother gearbox must be used if 116401 remote pure kit is to be installed.

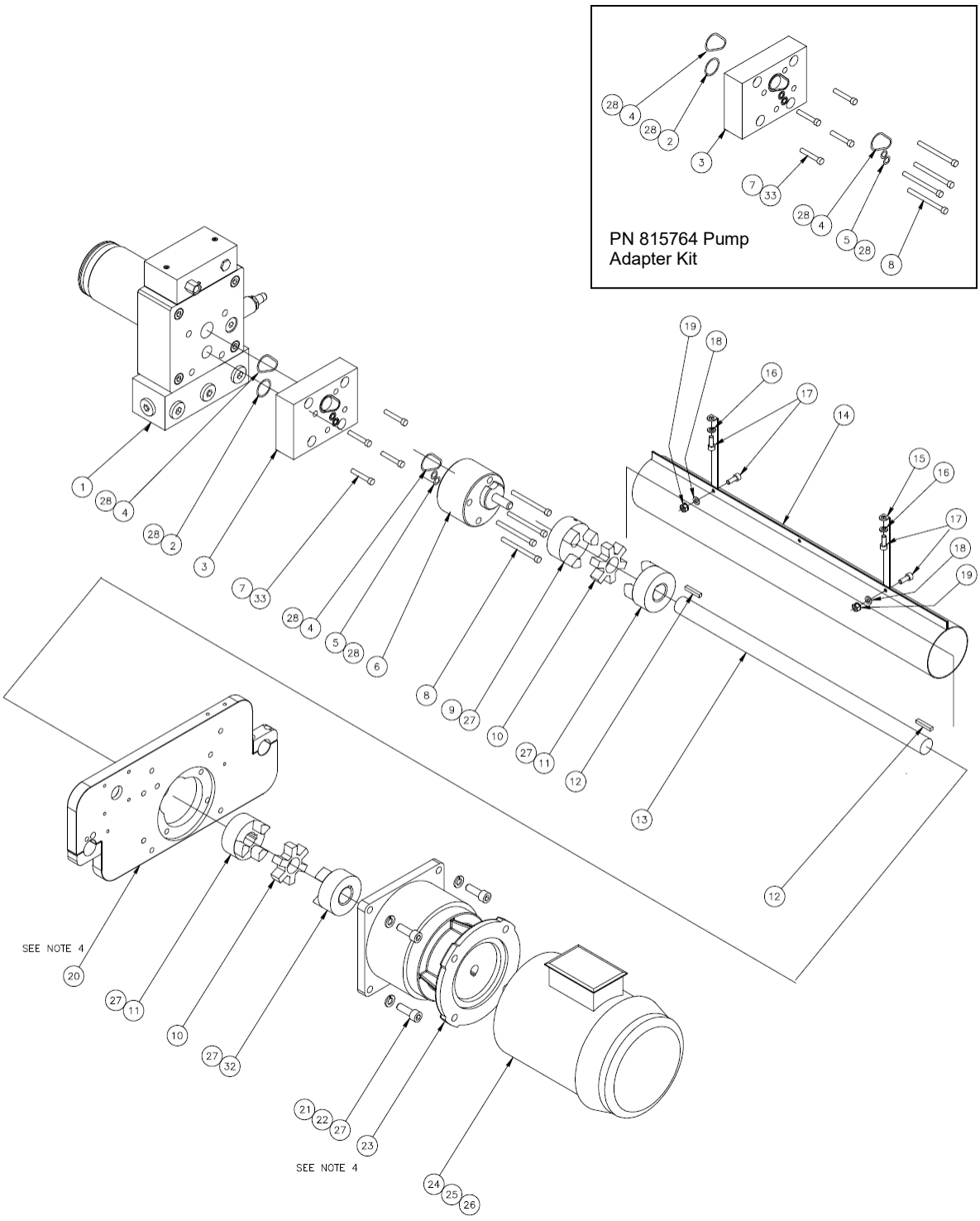
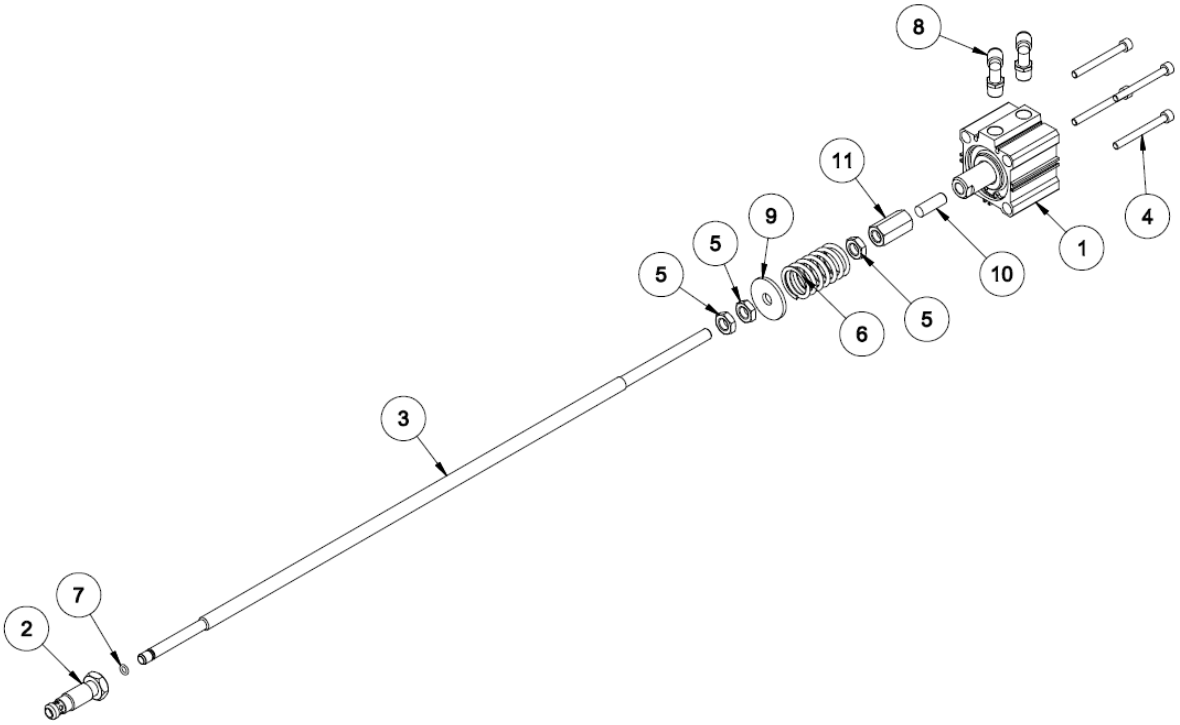


Illustration: Gear Pump Kit, 0.1-10cc Pumps, PN 818446

9.13 Remote Purge Kit, PN 116401

Item No.	Part Number	Description	Quantity
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



9.14 Pneumatic Assembly, DM55 GP, 5 PSI (0.3 bar) Air Inject, PN 823063

Item No.	Part Number	Description	Quantity
1	114008	Air Prep. Assembly	1
2	823065	Valve assembly, 5 psi (0.3 bar) air inject	1
3	114033	Tubing 3/8“	53ft (16.15m)
4	115382	Valve, speed control, 3/8T	2
5	116207	Regulator, 0-123 PSI (0-8 bar)	2
6	116209	Fitting 4mm x 1/8 UNI	2
7	114010	Gauge 0-160 PSI (0-11 bar)	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	-	-	-
12	N06496	Fitting 3/8 NPT	1
13	115298	Safety valve 25 psi (1.72 bar), 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 (0-2 bar)	2
17	823078	Pneumatic Schematic, DM55 GP, 5 psi (0.3 bar) Air Inject	REF**
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	5
24	N01478	Tubing, al, .375 OD x .035WAL	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	823077	Fitting, push-in union “Y”, 3/8 tube	1
37	116482	Cable assembly	1
38	-	-	-
39	N06425	Gauge, air pressure, 0-60 psi (0-4 bar)	1
40	116206	Fitting 4mm x M5 female	2
41	823024	Exhaust controller, 3/8 tube x 3/8 NPT	1
42	-	-	-
43	115297	Check valve 3/8 NPT	1
44	N06146	Muffler, pneumatic exhaust, 3/8 NPT	1

A/R* = As required.
Ref** = See Ch.12, PN 823078 for Pneumatic Schematic, DM55 GP, 5 PSI (0.3 bar) Air Inject.

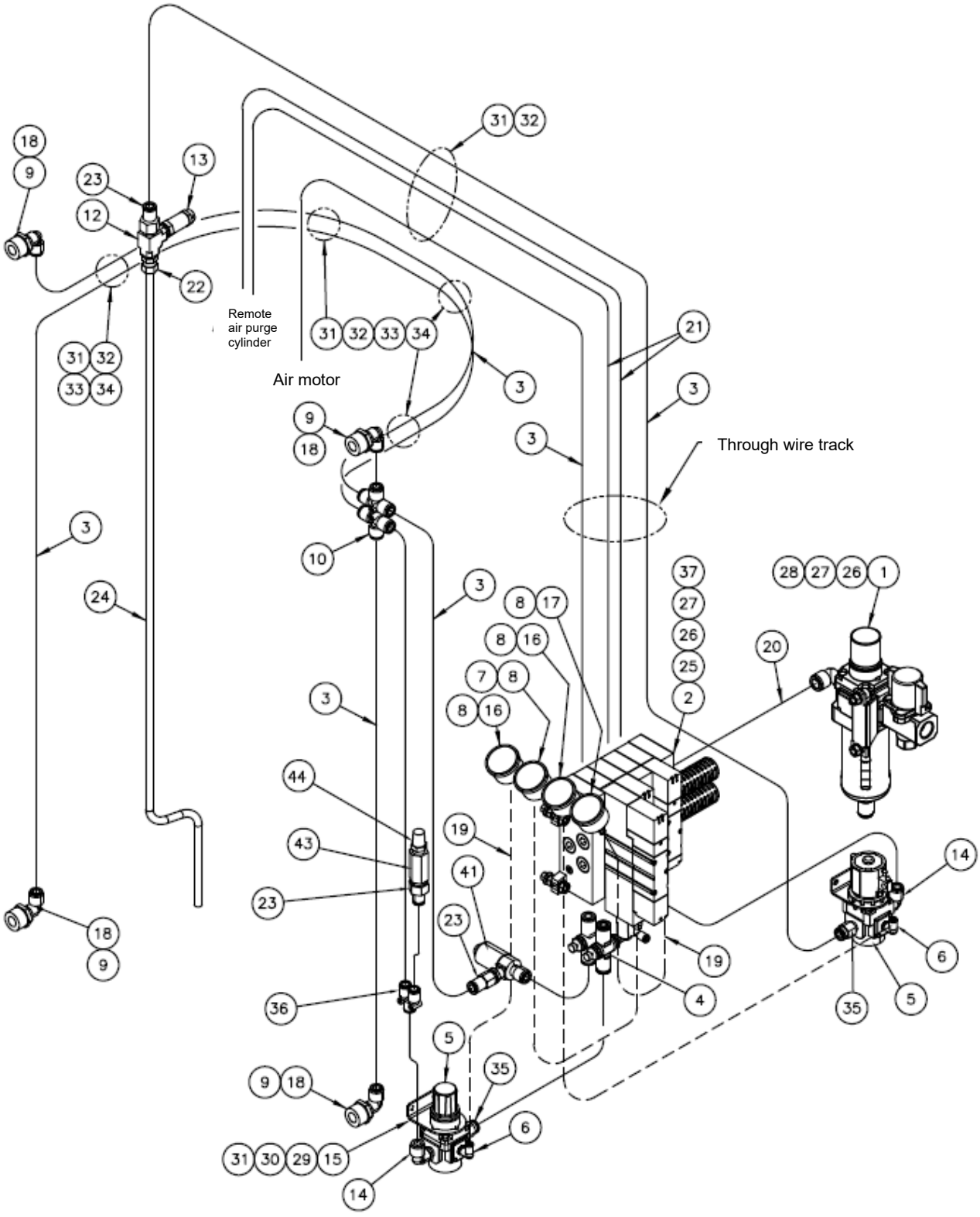


Illustration: Pneumatic Assembly, DM55 GP, 5 PSI (0.3 bar) Air Inject, PN 823063

9.15 Pneumatic Assembly, DM55 GP, 5 PSI (0.3 bar) Vertical Air Inject, PN 823441

Item No.	Part Number	Description	Quantity
1	114008	Air Prep. Assembly	1
2	823065	Valve assembly, 5 psi (0.3 bar) air inject	1
3	114033	Tubing 3/8“	53ft 16.15m
4	115382	Valve, speed control, 3/8T	2
5	116207	Regulator, 0-123 PSI	2
6	116209	Fitting 4mm x 1/8 UNI	2
7	114010	Gauge 0-160 PSI (0-11 bar)	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	-	-	-
12	N06496	Fitting 3/8 NPT	1
13	115298	Safety valve 25 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	823078	Pneumatic Schematic, DM55 GP, 5 PSI (0.3 bar) Air Inject	REF**
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	-	-	-
23	072X495	Straight connection, 3/8 T - 3/3 NPTF	5
24	-	-	-
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	823077	Fitting, push-in union “Y”, 3/8 tube	1
37	116482	Cable assembly	1
38	-	-	-
39	N06425	Gauge, air pressure, 0-60 psi	1
40	116206	Fitting 4mm x M5 female	2
41	823024	Exhaust controller, 3/8 tube x 3/8 NPT	1
42	-	-	-
43	115297	Check valve 3/8 NPT	1
44	N06146	Muffler, pneumatic exhaust, 3/8 NPT	1
45	N07677	Tubing 1/4 OD x 1/8 ID Teflon	A/R*
46	825198	Fitting, union, 1/4T X 1/4T push-lock	3
47	823893	Fitting, reducer, 3/8 tube male x 1/4 tube female	1
48	823733	Fitting, male connection, 1/4 tube X 3/8 NPT	1

A/R* = As required.
** Ref = See Ch.12, PN 823078 for Pneumatic Schematic, DM55 GP, 5 PSI (0.3 bar) Air Inject.

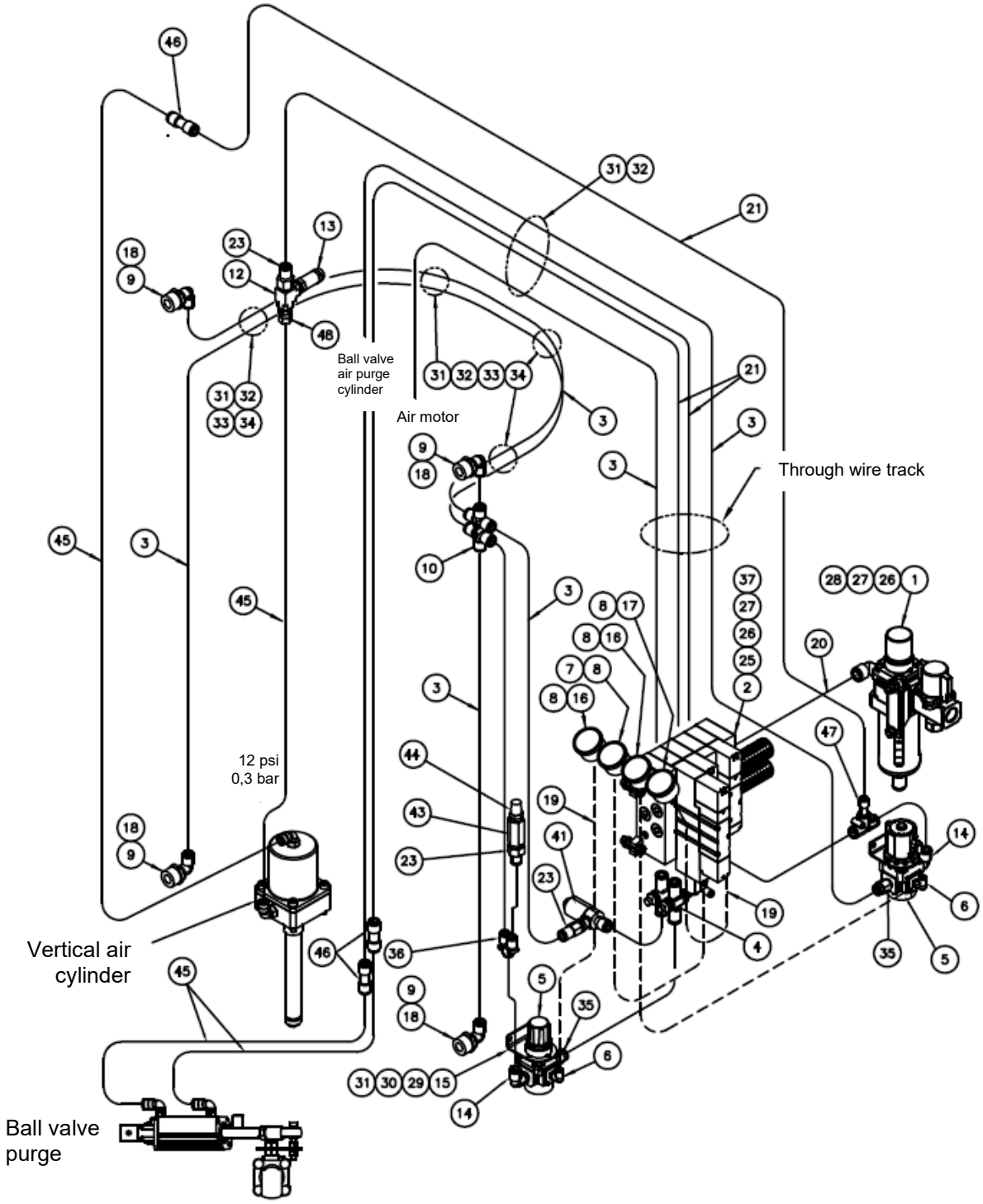
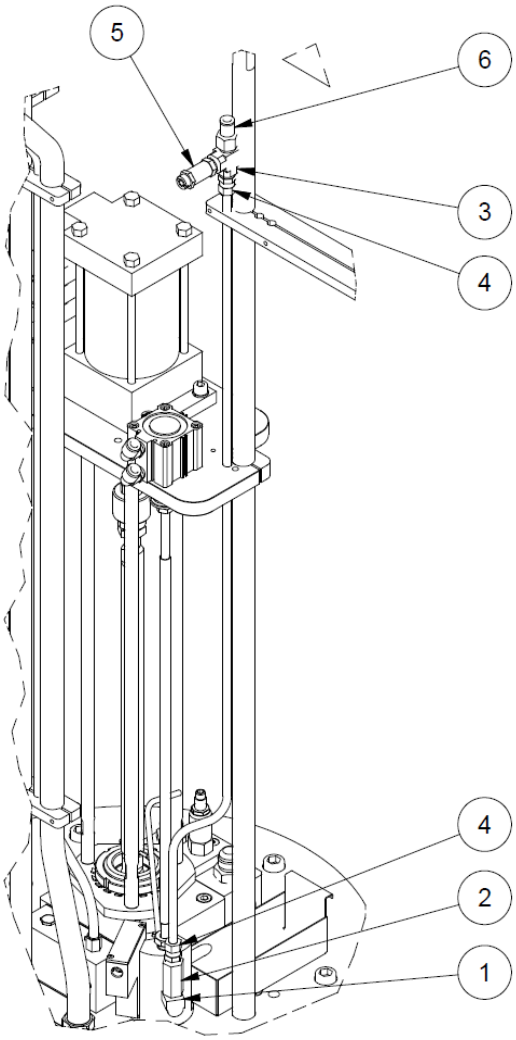


Illustration: Pneumatic Assembly, DM55 GP, 5 PSI (0.3 bar) Vertical Air Inject, PN 823441

9.16 Air Injection Replacement Parts

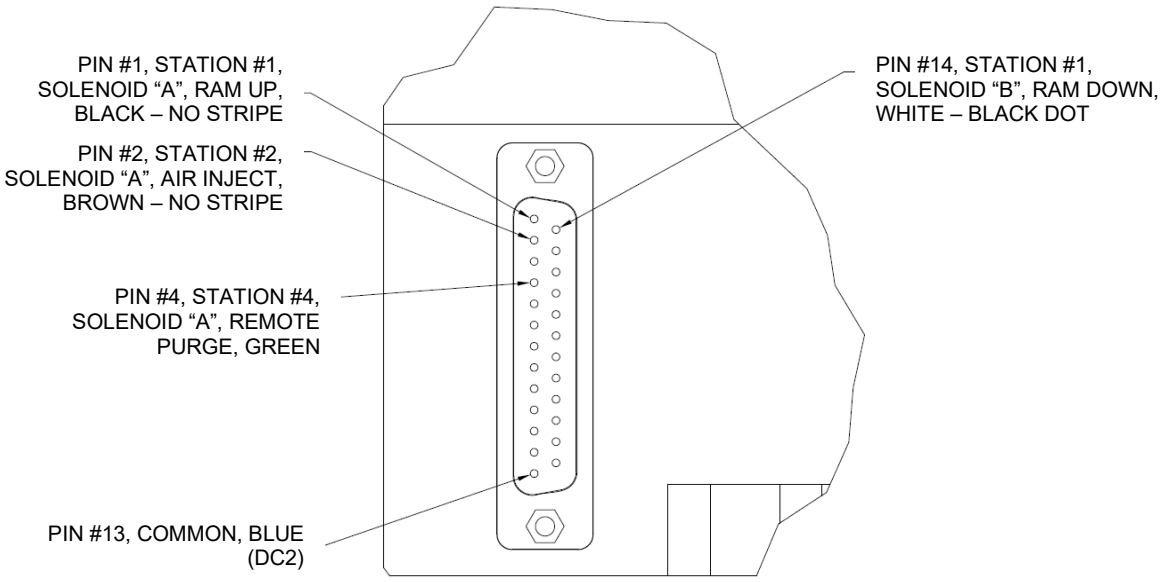
Item No.	Part Number	Description	Quantity
1	112317	Fitting 3/8 NPT	3
2	115297	Check valve, 3/8 NPT	1
3	N06496	Fitting 3/8 NPT	1
4	115296	Fitting 3/8 NPT	2
5	115298	Valve, safety, 20psi, 3/8 NPT	1
6	072X495	Connection straight 3/8 T - 3/3 NPTF	2



See Ch. 12 for pneumatic layout drawing.

9.17 Gear Pump Valve Assembly, PN 823065

Item No.	Part Number	Description	Quantity
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	116060	Regulator 0.85 MPa	2
5	116064	Bnk Plate, valve cover	1
6	116062	Fitting 3/8” T - 3/8” INSR	3
7	116061	Fitting 3/4” BNK INSR	3
8	N00756	Fitting, plug, 1/2 NPT	3
9	N00753	Fitting, plug, 1/8 NPTF	1
10	116063	Silencer, 1/8 NPT	1
11	116400	Fitting1/4” T - 3/8” INSR	2
12	116206	Fitting 4mm x M5 fem.	1
13	115106	Fitting 90° 1/2 NPT - 1/2 tube	1
14	117632	Silencer 1/2” INSR	2



CONNECTOR PIN-OUT

Notes:
1. Valve to be factory pre-assembled and tested.
2. Item 2 to be located at station #1 (first from left).
3. Item 3 to be located at station #2 and 4 (from the left).
4. Item 4 to be located at station #1 and 3 (from the left).
5. Item 5 to be located at station #3 (from the left).
6. Item 6 to be located on “A” & “B” port of station #1 (from the left).
7. Item 6 to be located on “A” port of station #2 (from the left).
8. Item 7 to be located on “B” port of station #2 (from the left).
9. Item 7 to be located on “A” & “B” port of station #3 (from the left).
10. Item 14 to be located on “A” & “B” port of station #4.
11. Items 8 & 9 to be located on the left side of the assembly.
12. Items 10, 11 & 12 to be located on the right side of the assembly.
13. Assembly to be pre-wired and tested for stations #1, 2 & 4 as shown.

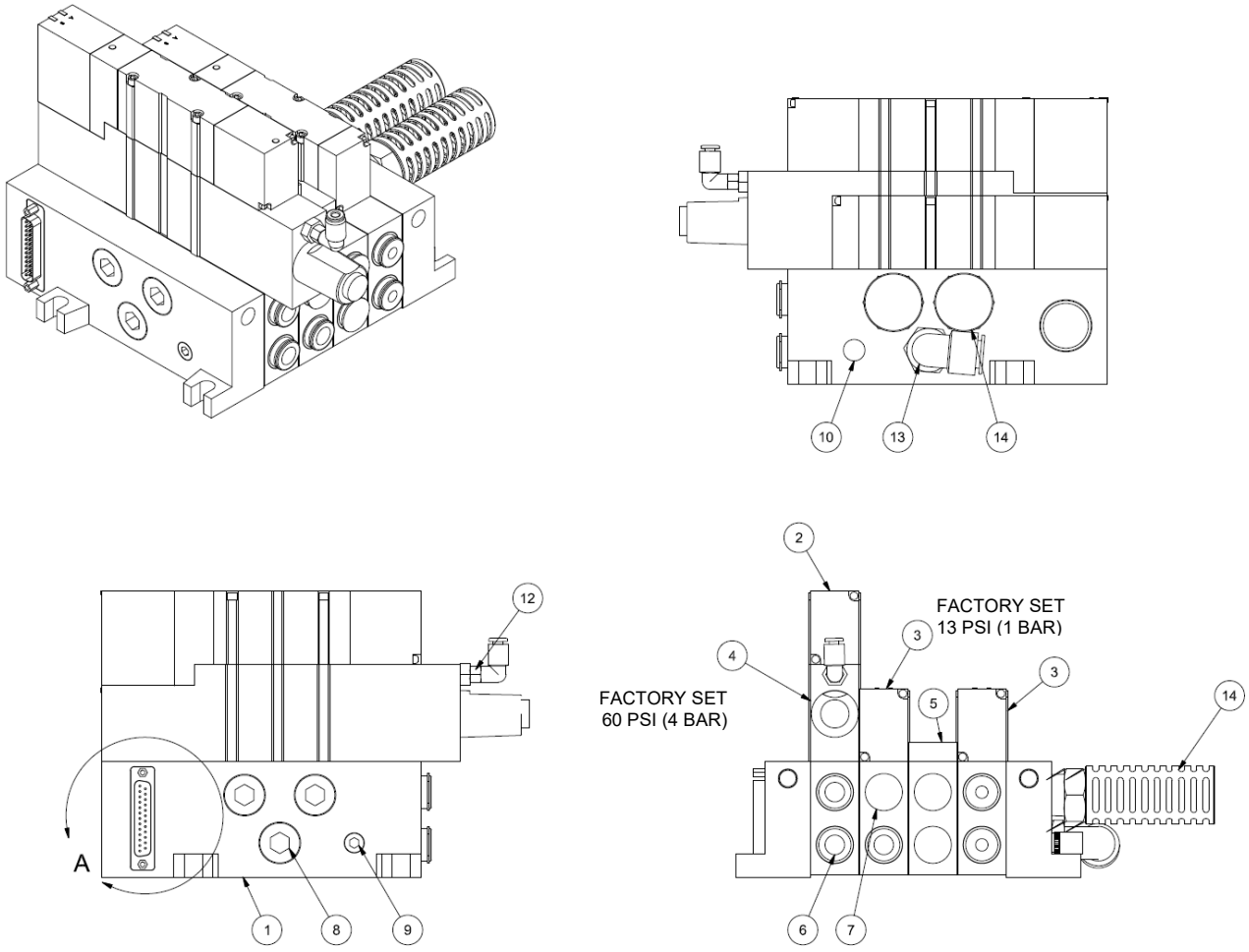
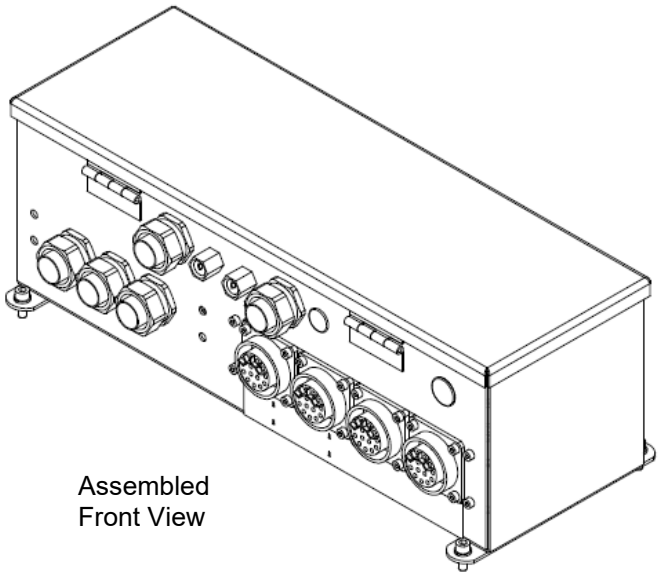


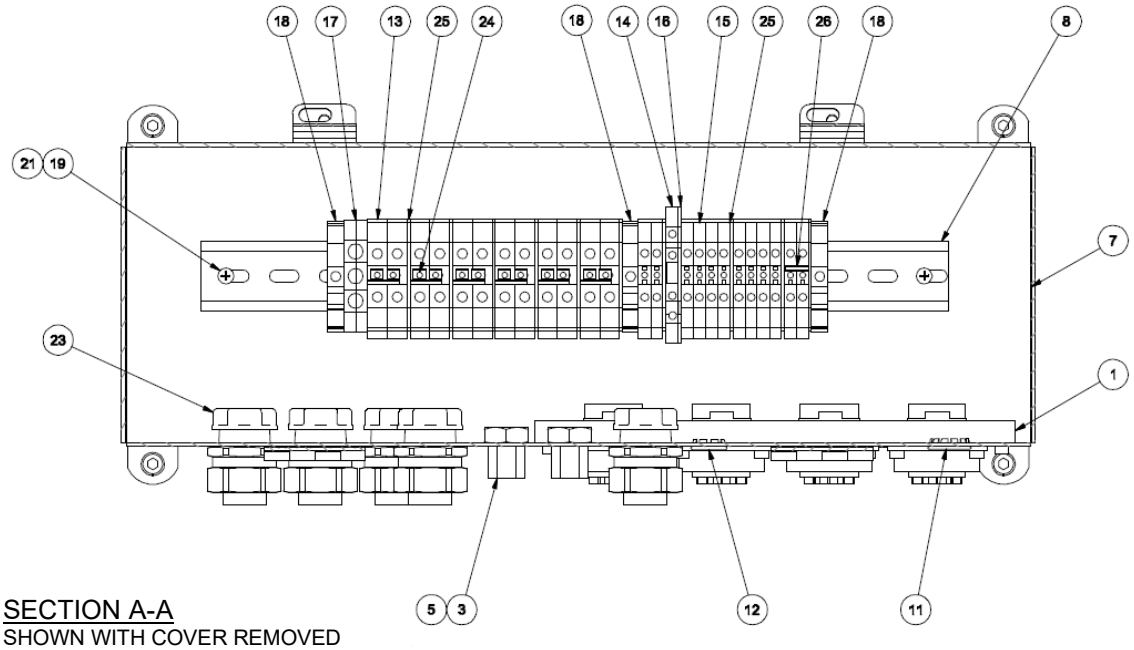
Illustration: Gear Pump Valve Assembly, PN 823065

9.18 Junction Box Assembly, PN 115945

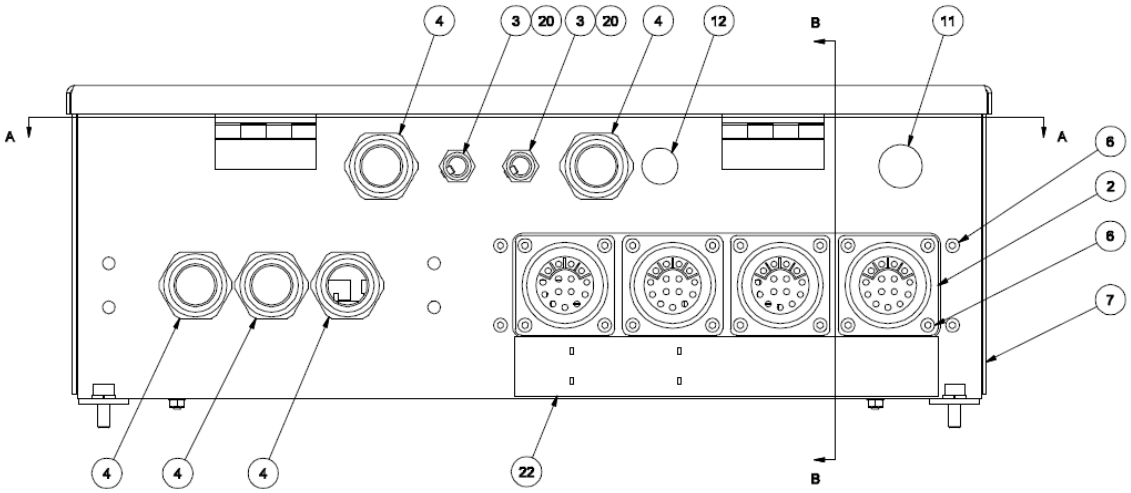
Item No.	Part Number	Description	Quantity
1	103866	Bracket, Amphenol	1
2	101074	Connection 15-P RCPT	4
3	107751	Fitting 5/16“ cond., 9/16-18	2
4	809274	Fitting 3/4“	5
5	078D022	Nut 9/16-18	2
6	102446	Screw M4x10	20
7	115944	Junction box	1
8	048F104	Rail, terminal mount, H32	19
9	113999	Washer M6	4
10	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

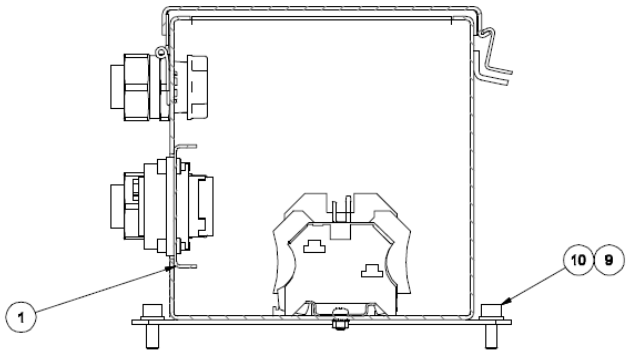


Assembled
Front View



SECTION A-A
SHOWN WITH COVER REMOVED
FOR CLARITY





SECTION B-B

Chapter 10
Options & Accessories

10.1 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.

10.2 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.

10.3 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.

10.4 Pump Options

Part Number	Description
110289	20cc/rev single output, high accuracy gear pump
110290	30cc/rev single, output high accuracy gear pump
110291	45cc/rev single, output high accuracy gear pump (high flow)
100860	1.54 cc/rev single, standard accuracy gear pump
100861	3.18 cc/rev single, standard accuracy gear pump
100862	4.5 cc/rev single, standard accuracy gear pump
109694	20 cc/rev single, standard accuracy gear pump
108867	0.584 cc/rev single, high accuracy gear pump
108865	0.297 cc/rev single, high accuracy gear pump
108869	1.168 cc/rev single, high accuracy gear pump
108872	2.920 cc/rev single, high accuracy gear pump
108875	8.5 cc/rev single, high accuracy gear pump

10.5 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.

10.6 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.

10.7 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.

10.8 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.

10.9 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.

10.10 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 114272 T-Wiper Kit, consists of:**

Part Number	Description	Quantity
114056	T-Wiper Seal	1
114712	T-Wiper Band Clamp	2

- **PN 116922 Platen seal, 32X505mm, encapsulated O-ring Seal (standard):**

Part Number	Description	Quantity
116922	Platen seal, 32X505mm (standard) (requires PN 116881 Seal Spacer) Fits drum diameters 22.0 inch (559.0 mm) to 22.5 inch (572.0 mm).	1

- **PN 115960 Platen Seal Kit, Smooth, consists of:**

Part Number	Description	Quantity
115959	Platen Seal, Smooth, MK3 steam hose	1
L01389	Hose Clamp Asy.	1

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

Part Number	Description	Quantity
815714	Platen Seal, Wound, steam hose	1
L01389	Hose Clamp Asy.	1

10.11 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.

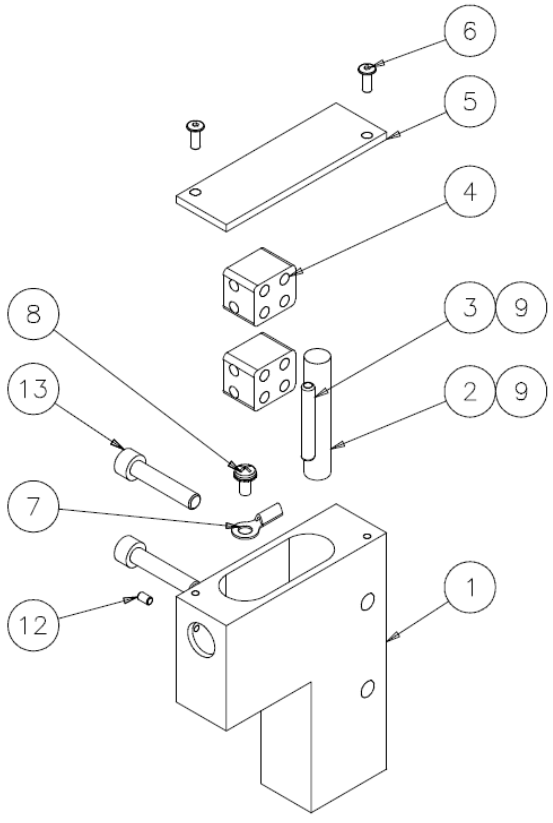
10.12 Single-Channel PUR Manifold Option, PN 114787

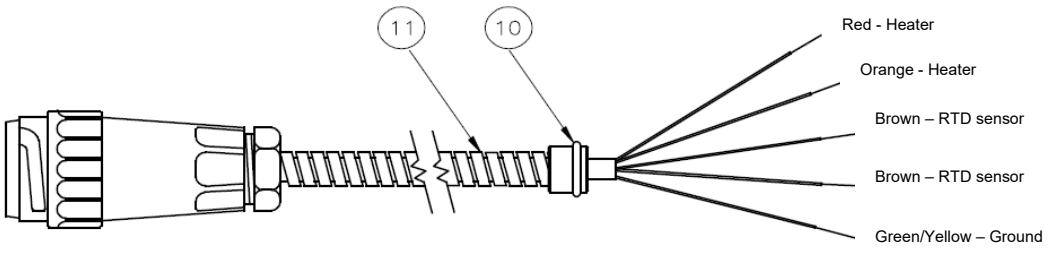
The Single-Channel PUR Manifold eliminates any adhesive dead spots in the glue path. It is designed to prevent cross-linking (curing) in single-hose PUR applications.

10.13 Purge Valve Heater, PN 115502

Item No.	Part Number	Description	Quantity
1	115501	Purge valve heater body	1
2	036A015	Heater3/8x2, 240V, 150W	1
3	N07958	RTD Sensor, PT100	1
4	107881	Terminal block, 2 pos.	2
5	115504	Cover	1
6	078A197	Screw 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.

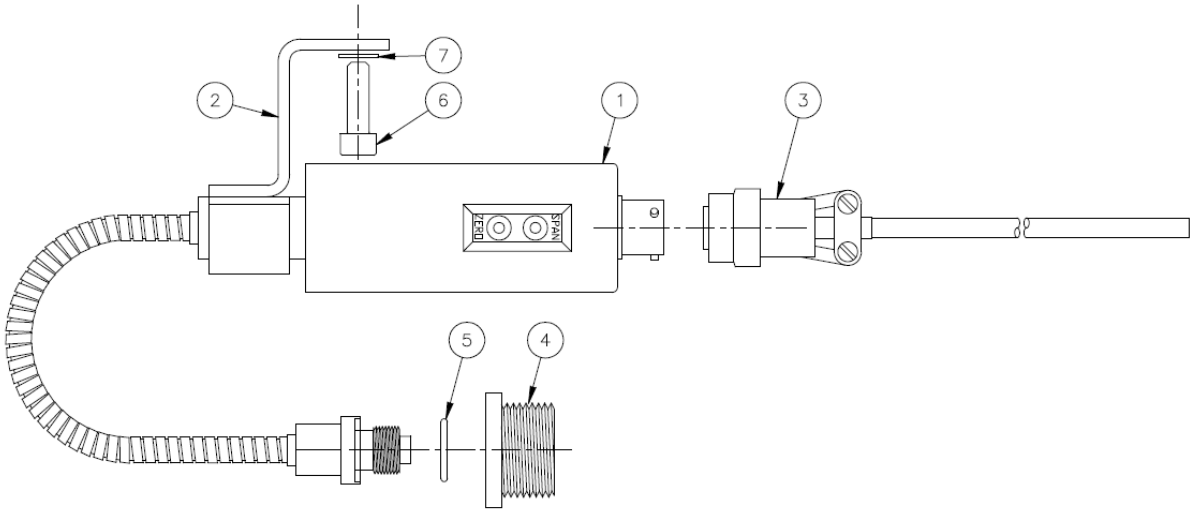




10.14 Pressure Transducer Kit, PN 114717

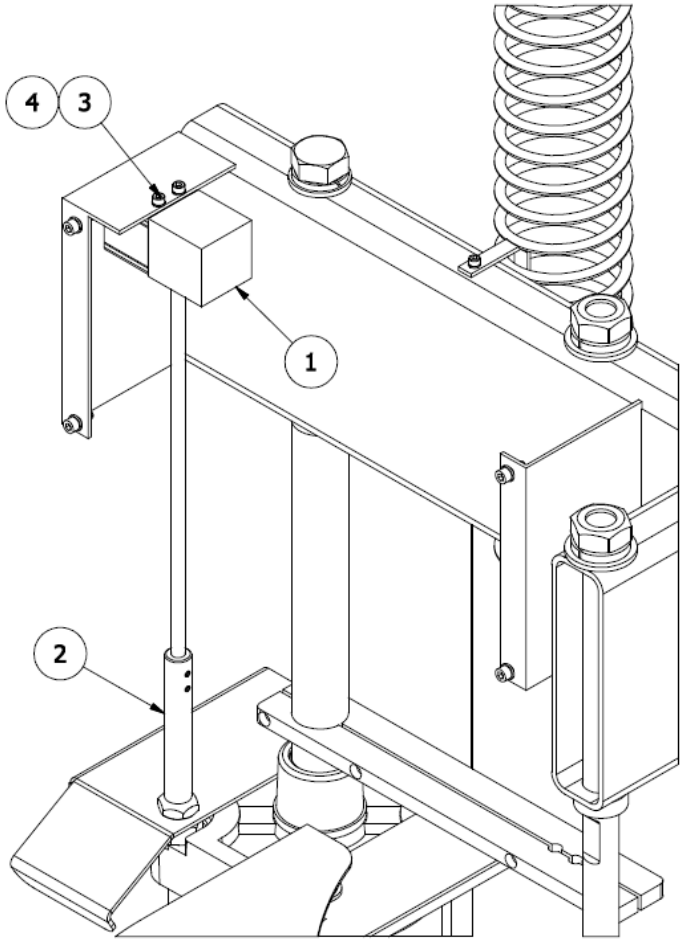
A pressure transducer is an electronic probe that allows the melted adhesive's pressure to be processed by the ASU's control system. They are used to monitor system operating pressures and their limits. A variety of transducers are available.

Item No.	Part Number	Description	Quantity
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



10.15 Cable Position Kit for transducer, PN 821469

Item No.	Part Number	Description	Quantity
1	118500	Cable Transducer, 1250mm 0-10V	1
2	116155	Mounting assembly, for transducer with cable	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	Strain relief, elongated flexible plastic, with a PG-7 thread	1

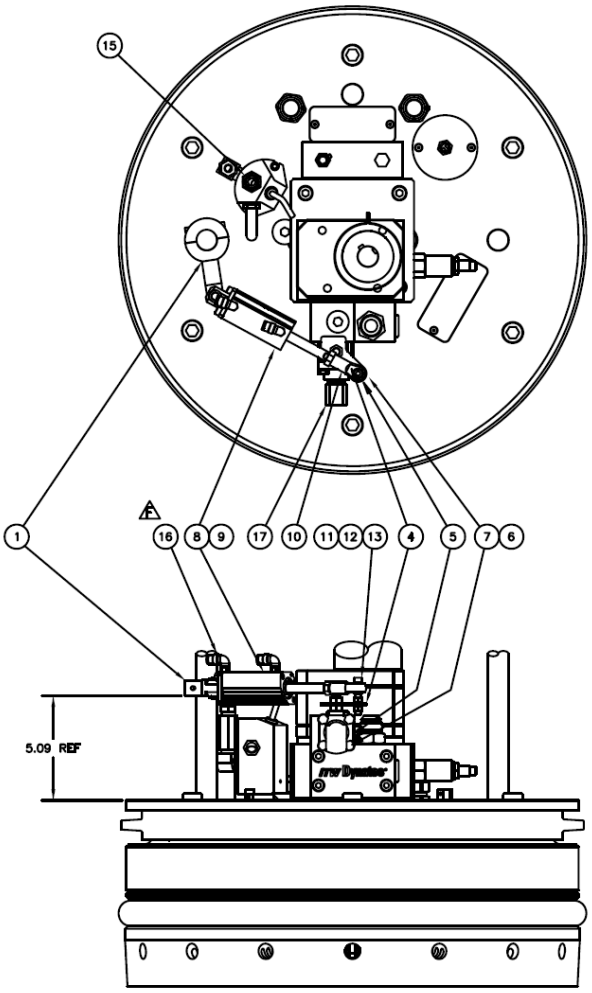


Note:
Some items are installed in junction box and are not shown.

10.16 Ball Valve Purge Kit, PN 114757

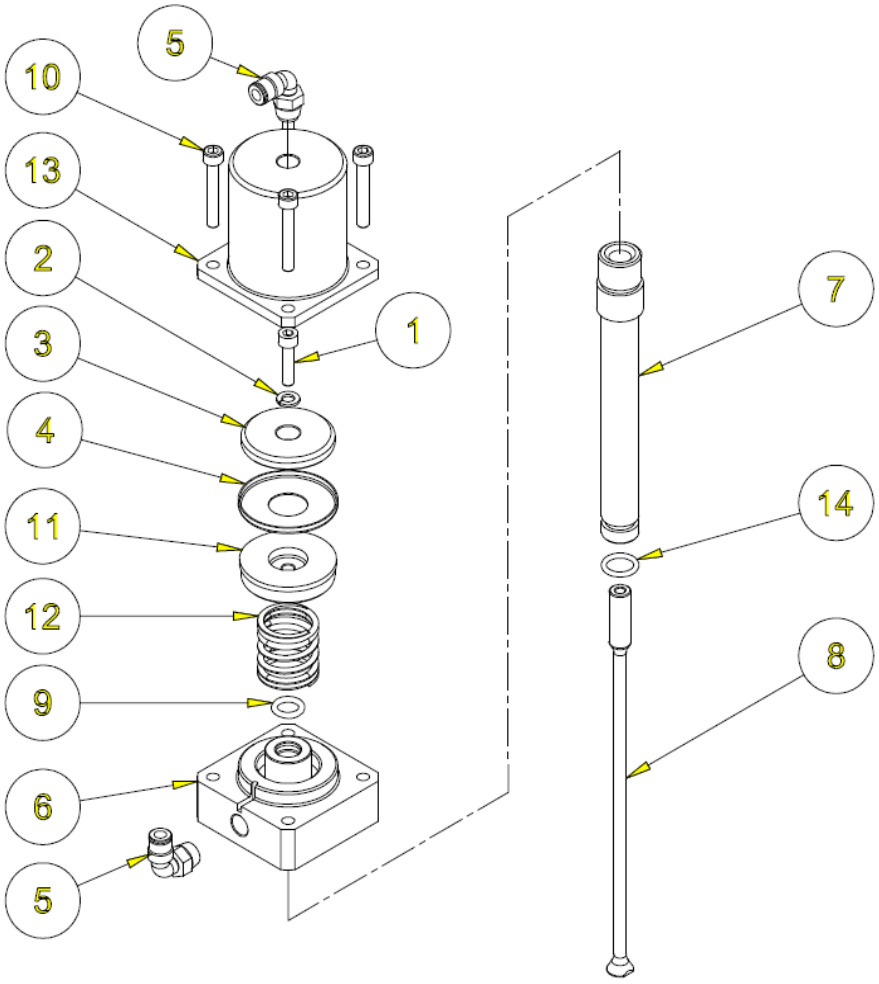
Note: This kit must be used in conjunction with hose outlet block 114752.
The kit evacuates the air trapped between the platen and the adhesive in the drum and from the inlet block of the gear pump after a drum change-out via a pushbutton on the controller. The automatic purge is more effective and more conducive to purging high viscosity or PUR materials than the manual purging method of the standard drum unloader.

Item No.	Part Number	Description	Quantity
1	114758	Ball valve purge cylinder mount	1
4	114767	Locking valve handle kit	1
5	114768	Ball valve, 3PC, SS, high temp	1
7	N00728	Screw 1/4-20x2.00	4
8	114761	Pneumatic cylinder 25x50	1
9	114762	Pneumatic cylinder sensor 24VDC M9B, 2-wire	Included in item 8
10	114763	Pneumatic cylinder rod eye	1
11	107345	Screw M8x25	1
12	106235	Washer, flat, M8	1
13	105126	Hex nut M6	1
15	107294	Plug, adapter	1
16	115438	Fitting elbow 1/4"TBX10-32 SWL	2
17	118392	Fitting, Street elbow 1/2”NPT	1



10.17 Vertical Air Inject Valve, PN 116859

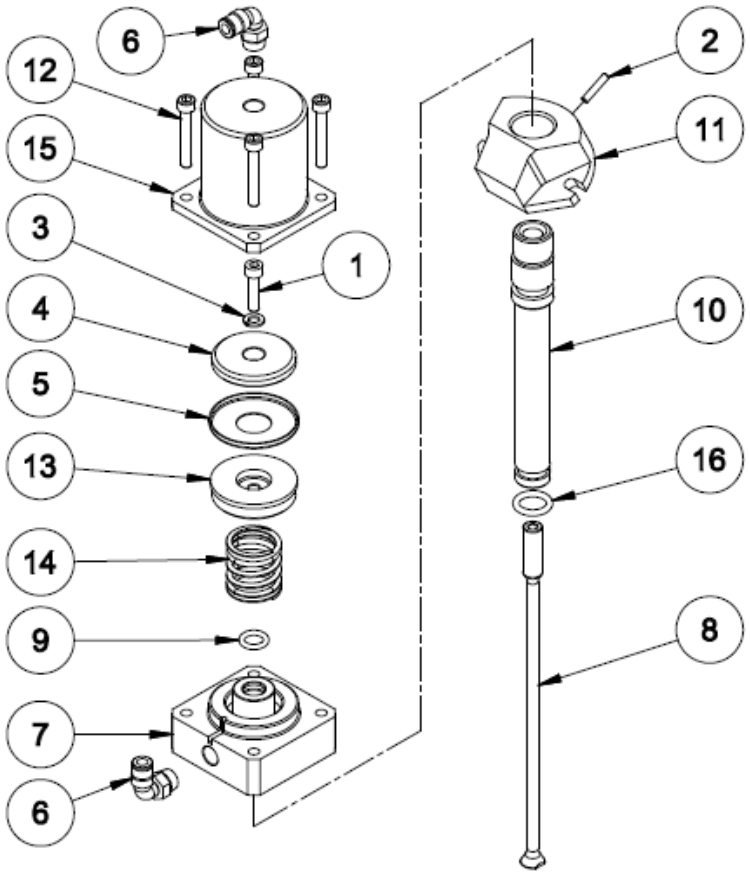
Item No.	Part Number	Description	Quantity
1	104663	Screw M6x25	1
2	111345	Washer, lock, M6	1
3	111715	Cap, piston	1
4	111716	Seal, lip, piston	1
5	114361	Fitting 90°, 1/4 T x 1/4 NPT,NPB	2
6	116858	Base	1
7	116860	Seat	1
8	116861	Stem	1
9	116873	O-ring, 11mm id x 3mm	1
10	812342	Screw M6x40	4
11	812871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



10.18 Angled Air Inject, PN 117812

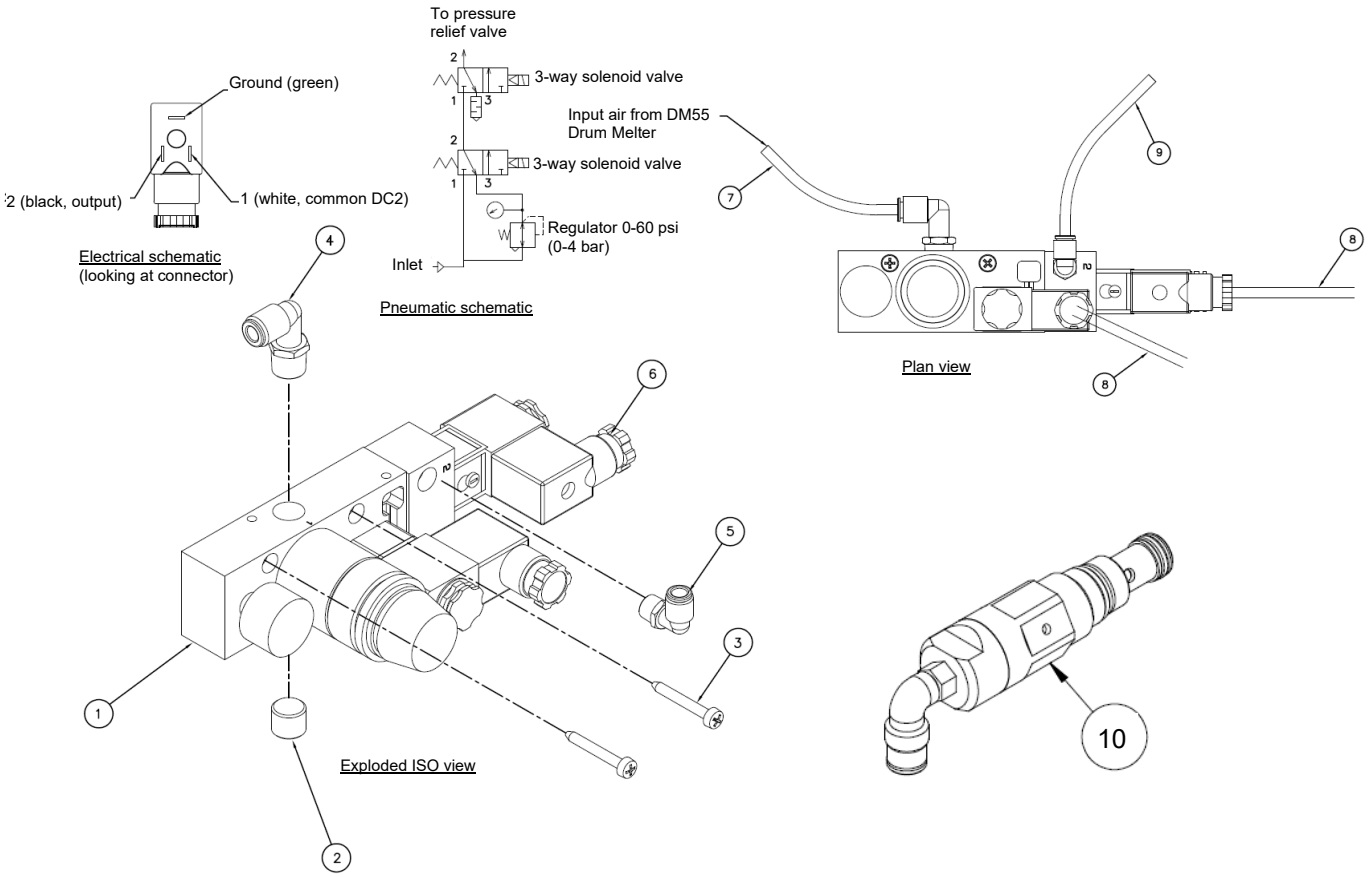
Replacement for Legacy Models.

Item No.	Part Number	Description	Quantity
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



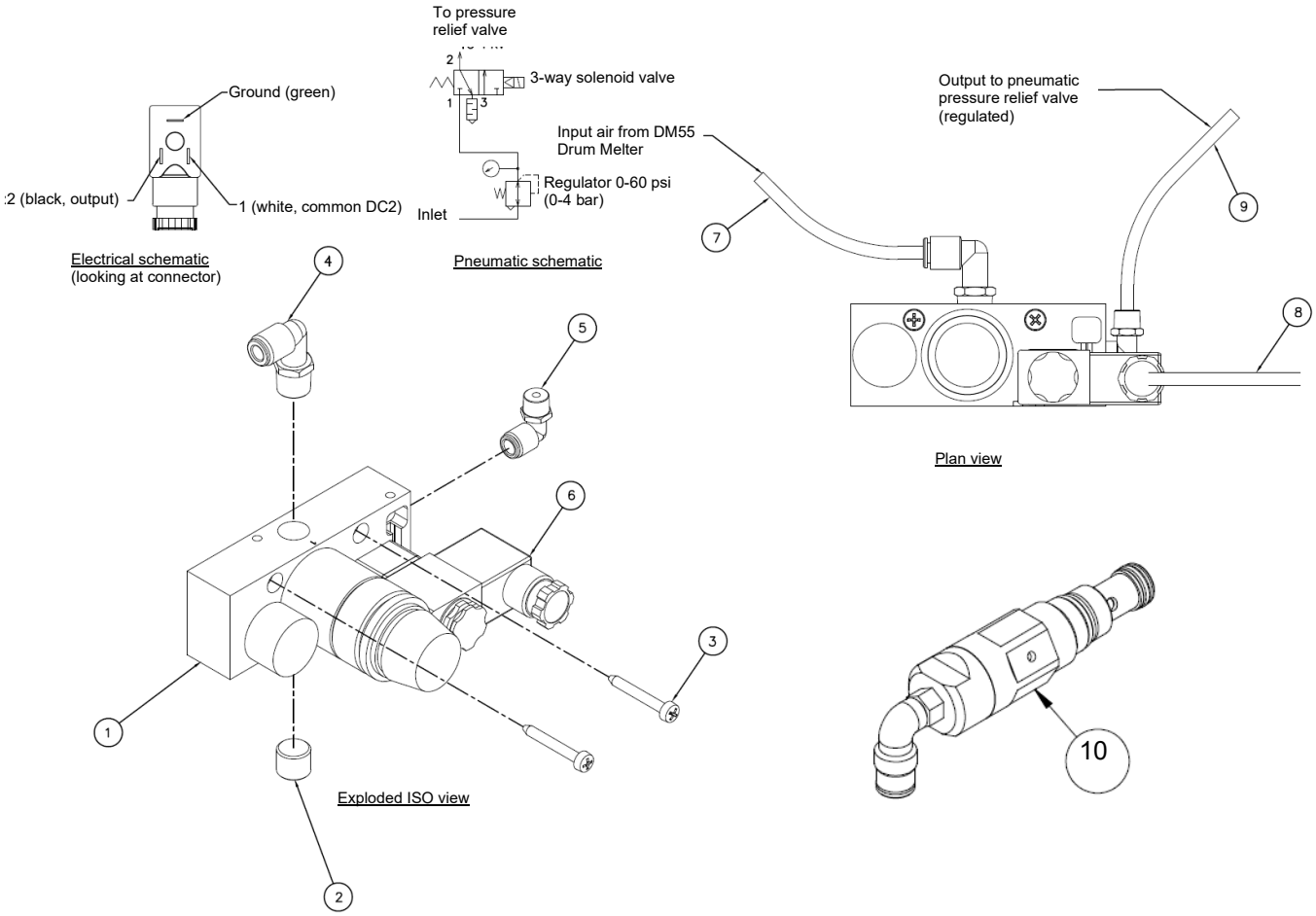
10.19 Pressure Relief Assembly, 3 Position, PN 823034

Item No.	Part Number	Description	Quantity
1	823032	Manifold, PPR 3 P	1
2	N00754	Fiiting, 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



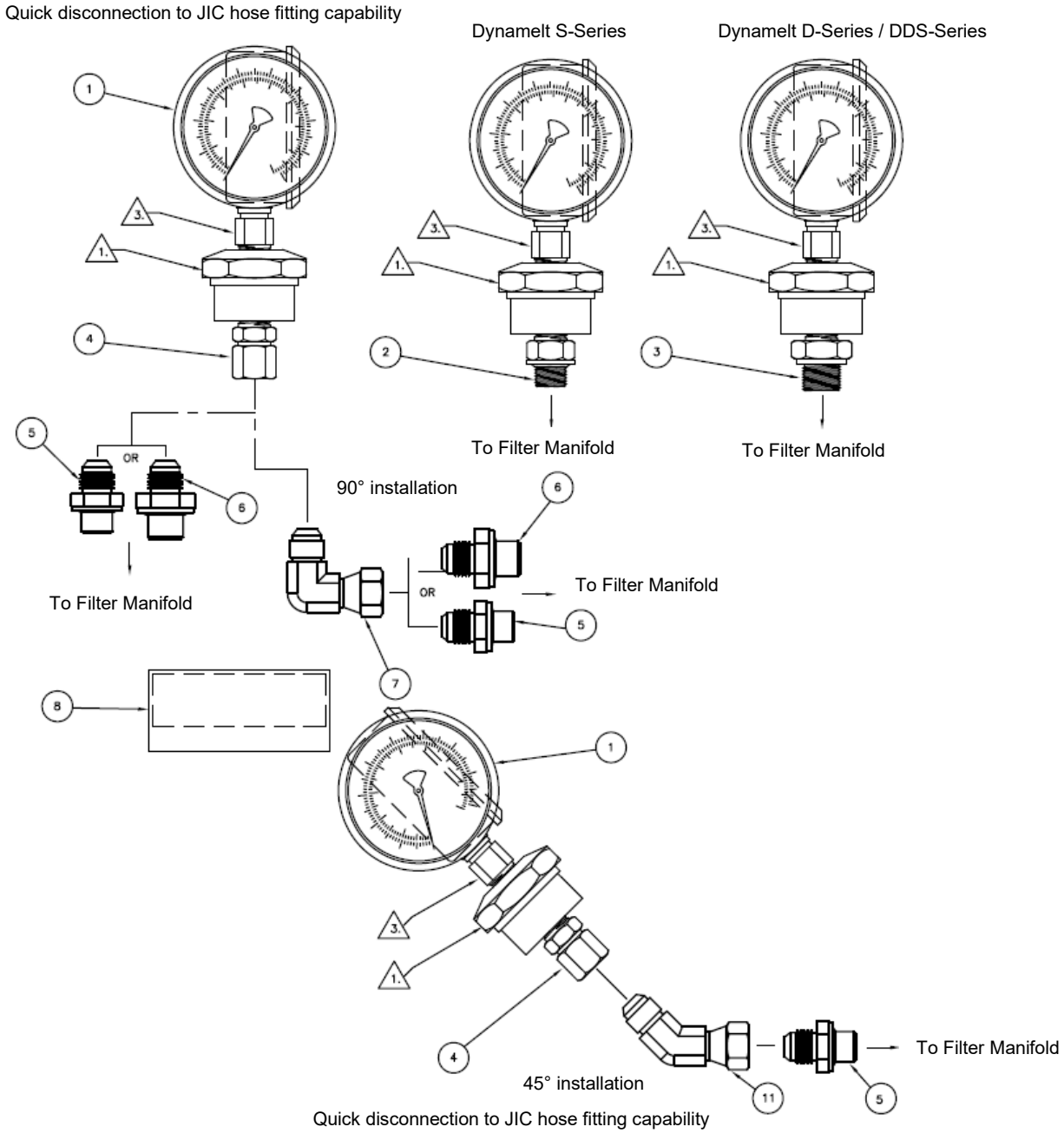
10.20 Pressure Relief Assembly, 2 Position, PN 823033

Item No.	Part Number	Description	Quantity
1	823031	Manifold, PPR 2 P	1
2	N00754	Fiiting, 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



10.21 Pressure Gauge Kit (optional), PN 101175

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



10.22 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.

Chapter 11
Recommended Spare Part Lists

11.1 Mechanical Parts

Part Number	Description	Quantity
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.*

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

Part Number	Description	Quantity
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
104207	Circuit breaker 15A 2P (240V and gear pump only)	1
816055	Circuit breaker 50A 3P (240V only)	2
823067	Circuit breaker 30A 3P (240V only)	1
811301	Circuit breaker 15A 1P (400V and gear pump 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 Gear pump version - 2
104392	Circuit breaker 30A 2P (480V only)	1

11.3 Parts for Gear Pump Models

Part Number	Description	Quantity
808680	Pump Shaft Seal (for large TSHA pumps)	2
069X064	O-ring 041 (gear pump transfer block)	1
069X270	O-ring 025	2
N01010	O-ring 021	1
114360	O-ring 337	1
104251	Heater, 585W, 240V	1
805406	Thermostat, NC, 450°F	1
116183	Connector, hose manifold	1
816341	Drive Kit, 1HP, Yaskawa	1
104207	Circuit breaker, 15A, 2-pole	1

11.4 Pneumatic Parts

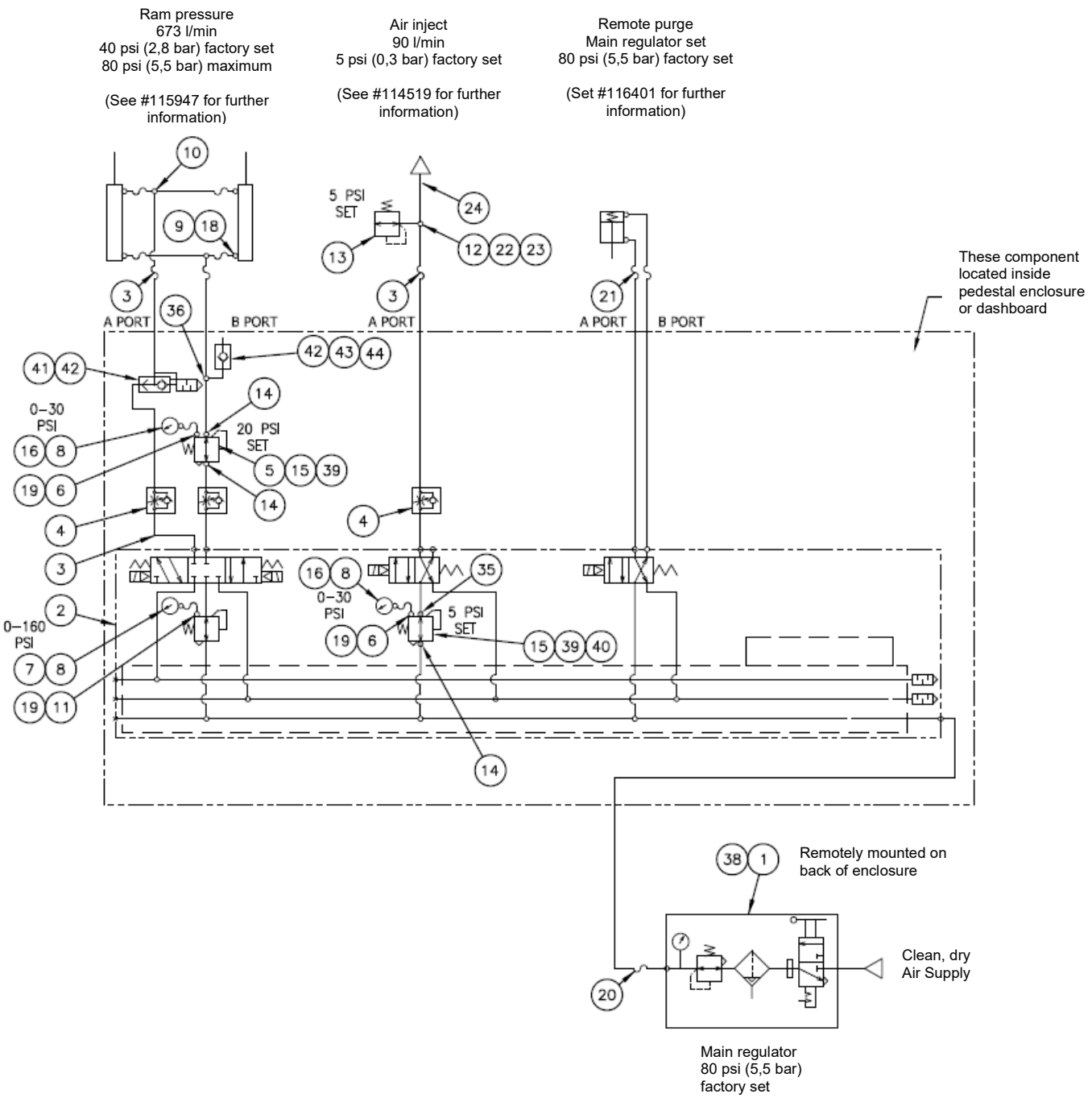
Part Number	Description	Quantity
115297	Check Valve, 3/8 NPT, Brs	1
114010	Panel Gauge, 0-160	1
114013	Panel Gauge, 0-30	1
N06425	Pressure Gauge 0-60 (Piston Pump)	1
116060	Regulator, 0.85 MPA	1
808217	Relief Valve, 0-750 PSI	1
114008	Air Prep Assembly	1
115298	Safety valve, 20 psi	1
115382	Speed Control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

11.5 Miscellaneous

Part Number	Description	Quantity
108700	TFE Lubricant	1
L15653	Kit, Flushing Fluid, 1 gallon	1
107324	Anti-seize compound, temperature resistant	1
001V062	Heat-transfer compound	1

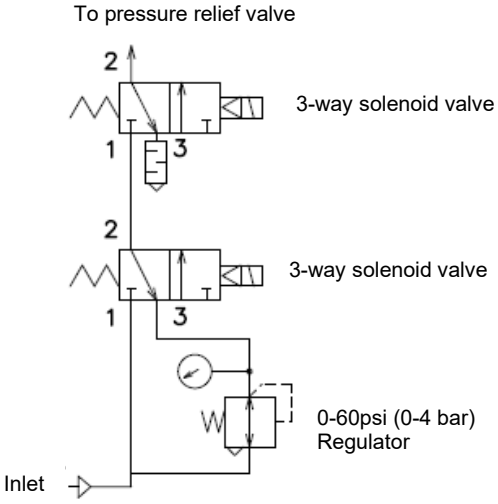
Chapter 12
Pneumatic Schematics

12.1 Pneumatic Schematic, DM55 GP, 5 PSI (0.3 bar) Air Inject, PN 823078

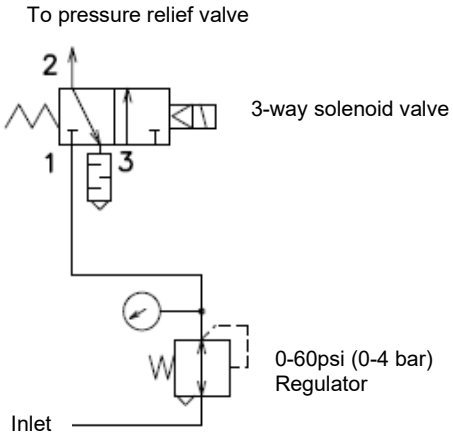


For BOM, see Ch. 9:
Pneumatic Assembly, DM55 GP, 5 PSI (0.3 bar) Air Inject, PN 823063, or optional Pneumatic Assembly, DM55 GP, 5 PSI (0.3 bar) Vertical Air Inject, PN 823441.

12.2 Pressure Relief Assembly, 3 Position (optional), PN 823034



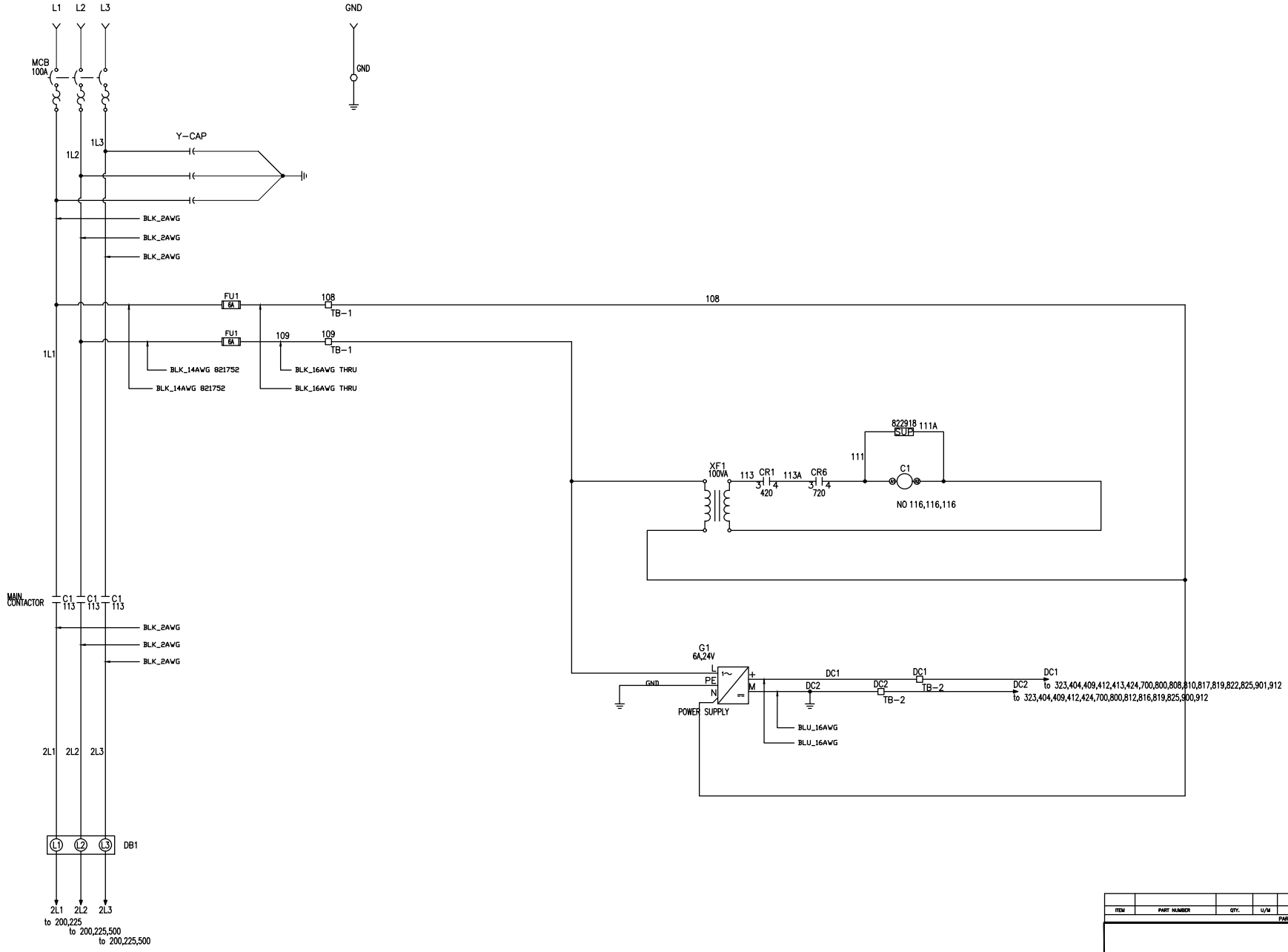
12.3 Pressure Relief Assembly, 2 Position (optional), PN 823033



Chapter 13
Electrical Schematics

13.1 Schematics, DM55 240V, PN 823172AC

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
17050	N	CONVERTED TO ACADE	07.31.17	BFQ	
CCN688	P	REMOVED SPD1B WIRING STUB	09.11.17	BFQ	
CCN702	Q	CORRECTIONS PER ASSEMBLY	09.22.17	BFQ	
CCN816	R	RMV FU2 FRM LAYOUT,NOT IN SCHM	01.25.18	BFQ	
CCN926	T	CLARIFIED PLATEN WIRING	05.03.18	BFQ	
CCN980	U	ADDED CR3 NC CONTACT TO 416	06.01.18	BFQ	
CCN1073	V	CRRCTD PLTN HGHT SNSR WIRING	08.27.18	BFQ	
CCN1286	W	ADDED COMM PORT GRAPHIC,PG9	12.04.18	BFQ	
CCN1287	X	CORRECTED COMM PORT,PG9	12.06.18	BFQ	
ECN478	Y	ADDED COM2 AND BALL VALVE	08.02.19	JJB	
ECN1063	Z	ADDED HANDGUN OPTIONS PAGE	09.17.20	JJB	
ECN1194	AA	CHANGED 1492 BREAKERS TO 1489	01.27.21	JJB	
		ADD TERMINAL DESIGNATIONS 406 AND 407A			
ECN1309	AB	ADD TERMINAL 420D	05.17.21	JJB	
ECN2164	AC	ADD TANDEM OPTION	02.07.25	BG	



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AC

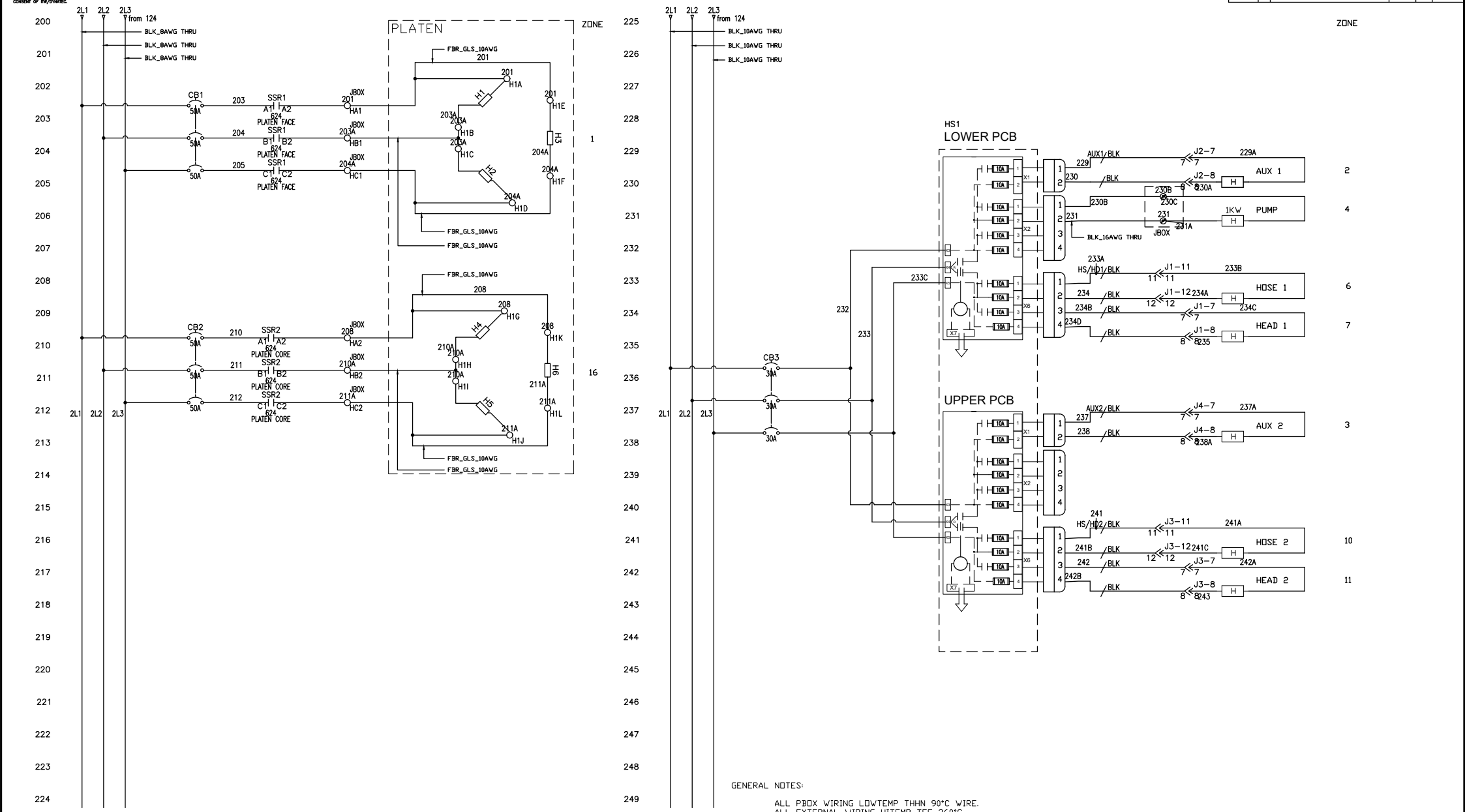
ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,240V
POWER DISTRIBUTION

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
03.23.15	1	12	823172

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



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

COMPUTER DESCRIPTION(25 CHARACTERS) | NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

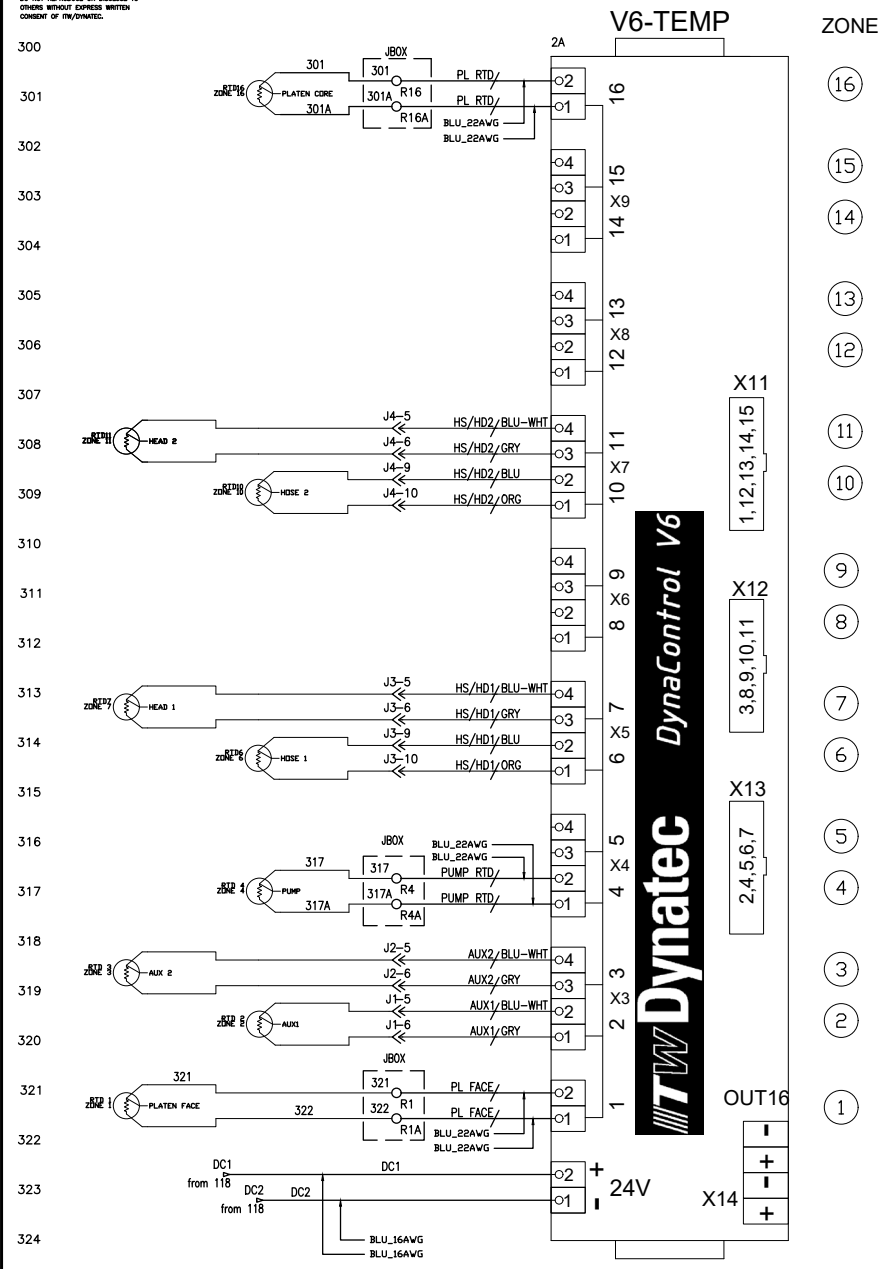
U/M | STATUS | SIZE | SOURCE | REV. AC

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,240V
HEATER CIRCUITS

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
03.23.15	2	13	823172



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SOURCE

SIZE

REV. AC

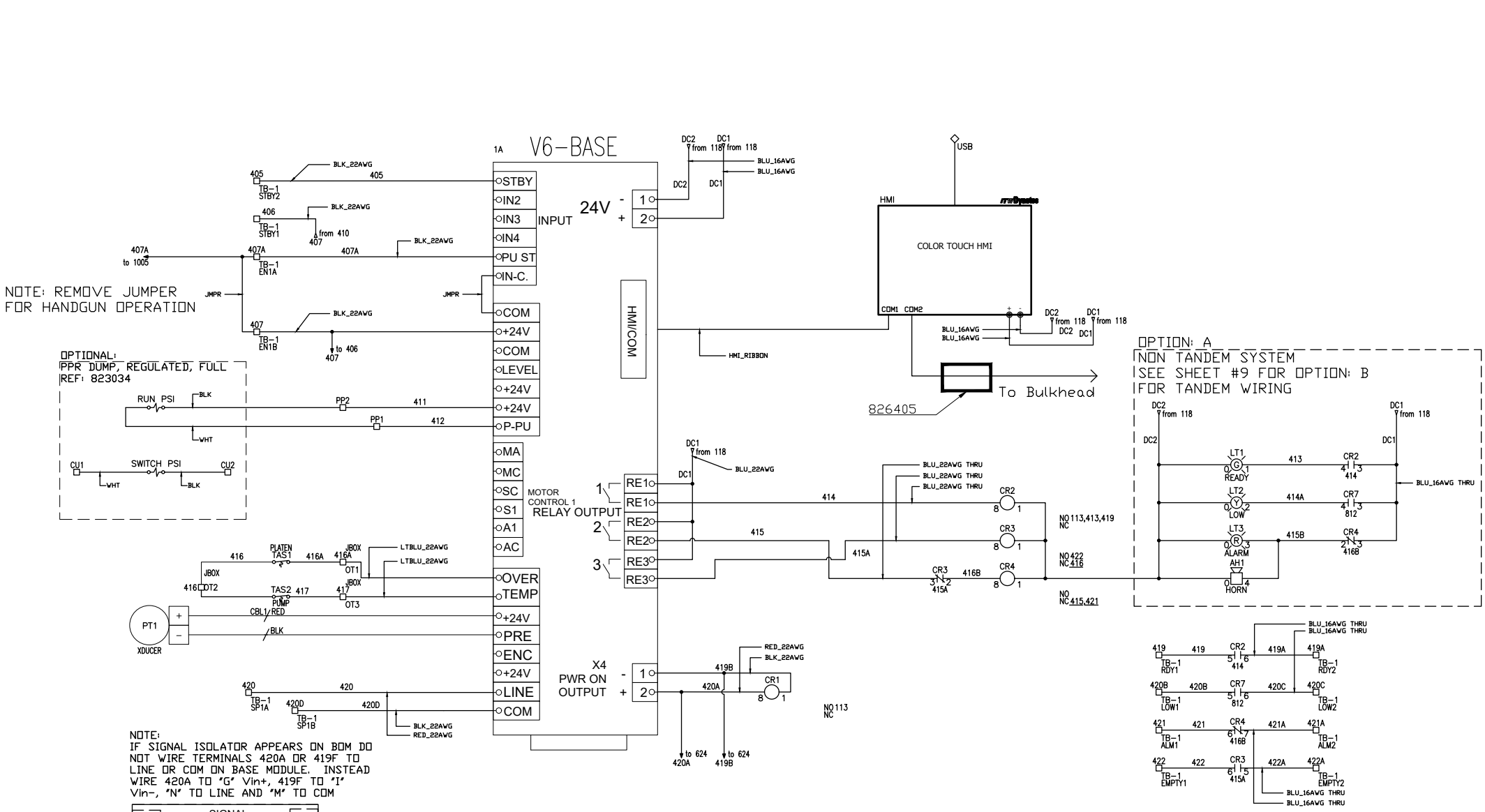
ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,240V
RTD INPUTS

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
03.23.15	3	13	823172

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				

TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN		
U/M	TITLE: DM55,V6,240V BASE MODULE		
STATUS	SIZE	SCALE:	DRAWN BY: RFQ
SOURCE	REV. AC	DATE: 03.23.15	SHEET 4 OF SHEETS 13
DO NOT SCALE DRAWING		CHECKED BY:	APP'D BY:
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	DRAWING NO. 823172	
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800			

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

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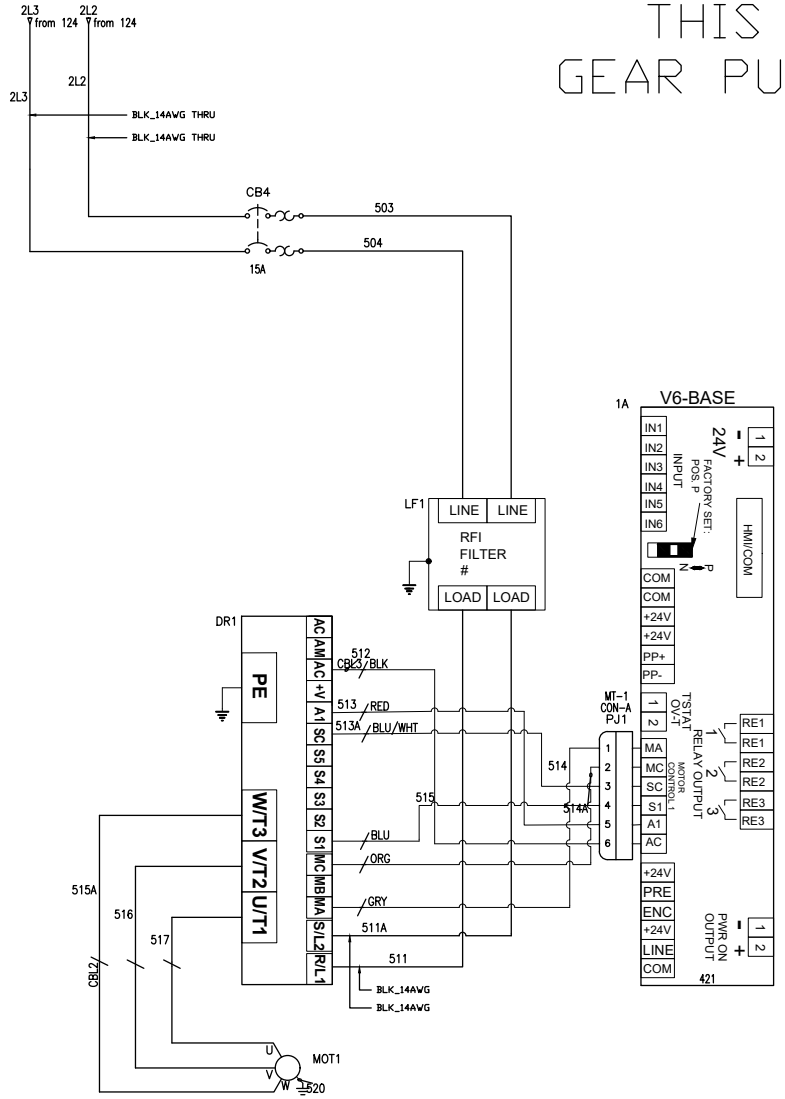


ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS) | NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M | STATUS | SIZE | SOURCE | REV. AC

ITW Dynatec
HENDERSONVILLE, TN

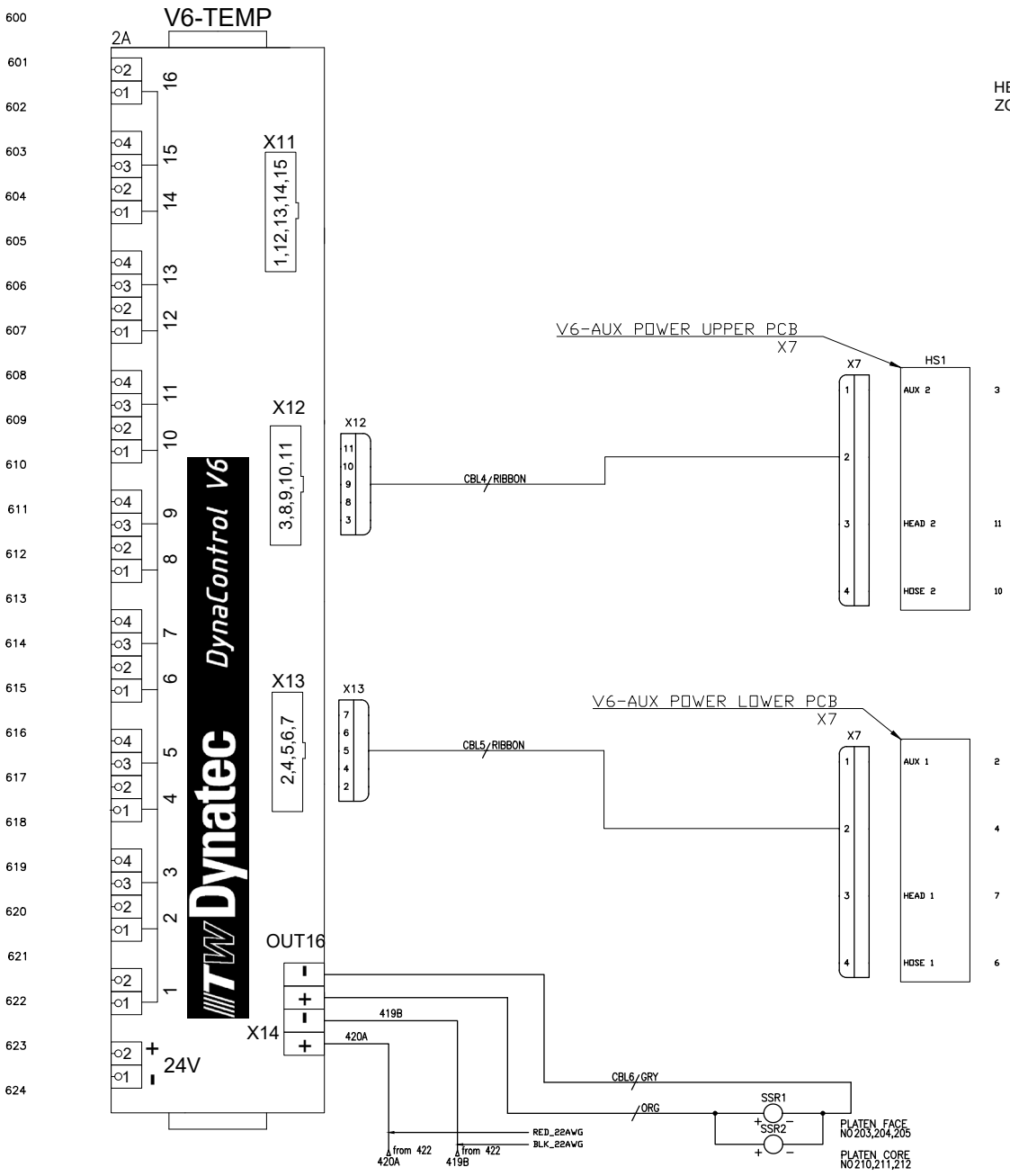
TITLE: DM55, V6, 240V
DRIVE INPUT

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

DATE: 03.23.15 | SHEET 5 OF SHEETS 13 | DRAWING NO. 823172

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

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

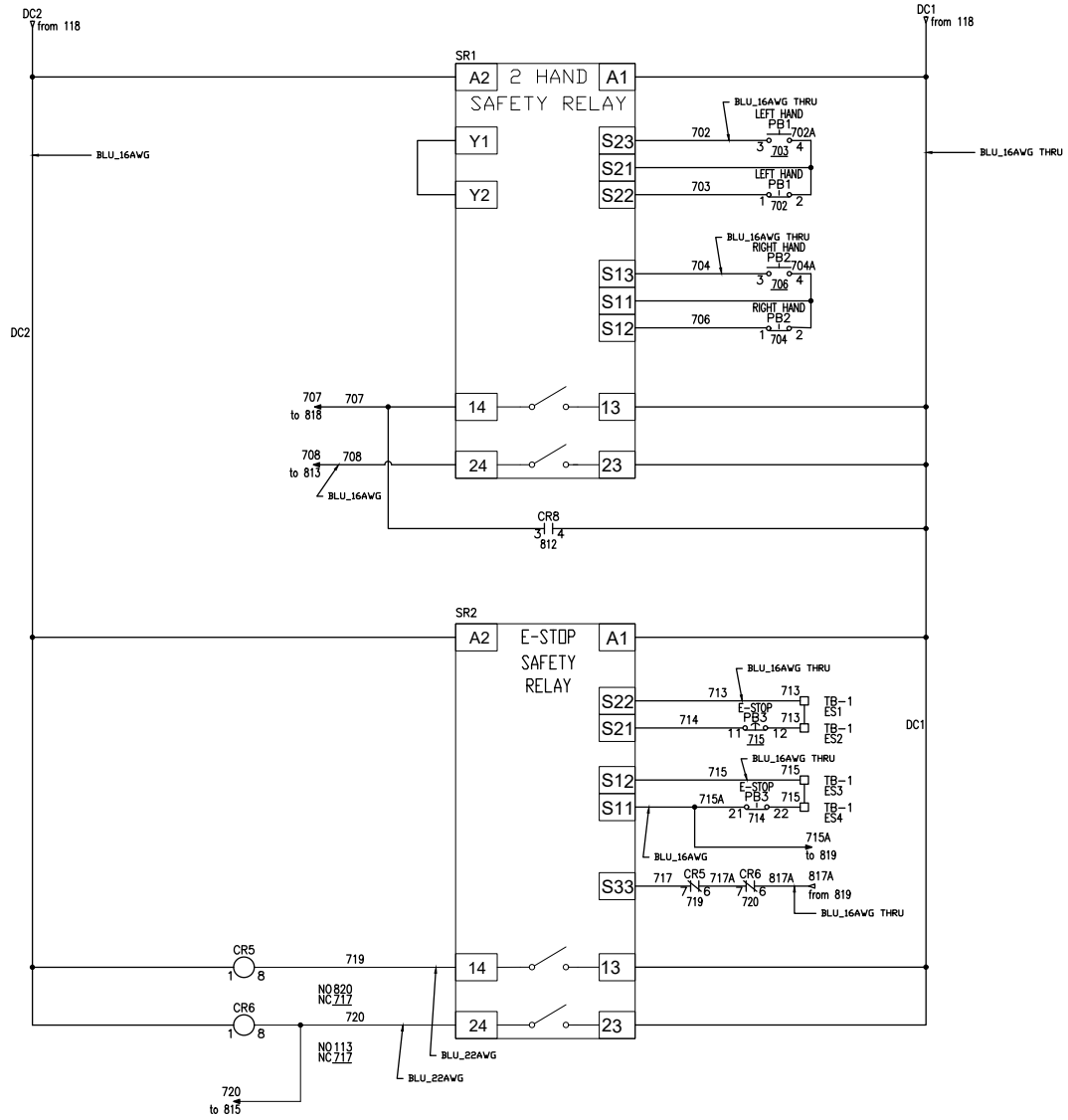


ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

		TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN
		U/M	TITLE: DM55,V6,240V SSR OUTPUTS
DO NOT SCALE DRAWING		STATUS	SIZE
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	SCALE:	DRAWN BY: BFQ / CHECKED BY: / APP'D BY:
	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	SOURCE	REV. AC
		DATE: 03.23.15	SHEET 6 OF SHEETS 13
			DRAWING NO. 823172

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AC

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,240V
SAFETY RELAYS

SCALE:

DRAWN BY: BFQ

CHECKED BY:

APP'D BY:

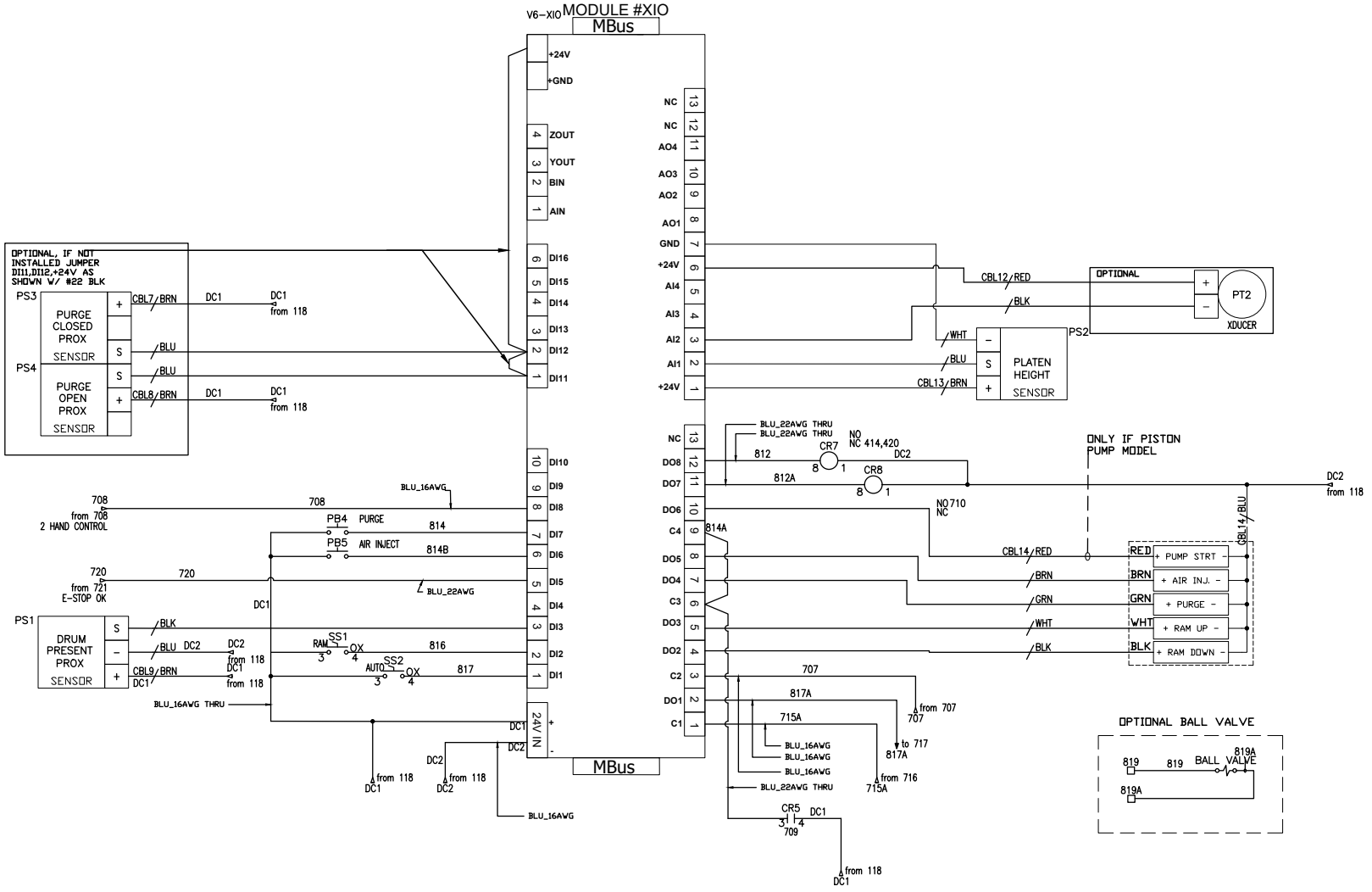
DATE: 03.23.15

SHEET 7 OF SHEETS 13

DRAWING NO. 823172

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

XIO MODULE
117648



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AC

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,240V
XIO MODULE

SCALE:

DRAWN BY: BFQ

CHECKED BY:

APP'D BY:

DATE: 03.23.15

SHEET 8 OF SHEETS 13

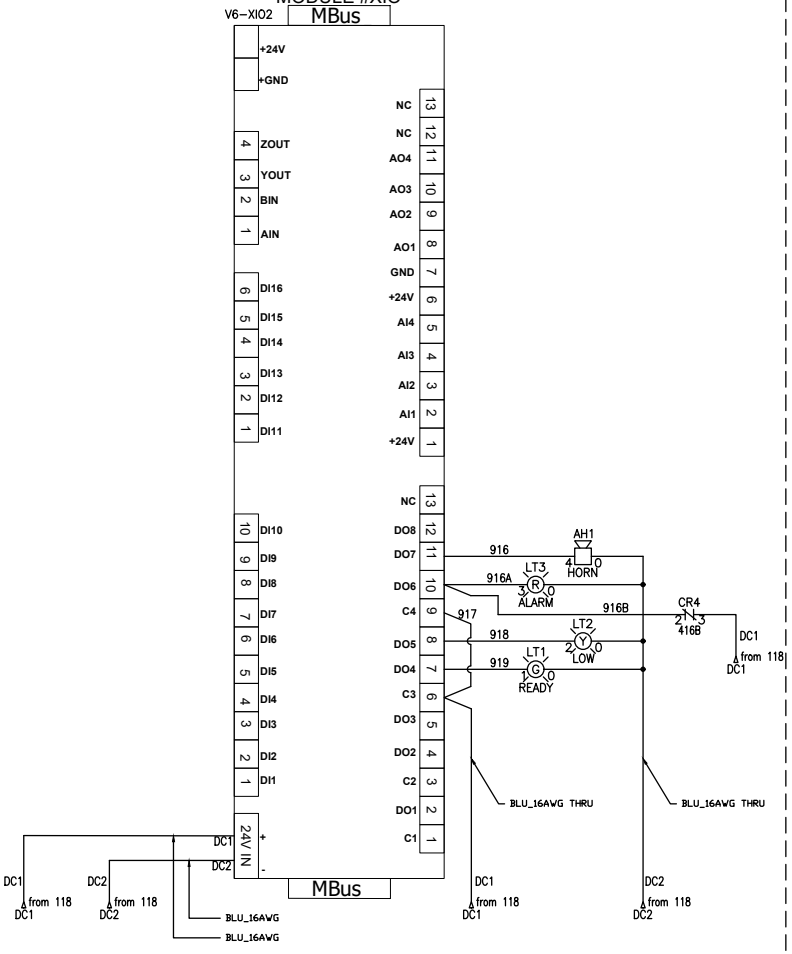
DRAWING NO. 823172

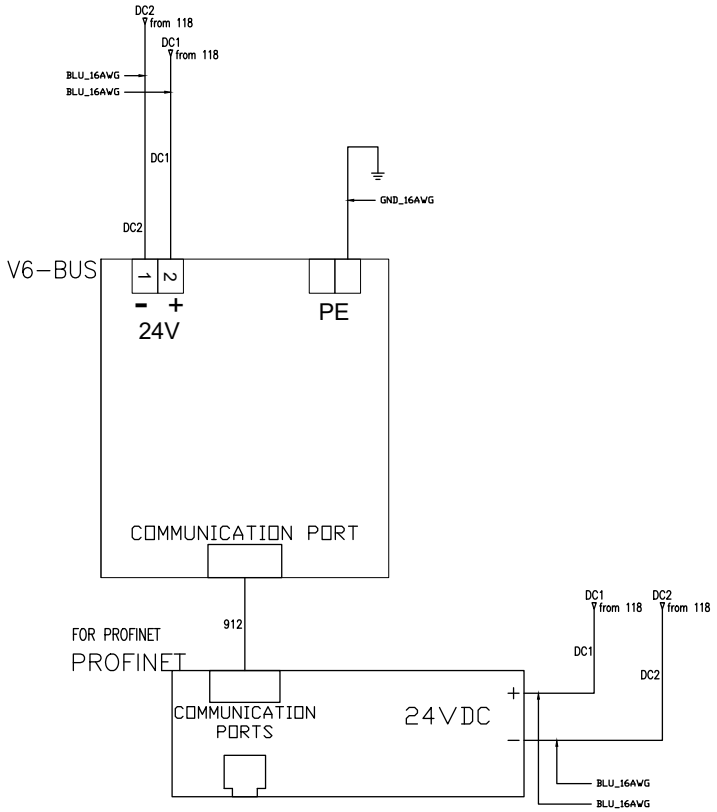
REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

OPTION: B
TANDEM SYSTEM
SEE SHEET #4 FOR OPTION: A
FOR NON TANDEM WIRING

XIO MODULE 2
117648

MODULE #XIO





ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AC

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,240V OPTIONS

SCALE:

DRAWN BY: BFQ

CHECKED BY:

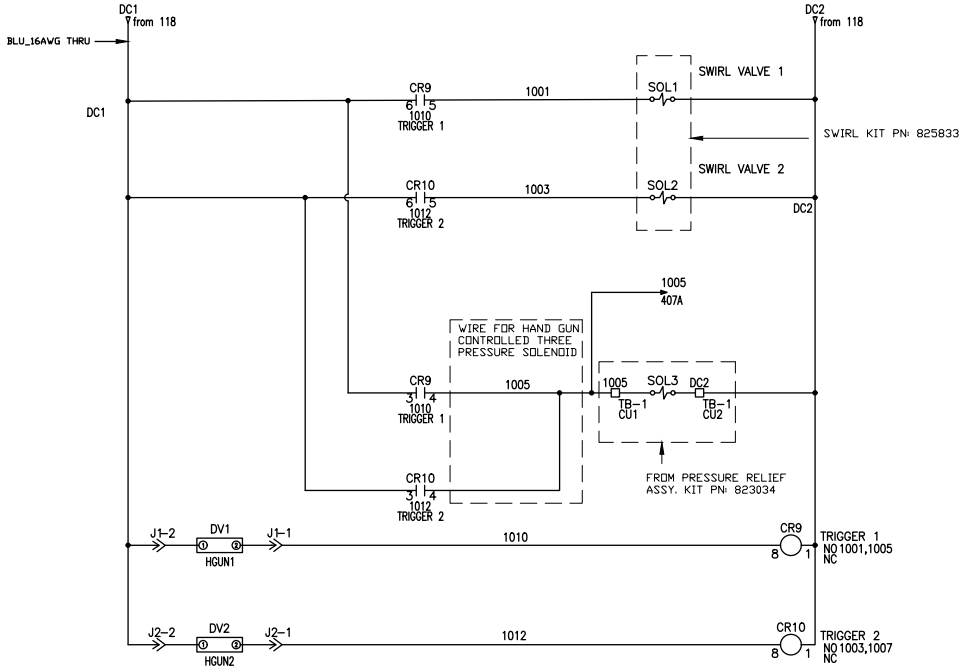
APP'D BY:

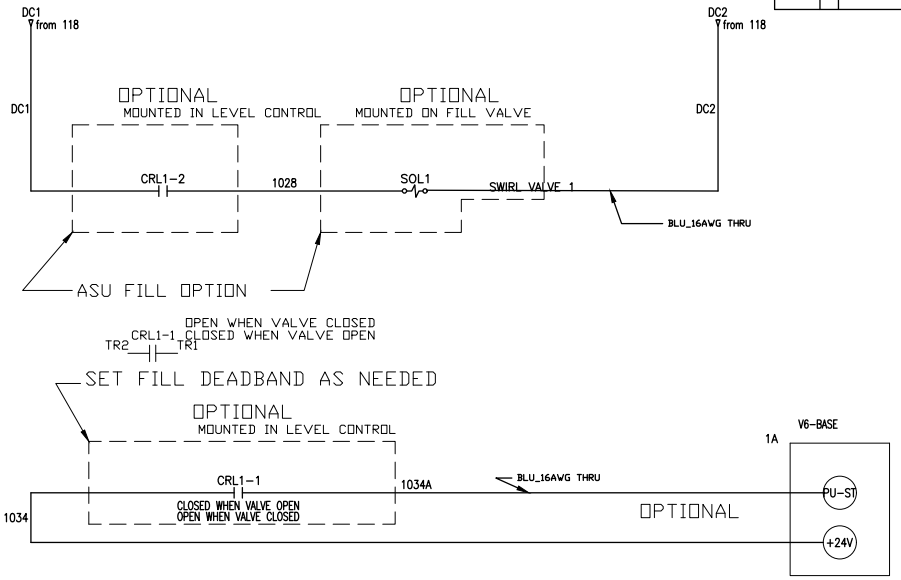
DATE: 03.23.15

SHEET 9 OF SHEETS 13

DRAWING NO. 823172

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED





ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AC

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55, V6, 240V
HANDGUN OPTIONS

SCALE:

DRAWN BY: BFQ

CHECKED BY:

APP'D BY:

DATE: 03.23.15

SHEET 10 OF SHEETS 12

DRAWING NO. 823172

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
405	STBY2	406	STBY1
407	EN1B	407A	EN1A
419A	RDY2	419	RDY1
419C	SP1B	420	SP1A
420D	SP1A		SPARE
420C	LOW2	420B	LOW1
421A	ALM2	421	ALM1
422A	EMPTY2	422	EMPTY1
713	ES2	713	ES1
715	ES4	715	ES3
PP2	PP2	PP1	PP1
CU2	CU2	CU1	CU1

TB-2

LOWER TERMINAL		UPPER TERMINAL	
WIRE	DESC	WIRE	DESC
ALL TERMINALS			
DC2	0VDC	DC1	+24VDC

INSIDE LEFT SIDE

HMI

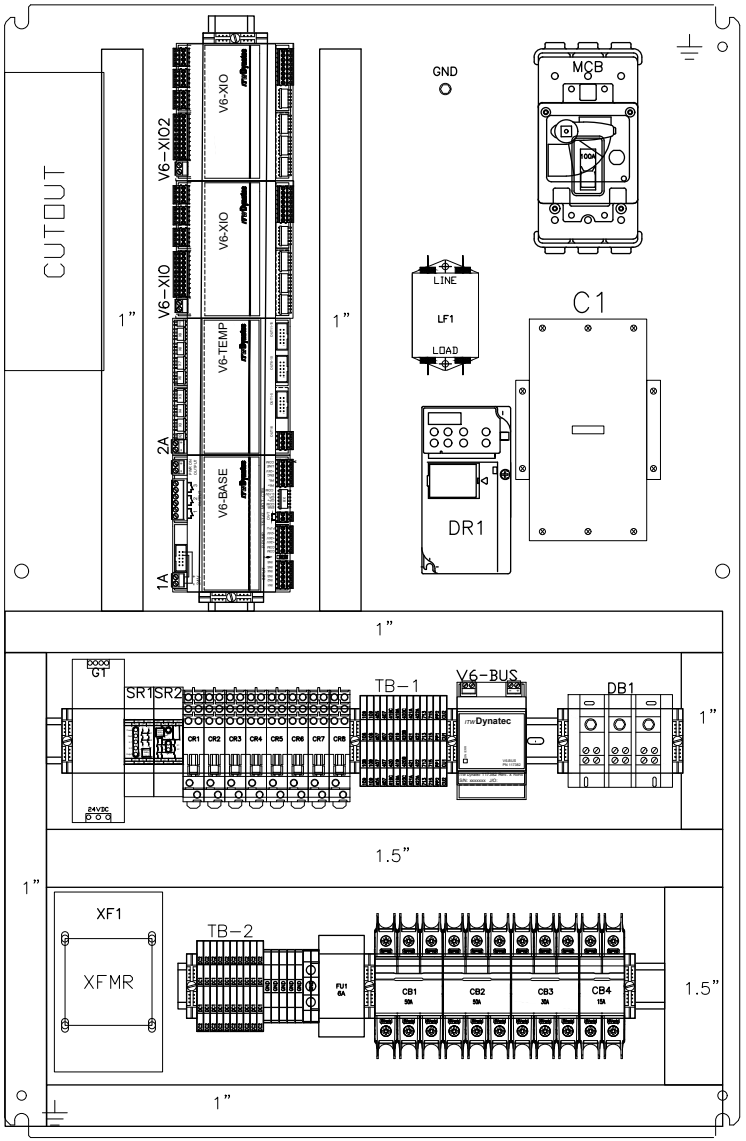
SS2 PB3

SS1 PB4

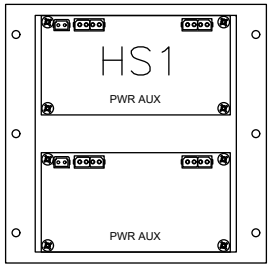
CR9 CR10

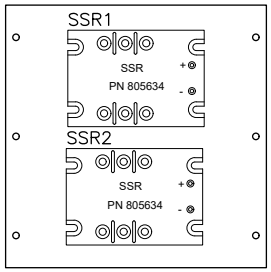
DASHBOARD PB5

PB1 PB2



INSIDE RIGHT SIDE





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-CR10	821247	CONTROL RELAY	
CR1-CR10	821249	CONTROL RELAY BASE	
DB-1	821749	FINGER SAFE DB,175A	
DR1	815223	VFD,1HP	GEAR PUMP ONLY
FU1	818596	DUAL 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	821936	MAIN CIRCUIT BREAKER	100A
MCB	821941	IP20 FOR MCB	
PB1,2,4,5	823178	GREEN 22MM,NO,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 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	
V6-BUS	118125	V6 BUS MODULE	
V6-XIO	117648	V6 XIO MODULE	
XF1	823402	1ϕ ISO TRANSFORMER	
XF1	823403	IP20 FOR XF1	

PARTS LIST

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M | STATUS | SIZE | SOURCE | REV. AC

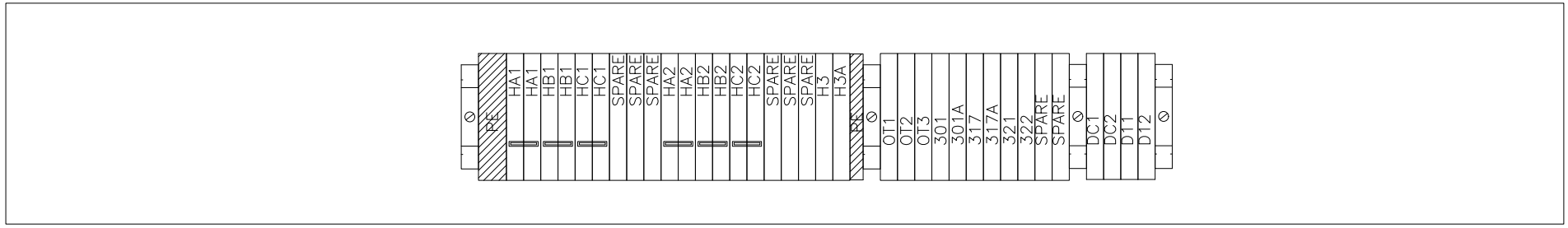
ITW Dynatec
HENDERSONVILLE, TN

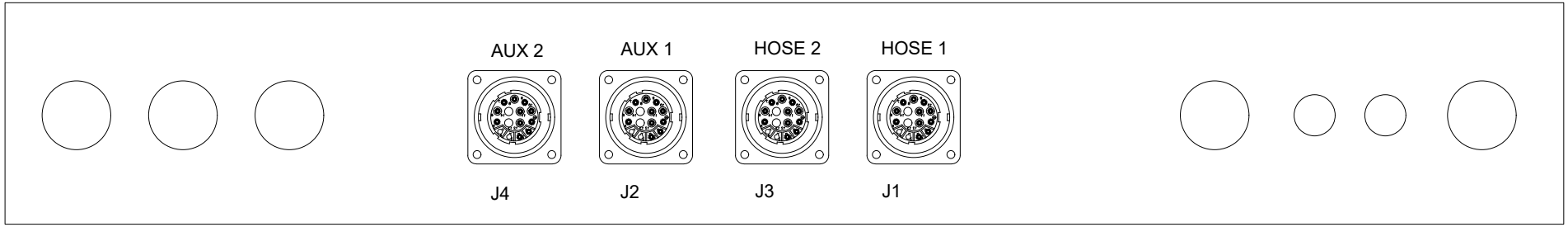
TITLE: DM55,V6,240V
LAYOUT

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

DATE: 03.23.15 | SHEET 11 OF SHEETS 12 | DRAWING NO. 823172

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED





PLATEN RESISTANCE AT TERMINALS:
HA1-HB1 6.4 OHMS
HA1-HC1 6.4 OHMS
HB1-HC1 6.4 OHMS
HA2-HB2 6.4 OHMS
HA2-HC2 6.4 OHMS
HB2-HC2 6.4 OHMS

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS) | NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M | STATUS | SIZE | SOURCE | REV. AC

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,240V
J BOX TERMINALS

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
03.23.15	12	13	823172

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

DM55 240V										
	CR1	CR2	CR3	CR4	CR5	CR6	CR7	CR8	CR9	CR10
1	419B	DC2	DC2	DC2	DC2	DC2	DC2	DC2	DC2	DC2
2			416B	415B						
3	113	DC1	415	DC1	814A	113A	DC1	707	DC1	DC1
4	113A	413			DC1	111	414A	DC1	1005	1005
5		419	422A				420B		1001	1003
6		419A	422	421	717A	817A	420C		DC1	DC1
7				421A	717	717A				
8	420A	414	415A	416B	719	720	812	812A	1010	1012

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AC

ITW Dynatec
HENDERSONVILLE, TN

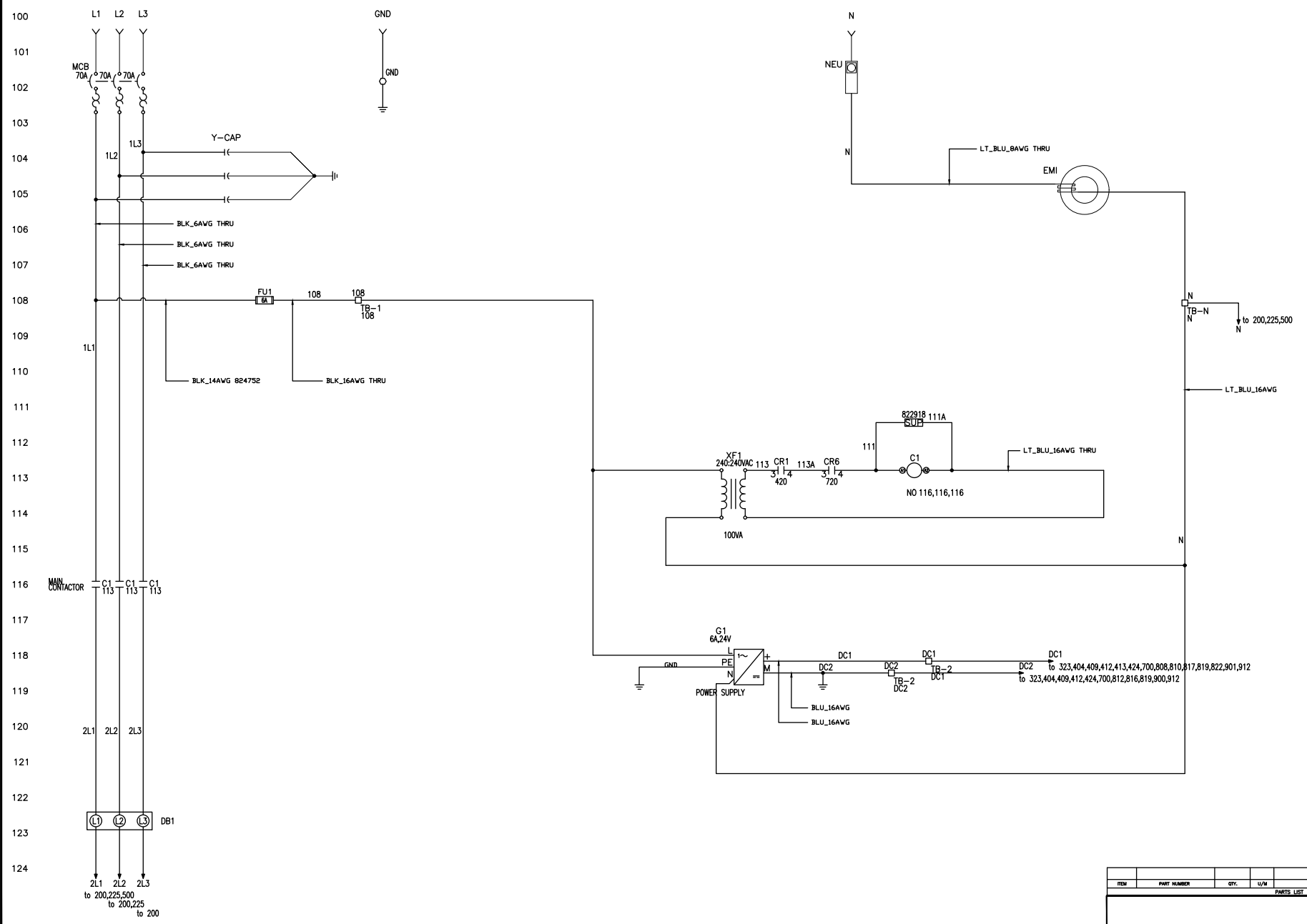
TITLE: DM55,V6,240V
RELAY TABLE

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
03.23.15	13	13	823172

13.2 Schematics, DM55 400V, PN 823173AB

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
CCN490	L	UPDATED TO AUDTOCAD 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	03.23.17	BFQ	
		1.5HP DRIVE			
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	CRRCTD 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	
ECN478	X	ADDED COM2 AND BALL VALVE	08.02.19	JJB	
ECN1009	Y	ADDED ADDITIONAL XDUCERS	07.22.20	JJB	
ECN1194	Z	ADDED TERMINAL DESIGNATIONS 406 AND 407A	01.28.21	JJB	
ECN1239	AA	ADD VOLTAGE TO XF1	03.11.21	JJB	
ECN2164	AB	ADD TANDEM OPTION	02.07.25	BG	



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AB

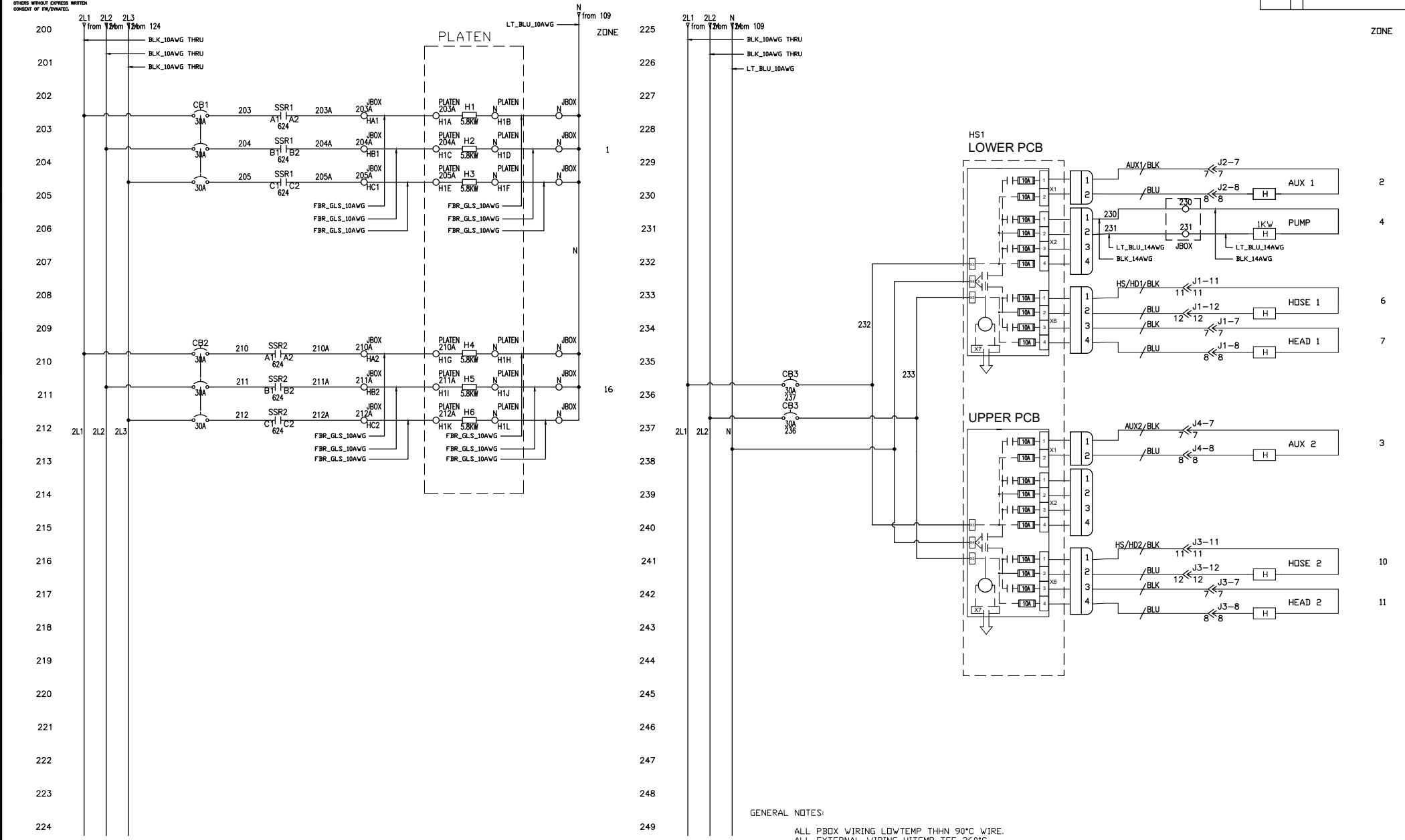
ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,400V
POWER DISTRIBUTION

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
03.23.15	1	13	823173

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



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

COMPUTER DESCRIPTION(25 CHARACTERS) | NEXT ASSY. | FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800

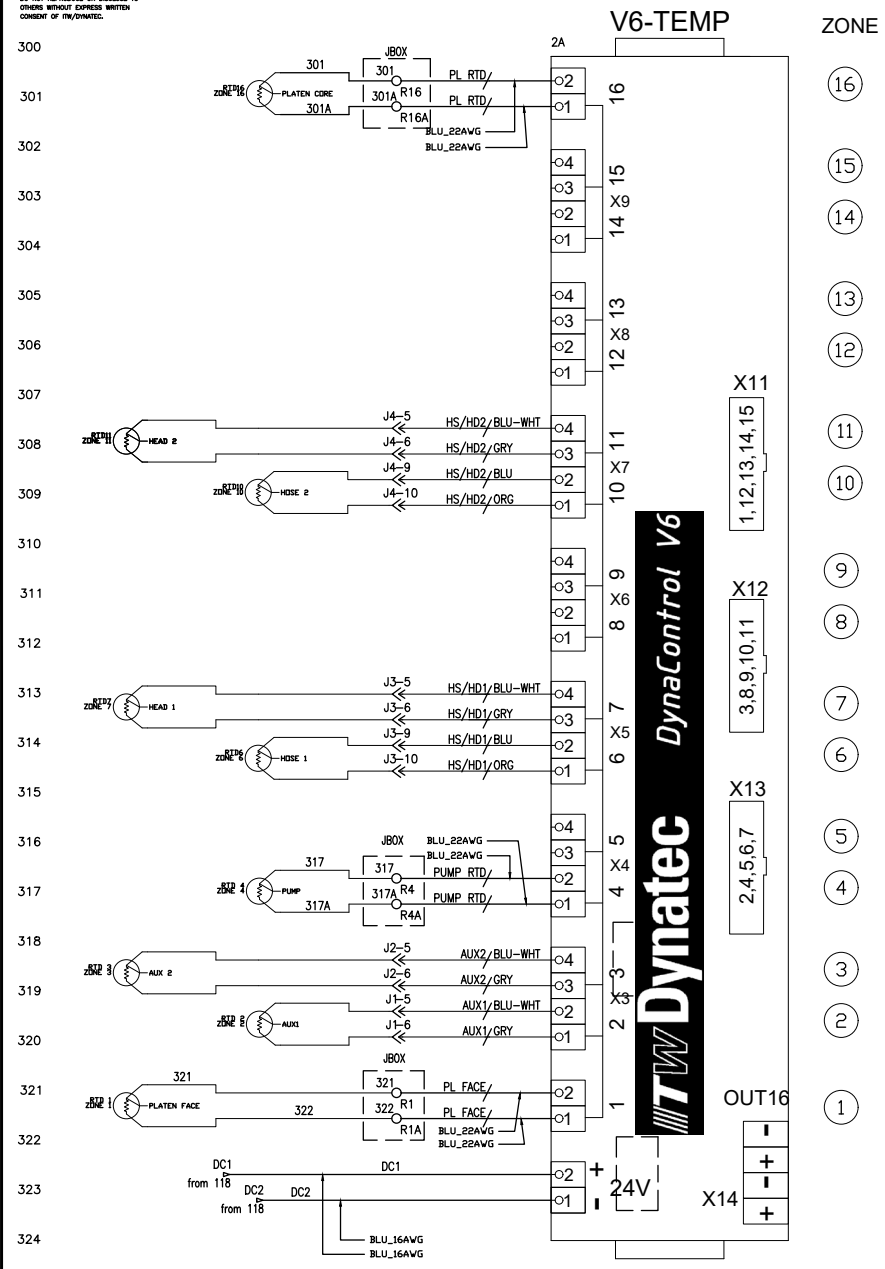
TOLERANCES (UNLESS OTHERWISE SPECIFIED)
U/M | STATUS | SIZE
SOURCE | REV. AB

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,400V HEATER CIRCUITS

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

DATE: 03.23.15 | SHEET 2 OF SHEETS 13 | DRAWING NO. 823173

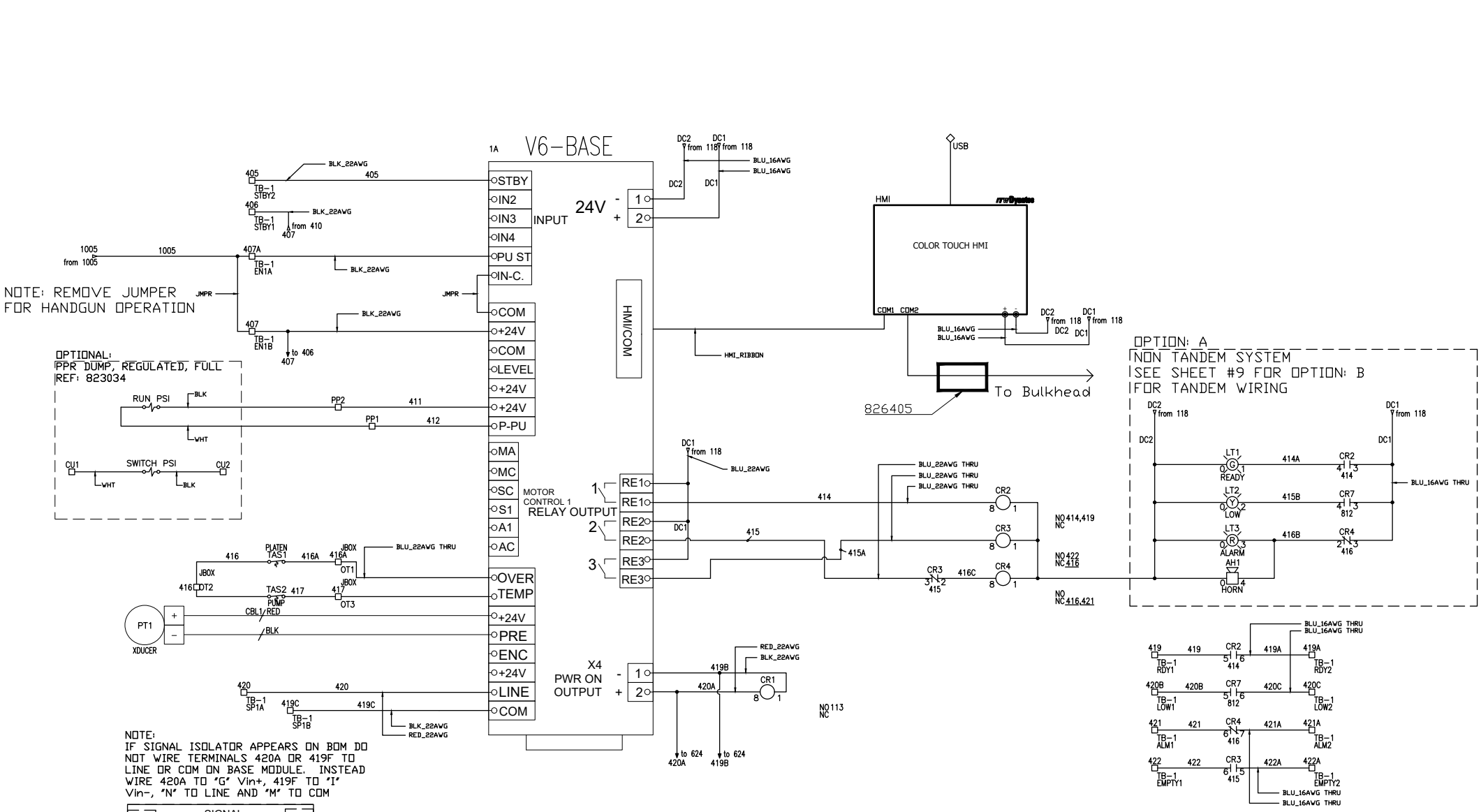


REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				

TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN		
U/M	TITLE: DM55,V6,400V RTD INPUTS		
DO NOT SCALE DRAWING	STATUS	SIZE	
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	SCALE:	DRAWN BY: EFQ / CHECKED BY: / APP'D BY:
	SOURCE	REV. AB	DATE: 03.23.15 / SHEET 3 OF SHEETS 13 / DRAWING NO. 823173
	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800		

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				

TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN		
U/M	TITLE: DM55,V6,400V BASE MODULE		
STATUS	SIZE		
DO NOT SCALE DRAWING	SCALE:	DRAWN BY: EFQ	CHECKED BY:
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	DATE: 03.23.15	SHEET 4 OF SHEETS 13
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	SOURCE	REV. AB	DRAWING NO. 823173

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

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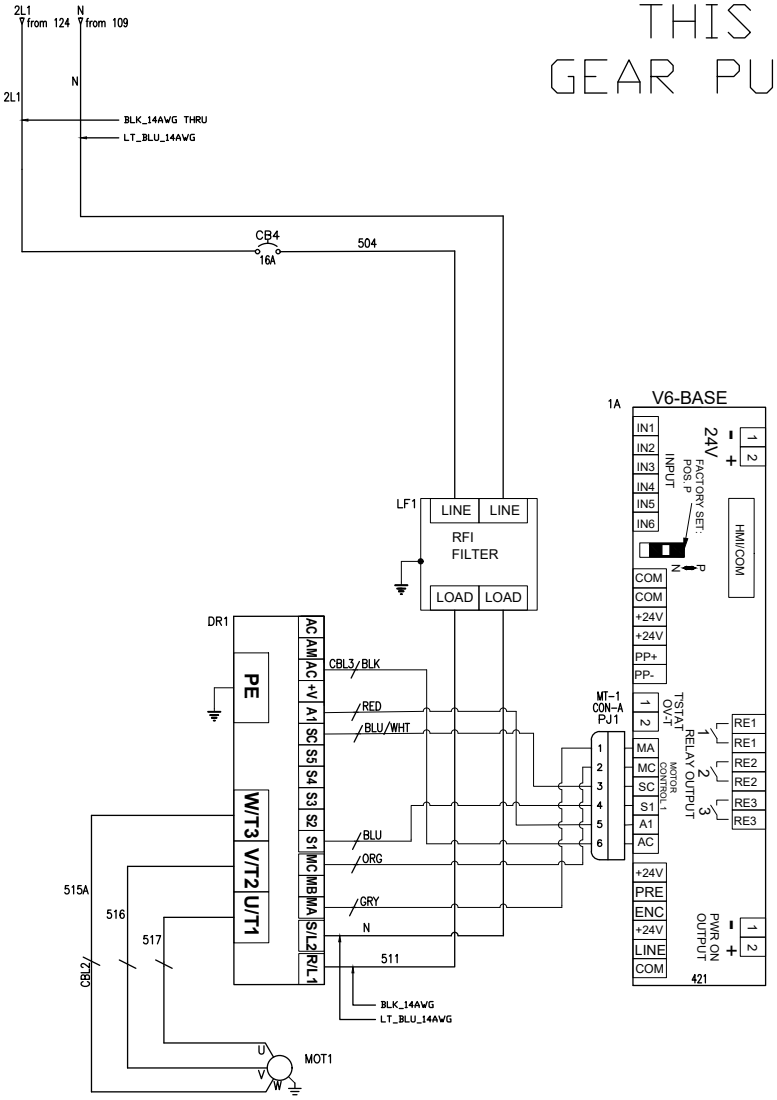


ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AB

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55, V6, 400V
DRIVE INPUT

SCALE:

DRAWN BY: BFQ

CHECKED BY:

APP'D BY:

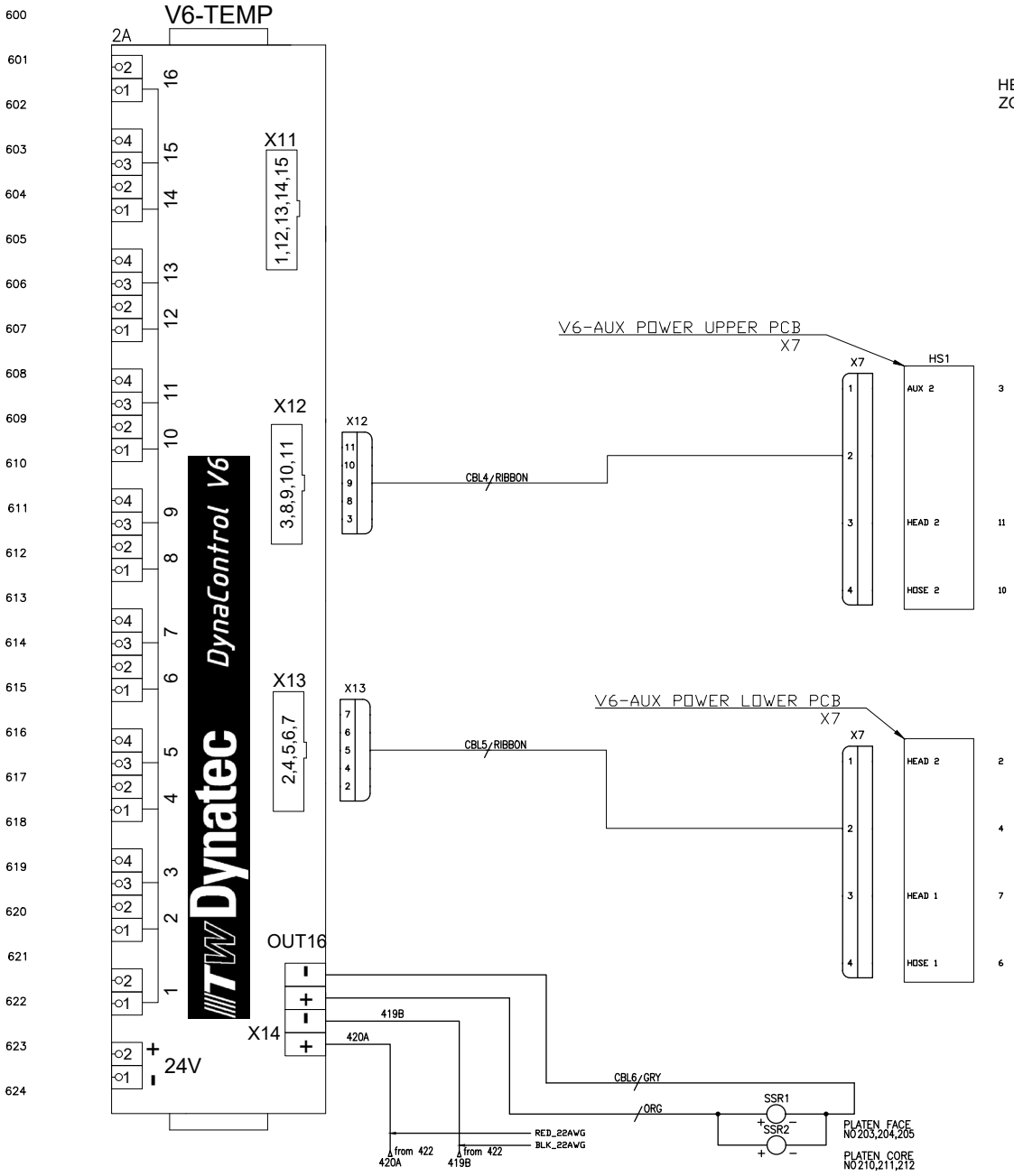
DATE: 03.23.15

SHEET 5 OF SHEETS 13

DRAWING NO. 823173

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

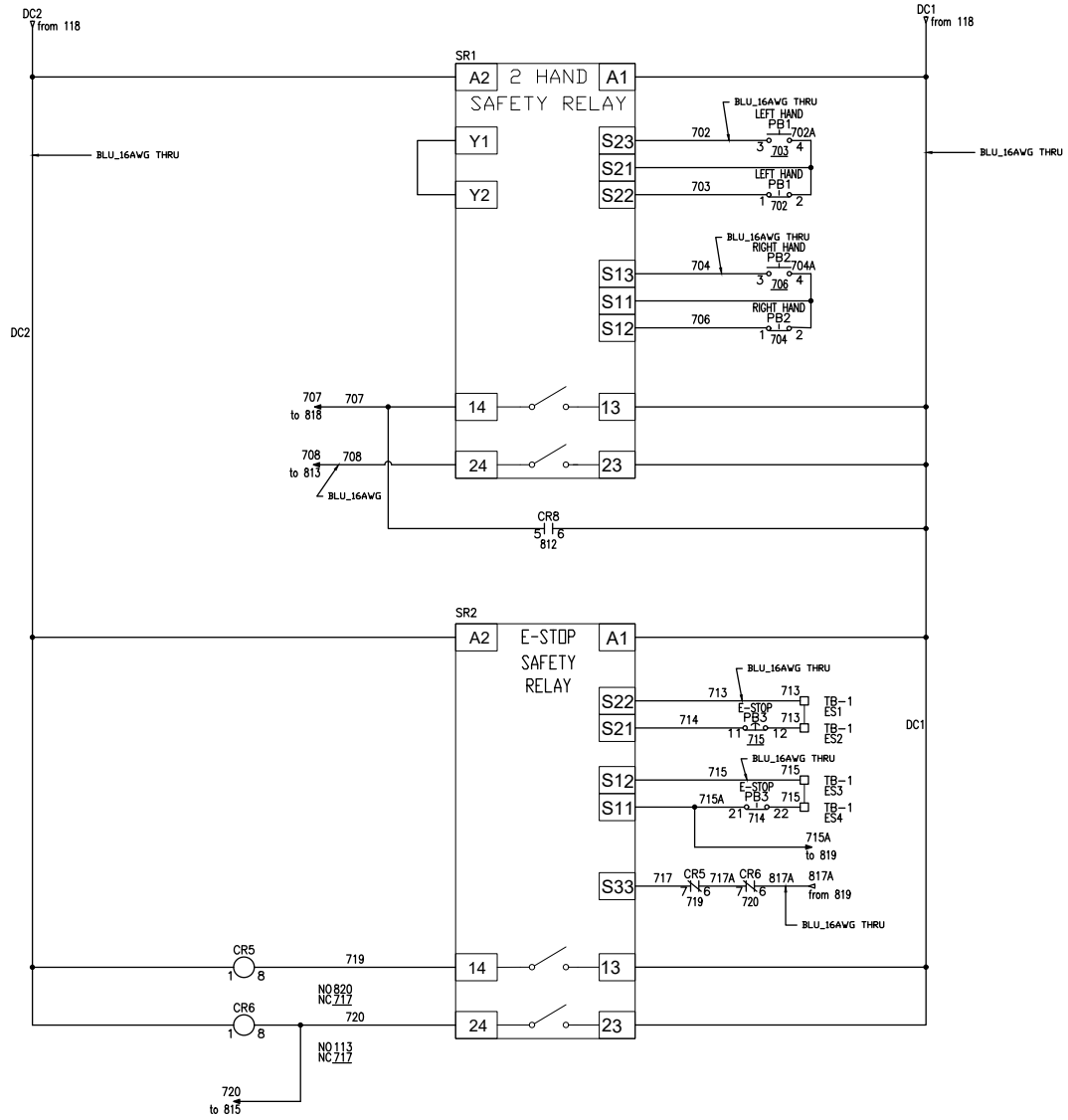
NOTE:
LABEL ZONES AS SHOWN, SOME ZONE NUMBERS ARE UNUSED.
EX: ZONE 1



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
PARTS LIST				

TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN		
U/M	TITLE: DM55,V6,400V SSR OUTPUTS		
STATUS	SIZE	SCALE:	DRAWN BY: BFQ / CHECKED BY: / APP'D BY:
DO NOT SCALE DRAWING			
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	SOURCE	REV. AB
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800		DATE: 03.23.15	SHEET 6 OF SHEETS 13
		DRAWING NO.	823173

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AB

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,400V
SAFETY RELAYS

SCALE:

DRAWN BY: BFQ

CHECKED BY:

APP'D BY:

DATE: 03.23.15

SHEET 7 OF SHEETS 13

DRAWING NO. 823173

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

XIO MODULE
117648

MODULE #XIO

XIO

MBus

+24V
+GND
ZOUT
YOUT
BIN
AIN
DI16
DI15
DI14
DI13
DI12
DI11
DI10
DI9
DI8
DI7
DI6
DI5
DI4
DI3
DI2
DI1
24V IN
NC
NC
AO4
AO3
AO2
AO1
GND
+24V
AI4
AI3
AI2
AI1
+24V
NC
DO8
DO7
DO6
C4
DO5
DO4
C3
DO3
DO2
C2
DO1
C1

OPTIONAL, IF NOT INSTALLED JUMPER DI11,DI12,+24V AS SHOWN W/ #22 BLK

PS3 PURGE CLOSED PROX SENSOR — CBL7/BRN — DC1 — DC1 from 118

PS4 PURGE OPEN PROX SENSOR — BLU — CBL8/BRN — DC1 — DC1 from 118

PS1 DRUM PRESENT PROX SENSOR — BLK — BLU DC2 — CBL9/BRN DC1

708 from 708 2 HAND CONTROL — PB4 PURGE — 814

PB5 AIR INJECT — 814B

720 from 721 E-STOP OK

BLU_16AWG

SS1 RAM — 816

SS2 AUTO — 817

BLU_16AWG THRU

from 118 DC1

DC2 from 118 DC2

CBL10/RED — BLK — OPTIONAL — PT4 XDUCER

CBL11/RED — BLK — OPTIONAL — PT3 XDUCER

CBL12/RED — BLK — OPTIONAL — PT2 XDUCER

PS2 PLATEN HEIGHT SENSOR — WHT — BLU — CBL13/BRN

812 — CR7 — NO NC 415,420 — DC2

812A — CR8

NO 710 NC — 814A

ONLY IF PISTON PUMP MODEL

BLU_22AWG THRU — DC2 from 118

CBL14/BLU — CBL14/RED

RED + PUMP STRT −
BRN + AIR INJ. −
GRN + PURGE −
WHT + RAM UP −
BLK + RAM DOWN −

707 — 817A — 715A

from 707 707

to 717 817A

from 716 715A

BLU_16AWG
BLU_16AWG
BLU_16AWG
BLU_22AWG THRU

CR5 — DC1 — 719

from 118 DC1

OPTIONAL BALL VALVE

DO6 — BALL VALVE — DC2

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AB

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,400V
XIO MODULE

SCALE:

DRAWN BY: BFQ

CHECKED BY:

APP'D BY:

DATE: 03.23.15

SHEET 8 OF SHEETS 13

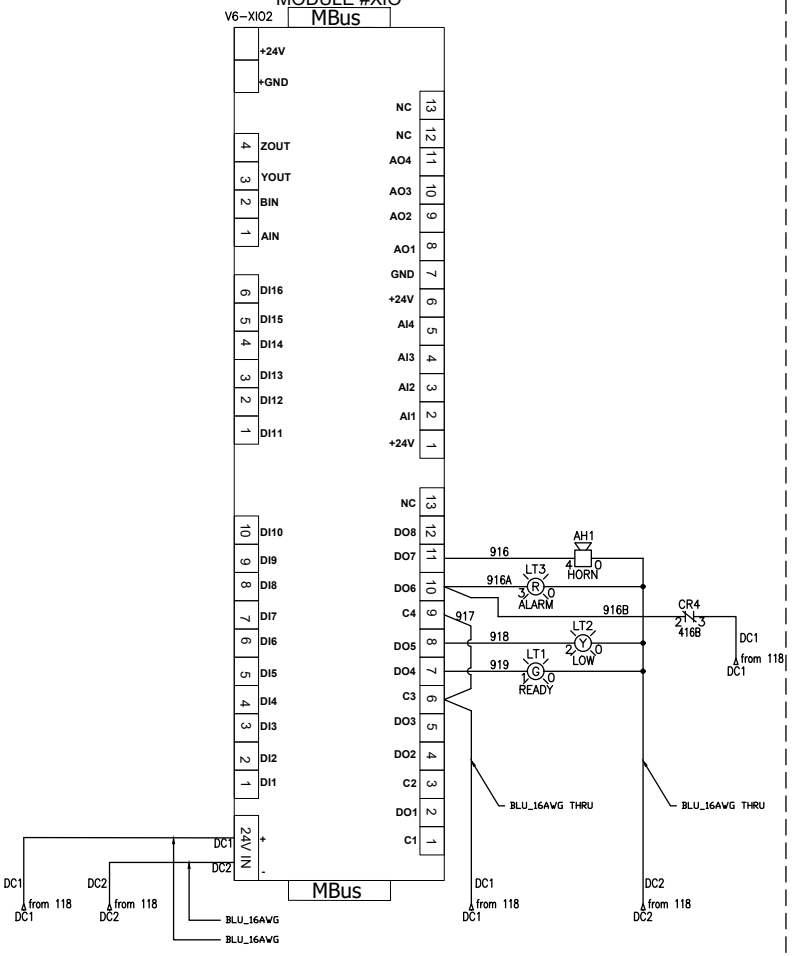
DRAWING NO. 823173

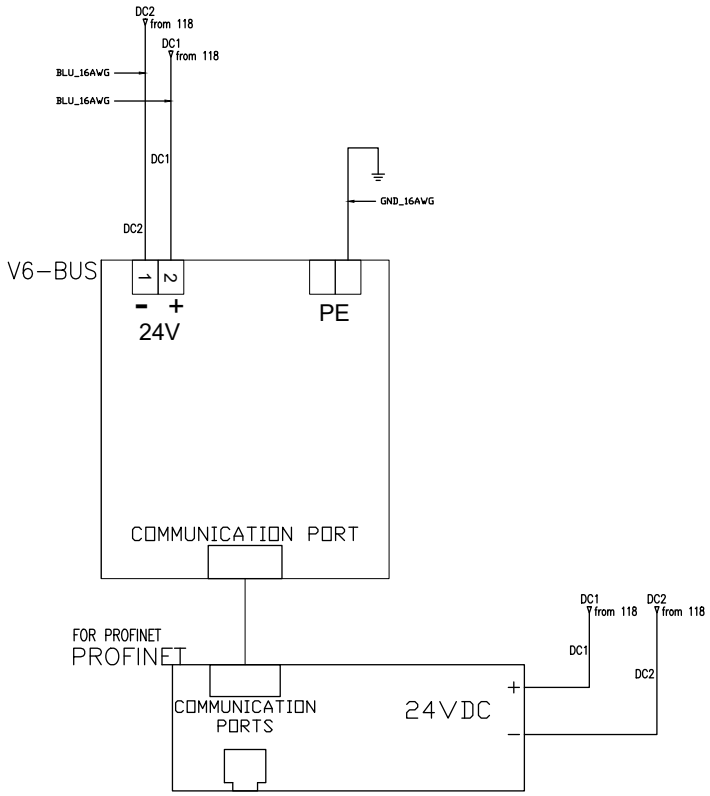
REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

OPTION: B
TANDEM SYSTEM
SEE SHEET #4 FOR OPTION: A
FOR NON TANDEM WIRING

XIO MODULE 2
117648

MODULE #XIO



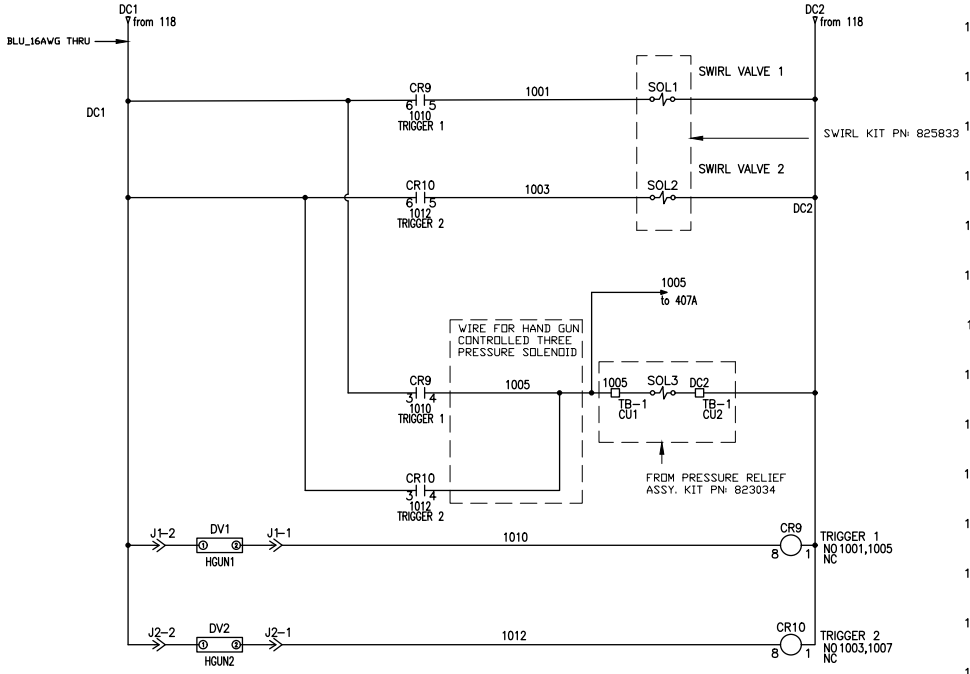


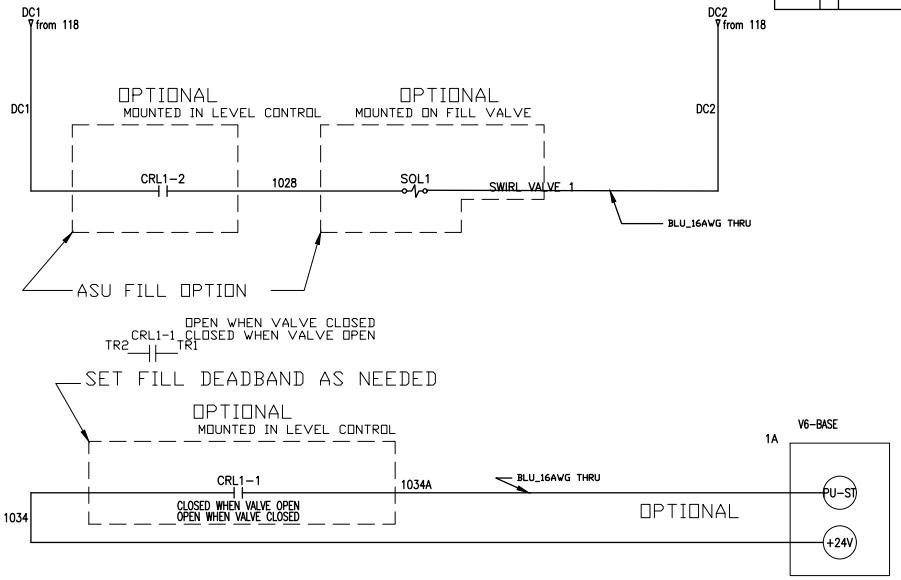
ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN		
U/M	TITLE: DM55,V6,400V OPTIONS		
DO NOT SCALE DRAWING	STATUS	SIZE	
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	SCALE:	DRAWN BY: BFO / CHECKED BY: / APP'D BY:
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	SOURCE	REV. AB	DATE: 03.23.15 / SHEET 9 OF SHEETS 13 / DRAWING NO. 823173

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED





ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

	DO NOT SCALE DRAWING	TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN
		U/M	TITLE: DM55, V6, 240V HANDGUN OPTIONS
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	STATUS / SIZE	SCALE: / DRAWN BY: BFQ / CHECKED BY: / APP'D BY:
	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	SOURCE / REV. AB	DATE: 03.23.15 / SHEET 10 OF SHEETS 13 / DRAWING NO. 823172

INSIDE LEFT SIDE

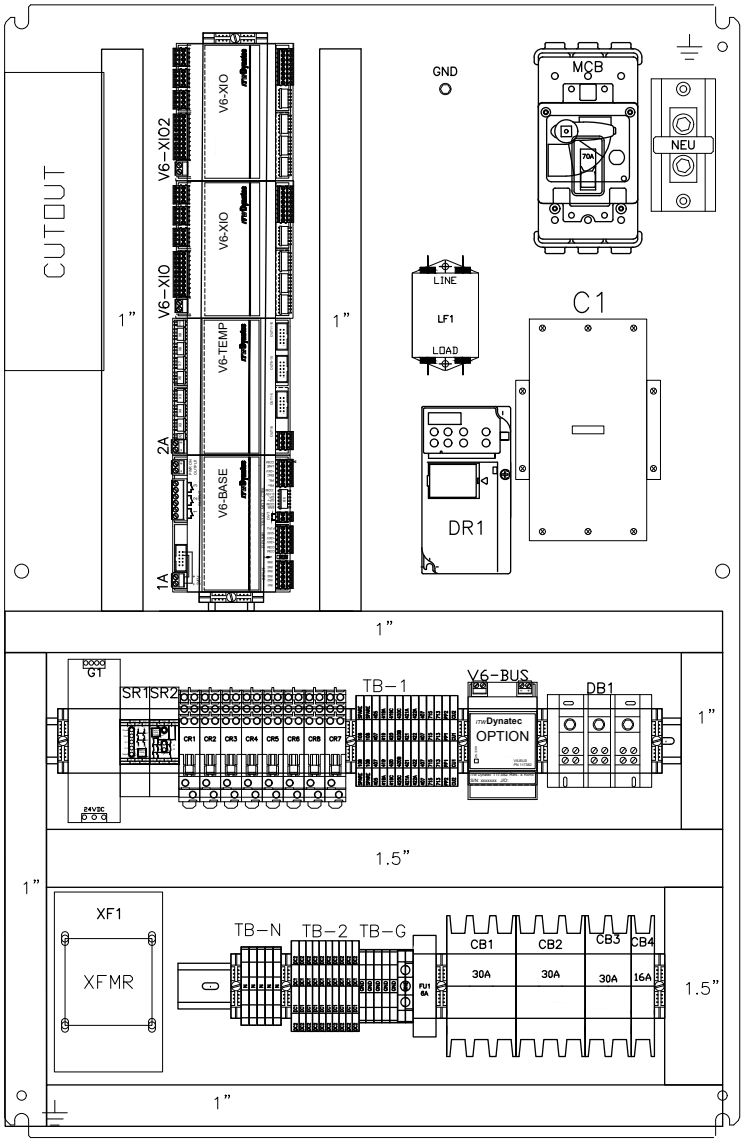
HMI

SS2 PB3

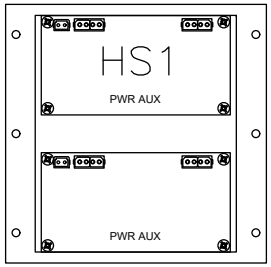
SS1 PB4

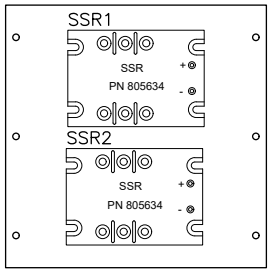
DASHBOARD PB5

PB1 PB2



INSIDE RIGHT SIDE





REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

TB-1

LOWER TERMINAL		UPPER TERMINAL	
SPARE	SPARE	108	240VAC
SPARE	SPARE	108	240VAC
SPARE	SPARE	108	240VAC
405	STBY2	406	STBY1
407	EN1B	407A	EN1A
407	EN1B	407A	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
PP2	PP2	PP1	PP1
CU2	CU2	CU1	CU1

TB-2

LOWER TERMINAL		UPPER TERMINAL	
WIRE	DESC	WIRE	DESC
ALL TERMINALS			
DC2	DC2	DC1	DC1

BOM

TAG	PN	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,MOM 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

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS SIZE

SOURCE REV. AB

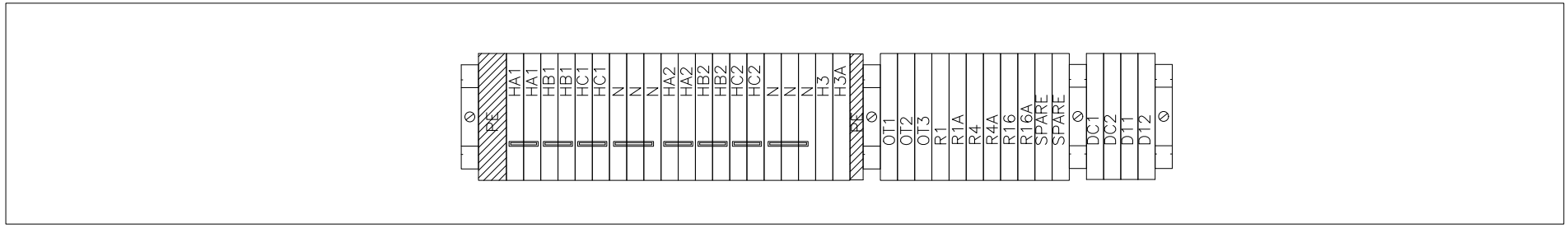
ITW Dynatec
HENDERSONVILLE, TN

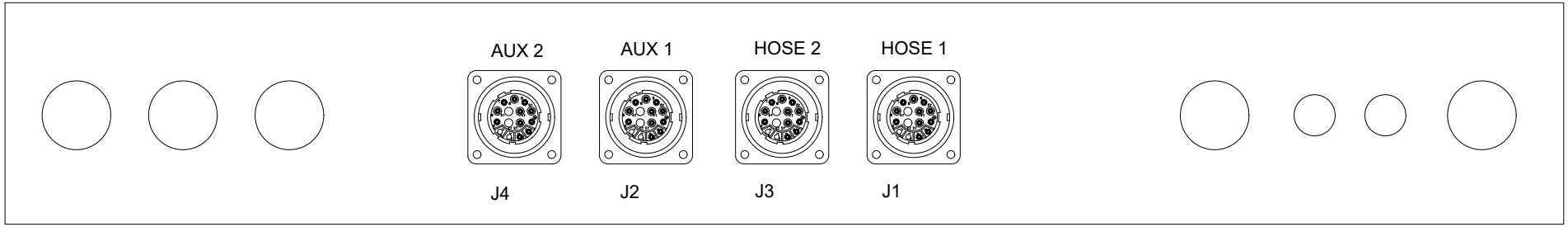
TITLE: DM55,V6,400V LAYOUT

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
03.23.15	11	13	823173

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED





PLATEN RESISTANCE AT TERMINALS:
HA1-HB1 9.6 OHMS
HA1-HC1 9.6 OHMS
HB1-HC1 9.6 OHMS
HA2-HB2 9.6 OHMS
HA2-HC2 9.6 OHMS
HB2-HC2 9.6 OHMS

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AB

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55, V6, 400V
J BOX TERMINALS

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
03.23.15	12	13	823173

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

DM55 400V/480V										
	CR1	CR2	CR3	CR4	CR5	CR6	CR7	CR8	CR9	CR10
1	419B	DC2	DC2	DC2	DC2	DC2	DC2	DC2	DC2	DC2
2			416C	416B						
3	113	DC1	415	DC1	814A	113A	DC1		DC1	DC1
4	113A	414A			DC1	111	415B		1005	1005
5		419	422A				420B	707	1001	1003
6		419A	422	421	717A	817A	420C	DC1	DC1	DC1
7				421A	717	717A				
8	420A	414	415A	416C	719	720	812	812A	1010	1012

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AB

ITW Dynatec
HENDERSONVILLE, TN

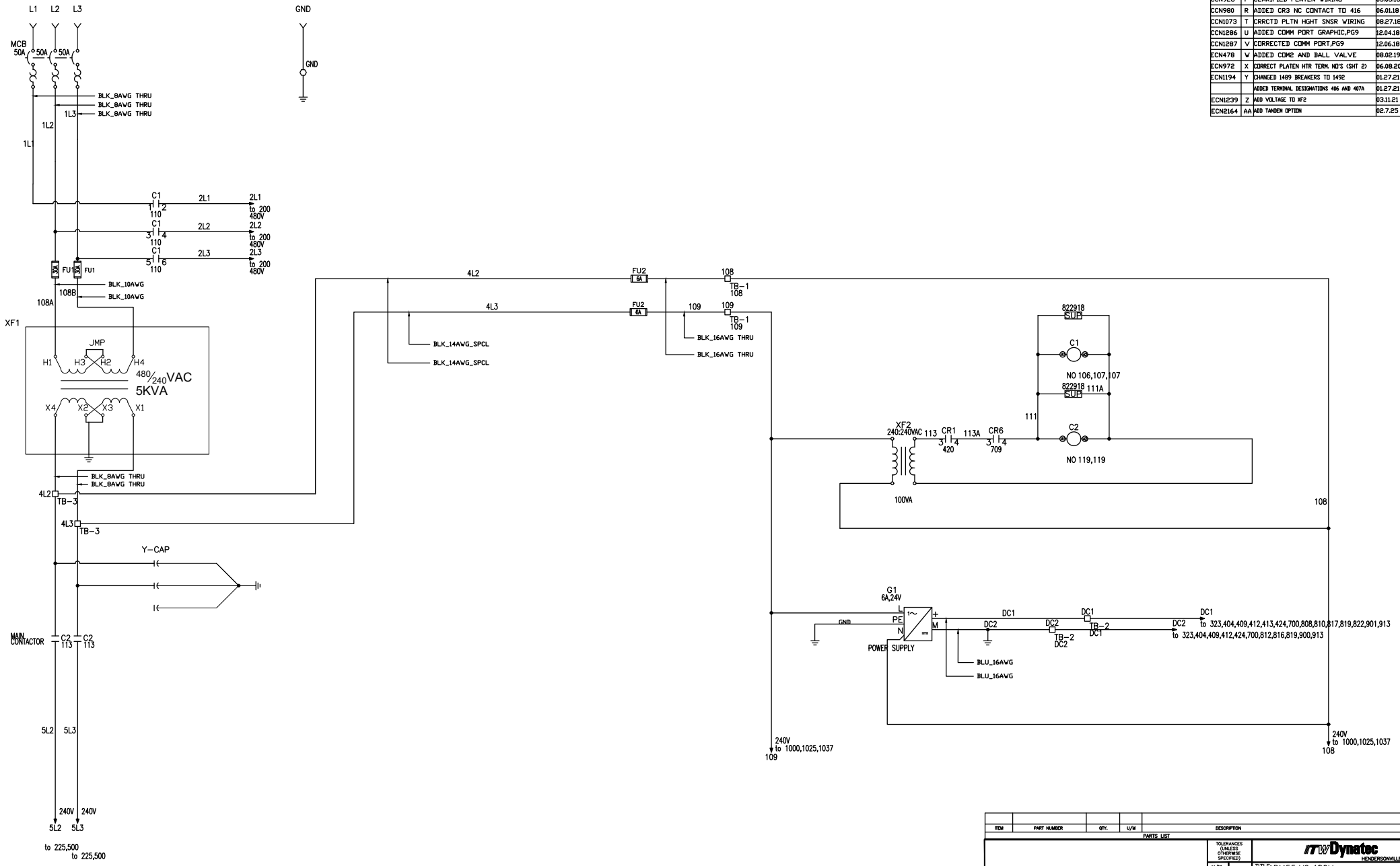
TITLE: DM55,V6,400V
RELAY TABLE

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
03.23.15	13	13	823173

13.3 Schematics, DM55 480V, PN 823174AA

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
17050	L	CONVERTED TO ACADE	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	CRRCTD 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	
ECN478	W	ADDED COM2 AND BALL VALVE	08.02.19	JJB	
ECN972	X	CORRECT PLATEN HTR TERM NO'S (SHT 2)	06.08.20	DJT	
ECN1194	Y	CHANGED 1489 BREAKERS TO 1492	01.27.21	JJB	
		ADDED TERMINAL DESIGNATIONS 406 AND 407A	01.27.21	JJB	
ECN1239	Z	ADD VOLTAGE TO XF2	03.11.21	JJB	
ECN2164	AA	ADD TANDEM OPTION	02.7.25	BG	



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AA

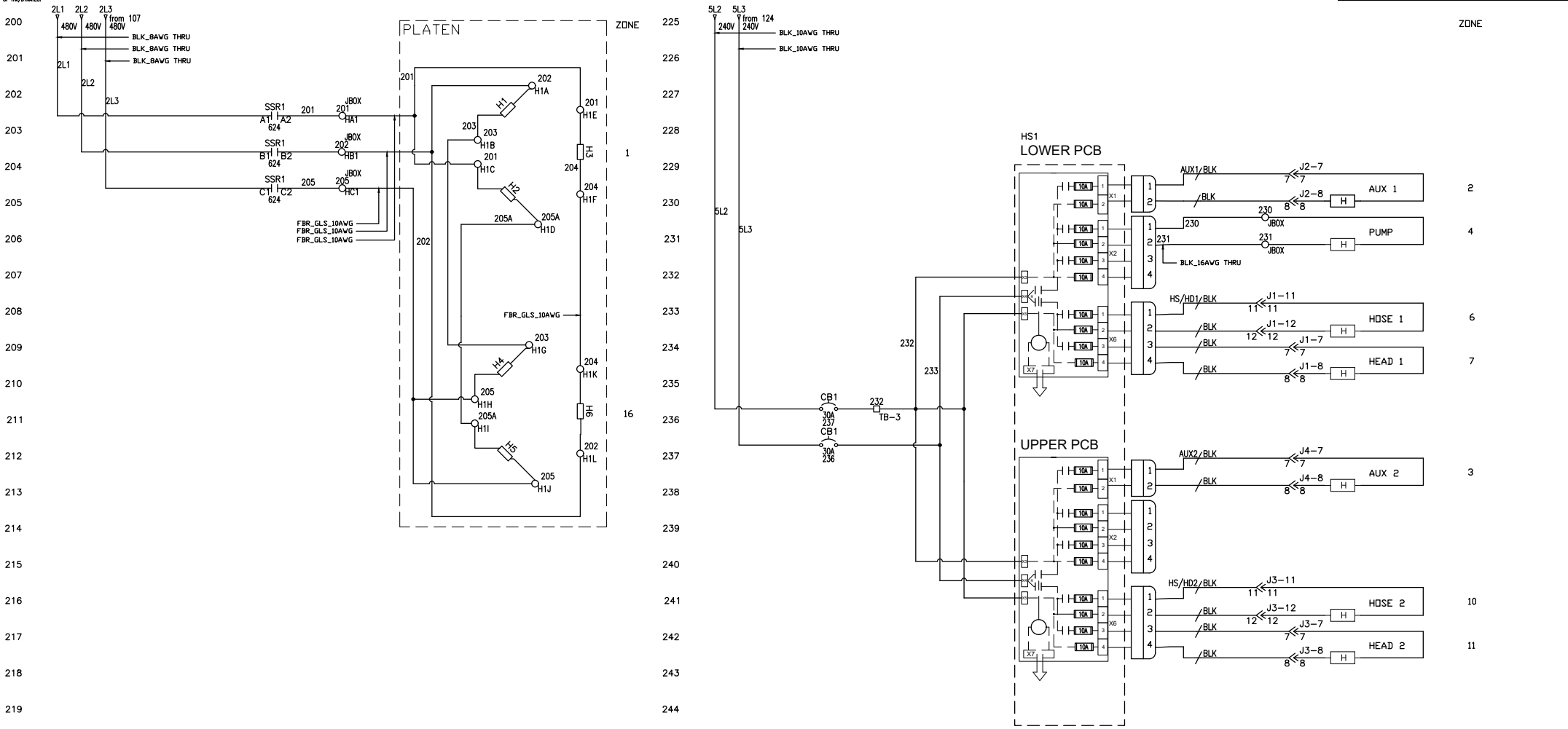
ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,480V
POWER DISTRIBUTION

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
08.14.15	1	13	823174

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



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

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

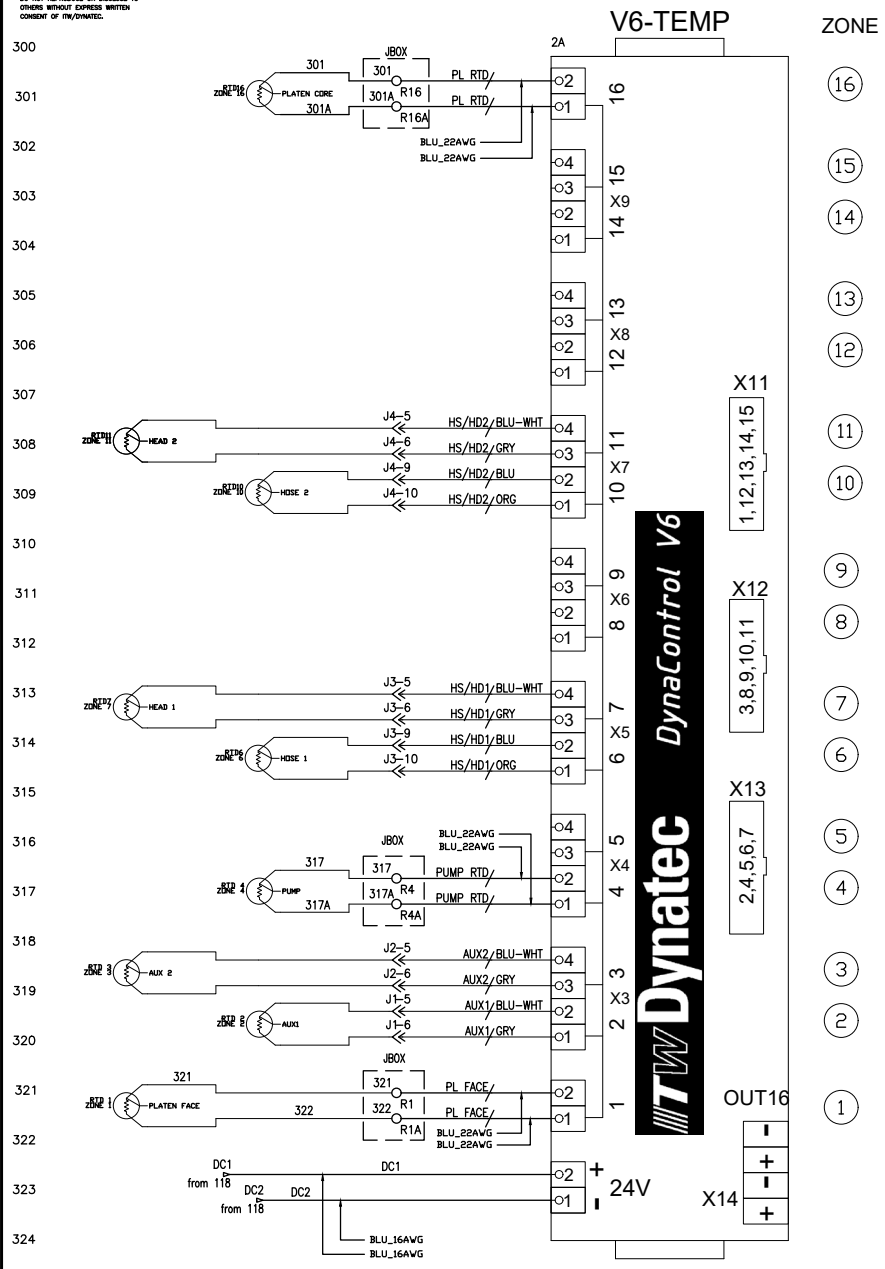
REV. AA

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,480V
HEATER CIRCUITS

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
08.14.15	2	13	823174



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SOURCE

SIZE

REV. AA

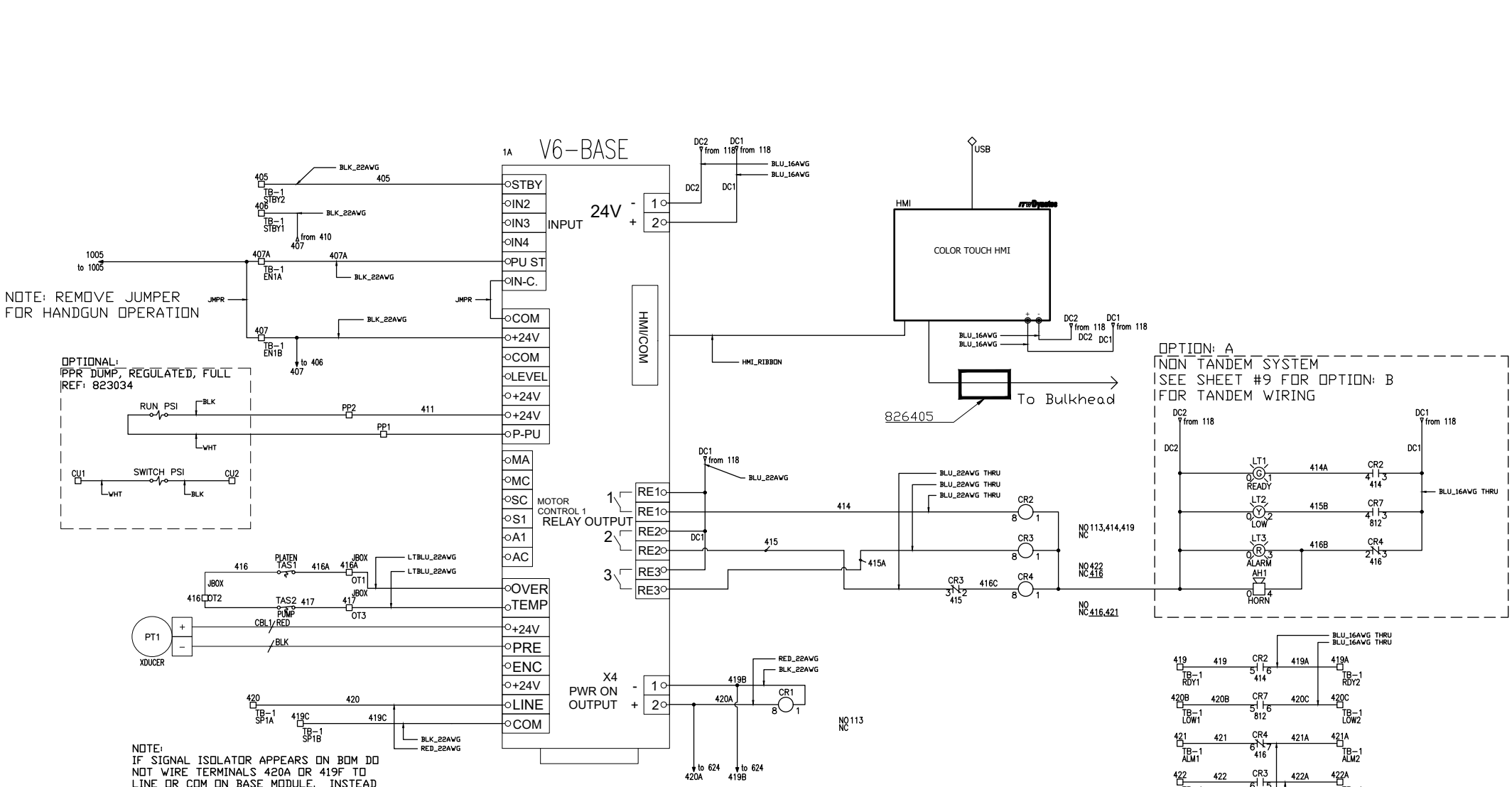
ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55, V6, 480V
RTD INPUTS

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
08.14.15	3	13	823174

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

TOLERANCES (UNLESS OTHERWISE SPECIFIED)		ITW Dynatec HENDERSONVILLE, TN	
U/M		TITLE: DM55,V6,480V BASE MODULE	
STATUS	SIZE	SCALE:	DRAWN BY: BFQ / CHECKED BY: – / APP'D BY:
SOURCE	REV. AA	DATE: 08.14.15	SHEET 4 OF SHEETS 13 / DRAWING NO. 823174
COMPUTER DESCRIPTION(25 CHARACTERS)	DO NOT SCALE DRAWING	NEXT ASSY.	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

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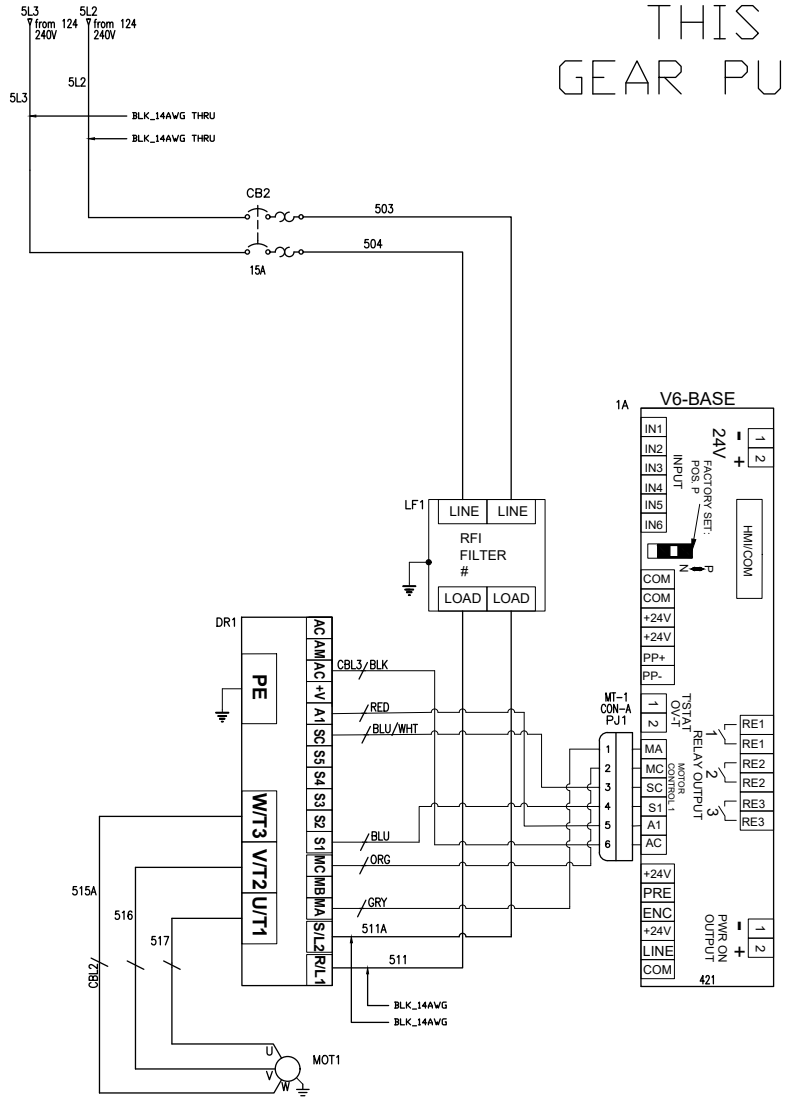
GEAR PUMP ONLY



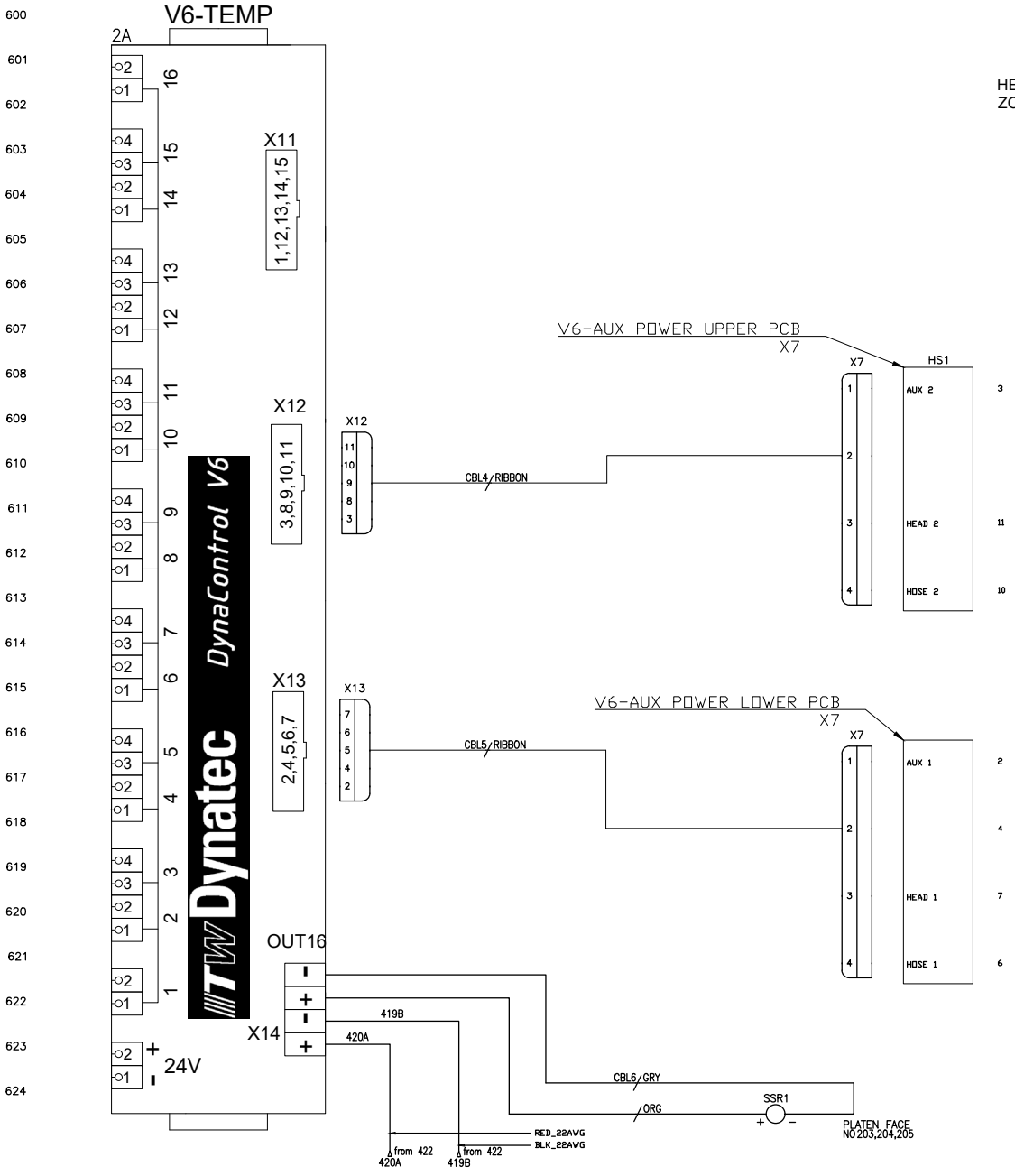
ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

		TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN
	DO NOT SCALE DRAWING	U/M	TITLE: DM55, V6, 480V DRIVE INPUT
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	STATUS / SIZE	SCALE: / DRAWN BY: BFQ / CHECKED BY: – / APP'D BY:
	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	SOURCE / REV. AA	DATE: 08.14.15 / SHEET 5 OF SHEETS 13 / DRAWING NO. 823174

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

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



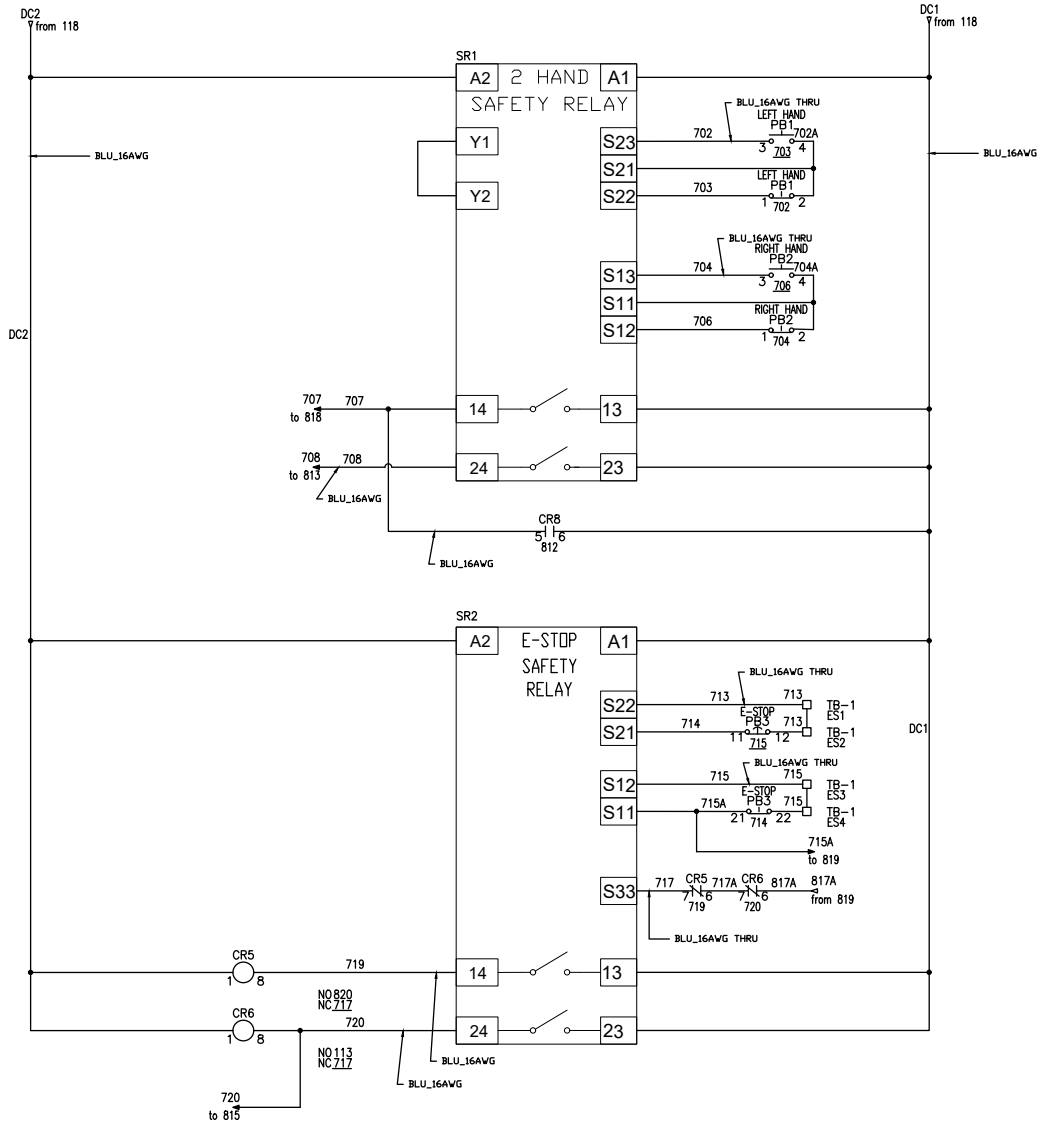
ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN		
U/M	TITLE: DM55, V6, 480V SSR OUTPUTS		
STATUS	SIZE	SCALE:	DRAWN BY: BFQ / CHECKED BY: – / APP'D BY:
SOURCE	REV. AA	DATE: 08.14.15	SHEET 6 OF SHEETS 13 / DRAWING NO. 823174

DO NOT SCALE DRAWING
COMPUTER DESCRIPTION(25 CHARACTERS)
NEXT ASSY.
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AA

ITW Dynatec
HENDERSONVILLE, TN

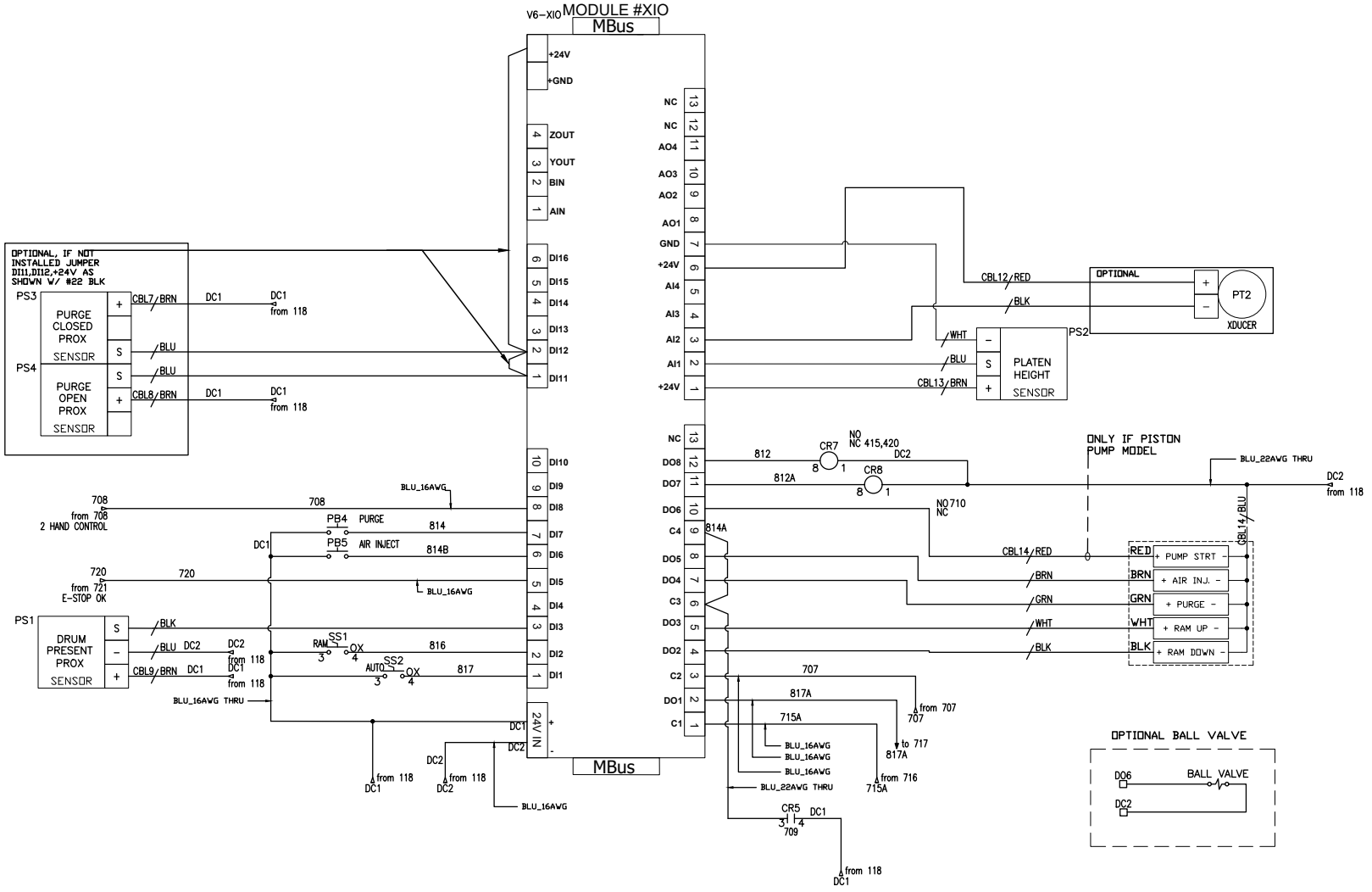
TITLE: DM55, V6, 480V
SAFETY RELAYS

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
08.14.15	7	13	823174

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

XIO MODULE
117648



ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AA

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,480V
XIO MODULE

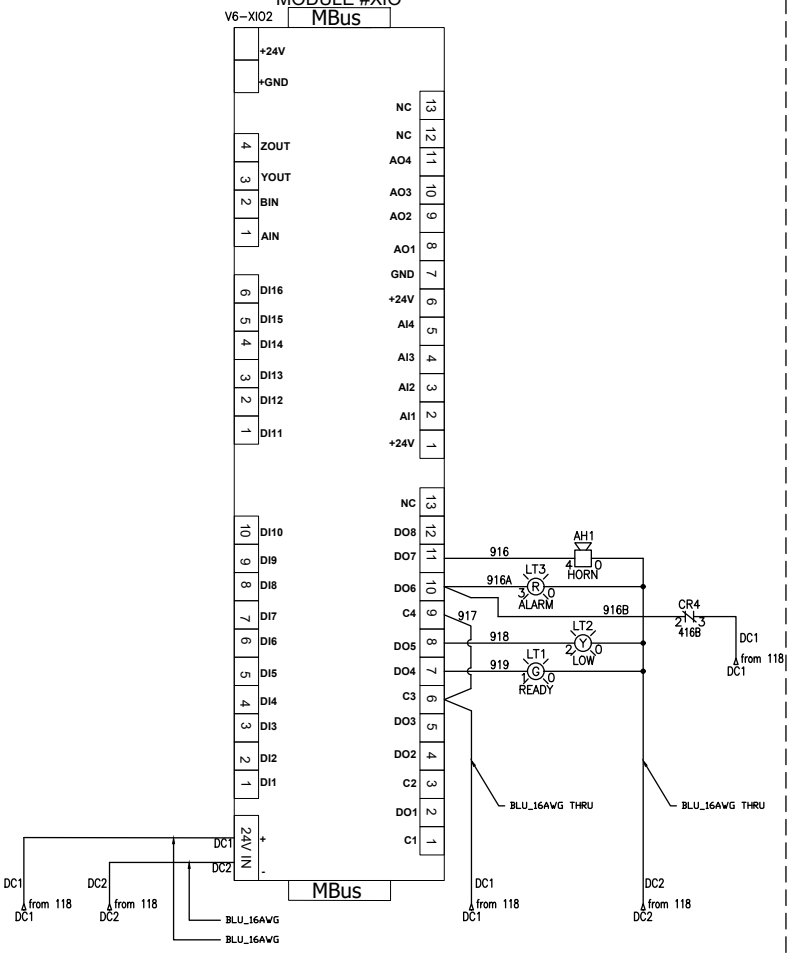
SCALE:	DRAWN BY:	CHECKED BY:	APP'D BY:
	BFQ	—	

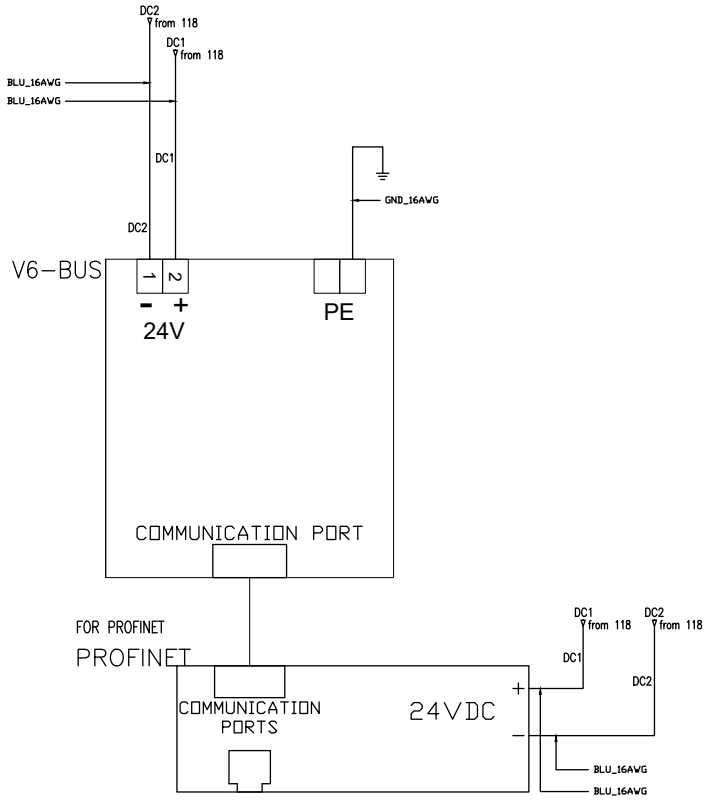
DATE:	SHEET	OF SHEETS	DRAWING NO.
08.14.15	8	13	823174

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

OPTION: B
TANDEM SYSTEM
SEE SHEET #4 FOR OPTION: A
FOR NON TANDEM WIRING

XIO MODULE 2
117648
MODULE #XIO



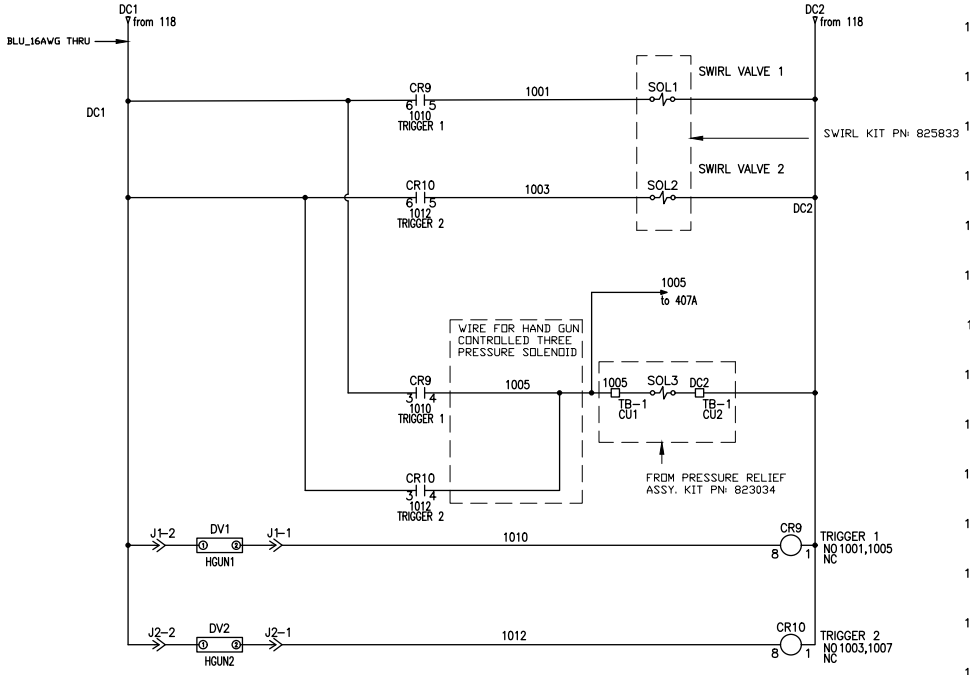


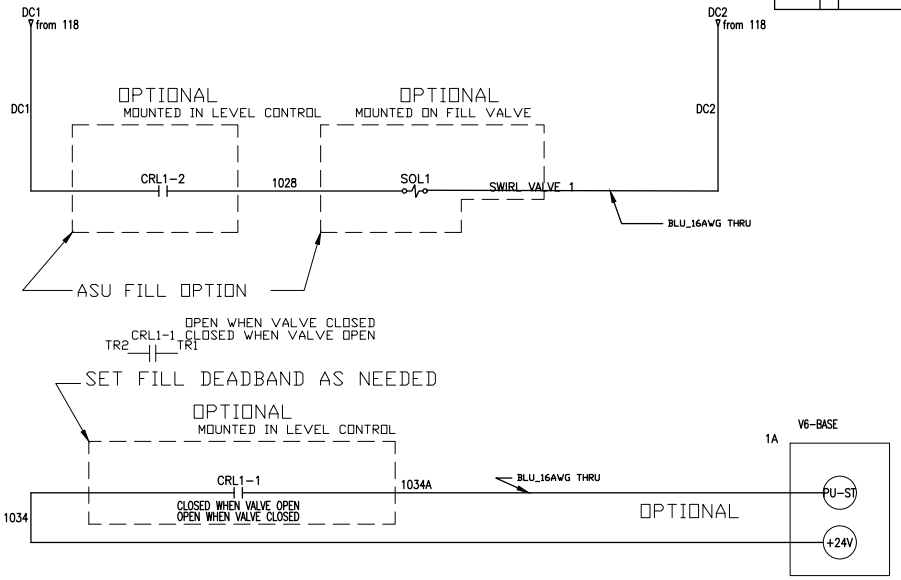
ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

	TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN	
	U/M	TITLE: DM55,V6,480V OPTIONS	
DO NOT SCALE DRAWING	STATUS / SIZE	SCALE:	DRAWN BY: EFO / CHECKED BY: — / APP'D BY:
COMPUTER DESCRIPTION(25 CHARACTERS) / NEXT ASSY.	SOURCE / REV. AA	DATE: 08.14.15	SHEET 9 OF SHEETS 13 / DRAWING NO. 823174
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800			

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED





ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

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COMPUTER DESCRIPTION(25 CHARACTERS)	STATUS / SIZE	SCALE:	DRAWN BY: BFQ / CHECKED BY: / APP'D BY:
NEXT ASSY.	SOURCE / REV. AA	DATE: 03.23.15	SHEET 10 OF SHEETS 13 / DRAWING NO. 823172
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800			

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

INSIDE LEFT SIDE

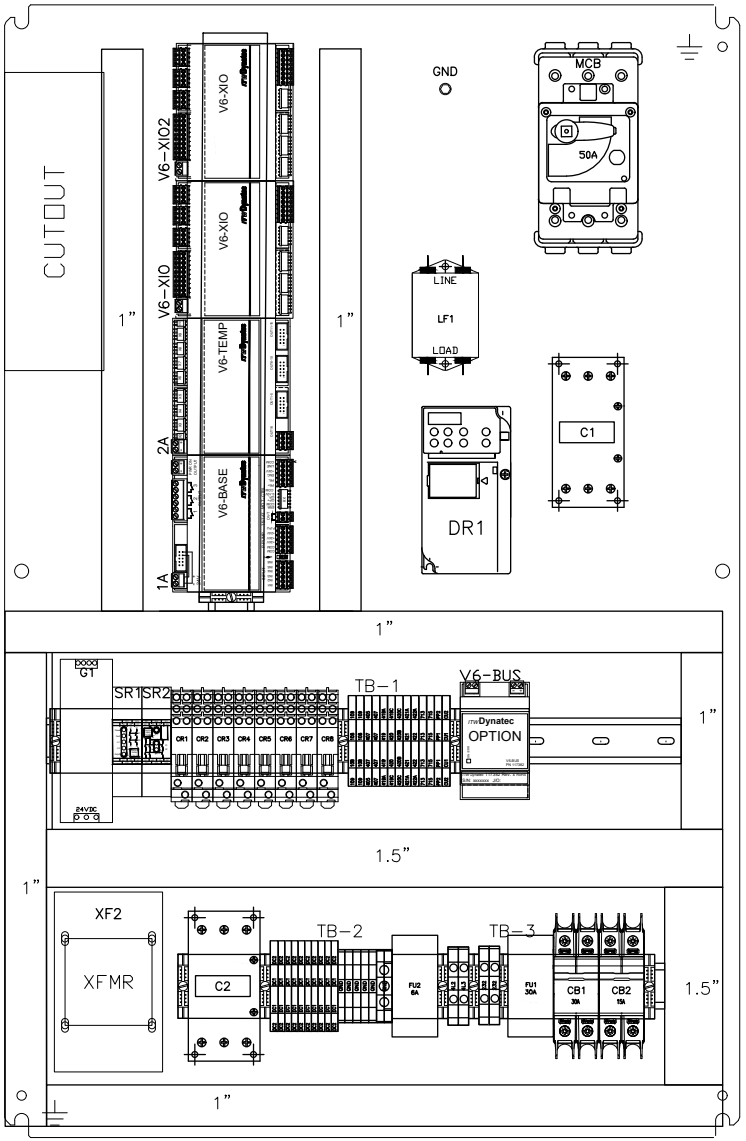
HMI

SS2 PB3

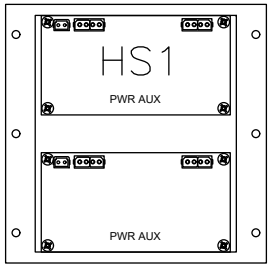
SS1 PB4

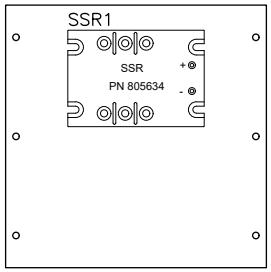
DASHBOARD PB5

PB1 PB2



INSIDE RIGHT SIDE





TB-1			
LOWER TERMINAL		UPPER TERMINAL	
WIRE	DESC	WIRE	DESC
109	240VAC	108	240VAC
109	240VAC	108	240VAC
405	STBY2	406	STBY1
407	EN1B	407A	EN1A
407	EN1B	407A	EN1A
419C	SP1B	420	SP1A
419A	RDY2	419	RDY1
420C	LOW2	420B	LOW1
421A	ALM2	421	ALM1
422A	EMPTY2	422	EMPTY1
713	ES2	713	ES1
715	ES4	715	ES3
PP2	PP2	PP1	PP1
CU2	CU2	CU1	CU1

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 FOR C1,C2	
C1	822918	SUPPRESSOR FOR 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 FOR MCB	
NEU	104780	1:1 INPUT BLOCK	
PB1,2,4,5	823178	GREEN 22MM,NO,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 POS SELECTOR SWITCH	
SSR1,2	805634	3 PHASE SSR	
SSR1,2	812241	IP20 FOR 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 ISO TRANSFORMER	
XF2	823403	IP20 FOR XF1	

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AA

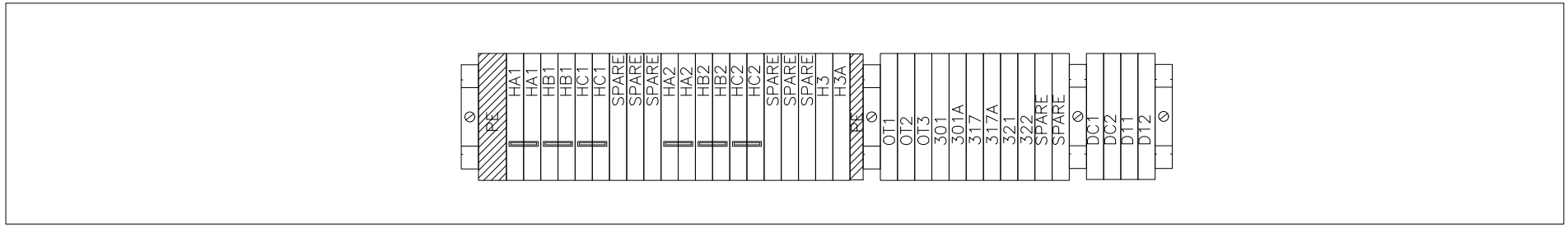
ITW Dynatec
HENDERSONVILLE, TN

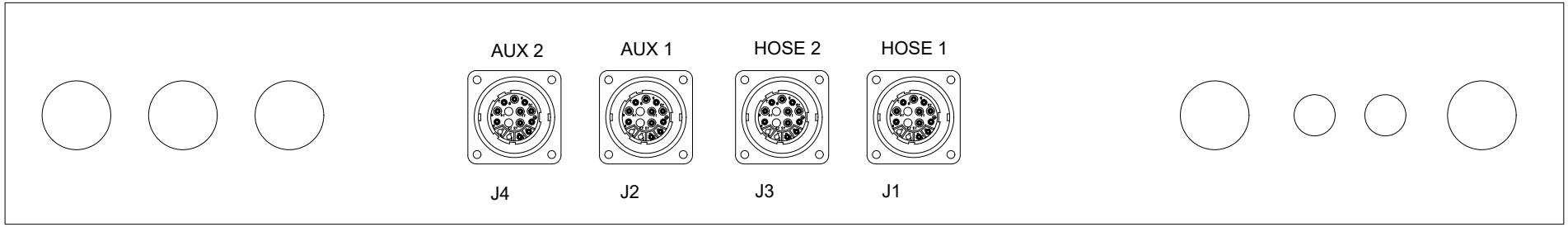
TITLE: DM55,V6,480V
LAYOUT

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
08.14.15	11	13	823174

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

		TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN
	DO NOT SCALE DRAWING	U/M	TITLE: DM55, V6, 480V J BOX TERMINALS
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	STATUS / SIZE	SCALE: / DRAWN BY: BFQ / CHECKED BY: — / APP'D BY:
	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	SOURCE / REV. AA	DATE: 08.14.15 / SHEET 12 OF SHEETS 13 / DRAWING NO. 823174

REVISIONS					
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED

DM55 400V/480V										
	CR1	CR2	CR3	CR4	CR5	CR6	CR7	CR8	CR9	CR10
1	419B	DC2	DC2	DC2	DC2	DC2	DC2	DC2	DC2	DC2
2			416C	416B						
3	113	DC1	415	DC1	814A	113A	DC1		DC1	DC1
4	113A	414A			DC1	111	415B		1005	1005
5		419	422A				420B	707	1001	1003
6		419A	422	421	717A	817A	420C	DC1	DC1	DC1
7				421A	717	717A				
8	420A	414	415A	416C	719	720	812	812A	1010	1012

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING

COMPUTER DESCRIPTION(25 CHARACTERS)

NEXT ASSY.

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

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

U/M

STATUS

SIZE

SOURCE

REV. AA

ITW Dynatec
HENDERSONVILLE, TN

TITLE: DM55,V6,480V
RELAY TABLE

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

DATE:	SHEET	OF SHEETS	DRAWING NO.
08.14.15	13	13	823174

13.4 Schematics, V6 Profinet Option, PN 121436

/ +24V

/ +0V

-A994.1

- | + | 1 | 2

24V | PE

FELDBUS-MODUL
FIELD BUS MODULE
BUS DE TERRAIN - MODULE
BUS DE CAMPO MÓDULO
P/N 117382

-A994.2

DP

Profibus Einschub
Profibus insert
insert de Profibus
inserto de Profibus
P/N 117484

-A1000.6

Hilscher NL 51N-DPL

X1

+ | -

24V

SYS

COM

X2 | X3

DP | PN

Profinetanschluss zur SPS
Profinet connection to PLC
connexion de Profinet à CPL
conexión de Profinet a CPP

PN_ToSPS /

OPTION
OPCIÓN

			Datum	21.12.2017	ITW Dynatec		V6-Profinet Option	=	
			Bearb.	mstapel				+	
			Gepr		V6-Profinet Option			P/N: 121436	Blatt 1
Änderung	Datum	Name	Urspr		Ersatz von	Ersetzt durch			Blatt 1

ITW Dynatec® THE NEXT LEVEL OF TECHNOLOGY

Chapter 14
Appendix

14.1 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.

14.2 Gear pumps

Gear Pumps, Safety and Operation

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

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

General Description

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

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

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

Gear Pump types

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

* TSHA = Tool Steel, High Accuracy

General Safety Instruction

WARNING

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

  If the pump is to be preheated or cooled prior to installation, heat or cool the pump to the operating temperature by use of an approved method, such as a band heater, bar heater, oven, cooling or environmental chamber, liquid bath or heating jacket, which can fully reach the operating temperature of the pumping system. Monitor the pump temperature and ensure the target temperature has been met and maintained. Allow ample time to heat-soak the pump thoroughly and evenly (including the seal arrangement).
- The manufacturer’s warranty will be void if any part is replaced, or the pump is modified in any way, without permission from ITW Dynatec.

Installation

WARNING

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

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

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

Operation

WARNING

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

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

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

Safety Notes on Start-Up

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

Heating, Cooling During Operation

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

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

Shutdown

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

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

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

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

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

Restarts

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

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

WARNING

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

Airborne Noise

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

Maintenance

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

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

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

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

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

Maintenance Notes

WARNING

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

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

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

Pump shaft Leakage

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

If the pump uses Packing seals:

WARNING

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

Cleaning

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

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

Troubleshooting

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

Reconditioning

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

Pump Shaft Seal Replacement

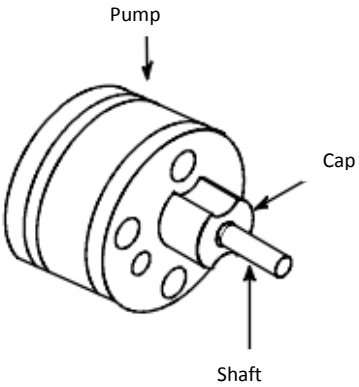
The ITW Part Number for all Tool Steel High Accuracy Pump Shaft Seals (8.5cc and smaller) is PN 807729.

DANGER HOT SURFACE & HIGH VOLTAGE

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

Pump Shaft Seal (O-ring) Replacement:

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



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

Transport / Storage

DANGER

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

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

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

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

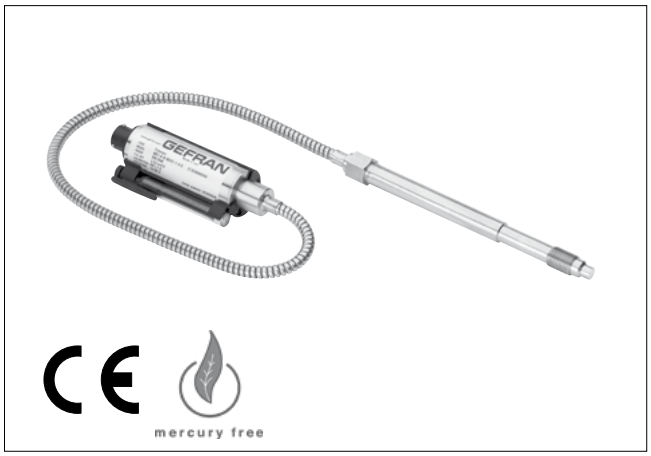
While storing spare parts, always protect the parts from water and contaminants. Store the parts in a clean, dry, and warm environment. Spare parts should be lightly coated with rust preventative oil and sealed in an air tight container.

14.3 Pressure Transducer

GEFRAN

OIL FILLED MELT PRESSURE TRANSMITTERS

WE SERIES *Output 4...20mA*



The WE series of Gefran, are pressure transmitters for using in High temperature environment.
The main characteristic of this series is the capability to read temperature of the media up to 315°C.
The constructive principle is based on the hydraulic trasmission of the pressure.
The fluid-filled system assures the temperature stability.
The phisical measure is transformed in a electrical measure by means the strain-gauge technology.

MAIN FEATURES

- Pressure ranges from:
  0-35 to 0-1000 bar / 0-500 to 0-15000 psi
- Accuracy: < ±0.25% FSO (H); < ±0.5% FSO (M)
- Fluid-filled system for temperature stability
- Oil filling meets FDA requirements CFR 178.3620 and CFR 172.878
- Oil filling volume:
  WE0 (30mm³); WE1, WE2, WE3 (40mm³)
- 1/2-20UNF, M18x1.5 standard threads; other types available on request
- Other diaphragms available on request
- Autozero function on board / external option
- Drift Autocompensation function (SP version)
- 17-7 PH corrugated diaphragm with GTP+ coating

GTP+ (advanced protection)
Coating with high resistance against corrosion, abrasion and high temperature

AUTOZERO FUNCTION

All signal variations in the absence of pressure can be eliminated by using the Autozero function.
This function is activated by closing a magnetic contact located on the transmitter housing.
The procedure is permitted only with pressure at zero.

AUTOCOMPENSATES INFLUENCE OF MELT TEMPERATURE

Thanks to internal self-compensation, the WSP series transmitter cancels the effect of pressure signal variation caused by variation of Melt temperature.
This reduces at the minimum the read error caused by heating of the filling fluid (typical of all sensors built with "filled" technology).

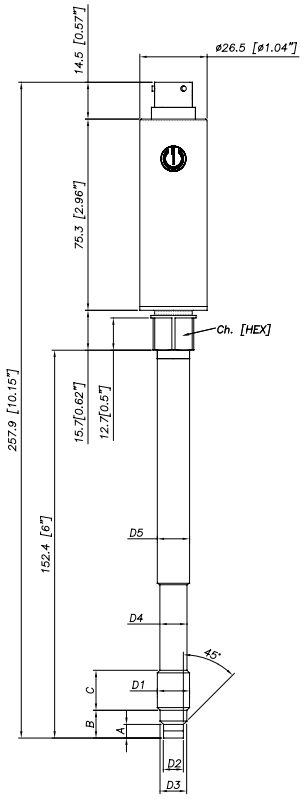
TECHNICAL SPECIFICATIONS

Accuracy (1)	**H** <±0.25%FSO (100...1000 bar) **M** <±0.5%FSO (35...1000 bar)
Resolution	Infinite
Measurement range	0..35 to 0..1000bar 0..500 to 0..15000psi
Maximum overpressure (without degrading performances)	2 x FS 1.5 x FS above 500bar/7500psi
Measurement principle	Extensimetric
Power supply	10...30Vdc
Maximum current absorption	32mA
Insulation resistance (at 50Vdc)	>1000 MOhm
Output signal Full Scale (FSO)	20mA
Zero balance (tollerance ± 0.25% FSO)	4mA
Zero signals adjustment (tollerance ± 0.25% FSO)	"Autozero" function
Span adjustment within ± 5% FSO	See Manual
Maximum allowed load	See diagram
Response time (10...90% FSO)	~ 1ms
Output noise (RMS 10-400Hz)	< 0.025% FSO
Calibration signal	80% FSO
Output short circuit ingress and reverse polarity protection	YES
Compensed temperature range	0...+85°C
Operating temperature range	-30...+105°C
Storage temperature range	-40...+125°C
Thermal drift in compesated range: Zero / Calibration / Sensibility	< 0.02% FSO/°C
Diaphragm maximum temperature	315°C / 600°F
Zero drift due to change in process temperature (zero)	< 0.04 bar/°C
Zero drift temperature for Autocompensated version (SP) within the temperature range 20°C-315°C inclusive the drift temperature of the housing	< 0.005 bar/°C 100 ≤ p < 500 bar 0.0022 %FS/°C p ≥ 500 bar
Standard Material in contact with process medium	Diaphragm: • 17-7PH corrugated diaphragm with GTP+ Stem • 17-4 PH
Thermocouple (model WE2)	STD: type "J" (isolated junction)
Protection degree (with 6-pole female connector)	IP65

FSO = Full scale output
(1) BFSL method (Best Fit Straight Line): includes combined effects of Non-Linearity, Hysteresis and Repeatability.

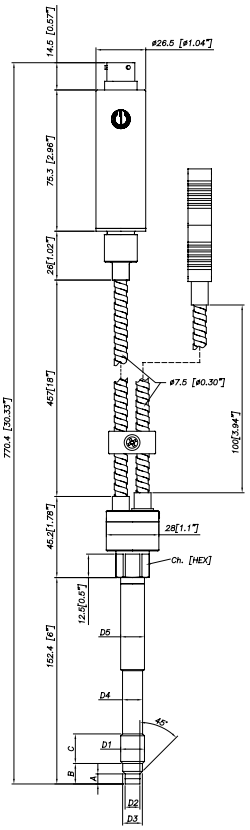
MECHANICAL DIMENSIONS

WE0

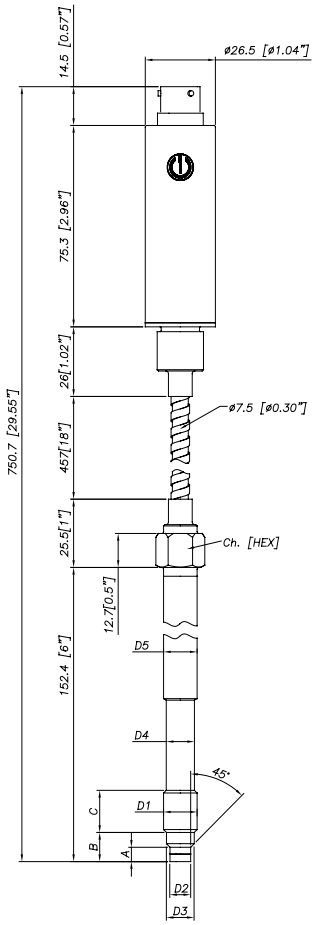


D1	1/2 - 20UNF
D2	ø7.8 -0.05 [ø0.31" -0.002]
D3	ø10.5 -0.025 [ø0.41" -0.001]
D4	ø10.67 [ø0.42"]
D5	ø12.7 [ø0.5"]
A	5.56 -0.26 [0.22" -0.01]
B	11.2 [0.44"]
C	15.74 [0.62"]
Ch [Hex]	16 [5/8"]

WE2

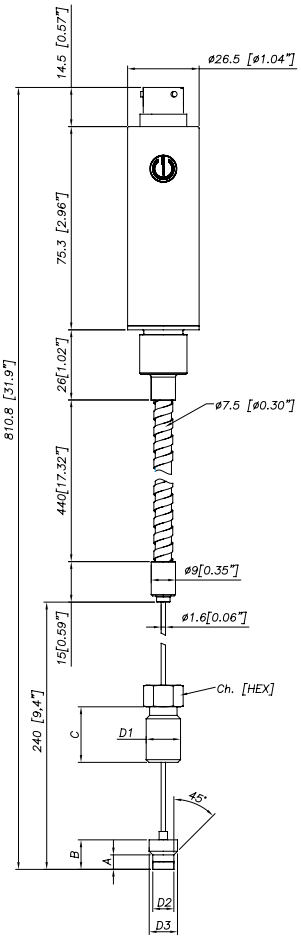


WE1



D1	M18x1.5
D2	ø10 -0.05 [ø0.394" -0.002]
D3	ø16 -0.08 [ø0.63" -0.003]
D4	ø16 -0.4 [ø0.63" -0.016]
D5	ø18 [ø0.71"]
A	6 -0.26 [0.24" -0.01]
B	14.8 -0.4 [0.58" -0.016]
C	19 [0.75"]
Ch [Hex]	19 [3/4"]

WE3



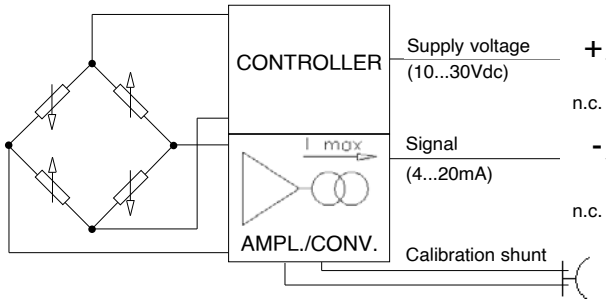
Exposed capillary	
D1	1/2-20UNF
D2	.307/.305" [7.80/7.75mm]
D3	.414/.412" [10.52/10.46mm]
A	.125/.120" [3.18/3.05mm]
B	.318/.312" [8.08/7.92mm]
C	.81" [20.6mm]

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

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

ELECTRICAL CONNECTIONS

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

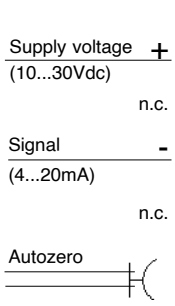


MAGNETIC AUTOZERO

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

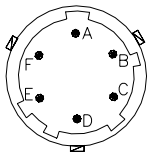
EXTERNAL AUTOZERO

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

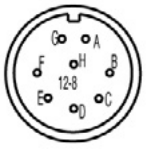


Shield drain wire is tied to connector via cable clamp

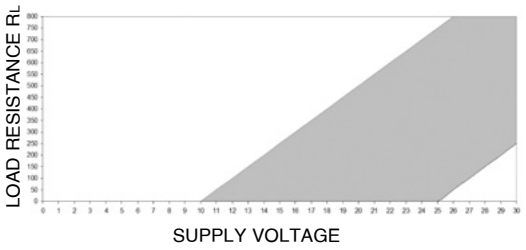
6 pin connector
VPT07RA10-6PT2
(PT02A-10-6P)



8 pin connector
PC02E-12-8P Bendix

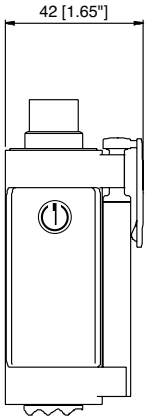


LOAD DIAGRAM



The diagram shows the optimum ratio between the load and supply voltage of the 4...20mA transmitter. For a correct use, choose any combination of load resistance and supply voltage, in the shaded area.

AUTOZERO FUNCTION



The Autozero function is activated through a magnetic contact (external magnet supplied with the sensor).
See the manual for a complete Autozero function explanation.

ACCESSORIES

Connectors

6-pin mating connector (IP65 protection degree)	**CON300**
8-pin mating connector	**CON307**

Extension cables

6-pin connector with 8m (25ft) cable	**C08WLS**
6-pin connector with 15m (50ft) cable	**C15WLS**
6-pin connector with 25m (75ft) cable	**C25WLS**
6-pin connector with 30m (100ft) cable	**C30WLS**
8-pin connector with 8m (25ft) cable	**E08WLS**
8-pin connector with 15m (50ft) cable	**E15WLS**
8-pin connector with 25m (75ft) cable	**E25WLS**
8-pin connector with 30m (100ft) cable	**E30WLS**
Other lengths	**consult factory**

Accessories

Mounting bracket	**SF18**
Dummy plug for 1/2-20UNF	**SC12**
Dummy plug for M18x1.5	**SC18**
Drill kit for 1/2-20UNF	**KF12**
Drill kit for M18x1.5	**KF18**
Cleaning kit for 1/2-20UNF	**CT12**
Cleaning kit for M18x1.5	**CT18**
Fixing pen clip	**PKIT309**
Autozero pen	**PKIT312**

Thermocouple for WE2 model

Type “J” (153mm - 6” stem)	**TTER 601**

Cable color code 6 wires	
Conn.	**Wire**
A	Red
B	Black
C	White
D	Green
E	Blue
F	Orange

Cable color code 8 wires	
Conn.	**Wire**
A	White
B	Red
C	Green
D	Black
E	Blue
F	Orange
G	n.c.
H	n.c.

ORDER CODE

W -□-□-□-□-□-□□□-□-□-□-□-**000**

Autocompensation (*)	**SP**
Standard	**-**

(*) available for ranges > to 100bar
(*) not available for WE3 version

OUTPUT SIGNAL	
4...20mA	**E**

CONFIGURATION	
Rigid stem	**0**
Rigid stem + flexible	**1**
With thermocouple	**2**
Exposed capillary	**3**

CONNECTOR	
Standard	
6 pin	**6**
8 pin	**8**

ACCURACY CLASS	
0.25% FSO (ranges ≥ 100 bar/1500 psi)	**H**
0.5% FSO	**M**

RANGE			
bar		psi	
35	**B35U**	**500**	**P05C**
50	**B05D**	**750**	**P75D**
70	**B07D**	**1000**	**P01M**
100	**B01C**	**1500**	**P15C**
200	**B02C**	**3000**	**P03M**
350	**B35D**	**5000**	**P05M**
500	**B05C**	**7500**	**P75C**
700	**B07C**	**10000**	**P10M**
1000	**B01M**	**15000**	**P15M**

000= Standard version
Special or customized versions available on request

E	External autozero
-	Magnetic autozero

FLEXIBLE LENGTH (mm / inches) (*)		
Standard (WE0)		
0	none	
Standard (WE1, WE2)		
D	457mm	18”
E	610mm	24”
F	760mm	30”
Standard (WE3)		
L	711mm	28”
Available on request		
A	76mm	3”
B	152mm	6”
C	300mm	12”

RIGID STEM LENGTH (mm / inches) (*)		
Standard (WE0, WE1, WE2)		
4	153mm	6”
5	318mm	12.5”
Standard (WE3)		
0	none	
Available on request		
1	38mm	1.5”
2	50mm	2”
3	76mm	3”
6	350mm	14”
7	400mm	16”
8	456mm	18”

(*) max combined stem/flexible length is 914mm - 36”

THREAD	
Standard	
1	1/2 - 20 UNF
4	M18 x 1.5

Examples

WE2-6-M-B07C-1-4-D-000
Melt pressure transmitter with type “J” thermocouple, 4...20mA output, 6-pin connector, 1/2-20UNF thread, 700 bar full scale, 0,5% accuracy class, 153 mm (6”) rigid stem, 457mm (18”) flexible capillary.

WSPM0-6-M-P03M-1-4-0-000
Melt pressure transmitter autocompensated version, rigid stem, 4...20mA output, 6-pin connector, 1/2-20UNF thread, 3000 psi full scale, 0,5% accuracy class, 153 mm (6”) rigid stem.

Sensors are manufactured in compliance with:
- EMC compatibility directive
- RoHS directive

Electrical installation requirements and Conformity certificate are available on our web site: www.gefran.com

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14.4 Manual Revisions

Revision	Page/ Chapter	Description
Rev.11.18	Ch.3.4	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.10	V6 Profinet-Kit 121151 replaced with 121436.
Rev.7.19	Ch.6	Tandem Operation is added to V6 controller.
	Ch.5.2	Drum detection sensor added.
	Ch.9	Base Assembly DM55 V6, PN 823758 added.
Rev.10.19	Ch.13	Schematics updated.
Rev.11.19	Ch.9	Pneumatic assembly 823063 updated and 823441 added.
	Ch.9	Gear Pump Mounting Block Assembly, PN 114482K updated.
	Ch.9	Pneum. pressure relief assembly, 3-position, PN 118256B added.
Rev.5.20	Ch.3.4	Model Designation Guide updated.
	Ch.6	Main screen pictures updated.
	Ch.5	Changing the Multi-System Configuration in V6 controller.
Rev.10.20	Ch.3.4	Model Designation Guide updated.
Rev.2.21	Ch.13	Schematics updated.
Rev.5.21	Ch.6.2	V6 Touch updated. New setting for Global Zone.
	Ch.10	Pressure gauge 819685 replaced by 101175.
	Ch.13	New schematics 823172AB, 823173AA, 823174Z.
Rev.10.22	Ch.9	Platen core asy, Standard air inject, Option, PN 114519, added. Platen core asy, Vertical & Separate air inject, Option, PN 118234, added.
Rev.1.23	Ch.3.3	Specifications: Maximum operating temperature of 204°C (400°F) added.
Rev.4.23	Ch. 1	CE declaration updated.
Rev.8.23	P.1	Manual language added.
Rev.5.24	Ch.9	Platen core asy, Standard air inject, Option, PN 114519V, updated. Platen core asy, Vertical & Separate air inject, Option, PN 118234D, updated.
Rev.3.25	Ch.13	New schematics 823172AC, 823173AB, 823174AA.
Rev.4.25	Ch.11.3	Drive kit 815354 replaced by 816341 Yaskawa Drive. Circuit breaker 10A 811572 replaced by 104207 15A.

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