ITW Dynatec®

Adhesive Application Solutions | ISO 9001 certified

DYNAMELT SR

ADHESIVE MELT & SUPPLY UNIT

DM SR5, SR10, SR22, SR45
with Gear Pump and V6 LCD Controller

Technical Documentation, No. 20-59G, Rev.5.25
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.

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

ITW Dynatec Service Parts and Technical Service:

AMERICAS

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

EUROPE, MIDDLE EAST & AFRICA

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

ASIA PACIFIC

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

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

Index

Chapter 1
Declaration of Incorporation / Conformity

EC declaration of conformity

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

Original

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

ITW Dynatec

31 Volunteer Drive

37075 Hendersonville, TN

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

Andreas Pahl

ITW Dynatec GmbH

Industriestraße 28

40822 Mettmann

Description and identification of the machinery

Product / Article	Adhesive supply unit
Project number	Dynamelt SR
Commercial name	Dynamelt SR
Model	SR05, SR10, SR22, SR45; 400V and 480V transformer units included
Function	Melting and delivery of hot melt adhesives

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

2014/30/EU	Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast) Published in 2014/L 96/79 of 3/29/2014
2014/35/EU	Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits Published in 2014/L 96/357 of 3/29/2014
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
2011/65/EU	Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment Published in 2011/L 174/88 of 7/1/2011

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

EN ISO 13850:2015	Safety of machinery — Emergency stop function — Principles for design (ISO 13850:2015)
EN ISO 12100:2010-11	Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)
EN 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, TN, 3/6/2023		
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!

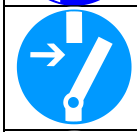
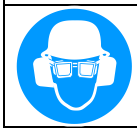
1. Read and follow these instructions.
   Failure to do this could result in severe personal injury or death.
2. Keep the binding rules for accident prevention valid for your country and the place of installation. Also keep the approved qualified technical rules for safety-conscious and professional 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. Do not operate the hopper or other system components without adhesive for more than 15 minutes if the temperature is 150° C (300° F) or more. To do so will cause charring of the residual adhesive.

6. Never activate the heads, hand-held applicators and/ or other application devices until the adhesive's temperature is within the operating range. Severe damage could result to internal parts and seals.

7. Never attempt to lift or move the unit when there is molten adhesive in the system.

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

9. Use the unit only as it is intended to.

10. Never let the unit run unattended.

11. Operate the unit only in a faultless and fully functional condition. Check and make sure that all safety devices work in proper form!

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

2.5 Explosion/ Fire Hazard

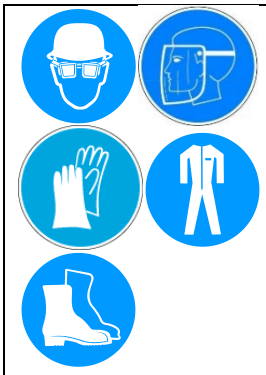
1. Never operate this unit in an explosive environment.
2. Use cleaning compounds recommended by ITW Dynatec or your adhesive supplier only.
3. Flash points of cleaning compounds vary according to their composition, so consult with your supplier to determine the maximum heating temperatures and safety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

2.6 Choice of Adhesive

DANGER! HARMFUL FUMES!

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

2.7 Eye Protection & Protective Clothing



WARNING
EYE PROTECTION & PROTECTIVE CLOTHING REQUIRED

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

2.8 Electrical

DANGER HIGH VOLTAGE

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

2.9 Lockout/ Tagout

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

1. Follow OSHA 1910.147 (Lockout/ Tagout Regulation) for equipment's lockout procedures and other important lockout/tagout guidelines.

2. Be familiar with all lockout sources on the equipment.

3. Even after the equipment has been locked out, there may be stored energy in the application system, particularly in the capacitors within the panel box. To ensure that all stored energy is relieved, wait at least one minute after removing power before servicing electrical capacitors.

2.10 High Temperatures

WARNING HOT SURFACE

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

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

2.11 High Pressure

WARNING HIGH PRESSURE PRESENT

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

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

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

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

5. Keep the given operating pressure.

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

2.12 Protective Covers

WARNING
DO NOT OPERATE WITHOUT GUARDS IN PLACE

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

2.13 Servicing, maintenance

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

2.14 Cleaning Recommendation

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

2.15 Secure transport

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

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

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

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

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

2.16 Treatment for Burns from Hot Melt Adhesives

Measures after being burned:

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

2. Cool burnt parts immediately!

3. Do not remove adhesive forcibly from the skin!

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

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

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

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

2.17 Measures in case of fire

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

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

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

Measures in case of fire:

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

Firefighting - burning hot melt:

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

EXTINGUISH FIRE

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

For safety reasons not appropriate extinguishing agents: None.

Firefighting - burning electrical equipment:

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

2.18 Keep attention to environmental protection standards

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

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

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

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

Chapter 3
Description and Technical Specs

3.1 Applicable Safety Regulations

3.1.1 Intended Use

The Dynamelt SR Adhesive Supply Unit (ASU) may be used only to melt and supply suitable materials, e.g. adhesives. When in doubt, seek permission from ITW Dynatec.

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

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

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

Any other use is considered to be unintended.

3.1.2 Unintended Use, Examples

The Dynamelt SR ASU may not be used under the following conditions:
- In defective condition.
- In a potentially explosive atmosphere.
- With unsuitable operating/processing materials.
- When the values stated under Specifications are not complied with.

The Dynamelt SR ASU may not be used to process the following materials:
- Toxic, explosive and easily flammable materials.
- Erosive and corrosive materials.
- Food products.

3.1.3 Residual Risks

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

3.1.4 Technical changes

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

3.1.5 Using foreign components

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

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

3.1.6 Setting-up operation

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

3.2 Description Dynamelt SR

3.2.1 Description

The Dynamelt SR Series adhesive supply unit (ASU) is a computer-controlled hot-melt supply unit designed on metric standards. Its “all-icon" control panel, with choice of display languages, is internationally operator friendly. It is available for 240V (1Ph), 240V (3Ph Delta) or 400V (3Ph Wye) service. A transformer kit is available for 400V (3Ph Delta) and 480V (3Ph Delta).

Available in four hopper sizes and with a choice of piston or gear pump, the Dynamelt SR ASU uses a microprocessor temperature control to closely control the temperature of hot-melt adhesive for up to six hoses and six heads. Temperature setpoints are operator-selected for up to 16 zones and the system automatically provides warnings and alarms for operator errors and system malfunctions.

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

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

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

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

The Dynamelt SR ASU's gear pump assures a smooth and precise flow of adhesive. The single or dual pump is driven by a single drive.

The Dynamelt's hopper accepts adhesive in all popular forms, including pellets, slugs and blocks. The ASU can accommodate air-actuated automatic applicators (heads), electric applicators, hand-held applicators and/or special applicators. Among the available options are pressure gauge, pendant control, stack lights and line speed tracking.

3.2.2 Specifications

Environmental:

Storage/ shipping temperature ..... -40°C to 70°C (-40°F to 158°F)
Ambient service temperature ..... -7°C to 50°C (20°F to 122°F)
Noise emission ..... < 60 dbA (at 1 meter)

Physical:

Dimensions ..... see dimensional layouts on following pages
Number of hoses/ applicators ..... 2, 4 or 6 hoses/ applicators
Number of hopper temperature zones ..... 1 or 2
Number of pumps 1
Gear pump ..... 1.5 cc/rev or 4.5 cc/rec standard
Enclosure ..... styled, durable metal and high temp polymer, dust and splatter resistant
Hose connections ..... standard = universal 15-pin Amphenol connectors at ASU
wrench-secured fluid fittings (#6 JIC)
optional NDSN = 12-pin rectangular electrical connectors
Hopper (tank) capacity ..... DM SR5 = 4.7 kg (10 lbs)
DM SR10 = 9.5 kg (20 lbs)
DM SR22 = 22 kg (48 lbs)
DM SR45 = 45 kg (100 lbs)
Hopper lid openings ..... DM SR05 / SR10 = 135.6 mm x 135.6 mm
DM SR22 / SR45 = 235.6 mm x 235.6 mm
Hopper construction ..... welded aluminum, cast-in heaters
Hopper coating ..... ceramic nano-composite
Filtration ..... hopper: filter and shutoff asy
filter manifold: large pleated pump outlet filter
Weight, empty ..... DM SR5 = 58.5 kg (129 lbs)
DM SR10 = 62.6 kg (138 lbs)
DM SR22 = 80 kg (177 lb)
DM SR45 = 90 kg (198 lbs)
(These are approximate values because the weight depends on the number of premelt grids, the size of the pump, etc. Each premelt grid weighs ca. 5kg.)
Adhesive form ..... accepts most forms

Electrical:

Service requirements ..... 230-240 VAC, 1ph, ASUs = 50-60 Hz, see also Wattage Chart
240/ 400 VAC, 3ph, ASUs = 50-60 Hz, see also Wattage Chart
Power consumption, system maximum .....
Single Phase 230-240 VAC system: DM SR5/10/22/45 = 7200 W
3-Phase 240/400 VAC system: DM SR5/10 = 9650 W
3-Phase 240/400 VAC system: DM SR22/45 = 12200W
Hopper heater type ..... cast-in tubular
Temperature control ..... microprocessor-based proportional integral derivative (PID)
Temperature sensors ..... 100 Ohm Platinum RTD standard
120 Ohm Nickel RTD optional
Electrical connectors ..... durable, latching connectors
Motor ..... 1/4 hp, alternating current (AC) motor,
with variable frequency drive, horizontal orientation
Maximum recommended pump speed ..... 90 revolutions per minute

Pressurized Air:

Air pressure supply (optional pneumatic pressure relief valve) ..... 0.7 to 7.0 bar (10 to 100 psi)

Performance:

Maximum operating temperatures ..... 218°C (425°F)
Over-temperature cutoff (thermostat) for hopper ..... 232°C (450°F)
Adhesive temperature control range ..... 10°C to 232°C (50°F to 450°F)
Adhesive temperature control accuracy ..... ±1°C (1°F)
Standby adhesive temperature range ..... up to 80°C (150°F) lower than setpoint
Hopper ready adhesive temperature deviation (factory set/ field adjustable) ..... + 20°C (36°F) from

setpoint
Adhesive viscosity ..... 500 to 50.000 centipoise
Warm-up time, full hopper ..... approximately 30-40 minutes
Adhesive delivery rate, open line *..... up to 0.38 kg/min (0.83 lbs/min) (4.5cc gear pump)
Typical adhesive melt rate *..... DM SR5 & SR10 = up to 10.7 kg/h (23.6 lbs/h)
DM SR10 with premelt grid = up to 15.4 kg/h (34 lbs/h)
DM SR22 = up to 22.6 kg/h (50 lb/h)
DM SR22 w. premelt grid = up to 41.3 kg/h (91 lb/h)
DM SR45 = up to 23.1 kg/h (50.9 lb/h)
SR45 w. premelt grid = up to 45.6 kg/h (100.4 lb/h)
Adhesive pressure..... up to 68 bar (1000 psi) maximum

* depends on adhesive used.

DynaControl V6 Temperature Controller:

Power board .....5 zones per board, modular construction
Auxiliary board .....5 zones per board, modular construction
Display type.....liquid crystal (LCD)
Temperature control zones ..... 5-15 triac-output
Fuses ..... 13 on main power board, 10 on each auxiliary power board: 10/12AF / 6.3 AT

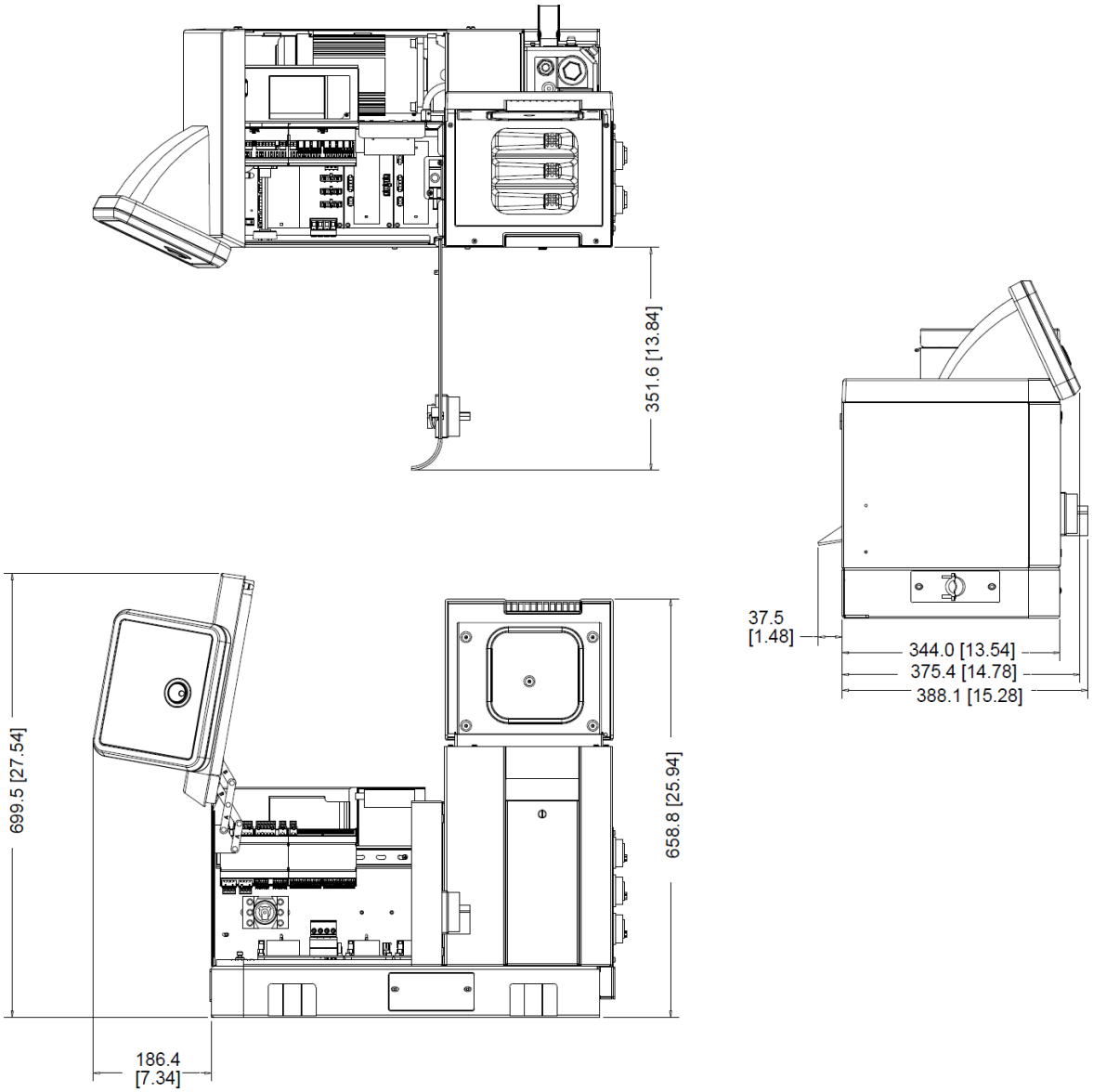
Other

Display languages..... English, German, Spanish, French, Japanese, Chinese, Hungarian
Operator interface ..... LCD graphic display with rotary-knob controller, with simple icons
Temperature stand-by.....yes
High and low temperature alarms .....yes
Ready interlock.....yes
Password protection.....yes
Sequential heating..... yes (hopper, hose, head staged heating)
Sensor open alarm.....yes
EtherNet/ IP communications capable .....yes
Seven-day scheduler.....yes
Adhesive level sensor .....yes
CE approval .....yes

3.2.3 Dimensions

3.2.3.1 DM SR5

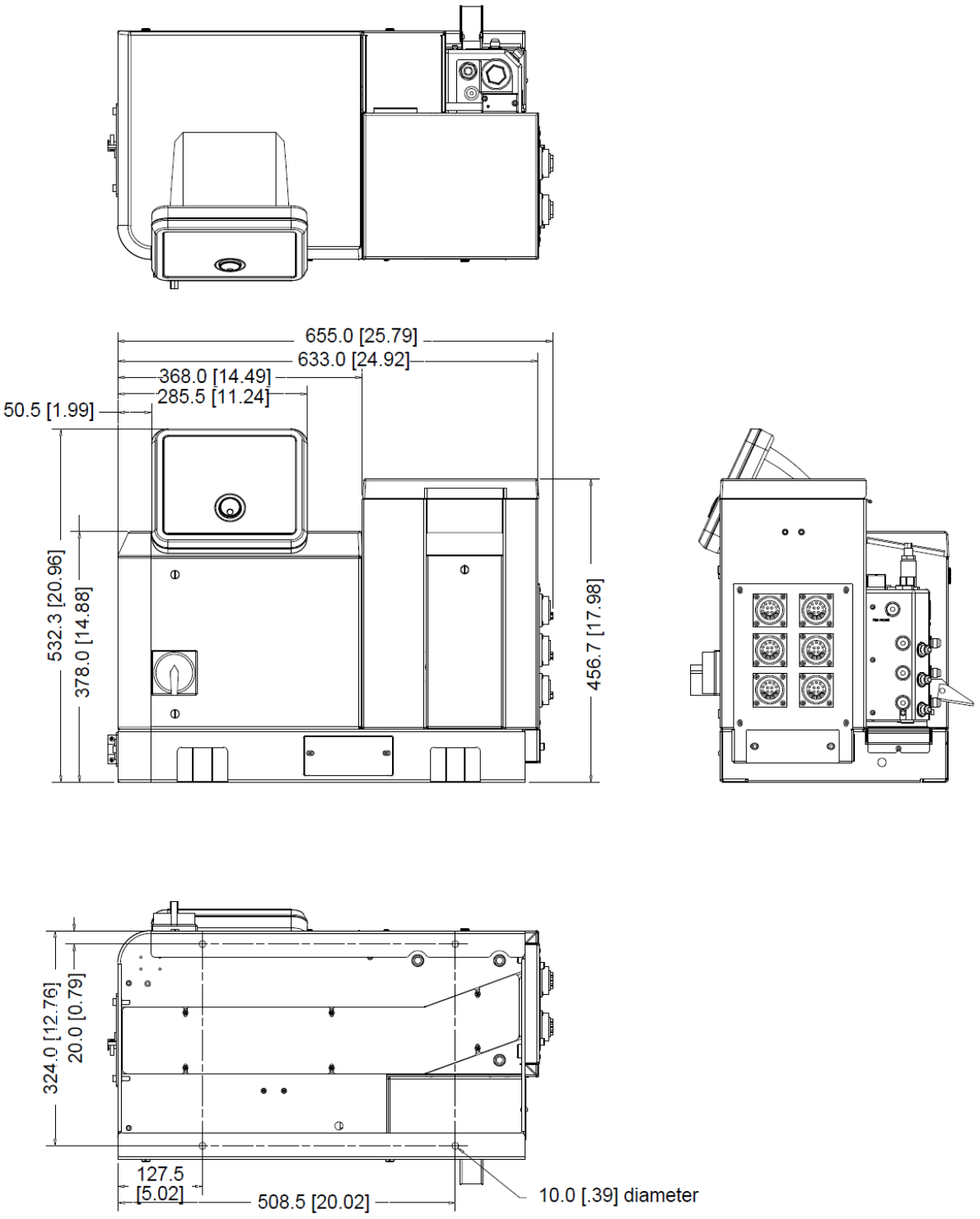
Dimensions are expressed as “mm [inch]”.



Installation & Clearance Dimensions: DM SR5: 5 kg (10 lb) Hopper Capacity

DM SR5

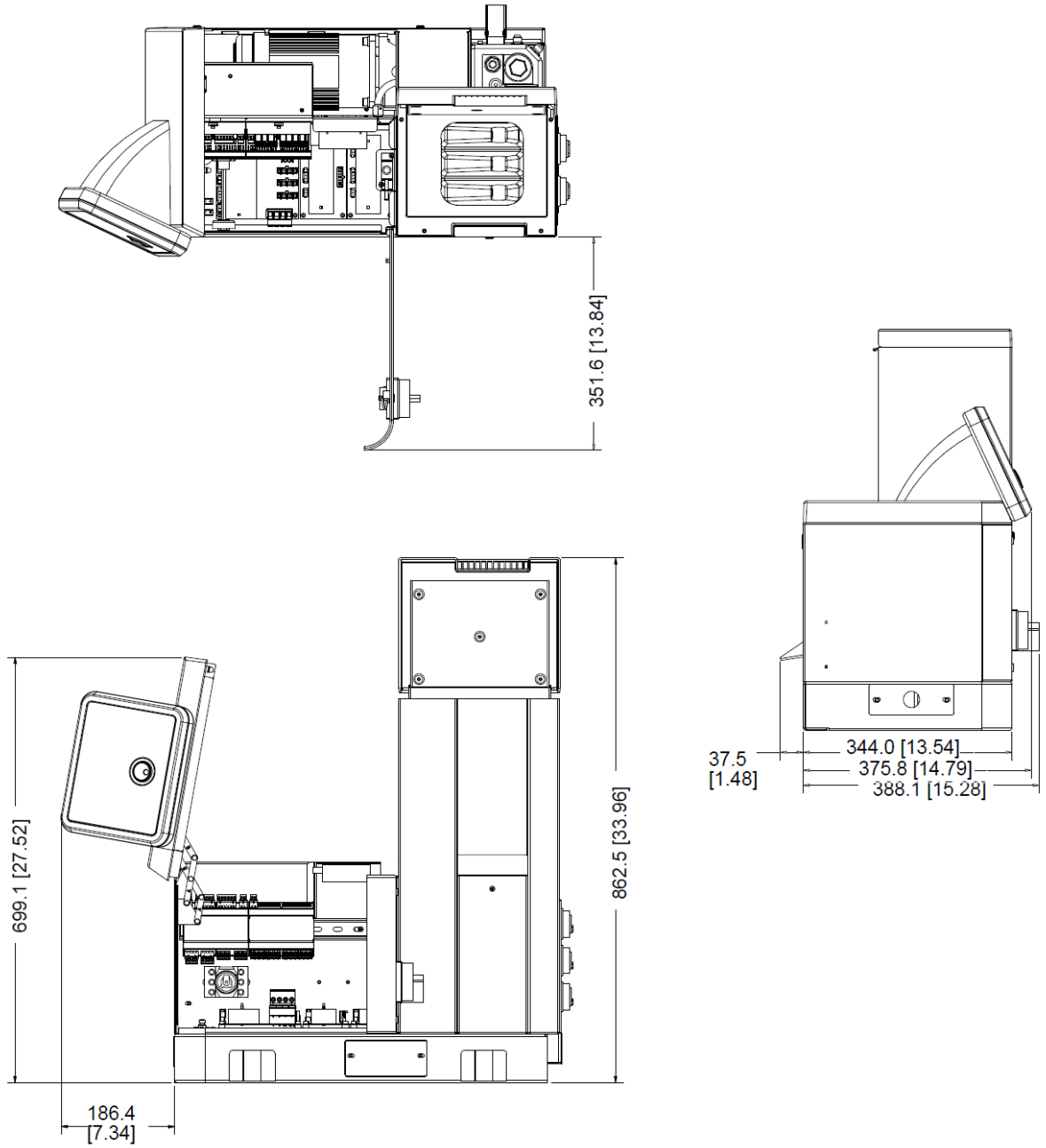
Dimensions are expressed as “mm [inch]”.



Installation & Clearance Dimensions: DM SR5: 5 kg (10 lb) Hopper Capacity

3.2.3.2 DM SR10

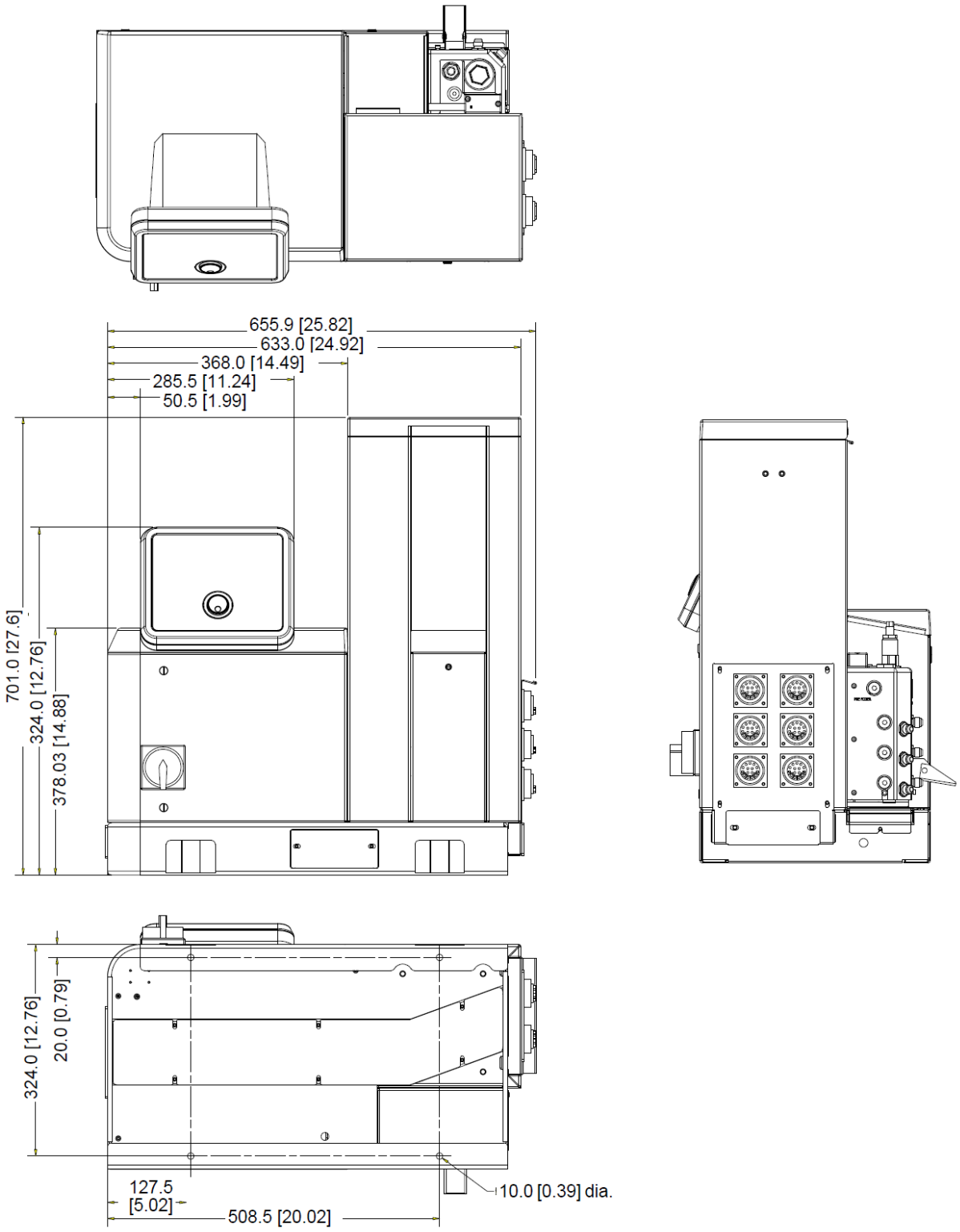
Dimensions are expressed as “mm [inch]”.



Installation & Clearance Dimensions: DM SR10: 10 kg (20 lb) Hopper Capacity

DM SR10

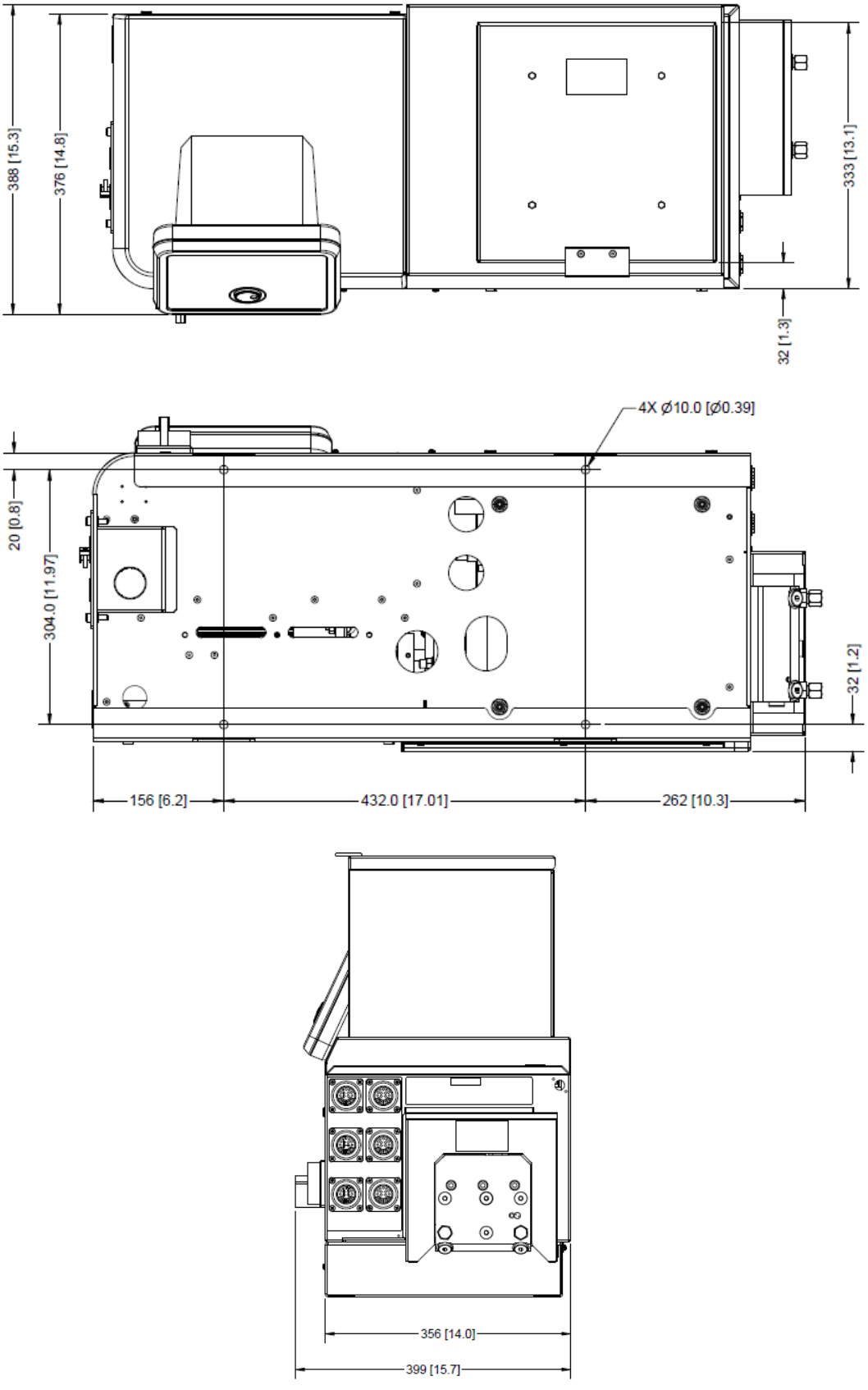
Dimensions are expressed as “mm [inch]”.



Installation & Clearance Dimensions: DM SR10: 10 kg (20 lb) Hopper Capacity

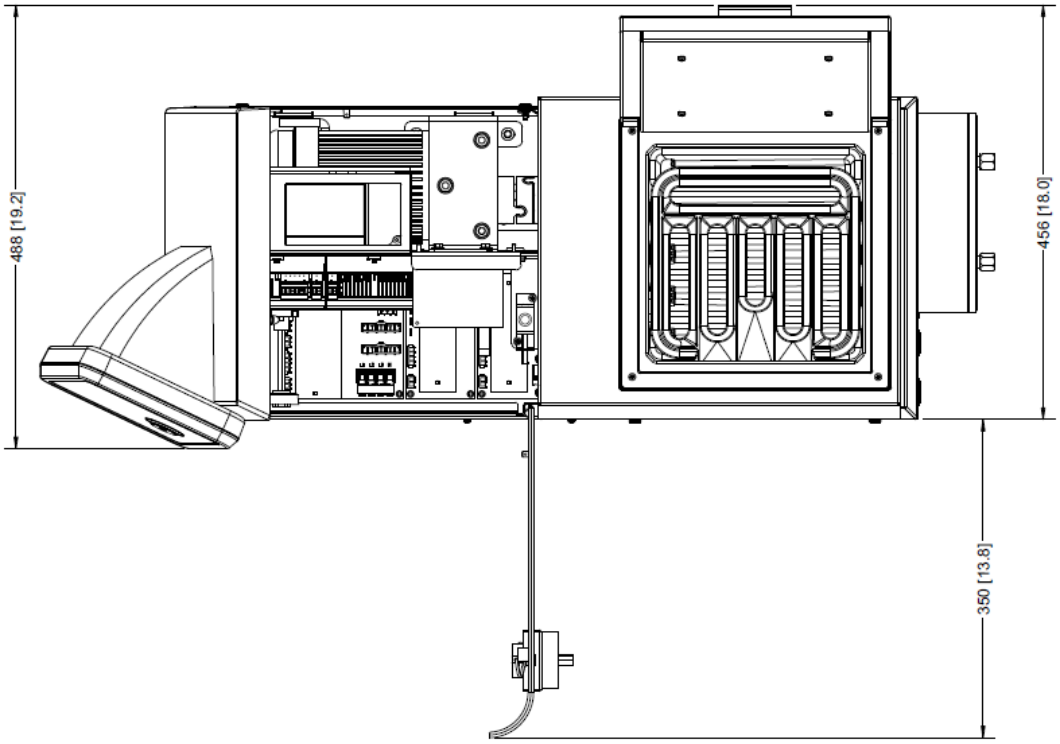
3.2.3.3 DM SR22 & SR45

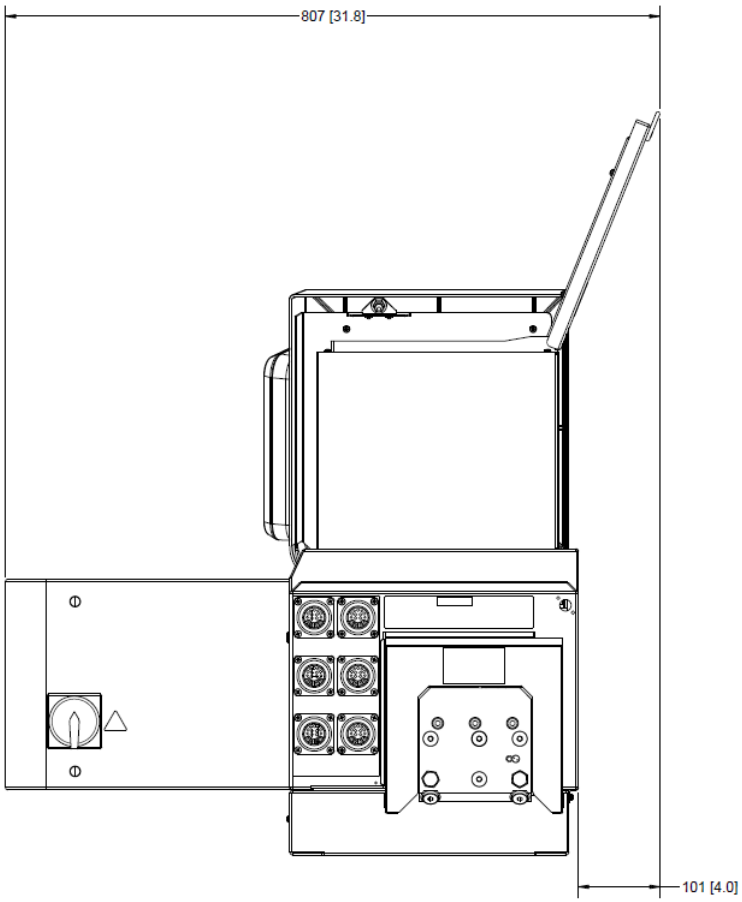
Dimensions are expressed as “mm [inch]”.



DM SR22 & SR45

Dimensions are expressed as “mm [inch]”.

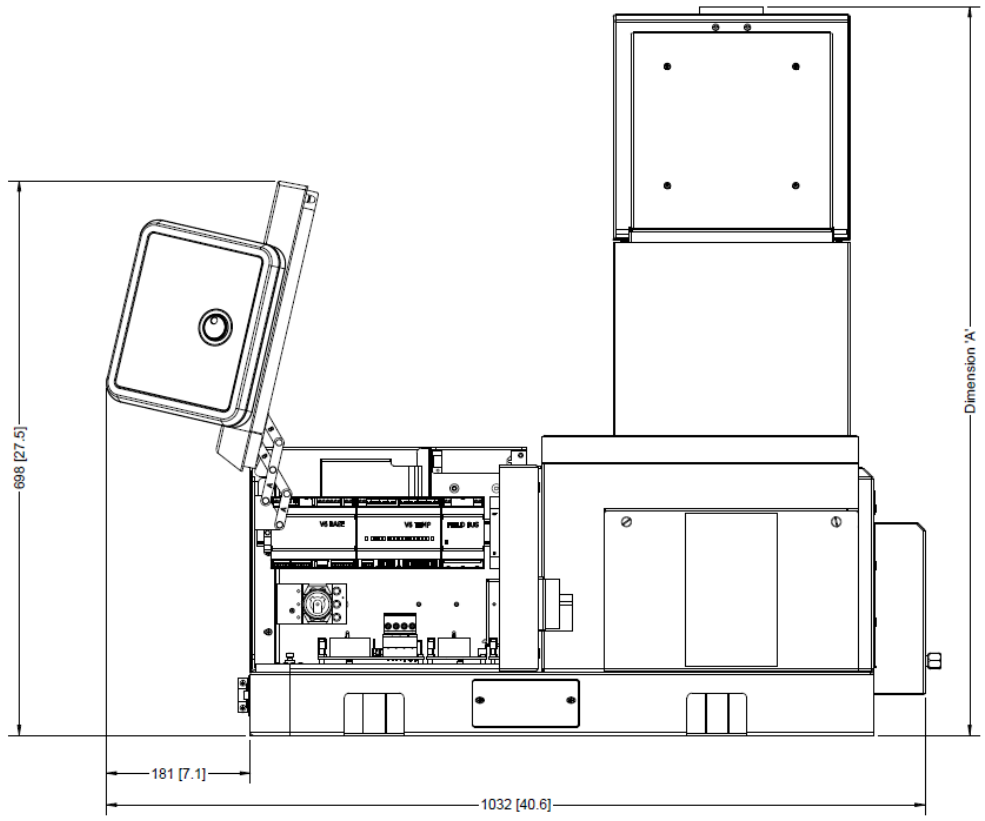


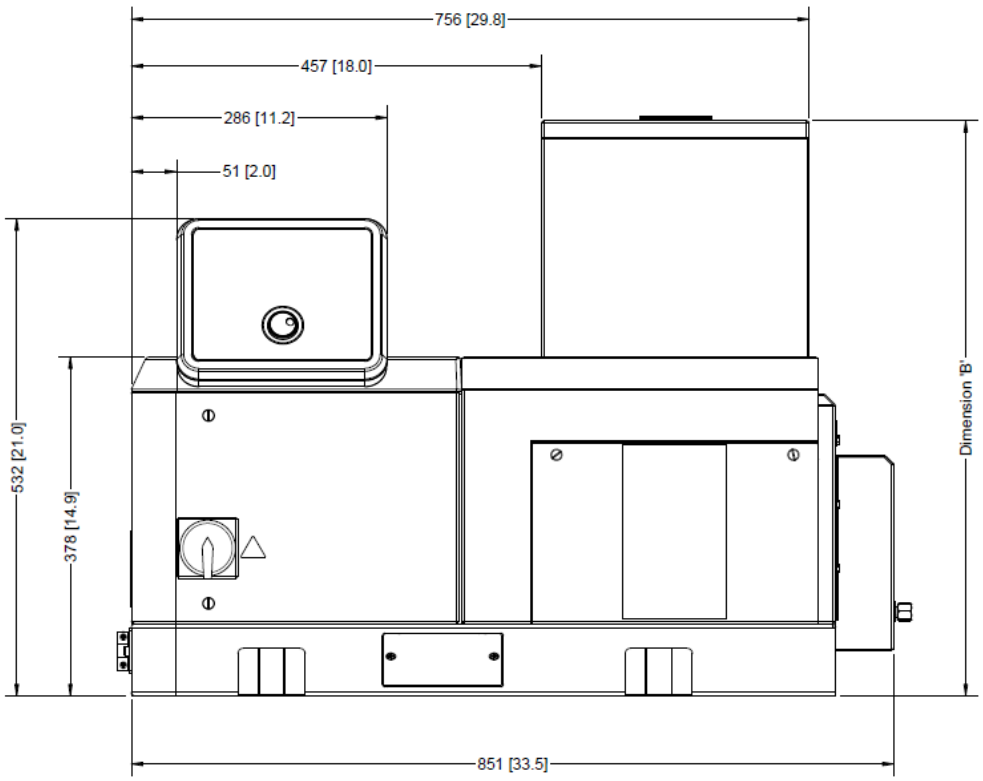


DM SR22 & SR45

Dimensions are expressed as “mm [inch]”.

Table		
Size	Dimension “A”	Dimension “B”
SR22	918 mm [36.1 in]	642 mm [25.3 in]
SR45	1324 mm [52.1 in]	1048 mm [41.3 in]





3.2.4 Amperage Calculation

The Amperage Calculation chart assumes standard ITW Dynatec equipment. Applicator head/ air heater width is typically equal to the applicator's service block width. For non-standard equipment, read the amperage from the equipment's data tag or consult with ITW Dynatec's Customer Service Dept. Wire gauge calculation assumes wire rating of 75°C.

CAUTION

The customer is responsible for providing appropriate over-current protection.

Amperage Calculation Chart DM-SR (V6)

PN 117249 Rev. B

ASU Size

Model	SR5/10	SR 22/45	1 premelt grid	2 premelt grids
Amp	9.5 (with premelt grid 12.6)	10.4	20.8	31.2

Amps → Select

STEP 1 Enter Amps

Total Length of All Hoses

Feet	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
m	3.7	7.3	11	14.6	18.3	22	25.6	29.3	33	36.6	40.3	43.9	47.6	51.2	54.9
Amp	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	19.5	21	22.5

+

STEP 2 Add up all hoses. Enter Amps

Total Width of All Applicator Heads

Inches	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
mm	**102**	**203**	**305**	**406**	**508**	**610**	**711**	**813**	**914**	**1016**	**1118**	**1219**	**1320**	**1422**	**1524**
Amp	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30

+

STEP 3 Add up all applicators. Enter Amps

Total Width of All Air Heaters

Inches	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28
mm	0	51	102	152	203	256	305	356	406	457	508	559	610	660	711
Amp	0	2.5	5	7.5	10	12.5	15	17.5	20	22.5	25	27.5	30	32.5	35

+

STEP 4 Add up all air heaters. Enter Amps

Total Current for SINGLE PHASE AC Input Voltage =

STEP 5 Add up total Amps

STEP 6 Find the column with your total single phase amperage in chart at left

Recommended Wire Gauge and Over-Current Protection for Your Power Source

SINGLE PHASE AC INPUT VOLTAGE SPECIFICATIONS

Amp	20	23	26	29	32	35	38	41	44	47	50	53	56	59	62
AWG	10	10	8	8	8	8	8	8	6	6	6	6	Contact Dynatec		
mm^2	2.5	2.5	4	4	4	6	6	10	10	10	10	10			

Amp @ Single PH 240V

Wire Gauge

STEP 7 Select your AC in Voltage

3- PHASE, 240VAC INPUT VOLTAGE SPECIFICATIONS

Amp	12	13	15	17	18	20	22	24	25	27	29	31	32	34	36
AWG	12	12	12	10	10	10	10	10	10	8	8	8	8	8	8
mm^2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	4.0	4.0	4.0	4.0	6.0	6.0

Amp @ 3PH 240V

Wire Gauge

3- PHASE, 400VAC INPUT VOLTAGE SPECIFICATIONS

Amp	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
AWG	12	12	12	12	12	12	12	12	12	12	10	10	10	10	10
mm^2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

Amp @ 3PH 400V

Wire Gauge

Find the corresponding maximum amperage and wire gauge

3.2.5 Maximum Wattage Chart

The power consumption of a system is maximum:

- 230-240 VAC, 1ph, DM SR5/ SR10 = 7200 W,
- 240/ 400 VAC, 3ph, DM SR5/ SR10 = 9650 W.

This chart is assuming maximum loads. If actual loads are lower, refer to calculation on previous page.

The Wattage Chart shows the maximum current of the power service. Use the chart to determine the adequate max. power service for your ASU.

	Required Voltage Service			Available Power for Hoses/Heads			
Model	**Single Phase 230 V**	**Three Phase 240 V**	**Three Phase 400 V**	**2 Hoses & 2 Heads (# 1 & 2)**	**2 Hoses & 2 Heads (# 3 & 4)**	**2 Hoses & 2 Heads (# 5 & 6)**	**Total for all Hoses & Heads**
SR5/10 w. 2 Hoses & 2 Heads	5600 W 24 A	5600 W 14 A	5600 W 8 A	2400 W *	n.a.	n.a.	2400 W
SR5/10 w. 4 Hoses & 4 Heads	7200 W 32 A	8000 W 20 A	8000 W 12 A	2400 W *	2400 W *	n.a.	1PH: 4000 W 3PH: 4800 W
SR10 w. 6 Hoses & 6 Heads	7200 W 32 A	9650 W 26 A	9650 W 15 A	2400 W *	2400 W *	2400 W * **	1PH: 4000 W 3PH: 7200 W
SR22/45 w. 2 Hoses & 2 Heads	5600 W 24 A	5600 W 14 A	5600 W 8 A	2400 W *	n.a.	n.a.	2400 W
SR22/45 w. 4 Hoses & 4 Heads	7200 W 32 A	7600 W 18 A	7600 W 11 A	2400 W *	2400 W *	n.a.	1PH: 4000 W 3PH: 4800 W
SR22/45 w. 6 Hoses & 6 Heads	7200 W 32 A	10000 W 24 A	10000 W 14 A	2400 W *	2400 W *	2400 W * **	1PH: 4000 W 3PH: 7200 W
DM SR22/45 with one Premelt grid:							
SR22/45 w. 2 Hoses & 2 Heads	7200 W 32 A	5600 W 14 A	5600 W 8 A	2400 W *	n.a.	n.a.	1PH: 2200 W 3PH: 2400 W
SR22/45 w. 4 Hoses & 4 Heads	7200 W 32 A	10000 W 24 A	10000 W 14 A	2400 W *	2400 W *	n.a.	1PH: 2200 W 3PH: 4800 W
SR22/45 w. 6 Hoses & 6 Heads	7200 W 32 A	12200 W 30 A	12200 W 17 A	2400 W *	2400 W *	2400 W * **	1PH: 2200 W 3PH: 7200 W
DM SR45 with two Premelt grids:							
SR45 w. 2 Hoses & 2 Heads	n.a.	10000 W 24 A	10000 W 14 A	2400 W *	n.a.	n.a.	1PH: n.a. 3PH: 2400 W
SR45 w. 4 Hoses & 4 Heads	n.a.	12200 W 30 A	12200 W 17 A	2400 W *	2400 W *	n.a.	1PH: n.a. 3PH: 4800 W
SR45 w. 6 Hoses & 6 Heads	n.a.	14600 W 36 A	14600 W 21 A	2400 W *	2400 W *	2400 W * **	1PH: n.a. 3PH: 7200 W

n.a. = not available.

* The 2400 W is the max. power available for 2 hoses and 2 heads; the power for 1 hose and 1 head is in average 1200 W.

** If a premelt grid (750 W) is installed in a SR10 with 6 hoses & 6 heads, it reduces the available power on hoses no. 5 & 6 from 2400 W to 1650 W.

3.2.6 Calculation Chart for Effective Wattage of Your System

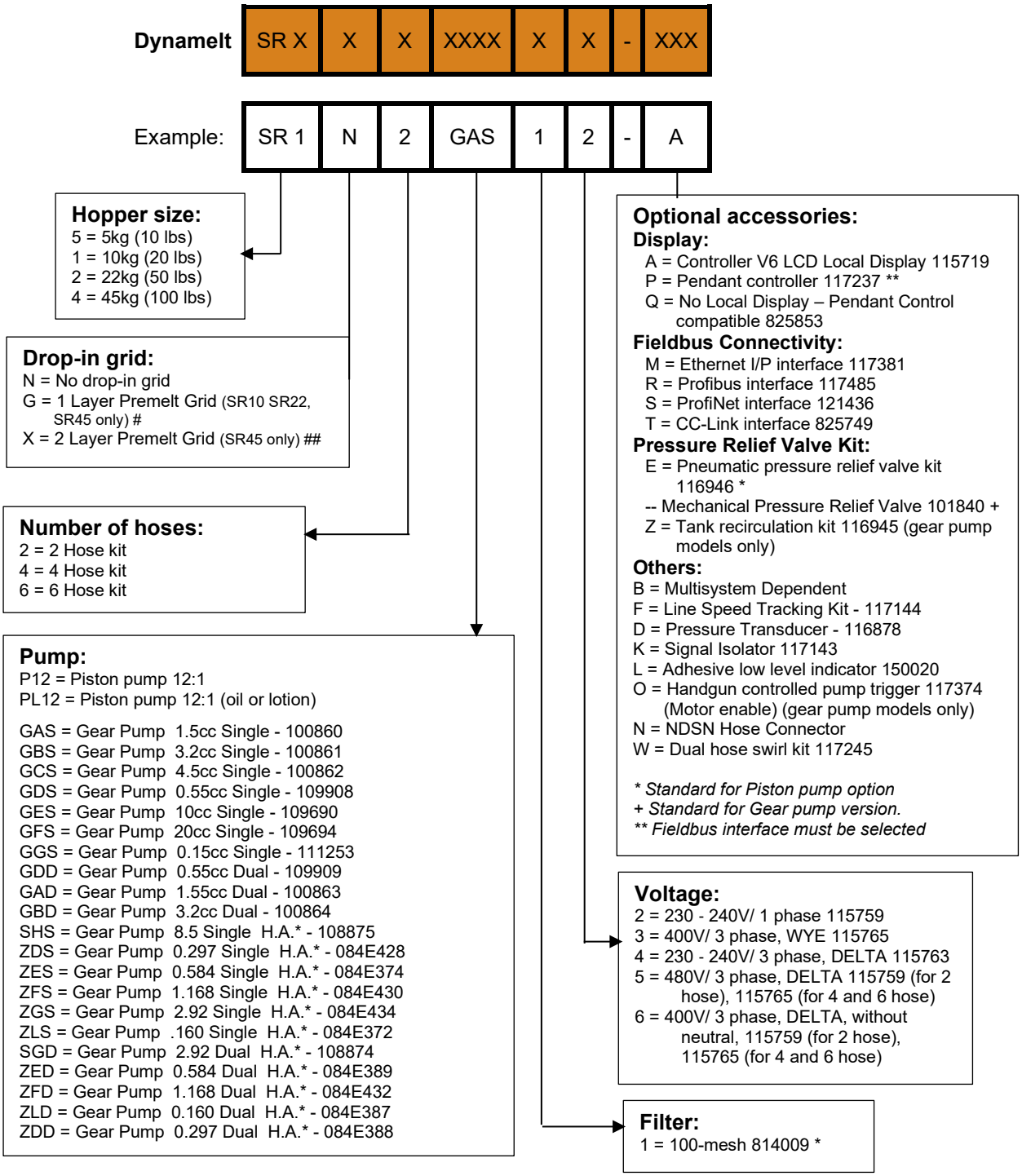
Enter the component's wattage values and calculate the effective wattage of your system.

NOTES:

- The wattage and quantity of **hopper**, **filter block**, **motor** and **premelt grid** are fixed.
- The wattage of **hoses** may vary according to the length, size and quantity. Refer to the hose manual and hose identification plate for the specific wattage.
- The wattage of **applicators** and **auxiliary zones (e.g. air heater)** may vary according to the size and quantity. Refer to the applicator manual and applicator identification plate for the specific wattage.

Component		Quantity	Wattage each	Wattage total
Hopper (tank)	SR5/10:	1	1500 W	
	SR22/45:	1	2500 W	
Filter Block (only on SR5/10)		0 or 1	775 W	
Motor (only on SR gear pump unit)		1	200 W	
Premelt Grid	SR10:	0 or 1	750 W	
	SR22:	0 or 1	2500 W	
	SR45:	0, 1 or 2	2500 W	
Hose 1				
Hose 2				
Hose 3				
Hose 4				
Hose 5				
Hose 6				
Applicator 1				
Applicator 2				
Applicator 3				
Applicator 4				
Applicator 5				
Applicator 6				
			Total Wattage	

3.2.7 Model Designation Matrix



H.A.* = High-Accuracy version.

Select for higher melt rate requirement applications. Depending on adhesive, the melt rate is increased to around plus 5 kg/h. Note that tank capacity is reduced when this grid is installed.

Select for higher melt rate requirement applications. 1st Layer Premelt grid is required. Depending on adhesive, the melt rate is increased to around plus 5 kg/h. Note that tank capacity is reduced when this grid is installed. Capacity and melt rates noted do not include the effect of 1st layer premelt grid. Add these numbers to those from 1st layer premelt grid to see the overall impact.

EXAMPLE: SR1N2GAS12-A = Dynamelt SR ASU with 10-liter hopper, no drop-in grid, 2 hoses, gear pump 1.5 cc single, 100 mesh filter, voltage 240VAC 1 PH, Controller V6 with LCD local display and includes mechanical pressure relief valve.

Chapter 4
Installation & Start-Up

4.1 Typical Installation

CAUTION

- Before setting up, please read this documentation carefully.
- Pay attention to all the installation and connecting advices.
- Heed all safety instructions mentioned in Chapter 2.
- All installation and start-up work must be carried out by qualified and trained technical personnel.

4.1.1 Mounting the Dynamelt SR ASU

The Dynamelt SR series ASU can be mounted on most flat surfaces, on either an open or a solid frame. Four mounting thru-holes have been provided in the base of the unit.

Electrical power and serial communications may be routed through the wire raceway under the unit from either the left or right side of the unit.

For installation dimensions and required clearances, see illustrations in Chapter 3.

4.1.2 Lifting the ASU

WARNING

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

4.1.3 Pre-Installation

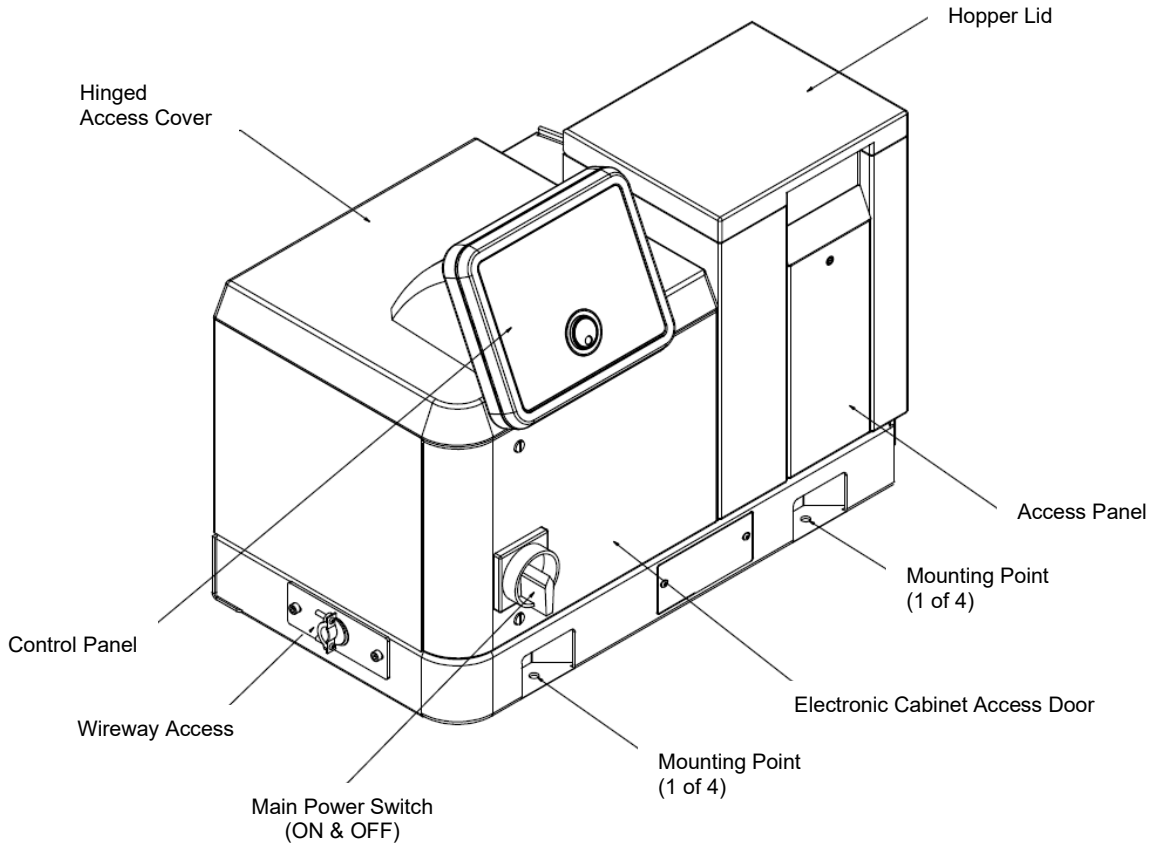
CAUTION

An appropriate power cord and overload protection must be provided by the customer as part of the ASU installation.

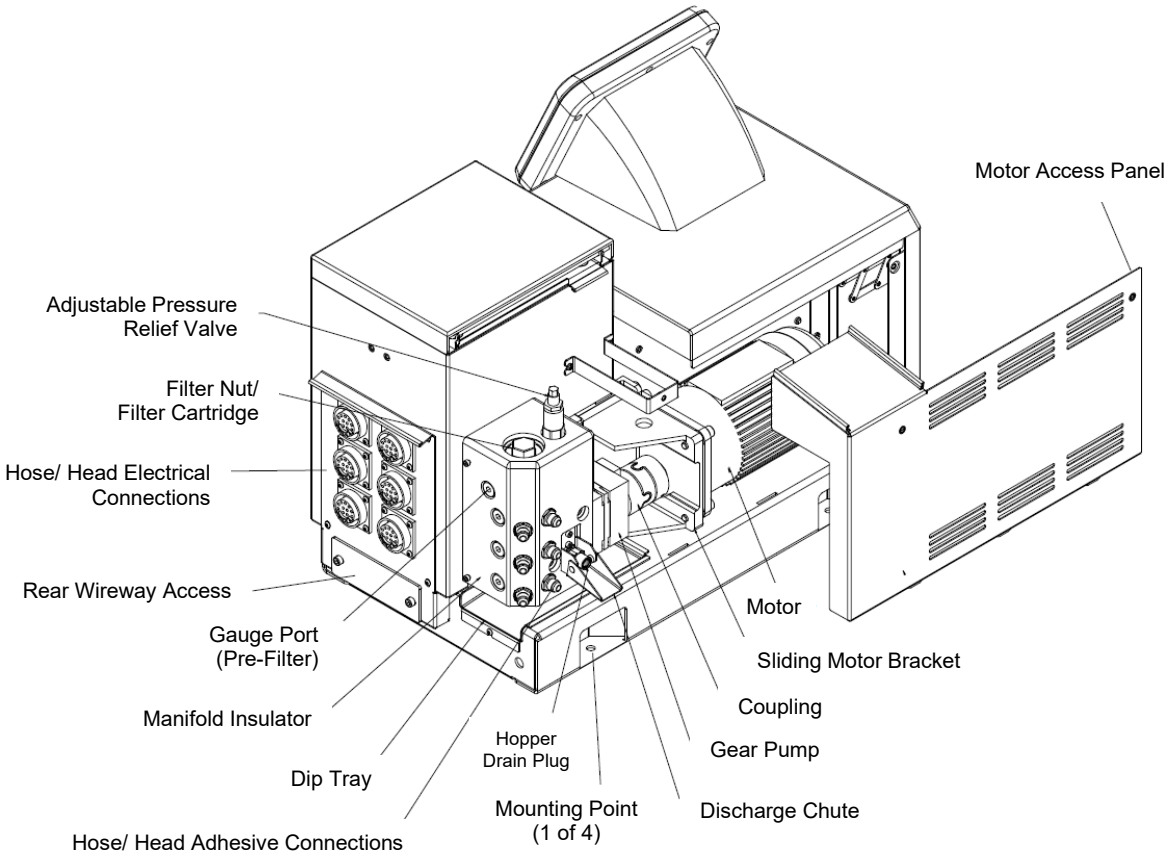
To determine if your electrical system has the correct circuit breaker size and wire gauge for the installation of this hot-melt system, including the ASU, hoses, applicator heads and air heaters, see the Amperage Calculation chart in Chapter 3 before proceeding.

4.1.4 Components of the Dynamelt ASU

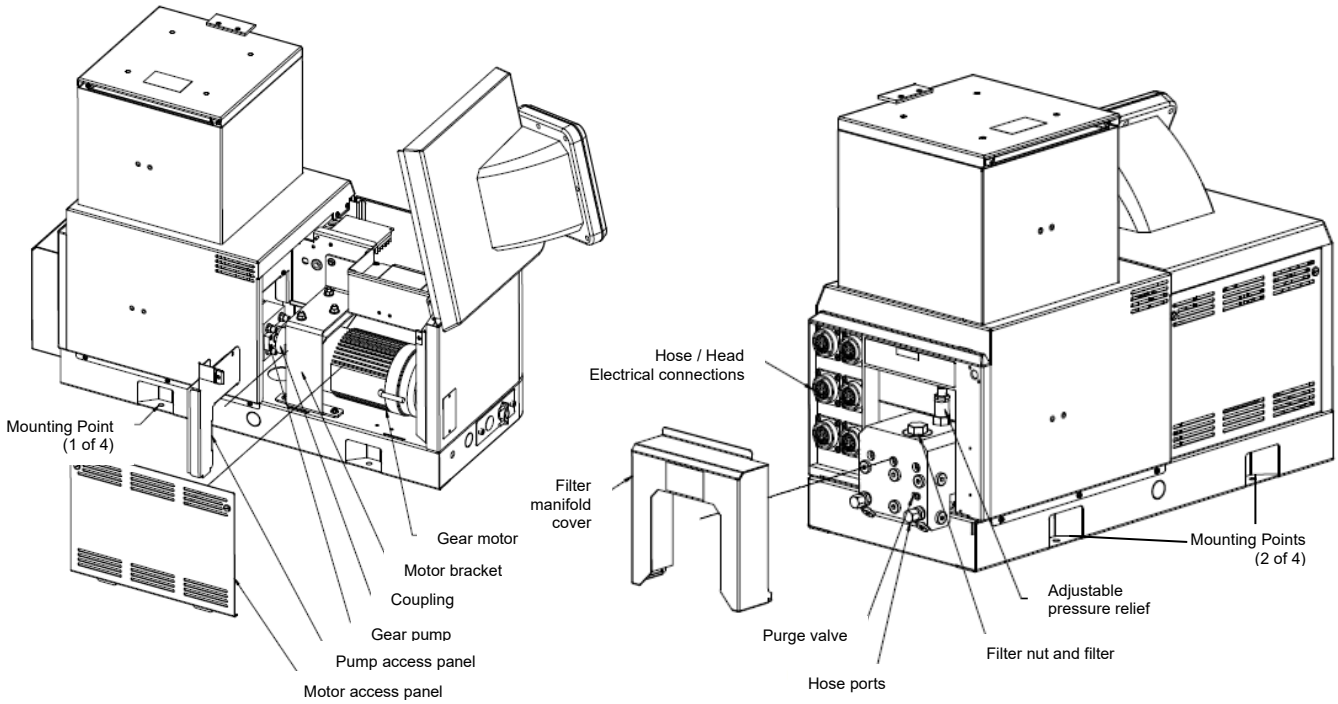
Front View SR5/10/22/45:



Back View SR5/10 Melter:



Back View SR22/45 Melter:



4.1.5 Installation

NOTE: Re-read Chapter 2 “Safety Precautions" before performing any installation procedures. All installation procedures must be performed by qualified, trained technicians.

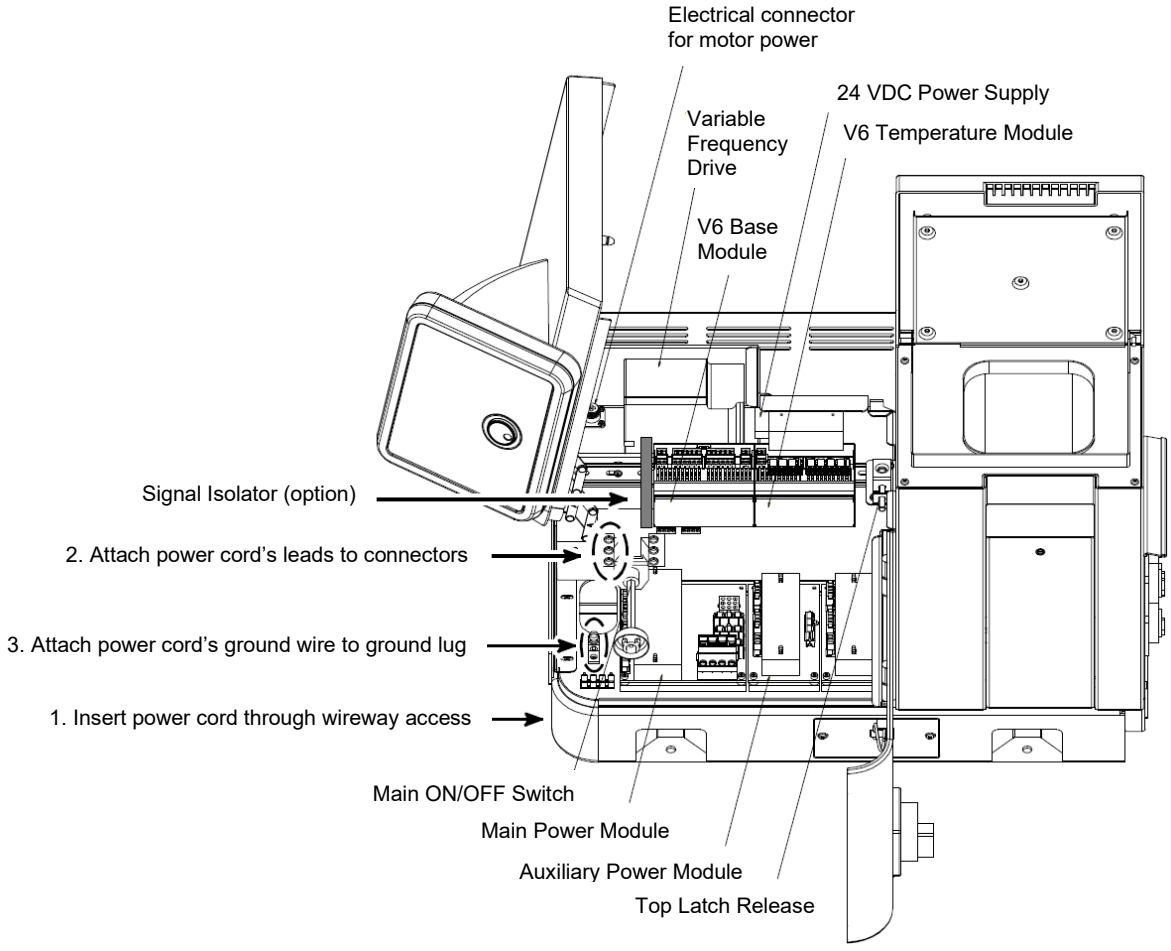
After the Dynamelt SR series ASU has been properly mounted, the following general sequence should be followed for installation. Refer to the component drawings on previous pages for orientation and location of described items.

1. Make sure that incoming line power to the ASU is disconnected and the unit's Main Power Switch is turned OFF.

DANGER HIGH VOLTAGE

Disconnect and lock out input power to the application system before starting any installation procedures. Make sure there is no electrical power on the leads you will be connecting.

2. Loosen the latch screws on the top and bottom of the electrical cabinet access door. Select a power cord sized correctly for your ASU's amperage. Run the power cord through the wireway to the hole in the bottom of the base plate. Attach the power cord at the main switch's connectors. Secure the cord with a strain relief. Attach a ground wire to the ground lug provided in the base plate.



Main Power Installation & Internal Components

CAUTION

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

3. A voltage configuration connector (plug), appropriate for your order, has been installed in your ASU. Before proceeding, verify that this connector is correct for your operating voltage.

CAUTION

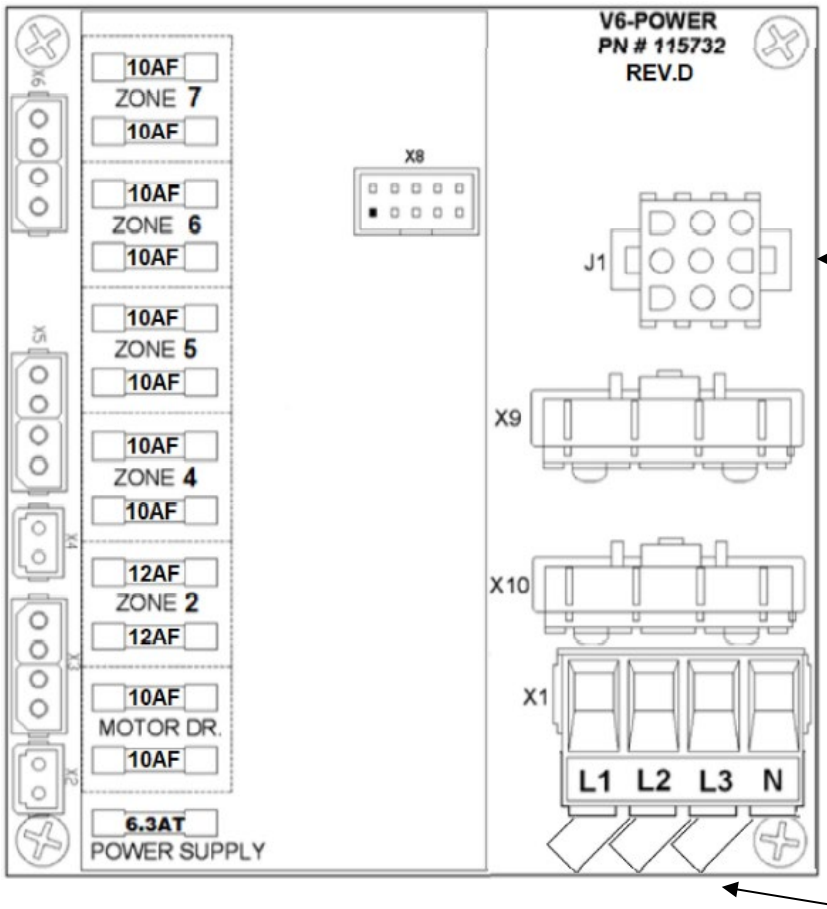
Using the incorrect power configuration connector may cause serious damage to the unit.

The voltage configuration connector is installed on the DynaControl V6 Power Module (see module illustration below). For location of the module, see Main Power Installation & Internal Components illustration on preceding page.

There are three different voltage configuration connectors available:

- P/N 115724 (Black) for 240VAC single phase and 400/480VAC three Phase Δ (2 hose)
- P/N 115725 (Violet) for 240VAC three phase
- P/N 115726 (Yellow) for 400VAC three phase + N and 400/480VAC three Phase Δ (4/6 hose)

For reference, the schematics of each voltage configuration connector is printed on the next page.

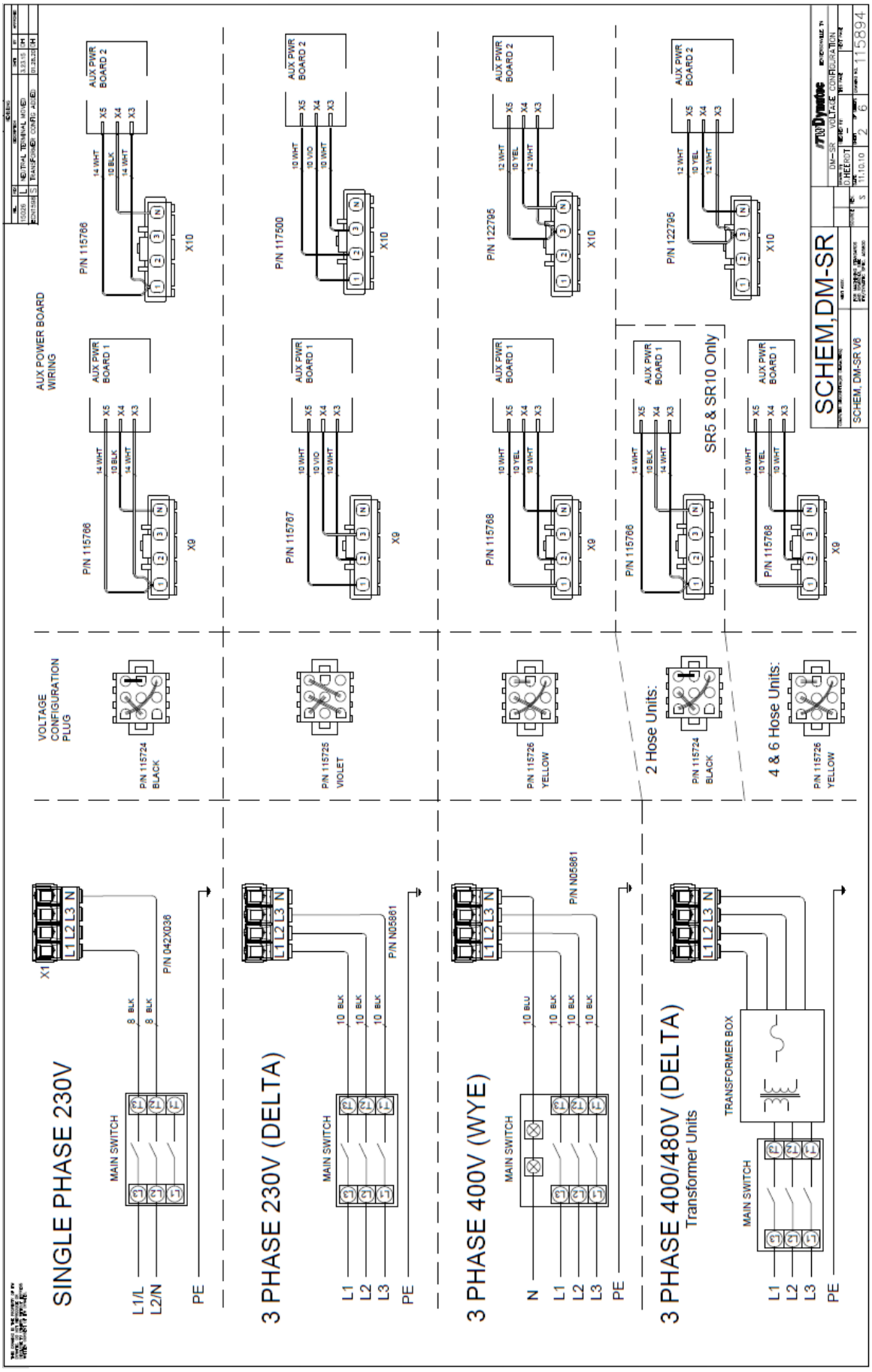


Verify Voltage Configuration - Connector according to your voltage (see above).

Connect to Main ON/OFF Switch according to your voltage (see next page).

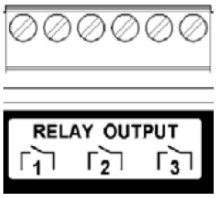
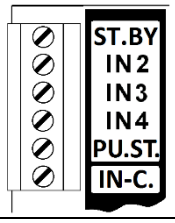
DynaControl V6 Power Module

4.1.6 Voltage Configuration Connector Schematics



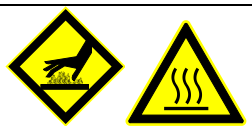
4. At installation, the customer must make the following terminal connections into the ASU's main power (ON/OFF) switch and modules. The modules do not need to be removed from the ASU in order to make connections.

   Refer to the detailed layout drawings of these components in Ch. 7, if needed.

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

5. Nine hydraulic hose connection ports are located on the filter manifold. These ports are positioned to allow for up to six hoses to be routed either from the back of the unit, or from the right-hand side. It is recommended that you use a 45° fitting (available from ITW Dynatec) when using the three ports located on the corner of the filter manifold. ITW Dynatec recommends that hoses be connected to the bottom ports first, then the middle ports, and finally the top ports.

6. The hydraulic pressure gauge can be installed either in one of the hose ports or in the dedicated gauge port. The gauge port is not filtered by the unit's secondary filter.



WARNING HOT ADHESIVE

Do not remove the high-temperature insulating foam cover from the filter manifold. This cover should remain in place during operation in order to prevent burns and maintain the temperature of the filter manifold. Replace the foam cover if it becomes damaged or dirty.

4.1.7 Adding Adhesive

CAUTION

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

The adhesive level in the melt tank should be maintained at 25mm to 100mm (1" to 4") from the top of the hopper. Where applications demand a high output volume of adhesive, add small amounts of adhesive frequently. Adding large amounts of adhesive to an almost empty hopper will lower the temperature of the adhesive in the hopper and may cause the ASU to fall below its READY setpoint.

4.1.8 Changing the Adhesive Formula

If a different adhesive formulation from the one being currently used is needed, the system will have to be flushed if the two formulations are incompatible. See Chapter 6 of this manual for the proper flushing procedure. When in doubt about adhesive compatibility, flush your system.

4.1.9 Quality of Compressed Air

CAUTION

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

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

ISO 8573-1: 2010	Solid particles				Water		Oil
Class	Maximum number of particles per m³			Mass concentration	Vapor pressure dew point	Liquid	Total oil content (liquid, aerosol and mist)
	0.1-0.5 µm	0.5-1 µm	1-5 µm	mg/m³	°C	g/m³	mg/m³
0	As stipulated by the equipment user, stricter requirements than class 1.						
1	≤ 20,000	≤ 400	≤ 10	-	≤ -70	-	0.01
2	**≤ 400,000**	**≤ 6,000**	**≤ 100**	**-**	≤ -40	-	0.1
3	-	≤ 90,000	≤ 1,000	-	≤ -20	-	**1**
4	-	-	≤ 10,000	-	**≤ +3**	-	5
5	-	-	≤ 100,000	-	≤ +7	-	-
6	-	-	-	≤ 5	≤ +10	-	-
7	-	-	-	5-10	-	≤ 0.5	-
8	-	-	-	-	-	0.5 - 5	-
9	-	-	-	-	-	5 - 10	-
X	-	-	-	> 10	-	> 10	> 10

4.1.10 Repositioning the HMI (Controller)

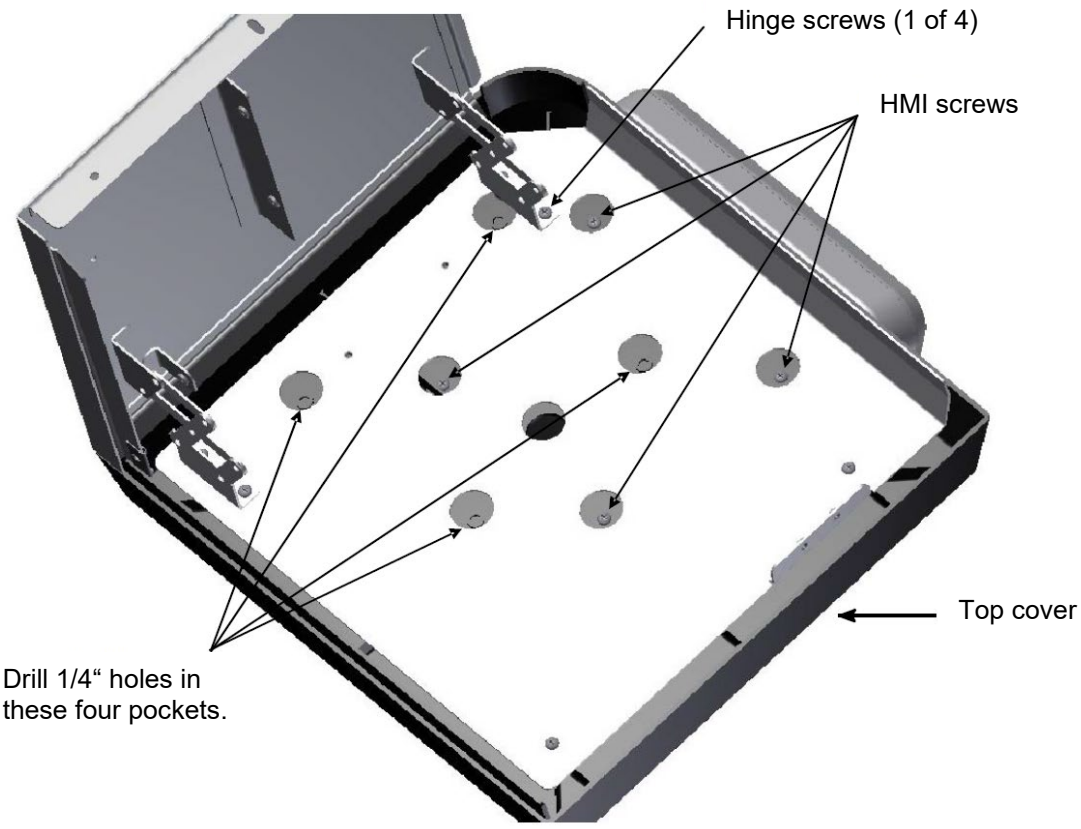
The control panel (HMI) may be rotated 90° from its standard location for the convenience of the operator.

DANGER HIGH VOLTAGE

Disconnect and lock out input power to the application system before starting repositioning procedures.

Procedure:

1. Remove the top cover from the unit:
   a. Open the electronics cabinet door.
   b. Release the top latch and open the top cover.
   c. Loosen and remove the four screws that attach the top cover to the hinges (see illustration).
2. Remove the HMI by removing the four screws holding it in place.
3. Drill four 1/4” holes in the locations shown below and re-attach the HMI at these holes.
4. Re-install the top cover and close the cabinet door.
5. Plug the three visible holes on the top cover with hole plugs.



4.1.11 Operation and Calibration of Level Sensor

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

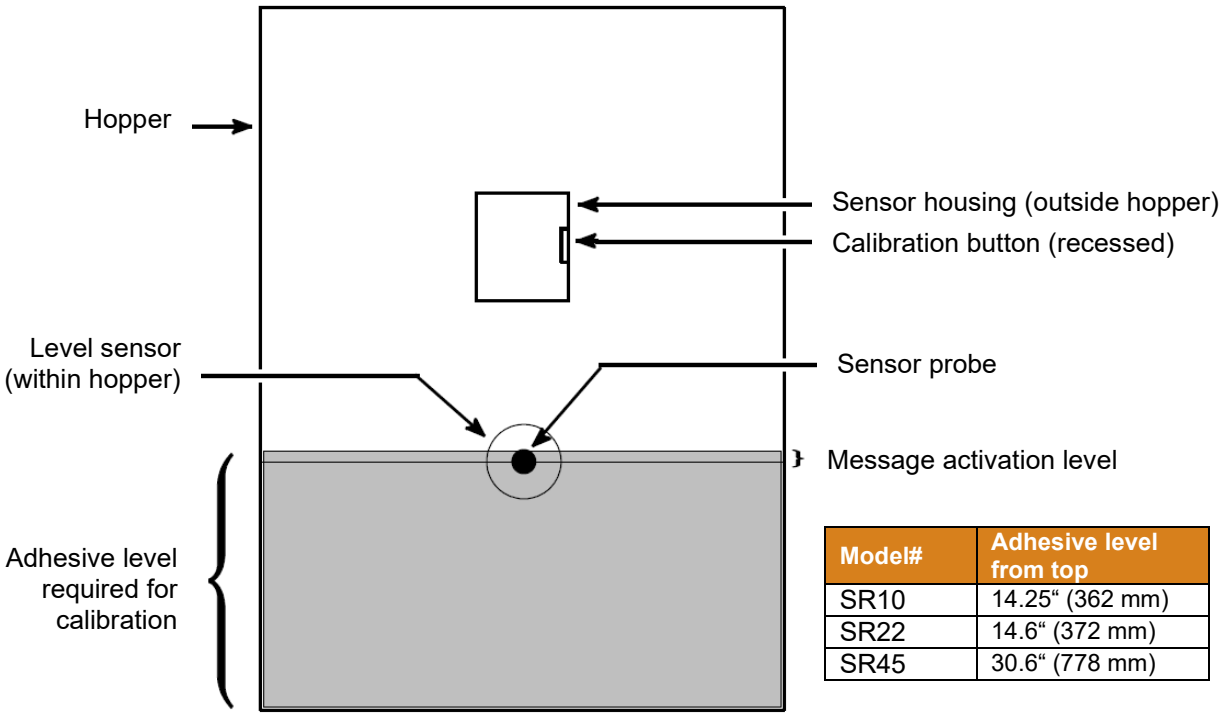
After a Hopper Empty message is displayed, the operator must press the controller's RETURN button to acknowledge the message and then replenish the adhesive in the hopper. If the adhesive is not replenished within ten minutes, the alarm will repeat.

Calibration

1. Open the electronics cabinet door as described in Chapter 8. Locate the level sensor housing with its calibration button on the side of the hopper.
2. If empty, fill the hopper with adhesive.
   OPTION for units with premelt grid: If empty, fill the hopper with adhesive to just below the premelt grid.
   Turn the ASU On. Allow the adhesive to become molten.
3. Pump adhesive out of the hopper until the molten adhesive reaches a level between the top and the center of the sensor probe. This is the level that will activate the Hopper Empty message.

   OPTION for units with premelt grid (if the view of the low level is blocked by an extra premelt grid in the hopper): Pump adhesive out of the hopper until the molten adhesive reaches a level at the center of the sensor probe. The probe is not visible so this is accomplished by placing a straightedge on the flat surface of hopper collar across the hopper opening and setting the adhesive level at below the straightedge (see table below). This is the level that will activate the Hopper Empty message.
4. On the level sensor housing, press and hold the calibration button for five seconds.
5. Turn Off the ASU, close the cabinet and re-fill the hopper. Allow sufficient time for the sensor to recognize the level of adhesive.

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



Model#	Adhesive level from top
SR10	14.25“ (362 mm)
SR22	14.6“ (372 mm)
SR45	30.6“ (778 mm)

4.1.12 Operation and Adjustment of the Hopper Recirculation Option

The manifold recirculation option allows the operator to balance adhesive pressure during slow speed intermittent applications. This option prevents the pressure buildup that occurs in gear pump systems when applicators are closed (turned OFF) and then opened (turned ON), and the surge of adhesive that may result. The manifold recirculation option is not recommended for rapidly cycling intermittent applications because of the limited reaction time of the option pneumatic pressure relief valve (PPRV) compared to an application head.

The recirculation option works by switching the air pressure supplied to a pneumatic pressure relief valve (PPRV) between full line pressure (typically 5-6 bar or 72-87 psi) and a regulated air pressure. When the applicator is open, full line air pressure is supplied to the PPRV to close it, to operate only as a safety valve. When the applicator is open and the PPRV is closed, adhesive pressure is volumetrically controlled by gear pump speed.

When the applicator is closed, regulated air pressure is supplied to the PPRV, enabling it to regulate static adhesive pressure to a level desired for the customer's application. This desired adhesive pressure is thereby available when the applicator is opened, at which time adhesive pressure is automatically switched to volumetric control.

Adjusting air pressure:

The following procedures are based on the assumption that a Gear Pump Manifold Recirculation Kit (P/N 116945) is completely installed, with the solenoid valve in the Valve/Regulator/Gauge Assembly in the front of the ASU base (referred to as Valve #1, below) connected to the 24VDC power supply on the upper left corner of the V6 Base Module, and with the solenoid valve located on the internal partition above the pump motor (Valve #2, below) connected to a separate customer-provided switchable 24VDC power supply that is switched OFF.

1. With a supply of plant compressed air connected to the bulkhead ¼" tube connector in the ASU base, set supply air pressure to 5-6 bar/72-87 psi.

2. To monitor adhesive pressure at the hose/filter manifold, use an analog pressure gauge or a digital pressure indicator (both available as an ITW Dynatec option).

3. Operate the hot melt system under normal production conditions with an open application head, i.e., head turned ON, until the operating adhesive pressure has stabilized at an acceptable level. Note this operating adhesive pressure (for example: 8 bar/116 psi).

4. Turn the application head OFF.

5. Under normal production conditions, with the hot melt supply unit turned on, a constant 24VDC is applied to Valve #1. This enables the supply of regulated air pressure to the pneumatic pressure relief valve (PPRV).

6. Use the same 24VDC signal that operates the application head to actuate Valve #2, so that Valve #2 is energized when the head is ON, and Valve #2 is de-energized when the head is OFF.

7. Re-check the adhesive pressure on the pressure gauge or digital pressure indicator.

8. Using a screwdriver, adjust the air pressure with the air pressure regulator until the adhesive pressure shows a value equal to the previously noted adhesive pressure (in this example: 8 bar/116 psi).

9. Verify the adhesive pressure setting by turning the application head ON and OFF. Repeat this sequence several times. The adhesive pressure should stay constant if the pressure setting is correct.

4.1.13 Field Installation of Controller Options

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

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

4.2 Typical Start-Up and Shut Down Procedure

Instruction for the Dynamelt SR Gear Pump System:

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

Start Up Procedures

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

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

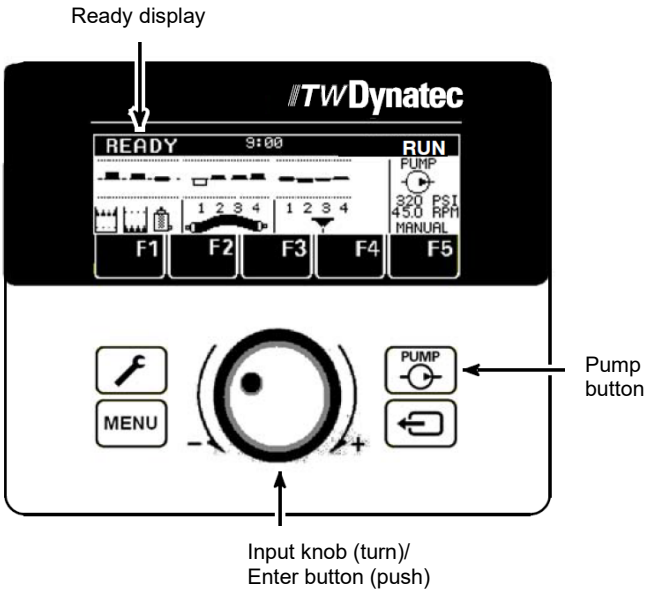
3. Allow adequate time (approximately 20-30 min.) for the adhesive to melt and the temperatures of the heated zones to stabilize. The display will indicate when the unit reaches operating temperature:

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

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

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

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



Shut Down Procedures

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

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

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

4.2.1 Operation of the ASU's Gear Pump

Manual or Automatic Pump Operation:

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

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

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

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

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

Pump Output Adjustments:

Gear Pump Priming/ Start-Up:

The pump is self-priming.

CAUTION

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

Caution for 20cc/rev Standard Gear Pumps with 1/4 HP Motor:

CAUTION

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

If a standard 20cc/rev gear pump is selected with 1/4 HP motor:
- DO NOT exceed the 400 psi (28 bar) pressure relief valve factory setting.
- Please ensure that the operating pressure at the filter block is always below 400 psi (28 bar).

This is to help prevent 1/4 HP motor from overloading and failing prematurely.

Note: the RPM readout will not operate when used with the 20cc/rev standard pump.

Pump Output Adjustments:

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

Pump output is adjusted by the motor speed control on the DynaControl keypad. However, if less pressure is needed, maximum pressure of the pump can be decreased (or increased) by adjusting the pressure relief valve installed on the pump output manifold. To change the setting of this valve, follow the procedure outlined on next pages

(To Adjust Pressure Relief, under point Adjustable Adhesive Pressure Relief Valve). The relief valve is factory set at 28 bar (400 psi) for gear pumps.

Output can also be adjusted by using the (optional) flow control valve located between the outlet filter manifold and the hose. This valve will operate as long as adhesive pressure is below the pressure setting of the pressure relief valve. *To adjust:* using the knob on top of the valve, turn counter-clockwise to open the valve, allowing more adhesive to flow or turn clockwise to close the valve, decreasing the amount of adhesive flow.

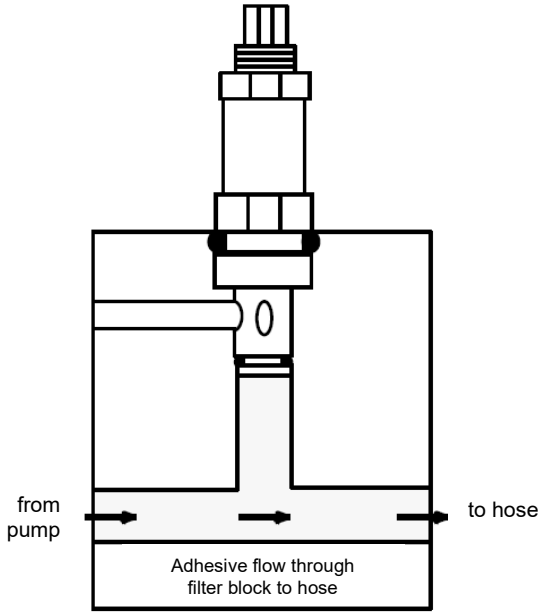
Thus, adhesive output volume and pressure can be fine-tuned for a particular application by coordinating the settings of the motor speed control (at the keypad) and the pressure relief and (optional) flow control valves on the outlet filter manifold.

4.2.2 Adjustable Adhesive Pressure Relief Valve

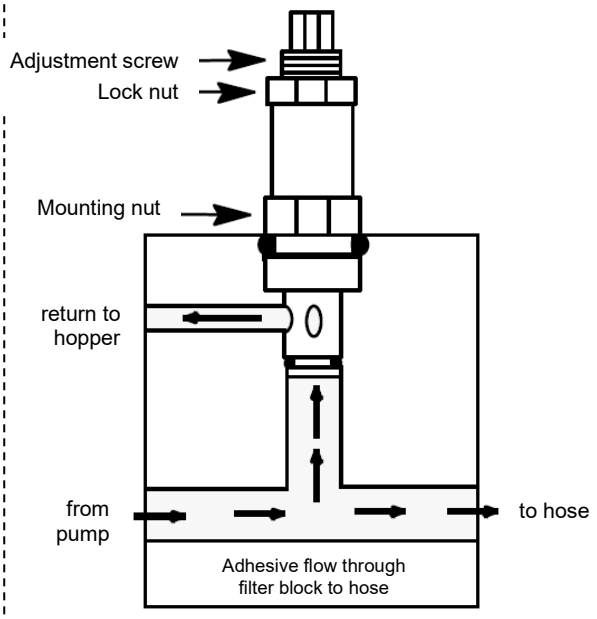
Dynamelt Melters are outfitted with a high-pressure relief valve located on the outlet filter manifold. The valve is adjustable and it does not affect adhesive pressure under normal operating conditions. The adjustable pressure relief valve is factory set at 28 bar (400 psi) for Dynamelt gear pumps and 68 bar (1000 psi) for piston pumps.

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

Normally Closed (Unrelieved):
In the drawing below, the valve is closed.



Open (Relieved):
In this drawing, pressure has exceeded the setting of the valve, causing the valve to open and discharge adhesive to the hopper.



To Adjust Pressure Relief:

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

1. Turn the application system ON and raise temperatures of all zones to normal settings.

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

3. Locate the pressure relief valve on the filter manifold (where the hoses attach).

4. With applicators (heads/ hand-held applicators) closed, turn on motor to 50% and adjust the pressure relief valve to obtain 1000 psi (68 bar).

CAUTION

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

5. Run production line at maximum anticipated speed and dispense adhesive on the substrate. Adjust pump speed to dispense the desired amount of adhesive and record the pressure reading under these conditions.

6. With the line stopped, the applicators valved off and the pump running at the same speed, back out the pressure relief valve adjusting screw until the pressure reads about 25 psi above the previously recorded value.

7. Repeat production through prescribed speed range and make whatever minor adjustments to pump speed and pressure relief valve settings that may be needed.

   System is now ready for production.

4.2.3 Optional Pneumatic Pressure Relief Valve Operation

Valve Operation

The Dynamelt SR ASU is offered equipped with an optional pneumatic pressure relief valve that has two functions. It controls output adhesive pressure during pump operation and also lowers adhesive pressure when the pump is switched off.

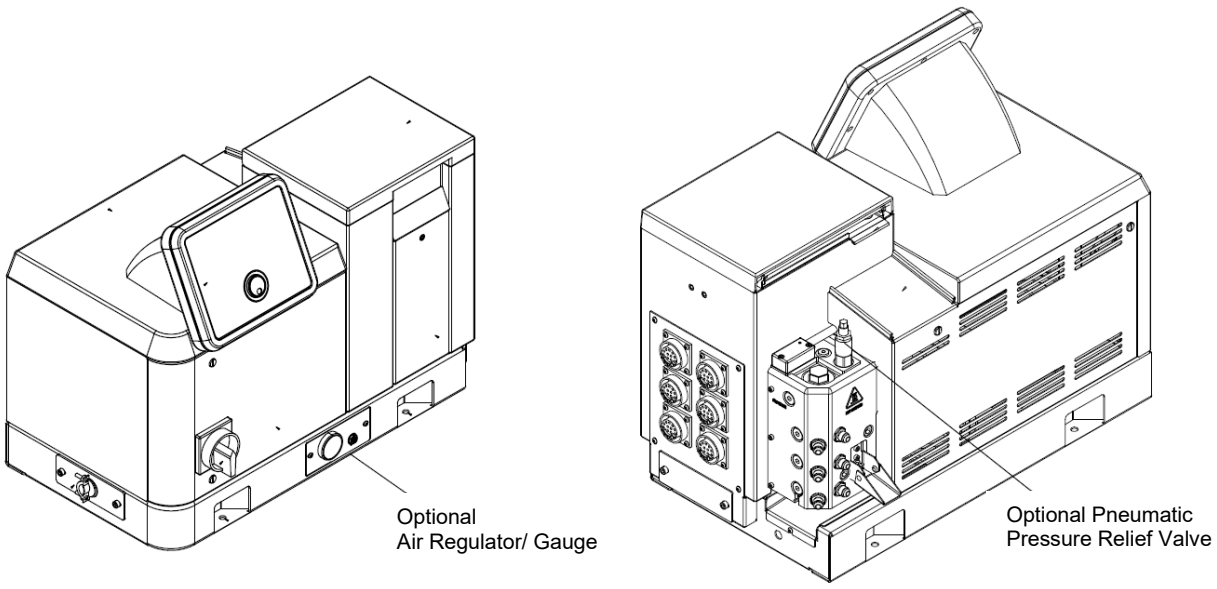
The pneumatic pressure relief valve regulates adhesive pressure proportional to air pressure supplied to the pump. The relief valve operates at a 14:1 adhesive to air pressure ratio. Ten psi of air pressure will regulate the adhesive pressure to a maximum of 140 psi (9.7 bar). The valve is designed to deliver a maximum adhesive pressure of 1000 psi (68 bar).

When air pressure is cut off from the relief valve, the valve will open and dump adhesive pressure by relieving adhesive back to the hopper. Air pressure is cut off from the relief valve by turning Off the air supply to the ASU.

Adjustment

Air pressure supplied to the pneumatic relief valve is adjusted by turning the pressure regulator built into the front of the ASU with clockwise (to increase pressure) or counter-clockwise (to decrease pressure).

Maximum adhesive pressure can be determined by reading the air pressure from the built-in gauge and multiplying by 14. For example, if the air pressure gauge reads 25 psi (1.7 bar), then adhesive pressure will be limited to 350 psi (24 bar).



4.3 Storage and Disposal

Instruction for the Dynamelt SR Application System:

Temporary Storage of the Unit

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

Disposal of the Unit

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

Chapter 5
DynaControl V6 Controller

5.1 Controller Set-Up

5.1.1 Temperature Control Functions in General

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

5.1.2 Defining DynaControl Temperature Control Terms

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

Default Settings
The factory-set programmable system values that will be in effect if the user does not enter new values. See Chapter 5 for the controller's defaults.

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

Main Power & Aux Power PCBs
The Power printed circuit board (PCB) and Auxiliary PCBs provide power to all the temperature zones in the ASU's system. The standard unit's hopper, hoses and applicators are controlled by the Power PCB. Additional hoses and applicators are controlled by the Aux PCB(s).

Mechanical High-Temperature Protection
A mechanical, redundant thermostat located on the hopper which turns OFF the system at 232°C (450°F) [or 246°C (475°F) for optional high temperature units].

Microprocessor-based Proportional Temperature Control
The built-in control system that controls, monitors and displays all system temperature values.

Over-Temperature Setpoint
The programmable temperatures that will cause alarms to occur when those temperatures are exceeded (over-temp icon is shown at right).

Power is not disconnected, the READY contact opens and the alarm contact opens. If an external alarm has been connected, it will activate. The over-temp setpoint is the upper limit of the ready temperature range of each zone.

Pump Enable Temperature

The pump enable temperature protects the pump, pump shaft, motor and motor control from damage by not allowing the pump to activate until a low limit (the programmed pump enable temperature) is achieved.

RTD Sensors

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

Ready Temperature

The programmable temperature which allows the ASU pump to turn ON. The default ready temperature range is a deviation of + 20°C (+ 36°F) 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.

Sequential Heating

The heating sequence which allows the slower-heating hopper 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 hopper (and optional drop-in grid) heats up. Hoses and applicators may be independently programmed. If hopper 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.

Setpoints

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

Setpoint Limitation

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

Standby Condition

The system condition where the 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.

Temperature Zone Enable

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

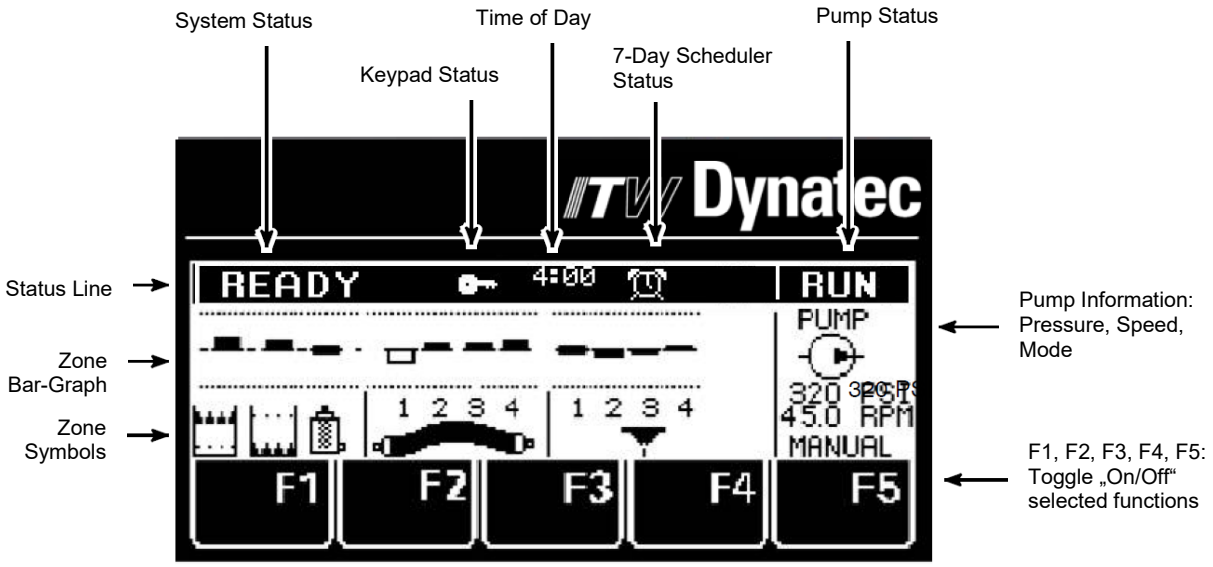
V6 Base Module

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 Power and Auxiliary PCBs (modules).

5.1.3 DynaControl V6 LCD Display During Normal Operating Mode



5.1.4 Error Indication Alarms

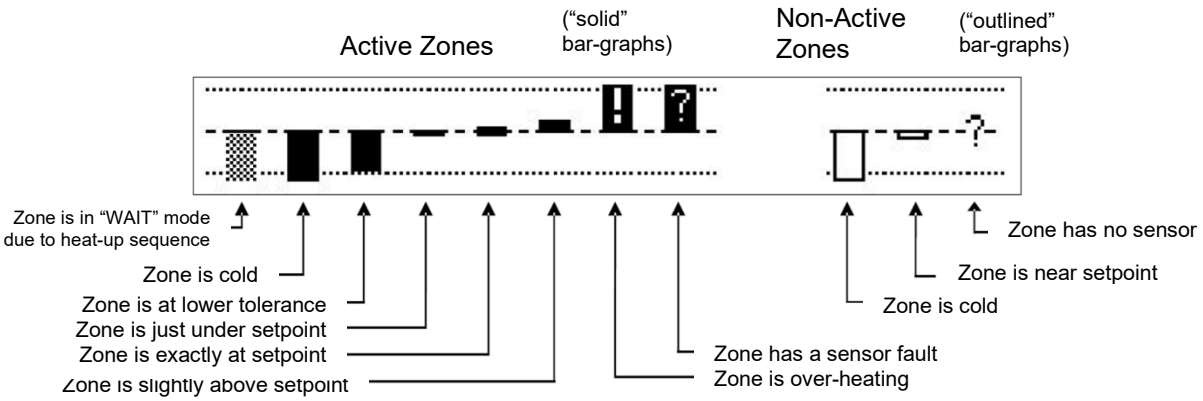
The following illustration shows the display screens that will be activated when one or more error indication alarm conditions occur. The conditions that will trigger an alarm are:

- When a hopper, hose or head has exceeded its selected over-temperature setpoint, which is the setpoint plus its Hi/Lo alarm setting, or when it is below its selected under-temperature setpoint, which is the setpoint minus its Hi/Lo alarm setting .

- When a hopper, hose or head sensor has an open circuit.

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

5.1.5 Error Indication Alarm Display Examples



5.1.6 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 error indication display will appear.

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

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

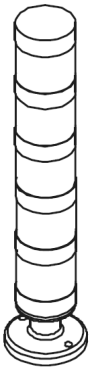
A sensor failure is displayed as a "**?**" on the bar-graph and power is switched off to the zone.

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

5.1.7 Optional System Status (Stack) Lights

Stack lights ease remote monitoring of the system's status. On the basic, four-color stack light, the lower, clear light illuminates when the system is turned ON. The green light indicates that the system has warmed up to temperature setpoints (“ready"). The upper, red light illuminates only in an alarm condition and is accompanied by an audible alarm. The audible alarm is housed within the upper (black) section of the stack. The blue light is user configurable.

Other setups are possible, for example, the alarm may be wired to indicate low adhesive level, standby or open/shorted sensor.



Black: audible alarm

Red: alarm

Blue: user configured

Green: system ready

Clear: system On

5.1.8 Settings for a Typical Operation

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

If Application Temperature is 177°C (350°F):

- Hose and head temperature: 177°C (350°F).
- Hopper setpoint temperature: 163°C (325°F).
- Hi/ Lo limit deviation: 12°C (20°F).
- ASU operating range: 149°C to 177°C (300°F to 350°F).
- Standby condition temperature (deviation): 30°C (50°F).
- Hopper over-temperature setpoint : 177°C (350°F)
- Mechanical thermostat (for the hopper) over-temperature: 219°C (425°F)

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

System Values That Are Factory Programmed (not customer programmable)

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

Customer Programmable System Values Preset At The Factory

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

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

- Applicator (head) and hose setpoints: 177°C (350°F).
- Hopper setpoint: 150°C (300°F).
- All zones are switched off, except for the hopper and the manifold.
- Motor rpm: 0 in the “Manual" mode.
- Standby: 66°C (150°F) under setpoint.
- Hi and low alarms: + 20°C (36°F) from setpoint.
- Pump enable temperature: 135°C (275°F).

Default Settings of the DynaControl V6 Controller

- Language: English
- Setting for Customer Access Code: “1111".
- Standby temperature for all zones: 66°C (150°F) lower than programmed setpoints.
- Hi/ lo limit deviation for all temperature zones: + 20°C (36°F).
- Temperature zone offset: 0°C (0°F).
- Setpoint limitation: 218°C (425°F).
- Pump enable temperature: 135°C (275°F).
- Automatic sleep mode: Off.
- Sequential heat-up: Off.
- Power-On motor Stop: No.
- Power-On heater start: Yes.
- Global setpoints: No.
- Minimum pump speed: 0 RPM (gear pump models only).
- Maximum pump speed: 90 RPM (gear pump models only).

5.1.9 Helpful Tips for the User

- When the ASU is turned ON, all temperature setpoints and other operating parameters will be exactly where they were when the ASU was turned off.

- When the ASU 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 heatups have been set. However, if hopper temperature is above ready temperature when the ASU is turned on, all hose and head sequential heatups will be bypassed and hoses and heads will be turned ON.

5.1.10 Controller Features

One-button Shortcuts

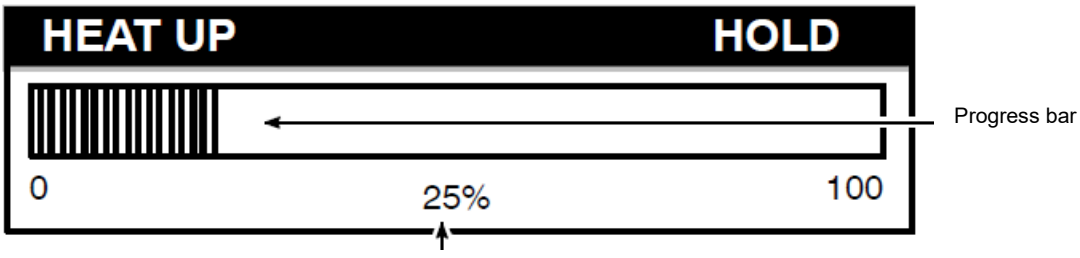
Press the “F” buttons to go to:
F1 = the Hopper temperature zone
F2 = the Hose temperature zone
F3 = the first Applicator temperature zone
F5 = toggle On/ Off

Shortcut to Advance to System Configuration Parameters

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

Initial Heat-up Progress Bar

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



The ASU illustrated above is one-quarter heated.

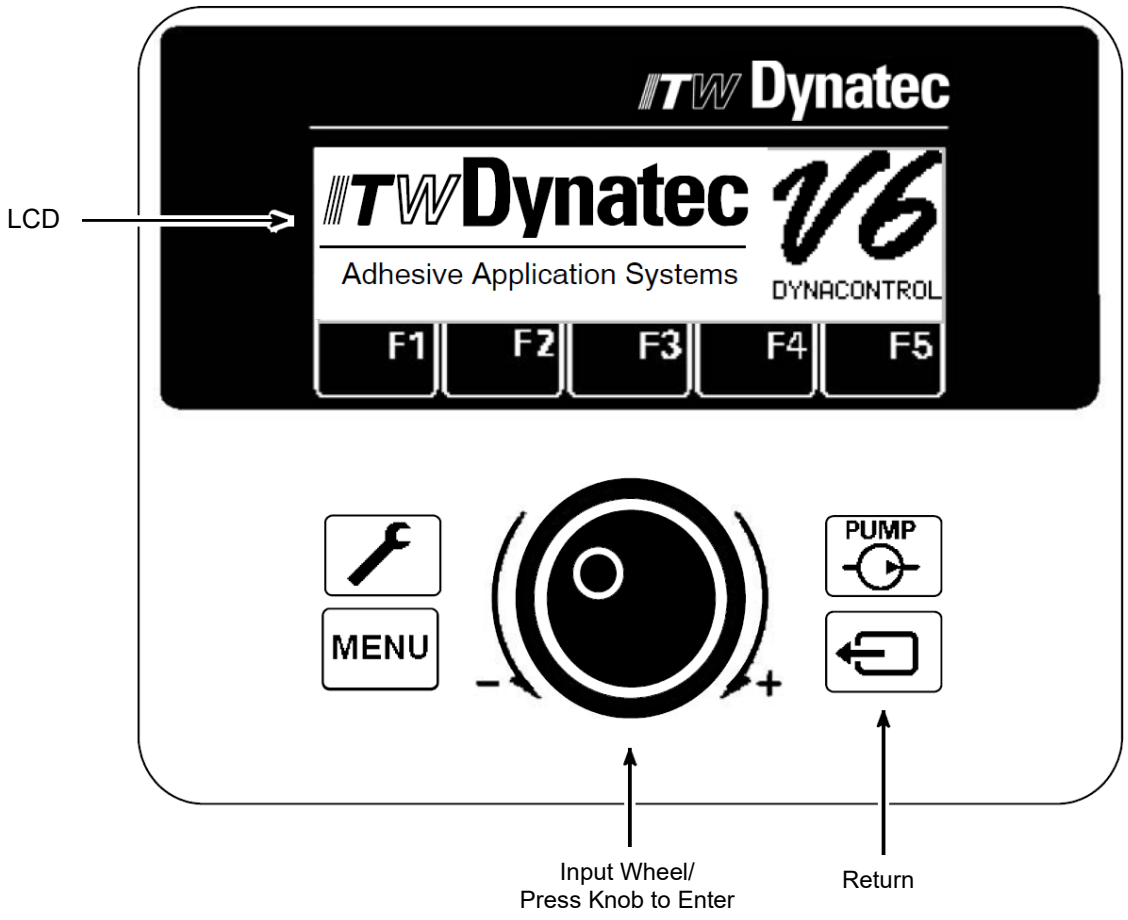
If you would like to display the controller's Scan Mode in order to watch the active temperature zones scroll while the unit is heating, press the Input Knob once more.

5.2 Controller Programming Instructions

DynaControl CONTROLLER, for GEAR PUMP MODELS 5/10, V.6.00 and Up

5.2.1 DynaControl (DCL) V6 LCD Interface

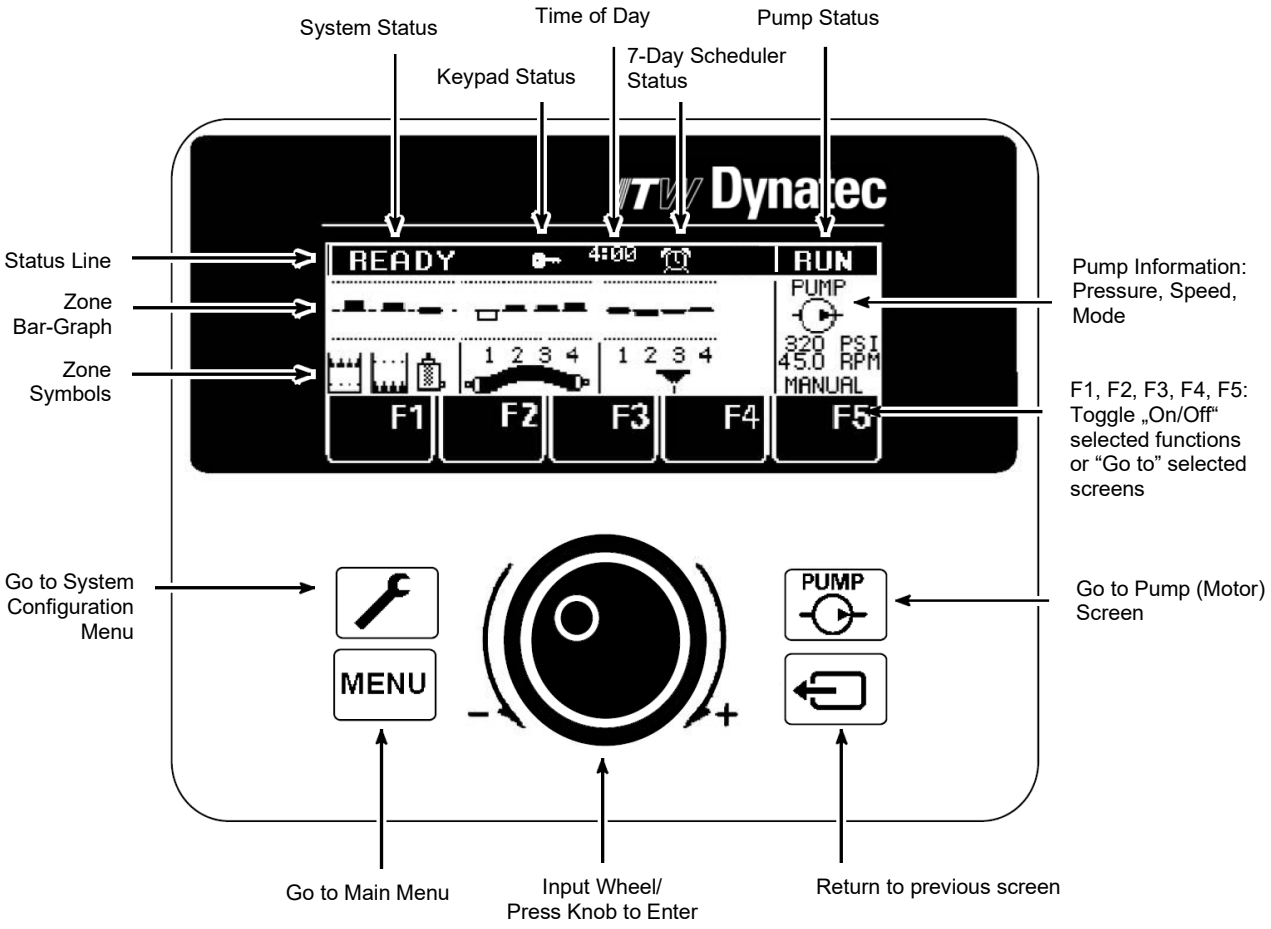
DynaControl V6 controller technology is available as a liquid crystal display (LCD), which allows an instant overview of temperature zone and pump status, and with a combination Input Wheel/Enter Knob to facilitate fast programming.



5.2.1.1 In General

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

5.2.1.2 Overview Screen Reference



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

5.2.1.3 Status Line

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

5.2.1.4 System Status

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

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

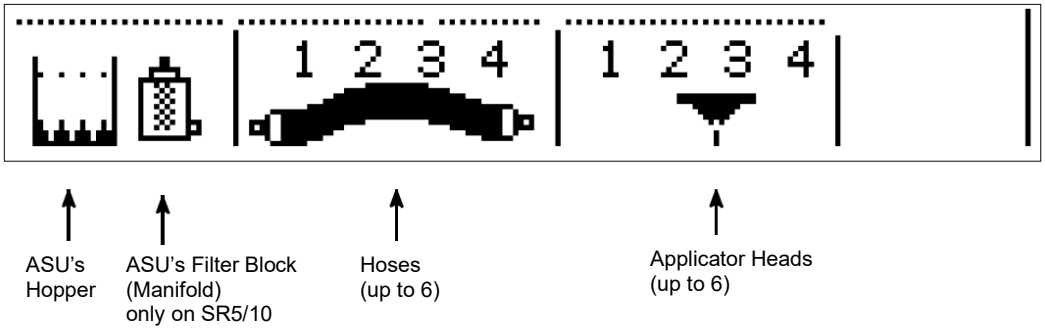
5.2.1.5 Pump Status

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

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

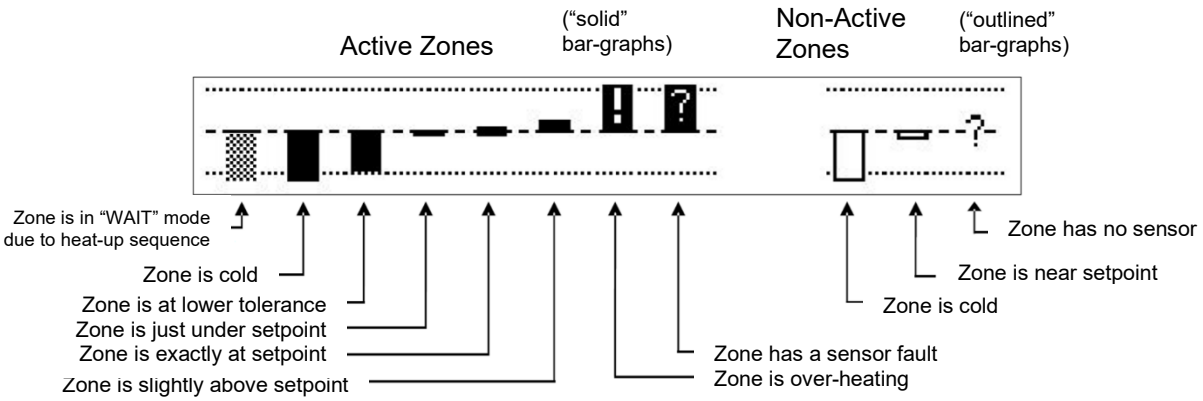
5.2.1.6 Temperature Zone Symbols

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



5.2.1.7 Bar-Graphs

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



5.2.1.8 Scan Mode

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

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

5.2.1.9 To Navigate Away from the Overview Screen

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

5.2.1.10 Setup Your System's Parameters

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

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

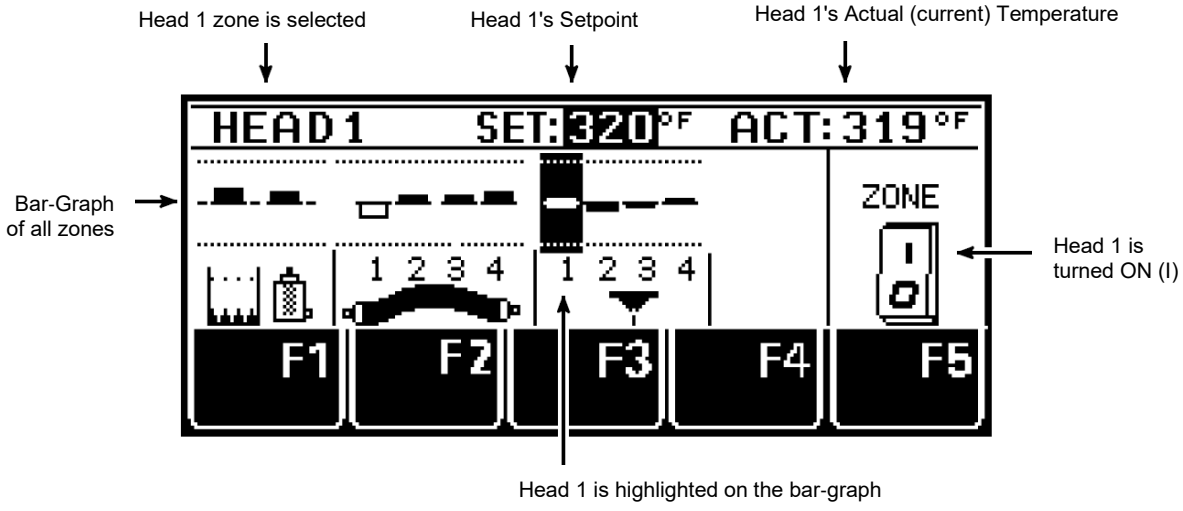
5.2.2 Temperature Zones

5.2.2.1 Selecting Temperature Zones

From the Overview Screen, turn the Input Wheel slowly to view each temperature zone. As the wheel is turned, you will see the names of the individual temperature zones on the top line of the display.

To select a zone, simply stop turning the wheel when the desired zone's name appears (example below: HEAD 1). To the right, displayed on the top line, is this zone's programmed setpoint (ex. SET: 320°F) and the actual current temperature of the zone (ex. ACT: 319°F).

Below the zone's name is the bar-graph with the selected zone highlighted. Below the bar-graph you can see that this zone is #1 of the system's applicators. At the far right of the display, you can see that this zone is turned ON.



5.2.2.2 Selecting Temperature Setpoints

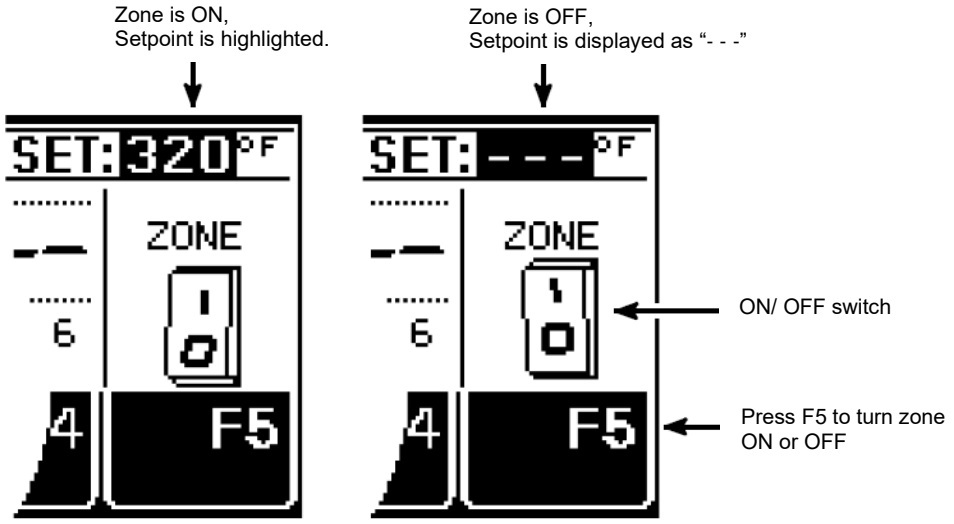
After selecting a temperature zone, press the Enter Knob to highlight the setpoint. Turn the Input Wheel to your desired setpoint value. To enter the new value, press the Enter Knob. Continue programming by entering a setpoint for each zone.

5.2.2.3 Turning a Temperature Zone ON or OFF

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

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

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



5.2.3 Pump Settings

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

While on the Pump Screen, all changes are immediate; you do not have to press the Enter Knob.

5.2.3.1 Gear Pump ASU

The Pump Screen allows you to change the pump mode (Manual, Stop or Automatic) and the pump speed (on a variable speed-equipped ASU only).

Selecting Pump Mode

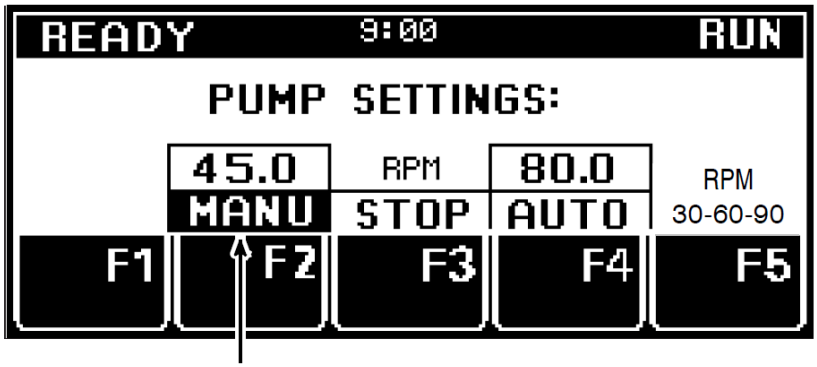
- AUTO Mode = the pump will be started and stopped by a parent machine (production line).
- MANUAL (MANU) Mode = the pump will be started and stopped manually by an operator.
- STOP Mode = the pump is stopped, until AUTO or MANUAL is selected.

To select a pump mode:

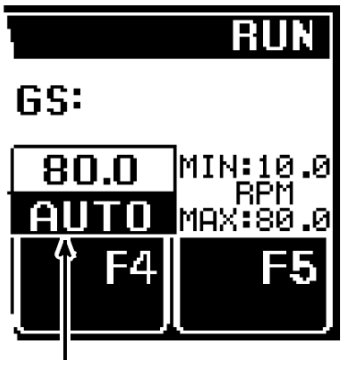
1. Use the function buttons:
   F2 = MANUAL Mode, F3 = STOP or F4 = AUTO Mode, or
2. Use the Input Wheel.

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

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



MANUAL Mode is selected
speed is 45 RPM



AUTO Mode is selected
speed is 80 RPM

Manual Mode Adjustments

In Manual Mode, turn the Input Wheel to increase or decrease the pump speed. You may adjust the RPM increments at the “0.5 RPM Increments” parameter on the System Configuration Menu.

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

Auto Mode Adjustments

The ASU's pump must be programmed with a minimum and maximum percent of full (maximum) speed when Auto mode is used. The maximum speed is used as a scaling factor between the input signal (for example, a PLC) and the percent of full speed value of the pump.

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

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

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

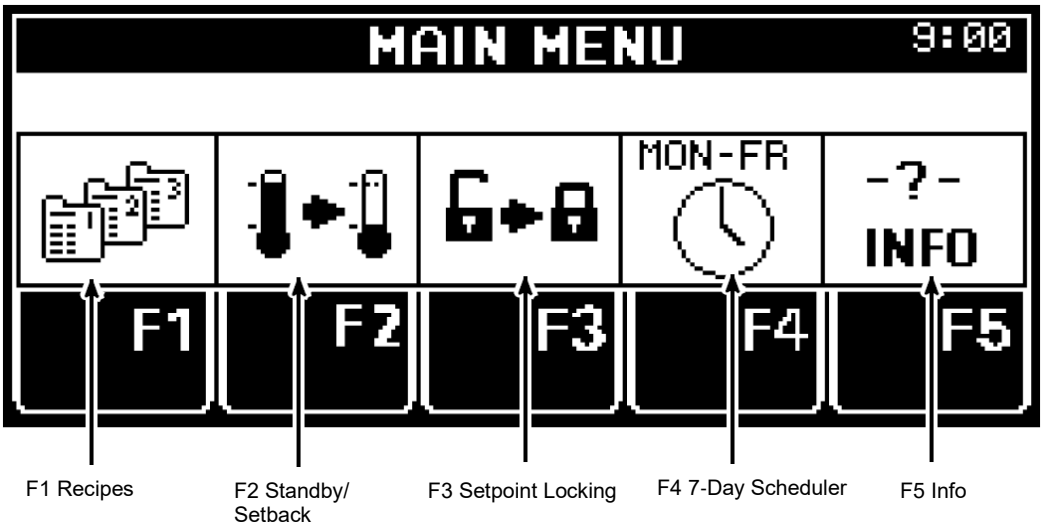
Press F5 again to open the maximum RPM field. Turn the Input Wheel to select desired maximum speed. Press the Enter Knob to enter the value.

Press the RETURN button to return to the Overview Screen.

5.2.4 Main Menu

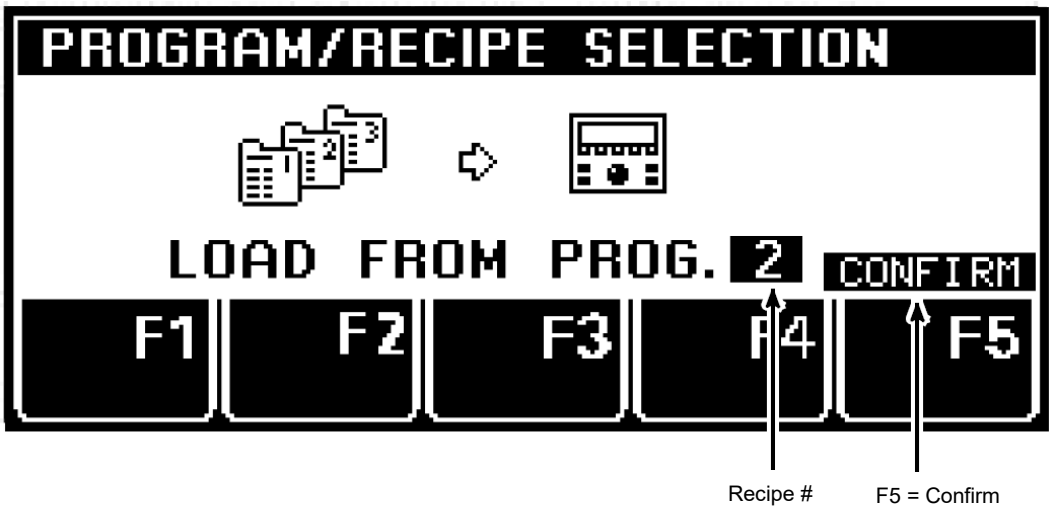
Press the Main Menu button on the Overview Screen to go to the following functions:
F1: Recipe Management
F2: Standby Mode
F3: Setpoint Locking
F4: 7-Day Scheduler
F5: Info Menu

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



5.2.4.1 Recipe Management (F1)

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



To Save a Recipe (SAVE TO PROG):

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

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

To Load a Stored Recipe (LOAD FROMPROG):

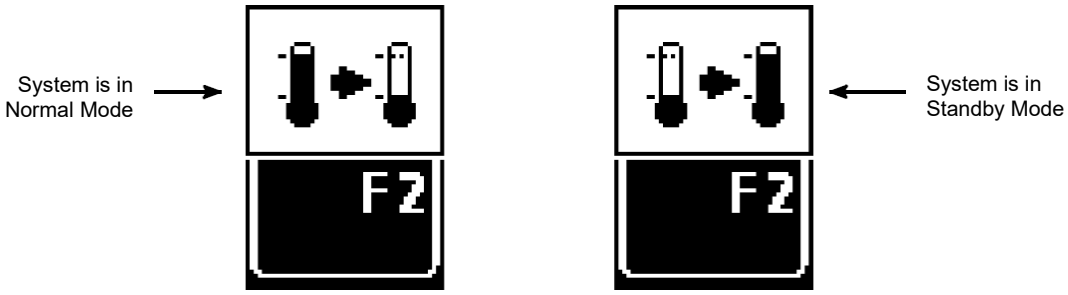
1. Press the Main Menu button, then press F1: Recipe Management. Turn the Input Wheel to LOAD FROM PROG. Press the Enter Knob to enter.

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

Notes:
1. Recipes that contain temperature zones that do not show valid RTD sensors (i.e. zones with "?" in their bar-graphs) will be turned Off after re-loading, because the controller assumes those zones will not be used.
2. If you have loaded a recipe, any changes you make to the temperature or motor settings are not automatically stored in that recipe. If your changes need to be stored, go to the Recipe Management Screen and follow the steps to SAVE TO PROG.

5.2.4.2 Standby (F2)

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



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

Notes:
Standby can also be activated via an external contact closure or via the 7-Day Scheduler.

See also Standby Configuration in this chapter.

5.2.4.3 Setpoint Locking (F3)

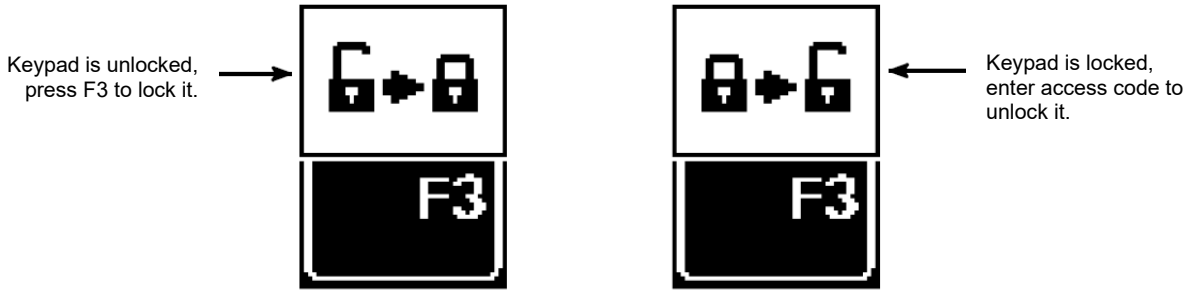
When Setpoint Locking is on, temperature and motor setpoints and the System Configuration Menu are locked and cannot be changed. But even when locked, the pump can be stopped and the setpoints can be monitored.

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

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

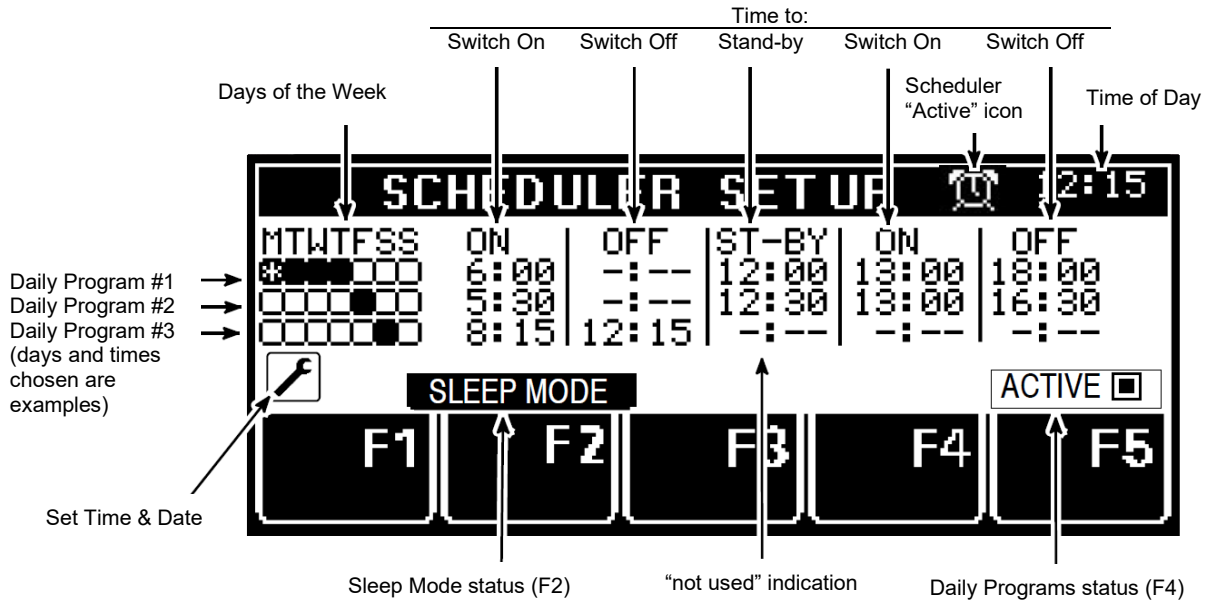
The controller's access code must be keyed-in to unlock setpoints. To do so, press the Main Menu button, press F3, then enter your access code using the F1 thru F5 buttons. For example, if your access code is 2453, press the sequence “F2, F4, F5, F3” (Note: setup an access code on page 3 of the System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

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



5.2.4.4 7-Day Scheduler (F4)

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



Programming Sequence:

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

To Program Active Days of the Week:

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

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

To Program On/ Off Times:

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

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

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

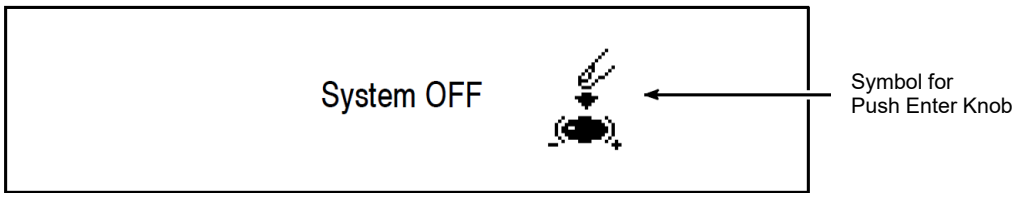
To Program Additional Daily Programs:

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

To Choose Activate, Deactivate or Sleep Mode:

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

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



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

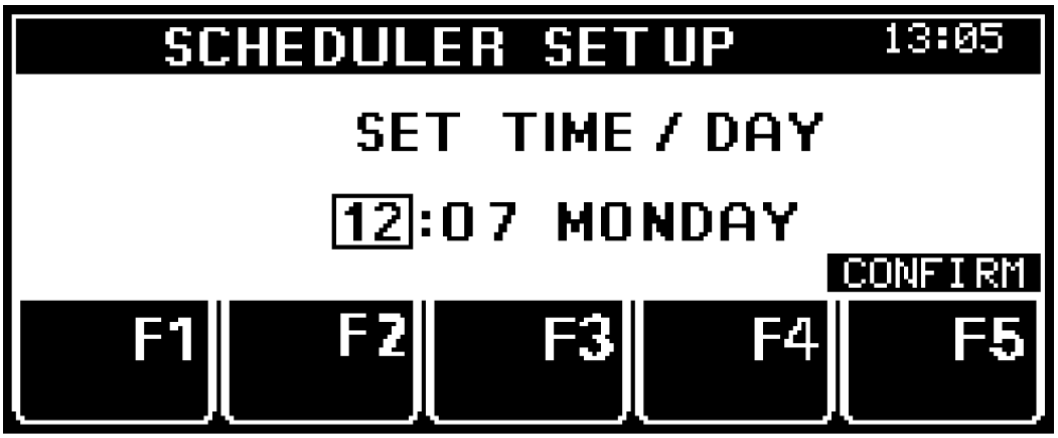
- Daily Program #1: On Mondays, Tuesdays, Wednesdays and Thursdays, the ASU will Switch-On at 6:00am. It will go into Standby at 12:00 noon. It will come out of Standby at 1:00pm and Switch-Off at 6:00pm.

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

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

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

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



Press F5 to confirm your changes

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

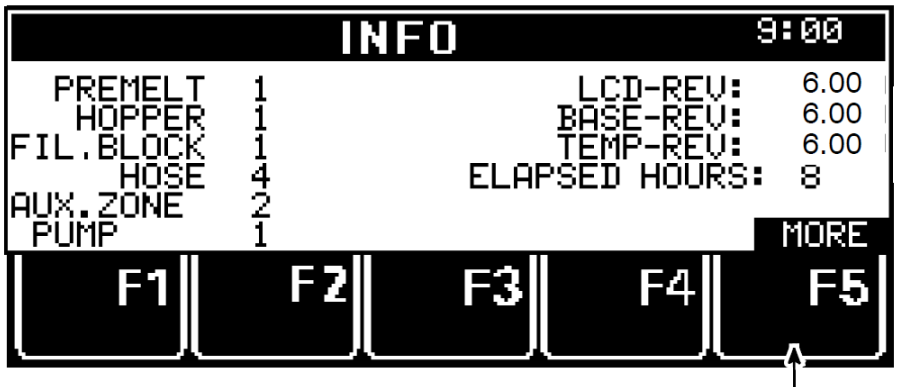
Once all 7-Day Scheduler programming is completed, press the return button twice to return to the Overview Screen.

5.2.4.5 Info Menu (F5)

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

Info Screen #1:
The first Info Screen lists temperature zone and pump configuration. It also provides the revision level of the controller's modules and the elapsed time on the Dynamelt SR ASU's controller.

Press F5 to go to the next Info Screen.



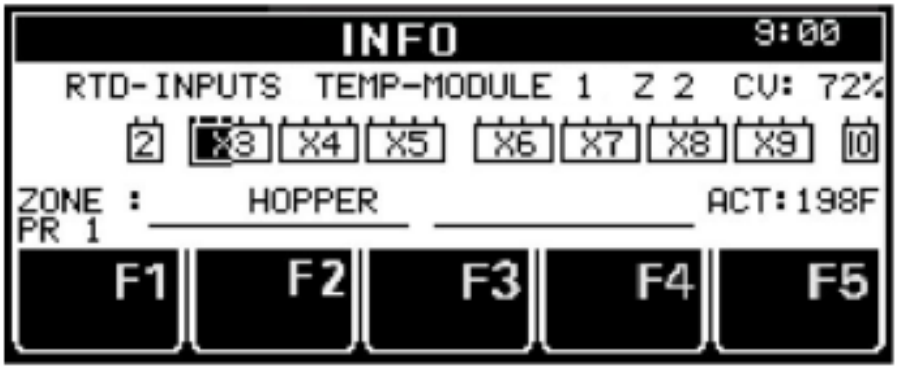
Press F5 to go to the next Info Screen

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

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

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

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



Info Screen #3:
The next Info Screen provides set-up information for the unit's optional communication module. If that module is installed on your ASU, the set-up info is provided on a supplemental CD. If the module is not installed, the Info Screens end here.

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

5.2.5 System Configuration Menu

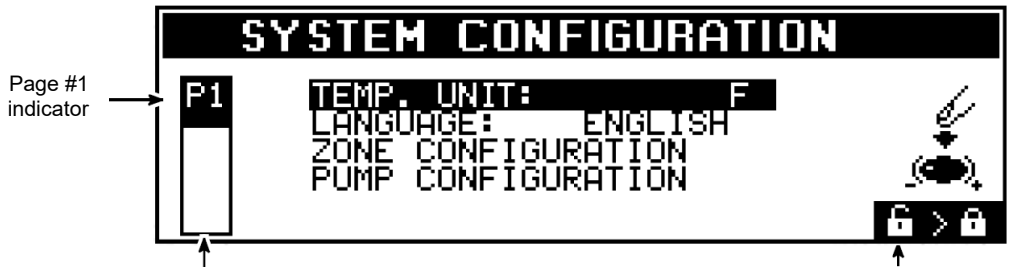
Press the System Configuration Menu button on the Overview Screen to program the following parameters:

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

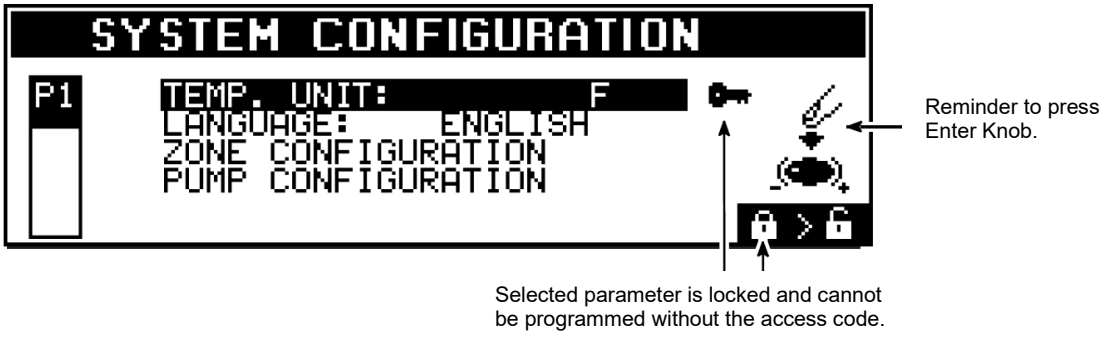
5.2.5.1 Accessing the Parameters

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

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



Page 1 of 4 Pages of Parameters



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

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

5.2.5.2 Temperature Unit (P1)

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

5.2.5.3 Language Selection (P1)

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

5.2.5.4 Zone Configuration (P1)

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

5.2.5.5 Pump Configuration (P1)

This menu configures the ASU's pump by listing pump type. Most pump parameters are setup at the ITW Dynatec factory. The only user serviceable pump parameter is the pump enable temperature.

Pump Enable Programming:

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

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

5.2.5.6 Setpoint Limitation (P2)

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

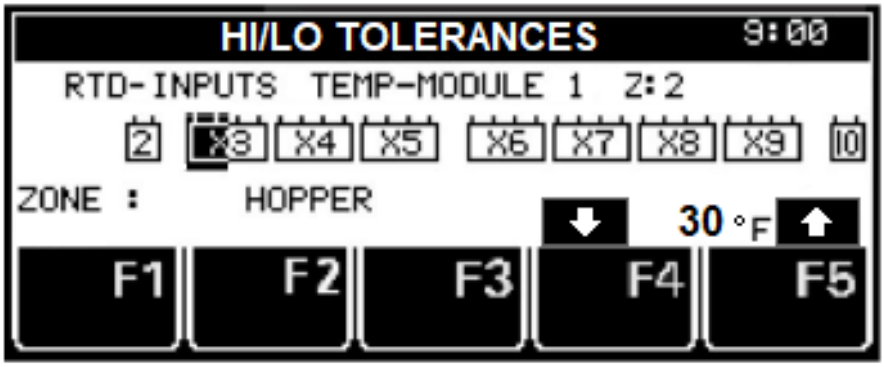
After turning the Input Wheel to select the Setpoint Limitation parameter, press the Enter Knob and then turn the Input Wheel to select your desired setpoint limitation value. Confirm your choice by pressing the Enter Knob.

5.2.5.7 Hi/Lo Tolerance (P2)

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

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

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

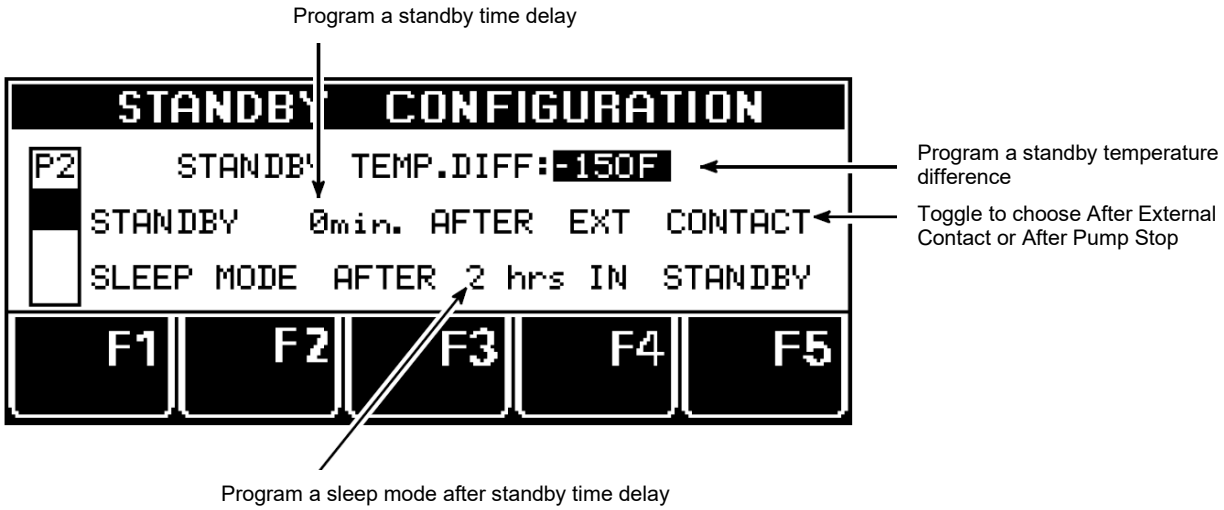


On this screen, use the Input Wheel to select the zone and buttons F4/F5 to change the tolerance for the selected zone. Picture above shows the hopper zone is selected and the tolerance is +/-30°F. It is not necessary to confirm with the Enter Knob. After all zones have been programmed, leave this screen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

5.2.5.8 Standby Configuration (P2)

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

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



Note: Automatic Standby Mode requires at least a 1-minute time delay.

Standby Temperature Difference

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

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

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

Standby Time Delay and Activation

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

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

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

Sleep Mode After Standby

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

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

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

5.2.5.9 Level Detection (P2)

The level detection sensor triggers an alarm when the liquid adhesive level in the hopper falls below a certain level. The delay time of the alarm is 10 minutes. Hopper Empty is the alarm message displayed on the controller's status line. The level detection parameter allows the user to turn the level sensor function On or Off.

After turning the Input Wheel to select the level detection parameter, press the Enter Knob to change the function from activate or deactivate (or vice versa).

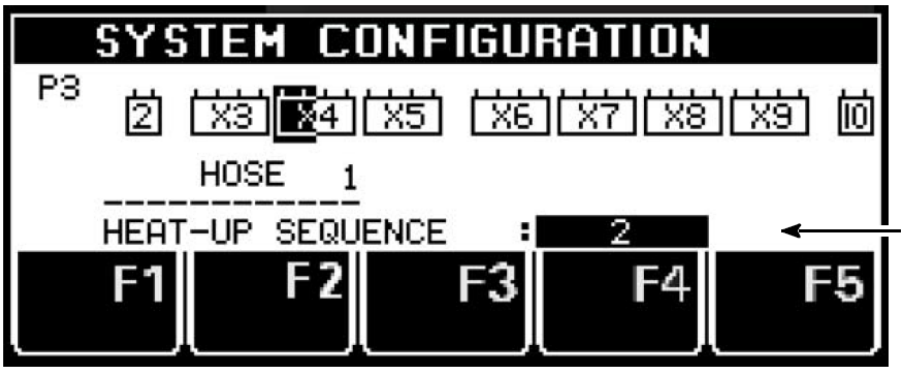
5.2.5.10 Heat-Up Sequence (Priority) (P3)

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

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

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

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



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

5.2.5.11 Access Code (P3)

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

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

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

5.2.5.12 0.5 RPM Increment (P3)

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

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

5.2.5.13 Temperature Offset (P3)

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

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

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

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

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

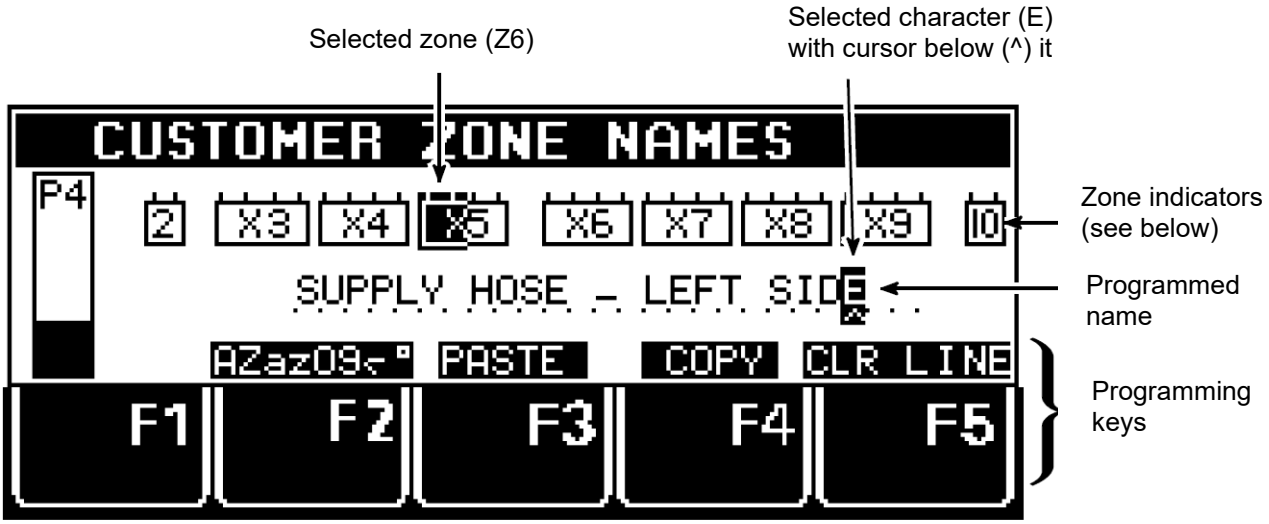
When all desired zones are programmed, press RETURN to go to the System Configuration Menu (page 1), then press RETURN again to go to the Overview Screen.

5.2.5.14 Customer Zone Names (P4)

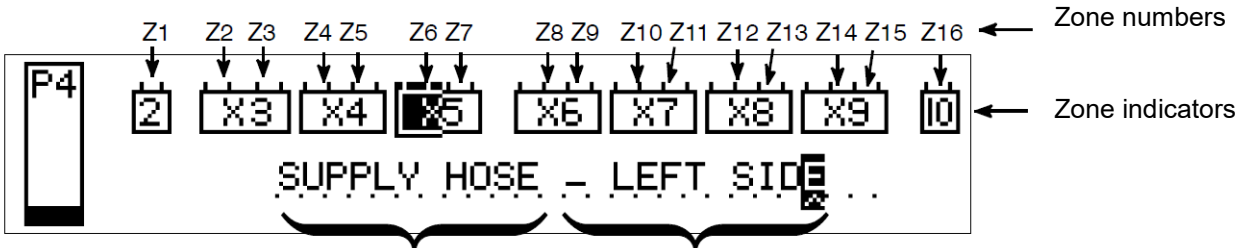
With this configuration parameter, the user may personalize the names of the temperature zones with names that are more descriptive for his application. That is, instead of the factory-set zone names of Z01, Z02, Z03, etc., the customer may prefer temperature zone names such as “TANK”, “HEAD 1”, “FILTER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

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

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



Customer Zone Name Programming Screen



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

Using F2, F3, F4 & F5 Programming Keys:

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

Programming the Zone Names

After selecting the Customer Zone Names parameter and pressing the Enter Knob to display YES, press F3 (Change Text) to begin programming.

1. Turn the Input Wheel to select desired temperature zone (refer to corresponding RTD). The selected zone is highlighted.
2. Press the Input Knob to confirm zone.
3. Turn the Input Wheel to select the character to be re-programmed.
4. Press the Input Knob to confirm selection. The cursor highlights the selected character.
5. Turn the Input Knob to select the new character.
6. Press the Input Knob to confirm the new character.
7. Repeat steps 3 through 6 to spell desired zone name.
8. Press the Return button to select another zone to program. Repeat steps 1 through 6 for each zone desired.
9. Press Return again when all temperature zone name programming is completed.

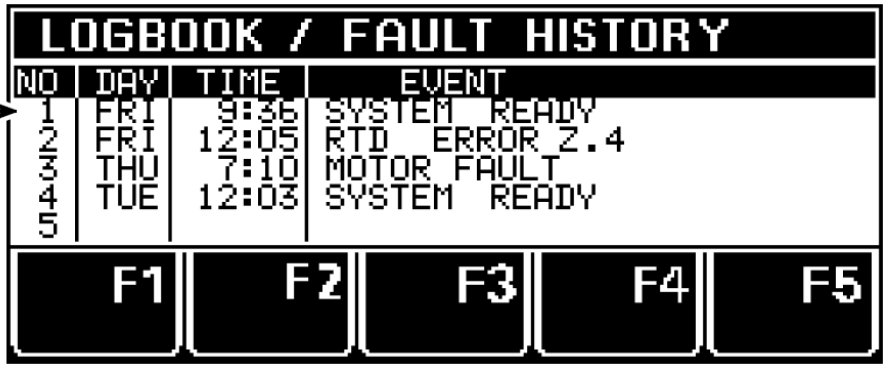
5.2.5.15 Logbook/ Fault History (P4)

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

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

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

#1 is most recent entry →



5.2.5.16 Power-On Configuration (P4)

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

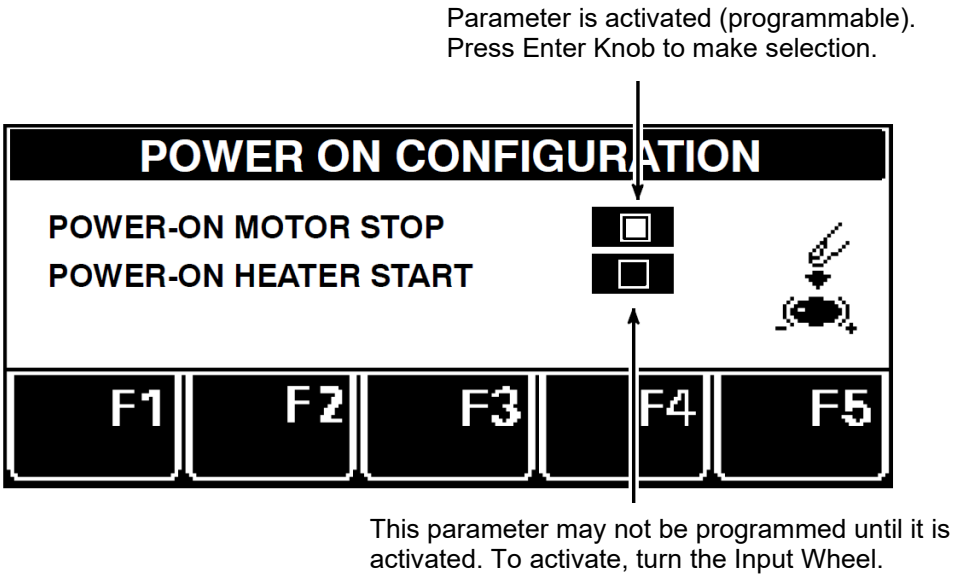
Power-On Motor Stop
At the Power-On Motor Stop parameter, you decide if you prefer the motor to be stopped when the ASU is turned on (if so, choose YES) or if you prefer that the motor remain in its previous mode when the ASU is turned on (choose NO).

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

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

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

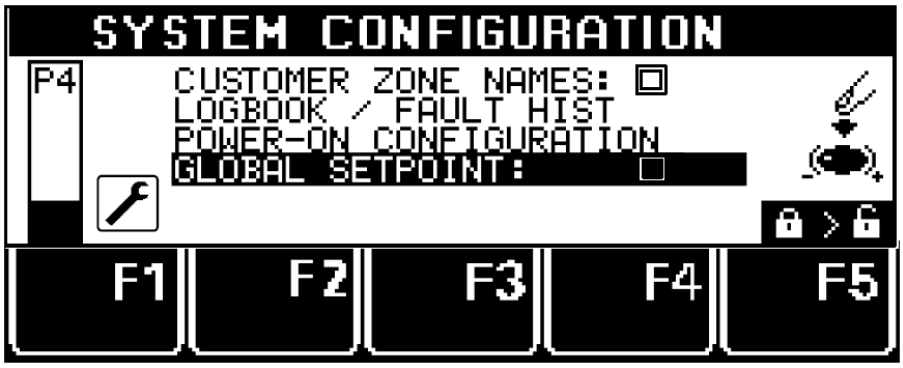
After programming, press RETURN twice to return to the Overview Screen.



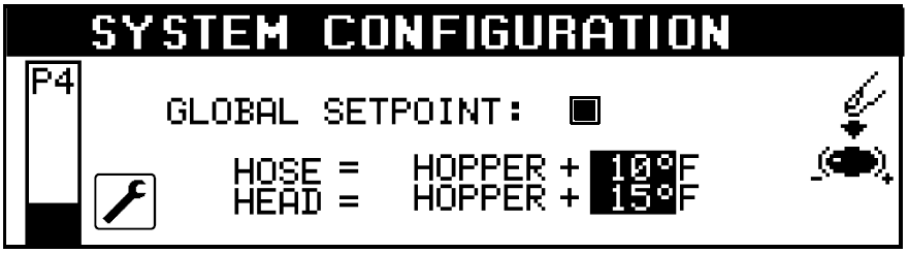
5.2.5.17 Global Setpoints (P4)

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

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



Then press F3 to open the Global Setpoints menu.



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

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

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

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

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

Chapter 6
Maintenance and Repair Notes

6.1 Security advices for maintenance and repair

Heed all security advices given in Chapter 2.

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

Maintenance and repair work is only permitted for skilled personnel!

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

High Voltage! Risk of injury and mortal danger!

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

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

High adhesive temperature and adhesive pressure! Risk of injury or heavy burns!
Always assume that the system is under pressure, proceed with caution.

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

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

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

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

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

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

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

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

1. Disconnect the pressure air supply.
2. Turn the pressure regulator to zero bar, if necessary. Wait approximately 1 minute until the pressure is relieved.
3. Open the applicators purge valve or open the modules by activating the solenoids to relieve any adhesive pressure.

6.1.1 Equipment Preparation for Maintenance & Repair

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

6.1.2 Re-Assembly Procedures and General Cautions

Unless noted, the re-assembly is simply the reverse sequence of the disassembly procedures. However, the following “cautions” should be followed (whenever they apply) for proper re-assembly:

CAUTION

In general, all O-RINGS AND SEALS must be replaced whenever hot-melt equipment is re-assembled. All new O-rings must be lubricated with O-ring high-temp lube (PN 001V078).

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

SOME FITTINGS used for adhesive on hot melt equipment have straight threads and O-ring seals. Use of thread sealant is not necessary with these parts, but the O-ring seals should be clean and lubricated. Tighten straight-threaded parts and fittings until their shoulders are firmly seated. Excessive torque may damage straight-threaded parts and the use of power wrenches is not recommended.

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

6.1.3 Cleaning Recommendation

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

6.2 Maintenance plan

CAUTION

Heed all security advices given in Chapter 6.1.

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

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

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

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

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

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

Maintenance plan:

Operating time/ frequency	Inspection point / maintenance notes
Continuous	• Remove dropped out adhesive and scrap adhesive and search for the cause of that, eliminate the cause. • Listen for abnormal sounds of the unit, e. g. from the motors, pumps, etc.
Once a day	• Clean the ASU and components from dirt.
Once a week	• Check pump and their seals for wearing and leaks and replace if necessary. • Check output filter for clogging and replace if necessary. • Check pressure relief valves for function and replace if necessary. • Check air supply connections for leaks and tighten if loose or replace if necessary. • Check the solenoid valves for proper function and replace it if necessary. • Check for adhesive residue in the manifold drip tray. If residue is found, inspect and replace the pump seal, as required.
Every 3 months	• Inspect filter and shutoff assembly. Clean or replace the assembly if necessary. • Check pump mounting screws for tightness and tighten if necessary. • Check all hose fittings for tightness and tighten if necessary. • Due to temperature differences a loosening of threads (threaded connections) is possible. Check all parts with threads, all screw fittings and fasteners for tightness and tighten them if necessary.
Once a year	• Clean the ASU. • Complete check-up for wearing.
Every two years	• Complete maintenance.

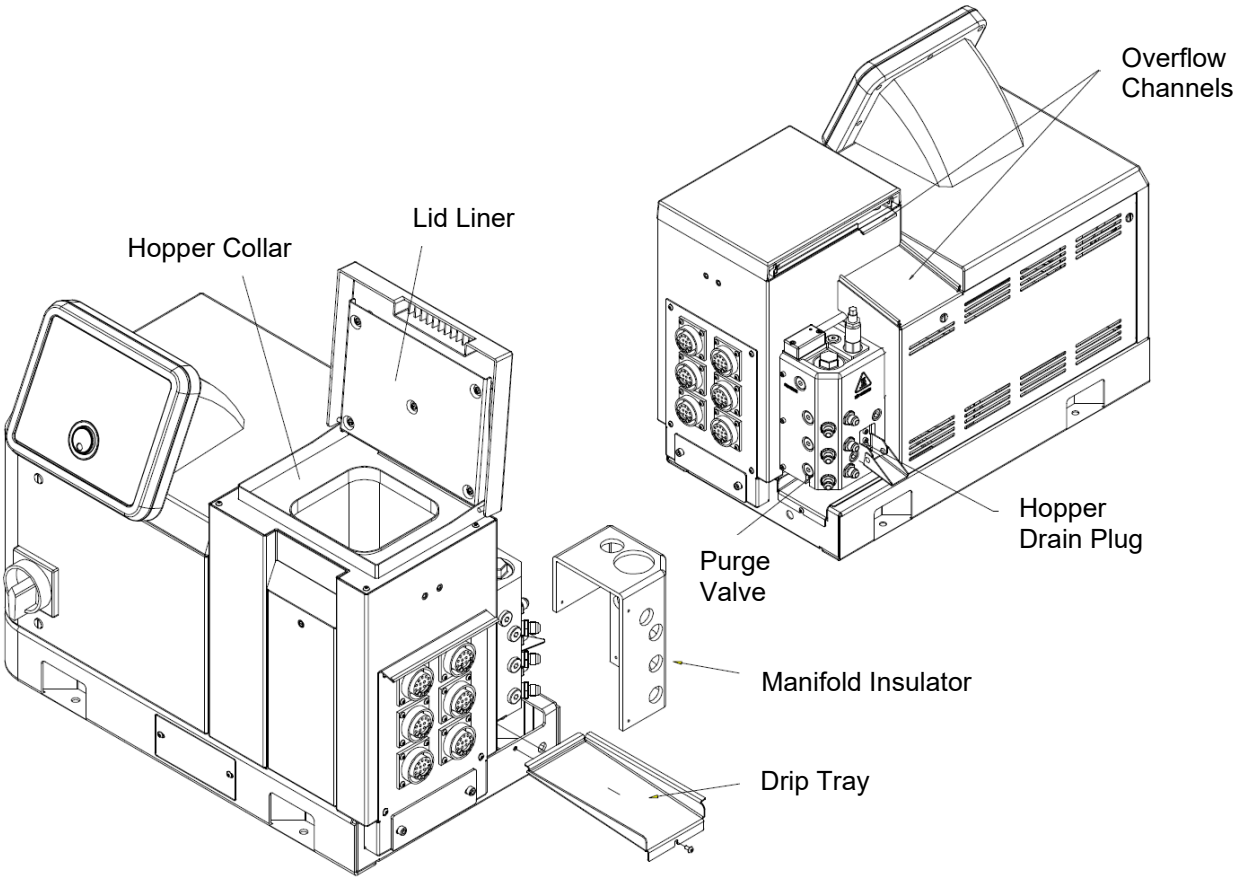
6.3 General Cleaning

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

The enclosure is comprised of both injection-molded nylon and epoxy powder-coated steel panels. The painted steel panels may be cleaned with a variety of industrial cleaners following manufacturers' directions. The polymer panels may be cleaned with mineral spirits.

The manifold insulator is replaceable in the event it becomes dirty or is damaged. The unit should not be operated without this insulator in place.

The ASU was designed to channel adhesive overflow out the back of the unit and down the rear panel.



6.4 Purging the Filter Manifold of Adhesive and Pressure

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

WARNING

Heed all security advices given in Chapter 6.1.

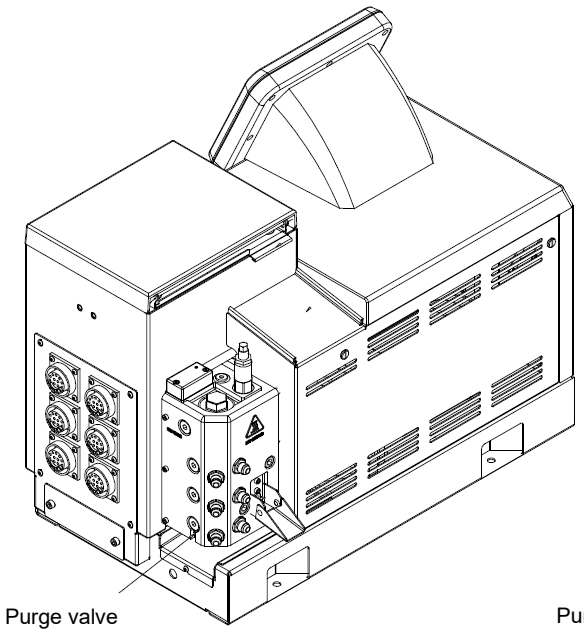
Maintenance and repair work is only permitted for skilled personnel!

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

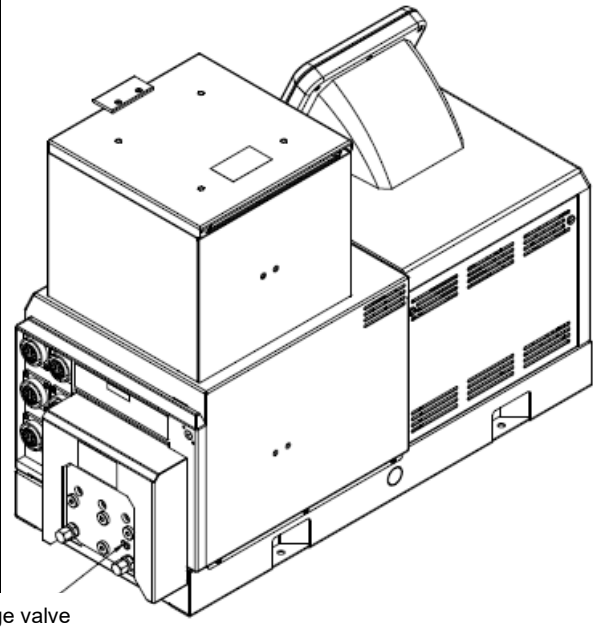
During the purging procedure, hot adhesive can come out of the manifold under high pressure. Avoid splashing hot adhesive. Stand clear of the ASU until all pressure is relieved.

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

SR5/10 Melter:



SR22/45 Melter:



1. The system should be at operating temperature.
2. Turn the pump/ motor OFF.
3. Switch the unit voltage-free and pressureless.
4. Guard the unit against unauthorized restarting.
5. Place a heat-resistant catchment container/underlay under the manifold's purge drain. Hot adhesive may come out!
6. Locate the purge valve (screw) on the side of the filter manifold. The purge valve is the bottom-most port on the manifold.

7. With a 5mm Allen wrench, slowly loosen the purge screw. Do not attempt to remove the purge screw. Allow the adhesive and pressure to drain. All the adhesive will flow into the heat-resistant container.

8. After adhesive pressure has been relieved, re-tighten the purge screw.

After finishing the maintenance or repair works:

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

6.5 Preventive Maintenance

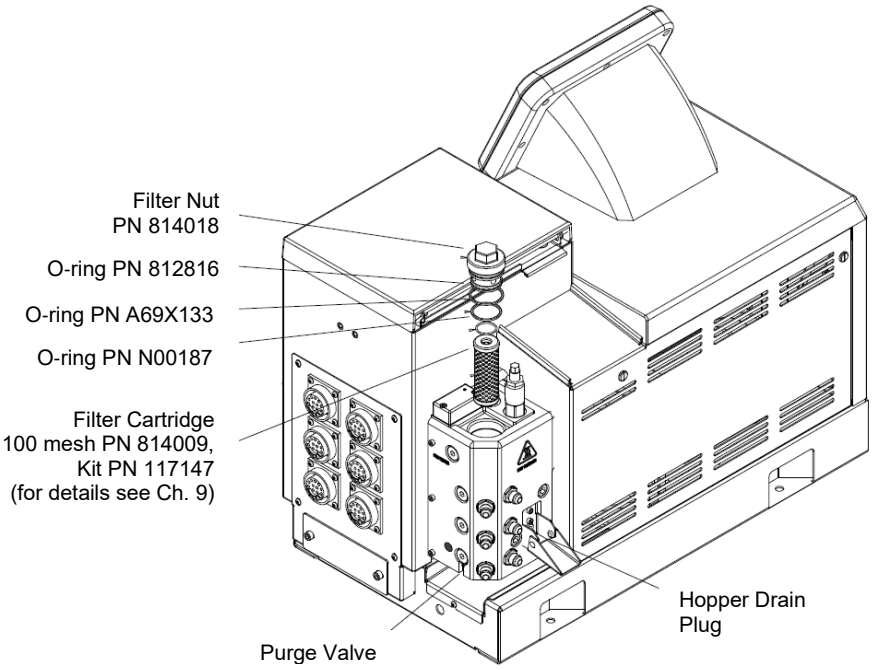
6.5.1 Preventive Maintenance Schedule

The Dynamelt SR requires periodic maintenance to function reliably. The Elapsed Hours feature of the controller (on Info Screen #1, see Chapter 5) can aid in determining a maintenance schedule. Refer to 6.2 Maintenance Plan.
The ASU parts that require regular, periodic maintenance are as follows:

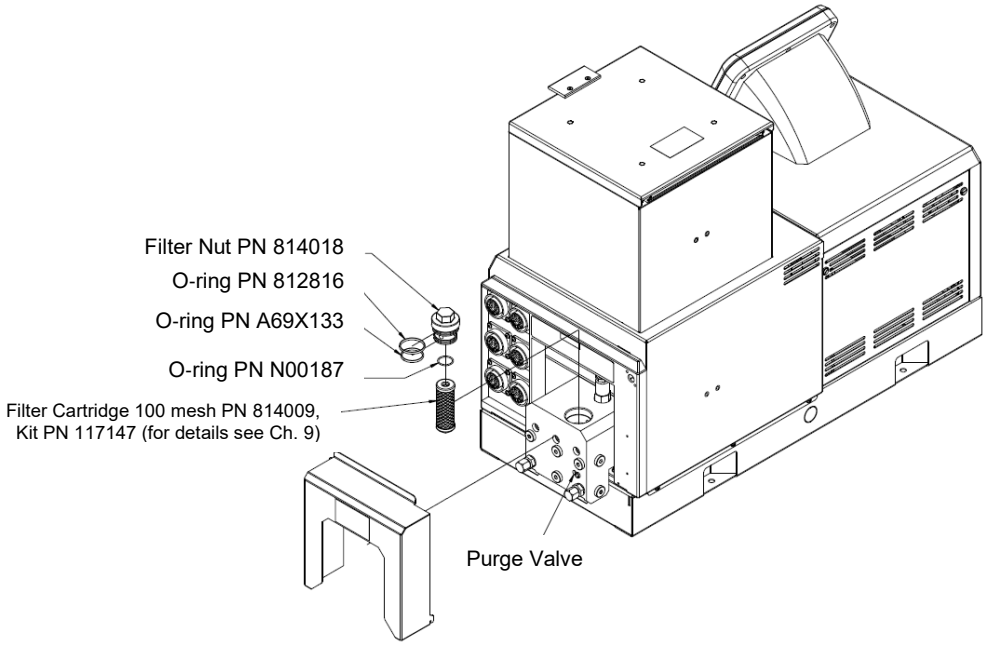
6.5.2 Output Filter, Checking and Replacement

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

SR5/10 Melter:



SR22/45 Melter:



Use the following procedure to replace the output filter:

WARNING

Heed all security advices given in Chapter 6.1.

Maintenance and repair work is only permitted for skilled personnel!

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

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

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

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

NOTE:
The **filter nut** has right-hand thread and the f**ilter cartridge** has left-hand thread.

To replace the Output Filter:

1. The system should be at operating temperature.
2. Turn the pump/ motor OFF.
3. Switch the unit voltage-free and pressureless.
4. Guard the unit against unauthorized restarting.
5. Place a heat-resistant catchment container/underlay under the purge valve drip tray. Hot adhesive may come out!
6. Open the applicators/modules by activating the solenoid to relieve adhesive pressure.
7. Wearing insulated gloves, arm guards and a face shield, use a 5mm Allen wrench to open the purge screw within the purge valve. A small amount of adhesive will pop out of the drain valve, relieving stored pressure in the manifold. Allow the adhesive to drain into the container.

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

8. After all pressure has been drained from the manifold, remove the filter nut with a 25mm (1") wrench. All the O-rings and the filter cartridge are attached to the filter nut.

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

9. Inspect the filter nut and O-rings for damage and replace, as necessary.
   When replacing O-rings, lubricate the new O-ring with O-ring lubricant prior to installation.

10. Install a new filter cartridge onto the filter nut.

11. Re-install the filter assembly into the manifold.
    Tighten the filter nut to 15-20 ft.-lbs (20-27 Nm) being careful not to damage the O-ring seal.
    Note: when correctly installed, the filter nut sits below the top surface of the manifold.

12. Close the drain valve purge screw, return the equipment to service and check for leaks.

13. If leaking, it may be necessary to replace the filter nut O-rings.

After finishing the maintenance or repair works:

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

6.5.3 Hose Fittings

All hose fittings should be checked for tightness after every three months of operation.

6.5.4 Fasteners

Check that all fasteners are tight after the first ten hours of operation. Re-check all fasteners after every three months of operation.

6.5.5 Filter and Shutoff Assembly, Cleaning and Replacement, SR5/10

Maintenance and repair work is only permitted for skilled personnel!

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

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

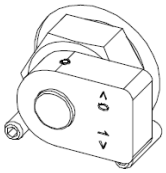
During the purging procedure, hot adhesive can come out of the manifold under high pressure. Avoid splashing hot adhesive. Stand clear of the ASU until all pressure is relieved.

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

NOTE on Function:

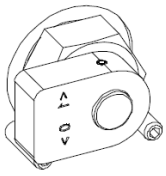
- This assembly is installed in the hopper (tank) in the adhesive channel to the pump. It functions as a pre-filter and filters debris and it prevents them from entering into the adhesive system. During production it must always be turned ON (open, to right position).
- Turn this assembly to the OFF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

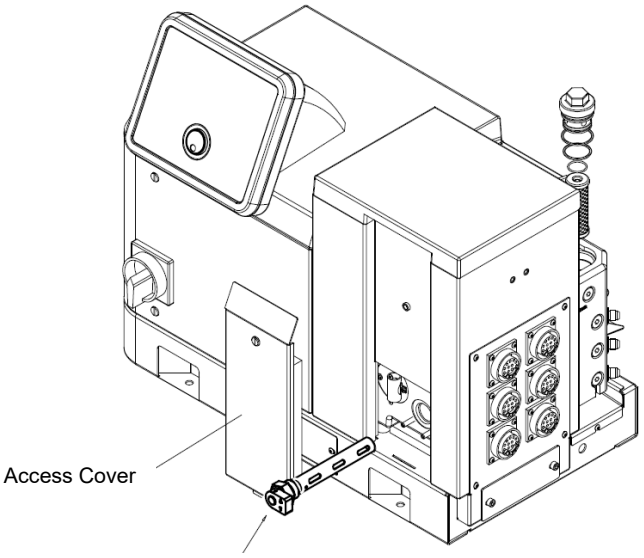
Knob of the filter and shutoff assembly:



Above: Open position

Below: Closed position





Filter and shutoff assembly:
Turn knob to left position = closed/ OFF
Turn knob to right position = open/ ON (shown)

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

WARNING HOT SURFACE

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

5. Remove the orange access cover by loosening the captive screw and lifting the panel off of the base rail.

6. Wearing gloves, unscrew the filter retaining nut and pull the filter and shutoff assembly out of the hopper.

7. Immerse the clogged filter in flushing fluid (PN L15653) to loosen contaminants. Remove filter from fluid and use a hot air gun (if necessary) and rags to clean all contaminants from the filter.
   NOTE: If the filter cannot be cleaned, replace the entire assembly.

8. Install a new O-ring PN N00210 on the filter and shutoff assembly. Apply a coat of anti-seize compound onto the threads of the filter retaining nut and re-install the filter and shutoff assembly into the hopper.

9. Position the filter knob in the OPEN position (see illustration) and install the M6 set screw until it bottoms. Do not overtighten!

10. Replace the orange access cover and restore the ASU to normal operation.

After finishing the maintenance or repair works:

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

6.5.6 Filter and Shutoff Assembly, Cleaning and Replacement, SR22/45

Maintenance and repair work is only permitted for skilled personnel!

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

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

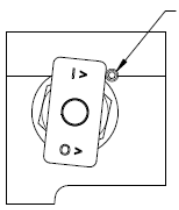
During the purging procedure, hot adhesive can come out of the manifold under high pressure. Avoid splashing hot adhesive. Stand clear of the ASU until all pressure is relieved.

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

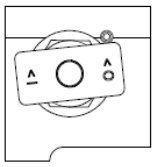
NOTE on Function:

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

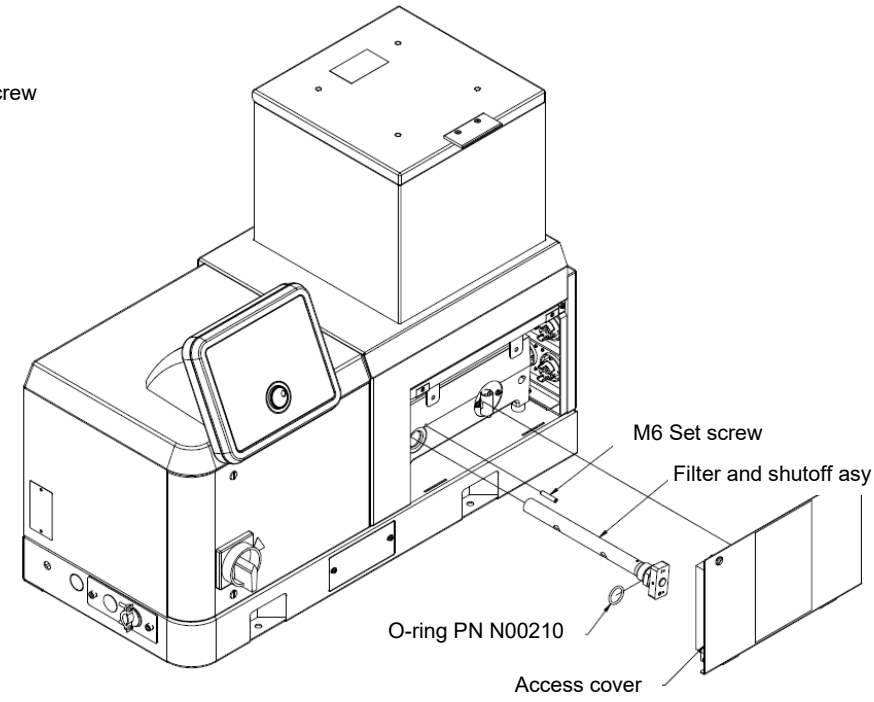
Knob of the filter and shutoff assembly:



Open (ON) Position



Closed (OFF) Position



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

WARNING HOT SURFACE

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

5. Remove the front access cover by loosening the captive screw and lifting the panel off of the base frame.

6. Remove the M6 set screw.
   Wearing gloves, unscrew the filter retaining nut and pull the filter and shutoff assembly from the hopper.

7. Immerse the clogged filter in flushing fluid (PN L15653) to loosen contaminants. Remove filter from fluid and use a hot air gun (if necessary) and rags to clean all contaminants from the filter.
   NOTE: If the filter cannot be cleaned, replace the entire assembly.

8. Install a new O-ring PN N00210 on the filter and shutoff assembly. Apply a coat of anti-seize compound onto the threads of the filter retaining nut and re-install the filter and shutoff assembly into the hopper.

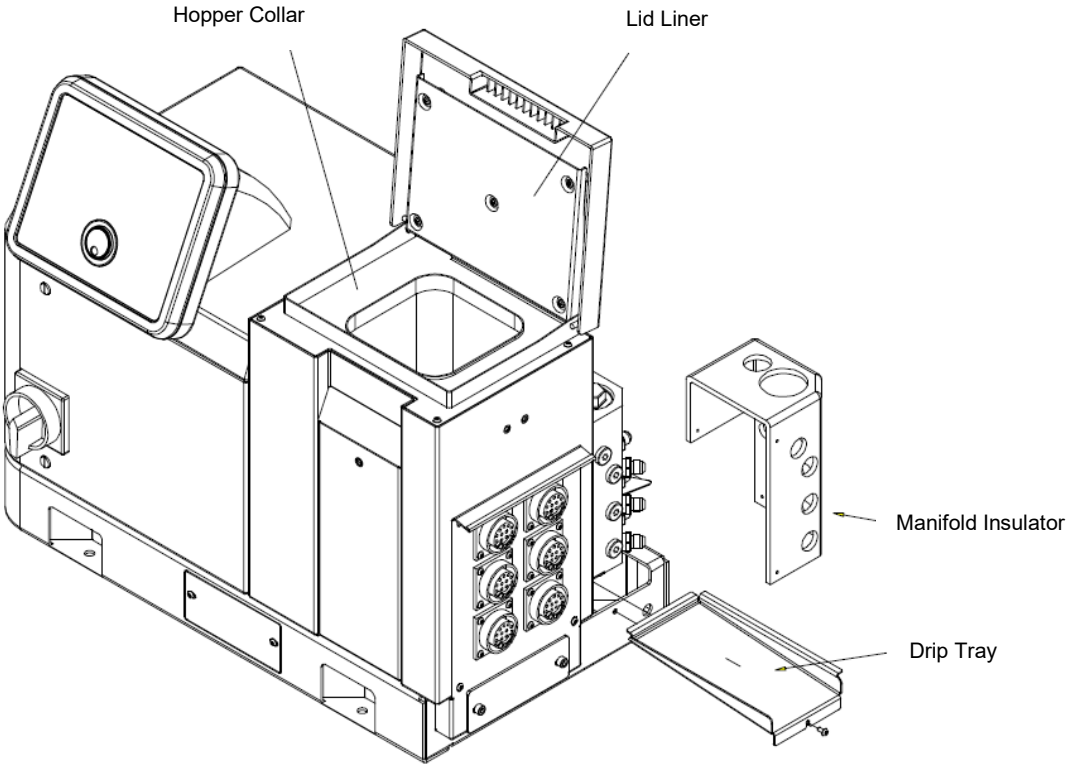
9. Position the filter knob in the OPEN position (see illustration) and install the M6 set screw until it bottoms. Do not overtighten!

10. Replace the orange access cover and restore the ASU to normal operation.

After finishing the maintenance or repair works:

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

6.5.7 Pump Shaft Leak on a Gear Pump Unit



The unit is equipped with a removable stainless-steel drip tray under the filter manifold. Adhesive leaking from a gear pump's shaft seal will collect on the drip tray.
The drip tray should be inspected monthly for adhesive residue. residue indicates that the pump seal is worn and needs to be replaced. See instructions in Chapter 8 for replacement of this seal.

6.5.8 Flushing the System

Contaminated adhesive, accumulation of residue in the system and hopper, or changing the adhesive formulation may require the system to be flushed. To flush the system, have at least 6 liters (1.5 gallons) of flushing fluid on hand (PN L15653).

WARNING

Heed all security advices given in Chapter 6.1.

Maintenance and repair work is only permitted for skilled personnel!

The flushing fluid will splash easily.

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

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

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

   Note: the hose used in the following process is merely for the convenience of depositing flushing fluid. This procedure does not have to be repeated for each hose in the system.
3. Disconnect one of the supply hose's adhesive feed from its applicator head. Do not disconnect the electrical power to the head (since that would disable the pump). Put the hose in a secured position within a heat-resistant container, which will catch the used flushing fluid.
4. Add flushing fluid to the hopper and allow approximately fifteen minutes for it to reach hopper temperature. Carefully stir the flushing fluid to mix with any adhesive remaining in the hopper.
5. Slowly increase the pump speed. Pump as much of the flushing fluid through the hopper, pump and adhesive supply hose into the flushing container.

WARNING HOT ADHESIVE

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

6. Reduce the pump speed to zero.
7. Add new adhesive to the hopper and allow it to reach application temperature.
8. Slowly increase motor speed to the pump.
9. Actuate each of the heads until all the flushing fluid is removed and a steady stream of new adhesive flows. Reduce the pump speed to zero.
10. Remove the output filter and replace the filter cartridge. Install a new O-ring on the filter nut (lubricate the new O-ring with O-ring lubricant prior to installation) and tighten the filter nut.
11. Re-adjust the pump speed for the desired flow.
12. Re-fill the hopper with adhesive. The system is now ready for production.

Chapter 7
Troubleshooting

7.1 General Troubleshooting Notes

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

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

DANGER HIGH VOLTAGE

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

WARNING HOT SURFACE

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

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

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

Use proper tools for handling hot melt components.

CAUTION

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

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

7.1.1 Preliminary Checks

Verify the following before proceeding:

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

7.1.2 Error Messages

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

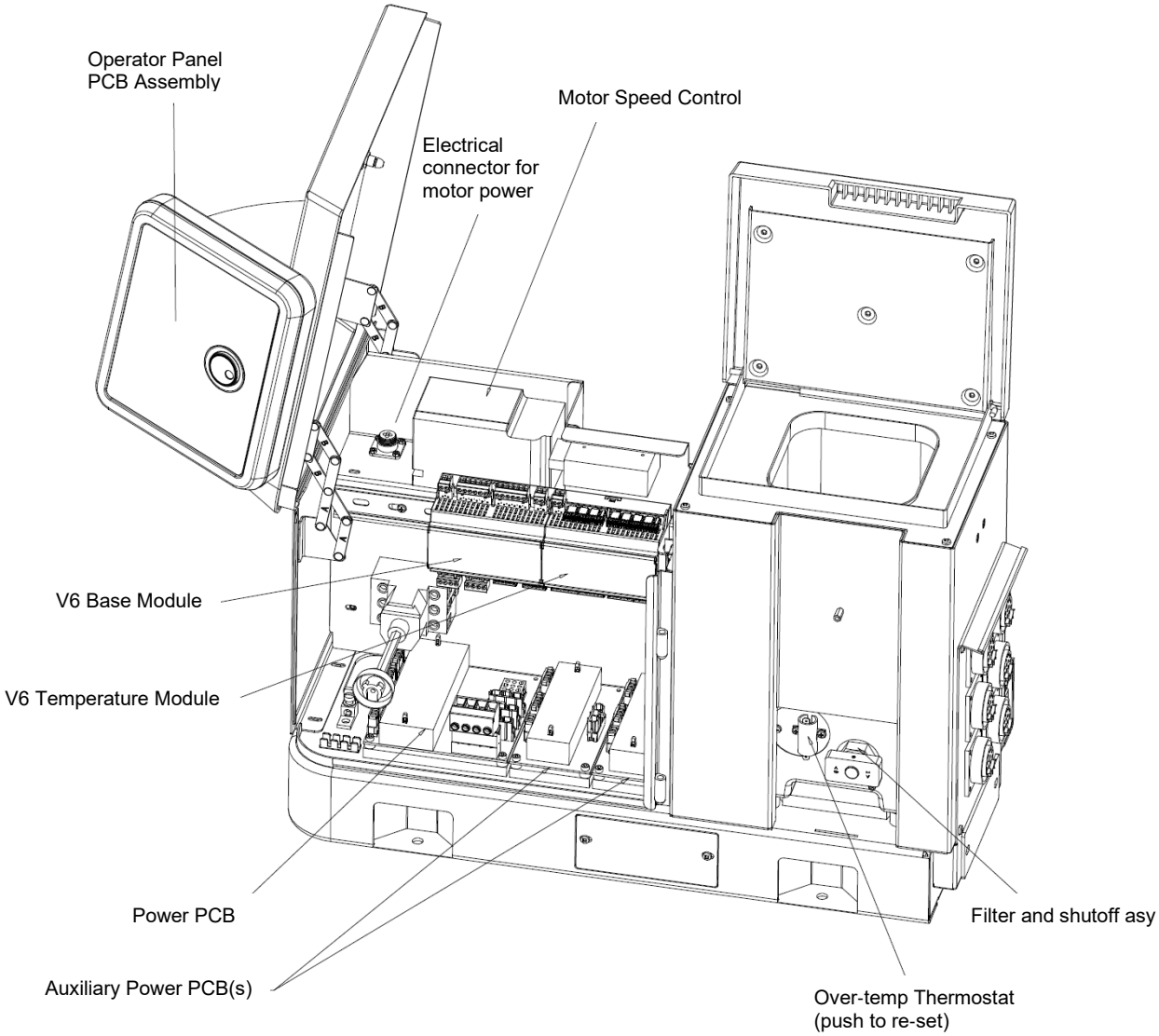
See examples of controller error messages in the Troubleshooting Guides section of this chapter.

7.1.3 Hose/ Applicator Troubleshooting Tip

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

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

7.1.4 Location of Components



7.1.5 High-Temperature Redundant Overtemp Thermostat

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

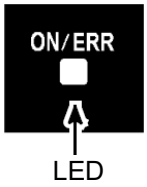
The overtemp thermostat is located on the front side of the hopper, behind the access cover (see illustration on previous page). To reset: turn OFF the ASU's main power switch; loosen the captive screw to remove the access cover; push the center of the thermostat's insulator to re-set; restart the ASU.

7.1.6 Lithium Battery on Operator's Panel Printed Circuit Board

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

7.1.7 DynaControl V6 Modules

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



LED

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

7.1.8 7-Day Scheduler Use with Pendant Control

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

7.1.9 Handling Printed Circuit Boards (PCBs)

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

DANGER HIGH VOLTAGE

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

CAUTION

Modules and printed circuit boards (PCBs) should be handled using the following procedures:

1. Wear a wrist grounding strap. If a grounding strap is not available, frequently touch a bare metal part of the 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.

4. When removed from the ASU, each PCB must be individually packaged inside a metalized, static drain envelope. Do not place the removed PCB on a table, counter, etc. until it has first been placed in or on a static drain envelope.

5. 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.

6. When unwrapping a PCB from its static drain envelope, place the envelope on a *grounded, nonmetallic* surface.

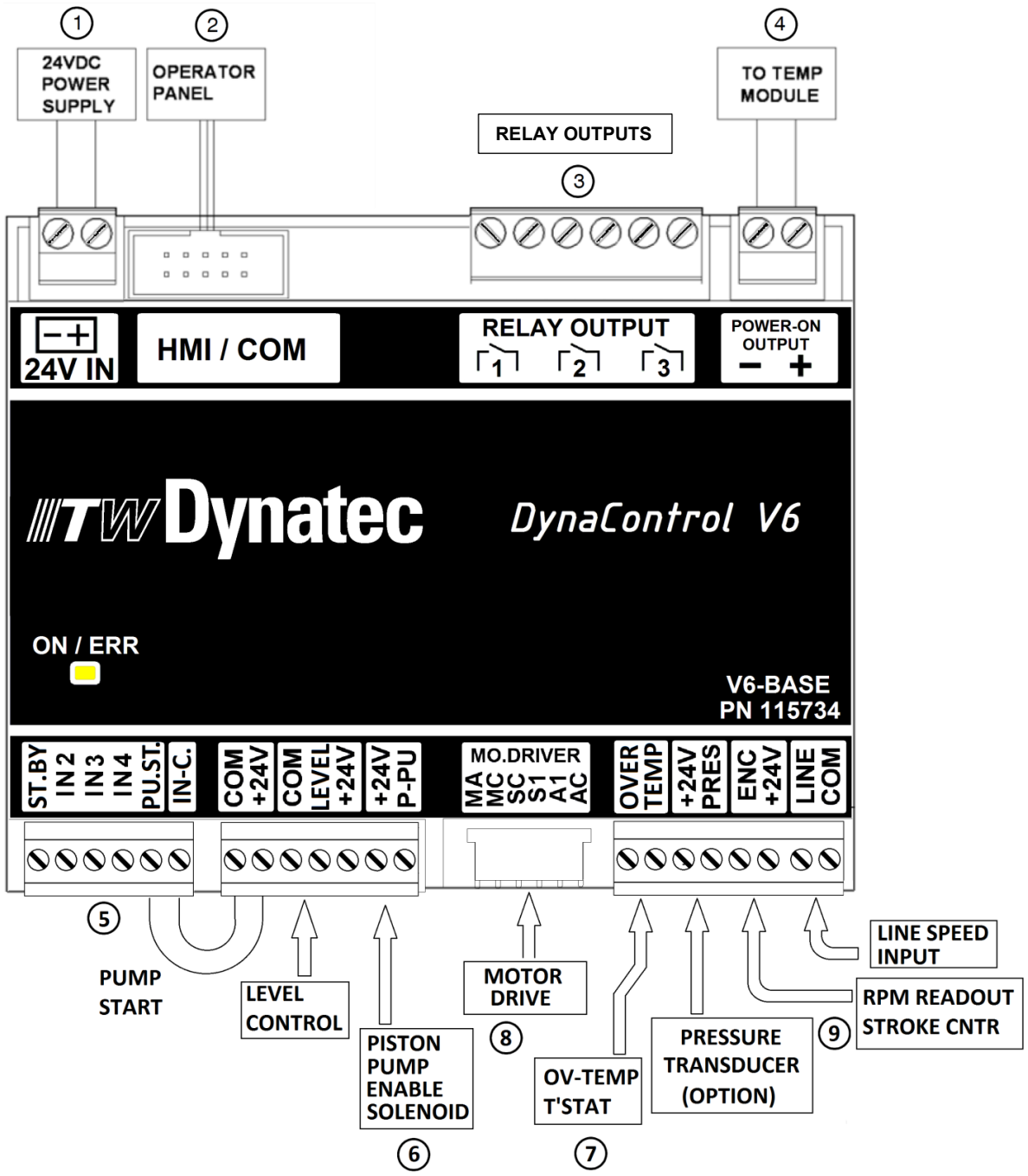
7. To cushion modules or PCBs for shipment, use only static-drain bubble pack. Do not use foam peanuts or bubble pack not known to be static draining.

The following pages detail the Dynamelt SR Series modules and PCBs.

7.2 V6 Base Module PN 115734

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

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



V6 Base Module, cont.

Description of Components

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

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

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

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

  The default functions of the relays are:

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

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

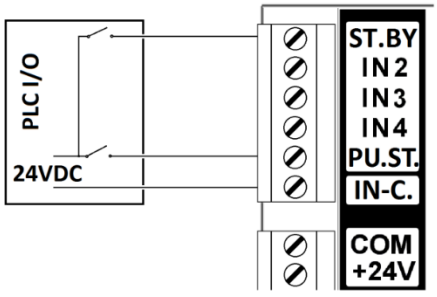
  Relay 3: Hopper Empty Signal
  This contact closes when the adhesive level in the hopper drops below a certain level. It can be used to indicate this situation via an external light or an audible alarm. Normally open.

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

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

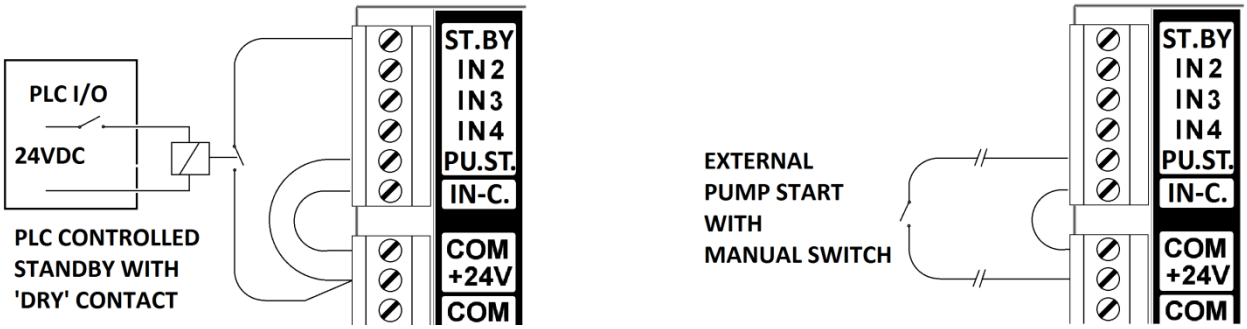
- **Item #5** This connector accepts external signals that can be used to control the ASU. The inputs require 24VDC signals. Although the internal 24VDC can be used to provide voltage for the inputs, it is recommended to use external 24VDC. For this purpose, the common of the signal inputs is available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

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



V6 Base Module, cont.

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



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

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

Input ST.BY: External Standby/ Setback
Activating this input sets the ASU in Standby Mode.
In standby mode, all temperature zones will lower their temperatures by a programmed amount. Opening that contact will return to normal mode.

Input IN2 & IN3: External Program/ Recipe Selection
By activating these inputs, it is possible to load one of four programs (recipes) into the controller.

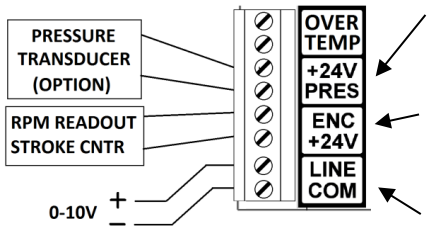
The two inputs (IN) are coded in the following way:
Activate IN2 while IN3 is not activated: Load Program 1
Activate IN3 while IN2 is not activated: Load Program 2
Activate IN2 while IN3 is activated: Load Program 3
Activate IN3 while IN2 is activated: Load Program 4

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

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

- **Item #6** This output signal provides 24VDC for the piston pump enable solenoid. The solenoid valve activates the piston pump when all temperature zones are within tolerance and the customer has switched the pump into run mode.
- **Item #7** This input is connected to the over-temperature thermostat on the hopper. In the unlikely event that that hopper temperature exceeds 450°F (232°C), the thermostat will open and cause the power to all the heaters to be cut off. A corresponding alarm message will appear on the controller's display. The thermostat must be manually re-set after the hopper temperature falls below 400°F (204°C).
- **Item #8** This connects to the motor driver. It is used on gear pump models only.
  MB / MC: Alarm contact indicating driver fault.
  SC / S1: Pump start signal.
  A1 / AC: 0-10V pump speed signal.

- **Item #9**



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

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

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

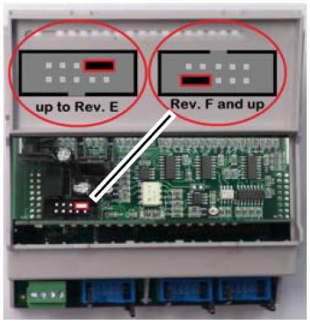
Warning: The line speed input is grounded. If the line tracking voltage has a different ground potential, it is recommended to use a signal isolator. Otherwise, damage to the V6 modules is possible.

7.3 V6 Temperature Module PN 115735

The V6 TEMP module is mounted to the right of 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).

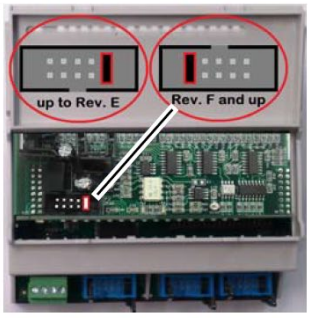
Each of the maximum 15 zones has a status LED which shows its heating status in the following manner:

- 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.

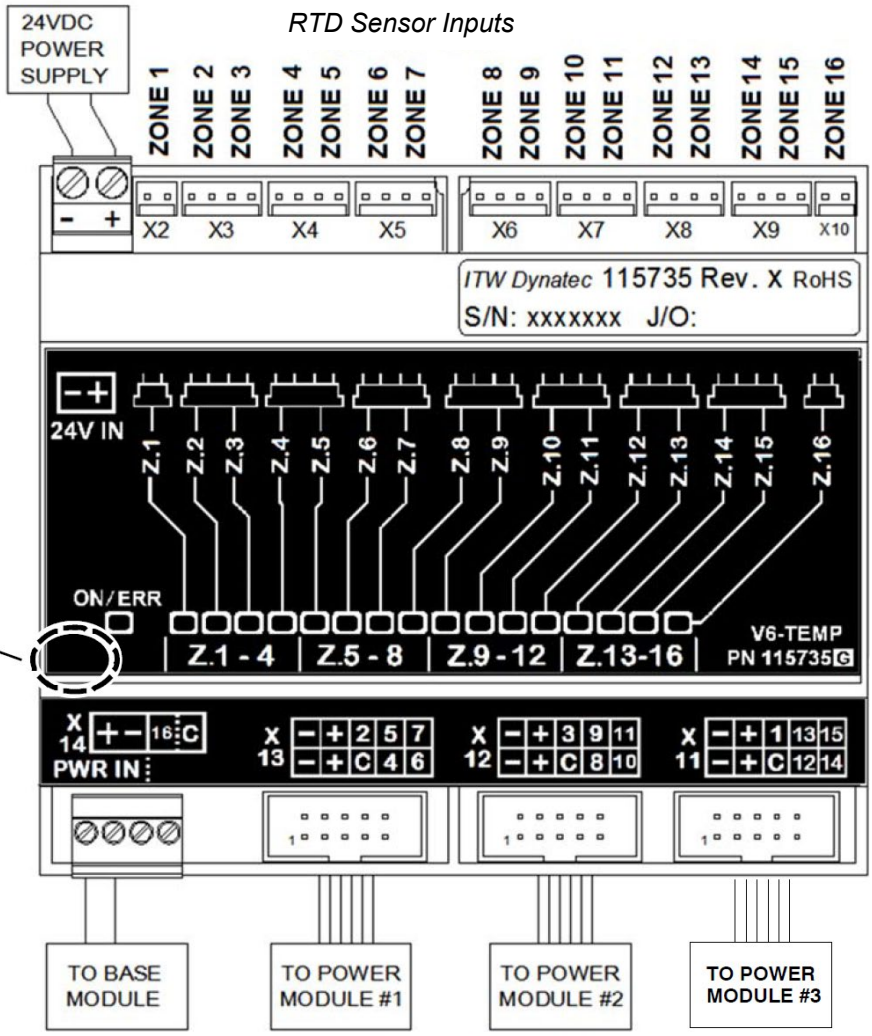


Dynacontrol RTD ASU: Jumper positioned horizontally, as above.

Approx. location of the jumper inside the module.



NDSN RTD ASU: Jumper positioned vertically, as above.



Heater Control output.

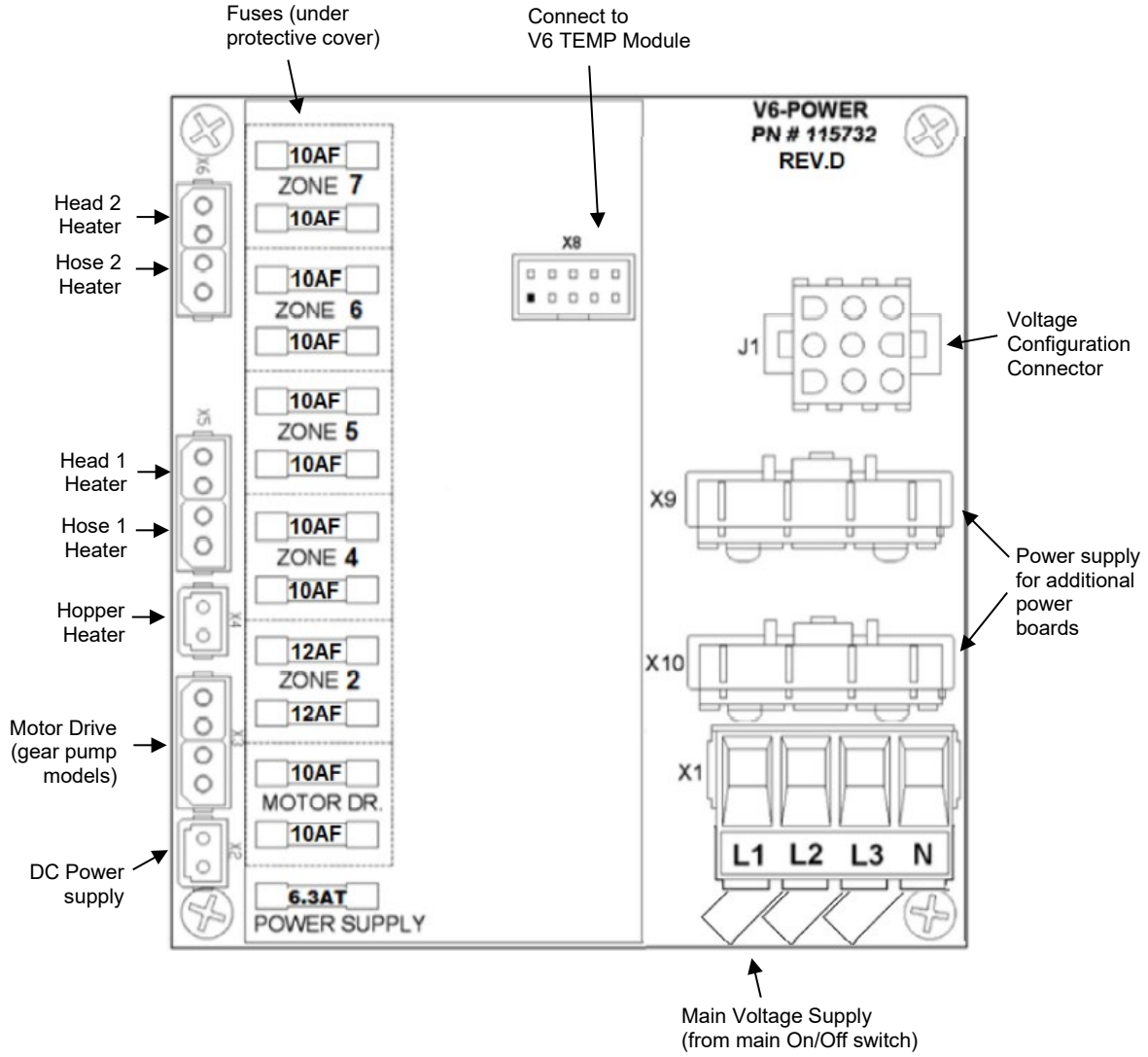
7.3.1 Standard System Zone Table

Dynamelt SR5/10/22/45

Zone 1 Premelt Grid (not available on SR5)
Zone 2 Hopper
Zone 3 Filter on SR5/10; Premelt Grid #2 on SR45
Zone 4 Hose 1
Zone 5 Head 1
Zone 6 Hose 2
Zone 7 Head 2
Zone 8 Hose 3
Zone 9 Head 3
Zone 10 Hose 4
Zone 11 Head 4
Zone 12 Hose 5
Zone 13 Head 5
Zone 14 Hose 6
Zone 15 Head 6
Zone 16 n/a

7.4 V6 Power Module PN 115732

The V6 POWER module provides controlled power to the heater of the first five zones. It receives its control signals from the V6 TEMP module. The Power Module also has protected outputs for the DC power supply and motor drive.



Fuses

The fuses of the POWER Module 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.

Heater fuses are fast-acting (10AF/12AF). For fuse sizes see picture above.

Always replace fuses with the same type of fuse.

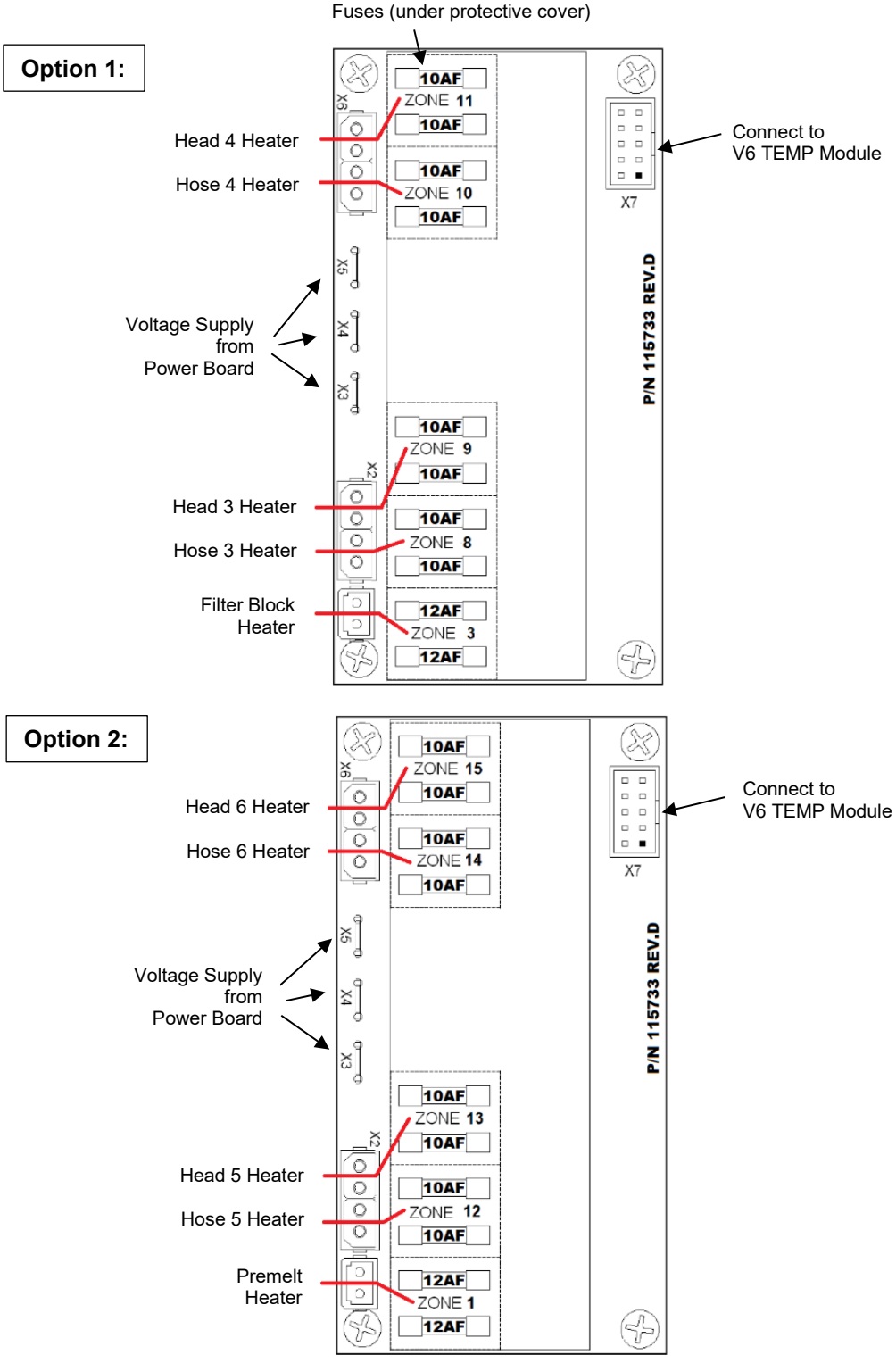
Voltage Configuration Connector

The appropriate voltage configuration plug must be installed for the machine to operate properly. Three different connectors (plugs) are available:
PN 115724 - 240V single phase (black)
PN 115725 - 240V three phase, Delta (violet)
PN 115726 - 400V three phase, Wye (yellow)

7.5 V6 Aux Power Module PN 115733

The V6 AUX module provides controlled power to the heater of the additional five zones. It receives its control signals from the V6 TEMP module. Depending on the configuration of the ASU there could be one or two of these modules in the system.

The fuses of the AUX Module 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 10AF/12AF fuses. Always replace fuses with the same type of fuse.



7.6 Optional Printed Circuit Boards

Wiring diagrams and other details on the following optional PCBs can be found on the main ASU schematic (PN 115894) in Chapter 11:

- Adhesive Level Sensor (hopper low level detection)
- Stack Light (system status lights)
- Signal Isolator (gear pump models/ auto mode)/ Line Speed Following (piston pump models/ line speed tracking)
- Trigger Switch Pump Enable (hand-held applicators/ swirl kits)
- EtherNet/ IP (communications protocol)

7.7 Motor Speed Control Drive

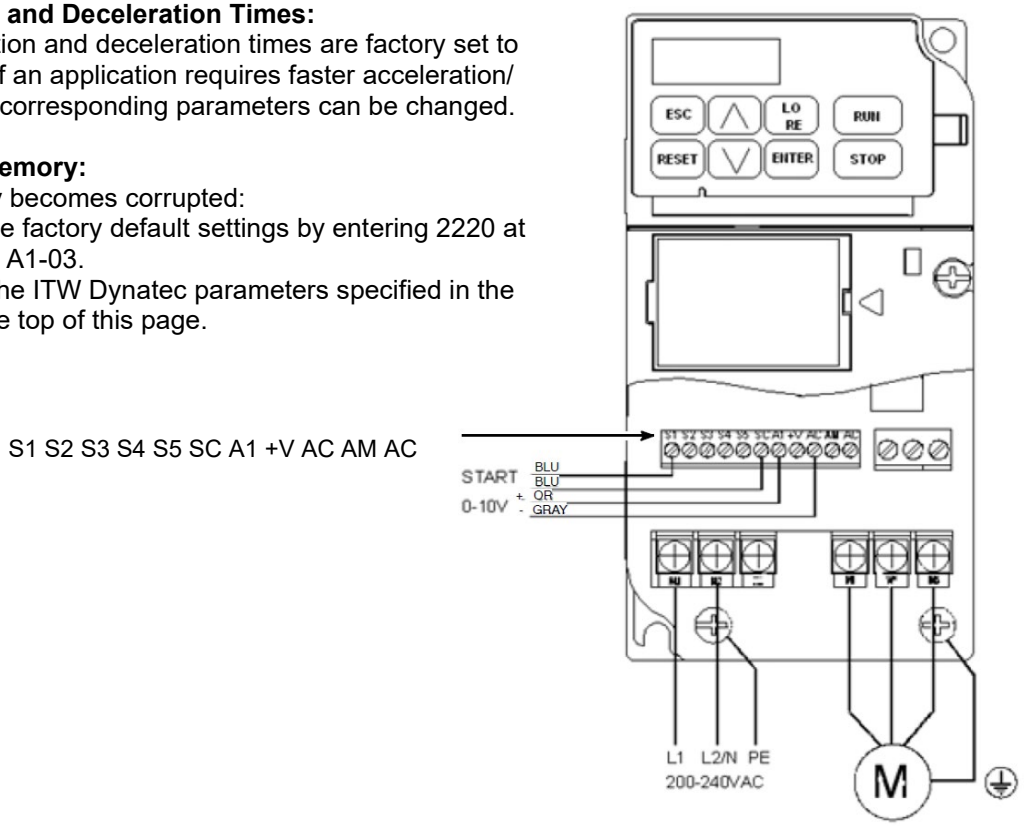
The Motor Speed Control is mounted on the divider panel within the electronics compartment of the ASU. This variable-frequency drive is factory-set and normally does not require adjustments. The following is a list of parameters that Dynatec programs to optimize performance, but which differ from the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

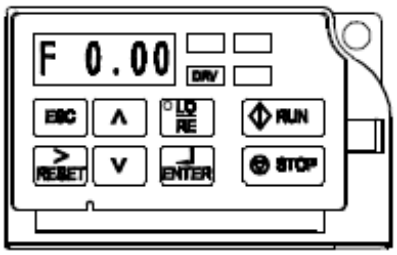


Layout of Motor Control Drive

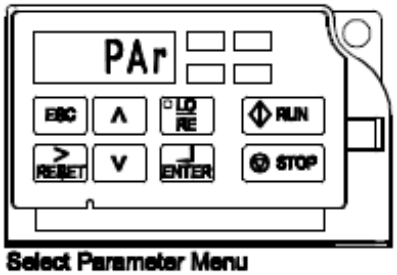
7.7.1 Accessing, Programming and Monitoring Motor Control Parameters

To Access and Change Parameter Values:

J1000 Digital Operator power-up state →

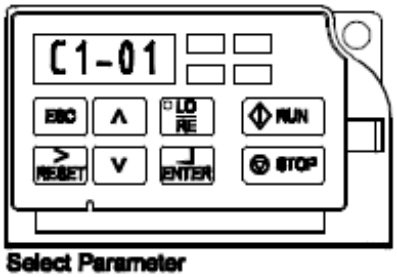


Step 1. Press the ∨ key once. The digital operator shows the parameter menu (PAr), then press the ENTER key.



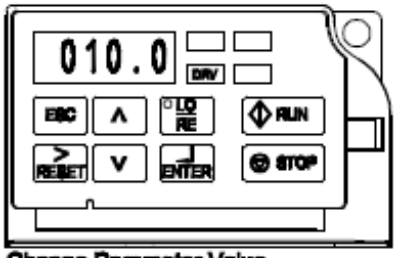
Select Parameter Menu

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



Select Parameter

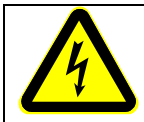
Step 3. Press the RESET key to select the digit you would like to change. Modify the parameter value using the ∧ and ∨ key and press the ENTER key to save the new value.



Change Parameter Value

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

7.8 Heater and Sensor Resistance Values



DANGER HIGH VOLTAGE

Before unplugging connectors from the 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.

The resistance values given in the four tables will aid in troubleshooting when a sensor or heater malfunction is suspected.

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

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

Temperature Sensor Resistance (PT 100 RTD):

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

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

Nominal Hose Heater Resistance (for #6 DynaFlex-Hoses):

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

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

Nominal Head Heater Resistance:

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

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

Nominal Hopper Heater Resistance:

ASU's Heaters	Hopper	Filter Manifold	Drop-in grid
Quantity Heaters	2	1	1
Resistance in Ohms for each Heater	**SR5/10:** 72 - 81	66.3 – 82.3	**SR10:** 71 - 86
	SR22/45: 43 - 49	- -	**SR22/45:** 21 - 25

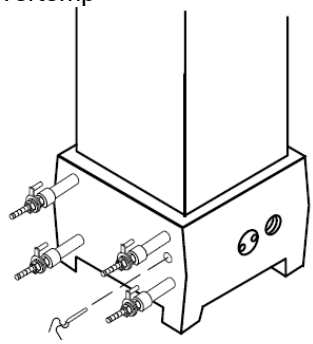
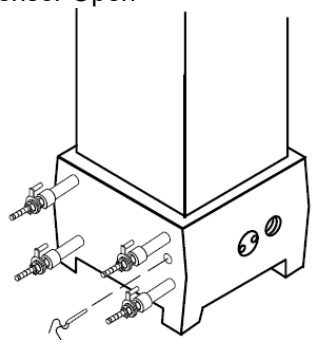
7.9 Error Indication Alarm Troubleshooting Guide

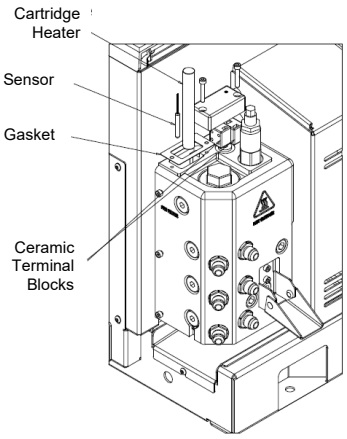
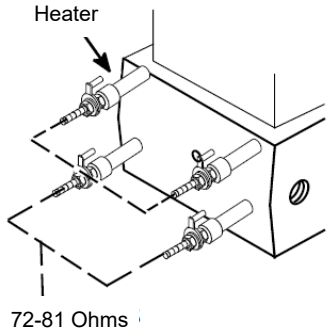
The operation of error indication alarms is described in Chapter 5. When checking for correct equipment operation in the following guide, be aware that all heaters will go off immediately after an error indication alarm occurs if the operator takes no action. With the exception of the fuses, there are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

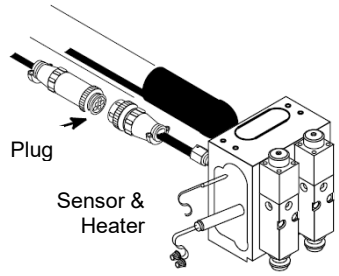
NOTE: The temperatures measured on the outer surface may deviate significantly from the temperatures set and displayed. This can lead to a false conclusion (e.g. defective heating). Such a difference is normal and depends also largely on the materials used.

DANGER HIGH VOLTAGE

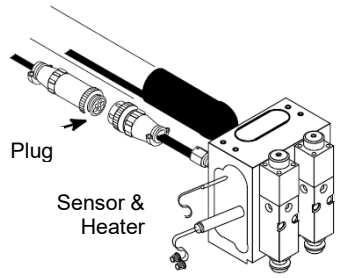
Some of the procedures in the following Troubleshooting Guide require potentially dangerous electricity to be present. Only qualified service personnel should perform these procedures.

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

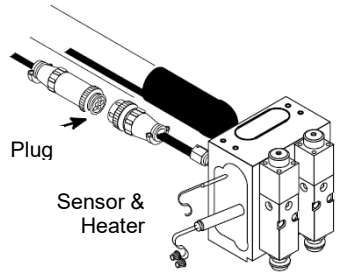
Problem	Possible Cause	Solution
Hopper/ Filter Block Sensor Short 	1. Short-circuit caused by debris where sensor plugs into the V6 Temperature Module. 2. Pinched sensor lead wire. 3. Hopper/ Filter Block sensor inoperative.	1. Verify that sensor connector is clean and correctly connected at X3 on the V6 Temperature Module. 2. Visually inspect sensor lead wire for break, kink, damage, etc. If no obvious damage, use an ohmmeter to measure continuity from the sensor lead to the plug at the V6 Temperature Module. Repair or replace any damaged wire. 3. Replace hopper sensor if resistance does not comply with resistance table.
Hopper/ Filter Block Heater Open 	1. Disconnection in hopper heater circuit. 2. Disconnection between Power Module and the Temperature Module. 3. Open hopper or filter block heater element.	1. Inspect hopper heater wiring for proper connections. 2. Verify that all connections are properly made between the Power Module and V6 Temperature Module. 3. Remove all lead wires from both hopper and filter block heater elements. Use an ohm meter to measure resistance across each element. Infinitely high resistance values indicate an open heating element which must be replaced.

Problem	Possible Cause	Solution
Hose/ Head (No.)* Overtemp	1. Hose/ Head setpoints incorrectly programmed. 2. Hose/ Head triac on Power or Aux Power Module is inoperative.	1. Re-program setpoint to allow a larger deviation. 2. If a hose or head status LED on the Temperature Module is OFF, and the corresponding temperature continues to rise, the corresponding triac on its Power Module has failed. The module must be replaced.
Hose/ Head (No.)* Not Heating  	1. Disconnection between Power and/ or Aux Power Module and the Temperature Module. 2. Hose/ Head sensor circuit inoperative.	1. Verify that Power and Aux Power Module are properly connected to the V6 Temperature Module. 2. a. Visually examine hose/ head socket connections. Verify that pins are properly seated. If pins or plug housings are damaged, repair or replace hose. If socket is damaged, repair or replace harness. b. If hose-to-ASU plug and socket are okay, hose may have intermittent short or open circuit. Repair or replace hose, hose harness, Power Module or Aux Power Module as appropriate. Alternately, problem can be isolated by connecting the affected hose to a different ASU hose socket to determine if the problem is in the hose or in the Power or Aux Power Module. c. If head-to-hose and hose-to-ASU plugs and sockets are okay, head sensor may have an intermittent short or open circuit. Examine connections inside the service block area of the head and monitor head sensor resistance with an ohmmeter while flexing sensor leads. Repair or replace an inoperative sensor.

** Check each Hose/ Head circuit on the system.*

Problem	Possible Cause	Solution
Hose/ Head (No.)* Not Heating (Sensor Circuit Open)  	1. Disconnection between hose and ASU. 2. Hose sensor harness unplugged from Power or Aux Power Module. 3. Disconnection between Power or Aux PCB and the Temperature Module. 4. Hose/ Head sensor circuit inoperative.	1. Visually examine connector for proper contact and seating. If pins or housings are damaged, repair or replace hose or hose harness (in ASU). 2. Verify that affected hose is properly connected to Power or Aux Power Module. Replace or repair damaged hose harness, as necessary. 3. Verify that all PCBs are properly inserted in their connections on the Temperature Module. 4. Replace head sensor if resistance does not comply with resistance table. Use hose schematic to check hose sensor resistance at ASU socket, repair or replace hose, hose harness, Power or Aux Power Module as appropriate.
Hose/ Head (No.)* Not Heating (Sensor Circuit Shorted)	2. Debris at connection between hose/ head and ASU. 3. Debris at connection between hose/ head harness and Power or Aux Power Module. 4. Hose/ Head sensor circuit inoperative.	1. Visually inspect hose connector and ASU socket for cleanliness and proper contact and seating of pins. 2. Visually inspect that the affected hose connector at Power or Aux Power Module is clean and properly installed. 3. Using the hose schematic, check hose sensor resistance at ASU socket. An ohmmeter can also be used to isolate a pinched wire in the hose harness. When cause is isolated, repair or replace sensor, hose, hose harness, Power or Aux Power Module as appropriate.

** Check each Hose/ Head circuit on the system.*

Problem	Possible Cause	Solution
Hose/ Head (No.)* Not Heating (Heater Circuit Open)  ** Check each Hose/ Head circuit on the system.*	2. Disconnection between hose/ head and ASU.	1. Visually examine affected hose/ head plug and ASU socket for cleanliness and proper contact and seating. Refer to wiring diagram for pin identification. The problem can be isolated by plugging the affected hose/ head into another ASU socket. If the new hose number is then displayed as malfunctioning, the problem is in the hose that was moved. Repair or replace hose or head or ASU hose/ head harness as appropriate.
	3. Disconnection between hose/ head harness and Power or Aux Power Module.	2. Verify that the hose harness is properly inserted into its Power or Aux Power Module plug. Check for loose leads, debris and proper contact.
	4. Disconnection between cartridge heater and cable assembly inside head.	3. Visually inspect wiring inside head. Verify that cartridge heater leads are properly connected in the service block area.
	5. Open head heater element.	4. Use an ohmmeter to measure resistance of head cartridge heater. Refer to resistance table for resistance values. Infinitely high resistance indicates an open heater. Replace cartridge heater as appropriate.
	6. Head fuse on Power Module or Aux Power Module inoperative.	5. If a fuse is found to be blown, do not replace it without first finding cause. Look for a short circuit to ground in the head heater circuit, particularly inside the head at the connections in the service block area. If replaced fuse also blows, Power or Aux Power Module may be the cause. However, fuse failure is usually due to a problem in the head heater circuit, not the Power or Aux Power Module.
	7. Open wiring inside ASU.	6. Visually inspect ASU wiring and use an ohmmeter and the wiring diagram to locate an open wire in head heater circuit. Repair or replace ASU hose harness or other ASU wiring, as necessary.

7.10 Controller Messages Troubleshooting Guide

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

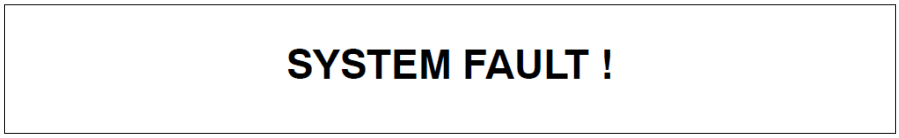
1.

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

2.

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

3.

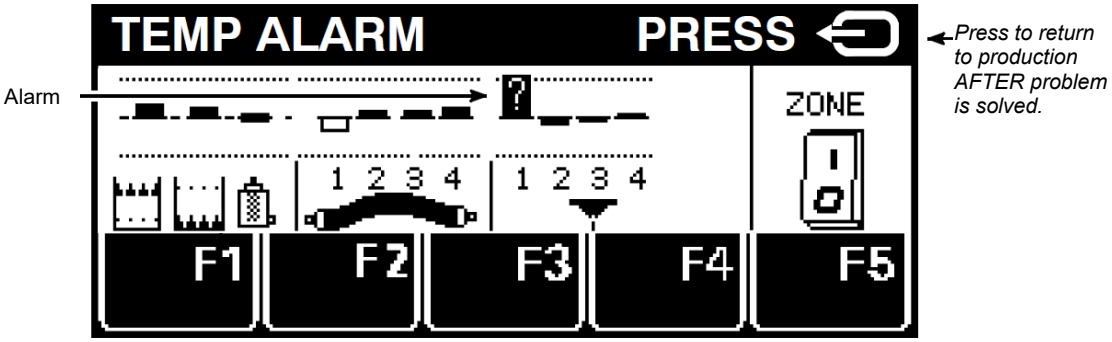


This fault, seen on the controller display, will result if the V6 modules on the din-rail are not connected properly. A bus connector, near the rail, connects one module to the next. Modules can become disconnected during transport or during repair procedures.

4.

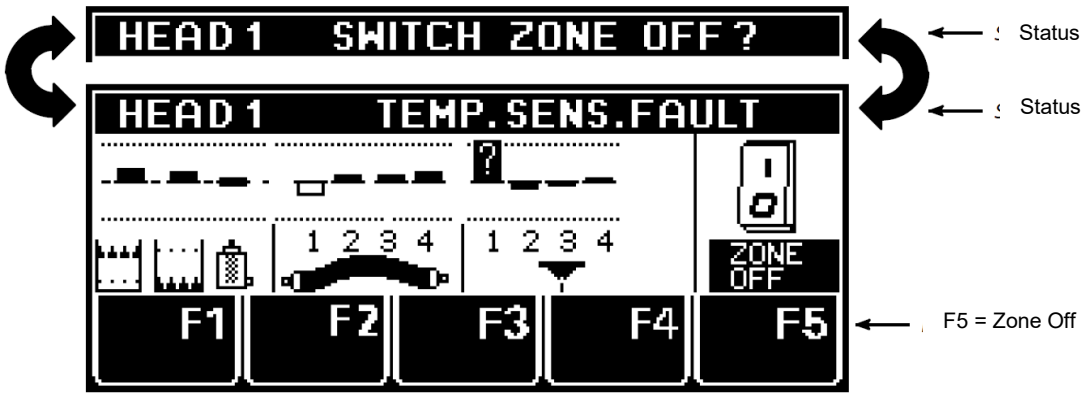
A fault such as this indicates an over-temperature or an RTD sensor fault. The solution is not simply to press the RETURN button to confirm. The solution is to troubleshoot and solve the problem which caused the fault, and then confirm with the RETURN button.

5.



The alarm shown above can occur on any screen. Its question mark indicates a problem with the RTD sensor in the Head #1 zone.

After about 20 seconds, the following display is shown:



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

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

7.11 Troubleshooting the ASU Pump

NOTE: Before troubleshooting your pump, first determine if your Dynamelt ASU is equipped with a piston pump or a gear pump. This chapter contains separate Troubleshooting Guides for each.

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

7.11.1 Gear Pump Priming/ Start-Up

The pump is self-priming.

CAUTION

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

7.11.2 Caution for 20cc/rev Standard Gear Pump with 1/4 HP Motor

CAUTION

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

If a standard 20cc/rev gear pump is selected with 1/4 HP motor:

- DO NOT exceed the 400 psi (28 bar) pressure relief valve factory setting.
- Please ensure that the operating pressure at the filter block is always below 400 psi (28 bar).

This is to help prevent 1/4 HP motor from overloading and failing prematurely.

Note: the RPM readout will not operate when used with the 20cc/rev standard pump.

7.11.3 Gear Pump Troubleshooting Guide

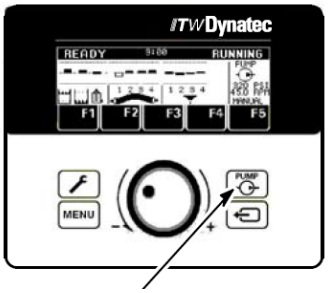
WARNING HOT SURFACE & HOT ADHESIVE

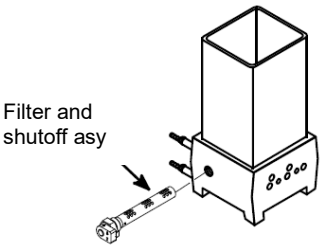
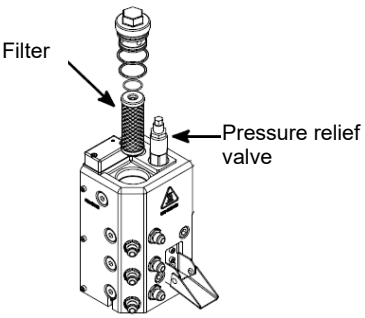
Severe burns can occur if unprotected skin comes in contact with molten adhesive or hot application system parts.

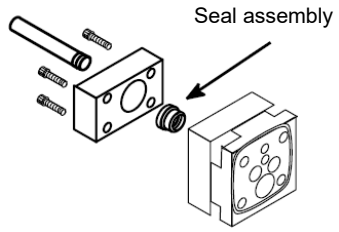
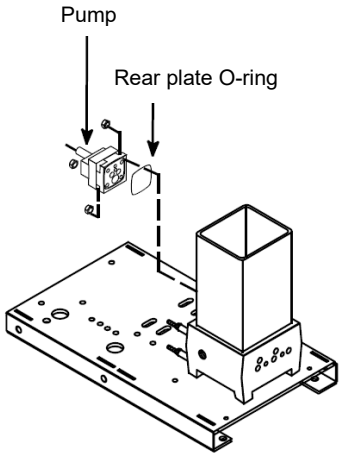
Some of the procedures in the following Troubleshooting Guide require working near hot adhesive.

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

Use proper tools for handling hot melt components.

Problem	Possible Cause	Solution
Pump doesn't operate in “Manual" mode.  Pump button	1. Pump RUN/STOP is set to STOP at the controller keypad. 2. Hopper temperature is below ready setpoint. 3. No incoming electrical power.	1. Check keypad setting. 2. Pump cannot operate until hopper has reached ready condition. Verify that hopper has reached ready. Re-program hopper operating setpoint and ready setpoint if necessary. 3. Check to see if ASU temperature control is operating. If not, check for presence of incoming supply voltage.
Pump doesn't operate in “Manual" mode, hopper is at Ready condition.	1. “Manual" pump is set at zero RPM (at the keypad). 2. If pump RUN/STOP is being controlled by a remote switch (i.e., a hand-held applicator), the switch or switch circuit may be open. 3. Faulty motor controller.	1. Re-program pump. 2. Check condition of the remote switch (the hand-held applicator). 3. If the control is faulty it must be replaced.

Problem	Possible Cause	Solution
Pump doesn't operate in “Auto" mode, hopper is at Ready condition.	1. Parent machine is not running. 2. “Auto" pump is set at zero (at controller keypad). 3. No incoming line following signal.	1. Check parent machine. 2. Re-program pump. 3. Check for presence of 0 to 10 VDC control signal at LINE and COMMON terminals on V6 Base module. If signal is not present, check connection at tachometer drive connections. If control signal is present there, the problem is within the ASU.
Pump runs but there is no adhesive output.	1. ASU is out of adhesive. 2. If pump has been serviced and leads reversed, pump will run backwards with no output.	1. Add adhesive to hopper. 2. Check pump wiring to schematic.
Low or inconsistent adhesive output.  	1. Filter(s) clogged. 2. Adhesive used is too viscous. 3. Clogged hose. 4. Clogged applicators. 5. The fixed pressure relief valve is opening.	1. Remove and inspect filter basket and filter and shutoff assembly. 2. Verify that system components are at appropriate temperatures and that the selected adhesive is correct for the application. 3. Inspect hose for kinks or internal plugs of debris or char. Clean or replace hoses, as necessary. 4. Inspect applicators for plugged nozzles or filters. Clean or repair applicators, as necessary. 5. When fully closed (clockwise) and all applicators are off, adhesive pressure should be around 68 bar (1000 psi). If it is significantly less, the pressure relief valve should be replaced.

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

Chapter 8
Disassembly & Re-assembly Procedures

8.1 Procedures for all SR sizes

8.1.1 Precautions for Disassembly Procedures

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

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

DANGER HIGH VOLTAGE

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

Dynamelt systems use electrical power that can be life threatening and hot-melt adhesives that can cause serious burns. Only qualified persons should perform service on the ASU.

WARNING HOT SURFACE

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

Some of the procedures in this chapter require working near hot adhesive.

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

Use proper tools for handling hot melt components.

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

8.1.2 Precautions for Re-Assembly Procedures

Unless noted, the S Series ASU's re-assembly is simply the reverse sequence of the disassembly procedures. However, the following “cautions" should be followed (whenever they apply) for proper re-assembly:

CAUTION:
In general, all *O-RINGS AND SEALS* must be replaced whenever hot-melt equipment is re-assembled. All new O-rings must be lubricated with O-ring silicone lube (PN 108689).

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

SOME FITTINGS used for adhesive on the ASU have straight threads and O-ring seals. Use of thread sealant is not necessary with these parts, but the O-ring seals should be clean and lubricated. Tighten straight-threaded parts and fittings until their shoulders are firmly seated against the pump body (or other surface). Excessive torque may damage straight-threaded parts and the use of power wrenches is not recommended.

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

8.1.3 To Open and Remove the Electronics Cabinet Door

CAUTION

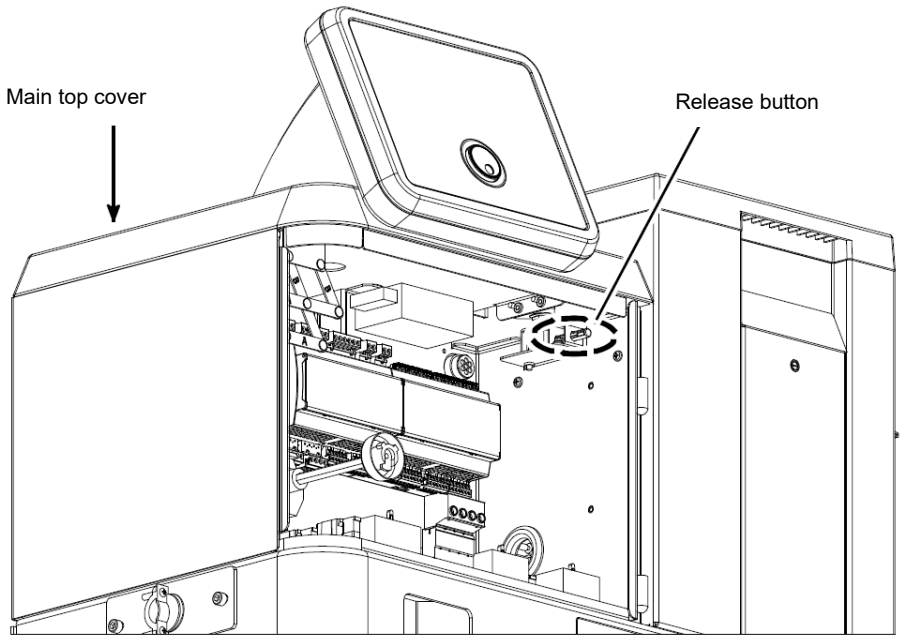
Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

1. Turn the unit off.
   Loosen the upper and lower door latch screws, located below the control panel, with a flat-blade screwdriver.
   Turn counter-clockwise until the latches stop turning.

2. Open the door.

3. Press the release button under the top cover to release the main top cover.
   Open the main top cover all the way.

4. Open the door 45° and lift it up and off of the unit.



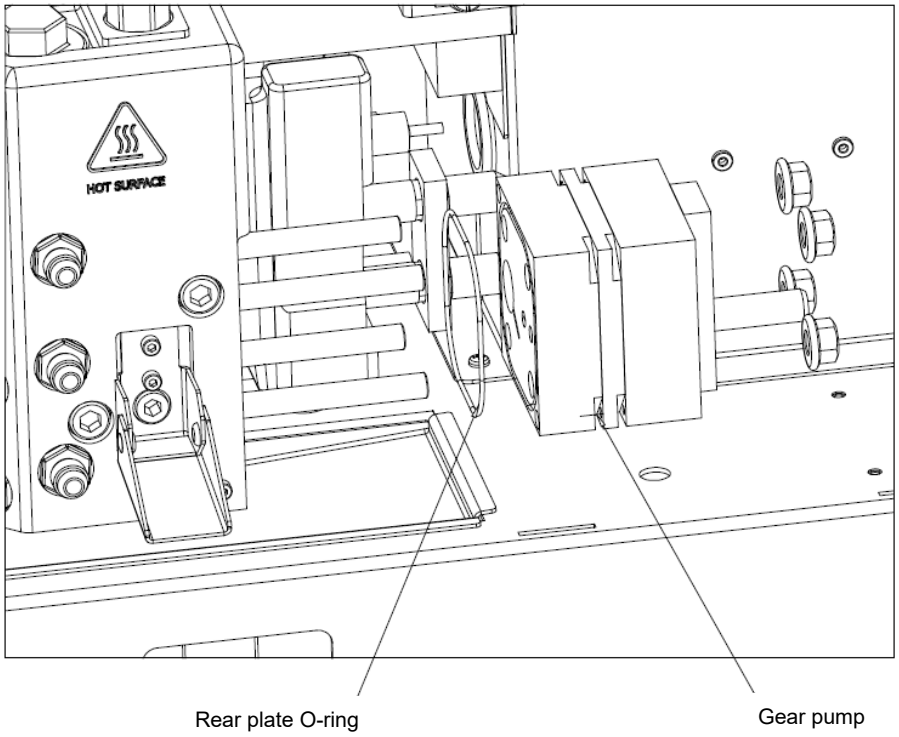
8.1.4 Overtemp Thermostat Replacement

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

1. Remove the orange access cover of the filter and shutoff assembly, located on the front of the unit.
2. Remove the two screws and slip the terminals off of the thermostat.
3. Remove the old thermostat.
4. Apply thermal paste to the back side of the new thermostat.
5. Install the new thermostat. Tighten the screws and re-attach the terminals.
6. Close the orange access cover of the filter and shutoff assembly.

8.1.5 Gear Pump Seal Replacement, SR5/10



CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

1. At the rear of the unit, remove the pump access cover.
2. Remove the four M10 nuts and lock washers that hold the gear pump to the filter manifold.
3. Remove the pump. To remove the pump, refer to Ch.8.2 “Removing the Motor and Gear Pump, SR5/10”.
4. Remove the external pump seal (O-ring) from its groove and install a new seal. Reference the pump exploded-view illustration in Chapter 10 for your specific pump.

8.1.6 Hopper Sensor Replacement

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

A Hopper Sensor Repair Kit is available from ITW Dynatec. See details in Chapter 9.

1. Remove the hose/ head electrical connection plate via four screws (see illustration on following pages). The sensor is located behind the hole in the sheet metal panel.
2. Pull the sensor out and disconnect it from the terminal block. Discard the old sensor.
3. Crimp ferrules onto the two wires of the replacement RTD sensor and insert them into the terminal block.
4. Plug the new sensor into the hole in the hopper.
5. Re-assemble the hose/ head electrical connection plate.

8.1.7 Note on the Cast-in Heaters

The two cast-in heaters installed in the base of the hopper are not replaceable and will last for the life of the ASU.

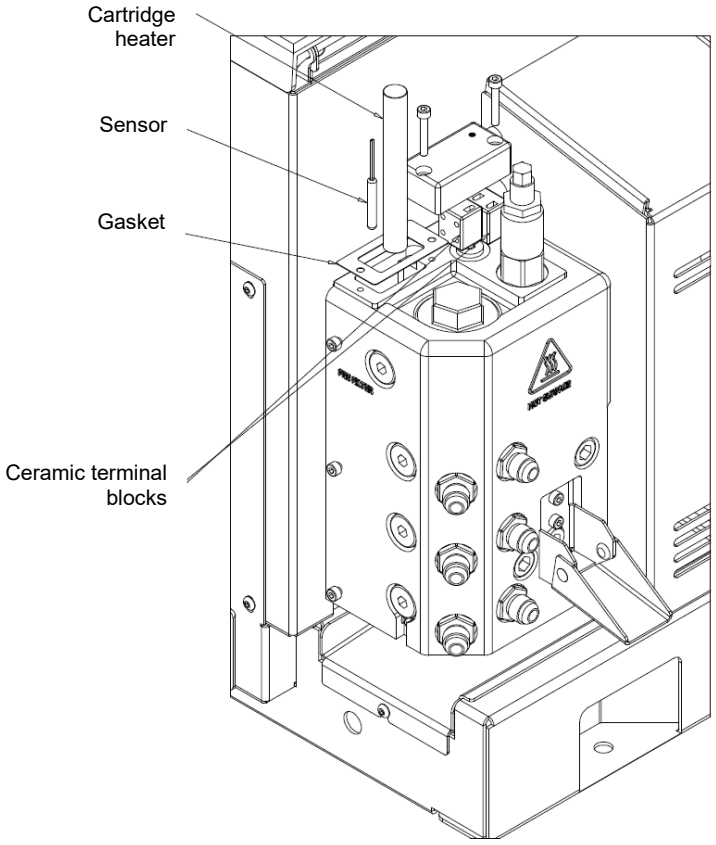
8.1.8 Single Stream Filter Manifold RTD Sensor and Heater Replacement

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

1. Turn the unit Off. Wait for the unit to cool, or handle wearing protective gloves and sleeves.
2. Remove the cap from the top of the filter manifold (see illustration on previous pages for location) by removing two M4 socket head cap screws.
3. Gently remove the two ceramic terminal blocks from a pocket located at the top of the manifold block.
4. Check the heater's and/or sensor's resistance to determine which component has failed.
5. Disconnect the failed component from the terminal block and remove it from the manifold.

   Note: the heater cavity has a knockout hole bored through the bottom of the manifold block.
6. Coat the replacement component with thermal paste and install.
7. Gently re-insert the terminal blocks into the receptacle pocket.
8. Ensure that the gasket is in place and that wires are not pinched, then secure the cap to the manifold using the two M4 screws.



Single Stream Filter Manifold

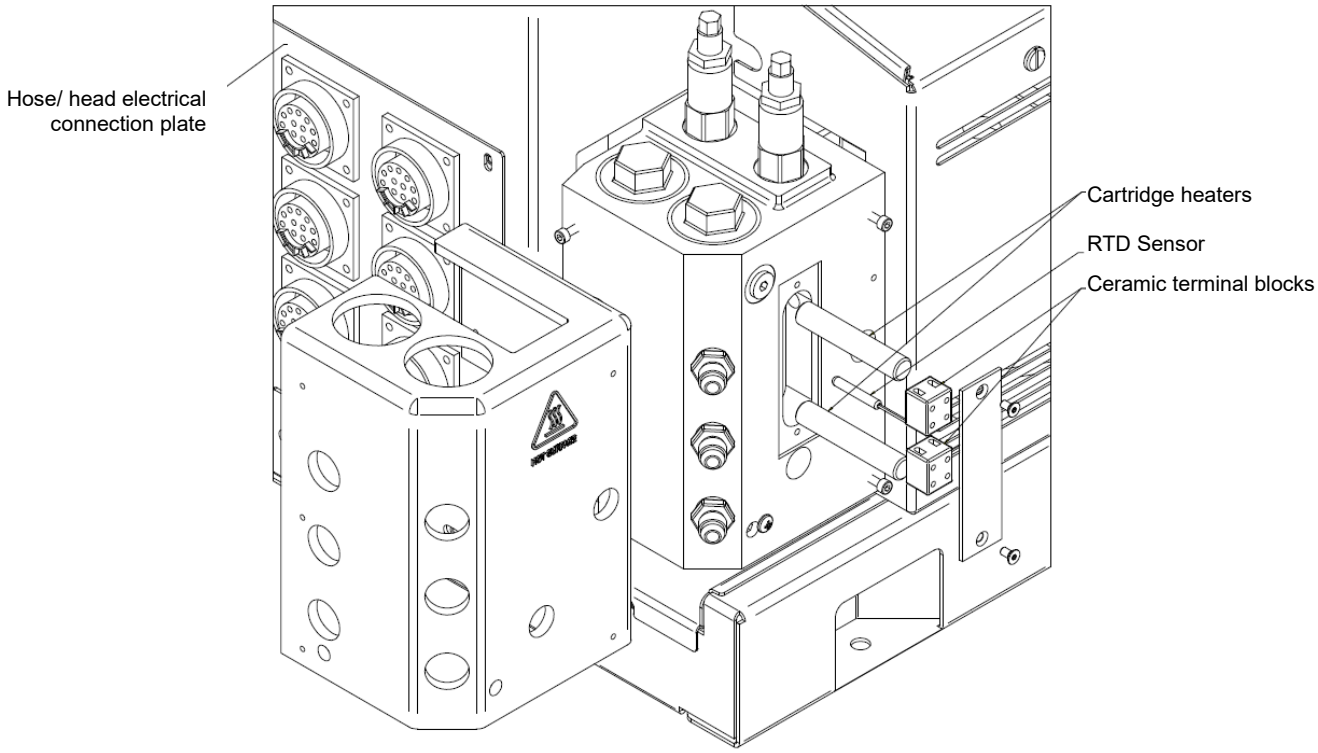
8.1.9 Optional Dual Stream Filter Manifold RTD Sensor and Heater Replacement

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

1. Turn the unit Off. Wait for the unit to cool, or handle wearing protective gloves and sleeves.
2. Remove the filter manifold insulator cover.
3. Remove the cap plate from the side of the filter manifold by removing the two M4 countersunk screws.
4. Gently remove the two ceramic terminal blocks.
5. Check the heater's and/or sensor's resistance to determine which component has failed.
6. Disconnect the failed component from the terminal block and remove it from the manifold.

   Note: the heater cavity has a knockout hole bored through the side of the manifold block.
7. Coat the replacement component with thermal paste and Install.
8. Gently re-insert the terminal blocks into the receptacle pocket.
9. Secure the cap plate to the manifold using two M4 screws and re-install the manifold insulator cover.



Optional Dual Stream Filter Manifold

8.1.10 To Access Electrical Components

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

1. Turn the unit Off.
2. Open the electrical cabinet door.
3. Press the release button under the top cover to release the main top cover. Open the main top cover all the way.
   Note: the electrical cabinet door may be removed by opening it 45° and lifting it straight up and off of the unit.

8.1.11 Main ON/OFF (Power) Switch

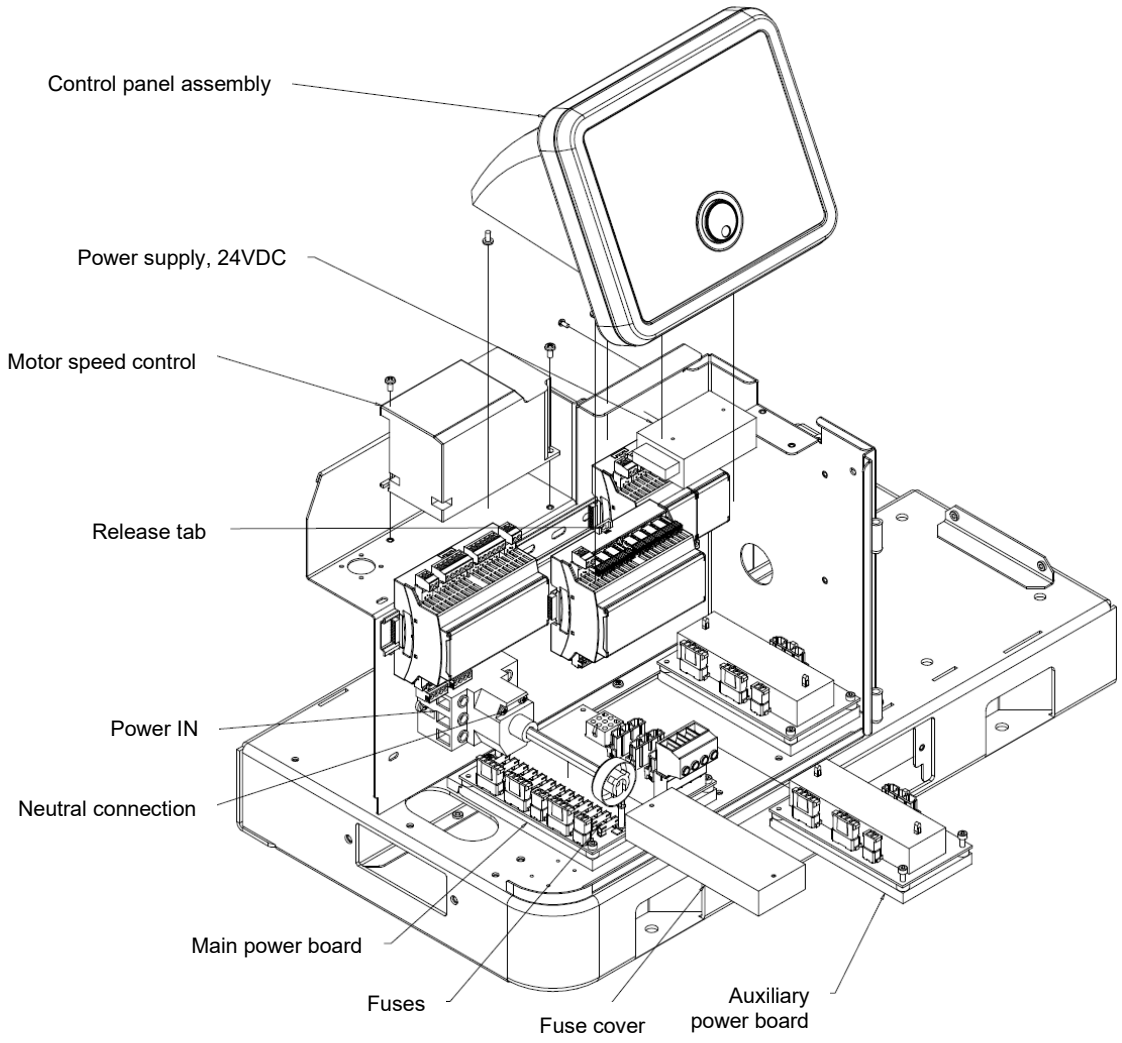
The switch body is mounted to the center divider panel with two M4 Phillips-head screws.

8.1.12 Fuse Replacement

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

There are several fuses on both the Main Power PCB and the Auxiliary Power PCB. All fuses are beneath a protective cover (see below). To access the fuses, lift the fuse cover up off the retaining standoffs, then slide the cover out of the unit.



8.1.13 Power Supply Replacement

The power supply is attached to the center panel with two M3 screws.

8.1.14 Printed Circuit Board or Module Replacement

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

When removing the unit's PCBs or modules, all connectors must be removed, therefore it is important to label or use the illustrations in Chapter 7 to note the re-connection points.

Note: the only replaceable components on the PCBs are the fuses. There are no replaceable components on the modules. For any other failure, the PCB or module must be replaced.

8.1.15 Main or Auxiliary Power Board Replacement

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

To Remove:

1. Unplug all connectors on the PCB, noting re-connection points.
2. Loosen the two M4 screws at the front of the board.
3. Tilt the board up approximately 5 degrees and pull it straight back out of the unit.

To Replace:

1. Engage the lip on the heat sink plate to the hold-down bar in the back of the unit.
2. Tilt the board down to lock against the hold-down bar.
3. Tighten the two M4 screws at the front of the board.
4. Plug in all connectors.

8.1.16 V6 Controller’s Module Replacement

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

To Remove:

1. Unplug all connectors on the module, noting re-connection points.
2. Slide the module to the right to disengage the communication buss. Note: you may have to move adjacent modules out of the way.
3. Using a flat-blade screwdriver, unlatch both the top and bottom orange catch on the module and pull the module off of the DIN rail.

To Replace:

1. Snap the module onto the DIN rail.
2. Slide the module to the left until it is flush.
3. Slide any modules that were re-positioned during removal until flush.
4. Plug in all connectors.

8.1.17 Opening V6 Controller's Modules

CAUTION

Heed all advices given in "Precautions for Disassembly and Re-Assembly Procedures" in Chapter 8.1.

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

8.1.18 Control Panel Replacement

CAUTION

Heed all advices given in "Precautions for Disassembly and Re-Assembly Procedures" in Chapter 8.1.

The entire control panel and shell is replaced as a unit. To remove the control panel, loosen the four M4 Phillips-head attachment screws and unplug the ribbon cable from the V6 Base Module.

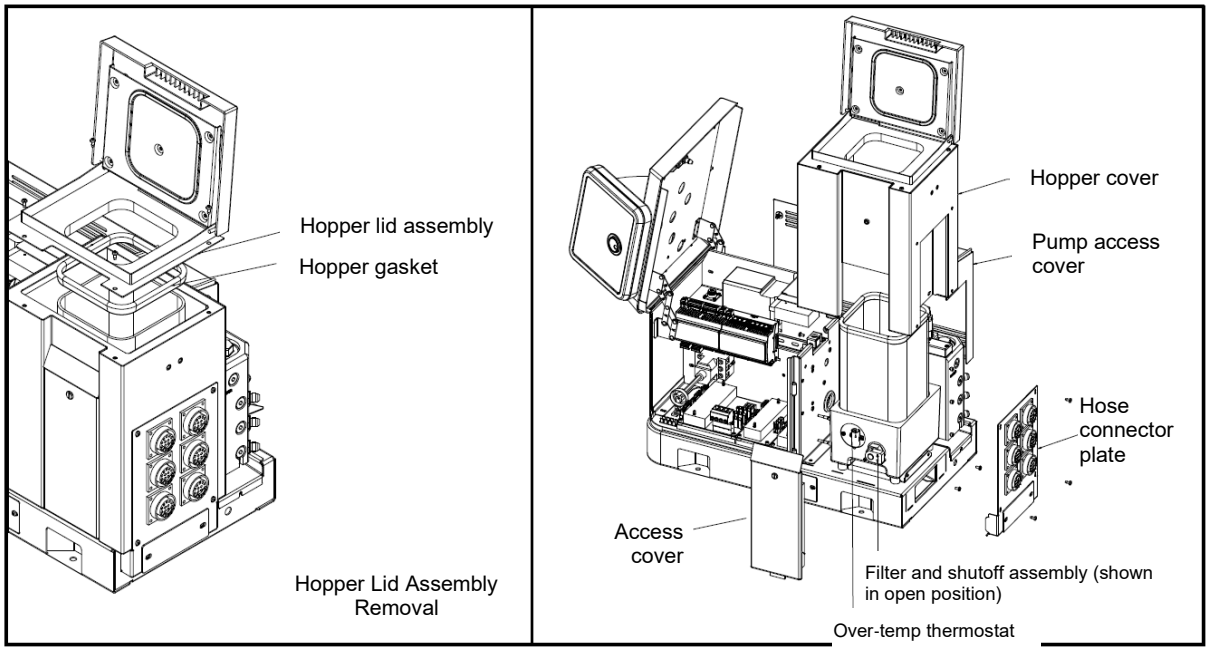
8.2 Procedures for SR5/10

8.2.1 Removing the Hopper Lid Assembly, SR5/10

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

1. Open the hopper lid.
2. Using a Phillips-head screwdriver, remove the four button-head retaining screws located in the corners of the lid assembly.
3. Lift the lid assembly up and off of the hopper cover.



8.2.2 Removing the Hopper Cover, SR5/10

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

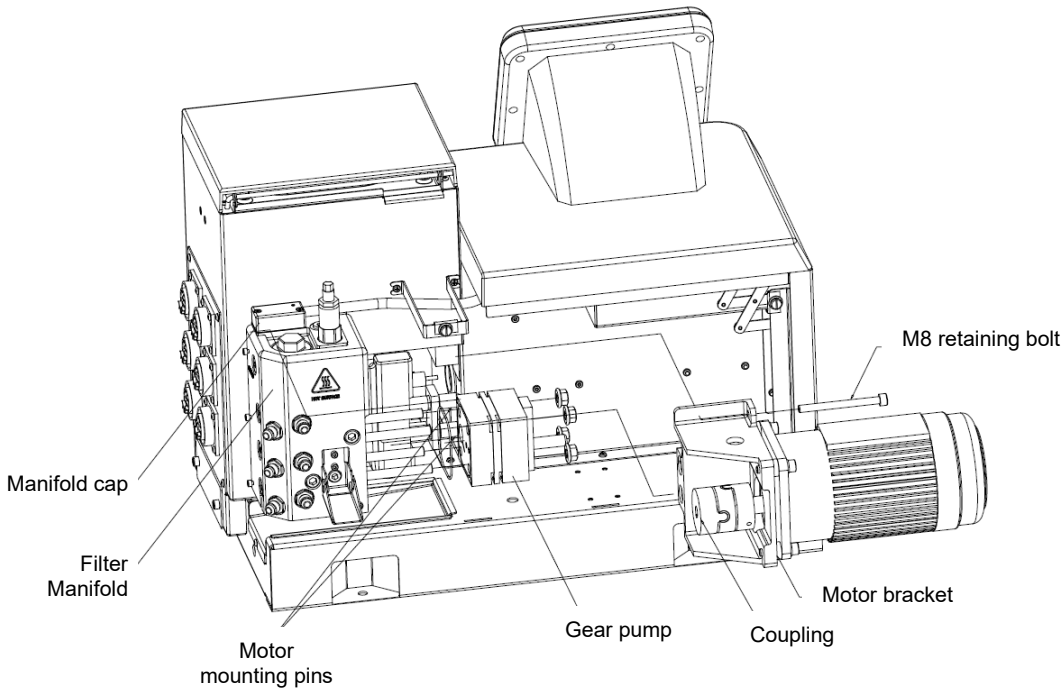
1. Remove the orange access cover of the filter and shutoff assembly, located on the front of the unit.
2. Using a 2.5mm Phillips-head screwdriver, loosen the four button-head retaining screws which secure the hose connector plate to the hopper cover.
3. Rotate the top of the hose connector plate away from the ASU and pull it up to disengage the mounting tabs.
4. Remove the two Phillips-head screws from the base of the hopper collar.
5. Remove the two Phillips-head screws from the top side of the back wall of the electronics cabinet.
6. Gently pull the hopper cover up and off the ASU.

8.2.3 Removing the Motor and Gear Pump, SR5/10

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

1. The pump must be at operation temperature.
2. Turn the unit off.
3. Remove the orange access cover of the filter and shutoff assembly.
4. Turn the filter and shutoff assembly to the OFF (close, to left position) position to prevent that the adhesive flows out of the tank (shutting-off the adhesive flow).
5. At the rear of the unit, remove the pump access cover.
6. Coupling is secured to the pump shaft with a set screw. Coupling is free floating on the motor shaft to facilitate easy removal.
7. Remove the M8 retaining bolt at the top of the motor bracket.
8. Slide the motor and bracket away from the filter manifold until the bracket is free from its mounting pins.
9. Unplug the circular electrical connector for motor power and remove the motor from the unit.
10. Remove the four M10 nuts and lock washers that hold the gear pump to the filter manifold.
11. Remove the pump.
12. Remove the external pump seal (O-ring) from its groove and install a new seal. Reference the pump exploded-view illustration in Chapter 10 for your specific pump.



Gear Pump Model with Single Stream Manifold, shown from the rear

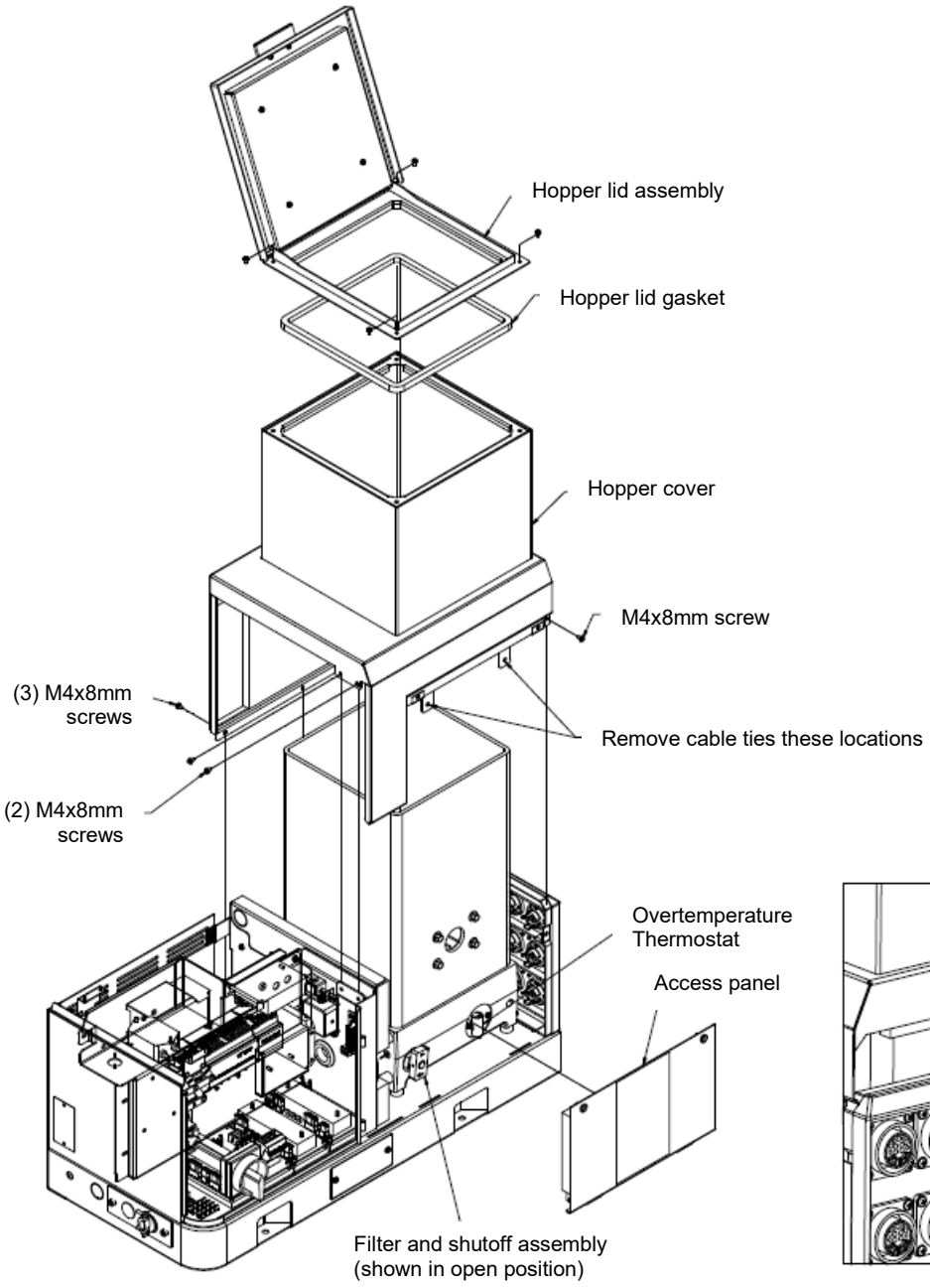
8.3 Procedures for SR22/45

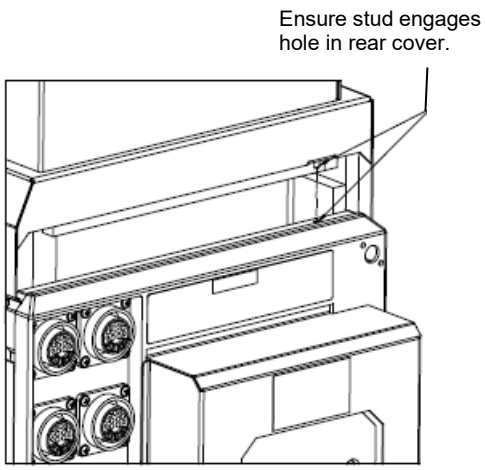
8.3.1 Removing the Hopper Lid Assembly, SR22/45

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

1. Open the hopper lid.
2. Using a Phillips-head screwdriver, remove the four button-head retaining screws located in the corners of the lid assembly.
3. Lift the lid assembly up and off of the hopper cover.





8.3.2 Removing the Hopper Cover, SR22/45

Refer to illustrations on previous page.

CAUTION

Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

1. Turn the unit OFF.
2. Open the cabinet lid.
3. Remove the access panel of the filter and shutoff assembly on the front of the unit.
4. Remove the hopper lid. This step is recommended because the hopper lid gasket will need to be reseated properly during reassembly.
5. Remove the six M4 screws that secure the hopper cover to the cabinet. See illustration for location on previous page.
6. Remove the two cable ties that secure the hose/head harnesses to the hopper cover tabs.
7. Lift the hopper cover off of the cabinet and hopper.

To Install the Hopper Cover:

1. Lower the cover onto the hopper and cabinet making sure not to snag any wiring from the drop-in grids (if installed) and the hose/head harnesses.
2. On the rear corner of the unit, ensure that the hidden M4 stud engages the hole in the top of the rear panel. See illustration. No fastener is required at this location.
3. Install M4 mounting screws and secure hose/head harnesses to cover tabs using cable ties.
4. Position the lid gasket on the hopper and install the lid assembly.

8.3.3 Removing the Motor and Gear Pump, SR22/45

CAUTION

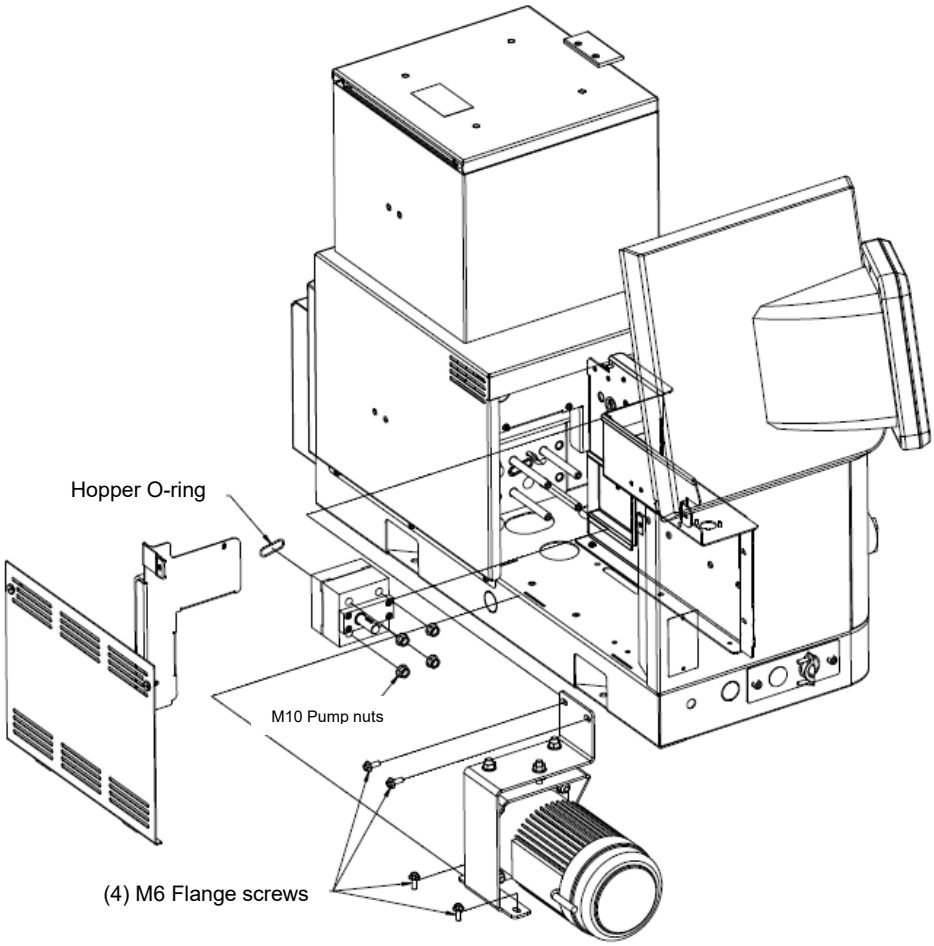
Heed all advices given in “Precautions for Disassembly and Re-Assembly Procedures” in Chapter 8.1.

Removing the Motor:

1. Turn the unit off.
2. Open the top cover of the unit.
3. At the rear of the unit, remove the motor cover.
4. Disconnect the circular electrical connector for motor power.
5. Loosen the set screw on the pump side of the motor coupling.
6. Remove the four M6 flange head screws that secure the motor bracket to the unit. Do not disturb the M8 flange nuts on the motor bracket as this may affect motor alignment.
7. Slide the motor/bracket assembly away from the pump and remove from the unit.

Removing the Gear Pump.

1. The pump must be at operation temperature.
2. Remove the motor.
3. Remove the access cover of the filter and shutoff assembly on the front of the unit.
4. Turn the filter and shutoff assembly to the OFF (horizontal, close) position to prevent that the adhesive flows out of the tank (shutting-off the adhesive flow).
5. Remove the inner pump access panel.
6. Remove the four M10 flange nuts that secure the gear pump to the filter manifold.
7. Slide the pump off of the studs and remove from the unit.
8. The external pump seals differ depending on the specific pump installed. Reference the pump illustrations in Chapter 10 for your specific pump.
9. Remove the O-ring from the oval groove on the pump mounting surface of the hopper.
10. Replace with a new O-ring. This O-ring is always required regardless of the pump installed.



Chapter 9
Available Options & Accessories

9.1 Service Kits

Filter Kits

Each filter kit contains three O-rings (size -127, -124 and -020), one easy-spin filter cartridge and silicone lubricant.

- PN 117147 Service Kit containing a 100-mesh filter.
- PN 117145 Service Kit containing a 40-mesh filter.

Hopper/ Manifold & Premelt Sensor Kits

- **For SR5/10:**
  DCL= PN 117152: contains 1x RTD Sensor Asy PT100 PN 117081 (w. ferrule), 1x terminal block 107881.
  NDSN= PN 117416: contains RTD Sensor Asy Ni120, ferrule and terminal block.
- **For SR22/45:**
  DCL=PN 123643: it is the RTD Sensor Asy PT100 with the 2-pin connector (terminal block not needed).
  NDSN= PN 123702: contains RTD Sensor Asy Ni120 with 2-pin connector.

Manifold Heater Kit: PN 117154, for SR5/10

The Manifold Heater Kit, for SR5/10, contains:
1x 775W heater asy PN 117083 (w. ferrule), 1x terminal block 107881.

Single Manifold Service Kit: PN 117200 (requires Filter Kit also), for SR5/10

The Single Manifold Service Kit (requires Filter Service Kit), for SR5/10, contains:
1x RTD Sensor Asy PT100 PN 117081, 1x 775W heater asy PN 117083, 8x O-ring 014 N00181, 2x O-ring 020 N00187, 6x O-ring 111 N00196, 1x O-ring 021 N01010, 3x O-ring 904 N01702, 2x terminal block 107881.

Dual Manifold Service Kit: PN 117199 (requires Filter Service Kit), for SR5/10

The Dual Manifold Service Kit (requires Filter Service Kit) for SR5/10, contains:
1x RTD Sensor Asy PT100 PN 117081, 2x 300W heater asy PN 117084, 6x O-ring 014 N00181, 2x O-ring 020 N00187, 6x O-ring 111 N00196, 7x O-ring 904 N01702, 1x seal for dual pump outlet 069X274, 2x terminal block 107881).

Pressure Relief Valve Repair Kit: PN 109982

Contains the following three items (a PN N00179 O-ring 012, a N01601 O-ring 908 and a N05733 Backup Ring, 012) needed to repair the following relief valves:

- **PN 101840** Mechanical pressure relief valve, 100-1000 Psi (6.8 - 68 bar), and
- **PN 115540** Pneumatic pressure relief valve, up to max. 1000 Psi (68 bar).

9.2 Pressure Relief Valves

PN 101840 Mechanical pressure relief valve, 100-1000 Psi (6.8 - 68 bar)
PN 115540 Pneumatic pressure relief valve, up to max. 1000 Psi (68 bar).

9.3 Two Output, Two Filter Manifolds

Two Output, Two Filter Manifold for SR5/10: PN 115708
Two Output, Two Filter Manifold for SR22/45: PN 123441
The two output, two filter manifold is required with a dual gear pump. It allows the operator to adjust the two pressure relief valves independently of each other.

9.4 Pumps and Accessories:

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

9.5 Gear Pump Repair Kit, PN 103151

The kit contains the following items needed to repair all Dynatec manufactures gear pumps from 0.15cc to 20cc. See list of pumps supported by this kit.

Gear Pump Repair Kit PN 103151 BOM:

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

List of gear pumps supported by the kit 103151:

PN	Description	Code
111253	0.15cc single	GGS
111254	0.15cc dual	GGD
109908	0.55cc single	GDS
109909	0.55cc dual	GDD
100860	1.5cc single	GAS
100863	1.5cc dual	GAD
100861	3.2cc single	GBS
100864	3.2cc dual	GBD
100862	4.5cc single	GCS
109690	10cc single	GES
109694	20cc single	GFS

9.6 Analog Pressure Gauge Kit: PN 101175

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

9.7 ASU Roll Cart: PN 108838

A gray enamel, flush top cart of welded steel construction (24" x 30", 1800 lb. capacity). Includes two rigid and two swivel, locking 5" casters.

9.8 Flow Control: PN 104890

The flow control valve (installed between the outlet filter manifold and the hose) adjusts adhesive output, resulting in a more even flow.

9.9 Recirculation Kit: PN 116945

The recirculation valve allows the user to balance adhesive pressure with applicator open/closed. It prevents pressure build up when applicators are closed and the resulting surge of adhesive when applicators are opened.

9.10 Harting Connector Set: PN 115879

The addition of a Harting connection provides dedicated hardware for making terminal connections. The male and female 18 pin connector simplifies installations and makes them safe and reliable and provides one connection for all electrical devices.

9.11 Swirl Kits

Dual Swirl Kit for SR5/10: PN 117245
Dual Swirl Kit for SR22/45: 123672
Quad Swirl Kit for SR22/45: 123673
Used with hand-held applicators, the swirl kit allows quick coverage of a wide area with sprayed adhesive. A dual swirl kit is used with two hand-held applicators, while a quad swirl kit is used with four applicators. A trigger signal starts and stops the pump.

9.12 Motor Enable Kits

Motor Enable Kit for SR5/10: PN 117374
Motor Enable Kit for SR22/45: 1236717
The motor enable feature coordinates the running of the gear motor with triggering of a hand-held applicator, thus preventing the motor from running continuously.

9.13 400V & 480V Step Down Transformer Kits

The kits convert incoming power from 480V Delta (without neutral) to 240V and can be configured for two, four or six hose/ head zones. A maximum of 1800W is available to each set of two hoses and two heads.
NOTE: Refer to separate manual for Transformers.

9.14 Pneumatic Pressure Relief Valve Kits

The pneumatic PRV provides gear pump units with a method to drop adhesive pressure to zero by turning off air supply to the ASU.
PN 116946 Pneumatic Pressure Valve Kit: for all SR5/10/22/45 with single pump
PN 117880 Pneumatic Pressure Valve Kit: for all SR5/10/22/45 with dual pump

9.15 NDSN Compatible ASU

This adhesive supply unit is a drop-in replacement for NDSN units. It is built with NDSN hose and head-compatible harnesses and utilizes Nickel Iron RTD sensors in the hopper and manifold.

9.16 Controller Options

Signal Isolator: PN 117143

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

System Status Light Kit: PN 116848

Remote monitoring of system status is made easier with this four-color stack light. Wired into the controller, the lights illuminate to indicate “Power On", “Ready" and “Alarm". An audible signal accompanies the “Alarm" light. The alarm may also be wired to indicate either high/low temperature, low adhesive level or open/short sensor.

Pendant Control Assembly: PN 117237

The pendant control option provides keypad mobility via either a 13' or 26' cable. The pendant HMI replaces the built-in controller of the standard Dynamelt SR ASU and has magnets on its back side for mounting.

V6 Communications Adapters

- V6 EtherNet/IP Kit PN 117381
- V6 Profibus Kit PN 117485
- V6 ProfiNet Kit PN 121436
- V6 CC link Kit PN 825747

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

Multi-ASU System w. Central HMI Kit: PN 118939

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

9.17 Level Sensor Kits

Level Sensor Kit for SR5/10: PN 150020
Level sensor Kit for SR22/45: PN 123670
An optional level sensor kit can be mounted to monitor the adhesive level in the hopper. This kit includes the Probe Asy (PN 117476) and the Sensor Control Asy (PN 117477).

9.18 Water resistant hose electrical connector cover kit, PN 111276

This is a protective cover for Amphenol socket connector 15-pos.

9.19 Water resistant cover kit for NDSN hose connector, PN 110783

This is a protective cover for NDSN receptacle 12-pos.

9.20 Premelt-Grid Options

9.20.1 Premelt-grid for SR5/10

NOTE
The grid part number will change based on based on voltage and/or DynaControl or NDSN connector selection.

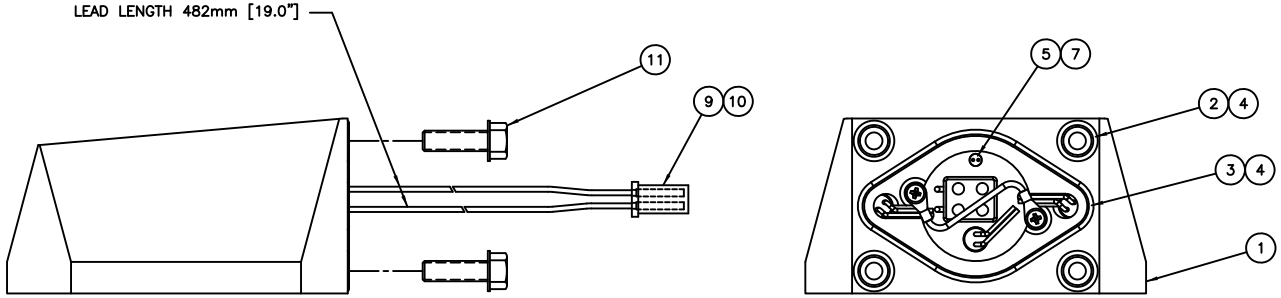
Premelt-grid Description	Grid PN Dynatec	Grid PN NDSN
2 - 200-240V - 1 Phase - 115759 - 2 Hose Kit	119423	119509
2 - 200-240V - 1 Phase - 115759 - 4 Hose Kit		
2 - 200-240V - 1 Phase - 115759 - 6 Hose Kit		
3 - 400V - 3 Phase WYE - 115765 - 2 Hose Kit	119424	119510
3 - 400V - 3 Phase WYE - 115765 - 4 Hose Kit		
3 - 400V - 3 Phase WYE - 115765 - 6 Hose Kit		
4 - 200-240V - 3Phase DELTA - 115763 - 2 Hose Kit	119422	119508
4 - 200-240V - 3Phase DELTA - 115763 - 4 Hose Kit		
4 - 200-240V - 3Phase DELTA - 115763 - 6 Hose Kit		
5 - 480VAC - 3 Phase DELTA - 115759 - 2 Hose Kit	119650	119653
5 - 480VAC - 3 Phase DELTA - 115765 - 4 Hose Kit	119651	119654
5 - 480VAC - 3 Phase DELTA - 115765 - 6 Hose Kit	119652	119655
6 - 400V - 3 Phase DELTA without Neutral - 115759 - 2 Hose Kit	119650	119653
6 - 400V - 3 Phase DELTA without Neutral - 115765 - 4 Hose Kit	119651	119654
6 - 400V - 3 Phase DELTA without Neutral - 115765 - 6 Hose Kit	119652	119655

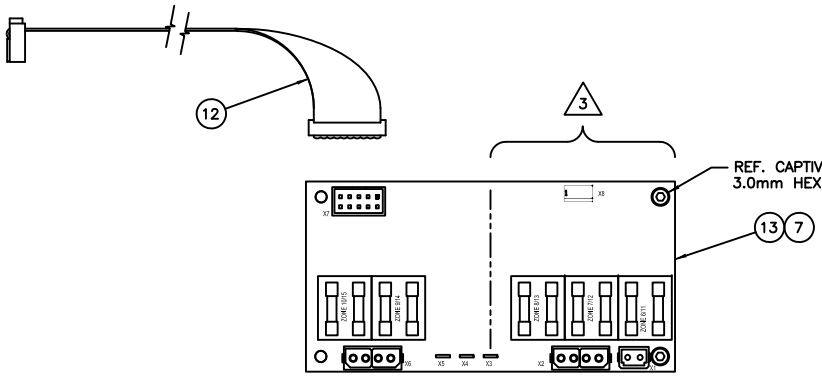
NOTE: See drawing 119422 Rev. D on next page.

DWG. NO.	119422	SHT.	1	REV.	D

REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
N14021	A	ORIGINAL RELEASE.	11.12.14	PJD	
N14021	B	ADD NDSN GRD GRP TO COMPLETE NPR	01.06.14	LF	
ECN1598	C	122795 WAS 115769	15SEP22	EWB	
ECN2194	D	REVISE 036H003 VIEWS; ITEM 3 WAS N00192; ITEM 6 WAS 036E043; ITEM 8 WAS 105100; REVISE NOTE 3	22JUL24	EWB	



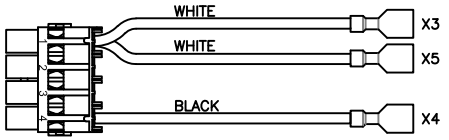


NOTES:

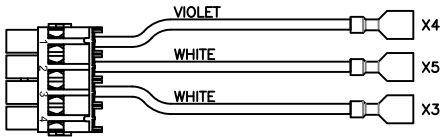
1. TRIM GRID HEATER LEAD WIRES TO LENGTH INDICATED. TERMINATE LEAD WIRES WITH SOCKET CONTACTS 113268 (ITEM 9) AND ASSEMBLE INTO CONNECTOR BODY 115701 (ITEM 10).
2. PRIOR TO ASSEMBLY OF GRID TO HOPPER, LUBRICATE ALL O-RINGS WITH HIGH TEMP O-RING LUBE (ITEM 4).
3. PRIOR TO ASSEMBLY, COAT SENSOR (ITEM 5) AND THE INDICATED HALF OF THE BOTTOM SURFACE OF THE V6 AUX. POWER BOARD (ITEM 13) WITH HEAT TRANSFER COMPOUND (ITEM 7).
4. GRID HEATER LEAD WIRES CONNECT TO HEADER X1 ON AUX. POWER BOARD 115733 (ITEM 12).
5. GRID SENSOR LEAD WIRES CONNECT TO HEADER LABELED Z.1 ON V6 TEMP MODULE 115735, SUPPLIED WITH ASU.
6. RIBBON CABLE 106394 (ITEM 12) CONNECTS TO HEADER X7 ON AUX. POWER BOARD 115733, AND TO HEADER X11 ON V6 TEMP MODULE 115735.
7. HARNESS ITEM 14 PROVIDES POWER FROM HEADER X11 ON THE V6 BASE POWER MODULE 115732 – SUPPLIED WITH THE ASU – TO THE AUX. POWER BOARD 115733 (ITEM 13), SPADE CONNECTORS X3, X4, & X5. SEE THE HARNESS CONNECTION DETAIL BELOW AND/OR WIRING DIAGRAM 115894, SHT. 2, FOR ADDITIONAL CONNECTION DETAILS.

GRID GROUP TABULATION

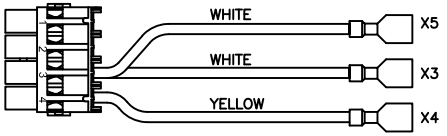
GRID GROUP	POWER SUPPLY	HARNESS, ITEM 14	SENSOR ASSY
119422	240VAC, 3-PH DELTA	117500	105279
119423	240VAC, 1-PH	115766	105279
119424	400VAC, 3-PH WYE	122795	105279
119508	240VAC, 3-PH DELTA,NDSN	117500	110720
119509	240VAC, 1-PH,NDSN	115766	110720
119510	400VAC, 3-PH WYE,NDSN	122795	110720



HARNESS 115766 – 240VAC SINGLE PHASE



HARNESS 117500 – 240VAC 3 PHASE DELTA



HARNESS 122795 – 400VAC 3 PHASE WYE

(14) HARNESS FROM V6 BASE POWER MODULE TO AUX. POWER BOARD

THE SPADE CONNECTOR ON AUX. POWER BOARD 115733 (ITEM 13) TO WHICH EACH HARNESS LEAD WIRE IS TO ATTACH IS NOTED NEXT TO EACH WIRE.

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
14	SEE TAB	1	EA	HARNESS, MAIN TO AUX POWER BOARD
13	115733	1	EA	PCB ASSY, V6 AUX POWER
12	106394	1	EA	CABLE ASSY, RIBBON, 10C, 9.5 LG
11	108297	4	EA	SCREW, HEX HD W/ SER FLNG, M8x1.25 x 20
10	115701	1	EA	CONNECTOR, 2-POS, .200, FEM, AMP
9	113268	2	EA	CONTACT, SOCKET, AMP 60619-1
8				
7	001V061	A/R	REF	COMPOUND, HEAT TRANSFER
6				
B 5	SEE TAB	1	EA	SENSOR ASSY
4	001U002	A/R	REF	LUBE, SILICONE, DOW 112
3	069X169	1	EA	O-RING, -039, VITON
2	N00181	4	EA	O-RING, -014, VITON
1	036H003	1	EA	GRID, PRE-MELT, DM S10

PARTS LIST

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS AND TOLERANCES ARE:
X = ±0.25 [±.010 INCH]
XX = ±0.10 [±.004 INCH]
ANGLES ±0.5°

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

APPROVALS | DATE
DRAWN PJD | 11.12.14
CHECKED

COMPUTER DESCRIPTION(25 CHARACTERS MAX): GRD GRP,DMSR,240VAC,3PH

USED ON: DMSR 10L
NEXT ASSY.: X
DO NOT SCALE DRAWING

ITW Dynatec HENDERSONVILLE, TN

GRID GROUP, DMSR 10L ASU

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

SIZE: D | DWG. NO.: 119422 | REV: D

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

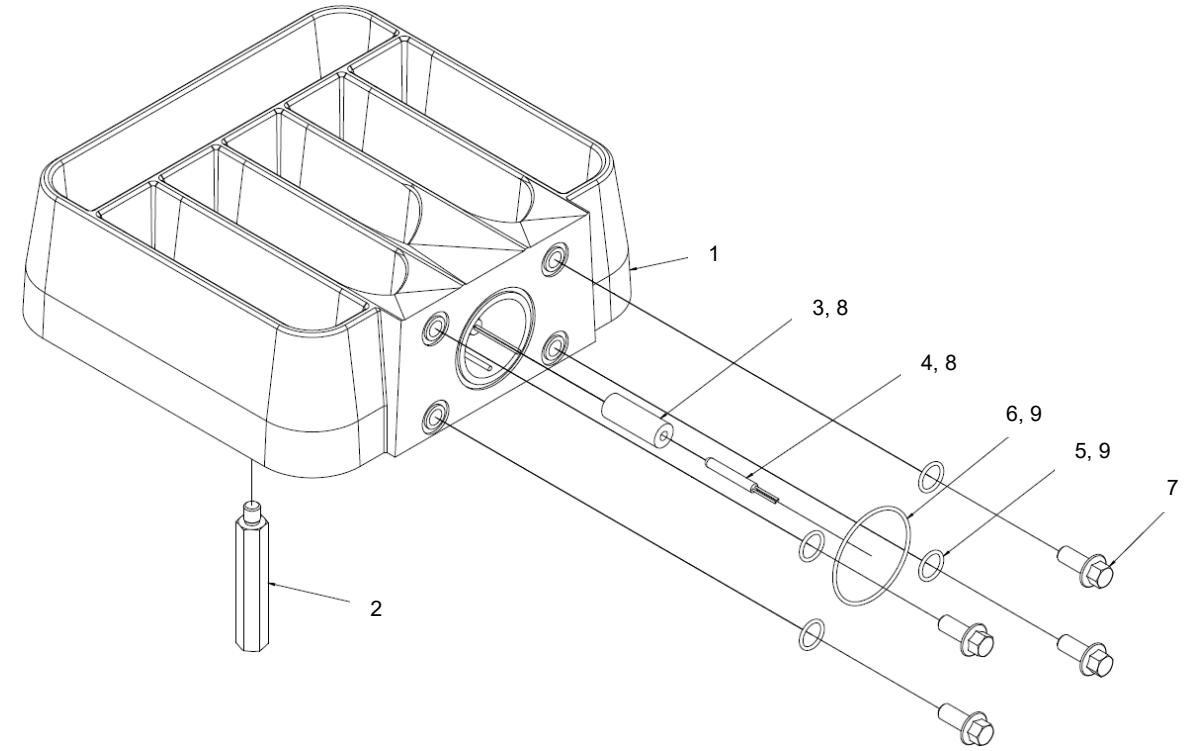
9.20.2 Premelt-grid for SR22/45, 240/400Y, DCL PN 123658, NDSN PN 123659

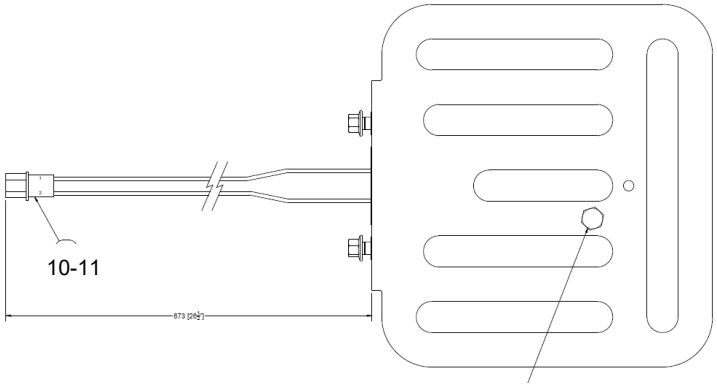
NOTES

- These grid groups are to be used only on Melters with the following voltages:
  240V-1PH
  240V-3PH Delta
  400V-3PH WYE
- Refer to schematic 115894 for wiring connections at the next assembly level.

Item	PN	Description	Qty
1	104802	Premelt grid 2500W	1
2	107525	Support	1
3	106174	Adapter for sensor	1
4	123643	RTD Sensor Asy PT100, Ø.187x1.25", DCL (for DCL control, grid group PN 123658)	1
	123702	RTD Sensor Asy Ni120, Ø.187x1.25", NDSN (for NDSN control, grid group PN 123659)	1
5	N00181	O-ring 014	4
6	N00192	O-ring 019	1
7	108297	Screw M8x20mm	4
8	001V061	Heat transfer compound	A/R*
9	001U002	Silicone lube	A/R*
10	115701	Connection 2-pos. female	1
11	113268	Contact, female	2

A/R* = As required.





Use this location for support.

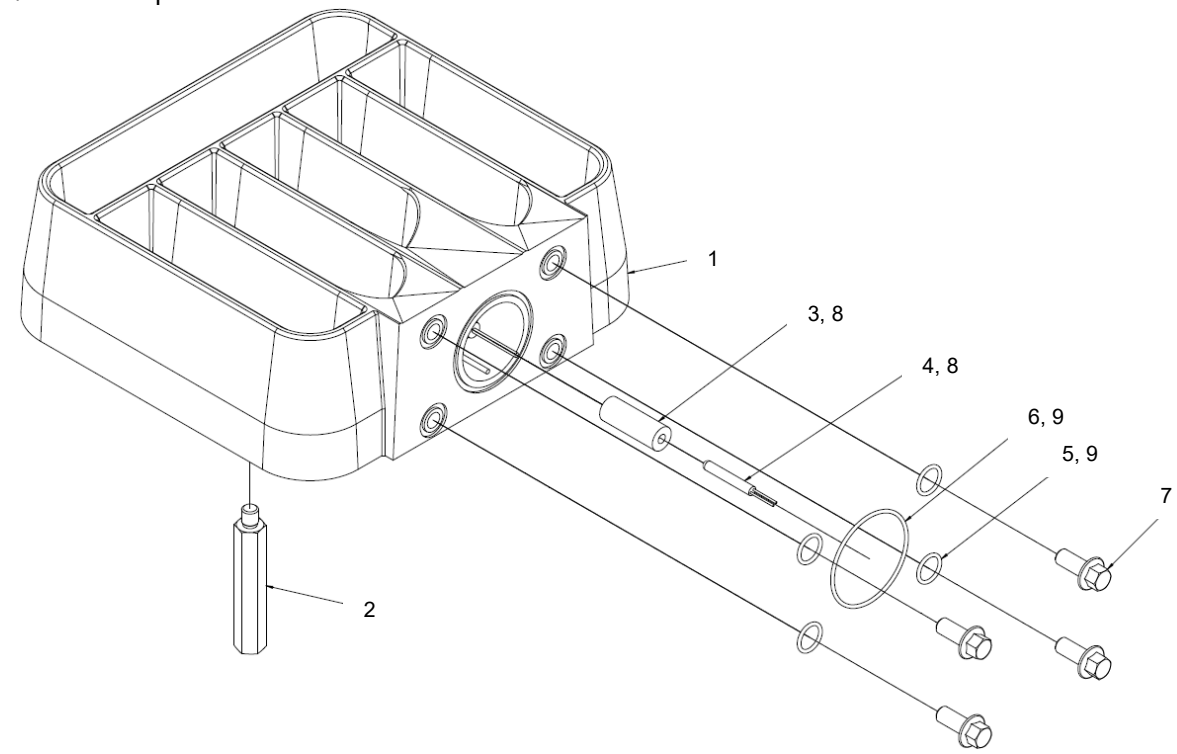
9.20.3 Premelt-grid for SR22/45, 400D/480D, DCL PN 123660, NDSN PN 123661

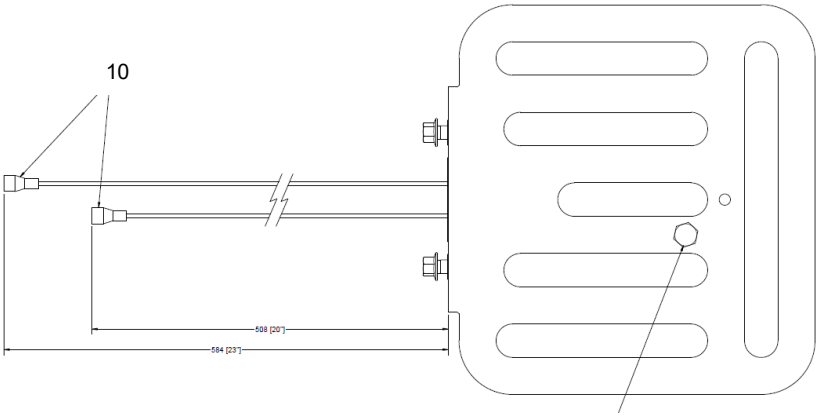
NOTES

- These grid groups are to be used only on Melters with the following voltages:
  400V-3PH Delta
  480V-3PH WYE
- Refer to schematic 115894 and also the appropriate Transformer schematic for wiring connections at the next assembly level.

Item	PN	Description	Qty
1	104802	Premelt grid 2500W	1
2	107525	Support	1
3	106174	Adapter for sensor	1
4	123643	RTD Sensor Asy PT100, Ø.187x1.25", DCL (for DCL control, grid group PN 123658)	1
	123702	RTD Sensor Asy Ni120, Ø.187x1.25", NDSN (for NDSN control, grid group PN 123659)	1
5	N00181	O-ring 014	4
6	N00192	O-ring 019	1
7	108297	Screw M8x20mm	4
8	001V061	Heat transfer compound	A/R*
9	001U002	Silicone lube	A/R*
10	N05889	Terminal, insulation, 1/4" female spade, 16-14GA	2

A/R* = As required.





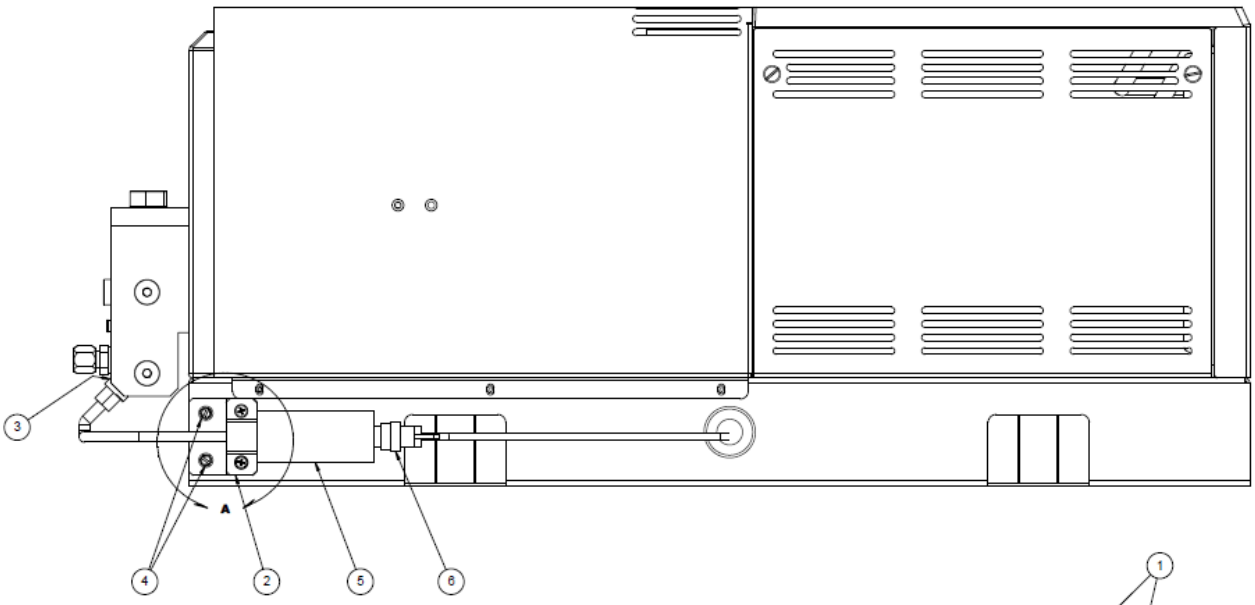
Use this location for support.

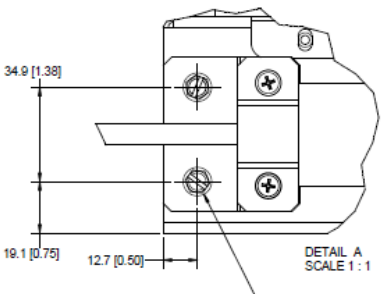
9.21 Pressure Transducer Kit

Pressure Transducer Kit, Rev.B, PN 116878 (for SR5/10)
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. They troubleshoot clogged nozzles and filters.

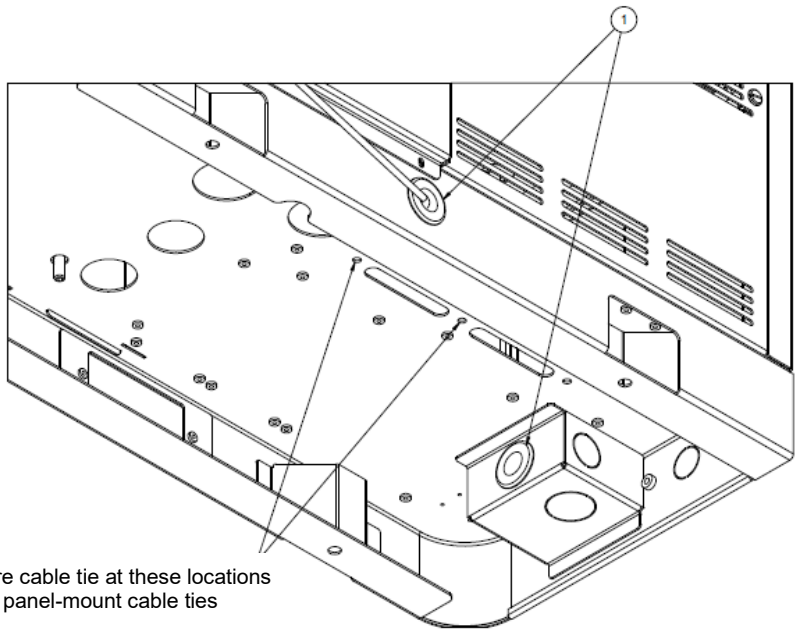
Item	Part Number	Description	Quantity
1	107539	Rubber grommet, ID 3/4	2
2	113827	Mounting bracket	1
3	N00182	O-ring 015	1
4	078A164	Screw 10-24x1/2	2
5	812340 *	Pressure Transducer 4-20mA BSPP	1
6	042X158	Cable asy, 25’	1
7	104226	Ferrule 20AWG	2
8	117375	Cable tie	2
17	117389	Cabinet lid asy	1
18	123376	Pump access door	1
19	115785	Panel & hinge asy, left	1

* see drawing on next page.



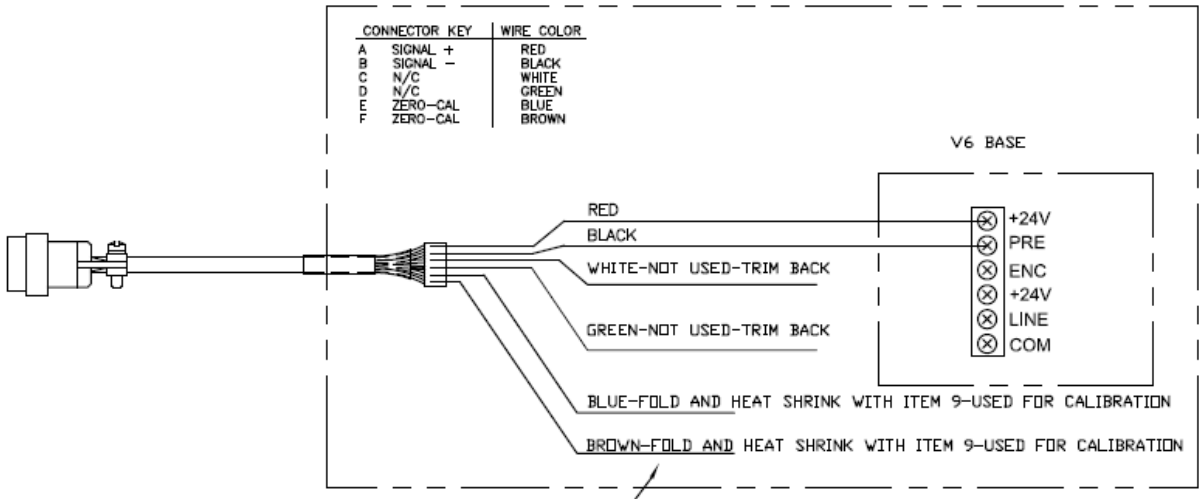


For field installation drill (2) holes in base plate using #20 drill (0.161“ or 4.10mm).

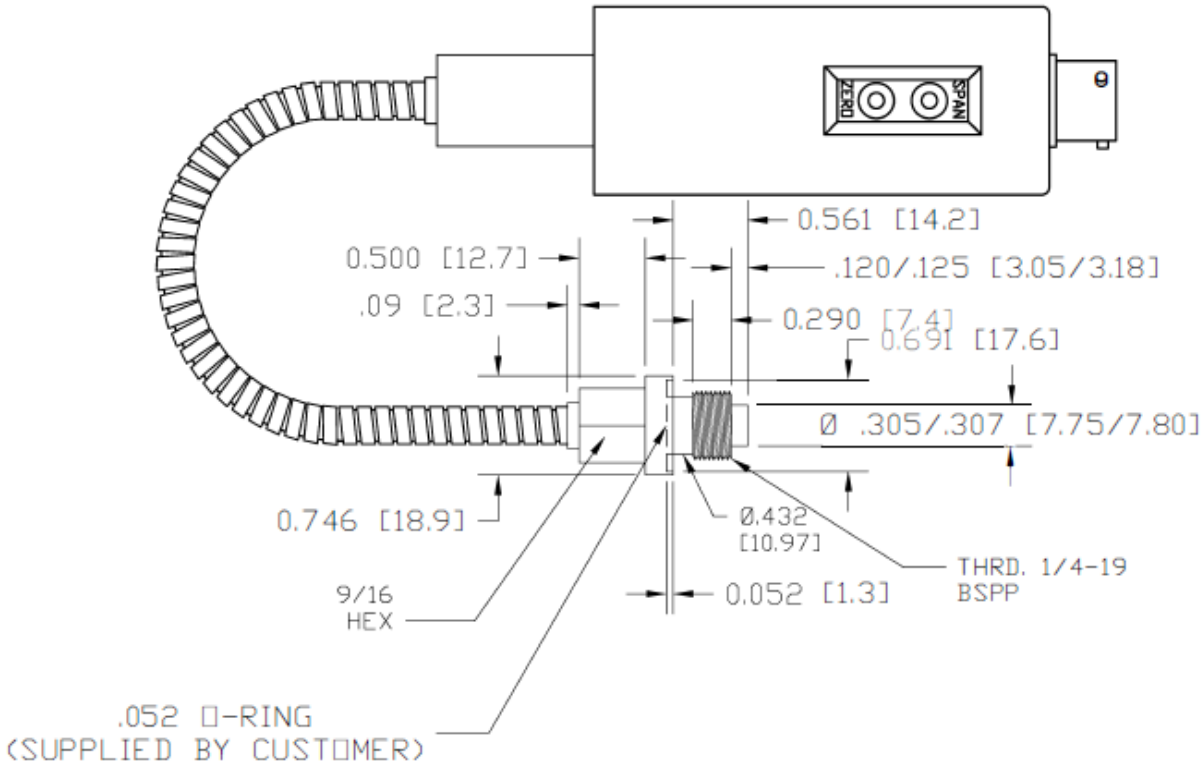


Secure cable tie at these locations using panel-mount cable ties

Wiring schematic for Pressure Transducer Kit all unit sizes:



Pressure Transducer 4-20mA BSPP, PN 812340



9.22 Air Control Kit PN 100055

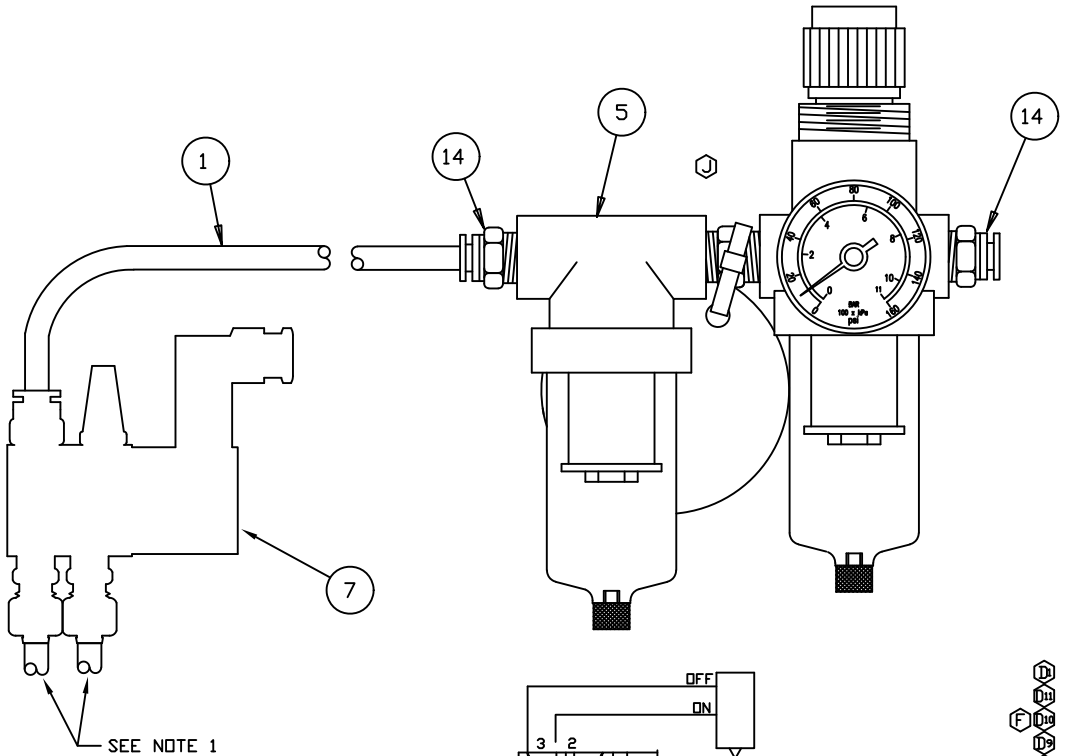
DWG. NO. 100055 SH. 1 REV. K

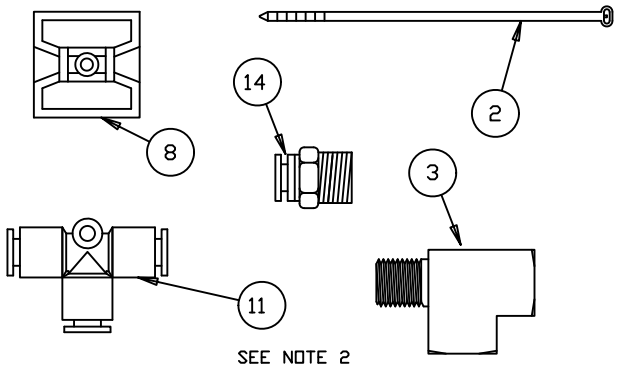
REVISIONS

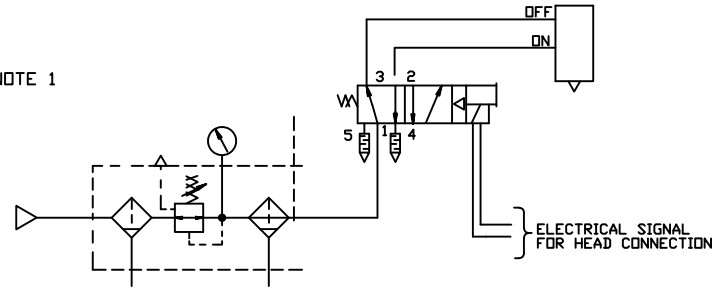
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
02163	G	ADDED ITEM 4	10.14.02	BB	
02584	H	ITEM 5 WAS 100380	10.30.02	BB	
02640	J	CORRECT VIEW OF FILTER	1.31.03	BB	
E436	K	SHOW ITEM 14 AS SPARE; ADD NOTE 2	07.09.19	JC	

REVISIONS

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







PNEUMATIC DIAGRAM FOR A-HEAD & S-HEAD CONTROL

(24VDC)

NOTE:

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

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

PARTS LIST

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

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

USED ON

NEXT ASSY.

DO NOT SCALE DRAWING

APPROVALS		DATE
DRAWN	C.NEVILLS	4.22.94
CHECKED	JCZ	4.22.94
APPROVED		

ITW Dynatec
HENDERSONVILLE, TN

U/M EA

KIT,FILTER,COALES

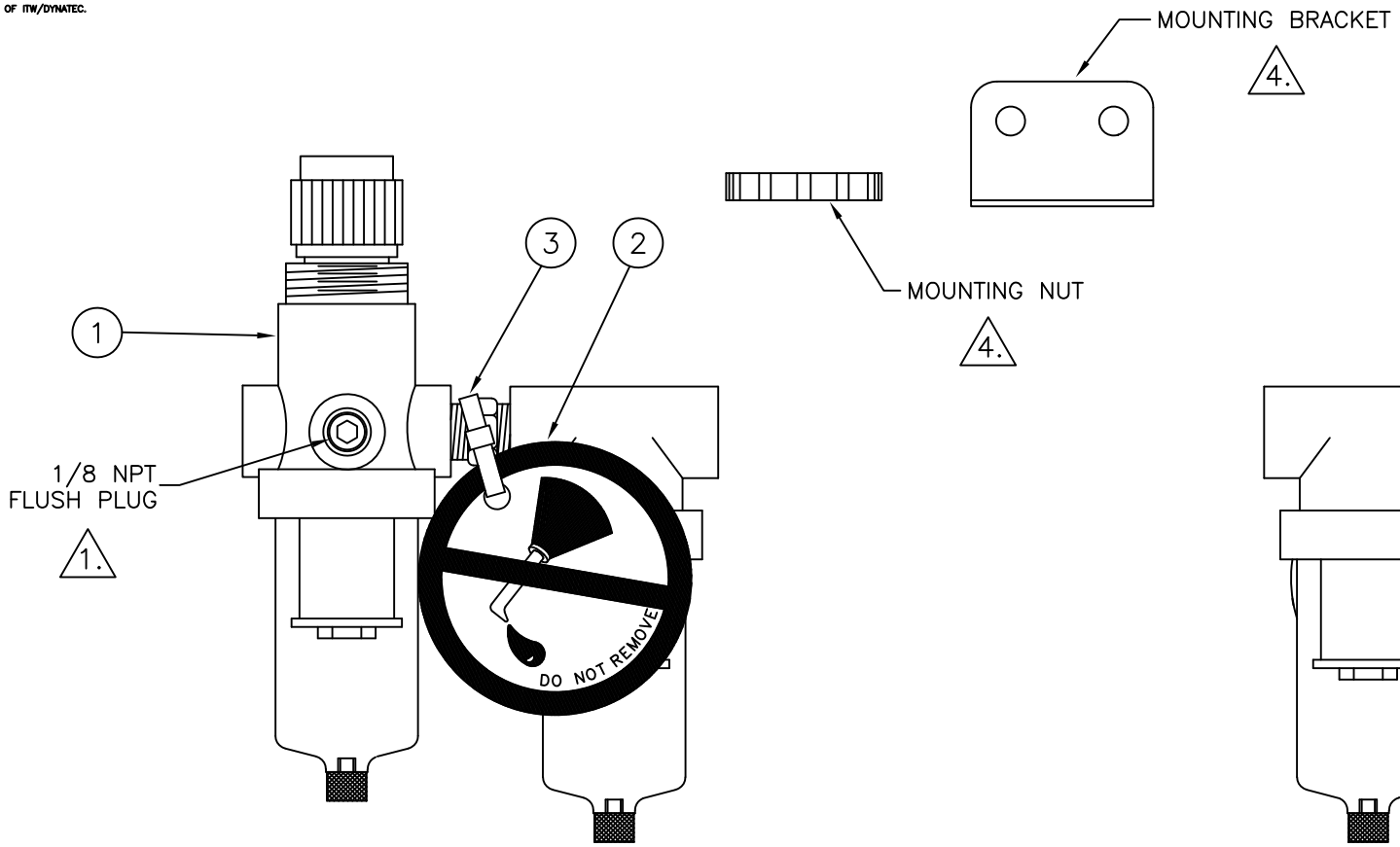
STATUS P

SOURCE P

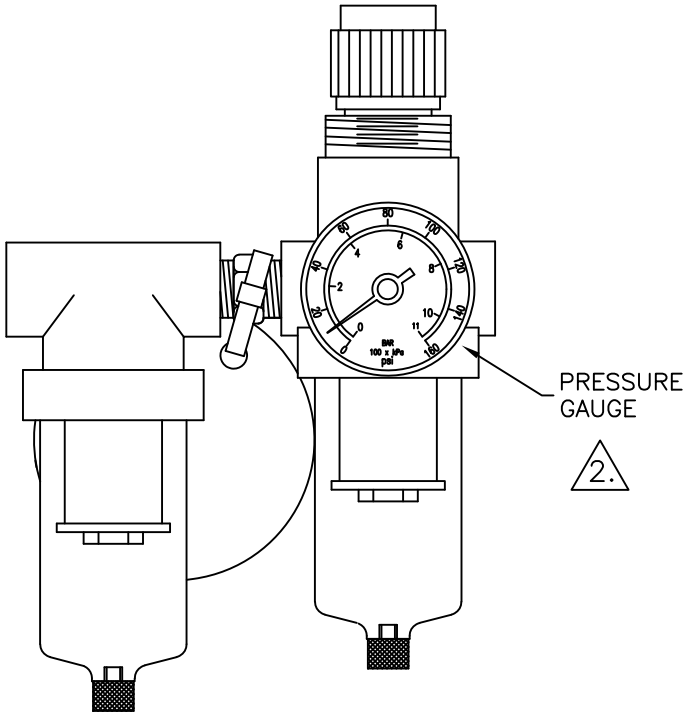
SIZE C DWG. NO. 100055 REV. K GROUP 00

SCALE 1:1 CAD DRAWING SHEET 1 OF 1

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



BACK VIEW



FRONT VIEW

E NOTES:

1.

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

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

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

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

PARTS LIST

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

USED ON: DYNAMELT & DYNAMINI

NEXT ASSY.: —

DO NOT SCALE DRAWING

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

APPROVALS	DATE
DRAWN JCZ	2.26.98
CHECKED JCZ	2.26.98

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

ITW Dynatec
HENDERSONVILLE, TN

FILTER/REGULATOR ASSEMBLY

SIZE	DWG. NO.	REV.
C	105610	E

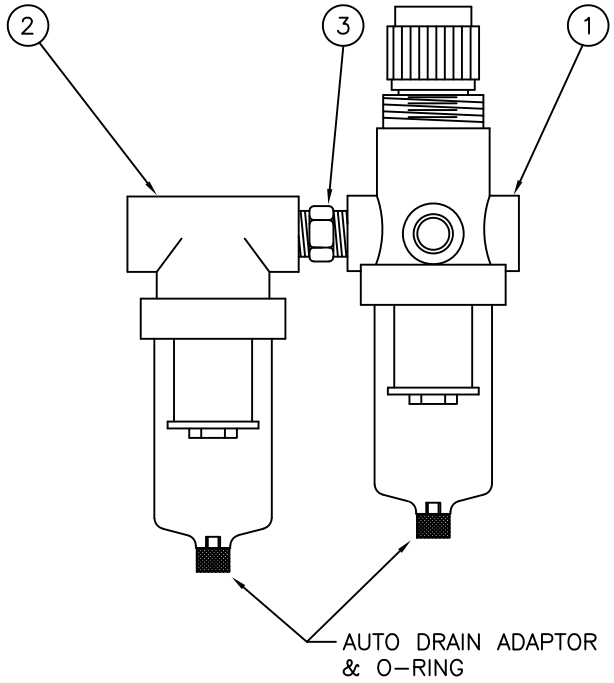
SCALE 1:1 | CAD DRAWING | SHEET 1 of 1

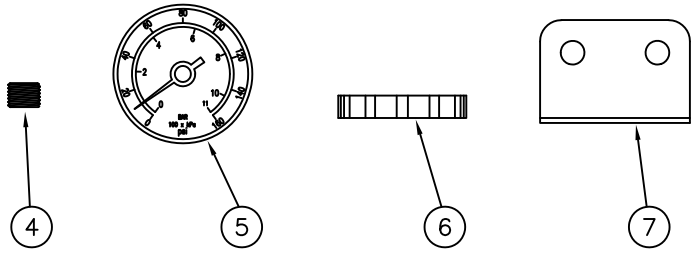
U/M: EA
STATUS: A
SOURCE: G
GROUP: 20

DWG. NO.	SHT.	REV.
100380	1	C

REVISIONS

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





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

PARTS LIST

NOTES:

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

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

USED ON

NEXT ASSY. 105610

DO NOT SCALE DRAWING

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

APPROVALS	DATE
DRAWN BB	10.30.02
CHECKED	

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

ITW Dynatec
HENDERSONVILLE, TN

FILTER/REGULATOR ASSEMBLY, COALESCING

U/M EA | STATUS P | SOURCE | GROUP

SIZE B | DWG. NO. 100380 | REV C

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

Chapter 10
Drawings and Bill of Materials

WARNING

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

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

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

10.1 SR5/10 Melter Drawings and BOMs

10.1.1 Cabinet Assembly, SR5/10

Item	Part Number	Description	Quantity
1	115730	Base Frame Asy	1
2	115744	Electronics Backplane	1
3	115760	Electronics Cabinet Door Asy	1
4	115762	Hopper Shroud Asy, 5L	1
	115814	Hopper Shroud Asy, 10L	1
5	115764	Shut Off Access Door, 5L	1
	115731	Shut Off Access Door, 10L	1
6	115770	Main Top, Molded	1
7	115776	Hopper Collar	1
8	115777	Lid Liner	1
9	115785	Panel & hinge asy, left	1
10	115789	Bracket, Access Panel Mount	1
11	115836	Stiffener Plate, Main Top	1
13	115840	Manifold Drip Tray	1
14	115758	Pump Access Panel, GP	1
15	115835	Hose Connector Plate, DynaControl	1
	115839	Hose Connector Plate, NDSN	1
16	115778	Lid Hinge Rod	1
17	115838	Incoming Power Access	1
18	115834	Regulator Panel, GP	1
19	115772	Lid Top	1
22	680159	Screw M4x8 with washer	40
24	115896	Raceway Cover	1
26	101156	Screw M6x20	2
27	115719	V6 LCD Control Panel Asy	1
28	107389	Screw M4x8 with washer	9

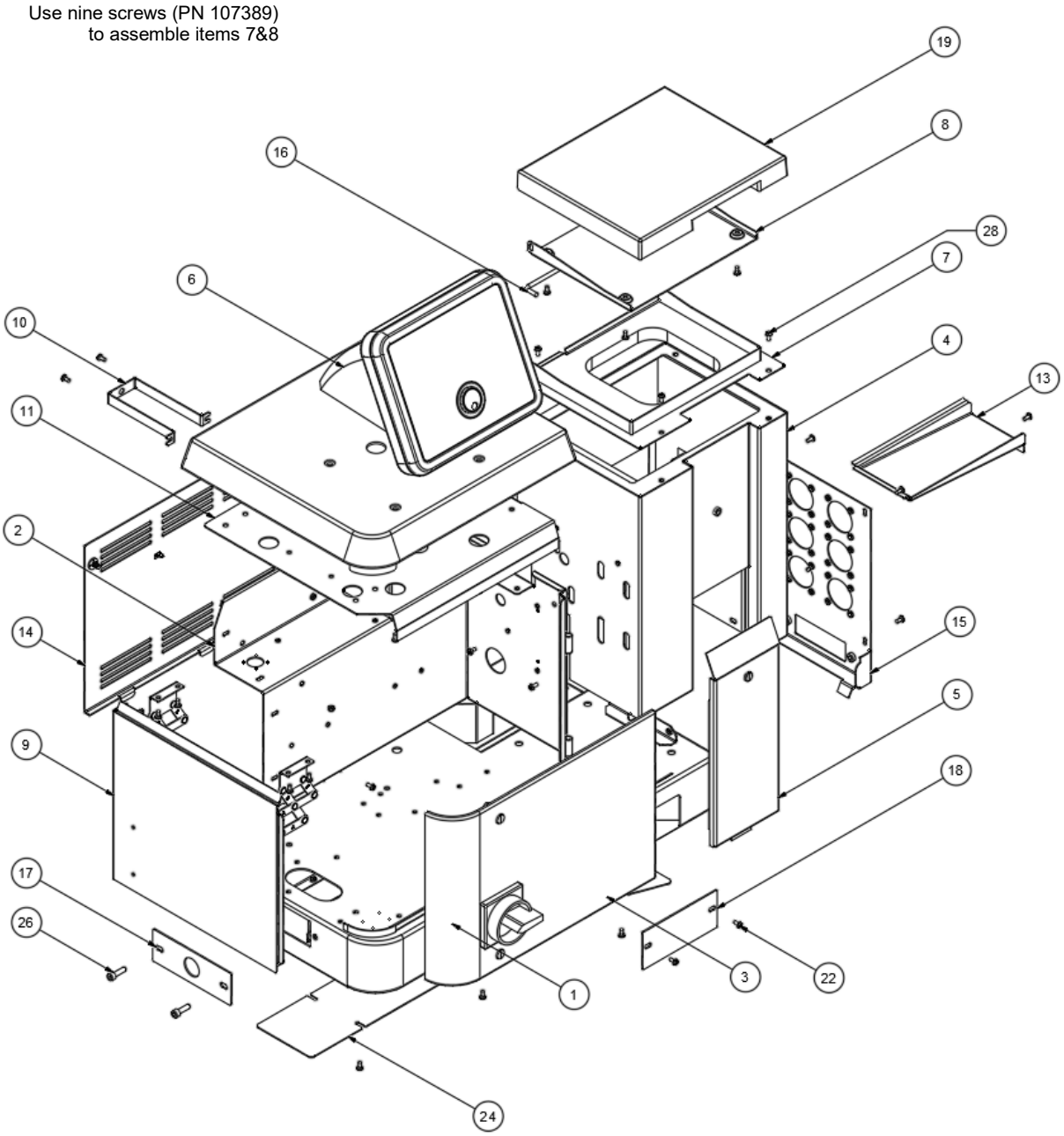


Illustration: Cabinet Assembly SR5/10

10.1.2 Electronics Assembly, SR5/10

Item	Part Number	Description	Quantity
3	123274	Motor Speed Control, VF, 230V, 3PH,1/2HP, Yaskawa (programmed version of motor control PN 115138)	1
4	115729	Din Rail	1
5	115808	Power Board Bracket	1
6	115823	Main ON/OFF Disconnect Switch, 63 A	1
9	115732	V6 Power Module	1
10	115738	Power Supply, 24VDC, 35W	1
11	115733	V6 Auxiliary Power Module	2
12	115734	V6 Base Module	1
13	115735	V6 Temperature Module	1
15	118125	V6 Ethernet Module, optional	1
16	680159	Screw M4x8 Phillips with washer	10
17	115719	V6 LCD Control Panel Asy	1
18	105162	Screw M3x6 Phillips	2
19	106328	Screw M4x16	3
21	117143	Signal Isolator V6, 24VDC, optional	1
22	117477	Level Sensor Control Asy	1
23	105251	Terminal block, dual, 10A	1
24	105252	Endplate for 105251	1
25	117374	Motor (Swirl) Trigger Board Kit, optional	1
26	105256	End Stop, Din Rail, ES35	2
29	115015	Screw M4x10	2

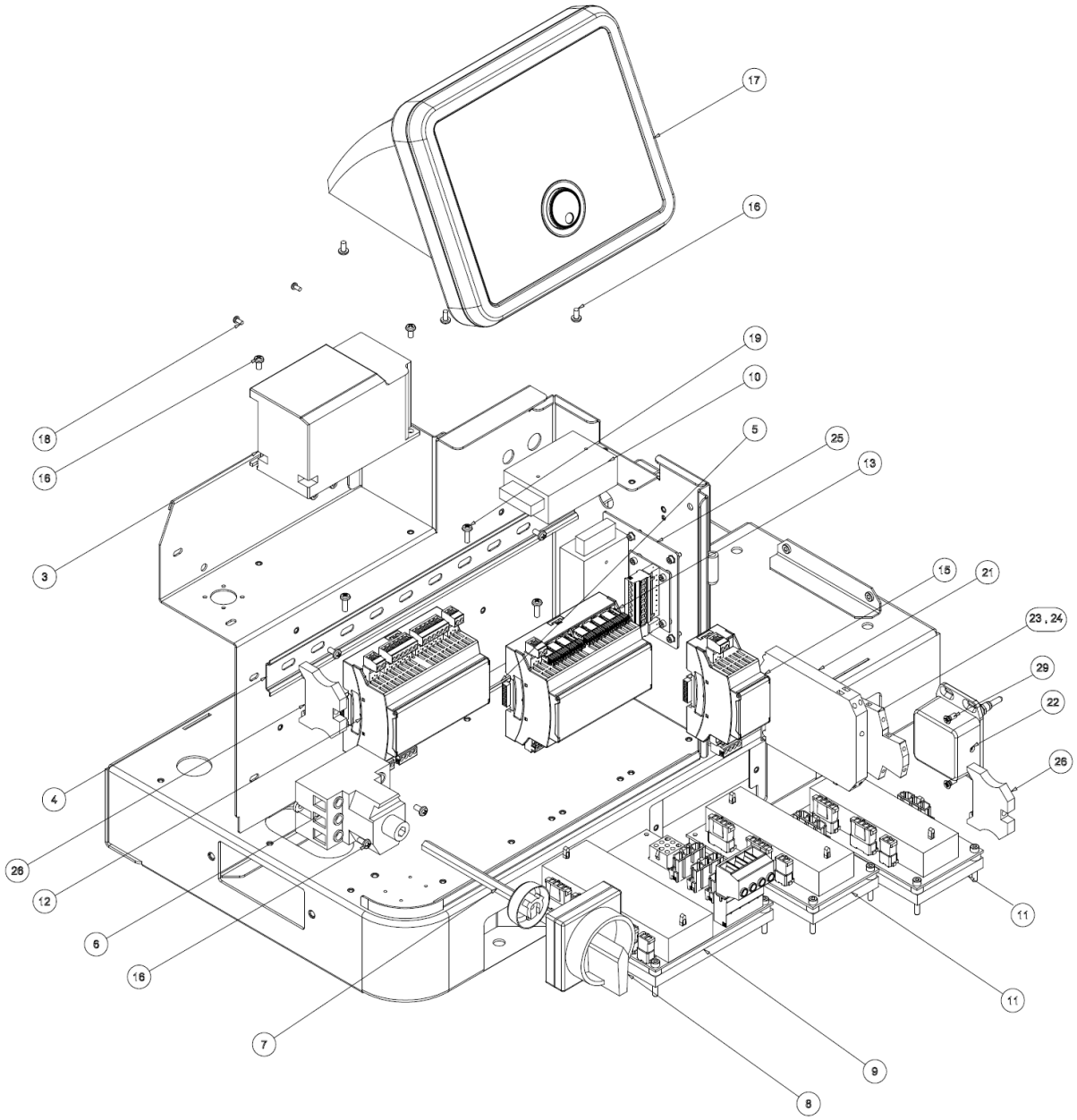


Illustration: Electronics Assembly, SR5/10

10.1.3 Hopper (Tank) Assembly, SR5/10

Item	Part Number	Description	Quantity
1	See table below	Hopper (Tank)	1
2	104166	Switch asy, Overtemperature Thermostat	1
3	115717 #	Filter and Shutoff Asy 5/10L	1
5	107389	Screw, M4x8mm, with washer	3
7	See table below	RTD Temperature Sensor Asy	1
8	114852	Gasket	1
9	105097	Screw, M6x30mm	2
10	117415	Harness, DMSR Hopper Sensor	1
11	817984 *	Nut M22	1
12	817985 *	Fitting plug M22	1
13	001V061	Heat transfer compound	A/R*
14	001V078	High-temp lube, TFE, Krytox GPL206	A/R*
15	107324	Antiseize Compound	A/R*
	**	Optional Grid Group, SR10 (not shown)	1

A/R* = As required.
* Items 11 and 12 are only to be used, when no level sensor assembly is being used.
** See Premelt-Grid Options under Ch. 9 Available Options and Accessories.
# see separate drawing/BOM.

Hopper (Tank) asy Table:

Hopper Asy *	Description	Item 1 Hopper	Item 7 Temperature Sensor
115829	Hopper Asy, 5-Liter Base, DCL	115809	PN 117081, RTD Sensor Asy, PT100, Ø.1875x1.25", DynaControl
115868	Hopper Asy, 10-Liter Base, DCL	115810	PN 117081, RTD Sensor Asy, PT100, Ø.1875x1.25", DynaControl
117411	Hopper Asy, 5-Liter Base, NDSN	115809	PN 117414, RTD Sensor Asy, Ni120, Ø.1875x1.25", NDSN
117412	Hopper Asy, 10-Liter Base, NDSN	115810	PN 117414, RTD Sensor Asy, Ni120, Ø.1875x1.25", NDSN

NOTES:
1. Item 2: Apply 001V061 thermal-cote (item 13) to back side of O/T thermostat.
2. Item 3: Lube O-rings with 001V078 (item 14).
   Apply 107324 antiseize (item 15) to threads.
   Torque to 15-20 ft-lbs (20-27 Nm).
3. Item 9: Apply 107324 antiseize to threads. Torque to 2-3 ft-lbs (2.7-4 Nm).
4. Item 7: Apply 001V061 thermal-cote to RTD sensor.
5. Torque all M4 fasteners to .5 - .7 ft-lbs (0.7-0.9 Nm).
6. Item 10: Sensor harness to be attached to lead wires of sensor asy (item 7).

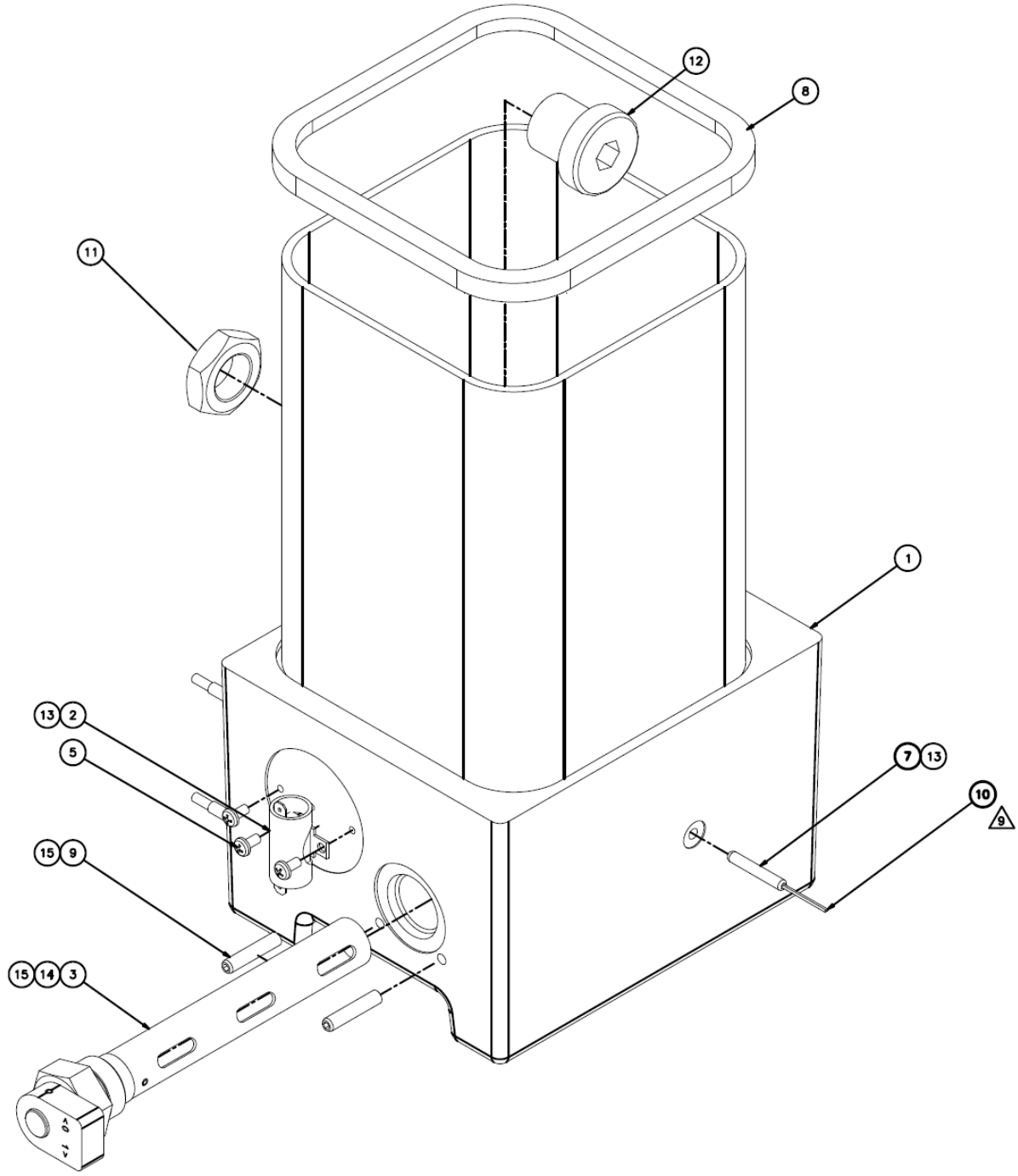


Illustration: Hopper Assembly, SR5/10

10.1.4 Filter Manifold Assembly w. single stream (single gear pump), SR5/10, DCL PN 115706 and NDSN, PN 117445

Item	Part Number	Description	Quantity
1	115705	Filter Manifold, GP, single stream	1
2	N01703	Fitting, Plug, #4, O-Seal (includes PN N01702 O-ring)	5
3	101624	Hose-Fitting, Adapter, G1/4, 6J, (includes PN N00196 O-ring)	see table below
4	101625	Fitting, Plug, G1/4, 6mm (includes PN N00181 O-ring)	see table below
5	814018	Nut, Filter, Easy Spin	1
6	814009	Filter cartridge 100-Mesh (standard) Kit PN 117147 (for details see Ch. 9)	1
	814007	Filter cartridge 40-Mesh (optional) Kit PN 117145 (for details see Ch. 9)	1
7	N00187	O-ring 020	1
8	A69X133	O-ring 124	1
9	812816	O-ring 127	1
10	101840	Mechanical pressure relief valve, 100-1000 Psi (6.8 - 68 bar)	1
11	115822	Discharge Chute Asy	1
12	117083	Heater Asy, Ø12.4x143mm, 240V, 775W	1
13	117081	RTD Sensor Asy, PT100, Ø.1875x1.25”, DynaControl	1
	117414	RTD Sensor Asy, Ni120, Ø.1875x1.25”, NDSN	1
14	107881	Terminal block, 2 Pos, Ceramic	2
15	115851	Cable asy	1
17	100908	Screw M4x24mm	2
18	808344	Screw M4x12mm	2
20	104852	Screw M10x12mm	1
21	101833	Screw 10-32x.50	1
22	106328	Screw M4x16mm	5
23	N01010	O-ring 021	1
24	107389	Screw M4x8mm w. Washer	1
25	119425	Nut, Hex Jam, 9/16-18	1
27	001U002	Silicone lube	A/R*
28	107324	Antiseize Compound	A/R*
29	001V061	Heat transfer compound	A/R*
30	N08024	Cap #6 JIC	see table below

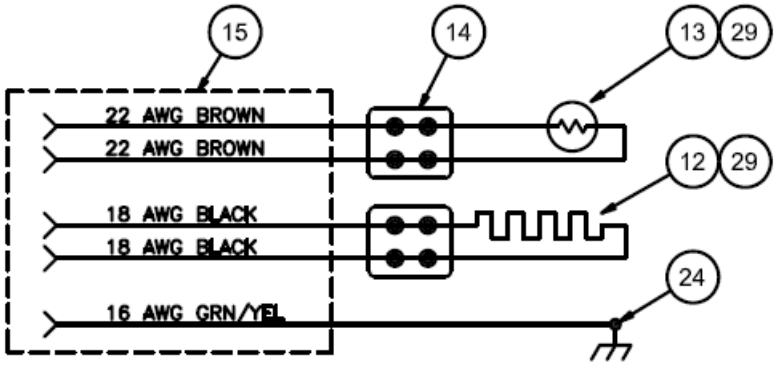
A/R* = As required.

Filter Manifold assembly table:

Number of Hoses on Melter	Item 3 PN 101624 Qty	Item 4 PN 101625 Qty	Item 30 PN N08024 Qty
2	2	8	2
4	4	6	4
6	6	4	6

ASSEMBLING NOTES:

1. Item 2: Lube O-ring with silicone lube (item 27) and apply anti-seize compound (item 28) to threads. Torque to 13.6-20.3 Nm (10-15 ft-lbs).
2. Item 3 & 4: Lube O-rings with silicone lube (item 27) and torque to 13.6-20.3 Nm (10-15 ft-lbs).
3. Filter asy: Lube all O-rings (items 7, 8 & 9) with silicone lube (item 27).
   Apply antiseize compound (item 28) to M45 threads and M12 left-hand threads.
   Torque filter cartridge hand tight.
   Torque filter nut to 20.3-27.1 Nm (15-20 ft-lbs).
4. Item 10: Apply antiseize compound (item 28) to threads. Torque to 10.8-13.6 Nm (8-10 ft-lbs).
5. Item 20: Torque to 4.1-6.8 Nm (3-5 ft-lbs).
6. Item 21: Apply antiseize compound (item 28) to threads. Torque to 0.7-0.9 Nm (0.5 - 0.7 ft-lbs).
7. Items 12 & 13: Apply heat transfer compound (item 29) prior to installation.
8. Torque all M4 fasteners to 0.7-0.9 Nm (0.5 - 0.7 ft-lbs).
9. Apply silicone lube (item 27) to all O-rings and fitting rubber seals.
10. Apply antiseize compound (item 28) to all fittings and fastener male threads. **Exception:** DO NOT apply antiseize compound on M4 screws (item 22), or on cable assembly (item 15).
11. The M4 screw (item 24) is used to secure ground wire in cable assembly (item 15) to manifold (item 1).
12. Manifold assembly is shown equipped with hose fittings and plugs (item 3 & 4) for 2-hose configuration. For 4-hose or 6-hose configuration, additional hose fittings (item 3) are provided for production by parts group 115746 (4-hose) or 115747 (6-hose).
13. Item 6: The 100-mesh filter 814009 is standard. The 40-mesh filter 814007 is optional. For installed filter, see also your order.



Wiring diagram

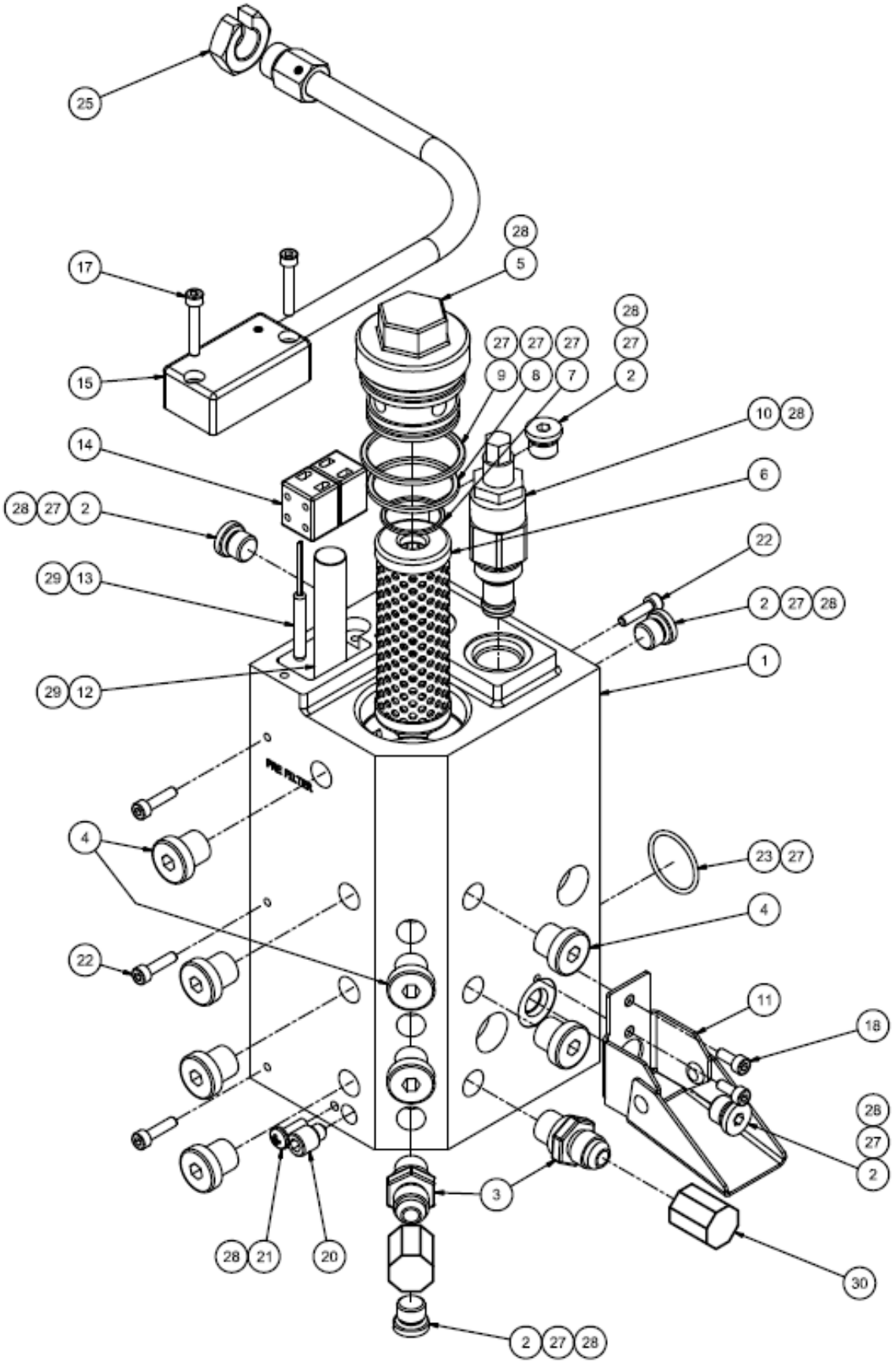


Illustration: Single Stream Filter Manifold Assembly, SR5/10

10.1.5 Filter Manifold Assembly w. dual stream (dual gear pump), SR5/10, DCL PN 115708 and NDSN PN 117446

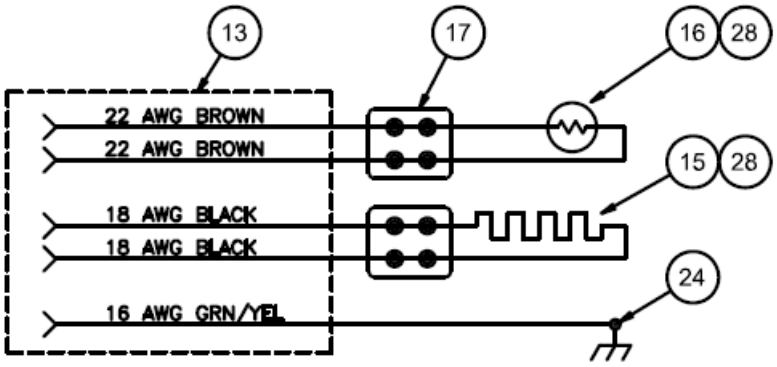
Item	Part Number	Description	Quantity
1	115707	Filter Manifold, GP, dual stream	1
2	N01703	Fitting, Plug, #4, O-Seal (includes PN N01702 O-ring)	7
3	101624	Hose-Fitting, Adapter, G1/4, 6J, (includes PN N00196 O-ring)	see table below
4	101625	Fitting, Plug, G1/4, 6mm (includes PN N00181 O-ring)	see table below
5	814018	Nut, Filter, Easy Spin	2
6	814009	Filter cartridge 100-Mesh (standard) Kit PN 117147 (for details see Ch. 9)	2
	814007	Filter cartridge 40-Mesh (optional) Kit PN 117145 (for details see Ch. 9)	2
7	N00187	O-ring 020	2
8	A69X133	O-ring 124	2
9	812816	O-ring 127	2
10	101840	Mechanical pressure relief valve, 100-1000 Psi (6.8 - 68 bar)	2
11	104852	Screw M10x12mm	2
12	101833	Screw 10-32x.50	2
13	117085	Cable asy	1
14	106115	Screw M4x10mm	1
15	117084	Heater asy, Ø12.4x70mm, 240V, 300W	2
16	117081	RTD Sensor Asy, PT100, Ø.1875x1.25”, DynaControl	1
	117414	RTD Sensor Asy, Ni120, Ø.1875x1.25”, NDSN	1
17	107881	Terminal block, 2 pos. ceramic	2
18	117051	Cover plate	1
19	106470	Screw M4x16mm	2
20	106328	Screw M4x16mm	6
21	069x274	Seal, dual pump	1
22	N01124	Fitting, flush plug, 1/6 NPTF	1
23	119425	Nut, Hex Jam, 9/16-18	1
24	107389	Screw M4x8mm w. external tooth-washer	1
26	001U002	Silicone lube	A/R*
27	107324	Antiseize Compound	A/R*
28	001V061	Heat transfer compound	A/R*
29	N08024	Cap #6 JIC	see table below

Filter Manifold assembly table:

Number of Hoses on Melter	Item 3 PN 101624 Qty	Item 4 PN 101625 Qty	Item 29 PN N08024 Qty
2	2	6	2
4	4	4	4
6	6	2	6

ASSEMBLING NOTES:

1. Item 2: Lube O-ring with silicone lube (item 26) and apply anti-seize compound (item 27) to threads. Torque to 13.6-20.3 Nm (10-15 ft-lbs).
2. Item 3 & 4: Lube O-rings with silicone lube (item 26) and torque to 13.6-20.3 Nm (10-15 ft-lbs).
3. Filter asy: Lube all O-rings (items 7, 8 & 9) with silicone lube (item 26).
   Apply antiseize compound (item 27) to M45 threads and M12 left-hand threads.
   Torque filter cartridge hand tight.
   Torque filter nut to 20.3-27.1 Nm (15-20 ft-lbs).
4. Item 10: Apply antiseize compound (item 27) to threads. Torque to 10.8-13.6 Nm (8-10 ft-lbs).
5. Item 11: Torque to 4.1-6.8 Nm (3-5 ft-lbs).
6. Item 12: Apply antiseize compound (item 27) to threads. Torque to 0.7-0.9 Nm (0.5 - 0.7 ft-lbs).
7. Items 15 & 16: Apply heat transfer compound (item 28) prior to installation.
8. Torque all M4 fasteners to 0.7-0.9 Nm (0.5 - 0.7 ft-lbs).
9. Apply silicone lube (item 26) to all O-rings and fitting rubber seals.
10. Apply antiseize compound (item 27) to all fittings and fastener male threads. **Exception:** DO NOT apply antiseize compound on M4 screws (item 20), or on cable assembly (item 13).
11. The M4 screw (item 24) is used to secure ground wire in cable assembly (item 13) to manifold (item 1).
12. Manifold assembly is shown equipped with hose fittings and plugs (item 3 & 4) for 2-hose configuration. For 4-hose or 6-hose configuration, additional hose fittings (item 3) are provided for production by parts group 115746 (4-hose) or 115747 (6-hose).
13. Item 6: The 100-mesh filter 814009 is standard. The 40-mesh filter 814007 is optional. For installed filter, see also your order.



Wiring diagram

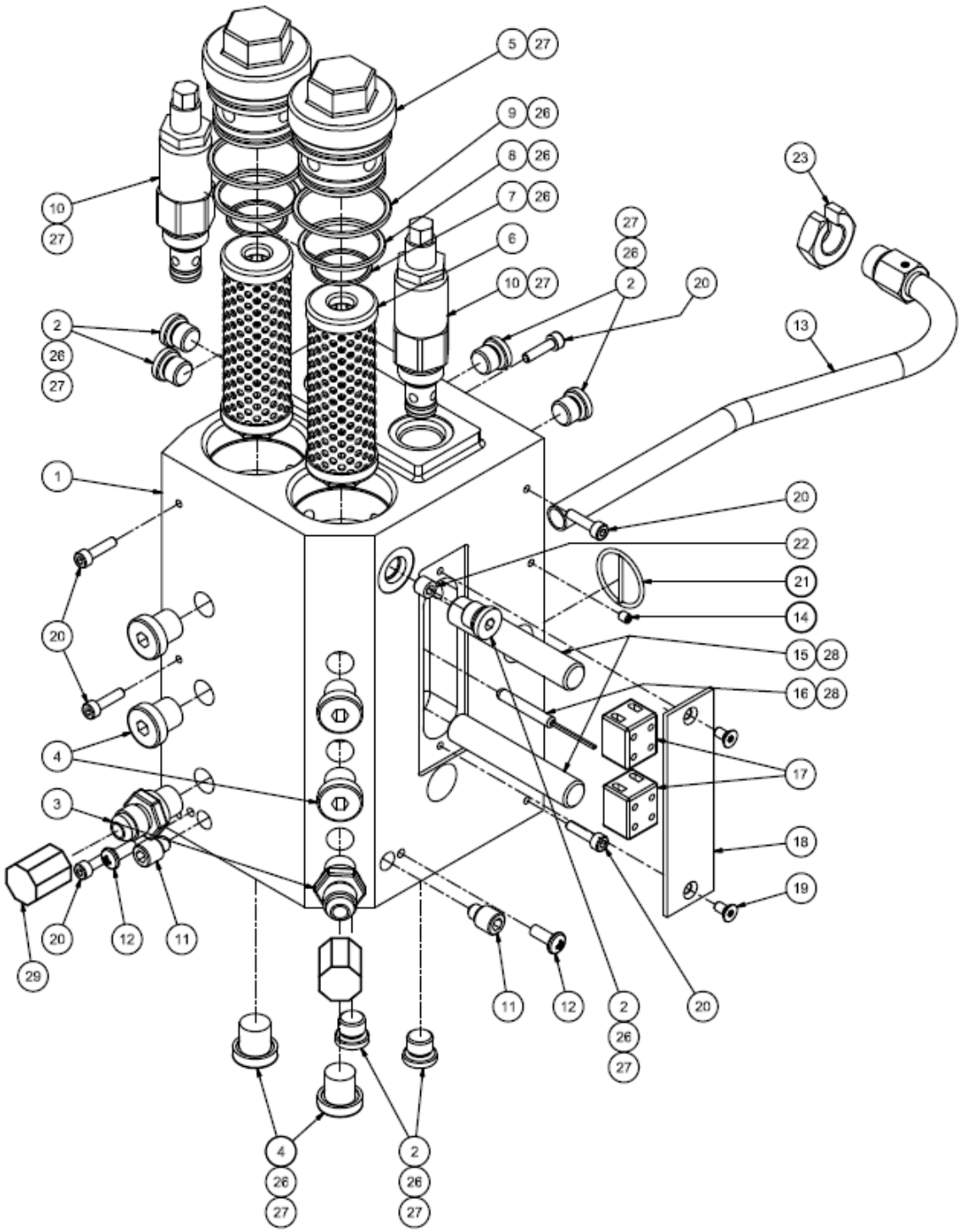


Illustration: Dual Stream Filter Manifold Assembly, SR5/10

10.1.6 Gear Pump Drive Asy, SR5/10, PN 116856

Item	Part Number	Description	Quantity
1	-	5 Liter Hopper asy (shown for reference)	1
2	115796	Motor/ Bracket asy (Motor only, 1/4HP AC, PN 115858)	1
3	105134	Spacer	4
5	115704	Manifold tube asy	1
6	115702	Motor mount pin	2
7	116944	Heat break spacer	1
8	117155	Screw M10x95mm (for Insulator (protective cover) 115890)	2
	117156	Screw M10x110mm (for Insulator (protective cover) 115892)	2
9	Per your order	Gear pump	1
10	See note 1	Stud M10	4
11	107538	Lock washer M10	4
12	104158	Hex flange nut M10	4
13	115712	Manifold alignment screw	1
14	115706 *	Filter Manifold Assembly w. single stream (single gear pump)	1
	115708 *	Filter Manifold Assembly w. dual stream (dual gear pump)	1
15	115890	Insulator (protective cover) (for Filter Manifold Assembly w. single stream (single gear pump) 115706)	1
	115892	Insulator (protective cover) (for Filter Manifold Assembly w. dual stream (dual gear pump) 115708)	1
16	814400	Screw M8x100mm	1
17	115711	Oldham coupling	1
18	105061	Stud M8x50mm	4
19	105126	Nut M8x1.25mm	4
20	N00688	Washer	4
21	680159	Screw M4x8mm	2
22	115834	Bracket	1

* see separate drawing and BOM.

NOTES:

1. Refer to drawing 114533 for pump stud part no. and pump installation instructions.

2. Item 6: Apply antiseize compound 107324 to threads.
   Tighten to torque of 25-30 ft-lbs (34-40 Nm).
   Lubricate pins with Krytox GPL or similar.

3. Item 18: Apply thread primer 102289 and thread locker 108669 to threads that install into the hopper asy.
   Tighten M8 studs to 6-7 ft-lbs (8-9.5 Nm).
   Tighten M8 nuts to 6-7 ft-lbs (8-9.5 Nm).

4. Item 8 and 16: Apply antiseize compound 107324 to threads.
   Tighten to torque of 6-7 ft-lbs (8-9.5 Nm).

5. Item 5: Lubricate O-rings with 001U002 or 001V078.

6. Items 13: Apply antiseize compound 107324 to threads.
   Tighten hand tight only.

7. Torque all M4 screws to maximum of 8.4 ft-lbs (11.4 Nm).

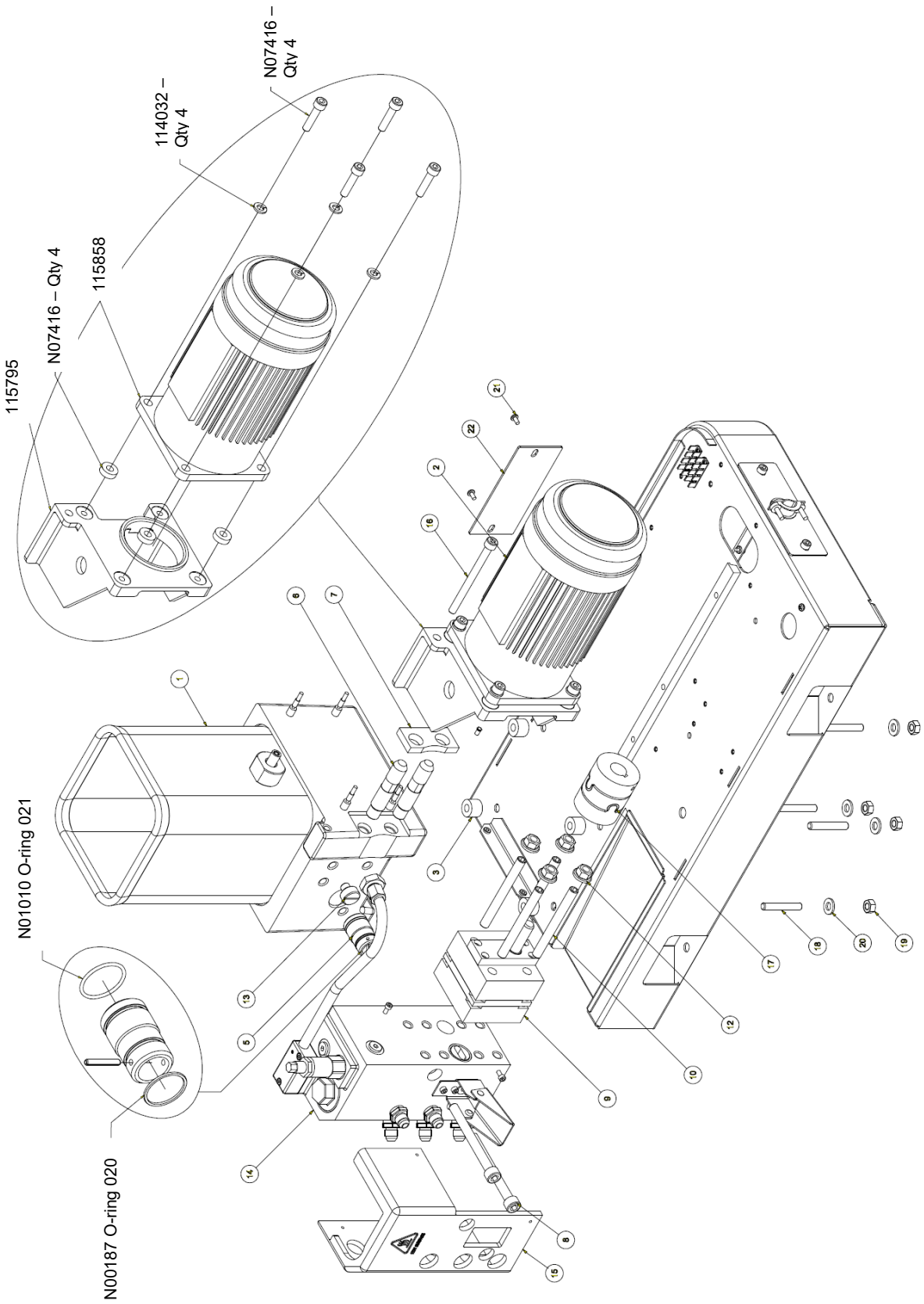


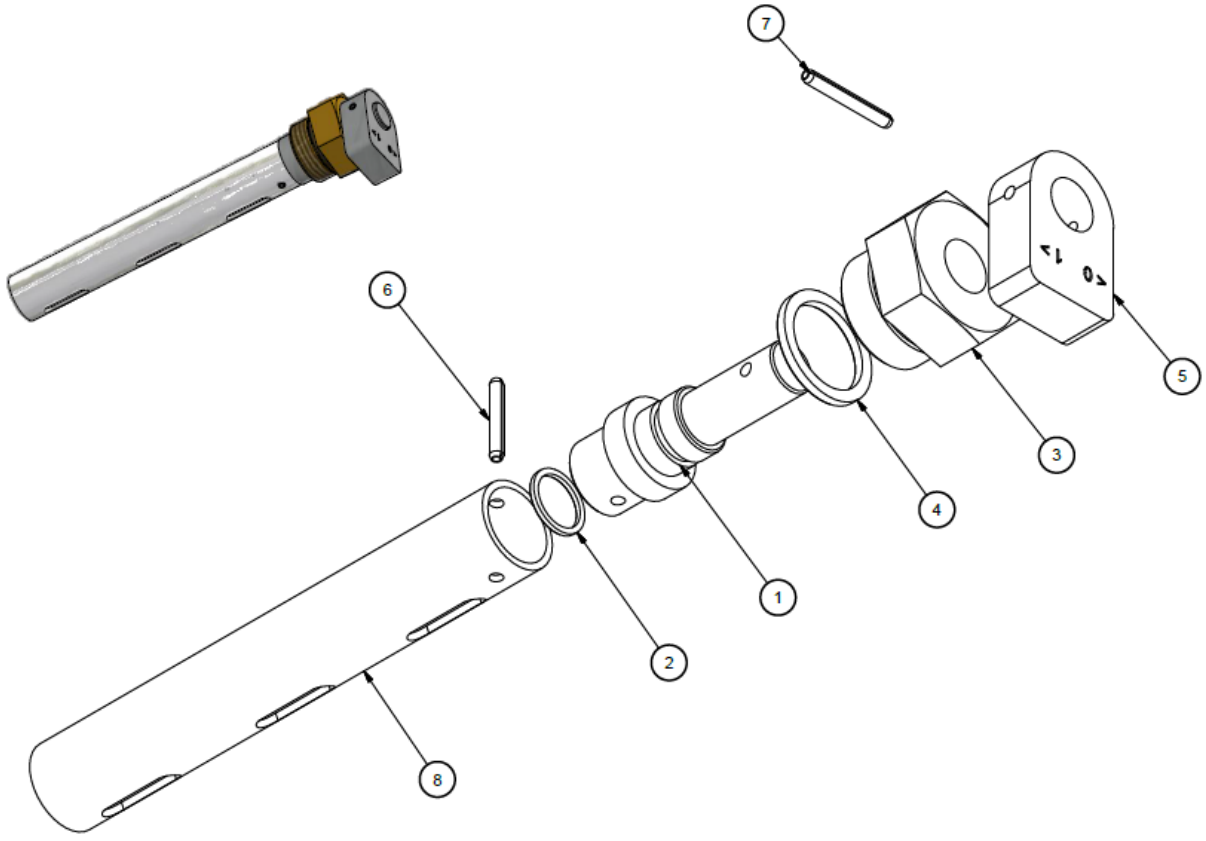
Illustration: Gear Pump Drive, SR5/10, PN 116856

10.1.7 Filter and Shutoff Asy, SR5/10, PN 115717

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

Item	Part Number	Description	Quantity
1	-	Stem	1
2	N00181	O-ring 014	1
3	-	Nut	1
4	N00210	O-ring 912	1
5	-	Knob	1
6	-	Roll pin 1/8x13/16	1
7	-	Roll pin 1/8x1	1
8	-	Filter cartridge (tube)	1
9	001V078	High-temp lube, TFE, Krytox GPL206 (not shown)	A/R*

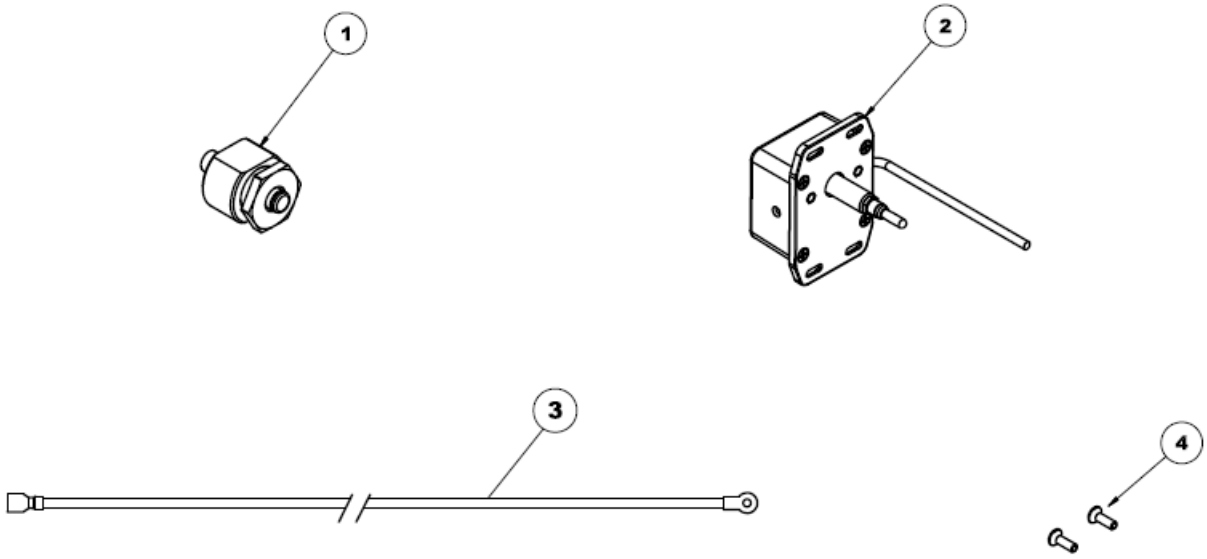
A/R* = As required.



NOTES:
1. Coat O-rings (items 2 and 4) with high-temp lubricant (item 9) prior to assembly.
2. Knob (item 5) must be positioned with arrows in the orientation shown at assembly.
3. Grind ends of roll pin (item 7) flush with outside diameter of filter cartridge (tube) (item 1).

10.1.8 Level Sensor Kit, SR5/10, PN 150020 (Optional)

Item	Part Number	Description	Quantity
1	117476	Probe asy, level sensor	1
2	117477	Level sensor control amplifier asy	1
3	115859	Harness, ground	1
4	109813	Screw M4x12mm	2
	001U002	Silicone lube (not shown)	1



10.2 SR22/45 Melter Drawings and BOMs

10.2.1 Cabinet Assembly, SR22/45

Item	Part Number	Description	Quantity
1	123369	Base frame	1
2	123629	Divider panel	1
3	115838	Plate, power access	1
4	117389	Cabinet lid asy	1
5	115785	Panel & hinge asy, left	1
6	100617	Rear panel	1
7	123376	Access door, pump	1
8	680159	Phillips pan head screw M4x8mm	33
9	107391	Nut M4, Keps	3
10	101156	Screw M6x20mm	2
11	105164	Flat washer #8	2
12	-	-	-
13	115760	Door, electric cabinet	1
14	123628	Panel, inner access, pump	1
15	123630	Hopper cover SR22	1
	123631	Hopper cover SR45	1
16	123375	Access panel of the filter and shutoff assembly	1
17	**123639**	**Lid assembly (including items 18 – 25)**	**1**
18	123635	Collar, hopper	1
19	123636	Rod, lid hinge	1
20	123637	Liner, hopper lid	1
21	123638	Lid, hopper	1
22	107389	Phillips pan head screw M4x8mm	13
23	114858	Seal, hopper collar	1
24	110742	Handle, lid	1
25	115051	Screw M4x10mm	2
26	115719	V6 LCD control panel asy	1
27	123367	Backplane GP	1
28	115834	Cover, blank	1
29	123806	Brace, connector panel	1
30	106328	Screw M4x16mm	5
31	123498	Cover, filter manifold	1

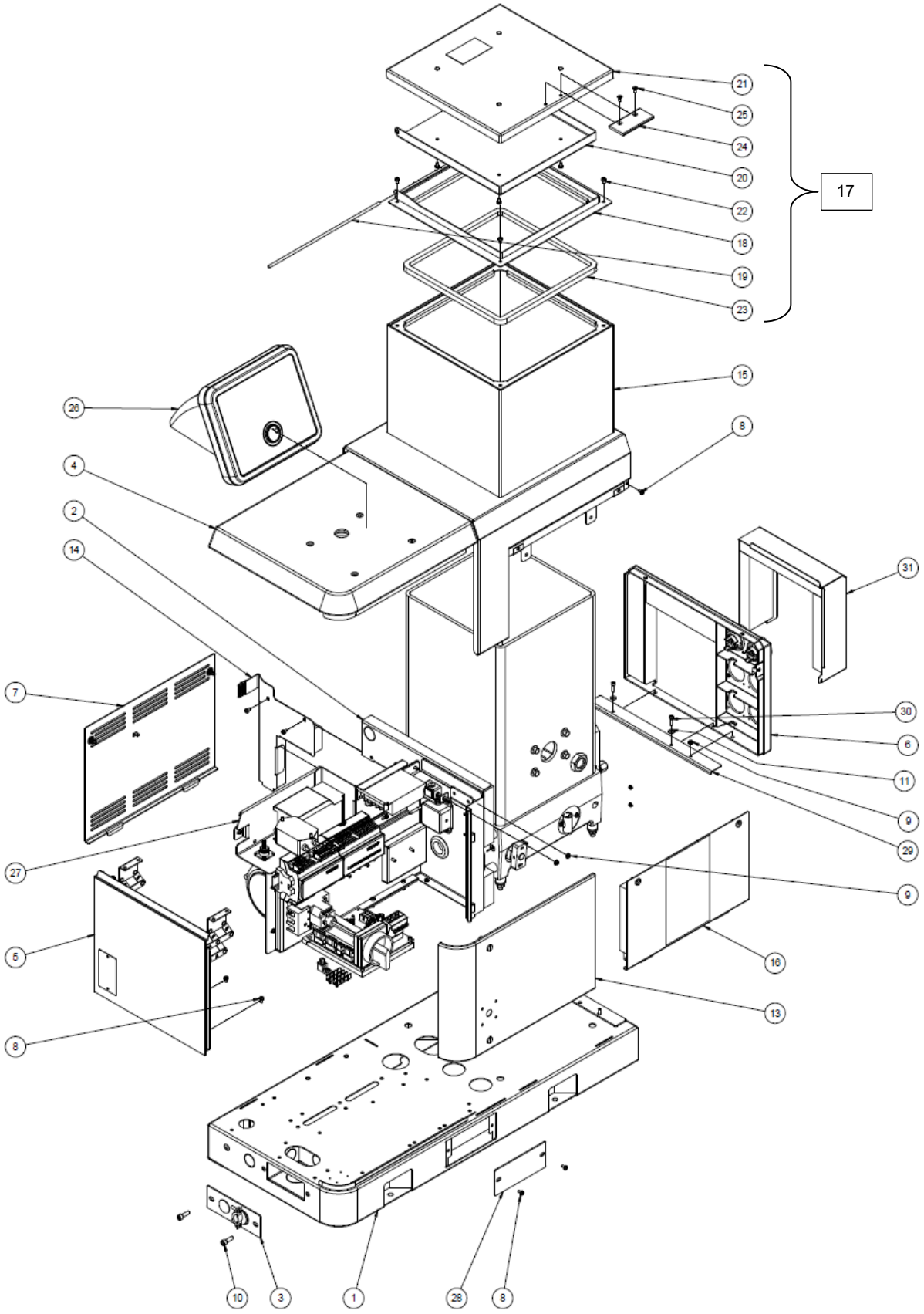
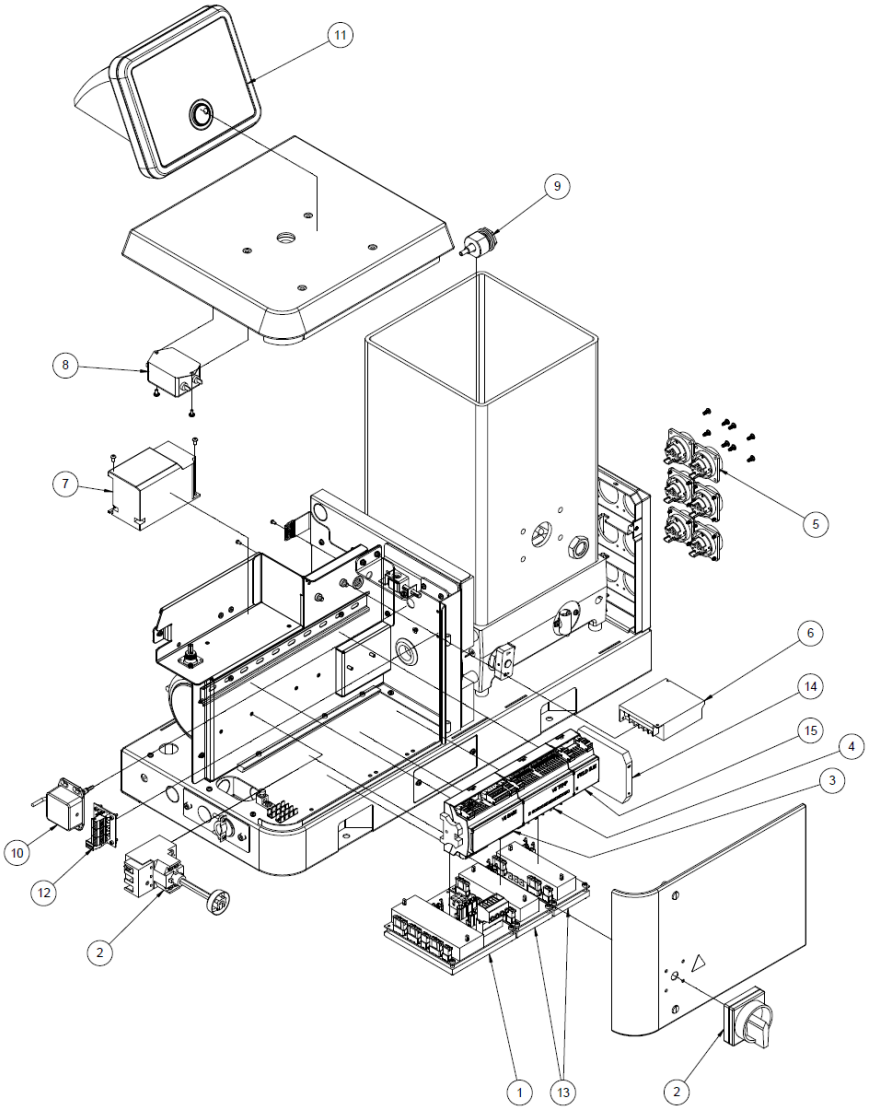


Illustration: Cabinet Assembly, SR22/45

10.2.2 Electronics Assembly, SR22/45

Item	Part Number	Description	Quantity
1	115732	V6 Power Module	1
2	123381	Main ON/OFF Disconnect Switch, 3-pole, 63 A	1
3	115734	V6 Base Module	1
4	115735	V6 Temperature Module	1
5	123646	Wiring harness, hose/head	2-6
6	115738	Power Supply, 24VDC, 35W	1
7	123274	Motor Speed Control, VF, 230V, 3PH,1/2HP, Yaskawa (programmed version of motor control PN 115138)	1
8	106978	Filter, RFI, 240V, 6A, line	1
9	123380	Probe asy, V6 level sensor	1
10	117477	Control amplifier, V6 level sensor	1
11	115719	V6 LCD control panel asy	1
12	123671	Kit, HG trigger PCB	1
13	115733	V6 Auxiliary Power Module	2
14	117143	Signal Isolator V6, 24VDC	1
15	117381	V6 Ethernet Kit	1



10.2.3 Hopper (Tank) Assembly, SR22/45

Item	Part Number	Description	Quantity
1	See table below	Hopper (Tank)	1
2	102752 #	Filter and Shutoff Asy	1
3	N00094	Plug screw	1
4	105097	Screw, M6x30mm	1
5	104166	Switch asy, Overtemperature Thermostat	1
6	107389	Screw, M4x8mm, with washer	3
7	817985 *	Fitting plug M22	2
8	817984 *	Nut M22	2
9	150254	Block plate asy	See table below
10	N00188	O-ring 022	1
11	See table below	RTD Temperature Sensor Asy	1
12	105061	Socket head stud M8x50mm	4
13	102411	High-temp cap	4
-	001V061	Heat transfer compound (not shown)	A/R*
-	001V078	High-temp lube, TFE, Krytox GPL206 (not shown)	A/R*
-	107324	Antiseize Compound (not shown)	A/R*
-	**	Optional Grid Group, SR22/45 (not shown)	1

A/R* = As required.
* Items 7 and 8 are only to be used, when no level sensor assembly is being used.
** See Premelt-Grid Options under Ch. 9 Available Options and Accessories.
# see separate drawing/BOM.

Hopper (Tank) asy Table:

Hopper Asy PN *	Description	Item 1 Hopper PN	Item 9 Quantity	Item 11 Temperature Sensor PN
123466	Hopper Asy, 22-Liter Base, DCL	123462	1	PN 123643, RTD Sensor Asy PT100, Ø.187x1.25”, DCL
123467	Hopper Asy, 45-Liter Base, DCL	123463	2	PN 123643, RTD Sensor Asy PT100, Ø.187x1.25”, DCL
123703	Hopper Asy, 22-Liter Base, NDSN	123462	1	PN 123702, RTD Sensor Asy Ni120, Ø.187x1.25”, NDSN
123704	Hopper Asy, 45-Liter Base, NDSN	123463	2	PN 123703, RTD Sensor Asy Ni120, Ø.187x1.25”, NDSN

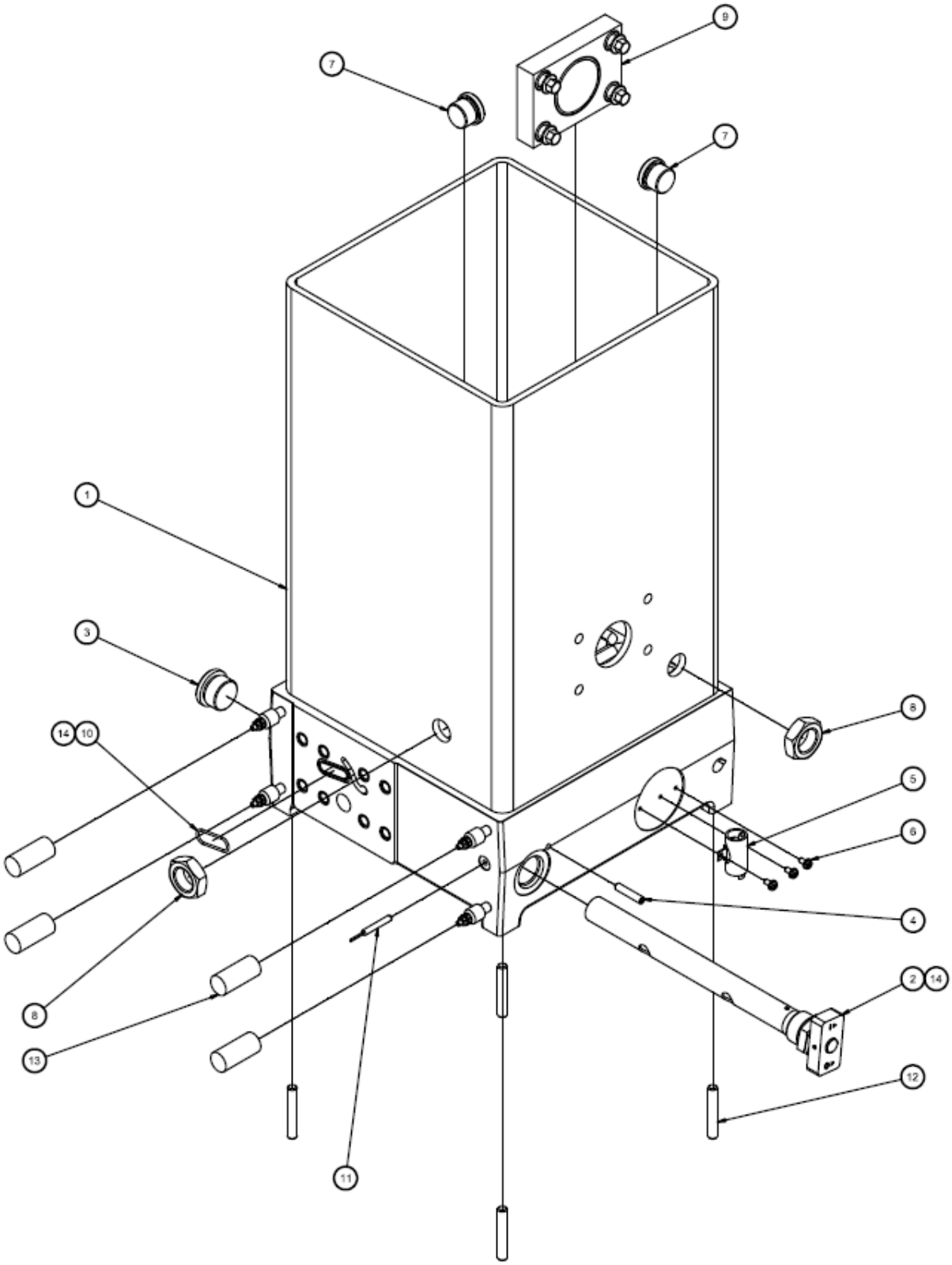


Illustration: Hopper Assembly, SR22/45

10.2.4 Filter Manifold Assembly w. single stream (single gear pump), SR22/45, DCL, PN 123440

Item	Part Number	Description	Quantity
1	123438	Filter Manifold, GP, single stream	1
2	101624	Hose-Fitting, Adapter, G1/4, 6J, (includes PN N00196 O-ring)	see table below
3	101625	Fitting, Plug, G1/4, 6mm (includes PN N00181 O-ring)	see table below
4	N08024	Cap #6 JIC, ZP	see table below
5	104852	Screw M10	1
6	101833	Screw 10-32x1/2”	1
7	814018	Nut, Filter, Easy Spin	1
8	812816	O-ring 127	1
9	A69X133	O-ring 124	1
10	N00187	O-ring 020	1
11	814009	Filter cartridge 100-Mesh (standard) Kit PN 117147 (for details see Ch. 9)	1
	814007	Filter cartridge 40-Mesh (optional) Kit PN 117145 (for details see Ch. 9)	1
12	101840	Mechanical pressure relief valve, 100-1000 Psi (6.8 - 68 bar)	1
13	N00185	O-ring 018	2
14	N00192	O-ring 032	1
15	810250	Screw M8x110mm	3

Filter Manifold assembly table:

Number of Hoses on Melter	Item 2 PN 101624 Qty	Item 3 PN 101625 Qty	Item 4 PN N08024 Qty
2	2	8	2
4	4	6	4
6	6	4	6

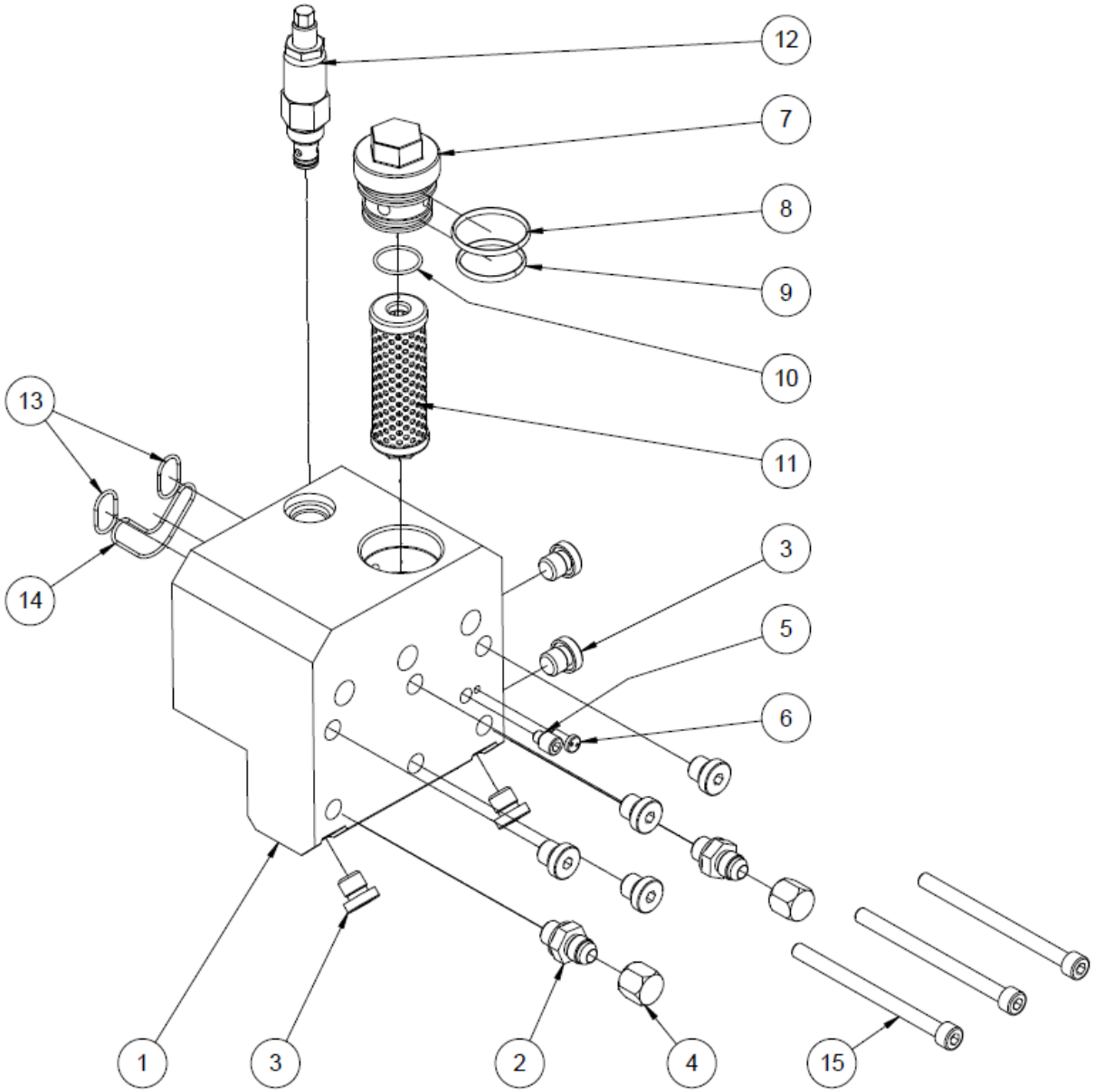


Illustration: Single Stream Filter Manifold Assembly, DCL, SR22/45, PN 123440

10.2.5 Filter Manifold Assembly w. dual stream (dual gear pump), SR22/45, DCL, PN 123441

Item	Part Number	Description	Quantity
1	123439	Filter Manifold, GP, dual stream	1
2	N01124	Plug fitting 1/16-27 NPT	1
3	101624	Hose-Fitting, Adapter, G1/4, 6J, (includes PN N00196 O-ring)	see table below
4	101625	Fitting, Plug, G1/4, 6mm (includes PN N00181 O-ring)	see table below
5	N08024	Cap #6 JIC, ZP	see table below
6	104852	Screw M10	2
7	101833	Screw 10-32x1/2”	2
8	814018	Nut, Filter, Easy Spin	2
9	812816	O-ring 127	2
10	A69X133	O-ring 124	2
11	N00187	O-ring 020	2
12	814009	Filter cartridge 100-Mesh (standard) Kit PN 117147 (for details see Ch. 9)	2
	814007	Filter cartridge 40-Mesh (optional) Kit PN 117145 (for details see Ch. 9)	2
13	101840	Mechanical pressure relief valve, 100-1000 Psi (6.8 - 68 bar)	2
14	N00185	O-ring 018	2
15	N00181	O-ring 014	2
16	810250	Screw M8x110mm	3

Filter Manifold assembly table:

Number Hoses on Melter	Item 3 PN 101624 Qty	Item 4 PN 101625 Qty	Item 5 PN N08024 Qty
2	2	11	2
4	4	9	4
6	6	7	6

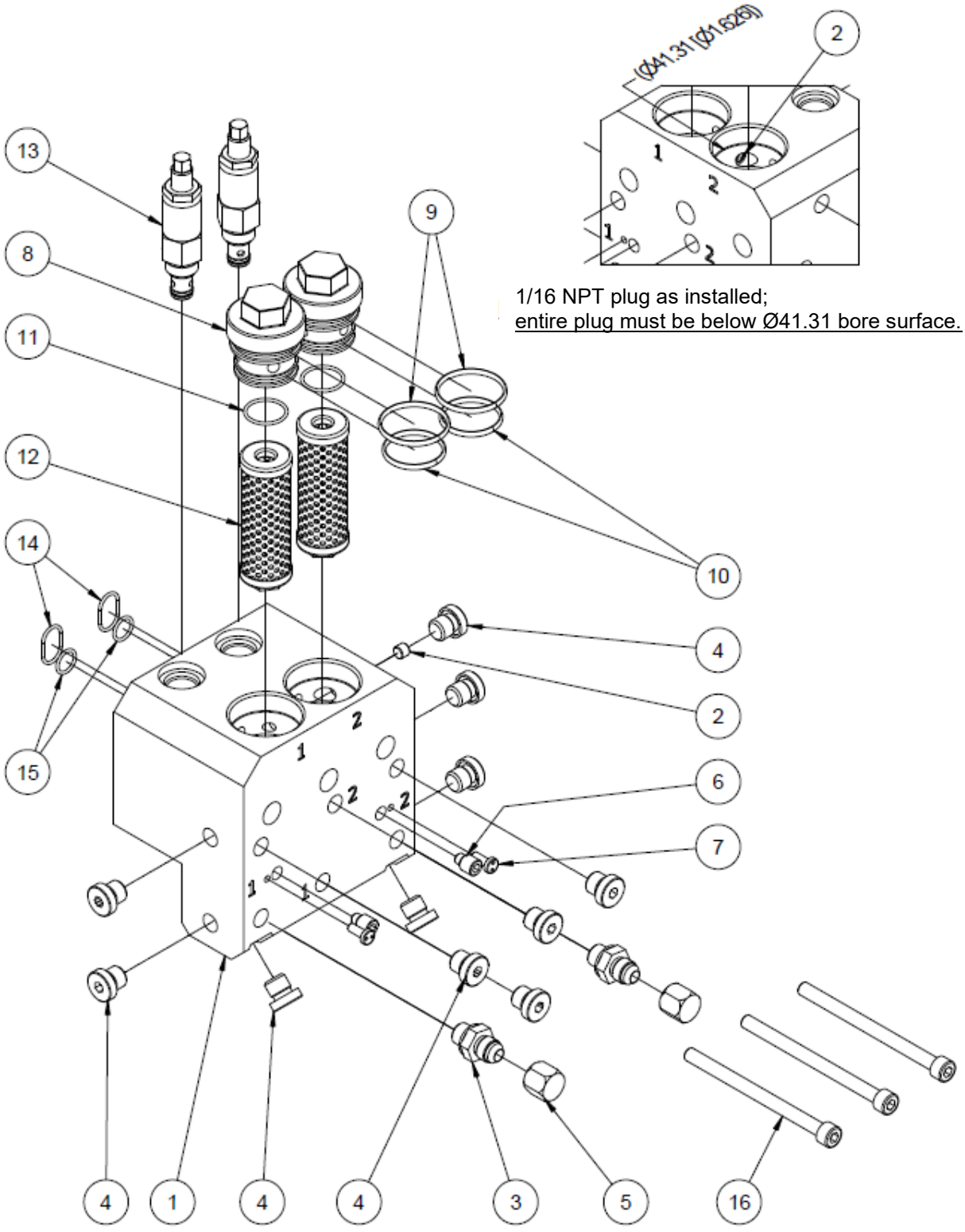
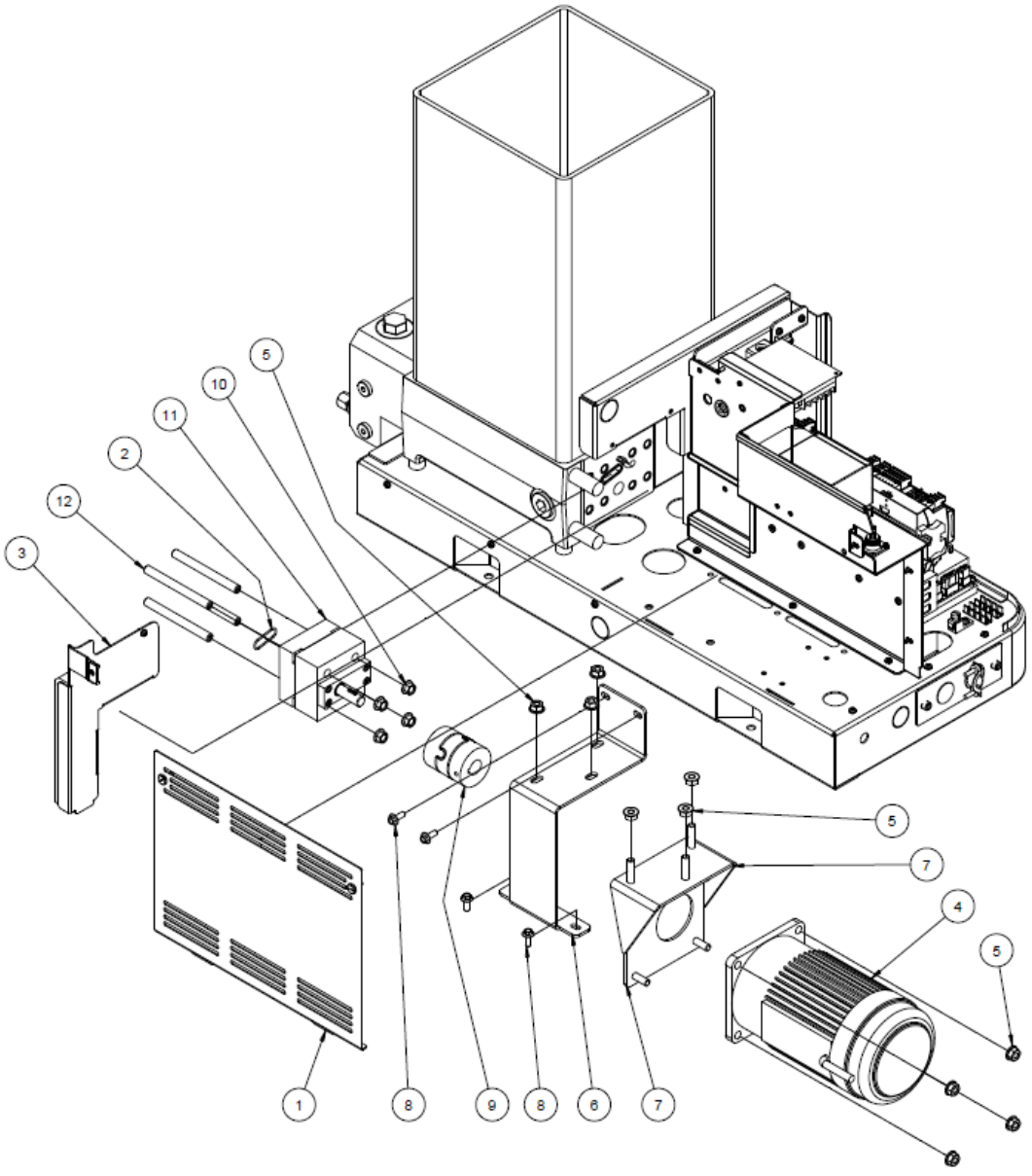


Illustration: Dual Stream Filter Manifold Assembly, DCL, SR22/45, PN 123441

10.2.6 Gear Pump Drive Asy, SR22/45

Item	Part Number	Description	Quantity
1	123376	Pump access door	1
2	N00188	O-ring 022	1
3	123628	Inner access panel	1
4	115858	Gear motor, 1/4HP AC, face mount	1
5	610146	Flange nut M8	10
6	123433	Motor bracket	1
7	123434	Motor adapter	1
8	123640	Screw M6x16mm	4
9	115711	Coupling, Oldham, Hi-temp	1
10	104158	Hex nut M10	4
11	*	Gear pump	1
12	-	Stud, Allen, M10	4

* Optional, refer to PO/unit data plate.

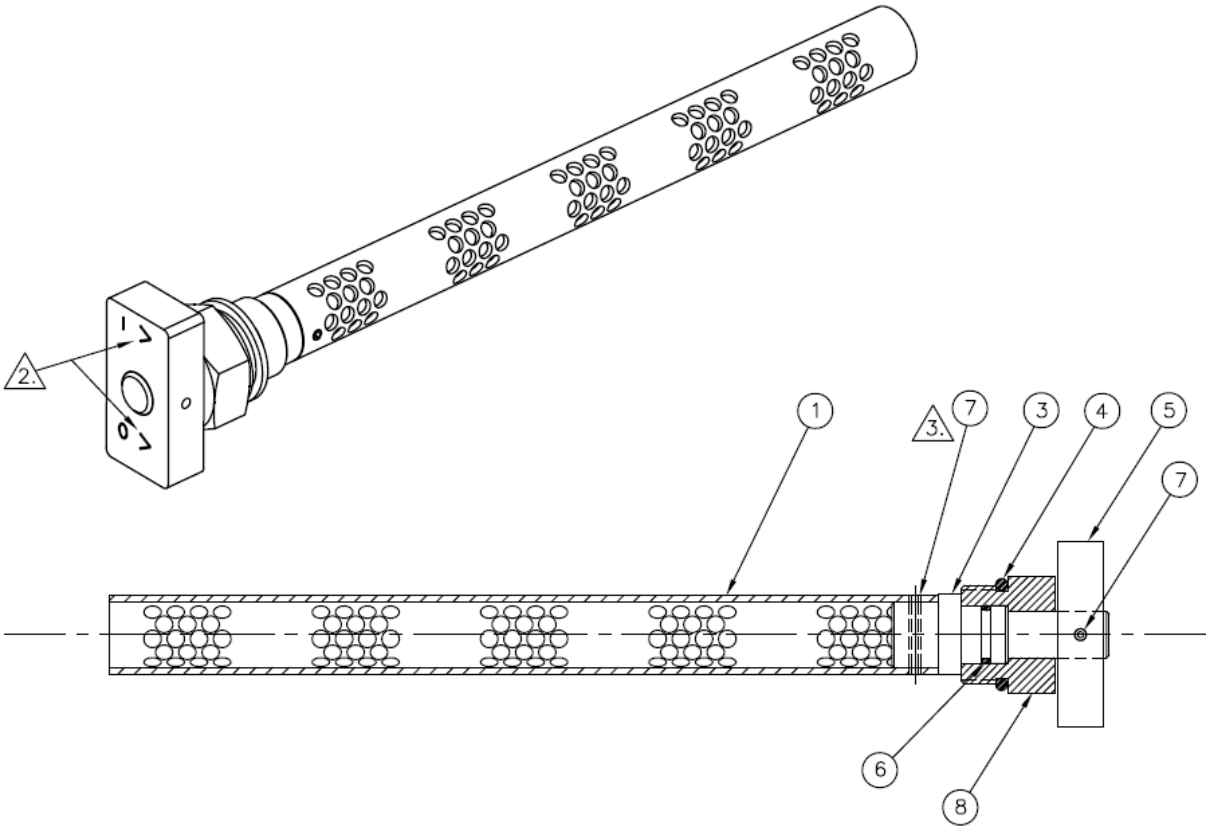


10.2.7 Filter and Shutoff Asy, SR22/45, PN 102752

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

Item	Part Number	Description	Quantity
1	-	Filter cartridge (tube)	1
3	-	Stem	1
4	N00210	O-ring 912	1
5	-	Knob	1
6	N00181	O-ring 014	1
7	-	Roll pin 1/8x1	2
8	-	Nut	1
9	001V078	High-temp lube, TFE, Krytox GPL206 (not shown)	A/R*

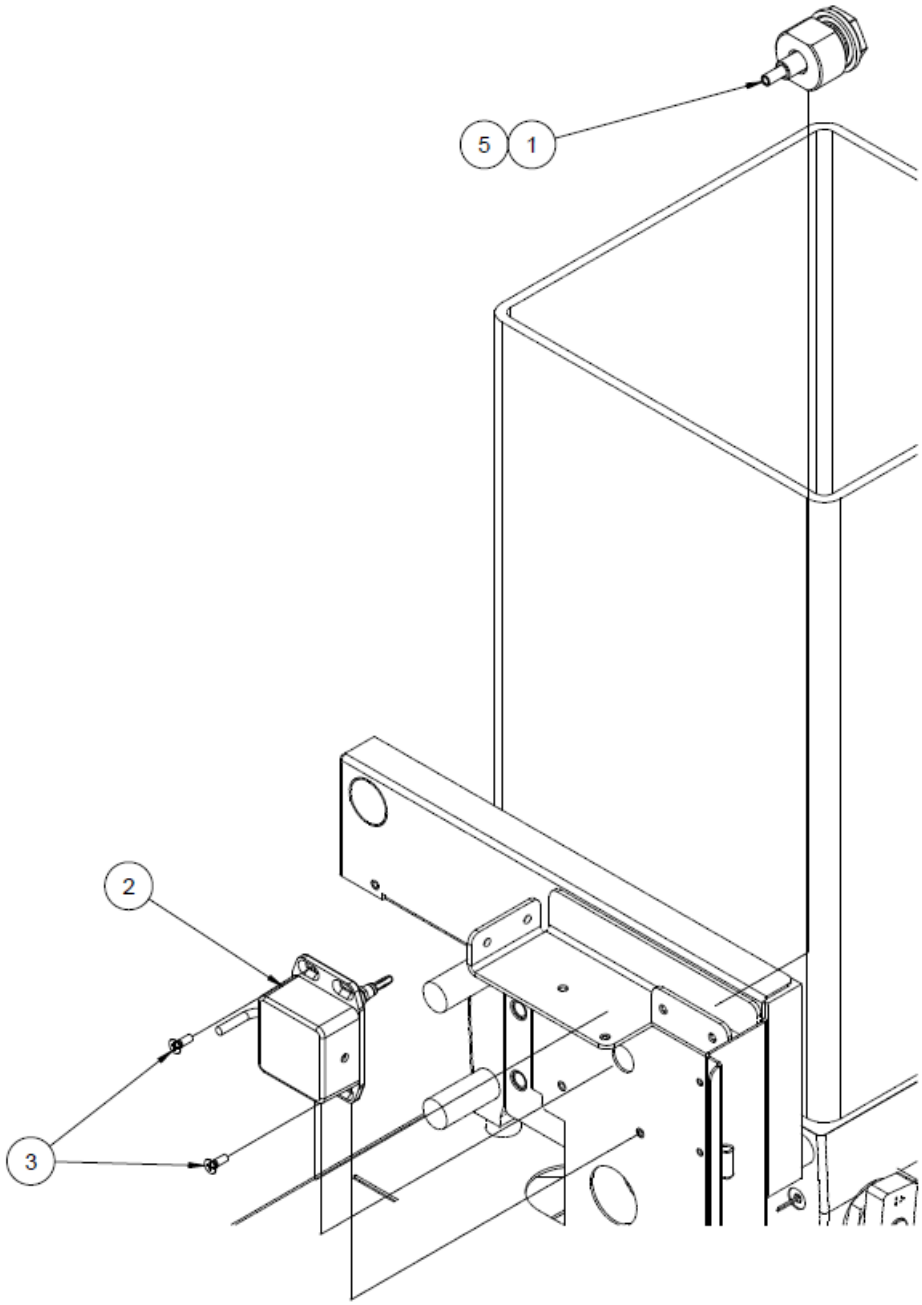
A/R* = As required.



NOTES:
1. Coat O-rings (items 4 and 6) with high-temp lubricant (item 9) prior to assembly.
2. Knob (item 5) must be positioned with arrows in the orientation shown at assembly.
3. Grind ends of roll pin (item 7) flush with outside diameter of filter cartridge (tube) (item 1).

10.2.8 Level Sensor Kit, SR22/45, PN 123670 (Optional)

Item	Part Number	Description	Quantity
1	123380	Probe asy, level sensor, SR22/45	1
2	117477	Level sensor control amplifier asy	1
3	109813	Screw M4x12mm	2
4	115859	Harness, ground	1
5	001U002	Silicone lube	1

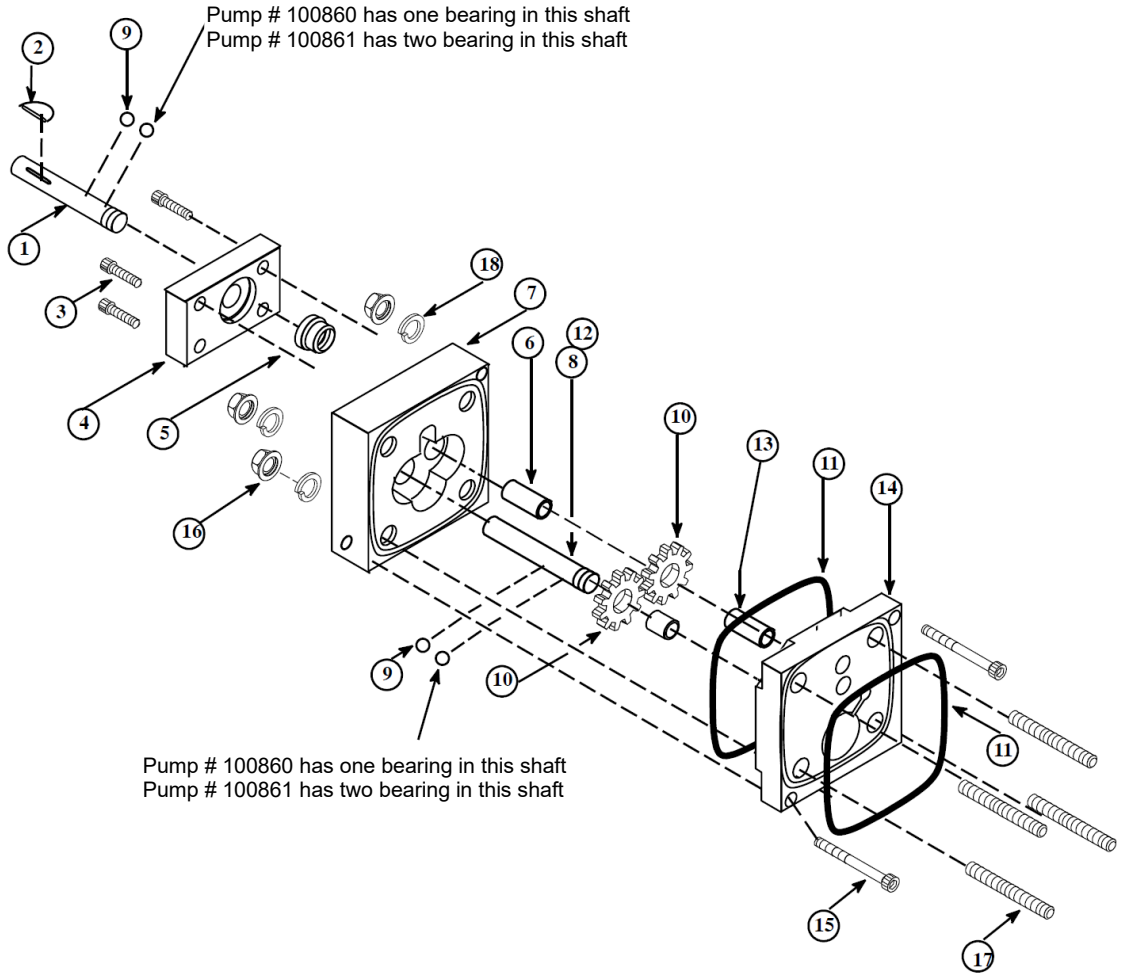


10.3 Gear Pump Options

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

Item	Part Number 100860	Part Number 100861	Description	Quantity
1	012D079	012D077	Drive Shaft	1
2	078I001		Key, Woodruff	1
3	101626		Screw M5x12mm	4
4	069X160		Seal Retainer & Bearing Housing	1
5	069X061		Shaft Seal	1
6	018X041		Bearing Sleeve	2
7	100866	100867	Front Plate Assembly	1
8	012D080	012D078	Driven Gear Shaft	1
9	018X031		Ball, 1/8” Diameter (see illustration for quantity)	2-4
10	012C020	012C019	Drive Gear	2
11	069X064		O-ring 041, Pump Seal	2
12	078F017		Shaft Retaining Ring	4
13	018X041		Bearing Sleeve, Rear Plate	2
14	100865		Rear Plate Assembly	1
15	100908		Screw M4x25mm	2
16	104158		Flange Nut M10	4
17	104072		Threaded stud M10-1.5 x 100mm	4
	001U002	001U002	Silicone lube (not shown)	A/R*

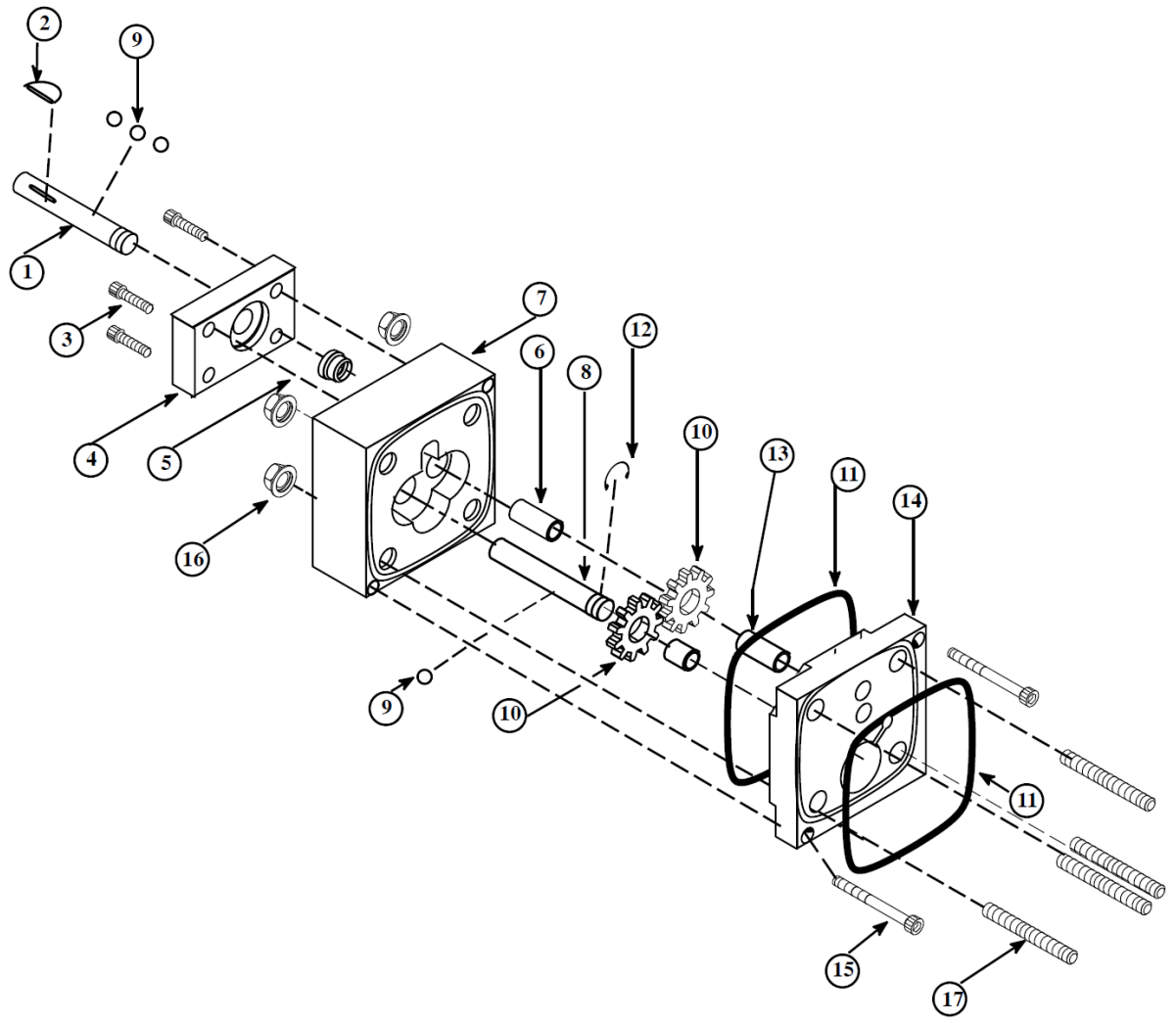
A/R* = As required



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

Item	Part Number	Description	Quantity
1	012D072	Drive Shaft	1
2	078I001	Key, Woodruff	1
3	101626	Screw M5x12mm	4
4	069X160	Seal Retainer & Bearing Housing	1
5	069X061	Shaft Seal	1
6	018X041	Bearing Sleeve	2
7	100868	Front Plate Assembly	1
8	012D073	Driven Gear Shaft	1
9	018X031	Ball, 1/8” Diameter (see illustration for quantity)	4
10	012C018	Drive Gear	2
11	069X064	O-ring 041, Pump Seal	2
12	078F017	Shaft Retaining Ring	4
13	018X041	Bearing Sleeve, Rear Plate	2
14	100865	Rear Plate Assembly	1
15	100908	Screw M4x25mm	2
16	104158	Flange Nut M10	4
17	104072	Threaded stud M10-1.5 x 100mm	4
	001U002	Silicone lube (not shown)	A/R*

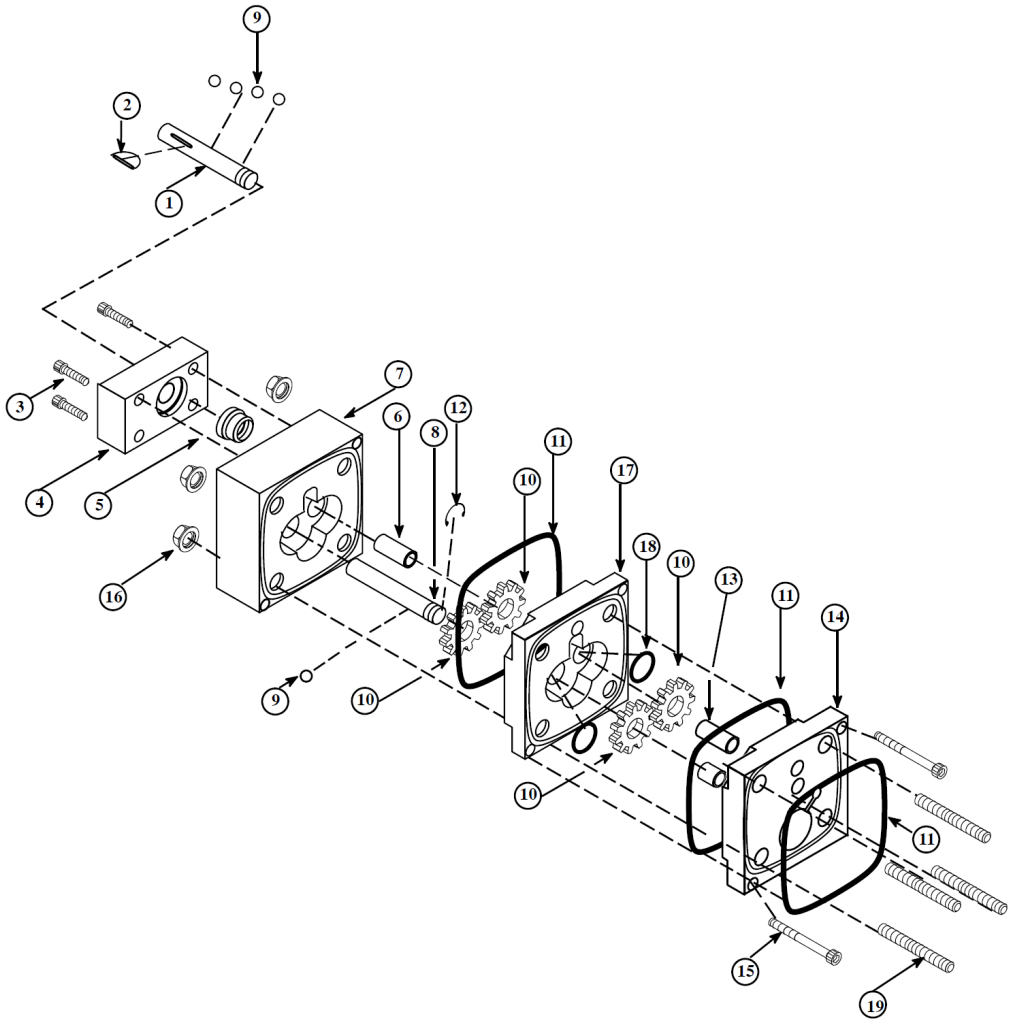
A/R* = As required



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

Item	Part Number	Description	Quantity
1	012D088	Drive Shaft	1
2	078I001	Key, Woodruff	1
3	101626	Screw M5x12mm	4
4	069X160	Seal Retainer & Bearing Housing	1
5	069X061	Shaft Seal	1
6	018X041	Bearing Sleeve	2
7	100867	Front Plate Assembly	1
8	012D087	Driven Gear Shaft	1
9	018X031	Ball, 1/8” Diameter (see illustration for quantity)	5
10	012C019	Drive Gear	4
11	069X064	O-ring 041, Pump Seal	3
12	078F017	Shaft Retaining Ring	4
13	018X041	Bearing Sleeve, Rear Plate	2
14	100865	Rear Plate Assembly	1
15	101691	Screw M4x40mm	2
16	104158	Flange Nut M10	4
17	100870	Middle Plate	1
18	N00198	O-ring 113	2
19	114890	Threaded stud M10-1.5 x 105mm	4
	001U002	Silicone lube (not shown)	A/R*

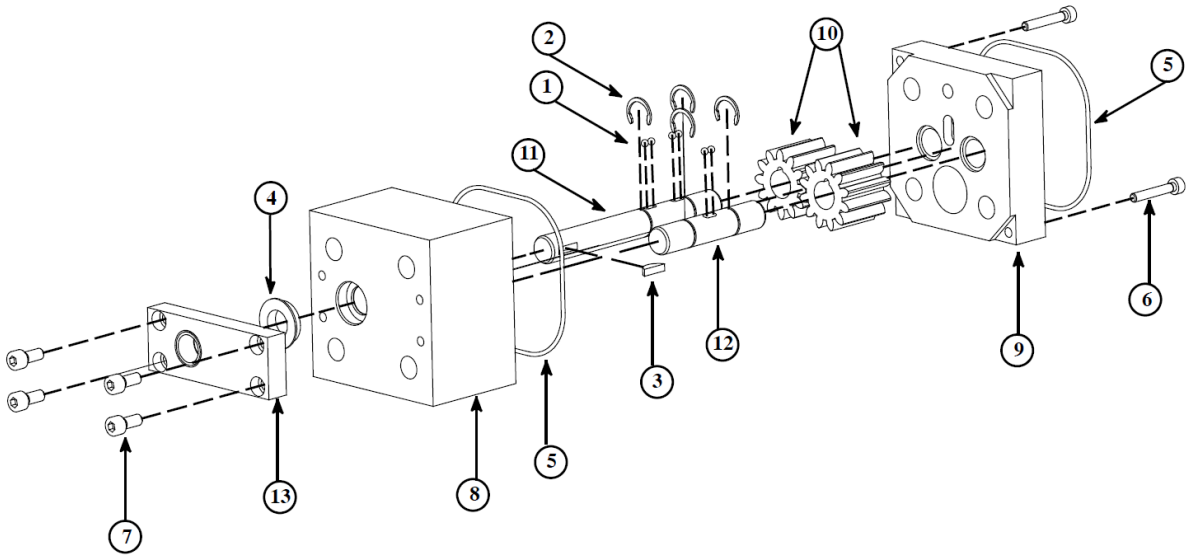
A/R* = As required



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

Item	Part Number	Description	Quantity
1	018X031	Ball Bearing, 1/8 Diameter	6
2	078F017	Snap Ring, 1/2”	4
3	078I001	Key Woodruf	1
4	069X061	Shaft Seal	1
5	069X064	O-ring 041, Pump Seal	2
6	108588	Screw M4x25mm	2
7	101626	Screw M5x12mm	4
8	109685	Pump Body 10cc/rev.	1
9	109686	Rear Bearing Plate 10cc/rev.	1
10	109689	Gear 10cc/rev.	2
11	109687	Drive Shaft 10cc/ 20cc	1
12	109688	Driven Shaft, 10cc/ 20cc	1
13	069X160	Shaft Seal Retainer	1
	001U002	Silicone lube (not shown)	A/R*

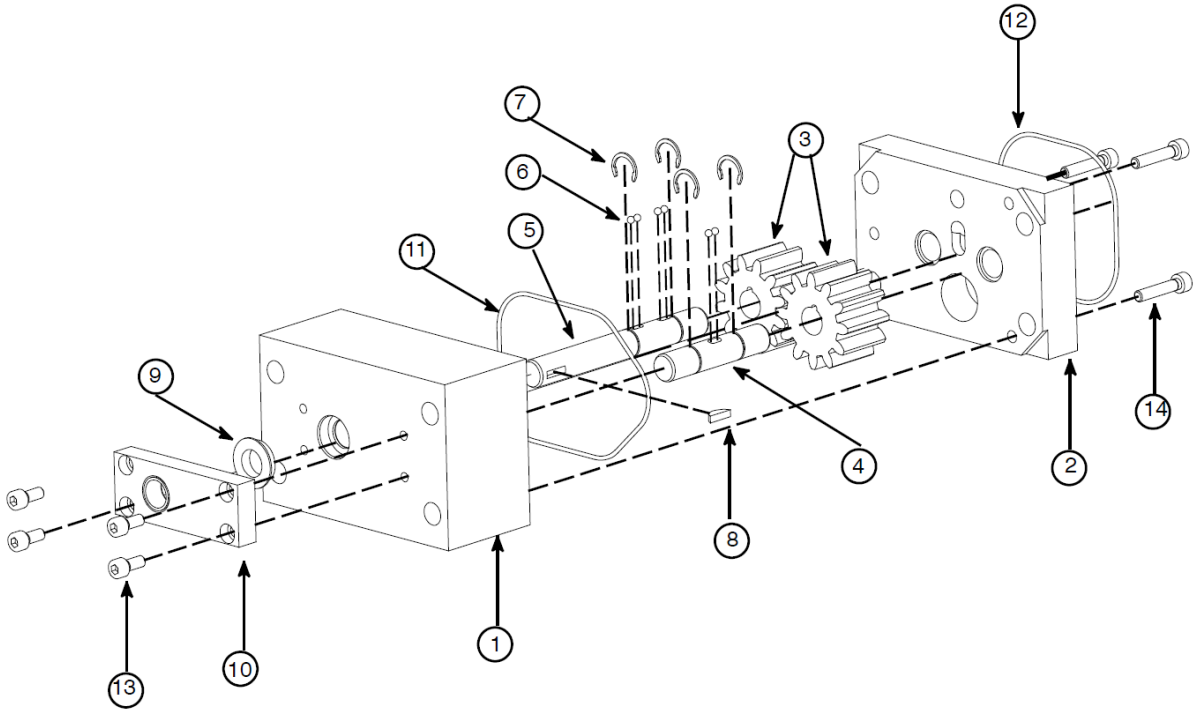
A/R* = As required



10.3.5 Single Gear Pump Assembly 20 cc/rev., PN 109694

Item	Part Number	Description	Quantity
1	109691	Pump Body, 20cc/rev	1
2	109692	Rear Bearing Plate, 20cc/rev	1
3	109693	Gear, 20cc/rev	2
4	109688	Driven Shaft 10cc/20cc	1
5	109687	Drive Shaft, 10cc/20cc	1
6	018X031	Ball Bearing, 1/8 Dia.	6
7	078F017	Snap Ring, External, 1/2"	4
8	078I001	Key Woodruff	1
9	069X061	Seal Shaft	1
10	069X160	Shaft Seal Retainer	1
11	069X225	O-ring 042	1
12	069X064	O-ring 041	1
13	101626	Screw M5x12mm	4
14	102447	Screw M5x25mm	3
	001U002	Silicone lube (not shown)	A/R*

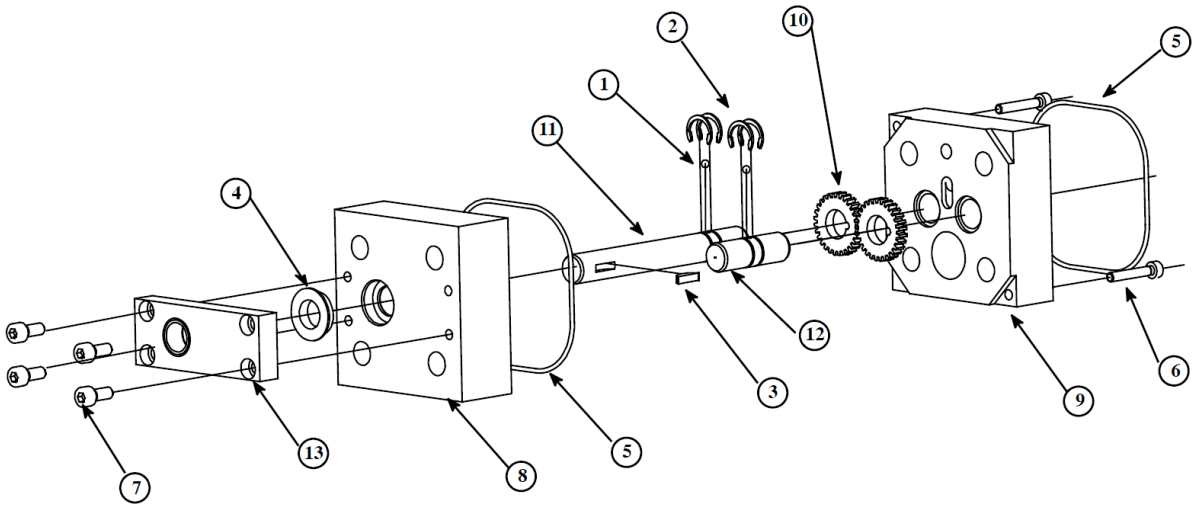
A/R* = As required



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

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

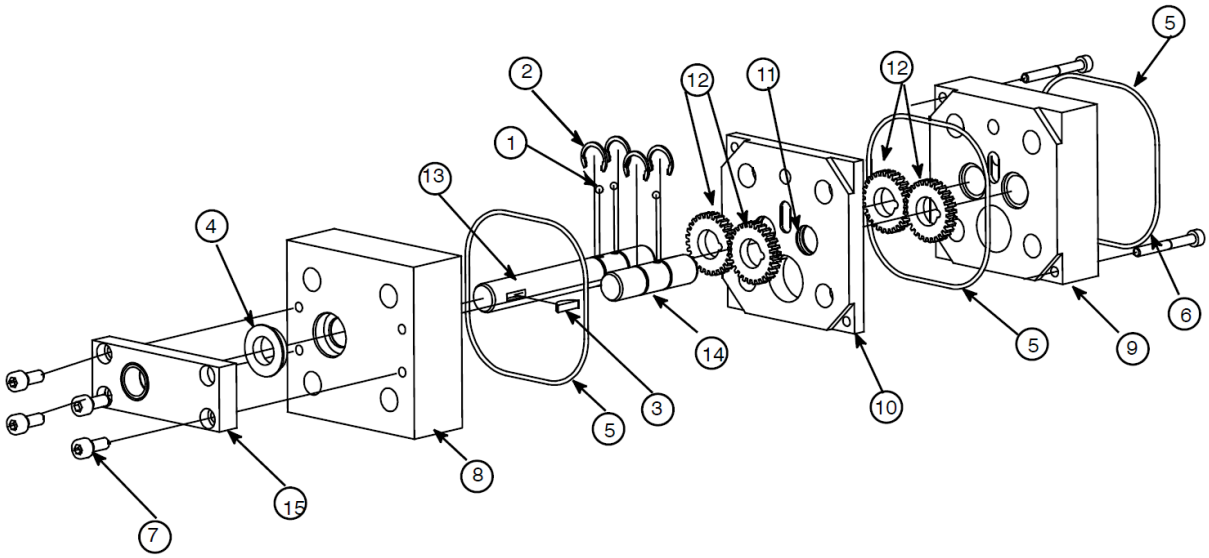
A/R* = As required



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

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

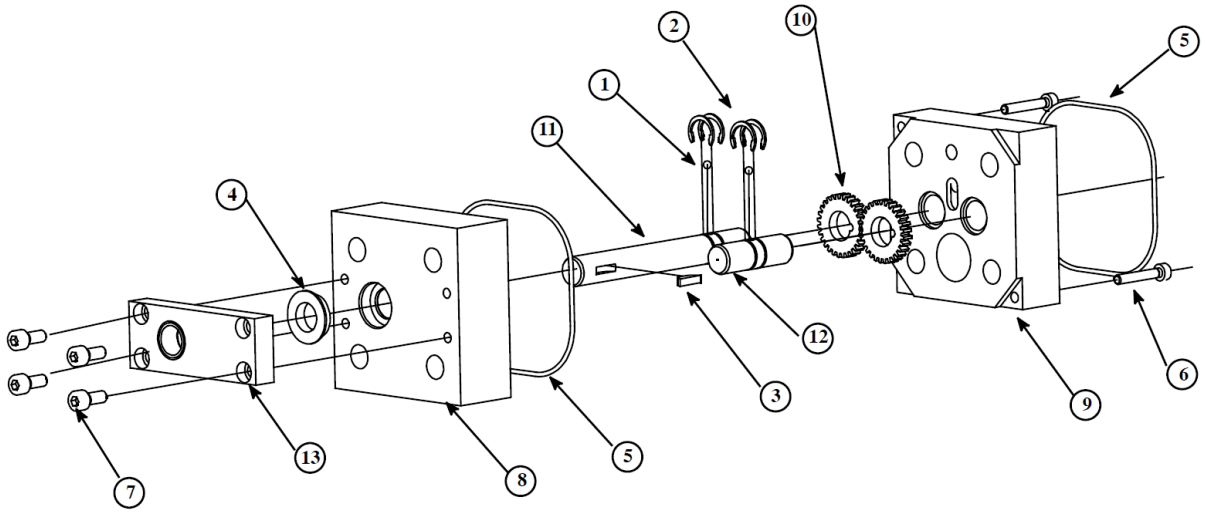
A/R* = As required



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

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

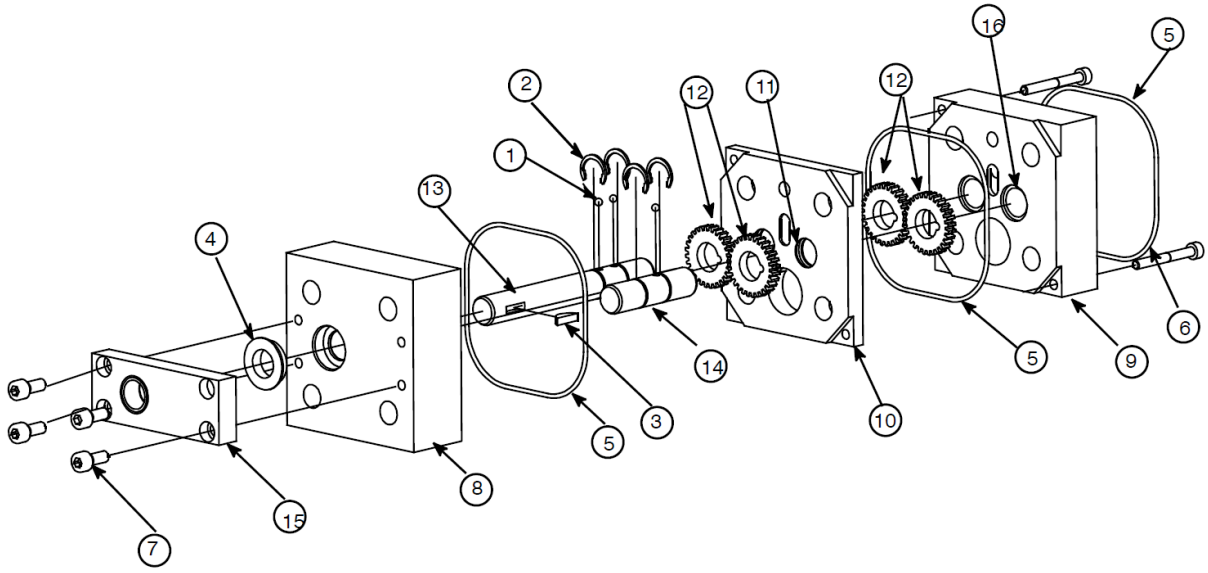
A/R* = As required



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

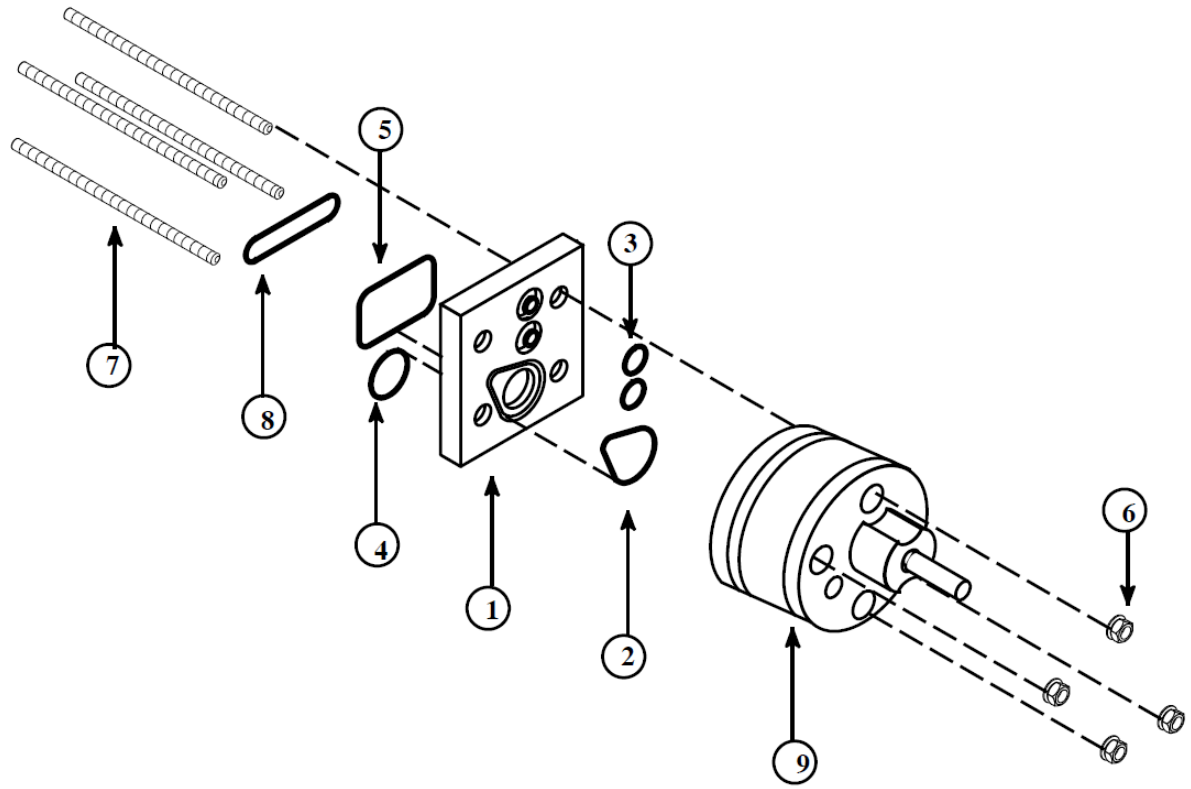
Item	Part Number	Description	Quantity
1	018X031	Ball Bearing, 1/8 Diameter	6
2	078F017	Snap Ring, 1/2”	4
3	078I001	Key Woodruf	1
4	069X061	Shaft Seal	1
5	069X064	O-ring 041, Pump Seal	2
6	101692	Screw M4x35mm	2
7	101626	Screw M5x12mm	4
8	111251	Front Plate	1
9	100865	Rear Bearing Plate	1
10	111252	Plate,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

A/R* = As required



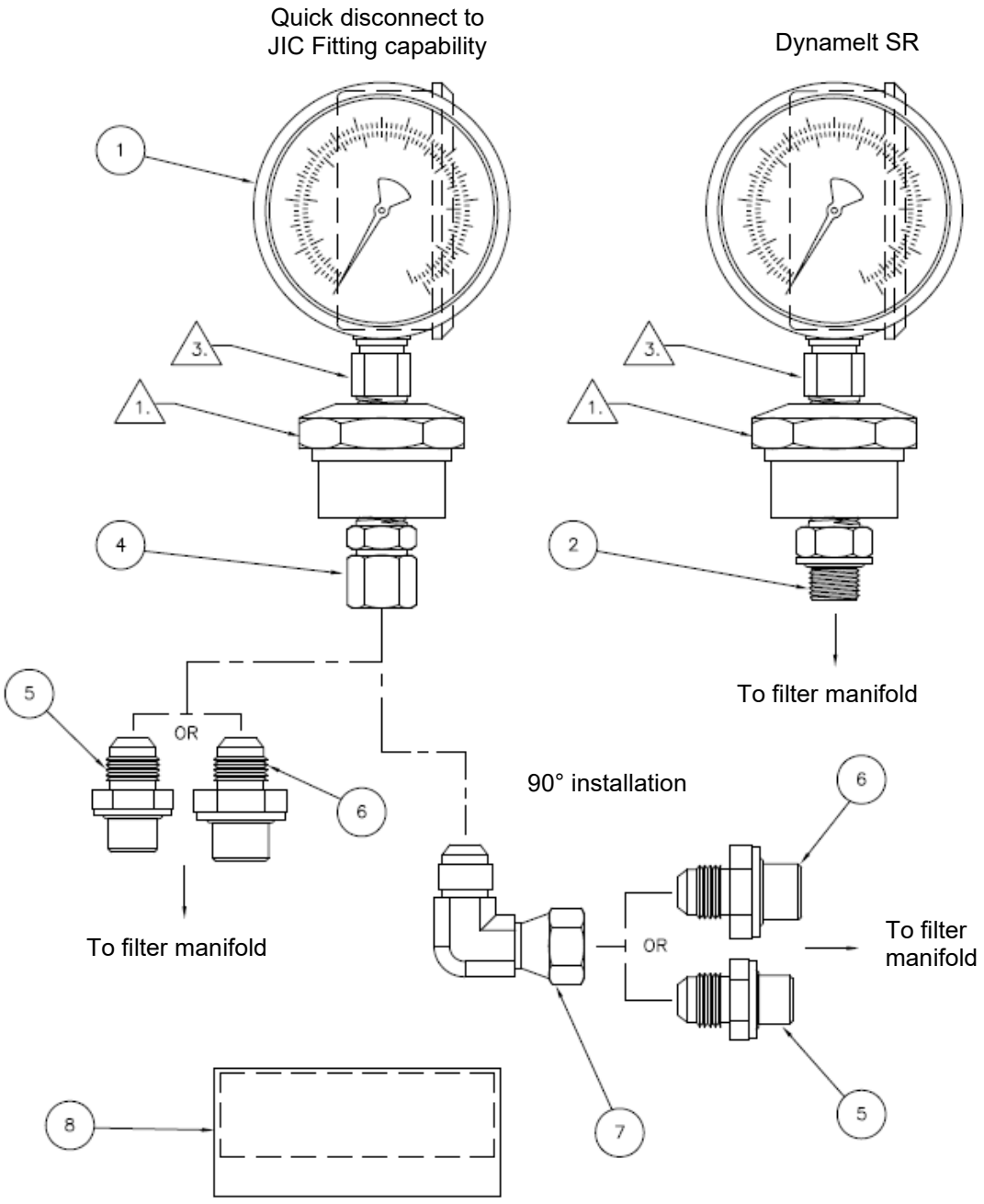
10.4 Pump Adapter Assembly, PN 084E405

Item	Part Number	Description	Quantity
1	012G023	Pump Adapter	1
2	069X058	O-ring 028	1
3	N00179	O-ring 012	2
4	N00190	O-ring 024	1
5	069X240	O-ring 031	1
6	104158	Flange nut M10	4
7	104072	Threaded stud M10x100mm (shown for reference only)	4
	104073	Threaded stud M10x105mm (shown for reference only)	4
8	N00188	O-ring 221	4
9		Pump:	1
	108865	Single pump 0.297cc	
	108867	Single pump 0.584cc	
	108869	Single pump 1.168cc	
	108872	Single pump 2.920cc	
	108875	Single pump 8.5cc	
	108868	Dual pump 0.584cc	
	108870	Dual pump 1.168	
	108874	Dual pump 2.92cc	



10.5 Pressure Gauge Kit, (optional), PN 101175

Item	Part Number	Description	Quantity
1	101174	Pressure gauge, 1000psi (68 bar)	1
2	103330	Fitting, adaptor, 1/4 BSPP x 1/4 NPT	1
	105914	Fitting, adaptor, 3/8 BSPP x 1/4 NPT	1
4	104325	Fitting, adaptor, #6 x 1/4 NPT	1
5	101624	Fitting, adaptor, #6 x 1/4 BSPP	1
6	103623	Fitting, adaptor, #6 x 3/8 BSPP	1
7	N07830	Fitting, 90°, #66 male x #6 female	1
8	102987	Insulator cuff	1
9	101248	Warning label (not shown)	1



10.6 System Status Lights (Stacklight) Assembly, (optional), PN 116848 Rev.H

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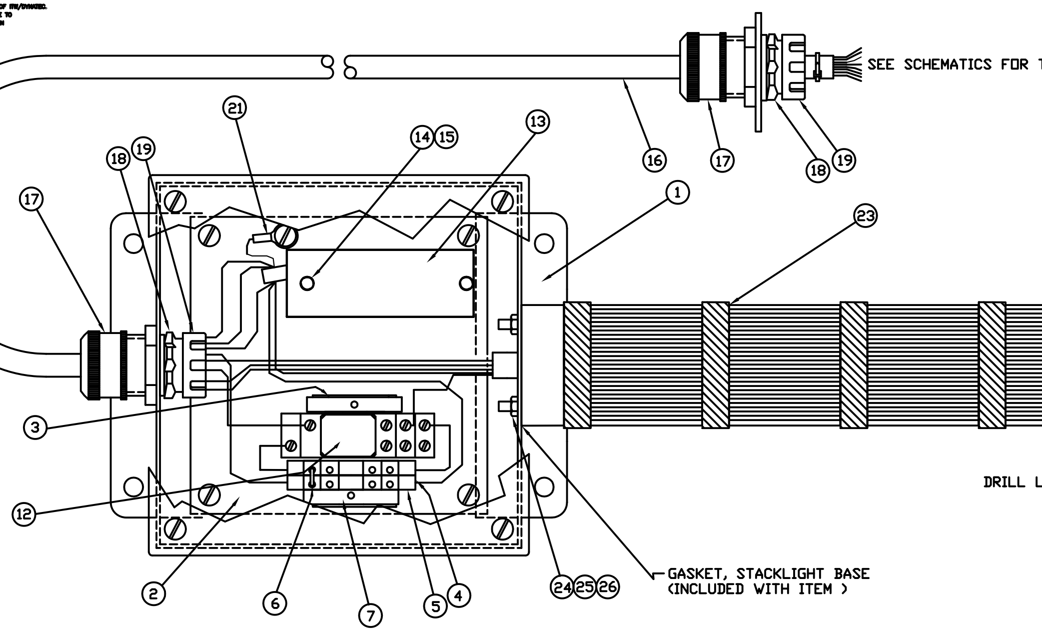
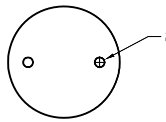
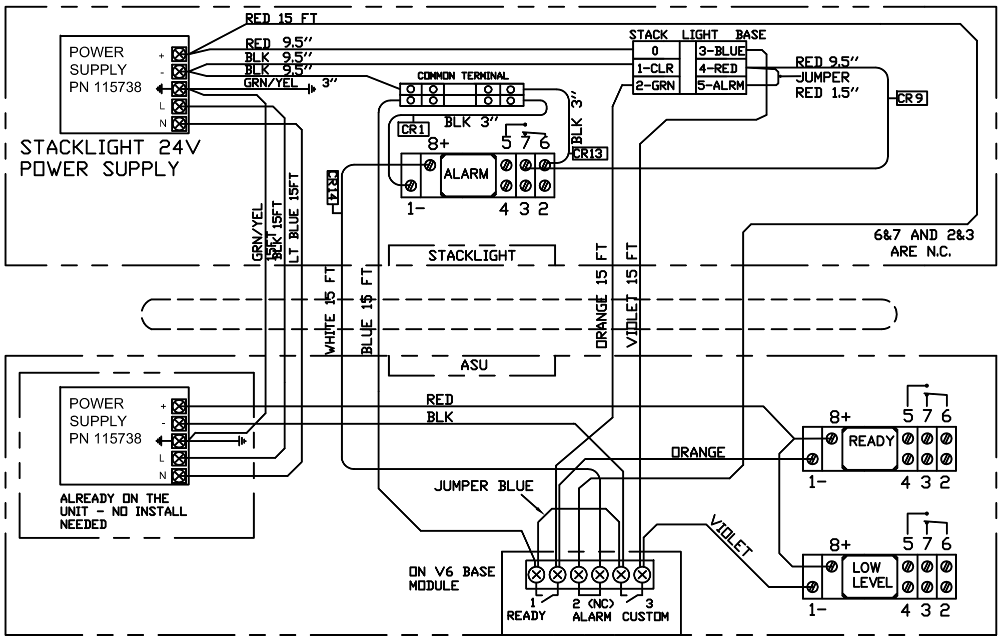
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
	A	ORIGINAL RELEASE		DAH	
8.3.11	B	WIRE SCHEMATIC UPDATED	8.3.11	DAH	
12086	C	CHNG 048H415 TO 807053	3.13.12	CRF	
15016	D	ADDED CUSTOMER CONTACTS	1.26.15	DH	
15105	E	ADD ITEMS 37–40	09.08.15	JC	
15189	F	ITEM 20 WAS 078C021	12.16.15	JC	
17056	G	ITEM 13 WAS 115738	11.06.17	NK	
443	H	ADD COMMON TERMINAL REVISE BOM TO DYNAMICS	07.09.19	JJB	

DWG. NO. 116848 SH 1 REV. G

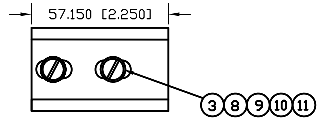


DRILL LIGHT BASE USING EXISTING BOSSES:

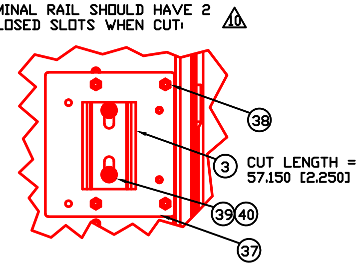




TERMINAL RAIL SHOULD HAVE 2 (E) ENCLOSED SLOTS WHEN CUT:
MOUNTED INSIDE STACKLIGHT WITH BOM:
2X 8,9,10,11



(E) TERMINAL RAIL SHOULD HAVE 2 ENCLOSED SLOTS WHEN CUT: (10)



NOTES:

1. USE EXISTING HARDWARE FROM MANUFACTURER TO MOUNT THE GROUND TERMINAL

2. MOUNT COMPONENTS ON PANEL OUT OF BOX

3. MAKE ALL WIRING CONNECTIONS TO THE BOX COMPONENTS BEFORE MOUNTING THE PANEL IN THE BOX

4. MOUNT PANEL USING EXISTING HARDWARE FROM THE MANUFACTURER

5. USE 1 14GA FERRULE(BOTH WIRES FIT) TO CONNECT THE JUMPER WIRES AND LEAD WIRES TO THE LIGHT BASE #4 TERMINAL. 18GA CAN BE USED FOR THE JUMPER WIRE TO #5 TERMINAL.

6. FOLLOWING ITEMS TO BE PACKAGED SEPARATELY:
   - 2X BOM 12 (RELAYS)
   - 2FT EACH BOM 31,32,34,35 (RED, BLK, VIOLET, ORANGE)

7. SEE ALL DIAGRAM NOTES

8. USE WIRING SCHEMATIC FOR WIRING GUIDE

(E) 10. MOUNT RELAYS ON DIN-RAIL INSIDE ASU LEFT FROM V6-BASE MODULE OR ON ITEM 37 TO THE RIGHT OF THE LOW LEVEL SENSOR AS SHOWN.

REV	ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
E	40	106892	2	EA	WSHR,FLAT,M3,BLK
E	39	105162	2	EA	SCR,M3X6,PHILLIPS
E	38	808445	4	EA	SCR,SHC,M3–0.5X8,ZP
E	37	117369	1	EA	BRKT,SWIRL TRIGGER BOARD
	36	042X007	15	FT	WIRE,TFE,18GA,1000V,WHT
	35	042X025	17	FT	WIRE,TFE,VIOLET,18GA,260
	34	042X233	17	FT	WIRE,TFE,ORANGE,18GA,260
	33	109830	15	FT	WIRE,TFE,18GA,BLU,260
	32	042X016	18.75	FT	WIRE,TFE,18GA,RED
	31	042X021	19	FT	WIRE,TFE,18GA,BLK
	30	103246	15	FT	WIRE,TFE,18GA,LT BLUE
	29	N06989	15	FT	WIRE,TFE,18GA,GRN/YEL
	28	104229	2	EA	FERRULE,UNINSUL,14 AWG
	27	104228	18	EA	FERRULE,UNINSUL,16 AWG
	26	N02992	2	EA	NUT,HEX,#06–32UNC,SM PAT
	25	106236	2	EA	WSHR,LOCK,EXT TOOTH,M4
	24	N05238	2	EA	SCR,CAP,SOC HD,#6–32X1.5
	23	116841	1	EA	LT AS,W/G/B/R/ALARM, 24V
H	22	N06946	4	EA	TERM,SPADE,22–18GA,#06IN
	21	N02537	1	EA	TERM,RING 22–18 #8 INSUL
H	20	N06942	3	EA	TERM,SPADE,16–14GA,#06IN
	19	048J018	2	EA	BUSH,PLAST CAP,1/2" COND
	18	N01144	2	EA	CONDUIT LOCKNUT, 1/2 NPT
	17	048J093	2	EA	CGB CABLE GRIP,.25–.38
	16	048J024	10	FT	SLVG,BLK SILICONE,3/8
	15	105327	2	EA	WSHR,LOCK,INT TOOTH,M3
	14	103405	2	EA	SCR,M3X0.5X6,SHC
G	13	121168	1	EA	PWR SUPPLY,24V 0,240V IN, 25W
C D	12	821247	3	EA	RELAY,DPDT,24VDC
	11	078C089	2	EA	FLAT WASHER, #12 SAE
	10	078D018	2	EA	10–32 HEX NUT
	9	N04302	2	EA	WSHR,LOCK,EXT T,#10
	8	N01735	2	EA	SCR,PAN HD,10–32 X 0.375
	7	105256	2	EA	END STOP,DIN RAIL,ES35
	6	103440	1	FT	JMPR BAR 70,FOR 048F154
	5	105254	1	EA	ENDPLATE,FOR 105253
	4	105253	2	EA	BLK,TERM,SINGLE,RK254,20
E	3	048F104	.374	FT	RAIL,TERM MOUNT, H32
	2	116847	1	EA	PANEL,MACH,6x6
	1	116846	1	EA	ENCL,MACH,6x6

PARTS LIST

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

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

ITW Dynatec HENDERSONVILLE, TN

STACKLIGHT,ASSY,24V

U/M EA | STATUS A | SOURCE G

USED ON | NEXT ASSY. –

APPROVALS: DRAWN DAH 3.10.11 | CHECKED

COMPUTER DESCRIPTION: STACKLIGHT,ASSY,24V

SIZE D | DWG. NO. 116848 | REV H | GROUP 20

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

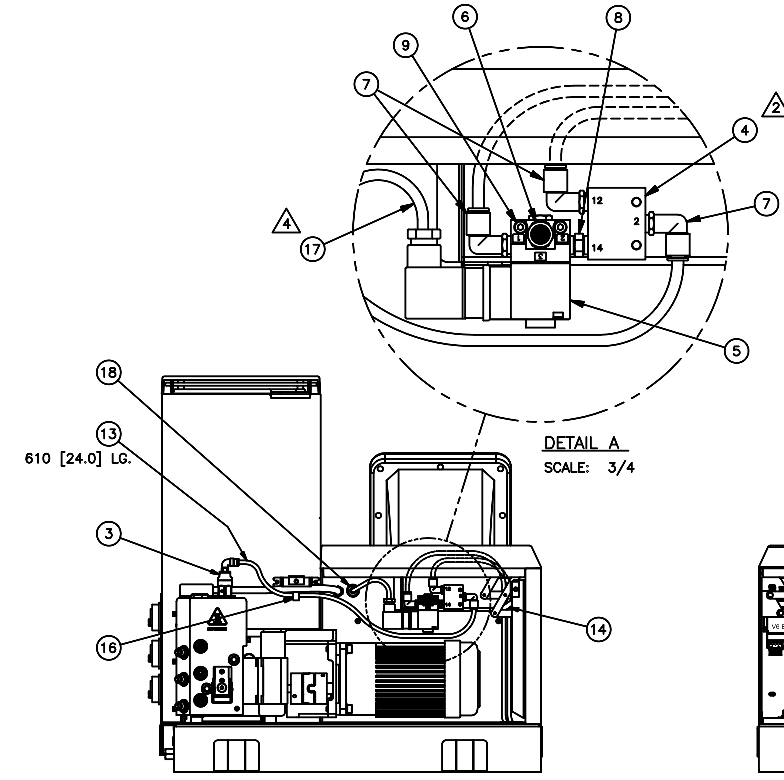
DO NOT SCALE DRAWING

10.7 Recirculation kit DMSR gear pump, (optional), 116945D

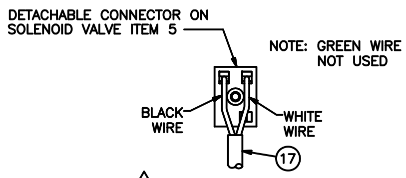
DWG. NO. 116945	SHT. 1	REV. D

REVISIONS

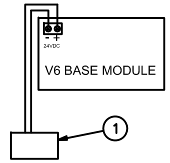
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
N09082	A	ORIGINAL RELEASE.	2.10.12	CRF	
13013	B	ADDED NOTES & LEGENDS TO PNEU DIAG; REVISED NOTES, ADDING NEW NOTE 1.	1.22.13	CRF	
13190	C	REVISED & REDRAWN AUTOCAD, WAS C SIZE; ITEM 5 WAS CA4000; ITEM 13 WAS QTY 9.35.	12.06.13	PJD	
15191	D	ADD DUAL GP IN PNEUMATIC DIAGRAM	12.17.15	JC	



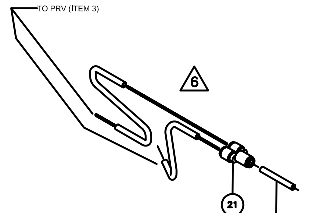
DETAIL A
SCALE: 3/4



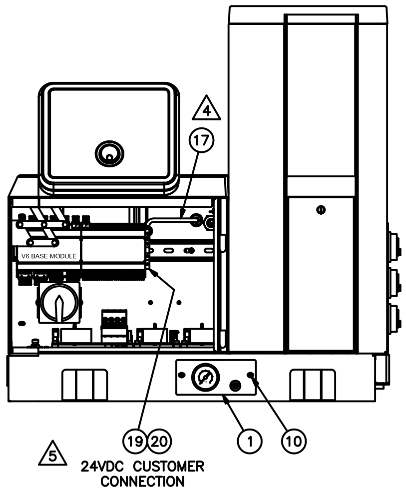
4 WIRING DETAIL, SOL. VALVE #2 (ITEM 5)

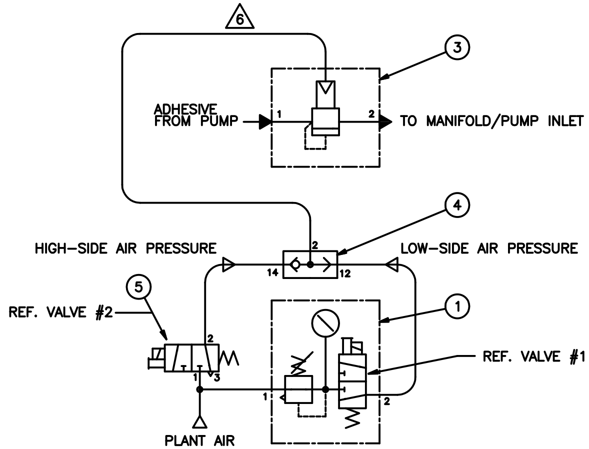


WIRING DETAIL, SOL. VALVE/REGULATOR/GAUGE ASSY, VALVE #1 (ITEM 1)

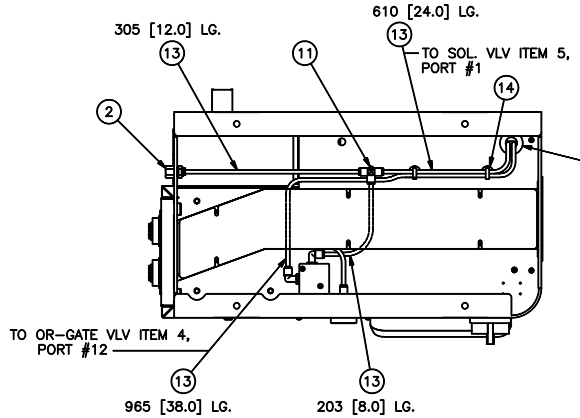


DETAIL B





PNEUMATIC DIAGRAM



NOTES:

1. THIS DRAWING SHOWS A GEAR PUMP MANIFOLD RECIRCULATION KIT (P/N 116945) INSTALLED INTO A DM SR10 ASU.
2. THE ALUMINUM BODY OF THE OR-GATE VALVE (ITEM 4) IS EASILY DAMAGED. USE CARE WHEN INSTALLING 1/8 NPT FITTINGS TO THIS PART. TIGHTED TO 2-3 FULL TURNS.
3. USE CABLE TIES (ITEM 15, NOT SHOWN) WHERE APPROPRIATE TO ROUTE TFE TUBING.
4. CONNECT CABLE (ITEM 17) TO DIN CONNECTOR ON VALVE (ITEM 5) AND 2-POSITION TERMINAL (ITEM 19) AS SHOWN. GROUND IS NOT USED.
5. 24VDC SIGNAL TO VALVE #2 (ITEM 5) IS TO BE SUPPLIED BY THE CUSTOMER. SEE SERVICE MANUAL #20-59G, CHAPTER 3, FOR INSTRUCTIONS ON SWITCHING THIS 24VDC SIGNAL AND ON SETTING THE LOW-SIDE AIR PRESSURE TO BALANCE START-UP ADHESIVE OUTPUT.
6. IF USING DUAL GEAR PUMP, SEE DETAIL B.

PARTS LIST

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
21	116706	REF	EA	FTG,INSERT,Y UNION,1/4T
20	105252	1	EA	TERMINAL BLOCK END PLATE
19	105251	1	EA	TERMINAL BLOCK, DUAL, WK4E/U, 10 AMP
18	111898	1	EA	GROMMET, FOR HOLE ø.50 x .09 THK, RUBBER
17	N08236	1	FT	CABLE, 18 AWG, 3/C, SV
16	115837	1	EA	CLIP, PUSH MOUNT CORD, BLACK NYLON
15	104396	6	EA	CABLE TIE, .10 x 5.6, BLACK NYLON
14	117375	3	EA	CABLE TIE PANEL MOUNT, BLACK
13	N07677	8.83	FT	TUBING, TFE, .25 OD x .125 ID
12	107539	1	EA	GROMMET, RUBBER, .75 ID
11	N06504	1	EA	FTG, UNION TEE, 1/4 TUBE PUSH-IN
10	680159	2	EA	SCREW, PH PAN HD, M4x0.7 x 8, W/LKWSHR
9	100908	2	EA	SCREW, SHC, M4x0.7 x 25, ZN PL
8	072X004	1	EA	FTG, HEX NIPPLE, 1/8 NPT, BRASS
7	N06436	3	EA	FTG, ELBOW, 1/4 TUBE PUSH-IN x 1/8 NPT
6	110420	1	EA	MUFFLER, 1/8 G PIPE THD, SINT BRZ
5	118733	1	EA	SOL. VALVE, GEARPUMP RECIRC KIT
4	116947	1	EA	OR-GATE VALVE, 1/8 NPT, FESTO
3	115540	1	EA	VALVE ASSY, PNEU PRESSURE RELIEF
2	117376	1	EA	FTG. BLKHD, 1/4 TUBE PUSH-IN x 1/4 NPT, BRS
1	115865	1	EA	SOL. VALVE/REGULATOR/GAUGE ASSY, DMSR

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMALS: .X = ±0.25 [±.010 INCH] .XX = ±0.10 [±.004 INCH] ANGLES: ±0.5°	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	ITW Dynatec HENDERSONVILLE, TN	U/M EA
USED ON DMSR 5/10	APPROVALS / DATE; DRAWN CRF 2.08.12; CHECKED	KIT, GEAR PUMP MANIFOLD RECIRCULATION	STATUS M
NEXT ASSY. -	COMPUTER DESCRIPTION(25 CHARACTERS) KIT,GP MANIFOLD RECIRC	SIZE D DWG. NO. 116945 REV. D	SOURCE / GROUP
DO NOT SCALE DRAWING		SCALE 1/4 CAD DRAWING SHEET 1 of 1	

metric

SI

10.8 Recommended Spare Part Lists

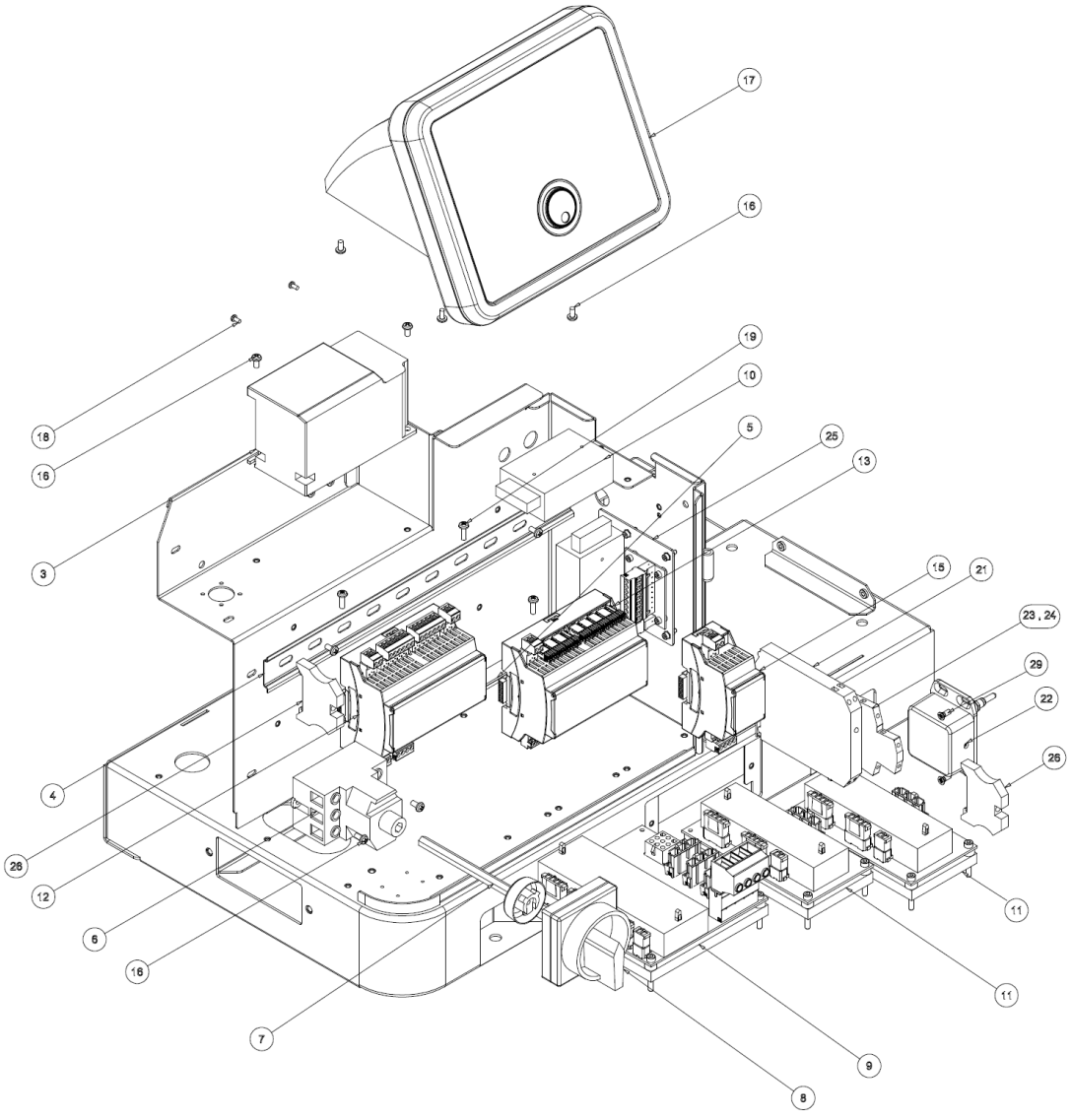
As a general rule, we recommend that you keep on hand the same quantity of following parts as listed on the BOMs**:**

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

10.8.1 SR5/10 Melter Drawings and BOMs

10.8.1.1 Electronics Assembly, SR5/10

Item	Part Number	Description	Quantity
3	123274	Motor Speed Control, VF, 230V, 3PH,1/2HP, Yaskawa (programmed version of motor control PN 115138)	1
6	115823	Main ON/OFF Disconnect Switch, 63 A	1
9	115732	V6 Power Module	1
10	115738	Power Supply, 24VDC, 35W	1
11	115733	V6 Auxiliary Power Module	2
12	115734	V6 Base Module	1
13	115735	V6 Temperature Module	1
15	118125	V6 Ethernet Module, Option	1
21	117143	Signal Isolator V6, 24VDC	1
22	117477	Level Sensor Control Asy	1
23	105251	Terminal block, Dual, 10A	1
25	117374	Motor Trigger Board Kit, Option	1

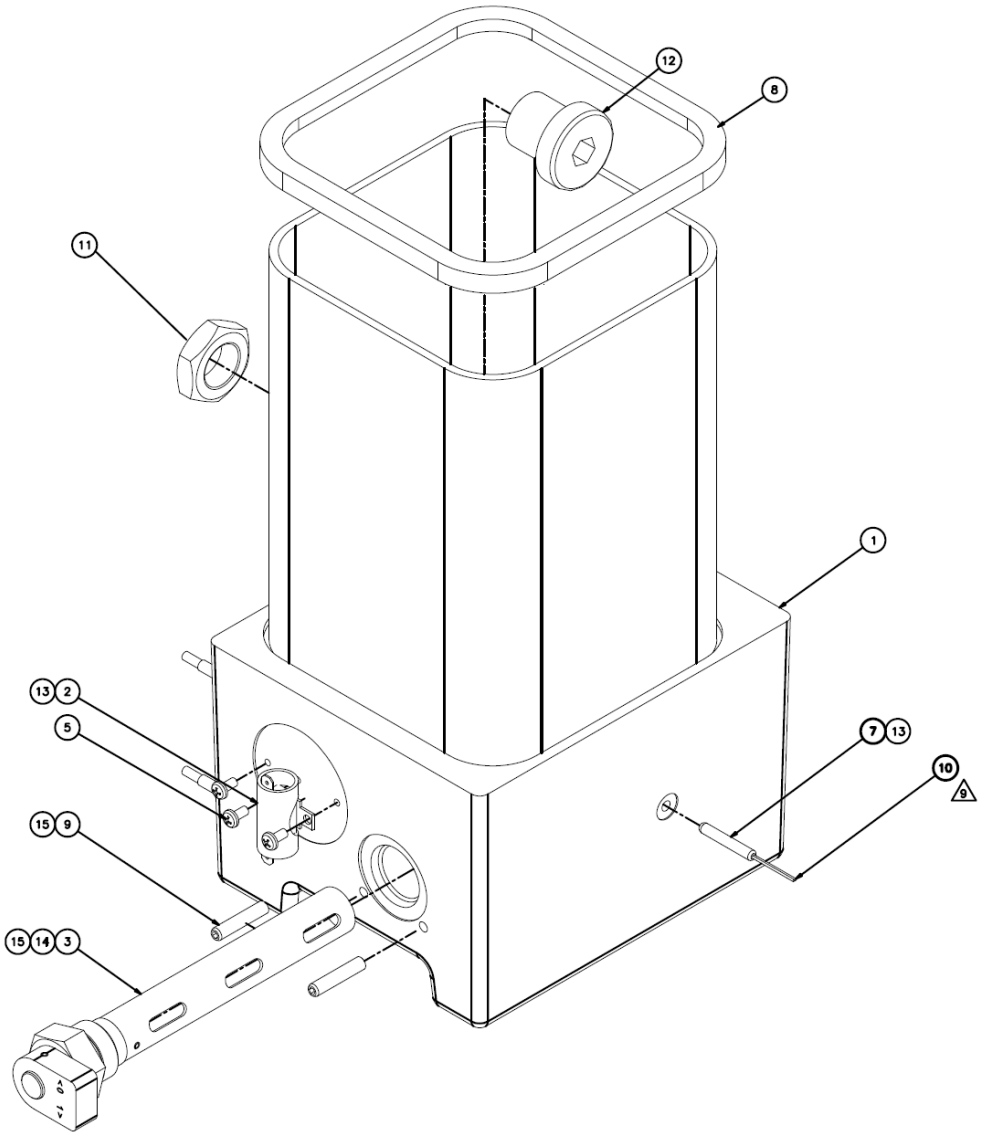


10.8.1.2 Hopper (Tank) Assembly, SR5/10

Item	Part Number	Description	Quantity
2	104166	Switch asy, Overtemperature Thermostat	1
3	115717 #	Filter and Shutoff Asy 5/10L	1
7	117081	RTD Sensor Asy, PT100, Ø.1875x1.25”, DynaControl	1
	117414	RTD Sensor Asy, Ni120, Ø.1875x1.25”, NDSN	1
8	114852	Gasket	1
13	001V061	Heat transfer compound	A/R*
14	001V078	High-temp lube, TFE, Krytox GPL206 (not shown)	A/R*
15	107324	Antiseize Compound	A/R*

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

NOTES:
1. Item 2: Apply 001V061 thermal-cote (item 13) to back side of O/T thermostat.
2. Item 3: Lube O-rings with 001V078 (item 14).
   Apply 107324 antiseize (item 15) to threads.
   Torque to 15-20 ft-lbs (20-27 Nm).
3. Item 7: Apply 001V061 thermal-cote to RTD sensor.



10.8.1.3 Filter Manifold Assembly w. single stream (single gear pump), SR5/10, DCL, PN 115706 and NDSN, PN 117445

Item	Part Number	Description	Quantity
5	814018	Nut, Filter, Easy Spin	1
6	814009	Filter cartridge 100-Mesh (standard) Kit PN 117147 (for details see Ch. 9)	1
	814007	Filter cartridge 40-Mesh (optional) Kit PN 117145 (for details see Ch. 9)	1
7	N00187	O-ring 020	1
8	A69X133	O-ring 124	1
9	812816	O-ring 127	1
10	101840	Mechanical pressure relief valve, 100-1000 Psi (6.8 - 68 bar)	1
12	117083	Heater Asy, Ø12.4x143mm, 240V, 775W	1
13	117081	RTD Sensor Asy, PT100, Ø.1875x1.25”, DynaControl	1
	117414	RTD Sensor Asy, Ni120, Ø.1875x1.25”, NDSN	1
23	N01010	O-ring 021	1
27	001U002	Silicone lube	A/R*
28	107324	Antiseize Compound	A/R*
29	001V061	Heat transfer compound	A/R*

A/R* = As required.

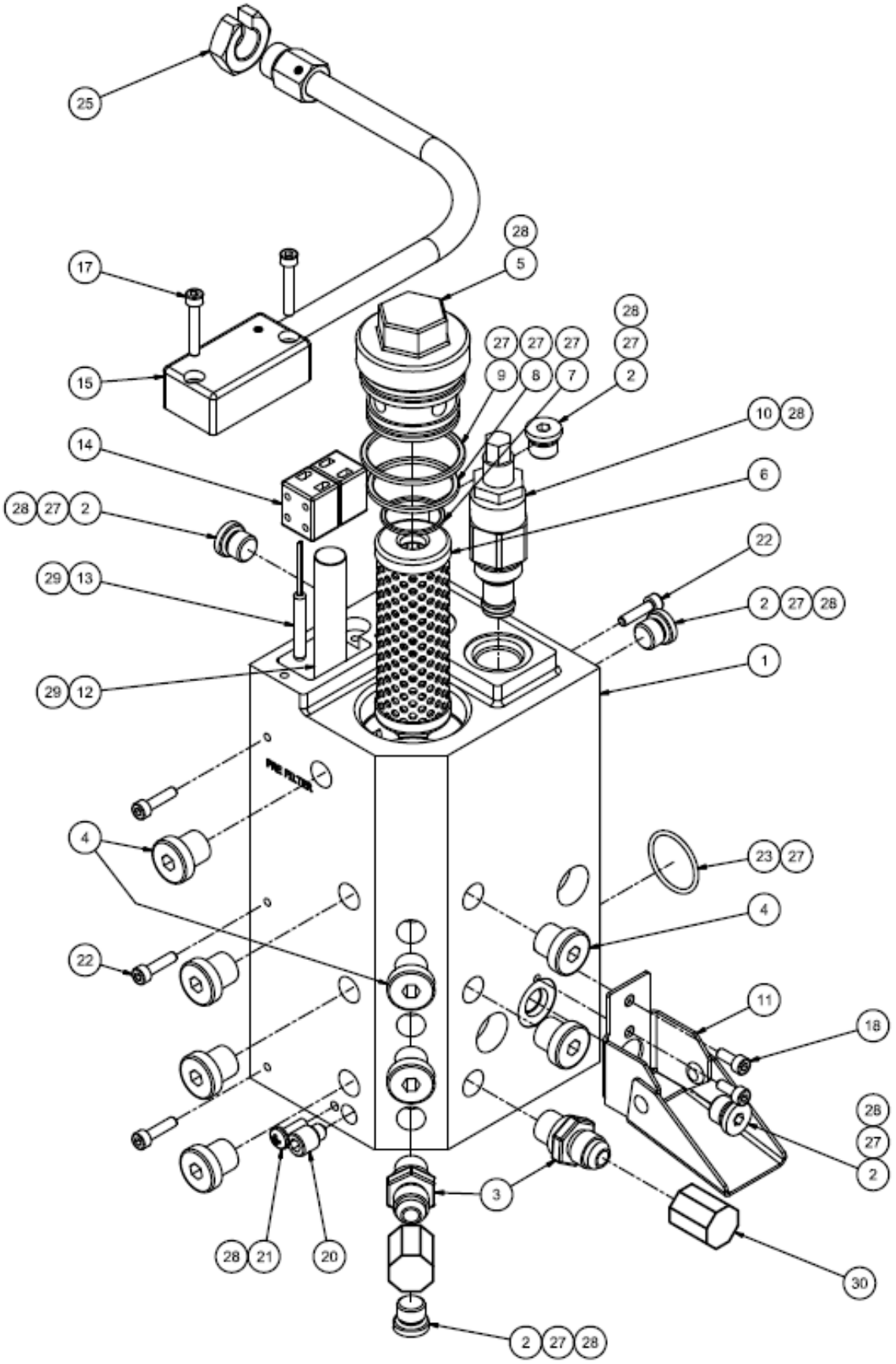


Illustration: Single Stream Filter Manifold Assembly, SR5/10

10.8.1.4 Filter Manifold Assembly w. dual stream (dual gear pump), SR5/10, DCL, PN 115708 and NDSN, PN 117446

Item	Part Number	Description	Quantity
5	814018	Nut, Filter, Easy Spin	2
6	814009	Filter cartridge 100-Mesh (standard) Kit PN 117147 (for details see Ch. 9)	2
	814007	Filter cartridge 40-Mesh (optional) Kit PN 117145 (for details see Ch. 9)	2
7	N00187	O-ring 020	2
8	A69X133	O-ring 124	2
9	812816	O-ring 127	2
10	101840	Mechanical pressure relief valve, 100-1000 Psi (6.8 - 68 bar)	2
15	117084	Heater asy, Ø12.4x70mm, 240V, 300W	2
16	117081	RTD Sensor Asy, PT100, Ø.1875x1.25”, DynaControl	1
	117414	RTD Sensor Asy, Ni120, Ø.1875x1.25”, NDSN	1
21	069x274	Seal, dual pump	1
26	001U002	Silicone lube	A/R*
27	107324	Antiseize Compound	A/R*
28	001V061	Heat transfer compound	A/R*

A/R* = As required.

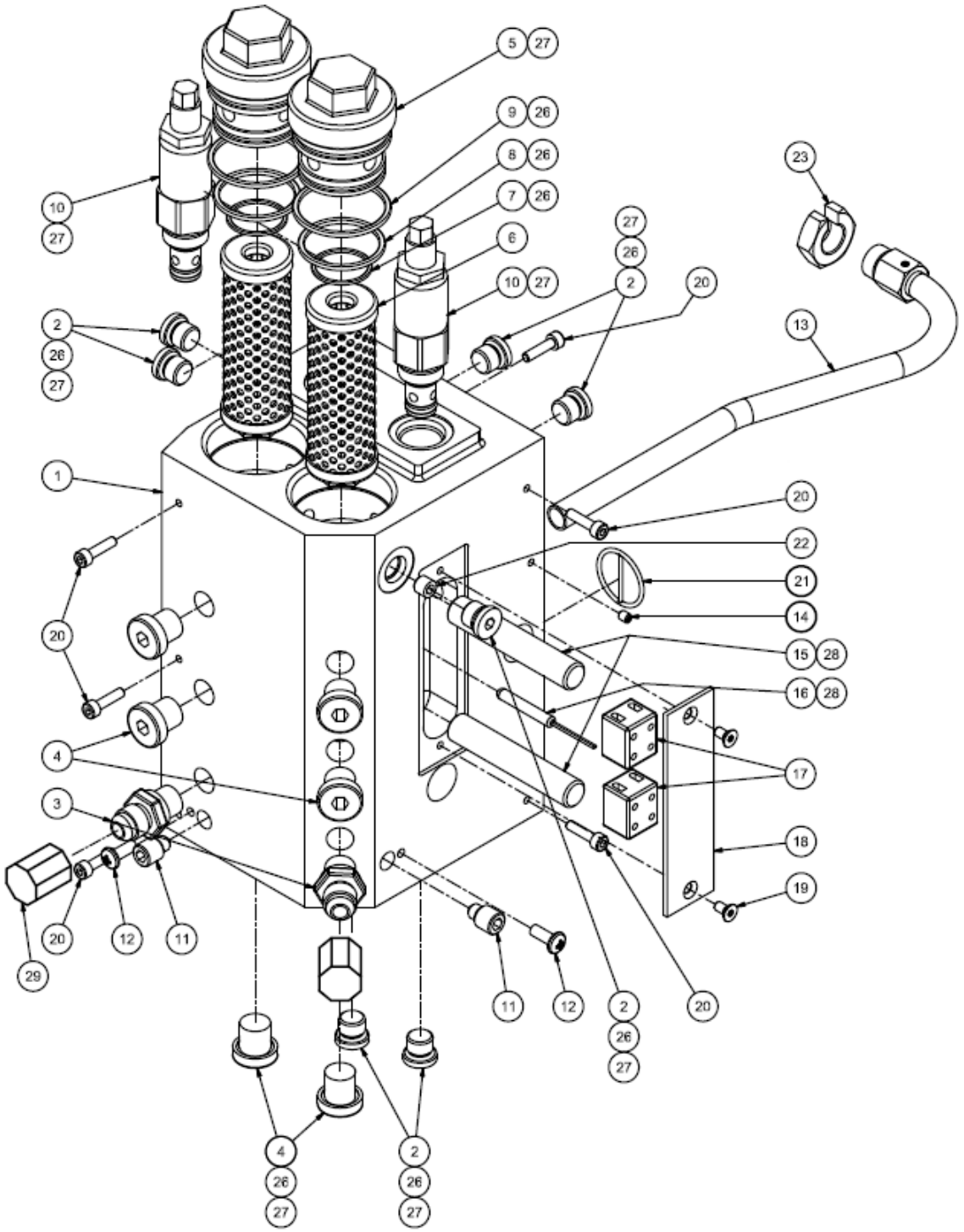
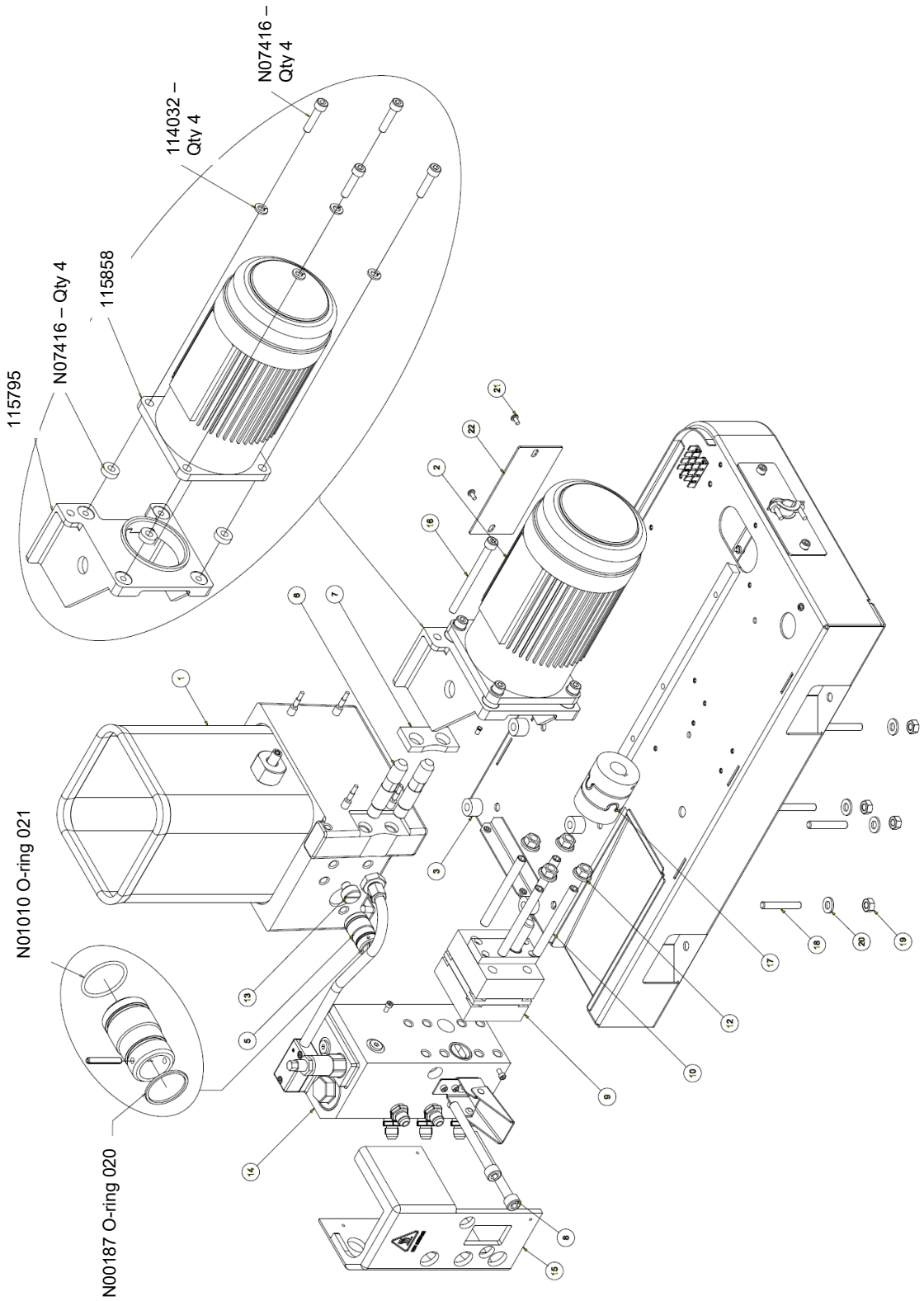


Illustration: Dual Stream Filter Manifold Assembly, SR5/10

10.8.1.5 Gear Pump Drive Asy, SR5/10, PN 116856

Item	Part Number	Description	Quantity
2	115796	Motor/ Bracket asy (Motor only, 1/4HP AC, PN 115858)	1
9	Per your order	Gear pump	1

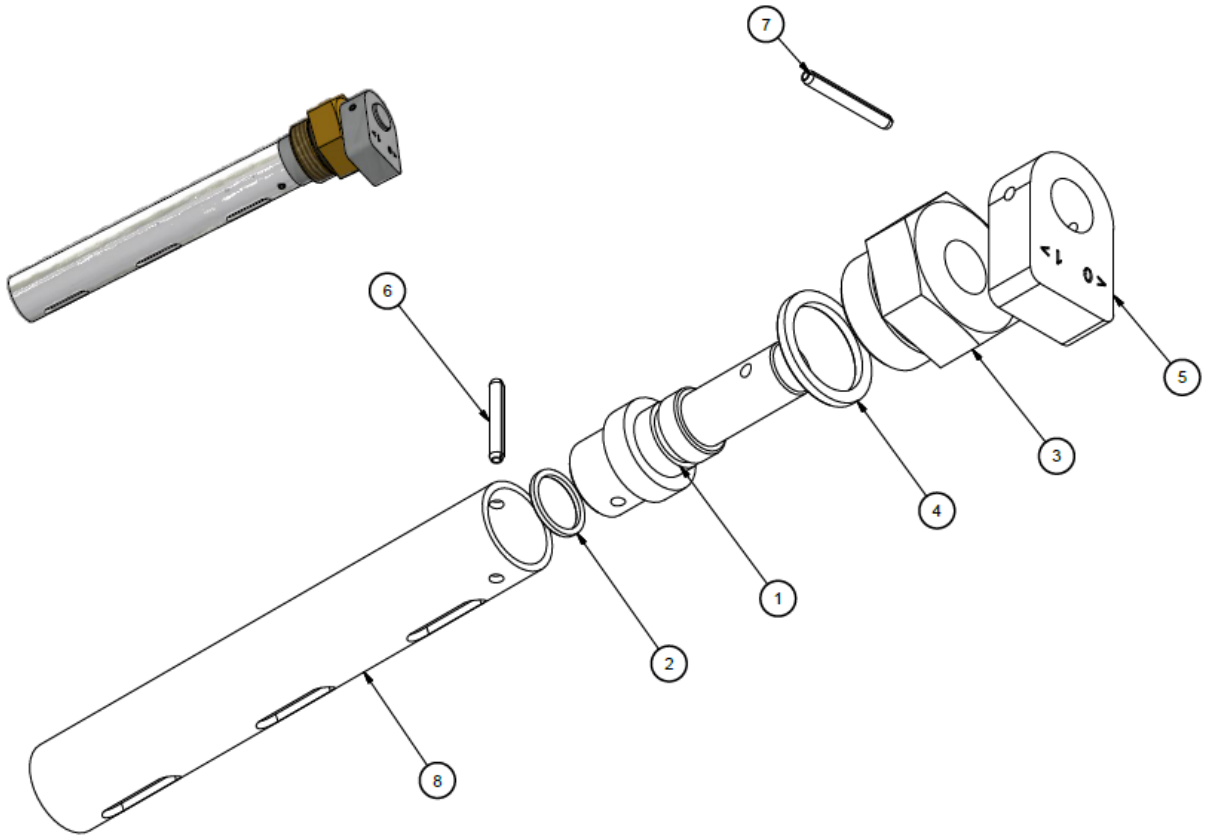


10.8.1.6 Filter and Shutoff Asy, SR5/10, PN 115717

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

Item	Part Number	Description	Quantity
2	N00181	O-ring 014	1
4	N00210	O-ring 912	1
9	001V078	High-temp lube, TFE, Krytox GPL206 (not shown)	A/R*

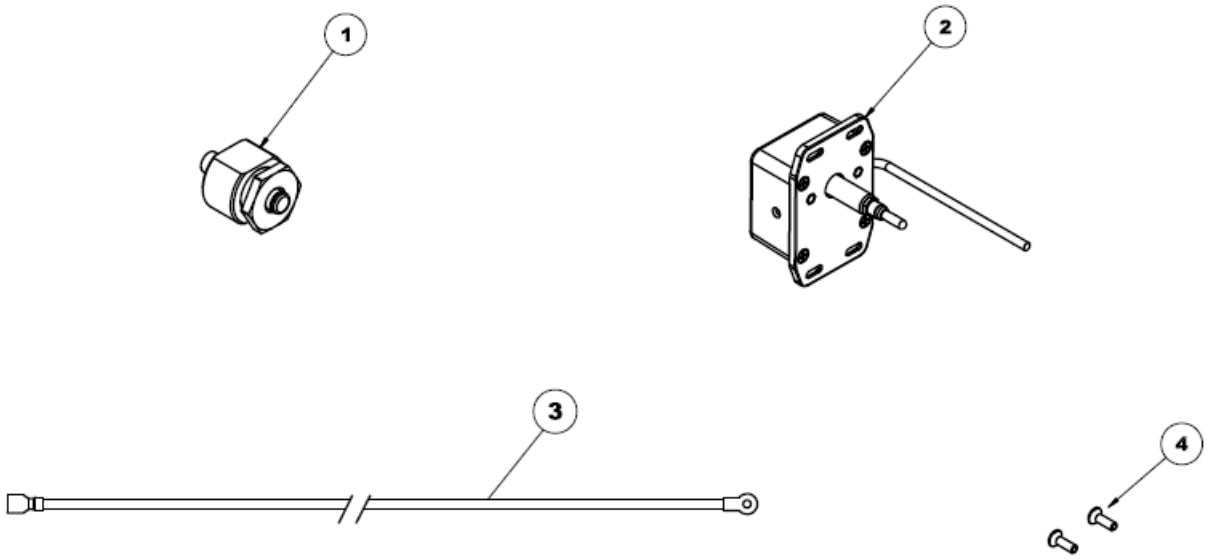
A/R* = As required.



NOTES:
1. Coat O-rings (items 2 and 4) with high-temp lubricant (item 9) prior to assembly.

10.8.1.7 Level Sensor Kit, SR5/10, PN 150020 (Optional)

Item	Part Number	Description	Quantity
1	117476	Probe asy, level sensor	1
2	117477	Level sensor control amplifier asy	1
	001U002	Silicone lube (not shown)	1



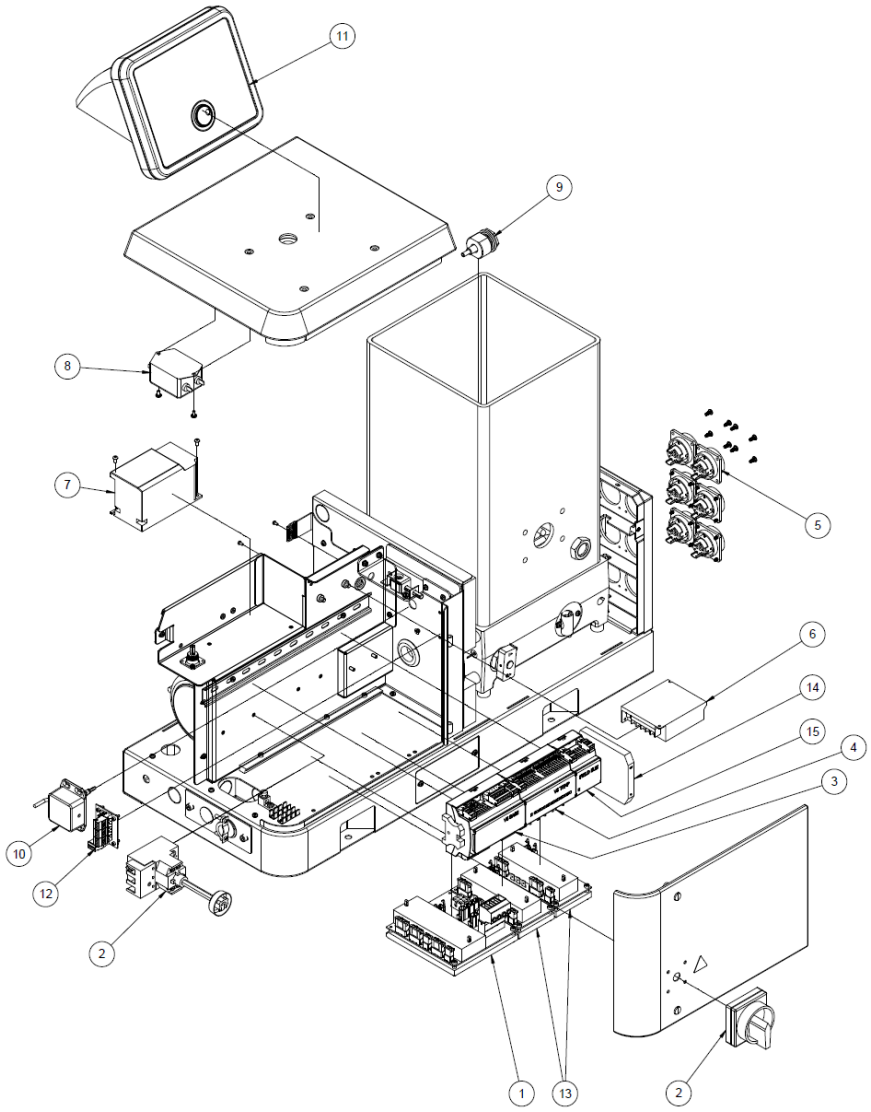
10.8.1.8 Maintenance-Kits, SR5/10

Item	PN	Description	Quantity
	117200	Single Manifold Service Kit (requires Filter Service Kit), for SR5/10, contains: 1x RTD Sensor Asy PT100 PN 117081, 1x 775W heater asy PN 117083, 8x O-ring 014 N00181, 2x O-ring 020 N00187, 6x O-ring 111 N00196, 1x O-ring 021 N01010, 3x O-ring 904 N01702, 2x terminal block 107881.	1
	117199	Dual Manifold Service Kit (requires Filter Service Kit) for SR5/10, contains: 1x RTD Sensor Asy PT100 PN 117081, 2x 300W heater asy PN 117084, 6x O-ring 014 N00181, 2x O-ring 020 N00187, 6x O-ring 111 N00196, 7x O-ring 904 N01702, 1x seal for dual pump outlet 069X274, 2x terminal block 107881)	1
	115283	Motor Speed Control Kit, Y for SR5/10 contains: 1x motor speed control PN 115138, ferrules, screws, etc.	1
	117154	Manifold 1x Heater Kit, for SR5/10, contains: 1x 775W heater asy PN 117083 (w. ferrule), 1x terminal block 107881	1
	117152	Hopper/ Manifold & Premelt Sensor Kit, for SR5/10, contains: 1x RTD Sensor Asy PT100 PN 117081 (w. ferrule), 1x terminal block 107881	1

10.8.2 SR22/45 Melter Drawings and BOMs

10.8.2.1 Electronics Assembly, SR22/45

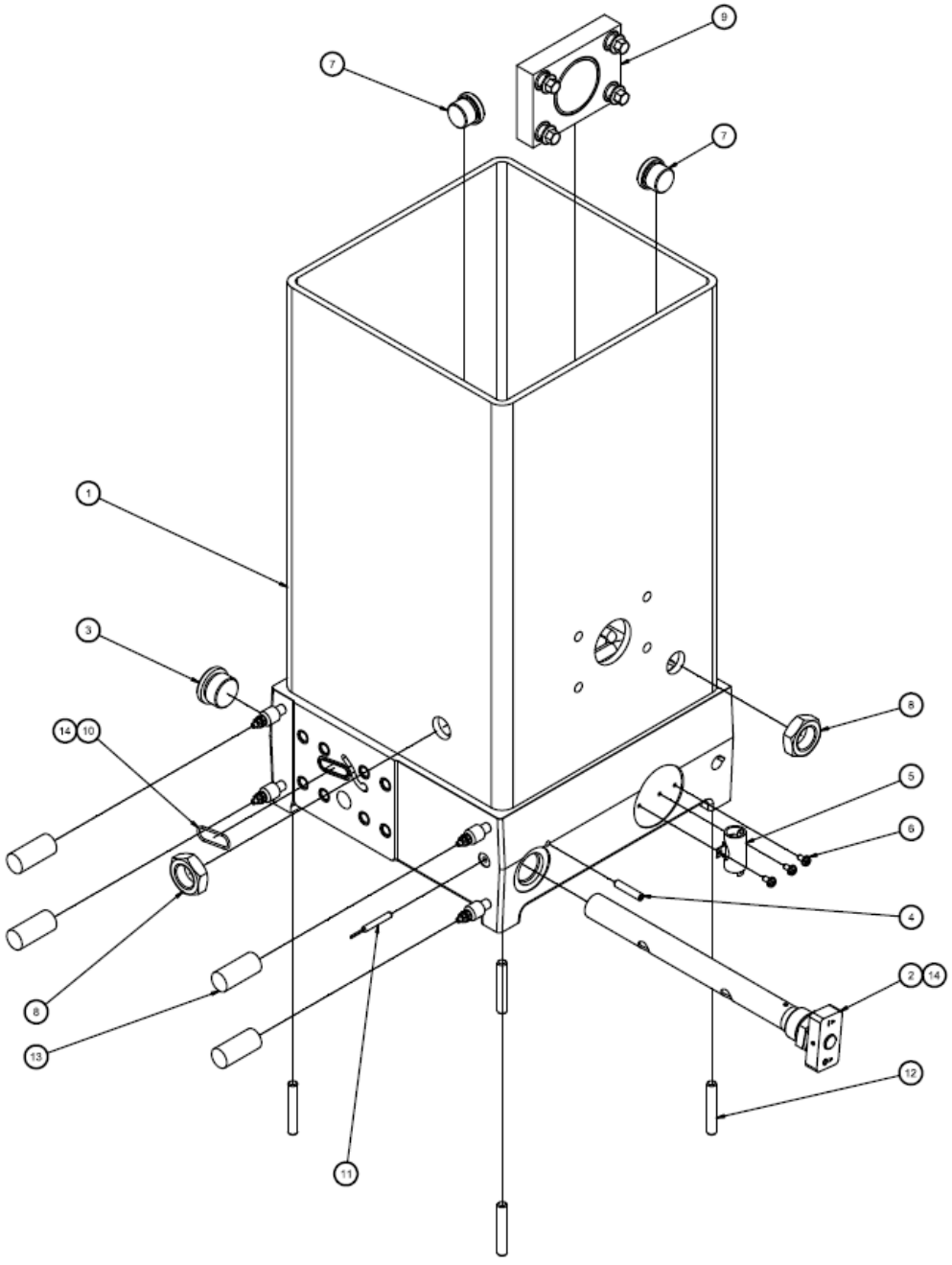
Item	Part Number	Description	Quantity
1	115732	V6 Power Module	1
2	123381	Main ON/OFF Disconnect Switch, 3-pole, 63 A	1
3	115734	V6 Base Module	1
4	115735	V6 Temperature Module	1
6	115738	Power Supply, 24VDC, 35W	1
7	123274	Motor Speed Control, VF, 230V, 3PH,1/2HP, Yaskawa (programmed version of motor control PN 115138)	1
8	106978	Filter, RFI, 240V, 6A, line	1
9	123380	Probe asy, V6 level sensor	1
10	117477	Control amplifier, V6 level sensor	1
13	115733	V6 Auxiliary Power Module	2
14	117143	Signal Isolator V6, 24VDC	1



10.8.2.2 Hopper (Tank) Assembly, SR22/45

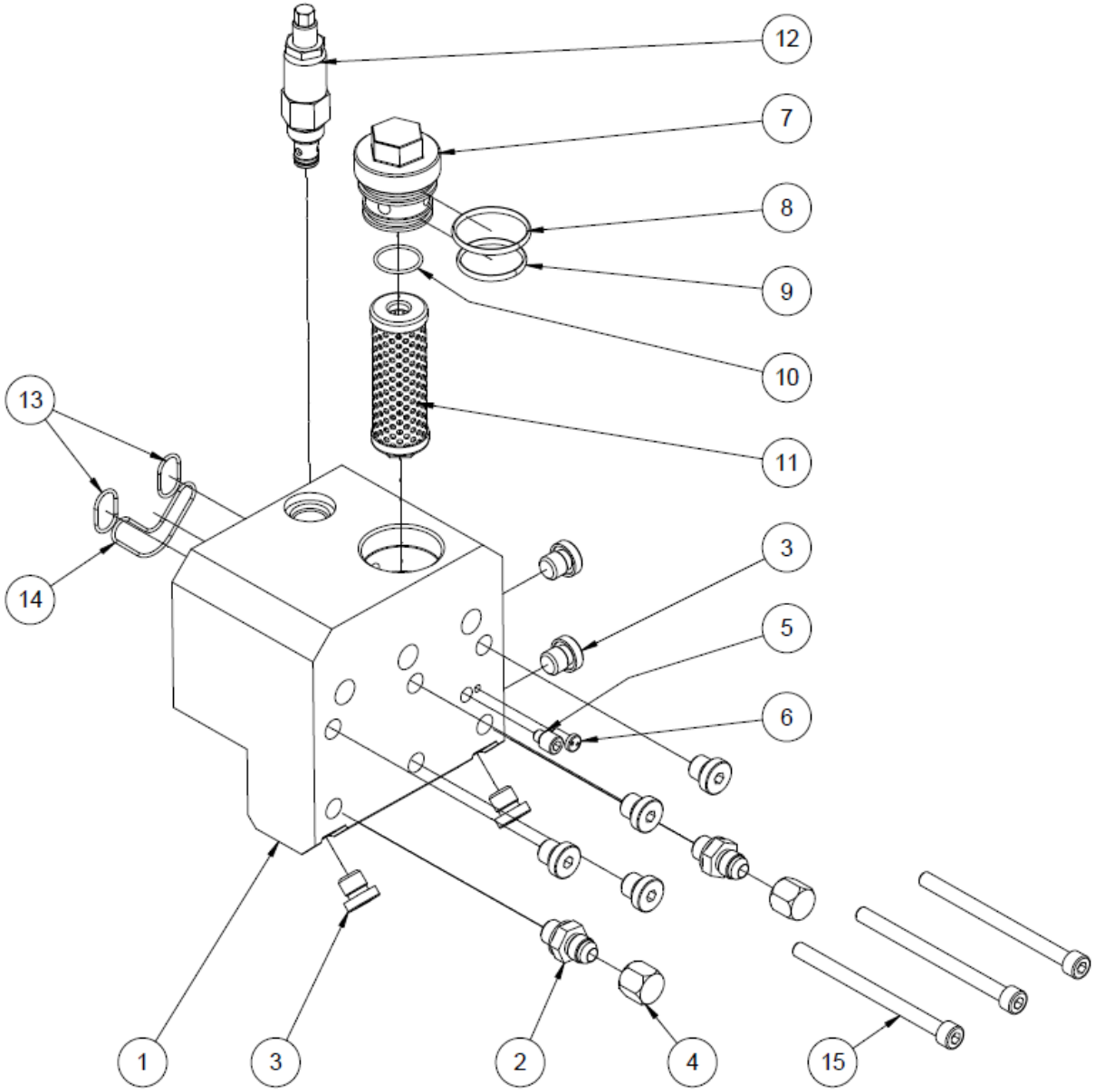
Item	Part Number	Description	Quantity
2	102752 #	Filter and Shutoff Asy 22/45L	1
5	104166	Switch asy, Overtemperature Thermostat	1
10	N00188	O-ring 022	1
11	123643	RTD Sensor Asy PT100, Ø.187x1.25”, DCL	1-2
	123702	RTD Sensor Asy Ni120, Ø.187x1.25”, NDSN	1-2
-	001V061	Heat transfer compound (not shown)	A/R*
-	001V078	High-temp lube, TFE, Krytox GPL206 (not shown)	A/R*
-	107324	Antiseize Compound (not shown)	A/R*

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



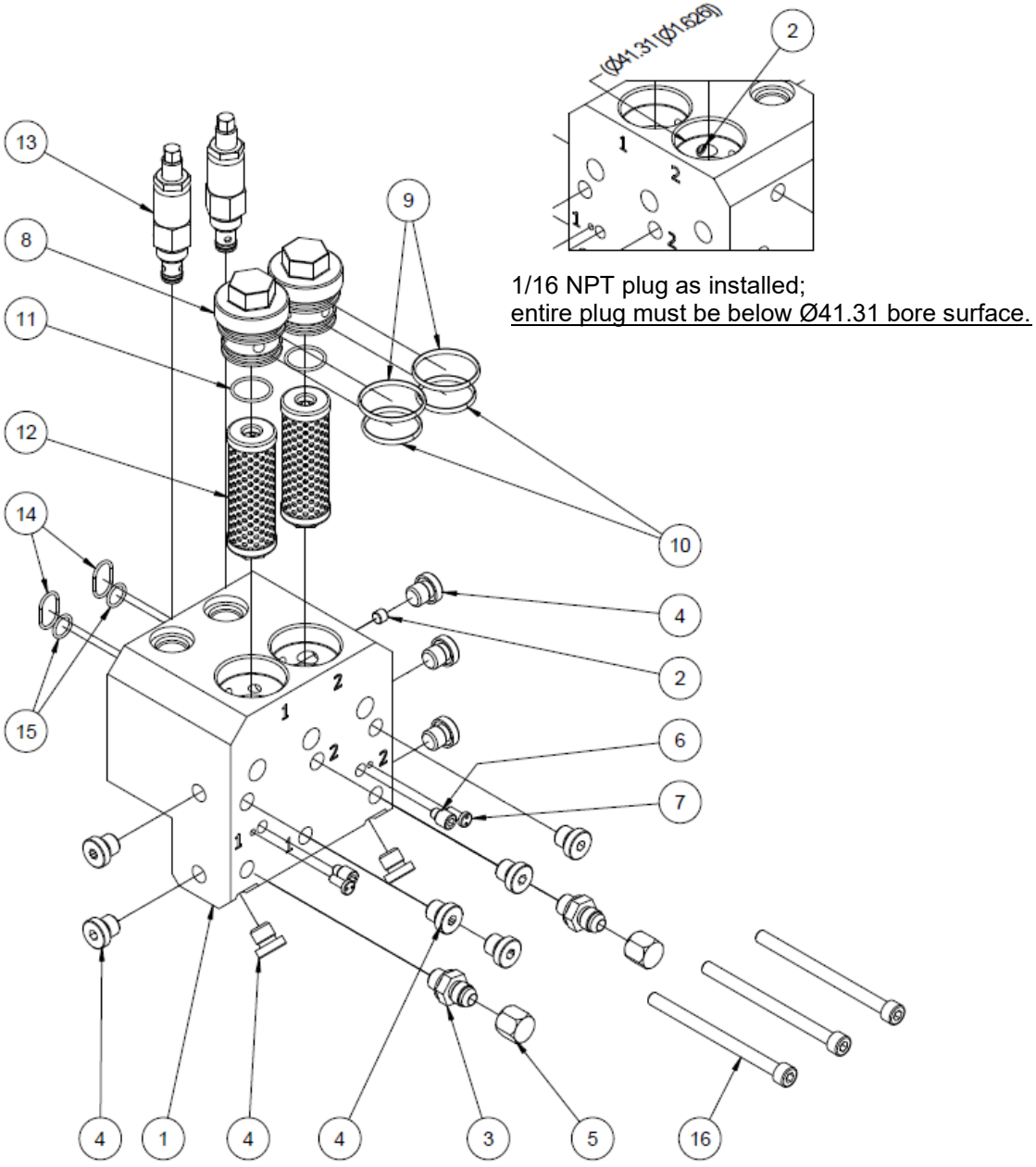
10.8.2.3 Filter Manifold Assembly w. single stream (single gear pump), DCL, SR22/45, PN 123440

Item	Part Number	Description	Quantity
7	814018	Nut, Filter, Easy Spin	1
8	812816	O-ring 127	1
9	A69X133	O-ring 124	1
10	N00187	O-ring 020	1
11	814009	Filter cartridge 100-Mesh (standard) Kit PN 117147 (for details see Ch. 9)	1
	814007	Filter cartridge 40-Mesh (optional) Kit PN 117145 (for details see Ch. 9)	1
12	101840	Mechanical pressure relief valve, 100-1000 Psi (6.8 - 68 bar)	1
13	N00185	O-ring 018	2
14	N00192	O-ring 032	1



10.8.2.4 Filter Manifold Assembly w. dual stream (dual gear pump), DCL, SR22/45, PN 123441

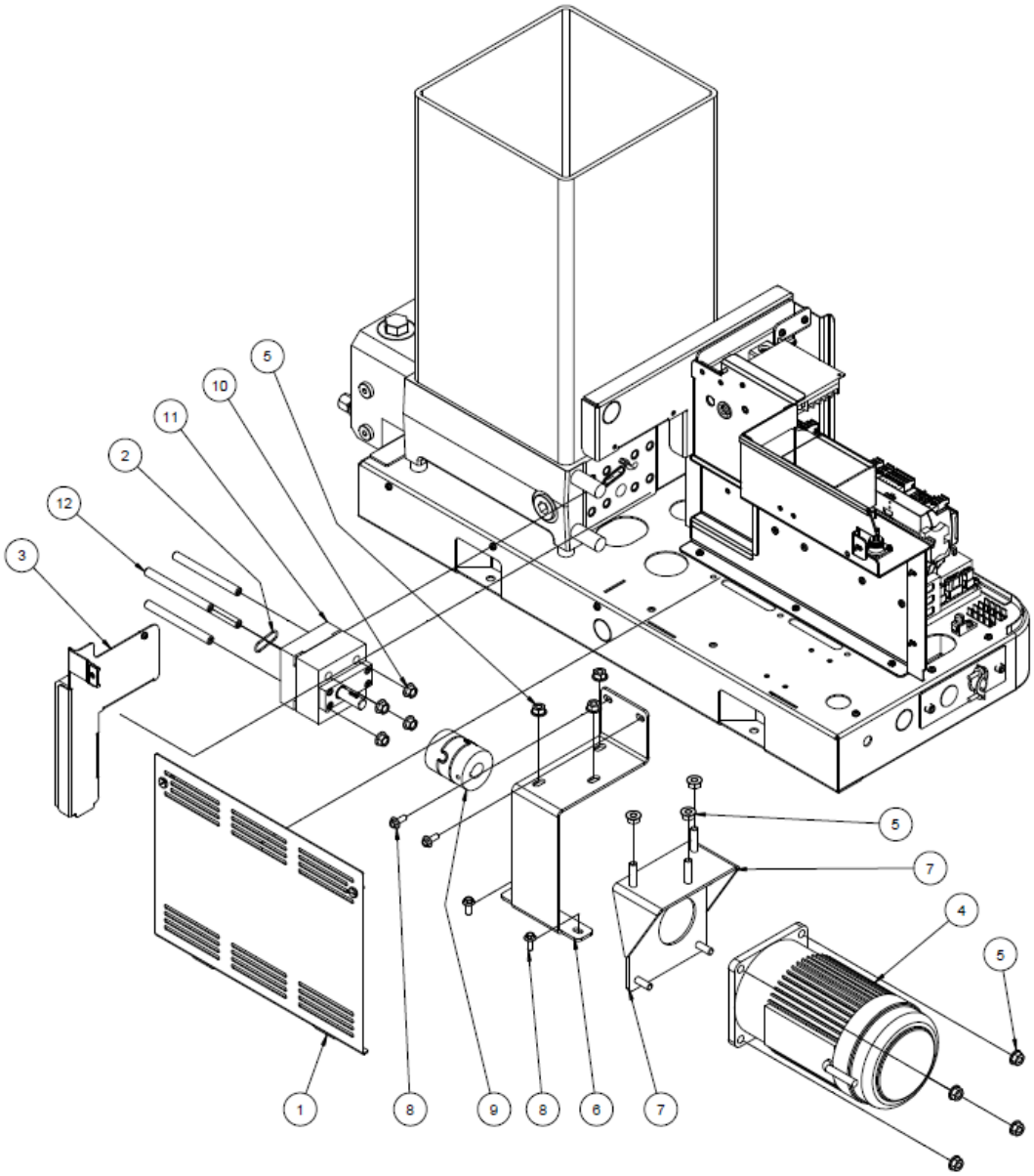
Item	Part Number	Description	Quantity
8	814018	Nut, Filter, Easy Spin	2
9	812816	O-ring 127	2
10	A69X133	O-ring 124	2
11	N00187	O-ring 020	2
12	814009	Filter cartridge 100-Mesh (standard) Kit PN 117147 (for details see Ch. 9)	2
	814007	Filter cartridge 40-Mesh (optional) Kit PN 117145 (for details see Ch. 9)	2
13	101840	Mechanical pressure relief valve, 100-1000 Psi (6.8 - 68 bar)	2
14	N00185	O-ring 018	2
15	N00181	O-ring 014	2



10.8.2.5 Gear Pump Drive Asy, SR22/45

Item	Part Number	Description	Quantity
2	N00188	O-ring 022	1
4	115858	Gear motor, 1/4HP AC, face mount	1
11	*	Gear pump	1

* Optional, refer to PO/unit data plate.

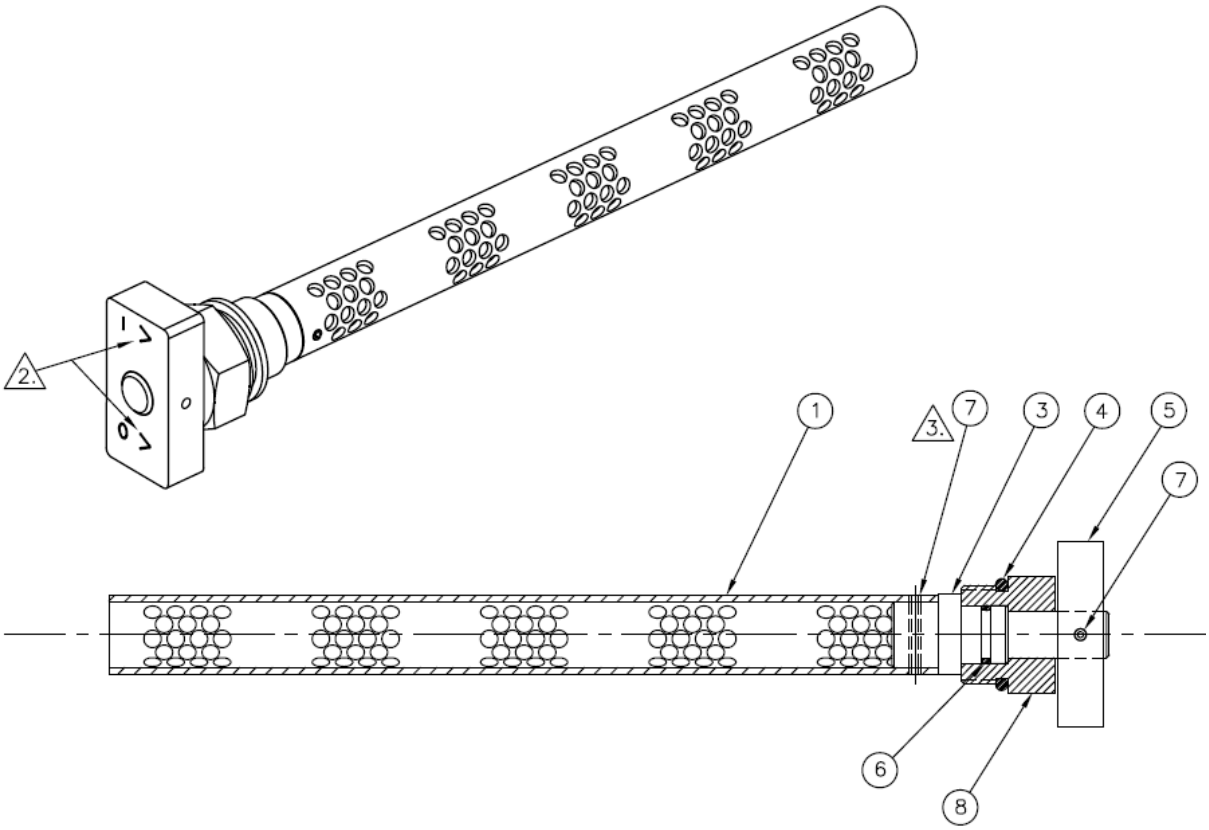


10.8.2.6 Filter and Shutoff Asy, SR22/45, PN 102752

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

Item	Part Number	Description	Quantity
4	N00210	O-ring 912	1
6	N00181	O-ring 014	1
9	001V078	High-temp lube, TFE, Krytox GPL206 (not shown)	A/R*

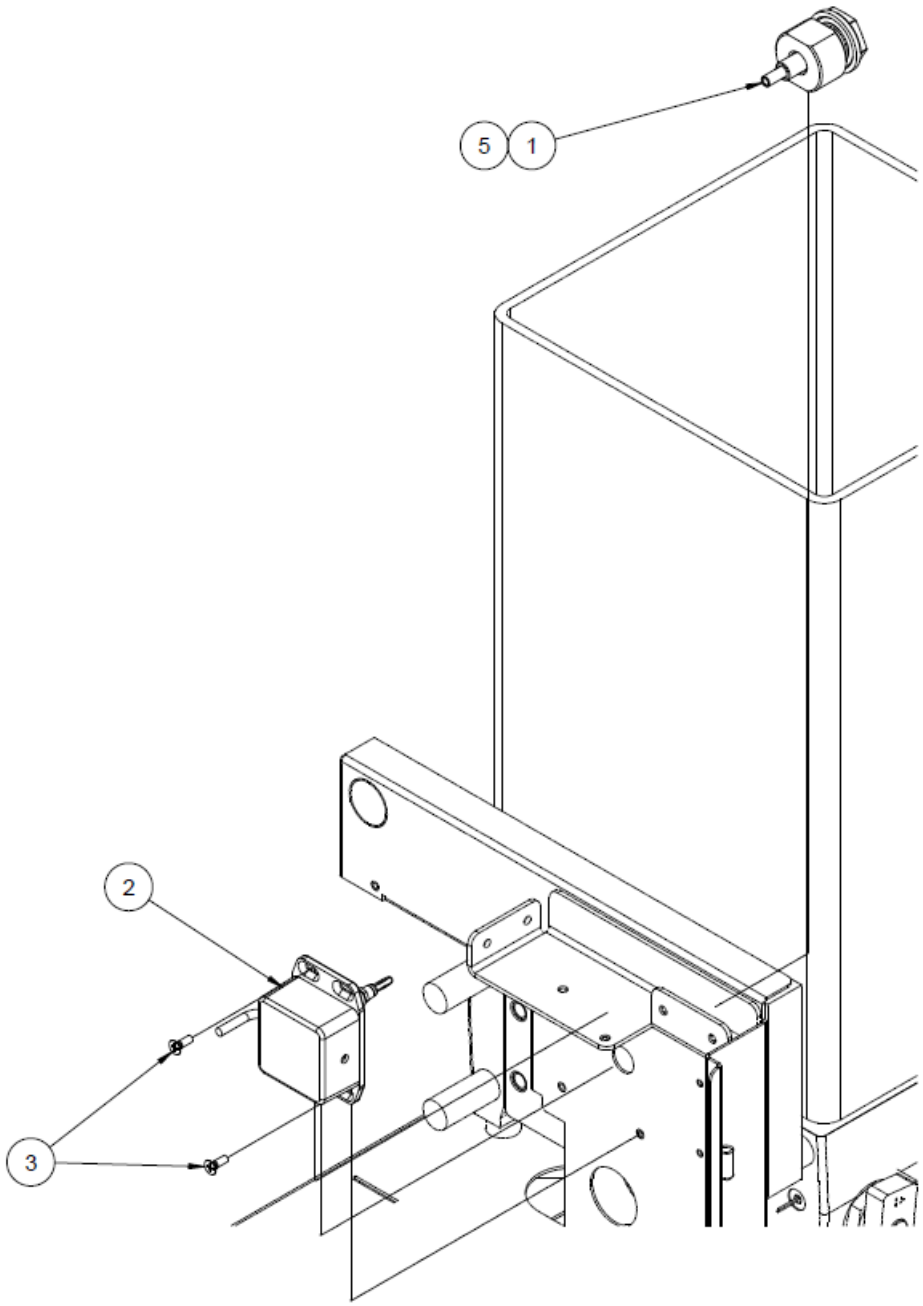
A/R* = As required.



NOTES:
1. Coat O-rings (items 4 and 6) with high-temp lubricant (item 9) prior to assembly.

10.8.2.7 Level Sensor Kit, SR22/45, PN 123670 (Optional)

Item	Part Number	Description	Quantity
1	123380	Probe asy, level sensor, SR22/45	1
2	117477	Level sensor control amplifier asy	1
5	001U002	Silicone lube	1



10.8.2.8 Maintenance-Kits, SR22/45

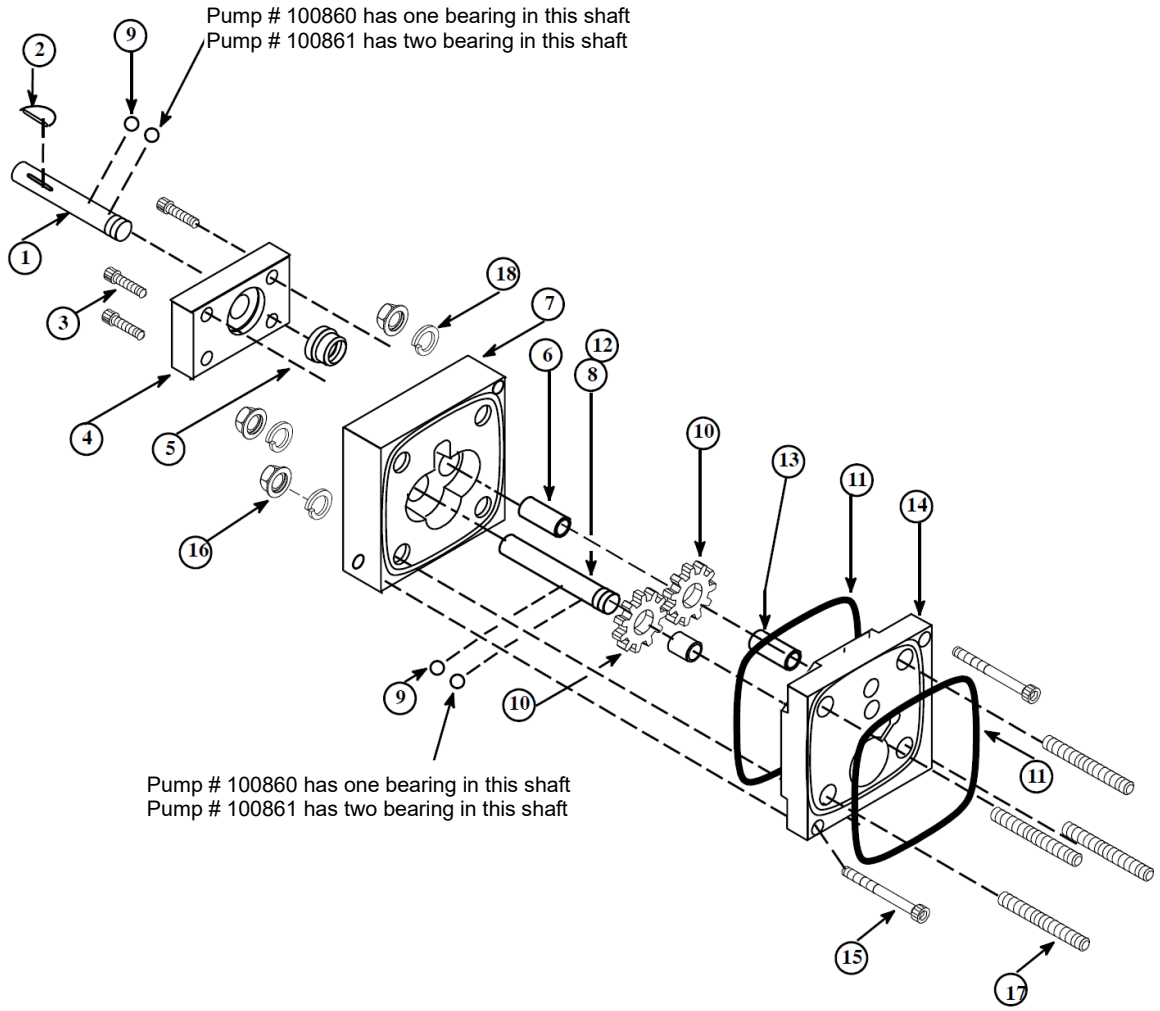
Item	PN	Description	Quantity
	123643	Hopper/ Manifold & Premelt Sensor Kit, SR22/45 (PN 123643 is the RTD Sensor Asy PT100 with the 2-pin connector (terminal block not needed))	1

10.8.3 Gear Pump Options

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

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

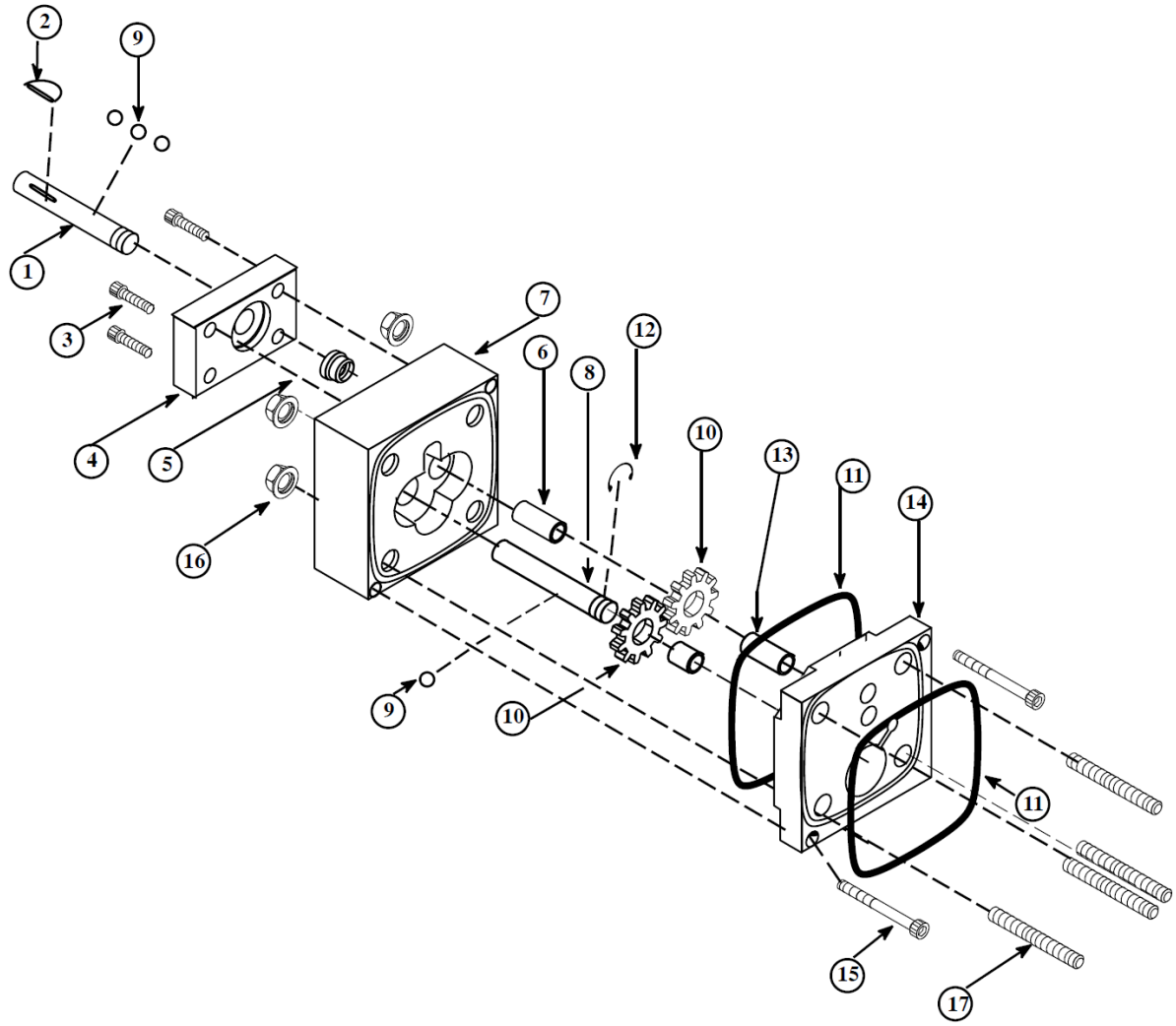
A/R* = As required



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

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

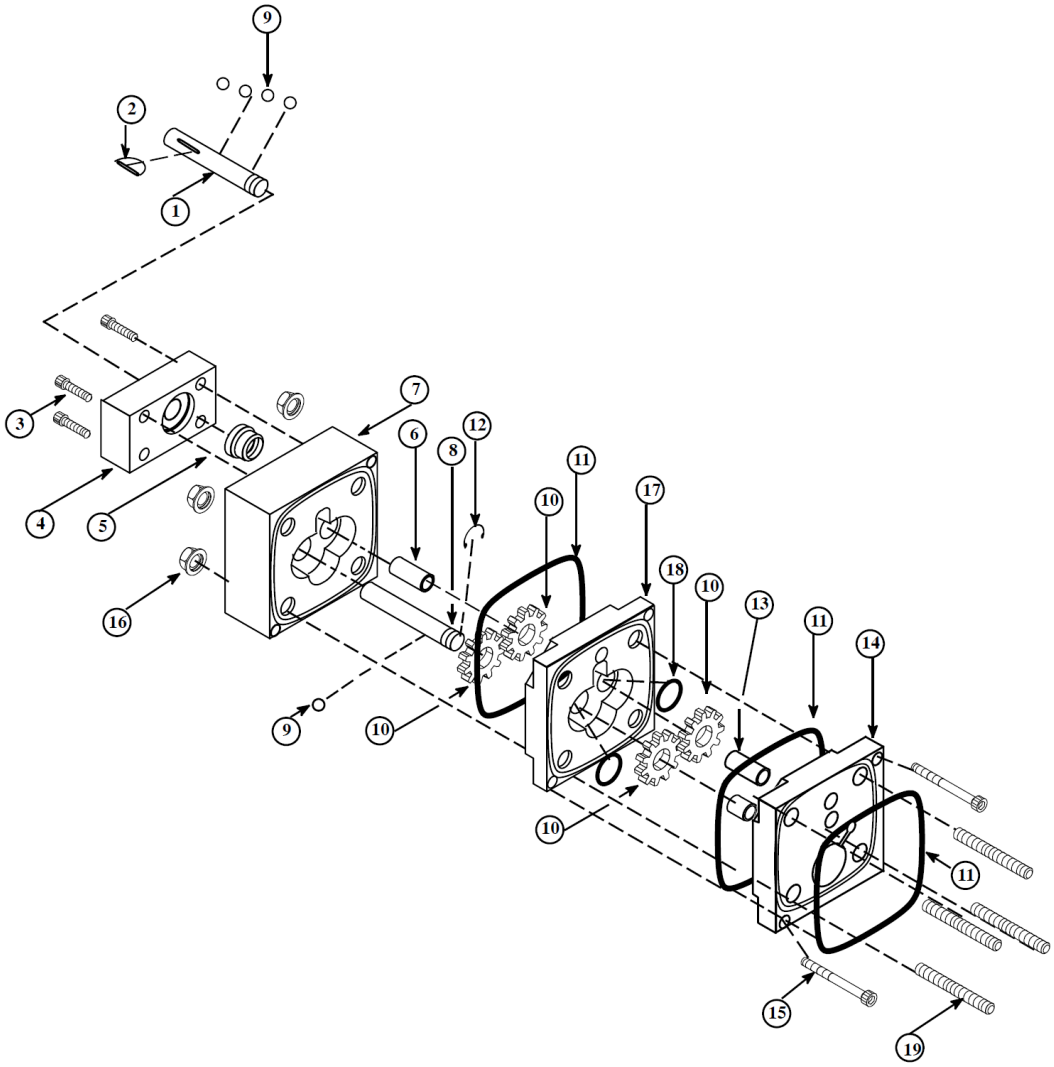
A/R* = As required



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

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

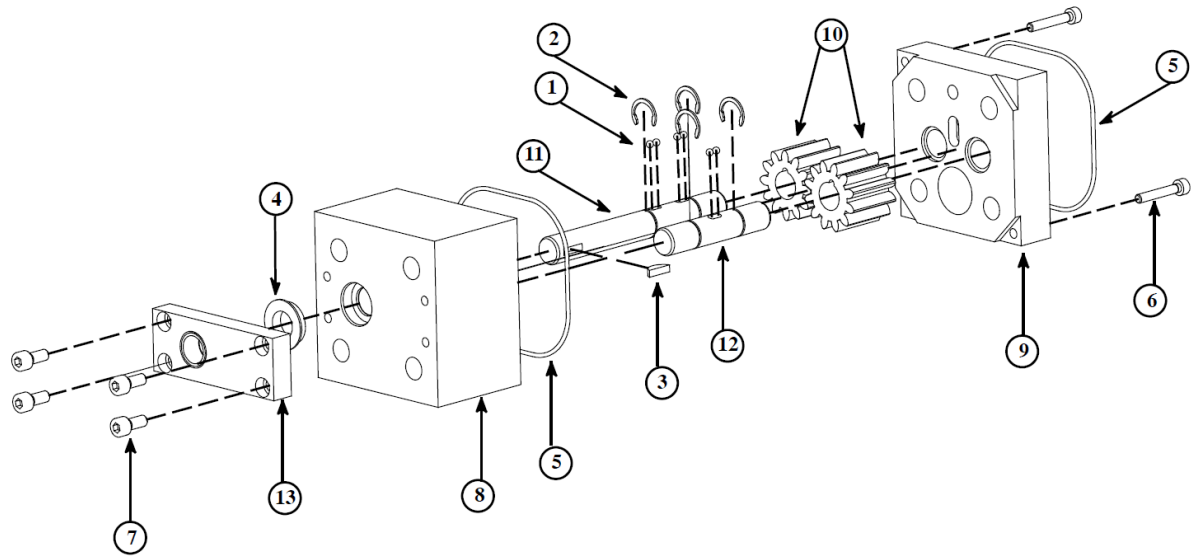
A/R* = As required



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

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

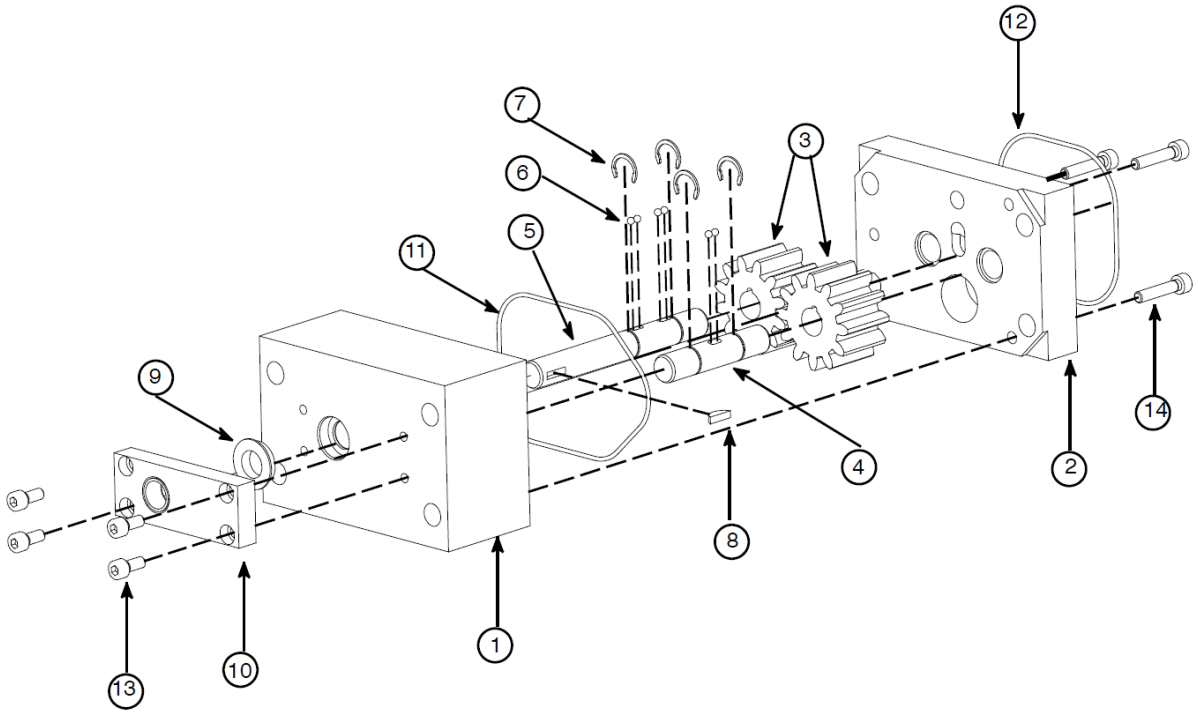
A/R* = As required



10.8.3.5 Single Gear Pump Assembly 20 cc/rev., PN 109694

Item	Part Number	Description	Quantity
9	069X061	Seal Shaft	1
12	069X064	O-ring 041	1
	001U002	Silicone lube (not shown)	A/R*

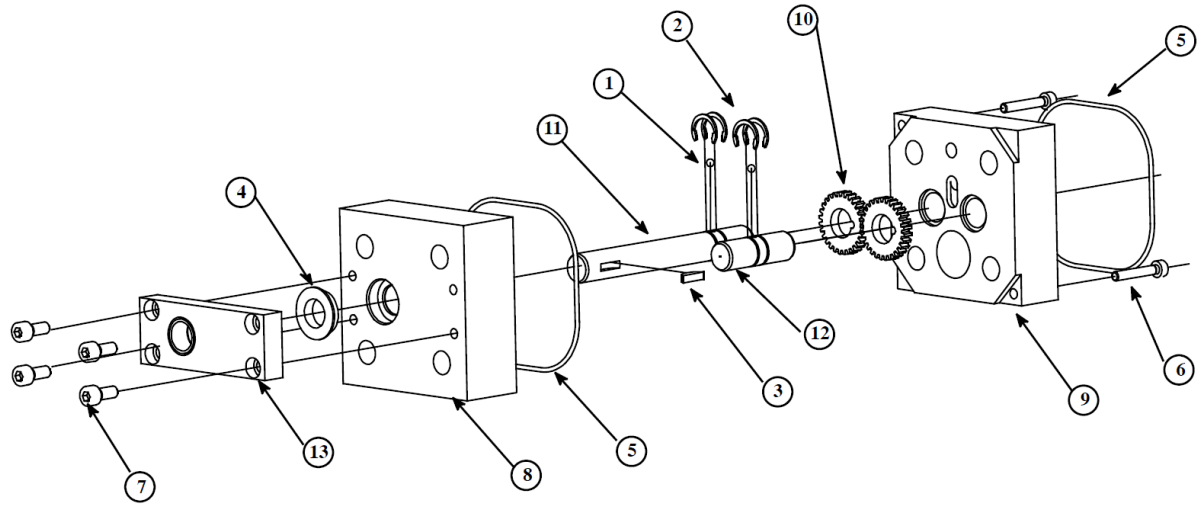
A/R* = As required



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

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

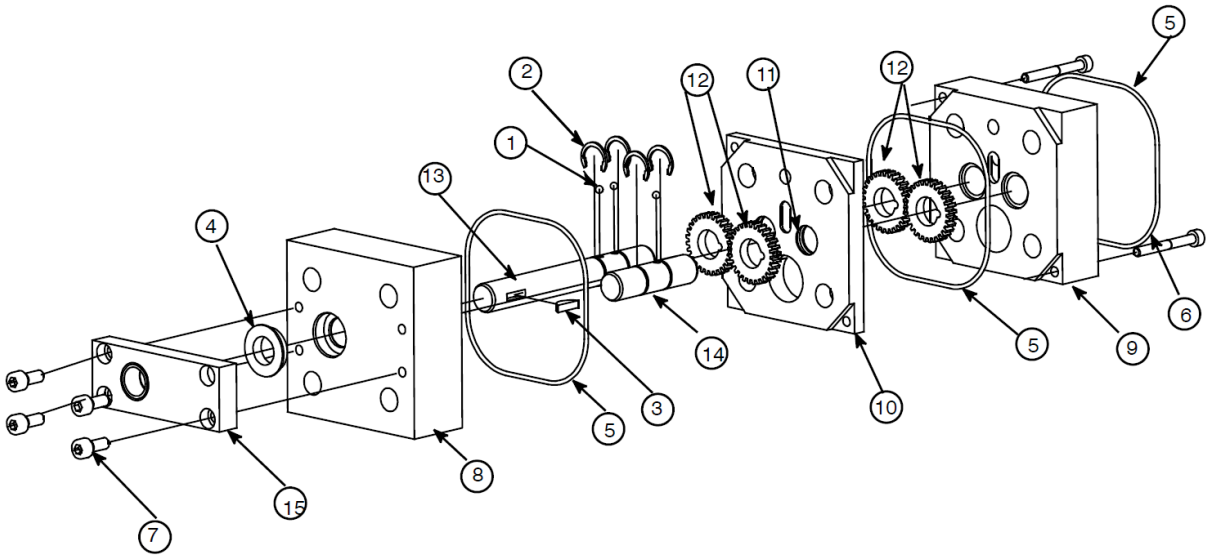
A/R* = As required



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

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

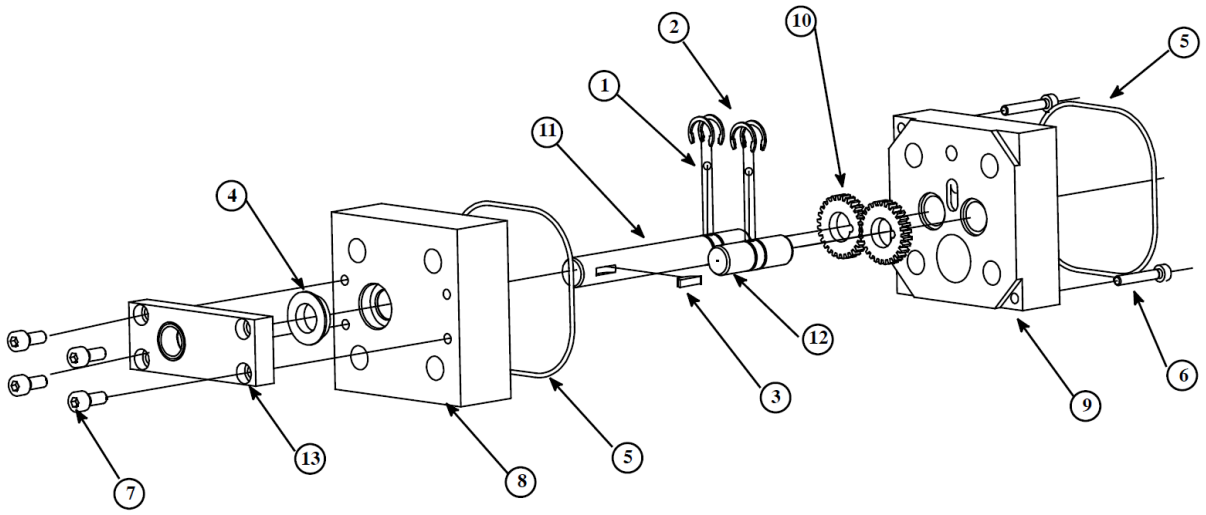
A/R* = As required



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

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

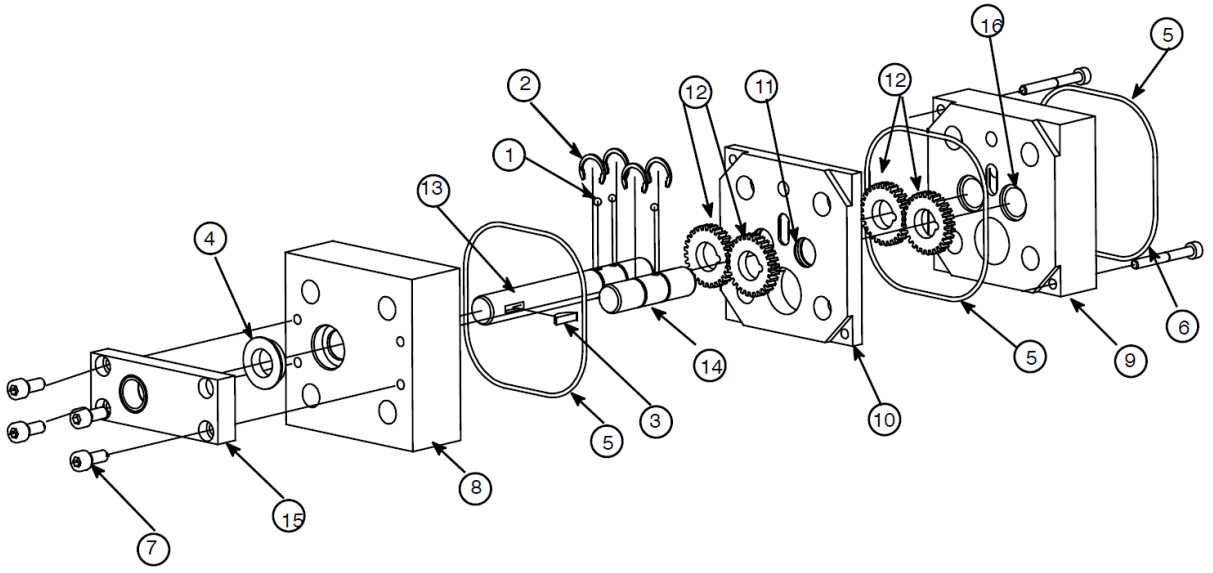
A/R* = As required



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

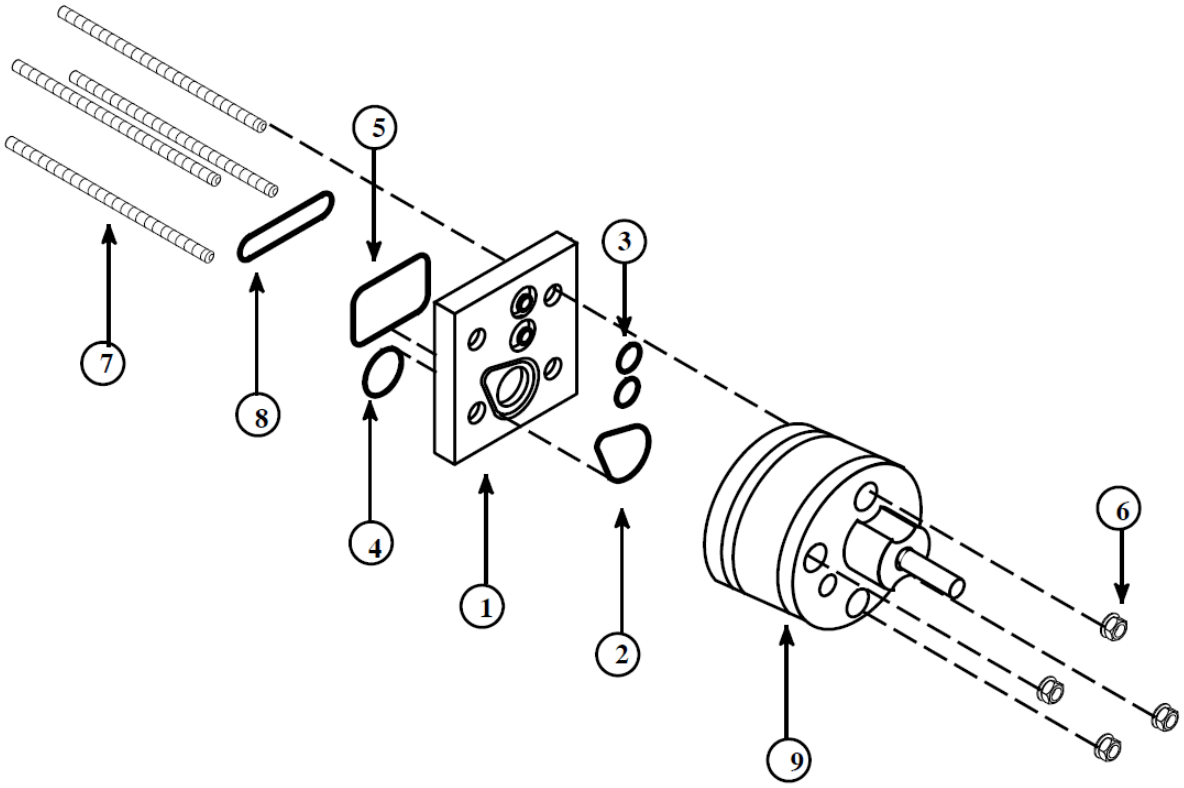
Item	Part Number	Description	Quantity
4	069X061	Shaft Seal	1
5	069X064	O-ring 041, Pump Seal	2
	001U002	Silicone lube (not shown)	A/R*

A/R* = As required



10.8.4 Pump Adapter Assembly, PN 084E405

Item	Part Number	Description	Quantity
1	012G023	Pump Adapter	1
2	069X058	O-ring 028	1
3	N00179	O-ring 012	2
4	N00190	O-ring 024	1
5	069X240	O-ring 031	1
6	104158	Flange nut M10	4
7	104072	Threaded stud M10x100mm (shown for reference only)	4
	104073	Threaded stud M10x105mm (shown for reference only)	4
8	N00188	O-ring 221	4
9		Pump:	1
	108865	Single pump 0.297cc	
	108867	Single pump 0.584cc	
	108869	Single pump 1.168cc	
	108872	Single pump 2.920cc	
	108875	Single pump 8.5cc	
	108868	Dual pump 0.584cc	
	108870	Dual pump 1.168	
	108874	Dual pump 2.92cc	



10.8.5 Other Parts & Kits

Note: *For optional parts/kits, refer to Ch.9.*

10.8.5.1 Lubricants and Fluids

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

10.8.5.2 Filter-Kits

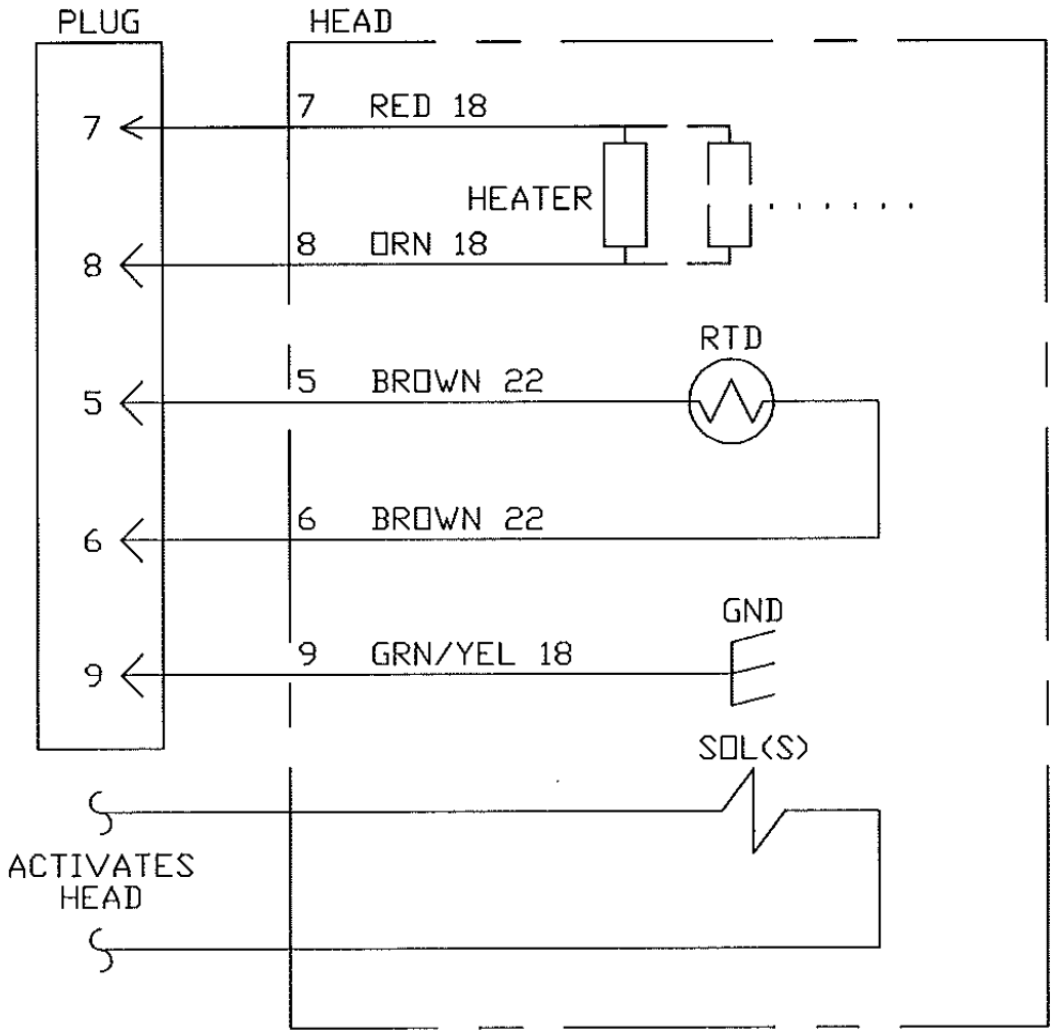
Item	PN	Description	Quantity
	117147	Filter Service Kit, 100 mesh (standard)	2
	117145	Filter Service Kit, 40 mesh (option)	2

10.8.5.3 Electrical Parts

Item	Part Number	Description	Quantity
	112568	Fuse, 10AF, fast-acting (Power and Aux Power PCBs)	20
	119975	Fuse, 12AF, fast-acting (Power and Aux Power PCBs)	5
	108566	Fuse, 6.3AT, time-delay (Power PCB)	5

Chapter 11
System Schematics & Engineering Drawings

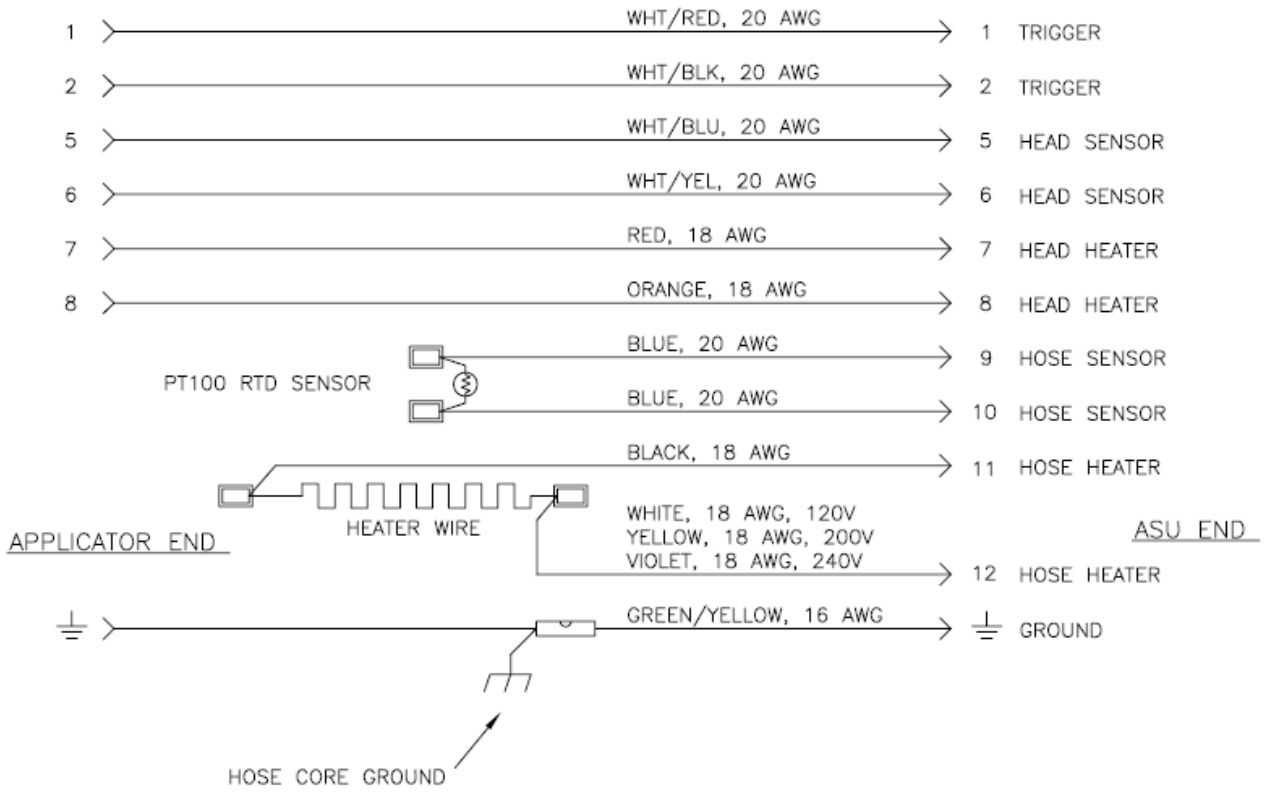
11.1 Head Schematic, PN 103117, Rev.B, DynaControl



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

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

ASU to Applicator

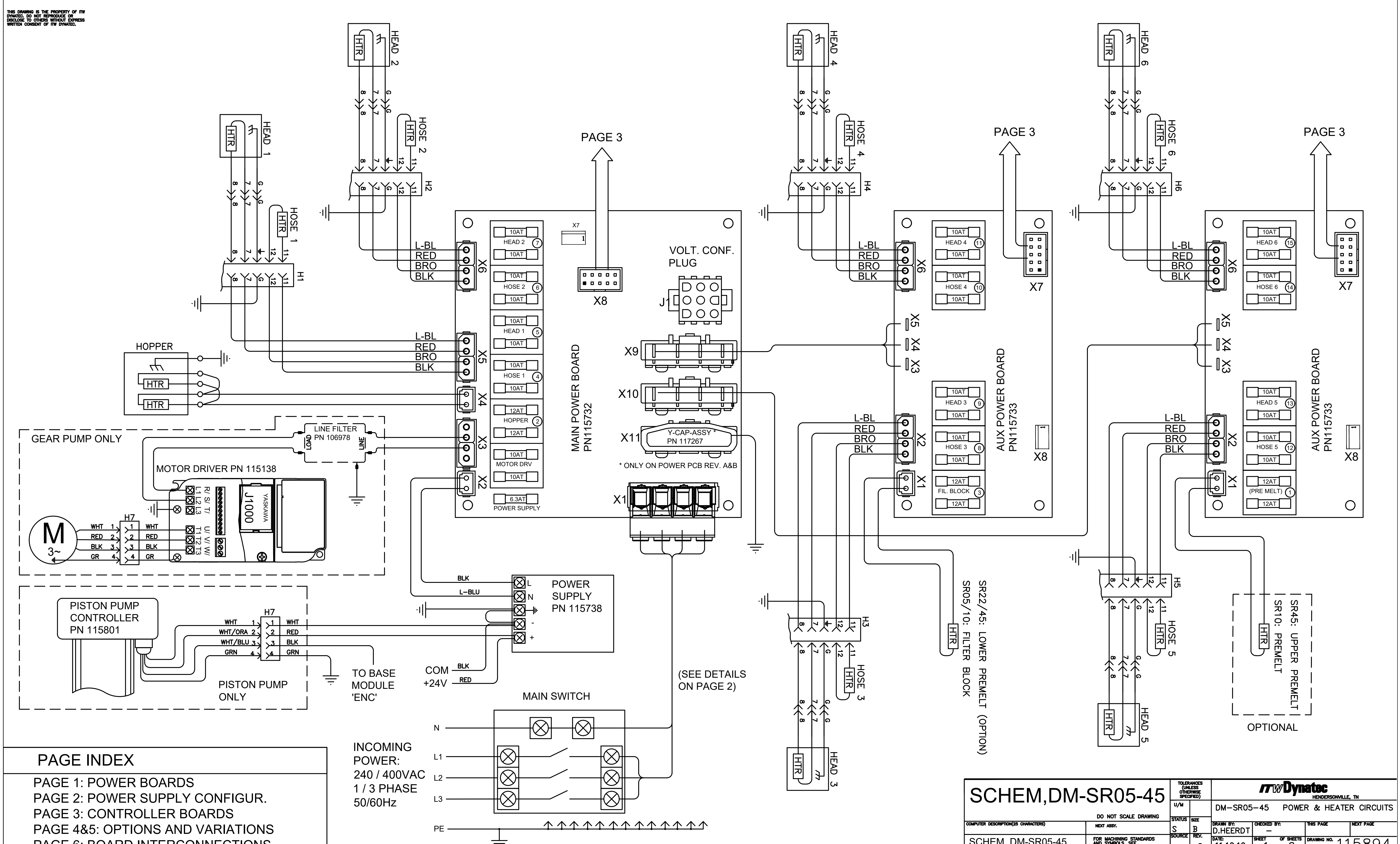


NOTES:
1. All wiring is routed through the hose.
2. Wire sizes shown are for no. 6 and no. 8 hoses up to 24 ft. in length.
   For larger diameter and longer hoses, heater lead wires are 16 AWG.
   Other wire sizes and colors may be changed in special hoses, per customer request.

11.3 Schematics DM-SR all sizes, PN 115894 Rev. S

NGSM	A	ORIGINAL RELEASE	02.09.12	DH	12097	D	ETHERNET/IP OPTION ADDED (P5)	05.08.12	DH	13224	F	PN ON PAGE 6 CORRECTED	08.05.13	DH	13365	J	PROFIBUS/ETHERCAT OPT. ADDED	01.10.14	DH	14130	L	AUX INPUTS CHANGED TO PNP	07.17.14	DH	15040	P	FUSE RATINGS CHANGED	06.15.15	DH	ECN1598	S	SR22 & SR45 ADDED	08.28.20	DH	
12063	B	PAGE 3 CORRECTED	03.01.12	DH	12387	E	CHANGED TO DYNATEC LEVEL DET.	12.05.12	DH	13287	G	STACK LITE SCHEMATIC CORREC.	9.23.13	DH	14051	K	24VDC GROUNDED	03.05.14	DH	14152	M	SWIRL BOARD REV. C (POL 'P')	10.09.14	DH	15172	Q	BASE MOD. REV. K	09.08.16	DH						
12097	C	LINE FILTER/ Y-CAPS ADDED	03.19.12	DH	12276		PAGE 6 ADDED			13207	H	LEVEL CONTROL SCHEM. CORREC.	10.22.13	DH	14070	K	'HEADLESS' OPTION ADDED	03.26.14	DH	15024	N	NEUTRAL TERM. POSITION MOVED	03.23.15	DH	15172	R	PROFINET OPTION ADDED	03.26.18	DH						

DWG. NO. 115894 SH 1 REV S


HEAD 1
HEAD 2
HEAD 3
HEAD 4
HEAD 5
HEAD 6
HOSE 1
HOSE 2
HOSE 3
HOSE 4
HOSE 5
HOSE 6
HTR
PAGE 3
HOPPER
GEAR PUMP ONLY
LINE FILTER
PN 106978
MOTOR DRIVER PN 115138
YASKAWA
J1000
MAIN POWER BOARD
PN115732
VOLT. CONF. PLUG
Y-CAP-ASSY *
PN 117267
* ONLY ON POWER PCB REV. A&B
AUX POWER BOARD
PN115733
POWER SUPPLY
PN 115738
PISTON PUMP CONTROLLER
PN 115801
PISTON PUMP ONLY
TO BASE MODULE 'ENC'
COM
+24V
(SEE DETAILS ON PAGE 2)
MAIN SWITCH
INCOMING POWER:
240 / 400VAC
1 / 3 PHASE
50/60Hz
SR22/45: LOWER PREMELT (OPTION)
SR05/10: FILTER BLOCK
SR45: UPPER PREMELT
SR10: PREMELT
OPTIONAL
L-BL
RED
BRO
BLK
WHT
GR
GRN
L-BLU
WHT/ORA
WHT/BLU
10AT
12AT
6.3AT
FIL. BLOCK
(PRE MELT)
MOTOR DRV
POWER SUPPLY

PAGE INDEX

SCHEM,DM-SR05-45

ITW Dynatec, HENDERSONVILLE, TN

DM-SR05-45 POWER & HEATER CIRCUITS

DO NOT SCALE DRAWING

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

COMPUTER DESCRIPTION: SCHEM, DM-SR05-45

STATUS: S | SIZE: B | REV.: S

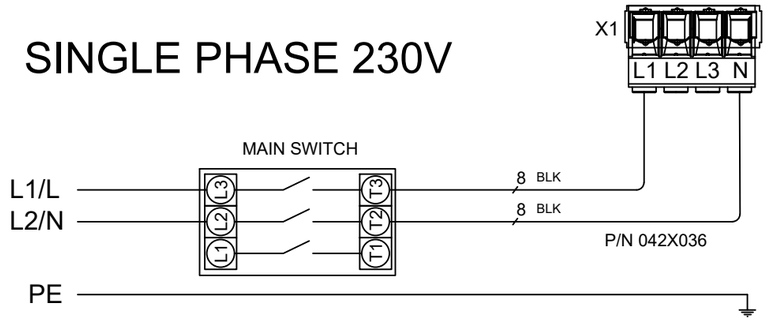
DRAWN BY: D.HEERDT | DATE: 11.10.10 | SHEET 1 OF SHEETS 6 | DRAWING NO. 115894

DWG. NO.	115894	SH 2	REV. S

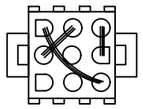
REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
15026	L	NEUTRAL TERMINAL MOVED	3.23.15	DH	
ECN1598	S	TRANSFORMER CONFIG ADDED	01.28.20	DH	

SINGLE PHASE 230V

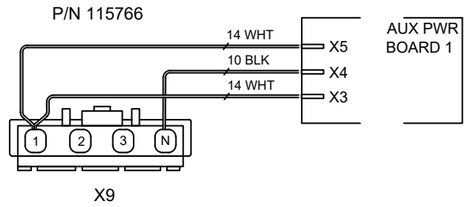


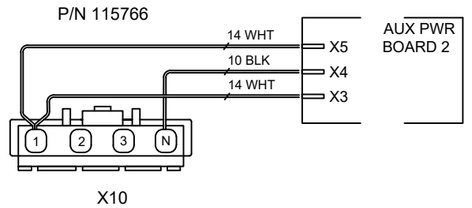
VOLTAGE CONFIGURATION PLUG



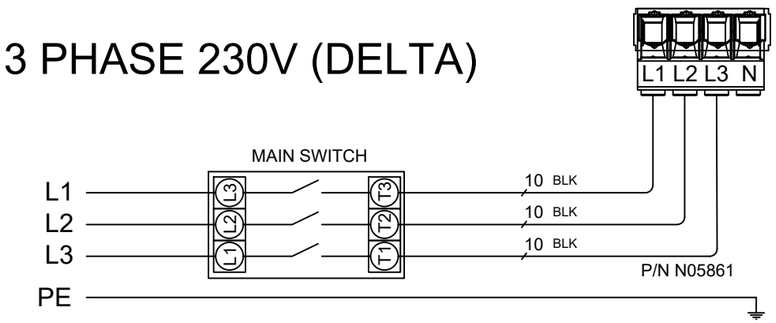
P/N 115724
BLACK

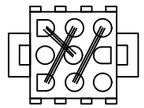
AUX POWER BOARD WIRING



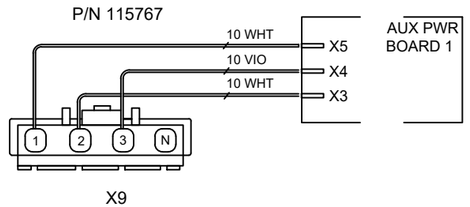


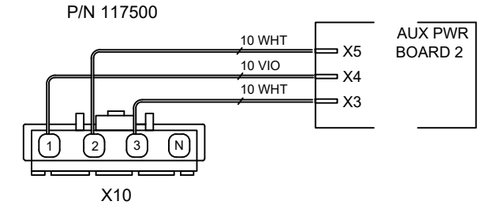
3 PHASE 230V (DELTA)



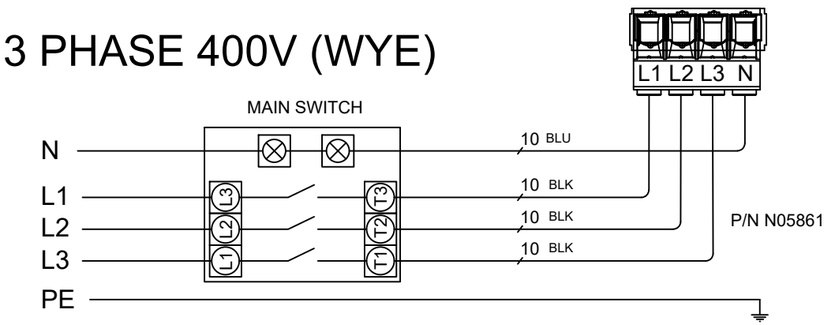


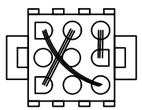
P/N 115725
VIOLET



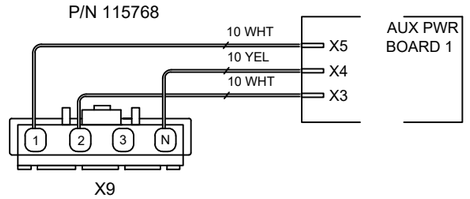


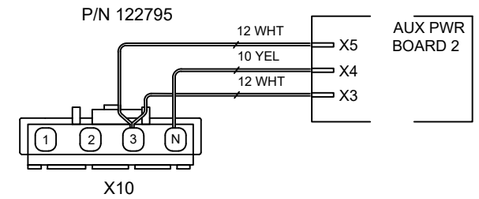
3 PHASE 400V (WYE)





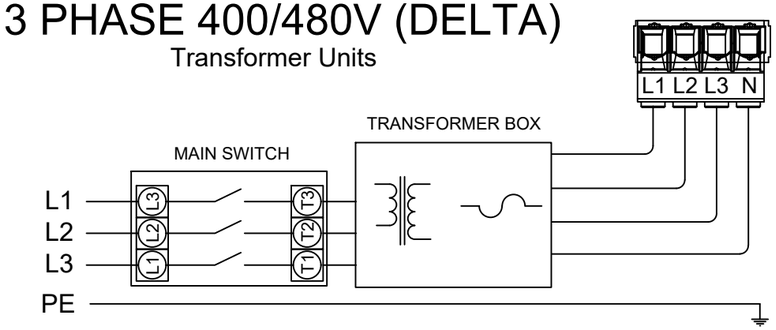
P/N 115726
YELLOW



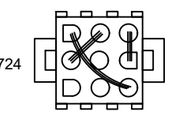


3 PHASE 400/480V (DELTA)

Transformer Units



2 Hose Units:



P/N 115724
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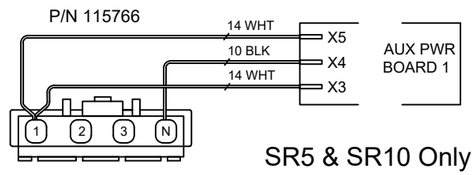
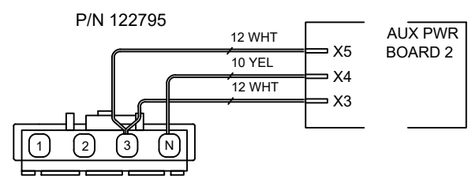
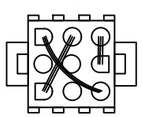


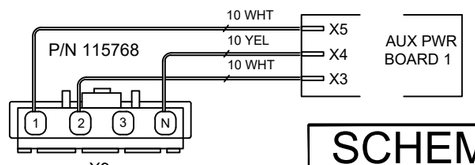
SR5 & SR10 Only



4 & 6 Hose Units:



P/N 115726
YELLOW



SCHEM,DM-SR

COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	SOURCE	REV.
SCHEM, DM-SR V6	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	S	

ITW Dynatec HENDERSONVILLE, TN

DM–SR VOLTAGE CONFIGURATION

DRAWN BY:	CHECKED BY:	THIS PAGE	NEXT PAGE
D.HEERDT	–		

DATE:	SHEET	OF SHEETS	DRAWING NO.
11.10.10	2	6	115894

DWG. NO.	115894	SH	3	REV.	S

REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
ECN1598	S	SR22 & SR45 ADDED	08.28.20	DH	

OPERATOR PANEL (NOT INSTALLED WHEN HEADLESS OPTION SELECTED)

DYNATEC ONLY

PN 115893

FROM POWER SUPPLY +24V RED

COM BLK

- + 24V

HMI / COM

READY SIGNAL

ALARM SIGNAL

LOW LEVEL ALARM

1 2 3 OUTPUT

- + PWR ON OUTPUT

V6-BASE PN 115734 REV. K & HIGHER

INPUT: ST.BY, IN2, IN3, IN4, PU.ST., IN-C.

COM, +24V, COM, LEVEL, +24V, +24V, P-PU

MOT.DRIVER: MA, MC, SC, S1, A1, AC

OVER TEMP, +24V, PRE, ENC, +24V, LINE, COM

PUMP ENABLE

LEVEL DETECT. (PAGE 4)

OV.TEMP T'STAT

H7

BLK

PISTON PUMP CONTROLLER

PISTON PUMP

PUMP SOLENOID 24VDC

GEAR PUMP ONLY

BLU/WHT, BLU, ORANGE, GRAY, BLK, RED

S1 S2 S3 S4 S5 SC A1 +V AC AM AC MA MB MC

YASKAWA J1000

FACTORY SET: POS. P

V6-BASE PN 115734 REV. J

INPUT IN1 IN2 IN3 IN4 IN5 IN6

P N

COM COM +24V +24V PP+ PP-

T'STAT OV-T

LEVEL DETECT.

PUMP ENABLE

PISTON PUMP

OV.TEMP T'STAT

SR05/10: FILTER BLOCK RTD

SR22/45: LOWER PREMELT RTD (OPTION)

SR10: PREMELT SR45: UPPER PREMELT OPTIONAL RTD

HOPPER RTD

HEAD1 RTD, HOSE1 RTD, HEAD2 RTD, HOSE2 RTD, HEAD3 RTD, HOSE3 RTD, HEAD4 RTD, HOSE4 RTD, HEAD5 RTD, HOSE5 RTD, HEAD6 RTD, HOSE6 RTD

H1 H2 H3 H4 H5 H6

ORANGE, BLUE, GRAY, WHT/BL

X2 X3 X4 X5 X6 X7 X8 X9 X10

V6-TEMP PN 115735

+ - OUT16

BLK RED

OUT2,4,5,6,7

OUT3,8,9,10,11

OUT1,12,13,14,15

X8 MAIN POWER BOARD PN 115732

X7 AUX POWER BOARD 1 PN 115733

X7 AUX POWER BOARD 2 PN 115733

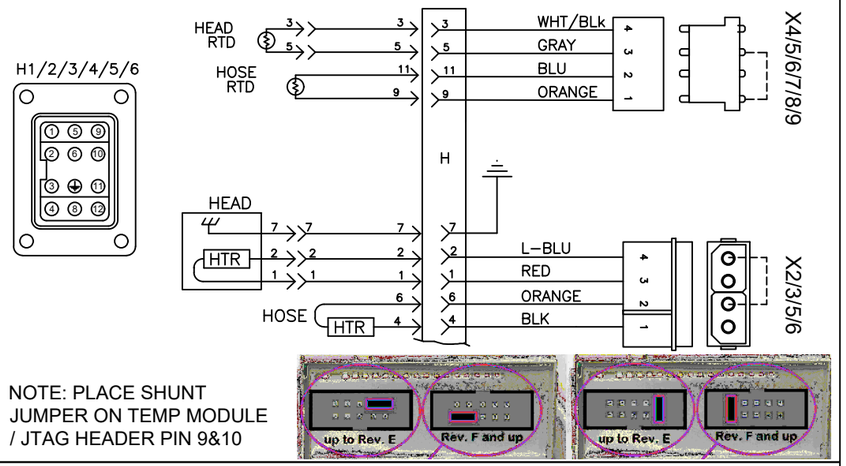
SCHEM,DM-SR05-45	TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN	
DO NOT SCALE DRAWING	U/M	DM-SR05-45 CONTROL MODULES	
COMPUTER DESCRIPTION(25 CHARACTERS)	NEXT ASSY.	STATUS S / SIZE B	DRAWN BY: D.HEERDT / CHECKED BY: – / THIS PAGE / NEXT PAGE
SCHEM, DM-SR05-45	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	SOURCE / REV. S	DATE: 11.10.10 / SHEET 3 OF SHEETS 6 / DRAWING NO. 115894

DWG. NO.	115894	SH 4	REV. S

REVISIONS

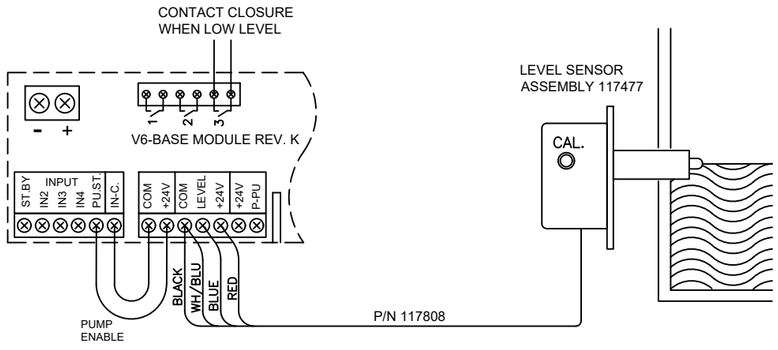
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
18041	R	PROFINET OPTION ADDED (P5)	09.08.16	DH	

NORDSON COMPATIBLE RECEPTACLE

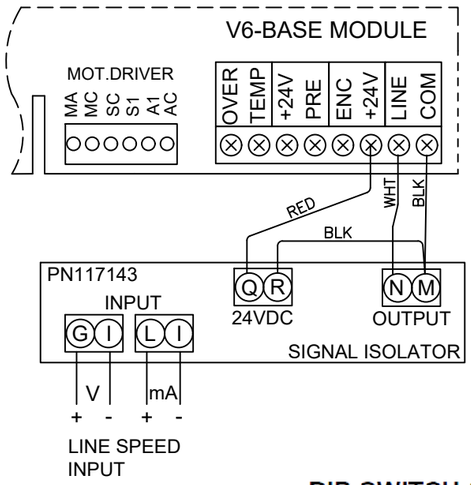


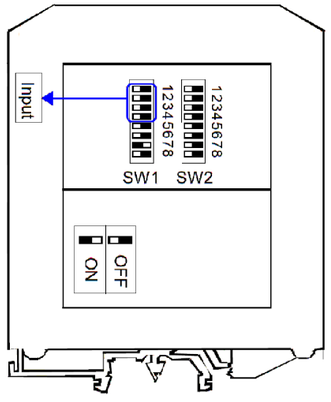
NOTE: PLACE SHUNT JUMPER ON TEMP MODULE / JTAG HEADER PIN 9&10

HOPPER LOW LEVEL DETECTION



SIGNAL ISOLATOR OPTION FOR GEAR PUMP

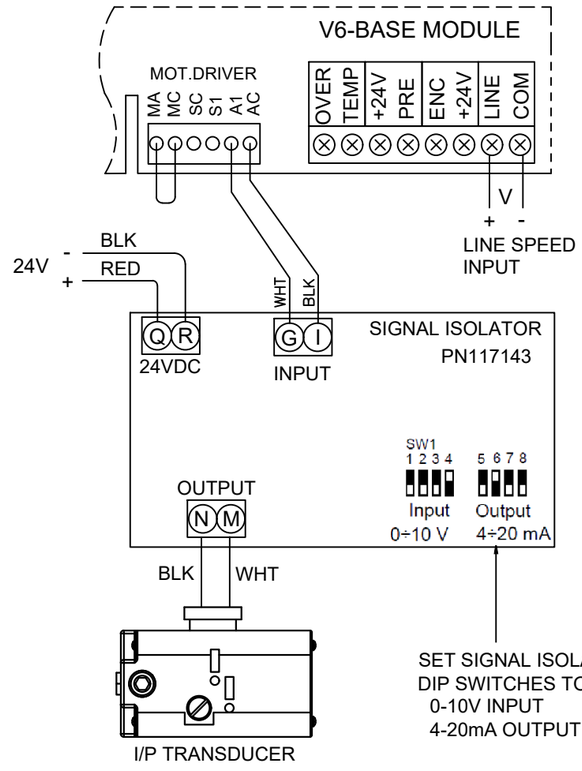




DIP-SWITCH CONFIGURATION

Input (SW1 1 2 3 4)	Output (SW1 5 6 7 8)
0÷20 mA	0÷10 V (DEFAULT)
4÷20 mA	
0÷10 V	
2÷10 V	
0÷5 V	
1÷5 V	

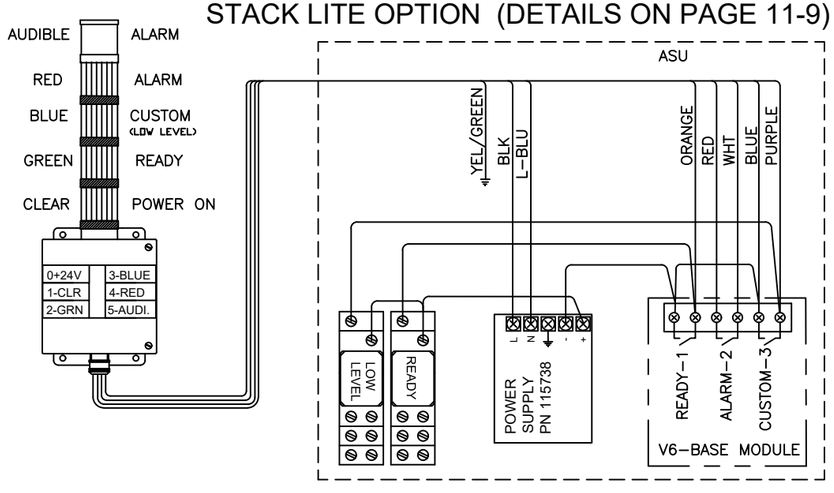
LINE SPEED FOLLOWING FOR PISTON PUMP



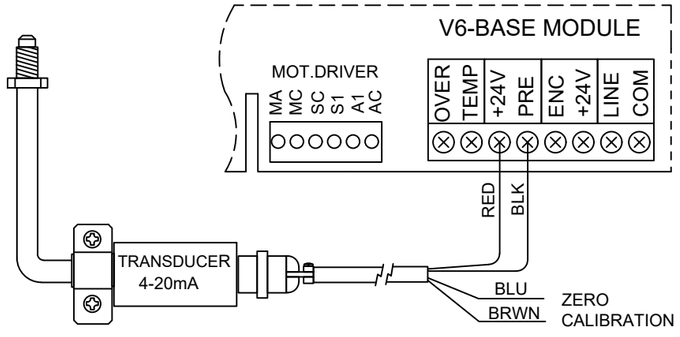
SET SIGNAL ISOLATOR'S DIP SWITCHES TO:
0-10V INPUT
4-20mA OUTPUT

NOTE: CHANGE PUMP TYPE TO VARIABLE %.

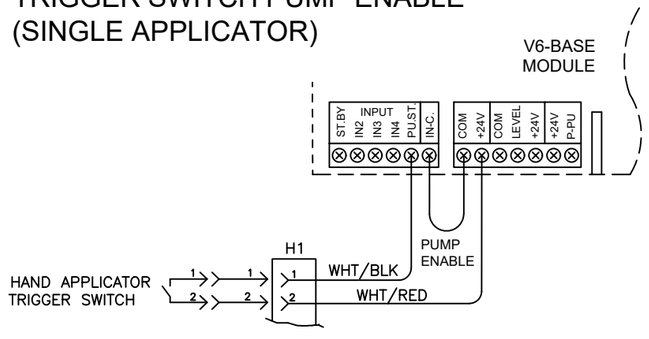
STACK LITE OPTION (DETAILS ON PAGE 11-9)



DIGITAL PRESSURE READOUT OPTION



TRIGGER SWITCH PUMP ENABLE (SINGLE APPLICATOR)



NOTE: CHANGE ACCEL/DECELERATION PARAMETERS C1-01/C1-02 to 1sec.

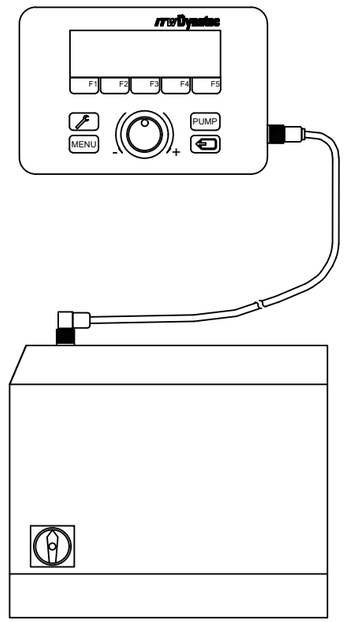
SCHEM,DM-SR05-45	TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN	
DO NOT SCALE DRAWING	U/M	DM–SR05–45 OPTIONS AND VARIATIONS	
COMPUTER DESCRIPTION(25 CHARACTERS) / NEXT ASSY.	STATUS S / SIZE B	DRAWN BY: D.HEERDT	CHECKED BY: –
SCHEM, DM-SR05-45	FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800 / SOURCE / REV. S	DATE: 05.25.11	SHEET 4 OF SHEETS 6 / THIS PAGE / NEXT PAGE / DRAWING NO. 115894

DWG. NO.	115894	SH 5	REV. S

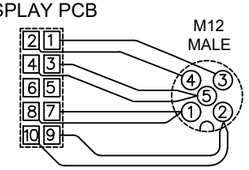
REVISIONS

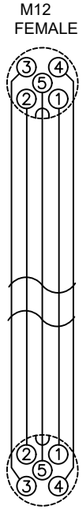
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
18041	R	PROFINET OPTION ADDED	03.26.18	DH	

PENDANT CONTROL OPTION



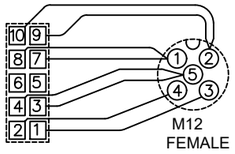
J2/RS232
ON DISPLAY PCB

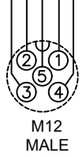




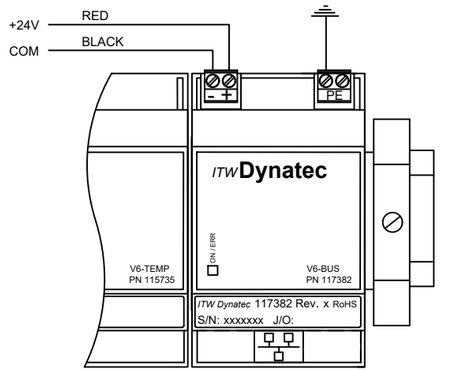
LENGTH: 13ft/4m
PN: 117238

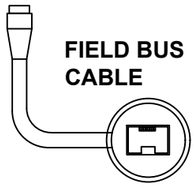
HMI/COM
ON BASE MODULE





COMMUNICATION OPTIONS





EtherNet/IP™

KIT - P/N 117381

PROFIBUS®

KIT - P/N 117485

EtherCAT®

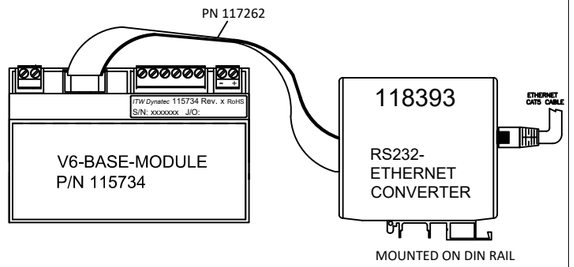
KIT - P/N 118753

PROFINET®

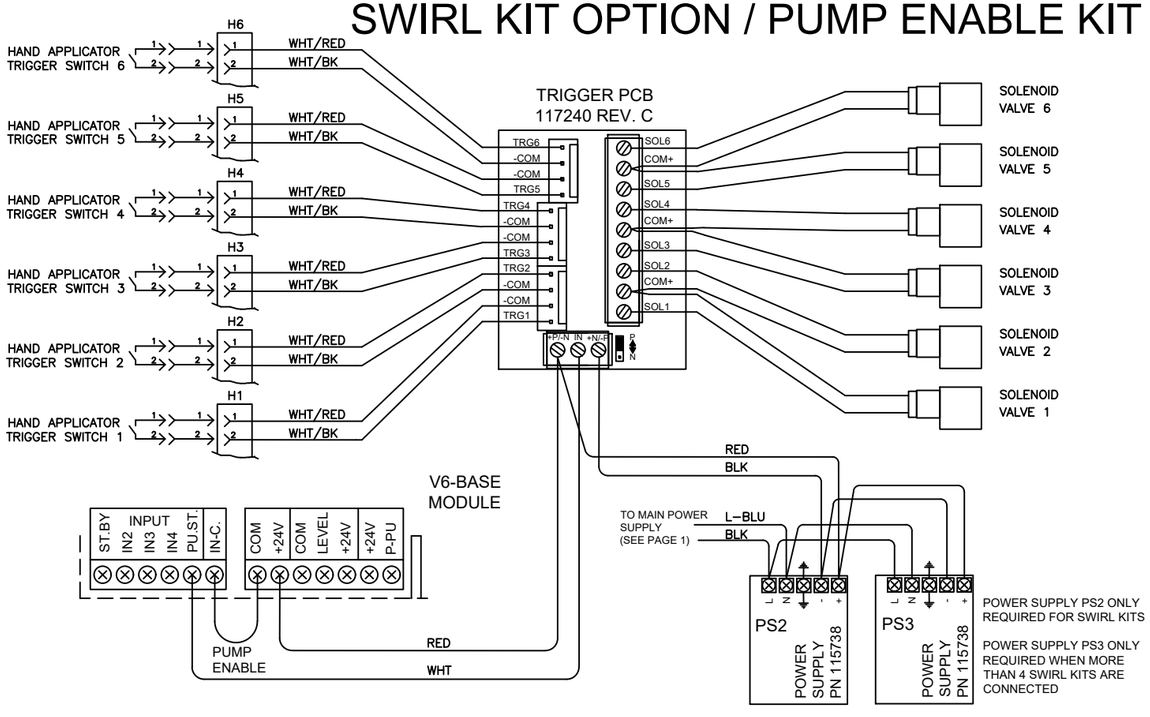
KIT - P/N 121436

'HEADLESS' OPTION

UNIT IS REMOTELY CONTROLLED BY A MASTER
UNIT CONNECTED VIA ETHERNET
NO OPERATOR PANEL INSTALLED ON THIS UNIT

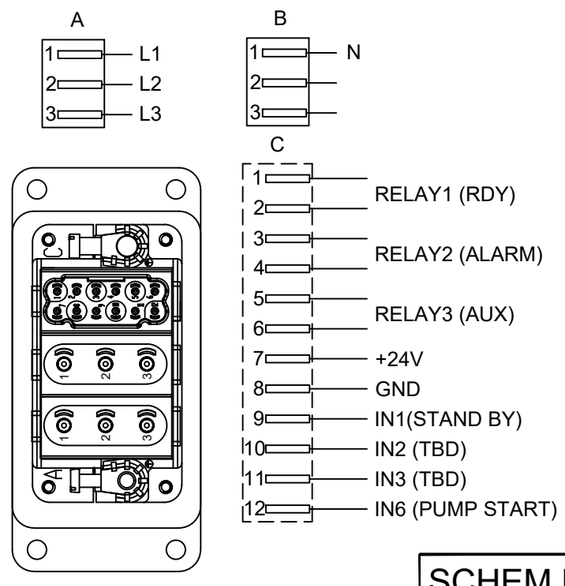


SWIRL KIT OPTION / PUMP ENABLE KIT



NOTE: CHANGE ACCEL/DECELERATION PARAMETERS C1-01/C1-02 to 1sec.

HARTING™ CONNECTOR



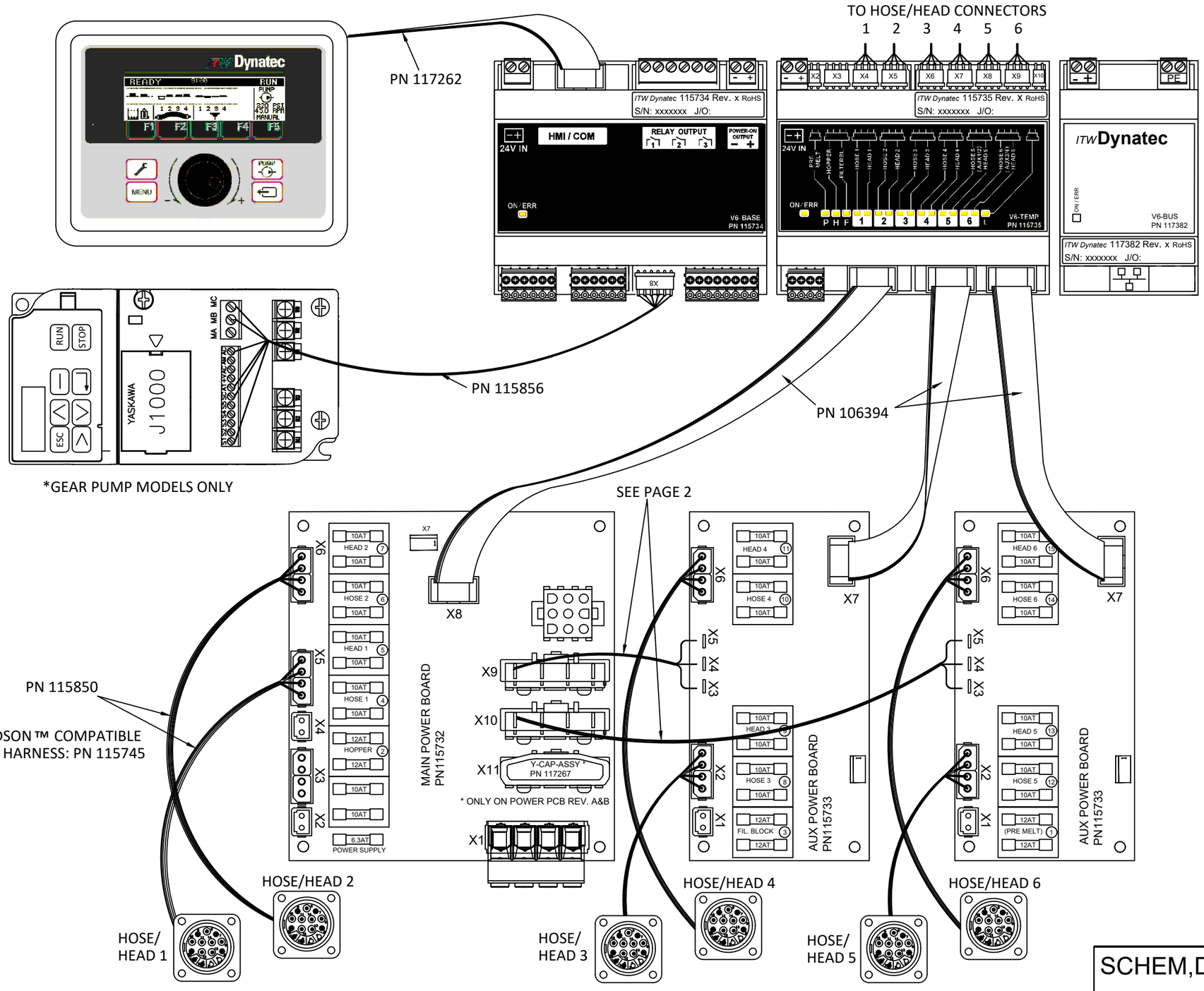
Han M10B BULKHEAD MOUNT,
WITH Han C/DD INSERTS

SCHEM,DM-SR05-45	TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN	
DO NOT SCALE DRAWING	U/M	DM–SR05–45 OPTIONS AND VARIATIONS	
COMPUTER DESCRIPTION(25 CHARACTERS) / NEXT ASSY.	STATUS S / SIZE B	DRAWN BY: D.HEERDT	CHECKED BY: –
SCHEM, DM-SR05-45	SOURCE / REV. S	DATE: 05.25.11	SHEET 5 OF SHEETS 6
FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800		THIS PAGE	NEXT PAGE
		DRAWING NO. 115894	

DWG. NO. 115894 SH 6 REV. S

REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
NGSM	A	ORIGINAL RELEASE	02.09.12	DH	
12276		THIS PAGE ADDED	12.05.12	DH	
13224	F	HARNESS PN CORRECTED	08.05.12	DH	
13287	G	STACK LITE SCHEMATIC CORRECTED	09.23.13	DH	
13365	J	PROFIBUS/ETHERCAT OPT. ADDED	01.10.14	DH	
14051	K	24VDC GROUNDED	03.05.14	DH	
14130	L	AUX INPUTS CHANGED TO PNP	07.17.14	DH	
14152	M	SWIRL BOARD REV.C (POL. 'P')	10.09.14	DH	
15040	P	FUSE RATING CHANGED	06.15.15	DH	
15172	Q	BASE MOD REV. K	09.08.16	DH	
18041	R	PROFINET OPTION ADDED	03.26.18	DH	
20.1272	S	SR22/45 ADDED	08.26.20	DH	



SCHEM,DM-SR05-45	TOLERANCES (UNLESS OTHERWISE SPECIFIED)	ITW Dynatec HENDERSONVILLE, TN	
DO NOT SCALE DRAWING	U/M	DM–SR05–45 INTERCONNECTIONS	
COMPUTER DESCRIPTION(25 CHARACTERS) / NEXT ASSY.	STATUS: S / SIZE: B	DRAWN BY: D.HEERDT	CHECKED BY: — / THIS PAGE / NEXT PAGE
SCHEM, DM-SR05-45 / FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800	SOURCE / REV.: S	DATE: 11.10.10	SHEET 6 OF SHEETS 6 / DRAWING NO. 115894

Chapter 12
Appendix

12.1 DynaControl V6 / Fieldbus Option

The V6 Fieldbus options allows any V6-based unit to be monitored and controlled remotely.

Available options are:
- Profibus
- ProfiNet
- Ethernet/IP
- 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.

12.2 Gear Pumps

Gear Pumps, Safety and Operation

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

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

General Description

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

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

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

Gear Pump types

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

* TSHA = Tool Steel, High Accuracy

General Safety Instruction

WARNING

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

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

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

Installation

WARNING

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

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

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

Operation

WARNING

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

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

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

Safety Notes on Start-Up

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

Heating, Cooling During Operation

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

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

Shutdown

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

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

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

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

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

Restarts

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

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

WARNING

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

Airborne Noise

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

Maintenance

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

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

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

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

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

Maintenance Notes

WARNING

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

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

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

Pump shaft Leakage

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

If the pump uses Packing seals:

WARNING

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

Cleaning

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

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

Troubleshooting

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

Reconditioning

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

Pump Shaft Seal Replacement

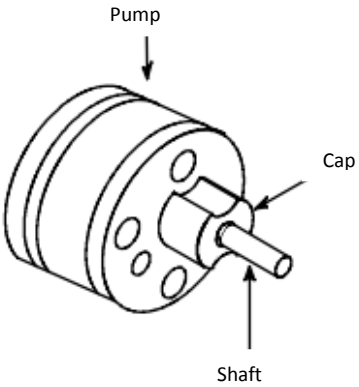
The ITW Part Number for all Tool Steel High Accuracy Pump Shaft Seals (8.5cc and smaller) is PN 807729.

DANGER HOT SURFACE & HIGH VOLTAGE

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

Pump Shaft Seal (O-ring) Replacement:

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



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

Transport / Storage

DANGER

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

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

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

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

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

12.3 Signal Isolator

Signal Isolator, V6, PN 117143

General Description
The isolated converter DAT 4531 D is able to measure voltage and current signals. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performance stability both versus time and temperature.

The programming is made by dip-switch located in the window on the side of the enclosure. By means of dip-switches it is possible to select the input type and range and the output type without recalibrate the device.
Moreover, by Personal Computer the user can program all of the device's parameters for his own necessity.
The 1500 Vac galvanic isolation on all ways (input, output and power supply) eliminates the effects of all ground loops eventually existing and allows the use of the converter in heavy environmental conditions found in industrial applications.
The DAT 4531 D is in compliance with the standard 89/336/CEE on the Electromagnetic Compatibility.
It is housed in a plastic enclosure of 12.5 mm thickness suitable for DIN rail mounting in compliance with EN-50022 and EN-50035 standards.

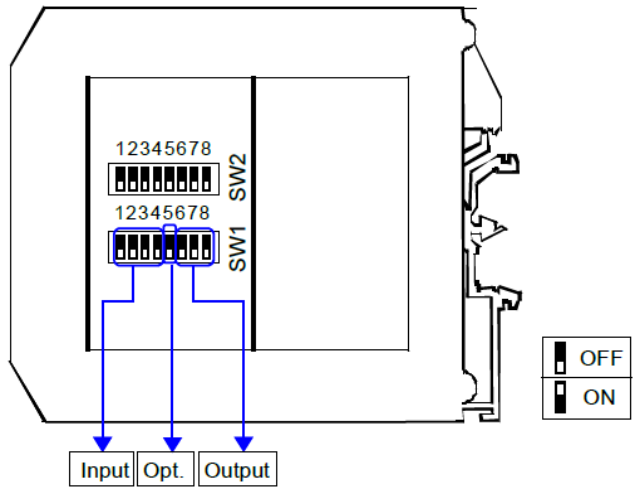
User Instructions
The converter must be powered by a direct voltage applied to the terminals Q and R.
The input channel measures the value from the sensor connected to the terminals I, L and G and transmits the output measure on the terminals N and M.
The input and output connections must be made as shown in the section "Connections".
It is possible to configure the converter on field by dip-switch or Personal Computer as shown in the section "Programming".
The configuration by dip-switches can be made also if the device is powered (Note: after the configuration the device takes some seconds to provide the right output measure).

Light Signalling

LED	COLOR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered.
		OFF	Device not powered
		BLINKING	Wrong dip-switches setting

Programming

Configuration by DIP-Switches

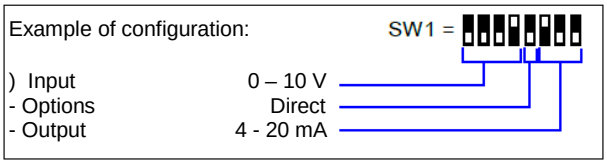


1) Open the suitable door on the side of the device. Refer to TAB.1.

2) Set the input type by the dip-switch SW1 [1..4].

3) Set the output type by the dip-switch SW1 [6..8].

4) Set the options type by the dip-switch SW1 [5].



NOTE:
It is also possible to set the dip-switches using the wizard of the configuration software following the procedure described in the section “Configuration by PC” until the step 6 and slicking on “Switch”.

DIP-Switch Configuration Tables

TAB.1 - Settings

Input	Output	Options
SW1 1 2 3 4	SW1 6 7 8	SW1 5 Out:
Default *	0÷20 mA	Direct
0÷20 mA	4÷20 mA	Reverse
4÷20 mA	0÷10 V	
0÷10 V	2÷10 V	
2÷10 V	0÷5 V	
0÷5 V	1÷5 V	
1÷5 V		

NOTES:
* If the dip-switches SW1 [1..4] are all set in the position 0 (“Default”), the device will follow the configuration programmed by PC (Input and output type and options).

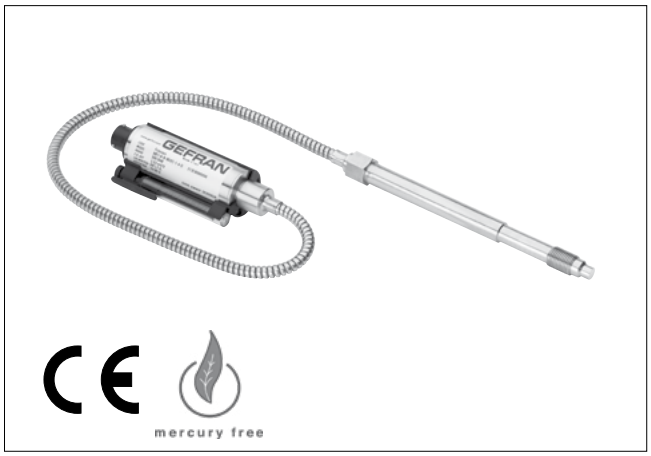
* Eventual wrong dip-switches settings will be signalled by the blinking of the LED “PWR”.

12.4 Pressure Transducer

GEFRAN

OIL FILLED MELT PRESSURE TRANSMITTERS

WE SERIES *Output 4...20mA*



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

MAIN FEATURES

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

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

AUTOZERO FUNCTION

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

AUTOCOMPENSATES INFLUENCE OF MELT TEMPERATURE

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

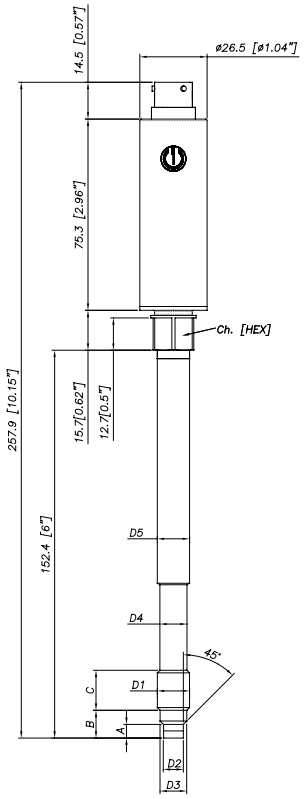
TECHNICAL SPECIFICATIONS

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

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

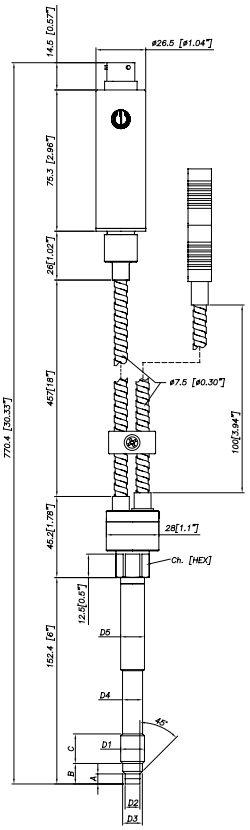
MECHANICAL DIMENSIONS

WE0

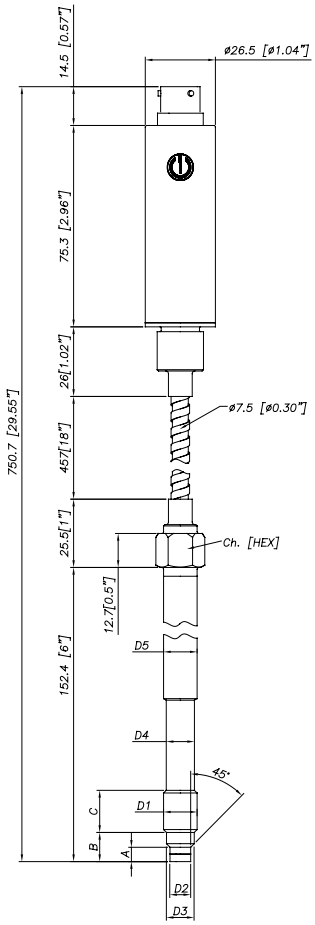


D1	1/2 - 20UNF
D2	ø7.8 -0.05 [ø0.31" -0.002]
D3	ø10.5 -0.025 [ø0.41" -0.001]
D4	ø10.67 [ø0.42"]
D5	ø12.7 [ø0.5"]
A	5.56 -0.26 [0.22" -0.01]
B	11.2 [0.44"]
C	15.74 [0.62"]
Ch [Hex]	16 [5/8"]

WE2

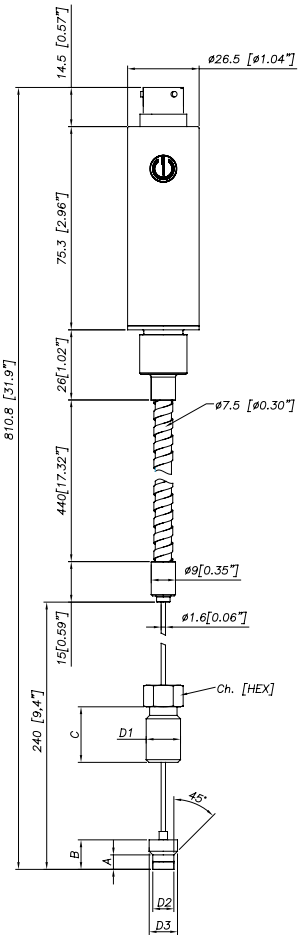


WE1



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

WE3



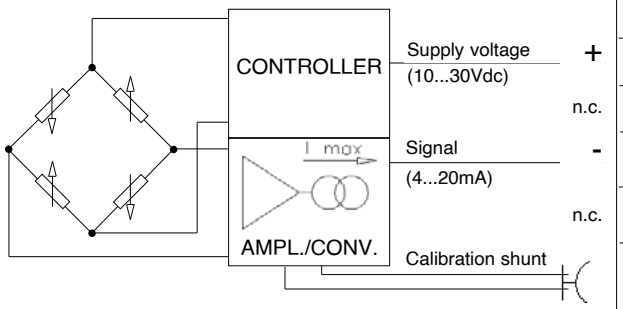
Exposed capillary	
D1	1/2-20UNF
D2	.307/.305" [7.80/7.75mm]
D3	.414/.412" [10.52/10.46mm]
A	.125/.120" [3.18/3.05mm]
B	.318/.312" [8.08/7.92mm]
C	.81" [20.6mm]

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

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

ELECTRICAL CONNECTIONS

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



MAGNETIC AUTOZERO

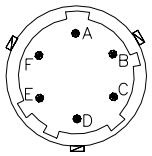
6-pin	8-pin
A	B
C	A
B	D
D	C
E - F	E - F
	G - H

EXTERNAL AUTOZERO

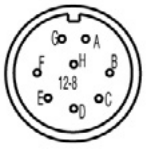
6-pin	8-pin
A	B
C	A
B	D
D	C
E - F	E - F
	G - H

Shield drain wire is tied to connector via cable clamp

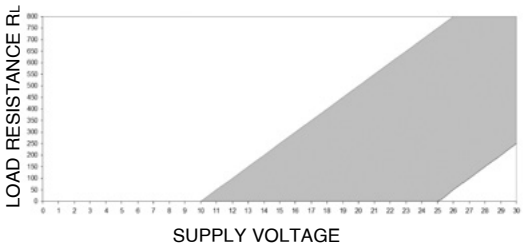
6 pin connector
VPT07RA10-6PT2
(PT02A-10-6P)



8 pin connector
PC02E-12-8P Bendix

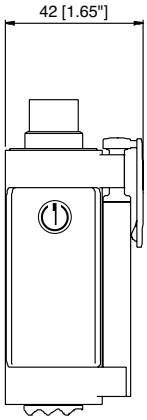


LOAD DIAGRAM



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

AUTOZERO FUNCTION



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

ACCESSORIES

Connectors

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

Extension cables

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

Accessories

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

Thermocouple for WE2 model

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

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

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

ORDER CODE

W -□-□-□-□-□-□□□□-□-□-□-□- **000**

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

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

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

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

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

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

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

000= Standard version
Special or customized versions available on request

E	External autozero
-	Magnetic autozero

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

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

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

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

Examples

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

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

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

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

GEFRAN spa
via Sebina, 74
25050 PROVAGLIO D’ISEO (BS) - ITALIA
tel. 0309888.1 - fax. 0309839063
Internet: http://www.gefran.com

12.5 Manual Revisions

Revision	Page/Chapter	Update description
Rev.3.18	27	Pumps removed Filter removed (40, 80, 150, 200-mesh) Accessories changed
	78, 123, 130	Service kits for filter removed.
	92	V6 zone tables added.
	123	Pressure relief valves options added.
	127	V6 ProfiNet Kit PN 121436 added.
	133	Sheet Metal Assembly, 5 & 10 L Units, PN 115881 – item 29 = 117268 Gasket, hopper collar – removed.
	134	PN 117382 replaced with 118125.
	136	Note to items 11 and 12 added.
	156	Drawing and list from 115540 removed.
	162	DynaControl V6 Fieldbus options added.
Rev.8.18	27	Designation Matrix updated according to PLS2018.
	Ch.9	Swirl kit and signal isolator options added.
Rev.11.18	29	Designation Matrix updated according to Configurator.
	Ch.2 and Ch.6	Cleaning recommendation added.
Rev.2.19	Ch.5	V6 LCD: CV% added to Info screen.
Rev.10.19	Ch.5	V6 LCD display updated.
	p.126	Gear pump repair kit 103151 updated.
Rev.10.20	Ch.6.5	Filter replacement updated.
Rev.11.20	Ch.3&7	Description of fuse 112568 to 10AF and fuse 119975 to 12AF updated. PCBs illustrations 115732D and 115733D to 10AF and 12AF updated.
Rev.5.21	-	SR22/45 versions added.
	Ch.5.2.5	Hi/Lo Tolerance (P2) setting updated.
Rev.6.21	-	Filter and Shutoff assemblies and functions updated.
Rev.8.21	Ch.10.2	Cabinet Assembly, SR22/45, updated.
Rev.9.21	Ch.3.2	The weights for SR22 and 45 added under Specifications.
Rev.12.21	Ch.10.1	Gear Pump Drive Asy, SR5/10, PN 116856 updated.
Rev.1.22	Ch.10.2	Hopper (Tank) Assembly, SR22/45 updated.
Rev.2.22	Ch.10.1	Filter manifold 115706/117445 and 115708/117446 updated.
Rev.10.22	Ch.9	Premelt grid 119422 Rev. C drawing updated (Harness 115769 for 400V replaced by 122795).
	Ch.10.1	Cover plate PN 110751 (typo) replaced by 117051 in Filter Manifold Assembly w. dual stream for SR5/10.
	Ch.11.3	Schematics 115894 Rev. S updated.
	Ch.10	PN 123274 Motor Speed Control, VF, 230V, 3PH,1/2HP, Yaskawa, (programmed version of motor control PN 115138), added.
Rev.11.22	Ch.3.2	Specifications: Maximum operating temperatures of 218°C (425°F) added.
Rev.12.22	Ch.6.5	Filter replacement updated.
Rev.4.23	Ch.1	EC Declaration of Conformity updated.
Rev.5.23	Ch.10.2	Cabinet and Electronics assemblies SR22/45 updated with the new rear panel.
Rev.7.23	P.1	Manual language added.
Rev.4.24	Ch.3.2.2	Specifications / Lid opening dimensions added.
Rev.3.25	Ch.10.2.1	Lid asy PN 123639 (item 17) added to Cabinet Assembly, SR22/45.
Rev.5.25	Ch.9.20.1	Premelt grid 119422 Rev. D drawing updated.

ITW Dynatec Service Parts and Technical Service:

AMERICAS

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

EUROPE, MIDDLE EAST & AFRICA

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

ASIA PACIFIC

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

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