GRISWOLD™ 811

A DOVER COMPANY

SAFETY SUPPLEMENT

Congratulations!

You are the owner of a Griswold Model 811 ANSI B73.1 Process Pump. The finest ANSI pump made. The utmost care has been taken in the manufacture of this pump, and as a result our warranty for this product is:

WARRANTY

Seller warrants equipment (and its component parts) of its own manufacture against defects in materials and workmanship under normal use and service for five (5) years after the date of shipment. Seller does not warrant accessories or components that are not manufactured by Seller. However to the extent possible Seller agrees to assign to Buyer its right under the original manufacturer's warranty, without recourse to Seller. Buyer must give Seller notice in writing of any alleged defect covered by this warranty (together with all identifying details, including the serial number, the type of equipment, and the date of purchase) within thirty (30) days of the discovery of such defect during the warranty period. No claim made more than 30 days after the expiration of the warranty period shall be valid.

Guarantees of performance and warranties are based on the use of the original equipment manufactured (OEM) replacement parts. Griswold Pump Company assumes no responsibility or liability if alterations, non-authorized design modifications and/or non-OEM replacement parts are incorporated.

If requested by the Seller, any equipment (or its component parts) must be promptly returned the Seller prior to any attempted repair, or sent to an authorized service station designated by Seller, and Buyer shall prepay all shipping expenses. Seller shall not be liable for any loss or damage to goods in transit, nor will any warranty claim be valid unless the returned goods are received intact and undamaged as a result of shipment. Repaired or replaced material returned to customer will be shipped F. O. B., Seller's factory. Seller will not give Buyer credit for parts or equipment returned to Seller, and will not accept delivery of any such parts or equipment, unless Buyer has obtained Seller's approval in writing.

The warranty extends to repaired or replaced parts of Seller's manufacture for ninety (90) days or for the remainder of the original warranty period applicable to the equipment or parts being repaired or replaced. This warranty applies to the repaired or replaced part and is not extended to the product or any other component of the product being repaired.

Repair parts of its own manufacture sold after the original warranty period are warranted for a period of one (1) year from shipment against defects in materials and workmanship under normal use and service. This warranty applies to the replacement part only and is not extended to the product or any component of the product being repaired.

Seller may substitute new equipment or improved part(s) of any equipment judged defective without further liability. All repairs or services performed by Seller, which are not covered by this warranty, will be charged in accordance with Seller's standard prices then in effect.

THIS WARRANTY IS THE SOLE WARRANTY OF SELLER AND SELLER HEREBY EXPRESSLY DISCLAIMS AND BUYER WAIVES ALL OTHER WARRANTIES EXPRESSED, IMPLIED IN LAW OR IMPLIED IN FACT, INCLUDING ANY WARRANTIES OR MERCHANT ABILITY OR FITNESS OF A PARTICULAR PURPOSE. Seller's sole obligation under this warranty shall be, at its option, to repair or replace any equipment (or its components parts) which has a defect covered by this warranty, or to refund the purchase price of such equipment or part under the terms of this warranty, Seller shall not be liable for (a) consequential, collateral, special or liquidated losses or damage; (b) equipment conditions caused by normal wear and tear, abnormal conditions of use, accident, neglect, or misuse of said equipment; (c) the expense of, and loss or damage caused by, repairs or alterations made by anyone other than the Seller; (d) damage caused by abrasive materials, chemicals, scale deposits, corrosion, lightning, improper voltage, mishandling, or other similar conditions; (e) any loss, damage, or expense relating to or resulting from installation, removal or reinstallation of equipment; (f) any labor costs or charges incurred in repairing or replacing defective equipment parts, including the cost of reinstalling parts that are repaired or replaced by Seller; (g) any expense of shipment of equipment or repaired or replacement parts; or (h) any other loss, damage or expense of any nature.

CONDITION OF WARRANTY WORK: If Buyer is in default (including, but not limited to, the failure of Buyer to maintain a current account with Seller) under the Order or any other agreement between Buyer and Seller, Buyer's rights under the warranty shall be suspended and the original warranty period will not be extended.

PERFORMANCE: Equipment performance is not warranted or guaranteed unless separately agreed to by Seller in accordance with its guarantee policy. Performance curves and other information submitted to Buyer are approximate and no warranty or guarantee shall be deemed to arise as a result of such submittal. All testing shall be done in accordance with Seller's standard policy.

LIABILITY LIMITATIONS: Under no circumstances shall the Seller have the liability under the Order or otherwise for liquidated damages or for collateral, consequential or special damages or for loss of profits, or for actual losses of production or progress of construction, regardless of the cause of such damage or losses. In any event, Seller's aggregate total liability under the Order or otherwise shall not exceed the contract price. Buyer agrees to indemnify and hold harmless Seller from all claims by third party in excess of these limitations.

COMPLIANCE WITH LAW: Since the compliance with the various Federal, State, and Local laws and regulations concerning occupational health and safety and pollution are affected by the use, installation and operation of the equipment and other matters over which Seller has no control. Seller assumes no responsibility for compliance with those laws and regulations, whether by way of indemnity, warranty, or otherwise.

TABLE OF CONTENTS

INTRODUCTION:

This safety manual applies to all Griswold pumps and provides instructions for safe installation, operation, inspection, and maintenance. Failure to follow these instructions could result in severe personal injury, including death, and/or substantial product and/or property damage.

This document is a supplement to the Installation, Operation, and Maintenance Manual and provides additional cautions and warnings related to CE & ATEX. It is important to refer to the Installation, Operation, and Maintenance Manual for additional information about specific products.

When pumps are used in potentially explosive or ATEX classified areas, additional measures are required to ensure that the equipment is properly installed, operated, and maintained. This includes:

- Maintaining the pump as per the instructions provided in the Installation, Operation, and Maintenance Manual to prevent any preventable failures and reduce hazards.
- Inhibiting spark and/or heat generation
- Stopping explosive mixtures from building up
- Monitoring the pump temperature in order to keep it below the rated temperature of equipment
- Monitoring the pump fluid temperature in order to keep the fluid from vaporizing (this includes the seal system)
- Preventing process fluid and oil leaks
- Operating the pump only within the manufacture's recommended hydraulic range.

The pump unit must be installed and operated as per its intended use, and the bare pump and all auxiliary equipment, electrical and non-electrical, must comply with the European Directive 94/9/EC requirements.

The latest Installation, Operation, and Maintenance Manual s can be found at www.griswoldspumps.com or from your local Griswold Pumps Sales representative.

SAFETY DEFINITIONS:

The terms CAUTION, WARNING, ELECTRICAL HAZARD, and ATEX are used throughout the instruction manual to identify instructions that require particular attention by the operators and/or maintenance personnel. Where these terms are highlighted in the Pump Safety Manual and the Installation, Operation, and Maintenance Manual, they need to be complied with.

CAUTION: This term identifies a hazardous condition which may result in moderate injury and/or equipment damage.

Example: ALWAYS bolt pumps down to a secure surface that is both level and flat. During operation, unwanted movement of the pump could occur.

WARNING: This term identifies a hazardous condition which may result in serious injury, death, and/or equipment damage.

Example: NEVER operate pump without safety devices installed. Operating a pump without the safety devices may result in personnel injury and/or equipment damage.

ELECTRICAL HAZARD: This term identifies a hazardous condition which may result in the possibility of electrical risks if directions are not followed.

Example: ALWAYS disconnect power supply before performing installation or maintenance procedures.

ATEX: Any instructions directly trailing the Ex symbol must be fully adhered to when this equipment is installed in a potentially explosive environment. If these instructions are not abided by, bodily injury and/or damage to equipment may occur.

Example: ALWAYS follow the detailed procedure for setting the impeller clearance that is defined in the pump's Installation, Operation, and Maintenance Manual in order to prevent damage to pump components and the generation of heat and/or sparks.

A Griswold Pumps representative can be contacted to address any questions relating to these instructions or equipment modifications.

The actual ATEX classification of the pump will be engraved on the nameplate. An example of ATEX equipment marking is shown below:

ATEX / CE Nameplate:

CE Ex

II 2 GD c IIC TX

ATEX / CE Nameplate:

II	2	GD	c	IIC	TX	
						TX = Equip. surface temperature will not exceed -- °C (-- °F) (Refer to ATEX Temperature Class Designation Table)
						IIC = Protection in gas groups up to IIC
						c = Constructional safety in accordance with EN13463-5
						G = Gas and D = Dust
						2 = Equipment category 2 (i.e. Zone 1)
						II = Group II environment (i.e. Above ground—reference table below)

ATEX Explosion Group Designation Table:

Explosion Group	Use
Group I	Electrical equipment utilized in mines
	➔ Subject to fire-damp
	➔ Fire-damp protection Eex
Group II	Electrical equipment utilized in all other areas
	➔ Subject to explosion hazards
	➔ Explosion protection Eex

ATEX Explosion Group Designation Table:

Equipment Category	Zone		Description
	Gases EN 60079-10	Dusts EN 61241-10	
Category 1	Zone 0	Zone 20	Areas where an explosive atmosphere is present continuously or for long periods
Category 2	Zone 1	Zone 21	Areas where an explosive atmosphere is likely to occur in normal operation
Category 3	Zone 2	Zone 22	Areas where an explosive atmosphere is not likely to occur in normal operation

ATEX Equipment Category Designation Table:

Explosion Group	TEMPERATURE CLASSES					
	T1	T2	T3	T4	T5	T6
I	Methane	Ethyl alcohol	Petrol	Acetylaldehyde		
II A	Acetone Ethane Ethylacetate Ammonia Benzene (pure) Ethanoic acid Carbon monoxide Carbon oxide Methane Methanol Propane Toluol	i-amyl acetate n-butane n-butylalcohol	Diesel fuel Aircraft fuel Heating oils n-hexane	Ethylether		
II B	City gas (Illuminating Gas)	Ethylene				
II C	Hydrogen	Acetylene				Carbon bisulfide

ATEX Temperature Class Designation Table:

Temperature Class	Max. Surface Temp	Max. Fluid Temp
T1	450 °C (842 °F)	260 °C (500 °F)
T2	300 °C (572 °F)	260 °C (500 °F)
T3	200 °C (392 °F)	175 °C (347 °F)
T4	135 °C (275 °F)	110 °C (230 °F)
T5	100 °C (212 °F)	Consult Factory
T6	85 °C (185 °F)	Consult Factory

GENERAL:

WARNING / ATEX

- Centrifugal pumps pose many safety and hazardous concerns. It is important to identify these and incorporate all reasonable safety and operational precautions to prevent injury, damage, etc. Griswold Pumps is not responsible and cannot be held liable for any bodily injury and/or damage resulting from a failure to adhere to the instructions and requirements of this manual and the Installation, Operation, and Maintenance Manual that is shipped with the equipment.

WARNING / ATEX

- Centrifugal pumps are both, turbomachines and pressure vessels, and if not operated properly can be hazardous to personnel, other equipment, and/or the environment. Do not exceed the maximum fluid housing pressure. Overpressurizing any equipment above its design limits can cause the equipment to fail without warning, as the result of a rupture or explosion of the pressure boundary of the pump. This reaction can result in personnel injury and/or death. It can also result in property and/or environmental damage. It is the user's responsibility to ensure that the equipment is not pressurized above its designed limits.

WARNING / ATEX

- The pumpage fluid may be a safety and/or environmental hazard. It is likely to have a high temperature and/or pressure. Additionally, it may also be toxic, corrosive to tissue, flammable, water reactive, acidic, oxidizing, explosive, and/or other hazards. It is important to determine what hazards the pumped fluid poses to personnel, equipment, and the environment and to eliminate the possibility of exposure.

WARNING / ATEX

- There is a risk of fire and/or explosion if certain conditions exist. These conditions include, but are not limited to, the following:
  - Pumping flammable fluids (in some cases, an additional risk may be created by vapors or gases resulting when the process fluid escapes by leaking, component failure, or improper maintenance.)
  - Product used in flammable atmospheres (flammable atmospheres can be caused by the presence of gases, dusts, or vapors)
  - Placement of flammable materials near product

WARNING / ATEX

- Applications in which oxygen is entrained within the fluid are not suitable for these units because they create an explosive environment inside of the pump.

WARNING / ATEX

- Be aware of the hazards associated with the specific application and confirm that the application's environment conforms to all applicable laws, regulations and codes.

WARNING / ATEX

- Do not use the product if there is any doubt about the safety of the application.

WARNING / ATEX

- Mechanical operation and flowing fluids can generate static electricity. Groundable products are required for all potentially flammable or explosive applications to prevent static spark. The pump, piping, valves, containers and other equipment must be grounded. Periodic inspection of the ground connection should be performed to ensure the equipment is properly grounded.

WARNING / ATEX

- The surface temperature of the equipment must be kept below the ignition temperature of any potential explosive atmosphere. The surface temperature is affected by the temperature of the fluid being pumped and the kinetic energy added by the pump and application (e.g., recirculation of process media). The end user must ensure process media and equipment maximum temperature is acceptable for the environment.

WARNING / ATEX

- Electrical products have special considerations when used in explosive environments. Ensure electrical products possess the correct rating for the intended application.

WARNING / ATEX

- Solids immersed in the pumped fluid shall not exceed the published limits. If a fluid contains solids that are larger than the allowable sizes, additional heat and/or sparks may be generated as a result of a flow path obstruction or "pinning" of the solid. In applications with immersed solids, Griswold recommends the installation of temperature gauges and/or transmitters in order to monitor the temperature of the pump.

WARNING / ATEX

- When abrasive slurries are being pumped, additional heat may be generated in the pump. In applications with abrasive solids, Griswold requires the installation of temperature gauges and/or transmitters in order to monitor the temperature of the pumps.

WARNING / ATEX

- Application pressures and temperatures, product maximum pressures, and an acceptable factor of safety should all be considered when selecting suction and discharge piping and hoses. Consult the product Installation, Operation, and Maintenance Manual or your local distributor for further information.

WARNING / ATEX

- Pumps shall not be operated with a blocked suction or discharge and the operator must incorporate all reasonable safety and operational protocols to prevent this situation from occurring. If the pumps are operated with a blocked suction or discharge, even for short and intermittent period, the pumped fluid can superheat and/or overpressurize causing the pump to fail and result in a catastrophic explosion. Additionally a blocked discharge will increase the surface temperature of the pump.

WARNING / ATEX

- Griswold's Instructions, Operations, and Maintenance manuals specifically define how to store, install, disassemble, and maintain the pump units. If the client or their representative does not follow these instructions, a safety concern may exist and damage to the equipment may occur. Griswold has field service personnel that can be contracted to assist with commissioning, de-commissioning, maintaining, and troubleshooting the equipment, if the customer or their representative is unfamiliar with installing, operating, and/or maintaining centrifugal pumps.

WARNING / ATEX

- Ensure all operators are properly trained and employ safe storage, installation, operation, and maintenance practices as outlined in the Safety Manual, the Pump User's Guide, and the Installation, Operation, and Maintenance Manual for the specific product.

WARNING

- ALWAYS wear the appropriate personal protective equipment (PPE) and/or safety equipment during installation, operation, inspection and maintenance of pumps, pump components, and pump auxiliary equipment. Use caution to avoid contact with process fluids, cleaning fluids, and other chemicals. All personnel must review the Material Safety Data Sheet (MSDS) for all process and cleaning fluids and follow all handling instructions.
  - For eye protection, safety glasses (with side shields) must be worn when working with hazardous fluids or when the pump is in operation.
  - For complete face protection, a safety shields must be worn when working with hazardous fluids.
  - For ear protection, proper hearing protection must be worn. Pump noise can exceed 75 dBA under certain operating conditions.
  - For hand and finger protection, heavy-duty

work gloves must be worn when working with sharp components or hazardous fluids or when the pump is in operation.
- For hand and finger protection, insulated work gloves must be worn when handling hot components such as bearings, impeller in a hot service, or when utilizing a bearing heater to install or remove bearings.
- For foot and toe protection, steel-toed boots or shoes must be worn when handling heavy parts, tools, equipment, etc.
- It is ultimately the operators' responsibility to utilize all personal protective equipment that is required to safely work on and around the pump, its components, and its operational fluid.

WARNING / ELECTRICAL HAZARD / ATEX
- o Always ensure that the product is stored, installed, operated, inspected, and maintained per the Installation, Operation, and Maintenance Manual and the applicable local laws, regulations and codes. Not all products are compliant to all regulatory standards. Consult your local distributor for models that meet your regulatory requirements.

INSTALLATION:

WARNING
- o ALWAYS verify that the model received matches the purchase order and/or specification sheet.

WARNING / ELECTRICAL HAZARD / ATEX
- o ALWAYS ensure electrical connections are installed according to Installation, Operation, and Maintenance Manual and local laws, regulations and codes.

WARNING / ATEX
- o ALWAYS check the motor wiring during installation and prior to operation of the pump in order to confirm that the motor is rotating in the correct direction. The motor should be bumped without the coupling spacer installed to confirm that it is rotating in the correct direction. Running the motor in the wrong direction will result in equipment damage and/or heat generation.

WARNING / ELECTRICAL HAZARD
- o ALWAYS disconnect power supply before performing installation or maintenance procedures.

WARNING / ELECTRICAL HAZARD
- o ALWAYS protect all electrical connections from exposure to the environment and fluids.

WARNING / ATEX
- o ALWAYS check the chemical compatibility of all wetted components, including elastomers, with all process and cleaning fluids to minimize the risk of dangerous chemical reactions.
- o Chemical compatibility can change with process fluid concentration and temperature.
- o Check the temperature limits for all components, including the elastomers.
- o Maximum temperature and pressure limits are based upon mechanical stress only. Certain chemicals will significantly reduce the maximum safe operating temperature and/or pressure.

WARNING / ATEX
- o ALWAYS use appropriately certified equipment for the area classification it will be operated in order to prevent the generation of heat and/or sparks:
  - The motor and all other auxiliary components must be certified for the environment they are operating in, especially when it is classified as "potentially explosive" or ATEX.
  - The coupling, coupling guard, and all other auxiliary components must be certified for the environment they are operating in, especially when it is classified as "potentially explosive" or ATEX. Non-sparking type couplings and coupling guards should be utilized for an ATEX classified environment.
  - The mechanical seal and all seal systems must be certified for the environment

they are operating in, especially when it is classified as "potentially explosive" or ATEX. Mechanical seals should be inspected for shipping damage prior to start-up and any plausible leakage points should be properly enclosed to prevent contamination of the environment.

- When an environment is classified as "potentially explosive" or ATEX, the use of dynamic seals is not permitted.

CAUTION

o ALWAYS bolt pumps down to a secure surface that is both level and flat. During operation, unwanted movement of the pump could occur.

WARNING / ATEX

o ALWAYS flush products thoroughly before installation to reduce the possibility of process fluid contamination or chemical reaction.

CAUTION

o ALWAYS ensure that the equipment piping is designed and manufactured to minimize piping strain. The piping layout should also take into account the pump thermal growth for services where the process fluid temperatures are high. Imposing high piping strains on the pump case may cause physical injury and/or result in warping of the pump components, pump and driver misalignment, and other forms damage to the equipment, including premature bearing failure.

WARNING / ATEX

o ALWAYS follow the detailed procedures provided in the pump's Installation, Operation, and Maintenance Manual for aligning the shaft. Similarly, the coupling manufacturer's Installation, Operation, and Maintenance Manual must be utilized for properly installing and maintaining the coupling and spacer. Not following the manufacturers' instructions can result in significant equipment damage, generation of sparks and heat, and/or premature wear of the rotating pump components along with the seals, bearings, etc.

WARNING / ATEX

o ALWAYS install the cartridge type mechanical seal's centering clips and loosen the set screws prior to setting the impeller clearance in order to prevent damage to the mechanical seal and the generation of heat and/or sparks during operation.

WARNING / ATEX

o ALWAYS confirm that the pump's impeller clearance is set per the values defined in the pump's Installation, Operation, and Maintenance Manual prior to operating the pump. Follow the detailed procedure for setting the impeller clearance as defined in the pump's Installation, Operation, and Maintenance Manual in order to prevent damage to pump components and the generation of heat and/or sparks.

WARNING / ATEX

o ALWAYS install the labyrinth seal per the instructions provided in the Installation, Operation, and Maintenance Manual in order to prevent damage to the seal and the generation of heat and/or sparks.

OPERATION:

WARNING / ATEX

o ALWAYS ensure that bearings are continuously lubricated with clean oil and comply with the required viscosity in order to prevent a premature bearing failure, damage to pump components, and the generation of heat and/or sparks. Additionally, a list of approved lubricants is provided in the Installation, Operation, and Maintenance Manual . A sight glass has also been installed on the pump to ensure proper lubricant levels.

WARNING / ATEX

o ALWAYS check the condition of the bearings, maintain it as per the manufacturer's recommendations and the instructions supplied in the Installation, Operation, and Maintenance Manual. Replace the damaged

bearings in order to prevent bearing failures, damage to pump components, and the generation of heat and/or sparks.

WARNING / ATEX

- ALWAYS check the condition of the mechanical seal, maintain it as per the manufacturer's recommendations, and replace damaged seals in order to prevent seal failure, damage to pump components, and the generation of heat and/or sparks.

WARNING / ATEX

- DO NOT utilize the pump for another service without prior approval from Griswold Pumps. Operating a pump for a different service than intended may result in personnel injury and/or equipment damage.

WARNING

- NEVER operate pump without safety devices installed. Operating a pump without the safety devices may result in personnel injury and/or equipment damage.

WARNING / ATEX

- NEVER energize the pump motor without the correct coupling guard properly installed. Operating a pump without a coupling guard may result in personnel injury and/or equipment damage. Operating a pump with a coupling guard that is not properly installed may result in generation of sparks.

CAUTION / ATEX

- DO NOT operate the pump without any liquid. Even when it is done for a short and/or intermittent period, dry-running a pump can damage the pump's internal components and the mechanical seal, thereby resulting in the generation of heat and/or sparks.

WARNING / ATEX

- DO NOT operate the pump below its recommended minimum flow. Doing so can result in equipment damage and/or an increase in the surface temperature of the pump.

WARNING / ATEX

- DO NOT operate the pump above its recommended maximum flow. Doing so can result in equipment damage and/or an increase in the surface temperature of the pump.

WARNING / ATEX

- DO NOT operate the pump above the speed defined on the pump nameplate and published performance booklet. Doing so can result in equipment damage and/or an increase in the surface temperature of the pump.

WARNING / ATEX

- ALWAYS reference the ATEX temperature table for guidelines on the process fluid temperature limits. Process fluid temperature can affect the surface temperature of the pump. The process fluid temperature should never exceed the rated temperature for the appropriate ATEX level.

WARNING / ATEX

- DO NOT operate the pump in reverse rotation. If a pump is operated in reverse rotation, it may cause the fluid to overheat, the stationary and rotating components to come in contact, and damage to the seal. Running the pump in reverse rotation may result in personnel injury, damage to equipment, and contamination or leakage to the environment.

WARNING / ATEX

- DO NOT operate the pump with an obstructed discharge line (i.e. a closed discharge valve) in order to prevent equipment damage and/or an increase in the surface temperature of the pump.

WARNING

- DO NOT operate the pump with an obstructed suction line (i.e. a closed suction valve or a dirty strainer basket) in order to prevent equipment damage.

WARNING / ATEX

- ALWAYS check and confirm that the particle sizes of any entrained solids in the pumped fluid are less than the maximum particle size as defined in the table below. Operating the pump with solids greater than the maximum allowable particle size will cause the solids to become lodged within the pump resulting in damage to the pump components, and/or result in an increase in the case temperature.

Pump Size	ANSI Designation	Max Diameter of Entrained Solids
1 1/2 x 1 - 6	AA	11/32″
3 x 1 1/2 - 6	AB	7/16″
3 x 2 - 6	AC	3/8″
1 1/2 x 1 - 8	AA	11/32″
LF 1 1/2 x 1 -8	AA	3/16″
3 x 1 1/2 - 8	AB	7/16″
3 x 2 - 8	A60	1/2″
4 x 3 - 8	A70	1 1/8″
4 x 3 - 8G	A70	11/16″
2 x 1 - 10	A05	7/16″
LF 2 x 1 - 10	A05	3/16″
3 x 1-1/2 -10	A50	7/32″
3 x 2 - 10	A60	3/8″
4 x 3 - 10	A70	5/8″
6 x 4 - 10G	A80	1″
6 x 4 - 10H	A80	1″
3 x 1-1/2 -13	A20	7/32″
LF 3 x1-1/2 -13	A20	7/16″
3 x 2 - 13	A30	3/8″
4 x 3 - 13	A40	5/8″
6 x 4 - 13	A80	1″
8 x 6 - 13	A90	11/16″
10 x 8 - 13	A100	1″
8 x 6 - 15	A110	13/16″
10 x 8 -15	A120	1 1/8″
10 x 8 -15G	A120	1 1/8″

MAINTENANCE:

WARNING / ELECTRICAL HAZARD

- ALWAYS lock out power to the driver before performing pump maintenance and when the unit is not in operation to avoid accidently running the driver in order to prevent personnel injury and/or equipment damage.

WARNING

- ALWAYS completely decontaminate pumps handling toxic and/or hazardous fluids prior to removal from the system. All applicable government, industry, and company regulations, procedures, and requirements must be followed in order to properly decontaminate the pumps and dispose their waste. Ensure all necessary precautions are taken, including the use of Personal Protective Equipment (PPE), to prevent any physical injury during the decontamination of the pump and/or system.

WARNING

- ALWAYS isolate the equipment from the system and ensure that the pump's internal pressure has been relieved prior to disassembling the pump in order to prevent any physical injuries. This can be achieved by removing the drain plug, opening any vent connections, or disconnecting piping spools (suction, discharge, seal, etc.).

CAUTION

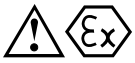
- ALWAYS let the pump cool down prior to handling or working on them in order to prevent any physical injuries.

WARNING

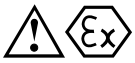
- ALWAYS use the appropriate lifting device (eyebolt, spreader bar, sling, etc.) with the correct rating to properly secure and lift equipment to avoid serious physical injury and/or equipment damage. The pump, individual pump components, and pump auxiliaries can be heavy and cumbersome to lift. Therefore components should only be lifted from their identified lifting points as defined in the Installation, Operation, and

SAFETY SUPPLIMENT

Maintenance Manual . The most up to date manuals can be found on our website at www.griswoldpumps.com or through contacting one our many sales representatives.

 **WARNING / ATEX**

- o NEVER apply heat to an impeller or its retaining components to facilitate its removal or installation. Doing so can cause trapped liquid to expand rapidly and explode, thereby resulting in personnel injury and/or equipment damage.

 **WARNING / ATEX**

- o NEVER apply heat to the pump's liquid end when disassembling the pump, to facilitate the removal of any components. Doing so can cause trapped liquid to expand rapidly and explode, thereby resulting in personnel injury and/or equipment damage.

 **WARNING**

- o ALWAYS ensure that only new fasteners, or fasteners that are undamaged and corrosion-free, and are of the proper size and material are used and tightened as per the pump's Installation, Operation, and Maintenance Manual's requirements and instructions in order to prevent personnel injury and/or equipment damage.

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