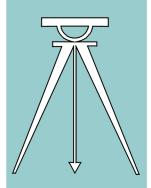


- Publishing System: TPASAccess date: 4/11/2006
- Document ECN's: Latest Available



# Installation— All HYDRO-CUSHION Washer-Extractors





#### **Please Read**

#### **About the Manual Identifying Information on the Cover**

The front cover displays pertinent identifying information for this manual. Most important, are the published manual number (part number) /ECN (date code). Generally, when a replacement manual is furnished, it will have the same published manual number, but the latest available ECN. This provides the user with the latest information applicable to his machine. Similarly all documents comprising the manual will be the latest available as of the date the manual was printed, even though older ECN dates for those documents may be listed in the table of contents.

When communicating with the Milnor factory regarding this manual, please also provide the other identifying information shown on the cover, including the publishing system, access date, and whether the document ECN's are the latest available or exact.

#### References to Yellow Troubleshooting Pages

This manual may contain references to "yellow pages." Although the pages containing troubleshooting procedures are no longer printed on yellow paper, troubleshooting instructions, if any, will be contained in the easily located "Troubleshooting" chapter or section. See the table of contents.

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#### **Comments and Suggestions**

Help us to improve this manual by sending your comments to:

Pellerin Milnor Corporation Attn: Technical Publications P. O. Box 400 Kenner, LA 70063-0400

Fax: (504) 469-1849

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# PELLERIN MILNOR CORPORATION LIMITED STANDARD WARRANTY

We warrant to the original purchaser that MILNOR machines including electronic hardware/software (hereafter referred to as "equipment"), will be free from defects in material and workmanship for a period of one year from the date of shipment from our factory with no operating hour limitation. This warranty is contingent upon the equipment being installed, operated and serviced as specified in the operating manual supplied with the equipment, and operated under normal conditions by competent operators.

Providing we receive written notification of a warranted defect within 30 days of its discovery, we will – at our option – repair or replace the defective part or parts, FOB our factory. We retain the right to require inspection of the parts claimed defective in our factory prior to repairing or replacing same. We will not be responsible, or in any way liable, for unauthorized repairs or service to our equipment, and this warranty shall be void if the equipment is repaired or altered in any way without MILNOR's written consent.

Parts which require routine replacement due to normal wear – such as gaskets, contact points, brake and clutch linings and similar parts – are not covered by this warranty, nor are parts damaged by exposure to weather or to chemicals.

We reserve the right to make changes in the design and/or construction of our equipment (including purchased components) without obligation to change any equipment previously supplied.

ANY SALE OR FURNISHING OF ANY EQUIPMENT BY MILNOR IS MADE ONLY UPON THE EXPRESS UNDERSTANDING THAT MILNOR MAKES NO EXPRESSED OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR MILNOR WILL NOT BE RESPONSIBLE FOR ANY COSTS OR DAMAGES ACTUALLY INCURRED OR REQUIRED AS A RESULT OF: THE FAILURE OF ANY OTHER PERSON OR ENTITY TO PERFORM ITS RESPONSIBILITIES, FIRE OR OTHER HAZARD, ACCIDENT, IMPROPER STORAGE, MISUSE, NEGLECT, POWER OR ENVIRONMENTAL CONTROL MALFUNCTIONS, DAMAGE FROM LIQUIDS, OR ANY OTHER CAUSE BEYOND THE NORMAL RANGE OF USE. REGARDLESS OF HOW CAUSED, IN NO EVENT SHALL INDIRECT, PUNITIVE, LIQUIDATED, OR MILNOR BE LIABLE FOR SPECIAL, CONSEQUENTIAL COSTS OR DAMAGES, OR ANY COSTS OR DAMAGES WHATSOEVER WHICH EXCEED THE PRICE PAID TO MILNOR FOR THE EQUIPMENT IT SELLS OR FURNISHES.

WE NEITHER ASSUME, NOR AUTHORIZE ANY EMPLOYEE OR OTHER PERSON TO ASSUME FOR US, ANY OTHER RESPONSIBILITY AND/OR LIABILITY IN CONNECTION WITH THE SALE OR FURNISHING OF OUR EQUIPMENT TO ANY BUYER.

#### How to order repair parts

Repair parts may be ordered either from the authorized dealer who sold you this machine, or directly from the MILNOR factory. In most cases, your dealer will have these parts in stock.

When ordering parts, please be sure to give us the following information:

- 1. Model and serial number of the machine for which the parts are required
- 2. Part number
- 3. Name of the part
- 4. Quantity needed
- 5. Method of shipment desired
- In correspondence regarding motors or electrical controls, please include all nameplate data, including wiring diagram number and the make or manufacturer of the motor or controls.

All parts will be shipped C.O.D. transportation charges collect only.

#### Please read this manual

It is strongly recommended that you read the installation and operating manual before attempting to install or operate your machine. We suggest that this manual be kept in your business office so that it will not become lost.

#### PELLERIN MILNOR CORPORATION

P.O. BOX 400, KENNER, LA., 70063-0400, U.S.A. FAX: Administration 504/468-9307, Engineering 504/469-1849, Service 504/469-9777

# Section Installation

BIUUUS27 (Published) Book specs- Dates: 20051111 / 20051111 / 20060323 Lang: ENG01 Applic: EOT

#### Safety—Tilting Washer-Extractors

# 1. General Safety Requirements—Vital Information for Management Personnel [Document BIUUUS04]

Incorrect installation, neglected preventive maintenance, abuse, and/or improper repairs, or changes to the machine can cause unsafe operation and personal injuries, such as multiple fractures, amputations, or death. The owner or his selected representative (owner/user) is responsible for understanding and ensuring the proper operation and maintenance of the machine. The owner/user must familiarize himself with the contents of all machine instruction manuals. The owner/user should direct any questions about these instructions to a Milnor® dealer or the Milnor® Service department.

Most regulatory authorities (including OSHA in the USA and CE in Europe) hold the owner/user ultimately responsible for maintaining a safe working environment. Therefore, the owner/user must do or ensure the following:

- recognize all foreseeable safety hazards within his facility and take actions to protect his personnel, equipment, and facility;
- work equipment is suitable, properly adapted, can be used without risks to health or safety, and is adequately maintained;
- where specific hazards are likely to be involved, access to the equipment is restricted to those employees given the task of using it;
- only specifically designated workers carry out repairs, modifications, maintenance, or servicing;
- information, instruction, and training is provided;
- workers and/or their representatives are consulted.

Work equipment must comply with the requirements listed below. The owner/user must verify that installation and maintenance of equipment is performed in such a way as to support these requirements:

- control devices must be visible, identifiable, and marked; be located outside dangerous zones; and not give rise to a hazard due to unintentional operation;
- control systems must be safe and breakdown/damage must not result in danger;
- work equipment is to be stabilized;
- protection against rupture or disintegration of work equipment;
- guarding, to prevent access to danger zones or to stop movements of dangerous parts before the danger zones are reached. Guards to be robust; not give rise to any additional hazards; not be easily removed or rendered inoperative; situated at a sufficient distance from the danger zone; not restrict view of operating cycle; allow fitting, replacing, or maintenance by restricting access to relevant area and without removal of guard/protection device;
- suitable lighting for working and maintenance areas;
- maintenance to be possible when work equipment is shut down. If not possible, then protection measures to be carried out outside danger zones;
- work equipment must be appropriate for preventing the risk of fire or overheating; discharges of gas, dust, liquid, vapor, other substances; explosion of the equipment or substances in it.

- 1.1. Laundry Facility—Provide a supporting floor that is strong and rigid enough to support—with a reasonable safety factor and without undue or objectionable deflection—the weight of the fully loaded machine and the forces transmitted by it during operation. Provide sufficient clearance for machine movement. Provide any safety guards, fences, restraints, devices, and verbal and/or posted restrictions necessary to prevent personnel, machines, or other moving machinery from accessing the machine or its path. Provide adequate ventilation to carry away heat and vapors. Ensure service connections to installed machines meet local and national safety standards, especially regarding the electrical disconnect (see the National Electric Code). Prominently post safety information, including signs showing the source of electrical disconnect.
- **1.2. Personnel**—Inform personnel about hazard avoidance and the importance of care and common sense. Provide personnel with the safety and operating instructions that apply to them. Verify that personnel use proper safety and operating procedures. Verify that personnel understand and abide by the warnings on the machine and precautions in the instruction manuals.
- **1.3. Safety Devices**—Ensure that no one eliminates or disables any safety device on the machine or in the facility. Do not allow machine to be used with any missing guard, cover, panel or door. Service any failing or malfunctioning device before operating the machine.
- 1.4. Hazard Information—Important information on hazards is provided on the machine safety placards, in the Safety Guide, and throughout the other machine manuals. Placards must be kept clean so that the information is not obscured. They must be replaced immediately if lost or damaged. The Safety Guide and other machine manuals must be available at all times to the appropriate personnel. See the machine service manual for safety placard part numbers. Contact the Milnor Parts department for replacement placards or manuals.
- **1.5. Maintenance**—Ensure the machine is inspected and serviced in accordance with the norms of good practice and with the preventive maintenance schedule. Replace belts, pulleys, brake shoes/disks, clutch plates/tires, rollers, seals, alignment guides, etc. before they are severely worn. Immediately investigate any evidence of impending failure and make needed repairs (e.g., cylinder, shell, or frame cracks; drive components such as motors, gear boxes, bearings, etc., whining, grinding, smoking, or becoming abnormally hot; bending or cracking of cylinder, shell, frame, etc.; leaking seals, hoses, valves, etc.) Do not permit service or maintenance by unqualified personnel.

# 2. Safety Alert Messages—Internal Electrical and Mechanical Hazards [Document BIUUUS11]

The following are instructions about hazards inside the machine and in electrical enclosures.



**WARNING** 1: Electrocution and Electrical Burn Hazards—Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.

- Do not unlock or open electric box doors.
- Do not remove guards, covers, or panels.
- Do not reach into the machine housing or frame.
- Keep yourself and others off of machine.
- Know the location of the main machine disconnect and use it in an emergency to remove all electric power from the machine.



**WARNING 2: Entangle and Crush Hazards**—Contact with moving components normally isolated by guards, covers, and panels, can entangle and crush your limbs. These components move automatically.

- Do not remove guards, covers, or panels.
- Do not reach into the machine housing or frame.
- Keep yourself and others off of machine.
- Know the location of all emergency stop switches, pull cords, and/or kick plates and use them in an emergency to stop machine motion.



**WARNING** 3: Crush Hazards—Tilting machines only—The machine housing will crush your body or limbs if it descends or falls while you are under it. Housing can descend with power off or on. Manual operation of tilting valves overrides safety interlocks. Improper operation of manual tilting valves may cause the housing to descend.

- Do not remove guards, covers, or panels.
- Do not reach into the machine housing or frame.

# 3. Safety Alert Messages—External Mechanical Hazards [Document BIUUUS12]

The following are instructions about hazards around the front, sides, rear or top of the machine.



**WARNING** 4: Strike and Crush Hazards—Machines with power operated door—The moving door can strike you or crush or pinch your limbs if caught between the door and machine. Some doors move automatically.

- Keep yourself and others clear of movement areas and paths.
- Keep both hands on the controls while operating.
- Do not operate the machine with malfunctioning two-hand manual controls.



**WARNING** 5: Crush Hazards—Tilting machines only—The machine can crush your body or limbs if you are caught between the tilting housing and a stationary object. Some machines tilt automatically.

- Keep yourself and others clear of movement areas and paths.
- Keep both hands on the controls while operating.
- Do not operate the machine with malfunctioning two-hand manual controls.



**WARNING** 6: Crush Hazards—Suspended machines only—Spaces between the shell and housing can close and crush or pinch your limbs. The shell moves within the housing during operation.

- Do not reach into the machine housing or frame.
- Keep yourself and others clear of movement areas and paths.

#### 4. Safety Alert Messages—Cylinder and Processing Hazards

[Document BIUUUS13]

The following are instructions about hazards related to the cylinder and laundering process.



**DANGER** 7: Entangle and Sever Hazards—Contact with goods being processed can cause the goods to wrap around your body or limbs and dismember you. The goods are normally isolated by the locked cylinder door.

- Do not attempt to open the door or reach into the cylinder until the cylinder is stopped.
- Do not touch goods inside or hanging partially outside the turning cylinder.
- Do not operate the machine with a malfunctioning door interlock.
- Open pocket machines only—Do not jog the cylinder and pull the goods at the same time.
- Open pocket machines only—Keep yourself and others clear of cylinder and goods during jogging operation.
- Do not operate the machine with malfunctioning two-hand manual controls.
- Know the location of all emergency stop switches, pull cords, and/or kick plates and use them in an emergency to stop machine motion.
- Know the location of the main machine disconnect and use it in an emergency to remove all electric power from the machine.



**WARNING** 8: Crush Hazards—Contact with the turning cylinder can crush your limbs. The cylinder will repel any object you try to stop it with, possibly causing the object to strike or stab you. The turning cylinder is normally isolated by the locked cylinder door.

- Do not attempt to open the door or reach into the cylinder until the cylinder is stopped.
- Do not place any object in the turning cylinder.
- Do not operate the machine with a malfunctioning door interlock.
- Open pocket machines only—Keep yourself and others clear of cylinder and goods during jogging operation.
- Do not operate the machine with malfunctioning two-hand manual controls.



**WARNING 9: Confined Space Hazards**—Confinement in the cylinder can kill or injure you. Hazards include but are not limited to panic, burns, poisoning, suffocation, heat prostration, biological contamination, electrocution, and crushing.

• Do not attempt unauthorized servicing, repairs, or modification.



**WARNING** 10: Explosion and Fire Hazards—Flammable substances can explode or ignite in the cylinder, drain trough, or sewer. The machine is designed for washing with water, not any other solvent. Processing can cause solvent-containing goods to give off flammable vapors.

- Do not use flammable solvents in processing.
- Do not process goods containing flammable substances. Consult with your local fire department/public safety office and all insurance providers.

#### 5. Safety Alert Messages—Unsafe Conditions [Document BIUUUS14]

#### 5.1. Damage and Malfunction Hazards

5.1.1. Hazards Resulting from Inoperative Safety Devices



**DANGER** 11: Entangle and Sever Hazards—Cylinder door interlock—Operating the machine with a malfunctioning door interlock can permit opening the door when the cylinder is turning and/or starting the cycle with the door open, exposing the turning cylinder.

• Do not operate the machine with any evidence of damage or malfunction.



**WARNING** 12: Multiple Hazards—Operating the machine with an inoperative safety device can kill or injure personnel, damage or destroy the machine, damage property, and/or void the warranty.

• Do not tamper with or disable any safety device or operate the machine with a malfunctioning safety device. Request authorized service.



WARNING 13: Electrocution and Electrical Burn Hazards—Electric box doors—Operating the machine with any electric box door unlocked can expose high voltage conductors inside the box.

• Do not unlock or open electric box doors.



**WARNING** 14: Entangle and Crush Hazards—Guards, covers, and panels—Operating the machine with any guard, cover, or panel removed exposes moving components.

• Do not remove guards, covers, or panels.



**WARNING** 15: Crush Hazards—Down limit switches (machines with front and rear tilt cylinders)—Failure of both front or both rear limit switches allows the seated tilt wheels on a tilted machine to lift from their cradles. The housing will fall and lunge forward or rearward.

• Do not operate the machine with any evidence of damage or malfunction.

5.1.2. Hazards Resulting from Damaged Mechanical Devices



**WARNING** 16: Multiple Hazards—Operating a damaged machine can kill or injure personnel, further damage or destroy the machine, damage property, and/or void the warranty.

• Do not operate a damaged or malfunctioning machine. Request authorized service.



**WARNING** 17: Explosion Hazards—Cylinder—A damaged cylinder can rip apart during extraction, puncturing the shell and discharging metal fragments at high speed.

• Do not operate the machine with any evidence of damage or malfunction.



**WARNING** 18: Explosion Hazards—Clutch and speed switch (multiple motor machines)—A damaged clutch or speed switch can permit the low speed motor to engage during extract. This will over-speed the motor and pulleys and can cause them to rip apart, discharging metal fragments at high speed.

 Stop the machine immediately if any of these conditions occur: • abnormal whining sound during extract • skidding sound as extract ends • clutches remain engaged or re-engage during extract

#### 5.2. Careless Use Hazards

5.2.1. Careless Operation Hazards—Vital Information for Operator Personnel (see also operator hazards throughout manual)



**WARNING** 19: Multiple Hazards—Careless operator actions can kill or injure personnel, damage or destroy the machine, damage property, and/or void the warranty.

- Do not tamper with or disable any safety device or operate the machine with a malfunctioning safety device. Request authorized service.
- Do not operate a damaged or malfunctioning machine. Request authorized service.
- Do not attempt unauthorized servicing, repairs, or modification.

- Do not use the machine in any manner contrary to the factory instructions.
- Use the machine only for its customary and intended purpose.
- Understand the consequences of operating manually.
- 5.2.2. Careless Servicing Hazards—Vital Information for Service Personnel (see also service hazards throughout manuals)



**WARNING 20: Electrocution and Electrical Burn Hazards**—Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.

- Do not service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.
- Abide by the current OSHA lockout/tagout standard when lockout/tagout is called for in the service instructions. Outside the USA, abide by the OSHA standard in the absence of any other overriding standard.



**WARNING** 21: Entangle and Crush Hazards—Contact with moving components normally isolated by guards, covers, and panels, can entangle and crush your limbs. These components move automatically.

- Do not service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.
- Abide by the current OSHA lockout/tagout standard when lockout/tagout is called for in the service instructions. Outside the USA, abide by the OSHA standard in the absence of any other overriding standard.



**WARNING** 22: Crush Hazards—Tilting machines only—The machine housing will crush your body or limbs if it descends or falls while you are under it. Housing can descend with power off or on. Manual operation of tilting valves overrides safety interlocks. Improper operation of manual tilting valves may cause the housing to descend.

- Secure both red safety supports in accordance with the instructions furnished, then lock
  out and tag out power at the main machine disconnect before working under the tilted
  machine.
- Do not operate the manual tilt valves with anyone under the machine.
- Do not operate the tilt controls with anyone under the machine.



**WARNING 23: Crush Hazards**—Tilting machines with front and rear tilt cylinders—The housing will fall and lunge forward or rearward if the tilt wheels on the non-tilted end lift out of their cradles, even with safety supports in place.

• Understand the consequences of operating manually.



**WARNING 24: Confined Space Hazards**—Confinement in the cylinder can kill or injure you. Hazards include but are not limited to panic, burns, poisoning, suffocation, heat prostration, biological contamination, electrocution, and crushing.

 Do not enter the cylinder until it has been thoroughly purged, flushed, drained, cooled, and immobilized.

— End of BIUUUS27 —

# About the Forces Transmitted by Milnor® Washer-extractors

 Document
 BIWUUI02

 Specified Date
 20001108

 As-of Date
 20001108

 Access Date
 20001108

Applicability.....WUU

During washing and extracting, all washer-extractors transmit both static and dynamic (cyclic) forces to the floor, foundation, or any other supporting structure. During washing, the impact of the goods as they drop imparts forces which are quite difficult to quantify. Size for size, both rigid and flexibly-mounted machines transmit approximately the same forces during washing. During extracting, rigid machines transmit forces up to 30 times greater than equivalent flexibly-mounted models. The actual magnitude of these forces vary according to several factors:

- machine size,
- final extraction speed,
- amount, condition, and type of goods being processed,
- the liquor level and chemical conditions in the bath preceding extraction, and
- other miscellaneous factors.

Estimates of the maximum force normally encountered are available for each Milnor® model and size upon request. Floor or foundation sizes shown on any Milnor® document are only for on-grade situations based only on previous experience without implying any warranty, obligation, or responsibility on our part.

#### Rigid Machines

Size for size, rigid washer-extractors naturally require a stronger, more rigid floor, foundation, or other supporting structure than flexibly-mounted models. If the supporting soil under the slab is itself strong and rigid enough and has not subsided to leave the floor slab suspended without support, on grade installations can often be made directly to an existing floor slab if it has enough strength and rigidity to safely withstand our published forces without transmitting undue vibration. If the subsoil has subsided, or if the floor slab itself has insufficient strength and rigidity, a deeper foundation, poured as to become monolithic with the floor slab, may be required. Support pilings may even be required if the subsoil itself is "springy" (i.e., if its resonant frequency is near the operating speed of the machine). Above-grade installations of rigid machines also require a sufficiently strong and rigid floor or other supporting structure as described below.

#### 2. Flexibly-mounted Machines

Size for size, flexibly-mounted machines generally do not require as strong a floor, foundation, or other supporting structure as do rigid machines. However, a floor or other supporting structure having sufficient strength and rigidity, as described in section 3, is nonetheless vitally important for these models as well.

#### 3. How Strong and Rigid?

Many building codes in the U.S.A. specify that laundry floors must have a minimum live load capacity of 150 pounds per square foot (732 kilograms per square meter). However, even compliance with this or any other standard does not necessarily guarantee sufficient rigidity. In any event, it is the sole responsibility of the owner/user to assure that the floor and/or any other supporting structure exceeds not only all applicable building codes, but also that the floor and/or any other supporting structure for each washer-extractor or group of washer-extractors actually

has sufficient strength and rigidity, plus a reasonable factor of safety for both, to support the weight of all the fully loaded machine(s) including the weight of the water and goods, and including the published 360° rotating sinusoidal RMS forces that are transmitted by the machine(s). Moreover, the floor, foundation, or other supporting structure must have sufficient rigidity (i.e., a natural or resonant frequency many times greater than the machine speed with a reasonable factor of safety); otherwise, the mentioned 360° rotating sinusoidal RMS forces can be multiplied and magnified many times. It is especially important to consider all potential vibration problems that might occur due to all possible combinations of forcing frequencies (rotating speeds) of the machine(s) compared to the natural frequencies of the floor and/or any other supporting structure(s). A qualified soil and/or structural engineer must be engaged for this purpose.

Figure 1: How Rotating Forces Act on the Foundation

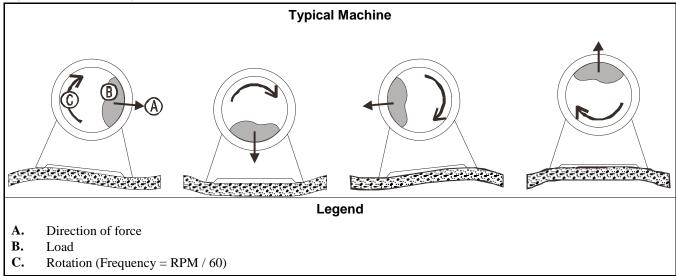


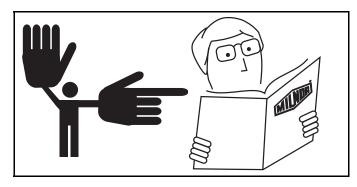
Figure 1 above is intended to depict both on-grade and above-grade installations and is equally applicable to flexibly-mounted washer-extractors, as well as to rigid models installed either directly on a floor slab or on a foundation poured integrally with the slab. Current machine data is available from Milnor<sup>®</sup> upon request. All data is subject to change without notice and may have changed since last printed. It is the sole responsibility of every potential owner to obtain written confirmation that any data furnished by Milnor<sup>®</sup> applies for the model(s) and serial number(s) of the specific machines.

— End of BIWUUI02 —

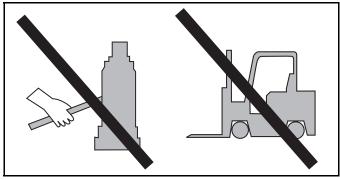
# **Glossary of Tag Illustrations— Suspended Washer-Extractors**

#### Illustration

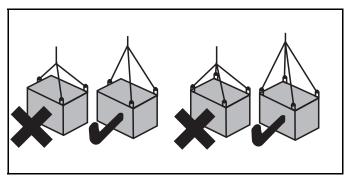
#### **Explanation**



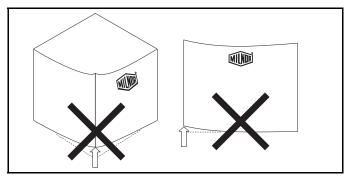
Stop! Read the manual first for complete instructions before continuing.



Do not jack the machine here. Do not lift the machine here.

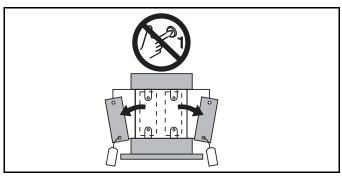


Use three point or four point lifting as determined by the lifting eyes furnished. Rig the load using lifting cables of sufficient size and length to ensure cables are not over-stressed.



Do not lift the machine from one corner or one side edge.

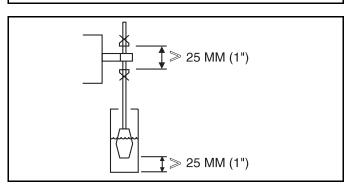
#### Explanation



Do not start this machine until the packing materials, lifting brackets, etc. with this tag attached or behind this panel are removed. These materials are painted red. Safety stands or brackets (also painted red) may be provided with this machine. Do not discard safety stands or brackets



Do not step or stand on this machine part.



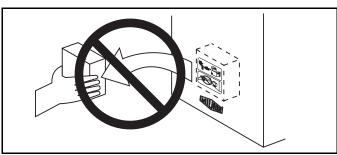
Maintain a 25 mm. (1") minimum clearance between float clips. Set "low level" so that the bottom of the float is always at least 25mm (1") above the bottom of the float tube.



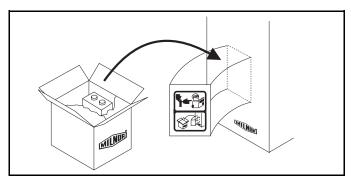
This motor or pump should rotate in the direction of the arrow.



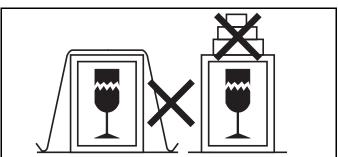
Do not start this machine until the part with this tag is installed on the machine.



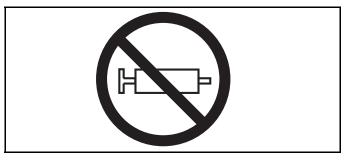
Do not remove this component from the machine.



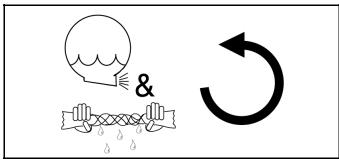
Install the appropriate part here before operating the machine.



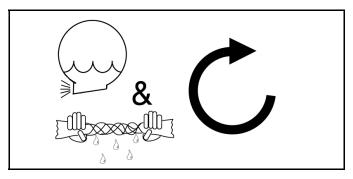
Do not strap or chain over box



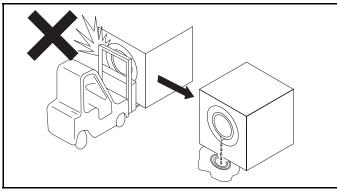
Do not pump grease here.



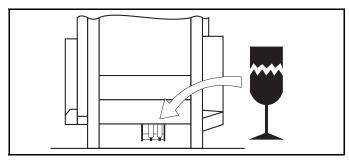
During drain and extract, the cylinder must rotate counterclockwise when viewed from here (rear of machine).



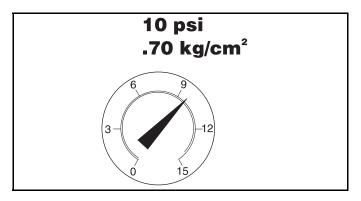
During drain and extract, the cylinder must rotate clockwise when viewed from here (front of machine).



Do not strike shell front of washer-extractors during fork lifting. Striking shell front will cause door to leak.

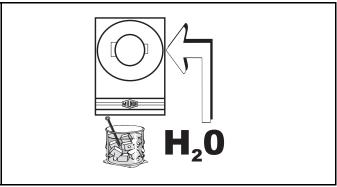


Brake assembly under machine is fragile. Forklift blades should only be placed under main structural beams

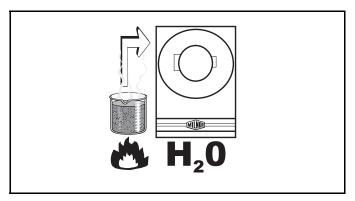


Set main bearing air pad gauge at 10 psi (.70 kg/cm²), 64" and 72" ExN and JxN models only.

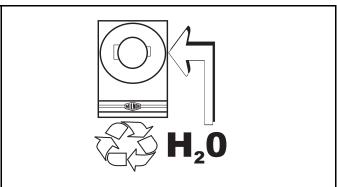
Set disc brake air gauge at 10 psi (.70 kg/cm<sup>2</sup>), 64" and 72" ExN and JxN models only.



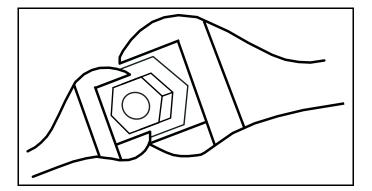
Make cold water connection here.



Make hot water connection here.



Make third (reuse) water connection here.



Hold the connection side of the valve with a wrench when connecting plumbing.

# Avoiding Damage From Allied Remote Chemical Delivery Systems

Milnor® does not manufacture or supply remote chemical delivery systems and this document is meant only to illustrate some of the possible problems that can be minimized during installation of such systems by the chemical supply company. Milnor washer-extractors and CBW® batch washers (tunnels) are available with convenient inlets for such systems (see Figure 1). Most common of the types of systems currently used in commercial laundering operations are pumped chemical systems. Other types, such as constant pressure, re-circulating ring main systems have also been, and may continue to be used with Milnor equipment.

This document warns about some of the possible hazards posed by chemical systems and lists certain requirements needed to minimize those hazards. The procedures for interfacing with allied chemical systems and information pertinent to chemical use in general are provided elsewhere in the product manuals (see Note 1).



Figure 1: Pumped Chemical Inlets on CBW Batch Washer

**Note 1:** Misuse of laundering chemicals (such as injecting excessive concentrations of chlorine bleach or permitting acid sours to react with hypo chlorite) due to incorrect formulation can also be hazardous. Information pertinent to chemical use is provided elsewhere in the product manuals.

#### 1. How a Chemical System Can Damage the Machine It Serves

Milnor has manufactured washer-extractors and tunnel washers with the same stainless steel specification since its founding. Every batch of steel used is certified and documented by the steel mill. Testing of samples damaged by corrosion have, in every case, proven the steel to be well within the AISI 304 specification.

Chemical products commonly found in the laundry industry, when used in **established** dosages and proper operating parameters, under the auspices of an experienced chemical specialist, should produce satisfactory results, with no consequential detrimental effects. The industry has published standards in Riggs and Sherrill, "Textile Laundering Technology". However, the stainless steel can be damaged and even destroyed by **abnormal** contact with chlorine bleach, hydrofluosilicic acid and other commonly used chemicals, as will occur if chemicals are unintentionally leaked into the machine, particularly when it is no longer in use and especially when machine surfaces are dry.

Some chemical systems have been found to permit chemicals to dribble from the supply lines, or worse, to siphon from the supply tank into the machine, during operation and long after the system is shut down—as after working hours and during weekends. If this occurs, **deterioration** (rusting) of the stainless steel and damage to any textiles therein will inevitably result. If this condition goes undetected, machine damage is likely to be catastrophic. No machine is immune to such damage.



CAUTION 1: Equipment and Textile Damage Hazards—Chemicals leaked into the machine, particularly when it is idle can destroy machine components and textiles left in the machine. Pellerin Milnor Corporation accepts absolutely no responsibility for damage to its equipment or to textiles therein from abnormal contact with chemicals.

- Ensure that the chemical system prevents unintentional release of chemicals.
- Inspect regularly for proper operation and evidence of damage.
- 2. Requirements for Chemical Systems Used With Milnor Machines
  It is the responsibility of the chemical system manufacturer and supplier to ensure that their
  system is safe for personnel and equipment. Some important points are described below.
- 2.1. Ensure the System Cannot Siphon.—The supply system must be designed to counteract any siphoning that could occur as a result of having a sealed supply line between the bottom of the chemical tank and the internal machine connection at the drain trough. As shown in the Figure 2 examples, if the pump (P) and/or the valving does not provide positive closure and there is no vacuum breaker protection, siphoning is likely to occur. In each of the Figure 2 illustrations, the volume of chemical in the tank above the siphon level (S), and indicated by shading, will flow into the machine.

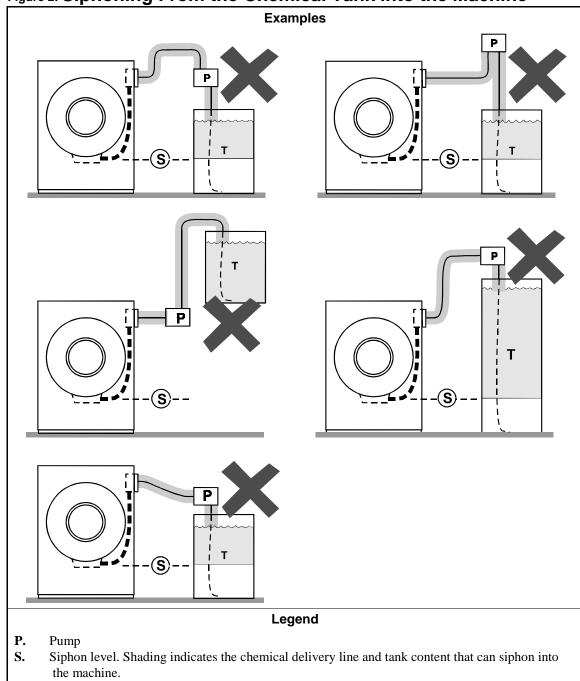


Figure 2: Siphoning From the Chemical Tank into the Machine

- T. Chemical tank
- 2.2. Ensure the Chemical Lines Cannot Dribble—The pumped chemical system may provide a means of positively closing the chemical line at the pump location, but not at the injection site. Hence, any concentrated chemical that remains in the injection line between the pump and the machine is free to flow into the machine. Some examples of this are shown in Figure 3.

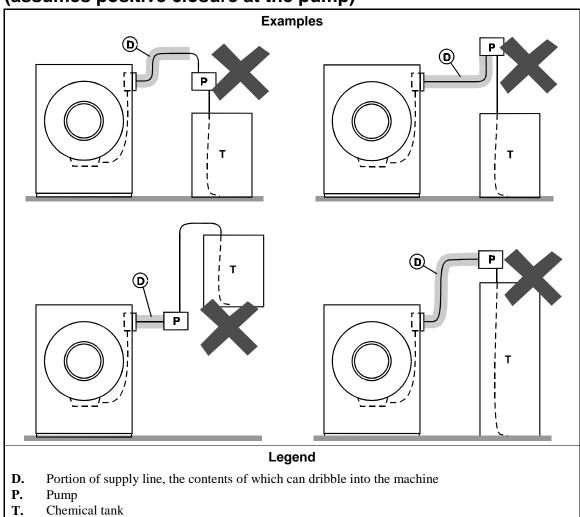


Figure 3: Dribbling From Chemical Supply Line Into Machine (assumes positive closure at the pump)

#### 3. Design and Installation Recommendations

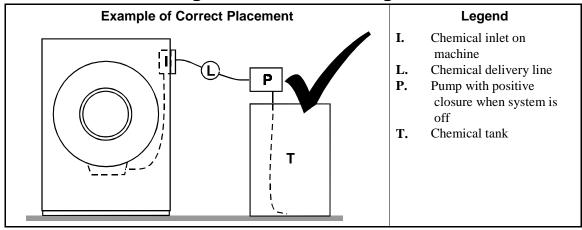
It is the responsibility of the chemical system manufacturer and supplier to use whatever measures are necessary to ensure that their system is safe for personnel and equipment. The following are some of the possible methods the manufacturer or supplier may wish to use, as appropriate.

- 3.1. **Siphoning: Positively close the line.**—If the pump does not provide positive closure when the system is off, employ a shutoff valve in the line to serve this purpose.
- **3.2. Siphoning: Break the siphon.**—Provide an air gap or vacuum breaker in the chemical delivery line. This must be located above the "full" line of the tank.
- 3.3. **Dribbling: Flush the entire chemical delivery line.**—If any concentrated chemical that remains in the injection line between the pump and the machine is free to flow into the machine, employ a system that flushes the entire line between the pump and the injection point with fresh water after each injection.

#### 3.4. Dribbling: Locate the entire chemical line below the machine inlet.—

Assuming the chemical system does not retain any line pressure and that the pump provides positive closure when the system is off, locate the entire chemical delivery line below the level of the chemical inlet. An example of this is shown in Figure 4.

Figure 4: Locating a Pumped Chemical System With Positive Closure To Protect Against Machine Damage



#### 4. Guarding Against Leaks

All personnel who may work with the chemical system (e.g., chemical system manufacturer, chemical system supplier, chemical supplier, operator, maintenance personnel) should be vigilant in observing for leaks in the system. When connecting, or reconnecting chemical lines, whether at installation, after taking samples, or when replacing components, at a minimum ensure that:

- 1. the proper components are used,
- 2. all connections are the proper fit, and
- 3. all components are securely connected.



CAUTION 2: Injury and Damage Hazards—Chemicals leaking from a chemical system may be corrosive or toxic. Such chemicals can injure personnel and damage equipment.

- Use care when connecting chemical lines.
- Inspect regularly for leaks.

— End of BIWUUI03 —

# HANDLING AND SETTING PROCEDURES FOR OPEN POCKET HYDRO-CUSHION<sup>®</sup> MACHINES

#### **Handling Precautions**

1. Remove the protective coverings (leaving the machine on shipping skids) and examine carefully for possible shipping damage. If the machine is damaged, notify the transportation company immediately.

**NOTE:** Once the machine is given to the carrier for delivery, it is solely the responsibility of the carrier to ensure that no damage occurs during transit. In addition to readily apparent damage, carriers are liable for concealed damage. **Do not hesitate to file a claim with the carrier if the machine is damaged in any way during shipment.** Milnor will be glad to assist you in filing your claim, but is not responsible for any shipping damage to the machine once it has been delivered to the carrier in good condition.

- **2.** When lifting a machine by crane, always connect to the four lifting rings provided.
- 3. Use skids for fork lifting. If possible, leave the machine on shipping skids until it is about to be placed in its final position. Once the skids are removed, take care in placing forks under the machine. Do not allow the forks to come in contact with valves, piping, motors, etc., located under the machine.
- 4. Never push, pull or exert pressure on any components which protrude from the machine frame, such as the shell front, door, supply injector, electric boxes, controls, belt guards, inlet piping, etc.
- **5.** Be sure shell door is secured so that it cannot swing open during installation.
- **6.** The hold down bolts, brackets and spacers (marked with red) which hold the shell rigid in the frame must be removed prior to operation. However, they should should not be loosened

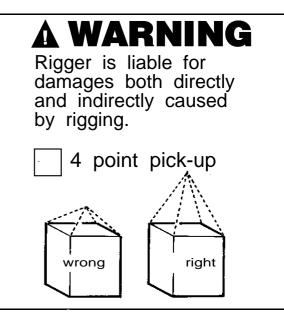


FIGURE 1 (MSIN0203AE) Lifting Instructions

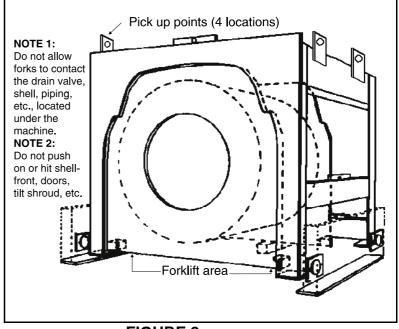


FIGURE 2 (MSIN0203AE)
Pickup and Forklift Area

until the machine is ready to be grouted. On tilting machines, the hold down bolts or clamps that hold the tilt wheels securely in their cradles must not be removed or loosened until after the machine is grouted. Also, remove the tie wrap that secures the *vibration safety switch*. Remove these items just prior to operation.

#### **Site Requirements**

#### **Space Requirements**

- 1. All openings and corridors through which equipment must pass during installation must be large enough to accommodate the width and the height of the machine (as shown on the dimensional drawings). It is occasionally possible to reduce the overall dimensions by removing piping or other special modifications. Consult Milnor® for additional information.
- 2. Sufficient clearance must be provided for normal operation and maintenance procedures.

#### **Operational Requirements**

- 1. Allow sufficient ventilation for the heat and vapors of normal operation to dissipate.
- 2. Provide easy access to controls. Operators must be able to view all status lights and reach all controls associated with the machine (e.g., electrical power connections, water and steam shut-offs).

**Foundation Requirements**—The floor and/or all other support components must have sufficient strength (and rigidity with due consideration for the natural or resonant frequency thereof) to withstand the fully loaded weight of the machine, including the wet goods and any repeated sinusoidal (rotating) forces generated during its operation. Determining the suitability of floors, foundations, and other supporting structures normally requires analysis by a qualified structural engineer.

**Drain Requirements**—An open trench must be provided in the floor for draining. Its size (as a minimum) and location (centered under the drain valve) should be as shown on the dimensional drawing and with a minimum slope of 1/8" per foot to sewer. Even where one trench serves several machines the cross section area of the trench shown on the dimensional drawing is normally acceptable since draining is intermittant and the portion of the trench located under each machine is sufficient to contain most, if not all, of the outfall from one machine. Refer to local codes for sanitary requirements such as traps, etc.

#### **Setting Procedures**

In order to protect against lateral "creeping" of the machine during operation, due to vibration, it is recommended to roughen the area of the floor where grout will be applied. Anchor bolts are not required; they are however, recommended on tilting machines. Anchor bolt locations are shown on the dimensional drawing for each machine. With the machine near the final destination, unbolt the shipping skids. Observing all precautions, lift the machine off its skids and lower the machine onto blocks as follows.

For 42", 48" and 64" Open Pocket Machines

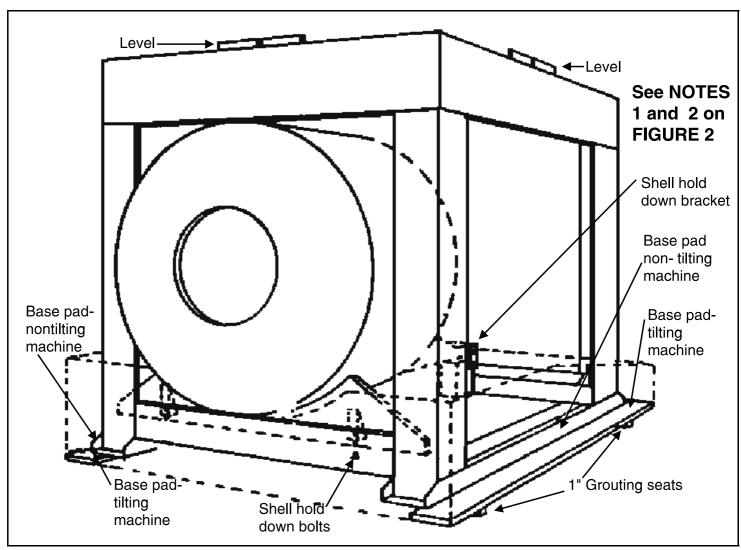


FIGURE 3 (MSIN0203AE)
Setting 42", 48", or 64" Open Pocket Machines

- 1. Place blocks in each of the four corners of the foundation. The blocks should be high enough to hold the base plate approximately 1" above top of slab (See FIGURE 3).
- 2. Lower the machine onto blocks and shim the machine as required until it is level. When leveling the machine, place the level on the top edge of the frame, not on the belt guard.

#### **AWARNING A**

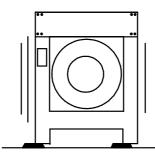
REMOVE SHIPPING RESTRAINTS BEFORE ATTEMPTING TO RUN MACHINE but only after machine is in place. Restraints are usually marked with red, and may be concealed behind access panels.

REPLACE THOSE FEATURES WHICH ARE PART OF MACHINE STRUCTURE.

### FIGURE 4 (MSIN0203AE) Shipping Restraints

- 3. When the machine is level and has room for at least 1" of grout under each base plate, apply the grout under the full length of each base plate. Take care to fill all voids with grout to assure that there is a solid base of grout under each base plate (for additional information, see "Grouting and Anchoring Considerations" in this section).
- 4. When the grout has hardened, tighten down the anchor bolts (if used) evenly using only one quarter turn on each bolt before moving to the next one. While tightening, frequently skip from front to back and right to left to insure uniform tension. After tightening all bolts, check each bolt at least twice during the first week of operation. At this point, service connections (air and electric power) should be made to the machine. See "HYDRO-CUSHION" SERVICE CONNECTIONS..." for procedures.

#### **AWARNING A**



A <u>SUSPENSION TYPE</u> MACHINE CAN "WALK" OUT OF POSITION DURING EXTRACT, ENDANGERING PERSONNEL AND DAMAGING EQUIPMENT, IF NOT PROPERLY INSTALLED.

Roughen floor, install anchor bolts and grout under all base pads to prevent "teeter-totter" and sideways movement.

REMOVE ALL SHIPPING RESTRAINTS but only after machine is in place.

THE MACHINE WILL MALFUNCTION AND MAY BE DAMAGED UNLESS ALL SHIPPING RESTRAINTS (USUALLY MARKED WITH RED) ARE REMOVED. Restraints may be located behind access covers. These include but are not limited to:

- •Cylinder hold-down bolts, brackets, straps and/or blocking (suspension type machines).
- Vibration safety switch restraint (all 36" and larger machines).
   REPLACE FASTENERS WHICH ARE PART OF MACHINE STRUCTURE.

TO REMOVE BRAKE BAND SHIPPING BLOCK once machine is connected to electricity and air.

- 1. Energize machine.
- 2. Turn brake on using manual operating procedures (see manual).
- 3. Insure that no one can inadvertently operate the machine controls; then using tools, not bare hands, remove block while brake is released.
- 4. Manually turn brake off.

## FIGURE 5 (MSIN0203AE) Anchor and Grout Warning

- **5.** With air and power connected, set the Master Switch to *FORMULA* or to *ON* (as appropriate) to activate the push-downs, then remove hold down bolts and plates (marked with red) which hold the shell to the frame. De-energize machine.
- **6.** On 42" and 48" tilting machines only, remove the four hold down bolts (marked with red) that hold the lower side frame channels to the base pad. On 64" tilt forward only machines (BTL models), remove the rear tilt wheel clamps only. On 64" tilt both way machines (BTN models), remove all four tilt wheel clamps. Clamps to be removed will be marked with red.

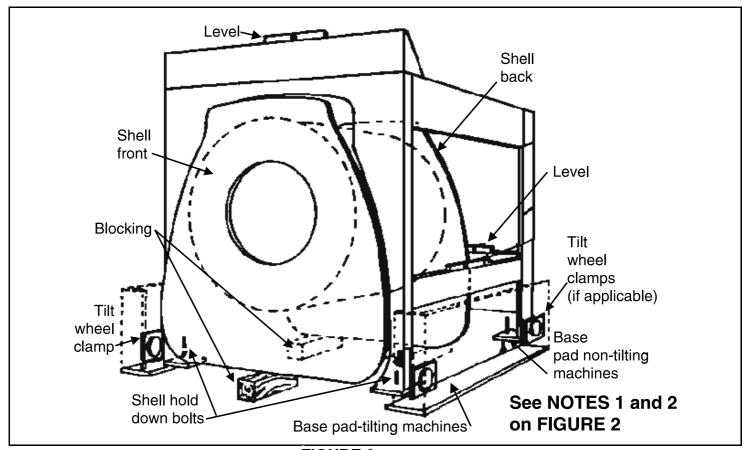


FIGURE 6 (MSIN0203AE)
Setting 52" and 60" Open Pocket Machines

#### **INSTALLERS!!**

IF MACHINE TILTS
DURING OPERATION,
ALLOW CLEARANCE
WHEN INSTALLING
AND CONNECTING
SERVICE. SEE
DIMENSIONAL
DRAWING FOR
GENERAL CONCEPT.

FIGURE 7 (MSIN0203AE) Tilting Precautions

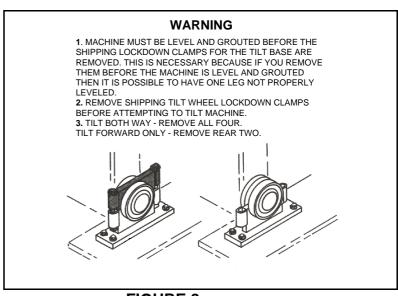


FIGURE 8 (MSIN0203AE)
Tilt Wheel Clamps (BTN and BTL models only)

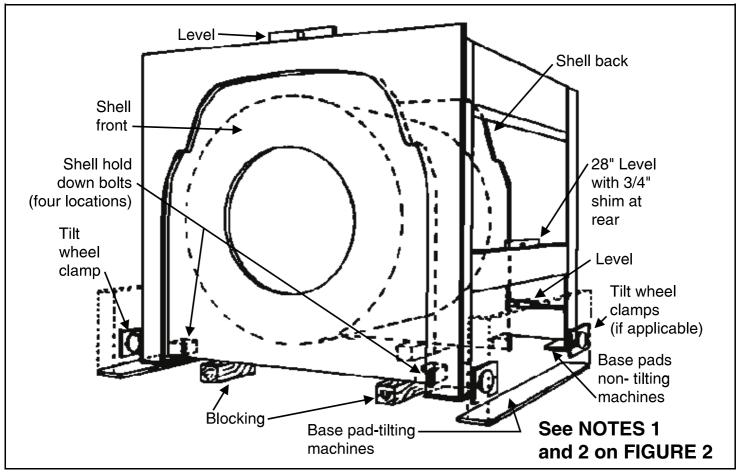


FIGURE 9 (MSIN0203AE)
Setting 72" Open Pocket Machines

#### 52", 60" and 72" Open Pocket Machines

- 1. Lower the machine onto removable blocking, such that the shell front and shell back are resting on the blocking as shown in FIGURES 6 and 9 (For 52" and 60" machines, place blocking with one in the front and two in the rear. For 72" machines, place two in the front and one in the rear). The blocking must provide for 1" minimum clearance between the floor and the base pads.
- 2. Place a level on the frame front, upper right and left cross brace, and lower rear cross brace. 52" and 60" machines must be level at each of these locations. 72" machines sit at a 1° angle sloping down to the back. To approximate this angle when leveling on the side cross braces, use a 28" bubble level with 3/4" shim at the rear.
- 3. When the machine is level and has room for at least one inch of grout under each base pad, apply the grout under the full length of each base pad. Take care to fill all voids with grout to assure that there is a solid base of grout under each base pad (for additional information, see "Grouting and Anchoring Considerations" in this section).
- **4.** When the grout has hardened, remove the shell hold-down bolts. The shell will be lifted by the HYDRO-CUSHION<sup>®</sup> springs so that the temporary blocking may be removed.

- 5. If anchor bolts were provided, install the nuts and tighten.
- 6. On tilting machines, remove all four tilt wheel clamps and check to be sure the machine is resting on all four tilt wheels. If not, use the spacers provided with the machine to raise the cradle under the "high" wheel. Shim between the cradle and the base pad. The spacers must be installed so that the down limit switch rests on the shim plate.
- 7. On tilt forward only machines (WTG/WTL models) replace the tilt wheel clamps on the front tilt wheels only

**▲ CAUTION ▲**VIBRATION AND MALFUNCTION HAZARD—Voids under base pads can magnify vibration and cause unsatisfactory operation.

- Grout must displace total clearance between base pads and existing floor.
- Voids must not exist.

**Grouting and Anchoring Considerations**—Observe the following considerations when applying grout and anchoring machine:

IN UPPER CROSS-BRACES

(OR ELSEWHERE) AFTER

MACHINE HAS BEEN IN-

STALLED.

FIGURE 10 (MSIN0203AE)
Bolt Warning

REMOVED FOR SHIPPING

RE-INSTALL ANY BOLTS

• Use only industrial strength non-shrinking grout. Pack or trowel by hand.

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If the grout (after mixing) is too thin (causing it to flow from

under the base pads), install temporary cardboard framing around pads to retain the grout until it cures.

• If grout after (mixing) is of proper consistency, pack or trowel by hand.

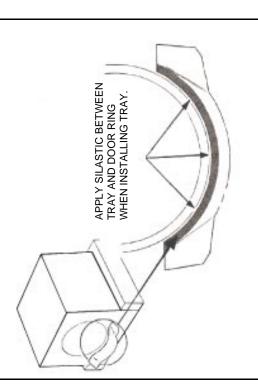


FIGURE 11 (MSIN0203AE)
64" and 72" Open Pocket Machines
(If applicable)

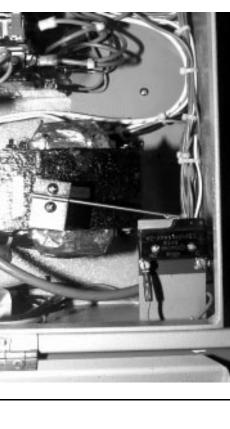


FIGURE 12 (MSIN0203AE)
Vibration Switch

# DO NOT REMOVE DRIP SHIELDS.

THE AIRMOUNTS ON THIS MACHINE ARE COVERED WITH PLASTIC DRIP SHIELDS FOR PROTECTION AGAINST EXPOSURE TO OIL.

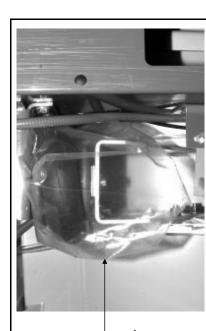


FIGURE 13(MSIN0203AE)
Drip Shields

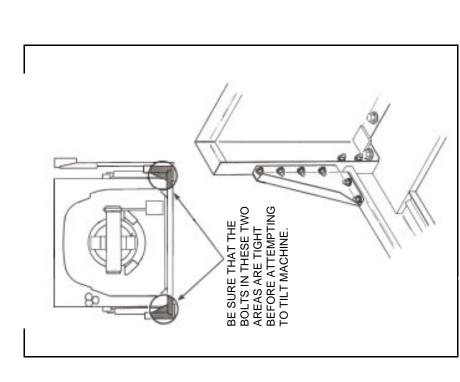


FIGURE 14 (MSIN0203AE) 72044 WTB Machines

# HANDLING AND SETTING PROCEDURES FOR DIVIDED CYLINDER, HYDRO-CUSHION<sup>®</sup> MACHINES

#### **Handling Precautions**

1. Remove the protective coverings (leaving the machine on shipping skids) and examine carefully for possible shipping damage. If the machine is damaged, notify the transportation company immediately.

**NOTE:** Once the machine is given to the carrier for delivery, it is solely the responsibility of the carrier to ensure that no damage occurs during transit. In addition to readily apparent damage, carriers are liable for concealed damage. **Do not hesitate to file a claim with a carrier if the machine is damaged in any way during shipment.** Milnor will be glad to assist you in filing your claim, but is not responsible for any shipping damage to the machine once it has been delivered to the carrier in good condition.

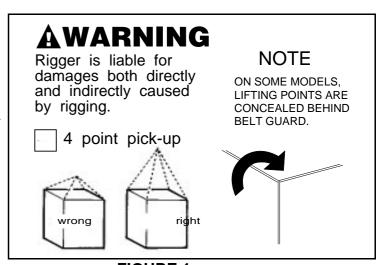


FIGURE 1 (MSIN0301AE)
Lifting Instructions

- 2. When lifting an uncrated machine by crane, always connect to the four lifting rings provided. Use skids for fork lifting. Once the skids are removed, take care in placing forks under the machine. Do not allow the
  - forks to come in contact with the drain valve, shell, piping, etc., located under the machine.
- 3. Never push, pull, or exert pressure on any components which protrude from the machine frame, such as the shell front, door, supply injector, electric boxes, controls, belt guards, inlet piping, etc.
- **4.** Be sure shell door(s) is secured so that it cannot swing open during installation.
- 5. The hold down bolts, brackets, and spacers (marked with red) that hold the shell rigid in the frame must be removed prior to operation. However, they should not be loosened until the machine is ready to be grouted. In addition, the tie wrap that secures the vibration safety switch (see FIGURE 8) must be removed after installation and before operation.

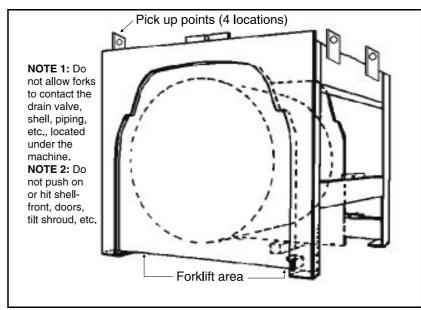


FIGURE 2 (MSIN0301AE)
Pickup and Forklift Area

## **Site Requirements**

#### **Space Requirements**

- 1. All openings and corridors through which equipment must pass during installation must be large enough to accommodate the width and height of the machine (as shown on the dimensional drawings). It is occasionally possible to reduce the overall dimensions by removing piping or other special modifications. Consult Milnor® for additional information.
- 2. Sufficient clearance must be provided for normal operation and maintenance procedures.

#### **Operational Requirements**

- 1. Allow sufficient ventilation for the heat and vapors of normal operation to dissipate.
- 2. Provide easy access to controls. Operators must be able to view all status lights and reach all controls associated with the machine (e.g., electrical power connections, water and steam shut-offs).

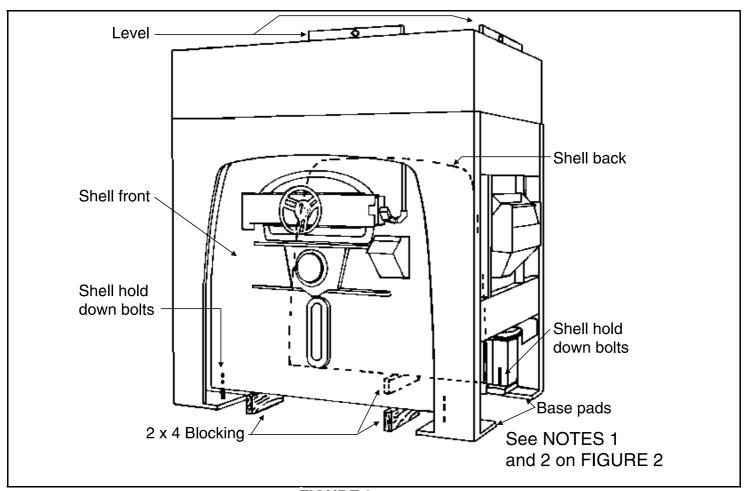


FIGURE 3 (MSIN0301AE)
Setting a Divided Cylinder Machine
(Procedure applies to all Divided cylinders and Staph-Guards®)

**Foundation Requirements**—The floor and/or all other support components must have sufficient strength (and rigidity with due consideration for the natural or resonant frequency thereof) to withstand the fully loaded weight of the machine, including the wet goods and any repeated sinusoidal (rotating) forces generated during its operation. Determining the suitability of floors, foundations, and other supporting structures normally requires

analysis by a qualified structural engineer.

**Drain Requirements**—An open trench must be provided in the floor for draining. Its size (as a minimum) and location (centered under the drain valve) should be as shown on the dimensional drawing and with a minimum slope of 1/8" per foot to the sewer. Even where one trench serves several machines, the cross section area of the trench shown on the dimensional drawing is normally acceptable since draining is intermittant and the portion of the trench located under each machine is sufficient to contain most, if not all, of the outfall from one machine. Refer to local codes for sanitary requirements such as traps, etc.

## **AWARNING A**

REMOVE SHIPPING RESTRAINTS BEFORE ATTEMPTING TO RUN MACHINE but only after machine is in place. Restraints are usually marked with red, and may be concealed behind access panels.

REPLACE THOSE FEATURES WHICH ARE PART OF MACHINE STRUCTURE.

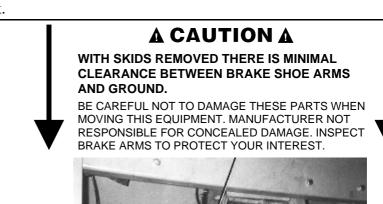
FIGURE 4 (MSIN0301AE) Shipping Restraints

## **Setting Procedures**

To protect against lateral "creeping" of the machine during operation, due to vibration, roughen the area of the floor where grout will be applied. Anchor bolts are required for most of the models covered by this document (refer to the machine dimensional drawing). Once the foundation is prepared, the shipping skids are removed and the machine is ready to be set in its desired position. See FIGURES 3 and 7, then proceed as follows:

- 1. Lower the machine onto three short lengths of 2 x 4's such that the shell front is resting on two of them and the third is centered under the shell back.
- 2. Put shims on top of the 2 x 4's until the machine has approximately 1" clearance under each base pad and is level. Check level as shown in FIGURE 3.
- 3. When the machine is level and has room for 1" of grout under each base pad, apply the grout. Fill all holes under the base pads so that each pad is resting upon a solid base of grout.
- 4. When the grout has hardened, tighten down the anchor bolts and remove the four hold down bolts.

  The shell will be lifted by the Hydro-cushion cylinders so that the 2 x 4 blocking may be removed.





#### DO NOT REMOVE DRIP SHIELDS.

THE AIRMOUNTS ON THIS MACHINE - ARE COVERED WITH PLASTIC DRIP SHIELDS FOR PROTECTION AGAINST EXPOSURE TO OIL.

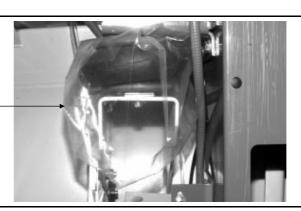
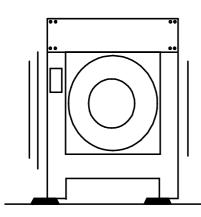


FIGURE 6 (MSIN0301AE)
Drip Shields

## **AWARNING A**



A <u>SUSPENSION TYPE</u> MACHINE CAN "WALK" OUT OF POSITION DURING EXTRACT, ENDANGERING PERSONNEL AND DAMAGING EQUIPMENT, IF NOT PROPERLY INSTALLED.

Roughen floor, install anchor bolts and grout under all base pads to prevent "teeter-totter" and sideways movement.

REMOVE ALL SHIPPING RESTRAINTS but only after machine is in place.

THE MACHINE WILL MALFUNCTION AND MAY BE DAMAGED UNLESS ALL SHIPPING RESTRAINTS (USUALLY MARKED WITH RED) ARE REMOVED. Restraints may be located behind access covers. These include but are not limited to:

- Cylinder hold-down bolts, brackets, straps and/or blocking (suspension type machines).
- Vibration safety switch restraint, FIGURE 8 (all 36" and larger machines).

REPLACE FASTENERS WHICH ARE PART OF MACHINE STRUCTURE.

FIGURE 7 (MSIN0301AE)
Anchor and Grout Warning

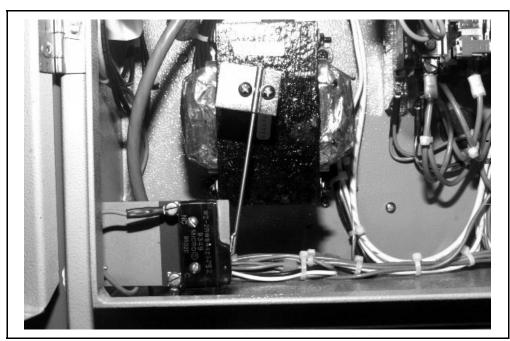


FIGURE 8 (MSIN0301AE)
Vibration Switch

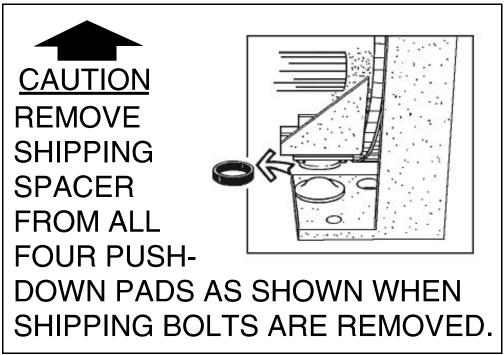


FIGURE 9 (MSIN0301AE) 60" Staph-Guard®

## HYDRO-CUSHION® SERVICE CONNECTIONS

#### General

These service connections are required:

1. Piped inlets and outlets (cold water, hot water, "third" water, reuse water, flushing supply water, Spray down and/or cooldown water, steam, central liquid supply, peristaltic pump inlets, compressed air inlet, vent, reuse and/or drain).

IT IS NORMAL FOR THE VEGETABLE FIGER GASKET ON THIS SHELLFRONT TO LEAK SLIGHTLY WHEN THE MACHINE IS FIRST COMMISSIONED. IT SHOULD STOP LEAKING AFTER THE FIRST FEW LOADS ARE PROCESSED.

FIGURE 1 (MSIN0201BE)
All Machines

**2.** Electric power connections (for additional information see "EXTERNAL FUSE AND WIRE SIZES FOR MILNOR® MACHINES" - MAEFUSE1AE).

## **Requirements for Piped Connections**

Inlet pressures must be within the minimum/maximum range specified. Pressures outside of the specified range may cause the machine to operate inefficiently or malfunction, and may damage machine components.

## **A CAUTION A**



MACHINE DAMAGE—Valve bodies will be ruined if twisted and distorted.

Hold the connection side of the valve with a wrench when connecting plumbing.

#### **A CAUTION A**

MACHINE DAMAGE—Piping will be damaged if struck by tilting machine.

Route piping to tilting machines carefully.

#### **A** CAUTION **A**



Machine Damage Hazards—Pumped chemical systems, if not properly installed, can cause corrosion damage.

See the reference manual for precautions and additional information before making any chemical connections.

**Piped Inlet/Outlet Specifications**—The piped inlet and outlet requirements are as follows (see dimensional drawings for the size and location of connection points):

**Piped Inlets** 

<b>Description of Connection</b>	Source Requirements	Piping Specifications
Cold water inlet	See dimensional drawing	Pipe material per plumbing code
Hot water inlet	for size. 30 - 65 PSI	(see "Piped Inlet Precautions," in this section)
"Third" water inlet	(2.10 - 4.57 kilogram/centimeter)	,
Reuse water inlet		
Steam inlet	See dimensional drawing for size. 30 - 115 PSI (2.10 - 4.57 kilogram/centimeter)	Pipe material per plumbing code (see "Steam Precautions", in this section
Flushing water for supply injector (Divided cylinder, 52", and 72" open pocket non-tilt machines only)	See dimensional drawing for size. 30 - 65 PSI (2.10 - 4.57 kilograms)	Pipe material per plumbing code (see "Flushing Water Connections," in this section)
Peristaltic pump inlets	1/2" NPT	Flexible tubing as specified by chemical supplier (see "Peristaltic Pump Connections," in this section)
Central liquid supply	1/2" and 3/8" NPT	Flexible tubing as specified by chemical supplier
Compressed air inlet	See dimensional drawing for size. 85 - 115 PSI (5.97 - 8.08 kilogram/centimeter)	Pipe material per plumbing code

**Outlet Specifications**—The outlet requirement is as follows. See dimensional drawings for connection sizes and locations.

#### **Outlets**

Description of Connection	Destination Requirements or Description	Piping Specifications
Drain to reuse (if so equipped) or Drain to sewer	Provide a centrally located open trench, with a minimum slope of 1/8" per foot (10 mm per meter) (See dimensional drawing)	Do not connect dump valves to drain. Attach short pieces of hose to dump valves to control splashing.  Do not immerse ends of hoses.  (see "Drains" in this section)
Vent	See dimensional drawing	Flexible tubing supplied by others (see "Vents" in this section)

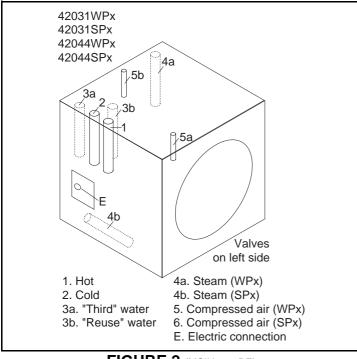


FIGURE 2 (MSIN0201BE)
42031, 42044 Non-Tilting, Open Pocket and Staph-Guard<sup>®</sup> Service Connections

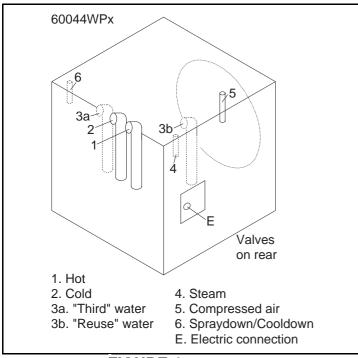


FIGURE 4 (MSIN0201BE)
60044 Non-Tilting, Open Pocket
Service Connections

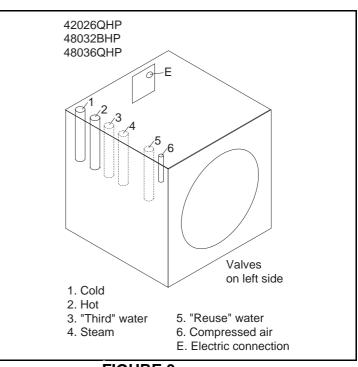


FIGURE 3 (MSIN0201BE) 42026, and 42032 Non-Tilting, Open Pocket Service Connections

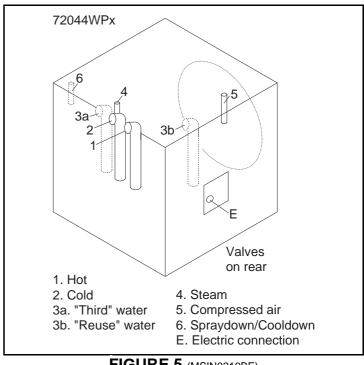


FIGURE 5 (MSIN0210BE)
72044 Non-Tilting, Open Pocket
Service Connections

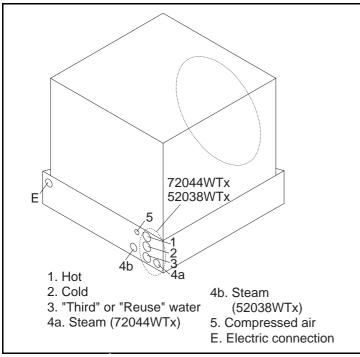


FIGURE 6 (MSIN0201BE)
72044 and 52038 Tilting,
Open Pocket Service Connections

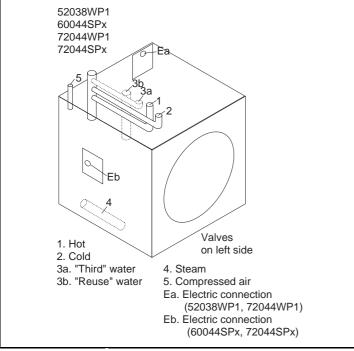


FIGURE 8 (MSIN0201BE)
52038 and 60044 Non-Tilting Open Pocket and Staph-Guard® Service Connections

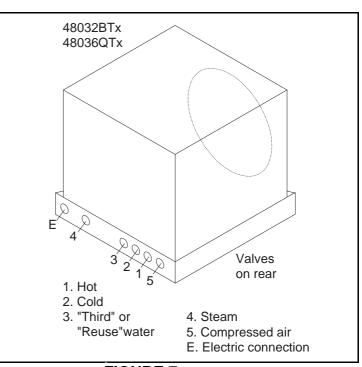


FIGURE 7 (MSIN0201BE)
48032, 48036 Tilting, Open Pocket
Service Connections

# STEAM POP-OFF VALVE (HAS BEEN PRE-SET TO 125 PSI).

PIPE RELIEF PORT TO COVERED DRAIN. <u>DO NOT</u> INSTALL A STEAM TRAP ON THIS LINE.

## FIGURE 9 (MSIN0201BE) Indirect Steam Machines Only

Please check perforated cylinder for smoothness before placing machine in service.

We cannot accept claims for damage to cylinder's smooth finish after machine has been placed in service.

PELLERIN MILNOR CORPORATION

FIGURE 10 (MSIN0201BE)
All Machines

## **Piped Inlet Precautions**

Machines are supplied with one to three air operated ball valves (functions and positions are shown in FIGURES 2 through 8). The flow rate of a ball valve is far greater than that of a globe valve of equal nominal size. Do not use improperly sized globe type shut-off valves in front of ball valves (see FIGURE 11). Additional precautions are as follows:

- Always use unions at the point of connection to permit removal of the valve assembly for service.
- Do not connect reuse water to any other inlet. Reuse water has a detrimental effect on devices (e.g., supply injector) supplied by other inlets.
- Do not use globe type shut-off valves on reuse water. Reuse water lint may clog this type of valve.

#### **WARNING**

Some of the water inlet and/or steam valves on this machine may be of the "ball valve" construction. The flow rate of a ball type valve is far greater than that of an equal size globe valve.

DO NOT USE GLOBE TYPE SHUT OFF VALVES IN FRONT OF BALL VALVES UNLESS THE GLOBE VALVE IS SELECTED IN ACCORDANCE WITH THE FOLLOWING TABLE:

BALL VALVE SIZE	EQUIVALENT GLOBE VALVE SIZE
1- 1/4" normal flow 1- 1/2" normal flow 2" normal flow * 2" full port fast flow	2-1/2" 2-1/2" 3" 4"

\* Used as water inlet valves on MILNOR 7244 machines.

NOTICE: IF VALVE IS ACCIDENTLY PIPED TO THE WRONG WATER
LINE, MERELY INTERCHANGE THE AIR TUBE (IF VALVE IS AIROPERATED). NEVER INTERCHANGE ANY ELECTRICAL CONNECTIONS
(NOT APPLICABLE FOR THIS MACHINE ON WHICH A SINGLE
CONNECTION SERVES MORE THAN ONE WATER-USING DEVICE.)

## FIGURE 11 (MSIN0201BE) All Hydro-Cushion Machines

• Inlet valves may experience "water hammer" at higher water pressures. Inlet valve actuators (air cylinders) are fitted with needle valves to adjust how fast the inlet valve closes. If water hammer is experienced, slightly reduce the closing rate of the inlet valve. Pressure regulators or shock absorbers may be necessary.

**Steam Requirements**—Steam inlets are located near water inlet valves (except Staph-Guard<sup>®</sup> models). Size the line from the header to the machine at least one size larger than the steam valve.

## Flushing Water for Supply Injector

**NOTE**: Tilting, 42", 48", and 64" open pocket machines fitted with flushing supply injectors have an internal connection to the hot (or cold, if hot is not available) water inlet.

Divided cylinder, 52", and 72" open pocket non-tilting machines require an external connection. Supply injectors require a dependable hot water supply that does not boil over or contain steam. Use cold water if the hot water supply does not meet the above conditions.

- Connect directly from water supply to the supply injector water pressure reducing valve.
- Use at least one size larger pipe than the water pressure reducing valve.
- Verify a reading of 28 PSI (1.96 kilograms per square centimeter) on the water pressure gauge. This pressure
  protects the downstream supply injector solenoid valves. These valves are rated for a maximum static pressure of 30 PSI (2.10 kilograms per square centimeter). Pressures above this may cause the valve coils to
  burn out.

- If the water pressure reducing valve "chatters" while flushing, verify gauge pressure is 28 PSI. If pressure is correct then re-locate the water pressure reducing valve approximately 10 feet further upstream.
- Tubing connection in the top of the pressure reducing valve is a "bleed off" line and normally discharges into the supply injector, but can be connected to any convenient drain.

**Optional Cooldown Water Connection**—Open pocket tilting and non-tilting machines that use cooldown are internally connected to the cold water connection and do not require external connection. Divided cylinder machines require a separate cold water connection.

**Optional Spray down Water Connection**— Rapid load machines use a separate cold water connection. A machine equipped for both cooldown and spray down uses one inlet for both functions.

**Liquid Supplies**—Machines equipped with the optional central liquid supply injection in lieu of a flushing supply have a set of supply valves and a supply manifold.

#### **A CAUTION A**

Never connect hard piping directly to the drain valve outlet.

Drain valves are connected to the suspended portion of the machine, and move up to 3" in any direction when the machine is operating, and up to 18" along an arc in the case of tilting machines.

**Drains**—Depending upon whether single or dual drain valves are supplied, the installation should provide for a single or double recessed trench under the machine, as shown on the dimensional drawing, in order to accommodate the rapid, large volume outfall which occurs when the drain opens. When dual drain valves are furnished (for water reuse) the drain-to-sewer is located to the front and the drain-to-reuse, to the rear, unless specified otherwise. These positions are easily swapped by interchanging the air lines on top of each drain valve air cylinder. Never make changes to electrical circuits. A short length of flexible hose may be attached to drain valves on non-tilting machines to control splashing, especially if the drain valve is not centered over the trench. Connecting this flexible hose directly to hard drain piping is not recommended as this may be too restrictive to allow complete draining. If this is necessary, the drain valve may in most cases be mounted with the drain outlet facing rearward or forward, to facilitate the routing of drain piping. Consult Milnor® for further information.

## **A** CAUTION **A**

Do not connect a powered ventilator to a Staph - Guard<sup>®</sup> as this may defeat the internal venting mechanism. Consult Milnor<sup>®</sup> for additional information.

#### **A** CAUTION **A**

The shell vent outlet on tilting machines moves when tilting. Rigid vent connections cannot be made to tilting machines. Consult  $Milnor^{@}$  if extenuating circumstances require external venting.

**Vent**— Because of the relatively small volume of exhaust air produced by a washer-extractor (versus a dryer, for example) it is almost never necessary to vent a washer-extractor to the outside. One possible exception is with Staph-Guard models, for sanitary reasons. Note, however, that even without exterior venting, the vent mechanism on Staph-Guard machines will draw air in from the clean side and exhaust it to the soil side, providing a barrier wall has been properly installed in accordance with the machine dimensional drawing.

#### **Precautions for Electrical Connections**

#### A DANGER A



ELECTROCUTION HAZARD—Contact with high voltages can kill or seriously injure you.

All electrical connections must be made by a competent electrician.

#### **When Making Electrical Power Connections**

- 1. Connections must be made by a competent electrician.
- 2. See fuse and wire sizing information in the schematic manual and on the machine nameplate.
- **3.** "Stinger leg," if any, must be connected to terminal L3 only.
- **4.** Make power and liquid supply electrical connections within junction boxes on rear of machine.
- **5.** Use only Bussman Fusetron FRN (up to 250V), FRS (up to 600V) or similar lag fuses. The nameplate fuse sizes must not be applied to standard fuses.
- **6.** See nameplate and wire sizing information in the schematic manual for fuse and wire sizes. For wire runs of more than 50 feet (15.24), increase by one wire size per each additional 50 feet (15.24).
- 7. Verify all motor rotation (see the Mark II washer-extractor reference manual for further information).

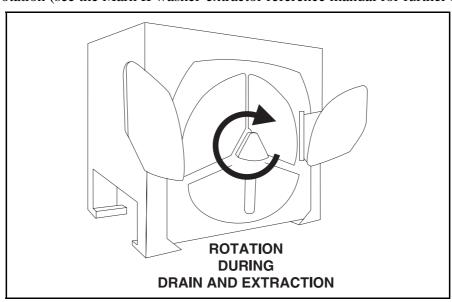


FIGURE 12 (MSIN0201BE)
Cylinder Rotation (Viewed from front)

### **Electric Power Connections**

#### **A CAUTION A**

Voltage fluctuations of more than 10% above or below the specified voltage for the machine are extremely detrimental to electrical components, especially motors.

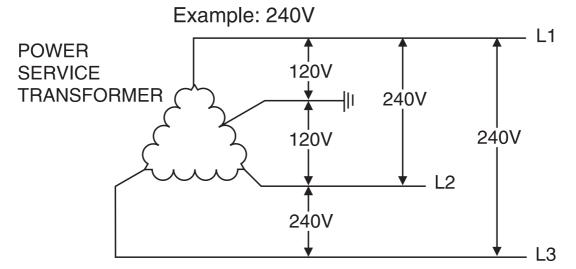
Correct any such conditions prior to commissioning the machine.

The customer must furnish a remotely mounted disconnect switch with lag type fuses, circuit breakers, and wiring between the electrical service box and the junction box on the machine. The sizes of these fuses and wires, along with the motor fuses supplied with the machine, depend on the machine voltage. See fuse and wire sizing information in the schematic manual and on the machine nameplate. If machine has been in storage or transit for several months, the time relay(s) may not time out correctly the first time. After a few operations they will correct themselves. Do not condemn them until they are allowed to operate several times.

#### **WARNING**

#### FOR ANY MACHINE

IF POWER SERVICE HAS A "HOT LEG" OR "STINGER" ALWAYS CONNECT THE "STINGER" TO L3 ONLY. TO REVERSE ROTATION OF 3 PHASE MACHINE INTERCHANGE ONLY THE INCOMING L1 AND L2 LINES, NEVER L3. (NEVER CONNECT A "STINGER" TO A SINGLE PHASE MACHINE).



STINGER LEG MEASURES 190V TO GROUND CONNECTION. (CONNECT TO L3 ONLY)

FIGURE 13 (MSIN0201BE)
Electrical Service Example

## **A CAUTION**

USE ONLY YOUR FINGERS TO DEPRESS THE KEYS.

NEVER USE SHARP OBJECTS.

WHEN USED PROPERLY THIS KEYPAD WILL WITHSTAND HEAVY INDUSTRIAL USE.

DAMAGE MAY OCCUR IF KEYS ARE DEPRESSED BY A SCREWDRIVER, PEN, ETC.

FIGURE 14 (MSIN0201BE)
All Machines

#### **WARNING**

DO NOT TAMPER WITH INDIVIDUAL CONNECTIONS ON THIS "WIRE-WRAPPED" CONTROLLER, OTHERWISE THE WIRE WRAPS MAY BE LOOSENED WHEREUPON ELECTRICAL CONTINUITY COULD BECOME INTERMITTENT CAUSING THE CONTROL TO MALFUNCTION.

DO NOT MODIFY ANY OF THESE CIRCUITS

DO NOT CUT OR ADD ANY WIRES IN THIS SYSTEM. TAMPERING WITH THIS WIRING WITHOUT WRITTEN PRIOR PERMISSION WILL VOID THE WARRANTY.

REQUEST INSTRUCTIONS FROM THE FACTORY SHOULD IT BE DESIRED TO MODIFY ANY OF THE CIRCUITS.

## FIGURE 15 (MSIN0201BE) All Machines

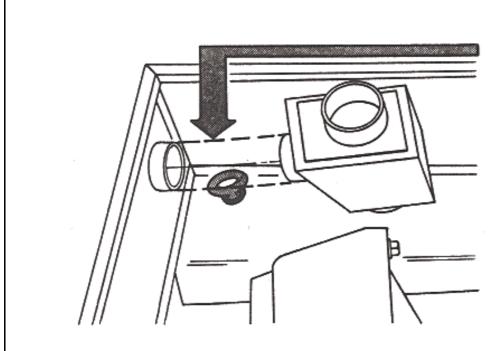
#### AIR CONNECTION

MINIMUM 85 PSI (Generally)
MAXIMUM 110 PSI (Check nameplate on machine)

THE BRAKE INTERLOCK PRESSURE SWITCH WILL NOT PERMIT THE MACHINE TO EXTRACT IF THE AIR PRESSURE IS TOO LOW. THE MACHINE WILL ROTATE AT DRAIN SPEED INSTEAD.

If this happens, check your air compressor. If your gauge shows more than 85 PSI the gauge is probably faulty. Some air compressors are set with too great a pressure differential between the lowest pressure obtainable and the highest pressure obtainable. Hence, if your compressor is set to go on at 60 PSI and off at 110 PSI, the machine will extract quite satisfactorily whenever the air pressure is above 85 PSI, but will not enter extraction at all when the pressure is below 85 PSI.

## FIGURE 16 (MSIN0201BE) All Machines



THIS HOSE FROM THE STAPH AIRTROL ASSEMBLY TO THE CLEAN SIDE VENT SCREEN WAS REMOVED FOR SHIPPING PURPOSES TO PERMIT ATTACHMENT OF LOADING SLING TO SHIPPING EYE BOLT.

REINSTALL AS SHOWN BEFORE OPERATING MACHINE.

FIGURE 17 (MSIN0201BE)
Staph-Guard Machines

## **A CAUTION A**

# WHEN MAKING ELECTRICAL POWER CONNECTIONS:

- 1. Connections must be made by a competent electrician.
- **2.** Before making power connections, read the instructions on all related tags.
- **3.** "Stinger leg", if any, must be connected to terminal L3 only.
- **4.** Only use Bussman Fusetron FRN (up to 250V), FRS (up to 600V) or similar lag fuses. The nameplate fuse sizes must not be applied to standard fuses.
- **5.** See nameplate for fuse and wire size. If wire runs more than 50 feet, increase by one wire size per each additional 50 feet.

## **NOTE:**

BEFORE SHIPPING, ALL MOTORS ARE PROPERLY PHASED FOR IT IS POSSIBLE CORRECT ROTATION. TO REVERSE THE ROTATION IN PHASE DIRECTION OF Α 3 MACHINE INTERCHANGING THE INCOMING POWER LEADS. THEREFORE, THE ROTATION OF A 3 PHASE MACHINE MUST BE OBSERVED AND CORRECTED WHEN THE MACHINE IS FIRST INSTALLED. IF IT IS NECESSARY TO REVERSE THE ROTATION, SIMPLY SWAP THE INCOMING POWER LINES TO THE MACHINE (NEVER MOVE L3 IF L3 IS A STINGER LEG) - NEVER ATTEMPT TO RECONNECT MOTORS OR THE MOTOR CONTROL DEVICES.

#### **CHEMICAL INLET VALVES**

#### **VALVE**

#### **FLOW RATE**

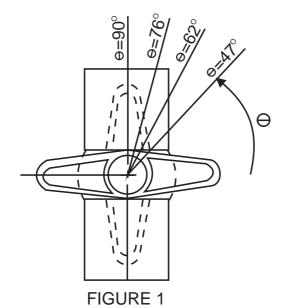
1/2" Stainless steel 1/2" PVC

24 USGPM (H2O @ 15 PSI) 30 USGPM (H2O @ 15 PSI)

The approximate full-open flow rate of this chemcial inlet valve is shown above. At lower pressure, the flow will be reduced approximately as the square root of the ratio obtained by dividing the actual applied pressure by 15 PSI (1ATU).

The calibrating valve can vary the flow from full-open to about 25 % of full-open. See TABLE 1 and FIGURE 1 below for description of valve positioning. Never use this calibrate valve to reduce the flow to less than 25% because the resultant flow will not be consistent.

Should 25% of full-flow be too great, reduce the amount of chemicals actually injected by (1) reducing the chemical pressure, or (2) reducing the stock chemical concentration (increasing the dilution), or (3) reducing the time the chemical valve is commanded by the SITMIL to remain open. (However, the valve should never be commanded to open less than about 10 seconds, because the opening and closing time of the chemical inlet valve would become a large percentage of the injection time and thus cause certain variations in the amount of chemical actually injected).



FLOW	VALVE POSITIONING REF. ⊖
25%	47°
50%	62°
75%	76°
FULL	90°

TABLE 1

WATER CONNECTION FOR: AUTOMATIC SUPPLY INJECTOR AND BALANCING VALVES (If machine is so equipped).

USE HOT WATER IF IT IS AVAILABLE.

SET PRESSURE REGULATOR FOR 28 PSI WHEN THERE IS NO FLOW OF FLUSHING OR BALANCING WATER.

FIGURE 20 (MSIN0201BE)
Divided Cylinder, 52" and 72"
Open Pocket Non-Tilt Machines

NOTE: CALIBRATE SUPPLIES #1 AND #2 TWICE.

SUPPLIES #1 AND #2 HAVE TWO FLOW RATES: NORMAL RATE FOR TIMES A. A1, B, AND B1; HIGH RATE FOR C AND C1. CALIBRATE BOTH #1 AND #2 AT TIME A OR B AND AT TIME C.

FIGURE 21(MSIN0201BE)
Calibrating Liquid
Supply Manifold

If cooldown strainer was removed for shipment it must be reinstalled before cold water can be connected to cooldown valve.

# FIGURE 22 (MSIN0201BE) Cooldown/Spraydown Machines (If applicable)

DRY BLEACHES MAY CAUSE THE INSIDE OF THIS SUPPLY INJECTOR TO SHOW EVIDENCE OF MILD RUSTING. IF THIS CONDITION OCCURS, BE CERTAIN TO CAREFULLY CLEAN AWAY THE RUSTING AT LEAST ONCE A WEEK.

ALWAYS INJECT DRY BLEACH FROM THE CUP OR SCOOP. NEVER ALLOW THE DRY BLEACH TO COME IN DIRECT CONTACT WITH THE STAINLESS STEEL COMPONENTS OF THE SUPPLY INJECTOR.

FIGURE 23 (MSIN0201BE)
Bleach Precaution

#### NOTICE

WHEN MACHINE IS NOT IN USE FOR EXTENDED PERIODS, LEAVE DOOR OPEN OR TURN ELECTRICAL SERVICE DISCONNECT "OFF" A TO DE-ENERGIZE SECOND BRAKE AIR VALVE COIL.

FIGURE 24 (MSIN0201BE)
Door Precaution

#### STEAM CONDENSATE RETURN LINE

CUSTOMER TO INSTALL AN APPROPRIATE SIZED STEAM TRAP, WHEN SAME IS NOT FURNISHED WITH MACHINE.

FIGURE 25 (MSIN0201BE)
Indirect Steam Condensate Return

#### MSINA409AE/9841AV

## REUSE TANK INSTALLATION AND OPERATION

## **Install Assemblies That Were Removed for Shipment**

The reuse tank and related assemblies were removed after testing and shipped separately. Once the washer extractor is positioned and grouted (and not before), install the following assemblies that were removed for shipment.

- Overhead reuse tank
- Reuse pump
- Level switch wiring
- Associated piping

Assemble the reuse tank on the ground then lift tank into place and connect hoses. Use the reuse system schematic (FIGURE 1), photographs (FIGURES 2 though 7), and electrical schematic W6W2BDU (in the electrical schematic manual) as assembly aids. See table below for the approximate tank and pump weights.

#### **Approximate Tank and Pump Weights**

	42044WP2	60044WP2
Assembled reuse tank	390 Pounds (177 Kilograms)	550 Pounds (250 Kilograms)
Reuse pump	150 Pounds (68 Kilograms)	300 Pounds (136 Kilograms)

**Operation**—The reuse system is automatically controlled by the washer-extractor wash program as follows:

- 1. When the wash program calls for reuse drain, the washer-extractor opens the reuse drain and signals the reuse pump to start. The reuse drain closes after three minutes to keep the reuse pump from running dry. After the reuse drain closes the reuse pump stops. The regular drain valve then opens, sending any remaining water to the drain trench.
- 2. Should the reuse pump send too much water to the overhead tank, excess water automatically overflows to the drain trench, via the overflow pipe.
- 3. If the water level in the tank drops below minimum level (as monitored by the level switch), then the make-up water valve opens, adding fresh cold water to the reuse tank.

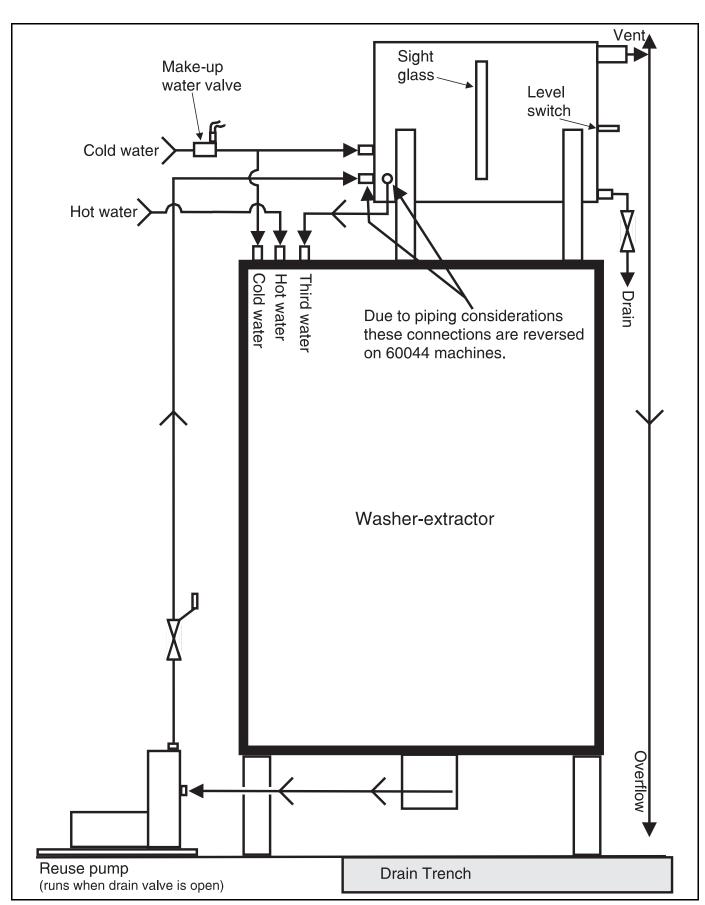
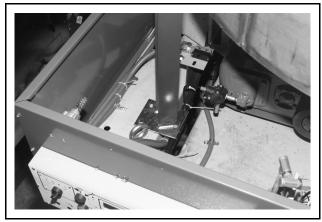


FIGURE 1: Reuse System Schematic



**FIGURE 2:** Right Front Reuse Tank Mount (42044WP2 shown)

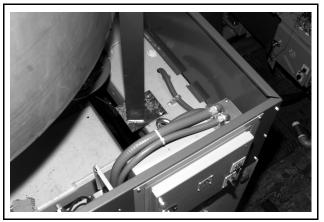


FIGURE 4: Left Front Reuse Tank Mount (42044WP2 shown)

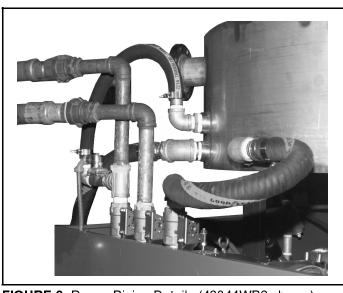


FIGURE 6: Reuse Piping Details (42044WP2 shown)

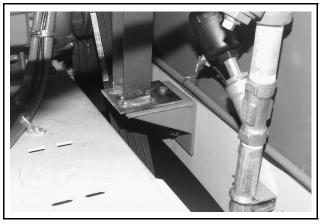
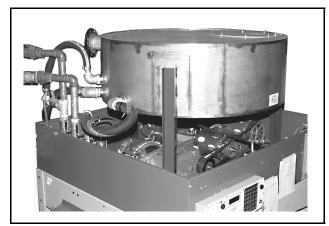


FIGURE 3: Rear Reuse Tank Mount (42044WP2 shown)

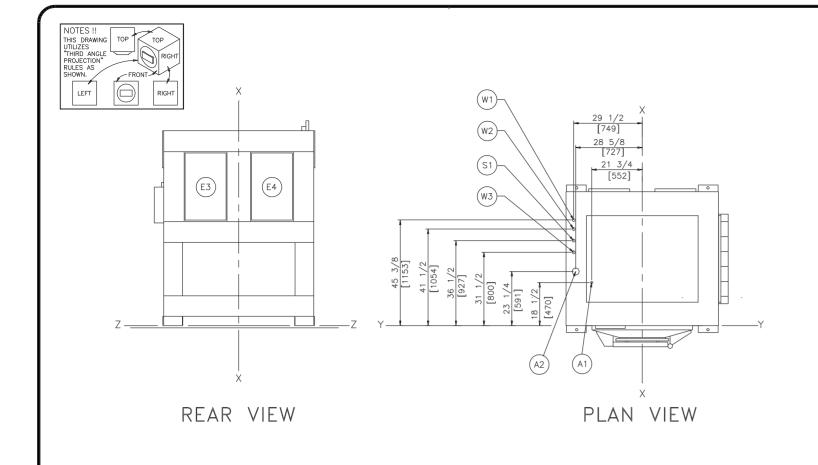


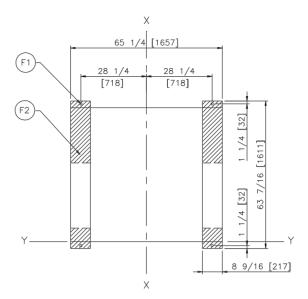
**FIGURE 5:** Reuse Tank In Position (42044WP2 shown)



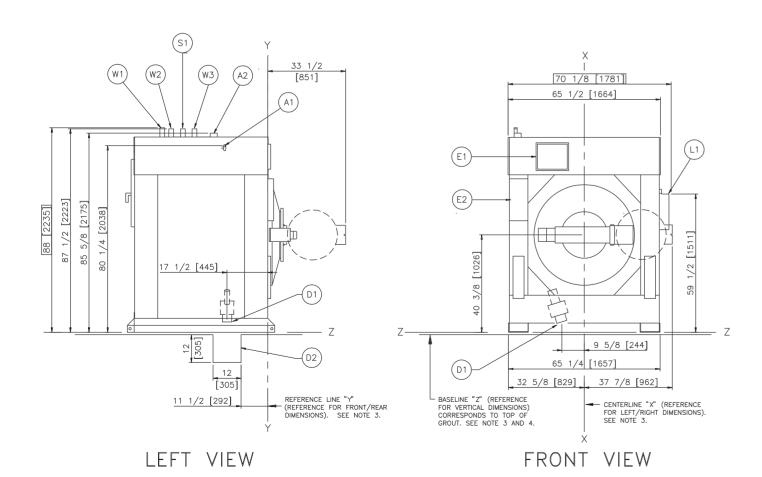
FIGURE 7: Reuse Pump Details (42044WP2 shown)

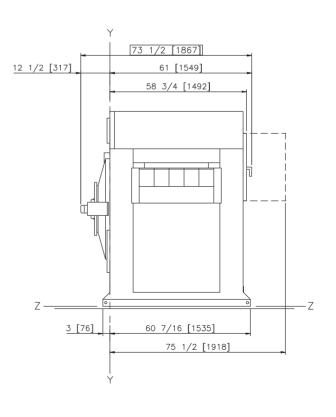
# Section Dimensional Drawings



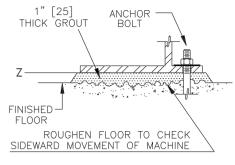


FOUNDATION PLAN VIEW





RIGHT VIEW



#### INSTALLATION DETAIL

ITEM	LEGEND
A1	VENT,3"[76] DIA.
A2	COMPRESSED AIR INLET, 1/4 NPT.
D1	DRAIN VALVE 4" [102] DIA.
D2	SINGLE DRAIN TROUGH
E1	MICROPROCESSOR CONTROL BOX.
E2	OPERATOR CONTROLS.
E3	HIGH VOLTAGE CONTROL BOX
E4	LOW VOLTAGE CONTROL BOX
	DIA. ANCHOR BOLTS.
F1	FOUR ANCHOR BOLT HOLES, 1-1/16"[27]DIA., USE 1" [25]
F2	BASE PLATES (SEE NOTE 8).
L1	FIVE COMPARTMENT SUPPLY INJECTOR.
S1	STEAM INLET CONNECTION, 1-1/4 NPT.
W1	HOT WATER INLET CONNECTION, 1-1/4 NPT.
W2	COLD WATER INLET CONNECTION, 1-1/4 NPT.
W3	THIRD WATER INLET CONNECTION, 1-1/4 NPT.

3	DRAIN	DIMENSION	IS WITH	CYLINDER IN	"PUSHED	DOWN"	POSITION,	PUSH
	TRAVEL	. IS APPROX	KIMATELY	2-1/2"[64].				

- SHADED AREAS OF BASE PLATES MUST BE CONTINUOUSLY SUPPORTED, UNSHADED PORTIONS OF BASE PLATES MAY BE LEFT UNSUPPORTED, TO ACCOMODATE DRAIN TROUGHS.

- PORTIONS OF BASE PLATES MAY BE LEFT UNSUPPORTED, TO ACCOMODATE DRAIN TROUGHS.

  7 DO NOT PRE—PIPE ANY CLOSER THAN 60 [1524].

  6 AS OF THIS WRITING, THE MINIMUM CLEARANCE REQUIRED BY U.S. NATIONAL ELECTRIC CODES, FROM ELECTRIC BOX TO ANY OBJECT IS:

  36 [914] IF OBJECT IS AN UNGROUNDED (INSULATED) WALL.

  42 [1067] IF OBJECT IS A GROUNDED WALL (I.E. BARE CONCRETE, BRICK, ETC.)

  48 [1219] IF OBJECT IS A GROUNDED WALL (I.E. BARE CONCRETE, BRICK, ETC.)

  48 [1219] IF OBJECT IS A GROUNDED WALL (I.E. BARE CONCRETE, BRICK, ETC.)

  49 [107] IF OBJECT OBDES FOR PURTHER RESTRICTIONS.

  5 CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAPETY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

  4 BASELINE "Z" IS THE SAME FOR ALL MINIOR MACHINES AND IS SHOWN ON ALL DIMENSIONAL DRAWINGS. THE DISTANCE BETWEEN BASELINE "Z" AND THE FINISHED FLOOR MAY VARY (WITH CHANGES IN FLOOR HEIGHT) AS REQUIRED TO INSURE THAT BASELINE "Z" IS HORIZONTAL AND ALL COMPONENTS REQUIRING GROUT ARE SET ON A MINIMUM 1" [25] THICK GROUT BED.

  3 USE REFERENCE LINES "X", "Y", AND "Z" TO LOCATE ALL SERVICE CONNECTIONS.

  3 NUMBERS IN BRACKETS [] DENOTE DIMENSIONS IN MILLIMETERS.

  1 ALL DIMENSIONS SHOWN ARE APPROXIMATE, SUBJECT TO NORMAL MANUFACTURING TOLERANCES, AND TO OCCASIONAL CHANGES WITHOUT NOTICE THROUGH REDSSIGN AND/OR RELOCATION OF COMPONENTS, ETC. DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED, AND IN NO EVENT PRE—PIPE CLOSER THAN FIVE FEET FROM MACHINE. FACTORY MUST BE CONSULTED FOR DIMENSIONS IF MACHINE IS TO BE MOVED THROUGH ADDRESSION OF DIMENSIONS IN MILLINGTERS.

  AND THE PROVIDED SOURCES OF THE PREFET FROM MOVED THROUGH REDSSIGN OR NOT THE USAD HOULD THE

MOVED INKOUGH NARROW OR LOW CORRUDO'S OR OPENINGS.

ATTENTION

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CCORDINGLY, THE OWNER/USER MUST RECOGNIZE ALL FORESEABLE SAFETY HAZARDS,

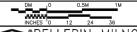
URNISH SAFETY INSTRUCTIONS AND SUIDANCE TO ALL PERSONNEL WHO MAY COME

N CONTACT WITH THE INSTALLATION, AND PROVIDE ALL RECESSARY ADDITIONAL SAFETY

SUARDS, FENCES, RESTRAINTS, DEVICES, ETC., NOT FURNISHED BY THE EQUIPMENT

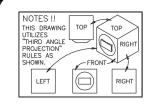
THE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT 
STRENGTH (AND RIGIDITY WITH DUE CONSIDERATION FOR NATURAL OR RESONANT 
FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE 
INCLUDING THE GOODS, THE WAITER, AND ANY REPEATED SINUSCIDIAL (ROTATING) FORCES 
GENERATED DURING ITS OPERATION. WRITE THE FACTORY FOR ADDITIONAL MACHINE 
DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.

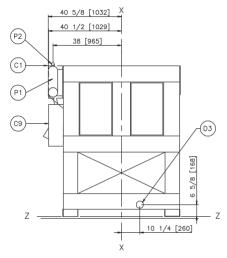




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P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467–9591,
P.AX 504/469–1849, Telex IIT 460124/PELM UI, Cable PELMILNOR

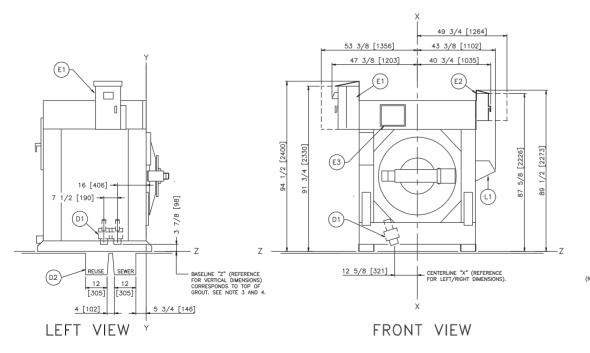


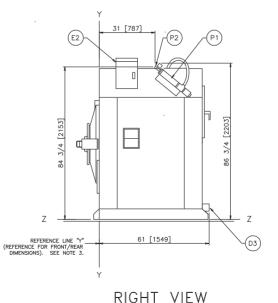


(C1) @ @ @ @ @ @ @ (C9)—

DETAIL CENTRAL LIQUID SUPPLY







P2	PERISTALTIC FLUSHING WATER CONNECTION, 1/2 NPT
P1	15 PORT PERISTALTIC PUMP CONNECTION
L1	MANUAL SOAP CHUTE.
E3	MILDATA CONNECTION TO CONTROL BOX
E1	VARIABLE SPEED CONTROL BOX
E2	INTERPRET RELAY BOX
D3	DRAIN TO REAR, 4" DIA.
D2	DUAL DRAIN TROUGH
D1	DUAL DRAIN VALVE.
C9	CENRTAL LIQUID AIR VALVE BOX
C8	CHEMICAL INLET #5 - SOUR
C7	CHEMICAL INLET #4 - BLEACH
C6	CHEMICAL INLET #3 - SOAP
C5	CHEMICAL INLET #2L - ALKALI
C4	CHEMICAL INLET #2 - ALKALI
C3	CHEMICAL INLET #1L - SOAP
C2	CHEMICAL INLET #1 - SOAP
C1	CENTRAL LIQUID SUPPLY SYSTEM
ITEM	LEGEND

NOTES
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MOVED THROUGH NARROW OR LOW CORRIDORS OR DEBINIOS.

ATTENTION

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MANUFACTURER OR VENDOR.

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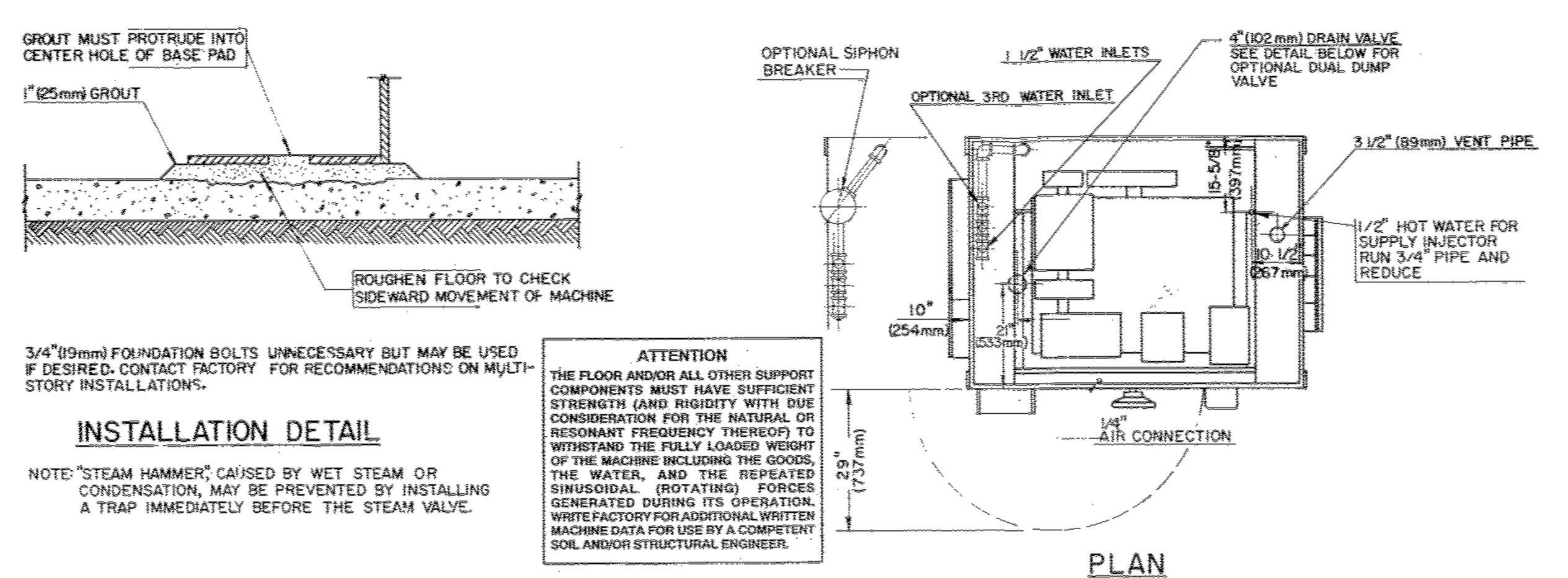
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INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCES
GENERATED DURING ITS OPERATION, WRITE THE FACTORY FOR ADDITIONAL MACHINE
DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.



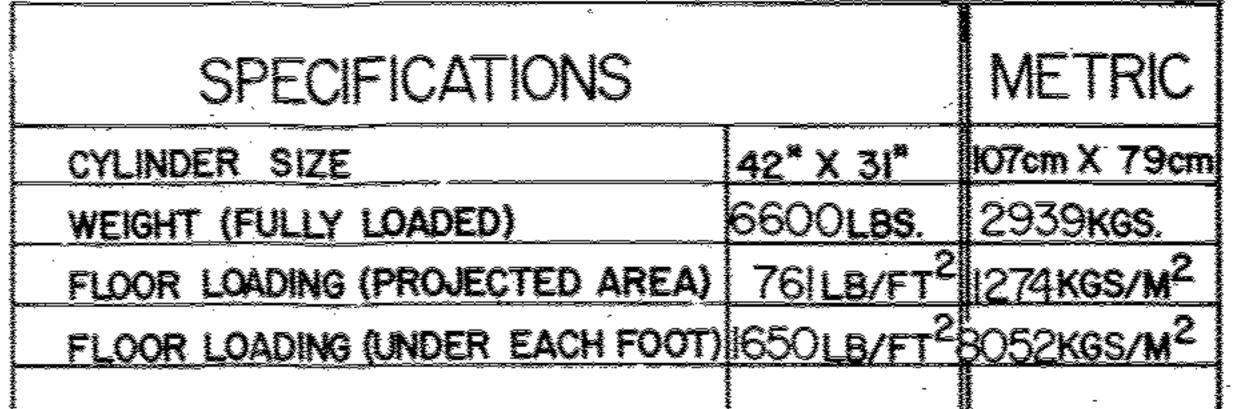
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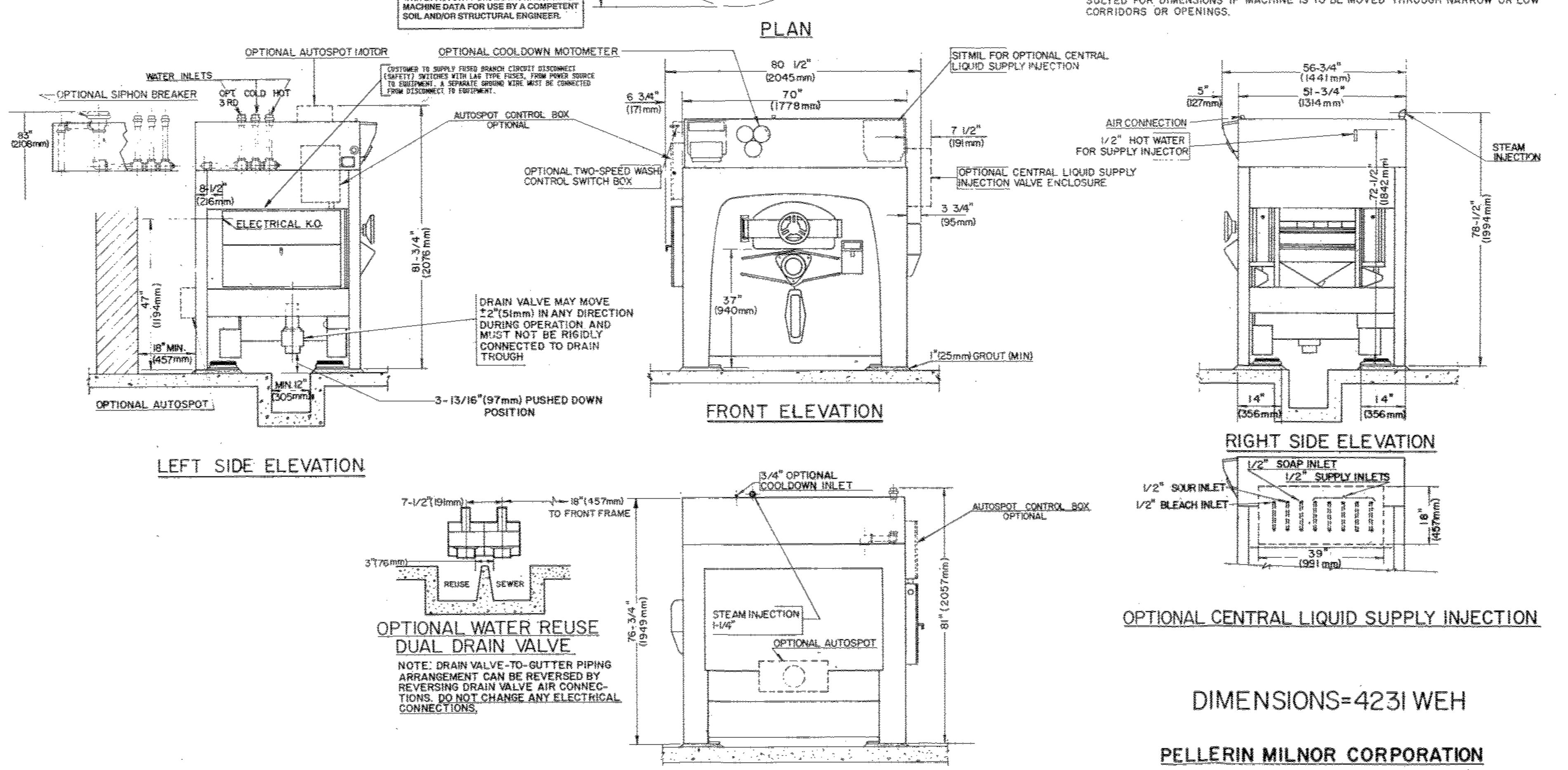


## ATTENTION

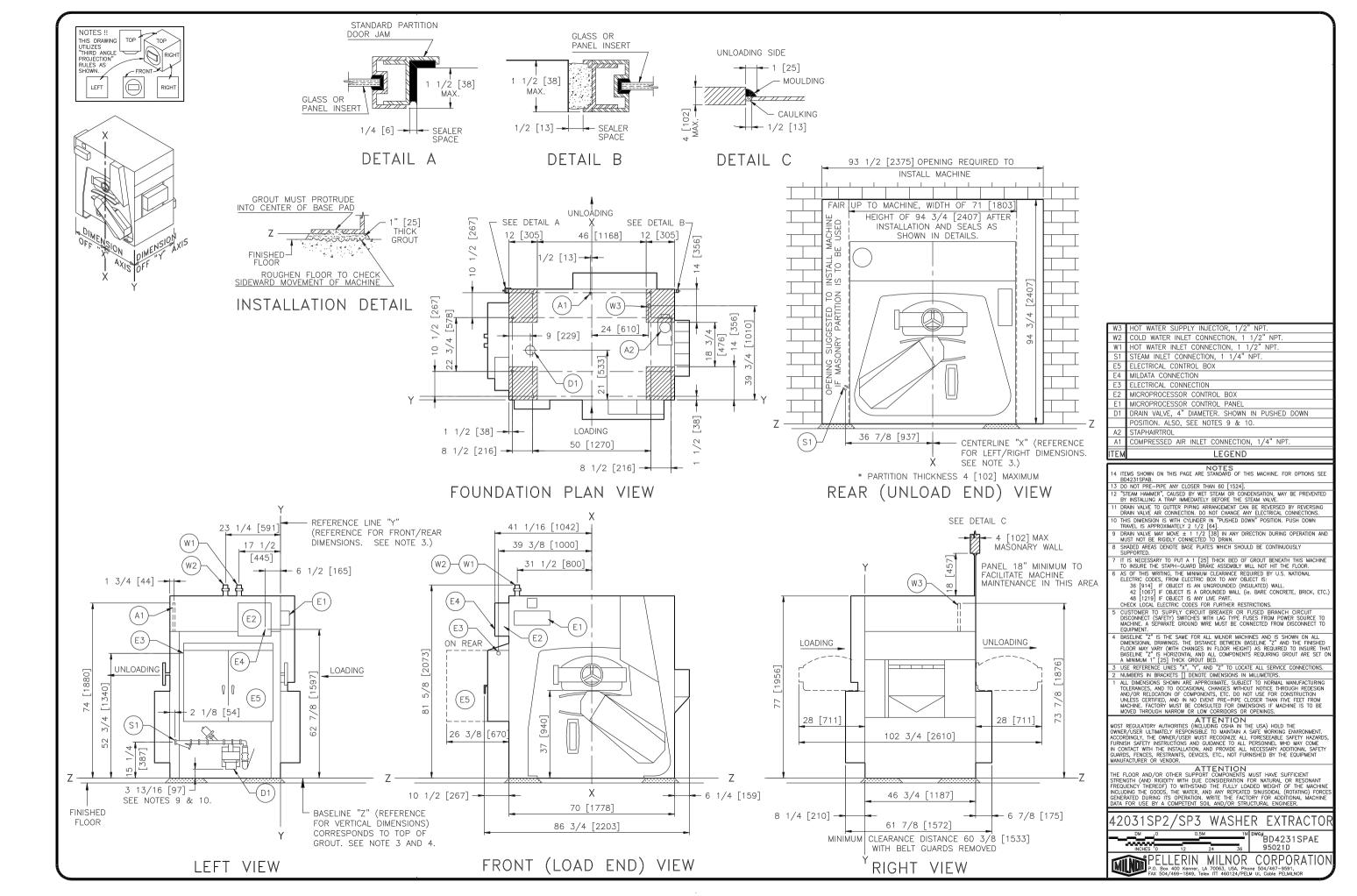
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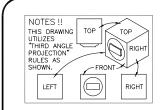


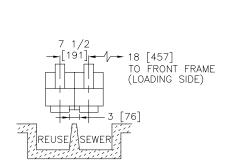
NOTE: ALL DIMENSIONS SHOWN ARE APPROXIMATE, SUBJECT TO NORMAL MANUFACTURING TOLERANCES, AND TO OCCASIONAL CHANGES WITHOUT NOTICE THROUGH REDESIGN AND/OR RELOCATION OF COMPONENTS, ETC. DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED AND IN NO EVENT PRE-PIPE CLOSER THAN FIVE FEET FROM MACHINE FACTORY MUST BE CONSULTED FOR DIMENSIONS IF MACHINE IS TO BE MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS.



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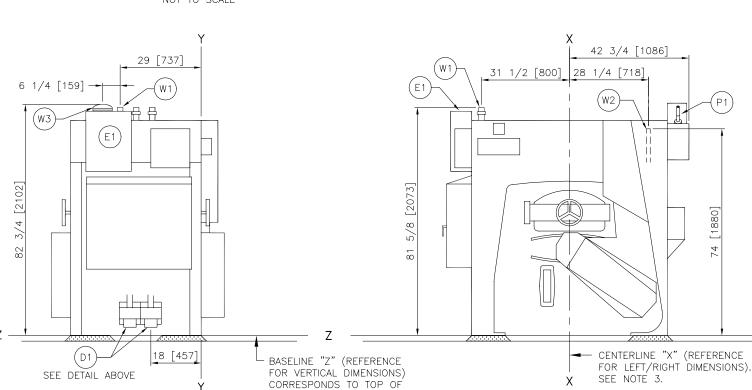






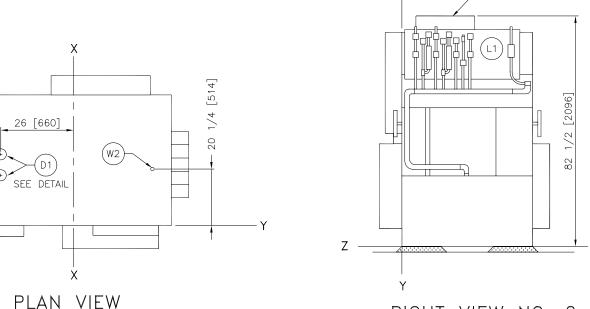
OPTIONAL WATER REUSE DUAL DRAIN VALVE (SEE NOTES 8 & 9). NOT TO SCALE

LEFT VIEW

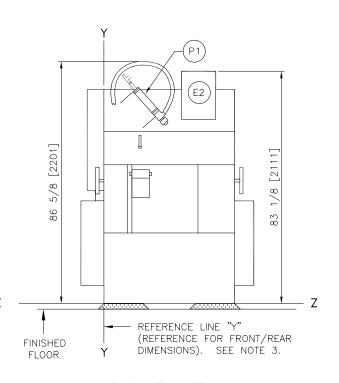


GROUT. SEE NOTE 3 AND 4.

FRONT (LOAD END) VIEW







RIGHT VIEW PERISTALTIC PUMP OPTION

W3	SIPHON BREAKER
W2	OPTIONAL INDEPENDANT COOLDOWN CONNECTION, 3/4" NPT.
W1	THIRD WATER INLET CONNECTION, 1 1/2" NPT.
P1	PERISTALTIC PUMP
L2	CENTRAL LIQUID VALVE BOX. SEE RIGHT VIEW NO. 2.
L1	CENTRAL LIQUID CHEMICAL SUPPLY SYSTEM. SEE RIGHT VIEW
	NO. 2

E2 INTERPRET RELAY BOX

DUAL DRAIN VALVE, TWO, 4" NPT DRAINS. SEE DETAIL.

#### LEGEND

12 THE LOCATION OF CERTAIN OPTIONAL COMPONENTS WILL VARY WITH THE COMBINATIONS OF OPTIONS ORDERED. THESE OPTION COMBINATIONS ARE NOT SHOWN. CONSULT FACTORY FOR MORE INFORMATION.

11 DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524].

11 DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524].

12 "STEAM HAMMER", CAUSED BY WET STEAM OR CONDENSATION, MAY BE PREVENTED BY INSTALLING A TRAP IMMEDIATELY BEFORE THE STEAM VALVE.

13 DRAIN VALVE TO GUITTER PIPING ARRANGEMENT CAN BE REVERSED BY REVERSING DRAIN VALVE MRY CONNECTION. DO NOT CHANGE ANY ELECTRICAL CONNECTIONS.

14 DRAIN VALVE MAY MOVE ± 1 1/2 [38] IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.

15 IT IS NECESSARY TO PUT A 1 [25] THICK BED OF GROUT BENEATH THIS MACHINE TO INSURE THE STAPH-GUARD BRAKE ASSEMBLY WILL NOT HIT THE FLOOR.

TO INSURE THE STAPH-GUARD BRAKE ASSEMBLY WILL NOT HIT THE FLOOR.

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CHECK LOCAL ELECTRIC CODES FOR FORTHER RESTRICTIONS.

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4. BASELINE "Z" IS THE SAME FOR ALL MILNOR MACHINES AND IS SHOWN ON ALL DIMENSIONAL DRAWINGS. THE DISTANCE BETWEEN BASELINE "Z" AND THE FINISHED FLOOR MAY VARY (WITH CHANCES IN FLOOR HEIGHT) AS REQUIRED TO INSURE THAT BASELINE "Z" IS HORIZONTAL AND ALL COMPONENTS REQUIRED TO INSURE THAT A MINIMUM 1" [25] THICK GROUT BED.

3. USE REFERENCE LINES "X", "Y", AND "Z" TO LOCATE ALL SERVICE CONNECTIONS.

2. NUMBERS IN BRACKETS [] DENOTE DIMENSIONS IN MILLIMETERS.

1. ALL DIMENSIONS SHOWN ARE APPROXIMATE, SUBJECT TO NORMAL MANUFACTURING TOLERANCES, AND TO OCCASIONAL CHANGES WITHOUT NOTICE THROUGH REDESION AND/OR RELOCATION OF COMPONENTS, ETC. DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED, AND IN OVEYET PRE-PIPE CLOSER THAN FIVE FEET FROM MACHINE. FACTORY MUST BE CONSULTED FOR DIMENSIONS IF MACHINE IS TO BE MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS.

MOVED THROUGH THANKON OR LOW COMMINDERS OR OFFINIOS.

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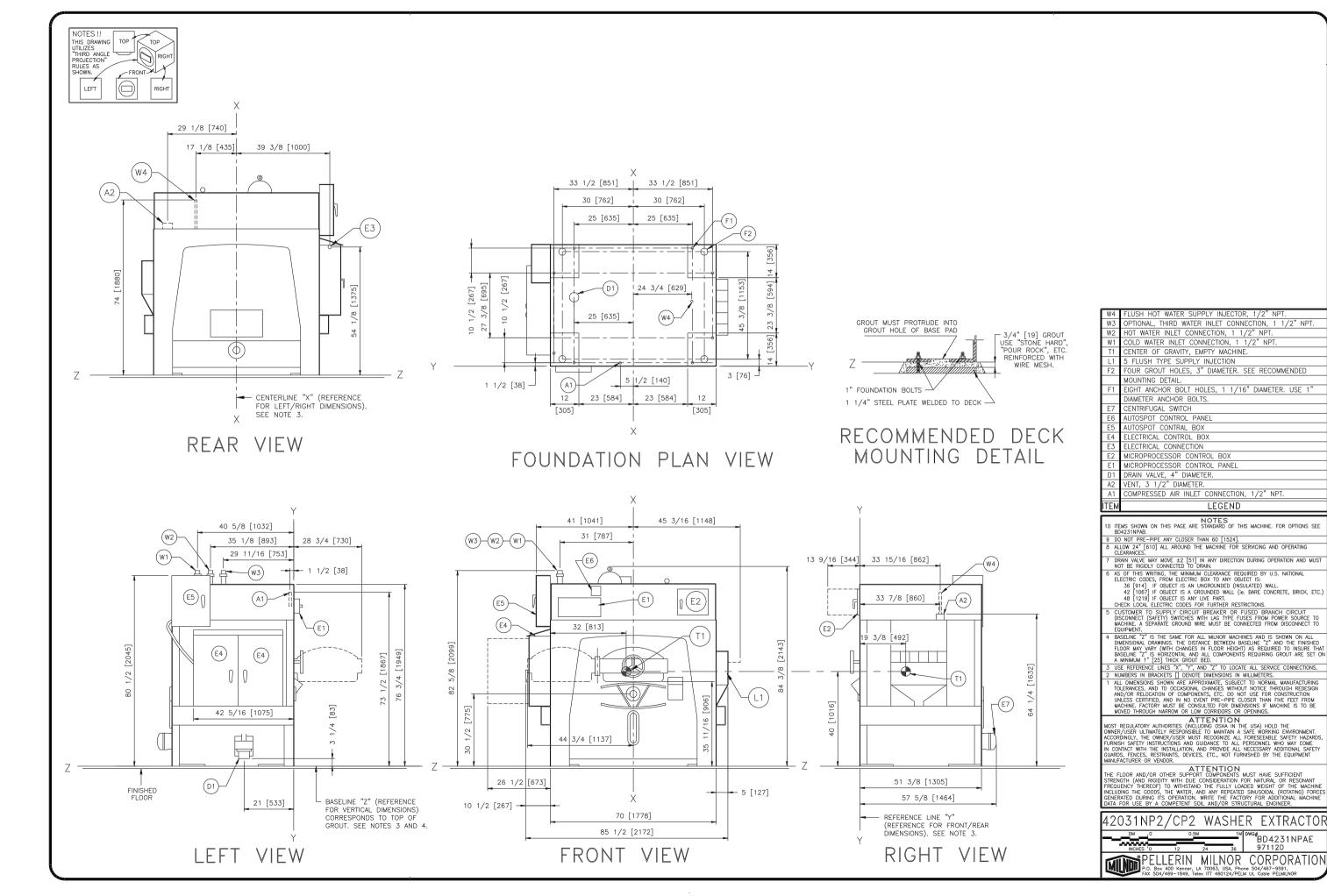
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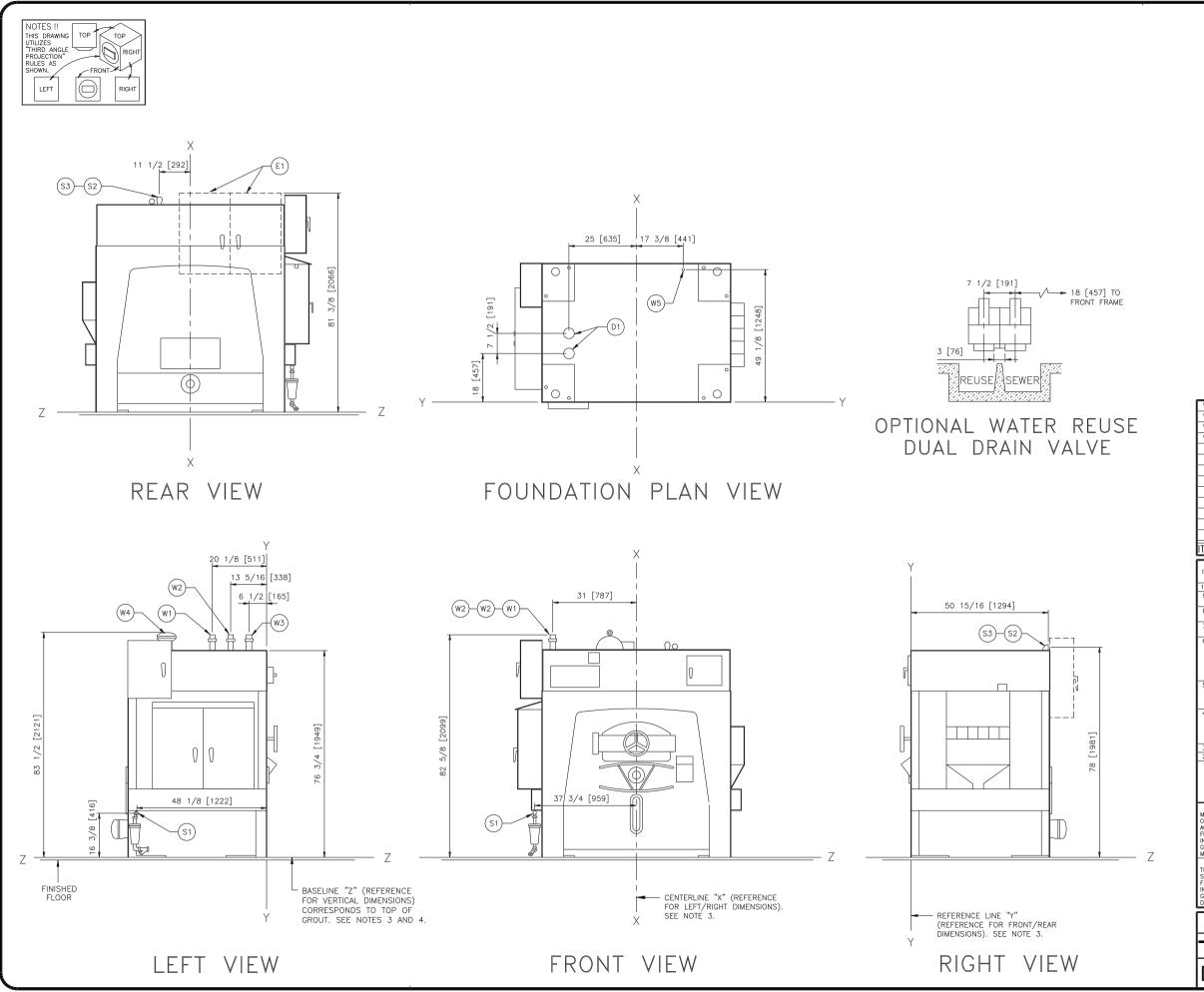
42031SP2/SP3 OPTIONS DWG#BD4231SPAB

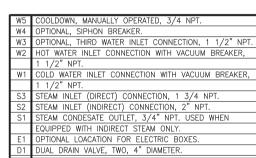




LEGEND

BD4231NPAE 97112D





- NOTES

  1 ITEMS SHOWN ON THIS PAGE ARE OPTIONS OF THIS MACHINE. FOR STANDARD SEE BD4231NPAE. BU4231NPAE.

  D DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524].

  ALLOW 24" [610] ALL AROUND THE MACHINE FOR SERVICING AND OPERATING CLEARANCES.
- SHADED AREAS DENOTE BASE PLATES WHICH SHOULD BE CONTINUOUS SUPPORTED.

- SUPPORTED.

  DEFINITE DESCRIPTION WHICH SHOULD BE CONTINUOUSLY SUPPORTED.

  DRAIN VALVE MAY MOVE ±2 [51] IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.

  AS OF THIS WRITING, THE MINIMUM CLEARANCE REQUIRED BY U.S. NATIONAL ELECTRIC CODES, FROM ELECTRIC BOX TO ANY OBJECT IS: 36 [914] IF OBJECT IS AN OURROUNDED (INSLUATED) WALL.

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- MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

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  3 USE REFERENCE LINES "X", "Y, "AND "2" TO LOCATE ALL SERVICE CONNECTIONS.

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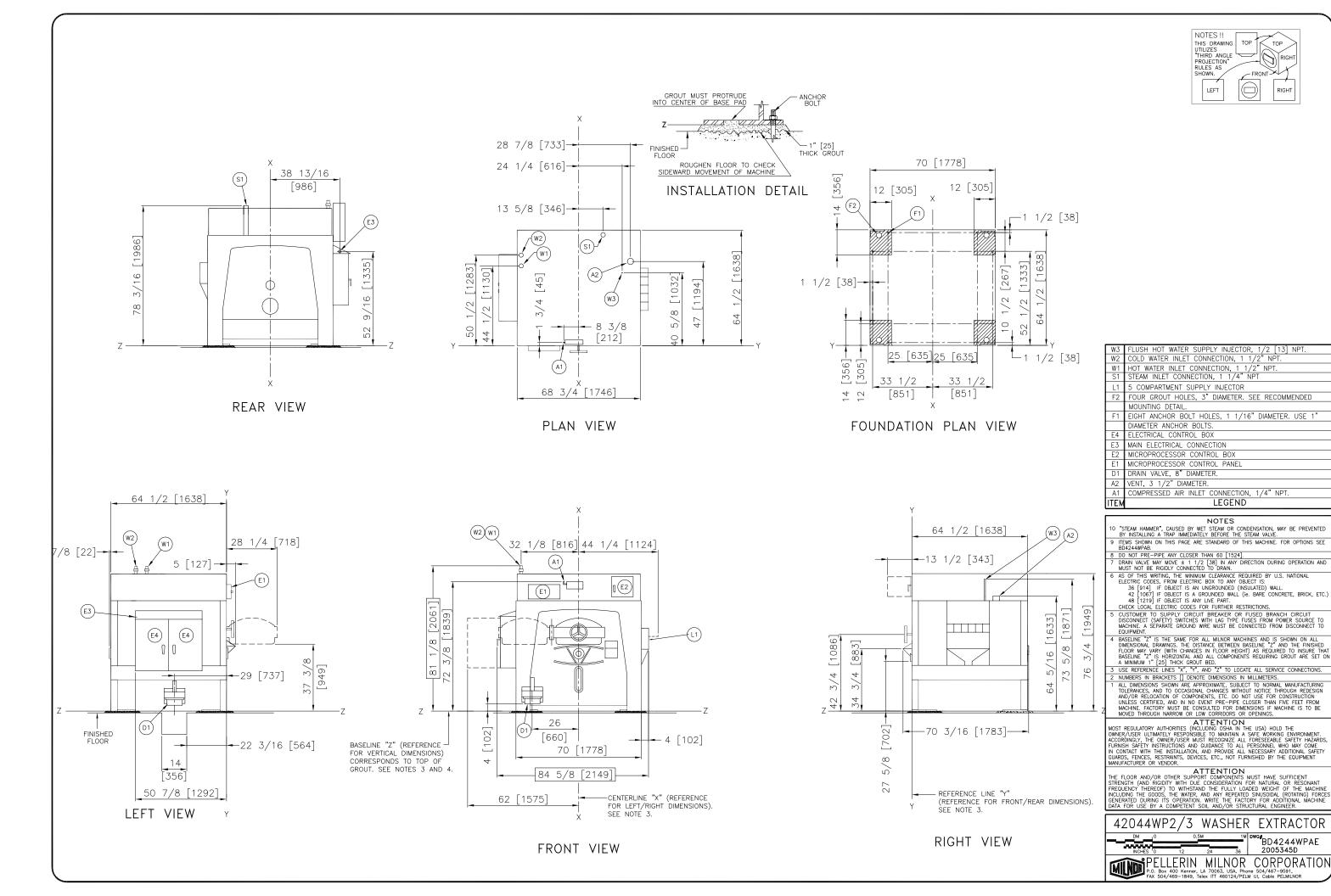
ANUNCATURER OR VENDOR.

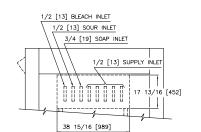
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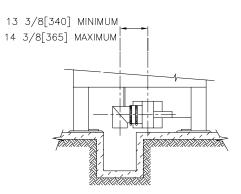




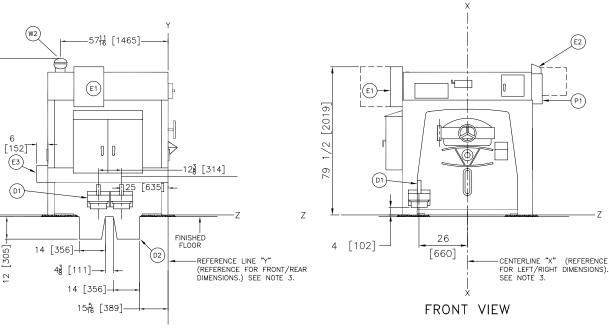


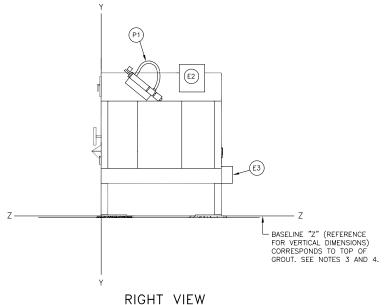


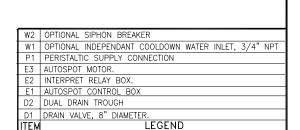
#### OPTIONAL CENTRAL LIQUID SUPPLY INJECTION



DRAIN VALVE ALTERNATE 90 DEGREE POSITION







#### NOTES

THIS DRAWING
UTILIZES
"THIRD ANGLE
PROJECTION"
RULES AS
SHOWN.

LEFT

RIGHT

NOTES

DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524].

DRAIN VALVE MAY MOVE ± 1 1/2 [38] IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.

AS OF THIS WRITING, THE MINIMUM CLEARANCE REQUIRED BY U.S. NATIONAL ELECTRIC CODES, FROM ELECTRIC BOX TO ANY OBJECT IS:

36 [914] IF OBJECT IS AN PLAY OBJECT IS AND LOVE AND LALL (ie. BARE CONCRETE, BRICK, ETC.)

48 [1219] IF OBJECT IS ANY LIVE PART.

CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.

CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAFETLY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

BASELINE "Z" IS THE SAME FOR ALL MILNOR MACHINES AND IS SHOWN ON ALL DIMENSIONAL DRAWINGS. THE DISTANCE BETWEEN BASELINE "Z" AND THE FINISHED FLOOP MAY VARY (WITH CHANGES IN FLOOR HEIGHT) AS REQUIRED TO INSURE THAT BASELINE "Z" IS HORIZONTAL AND ALL COMPONENTS REQUIRING GROUT ARE SET ON A MINIMUM 1" [25] THICK GROUT BED.

3 USE REFERENCE LINES "X", "Y, AND "Z" TO LOCATE ALL SERVICE CONNECTIONS.

2 UNIMBERS IN BRACKETS [] DENOTE DIMENSIONS IN MILLIMETERS.

1 ALL DIMENSIONS SHOWN ARE APPROXIMATE, SUBJECT TO NORMAL MANUFACTURING TOLERANCES, AND TO OCCASIONAL CHANGES WITHOUT NOTICE THROUGH REDESION AND/OR RELOCATION OF COMPONENTS, ETC. DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED, AND IN NO EVENT PRE-PIPE CLOSER THAN FIVE FEET FROM MACHINE, FACTORY MUST BE CONSULTED FOR DIMENSIONS IT HAN FIVE FEET FROM MACHINE, FACTORY MUST BE CONSULTED FOR DIMENSIONS THAN FACHINE IS TO BE MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS.

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ATTENTION

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OWNER/USER ULTIMATELY RESPONSIBLE TO MANTAIN A SAFE WORKING ENVIRONMENT.

ACCORDINGLY, THE OWNER/USER MUST RECOGNIZE ALL FORESEEABLE SAFETY HAZARDS,

FURNISH SAFETY INSTRUCTIONS AND GUIDANCE TO ALL PERSONNEL WHO MAY COME

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GUARDS, FENCES, RESTRAINTS, DEVICES, ETC., NOT FURNISHED BY THE EQUIPMENT

MANUFACTURER OR VENDOR MANUFACTURER OR VENDOR.

MANUFACTURER OR VENDOR.

ATTENTION

THE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT

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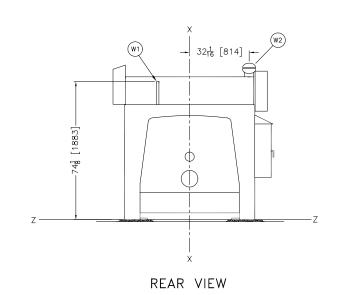
FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE

INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCE

GENERATED DURING ITS OPERATION. WRITE THE FACTORY FOR ADDITIONAL MACHINE

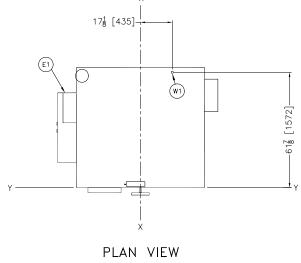
DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.

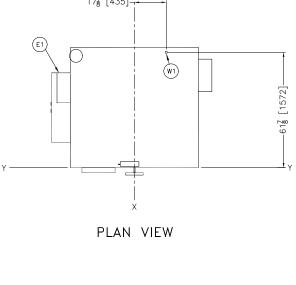


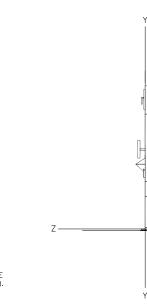


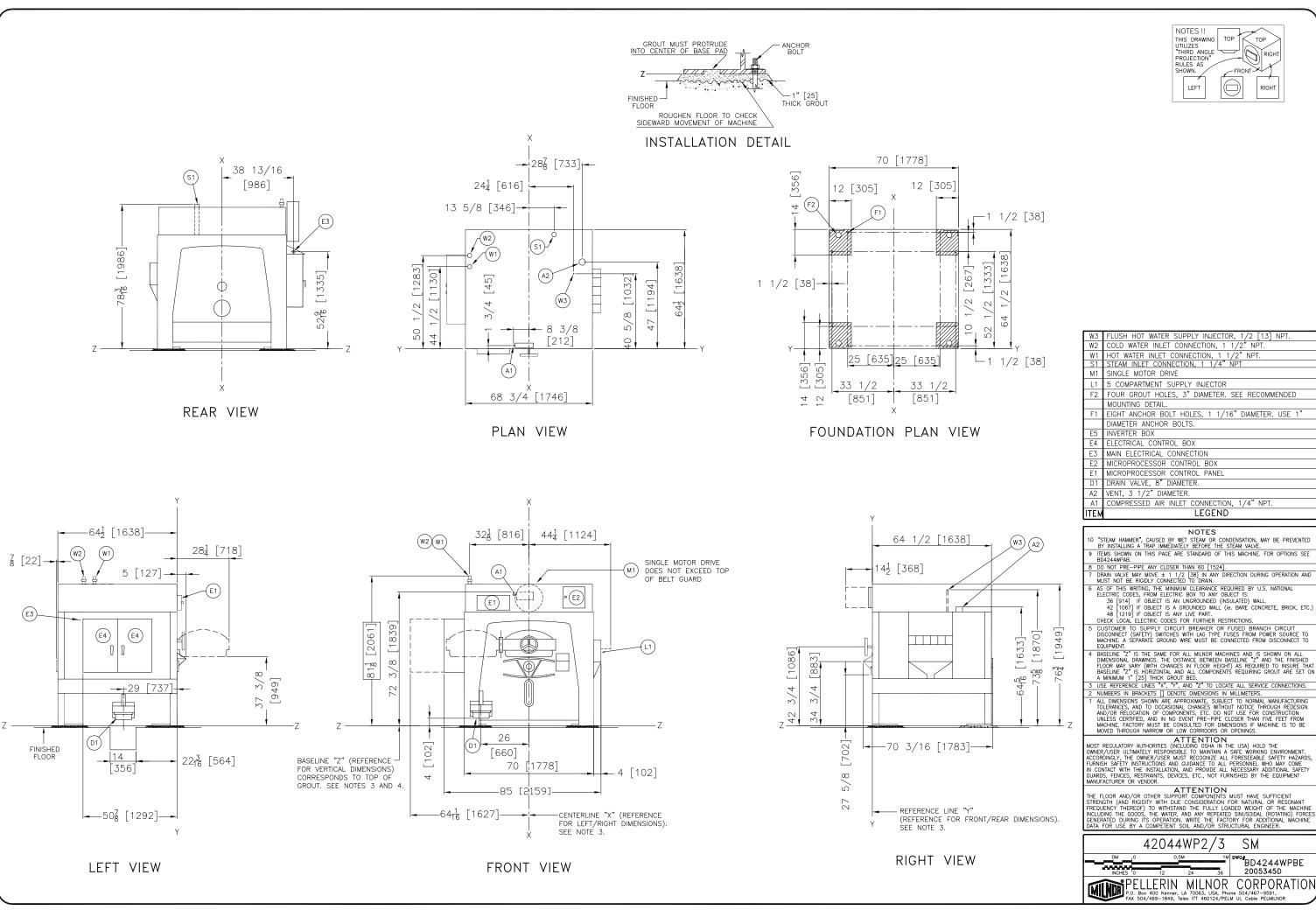
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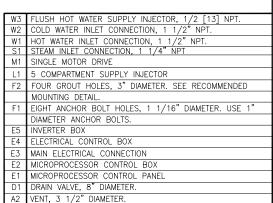
LEFT VIEW











NOTES !! THIS DRAWING UTILIZES "THIRD ANGLE

RULES AS SHOWN.

LEFT

TOP

RIGHT

-FRONT≫↓

#### NOTES

D "STEAM HAMMER", CAUSED BY WET STEAM OR CONDENSATION, MAY BE PREVENTED BY INSTALLING A TRAP IMMEDIATELY BEFORE THE STEAM VALVE.

LEGEND

- 9 ITEMS SHOWN ON THIS PAGE ARE STANDARD OF THIS MACHINE. FOR OPTIONS SEE BD4244WPAB.

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MANUFACTURER OR VENDOR.

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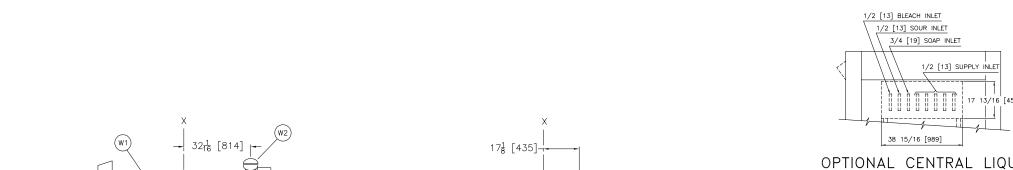
FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE

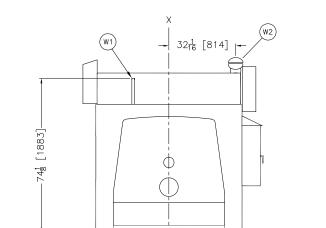
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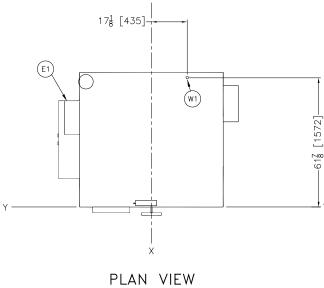
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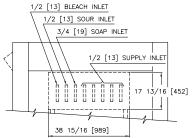




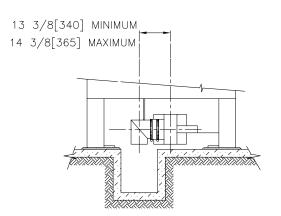


REAR VIEW

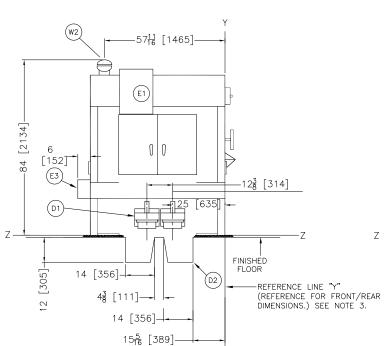




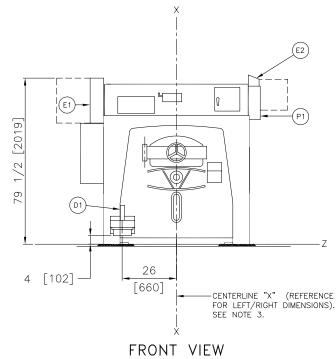
OPTIONAL CENTRAL LIQUID SUPPLY INJECTION

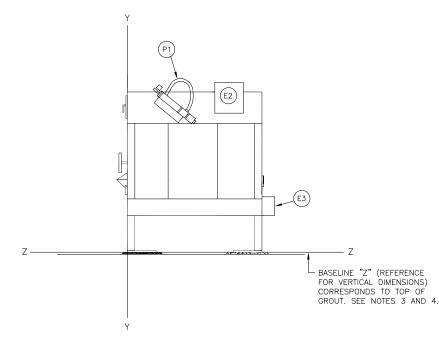


DRAIN VALVE ALTERNATE 90 DEGREE POSITION

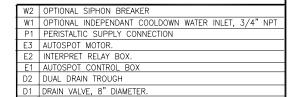


LEFT VIEW





RIGHT VIEW



THIS DRAWING UTILIZES "THIRD ANGLE PROJECTION" RULES AS SHOWN.

LEFT

RIGHT

LEGEND

NOTES

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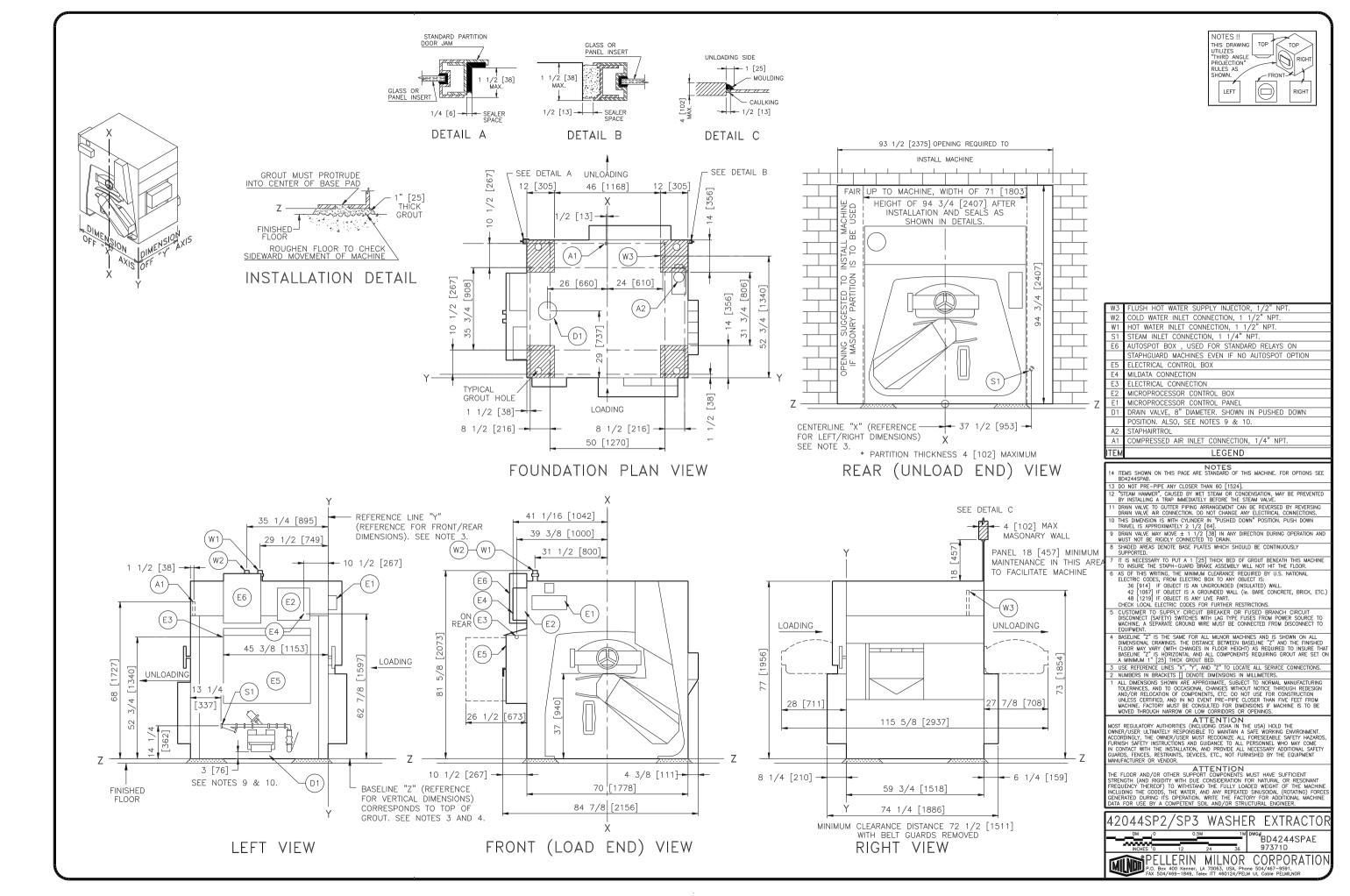
MANUFACTURER OR VENDOR MANUFACTURER OR VENDOR.

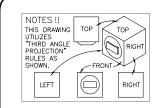
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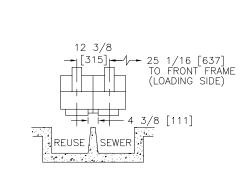
ATTENTION

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DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.



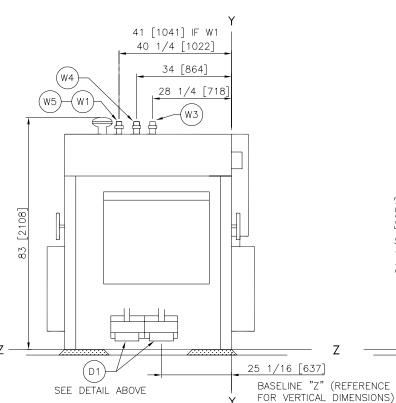




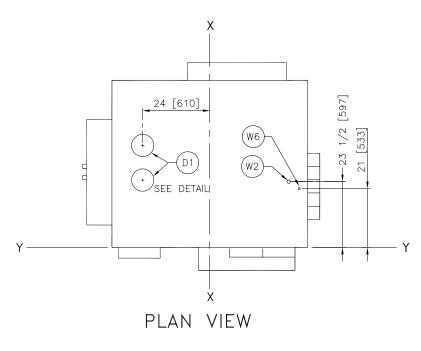


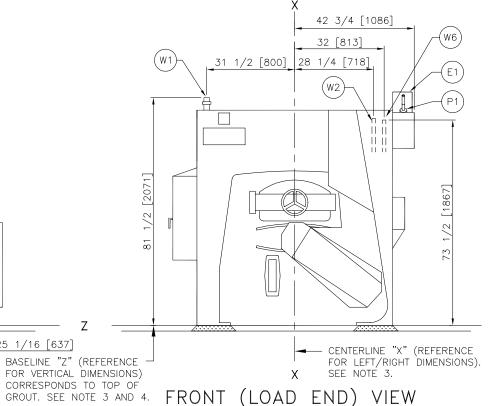
#### OPTIONAL WATER REUSE DUAL DRAIN VALVE

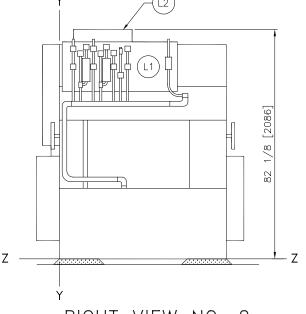
(SEE NOTES 8 & 9) NOT TO SCALE



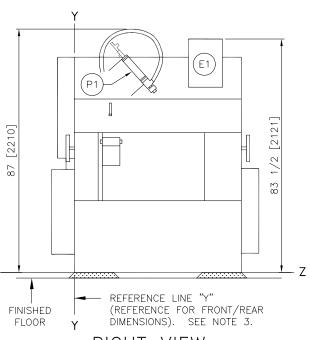
LEFT VIEW







RIGHT VIEW NO. 2 CENTRAL LIQUID SUPPLY SYSTEM



RIGHT VIEW PERISTALTIC PUMP OPTION

W6	OPTIONAL INDEPENDANT COOLDOWN WITH VACUUM BREAKER
	CONNECTION, 3/4" NPT.
W5	THIRD WATER INLET CONNECTION WITH VACUUM BREAKER,
	1 1/2" NPT.
W4	COLD WATER INLET CONNECTION WITH VACUUM BREAKER,
	1 1/2" NPT.
W3	HOT WATER INLET CONNECTION WITH VACUUM BREAKER,
	1 1/2" NPT.
W2	OPTIONAL INDEPENDANT COOLDOWN CONNECTION, 3/4" NPT.
W1	THIRD WATER INLET CONNECTION, 1 1/2" NPT.
P1	PERISTALTIC PUMP
L2	CENTRAL LIQUID VALVE BOX. SEE RIGHT VIEW NO. 2.
L1	CENTRAL LIQUID CHEMICAL SUPPLY SYSTEM. SEE RIGHT VIEW
	NO. 2.
E1	INTERPRET RELAY BOX
D1	DUAL DRAIN VALVE, TWO, 8" DIAMETER. SEE DETAIL.
ITFM	LEGEND

12 THE LOCATION OF CERTAIN OPTIONAL COMPONENTS WILL VARY WITH THE COMBINATIONS OF OPTIONS ORDERED. THESE OPTION COMBINATIONS ARE NOT SHOWN. CONSULT FACTORY FOR MORE INFORMATION.

11 DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524].

10 "STEAM HAMMER", CAUSED BY WET STEAM OR CONDENSATION, MAY BE PREVENTED BY INSTALLING A TRAP IMMEDIATELY BEFORE THE STEAM VALVE.

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11 DO NOT PRE-PIPE ANY CLOSER THAN 10 PREVENSED BY REVERSING DRAIN VALVE TO GUTTER PIPING ARRANGEMENT CAN BE REVERSED BY REVERSING DRAIN VALVE MAY MOVE ± 1 1/2 [38] IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.

11 IS NECESSARY TO PUT A 1 [25] THICK BED OF GROUT BENEATH THIS MACHINE TO INSURE THE STAPH-GUARD BRAKE ASSEMBLY WILL NOT HIT THE FLOOR.

TO INSURE THE STAPH-GUARD BRAKE ASSEMBLY WILL NOT HIT THE FLOOR.

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MOVED THROUGH NURROW OF LOW CONTRIVERS OF DEPINIOS.

ATTENTION

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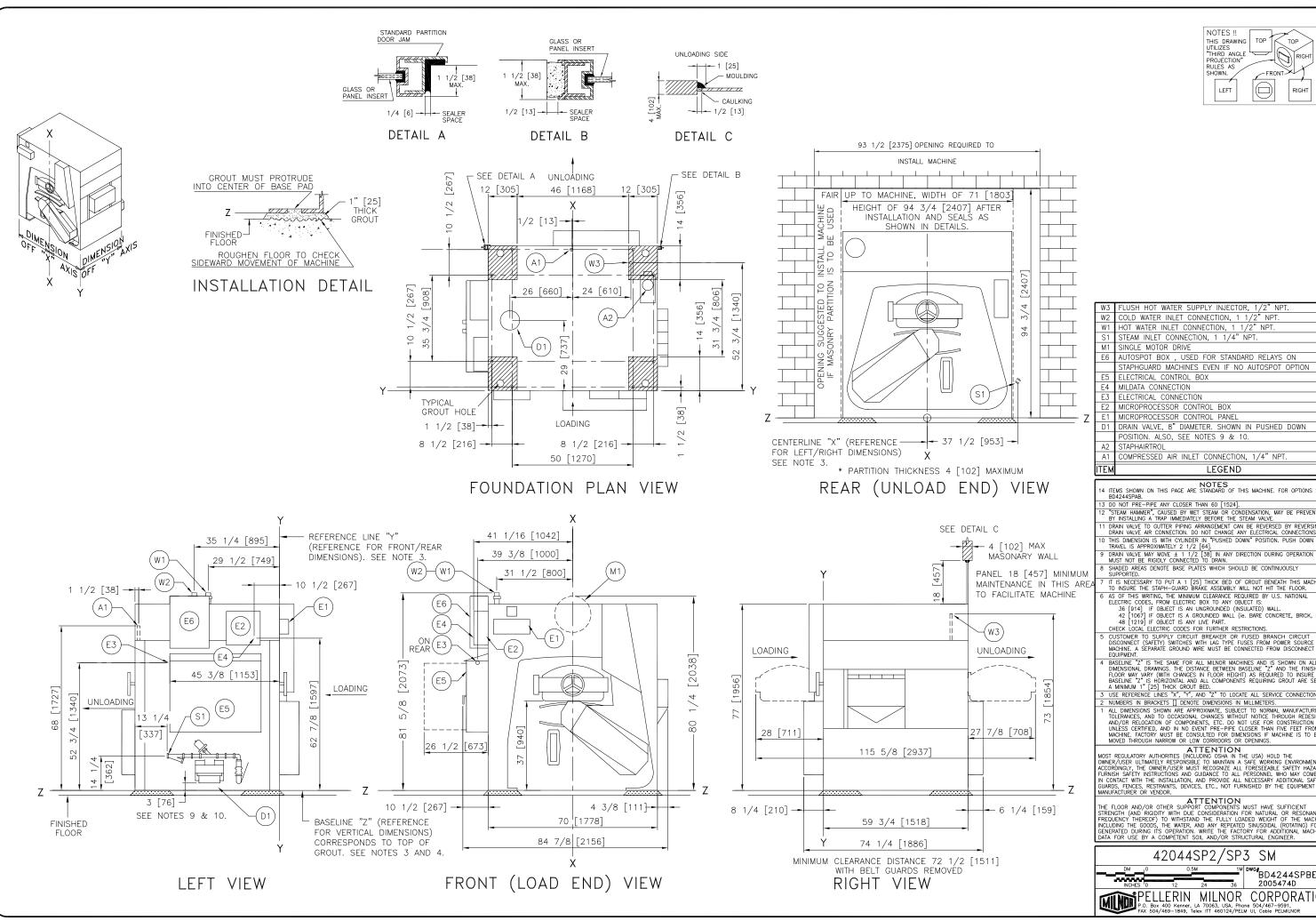
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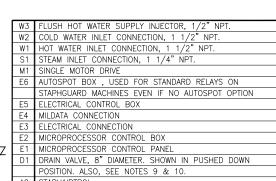
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PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504 (467 0564)





THIS DRAWING

RULES AS

LEFT

- FRONT

NOTES

4 ITEMS SHOWN ON THIS PAGE ARE STANDARD OF THIS MACHINE. FOR OPTIONS SEE B04244SPAB.

3 DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524].

LEGEND

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1 DRAIN VALVE TO GUTTER PIPING ARRANGEMENT CAN BE REVERSED BY REVERSING DRAIN VALVE AIR CONNECTION. DO NOT CHANGE ANY ELECTRICAL CONNECTIONS.

0 THIS DIMENSION IS WITH CYLINDER IN "PUSHED DOWN" POSITION. PUSH DOWN TRAVEL IS APPROXIMATELY 2 1/2 [64].

9 DRAIN VALVE MAY MOVE ± 1 1/2 [38] IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.

SHADED AREAS DENOTE BASE PLATES WHICH SHOULD BE CONTINUOUSLY SUPPORTED.

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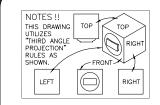
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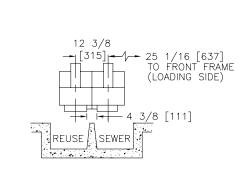
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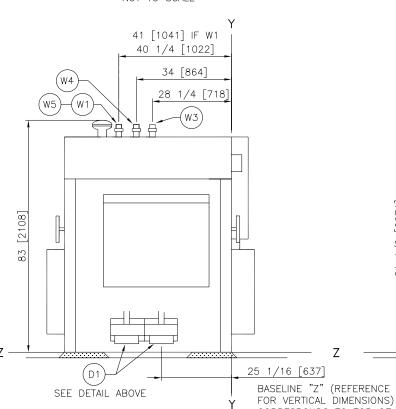
PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063. IISA. Phone 504/467 0501



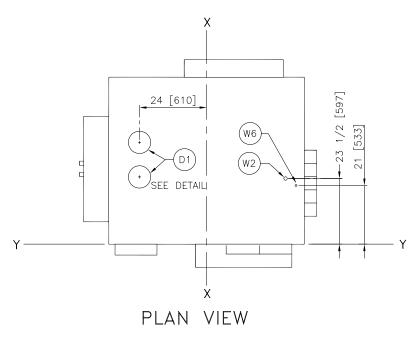


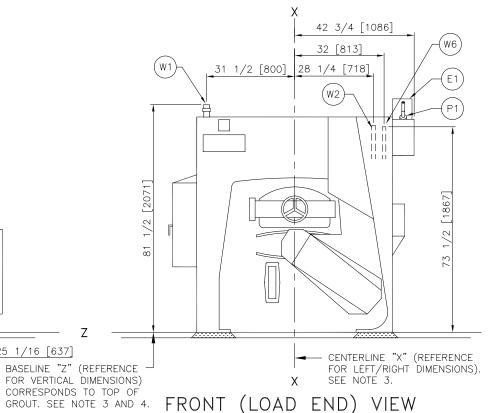
## OPTIONAL WATER REUSE DUAL DRAIN VALVE

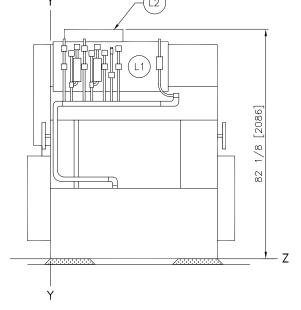
(SEE NOTES 8 & 9) NOT TO SCALE



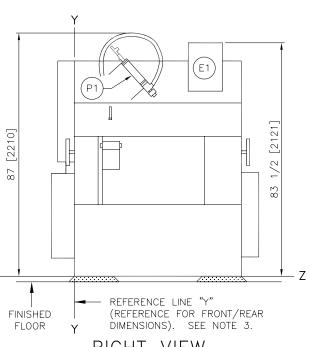
LEFT VIEW







RIGHT VIEW NO. 2 CENTRAL LIQUID SUPPLY SYSTEM



RIGHT VIEW PERISTALTIC PUMP OPTION

ITEM	LEGEND
D1	DUAL DRAIN VALVE, TWO, 8" DIAMETER. SEE DETAIL.
E1	INTERPRET RELAY BOX
	NO. 2.
L1	CENTRAL LIQUID CHEMICAL SUPPLY SYSTEM. SEE RIGHT VIEW
L2	CENTRAL LIQUID VALVE BOX. SEE RIGHT VIEW NO. 2.
P1	PERISTALTIC PUMP
W1	THIRD WATER INLET CONNECTION, 1 1/2" NPT.
W2	OPTIONAL INDEPENDANT COOLDOWN CONNECTION, 3/4" NPT.
	1 1/2" NPT.
W3	HOT WATER INLET CONNECTION WITH VACUUM BREAKER,
	1 1/2" NPT.
W4	COLD WATER INLET CONNECTION WITH VACUUM BREAKER,
	1 1/2" NPT.
W5	THIRD WATER INLET CONNECTION WITH VACUUM BREAKER,
	CONNECTION, 3/4" NPT.
W6	OPTIONAL INDEPENDANT COOLDOWN WITH VACUUM BREAKER

12 THE LOCATION OF CERTAIN OPTIONAL COMPONENTS WILL VARY WITH THE COMBINATIONS OF OPTIONS ORDERED. THESE OPTION COMBINATIONS ARE NOT SHOWN. CONSULT FACTORY FOR MORE INFORMATION.

11 DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524].

10 "STEAM HAMMER", CAUSED BY WET STEAM OR CONDENSATION, MAY BE PREVENTED BY INSTALLING A TRAP IMMEDIATELY BEFORE THE STEAM VALVE.

9 DRAIN VALVE TO GUTTER PIPING ARRANGEMENT CAN BE REVERSED BY REVERSING DRAIN VALVE AIR CONNECTION. DO NOT CHANGE ANY ELECTRICAL CONNECTIONS.

8 DRAIN VALVE MAY MOVE ± 1 1/2 [38] IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.

7 IT IS NECESSARY TO PUT A 1 [25] THICK BED OF GROUT BENEATH THIS MACHINE TO INSURE THE STAPH-GUARD BRAKE ASSEMBLY WILL NOT HIT THE FLOOR.

TO INSURE THE STAPH-GUARD BRAKE ASSEMBLY WILL NOT HIT THE FLOOR.

6 AS OF THIS WRITING, THE MINIMUM CLEARNOE REQUIRED BY U.S. NATIONAL
ELECTRIC CODES, FROM ELECTRIC BOX TO ANY OBJECT IS.

36 [914] IF OBJECT IS AN UNGROUNDED (INSULATED) WALL.

42 [1067] IF OBJECT IS A GROUNDED WALL (B. BARE CONCRETE, BRICK, ETC.)
48 [1219] IF OBJECT IS ANY LIVE PART.

CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.

5 CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT
DISCONNECT (SAFETY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO
MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO
EQUIPMENT.

MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

BASELINE "Z" IS THE SAME FOR ALL MILNOR MACHINES AND IS SHOWN ON ALL DIMENSIONAL DRAWINGS. THE DISTANCE BETWEEN BASELINE "Z" AND THE FINISHED FLOOR MAY VARY (WITH CHANGES IN FLOOR HEIGHT) AS REQUIRED TO INSURE THAT BASELINE "Z" IS HORIZONTAL AND ALL COMPONENTS REQUIRING GROUT ARE SET ON A MINIMUM 1" [25] THICK GROUT BED.

3 USE REFERENCE LINES "X", "Y, AND "Z" TO LOCATE ALL SERVICE CONNECTIONS.

2 NUMBERS IN BRACKETS [] DENOTE DIMENSIONS IN MILLIMETERS.

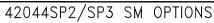
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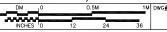
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MANUFACTURER OR VENDOR.

ATTENTION

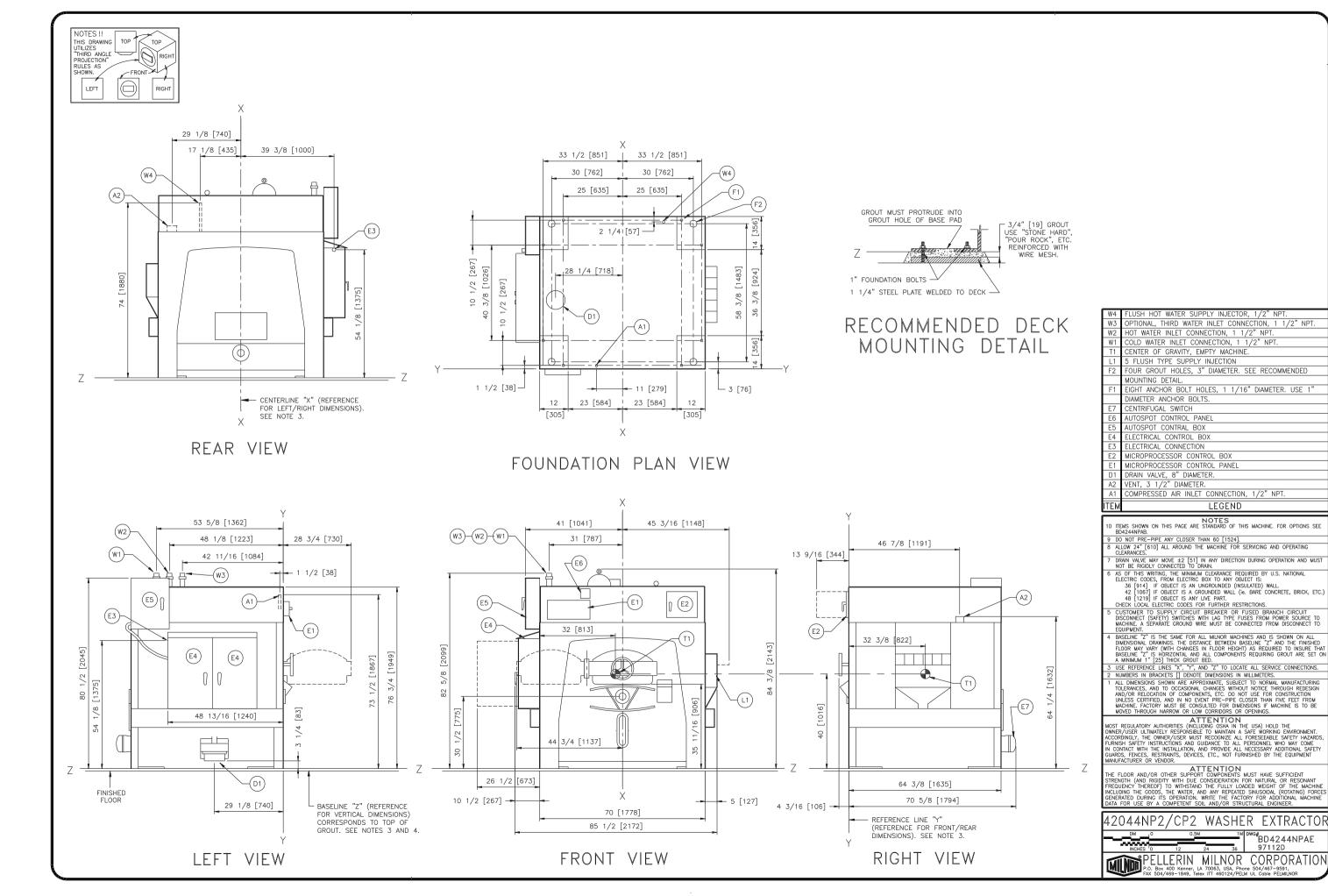
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INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCE
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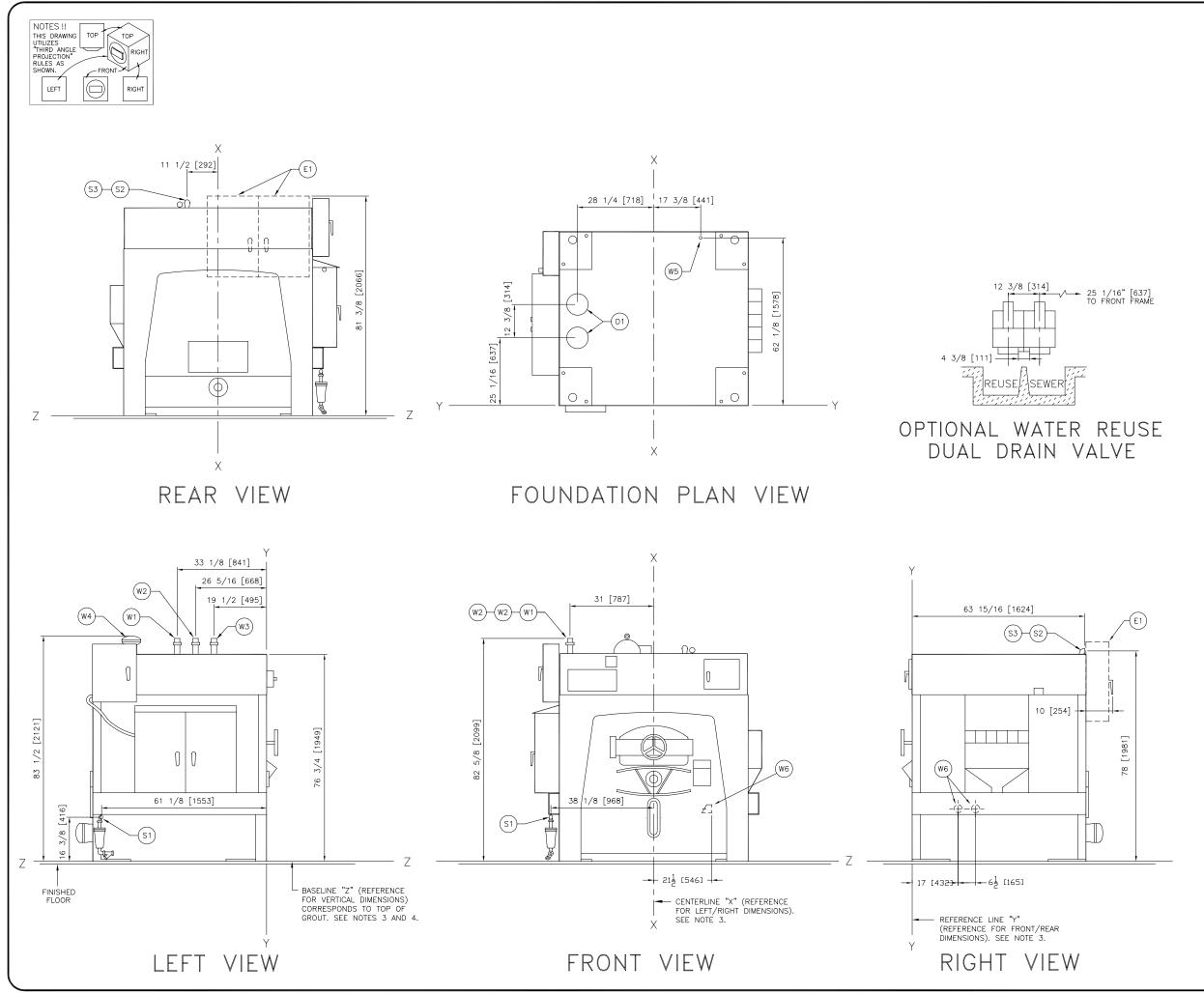
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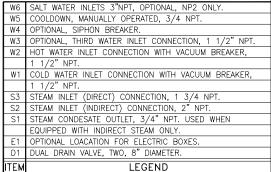
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P.O. Box 400 Kenner, LA 70063, USA. Phone 504/467 0501



LEGEND

BD4244NPAE 97112D





# 1 ITEMS SHOWN ON THIS PAGE ARE OPTIONS OF THIS MACHINE. FOR STANDARD SEE BD4244NPAE. 10 DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524]. 9 ALLOW 24" [610] ALL AROUND THE MACHINE FOR SERVICING AND OPERATING CLEARANCES.

SHADED AREAS DENOTE BASE PLATES WHICH SHOULD BE CONTINUOUSL SUPPORTED.

DRAIN VALVE MAY MOVE  $\pm$  1 1/2 [38] IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.

MUST NOT BE RIGIDLY CONNECTED TO DRAIN.
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48 [1219] IF OBJECT IS ANY LIVE PART.
CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.
5 CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAFETY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

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MOVED THROUGH THANKOW OR LOW COMMINDERS OR OFFINESS.

ATTENTION

MOST REGULATORY AUTHORITIES (INCLUDING OSHA IN THE USA) HOLD THE

OWNER/USER ULTIMATELY RESPONSIBLE TO MAINTAIN A SAFE WORKING ENVIRONMENT.

ACCORDINGLY, THE OWNER/USER MUST RECOGNIZE ALL FORESEEABLE SAFETY HAZARDS

FURNISH SAFETY INSTRUCTIONS AND GUIDANCE TO ALL PERSONNEL WHO MAY COME

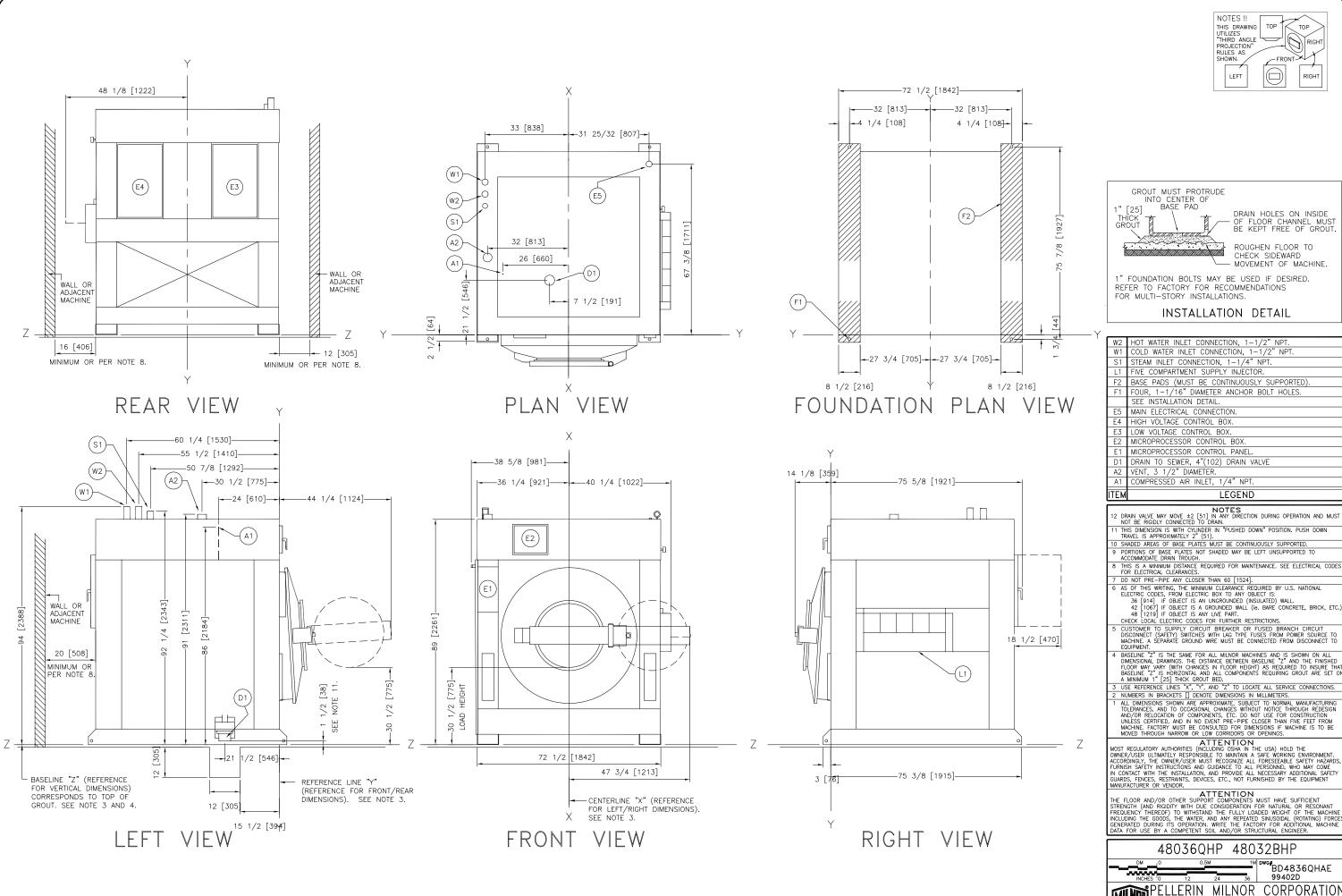
IN CONTACT WITH THE INSTALLATION, AND PROVIDE ALL NECESSARY ADDITIONAL SAFETY

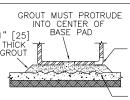
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ATTENTION

THE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT STRENGTH (AND RIGIDITY WITH DUE CONSIDERATION FOR NATURAL OR RESONANT FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCE GENERATED DURING ITS OPERATION. WRITE THE FACTORY FOR ADDITIONAL MACHINE DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.







DRAIN HOLES ON INSIDE - OF FLOOR CHANNEL MUST BE KEPT FREE OF GROUT.

TOP

THIS DRAWING UTILIZES "THIRD ANGLE PROJECTION' RULES AS SHOWN.

LEFT

TOP

RIGHT

FRONT

ROUGHEN FLOOR TO CHECK SIDEWARD MOVEMENT OF MACHINE.

1" FOUNDATION BOLTS MAY BE USED IF DESIRED. REFER TO FACTORY FOR RECOMMENDATIONS FOR MULTI-STORY INSTALLATIONS.

## INSTALLATION DETAIL

Y		
'	W2	HOT WATER INLET CONNECTION, 1-1/2" NPT.
	W1	COLD WATER INLET CONNECTION, 1-1/2" NPT.
	S1	STEAM INLET CONNECTION, 1-1/4" NPT.
	L1	FIVE COMPARTMENT SUPPLY INJECTOR.
	F2	BASE PADS (MUST BE CONTINUOUSLY SUPPORTED).
	F1	FOUR, 1-1/16" DIAMETER ANCHOR BOLT HOLES.
		SEE INSTALLATION DETAIL.
	E5	MAIN ELECTRICAL CONNECTION.
	E4	HIGH VOLTAGE CONTROL BOX.
	E3	LOW VOLTAGE CONTROL BOX.
	E2	MICROPROCESSOR CONTROL BOX.
	E1	MICROPROCESSOR CONTROL PANEL.
	D1	DRAIN TO SEWER, 4"(102) DRAIN VALVE
	A2	VENT, 3 1/2" DIAMETER.
	A1	COMPRESSED AIR INLET, 1/4" NPT.
	ITFM	LEGEND

THIS IS A MINIMUM DISTANCE REQUIRED FOR MAINTENANCE. SEE ELECTRICAL CODES FOR ELECTRICAL CLEARANCES.

DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524].

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42 [1067] IF OBJECT IS ANY LIVE PART.
CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.
5 CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAFTY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

MACHINE. A SEPARAIE GROUND WIRE MOST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

4 BASELINE "Z" IS THE SAME FOR ALL MILNOR MACHINES AND IS SHOWN ON ALL DIMENSIONAL DRAWINGS. THE DISTANCE BETWEEN BASELINE "Z" AND THE FINISHED FLOOR MAY VARY (WITH CHANGES IN FLOOR HEIGHT) AS REQUIRED TO INSURE THAT BASELINE "Z" IS HORZONTAL AND ALL COMPONENTS REQUIRING GROUT ARE SET ON A MINIMUM 1" [25] THICK GROUT BED.

3 USE REFERENCE LINES "X", "Y", AND "Z" TO LOCATE ALL SERVICE CONNECTIONS.

1 ALL DIMENSIONS SHOWN ARE APPROXIMATE, SUBJECT TO NORMAL MANUFACTURING NOTES AND TO OCCASIONAL CHANGES WITHOUT NOTICE THROUGH REDESTION AND/OR RELOCATION OF COMPONENTS, ETC., DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED, AND IN NO EVENT FRE-PIPE CLOSER THAN FIVE FEET FROM MACHINE. FACTORY MUST BE CONSULTED FOR DIMENSIONS IF MACHINE IS TO BE MOVED THROUGH HARROW OR LOW CORRIDORS OR OPENINGS.

MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS.

ATTENTION

MST REQUILATORY AUTHORITIES (INCLUDING OSHA IN THE USA) HOLD THE

OWNER/JUSER ULTIMATELY RESPONSIBLE TO MAINTAIN A SAFE WORKING ENVIRONMENT.

ACCORDINGLY, THE OWNER/JUSER MUST RECOGNIZE ALL FORESEEABLE SAFETY HAZARDS,

FURNISH SAFETY INSTRUCTIONS AND GUIDANCE TO ALL PERSONNEL WHO MAY COME

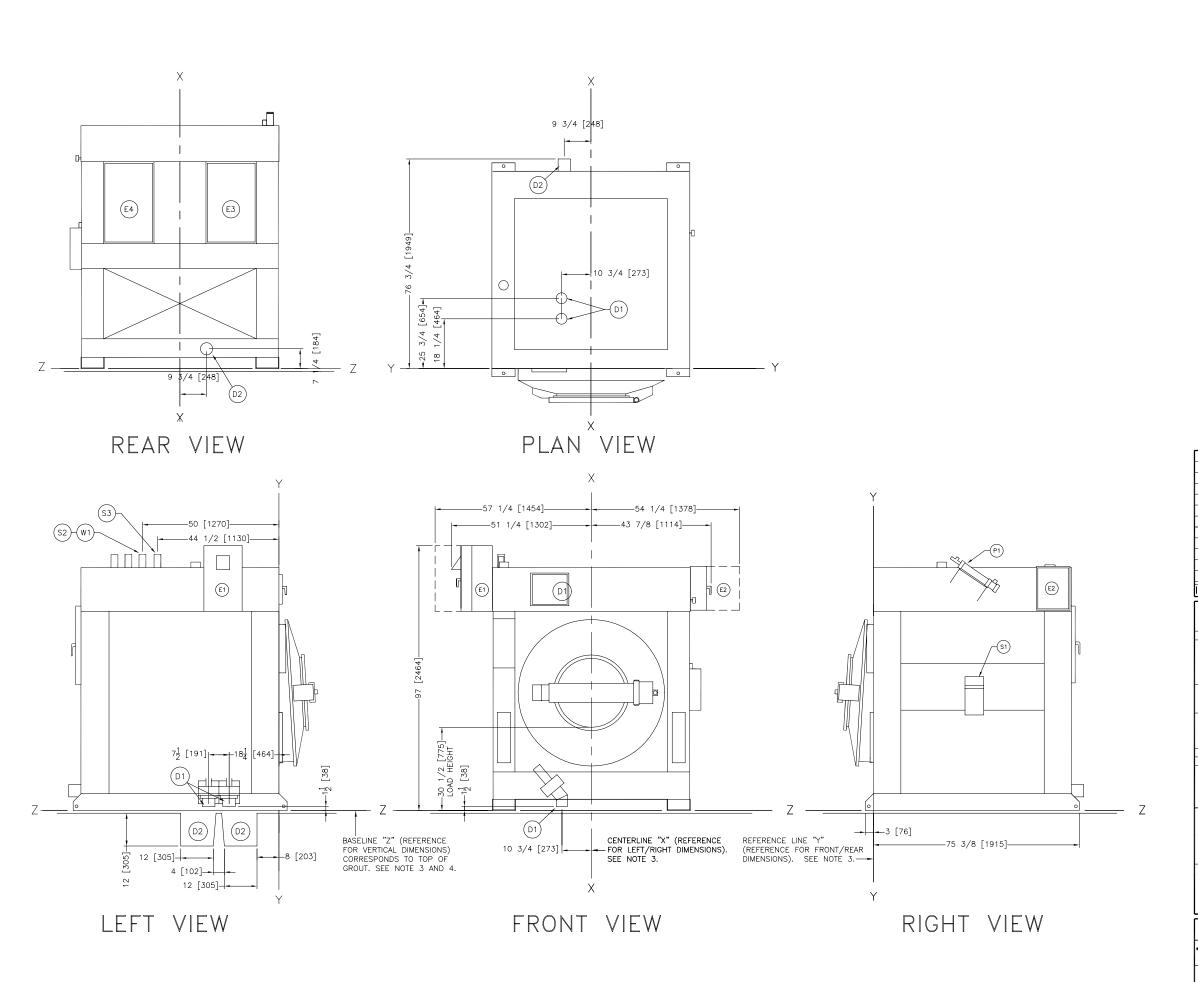
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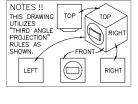
ARTIENTION

ATTENTION

HE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT
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NCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCE
SENERATED DURING ITS OPERATION. WRITE THE FACTORY FOR ADDITIONAL MACHINE
NATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.







W1	THIRD WATER INLET CONNECTION, 1 1/2 NPT.
S3	STEAM INLET CONNECTION WHEN THIRD WATER INLET,
	1 1/4" NPT.
S2	STEAM INLET CONNECTION WHEN NO THIRD WATER INLET,
	1 1/4" NPT.
S1	MANUAL SOAP CHUTE
P1	PERISTALTIC PUMP CONNECTION
E2	INTERPRET RELAY BOX
E1	VARIABLE SPEED BOX
D2	REUSE DUAL DRAIN TROUGH
D1	PELICE DIM DRAIN TWO 4" NOT DRAIN VALVES

LEGEND

(DRAIN TO SEWER TYPICALLY FRONTMOST.)

- THE LOCATION OF CERTAIN OPTIONAL COMPONENTS WILL VARY WITH THE COMBINATIONS OF OPTIONS ORDERED. THESE OPTION COMBINATIONS ARE NOT SHOWN. CONSULT FACTORY FOR MORE INFORMATION.

  7 DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524]

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  48 [1219] IF OBJECT IS A GROUNDED WALL (E. BARE CONGRETE, BRICK, ETC.).

  49 [1219] IF OBJECT OBSECT SHAPE LIVER RESTRICTIONS.

  5 CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAFETY) SWITCHES WITCHER RESTRICTIONS.

  5 CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAFETY) SWITCHES WITCH SHAPE SHOWN ON ALL MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

  4 BASELINE "Z" IS THE SAME FOR ALL MILNOR MACHINES AND IS SHOWN ON ALL MINIMUM LARAMINGS. THE DISTANCE BETWEEN BASELINE "Z" AND THE TINNSHED PROSEDUAL AND ALL COMPONENTS REQUIRING GROUT ARE SET ON A MINIMUM 1" [25] THICK GROUT BED.

  2 NUMBERS OF BRACKETS [] DENOTE DIMENSIONS IN MILLIMETERS.

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  ATTE NATIONAL SHAPE CONSULTED FOR DIMENSIONS IN MACHINE IS TO BE MOVED THROUGH NARROW OR LOW CORRIDORS ON PENNICS.

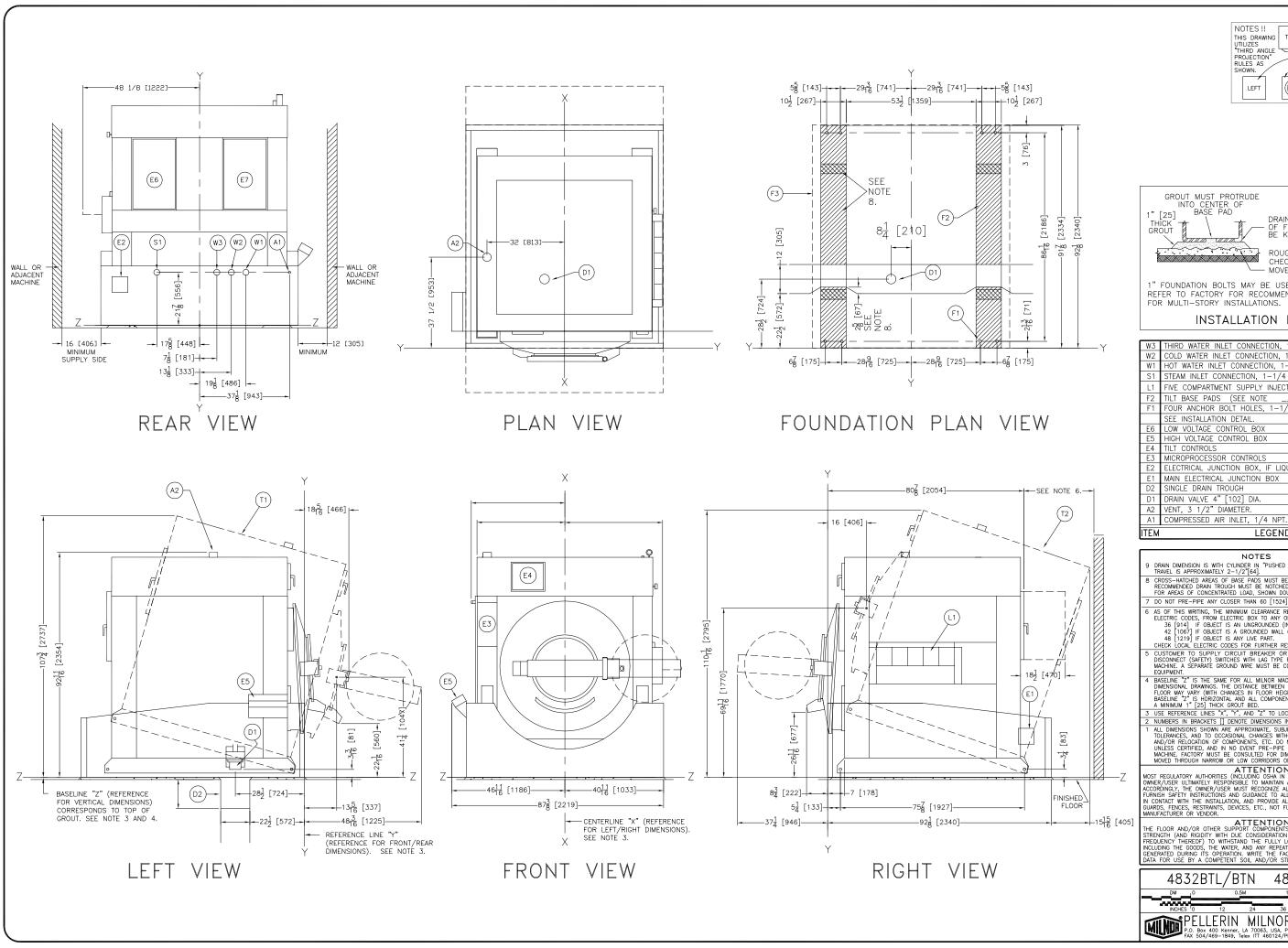
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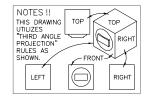
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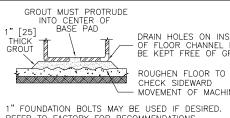
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DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.









DRAIN HOLES ON INSIDE OF FLOOR CHANNEL MUST BE KEPT FREE OF GROUT.

CHECK SIDEWARD

MOVEMENT OF MACHINE.

REFER TO FACTORY FOR RECOMMENDATIONS FOR MULTI-STORY INSTALLATIONS.

## INSTALLATION DETAIL

W3	THIRD WATER INLET CONNECTION, 1-1/2 NPT.
W2	COLD WATER INLET CONNECTION, 1-1/2 NPT.
W1	HOT WATER INLET CONNECTION, 1-1/2 NPT.
S1	STEAM INLET CONNECTION, 1-1/4 NPT.
L1	FIVE COMPARTMENT SUPPLY INJECTOR.
F2	TILT BASE PADS (SEE NOTE).
F1	FOUR ANCHOR BOLT HOLES, 1-1/16"[27]DIA.,
	SEE INSTALLATION DETAIL.
E6	LOW VOLTAGE CONTROL BOX
E5	HIGH VOLTAGE CONTROL BOX
E4	TILT CONTROLS
E3	MICROPROCESSOR CONTROLS
E2	ELECTRICAL JUNCTION BOX, IF LIQUID SUPPLY VALVE STAND
E1	MAIN ELECTRICAL JUNCTION BOX
D2	SINGLE DRAIN TROUGH
D1	DRAIN VALVE 4" [102] DIA.
A2	VENT, 3 1/2" DIAMETER.
Λ1	COMPRESSED AIR INLET 1/4 NDT

## NOTES

9 DRAIN DIMENSION IS WITH CYLINDER IN "PUSHED DOWN" POSITION, PUSH DOWN TRAVEL IS APPROXIMATELY 2-1/2"[64].

8 CROSS—HATCHED AREAS OF BASE PADS MUST BE CONTINUOUSLY SUPPORTED. RECOMMENDED DRAIN TROUGH MUST BE NOTCHED AS SHOWN TO PROVIDE SUPPORT FOR AREAS OF CONCENTRATED LOAD, SHOWN DOUBLE CROSSHATCHED. DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524].

LEGEND

ON THE PRIE AND CLOSEN THAN BOT [1245].

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3 [9 14] IF OBJECT IS AN UNGROUNDED (INSULATED) WALL.

42 [1067] IF OBJECT IS ANY LIVE PART.

CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.

5 CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAFTY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

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ATTENTION

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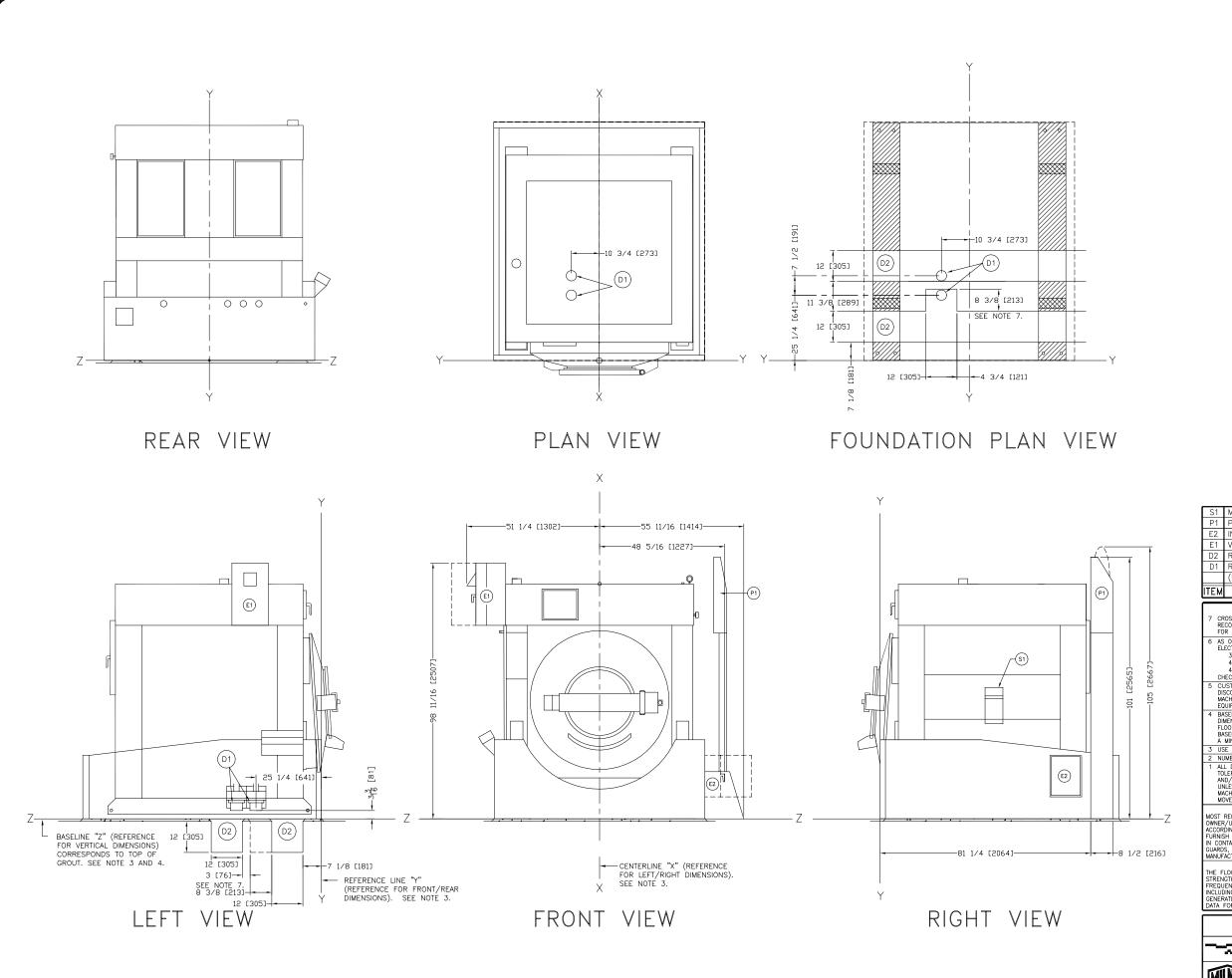
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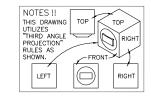
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DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.







- MANUAL SOAP CHUTE
- PERISTALTIC PUMP CONNECTION
- E2 INTERPRET RELAY BOX VARIABLE SPEED BOX
- REUSE DUAL DRAIN TROUGH
- REUSE DUAL DRAIN ,TWO 4" NPT DRAIN VALVES
- (DRAIN TO SEWER TYPICALLY FRONTMOST.)

## NOTES

CROSS—HATCHED AREAS OF BASE PADS MUST BE CONTINUOUSLY SUPPORTED.
RECOMMENDED DRAIN TROUGH MUST BE NOTCHED AS SHOWN TO PROVIDE SUPPOR
FOR AREAS OF CONCENTRATED LOAD, SHOWN DOUBLE CROSSHATCHED.

LEGEND

- RECOMMENDED HARN INCOURT MUST BE MOTHED AS A STATE FOR AREAS OF CONCENTRATED LOAD, SHOWN DOUBLE CROSSHATCHED.

  6 AS OF THIS WRITING, THE MINIMUM CLEARANCE REQUIRED BY U.S. NATIONAL ELECTRIC BOX TO ANY OBJECT IS:

  36 [914] IF OBJECT IS AN UNGROUNDED (INSULATED) WALL.

  42 [1067] IF OBJECT IS A GROUNDED WALL (E. BARE CONCRETE, BRICK, ETC.).

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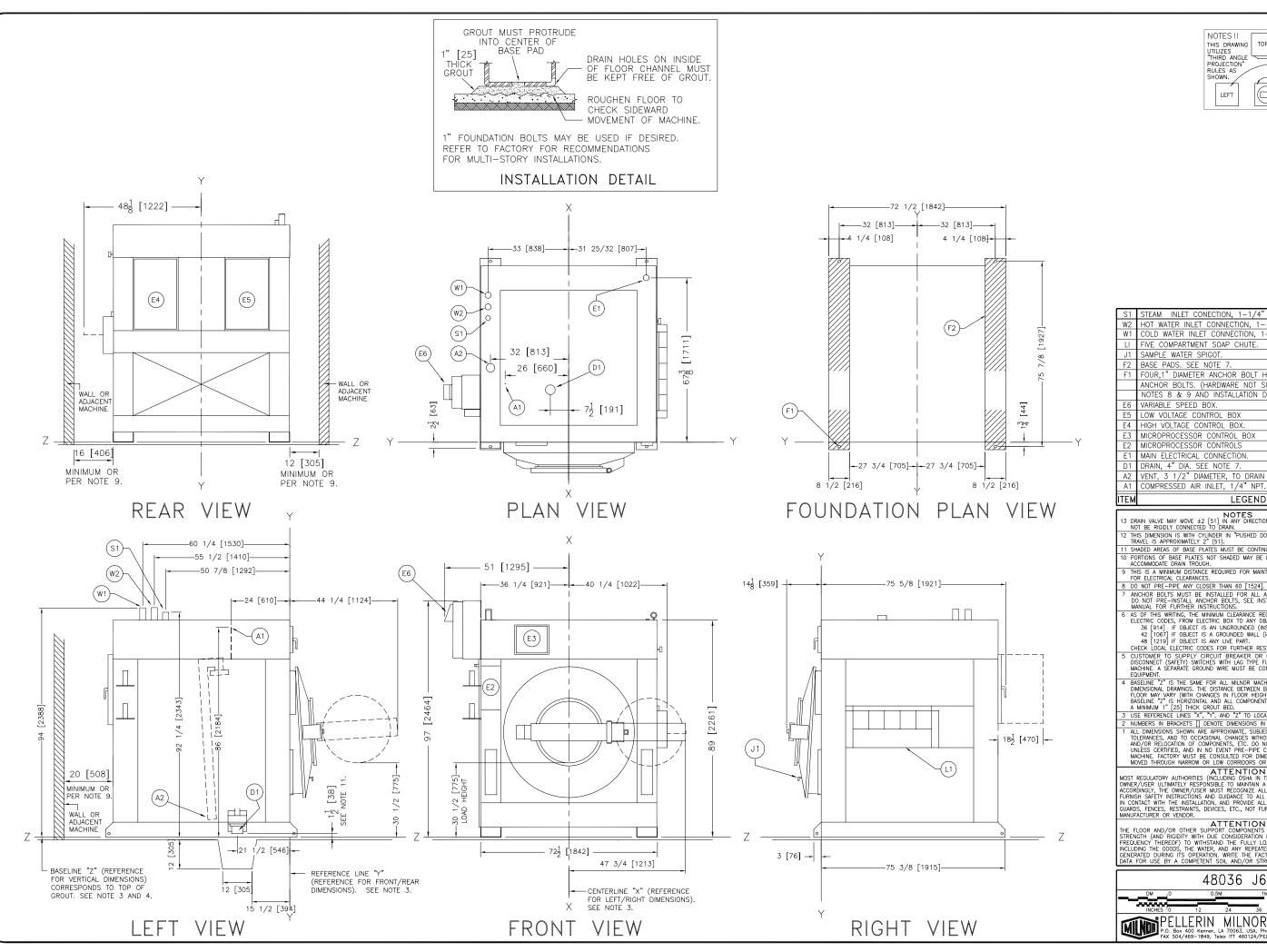
MANUFACTURER OR VENDOR.

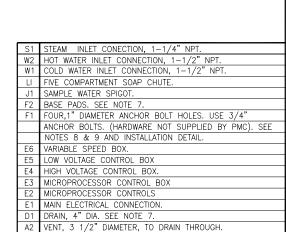
ATTENTION

THE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT
STRENGTH (AND RIGIDITY WITH DUE CONSIDERATION FOR NATURAL OR RESONANT
FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE
INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCES
GENERATED DURING ITS OPERATION. WRITE THE FACTORY FOR ADDITIONAL MACHINE
DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.

4836QTL,QTN 4832BTL,BTN







NOTES !!

THIS DRAWING UTILIZES "THIRD ANGLE

PROJECTION" RULES AS

LEFT

SHOWN.

TOP

TOP

RIGHT

-FRONT≫↓

13 DRAIN VALVE MAY MOVE ±2 [51] IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.

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1 SHADED AREAS OF BASE DIATES WAS TO THE PROPERTY OF THE PUBLIC TO THE PUBLIC T

LEGEND

11 SHADED AREAS OF BASE PLATES MUST BE CONTINUOUSLY SUPPORTED.

10 PORTIONS OF BASE PLATES NOT SHADED MAY BE LEFT UNSUPPORTED TO ACCOMMODATE DRAIN TROUGH.

9 THIS IS A MINIMUM DISTANCE REQUIRED FOR MAINTENANCE. SEE ELECTRICAL CODES FOR ELECTRICAL CLEARANCES.

8 DO NOT PRE—PIPE ANY CLOSER THAN 60 [1524].

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MACHINE. A SENARIE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT STATEMENT.

BASELINE "Z" IS THE SAME FOR ALL MILNOR MACHINES AND IS SHOWN ON ALL DIMENSIONAL DRAWINGS. THE DISTANCE BETWEEN BASELINE "Z" AND THE FINISHED FLOOR MAY VARY (WITH CHANGES IN FLOOR HEIGHT) AS REQUIRED TO INSURE THAT BASELINE "Z" IS HORIZONTAL AND ALL COMPONENTS REQUIRING GROUT ARE SET ON A MINIMUM 1" [25] THICK GROUT BED.

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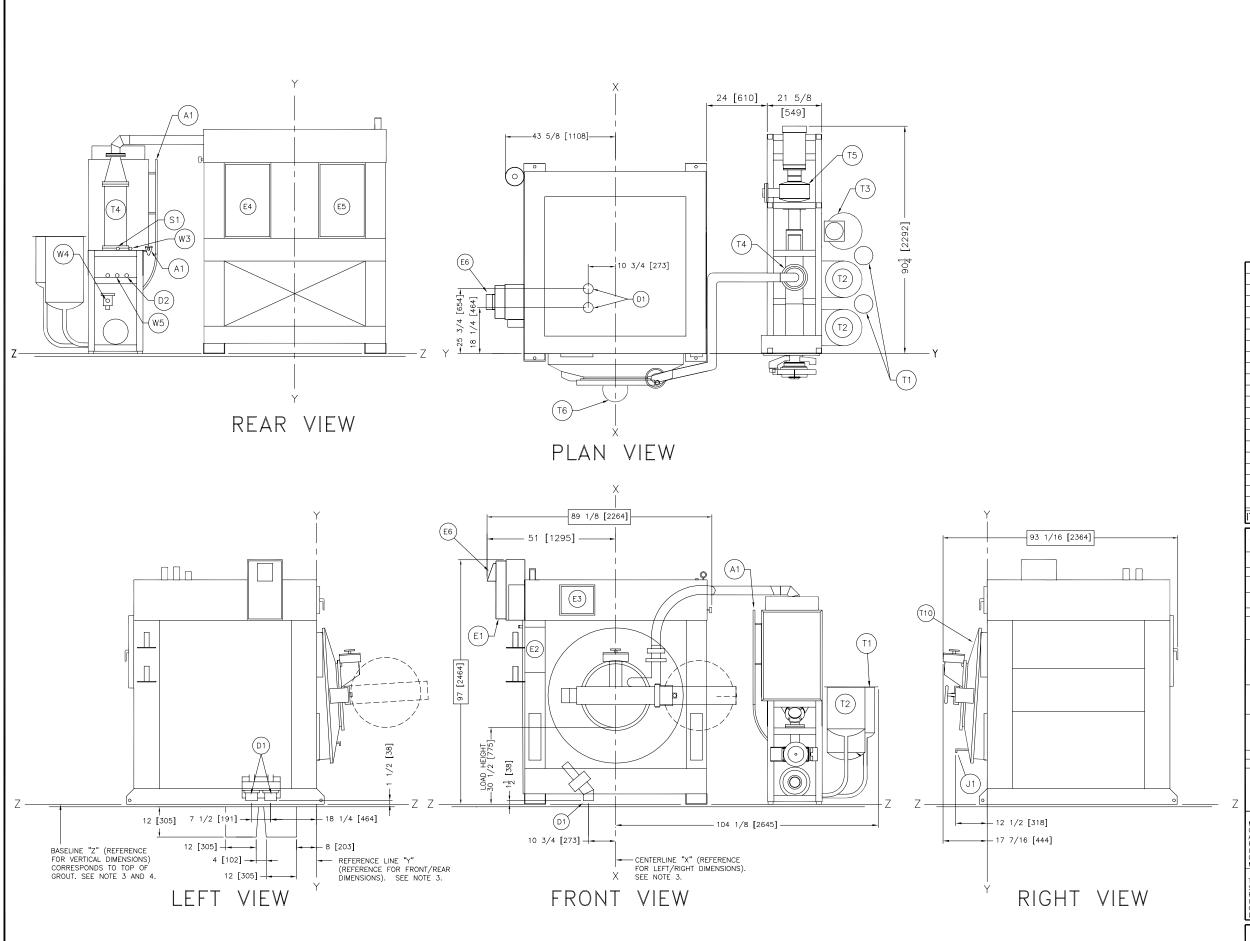
FURNISH SAFETY MISTRUCTIONS AND GUIDANCE TO ALL PERSONNEL WHO MAY COME

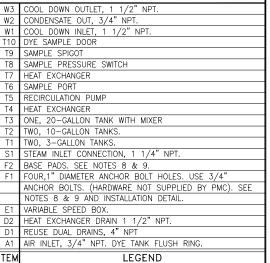
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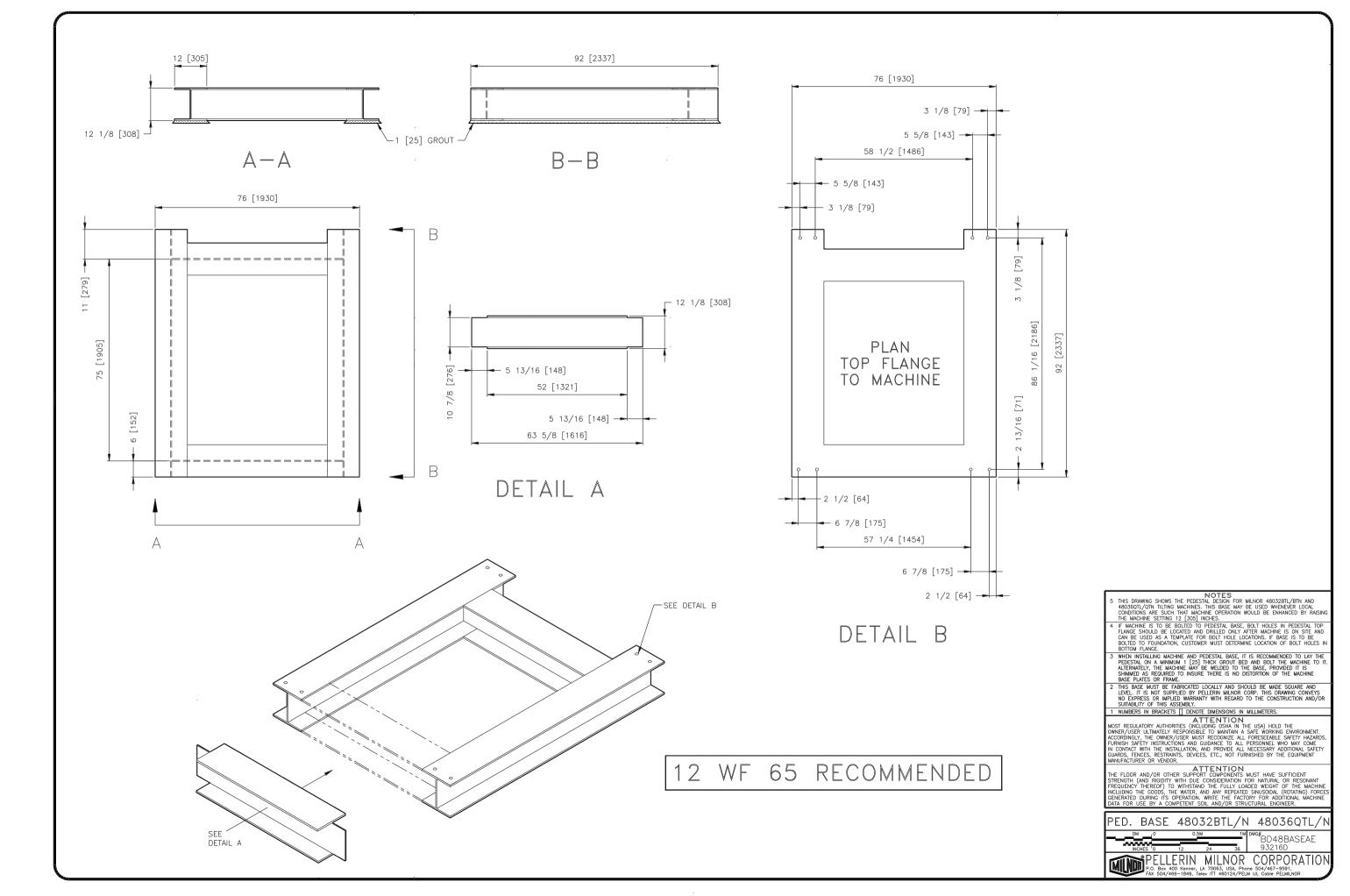
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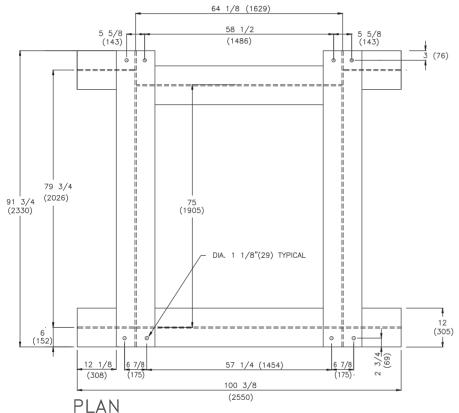


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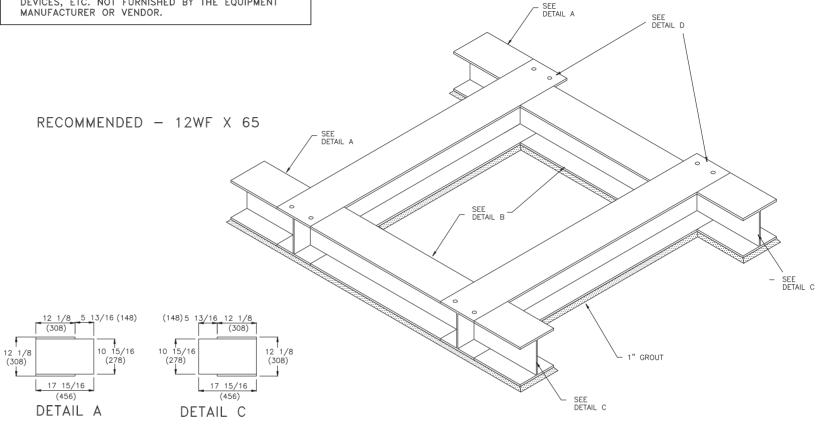
NOTE: (DIMENSIONS SHOWN ARE IN INCHES AND MILLIMETERS.
THE FIRST NUMBER NOT IN () PARENTHESIS IS INCHES.
THE SECOND NUMBER IN () PARENTHESIS IS MILLIMETERS.)

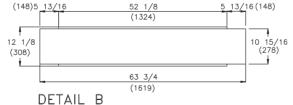


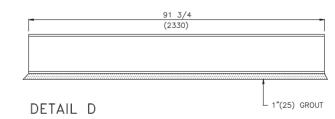


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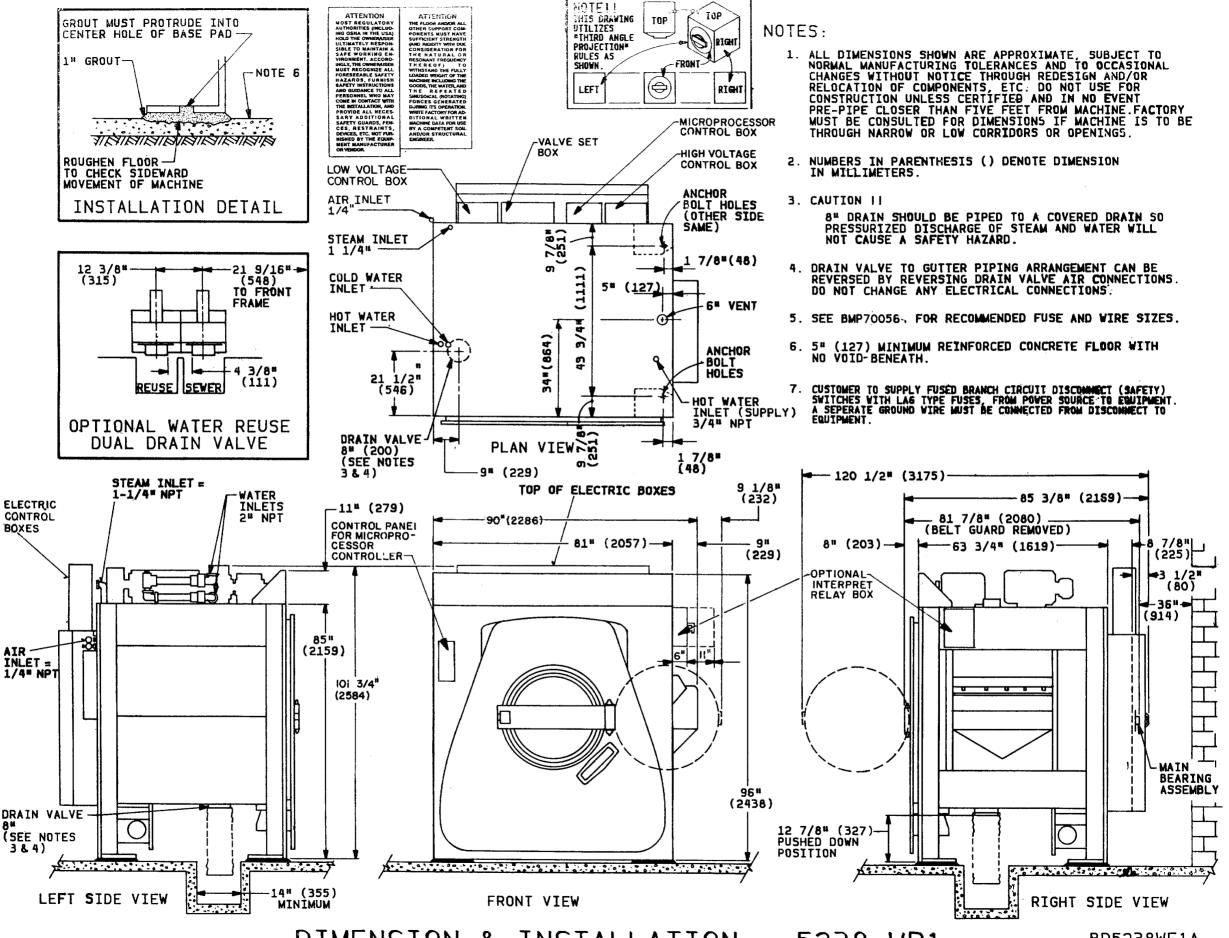
## NOTES:

- 1) WHEN INSTALLING MACHINE AND PEDESTAL BASE, IT IS RECOMMENDED TO LAY THE PEDESTAL ON A MINIMUM 1"(25) THICK BED OF GROUT AND TO USE A 1"(25) THICK BED OF GROUT BETWEEN THE PEDESTAL BASE AND THE MACHINE, THEN BOLT IT. ALTERNATELY, THE MACHINE MAY BE WELDED TO THE BASE, PROVIDED IT IS SHIMMED AS REQUIRED TO ASSURE THAT THERE IS NO DISTORTION OF THE MACHINE BASE PLATES OR FRAME.
- 2) IF MACHINE IS TO BE BOLTED TO PEDESTAL BASE, BOLT HOLES IN PEDESTAL TOP FLANGE SHOULD BE LOCATED AND DRILLED ONLY AFTER THE MACHINE IS ON THE SITE AND CAN BE USED AS A TEMPLATE FOR BOLT HOLE LOCATIONS. IF BASE IS TO BE BOLTED TO FOUNDATION, CUSTOMER MUST DETERMINE LOCATION OF BOLT IN BOTTOM FLANGE.
- 3) NOTE, THIS DRAWING SHOWS THE RECOMMENDED PEDESTAL BASE DESIGN FOR MILNOR 48036D6P. THIS BASE MAY BE USED WHENEVER LOCAL CONDITIONS ARE SUCH THAT MACHINE OPERATION WOULD BE ENHANSED BY RAISING THE MACHINE SETTING 12 INCHES(305 MILLIMETERS). THIS BASE MUST BE FABRICATED LOCALLY, IT IS NOT SUPPLIED BY PELLERIN MILNOR CORP. THIS DRAWING CONVEYS NO EXPRESS OR IMPLIED WARRANTY WITH REGARD TO THE CONSTRUCTION AND/OR SUITABILITY BY THIS ASSEMBLY.





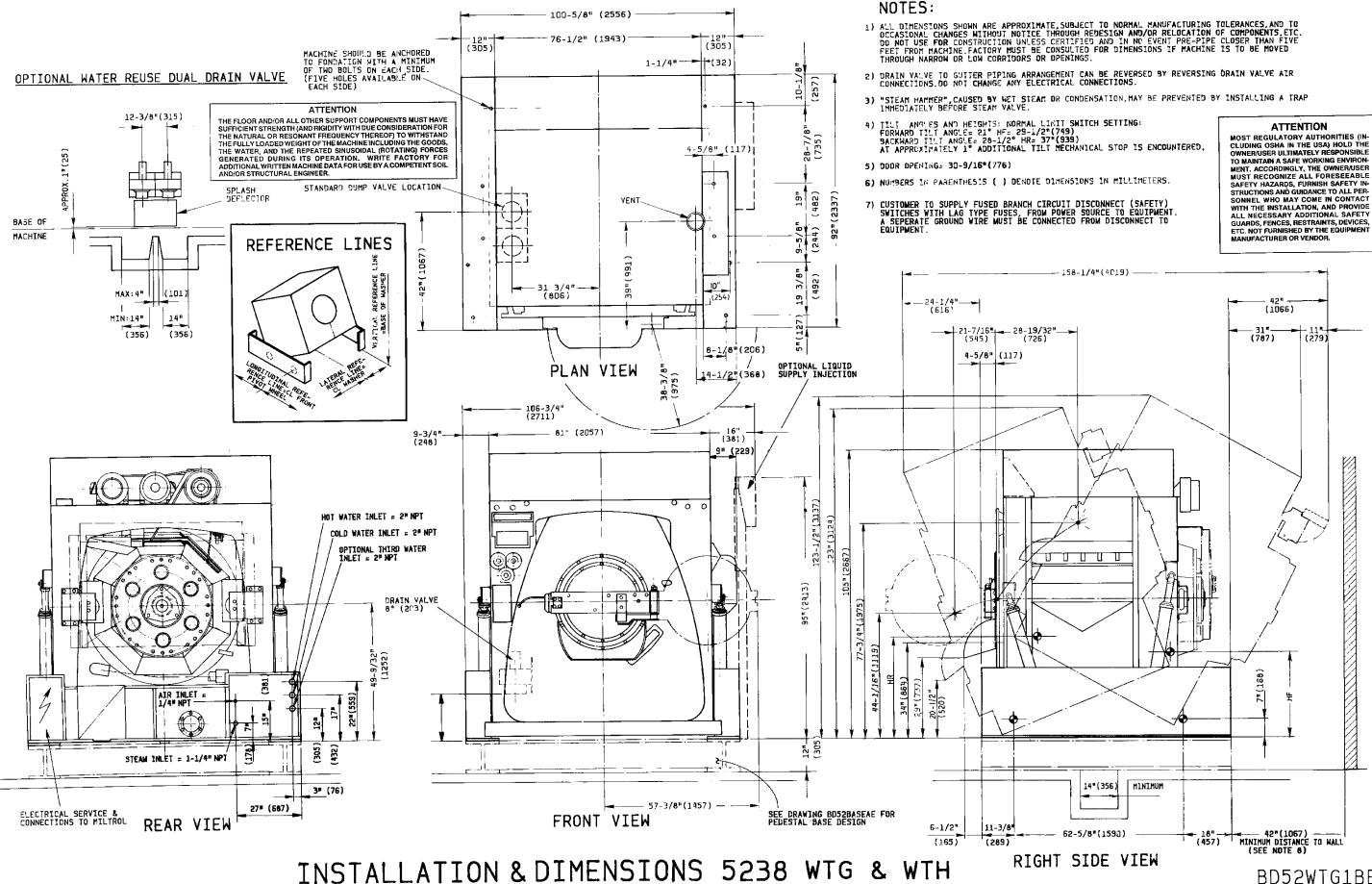
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DIMENSION & INSTALLATION - 5238 WP1

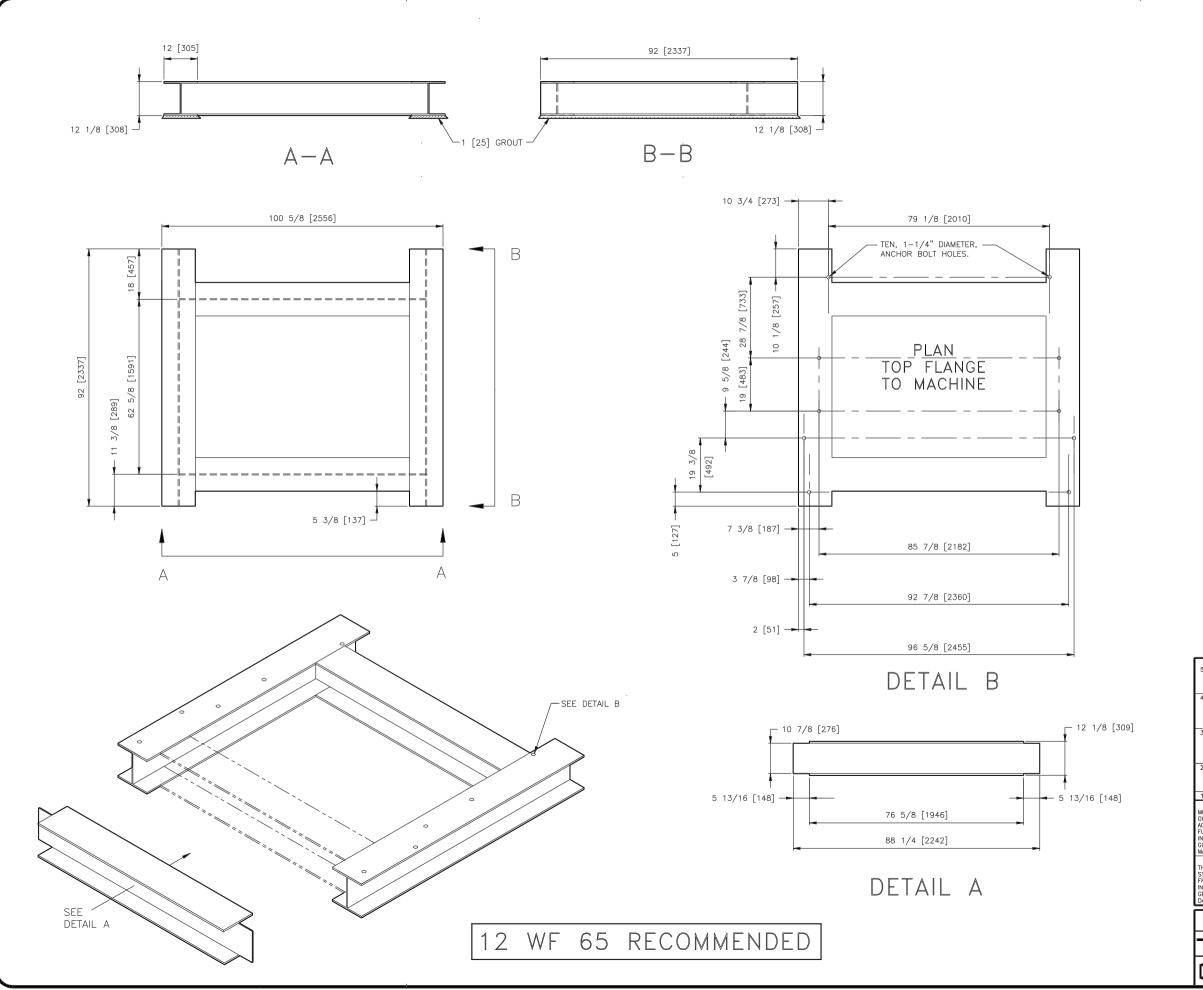
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NOTES

THIS DRAWING SHOWS THE PEDESTAL DESIGN FOR MILNOR 52038 WTL/WTN TILTING MACHINES. THIS BASE MAY BE USED WHENEVER LOCAL CONDITIONS ARE SUCH THAT MACHINE OPERATION WOULD BE ENHANCED BY RAISING THE MACHINE SETTING IS [305] INCHES.

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AMUNACIORER OR VENDOR.

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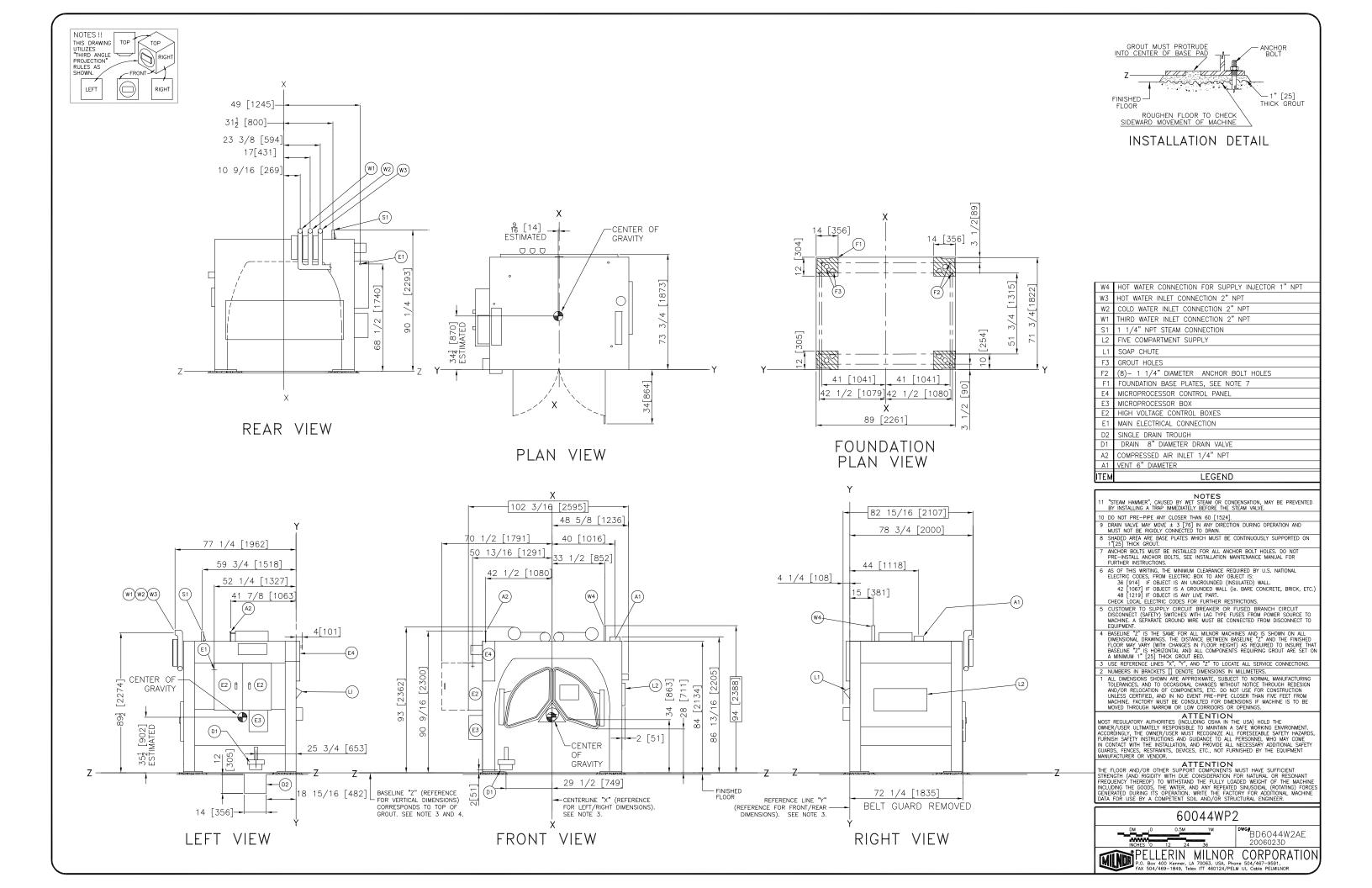
DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.

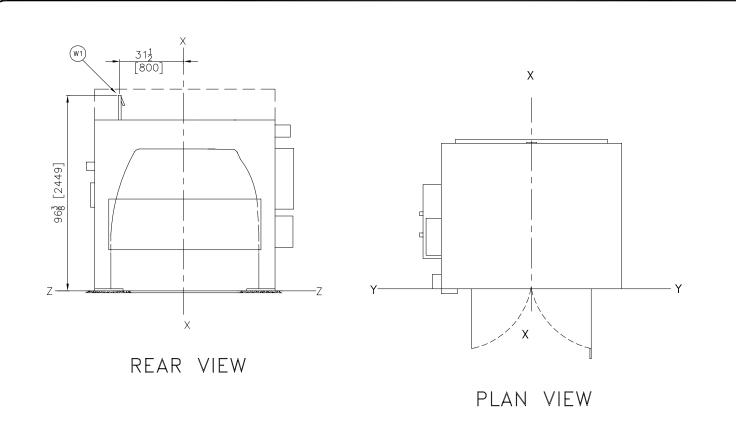
PEDESTAL BASE 52038 WTL/WTN

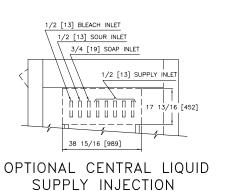


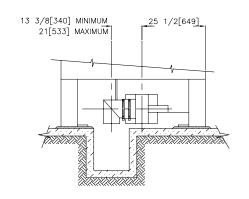
PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
FAX 504/469-1649, Telex ITT 460124/PELM UI, Coble PELMILNOR

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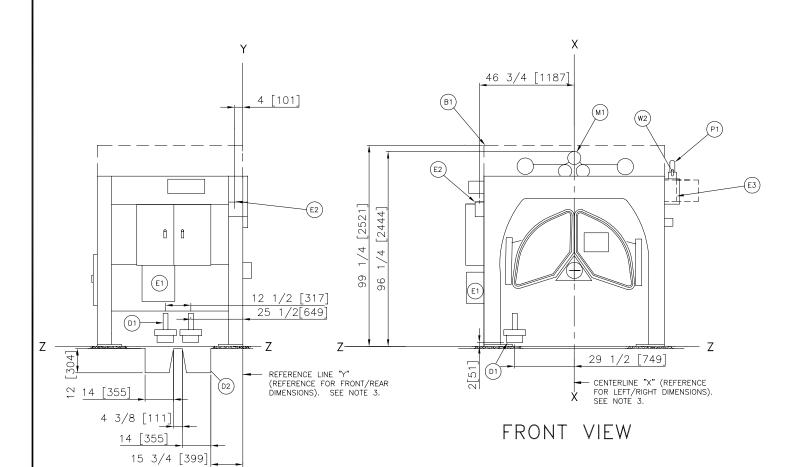




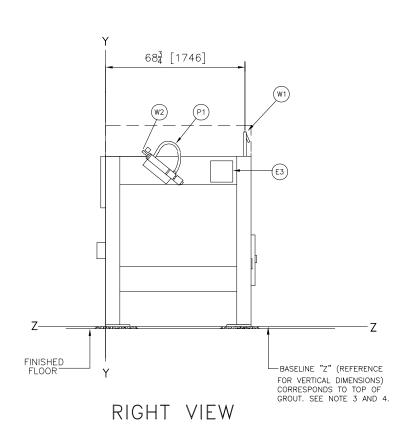


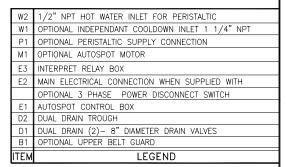


DRAIN VALVE ALTERNATE 90 DEGREE POSITION



LEFT VIEW





THIS DRAWING UTILIZES "THIRD ANGLE

LEFT

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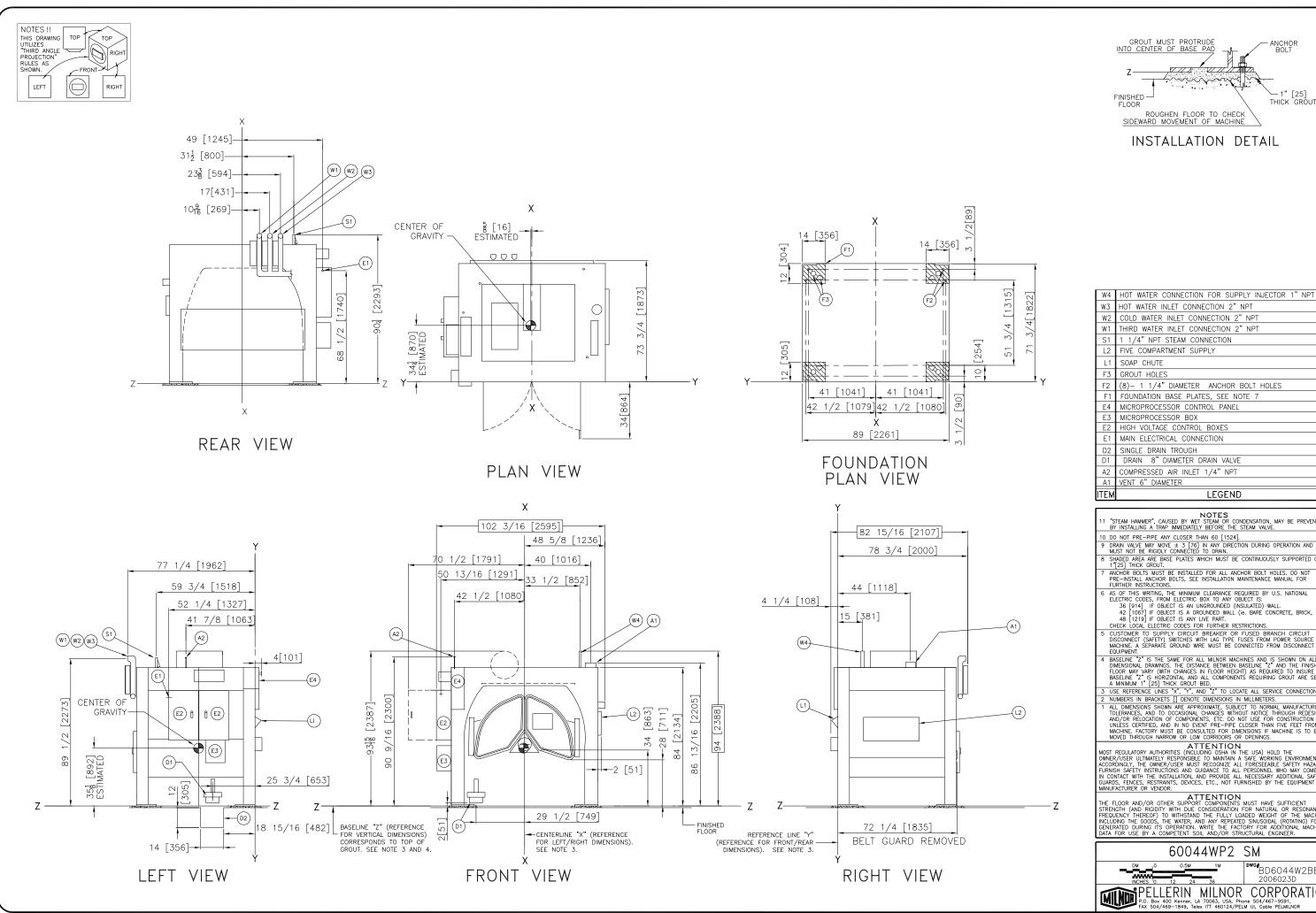
FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE

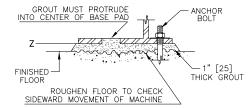
INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCE

GENERATED DURING ITS OPERATION, WRITE THE FACTORY FOR ADDITIONAL MACHINE

DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.







INSTALLATION DETAIL

I	W3	HOT WATER INLET CONNECTION 2" NPT
	W2	COLD WATER INLET CONNECTION 2" NPT
	W1	THIRD WATER INLET CONNECTION 2" NPT
	S1	1 1/4" NPT STEAM CONNECTION
ľ	L2	FIVE COMPARTMENT SUPPLY
	L1	SOAP CHUTE
	F3	GROUT HOLES
	F2	(8)- 1 1/4" DIAMETER ANCHOR BOLT HOLES
	F1	FOUNDATION BASE PLATES, SEE NOTE 7
	E4	MICROPROCESSOR CONTROL PANEL
	E3	MICROPROCESSOR BOX
	E2	HIGH VOLTAGE CONTROL BOXES
	E1	MAIN ELECTRICAL CONNECTION
	D2	SINGLE DRAIN TROUGH
Ľ	D1	DRAIN 8" DIAMETER DRAIN VALVE
ľ	A2	COMPRESSED AIR INLET 1/4" NPT
Γ	Δ1	VENT 6" DIAMETER

- NOTES
  "STEAM HAMMER", CAUSED BY WET STEAM OR CONDENSATION, MAY BE PREVENTED BY INSTALLING A TRAP IMMEDIATELY BEFORE THE STEAM VALVE.
- DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524].

  DRAIN VALVE MAY MOVE ± 3 [76] IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.
- SHADED AREA ARE BASE PLATES WHICH MUST BE CONTINUOUSLY SUPPORTED ON 1"[25] THICK GROUT.
- 1"[25] THICK GROUT.

  ANCHOR BOLTS MUST BE INSTALLED FOR ALL ANCHOR BOLT HOLES. DO NOT PRE-INSTALL ANCHOR BOLTS, SEE INSTALLATION MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS.

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  6 AS OF THIS WRITING, THE MINIMUM CLEARANCE REQUIRED BY U.S. NATIONAL ELECTRIC COORS, FROM ELECTRIC BOX TO ANY OBJECT IS:

  36 [914] IF OBJECT IS AN UNGROUNDED (INSULATED) WALL.

  42 [1057] IF OBJECT IS A GROUNDED WALL (ie. BARE CONCRETE, BRICK, ETC.)

  48 [1219] IF OBJECT IS ANY LIVE PART.

  CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.

  5 CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAFETY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

- MACHINE. A SEARAGE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

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MOVED THROUGH NURROW OF LOW CONTROLLS OF OPENINGS.

ATTENTION

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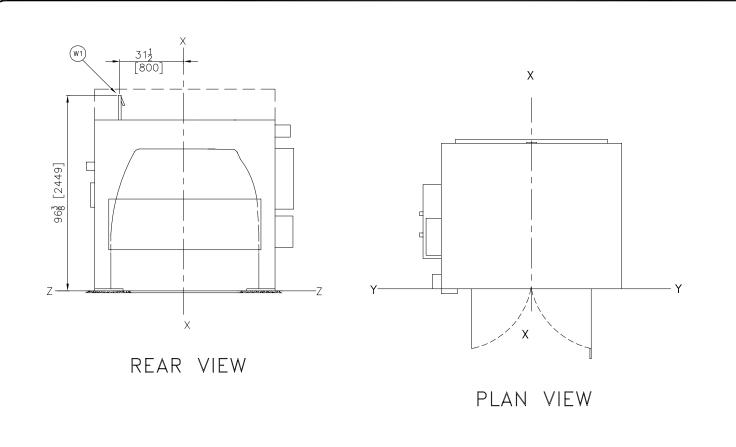
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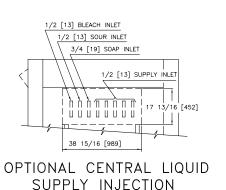
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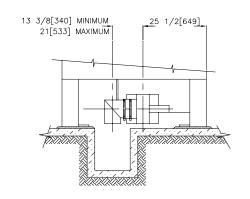
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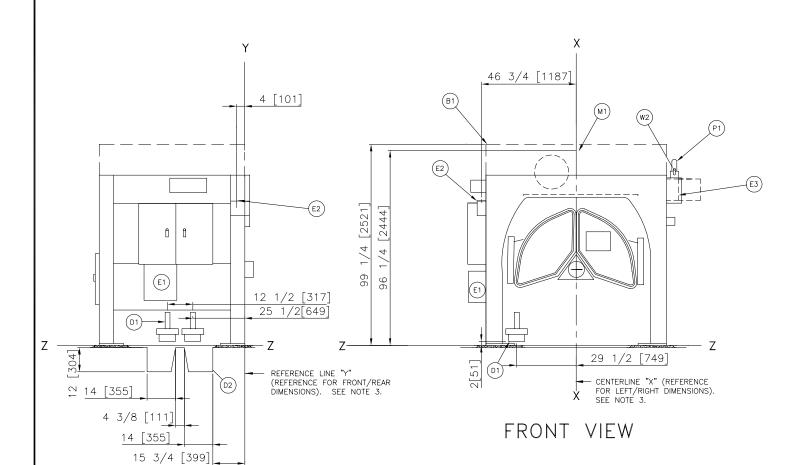




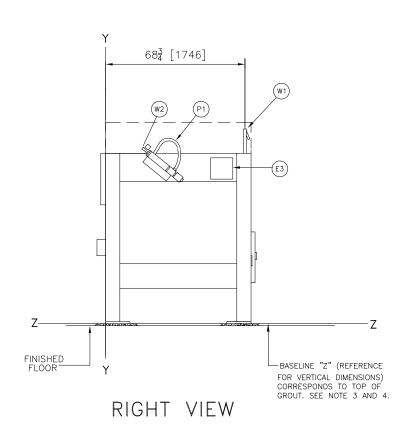




DRAIN VALVE ALTERNATE 90 DEGREE POSITION



LEFT VIEW



ITEM	LEGEND
B1	OPTIONAL UPPER BELT GUARD
D1	DUAL DRAIN (2)- 8" DIAMETER DRAIN VALVES
D2	DUAL DRAIN TROUGH
E1	AUTOSPOT CONTROL BOX
	OPTIONAL 3 PHASE POWER DISCONNECT SWITCH
E2	MAIN ELECTRICAL CONNECTION WHEN SUPPLIED WITH
E3	INTERPRET RELAY BOX
M1	OPTIONAL AUTOSPOT MOTOR
P1	OPTIONAL PERISTALTIC SUPPLY CONNECTION
W1	OPTIONAL INDEPENDANT COOLDOWN INLET 1 1/4" NPT
W2	1/2" NPT HOT WATER INLET FOR PERISTALTIC

LEFT

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MACHINE SEPARATIVE DEVICES, ETC., NOT FURNISHED BY THE EQUIPMENT MANUFACTURER OR VENDOR.

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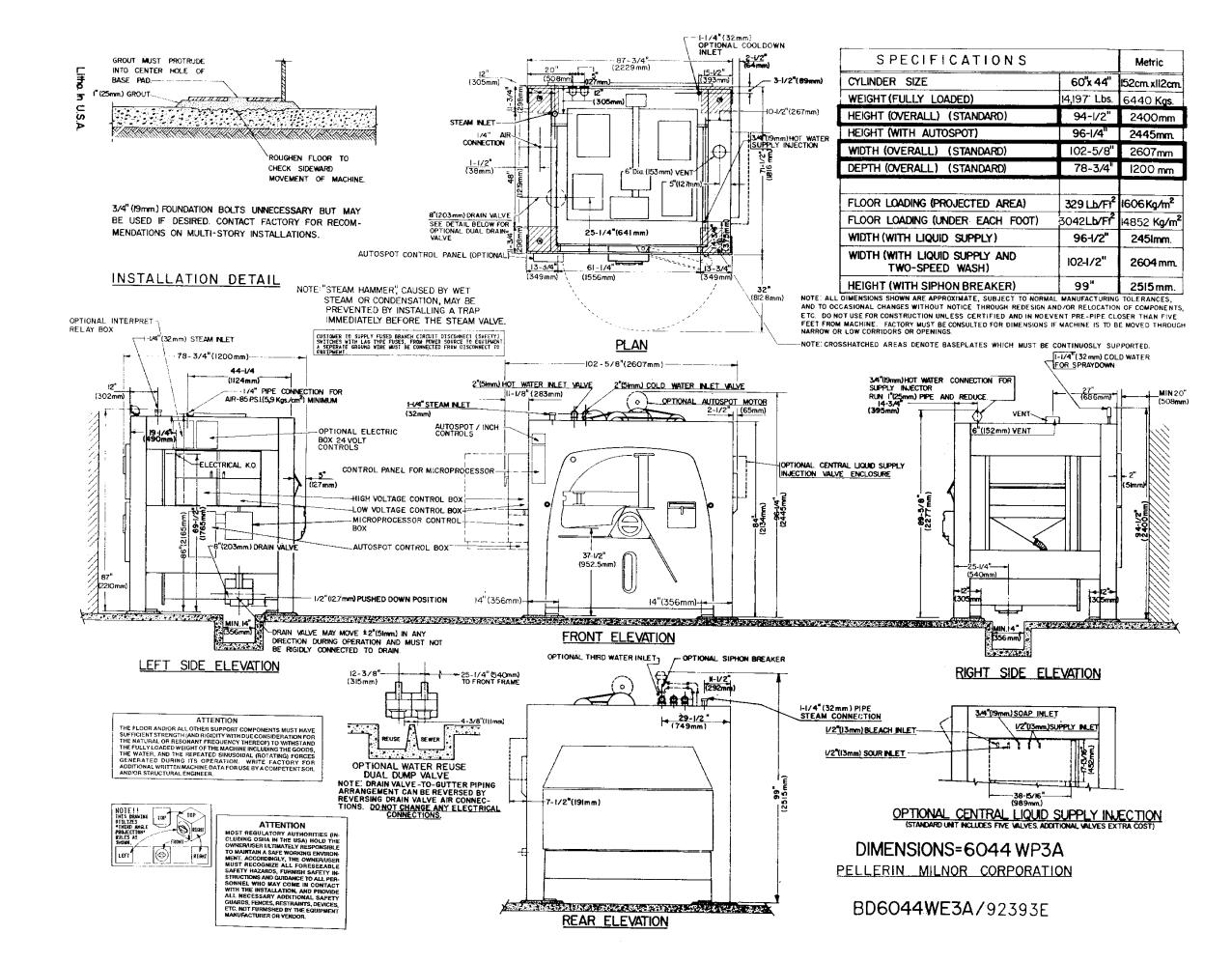
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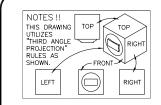
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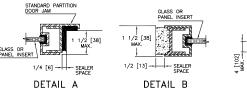
DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.

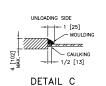




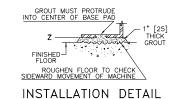
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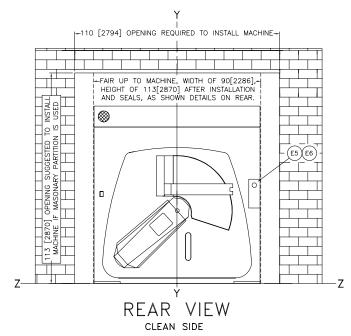






CENTER OF





(W6)

(A1)

(E1)

CENTER OF

[889] MATED

109 [2788]

[2419]

562

BASELINE "Z" (REFERENCE -FOR VERTICAL DIMENSIONS)

CORRESPONDS TO TOP OF GROUT. SEE NOTE 3 AND 4

-53½ [1359]-

—51a [1299]-

E2

4b 3/4 [1b35]

25 [635]

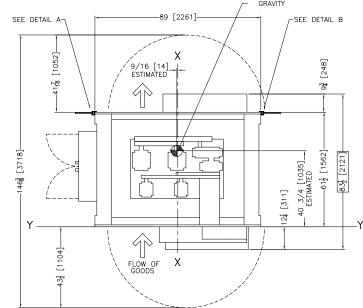
ESTIMATED

E2

12 [305]

D2 14 [356]

LEFT VIEW



PLAN VIEW

\_45 [1143]-

SEE NOTÉ 3.

\_1028 [2613]

3311 [856] 334 [857]

89 [2261]

6½ [165] A1

\_37¾ [959]—

---31½ [800]---

FRONT VIEW SOIL SIDE

-461 [1175]-

E5 E6

[2564]

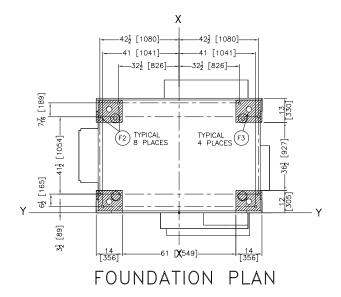
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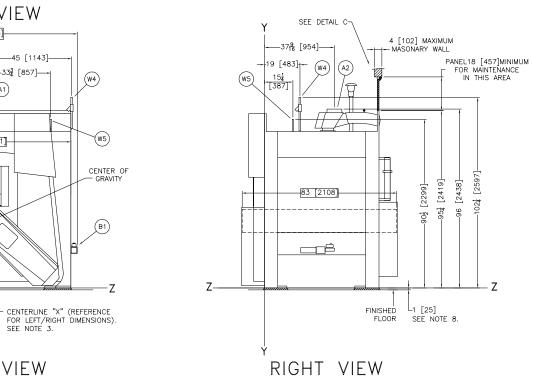
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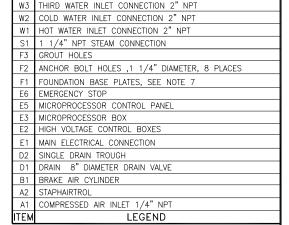
REFERENCE LINE "Y" - (REFERENCE FOR FRONT/REAR

DIMENSIONS). SEE NOTÉ 3.

387







W4 HOT WATER CONNECTION FOR SUPPLY INJECTOR 1" NPT

W6 OPTIONAL VACUUM BREAKER

COOL DOWN INLET 1 1/4" NPT

## NOTES

- "STEAM HAMMER", CAUSED BY WET STEAM OR CONDENSATION, MAY BE PREVENTED BY INSTALLING A TRAP IMMEDIATELY BEFORE THE STEAM VALVE.
- DRAIN VALVE MAY MOVE  $\pm$  1-1/2 [38] IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.
- SHADED AREA ARE BASE PLATES WHICH MUST BE CONTINUOUSLY SUPPORTED ON 1 125 THICK GROUT. ALSO, THIS 1125 OF GROUT IS NECESSARY TO INSURE THE STAPH GUARD BRAKE WILL NOT HIT THE FLOOR.

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  7 ANCHOR BOLTS MUST BE INSTALLED FOR ALL ANCHOR BOLT HOLES. DO NOT PRE-INSTALL ANCHOR BOLTS, SEE INSTALLATION MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS.

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  CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.

  5 CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSES BRANCH CIRCUIT DISCONNECT (SAFET) WITCHES WITCHES WING THE STAPP OWER SOURCE TO MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

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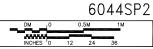
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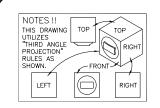
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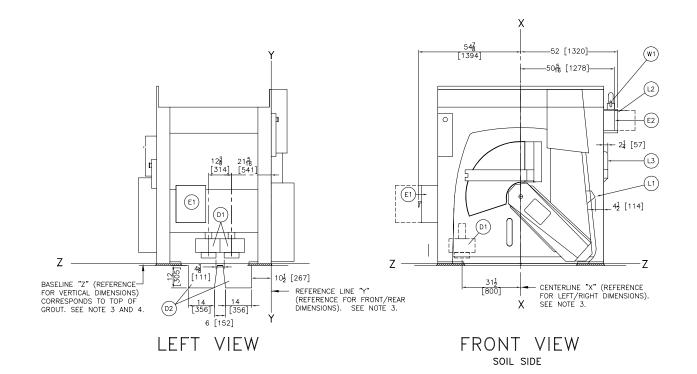
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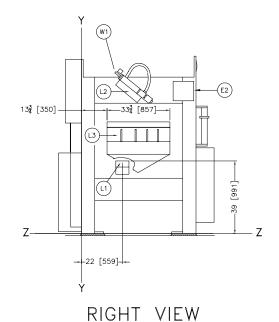


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W1 1/2" NPT HOT WATER INLET FOR PERISTALTIC L3 FIVE COMPARTMENT SUPPLY L2 PERISTALTIC SUPPLY L1 SOAP CHUTE E2 INTERPRET RELAY BOX E1 AUTOSPOT CONTROL BOX D2 DUAL DRAIN TROUGH D1 DUAL DRAIN VALVES 8" DIAMETER LEGEND

NOTES

THE FRONTMOST DRAIN VALVE IS TO SEWER, THE REARWARD VALVE IS TO REUSE. THIS CAN BE REVERSED BY SWITCHING DRAIN VALVE AIR CONNECTIONS. DO NOT CHANGE THE ELECTRICAL CONNECTIONS.

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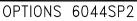
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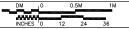
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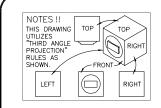
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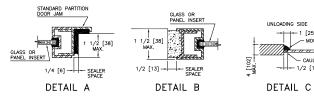




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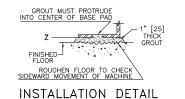


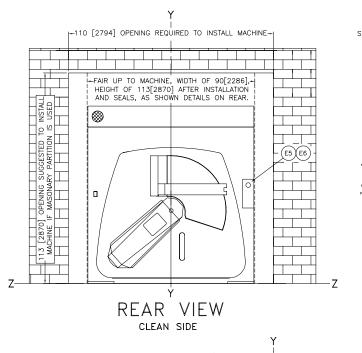


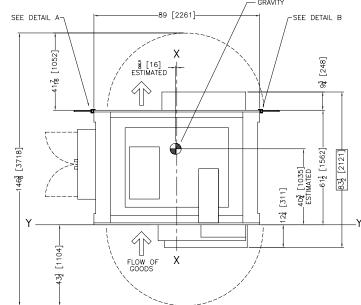


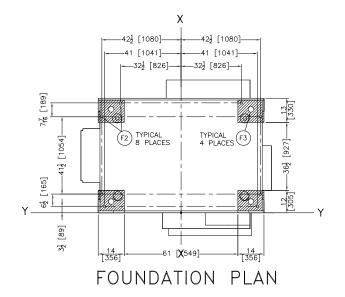
UNLOADING SIDE 1 [25] MOULDING *,,,,,,* 

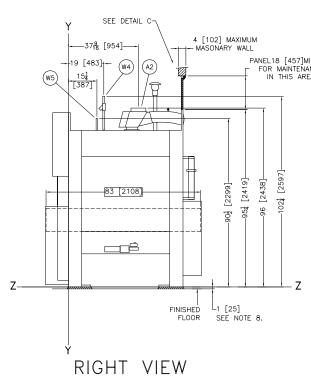
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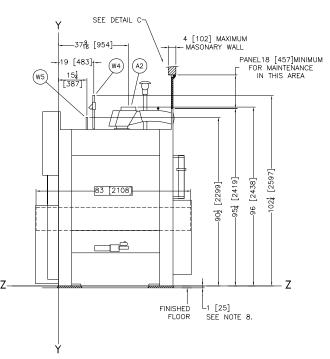












W6	OPTIONAL VACUUM BREAKER
W5	COOL DOWN INLET 1 1/4" NPT
W4	HOT WATER CONNECTION FOR SUPPLY INJECTOR 1" NPT
W3	THIRD WATER INLET CONNECTION 2" NPT
W2	COLD WATER INLET CONNECTION 2" NPT
W1	HOT WATER INLET CONNECTION 2" NPT
S1	1 1/4" NPT STEAM CONNECTION
F3	GROUT HOLES
F2	ANCHOR BOLT HOLES ,1 1/4" DIAMETER, 8 PLACES
F1	FOUNDATION BASE PLATES, SEE NOTE 7
E6	EMERGENCY STOP
E5	MICROPROCESSOR CONTROL PANEL
E3	MICROPROCESSOR BOX
E2	HIGH VOLTAGE CONTROL BOXES
E1	MAIN ELECTRICAL CONNECTION
D2	SINGLE DRAIN TROUGH
D1	DRAIN 8" DIAMETER DRAIN VALVE
B1	BRAKE AIR CYLINDER
A2	STAPHAIRTROL
A1	COMPRESSED AIR INLET 1/4" NPT
ITEM	LEGEND

## NOTES

- "STEAM HAMMER", CAUSED BY WET STEAM OR CONDENSATION, MAY BE PREVENTED BY INSTALLING A TRAP IMMEDIATELY BEFORE THE STEAM VALVE.
- DRAIN VALVE MAY MOVE  $\pm$  1-1/2 [38] IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.
- SHADED AREA ARE BASE PLATES WHICH MUST BE CONTINUOUSLY SUPPORTED ON 1 125 THICK GROUT. ALSO, THIS 1 125 OF GROUT IS NECESSARY TO INSURE THE STAPH GUARD BRAKE WILL NOT HIT THE FLOOR.

- 1"25] THICK GROUT. ALSO, THIS 1"25] OF GROUT IS NECESSARY TO INSURE THE STAPH GUARD BRAKE WILL NOT HIT THE FLOOR.

  6. AS DE THIS, WETHING, THE MINIMUM CLEARANCE, REQUIRED BY HIS ANTIONNO.

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  7. AS DESCRIPTION OF THE MINIMUM CLEARANCE AND THE BOTTON AS THE MINIMUM FOR FURTHER RESTRICTIONS.

  8. CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAFETY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

  8. ASSELINE "Z" IS THE REFERENCE FOR ALL VERTICAL DIMENSIONS. ON MACHINES WITH WITH FIVED BASE PADS, BASELINE "Z" CORRESPONDS TO THE BOTTOM OF THE BASE PAD. ON MACHINES WITH ADUSTABLE FEET, BASELINE "Z" CORRESPONDS TO THE BOTTOM OF THE BEST PAD. ON MACHINES WITH ADUSTABLE FEET, BASELINE "Z" CORRESPONDS TO THE BOTTOM OF THE BOTTOM FIRE FEET WHEN ADUSTED SO THAT THE MACHINE IS AT ITS MINIMUM ACCEPTABLE HIGHT, ON TRAVERSING SHUTTLES, BASELINE "Z" CORRESPONDS TO THE BOTTOM OF THE BOTTOM RAIL THE DISTANCE BETWEEN BASELINE "Z" AND THE FINISHED FLOOR WILL VARY AS REQUIRED TO BYSINE BASELINE "Z". AND THE FINISHED FLOOR WILL VARY AS REQUIRED TO BYSINE BASELINE "Z". AND THE FINISHED FLOOR WILL VARY AS REQUIRED TO BYSINE BASELINE "Z" AND THE FINISHED FLOOR WILL VARY AS REQUIRED TO BYSINE BASELINE "Z" AND THE FINISHED FLOOR WILL VARY AS REQUIRED TO BYSINE BASELINE "Z" AND THE FINISHED FLOOR WILL VARY AS REQUIRED TO BYSINE BASELINE "Z" AND THE FINISHED FLOOR WILL VARY AS REQUIRED TO DISSURE BASELINE "Z" AND THE FINISHED FLOOR WILL VARY AS REQUIRED TO DISSURE BASELINE "Z" AND THE FINISHED FLOOR WILL VARY AS REQUIRED TO DISSURE BASELINE "Z" AND THE FINISHED FLOOR WILL VARY AS TO LOCATE ALL SERVICE CONNECTIONS.
- THICK GROUT BED.

  3 USE REFERENCE LINES "X", "Y", AND "Z" TO LOCATE ALL SERVICE CONNECTIONS.

  2 NUMBERS IN BRACKETS [] DENOTE DIMENSIONS IN MILLIMETERS.

  1 ALL DIMENSIONS SHOWN ARE APPROXIMATE, SUBJECT TO NORMAL MANUFACTURING TOLERANCES, AND TO OCCASIONAL CHANGES WITHOUT NOTICE THROUGH REDESION AND/OR RELOCATION OF COMPONENTS, ETC. DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED, AND IN NO EVENT PRE—PIPE CLOSER THAN FIVE FEET FROM MACHINE, FACTORY MUST BE CONSULTED FOR DIMENSIONS IF MACHINE IS TO BE MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS.

MOVED THROUGH NARROW OF LOW CORNINGS OF DEPINIOS.

ATTENTION

MOST REGULATORY AUTHORITIES (INCLUDING OSHA IN THE USA) HOLD THE

OWNER/USER ULTIMATELY RESPONSIBLE TO MAINTAIN A SAFE WORKING ENVIRONMENT.

ACCORDINGLY, THE OWNER/USER MUST RECOGNIZE ALL FORESEEABLE SAFETY HAZARDS,
FURNISH SAFETY INSTRUCTIONS AND GUIDANCE TO ALL PERSONNEL WHO MAY COME

IN CONTACT WITH THE INSTALLATION, AND PROVIDE ALL RECESSARY ADDITIONAL. SAFETY JARDS, FENCES, RESTRAINTS, DEVICES, ETC., NOT FURNISHED BY THE EQUIPMENT MANUFACTURER OR VENDOR.

MANUFACTURER OR VENDOR.

ATTENTION

THE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT

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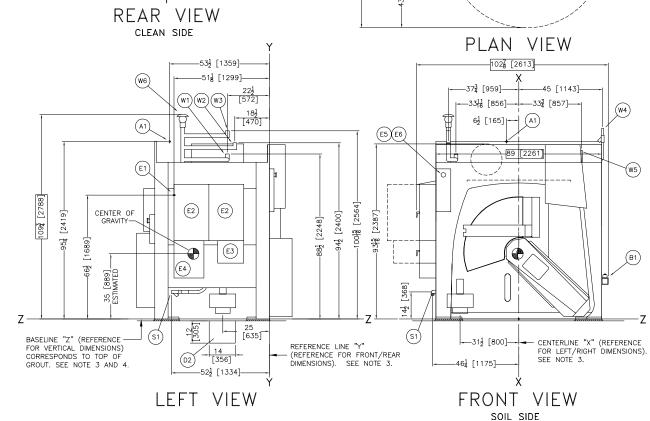
FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE

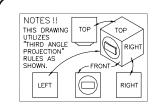
INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCE

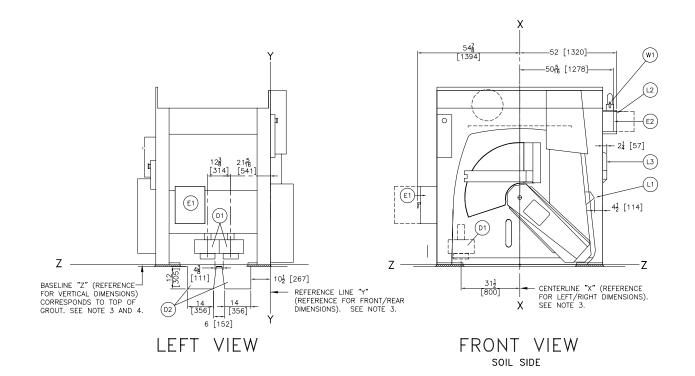
GENERATED DURING ITS OPERATION, WRITE THE FACTORY FOR ADDITIONAL MACHINE

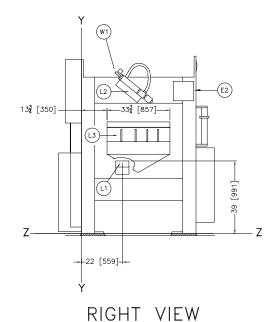
DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.











W1 1/2" NPT HOT WATER INLET FOR PERISTALTIC L3 FIVE COMPARTMENT SUPPLY L2 PERISTALTIC SUPPLY L1 SOAP CHUTE E2 INTERPRET RELAY BOX E1 AUTOSPOT CONTROL BOX D2 DUAL DRAIN TROUGH D1 DUAL DRAIN VALVES 8" DIAMETER

LEGEND

NOTES THE FRONTMOST DRAIN VALVE IS TO SEWER, THE REARWARD VALVE IS TO REUSE. THIS CAN BE REVERSED BY SWITCHING DRAIN VALVE AIR CONNECTIONS. DO NOT CHANGE THE ELECTRICAL CONNECTIONS.

CHANGE THE ELECTRICAL CONNECTIONS.

6 AS OF THIS WRITING, THE MINIMUM CLEARANCE REQUIRED BY U.S. NATIONAL ELECTRIC CODES, FROM ELECTRIC BOX TO ANY OBJECT IS:

36 [914] IF OBJECT IS AN UNOROUNDED (INSULATED) WALL.

42 [1067] IF OBJECT IS A OROUNDED WALL (E. BARE CONCRETE, BRICK, ETC.)

48 [1219] IF OBJECT IS ANY LIVE PART.

CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.

5 CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAFETY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

BASELINE "Z" IS THE SAME FOR ALL MILNOR MACHINES AND IS SHOWN ON ALL DIMENSIONAL DRAWINGS. THE DISTANCE BETWEEN BASELINE "Z" AND THE FINISHED FLOR MAY VARY (WITH CHANGES IN FLOOR HEIGHT) AS REQUIRED TO INSURE THAT BASELINE "Z" IS HORIZONTAL AND ALL COMPONENTS REQUIRING GROUT ARE SET ON A MINIMUM "[25] THICK GROUT BED.

3. USE REFERENCE LINES "X", "Y", AND "Z" TO LOCATE ALL SERVICE CONNECTIONS.

2. NUMBERS IN BRACKETS [] DENOTE DIMENSIONS IN MILLIMETERS.

1. ALL DIMENSIONS SHOWN ARE APPROXIMATE, SUBJECT TO NORMAL MANUFACTURING TOLERANCES, AND TO COCCADIAL, CHANGES WITHOUT NOTICE THROUGH REDESION AND AND COMPONENT FREE-PIPE CLOSER TAN HONGER PROPERTY OF THE PIPE CLOSER TOWN STREETER ON MACHINE, FACTORY MUST BE CONSULTED FOR DIMENSIONS IF MACHINE IS TO BE MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS.

MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS.

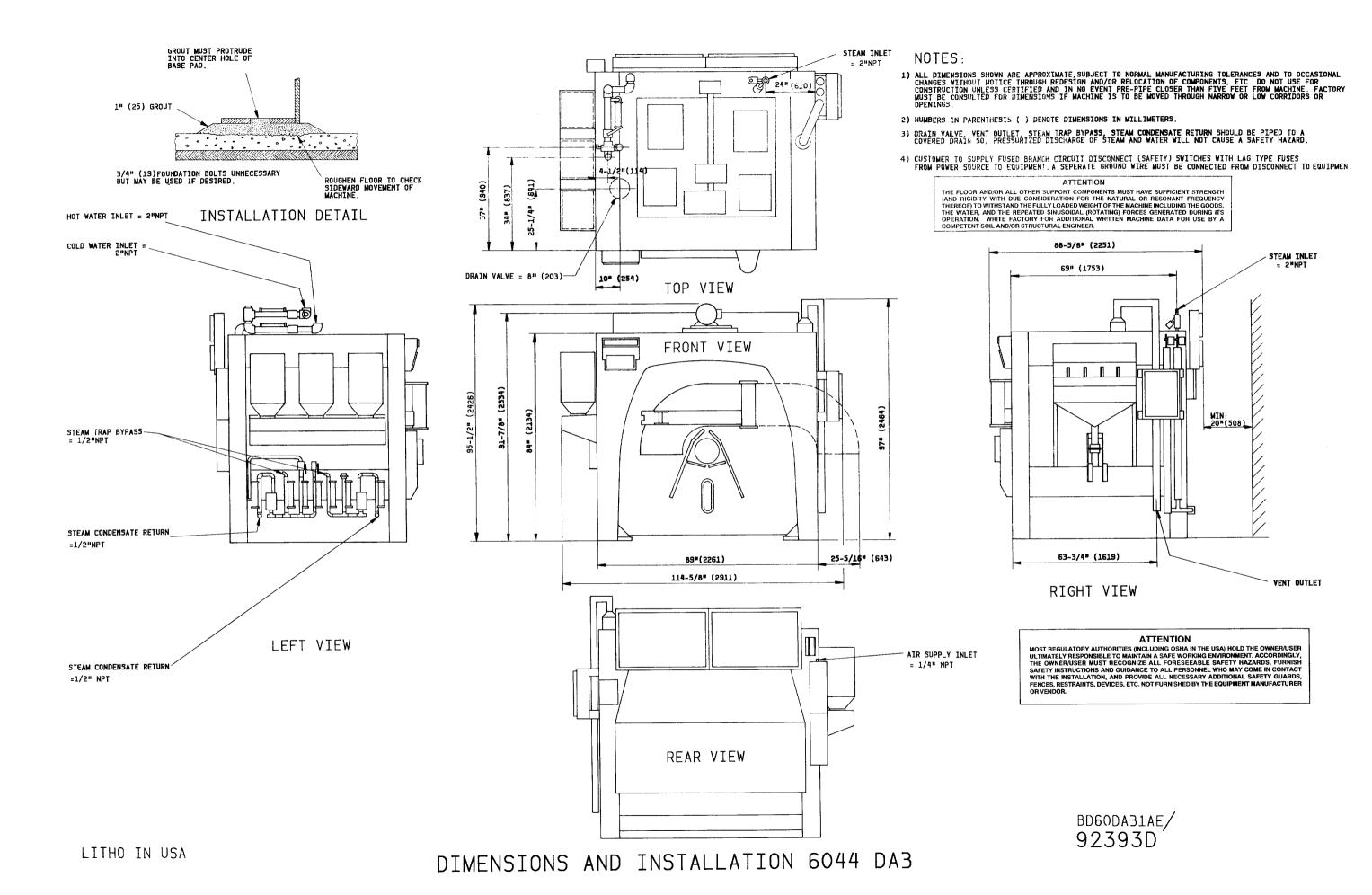
\*\*TENTION\*\*

MOST RECULATORY AUTHORITIES (INCLUDING OSHA IN THE USA) HOLD THE OWNER/USER ULTIMATELY RESPONSIBLE TO MAINTAIN A SAFE WORKING ENVIRONMENT. ACCORDING THE WINER/USER MUST RECOONLE ALL FRESEZEABLE SAFETY HAZARDS, FINE SAFETHE SYMMENT WITH THE INSTALLATION, AND PROVIDE ALL NECESSARY ADDITIONAL SAFETY GUARDS, FENCES, RESTRAINTS, DEVICES, ETC., NOT FURNISHED BY THE EQUIPMENT MAINTACTURER OR VENDOR.

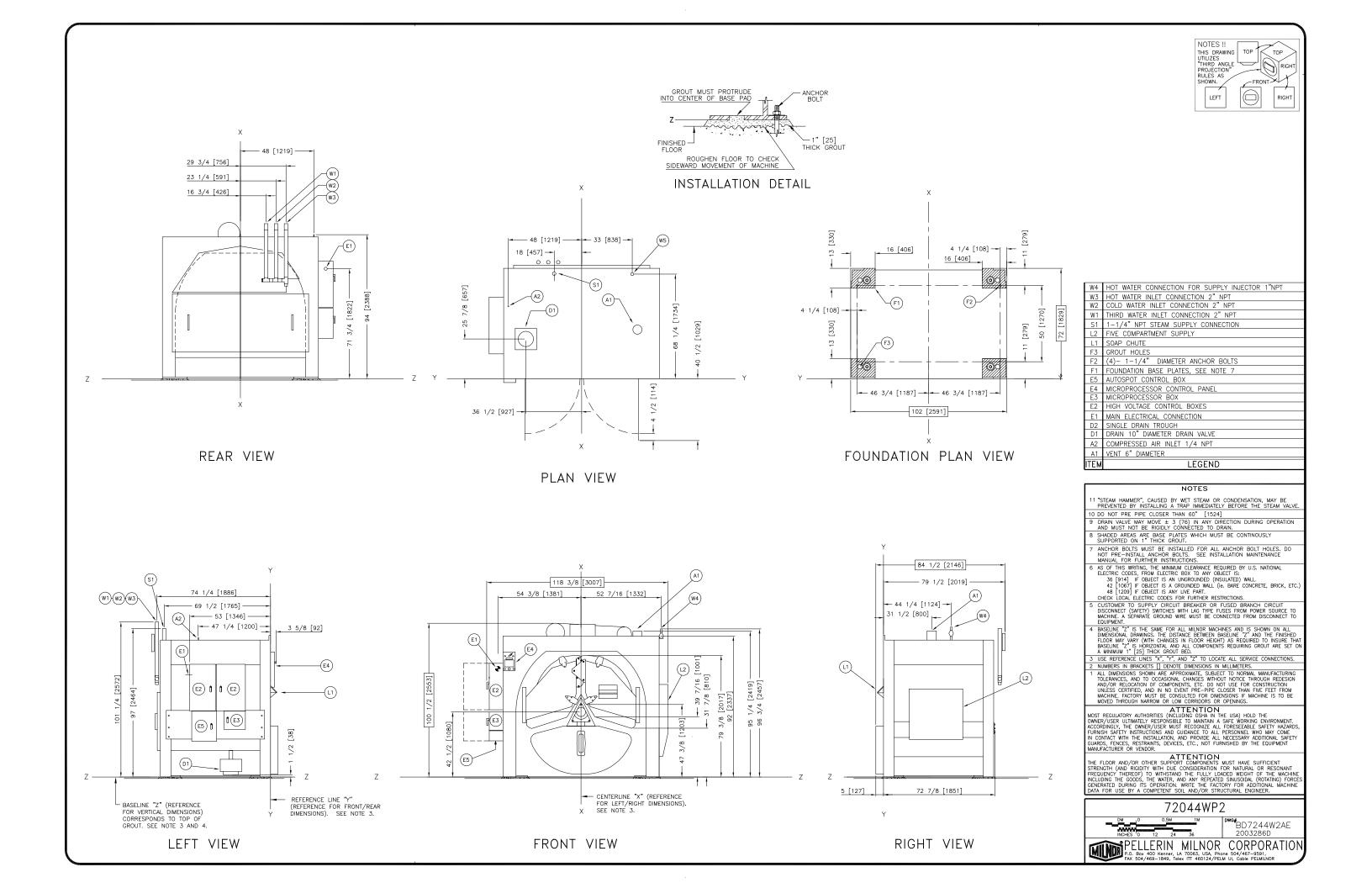
THE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT STRENGTH (AND RIGIDITY WITH DUE CONSIDERATION FOR NATURAL OR RESONANT FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATION) FORCES GENERATED DURING ITS OPERATION. WRITE THE FACTORY FOR ADDITIONAL MACHINE DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.

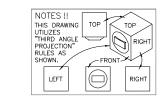
OPTIONS 6044SP2/SP3 SM BD6044SPBB

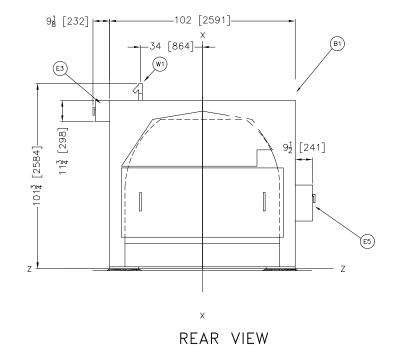


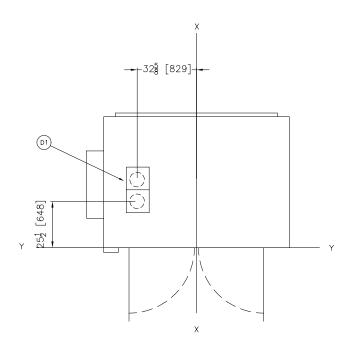


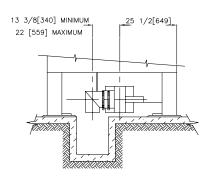
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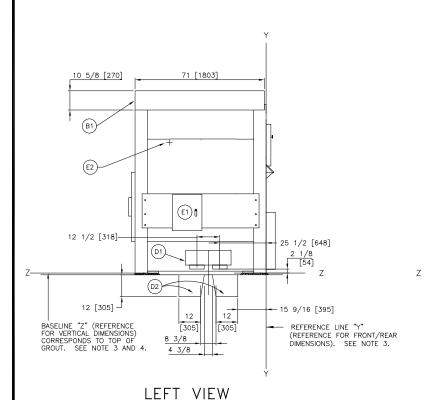


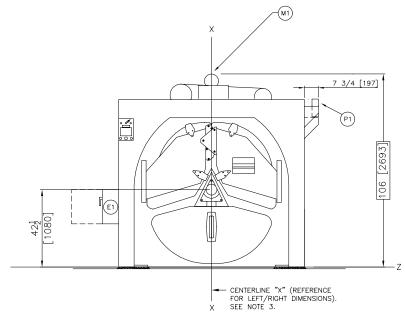






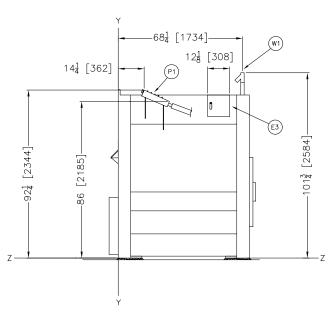
DRAIN VALVE ALTERNATE 90 DEGREE POSITION





FRONT VIEW

PLAN VIEW



RIGHT VIEW

D2 D1 B1	AUTOSPOT CONTROL BOX DUAL DRAIN TROUGH DUAL DRAIN (2)-8" DIAMETER DRAIN VALVES OPTIONAL UPPER BELT GUARD
D2	DUAL DRAIN TROUGH
E1	AUTOSPOT CONTROL BOX
	OPTIONAL 3 PHASE POWER DISCONNECT SWITCH
E2	MAIN ELECTRICAL CONNECTION WHEN SUPPLIED WITH
E3	INTERPRET RELAY BOX
E4	AUTOSPOT CONTROL BOX (OPTIONAL)
M1	OPTIONAL AUTOSPOT MOTOR
P1	OPTIONAL PERISTALIC SUPPLY CONNECTION
W1	OPTIONAL INDEPENDANT COOLDOWN INLET 1-1/4" NPT
	P1 M1 E4 E3 E2

- 11 "STEAM HAMMER", CAUSED BY WET STEAM OR CONDENSATION, MAY BE PREVENTED BY INSTALLING A TRAP IMMEDIATELY BEFORE THE STEAM VALVE.

  10 DO NOT PRE PIPE CLOSER THAN 60" [1524]

  9 DRAIN VALVE MAY MOVE ± 3 (76) IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.

  8 SHADED AREAS ARE BASE PLATES WHICH MUST BE CONTINOUSLY SUPPORTED ON 1" THICK GROUT.

- ANCHOR BOLTS MUST BE INSTALLED FOR ALL ANCHOR BOLT HOLES. DO NOT PRE-INSTALL ANCHOR BOLTS. SEE INSTALLATION MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS.

- NOT PRE-INSTALL ANCHOR BOLTS. SEE INSTALLATION MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS.

  6 AS OF THIS WRITING, THE MINIMUM CLEARANCE REQUIRED BY U.S. NATIONAL ELECTRIC CODES, FROM ELECTRIC BOX TO ANY OBJECT IS:

  36 [914] IF OBJECT IS AN UNGROUNDED (INSULATED) WALL.

  42 [1057] IF OBJECT IS A OFFICIAL SECTION OF INSULATED) WALL.

  43 [1209] IF OBJECT IS A OFFICIAL SECTION OFFICIAL SECTION OF INSULATED WALL.

  46 [1209] IF OBJECT IS A OFFICIAL SECTION OFFICIAL S

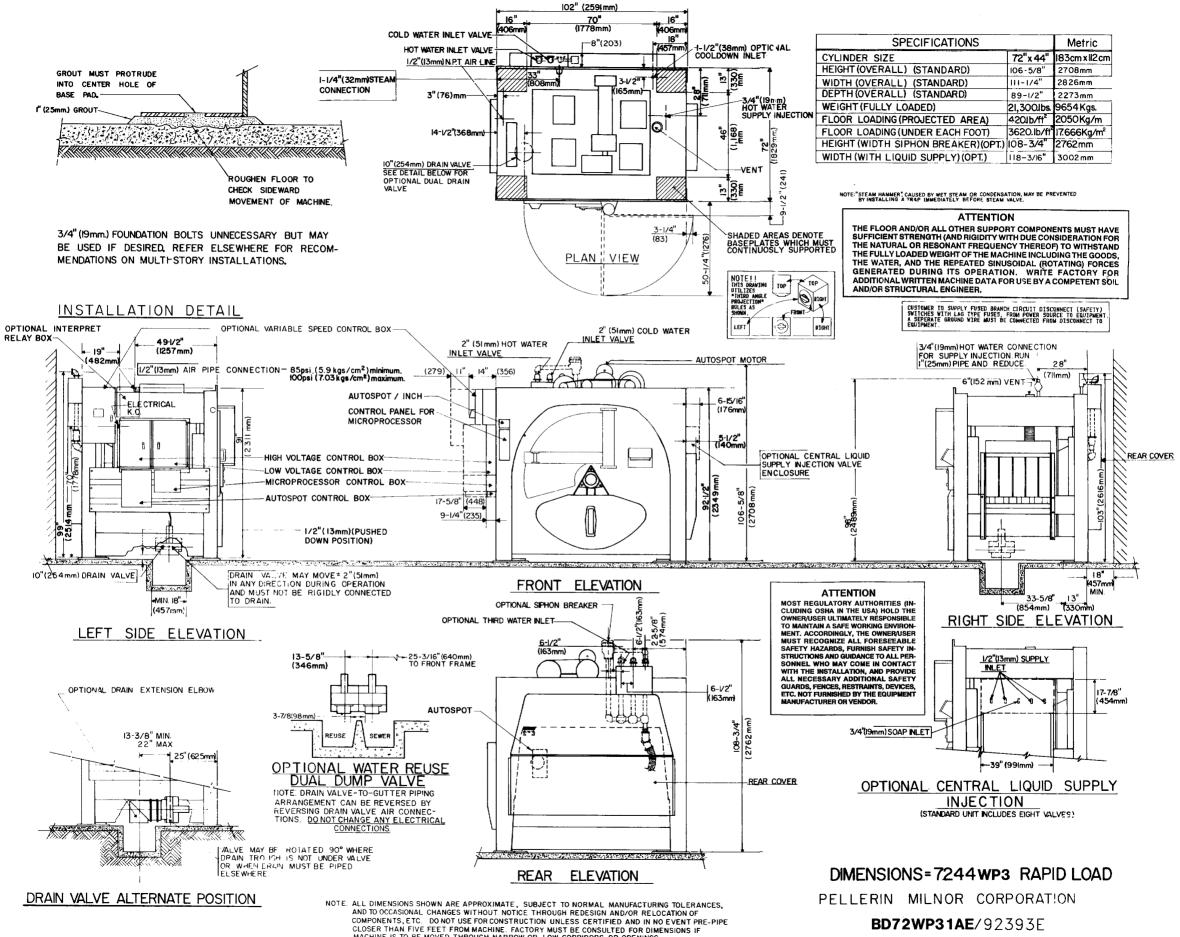
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MANUFACTURER OR VENDOR.

ATTENTION

THE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT
STRENGTH (AND RIGIDITY WITH DUE CONSIDERATION FOR NATURAL OR RESONANT
FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE
INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSIDIAL (ROTATING) FORCES
GENERATED DURING ITS OPERATION. WRITE THE FACTORY FOR ADDITIONAL MACHINE
DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.





MACHINE IS TO BE MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS

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