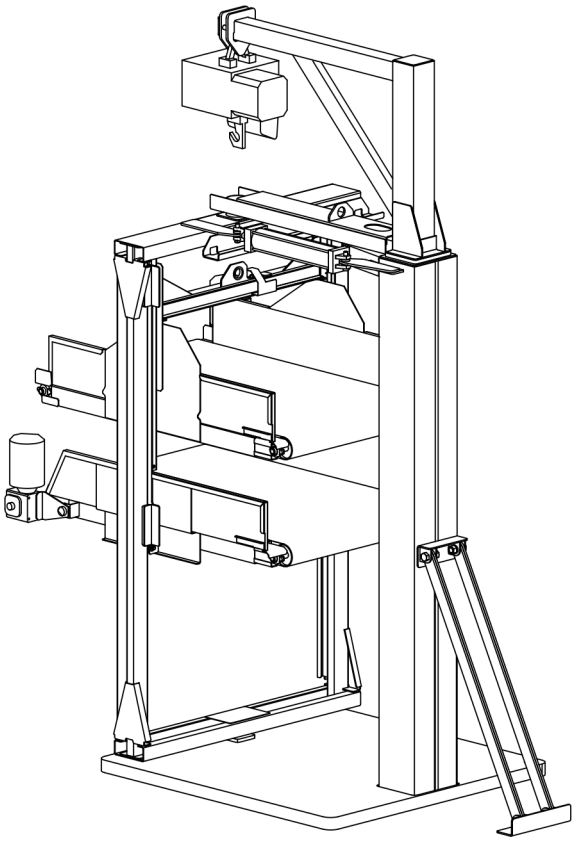
Manual Number: MCSCNI01
Edition (ECN): 2020077A

# Installation

# CORFN_ Elevating and Rotating Cake Shuttles



PELLERIN MILNOR CORPORATION Post Office Box 400, Kenner, Louisiana 70063–0400, U.S.A.

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# 1 General Information

**BMP720097 / 19036** BRUUUM01.1 0000229985 A.6 D.6 12/5/19 11:43 AM Released

# 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 (unless the time period is specifically extended for certain parts pursuant to a specific MILNOR published extended warranty) 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, EX Factory (labor and freight specifically NOT included). 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 tampered with, modified, or abused, used for purposes not intended in the design and construction of the machine, or is repaired or altered in any way without MILNOR's written consent.

Parts damaged by exposure to weather, to aggressive water, or to chemical attack are not covered by this warranty. For parts which require routine replacement due to normal wear—such as gaskets, contact points, brake and clutch linings, belts, hoses, and similar parts—the warranty time period is 90 days.

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 PURPOSE OR ANY OTHER WARRANTY IMPLIED BY LAW INCLUDING BUT NOT LIMITED TO REDHIBITION. 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, MIS-USE, 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 MILNOR BE LIABLE FOR SPECIAL, INDIRECT, PUNITIVE, LIQUIDATED, OR CONSEQUENTIAL COSTS OR DAMAGES, OR ANY COSTS OR DAMAGES WHATSOEVER WHICH EXCEED THE PRICE PAID TO MILNOR FOR THE EQUIPMENT IT SELLS OR FURNISHES.

THE PROVISIONS ON THIS PAGE REPRESENT THE ONLY WARRANTY FROM MILNOR AND NO OTHER WARRANTY OR CONDITIONS, STATUTORY OR OTHERWISE, SHALL BE IMPLIED.

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.

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# How to Get the Necessary Repair Components

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You can get components to repair your machine from the approved supplier where you got this machine. Your supplier will usually have the necessary components in stock. You can also get components from the Milnor® factory.

Tell the supplier the machine model and serial number and this data for each necessary component:

- The component number from this manual
- The component name if known
- The necessary quantity
- The necessary transportation requirements
- If the component is an electrical component, give the schematic number if known.
- If the component is a motor or an electrical control, give the nameplate data from the used component.

To write to the Milnor® factory:

Pellerin Milnor Corporation
Post Office Box 400
Kenner, LA 70063-0400
UNITED STATES

Telephone: 504-712-7775
Fax: 504-469-9777
Email: parts@milnor.com

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# Trademarks

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These words are trademarks of Pellerin Milnor® Corporation and other entities:

**Table 1. Trademarks**

| | | | |
|---|---|---|---|
| AutoSpot™ | GreenFlex™ | MilMetrix® | PulseFlow® |
| CBW® | GearTrace™ | MilTouch™ | RAM Command™ |
| Drynet™ | GreenTurn™ | MilTouch-EX™ | RecircONE® |
| E-P Express® | Hydro-cushion™ | MILRAIL™ | RinSave® |
| E-P OneTouch® | Mentor® | Miltrac™ | SmoothCoil™ |
| E-P Plus® | Mildata® | PBW™ | Staph Guard® |
| Gear Guardian® | Milnor® | | |

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# Safety — Shuttle Conveyors

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## Safety Alert Messages—Internal Electrical and Mechanical Hazards

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

**WARNING:** **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:** **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.

## Safety Alert Messages—External Mechanical Hazards

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

**CAUTION:** **Strike and Crush Hazards** — A traveling machine such as a shuttle can strike, crush, or entrap you if you ride on it or enter its path. Traveling machines or their components can move automatically in any direction. Placing a system machine on line by energizing the machine control may immediately summon a shuttle or other traveling machine.

- Keep yourself and others off of machine.
- Keep yourself and others clear of movement areas and paths.
- Understand the consequences of placing a system machine on line.
- 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.

**CAUTION:** **Crush and Entrap Hazards —** A traveling machine such as a shuttle can crush or entrap you if the bed or bucket descends while you are under it. The bed or bucket can descend with power off or on.

▶ Keep yourself and others clear of movement areas and paths.

**WARNING:** **Fall, Entangle, and Strike Hazards —** Machine motion can cause you to fall or become entangled in or struck by nearby objects if you stand, walk, or ride on the machine. Shuttles and conveyor belts move automatically.

▶ Keep yourself and others off of machine.

# Safety Alert Messages—Unsafe Conditions

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## Damage and Malfunction Hazards

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### Hazards Resulting from Inoperative Safety Devices

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**WARNING:** **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:** **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:** **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.

### Hazards Resulting from Damaged Mechanical Devices

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**WARNING: 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: Crush Hazards —** Chain and hoist—A broken chain or a malfunctioning hoist can permit the belt/bucket assembly to fall or descend.

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

## Careless Use Hazards

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

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**WARNING: 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.

**CAUTION: Goods Damage and Wasted Resources —** Entering incorrect cake data causes improper processing, routing, and accounting of batches.

- Understand the consequences of entering cake data.

**WARNING: Strike and Crush Hazards —** Carelessly moving the machine with manual controls can cause it to strike, crush, entrap, or entangle personnel. You have total control of machine movement immediately after setting the Manual/Automatic switch to manual.

- Keep yourself and others clear of movement areas and paths.
- Understand the consequences of operating manually.

## Careless Servicing Hazards—Vital Information for Service Personnel (see also service hazards throughout manuals)

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**WARNING:** **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:** **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:** **Crush and Entrap Hazards —** A traveling machine such as a shuttle can crush or entrap you if the bed or bucket descends while you are under it. The bed or bucket can descend with power off or on.

- Secure both red safety pins in accordance with the instructions furnished, then lock out and tag out power at the main machine disconnect before working under bed or bucket.

**WARNING:** **Strike and Crush Hazards —** A traveling machine such as a shuttle can strike, crush, or entrap you if you ride on it or enter its path. Traveling machines or their components can move automatically in any direction. Placing a system machine on line by energizing the machine control may immediately summon a shuttle or other traveling machine.

- Lock out and tag out power to the traveling machine at the main machine disconnect if you must work in the path of the traveling machine.

# 2 Important Installation Precautions

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## External Fuse/Breaker, Wiring, and Disconnect Requirements

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An external fuse **or** circuit breaker and a disconnect switch must be provided in the facility for (and dedicated to) the machine. These may be in the same or separate, **permanently mounted** electric boxes. Electric power and ground connections will be made between the incoming power junction box on the machine and this external box (or one of the boxes).

### Fuse or Circuit Breaker Size

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Refer to the “External Fuse and Wire Sizes...” document for your machine model. This document will be found in the machine's installation manual, available from the parts department. Choose the fuse or circuit breaker from the appropriate column of the table provided, as follows:

**If a fuse is used** — Match the fuse listed in the “Fuse” column for your machine's voltage. The specified fuse sizes are consistent with the USA National Electric Code (NEC), section 430-52, exception No. 2, Part B, which states: “The rating of a time-delay (dual-element) fuse shall be permitted to be increased, but shall in no case exceed 225 percent of the full-load current.”

**If a standard circuit breaker is used** — Match the amperage rating listed in the “Breaker” column for your machine's voltage.

**If an inverse time circuit breaker is used** — Match the characteristics (amperage rating) of the fuse listed in the “Fuse” column for your machine's voltage. When applied to an inverse time circuit breaker, the specified fuse sizes are consistent with the USA National Electric Code (NEC), section 430-52, exception No. 2, Part C, which states: “The rating of an inverse time circuit breaker shall be permitted to be increased, but shall in no case exceed 400 percent for full-load currents of 100 amperes or less.”

### Wire Size

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Use wiring no smaller than that listed for your machine's voltage in the “Wire size... ”column in the “External Fuse and Wire Sizes...” document. The table value applies to runs up to 50 feet (15 meters). Use the next larger size for runs 50 to 100 feet (15 to 30 meters). Use wire two sizes larger for runs greater than 100 feet (30 meters). If an inverse time circuit breaker is used and local codes require a larger wire size than that specified by Milnor, abide by the local code.

**NOTICE:** The specified wire size may appear too small for the fuse or circuit breaker shown. However, it is consistent with both the load imposed and with the USA National Electric Code.

## Ground

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The ground wire and connections must ensure a reliable earth ground (zero potential). Use wiring of at least as large a gauge as that required for incoming power. Do not rely on conduit, machine anchorage, etc. Use the ground lug provided in the incoming power junction box on the machine.

## Disconnect Switch for Lockout/Tagout

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The disconnect switch must permit personnel to disconnect and lockout/tagout electric power from the machine. In the USA, refer to OSHA standard 1910.147 “The control of hazardous energy (lockout/tagout)”. Refer to the USA National Electric Code for requirements on locating the switch. In other locales, abide by these standards if no other local codes apply.

**BNSUUI01 / 2019136** BNSUUI01 0000230083 B.3 1/2/20 2:04 PM Released

# Proximity Safeguarding for Automatic Shuttle Conveyors

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**Proximity safeguarding** a means of preventing personnel from entering the path of a machine, such as an industrial robot, that moves within a large area.

## Applicability

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This document—

**applies** to Milnor® automated laundering systems with shuttle conveyors that move without operator intervention (automatic operation),

**does not apply** to shuttles that require operator input continually, such as directing all shuttle movements (manual operation).

## References for Proximity Safeguarding

BNSUUI01.C03 0000230081 A.6 B.3 A.3 1/2/20 2:04 PM Released

ANSI Z8.1-2016 “American National Standard for Commercial Laundry and Drycleaning Equipment and Operations - Safety Requirements”

OSHA Standard 29 CFR § 1910.212 “General Requirements for All Machines”

OSHA Directive STD 01-12-002 - Pub 8-1.3 “Guidelines for Robotic Safety”

ANSI/RIA R15.06-2012 “American National Standard for Industrial Robots and Robot Systems- Safety Requirements”

ANSI/ASME B15.1-2000 “Safety Standard for Mechanical Power Transmission Apparatus”

OSHA Publication 3067 “Concepts and Techniques of Machine Safeguarding”

ISO 10472-1 “Safety Requirements for Industrial Laundry Machinery”

## Hazards To Personnel in Proximity to Shuttle Conveyors

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Milnor® automated laundering systems use *automatic shuttle conveyors* to transport goods among the processing machines in the system. Depending on model, an automatic shuttle conveyor may move in any of the following ways, in addition to running its conveyor belt(s):

- It may travel along (traverse) a line of machines (typically dryers).
- Its conveyor bed(s) may ascend and descend (elevate) within the machine frame.
- Its conveyor bed(s) may extend and retract within the machine frame.
- The conveyor bed and frame may pivot.
- Wet goods shuttles have a bucket that elevates and tilts.

These motions pose strike, crush, sever, and entrapment hazards to personnel in proximity to the shuttle. **For the safety of personnel, owner/users must provide proximity safeguarding that protects personnel from the moving shuttle.**

A common method of proximity safeguarding is safety fencing with interlocked gates that disable the shuttle when a gate is opened. When a shuttle is disabled, this will eventually cause other machines in the system to *hold* (wait for action from another machine), but it will not necessarily cause them to immediately stop moving. In the case of a tunnel system, the press or centrifugal extractor can pose additional hazards to personnel in proximity to the equipment. **Hence, the safeguards must also disable any presses or extractors**. Tunnels and dryers do not pose a significant hazard to personnel merely because they are in proximity to the equipment, and need not be automatically disabled.

**WARNING: Multiple Hazards —** Proximity safeguarding provides only partial protection and only against injury resulting from entering the shuttle path. It is not a substitute for proper lockout/tagout procedures and good safety practices.

- Always lockout/tagout any individual machine (or follow the published maintenance procedures) when performing maintenance or clearing a fault on that machine.
- Ensure that all personnel understand the safeguards and do not attempt to defeat them.
- Inspect safeguards weekly to ensure that they are not mechanically or electrically circumvented.

## How Milnor® Accommodates Proximity Safeguarding

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Milnor® provides connection points on shuttles, presses and centrifugal extractors for interfacing with devices such as gate interlock switches. These connection points are tagged for easy identification. When Milnor® provides equipment layout drawings for an automated laundering system, it indicates on the drawing, the perimeter of the shuttle movement area that must be guarded. The

following hazard statement is displayed on connection point tags as well as equipment layout drawings prepared by Milnor®:

**WARNING:** **Strike, Crush, Sever, and Entrapment Hazards —** Serious bodily injury or death can result to personnel in proximity to machinery/systems that traverse, elevate, extend, pivot, and/or tilt. The following mandatory minimum safety requirements must be installed with the machinery system (local codes may require additional precautions):

- Safety fence enclosing machine movement areas,
- Lockable electrical interlocks on all gates, properly interfaced as shown on machine schematics, to disable machine movement when any gate is opened,
- Signs to alert personnel to these hazards, placed prominently around the fenced area.

Although the objectives of proximity safeguarding are the same anywhere, design requirements vary with local codes (which occasionally change) and with the plant layout. For this reason, Milnor® does not provide detailed designs or materials for proximity safeguarding. If the necessary expertise does not exist within the owner/user's organization, consult appropriate sources such as local engineers or architects specializing in industrial facility design.

## Examples of Safety Fencing With Interlocked Gates

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Fencing with interlocked gates like that depicted in Figure 1, page 14 and Figure 2, page 14, may be used to meet the proximity safeguarding requirement. Should the owner/user choose this method, the following information may be useful. However, **this information may not satisfy current or local code requirements. The owner/user must determine its suitability for his particular facility**.

**Figure 1. Example Fence Layout for Automated Laundering System Where One Tunnel Serves a Bank of Dryers**

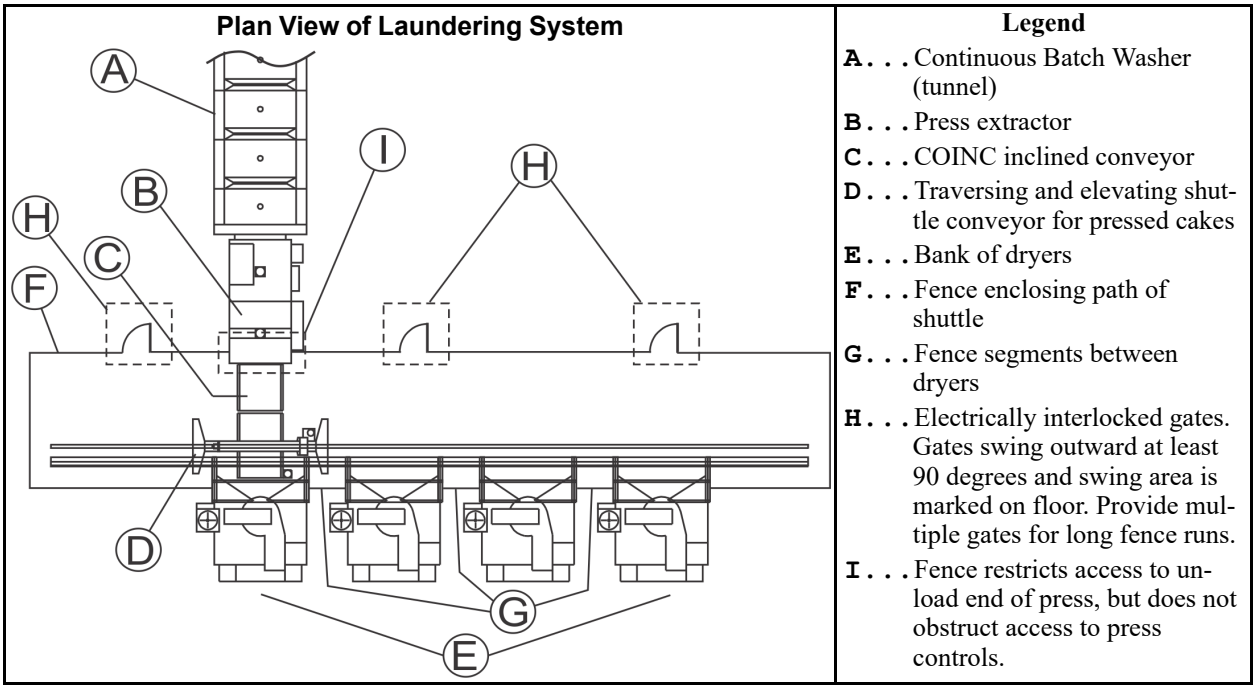
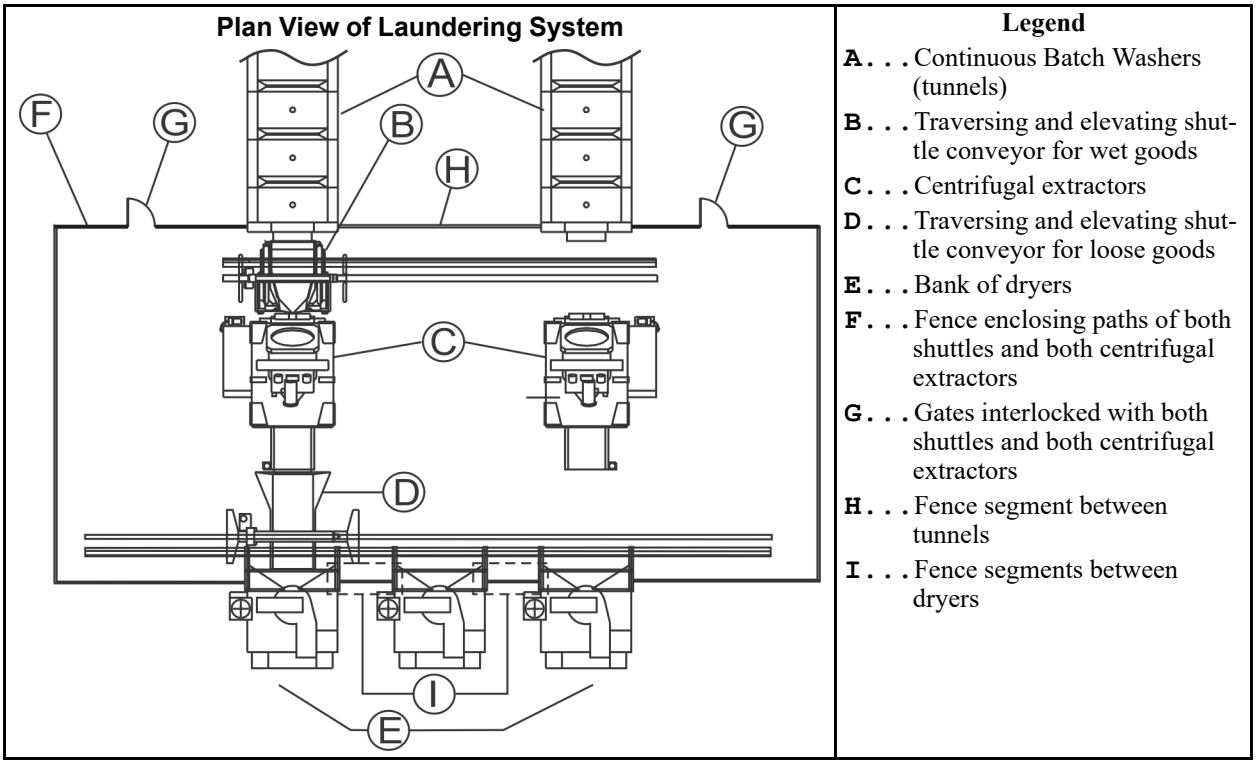



**Figure 2. Example Fence Layout for Automated Laundering System Where Two Tunnels Serve a Bank of Dryers**



## Fence Dimensions

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The fence must discourage climbing over and prevent crawling under.

## Fence Materials and Setback

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The fence must be constructed of materials and located so as to prevent personnel from reaching through gaps in the fence and contacting the enclosed machinery.

## Gates

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Personnel gates must be held firmly closed but permit personnel to easily pass through when necessary. Gates must be equipped with a positive latching arrangement to prevent accidental opening. Adequate floor space must be provided to allow the gate to swing at least 90 degrees when fully open. Gates must open outward; that is, away from the fenced perimeter. The floor must be permanently marked to show the gate's swing area, to discourage obstructing its movement.

## Control Circuitry

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All gates must be electrically interlocked with any shuttle conveyors within the fenced area and with any presses or centrifugal extractors that the fence either encloses or intersects. Opening any gate must have the following effects:

1. Shuttle(s), press(es), and/or centrifugal extractor(s) stop moving immediately.
2. An audible alarm sounds.
3. Shuttle(s), press(es), and/or centrifugal extractor(s) cannot be restarted merely by closing the gate(s), but must be restarted at the machine control panel once the gate(s) are closed.

Milnor® shuttles, presses and centrifugal extractors provide such functionality when properly interfaced with gate interlock switches.

## System Emergency Stop Switches

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The laundry must establish rules and procedures that prohibit personnel from remaining within the fenced area with machine(s) enabled, except in accordance with published maintenance procedures. System emergency stop switches (panic buttons) should be provided inside and outside the fenced perimeter. Emergency stop switches should be located so that personnel anywhere inside the fenced perimeter are only a short distance from a switch, and they should be clearly marked as to their locations and function. Connect switches in series with the gate interlocks so that pressing an emergency stop switch performs the same control function as opening a gate.

## Isolating Individual Machine Controls

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The interlock circuitry for each machine must be electrically isolated from that of the other machines. Hence, each gate interlock switch must provide as many pairs of dry contacts as there are machines to interface to. A pair of switch contacts must never be shared by two or more machines.

## Recommended Signage

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Safety placards should be posted along the fence and at each gate, alerting personnel to the hazards within. At minimum, the size of lettering and distance between placards should be such that anyone contemplating entering the fenced area will likely see and read the placard first. Wording should be provided in each native language spoken by laundry personnel.

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# Wiring Safety Fence Gate Interlocks on Milnor® Shuttles, Presses and Centrifugal Extractors

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This document is to be used in conjunction with Milnor® document W6SYSSG "Micro 6 Systems Schematic: Customer-Provided Safety Fence Gate Interlock". You will find this schematic document in the circuit guide for your machine. Together, these documents describe how to connect a customer-provided gate switch or series of switches to any Milnor® shuttle, press, or centrifugal extractor. Another Milnor® document—BNSUUI01 "Proximity Safeguarding for Automatic Shuttle Conveyors"—discusses the general hazards that safety fencing addresses.

## Precautions

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**WARNING:** **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.
- Perform all work with machine power locked out/tagged out.

**WARNING:** **Strike and Crush Hazards —** A traveling machine such as a shuttle can strike, crush, or entrap you if you ride on it or enter its path. Traveling machines or their components can move automatically in any direction. Placing a system machine on line by energizing the machine control may immediately summon a shuttle or other traveling machine.

- Lock out and tag out power to the traveling machine at the main machine disconnect if you must work in the path of the traveling machine.

## Wiring Guidelines

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As explained in BNSUUI01, a gate interlock switch must have one pole per machine to be interlocked. Each pole on the switch must be electrically isolated from any other poles on that switch. The gate interlock circuit for a given machine is a series circuit that includes one pole per switch (per gate). This circuit is wired into, and becomes part of the machine's *three-wire circuit* (see definition below).

**three-wire circuit** a circuit that provides control power for all machine functions. Any of several safety devices in the three-wire circuit will open the circuit and stop machine operation if a malfunction is detected. Once open, the three-wire circuit can only be closed by manual intervention and then only if the condition that opened the circuit is rectified.

W6SYSSG depicts schematically, various circuit segments the technician may encounter, depending on the type and age of the machine. Only one depiction will match a given machine. It may be helpful to refer to the electrical schematics for your machine; however, you should be able to identify the pertinent electrical components by referring to the tags inside the electric box doors on your machine. You will use one of two wiring methods depending on which circuit segment on W6SYSSG corresponds to your machine:

1. **Jumpered terminals**—Remove the jumper and connect the two incoming conductors to the terminals (pins) where the jumpers were removed. A tag was tied to the jumper at the factory to identify this as the gate interlock switch connection point.
2. **Circuitry that must be split**—Locate convenient connection points (e.g., a pin on a switch) at which to split the circuit and connect the incoming conductors. You may need to splice wires to complete the connection.

# Testing

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Once wiring is completed, it is vital to test the system to ensure that:

1. all gate interlocks function properly, and
2. all components that were part of the machine's three-wire circuit before the gate interlocks were added continue to function properly. The objective is to ensure that the added wiring did not inadvertently bypass existing components.

## Testing Gate Interlocks

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1. Close all gates.
2. Restore power to all interlocked machines.
3. **For each gate:**
   a. Start all interlocked machines (①) and place in **Manual** mode (all machines idling in manual).
   b. Open the gate and verify that all interlocked machines shut down (as indicated by their individual operator alarms).
   c. Close the gate so the next gate can be tested.

## Testing Three-wire Circuit Components on Each Interlocked Machine

BNSUUI02.C06 0000230271 A.6 D.2 A.3 1/2/20 2:04 PM Released

Typically, these include the components listed in Table 2, page 18.

**Table 2. Typical Three-wire Circuit Components**

| Component | Found On | | |
|---|---|---|---|
| | Shuttle | Press | Centrifugal Extractor |
| Stop (0) push button on control panel | ✓ | ✓ | ✓ |
| Emergency Stop switch(es) (locking push button) | ✓ | ✓ | ✓ |
| Manually lifted access door (typically two per machine) | | ✓ | |
| Manually removed access panel (typically two per machine) | | | ✓ |
| Pull cord (certain shuttles) | ✓ | | |
| Kick plate (typically two per machine) | ✓ | | |

Test each interlocked machine as follows:

1. Start the machine and place in **Manual** mode (machine idling in manual).
2. For each three-wire circuit component on the machine:
   a. Actuate the component (e.g., press the Stop button) and verify that the machine shuts down (as indicated by the operator alarm).
   b. If needed, de-actuate the component. For example, release an Emergency Stop switch or close an access door, so the next component can be tested.

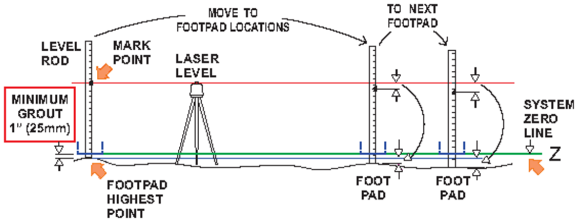
# 3 Installation Procedures

**B2T2007003 / 2019193A** BRDDUI01.1 0000275282 A.6 B.2 7/3/20 9:28 AM Released

# ATTENTION INSTALLERS!

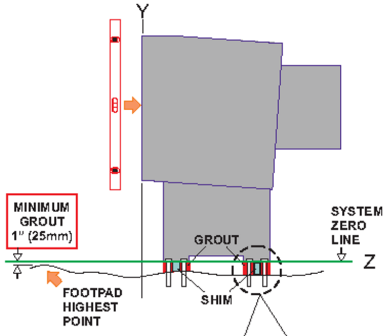

## FLOOR IS UNEVEN

- Establish System Zero Line or Z.
- Find highest point in factory floor where footpads will be located.
- System Zero Line or Z is 1" above highest point.



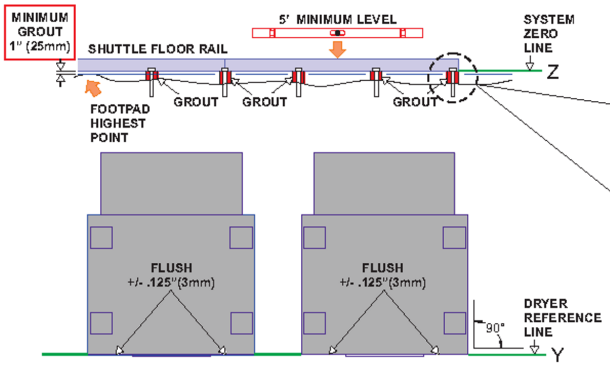

## DRYER FEET MUST BE GROUTED

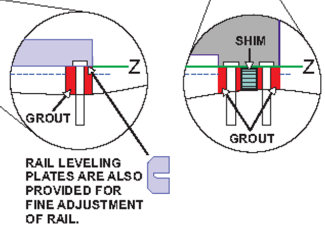
- Shim & level to System Zero Line or Z.
- Grout & anchor all brackets.



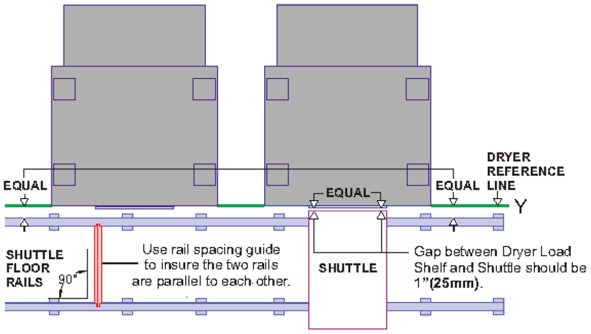

## SHUTTLE RAIL BRACKETS MUST BE GROUTED TO Z

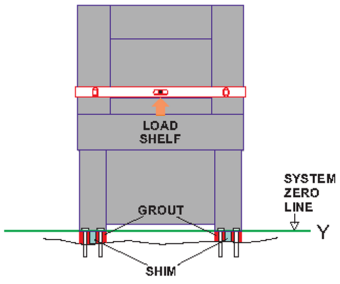
- Shim & level to System Zero Line or Z.
- Grout & anchor all brackets.




## DRYER FACES MUST BE FLUSH




## DRYER MUST BE LEVEL

## SHUTTLE RAILS MUST BE PERFECTLY PARALLEL TO DRYER FACES

- Floor rails must be parallel, level, and square along entire length of rail.

B2T2007003/2019193A

**B2T2010023 / 2019193A** BRP1UI01.1 0000275286 A.6 B.2 7/3/20 9:34 AM Released

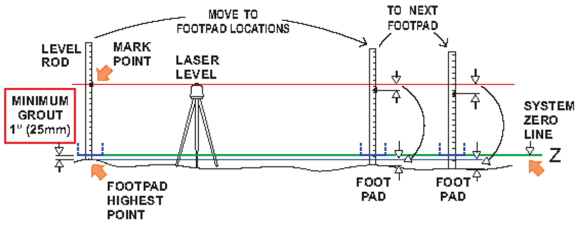
# ATTENTION INSTALLERS!

## PRESS MUST BE HIGH ENOUGH

If you set the press at a low area of the floor, you may not have sufficient clearance for the tunnel. It will be necessary to reinstall the press higher

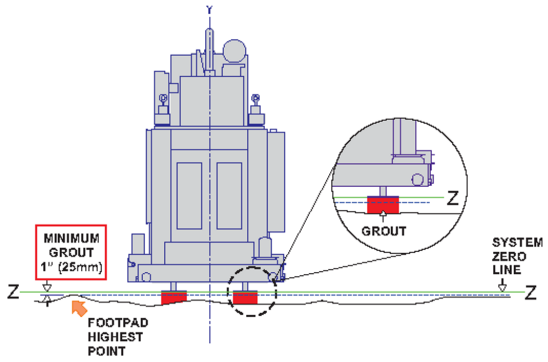
- Establish the System Zero Line or Z.
- Refer to the dimensional drawings of the various machines for required heights.

## FLOOR IS UNEVEN



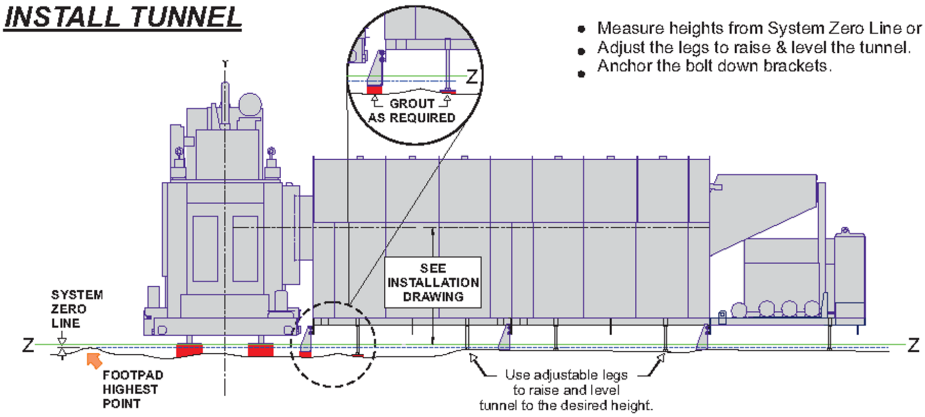

- Establish System Zero Line or Z.
- Find highest point in factory floor where footpads will be located.
- System Zero Line or Z is 1" above highest point.

## INSTALL PRESS FIRST




- Shim & level to System Zero Line or Z.
- Grout & anchor all footpads.

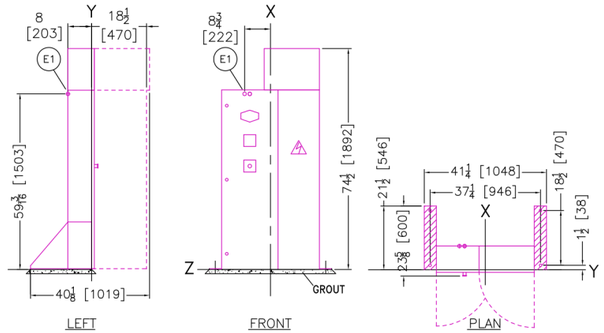
## INSTALL TUNNEL




- Measure heights from System Zero Line or Z.
- Adjust the legs to raise & level the tunnel.
- Anchor the bolt down brackets.

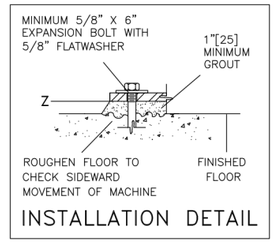
B2T2010023/2019193A

# 4 Dimensional Drawings

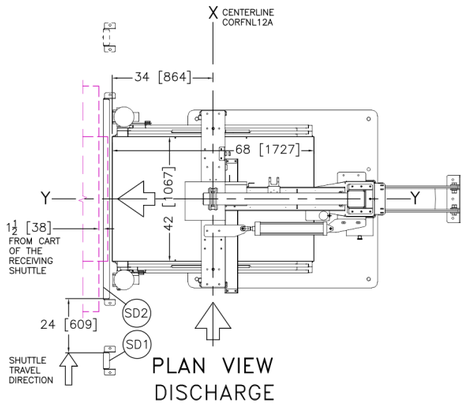



REMOTE MOUNT SHUTTLE CONTROL BOX

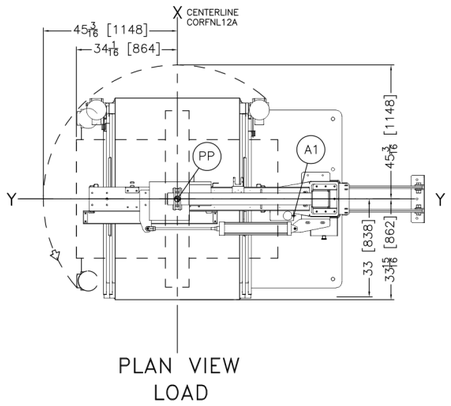
SEE NOTE 7.



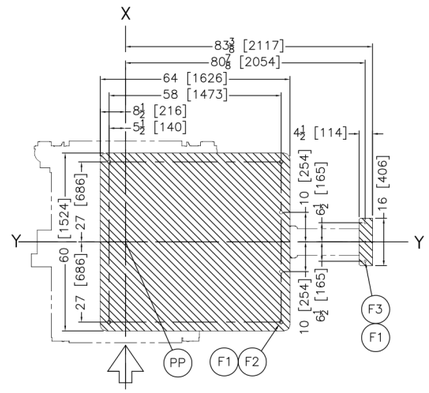

INSTALLATION DETAIL




PLAN VIEW
DISCHARGE

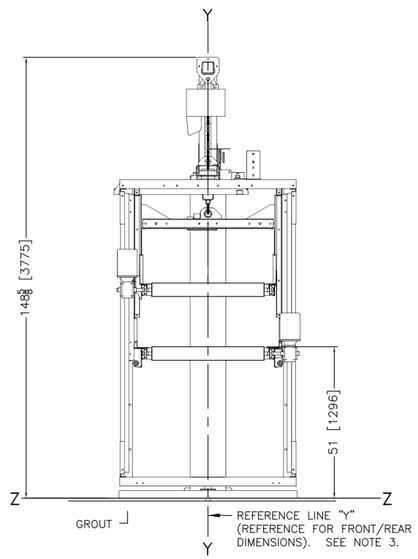



PLAN VIEW
LOAD

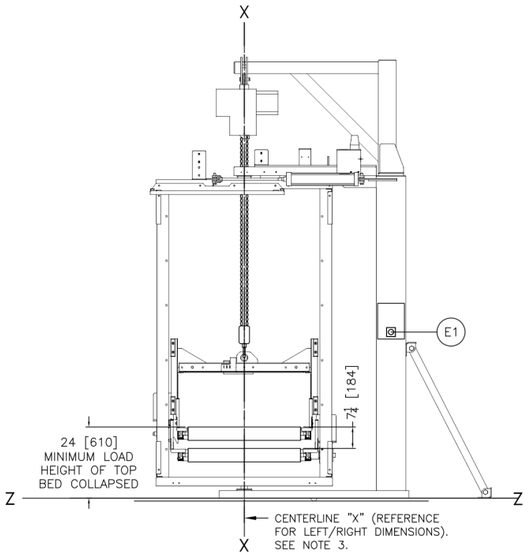



FOUNDATION PLAN

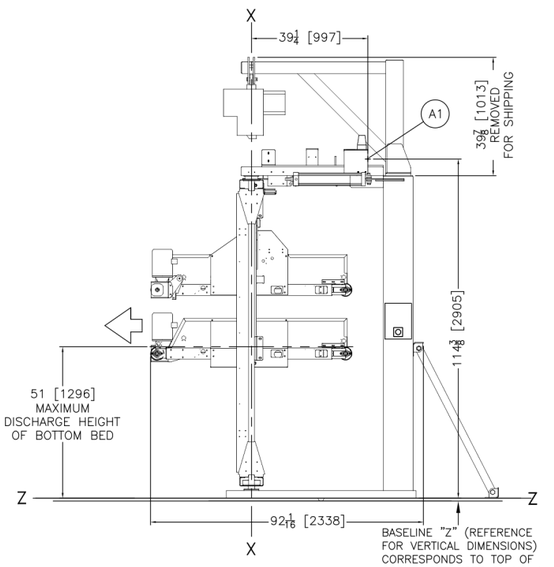
| | |
|---|---|
| SD2 | SHUTTLE POSITIONING BRACKET & PROXIMITY SWITCH, |
| | CENTERS DISCHARGING SHUTTLE TO CORFNL12A. |
| SD1 | SHUTTLE DETECT STOP BRACKET & PROXIMITY SWITCH, |
| | SIGNALS IF CORFNL12A IS NOT READY |
| PP | PIVOT POINT |
| F3 | ANCHOR BOLT HOLES 3/4"[19] DIAMETER FOR 5/8"[16] |
| | ANCHOR BOLTS, 3 PLACES. |
| F2 | ANCHOR BOLT HOLES 1-1/8"[28] DIAMETER FOR 5/8"[16] |
| | ANCHOR BOLTS, 8 PLACES |
| F1 | MACHINE BASE, MUST BE GROUTED AND ANCHORED, SEE |
| | NOTE 8 & DETAIL. |
| E1 | ELECTRICAL & CONTROL CABLE CONNECTIONS FOR REMOTE |
| | SHUTTLE CONTROL BOX |
| A1 | COMPRESSED AIR INLET, 1/2" HOSE CONNECTION |
| ITEM | LEGEND |




LEFT VIEW
DISCHARGE




FRONT VIEW
LOAD




FRONT VIEW
DISCHARGE

(ELEVATE/ROTATE, COLLAPSIBLE BEDS, HORIZONTAL, LEFT TURN)

## NOTES

8 SHADED AREAS ARE BASE PLATES WHICH MUST BE CONTINUOUSLY SUPPORTED ON 1"[25] THICK GROUT. SHIM TO LEVEL THE MACHINE AND ALLOW FOR 1" [25] MINIMUM GROUT. ANCHOR WITH 5/8"X6" ANCHOR BOLTS MINIMUM. SEE INSTALLATION MANUAL FOR FURTHER INSTRUCTIONS.

7 CONTROLS ARE CONTAINED IN THE REMOTELY MOUNTED SHUTTLE CONTROL BOXES WHICH MUST BE PLACED IN THE EQUIPMENT LAYOUT.

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 (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.

4 BASELINE "Z" IS THE REFERENCE FOR ALL VERTICAL DIMENSIONS. ON MACHINES WITH FIXED BASE PADS, BASELINE "Z" CORRESPONDS TO THE BOTTOM OF THE BASE PAD. ON MACHINES WITH ADJUSTABLE FEET, BASELINE "Z" CORRESPONDS TO THE BOTTOM OF THE FEET WHEN ADJUSTED SO THAT THE MACHINE IS AT ITS MINIMUM ACCEPTABLE HEIGHT. 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 ENSURE BASELINE "Z" IS HORIZONTAL AND ANY INTERFACING MACHINES 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.

1 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.

### 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 GUARDS, FENCES, RESTRAINTS, DEVICES, ETC., NOT FURNISHED BY THE EQUIPMENT MANUFACTURER OR VENDOR.

### ATTENTION

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CORFNL12A

DM 0 0.5M
INCHES 0 12 24

DWG# BDCORFNL12AAE
2020072D

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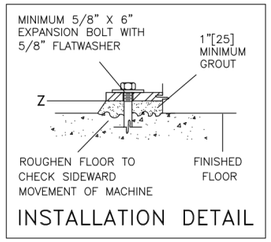
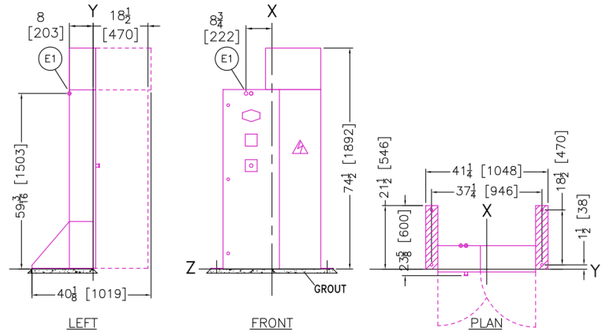
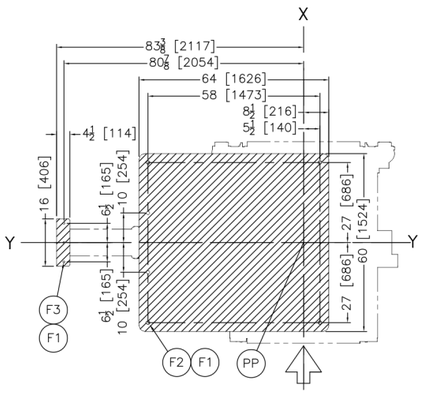
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
FAX 504/468-3094, Email: milnorinfo@milnor.com



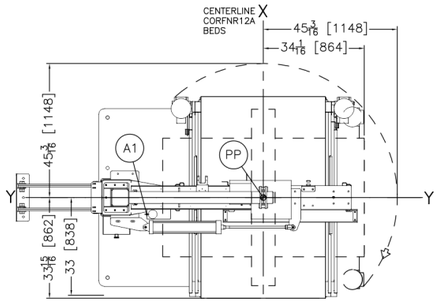

INSTALLATION DETAIL




REMOTE MOUNT SHUTTLE CONTROL BOX
SEE NOTE 7.




FOUNDATION PLAN




PLAN VIEW
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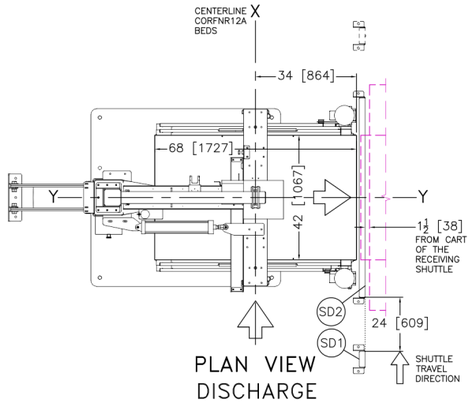
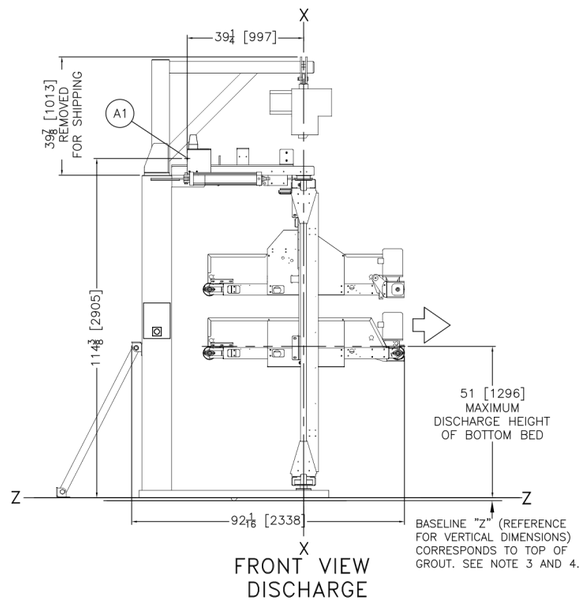
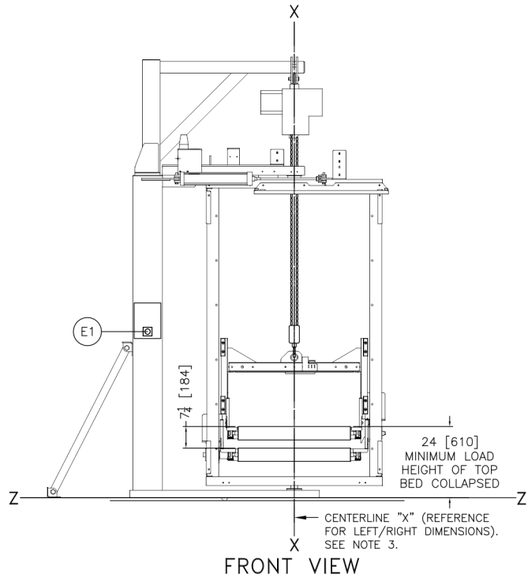


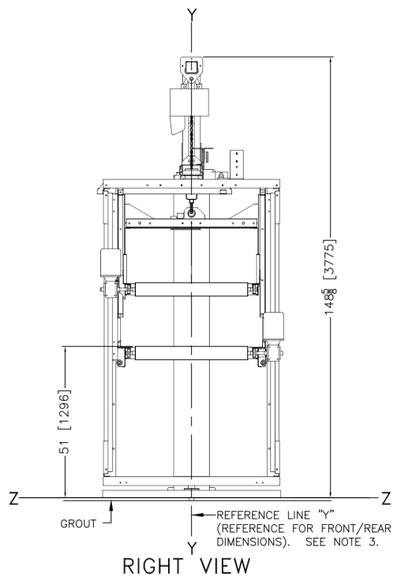

PLAN VIEW
DISCHARGE




FRONT VIEW
DISCHARGE




FRONT VIEW
LOAD




RIGHT VIEW
DISCHARGE CORFRNHA

(ELEVATE/ROTATE, COLLAPSIBLE BEDS, HORIZONTAL, RIGHT TURN)

| ITEM | LEGEND |
|---|---|
| A1 | COMPRESSED AIR INLET, 1/2" HOSE CONNECTION |
| E1 | ELECTRICAL & CONTROL CABLE CONNECTIONS FOR REMOTE SHUTTLE CONTROL BOX |
| F1 | MACHINE BASE, MUST BE GROUTED AND ANCHORED, SEE NOTE 8 & DETAIL. |
| F2 | ANCHOR BOLT HOLES 1–1/8"[28] DIAMETER FOR 5/8"[16] ANCHOR BOLTS, 8 PLACES |
| F3 | ANCHOR BOLT HOLES 3/4"[19] DIAMETER FOR 5/8"[16] ANCHOR BOLTS, 3 PLACES. |
| PP | PIVOT POINT |
| SD1 | SHUTTLE DETECT STOP BRACKET & PROXIMITY SWITCH, SIGNALS IF CORFRN12A IS NOT READY |
| SD2 | SHUTTLE POSITIONING BRACKET & PROXIMITY SWITCH, CENTERS DISCHARGING SHUTTLE TO CORFNR12A |

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# CORFNR12A

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INCHES 0 12 24

DWG# BDCORFNR12AAE
2020072D

PELLERIN MILNOR CORPORATION
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FAX 504/468-3094, Email: milnorinfo@milnor.com