

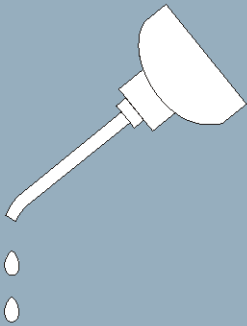
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Installation and Service

DRYVAC03



**Read the
separate
safety
manual
before
installing,
operating,
or servicing**



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MPIDRYV3AE/22085A

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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 (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, NEGLIGENCE, 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.

BMP720097/19036

How to Get the Necessary Repair Components



This document uses Simplified Technical English.
Learn more at <http://www.asd-ste100.org>.

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: 504-467-2787
Fax: 504-469-9777
Email: parts@milnor.com

— End of BIUUUD19 —

Trademarks

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®		

End of document: BNUUUU02

Safety

1

Safety—Dryers, Conditioners, and Shakers

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.



CAUTION 3: Burn Hazards—Contact with hot goods or machine components can burn you.

- 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.

4. Safety Alert Messages—Cylinder and Processing Hazards

[Document BIUUUS13]

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



DANGER 4: Entangle and Sever Hazards—Contact with goods being processed can cause the goods to wrap around your body or limbs and dismember you.

- 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.
- 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 5: 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.

- 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.



WARNING 6: 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 7: Explosion and Fire Hazards—Petroleum and latex materials are flammable. They can produce explosive fumes when heated.

- Do not use flammable solvents in processing.
- Do not load machine with goods containing dry cleaning materials.
- Do not use the machine in the presence of solvent fumes.



WARNING 8: Poison and Corrosion Hazards—Synthetic solvents such as perchloroethylene are toxic. They can produce poisonous phosgene gas (mustard gas) and/or corrosive hydrochloric acid when heated.

- Do not load machine with goods containing dry cleaning materials.
- Do not use the machine in the presence of solvent fumes.



WARNING 9: Fire Hazards—Overheated goods can catch fire spontaneously in the machine or after discharge.

- Verify the overheat control system and plant fire extinguishers are functioning before operating the machine. Be sure to turn water supply on after testing.
- In the event of a fire, thoroughly wet all goods.
- Test or inspect the system after every automatic actuation, or monthly.



CAUTION 10: Burn Hazards—Contact with hot goods or machine components can burn you.

- Do not remove guards, covers, or panels.
- Do not reach into the machine housing or frame.
- Use care when handling recently-processed goods.

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

5.1. Damage and Malfunction Hazards

5.1.1. Hazards Resulting from Inoperative Safety Devices



WARNING 11: 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 12: 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 13: 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 14: Fire Hazards—Sprinkler and overheat control—Failure to supply water to the sprinkler or to open the manual valve, or failure of the overheat control, eliminates the machine's internal fire protection. Normally the machine stops and water is sprayed into the cylinder if outlet temperature reaches 240 degrees Fahrenheit (116 degrees Celsius).

- Verify the overheat control system and plant fire extinguishers are functioning before operating the machine. Be sure to turn water supply on after testing.
- Keep the manual shut-off test valve open except when testing.
- Test or inspect the system after every automatic actuation, or monthly.



WARNING 15: Explosion and Fire Hazards—Gas train—Operating the machine with damaged or malfunctioning gas valves, safeties, controls, or piping can permit gas to escape into the fire box, cylinder, or laundry room. The enclosure will explode if gas comes in contact with any spark or flame.

- Do not operate the machine with any evidence of damage or malfunction.
- Stop the machine immediately and alert authorities if you smell gas.

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.

5.2. Careless Use Hazards

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



WARNING 17: 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 18: Goods Damage and Wasted Resources—Entering incorrect cake data causes improper processing, routing, and accounting of batches.

- Understand the consequences of entering cake data.

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



WARNING 19: 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 20: 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 21: 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 —

BIUUUI02PG (Published)Book specs- Dates: 20180426 / 20180426 / 20180426 Lang: ENG01 Applic: PDG

Tag Guidelines for the Models Listed Below

5050TG1L 5050TG1R 6450TG1L 6450TG1R 6458TG1L 6458TG1R 6464TG1L
6464TG1R 7676TG1L 7676TG1R 8282TG1L 8282TG1R

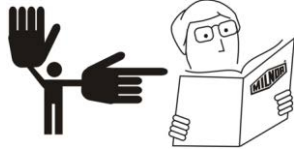
Notice 1: This information may apply to models in addition to those listed above. It applies to paper tags. It does not apply to the vinyl or metal safety placards, which must remain permanently affixed to the machine and replaced if no longer readable.

Paper tags on the machine provide installation guidelines and precautions. The tags can be tie-on or adhesive. You can remove tie-on tags and white, adhesive tags after installation. Yellow adhesive tags must remain on the machine.

Tag Guidelines for the Models Listed Below

The following entries explain the installation tags. Each entry includes: 1) the tag illustration, 2) the tag part number displayed at the bottom of the tag, and 3) the meaning of the tag.

Display or Action



Explanation

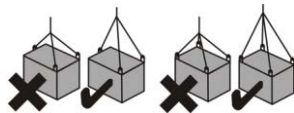
Read the manuals before proceeding. This symbol appears on most tags. The machine ships with safety, operator, and routine maintenance guides for customer use. Milnor dealer manuals for installing, servicing, and commissioning this machine are also available from the Milnor Parts department.



B2TAG88005: This carefully built product was tested and inspected to meet Milnor® performance and quality standards by (identification mark of tester).



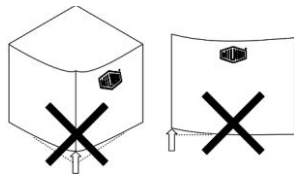
B2TAG94078: Do not forklift here; do not jack here; do not step here—whichever applies.



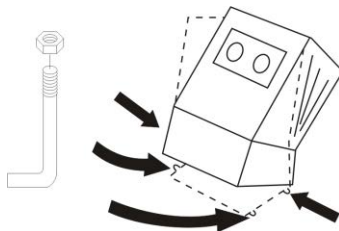
B2TAG94079: Rig for crane lifting (either 3-point or 4-point, depending on the number of lifting eyes provided) using a steep angle on the chains (closer to vertical than horizontal).



B2TAG94081: Motor must rotate in this direction. On single motor washer-extractors and centrifugal extractors, the drive motor must turn in this direction during draining and extraction. This tag is usually wrapped around a motor housing. If the motor turns in the opposite direction when the machine is first tested, the electrical hookup is incorrect and must be reversed as explained in the schematic manual.



B2TAG94084: Do not lift from one corner of the machine, as this can cause the frame to rack, damaging it.



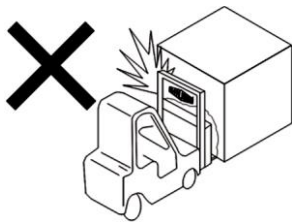
B2TAG94101: The dryer has a rearward center of gravity and must be firmly anchored to the floor at all four corners.

Display or Action

Explanation



B2TAG94102 shown—others similar: Match up the components with this number. These tags are used to pair up electrical or hose connections between major components of a machine shipped dis-assembled.



B2TAG94118: Do not strike shipping container during fork-lifting. Fragile components inside.



B2T2001017: Foam seal must be installed here before dryers are bolted together.



B2T2002013: Do not start the machine until shipping restraints are removed. This tag will appear on the outside of the machine to alert you to the presence of internal shipping restraints. A tag will also appear on the restraint to help identify it. Most, but not all shipping restraints display the color red. Some shipping restraints are also safety stands. Do not discard these.



B2T2007003: Install the shuttle rail in accordance with this instruction and the installation manual.

This Control Box is mounted here for shipping purposes only.

B2T2014022: This control box is mounted here for shipping purposes only. (Only used on 64" and 76" gas and steam dryers with a blower inverter.)

— End of BIUUUI02 —

BIUUUI02 (Published) Book specs- Dates: 20180426 / 20180426 / 20180426 Lang: ENG01 Applic: PDH PDO PDS

Tag Guidelines for the Models Listed Below

5050SA1L 5850SA1R 6458TT1L 6458TT1R 5050TS1L 5050TS1R 6458TS1L
 6458TS1R 6464TS1L 6464TS1R 7676TS1L 7676TS1R 8282TS1L 8282TS1R
 MT140S1L MT140S1R

Notice 1: This information may apply to models in addition to those listed above. It applies to paper tags. It does not apply to the vinyl or metal safety placards, which must remain permanently affixed to the machine and replaced if no longer readable.

Paper tags on the machine provide installation guidelines and precautions. The tags can be tie-on or adhesive. You can remove tie-on tags and white, adhesive tags after installation. Yellow adhesive tags must remain on the machine.

Tag Guidelines for the Models Listed Below

The following entries explain the installation tags. Each entry includes: 1) the tag illustration, 2) the tag part number displayed at the bottom of the tag, and 3) the meaning of the tag.

Display or Action



Explanation

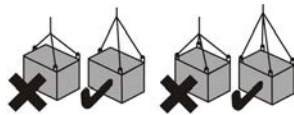
Read the manuals before proceeding. This symbol appears on most tags. The machine ships with safety, operator, and routine maintenance guides for customer use. Milnor dealer manuals for installing, servicing, and commissioning this machine are also available from the Milnor Parts department.



B2TAG88005: This carefully built product was tested and inspected to meet Milnor® performance and quality standards by (identification mark of tester).



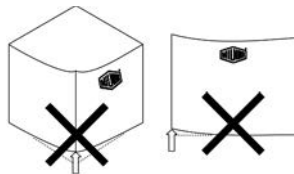
B2TAG94078: Do not forklift here; do not jack here; do not step here—whichever applies.



B2TAG94079: Rig for crane lifting (either 3-point or 4-point, depending on the number of lifting eyes provided) using a steep angle on the chains (closer to vertical than horizontal).

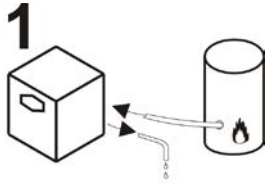


B2TAG94081: Motor must rotate in this direction. On single motor washer-extractors and centrifugal extractors, the drive motor must turn in this direction during draining and extraction. This tag is usually wrapped around a motor housing. If the motor turns in the opposite direction when the machine is first tested, the electrical hookup is incorrect and must be reversed as explained in the schematic manual.



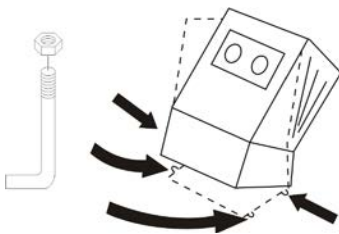
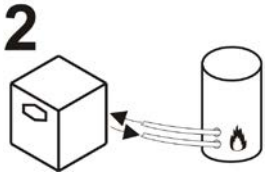
B2TAG94084: Do not lift from one corner of the machine, as this can cause the frame to rack, damaging it.

Display or Action



Explanation

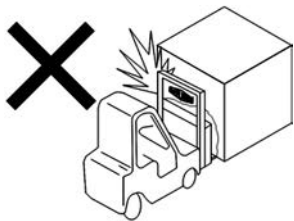
B2TAG94091: Drain the condensate to the sewer during first one hour after commissioning a new machine or replacing the steam coil. This flushes out any residual anti-freeze that might be in the steam coil. After one hour, condensate can be returned to the boiler.



B2TAG94101: The dryer has a rearward center of gravity and must be firmly anchored to the floor at all four corners.



B2TAG94102 shown—others similar: Match up the components with this number. These tags are used to pair up electrical or hose connections between major components of a machine shipped dis-assembled.



B2TAG94118: Do not strike shipping container during fork-lifting. Fragile components inside.



B2T2001017: Foam seal must be installed here before dryers are bolted together.



B2T2002013: Do not start the machine until shipping restraints are removed. This tag will appear on the outside of the machine to alert you to the presence of internal shipping restraints. A tag will also appear on the restraint to help identify it. Most, but not all shipping restraints display the color red. Some shipping restraints are also safety stands. Do not discard these.

Tag Guidelines for the Models Listed Below

Display or Action



Explanation

B2T2007003: Install the shuttle rail in accordance with this instruction and the installation manual.

This Control Box is mounted here:
for shipping purposes only

B2T2014022: This control box is mounted here for shipping purposes only. (Only used on 64" and 76" gas and steam dryers with a blower inverter.)

— End of BIUUUI02 —

Service and Maintenance

2

Fire Safety System Operation and Maintenance

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NOTICE: If the fire safety system is in operation (if there is a flow of water from the rear of the dryer)—go to [Section 5 : If Water Flow Occurs, page 5](#).

fire safety system the water nozzles and related equipment that put water in the dryer to stop a fire in the basket.

Water flow will start automatically if the temperature becomes too high, as told in [Section 1 : Fire Safety Functions and Components, page 1](#). You can also start it manually. Pull the operation handle or use the control panel as told in [Section 4 : How to Do a Test of the Fire Safety System, page 4](#). The system will start a flow of water. The water will go into the basket through the perforations. Do a test of this system at the intervals given in the routine maintenance schedule.

1. Fire Safety Functions and Components

BNDGUH01.C02 0000384000 B.2 9/24/21 11:44 AM Released

This section gives the fire safety functions and components for 6464_ and 7272_ models. Components and their locations can be different on other dryer models but the functions are the same.

Table 1. Fire Safety Functions for 6464_ and 7272_ Dryer Models

Sensor type	Temperature switch (closes at specified temperature)			Thermocouple (gives continuous temperature data to the controller)		
Sensor name	ST225-1 & 2	ST550A & B	STBB	T3		
Location	Basket/outlet duct (Figure 1, page 2, Figure 3, page 2, Figure 4, page 2)	Inlet duct (Figure 1, page 2, Figure 2, page 2)	At burner (Figure 1, page 2, Figure 5, page 2)	Outlet duct (Figure 3, page 2)		
Safety limit (the temperature or condition that causes the given result)	225° F (107° C)	550° F (288° C)	175° F (79° C)	–Three safety limits in software–		
				5° F increase for 15 seconds or 15° F increase for 5 seconds during min fire*	Higher than 220° F (104° C) for 5 seconds**	240°F (116°C)
Occurs when temperature is too high	Water flows and all dryer actions stop.	Flame goes off. If the flame will not come on, see the line below this one.		Each step before the cooldown is subsequently cancelled while the condition continues.	Water flows and all dryer functions stop.	
Display when temperature is too high	THREE WIRE DISABLED error and operator alarm.	Initially none. If the flame will not come on, the CHECK ERROR LIGHTS error and operator alarm occur.		The controller shows “MINF” and puts data in the record of dry cycle details.	The controller shows “>220” and puts data in the record of dry cycle details.	OUTLET TEMP EXCEEDED 240 Df - POWER DOWN error and operator alarm.
Necessary procedure	See Section 5 : If Water Flow Occurs, page 5	If the error given in the line above this one occurs, see “Error Messages” in the operator guide.		See Section 2 : About the Min Fire and Outlet Temperature Exceeded 220° Faults, page 3	See Section 5 : If Water Flow Occurs, page 5	

* This does not apply to steam dryers.

** This does not apply to steam dryers if they do not use modulation.

Figure 1. Component Locations for 6464_ Models

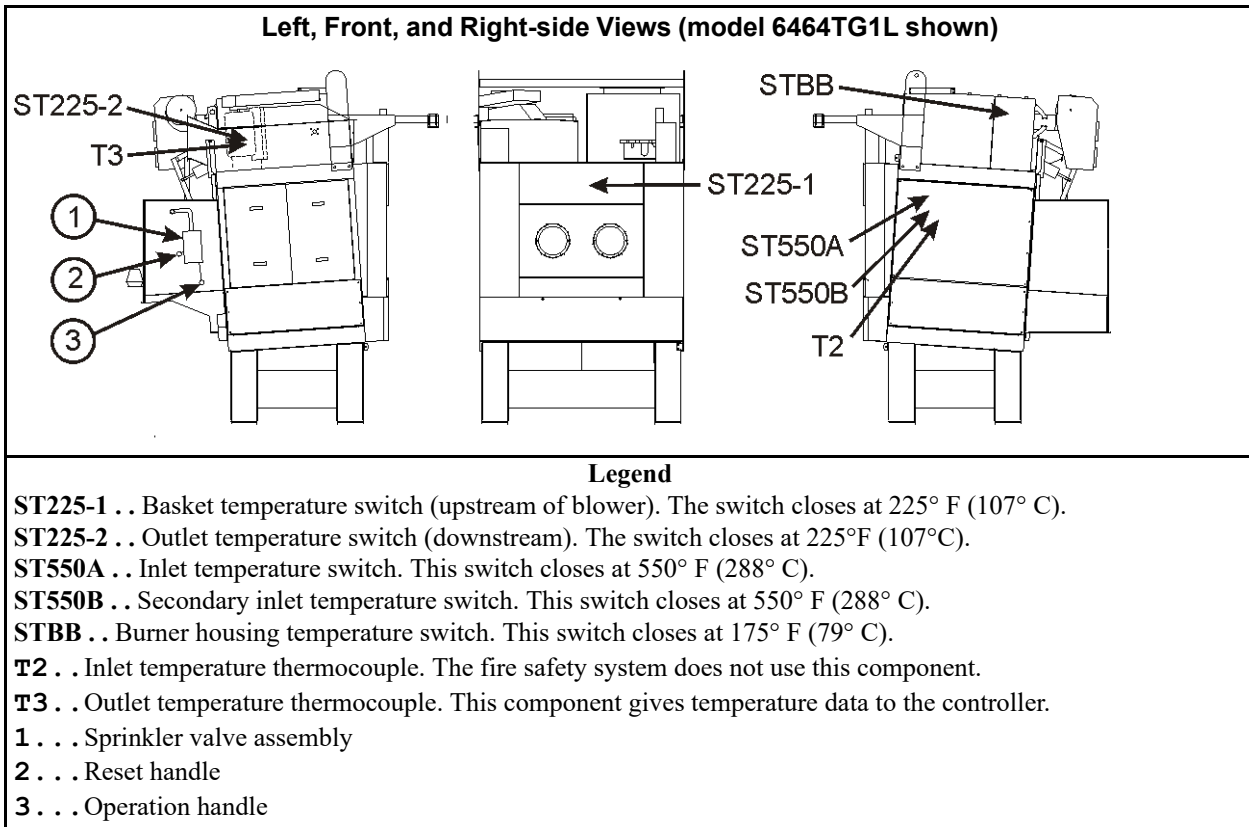


Figure 2. View of ST550A, ST550B and T2

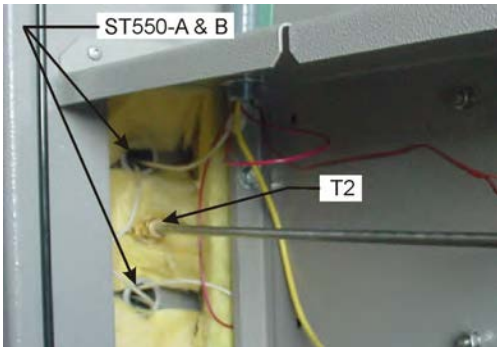


Figure 3. View of ST225-1

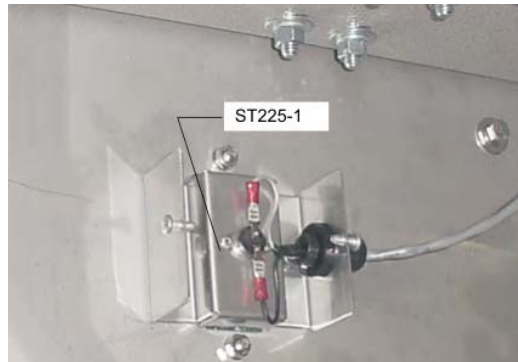


Figure 4. View of ST225-2 and T3

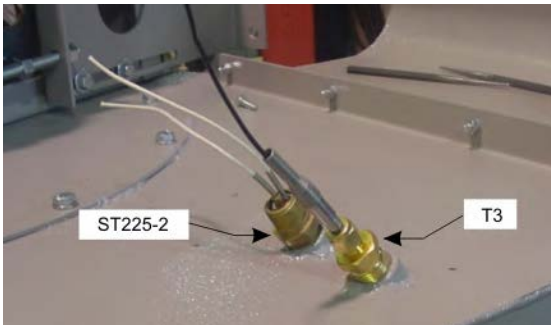


Figure 5. View of STBB



2. About the Min Fire and Outlet Temperature Exceeded 220° Faults

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The function of these faults is to prevent conditions that can cause a fire. The controller does the necessary steps. There are no other steps for the operator to do immediately. But the controller puts data about the fault in the record of dry cycle details. These faults usually cause unsatisfactory operation. To prevent these faults, it can be necessary to change some procedures as told in the subsequent sections. Heat system adjustments and repairs are not routine maintenance. Speak to your dealer or Milnor®.

2.1. Min Fire (MINF)

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This condition applies to dryers that use gas or propane. Minimum fire is when the controller tells the modulating gas valve to go to the position 000. The correct condition is when the gas valve is open a small, stable increment. Under this condition, a **min fire** fault occurs if the controller senses that the outlet temperature increases. This fault usually shows that the goods became too hot and could catch fire. (One more symptom is if the goods have a burned smell.) When this fault occurs, the controller immediately goes to the subsequent cool down step. Some causes of **min fire** faults include:

- **The goods are held against the basket**—The correct condition is that the goods tumble in the basket. If the basket speed is too high, centrifugal force can hold the goods against the basket. Then the part of the goods that is against the basket can become too hot.
- **The gas valve does not operate correctly**—For example, the valve throttle cannot move down fully because it is damaged. This can prevent the min fire position.
- **Min fire is set too high**—The min fire position must be adjusted correctly when the gas and air as told in the procedure to set the heat system. Damage to components can cause this adjustment to change.

2.2. Outlet Temperature Exceeded 220° (degrees Fahrenheit)

BNDGUH01.C05 0000384216 B.2 A.2 9/16/21 11:33 AM Released

This fault applies to all dryers except those with steam valves that do not modulate. The value 220° F (104° C) is 5° F (3° C) below the temperature that will close the outlet temperature switches (Fenwal switches) and start water flow. It cancels each subsequent heat step if the outlet temperature is higher than 220° F (104° C) for five seconds or more at the start of the step. This fault can also occur if the goods are held against the cylinder or the gas valve is damaged. The function of this fault is to make water flow not necessary, if the goods are not on fire. But if the goods catch fire, the temperature switches will quickly close to start water flow.

3. How to Prevent Water Flow When No Fire Occurs

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If water flow occurs when there is no fire, two possible causes are:

- **A temperature switch is damaged.** This is the usual cause. For example, material can hit a temperature probe and bend it. This can be a piece of goods that goes through a space where



seals are worn. It is necessary to replace a damaged probe. The probe can also give an incorrect value if it has plastic contamination. It is necessary to remove the contamination.

- **Temperatures are not in the correct range.** The conditions described in [Section 2.1 : Min Fire \(MINF\), page 3](#) can cause water flow if they are severe enough.

If water flow occurs when there is no fire, correct the cause. **Do not remove the fire safety system from operation.** If a fire occurs, this system is your first and best protection against a fire that is out of control.

4. How to Do a Test of the Fire Safety System

BNDGUH01.T01 0000384214 B.2 9/24/21 11:44 AM Released

1. **Prevent a new load:** Set the **Load Allowed/ Not Allowed** () switch to **Not Allowed** () to prevent a new load.
2. **Let the dryer empty:** Let the dryer operate until it releases the load it has.
3. **Close the manual water valve:** Close the valve to prevent water flow. This valve is on the sprinkler assembly. The assembly is usually on the side of the dryer discharge shroud.
4. **Start a test of sprinkler AUTOMATIC operation:**
 - If there is a controller on the dryer, see “Manual Mode Menu Functions” in the reference manual.
 - If this dryer is part of a Dryer/Shuttle (Drynet™) system, do the steps listed below at the Drynet™ controller:
 - a. Select **Admin Logon** and enter the administrator password.
 - b. Select (click) the display for the dryer you will do the test on.
 - c. Select (click) **Manual** mode.
 - d. Go to **Sprinkler Functions** on the right side of the screen and select (click) **Sprinkler [Off]** to release the sprinkler valve. This is a toggle. The display shows **Sprinkler [On]**.
5. Examine the automatic sprinkler valve.



CAUTION: **Sluggish valve operation** — can interfere with fire suppression.



- ▶ Remove any build-up of foreign matter on components.
- ▶ Make sure components move freely.

6. **Let the water flow for a short while:** Open the manual valve on the sprinkler assembly. Make sure that water flows from the rear of the dryer. Close the valve for the subsequent part of the test.
7. **Set the system again:** Pull the sprinkler reset handle down fully. It must latch.
8. **Start a test of sprinkler MANUAL operation:** Select a dry code and run it manually.



CAUTION: The manual water valve must be closed to prevent water flow during this test.

9. **Operate the fire safety system manually:** When the heat source starts to make heat, pull down the sprinkler operation handle.
10. **Make sure that a shutdown occurs:**
 - The automatic valve opens (the reset handle releases).
 - The THREE WIRE DISABLED message appears.
 - The operator alarm sounds.
 - All dryer functions stop.
11. **Stop the dry code.**
12. **Set the system again:** Pull the sprinkler reset handle down fully. It must latch.
13. **Open the manual valve.**



WARNING: A closed manual valve — will prevent water flow in an emergency.



► Make sure the manual valve is open and remains open during operation.

14. **Put the dryer in operation again.**

This concludes the fire safety system test.

5. If Water Flow Occurs

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A serviceable fire safety system will operate if a fire in the basket occurs. But it can also operate for other causes. Temperature switches (Fenwal switches) in the outlet duct operate the system at 225° F (107° C). If the Fenwal switches are not serviceable, the dryer software operates the system at 240° F (116° C).

1. **Examine the dryer condition:** If there is a fire, let water flow continue until the fire is extinguished.



CAUTION: Use extreme care if you must look through the door glass or get near a part of the machine.

2. **Set the system again when it is safe:**










- a. Turn the Master switch off (⊗), then on (⊙) again. If the software caused the fire safety system to operate, this is necessary to remove the "Desires Sprinkler" output signal.
- b. Pull the sprinkler reset handle down fully. It must latch.

This step helps to keep water damage to a minimum and allows you to use the manual controls.

3. **Did a fire occur?**

- **NO:** Put the dryer in operation again.
- **YES:** Continue these steps.

4. **Do a test of basket movement:**

- a. Set the **Load Allowed/Not Allowed** ( / ) switch to **Not Allowed** () to prevent a new load.
- b. Press **Start** ()^①. The operator alarm stops and the display shows WAITING FOR LOAD. LOADING NOT ALLOWED.
- c. Set the **Automatic/Manual Rotation** switch ( / ) to **Manual Rotation** ()
- d. Hold the **Jog Direction** switch ( / ) in one of the two directions **no longer than necessary to make sure that the basket turns.**

5. **Did the basket turn?**

- **NO:** Stop. Repairs are necessary. Consult your dealer or the Milnor® factory.
- **YES:** Continue these steps.

6. **Carefully remove the goods:** Use the manual controls to release the goods.



WARNING: Hot goods — can catch fire spontaneously,



- ▶ Keep fire equipment available.
- ▶ Stay away from the goods.


7. **Remove power. Look for damage.** With power removed from the machine, examine the full machine for damage.

Look carefully at the air seals, support rollers, primary blower, and electrical cables on top of the machine. Also examine electrical components for moisture.

8. **Connect power. Examine dryer functions:** In the manual mode, operate all outputs. For example, the gas valve, lint removal.

9. **Damage?**

- **YES:** Stop. Repairs are necessary. Consult your dealer or the Milnor® factory.
- **NO:** Continue.

10. **Put the dryer in operation again:** Put all manual controls in the automatic position () again.

End of document: BNDGUH01

Torque Requirements for Fasteners



This document uses Simplified Technical English. Learn more at <http://www.asd-ste100.org>.

The document about the assembly gives the torque requirements for other fasteners. **If fastener torque specifications or threadlocker requirements in an assembly document are different from this document, use the assembly document.**

Figure 1: The Bolts in Milnor® Equipment

The Marks on Bolt Heads	Legend
	<p>A. SAE Grades 1 and 2, ASTM A307, and stainless steel</p> <p>B. Grade BC, ASTM A354</p> <p>C. SAE Grade 5, ASTM A449</p> <p>D. SAE Grade 8 and ASTM A354 BD</p>

1. Torque Values

These tables give the standard dimension, grade, threadlocker, and torque requirements for fasteners frequently used on Milnor® equipment.

Note 1: Data from the Pellerin Milnor® Corporation “Bolt Torque Specification” (bolt_torque_milnor.xls/2002096).

1.1. Fasteners Made of Carbon Steel

1.1.1. Without a Threadlocker

Table 1: Torque Values for Standard Fasteners with Maximum 5/16-inch Diameters and No Lubricant

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	66	7	101	11	143	16	126	14
1/4 x 28	76	9	116	13	163	18	--	--
5/16 x 18	136	15	209	24	295	33	258	29
5/16 x 24	150	17	232	26	325	37	--	--

Torque Requirements for Fasteners

Table 2: Torque Values for Standard Fasteners Larger Than 5/16-inch Diameters and No Lubricant

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m
3/8 x 16	20	27	31	42	44	59	38	52
3/8 x 24	23	31	35	47	50	68	--	--
7/16 x 14	32	43	49	66	70	95	61	83
7/16 x 20	36	49	55	75	78	105	--	--
1/2 x 13	49	66	75	102	107	145	93	126
1/2 x 20	55	75	85	115	120	163	--	--
9/16 x 12	70	95	109	148	154	209	134	182
9/16 x 18	78	106	121	164	171	232	--	--
5/8 x 11	97	131	150	203	212	287	186	252
5/8 x 18	110	149	170	231	240	325	--	--
3/4 x 10	172	233	266	361	376	510	329	446
3/4 x 16	192	261	297	403	420	569	--	--
7/8 x 9	167	226	429	582	606	821	531	719
7/8 x 14	184	249	473	641	668	906	--	--
1 x 8	250	339	644	873	909	1232	796	1079
1 x 12	274	371	704	954	994	1348	--	--
1 x 14	281	381	723	980	1020	1383	--	--
1 1/8 x 7	354	480	794	1077	1287	1745	1126	1527
1 1/8 x 12	397	538	891	1208	1444	1958	--	--
1 1/4 x 7	500	678	1120	1519	1817	2464	1590	2155
1 1/4 x 12	553	750	1241	1682	2012	2728	--	--
1 3/8 x 6	655	888	1469	1992	2382	3230	2085	2827
1 3/8 x 12	746	1011	1672	2267	2712	3677	--	--
1 1/2 x 6	869	1178	1949	2642	3161	4286	2767	3751
1 1/2 x 12	979	1327	2194	2974	3557	4822	--	--

Table 3: Torque Values for Plated Fasteners with Maximum 5/16-inch Diameters and No Lubricant

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	49	6	76	9	107	12	95	11
1/4 x 28	56	6	88	10	122	14	--	--
5/16 x 18	102	12	156	18	222	25	193	22
5/16 x 24	113	13	174	20	245	28	--	--

Table 4: Torque Values for Plated Fasteners Larger Than 5/16-inch Diameters and No Lubricant

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m
3/8 x 16	15	20	23	31	33	44	29	38
3/8 x 24	17	23	26	35	37	49	--	--
7/16 x 14	24	32	37	50	52	71	46	61
7/16 x 20	27	36	41	55	58	78	--	--
1/2 x 13	37	49	56	76	80	106	70	93
1/2 x 20	41	55	64	85	90	120	--	--
9/16 x 12	53	70	81	110	115	153	101	134
9/16 x 18	59	79	91	122	128	174	--	--
5/8 x 11	73	97	113	150	159	212	139	186
5/8 x 18	83	110	127	172	180	240	--	--
3/4 x 10	129	173	200	266	282	376	246	329
3/4 x 16	144	192	223	297	315	420	--	--
7/8 x 9	125	166	322	430	455	606	398	531
7/8 x 14	138	184	355	474	501	668	--	--
1 x 8	188	250	483	644	682	909	597	796
1 x 12	205	274	528	716	746	995	--	--
1 x 14	210	280	542	735	765	1037	--	--
1 1/8 x 7	266	354	595	807	966	1288	845	1126
1 1/8 x 12	298	404	668	890	1083	1444	--	--
1 1/4 x 7	375	500	840	1120	1363	1817	1192	1590
1 1/4 x 12	415	553	930	1261	1509	2013	--	--
1 3/8 x 6	491	655	1102	1470	1787	2382	1564	2085
1 3/8 x 12	559	758	1254	1672	2034	2712	--	--
1 1/2 x 6	652	870	1462	1982	2371	3161	2075	2767
1 1/2 x 12	733	994	1645	2194	2668	3557	--	--

1.1.2. With a Threadlocker

Table 5: Threadlocker by the Diameter of the Bolt (see Note 2)

LocTite Product	Dimension			
	1/4-inch	1/4- to 5/8-inch	5/8- to 7/8-inch	1-inch +
LocTite 222	OK			
LocTite 242		OK		
LocTite 262			OK	
LocTite 272			High temperature	
LocTite 277				OK

Note 2: The acceptable bolt size ranges for various LocTite® threadlocking products is the LocTite manufacturer's **general** recommendation. Specific applications sometime require that a LocTite product is applied to a bolt size outside the ranges shown here. For example, Milnor specifies LocTite 242 for use on certain 1" bolt applications and has confirmed this usage with the LocTite manufacturer. You may see variances such as this in the documentation for specific machine assemblies.

Torque Requirements for Fasteners

Table 6: Torque Values if You Apply LocTite 222

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-inches	N-m	Pound-inches	N-m	Pound-inches	N-m	Pound-inches	N-m
1/4 x 20	60	7	96	11	132	15	108	12
1/4 x 28	72	8	108	12	144	16	--	--

Table 7: Torque Values if You Apply LocTite 242

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m
5/16 x 18	11	15	17	23	25	34	22	30
5/16 x 24	13	18	19	26	27	37	27	37
3/8 x 16	20	27	31	42	44	60	38	52
3/8 x 24	23	31	35	47	50	68	--	--
7/16 x 14	32	43	49	66	70	95	61	83
7/16 x 20	36	49	55	75	78	106	--	--
1/2 x 13	49	66	75	102	107	145	93	126
1/2 x 20	55	75	85	115	120	163	--	--
9/16 x 12	70	95	109	148	154	209	134	182
9/16 x 18	78	106	121	164	171	232	--	--
5/8 x 11	97	132	150	203	212	287	186	252
5/8 x 18	110	149	170	230	240	325	--	--

Table 8: Torque Values if You Apply LocTite 262

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m
3/4 x 10	155	210	240	325	338	458	296	401
3/4 x 16	173	235	267	362	378	512	--	--
7/8 x 9	150	203	386	523	546	740	477	647
7/8 x 14	165	224	426	578	601	815	--	--

Table 9: Torque Values if You Apply LocTite 272 (High-Temperature)

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m
1 x 8	350	475	901	1222	1272	1725	1114	1510
1 x 12	383	519	986	1337	1392	1887	--	--
1 x 14	393	533	1012	1372	1428	1936	--	--
1-1/8 x 7	496	672	1111	1506	1802	2443	1577	2138
1-1/8 x 12	556	754	1247	1691	2022	2741	--	--
1-1/4 x 7	700	949	1568	2126	2544	3449	2226	3018
1-1/4 x 12	774	1049	1737	2355	2816	3818	--	--
1-3/8 x 6	917	1243	2056	2788	3335	4522	2919	3958
1-3/8 x 12	1044	1415	2341	3174	3797	5148	--	--
1-1/2 x 6	1217	1650	2729	3700	4426	6001	3873	5251
1-1/2 x 12	1369	1856	3071	4164	4980	6752	--	--

Table 10: Torque Values if You Apply LocTite 277

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m
1 x 8	325	441	837	1135	1181	1601	1034	1402
1 x 12	356	483	916	1242	1293	1753	--	--
1 x 14	365	495	939	1273	1326	1798	--	--
1-1/8 x 7	461	625	1032	1399	1674	2270	1464	1985
1-1/8 x 12	516	700	1158	1570	1877	2545	--	--
1-1/4 x 7	650	881	1456	1974	2362	3202	2067	2802
1-1/4 x 12	719	975	1613	2187	2615	3545	--	--
1-3/8 x 6	851	1154	1909	2588	3097	4199	2710	3674
1-3/8 x 12	970	1315	2174	2948	3526	4781	--	--
1-1/2 x 6	1130	1532	2534	3436	4110	5572	3597	4877
1-1/2 x 12	1271	1723	2852	3867	4624	6269	--	--

1.2. Stainless Steel Fasteners

Table 11: Torque Values for Stainless Steel Fasteners 5/16-inch and Smaller

Dimension	316 Stainless		18-8 Stainless		18-8 Stainless with Loctite 767	
	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	79	9	76	9	45	5
1/4 x 28	100	11	94	11	56	6
5/16 x 18	138	16	132	15	79	9
5/16 x 24	148	17	142	16	85	10

Table 12: Torque Values for Stainless Steel Fasteners Larger Than 5/16-inch

Dimension	316 Stainless		18-8 Stainless		18-8 Stainless with Loctite 767	
	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m
3/8 x 16	21	28	20	27	12	16
3/8 x 24	23	31	22	29	13	18
7/16 x 14	33	44	31	42	19	25
7/16 x 20	35	47	33	45	20	27
1/2 x 13	45	61	43	58	26	35
1/2 x 20	47	64	45	61	27	37
9/16 x 12	59	81	57	77	34	46
9/16 x 18	66	89	63	85	38	51
5/8 x 11	97	131	93	125	56	75
5/8 x 18	108	150	104	141	62	84
3/4 x 10	132	179	128	173	77	104
3/4 x 16	130	176	124	168	75	101
7/8 x 9	203	275	194	263	116	158
7/8 x 14	202	273	193	262	116	157
1 x 8	300	406	287	389	172	233
1 x 14	271	367	259	351	156	211
1-1/8 x 7	432	586	413	560	248	336
1-1/8 x 12	408	553	390	529	234	317
1-1/4 x 7	546	740	523	709	314	425
1-1/4 x 12	504	683	480	651	288	390
1-1/2 x 6	930	1261	888	1204	533	722
1-1/2 x 12	732	992	703	953	422	572

2. Preparation



WARNING 2: Fire Hazard—Some solvents and primers are flammable.

- Use threadlocker and primers with sufficient airflow.
 - Do not use flammable material near ignition sources.
1. Clean all threads with a wire brush or a different tool.
 2. Remove the grease from the fasteners and the mating threads with solvent. Make the parts dry.

Note 3: Loctite 7649 Primer™ or standard solvents will remove grease from parts.
 3. Apply a spray of Loctite 7649 Primer™ or equal on the fasteners and the mating threads. Let the primer dry for one minute minimum.

3. How to Apply a Threadlocker

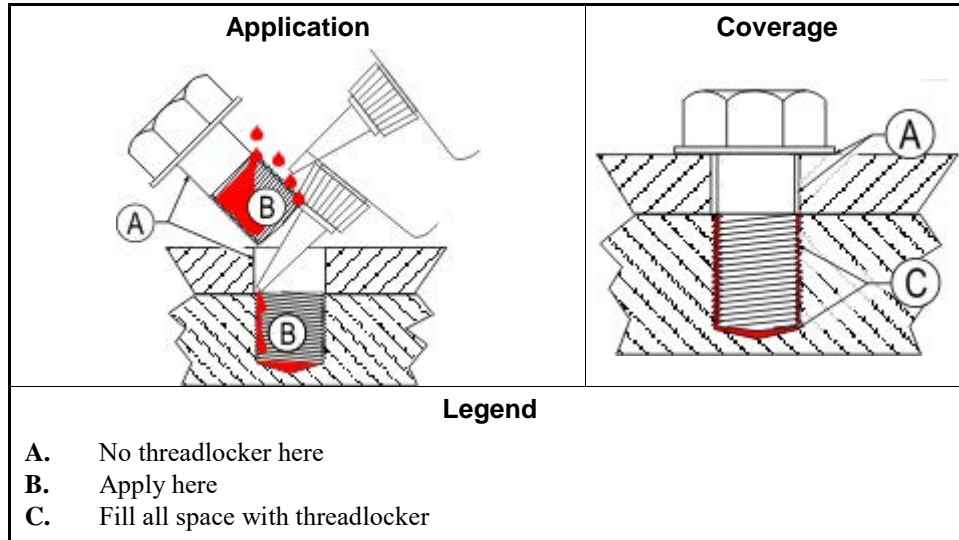


CAUTION 3: Malfunction Hazard—Heat, vibration, or mechanical shocks can let the fasteners loosen if you do not apply the threadlocker correctly. Loose fasteners can cause malfunctions of the equipment.

- Read the threadlocker manufacturer's instructions and warnings. Obey these instructions.

Apply the threadlocker only to the areas where the fastener threads and the mating threads engage.

Figure 2: Blind Hole



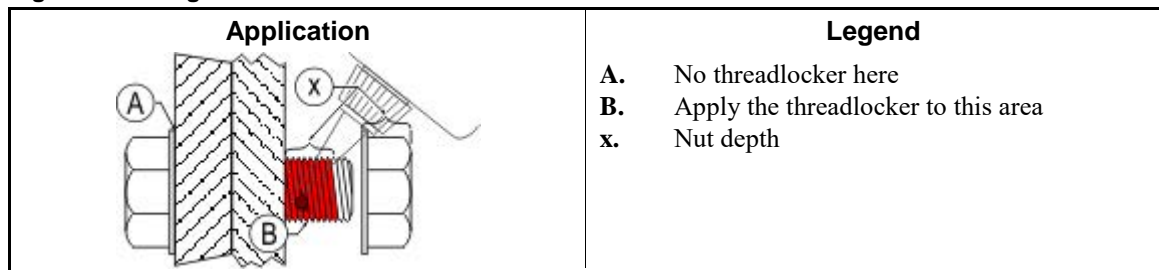
3.1. Blind Holes

1. Apply the threadlocker down the threads to the bottom of the hole.
2. Apply the threadlocker to the bolt.
3. Tighten the bolt to the value shown in the correct table ([Table 5](#) to [Table 11](#)).

3.2. Through Holes

1. Put the bolt through the assembly.
2. Apply the threadlocker only to the bolt thread area that will engage the nut.
3. Tighten the bolt to the value shown in the correct table ([Table 5](#) to [Table 11](#)).

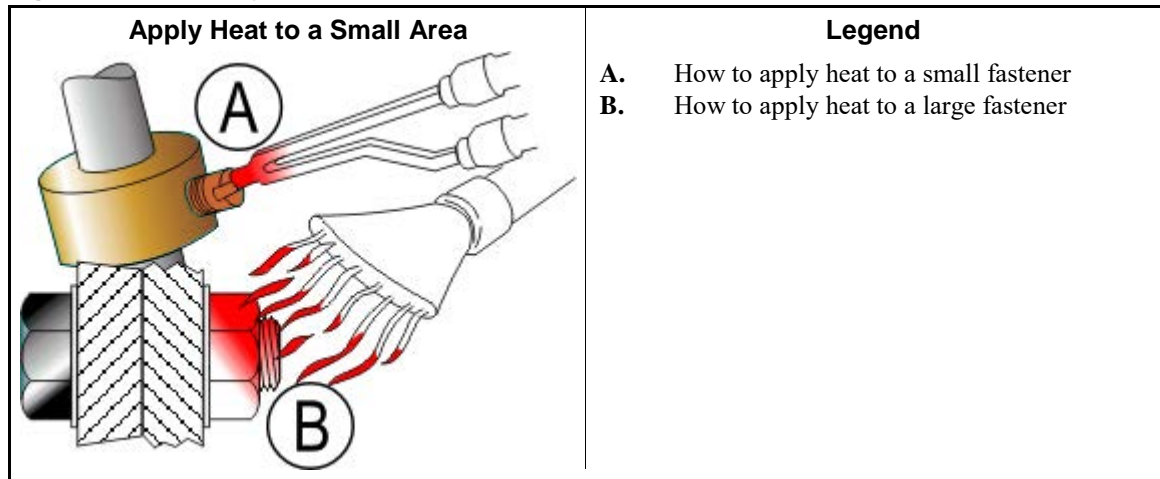
Figure 3: Through Hole



- 3.3. Disassembly**—For high-strength threadlocker, apply heat for five minutes. Disassemble with hand tools while the parts are hot.

For low-strength and moderate-strength threadlocker, disassemble with hand tools.

Figure 4: Disassembly



— End of BIUUM04 —

Dryvac Assemblies

3

House and Door

DRYVAC03

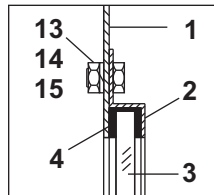
Figure 1: Paired DRYVAC03 shown



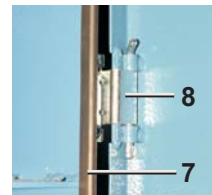
House and Door

DRYVAC03

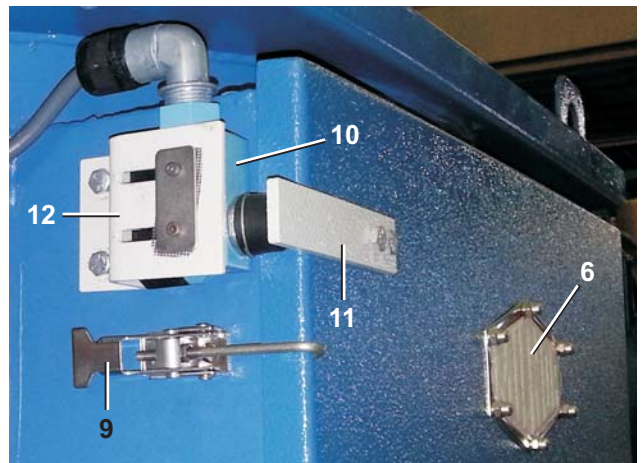
Figure 2: Door



A-A:Door Glass



Hinge

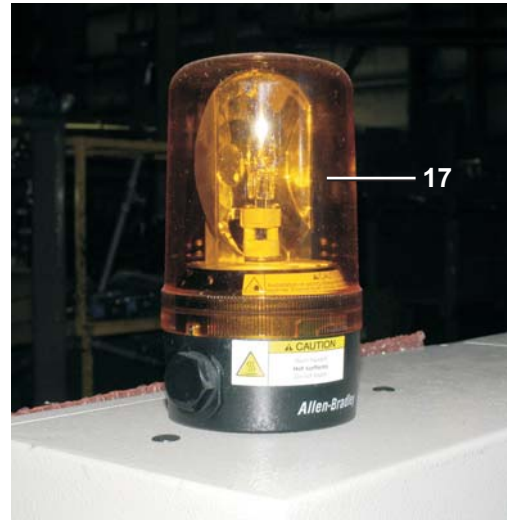


House and Door

DRYVAC03



Sprinkler Mounting



Beacon

Parts List—House and Door

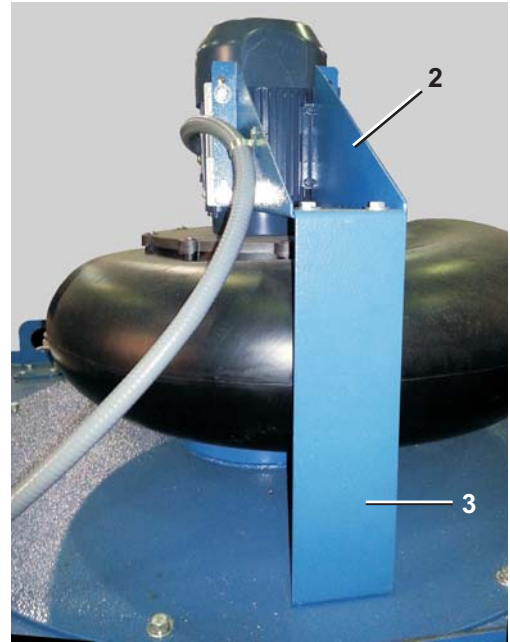
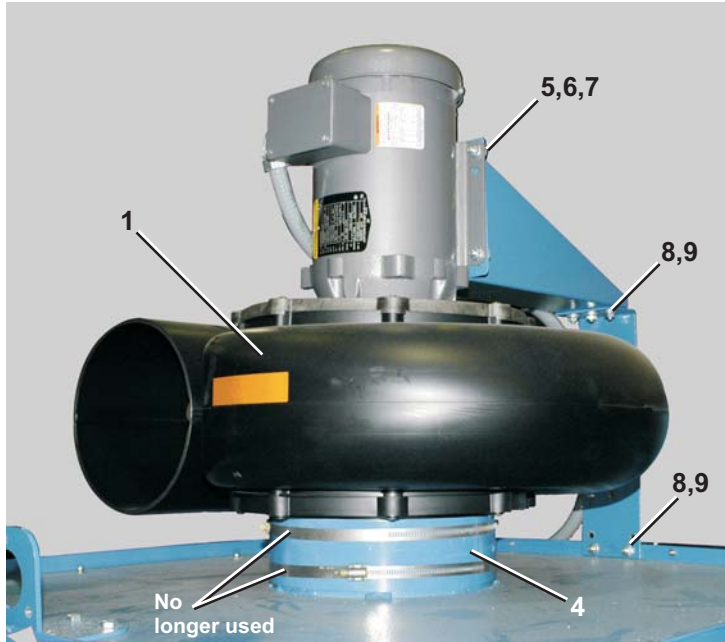
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			-----ASSEMBLIES-----	
	A	A75LC025	DRYVAC3 BODY ASSEMBLY	
	B	A75LC026	DRYVAC3 BODY - DOOR ASSEMBLY	
			-----COMPONENTS-----	
all	1	W7 52006	DRYVAC3 DOOR WELDMENT	
All	2	07 50057	RING=SIGHLASS LOAD DOOR	
all	3	02 09215	DRGLASS 12 3/8DIA SS STAMPED	
all	4	02 02366A	GASKET DOORGLASS = DRYER	
all	5	01 10410X	NPLT:AUTOLINT SYSTEM-ISO	
all	6	01 10020	NPLT SMALL "MILNOR" LOGO	
all	7	27A104	SELFGRIPSEAL SOFTSPONGE EA=1 METER	
all	8	27A103A	HINGE ENCLOSURE NO.1032-01-JB	
All	9	27A009C	LATCH-ADJUSTABLE 304 S/S	
all	10	09R012	MICSW SPDT PAINTED BZE6-RN 01	
all	11	03 BZ2X2Y	+BRKT:DRY VAC DOOR SW	
all	12	03 BF1X5Y	PLATE:DRY VAC DOOR SW ACTR	
all	13	15N158	HEXCAPSCR 1/4-20NCX1/2SS18-8	
all	14	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	15	15G170	HEXNUT 1/4-20UNC2 SS18-8	
all	16	07 52056	DRYVAC3 SPRINKLER BOX BRACKET	
all	17	09H026V37	BEACON ROTARY 90MM AMBER CE ALLEN BRADLEY	

Blower

DRYVAC03

Figure 1: Blower Installed



Parts List—Blower

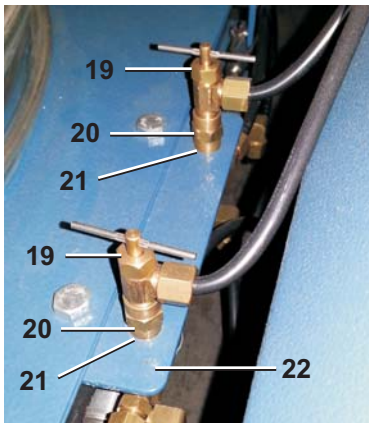
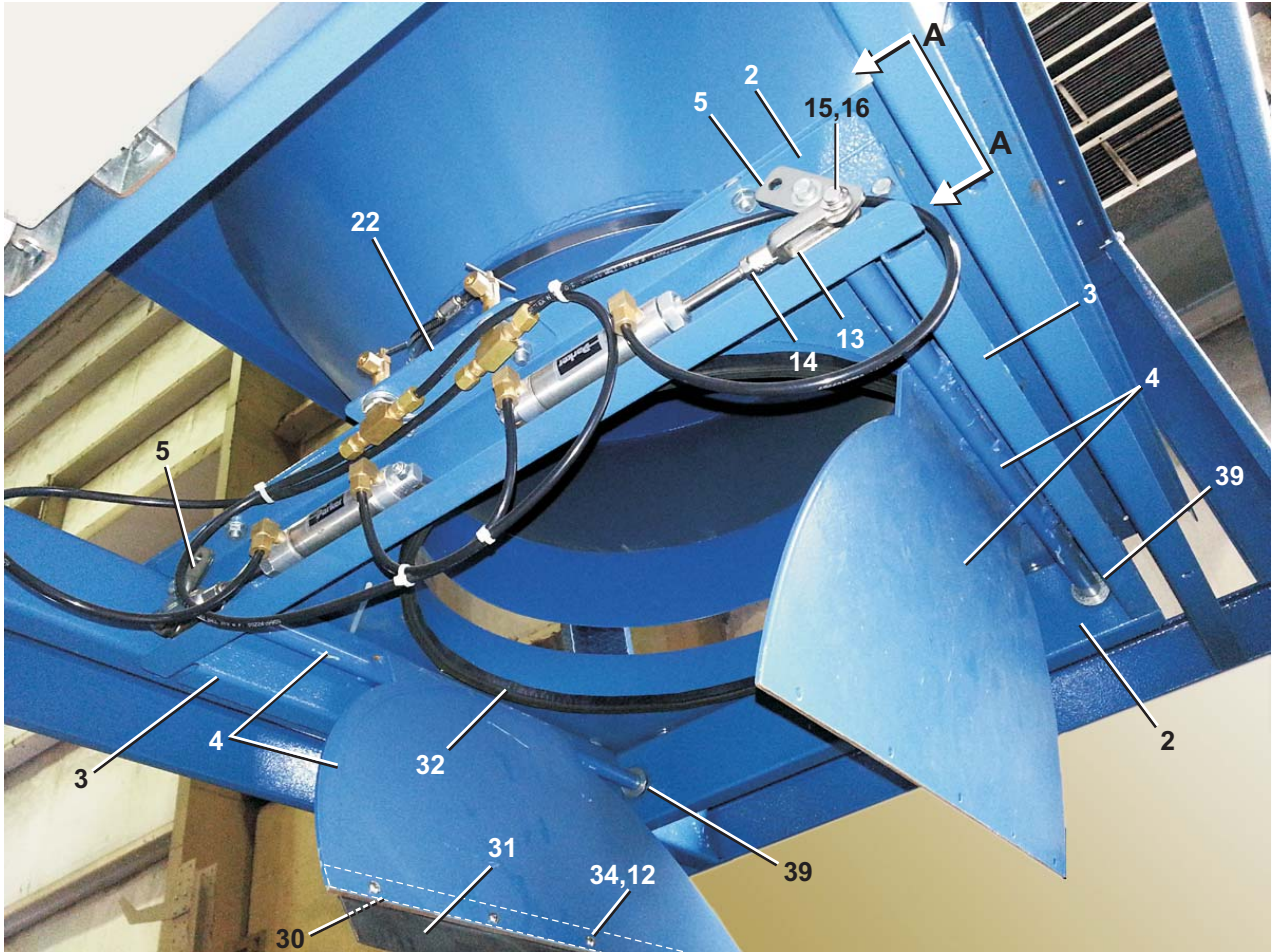
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
-----COMPONENTS-----				
all	1	13E400A96	BLOWER ASSY 1500SCFM 208/220/240/440/460 50/60HZ 2HP	
all	2	07 52061A	DRYVAC3 HORIZ MTR MNT BRKT	
all	3	07 52062A	DRYVAC3 VT MTR MNT BRKT	
all	4	07 52063	DRYVAC3 MTR MNT RING	
all	5	15K041	HXCAPSCR 1/4-20UNC2AX1 GR 5 ZI	
all	6	15U185	FLATWASHER(USS STD) 1/4" ZNC P	
all	7	15G178	1/4"-20 HEXFLANGE NUT ZINC	
all	8	15K060	HXCAPSCR 5/16-18UNCAX3/4 GR5 Z	
all	9	15G196	HXFLGNUT 5/16-18 ZINC	

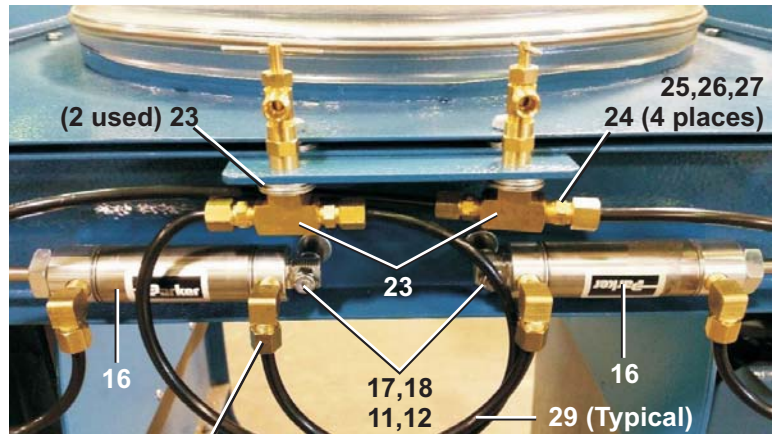
Lint Outlet Dampers

DRYVAC03

Figure 1: Pneumatic cylinders



Air from pilot valves

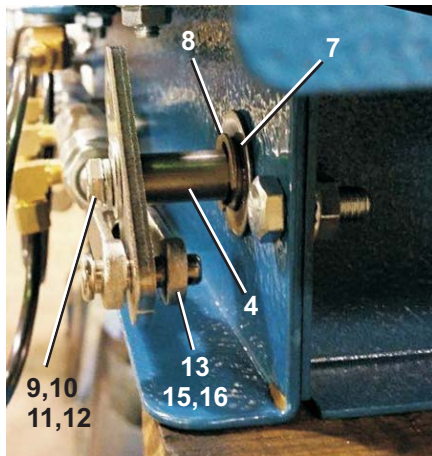
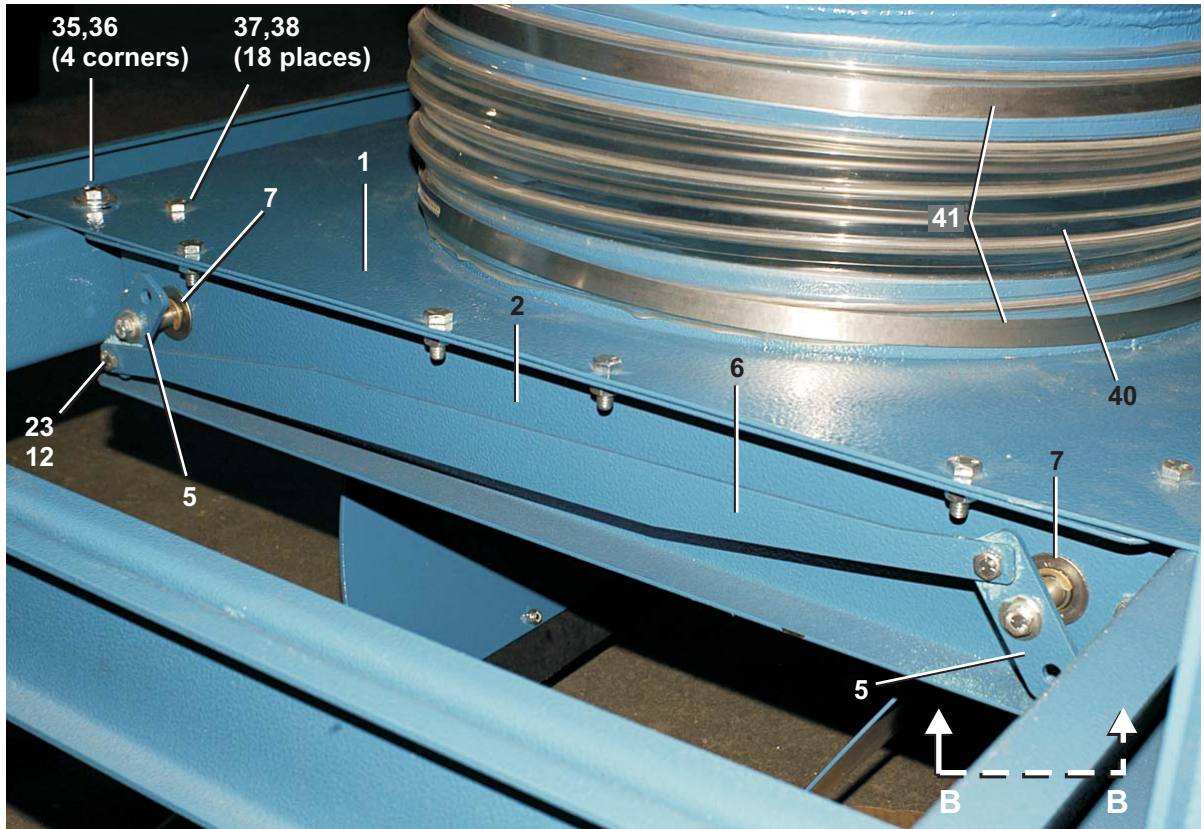


25,26,27,28
(4 places)

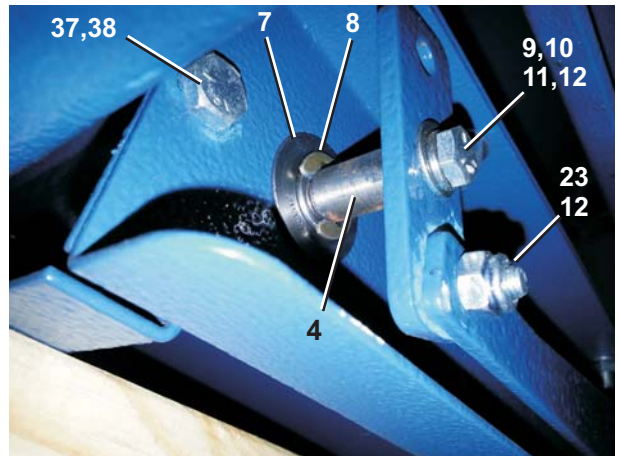
Lint Outlet Dampers

DRYVAC03

Figure 2: Linkage and detail views



View A-A: Yoke to shaft



View B-B: Linkage to shaft

Lint Outlet Dampers

DRYVAC03

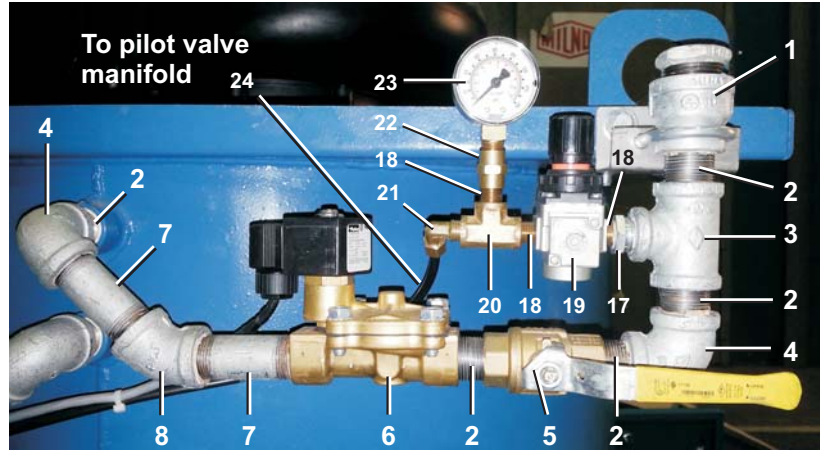
Parts List—Lint Outlet Dampers

Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

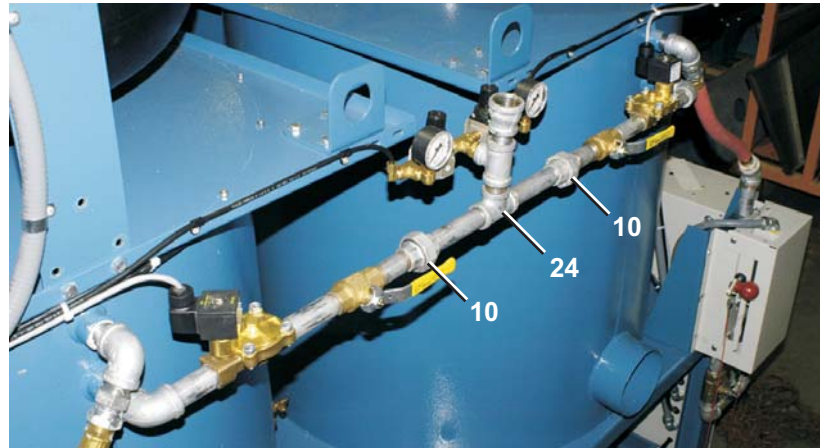
Used In	Item	Part Number	Description	Comments
			-----ASSEMBLIES-----	
	A	A75LC022	DRYVAC3 LINT OUTLET DAMPER ASSY	
			-----COMPONENTS-----	
all	1	W7 52030	LINT OUTLET WELDMENT	
all	2	07 52031	ACTUATOR SUPPORT ANGLE	
all	3	07 52032	DAMPER SHAFT COVER	
all	4	W7 52035	DRYVAC3 DAMPER/SHAFT WLMT	
all	5	07 52036	DAMPER ARM	
all	6	07 52037	DAMPER LINKAGE	
all	7	54A712	FLGBR 1/2"ID SCHATZ# AF3236	
all	8	17B012	EXTRETRING IND#1000-50-ST-ZD Z	
all	9	15K037	HEXCAPSCR 1/4-20UNC2AX5/8 GR5	
all	10	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
all	11	15U185	FLATWASHER(USS STD) 1/4" ZNC P	
all	12	15G164NE	HEXLOKNUT NYL 1/4-20 UNC2A SS.	
all	13	17A007	ADJ YOKE END-SS 5/16-24NF #27	
all	14	17A035	CLEVIS PIN 5/16"X1+1/2"DRILLED	
all	15	15H031	STDCOTTERPIN 3/32X3/4 SS18-8	
all	16	27C201	AIRCYL 1-1/16BOREX1-1/2STKE	
all	17	X7 52038	AIR CYLINDER PIVOT PIN	
all	18	15K046	HXCAPSCR 1/4-20 UNC2A X 2"GR5	
all	19	96H018	ANGLE NEEDLE VLV 1/4"T X 1/8MP	
all	20	5SCC0CBE	NPT COUP 1/8 BRASS 125# 103A-A	
all	21	5N0CCLSB42	NPT NIP 1/8XCLS TBE BRASS STD	
all	22	07 52039	AIR CONNECTION BRACKET	
all	23	51V010A	TEE 1/8"BRSEXTR BLOCTYP#2203P2	
all	24	53A005B	BODYMALCON1/4X1/8COMP #B68A-4A	
all	25	53A500	SLEEVE DELRIN 1/4"OD#60PT-4	
all	26	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	27	53A501	TUBE INSERT .163"OD #63PT-4-40	
all	28	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	29	60E004TE	1/4"OD X.170"ID NYL(BLK)TUBING	
all	30	07 52040	DAMPER SEAL MTG STRAP	
all	31	07 52041	DRYVAC3 DAMPER SEAL	
all	32	60A006B	NEO RUBBER STRIP 1/4"X1"W/PSA	
all	33	15K041	HXCAPSCR 1/4-20UNC2AX1 GR 5 ZI	
all	34	15K033	BUTSOKCAPSCR 1/4-20X5/8 SS18-8	
all	35	15K095	HXCPCSCR 3/8-16UNC2AX1 GR5 ZINC	
all	36	15G198	HXFLGNUT 3/8-16 ZINC	
all	37	15K060	HXCAPSCR 5/16-18UNCAX3/4 GR5 Z	
all	38	15G196	HXFLGNUT 5/16-18 ZINC	
all	39	54JH1050SS	SHFTCOLLAR 1PC SLD .5"SS	USED PRIOR TO 9/2016
all	40	60E550	FLEX HOSE 20"ID	
all	41	27A093	HOSECLAMP 9+3/8"-12.25"SS SCR	USES 4

Lint Blow Down

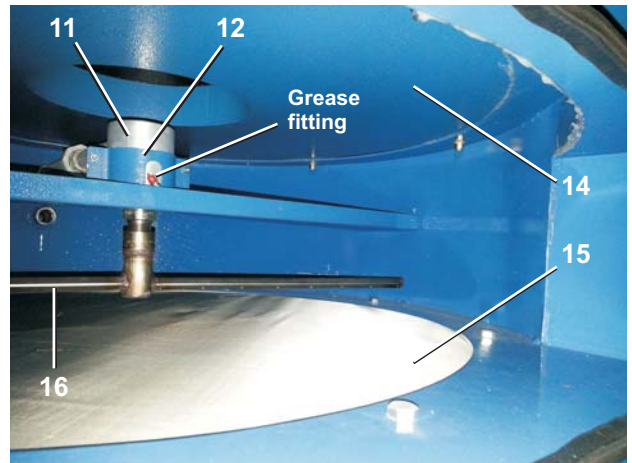
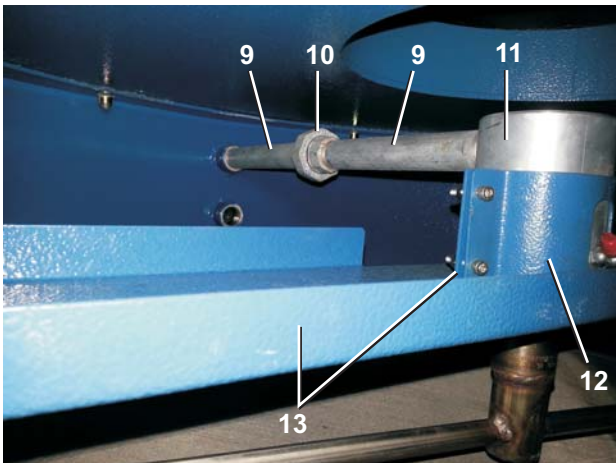
DRYVAC03



Single DRYVAC03



Paired DRYVAC03 has a common air inlet to two valve assemblies.



Lint Blow Down

DRYVAC03

Parts List—Lint Blow Down

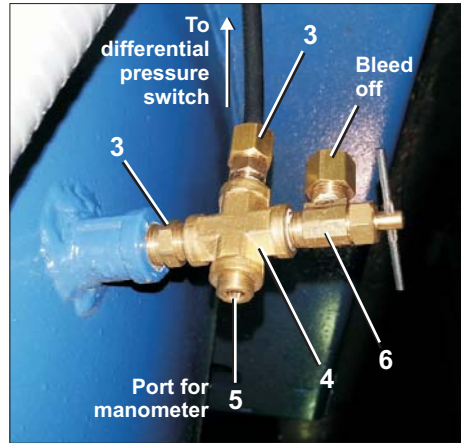
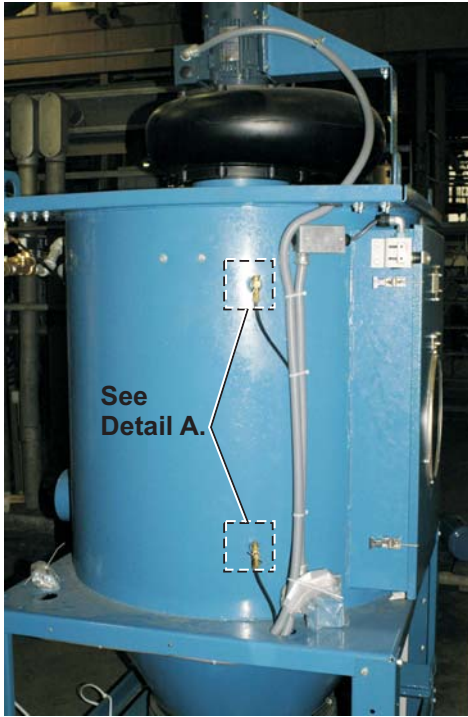
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
-----ASSEMBLIES-----				
	A	A75LC025	DRYVAC3 BODY ASSEMBLY	
-----COMPONENTS-----				
all	1	5SR1A0PNF	NPT RED 1X3/4 GALMAL 150#	
all	2	5N0PCLSG42	NPT NIP 3/4XCLS TBE GALSTL S40	
all	3	5S0PNFA0K	NPT TEE 3/4X3/4X1/2 GALMAL150#	
all	4	5SL0PNFA	NPT ELB 90DEG 3/4 GALMAL 150#	
all	5	96D050A	3/4" BALL VALVE BRZ BONOMI 171N	
all	6	96P056C37	3/4" NC 110V PARKER #12F24C2248AAFPH05	
all	7	5N0P03AG42	NPT NIP 3/4X3 TBE GALSTL SK40	
all	8	5SL0PNFK	NPT ELB 45DEG 3/4 GALMAL 150#	
all	9	5N0P06KG42	NPT NIP 3/4X6.5 TBE GALSTL S40	
all	10	5SU0PNF	NPT UNION 3/4" GALMAL 150#	
all	11	24S075	ROT UNION 3/4" DEUBLIN250094020	
all	12	07 52060	DRYVAC3 ROTOCOUPPING BRACKET	
all	13	W7 52020A	DRYVAC3 ROTOCOUPPING WLMT	
all	14	W7 52064	DRYVAC3 BLOWER PLATE WLMT	
all	15	W7 52023	DRYVAC3 LINT SCREEN	
all	16	W7 52017	DRYVAC3 BLOW DOWN TUBE WELDMENT	
all	17	51E513A	3/4" MHX1/4" FP PARKER #78GH-12-4	
all	18	5N0ECLSBE2	NPT NIP 1/4XCLS TBE BRASS 125#	
all	19	96J019F	1/4" PRESREG7-123PSI #AR20-N02H-Z	
all	20	51V010A	TEE 1/8" BRSEXTR BLOCTYP #2203P2	
all	21	53A031XB	BODY-EL90MALE.25X25 #269C-4-4B	
all	22	5SCC0EBE	NPT COUP 1/4 BRASS 150#PSI W/HEX	
all	23	30N102	PRESSGAUGE 1/4 BOTCON.0-150PSI	
All	24	5S0PNFA	NPT TEE 3/4" GALMAL 150#	

Pressure Switch & Temperature Sensors

DRYVAC03

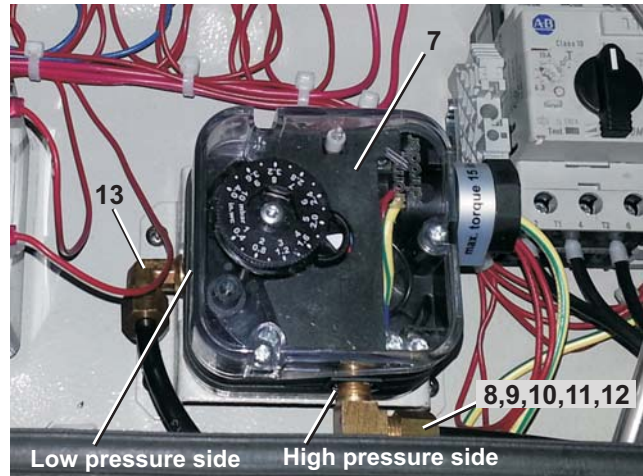
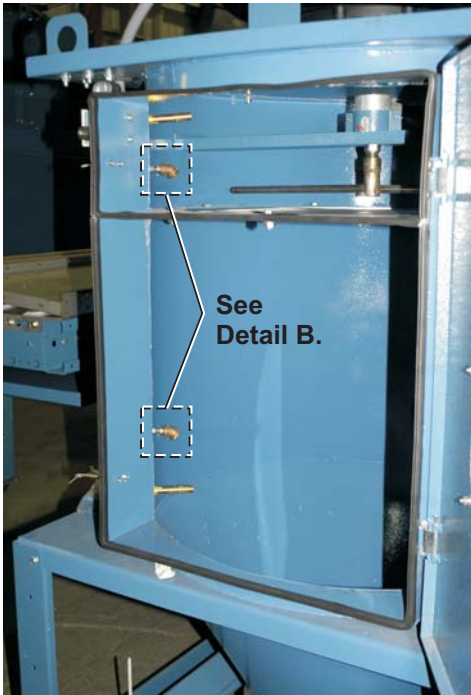
Figure 1: Pressure Switch



Detail A:



Detail B: Open elbow

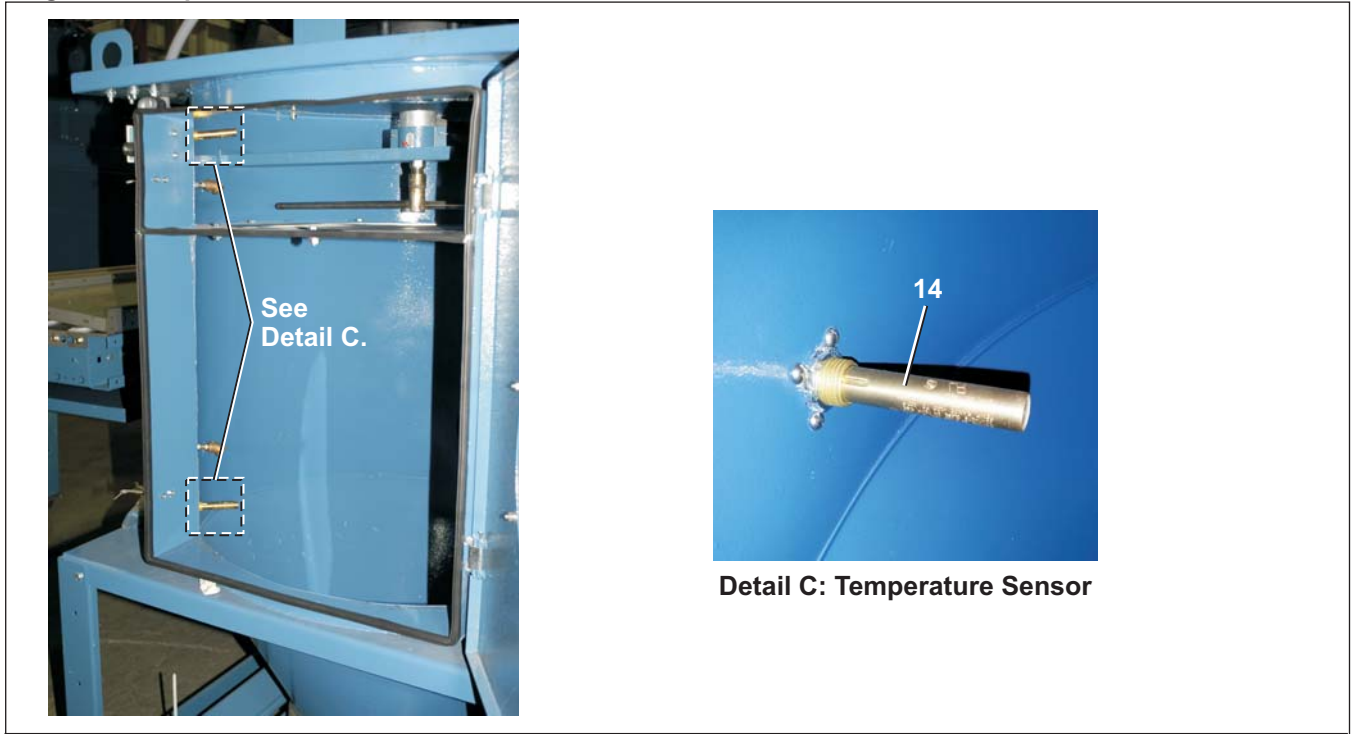


Differential Pressure Switch

Pressure Switch & Temperature Sensors

DRYVAC03

Figure 2: Temperature Sensors



Parts List—Pressure Switch & Temperature Sensors

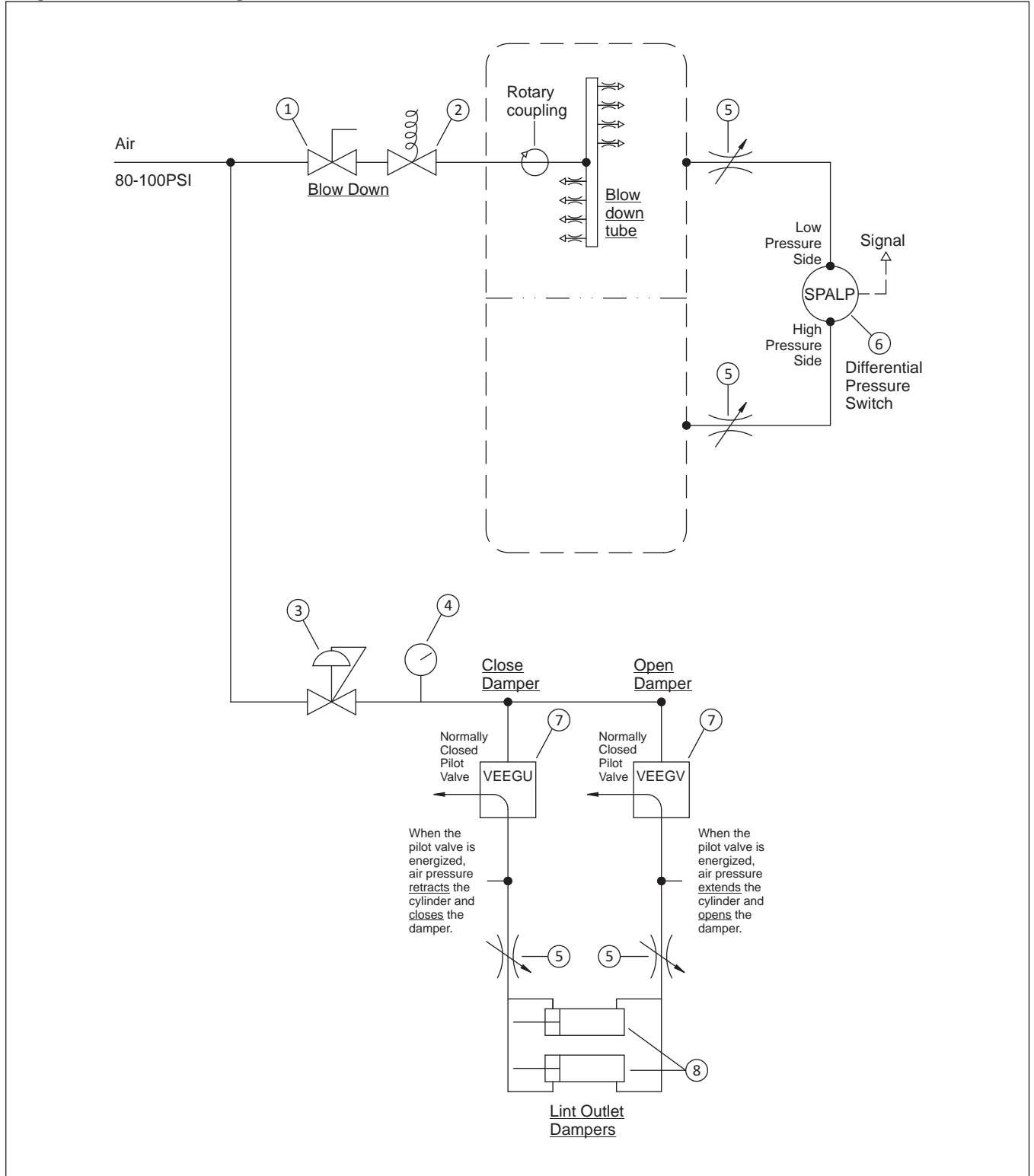
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
-----COMPONENTS-----				
all	1	5SL0EBEA	NPTL B 90DEG 1/4 BRASS 125#	
all	2	5N0ECLSBE2	NPT NIP 1/4XCLS TBE BRASS 125#	
all	3	53A005B	BODYMALCON1/4X1/8COMP #B68A-4A	
all	4	5SX0CBE	NPTCROSS 1/8 BRASS 125#2205P-2	
all	5	5SP0CBEHS	NPT PLUG 1/8 HXCTRSNK BRASS	
all	6	96H018	ANGLE NEEDLE VLV 1/4" T X 1/8MP	
all	7	09N19106	GAS PRESS.SW. RANGE .4-4	
all	7	09N19106D	GAS PRESS.SW. RANGE .4-4=CE	
all	8	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	9	53A500	SLEEVE DELRIN 1/4"OD#60PT-4	
all	10	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	11	53A501	TUBE INSERT .163"OD #63PT-4-40	
all	12	60E004TE	1/4"OD X.170"ID NYL(BLK)TUBING	
all	13	53A031XB	BODY-EL90MALE.25X25 #269C-4-4B	
all	14	30R0225P	THERMOSW.FENWAL CLOSE @ 225F	

Pneumatic Schematic

DRYVAC03

Figure 1: Schematic Diagram



Pneumatic Schematic

DRYVAC03

Parts List—Pneumatic Schematic

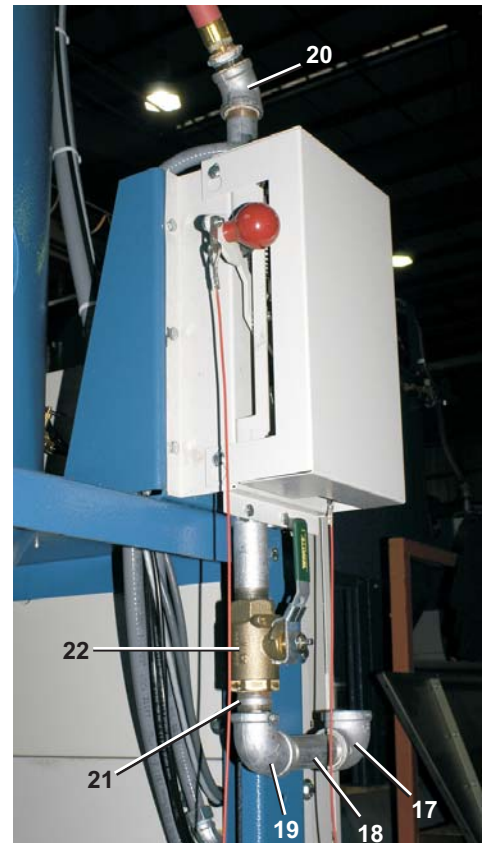
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
-----ASSEMBLIES-----				
	A	AVA65ALC37	VALVE SET DRYVAC3	REFERENCE
-----COMPONENTS-----				
all	1	96D050A	3/4"BALLVALVE BRZ BONOMI 171N	
all	2	96P056C37	3/4"NC 110V PARKER #12F24C2248AAFPH05	
all	3	96J019F	1/4PRESREG7-123PSI#AR20-N02H-Z	
all	4	30N102	PRESSGAUGE 1/4BOTCON.0-150PSI	
all	5	96H018	ANGLE NEEDLE VLV 1/4" T X 1/8MP	
A	6	09N19106	GAS PRESS.SW. RANGE .4-4	STANDARD CE
B	6	09N19106D	GAS PRESS.SW. RANGE .4-4=CE	
all	7	96R301B37	1/8"AIRPILOT 3W NC 120V50/60	
all	8	27C201	AIRCYL 1-1/16BOREX1-1/2STKE	

Sprinkler System

DRYVAC03

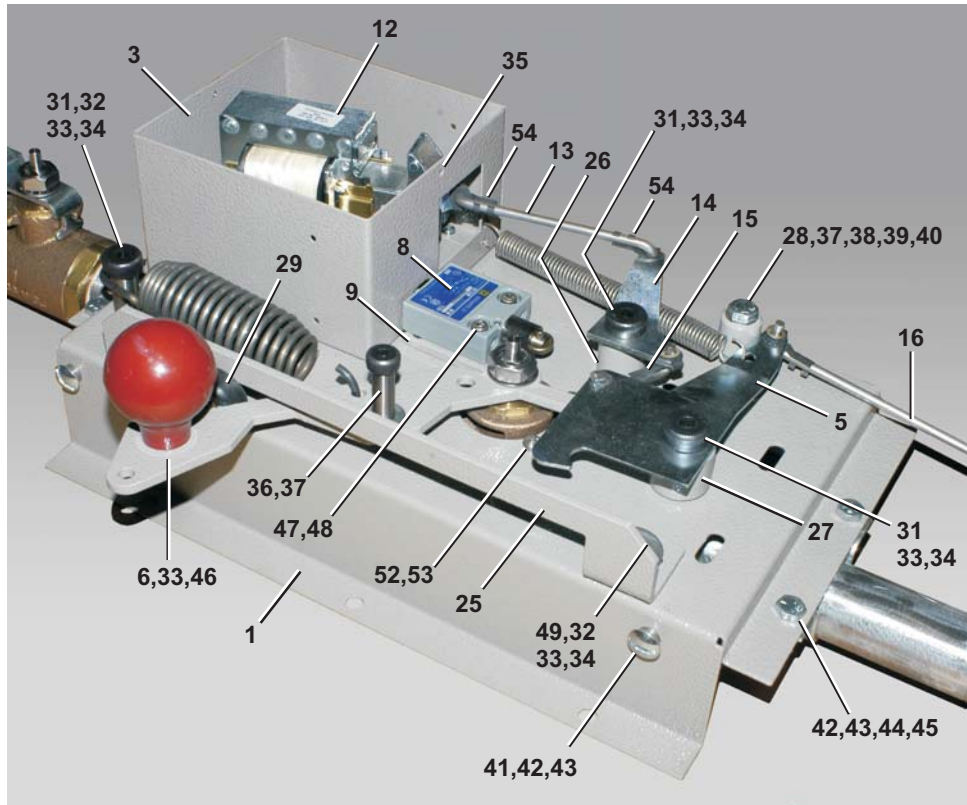
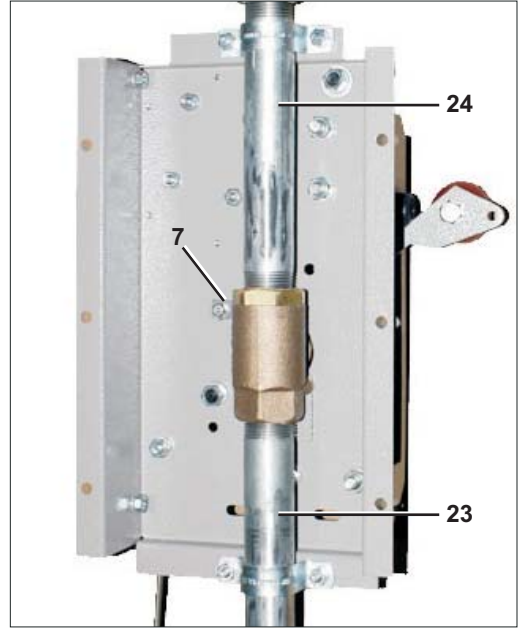
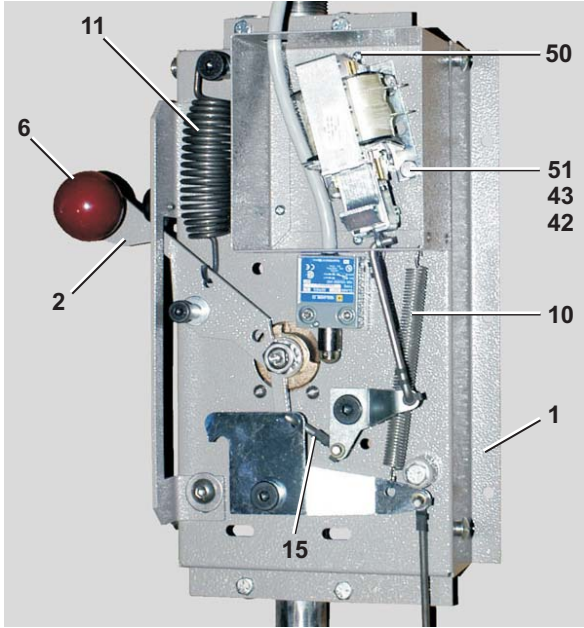
Figure 1: Sprinkler Installed



Sprinkler System

DRYVAC03

Figure 2: Sprinkler Assembly



Sprinkler System

DRYVAC03

Parts List—Sprinkler System

Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
-----ASSEMBLIES-----				
	A	A75SM001B	SPRINKLER SYSTEM ASSY-36X36	
-----COMPONENTS-----				
all	1	07 50276A	SPRINKLER BASE PLATE MOD	
all	2	07 50277A	SPRINKLER HANDLE-STAMPING	
all	3	07 50278A	SOLENOID BOX=SPRINKLER MOD	
all	4	07 50280	COVER FOR SOLENOID BOX	
all	5	07 50281	LATCH ARM FOR SPRINKLER	
all	6	12P100	BALLKNOB RD PLASTIC DAVIES#45H	
all	7	07 50449	MICROSWITCH BACKPLATE	
all	8	09RM01209S	CAPSW 9FT 180DEG ROLLER SILVER	
all	9	07 50285	SWITCH MOUNT SPACER PLATE	
all	10	07 50293	SPRING.500 ODX4.00LGX.049EXT	
all	11	00 06102B	SPRING=1.35 O.D/4.49 LONG	
all	12	09K061D	SOLENOID 120V 60C #8940	
all	13	07 50401	SOLENOID LINKAGE ROD	
all	14	07 50402	TRIP LINK FOR SPRINKLER	
all	15	07 50400	LATCH ARM LINKAGE ROD	
all	16	07 50436	MANUAL TRIP HNDL 8.75" LONG	
all	17	5SL1ENFA1A	NPTLNB 90DEG 1.25X1 GALM 150#	
all	18	5N1A05AG42	NPT NIPPLE 1X5 TBE GALSTL SK40	
all	19	5SL1ANFA	NPT ELBOW 90DEG 1" GALMAL 150#	
all	20	5SL1ANFK	NPT ELB 45 DEG 1" GALMAL 150#	
all	21	5N1ACLSG42	NPT NIP 1XCLS TBE GALSTL SK40	
all	22	96D085WEXS	BALVAL 1"BRZ WATT LFB6400-SS-Z107	
all	23	5N1A08AG42	NPT NIP 1X8 TBE GALSTL SK40	
all	24	5N1A08KG42	NPT NIP 1X8.5 TBE GALSTL SK40	
all	25	07 50860	+SPRINKLER RESET HANDLE STOP	
all	26	07 50299	DRYER SPRINKLER SPACER	
all	27	07 50300	.884 LONG SPRINKLER SPACER	
all	28	07 50301	.75 LONG SPRINKLER SPACER	
all	29	60C080	RECESS BUMPER RUBBERLAVELLE #7	
all	31	15C061	HXSOKSTRIPBLT 1/2X1X3/8-16	
all	32	15U240	FLATWASHER(USS STD) 3/8" ZNC P	
all	33	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	34	15G205	HXNUT 3/8-16UNC2B ZINC GR2	

Sprinkler System

DRYVAC03

Parts List—Sprinkler System

Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
all	35	15P002	TRDCUT-F PAN HD 6-32UNC2AX1/4"	
all	36	15C048	HXSOKSTRIPBLT 3/8X1X5/16-18	
all	37	15U200	FLATWASHER(USS STD) 5/16"ZNC P	
all	38	15K070	HXCAPSCR 5/16-18 UNC2A X1.5 GR	
all	39	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
all	40	15G185	HXNUT 5/16-18UNC2B SAE ZINC GR	
all	41	15N162A	TRUSMACSCR 1/4-20UNC2AX1/2 ZIN	
all	42	15G165	HXNUT 1/4-20UNC2BSAE ZC GR2	
all	43	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
all	44	27A019	1"PIPESTRAP 2HOLE STAMPED GALV	
all	45	15K039	HXCAPSCR 1/4-20UNC2AX3/4 GR5 Z	
all	46	15K086D	HXCAPSCR 3/8-16 UNC2A X 7/8" 1	
all	47	15K021A	SOKCAPSCR 10-24UNCX1" LG S/S	
all	48	15G126	HXLOCKNUT NYLON 10-24 UNC SS N	
all	49	15K091	BTNHDSOKCAPSCR 3/8-16NCX1 GR5	
all	50	15N036	PANMACHSCR SEM 6-32UNC2AX1/4 Z	
all	51	15K030	HEXCAPSCR 1/4-20UNC2X1/2 GR5 Z	
all	52	15N130	RDMACSCR 10-24UNC2A X 1/2 SS18	
all	53	15U150	LOCKWASHER MEDIUM #10 ZINCPL	
all	54	17N300	3/16" ROD CLIP 4L FMP#85303	
all	55	5SB1A0PNFO	NPTHEXBUSH 1X3/4 GALMAL 150#	
all	56	60E086	HOSE WATER3/4"DAYCO#7092-75304	
all	58	5SL0PNFA	NPTELB 90DEG 3/4 GALMAL 150#	

Watts Ball Valves and Repair Kits



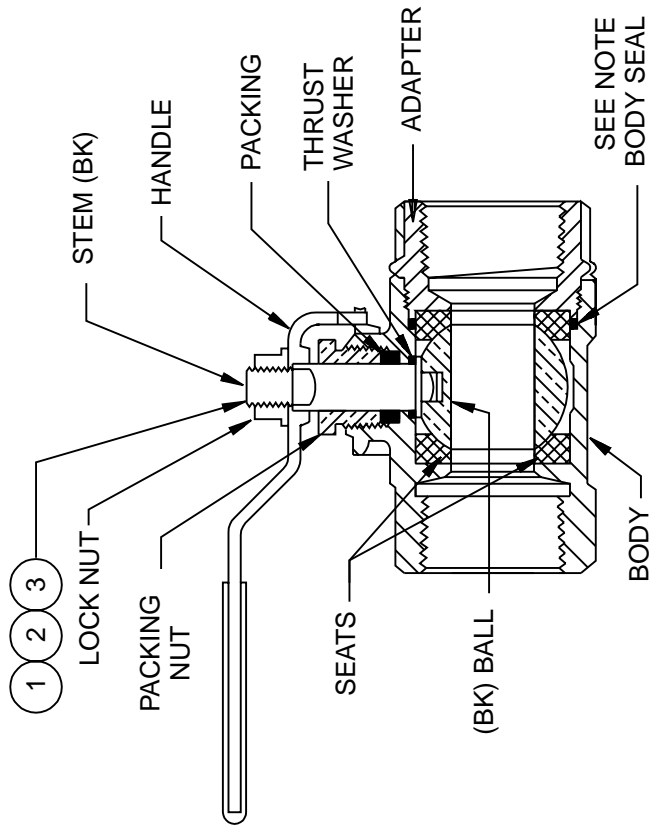
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

BMP920007/96067V (1 of 2)

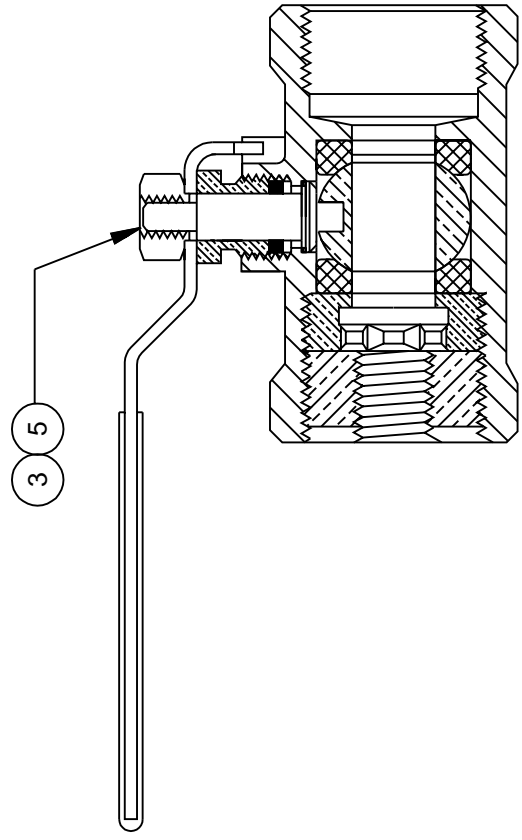
Litho in U.S.A.

BMP920007/96067V
(Sheet 1 of 2)

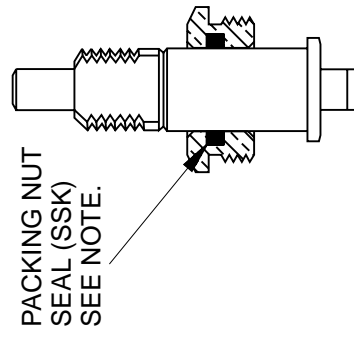
BALL VALVES WITHOUT ACTUATOR PADS FOR MANUAL OPERATION



1/2" BRONZE OR 1/2", 3/4" STAINLESS
NO REPAIR KITS

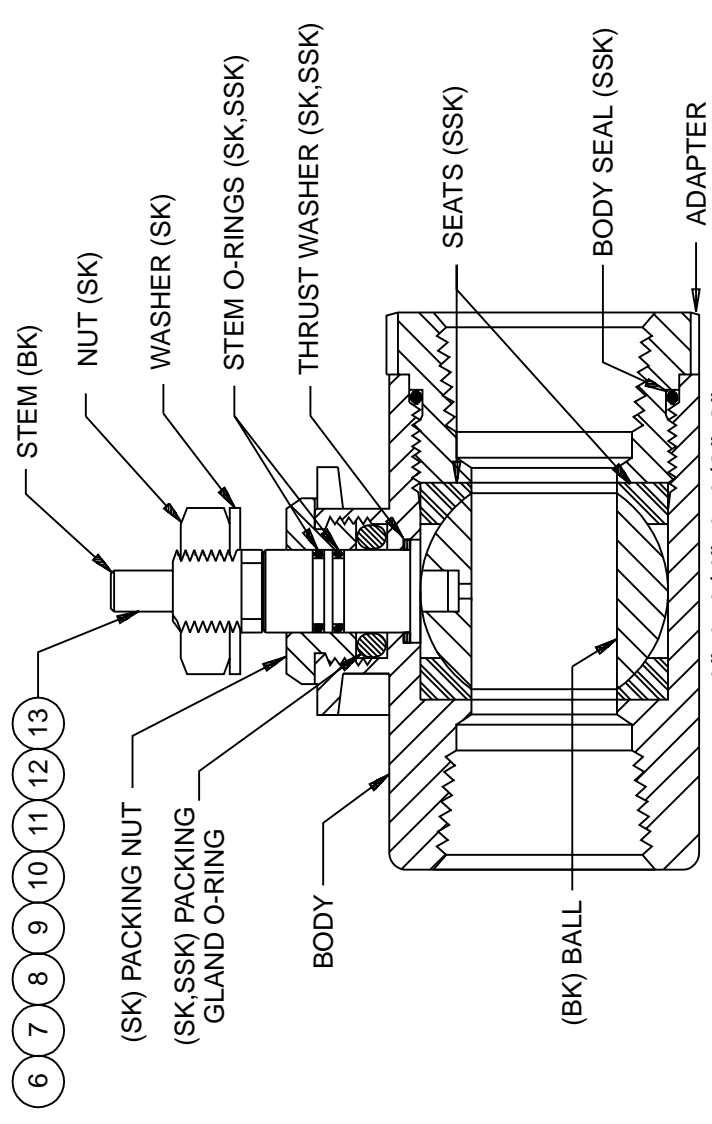


3/4", 1"
BRONZE
NO REPAIR KITS



DETAIL
OLD STYLE STEM

AIR OPERATED BALL VALVES



1", 1-1/4", 1-1/2", 2"
BRONZE & STAINLESS

(For Bracketry and Mounting Hardware, See BMP920005. For Air Cylinders that Operate Watts Ball Valves, See BMP920006.)

HOW TO USE THIS DRAWING:

The ball valves are separated by size, material, and type of operation. Find the cross section which shows your ball valve (example 1-1/2" bronze air operated). See the parts list for the item number which represents your ball valve (1-1/2" bronze air operated would be item 10 on the parts list). For valves that offer repair kits the internal parts are labeled and marked as to which kit they are found in:

- (BK) part of Ball Kit
- (SK) part of Stem Kit
- (SSK) part of Seat/Seal Kit

For the part number of the Seat/Seal Kit for item 10 (1-1/2" bronze air operated valve) see the parts list and look for item 10SSK, likewise the Stem Kit will be 10SK.

NOTE:

AIR OPERATED VALVES: (SSK) kits for air operated ball valves include all parts required to repair either our old style or new style stems. A packing nut seal is provided to repair our old style stems which had a seal in the packing nut (see Detail). Our new style stem uses a double o-ring design.



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BMP920007/96067V (2 of 2)

Litho in U.S.A.

Parts List—Watts Ball Valves and Repair Kits
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			ASSEMBLIES	
			none	
			COMPONENTS	
all	1	96D034	04Z BALLVALVE 1/2" WATTS #6400-SS	1/2"BRONZE-MANUAL, NO KITS
all	2	96D040WSS	01Z 1/2" BALLVALVE S/S WATTS#S-8000	1/2"STAINLESS-MANUAL
all	002BK	96V040BK	BALL KIT WATTS #BV4SSA6	
all	002SSK	96V040SSK	01Z REPKIT 1/2"VAL WATTS#3SSK-02-RK	
all	3	96D050A	01Z 3/4"BALLVALVE BRZ WATTS#B6100	3/4"BRONZE-MANUAL, NO KITS
all	4	96D055WSS	01Z 3/4"BALLVALVE S/S WATTS#S-8000	3/4"STAINLESS-MANUAL
all	004BK	96V055BK	BALL & STEM KIT WATTS #4BSK-SSRK	
all	004SSK	96V055SSK	01Z REPKIT 3/4"VAL WATTS#4SSK-02-RK	
all	5	96D084	01Z BALL VALVE 1" WATTS#B6100 BRZ	1" BRONZE-MANUAL , NO KITS
all	6	96D085WEXS	07Z BALVAL 1" BRZ WATTS#B6400SSZ107	1" BRONZE-AIR OPERATED
all	006BK	96V085BK	BALL KIT WATTS #1-BALL-RK-Z107	
all	006SK	96V085SK	02Z STEM KIT 1" WATTS#1-ST-RK-Z107	
all	006SSK	96V085SSK	02Z REPKIT 1"BALVAL#1SSK-02-KK-Z107	
all	7	96D085WSS	07Z BALVAL 1" SS WATTS S8000-Z107	1" STAINLESS-AIR OPERATED
all	007BK	96V085BK	BALL KIT WATTS #1-BALL-RK-Z107	
all	007SK	96V085SK	02Z STEM KIT 1" WATTS#1-ST-RK-Z107	
all	007SSK	96V085SSK	02Z REPKIT 1"BALVAL#1SSK-02-KK-Z107	
all	8	96D086WEXS	08Z BAVAL 1+1/4BRZ WATTS#B6400SSZ107	1-1/4"BRONZE-AIR OPERATED
all	008BK	96V086BK	BALL KIT WATTS #1.25-BALL-RK-Z107	
all	008SK	96V086A7SK	02Z STEMKIT 1.25-1.5-ST-RK-Z107	

Parts List, cont.—Watts Ball Valves and Repair Kits				
Used In	Item	Part Number	Description	Comments
all	008SSK	96V086SSK	02Z REPKIT 1.25BALVALSSK-02-RK-Z107	1-1/4"STAINLESS-AIR OPER.
all	9	96D086WSS	08Z BAVAL 1+1/4"SS WATTS S8000-Z107	
all	009BK	96V086BK	BALL KIT WATTS #1.25-BALL-RK-Z107	
all	009SK	96V086A7SK	02Z STEMKIT 1.25-1.5-ST-RK-Z107	
all	009SSK	96V086SSK	02Z REPKIT 1.25BALVALSSK-02-RK-Z107	
all	10	96D087WEXS	09Z BAVAL 1+1/2BRZ WATTS#B6400SSZ107	1-1/2"BRONZE-AIR OPERATED
all	010BK	96V087BK	BALL KIT WATTS #1.5-BALL-RK-Z107	
all	010SK	96V086A7SK	02Z STEMKIT 1.25-1.5-ST-RK-Z107	
all	010SSK	96V087SSK	02Z REPAIR KIT 1.5" BALL VALVE	
all	11	96D087WSS	08Z BAVAL 1+1/2"SS WATTS S8000-Z107	1-1/2"STAINLESS-AIR OPER.
all	011BK	96V087BK	BALL KIT WATTS #1.5-BALL-RK-Z107	
all	011SK	96V086A7SK	02Z STEMKIT 1.25-1.5-ST-RK-Z107	
all	011SSK	96V087SSK	02Z REPAIR KIT 1.5" BALL VALVE	
all	12	96D088WEXS	09Z BALVAL 2" BRZ WATTS#B6400SSZ107	2"BRONZE-AIR OPERATED
all	012BK	96V088BK	BALL KIT WATTS #2-BALL-RK-Z28	
all	012SK	96V088SK	03Z STEM KIT 2" WATTS#2-ST-RK-Z107	
all	012SSK	96V088SSK	02Z REPKIT 2"VAL WATZSSK-02-RK-Z107	
all	13	96D088WSS	09Z BALVAL 2" SS WATTS S8000-Z107	2"STAINLESS-AIR OPERATED
all	013BK	96V088BK	BALL KIT WATTS #2-BALL-RK-Z28	
all	013SK	96V088SK	03Z STEM KIT 2" WATTS#2-ST-RK-Z107	
all	013SSK	96V088SSK	02Z REPKIT 2"VAL WATZSSK-02-RK-Z107	

Installation Drawings

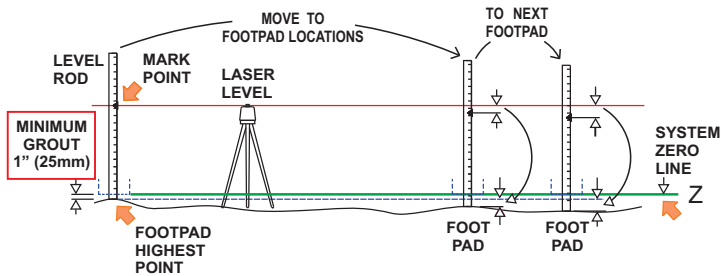
4

ATTENTION INSTALLERS!



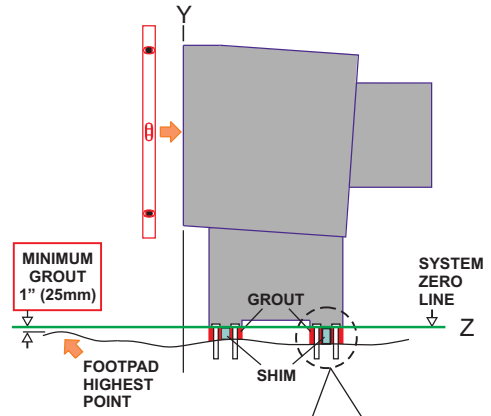
FLOOR IS UNEVEN

- 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.



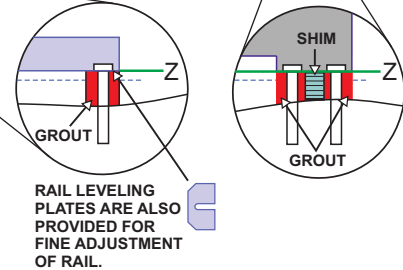
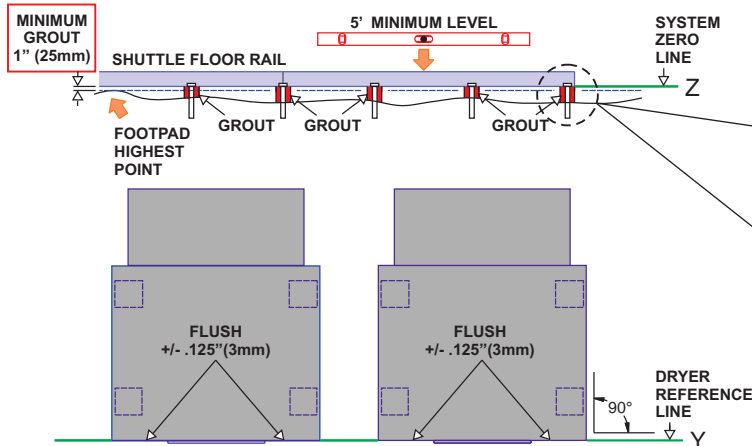
DRYER FEET MUST BE GROUTED

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

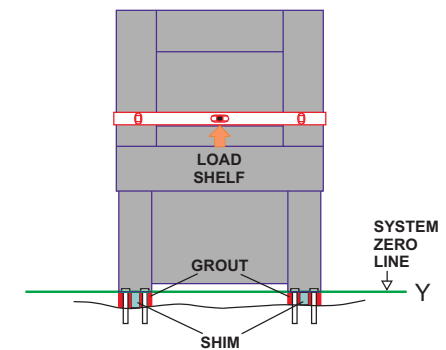
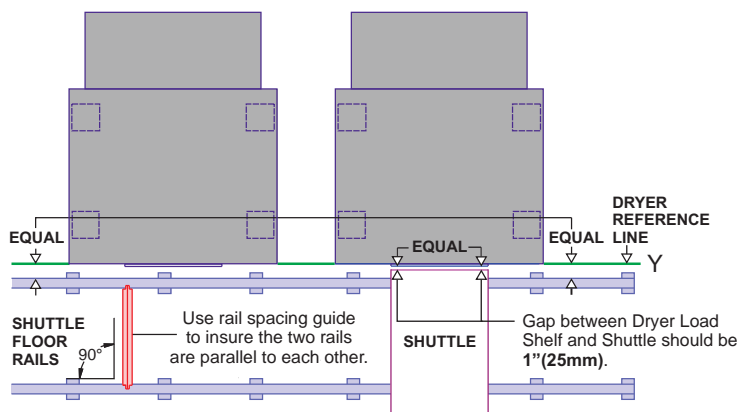


SHUTTLE RAIL BRACKETS MUST BE GROUTED TO Z

- 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.

Air and Ductwork Requirements for Milnor® Pass-through Dryers

Notice 1: This document, along with document BIPDUI01 "Utility Requirements For Gas, Steam and Thermal Oil Dryers", gives air and ductwork requirements for Milnor pass-through dryers. It also provides limited guidance for the layout of ductwork. Milnor accepts no responsibility for ductwork design or liability for damage or injury caused by ductwork.

1. Air Requirements



CAUTION 2: Risk of equipment malfunction—Insufficient air will cause dryers to malfunction and/or greatly reduce drying efficiency. Excessive back-pressure will cause dryers to malfunction.

- 1.1. Air Flow**—All Milnor pass-through dryers move air, called main air, through the goods. The quantity of main air specified in document BIPDUI01 "Utility Requirements For Gas, Steam and Thermal Oil Dryers" (in standard cubic feet per minute or scfm) must be available at the dryer main air inlet.

In addition, gas dryers use laundry room air for combustion. The quantity of combustion air specified in document BIPDUI01 "Utility Requirements For Gas, Steam and Thermal Oil Dryers" (in standard cubic feet per minute or scfm) must be available at the dryer combustion air inlet.

- 1.2. Back Pressure**—The total pressure drop imposed by all external components that the main air must pass through (examples: ductwork, lint filters, rooftop ventilators) must be between 0 (zero) and 0.5 inch water column (125 Pascals).

For gas dryers, it is necessary to supply a sufficient quantity of air to the room where the dryers are located to replenish the combustion air taken in by the dryers and to prevent a low pressure condition in the room.

Note 1: The internal pressure drop between the dryer main air inlet and exhaust outlet fluctuates during operation and can greatly exceed the allowable external pressure drop.

2. Ductwork Requirements

It is often necessary to connect ductwork between the dryer main air inlet and outside air. It is always necessary to connect ductwork between the dryer air exhaust outlet and the exterior of the building.

- 2.1. Is Inlet Ductwork Necessary?**—Use inlet ductwork to avoid negative air or if hazardous or corrosive fumes are present that could be drawn in to the dryers. Otherwise, consider the facility layout, operational procedures, and climatic conditions. It may be possible to take main air from the room in which the dryers are located, especially if this room is dedicated to the dryers and physically separated from other laundry activities. If conditions permit this arrangement, the facility can use barometric dampers to admit the quantity of outside air necessary to replenish the air taken in by the dryers. The air in the dryer room must be sufficient to meet the air requirements explained in [Section 1.1](#) at all times that the dryers operate.

negative air—the condition in which air usage by equipment creates a negative air pressure in the room where the equipment is located relative to outside air pressure and starves the equipment of air



CAUTION 3: Fire hazard—Negative air will draw heat from a gas dryer into the room it is in. Nearby objects, such as roof beams can become very hot.

- Provide inlet ductwork when negative air would otherwise occur.

If main air cannot be supplied from inside the room the dryers are in, use inlet ductwork to connect the dryers to outside air. For gas dryers, use powered ventilation in the facility to replenish the combustion air taken in by the dryers.

2.2. Ductwork Durability



CAUTION 4: Risk of mechanical failure—The fluctuations in main air pressure that occur during dryer operation will cause thin-gauge steel ductwork to quickly fail from metal fatigue. Ducts with a rectangular cross-section can be damaged by these forces even when heavy gauge material is used. Rectangular ductwork on the exhaust side of the dryer is likely to fail.

- Consult a ductwork design professional before you use rectangular duct.

The ductwork must be able to withstand the large flexing forces imposed on it by the internal air pressure changes that occur during dryer operation. At minimum, straight sections fabricated from galvanized sheet steel must have the following material thickness:

- Round duct - 20 gauge
- Rectangular duct - 16 gauge

It can be necessary to increase material thickness and use stiffeners for long duct lengths, large duct sizes, transitions, and elbows.

Duct material must be able to withstand any corrosive forces imposed by the laundry environment. Galvanized sheet steel is usually sufficient, but special conditions can occur.

2.3. Ductwork Functionality



WARNING 5: Fire and equipment malfunction hazards—Incorrect ductwork design can promote the buildup of flammable lint or cause flammable materials near hot ductwork to ignite. It can also cause dryers to malfunction and greatly reduce productivity.

- Do not use any internal components in the ductwork (example: turning vanes).
- Obey codes that govern the clearances between hot ductwork and flammable construction materials (example: roofing).
- Do not connect ducts from different dryers together if you can avoid it. See [Section 2.3.1](#).
- Do not use abrupt transitions or elbows with less than three segments. See [Section 2.3.2](#).
- Provide inspection covers as necessary to keep the entire ductwork clean.

2.3.1. Multiple Dryers and Lint Collection



CAUTION 6: Risk of equipment malfunction—Dryers connected by common ductwork are likely to malfunction due to the fluctuation in pressure drop felt by each dryer as a result of the other dryers. This can occur even if the common duct is large enough to accommodate the combined output of all connected dryers.

- Consult a ductwork design professional if you must use common ductwork.

If space limitations or other factors make the use of common ductwork unavoidable, it will be necessary to provide a system to maintain back pressure within the range specified in [Section 1.2](#) automatically. A system of this type could include pressure-sensing devices, a variable-speed booster fan, and a controller.

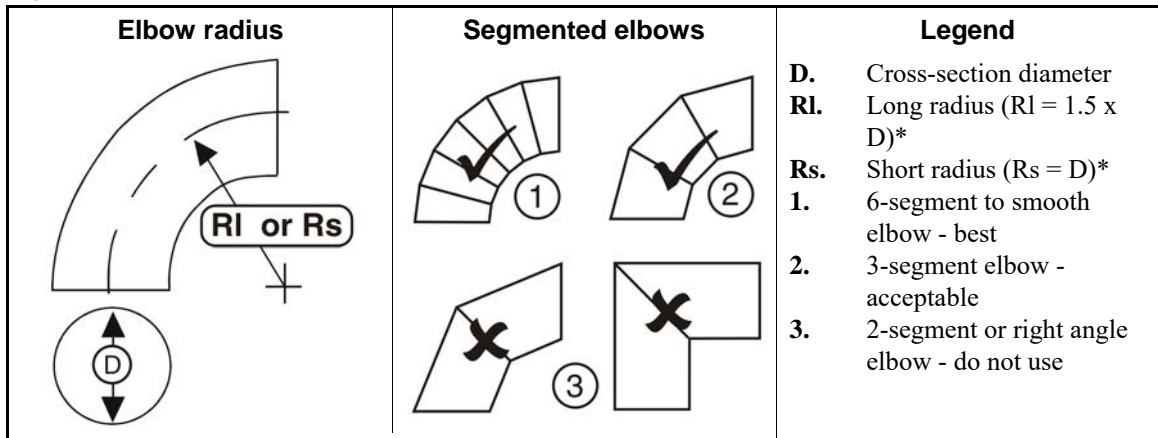
Today, facility designers generally prefer internal lint screens (a Milnor option) or close-coupled lint collection systems installed on each dryer. However, if the facility uses a common powered lint collection system, you can connect the air exhaust from two or more dryers to this system if you run separate ducts from each dryer. The system must be designed to:

- accommodate the maximum combined flow from all dryers connected to it.
- maintain a constant back pressure in the range given in [Section 1.2](#).

2.3.2. **Transitions and Elbows**—Use smooth, gradual transitions. For calculations, consider any transition with a taper less than 7.5 degrees as straight duct. Consider a gradual transition that connects the main air inlet or exhaust outlet on the dryer to a larger size duct as the larger duct size.

See [Figure 1](#). For round duct, prefer elbows with radius R_l . Do not use a smaller radius than R_s . Prefer elbows with six or more segments. Do not use elbows with less than three segments.

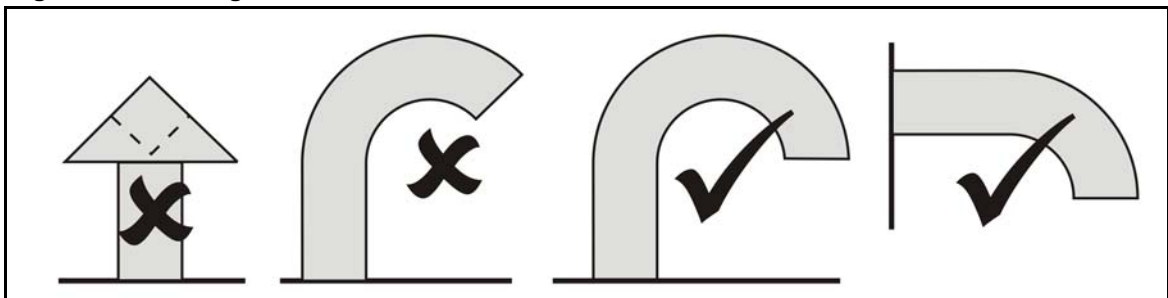
Figure 1: Round duct elbow fabrication



2.3.3. **Vents**—Wind loads can contribute significantly to variations in the external pressure drop felt by dryers. Only the vent designs identified with a check mark in [Figure 2](#) adequately counteract the effect of wind load.

Do not use a screen in the vent for the main air inlet.

Figure 2: Vent Designs



3. Ductwork Layout and Pressure Drop Calculations

This section provides numeric data in the English and Metric units listed in [Table 1](#). Metric units are shown in parentheses.

Table 1: Units of Measure

Type of Measurement	English Unit		Metric Unit	
	Abbreviated	Term	Abbreviated	Term
Short length	in	inches	(mm)	millimeters
Long length	ft	feet	(M)	meters
Air flow	scfm	standard cubic feet per minute	(nlpm)	normal liters per minute
Air velocity	fpm	feet per minute	(mpm)	meters per minute
Pressure drop	iwc	inches water column	(Pa)	Pascals

- 3.1. **Duct Components and Their Pressure Drops**—[Table 2](#) gives selected round and rectangular duct sizes for each dryer model, in straight lengths and 90 degree elbows. If it is necessary to use components not given in the table (examples: other duct cross-sections, elbows with other than 90 degree angles), it will be necessary to refer to other texts or consult a ductwork design professional.

Table 2: Duct Components and Their Pressure Drops

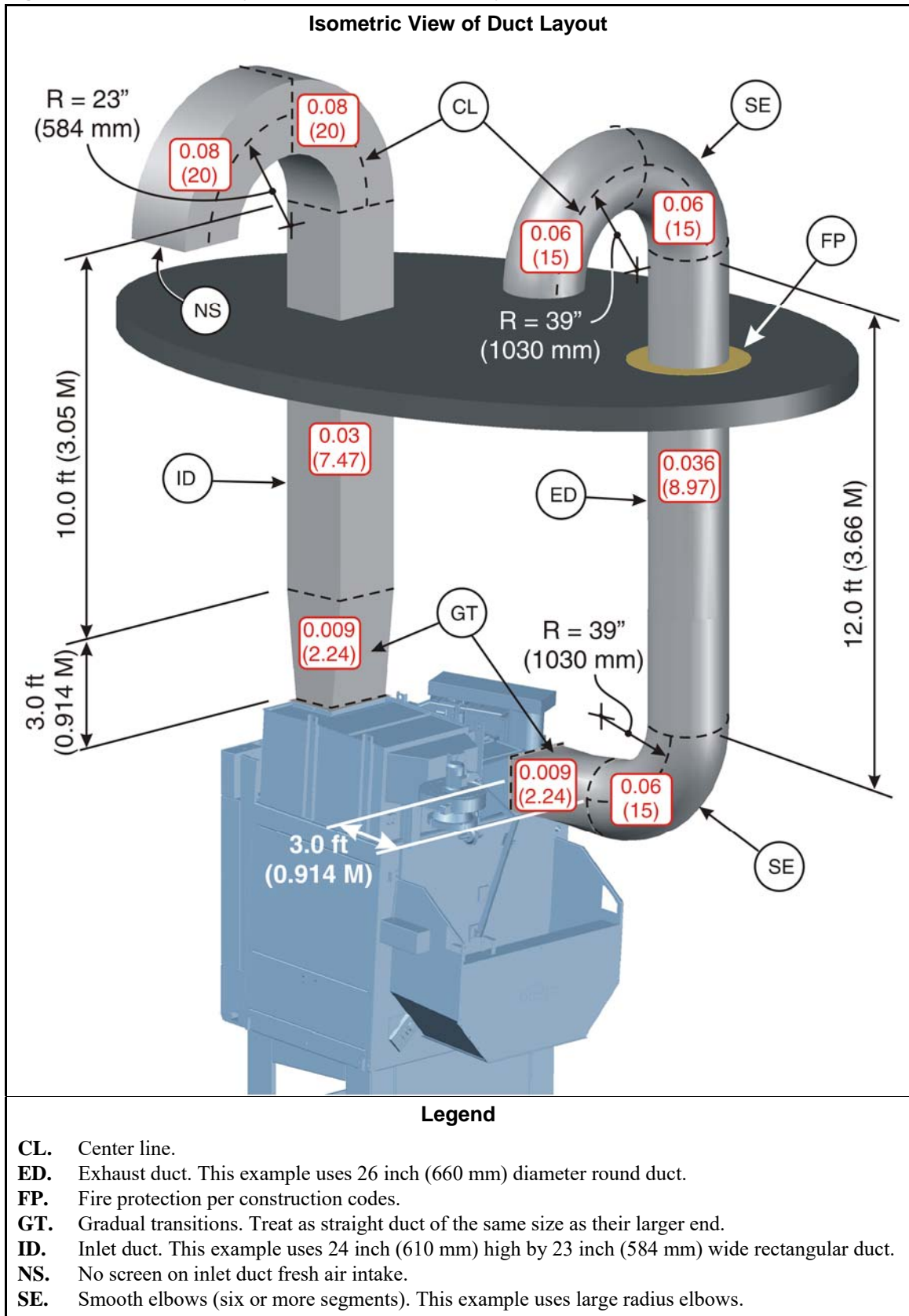
Air Specifications			Duct components, sizes, and pressure drops									
Dryer Model Prefix	Air flow - scfm (nlpm)	Velocity* for given cross-section - fpm (mpm)	Equivalent** cross-sections			Pressure drop - iwc (Pa)						
			Round	Rectangular***		Straight	90 Degree Elbows					
			Diameter in (mm)	Height - in (mm)	Width - in (mm)	iwc per 100 feet (or Pa per 100 meters)	Smooth round		3-segment round		Rectangular	
							Rs Short radius	RI Long radius	Rs Short radius	RI Long radius	Radius - in (mm)	iwc (Pa)
50040 5040 5050 58040	3600 (101941)	2034 (620)	18 (457)	14 (356)	20 (508)	0.31 (253)	0.1 (25)	0.07 (17)	0.13 (32)	0.11 (27)	15 (381)	0.09 (22)
				15 (381)	19 (483)						14.25 (362)	
				16 (406)	17 (432)						12.75 (324)	
				17 (432)	16 (406)						12 (305)	
				19 (483)	15 (381)						11.25 (286)	
				20 (508)	14 (356)						10.5 (267)	
58058	5200 (147248)	2384 (727)	20 (508)	16 (406)	22 (559)	0.37 (302)	0.13 (32)	0.09 (22)	0.17 (42)	0.14 (35)	16.5 (419)	0.12 (30)
				17 (432)	20 (508)						15 (381)	
				18 (457)	19 (483)						14.25 (362)	
				19 (483)	18 (457)						13.5 (343)	
				20 (508)	17 (432)						12.75 (324)	
				22 (559)	16 (406)						12 (305)	
58080	Contact factory											
6450	6000 (169901)	2400 (732)	22 (559)	20 (508)	19 (483)	0.30 (245)	0.09 (22)	0.06 (15)	0.18 (45)	0.14 (35)	14.25 (362)	0.12 (30)
6458 6464	8500 (240693)	2400 (732)	26 (660)	24 (610)	23 (584)	0.30 (245)	0.09 (22)	0.06 (15)	0.18 (45)	0.14 (35)	23 (584)	0.08 (20)
72072 (with tower)	10000 (283168)	2100 (640)	30 (762)	23 (584)	33 (838)	0.15 (123)	0.21 (52)	0.17 (42)	0.28 (70)	0.24 (60)	31 (787)	0.14 (35)
				24 (610)	31 (787)						30 (762)	
				25 (635)	30 (762)						28.75 (730)	
				26 (660)	28 (711)						28 (711)	
				27 (686)	27 (686)						27.25 (692)	
				28 (711)	26 (660)						26.75 (679)	
				30 (762)	25 (635)						24.5 (622)	
				31 (787)	24 (610)						23.75 (603)	
33 (838)	23 (584)	22.75 (578)										
7272 7676 8282	14000 (396436)	2600 (792)	32 (813)	27 (686)	29 (737)	0.28 (229)	0.11 (27)	0.08 (20)	0.21 (52)	0.13 (32)	27 (686)	0.13 (32)

* A velocity of at least 2000 fpm (610 mpm) helps keep lint particles in suspension.
 ** Equivalent means that the rectangular cross sections have the same pressure drop as the round cross-section.
 *** Field data determines the number of rectangular cross-sections shown for each dryer model.

3.2. Example Layout—To provide a more comprehensive example, [Figure 3](#) shows both rectangular and round duct. However, avoid using rectangular duct if possible, especially for the exhaust ductwork.

[Figure 3](#) shows the pressure drop values taken from [Table 2](#) and used in the example equations in [Section 3.3](#) superimposed on each piece of duct.

Figure 3: Example Duct Layout for Model 6464TG1L Dryer



3.3. Pressure Drop Equations and Examples—Calculate the pressure drop for each straight length of duct as follows:

$$PD_s = PD_{100} \times L / 100$$

Where:

PD_s = Pressure drop for a straight length

PD_{100} = Pressure drop per 100 feet (or 100 meters) as given in table

L = Length of straight section in feet (or meters)

The following examples calculate the pressure drop for the 10 ft (3.05 M) length of rectangular duct in [Figure 3](#).

English example:

$$0.3 \times 10 / 100 = 0.03 \text{ iwc}$$

Metric example:

$$243 \times 3.05 / 100 = 7.47 \text{ Pa}$$

Calculate the total pressure drop as follows:

$$PD_T = PD_1 + PD_2 + PD_3 + \dots + PD_n + PD_F$$

Where:

PD_T - Total external pressure drop

PD_1 - Pressure drop for the most upstream (inlet-end) component

PD_2, PD_3, \dots - Pressure drop for each next duct component in sequence

PD_n - Pressure drop for the most downstream (exhaust-end) component

PD_F - Pressure drop contributed by the external lint collection system, if any.

The following examples calculate the total pressure drop for the layout shown in [Figure 3](#) after the pressure drops for all straight sections have been calculated. The dryer in the example layout uses internal lint screens. The installation does not have a separate, external lint collection system.

English example:

$$0.08 + 0.08 + 0.03 + 0.009 + 0.009 + 0.06 + 0.036 + 0.06 + 0.06 = 0.424 \text{ iwc}$$

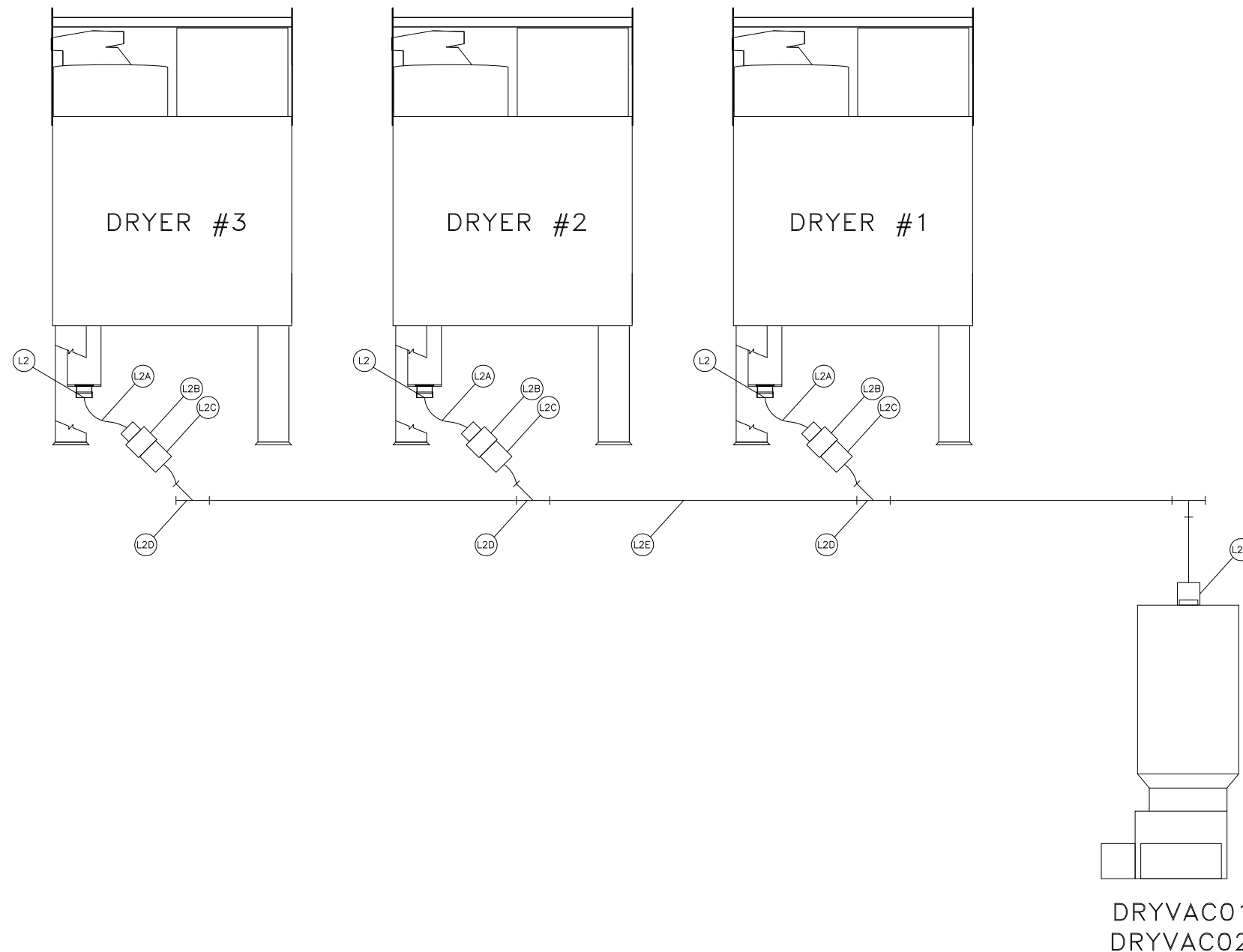
Metric example:

$$20 + 20 + 7.47 + 2.24 + 2.24 + 15 + 8.97 + 15 + 15 = 105.92 \text{ Pa}$$

— End of BIPDGI01 —

ADDITIONAL AIR REQUIREMENTS
FOR (L1)– OPTIONAL
INTERNAL LINT FILTERS
(SEE NOTE 7.)

AIR PRESSURE REQUIREMENTS: 85–110 PSI
 CONNECTION (A2): 1" NPT
 AIR USAGE (ESTIMATED):
 110 SCF IN 15 SECONDS WHEN ACTIVATED



ITEM	LEGEND
L2E	6" SHC40 PVC (NOT SUPPLIED PMC.)
L2D	6" Y – PVC (NOT SUPPLIED PMC.)
L2C	6" NO HUB CONNECTOR (NOT SUPPLIED PMC.)
L2B	REDUCER 6" X 6", (PART W7-71865, SUPPLIED PMC)
L2A	6" FLEX HOSE (NOT SUPPLIED PMC.)
L2	LINT OUTLET (6" FLEX HOSE CONNECTION) FOR OPTIONAL INTERNAL LINT SCREEN. PIPES TO DRYVAC01, DRYVAC02 OR LINT COLLECTOR BY OTHERS.

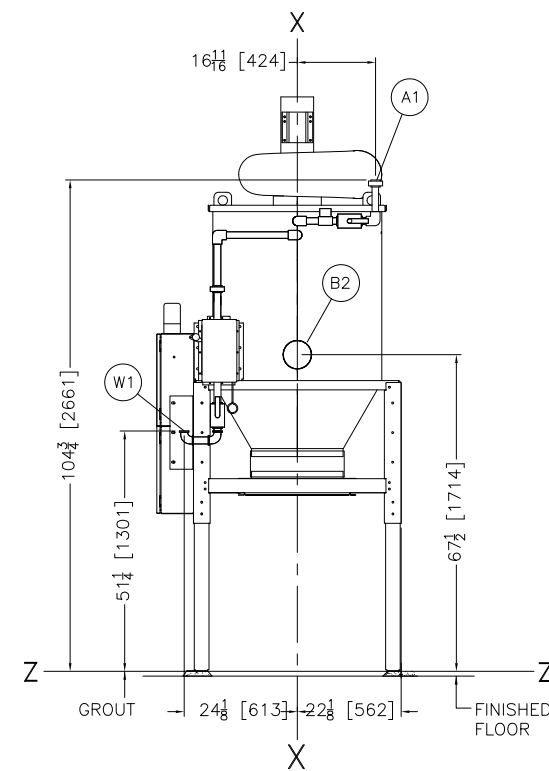
- NOTES**
- SEE DRYER OPTION PAGES FOR ADDITIONAL DIMENSIONAL INFORMATION FOR OPTIONAL INTERNAL LINT SCREENS.
 - FOR OPTIONAL INTERNAL LINT FILTERS, IT IS RECOMMENDED TO HAVE A 60 GALLON COMPRESSED AIR BOOSTER TANK FOR EVERY 5 DRYERS.
 - AS OF THIS WRITING, THE MINIMUM CLEARANCE REQUIRED BY U.S. NATIONAL 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 (e.g. 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 (SAFETY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO 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.
 - USE REFERENCE LINES "X", "Y", AND "Z" TO LOCATE ALL SERVICE CONNECTIONS.
 - NUMBERS IN BRACKETS [] DENOTE DIMENSIONS IN MILLIMETERS.
 - 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**
 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 RELATED SINUSOIDAL (ROTATING) FORCES GENERATED DURING ITS OPERATION. WRITE THE FACTORY FOR ADDITIONAL MACHINE DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.

DRYVAC01
 DRYVAC02

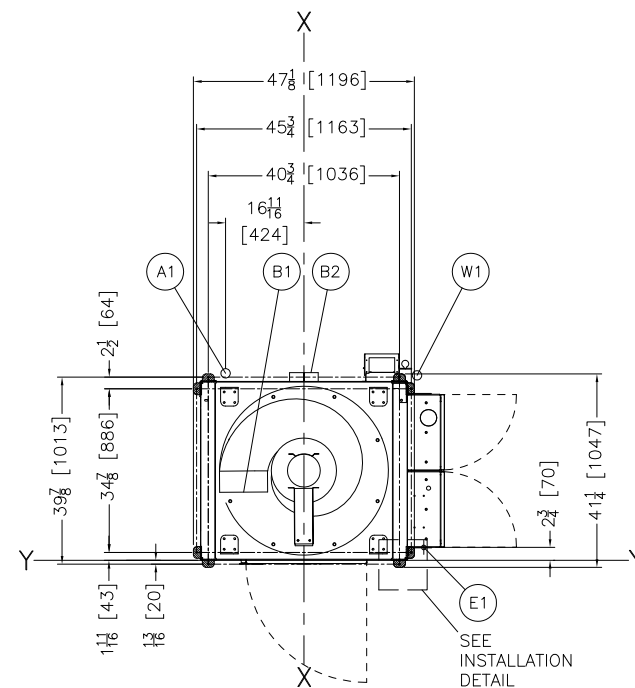
RECOMMENDED LINT COLLECTOR PIPING

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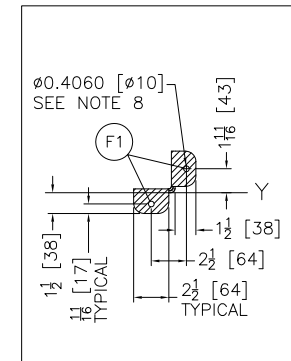
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 FAX 504/469-1849, Email: milnorinfo@milnor.com



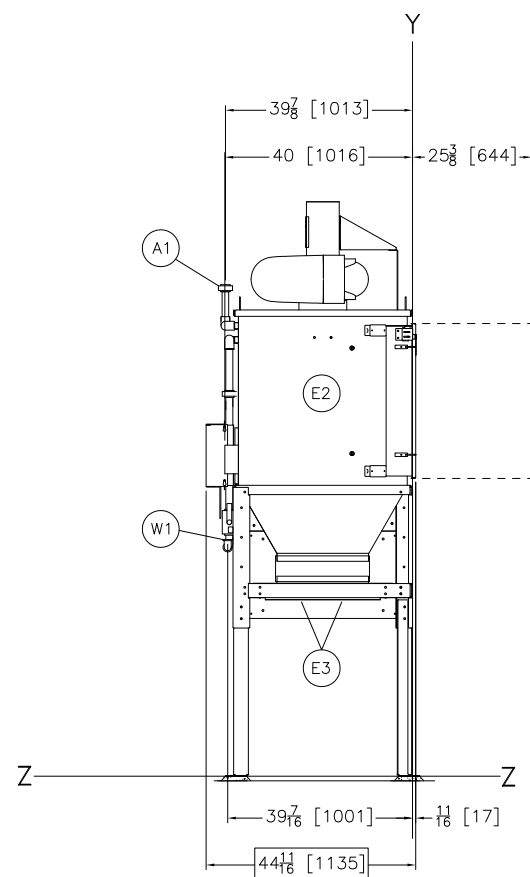
REAR VIEW



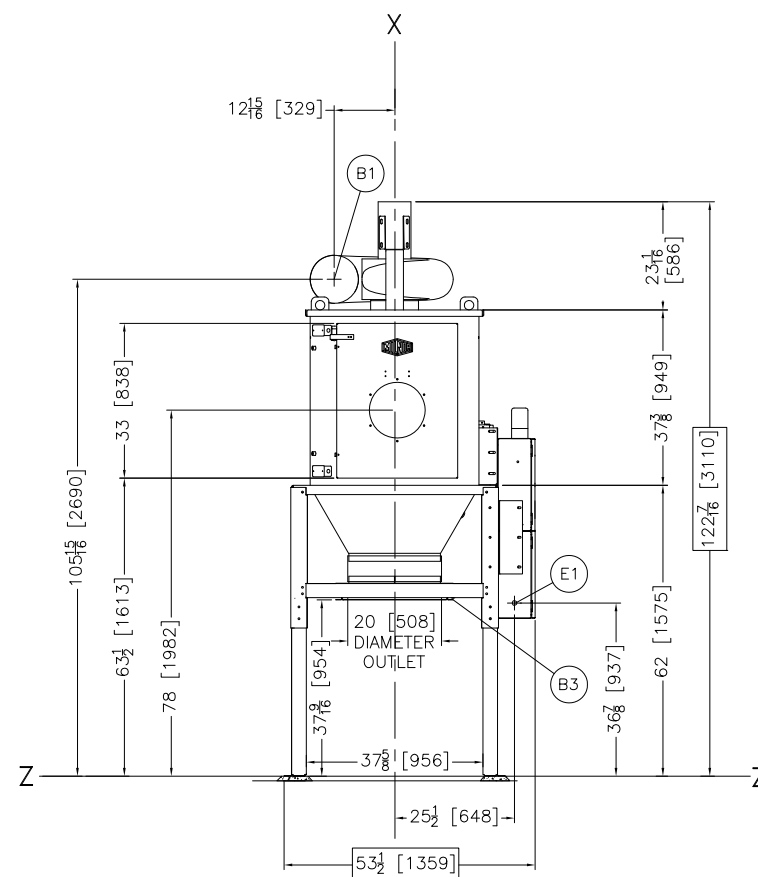
PLAN VIEW



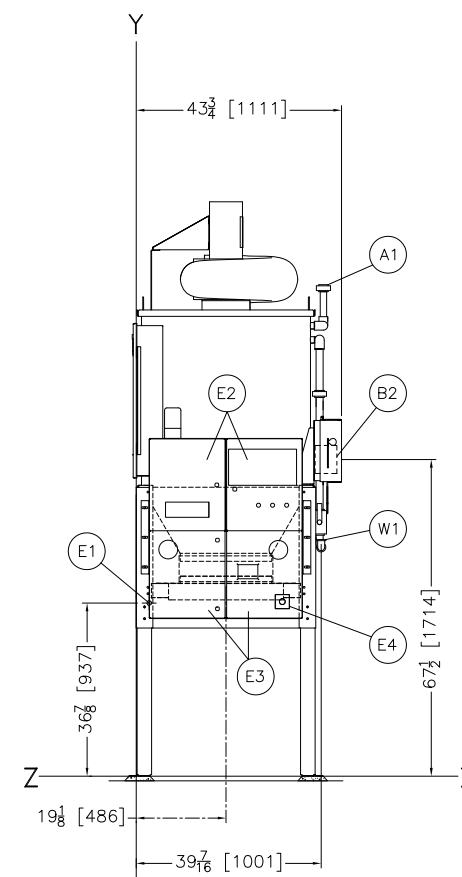
INSTALLATION DETAIL



LEFT VIEW



FRONT VIEW

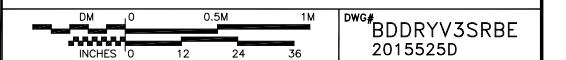


RIGHT VIEW

ITEM	LEGEND
W1	SPRINKLER WATER INLET, 1-1/4"[31] NPT PIPE CONNECTION
F1	.406[10] DIAMETER ANCHOR BOLT HOLES. USE 3/8"[10] DIAMETER ANCHOR BOLTS. NOT SUPPLIED BY PMC.
E4	EMERGENCY STOP BUTTON
E3	SEQUENCER PROCESSOR BOX.
E2	AUTOLINT CONTROL BOX
E1	MAIN ELECTRICAL CONNECTION
B3	LINT OUTLET TO CART, 20"[508] DIAMETER
B2	INLET FROM DRYER, 6" PVC PIPE CONNECTION
B1	BLOWER EXHAUST, 9-13/16"[249] OD. SEE NOTE 9.
A1	COMPRESSED AIR CONNECTION, 1 [25] NPT.

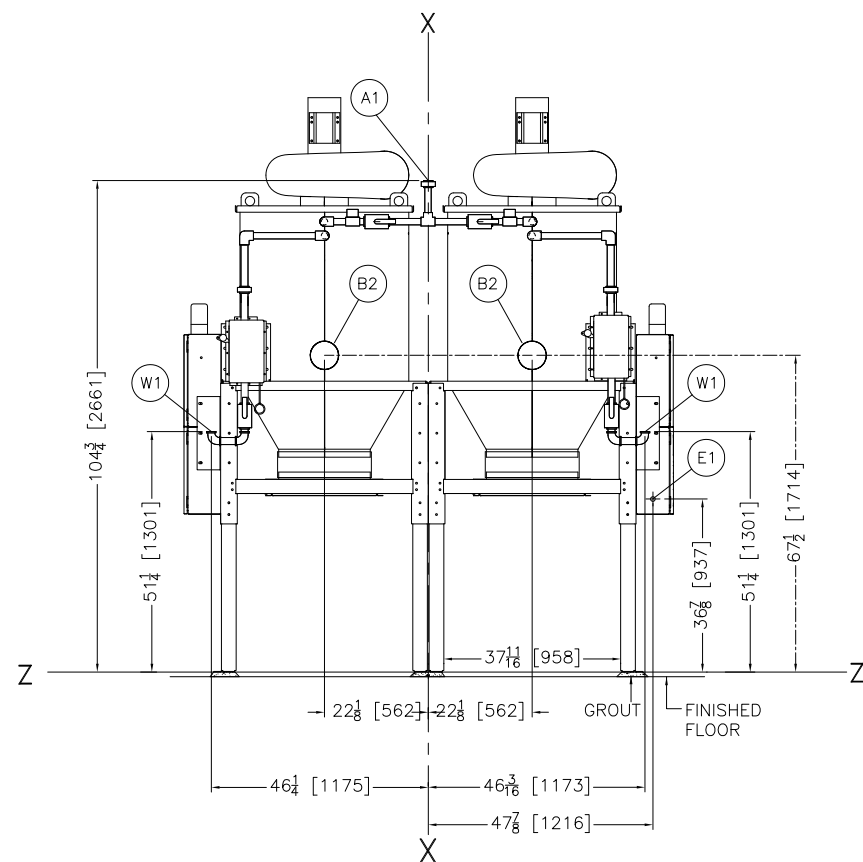
- NOTES**
- AIR DISCHARGE FROM DRYVAC MUST BE VENTED OUTSIDE.
 - DRYVAC MUST BE BOLTED TO FLOOR. SEE INSTALLATION DETAIL.
 - MINIMUM 1" [25] THICK GROUT RECOMMENDED BUT NOT REQUIRED.
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DRYVAC03 SINGLE RIGHT

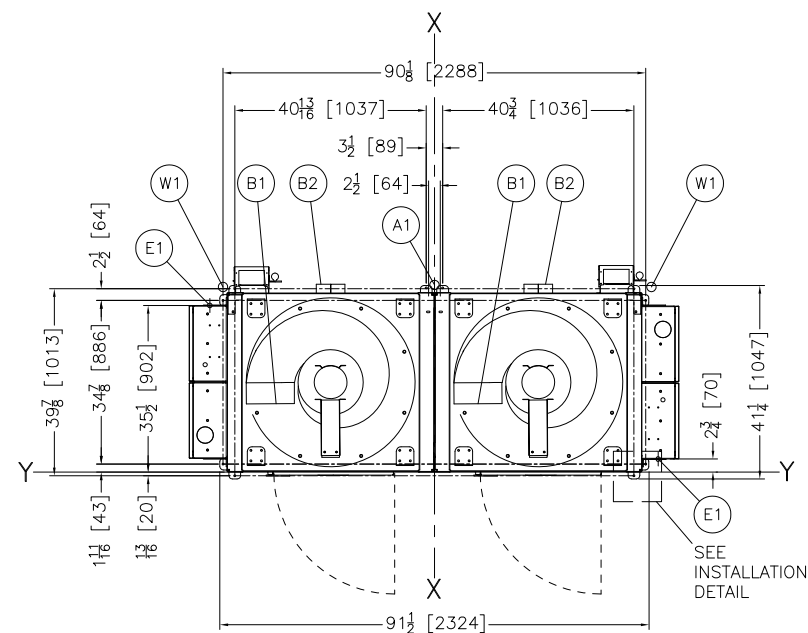


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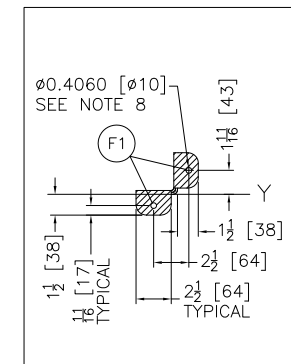
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 P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
 FAX 504/469-1849, Email: milnorinfo@milnor.com



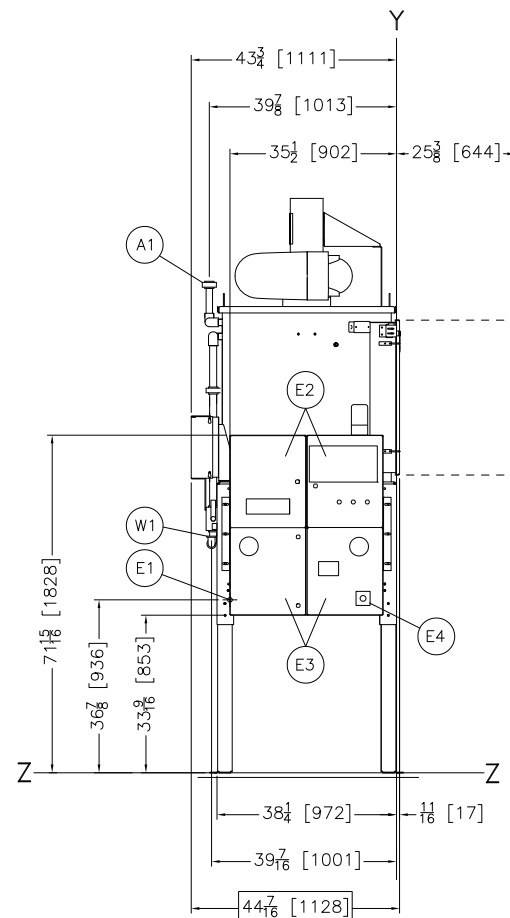
REAR VIEW



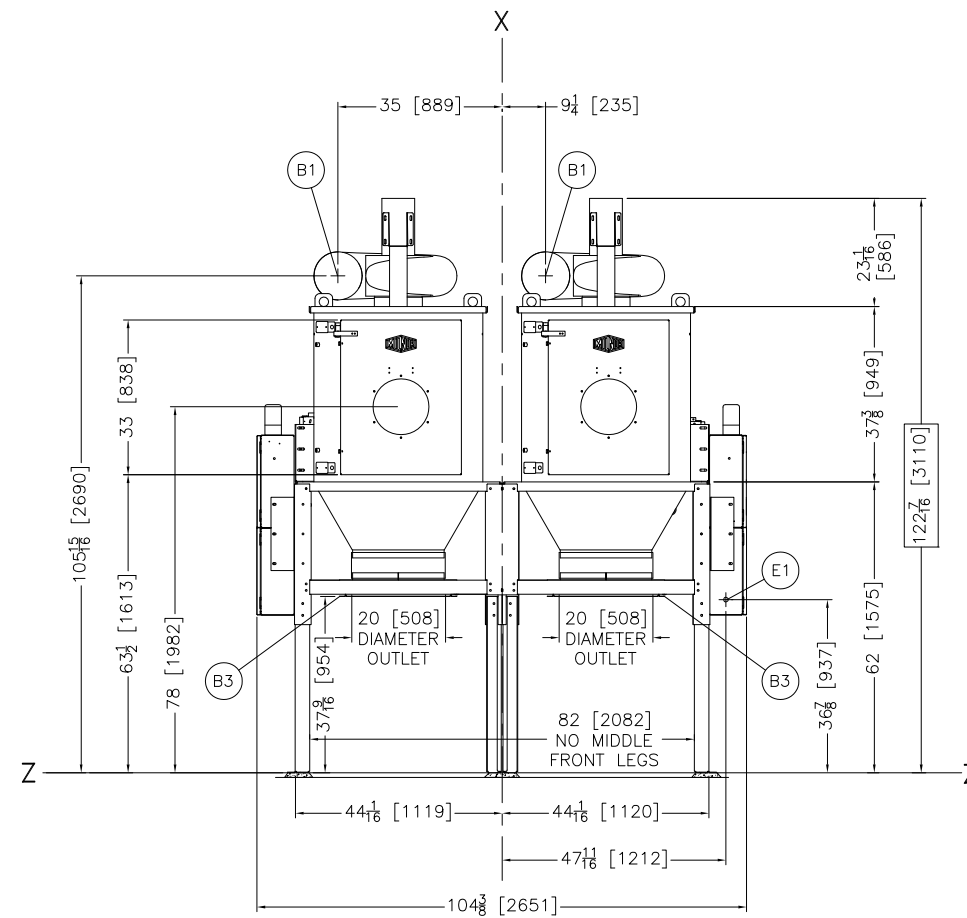
PLAN VIEW



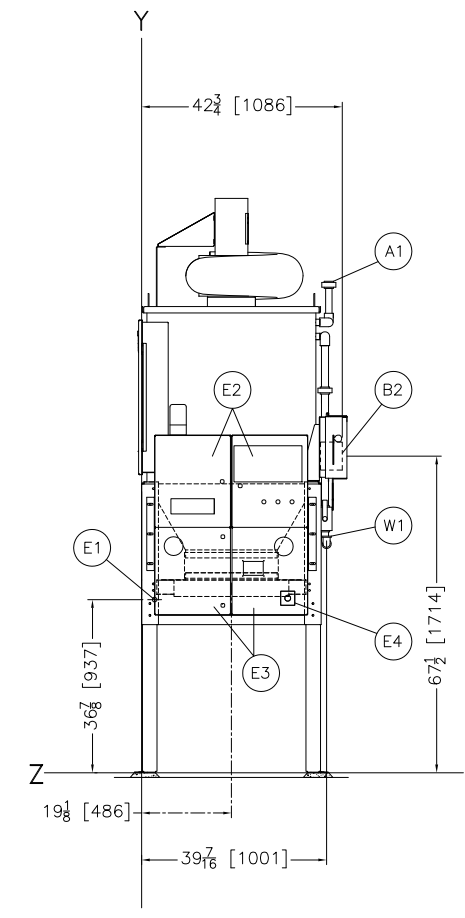
INSTALLATION DETAIL



LEFT VIEW



FRONT VIEW



RIGHT VIEW

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DUAL DRYVAC3

DWG# BDDRYV3DBE
 2015525D

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