POWEREX
PURE AIR TECHNOLOGY

General Safety Guidelines

Compressed Air / Vacuum Systems

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Safety Guidelines

This manual contains information that is very important to know and understand. This information is provided for SAFETY and to PREVENT EQUIPMENT PROBLEMS. To help recognize this information, observe the following symbols.

⚠ DANGER ***Danger indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.***

⚠WARNING ***Warning indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.***

⚠ CAUTION ***Caution indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.***

⚠ NOTICE ***Notice indicates important information that, if not followed, may cause damage to equipment.***

Unpacking

After unpacking the unit, inspect carefully for any damage that may have occurred during transit. Make sure to tighten fittings, bolts, etc., before putting unit into service.

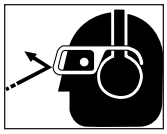
⚠WARNING ***Do not operate unit if damaged during shipping, handling or use. Damage may result in bursting and cause injury or property damage.***

General Safety Information

Since the air compressor, vacuum pump and other components (material pump, spray guns, filters, lubricators, hoses, etc.) used make up a high pressure or vacuum system, the following safety precautions must be observed at all times:

1. Read all manuals included with this product carefully. Be thoroughly familiar with the controls and the proper use of the equipment.

2. Follow all local electrical and safety codes as well as in the United States, the National Electrical Codes (NEC) and Occupational Safety and Health Act (OSHA).
3. Only persons well acquainted with these rules of safe operation should be allowed to use the compressor.
4. Keep visitors away and NEVER allow children in the work area.
5. Wear safety glasses and use hearing protection when operating the unit.

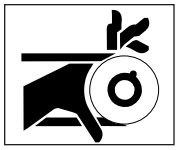


6. Do not stand on or use the unit as a handhold.
7. Before each use, inspect compressed air or vacuum system and electrical components for signs of damage, deterioration, weakness or leakage. Repair or replace defective items before using.
8. Check all fasteners at frequent intervals for proper tightness.

⚠WARNING

Motors, electrical equipment and controls can cause electrical arcs that will ignite a flammable gas or vapor. Never operate or repair in or near a flammable gas or vapor. Never store flammable liquids or gases in the vicinity of the unit.

⚠WARNING



Never operate compressor or vacuum pump without a protective guard. This unit can start automatically without warning. Personal injury or property damage could occur from contact with moving parts.

⚠ DANGER

Breathable Air Warning

This unit is NOT equipped and should NOT be used "as is" to supply breathing quality air. For any application of air for human consumption, you must fit the air compressor/pump with suitable in-line safety and alarm equipment. This additional equipment is necessary to properly filter and purify the air to meet minimal specifications for Grade D breathing as described in Compressed Gas Association Commodity Specification for air, OSHA, ANSI and/or Canadian Standards Associations (CSA).

DISCLAIMER OF WARRANTIES
IN THE EVENT THE COMPRESSOR IS USED FOR THE PURPOSE OF BREATHING AIR APPLICATION AND PROPER IN-LINE SAFETY AND ALARM EQUIPMENT IS NOT SIMULTANEOUSLY USED, EXISTING WARRANTIES ARE VOID, AND POWEREX DISCLAIMS ANY LIABILITY WHATSOEVER FOR ANY LOSS, PERSONAL INJURY OR DAMAGE.

9. Do not wear loose clothing or jewelry that will get caught in the moving parts of the unit.

⚠ CAUTION

Surface may be hot even if the unit is stopped.

10. Keep fingers away from a running unit; fast moving and hot parts will cause injury and/or burns.

General Safety Information (Continued)

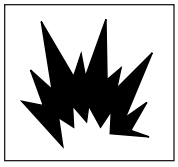
11. If the equipment should start to vibrate abnormally, STOP the unit and check immediately for the cause. Vibration is generally a warning of trouble.
12. To reduce fire hazard, keep unit exterior free of oil, solvent, or excessive grease.

⚠WARNING ***An ASME code safety relief valve with a setting no higher than the tank maximum allowable working pressure MUST be installed in the air lines or in the tank of any compressor. The ASME safety valve must have sufficient flow and pressure ratings to protect the pressurized components from bursting. The flow rating can be found in the parts manual.***

⚠ CAUTION ***Do not operate with pressure switch or pilot valves set higher than the tank maximum allowable working pressure.***

13. Never attempt to adjust ASME safety valve on compressed air units. Keep safety valve free from paint and other accumulations.

⚠ DANGER



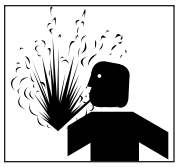
Never attempt to repair or modify a tank! Welding, drilling or any other modification will weaken the tank resulting in damage from rupture or explosion. Always replace worn, cracked or damaged tanks.

⚠ NOTICE ***Drain liquid from tank daily.***

14. Tanks rust from moisture build-up, which weakens the tank. Make sure to drain tank regularly and inspect periodically for unsafe conditions such as rust formation and corrosion.
15. Fast moving air will stir up dust and debris which may be harmful. Release air slowly when draining moisture or depressurizing a compressor system.

Installation

⚠WARNING



Disconnect, tag and lock out power source then release all pressure from the system before attempting to install, service, relocate or perform any maintenance.

⚠ CAUTION ***Do not lift or move unit without appropriately rated equipment. Be sure the unit is securely attached to lifting device used. Do not lift unit by holding onto tubes or coolers. Do not use unit to lift other attached equipment.***

⚠ CAUTION ***Never use the wood shipping skids for mounting the unit.***

Install and operate unit at least 24" from any obstructions in a clean, well ventilated area. The surrounding air temperature should not exceed 104° F. This will ensure an unobstructed flow of air to cool unit and allow adequate space for maintenance.

⚠ CAUTION ***Do not locate the air inlet near steam, paint spray, sandblast areas or any other source of contamination.***

NOTE: If compressor system is installed in a hot, moist environment, supply compressor pump with clean, dry outside air. Pipe supply air in from external sources.

TANK MOUNTING

Bolt tank on a flat, even, concrete floor or on a separate concrete foundation. Use vibration isolators between the tank leg and the floor. After placing unit on vibration pads, **do not draw bolts tight**. Allow the pads to absorb vibrations. Install a flexible hose or coupling between the tank and service piping.

⚠WARNING

Failure to properly install the tank can lead to cracks at the welded joints and possible bursting or leakage.

PIPING

⚠WARNING ***Never use plastic (PVC) pipe for compressed air. Serious injury or death could result.***

Any tube, pipe or hose connected to the unit must be able to withstand the temperature generated and retain the pressure. All pressurized components of the air system must have a pressure rating higher than or equal to the ASME safety valve setting. Incorrect selection and installation of any tube, pipe or hose could result in bursting and injury.

INSTALLING A SHUT-OFF VALVE

Install a shut-off valve on the discharge port of the compressor tank to control the air flow out of the tank. Locate the valve between the tank and the piping system.

⚠WARNING ***Never install a shut-off valve between a compressor pump and the tank without an appropriate safety valve. Personal injury and/or equipment damage may occur. Never use reducers in discharge piping.***

When creating a permanently installed system to distribute compressed air, find the total length of the system and select pipe size from the chart. Bury

MINIMUM PIPE SIZE FOR COMPRESSED AIR LINE

	Length Of Piping System			
CFM	25'	50'	100'	250'
10	1/2"	1/2"	1/2"	3/4"
20	3/4	3/4	3/4	1
40	3/4	1	1	1
60	3/4	1	1	1
100	1	1	1	1¼

MINIMUM PIPE SIZE FOR VACUUM SYSTEMS

	Length Of Piping System			
CFM	25'	50'	100'	250'
10	3/4"	3/4"	1"	1"
20	3/4	3/4	1	1
40	1	1¼	1¼	1½
60	1½	1½	1½	2
100	2	2	3	3

underground lines below the frost line and avoid pockets where condensation can gather and freeze.

Apply air pressure to the piping installation and make sure all joints are free from leaks BEFORE underground lines are covered. Before putting the unit into service, find and repair all leaks in the piping, fittings and connections.

WIRING

⚠WARNING ***All wiring and electrical connections must be performed by a qualified electrician. Installations must be in accordance with local and national codes.***

⚠ CAUTION ***Overheating, short circuiting and fire damage will result from inadequate wiring.***

Wiring must be installed in accordance with National Electrical Code and local codes and standards that have been set up covering electrical apparatus and wiring. Consult the codes and standards and observe local ordinances. Be certain that adequate wire sizes are used, and that:

1. Service is of adequate ampere rating.
2. The supply line has the same electrical characteristics (voltage, cycles and phase) as the motor.
3. Ensure the line wire is the proper size and that no other equipment is operated from the same line. The chart gives minimum recommended wire sizes for horsepower of motor provided.

MINIMUM WIRE SIZE
USE 75°C COPPER WIRE

HP	Single Phase 230V	Three Phase 208/230V	Three Phase 460/575V
3	10AWG	14 AWG	14 AWG
5	8 AWG	12 AWG	14 AWG
7.5	8 AWG	10 AWG	12 AWG
10	N/A	8 AWG	12 AWG
15	N/A	6 AWG	10 AWG
25	N/A	3 AWG	8 AWG

Recommended wire sizes may be larger than the minimum set up by local ordinances. If so, use the larger size wire to prevent excessive line voltage drop. The additional wire cost is very small compared with the cost of repairing or replacing a motor electrically "starved" by the use of supply wires which are too small.

GROUNDING

⚠ DANGER

Improperly grounded electrical components are shock hazards. Make sure all the components are properly grounded to prevent death or serious injury.

This product **must** be grounded. Grounding reduces the risk of electrical shock by providing an escape wire for the electric current if short circuit occurs.

MOTOR HOOKUP AND STARTER INSTALLATION

Branch circuit protection must be provided as specified in National Electrical Code, Chapter 2, "Wiring Design and Protection." Article 210, using the applicable article "For Motors and Motor Controllers," (Article 430).

DIRECTION OF ROTATION

NOTE: Improper rotation will result in reduced unit life or unit failure. The direction of rotation is indicated near the motor(s).

The proper direction is very important. The direction of rotation of 3 phase motors can be reversed by interchanging any two motor-line leads. For single phase motors, refer to the motor nameplate.

IMPORTANT: Check motor rotation before operating the unit.

GENERAL WIRING DIAGRAMS

⚠ NOTICE ***Consult starter manufacturer's wiring diagram for more specific information.***

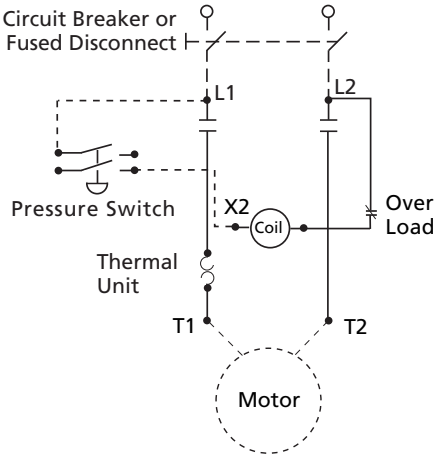


Figure 1 - Single Phase Wiring Diagram

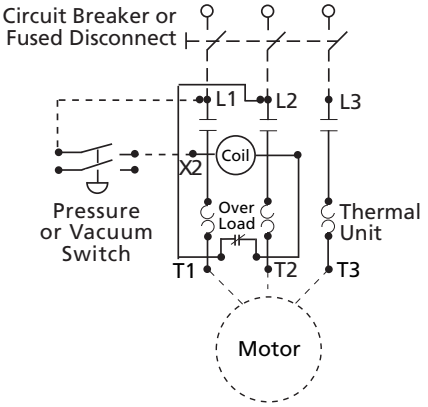


Figure 2 - Three phase wiring diagram

Notes