

PX-200 HIGH EFFICIENCY CENTRIFUGAL BLOWERS



INSTALLATION & OPERATION MANUAL

PAXTON
PRODUCTS

TW Air Management

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www.paxtonproducts.com

PLEASE READ THIS MANUAL BEFORE INSTALLING YOUR BLOWER

SAFETY PRECAUTIONS

Safety First! When installing, operating, or servicing the equipment, always use proper safety procedures in accordance with Federal, State and Local laws and regulations. To avoid injury to yourself, others, or damage to the equipment, adhere to the following safety practices.

- **Always use qualified personnel and electricians** for installation, maintenance and servicing of all Paxton blowers and motors. Electrical connections, servicing and maintenance should be performed only by properly trained, certified and licensed electricians. Operating a blower without proper grounding could result in personal injury or death.
- **Always disconnect the electrical power** at the circuit breaker or fuse box, before working on the motor and/or blower assembly. Take special precautions to ensure that the **power cannot be turned "ON"** while you are working on the motor and/or blower assembly. Observe proper lockout/tagout procedures.
- **Always wear safety glasses** while working on any Paxton blower assembly. Per OSHA regulations, always wear hearing protection when working near operating blowers.
- **Do not operate** the motor/blower assembly without the belt guard properly installed, or with the blower inlet **unprotected** by a filter element assembly.
- **Do not operate** the motor/blower assembly with the discharge outlet open. Always connect the outlet to the system piping or Paxton control valves. Failure to operate blowers under a working load could result in high current draw, damaging the motor and electrical systems.
- **Always** keep hands, tools, long hair, loose clothing, neckties, jewelry or similar loose items away from all moving or rotating parts.
- **Use caution** around all water-cooled units; the blower head assemblies operate at high temperatures, causing the outer surfaces to be dangerous to the touch.
- **Always** install motor current protectors (for 3-phase units), circuit breakers or fuses for line protection. Devices should be sized per motor nameplate data.

WELCOME TO PAXTON PRODUCTS!

Paxton Products has been manufacturing high efficiency centrifugal blowers for over 70 years. A Paxton Air System delivers superior drying and blow off performance while conserving energy by coupling high-efficiency centrifugal blowers with Paxton's custom-engineered air delivery devices.

To ensure peak performance of your new Paxton System, please read and follow all installation and operation procedures carefully.

EQUIPMENT ARRIVAL AND INSPECTION

When the shipment arrives, open the crate and inspect the contents. Check the packing list to confirm that all equipment and parts have been received. If any equipment or parts are damaged or missing, you must make a claim with the freight carrier.



Notify Paxton Products of any damages or missing components immediately. We will assist in getting replacement components or parts to you as quickly as possible. **All claims must be made within 10 days of receipt.**



Contact Customer Service at 1-800-441-7475 or by email at techsupport@paxtonproducts.com

Care should be exercised when moving the crate, to ensure that nothing is dropped or damaged.

TOOLS NEEDED FOR INSTALLATION

- 5/16" nut driver
- Standard screwdriver
- Phillips head screwdriver

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BLOWER INSTALLATION PROCEDURES (WHEN NO BLOWER ENCLOSURE IS USED)

1. Determine where to position the blower.



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A PX-200 blower weighs from 140 pounds (64 kg). The blower will be bolted to a pallet, then boxed for shipment.

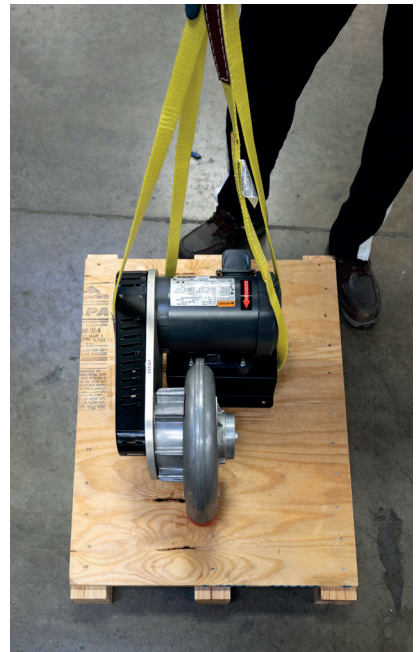
2. Uncrate the blower and accessories. Unbolt the blower from the pallet.

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Tips for blower positioning:

- a. Position the blower as close as possible to the target. The length of piping from the blower outlet to the air delivery devices should be minimized.
- b. If the blower will be placed more than 10 feet but less than 20 feet from the target, 3" rigid PVC piping should be used. If the blower will be placed more than 20 feet but less than 50 feet from the target, 4" rigid PVC piping should be used. Refer to Piping Engineering Bulletin for more guidelines.
- c. Minimize turns in the piping from the blower to the target. When turns are required, use long sweep elbows.

Request the Paxton engineering bulletin on piping for more information on piping pressure losses.



3. Move the blower into position. If a sling is used, it should be wrapped around the motor and not the blower head.



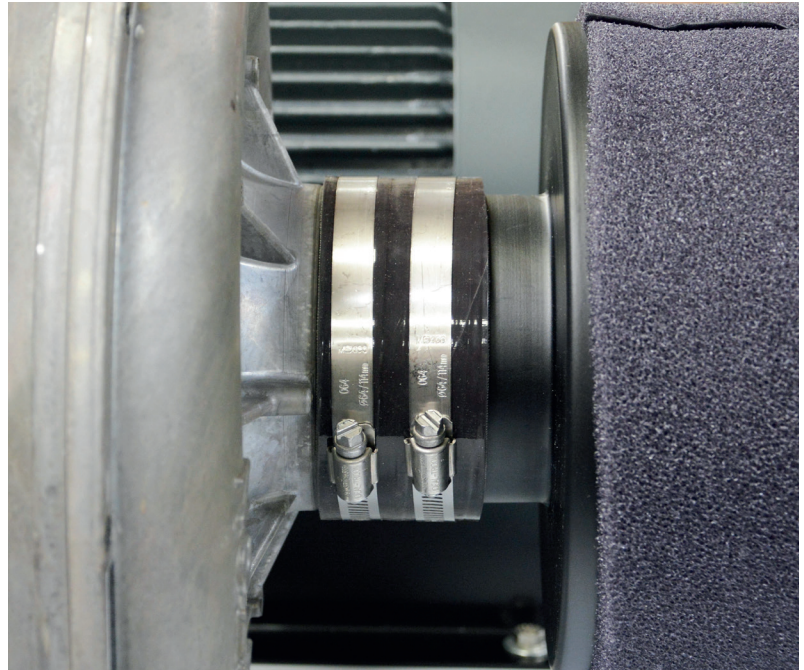
A PX-200 blower weighs 140 pounds (64 kg).



4. Mount the blower on a solid flat surface or blower stand. Tighten all mounting bolts and hardware securely.



The use of isolation pads under the motor plate is recommended. If needed, order **part # 8005063** from Paxton Customer Service at **800-441-7475**.



- Using a 5/16" nut driver or a standard screw driver, connect the air filter to the inlet of the blower.



The inlet air to the blower must be filtered to remove particulates exceeding 5 microns in size.



Improper filtration will void the blower warranty.

- Make electrical connections to the motor.
 - Switch off and disconnect electricity at the circuit.
 - Follow the wiring diagram on the motor nameplate or the enclosed Motor Wiring Diagram to connect to either the power supply or the variable frequency drive (VFD).
 - Ensure that all electrical connections are tight and well insulated to protect against moisture.



Refer to the motor nameplate for power supply requirements.

VFDs purchased from Paxton Products will be pre-programmed for use with your blower.





Follow proper lockout/tagout procedures to ensure that the power cannot be turned on while you are working on the motor.

Be sure to ground the motor.

7. Check the rotation.

- After making the electrical connections, proper electrical phase rotation must be determined.
- Bump start (turn on then immediately turn off) the motor to observe the rotation of the motor fins to ensure that it is counterclockwise when facing the far side of the motor. Do NOT remove the belt guard to determine rotation. Note the rotation labels on the blower and motor.



If running backwards, the amp draw of the motor will be 1/2 to 3/4 of the nameplate amp draw, and the blower performance will be about 50% of normal.



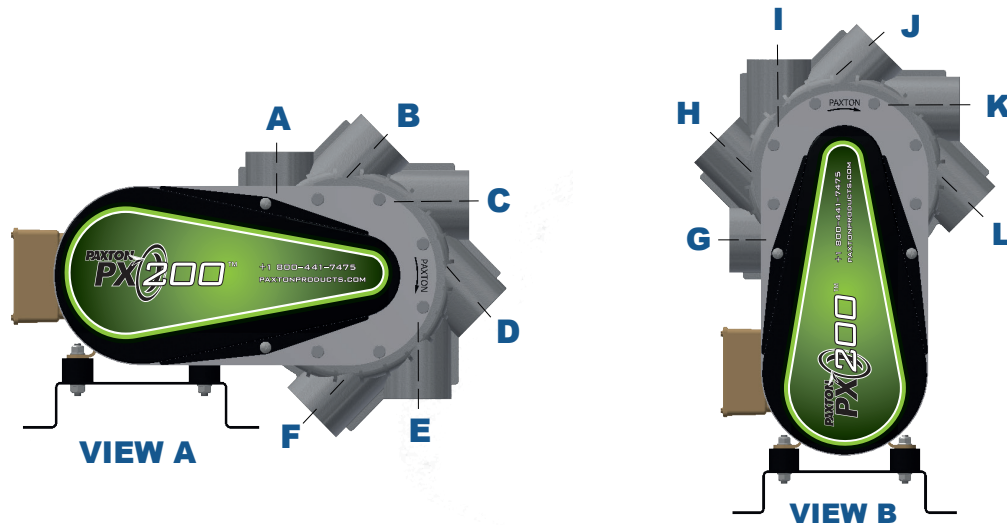
Blower rear view, with inlet air filter removed



Failure to determine proper phase rotation WILL cause severe damage to the blower. Note that backwards rotation will still generate some airflow, but not at the desired levels.

If re-wiring to change the phase rotation is required, be sure to unplug, and lockout/tagout the system before proceeding with the wiring.

8. If you need to change the blower outlet direction, see page 9.



9. Remove red cap and install piping to the air delivery devices.



PX-200 blowers have a 3" outside diameter outlet.
Do not use flexible tubing until within 5 feet of the air delivery device.

10. See separate Paxton instructions for installation of the air delivery devices.



Do not operate the blower without the air delivery devices, as uncontrolled air flow may overload the motor and /or belt drive system.

CHANGING THE BLOWER OUTLET DIRECTION

TOOLS NEEDED FOR INSTALLATION

- Nut driver
- Phillips head screwdriver
- 1/2" torque wrench
- Belt tool
- 1/2" socket

1. Disconnect power to blower.



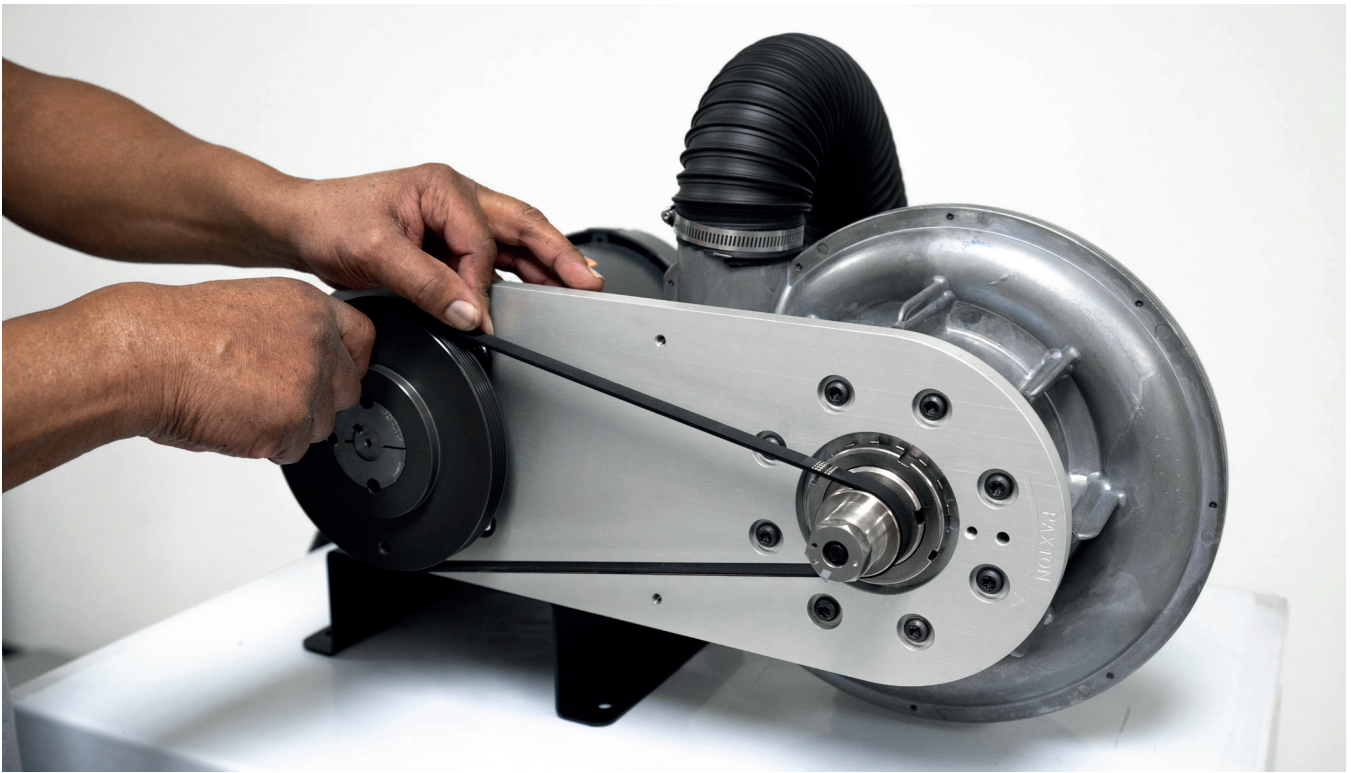
Follow proper lockout/tagout procedures to ensure that the power cannot be turned on while you are working on the blower.



2. Remove belt guard by loosening two screws using the Phillips head screwdriver. Place belt guard aside.



3. Insert the belt tool (provided by Paxton) into the open hole on the motor pulley. Screw in and hand tighten.



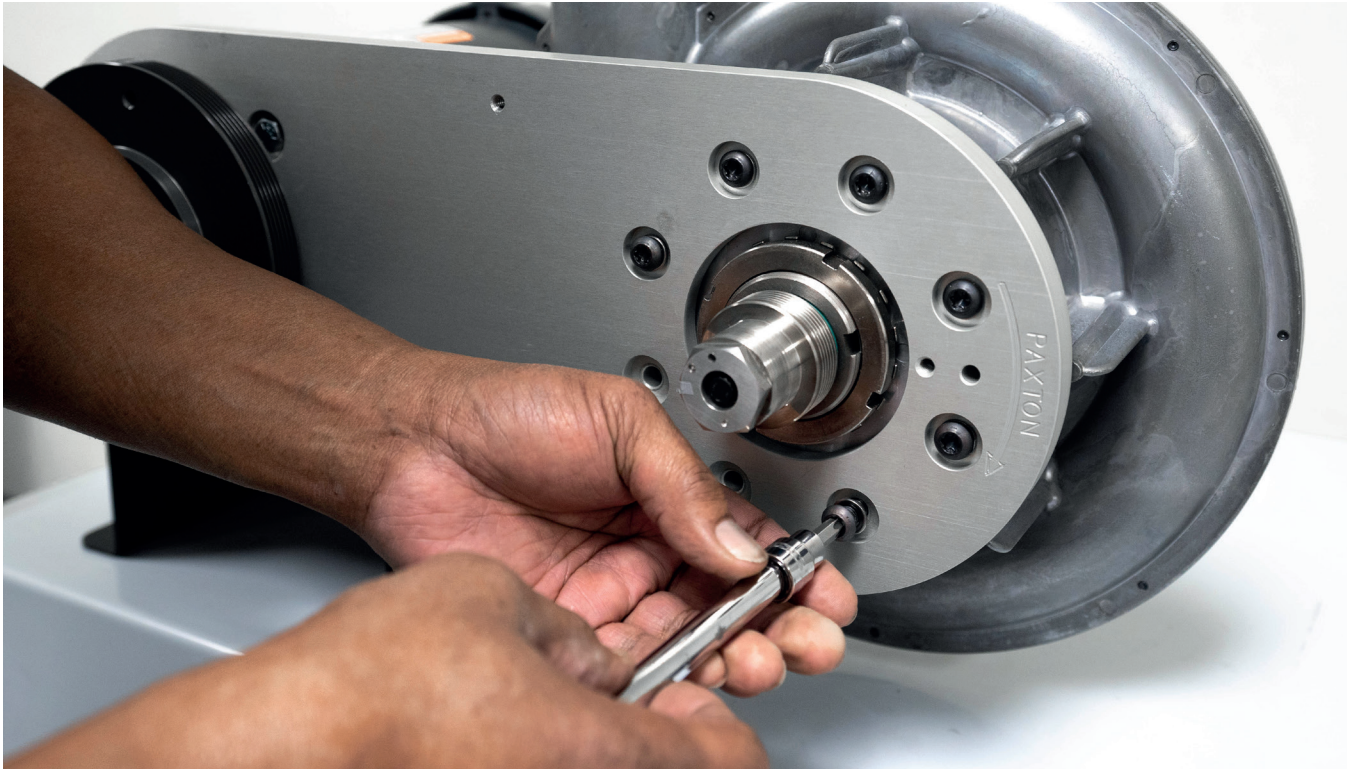
4. Using belt tool, turn motor pulley counterclockwise while simultaneously slipping belt off blower pulley. Set belt aside.



5. Remove connection to air delivery devices.



6. Remove the filter by unscrewing the wing nut. Slide filter and housing off blower head. Place aside.



7. Using 1/2" socket, loosen eight bolts around the blower pulley that hold the blower head in place.

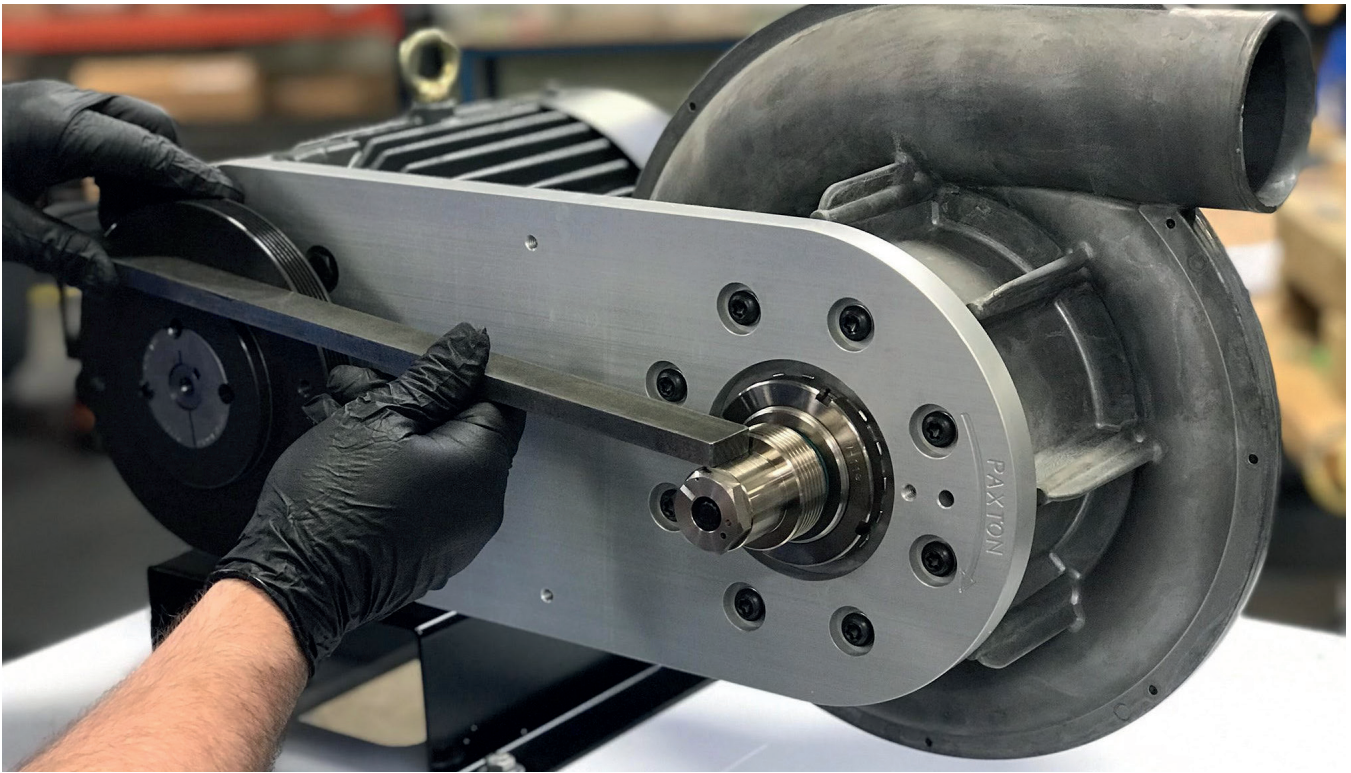


8. Steady the blower head with one hand while removing bolts.



9. Rotate the blower head to the desired outlet position.

10. Reinstall eight bolts and finger tighten, supporting the blower head on the other side of the plate.

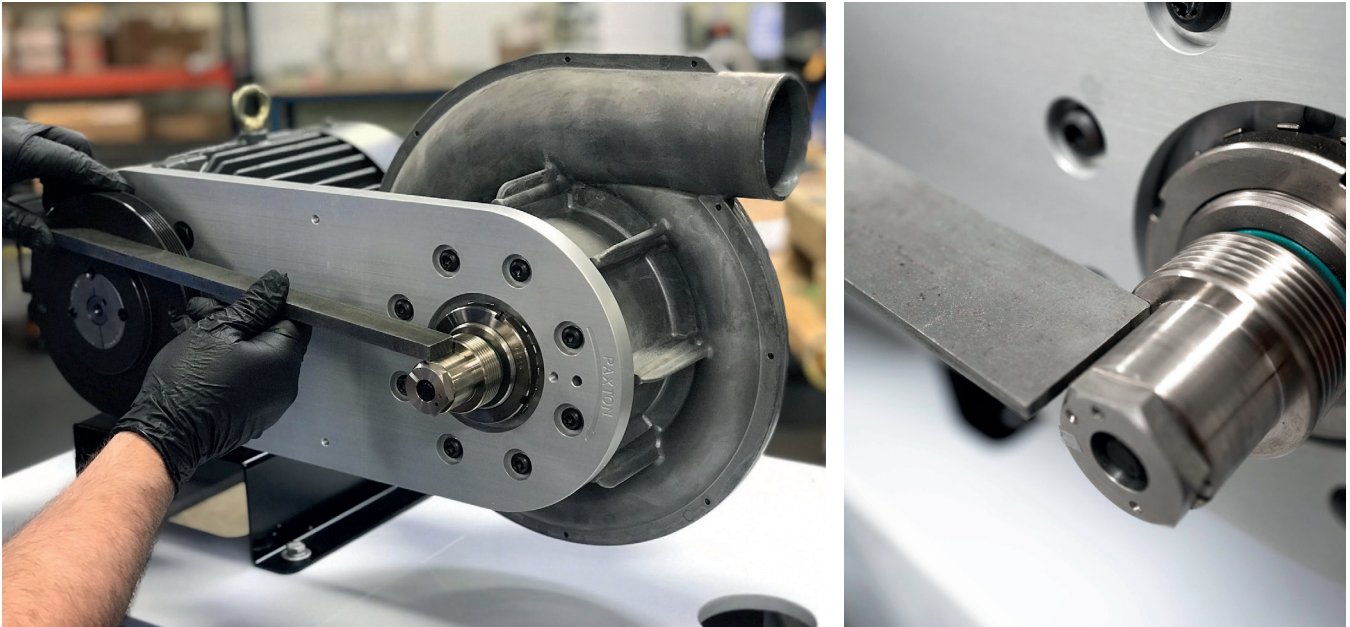


11. Check pulley alignment by using a straight edge to ensure motor pulley and blower pulley are flush to $\pm 0.02''$.



12. If not aligned, the motor pulley can be adjusted using a 3/16" hex wrench and the bolt installation tool. Loosen both bolts, then remove one of the two bolts on motor pulley. (The belt installation tool can be used to hold the motor pulley while loosening the bolt.)

13. Using the removed bolt, put into the hole at 90° and tighten. When tightening the bolt into this third hole, the motor pulley will loosen so that it can be slid in or out on the shaft to cause alignment. The motor pulley should be aligned to the blower pulley.



14. Once aligned with straight edge, back the bolt out from the third hole in the motor pulley and put back into the first hole. Torque, to 35 ft-lbs (49 Nm), then recheck alignment again. Repeat adjustment if needed.



15. Tighten blower head bolts to 15-ft-lbs (20 Nm) of torque.



Be careful not to damage the blower pulley while tightening bolts.



16. Reinstall belt by reinserting the belt tool, then wrapping the belt around the blower pulley first, then the top of the motor pulley, then turning the belt tool counterclockwise to move the belt into place. Ensure that the wording is readable left to right on the upper surface of the belt, and the grooves are properly aligned in both the motor pulley and the blower pulley.



17. Replace belt guard.



18. Reinstall filter and housing.



19. Reinstall connection to air delivery devices.

BLOWER INSTALLATION PROCEDURES (WITH BLOWER ENCLOSURE)



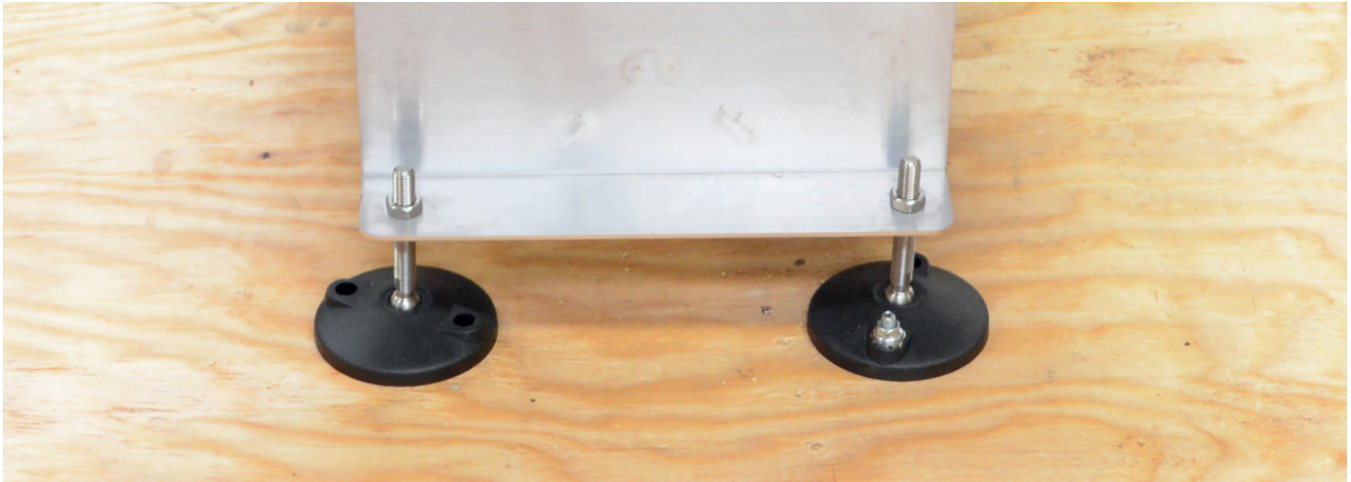
1. If you have purchased a blower enclosure from Paxton Products, the blower will be shipped already installed in the enclosure, and the entire unit bolted to a pallet, then boxed or crated.
2. Remove box/open crate and check contents against the packing sheet. Some accessories may be packaged inside the blower enclosure.

To open enclosure, remove the enclosure by pulling up and out on the four T-handle rubber latches to release them, then lift the cover straight up and off.



3. Remove accessories and set aside.
4. Determine where to position the blower.

5. Unbolt enclosure base from pallet.



6. Move blower with enclosure base into position.



i A PX-200 blower plus enclosure base weighs about 226 pounds (103 kg).

! If a sling is used, it must be wrapped around the motor, NOT the blower head!

7. Position and level the enclosure.



Tips for blower positioning:

- a. Position the blower as close as possible to the target. The length of piping from the blower outlet to the air delivery devices should be minimized.
- b. If the blower will be placed more than 10 feet but less than 20 feet from the target, 3" rigid PVC piping should be used. If the blower will be placed more than 20 feet but less than 50 feet from the target, 4" rigid PVC piping should be used. Refer to Piping Engineering Bulletin for more guidelines.
- c. Minimize turns in the piping from the blower to the target. When turns are required, use long sweep elbows.

Request the Paxton engineering bulletin on piping for more information on piping pressure losses.



8. If desired, affix the enclosure to the floor, ensuring that it is level.
9. Make electrical connections to the motor.
 - Switch off and disconnect electricity at the circuit.
 - Follow the wiring diagram on the motor nameplate or the enclosed Motor Wiring Diagram to connect to either the power supply or the variable frequency drive (VFD).
 - Ensure that all electrical connections are tight and well insulated to protect against moisture.



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Refer to the motor nameplate for power supply requirements.

VFDs purchased from Paxton Products will be pre-programmed for use with your blower.

The power cord is typically run through the enclosure base.



Follow proper lockout/tagout procedures to ensure that the power cannot be turned on while you are working on the motor.

Be sure to ground the motor.

10. Check the rotation.

- After making the electrical connections, proper electrical phase rotation must be determined.
- Bump start (turn on then immediately turn off) the motor to observe the rotation of the motor fins to ensure that it is counterclockwise when facing the far side of the motor. Do NOT remove the belt guard to determine rotation. Note the rotation labels on the blower and motor.

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If running backwards, the amp draw of the motor will be 1/2 to 3/4 of the nameplate amp draw, and the blower performance will be about 50% of normal.



Blower rear view, with inlet air filter removed

11. Remove red cap and install piping to air delivery devices.



12. Reinstall the enclosure cover and fasten.

13. See separate Paxton instructions for installation of the air delivery devices.



Do not operate the blower without the air delivery devices, as uncontrolled air flow may overload the motor and /or belt drive system.

INSTALLATION OF THE OUTLET AIR FILTER

While inlet air filtration is required on Paxton Air Systems, Paxton also offers outlet air filtration as an option for critical applications. Outlet filtration is available in NANO and HEPA qualities.

Outlet filtration housings are sized to minimize pressure drops across the filter, to maintain system pressures at the target, thus ensuring the highest quality blow off, drying or rinsing.

The outlet air filter comes pre-installed in the filter housing.

1. The outlet filtration housing should be installed within 10 feet (3 meters) of the blower, using the 3" flexible hose provided.

Install one end of the hose to the blower or blower enclosure outlet; and the other end to the inlet of the filter housing.



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The inlet to the filter housing can be identified using the directional arrow on the filter housing.

2. Connect hose or pipe to filter housing outlet. Flexible hose can be used if the distance to the air delivery devices is less than 10 feet (3 meters). If distance is greater than 10 feet, use 3" PVC piping.



3. The outlet air filtration housing comes equipped with a filter gauge for monitoring the pressure drop across the filter.

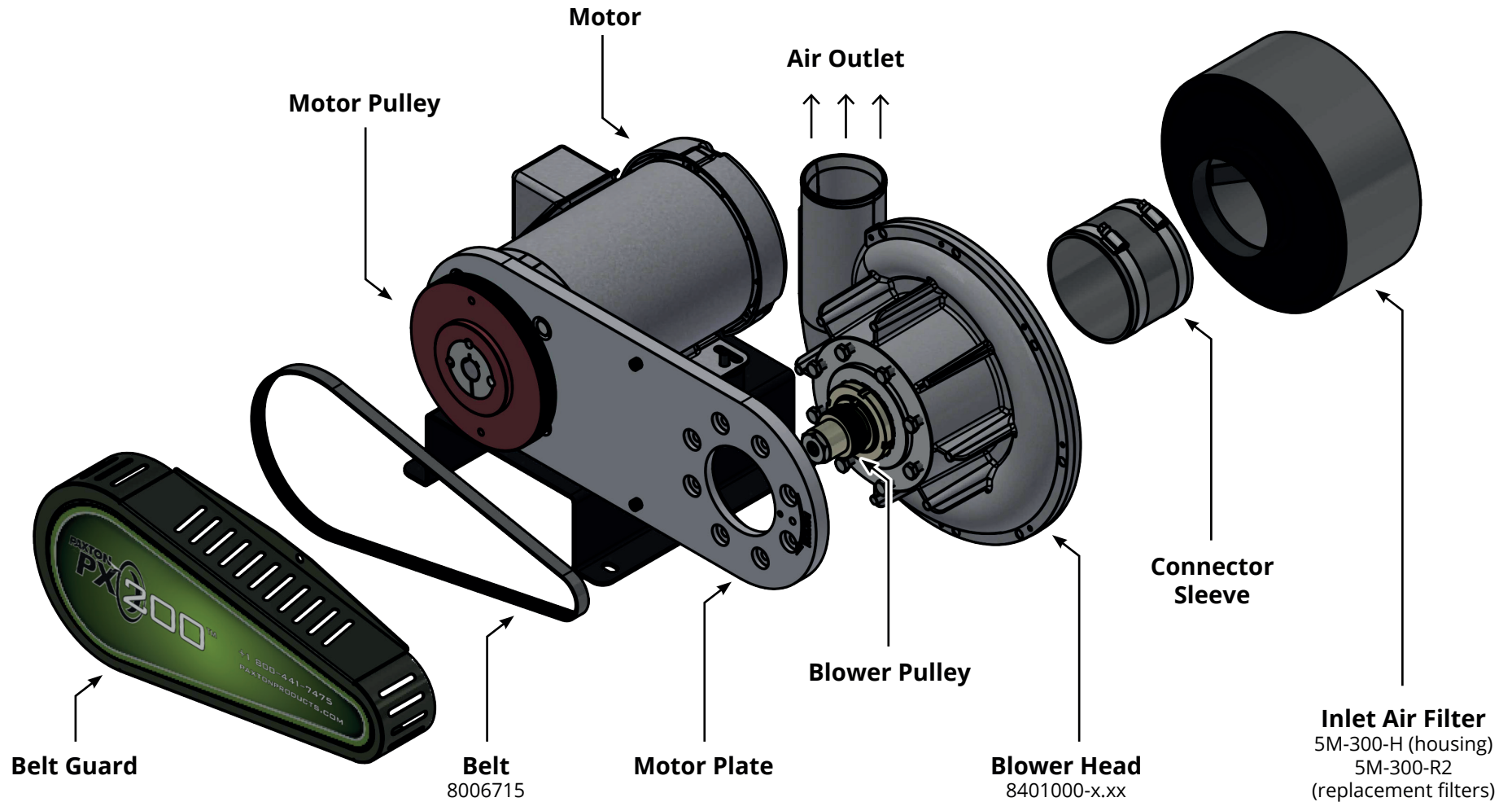
The gauge must be zeroed at startup. To zero, start the system and allow it to reach target flow rate (10–30 minutes). With the clean filter installed, and using a small flat head screw driver, adjust the gauge to read “0” inches of water column.



New filters can be ordered by calling **800-441-7475** or sending an email to **orders@paxtonproducts.com**

4. The filter should be changed when the pressure drop approaches 10” of water column, i.e. when the gauge indicator reaches the red zone.

PX-200 BLOWER, EXPLODED VIEW



GETTING TO KNOW YOUR BLOWER

A blower is a popular method for pumping air for industrial applications. Blowers use centrifugal force to aid the pumping. Your new Paxton high efficiency centrifugal blower consists of the following key components:

1. Motor

2. Belt Drive Assembly

- a. Motor Plate
- b. Motor Pulley
- c. Blower Pulley
- d. Idler/Tensioner
- e. Belt
- f. Belt Guard

3. Blower Head

- a. Bearing carrier with ABEC-7 bearings
- b. Scroll
- c. Impeller (inside the scroll)

4. Inlet Air Filter

HOW THE BLOWER WORKS

An electric motor spins at about 3500 rpm, and through the blower's belt and pulley system, it causes the impeller to spin at about 12,000–18,000 rpm. Room air is drawn into the blower through the inlet air filter. The inlet air comes into contact with the spinning impeller, accelerating the air. The accelerated air exits the blower at high velocity and pressures of 30–80 inches of water (75–200 mbar). The accelerated air is discharged into the piping system as it travels to the air delivery devices.



The blower must not be used without an inlet air filter, as the incursion of dust or dirt into the blower will damage the impeller and void the warranty.

STARTING AND STOPPING

Blower performance over the long term is maximized by minimizing starts and stops. If your application requires frequent starts and stops, the installation of a variable frequency drive (preferred) or soft start system is highly recommended to reduce the initial start up torque. This is particularly critical for larger horsepower models.

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Do not start and stop the blower more than 6 cycles per hour, without the use of a variable frequency drive.

BLOWER OPERATION

1. After ensuring correct motor shaft rotation and connecting the air delivery devices, your new Paxton blower is now ready to use.
2. Switch the power “ON” to the blower unit and let it run while you measure the blower’s voltage and amperage rating and compare to the values listed on the motor nameplate. Measure amperage and voltage on L1, L2 and L3 to ground using a Clamp Meter.



Do not operate the blower if it exceeds the voltage or current ratings on the motor nameplate. Call Paxton Technical Support at 1-800-441-7475.

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If wired improperly and running backwards, the amp draw of the motor will be $\frac{1}{2}$ to $\frac{3}{4}$ of the nameplate amp draw, and the blower performance will be about 50% of normal.

3. The blower will achieve steady state operation in 30–60 minutes.

To ensure peak performance of your Paxton Air System, please read and follow all service and maintenance procedures carefully, as defined in the Service and Maintenance Manual, enclosed with the shipment and available online at:

www.paxtonproducts.com/products/centrifugalblowers/pxseries

MAINTENANCE GUIDELINES

In order to maintain the blower warranty, it is necessary to use genuine Paxton replacement parts replaced at the minimum frequency prescribed below. Please refer to the Service and Maintenance Manual for replacement instructions.

Paxton part	1 or 2 shifts/day operation	3 shifts/day operation
Belts	12 months	6 months or 4000 hours
Filters	<p>Filters must be changed as often as needed to maintain blower or system performance as measured by increased pressure drop across the filter. The filter must be changed if the pressure drop exceeds 10" of water column. Filter change frequency will vary widely based on environmental and atmospheric conditions.</p> <p>Minimum recommended filter change frequency is every 12 months for 1 or 2 shift/day operation; and every 6 months for 3 shift/day operation.</p>	

PARTS LIST

Type	Description	Part #
Blower Head*	Blower head assembly with 1.50 pulley	8401000-1.50
	Blower head assembly with 1.81 pulley	8401000-1.81
Belt	Belt, 16 groove, 460 long Poly-rib Composite Construction	8006715
	Belt (5 pack), 16 groove, 460 long Poly-rib Composite Construction	8006715-5
Filters	Filter Elements (2 pack), 5 micron 300 cfm maximum flow	5M-300-R2
	Filter Silencer with Housing and Clamps 5 micron, 300 cfm maximum flow	5M-300-H

* Blower pulley size is dependent on the flow and pressure of the blower. The serial number is needed to determine the lowest blower head assembly.

Paxton Products, an ITW Company

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