GREENHECK
Building Value in Air.

Document 475267
Model SDPHE
Hazardous Sidewall Propeller Fans

Installation, Operation and Maintenance Manual

Please read and save these instructions for future reference. 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 these instructions will result in voiding of the product warranty and may result in personal injury and/or property damage.

Hazardous sidewall propeller fan line is the ideal choice for ventilating spaces containing flammable or explosive vapors, gases, or dusts as defined under Article 500 of the National Electrical Code (NEC). Direct drive exhaust fans can be mounted in vertical or horizontal positions.

Performance spans the range between 604 to 6,317 cfm (1026 to 10,733 m^3/hr) with static pressures up to .5 in. wg (125 Pa). Fan sizes range from 12 to 24 inches (305 to 610 mm). Regardless of fan size or performance all Greenheck sidewall propeller fans are built to perform with the same high standards of reliability and durability.

General Safety Information

Only qualified personnel should install this fan. Personnel should have a clear understanding of these instructions and should be aware of general safety precautions. Improper installation can result in electric shock, possible injury due to coming in contact with moving parts, as well as other potential hazards. Other considerations may be required if high winds or seismic activity are present. If more information is needed, contact a licensed professional engineer before moving forward.

WARNING
Always disconnect, lock and tag power source before installing or servicing. Failure to disconnect power source can result in fire, shock or serious injury.
CAUTION
When servicing the fan, motor may be hot enough to cause pain or injury. Allow motor to cool before servicing.
CAUTION
Precaution should be taken in explosive atmospheres.
AVERTISSEMENT
Pour écarter les risques d'incendie, de choc électrique ou de blessure grave, veiller à toujours débrancher, verrouiller et étiqueter la source de courant avant l'installation ou l'entretien.

ATTENTION
Lors de toute intervention sur la soufflante, le moteur peut être suffisamment chaud pour provoquer une douleur voire une blessure. Laisser le moteur refroidir avant toute maintenance.
ATTENTION
Faire preuve de précaution dans les atmosphères explosives.

1. Follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the National Fire Protection Agency (NFPA), where applicable.
2. The rotation of the propeller is critical. It must be free to rotate without striking or rubbing any stationary objects.
3. Motor must be securely and adequately grounded.
4. Do not spin fan propeller faster than max cataloged fan RPM. Adjustments to fan speed significantly effects motor load. If the fan RPM is changed, the motor current should be checked to make sure it is not exceeding the motor nameplate amps.
5. Verify that the power source is compatible with the equipment.
6. Never open access doors to a duct while the fan is running.

Receiving, Unpacking, and Storage

Receiving

Upon receiving the product, check to ensure all items are accounted for by referencing the delivery receipt or packing list. Inspect each crate or carton for shipping damage before accepting delivery. Alert the carrier of any damage detected. The customer will note damage (or shortage of items) on the delivery receipt and all copies of the bill of lading which is countersigned by the delivering carrier. If damaged, contact your local representative immediately. Any physical damage to the unit after acceptance is not the responsibility of the manufacturer.

Unpacking

Verify that all required parts and the correct quantity of each item have been received. If any items are missing, report shortages to your local representative to arrange for obtaining missing parts. Sometimes it is not possible that all items for the unit be shipped together due to availability of transportation and truck space. Confirmation of shipment(s) must be limited to only items on the bill of lading.

Storage

Fans are protected against damage during shipment. If the unit cannot be installed and operated immediately, precautions need to be taken to prevent deterioration of the unit during storage. The user assumes responsibility of the fan while in storage. The manufacturer will not be responsible for damage during storage. These suggestions are provided solely as a convenience to the user.

Indoor - The ideal environment for the storage of fans and accessories is indoors, above grade, in a low humidity atmosphere that is sealed to prevent the entry of blowing dust, rain or snow. Temperatures should be evenly maintained between 30° to 110°F (-1° to 43°C). Wide temperature swings may cause condensation and “sweating” of metal parts.

Remove any accumulations of dirt, water, ice or snow and wipe dry before moving to indoor storage. To avoid “sweating” of metal parts, allow cold parts to reach room temperature. To dry parts and packages, use a portable electric heater to get rid of any moisture build up. Leave coverings loose to permit air circulation and to allow for periodic inspection.

The unit should be stored at least 3-1/2 in. (89 mm) off the floor on wooden blocks covered with moisture proof paper or polyethylene sheathing. Aisles between parts and along all walls should be provided to permit air circulation and space for inspection.

Outdoor - Fans designed for outdoor applications may be stored outdoors, if absolutely necessary. Roads or aisles for portable cranes and hauling equipment are needed.

The fan should be placed on a level surface to prevent water from leaking into the fan. The fan should be elevated on an adequate number of wooden blocks so that it is above water and snow levels and has enough blocking to prevent it from settling into soft ground. Locate parts far enough apart to permit air circulation, sunlight and space for periodic inspection. To minimize water accumulation, place all fan parts on blocking supports so rain water will run off.

Do not cover parts with plastic film or tarps as these cause condensation of moisture from the air passing through heating and cooling cycles.

Fan propellers should be blocked to prevent spinning caused by strong winds.

Inspection and Maintenance During Storage

While in storage, inspect fans once per month. Keep a record of inspection and maintenance performed.

If moisture or dirt accumulations are found on parts, the source should be located and eliminated. At each inspection, rotate the propeller by hand ten to fifteen revolutions to distribute lubricant on motor.

Machined parts coated with rust preventive should be restored to good condition promptly if signs of rust occur. Immediately remove the original rust preventive coating with petroleum solvent and clean with lint free cloths. Polish any remaining rust from surface with crocus cloth or fine emery paper and oil. Do not destroy the continuity of the surfaces. Thoroughly wipe clean with Tectyll® 506 (Ashland Inc.) or the equivalent. For hard to reach internal surfaces or for occasional use, consider using Tectyll® 511M Rust Preventive, WD-40® or the equivalent.

Removing from Storage

As fans are removed from storage to be installed in their final location, they should be protected and maintained in a similar fashion until the fan equipment goes into operation.

Pre-Installation Checks

1. Check the chart below for correct wall opening dimensions.

Fan Size	Recommended Wall Opening
12	14-1/2 x 14-1/2 (368 x 368)
16	18-1/2 x 18-1/2 (470 x 470)
18	20-1/2 x 20-1/2 (521 x 521)
20	26-1/2 x 26-1/2 (673 x 673)

All dimensions given in inches (millimeters).

2. Check motor voltage and amperage rating for compatibility with electrical supply. Supply wiring must be properly fused and conform to local and national codes.
3. Motor load amperage must be checked and compared to nameplate rating to avoid serious damage to motor when speed is increased.

Installation

WARNING

Always disconnect, lock and tag power source before installing or servicing. Failure to disconnect power source can result in fire, shock or serious injury.

WARNING

Installation and troubleshooting are to be performed only by qualified personnel.

CAUTION

If gases, other than clean air, are to be exhausted using the fan, then the user bears the responsibility of determining

WARNING

Not for use where paint residue can accumulate on motor.

CAUTION

To reduce the risk of ignition of hazardous atmospheres, disconnect the fan from the supply circuit before opening. Keep the motor tightly closed with in operation.

AVERTISSEMENT

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AVERTISSEMENT

L'installation et le dépannage doivent impérativement être confiés à du personnel qualifié.

ATTENTION

Si des gaz autres que de l'air propre doivent être évacués au moyen de ce ventilateur, alors l'utilisateur a pour responsabilité de déterminer si le ventilateur est adapté et sûr pour l'application considérée.

AVERTISSEMENT

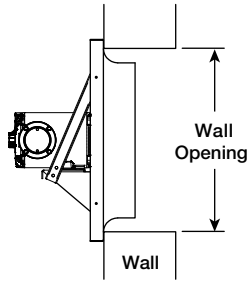
Ne pas utiliser aux endroits où des résidus de peinture peuvent s'accumuler sur le moteur.

ATTENTION

Pour réduire le risque d'inflammation dans les atmosphères dangereuses, débrancher le ventilateur du circuit d'alimentation avant de l'ouvrir. Garder le moteur hermétiquement fermé lorsqu'il est en marche.

Wall Mounting

1. Move fan to the desired location to be mounted.
2. Cut an appropriate sized hole in the wall.



3. The fan should be securely mounted within a rigid framework to prevent flexing or movement of the fan frame during operation. The fan frame should be equally supported on all sides within the framework and caution should be taken to avoid twisting of the fan frame during installation.

NOTE: Allowing the fan frame to flex or move during operation will create harmful vibrations which may damage the unit.

4. Fans should be mounted in opening with 1/4 inch clearance around perimeter. Framing should be secured to building structure utilizing corrosion resistant fasteners (by others). Fasteners should be used in all pre-punched mounting holes.
5. Check all fasteners and set screws for tightness.
6. Rotation direction of the propeller should be checked by momentarily turning the unit on. Rotation should be in the same direction as the rotation decal affixed to the unit. For 3-phase installations, fan rotation can be reversed by interchanging any two of the three electrical leads. For single phase installations follow the wiring diagram located on the motor.

Electrical Connection

NOTE: Refer to motor nameplate for wiring procedures. Refer to switch manufacturer for installation and wiring procedures.

1. Motor and fan must be securely grounded (bare metal) to a suitable electric ground, such as a grounded water pipe or ground wire system. Comply with all local and national safety codes including the National Electrical Code (NEC) and National Fire Protection Act (NFPA).

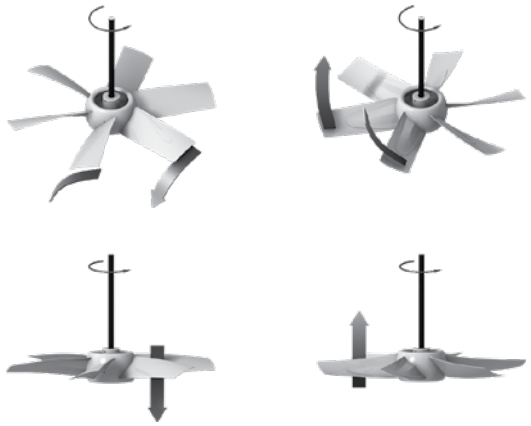
WARNING
Comply with all local and national safety codes including the National Electrical Code (NEC) and National Fire Protection Act (NFPA).
AVERTISSEMENT
Respecter tous les codes de sécurité en vigueur, notamment le National Electrical Code (NEC) et le National Fire Protection Act (NFPA).

NOTE: Motor and switch must be classified as hazardous for fan to be suitable for use in hazardous environments. Installation must be performed by qualified personnel with a suitable motor and disconnect for application.

2. Wire motor for desired voltage per wiring diagram on motor.
3. Wire control switches at ground level.
4. Before activating fan, inspect to be sure that there are no obstructions or debris that would interfere with the propeller.

Pre-Starting Checks

1. Check all fasteners and setscrews for tightness.
2. The propeller should rotate freely and not rub on the fan panel venturi. Rotation direction of the propeller should be checked by momentarily turning the unit on. Propeller blade should cup and throw the air when rotating in the correct rotation as shown in the figure below. Rotation should be in the same direction as the rotation decal affixed to the unit.



3. For 3-phase installations, fan rotation can be reversed by simply interchanging any two of the three electrical leads. For single-phase installations follow the wiring diagram located on the motor.

Maintenance

WARNING
Always disconnect, lock and tag power source before installing or servicing. Failure to disconnect power source can result in fire, shock or serious injury.
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Routine Maintenance

Once the fan has been put into operation, a periodic maintenance program should be set up to preserve the reliability and performance of the fan. Items to be included in this program are: Fasteners and Setscrews, Lubrication, and Removal of Dust and Dirt.

Fasteners and Setscrews

Any fan vibration has a tendency to loosen mechanical fasteners. A periodic inspection should include checking all fasteners and setscrews for tightness. Particular attention should be paid to setscrews or taper-lock bushings attaching the propeller to the motor shaft. In addition, check all fasteners attaching the motor to the motor plate.

Lubrication

Many fractional horsepower motors installed on the smaller fans are lubricated for life and require no further attention. Motors equipped with oil holes should be oiled in accordance with the manufacturer's instructions printed on the motor. Use a high grade SAE 20 machine oil and use caution not to over lubricate. Motors supplied with grease fittings should be greased according to directions printed on the motor.

Removal of Dust and Dirt

Dirt can clog cooling openings on the motor housing, and collect on propeller blades causing severe imbalance if left unchecked. The exterior surface of the motor, fan panel and entire propeller should be thoroughly cleaned periodically. Use caution and do not allow water or solvents to enter the motor. Motors must not be sprayed with steam or water.

NOTE: No repair parts available for Hazardous Location Fans.

Troubleshooting

WARNING
Before taking any corrective action, make certain unit is not capable of operation during repairs

AVERTISSEMENT
Avant d'entreprendre toute action corrective, s'assurer que l'appareil ne pourra pas fonctionner durant les réparations.

PROBLEM	CAUSE	CORRECTIVE ACTION
Too Much Airflow	Resistance lower than designed	Decrease fan speed.
Reduced Airflow	System resistance too high	Remove obstructions in ductwork. Clean dirty filters. Check for adequate supply air for exhaust fans or exhaust air for supply fans.
	Fan speed too low	Increase fan speed.
	Excessive dirt buildup on propeller	Clean propeller.
Excessive Noise	Excessive vibration	Clean dirt buildup from propeller. Check all setscrews and fasteners for tightness. Correct propeller imbalance. Check for loose dampers, guards or ductwork.
	Defective motor	Replace fan.
	Variable Frequency Drive (VFD)	Check VFD for drive setting, some controllers are able to be adjusted to lower the harmonic noises sometimes heard during operation by adjusting a simple setting on the controller.
	Debris	Remove all debris from the fan.
Fan Does Not Operate	Electrical Supply	Check fuses/circuit breakers. Check for switches turned off or disconnected. Check for correct supply voltage.
	Motor	Assure motor is correct horsepower and not tripping overload protector.

Our Commitment

As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.

Product warranties can be found online at Greenheck.com, either on the specific product page or in the literature section of the website at Greenheck.com/Resources/Library/Literature.

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