Quality People. Building Solutions.

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Date: 3/15/2023
Return Request: 3/25/2023
Project: Johnson Regional Medical Center (OBGYN)
Supplier: Airtech
Submittal: Exhaust Fans
Submittal Number:
Drawing # and Installation: Mechanical Drawings

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Fort Smith, AR 72901
479-782-4085

ENGINEER
HSA
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Notes:

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TO: Studio 6 Architects
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ATTN: Chip Johnson
RE: Johnson Regional OB-GYN Clinic
HVAC
DATE: 03/27/2023 JOB NO. 22-056

ELECTRONIC SUBMITTAL WAS REVIEWED AS FOLLOWS:

☒ CUT SHEETS	☐ NO EXCEPTIONS TAKEN	☒ APPROVED
☐ DRAWINGS	☒ NOTE MARKINGS	☐ REJECTED
☐ OTHER	☐ COMMENTS ATTACHED	☐ RESUBMIT
		☐ RESUBMIT only items marked

REMARKS:

Submittal - 23-1.0 HVAC- For Approval

ENGINEER'S REVIEW IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AND CONTRACT DOCUMENT. MARKINGS OR COMMENTS SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM COMPLIANCE WITH THE PROJECT PLANS AND SPECIFICATIONS, NOR DEPARTURE THEREFROM. THE CONTRACTOR REMAINS RESPONSIBLE FOR DETAILS AND ACCURACY, FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, FOR SELECTING FABRICATION PROCESSES, FOR TECHNIQUES OF ASSEMBLY AND PERFORMING HIS WORK IN A SAFE MANNER.

SUBMITTAL

Copies To:
X File
Owner
X Architect
Other BY: Noah Sorrell

HSA Engineering Consulting Services, Inc.
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SUBMITTAL COMMENT SHEET

PROJECT
Johnson Regional Medical Center OB-GYN Clinic

SUBMITTAL
Spec: 23
Title: HVAC

CLARK CONTRACTORS

☐ APPROVED ☑ REVIEWED
☐ APPROVED AS NOTED ☐ REJECTED
☐ REVISE & RESUBMIT

THIS SUBMITTAL HAS BEEN REVIEWED FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS. APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR/SUPPLIER OF THE RESPONSIBILITY FOR CONFORMANCE TO THE QUALITY STANDARDS AS SET FORTH IN THE CONTRACT DOCUMENTS. NOR DOES IT RELIEVE THE RESPONSIBILITY FOR FIELD VERIFICATION OF ALL CONDITIONS RELATING TO THIS CONTRACT.

OK'D BY: LC DATE: 3/16/2023

Installation, Operation and Maintenance Manual

EQUIPMENT: Greenheck Exhaust Fans

PROJECT: Johnson Region Medical Center – OBGYN Clinic

LOCATION: Little Rock, AR

MECHANICAL CONTRACTOR: Comfort Systems, USA

SUBMITTED BY: Forrest Moseley
forrest@airetechcorp.com
(501) 280-0404

Job # 72193

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GREENHECK
Building Value in Air.

Document 474680
Model SP and CSP
Ceiling Exhaust and Inline 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.

Direct Drive Ceiling Exhaust Fan

Designed for clean air applications where low sound levels are required. Many options and accessories are available such as lights, motion detectors, ceiling radiation dampers and speed controls.

Direct Drive Inline Exhaust Fan

Designed for clean air applications where low sound levels are required.

WARNING!

To reduce the risk of fire, electric shock, or injury to persons, observe the following:

- Suitable for use with solid state speed controls.
- Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
- Before servicing or cleaning unit, switch power off at service panel and lock service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.
- Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
- Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel burning equipment to prevent back drafting. Follow the heating equipment manufacturer's guideline and safety standards such as those published by the National Fire Protection Association (NFPA), and the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and the local code authorities.
- When cutting or drilling into wall or ceiling, do not damage electrical wiring or other hidden utilities.
- Select models are acceptable for use over a bathtub or shower when installed in a GFCI protected branch circuit. (Up through size SP-A390)
- Never place a switch where it can be reached from a tub or shower.
- Ducted fans must always be vented to the outdoors.
- These fans are not recommended for cooking exhaust applications. They are designed primarily for low temperature, clean air applications only. The diagram shows the minimum distance these fans should be placed in relation to cooking equipment.
- Fan/Light combination not to be installed in a ceiling thermally insulated to a value greater than R40.

CAUTION!

- For general ventilating use only. Do not use to exhaust hazardous or explosive materials and vapors.

AVERTISSEMENT!

Pour réduire le risque d'incendie, de choc électrique ou de blessure corporelle, respecter cd qui suit:

- Appareil pouvant être utilisé avec un régulateur de vitesse à semi-conducteurs.
- Utiliser cet appareil exclusivement comme prévu par le fabricant. En cas de questions, communiquer avec le fabricant à l'adresse ou au numéro de téléphone figurant dans la garantie.
- Avant tout entretien ou nettoyage de l'appareil, couper l'alimentation sur le tableau électrique et verrouiller le dispositif de sectionnement pour empêcher toute mise sous tension accidentelle. Si le dispositif de sectionnement ne peut pas être verrouillé, attacher un moyen de mise en garde bien visible, tel qu'un panonceau, au tableau électrique.
- La pose et le câblage électrique doivent être effectués par des personnes qualifiées en conformité avec les codes et normes en vigueur, y compris pour la résistance au feu du bâtiment.
- Une quantité d'air suffisante est nécessaire pour la bonne combustion et l'extraction des gaz brûlés par le conduit d'évacuation (cheminée) d'appareils à combustible afin d'éviter le refoulement. Veiller à suivre les indications du fabricant du matériel de chauffe, les normes de sécurité telles que celles publiées par la National Fire Protection Association (NFPA) et l'American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) et la réglementation en vigueur.
- Lors de la découpe ou du perçage de murs ou plafonds, ne pas endommager les câbles électriques et autres conduites masquées.
- Certains modèles (jusqu'au modèle SP-A390 inclus) sont approuvés pour une installation au-dessus d'une baignoire ou d'une douche sous réserve d'être raccordés à un circuit de dérivation protégé par un DDFT.
- Ne jamais placer d'interrupteur à un emplacement à portée d'une baignoire ou d'une douche.
- Les caissons d'extraction à gaine doivent toujours être évacués vers l'extérieur.
- Ces caissons ne sont pas conseillés pour les applications d'aspiration de vapeurs de cuisson. Ils sont conçus essentiellement pour l'aspiration d'air propre à basse température. Le schéma indique la distance minimale de placement de ces caissons par rapport à l'équipement de cuisson.
- Le combiné ventilateur/luminaire ne devra pas être installé dans un plafond ayant une isolation thermique d'une valeur supérieure à R40.

ATTENTION!

- À utiliser pour la ventilation générale uniquement. Ne pas utiliser pour l'aspiration de matières et vapeurs dangereuses ou explosives.

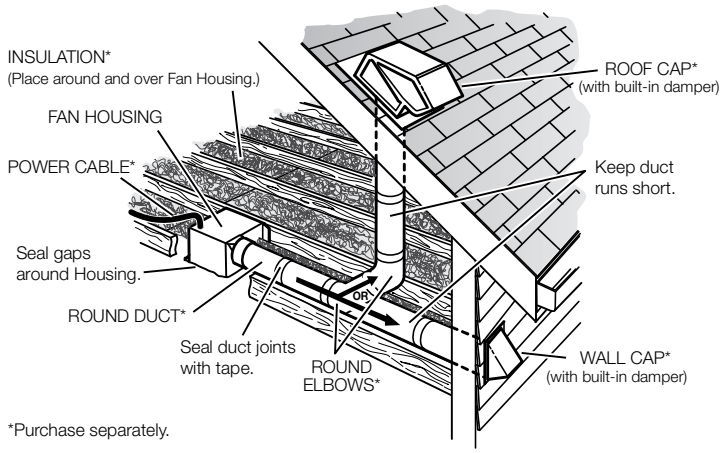
Typical Installation

The ducting from this fan to the outside of the building has a strong effect on the air flow, noise and energy use of the fan. Use the shortest, straightest duct routing possible for best performance, and avoid installing the fan with smaller ducts than recommended. Insulation around the ducts can reduce energy loss and inhibit mold growth. Fans installed with existing ducts may not achieve their rated airflow.

Rigid metal duct is recommended for optimal fan performance.

Ensure duct joints and exterior penetrations are sealed with caulk or other similar material to create an air-tight path and to minimize building heat loss and gain and reduce the potential for condensation.

Place/wrap insulation around duct and/or fan to in order to minimize possible condensation buildup within the duct, as well as minimize building heat loss and gain.



*Purchase separately.

Energy Star® Certified Fan Model/Size	Recommended Duct Dimensions
SP-A70, SP-A90, SP-A50-90-VG, SP-A90-130-VG, SP-B70, SP-B80, SP-B90	6 inch round
SP-A110, SP-A125, SP-A190	8 x 6 inch rectangular
SP-A200, SP-A250	8 x 8 inch rectangular

Other Installation Considerations

Ductwork and Noise

Fiberglass ductboard is a better choice than metal ductwork for reducing fan noise and is highly recommended for low sound applications. Where metal duct is used, sound transmission can be reduced with flexible duct connections between the fan and the duct.

Sound and Location

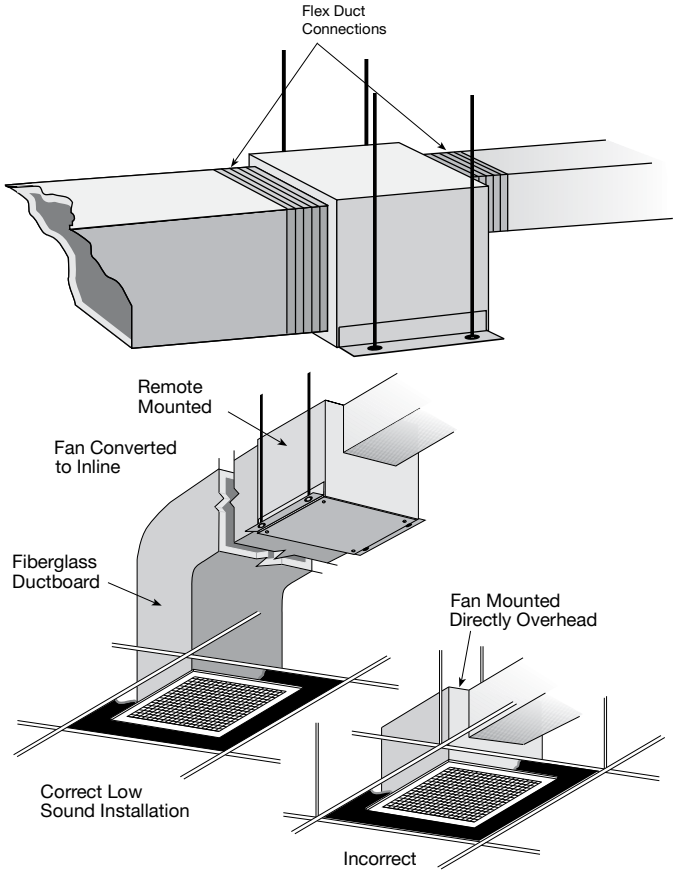
The location of these fans must be taken into consideration before installation. In critical sound installations, insulated ductwork, flexible duct connections or placing the fan in a remote section of ductwork are solutions to meeting the required fan sound levels.

Filters

The addition of an intake filter is highly recommended for these fans, even in clean air environments excess dirt can accumulate on wheels and motors causing reduced performance and imbalance.

Filters, once installed, should be checked and cleaned periodically to maintain performance.

Washable aluminum mesh filters specifically designed for these fans are available, please consult your representative for more information.

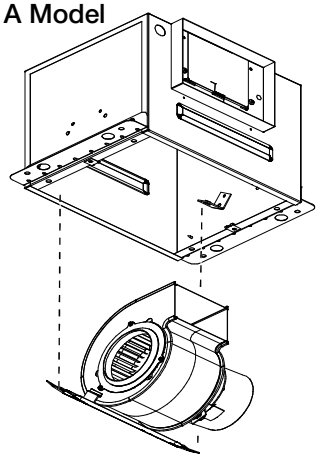


Prepare the Fan

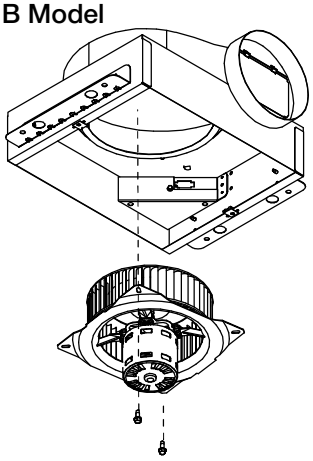
Power Assembly

If power assembly (motor, wheel, and scroll) is not installed in housing, insert the electrical plug into fan socket, then slide scroll end of power assembly into fan housing. Attach by using two sheet metal screws provided.

A Model

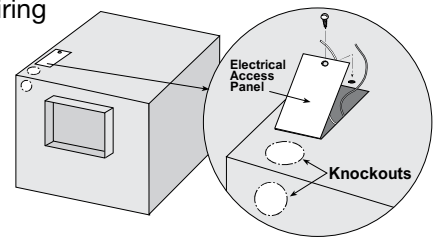


B Model



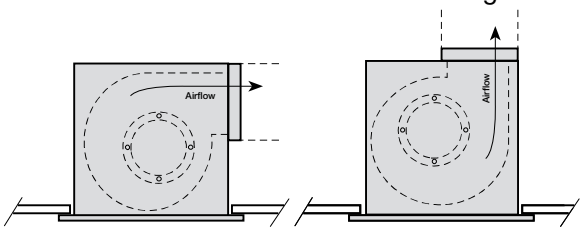
Remove Wiring Knockout

Remove either top or side wiring knockout, depending on wiring direction, by bending it back and forth to break tabs.



Ductwork

Check ductwork to see if the fan's discharge requires rotation from horizontal to vertical discharge.

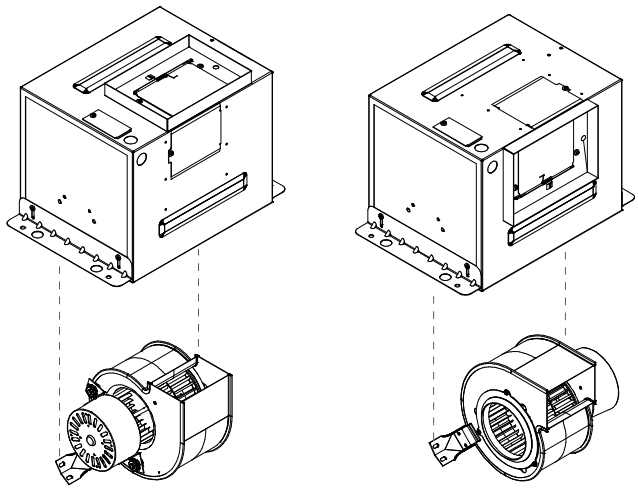


Fan Rotation

To rotate from horizontal to vertical discharge
A Models Only

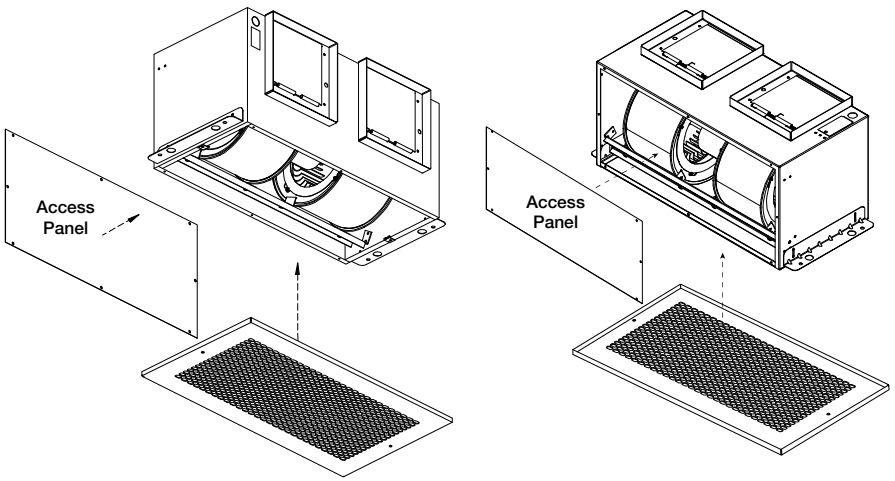
A50-510, 710, 780 Models

Remove the two screws holding the power assembly in and pull power assembly out. Rotate power assembly 180 degrees and put back into fan. Use the same screws to reattach power assembly to fan housing. Flip fan over and remove the four screws holding the discharge duct and damper assembly. Exchange the assembly with plate mounted on top of fan, as shown in these illustrations.



A700, 900-1500 Models

Remove the eight screws holding the access panel or collar as shown in picture. Rotate the fan housing so the discharge is facing up. Replace access panel or collar and screws.

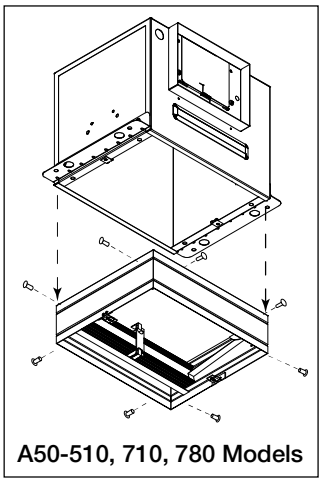


Ceiling Radiation Damper (CRD)

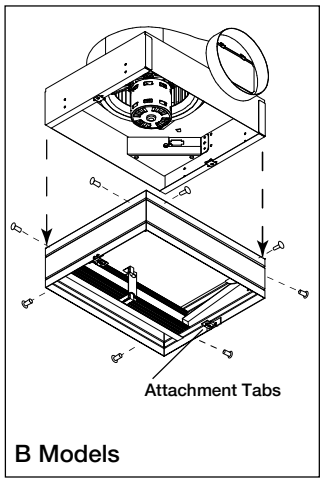
If fan is to be used in a fire resistive membrane ceiling, a ceiling radiation damper must be used.

If the ceiling radiation damper is already mounted to the fan from the factory, proceed to Install the Fan.

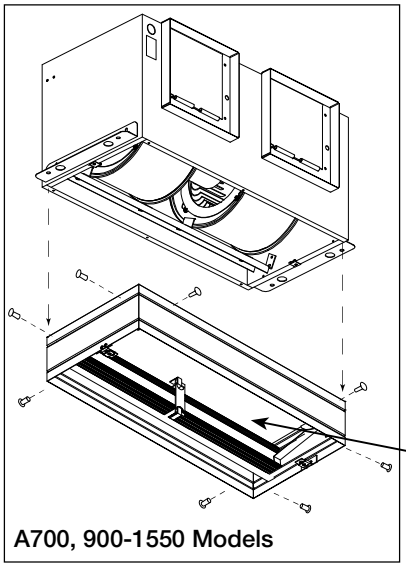
To mount the ceiling radiation damper to fan, make sure grille attachment tabs are facing down. Then place the inlet part of the fan into the ceiling radiation damper collar, and use self-tapping sheet metal screws (by others) to screw through the damper collar and into the fan housing. If the fan/light combination is being used, make sure ceiling radiation damper has an electrical plug in it. The electrical plug must be inserted into the fan. Make sure the electrical wire will not interfere with damper operation as shown in figure below.



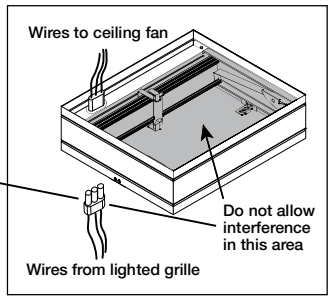
A50-510, 710, 780 Models



B Models

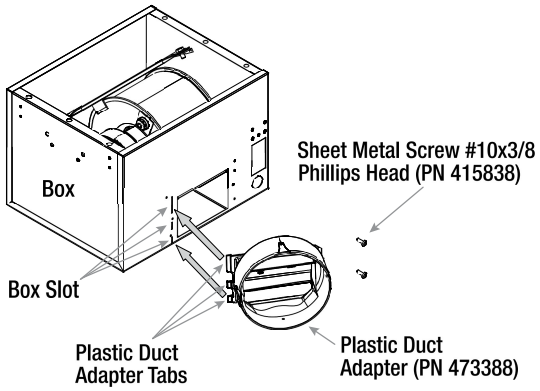


A700, 900-1550 Models

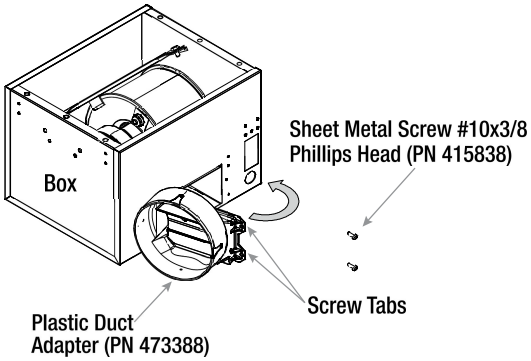


Discharge Installation A50-90 Models

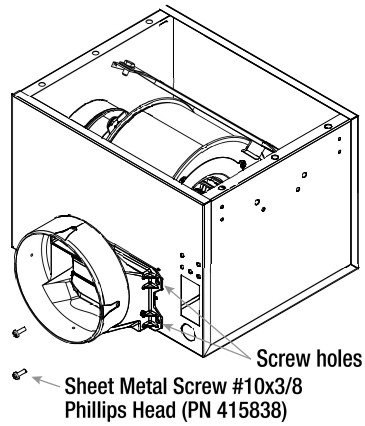
1 Insert plastic duct tab into box slots.



2 Rotate plastic duct adapter (PN 473388) until the screw tabs meet the box.

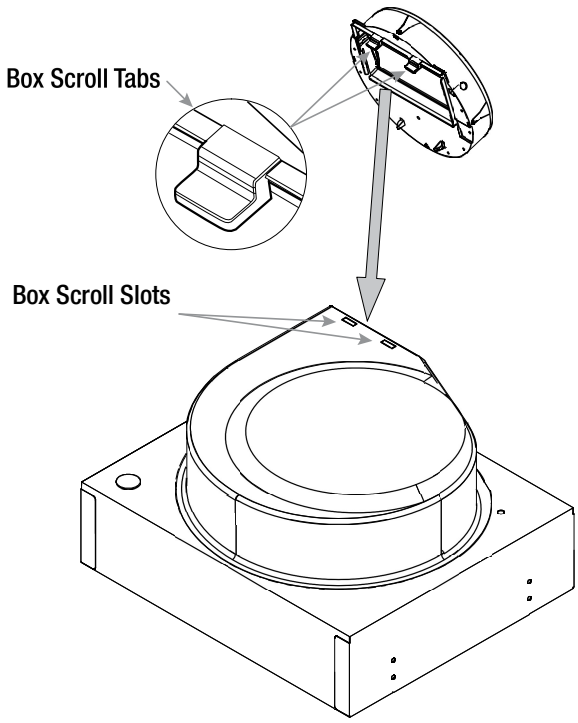


3 Install screws provided to secure discharge.

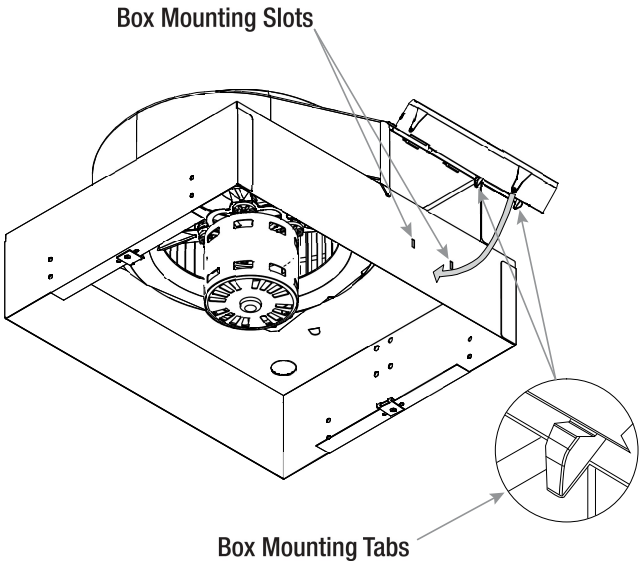


Discharge Installation for Ceiling and Inline Exhaust Models Sizes B50-200

1 Insert box scroll tab into box scroll slots.

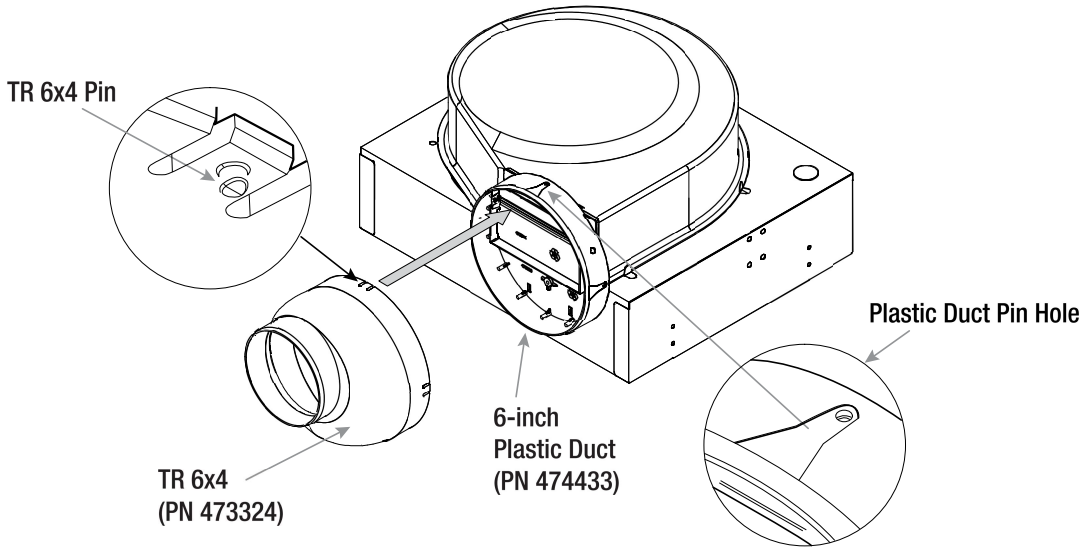


2 Rotate plastic duct adapter (PN 474433) until the two mounting tabs fully engage into the two box mounting slots.



3 **OPTIONAL**

Align the pins on the TR 6x4 adaptor to the duct pin hole on the 6-inch duct. Push until the adaptor snaps into place.



Install the Fan

1. For best performance, choose a location with the shortest possible duct run and minimum number of elbows. Do not mount near cooking equipment, as shown in Fig. 1.

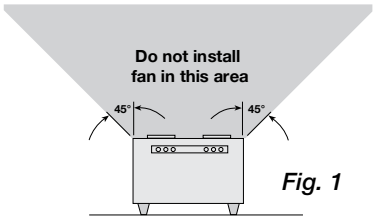


Fig. 1

2. Attach adjustable mounting brackets to fan, but leave the screws loose until proper height is determined, shown in Fig. 2. Cut hole to dimensions shown in table below:

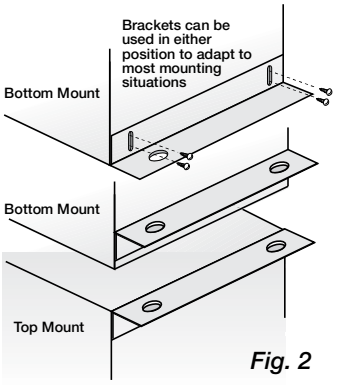


Fig. 2

Ceiling Openings		
Ceiling Exhaust Sizes	**Fan or Fan/Light**	**Fan/CRD**
A50, A70, A90, A50-90-VG, A90-130-VG, A110, A125, A190	10⅞ x 13⅜	11⅛ x 13⁷⁄₁₆
A200, A250, A290, A390	12⅛ x 14¼	12¼ x 14⅜
A700	23¾ x 11¾	24⅛ x 12¼
A410, A510, A510-VG, A710, A710-VG, A780	14¾ x 18⅜	14⅞ x 18⁷⁄₁₆
A900, A1050, A1410, A1550	14¾ x 24	14⅞ x 24⅛
B50 - 200	14⅛ x 11¾	14⅜ x 12¼

NOTE

Model sizes A50-90 are standard with a round duct. Should any model A110-190 require a round duct, Model RDC (Round Duct Connector) may be ordered from manufacturer for field installation.

For Frame Construction:
Position unit between joists. Position brackets such that bottom edge of housing will be flush with finished ceiling, and tighten the adjustable mounting brackets, shown in Fig. 3.

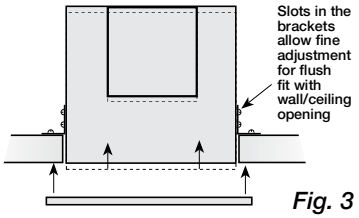


Fig. 3

For Hanging Installations:
Use manufacturer's optional vibration isolator kit Part Number **VI Kit**. Using the fan's standard adjustable mounting brackets and 10 by 32 threaded rod (by others), hang unit as shown in Fig. 4.

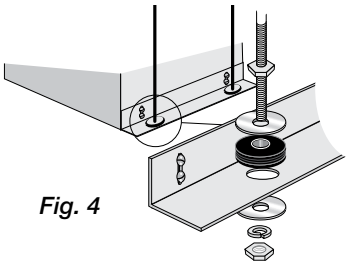
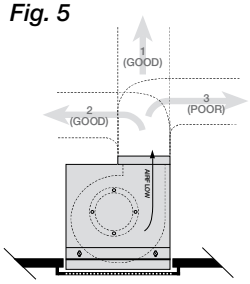


Fig. 4

3. Installation of ductwork is critical to the performance of the fan, shown in Fig. 5. Straight ductwork (1) or ductwork that turns in the same direction as the wheel (2) is recommended. Ductwork turning opposite the wheel direction (3) will cause turbulence and back pressure resulting in poor performance.

Fig. 5



4. Slide ductwork over the fan's discharge collar and securely attach it with sheet metal screws.

Make sure the screws do not interfere with damper operation. Check damper to make sure it opens freely.

Wire the Fan

1. Remove wiring cover. If fan/accessory combination is being used, make sure the fan plug is connected to the fan receptacle and the accessory plug is connected to the accessory receptacle, shown in Fig. 6. Using proper wire connectors, wire the fan as shown in Fig. 7a. For wiring of light proceed to Fig. 7b.

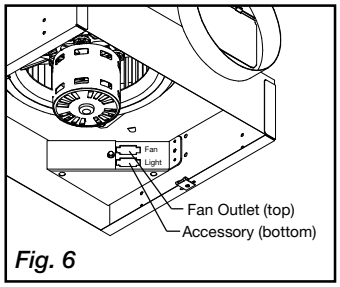


Fig. 6

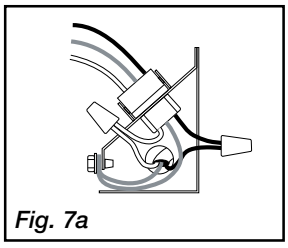


Fig. 7a

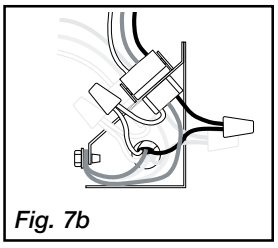


Fig. 7b

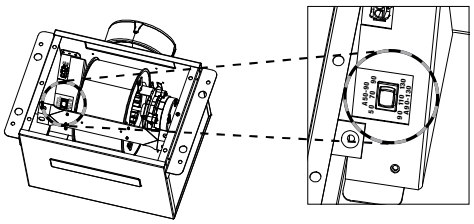
115 & 277 Volt
Black wire is "Hot"
White wire is "Neutral"
Green wire is "Ground"

220 - 240 Volt
Black wire is "Hot"
White wire is "Hot"
Green wire is "Neutral/Ground"

2. Push all wiring into the unit's cover and replace wiring cover.

A50-90-VG and A90-130-VG Fan Models

These fan models utilize an internal switch to set the fan to run at one of three flows. Please set three position switch to desired airflow when installing unit.

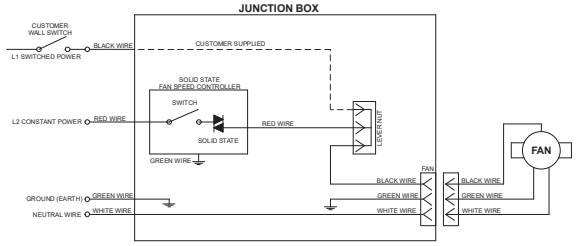


Whole House Ventilation Two-Speed Operation

A90 and 110, B50, 80 and 110 Models

1. Install fan per standard instructions.
2. Fan will operate at the certified airflow rate when wall switch or integrated sensor is activated.
3. Fan will operate at user set low speed when wall switch or integrated sensor is off.
   a. User defined flow rate can be set by adjusting the dial pre-installed in the fan. Airflow is dependent on overall static pressure in the ductwork. Airflow will need to be verified with a measuring device.
4. When servicing fan, ensure the circuit is shut off at the breaker.

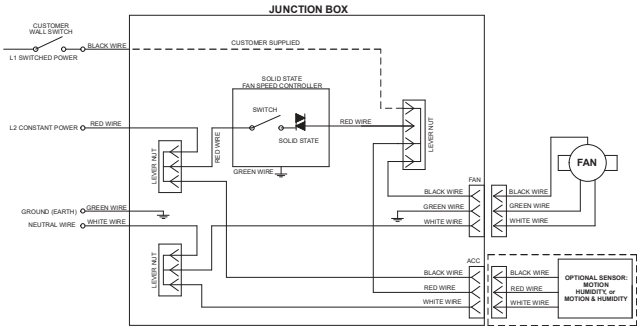
Continuous Ventilation



Wiring Diagram - Continuous Ventilation

1. L1 Switched Power: Black Wire - Customer connection for switched power to the fan motor for high speed to be landed in lever nut connector.
2. L2 Constant Power: Red Wire - Provides customer connection for constant power to the fan speed controller.
3. L3 Neutral Power: White Wire - Provides customer connection for neutral power to the fan motor.
4. Green Wire - Provides earth ground for customer connection.

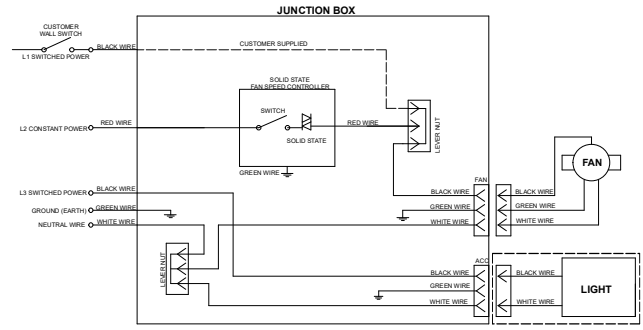
Continuous Ventilation with Sensors



Wiring Diagram - Continuous Ventilation with Sensors

1. L1 Switched Power: Black Wire - Customer connection for switched power to the fan motor for high speed to be landed in lever nut connector.
2. L2 Constant Power: Red Wire - Provides customer connection for constant power to the fan speed controller.
3. L3 Neutral Power: White Wire - Provides customer connection for neutral power to the fan motor.
4. Green Wire - Provides earth ground for customer connection.

Continuous Ventilation with Light & Wall Switch



Wiring Diagram - Continuous Ventilation with Light & Wall Switch

1. L1 Switched Power: Black Wire - Customer connection for switched power to the fan motor for high speed to be landed in lever nut connector.
2. L2 Constant Power: Red Wire - Provides customer connection for constant power to the fan speed controller.
3. L3 Switched Power: Black Wire - Customer connection for switch power to the light to be connected to the black wire from ACC.
4. Neutral Power: White Wire - Provides customer connection for neutral power to the fan motor.
5. Green Wire - Provides earth ground for customer connection.

Attach the Grille

1. If lighted grille is being used, plug wire from lighted grille into accessory socket.

   If lighted grille and ceiling radiation damper are being used, plug wire from lighted grille into ceiling radiation damper socket. Do not plug wire directly into the fan socket. Make sure the wire does not interfere with the ceiling radiation damper operation.
2. Attach grille with two screws provided. Make sure not to over tighten; over tightening will damage grille.
3. Slide attachment screw covers over the attachment screws, shown in Figure 8 and 9.
4. If lighted grille is being used, install light bulb(s) into light socket(s). For fluorescent lights, use 27W GU24 bulbs. For LED lights, use 10W GU24 bulbs. Manufacturer has replacement 27W GU24 bulbs, call 1-800-355-5354 to order.
5. If lighted grille is being used, snap lens into place, by pushing on the outside edges of lens, shown in Fig. 9. To remove lens, use a small screw driver and pry on one side of lens.
6. Turn on power and check fan and light operation.

Fig. 8

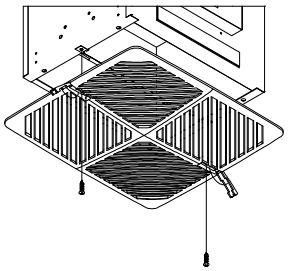
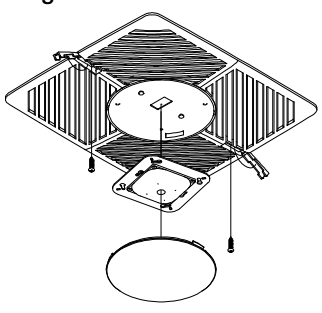
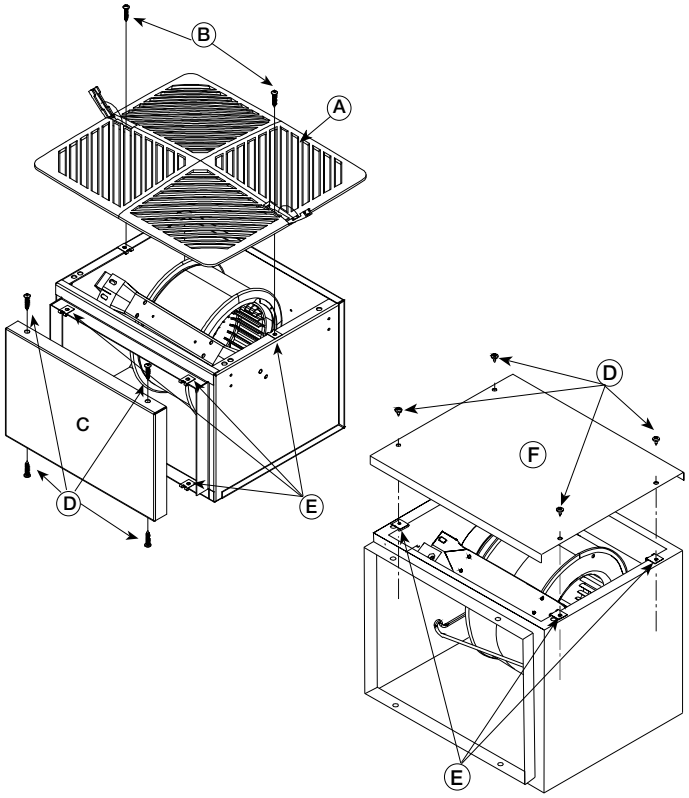


Fig. 9



Converting from Ceiling to Cabinet Design for Ceiling Exhaust Fans



All convertible sizes will be shipped with grille and duct collar cover. Note, this applies only to fans originally ordered as convertible.

Conversion Kit Parts List

- Qty. of 1 Blower Box Cover

Tools Required

- Phillips Head Screwdriver

Step 1: Remove grille (A) by removing the two grille screws (B).

Step 2: Remove duct collar cover (C) by removing the four duct collar screws (D).

Step 3: Discard grille (A), two grille screws (B), and duct collar cover (C).

Step 4: Remove the six (6) tinnerman clips (E) by twisting them to one side and pulling straight out. Discard two of the six tinnerman clips.

Step 5: Insert the remaining four tinnerman clips (E) on grille opening side.

Step 6: Place blower box cover (F) over tinnerman clips (E), which were inserted in step 5.

Step 7: Screw the blower box cover (F) into place with four blower box cover screws (D).

General Maintenance Suggestions

Ceiling exhaust fans require very little maintenance, but since small problems over time left unchecked could lead to loss of performance or early motor failure, we do recommend that the unit be inspected periodically (once or twice a year).

The fan motor and wheel should be checked for dust and dirt accumulations. Dirt buildup can lead to loss of performance and motor overheating. Cleaning can be accomplished by brushing off any dust that may have accumulated. Even filtered units can accumulate build-up and should be checked when cleaning filters.

The motor should be checked for lubrication at this time. Lubricate only those motors which have an oil hole provided. A few drops of all purpose oil (SAE 20) will be sufficient.

Our Commitment

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

Specific Greenheck product warranties are located on greenheck.com within the product area tabs and in the Library under Warranties.

Greenheck's Centrifugal Ceiling and Cabinet Exhaust Fans catalog provides additional information describing the equipment, fan performance, available accessories, and specification data.

AMCA Publication 410-96, Safety Practices for Users and Installers of Industrial and Commercial Fans, provides additional safety information. This publication can be obtained from AMCA International, Inc. at www.amca.org.

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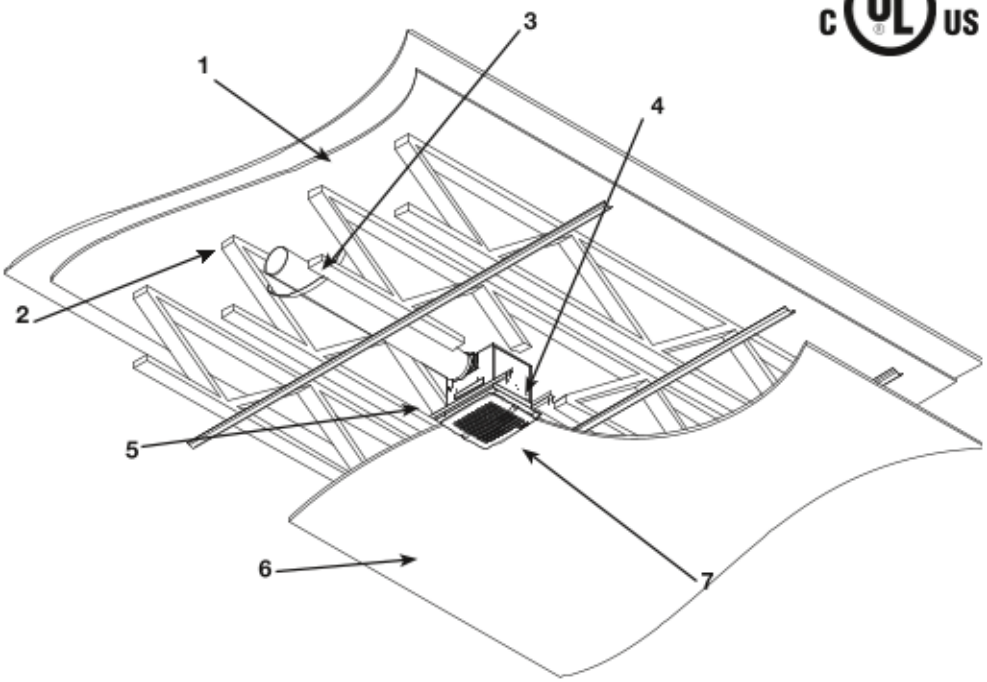
Document 452832
CRD-3xx, CRD-3xxL, CRD-3xxWT and CRD-700 Series for SP Fans

Installation, Operation and Maintenance Manual

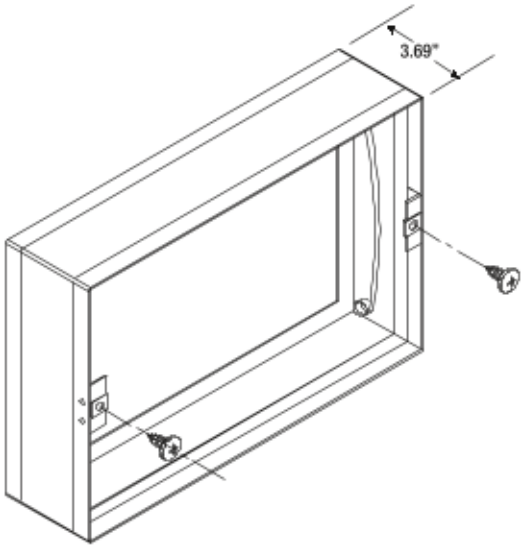
Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with these instructions will result in voiding of the product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

C#5005978

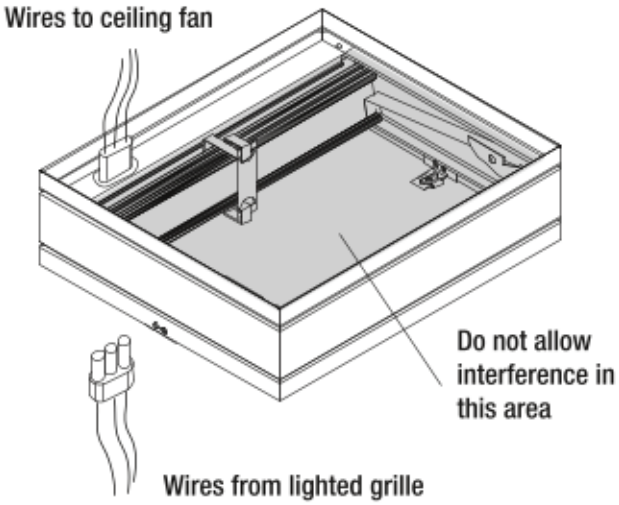
Number	Description
1	Flooring Systems
2	Wood Truss
3	Air Ducts
4	CRD-3XXWT assembly
5	Mounting Angle
6	Gypsum Board
7	Grille
8	Finishing System (not shown)



Isometric view of CRD-310WT in wood truss system



Isometric view of a CRD-3XX series damper.



Isometric view for wiring the CRD-3XX series damper to the lighted grille and ceiling fan.

This manual is the property of the owner and is required for future maintenance. Please leave it with the owner when the jobs is complete.

Table of Contents

Receiving and Handling

Upon receiving dampers, check for both obvious and hidden damage. If damage is found, record all necessary information on the bill of lading and file a claim with the final carrier. Check to be sure that all parts of the shipment, including accessories, are accounted for.

Dampers must be kept dry and clean. Indoor storage and protection from dirt, dust and the weather is highly recommended. Do not store at temperatures in excess of 100°F (38°C).

Safety Warning

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating, and maintenance instructions thoroughly before installing or servicing this equipment.

General Information

"UL CLASSIFIED (see complete marking on product)"

"UL CLASSIFIED to Canadian safety standards (see complete marking on product)"

Standard 555C (Listing #R13446)

These installation instructions show recommended installation procedures. These or other installation methods may be followed subject to the approval of the authority having jurisdiction.

Model CRD-310, 320, 350, 360, 310L, 320L, 310WT, CRD-320WT, and 700 are specific sizes of Greenheck's model
DFD-350 dampers equipped with hardware to facilitate installation with Greenheck model SP ceiling exhaust fans.

The CRD-3xx(L, WT) series and CRD-700 dampers are classified to function as a heat barrier in air handling penetrations through fire resistive membrane ceilings. They are intended to maintain the fire resistive integrity of the ceiling. They can only be installed in conjunction with the SP fan models shown and cannot be installed alone.

NOTE: Motors for fan models used in conjunction with CRD shall be equipped with thermal cut-off fuse control.

Plaster Flange Application

Note: The plaster flange is required when the damper is installed in a combustible floor/ceiling assembly.

When the damper is installed in a non-combustible ceiling/floor assembly, the plaster flange is not required and can be discarded. When unpacking the flange kit from the damper, remove all tape residue from the damper and plaster flange.

When the plaster flange is required, the flange assembly must be attached to the damper as follows.

1. Unfold the plaster flange assembly that is supplied. Wrap the assembly around the damper in the orientation shown in **Figure 1**. Connect the open ends of the flange together.
2. Align the edge of the plaster flange with the edge of the damper frame. When using the CRD-320WT, apply a ¼ in. bead of 3M Fire Barrier Sealant CP 25WB+ between the damper frame and plaster flange assembly. Clamp the flange to the damper frame.
3. Using the flange holes as a guide, secure the flange to the damper frame using the supplied fasteners. Install fasteners within 1½ inches (38mm) from each corner first, then at or near the center of each damper side. Install a fastener on both sides of the grille mounting tabs. Be careful to not strip out the damper frame material while installing the fasteners.
4. When using the CRD-320WT, apply a ¼ in. bead of 3M Fire Barrier Sealant CP 25WB+ on the top side of the plaster flange assembly. Seal any gaps between the damper, plaster flange assembly and the drywall.

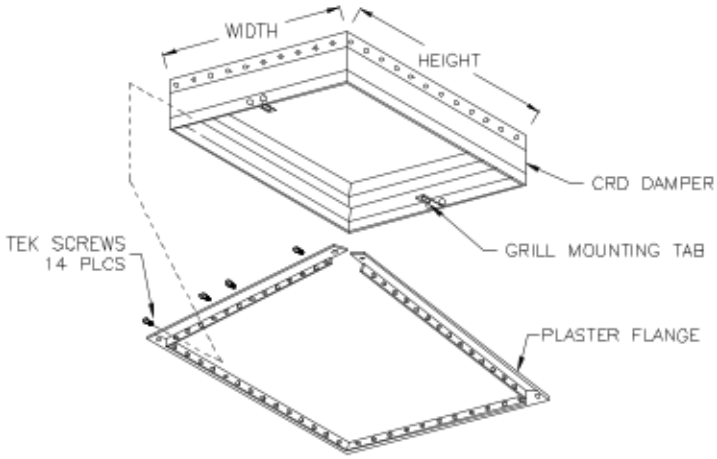


Figure 1: CRD damper with plaster flange

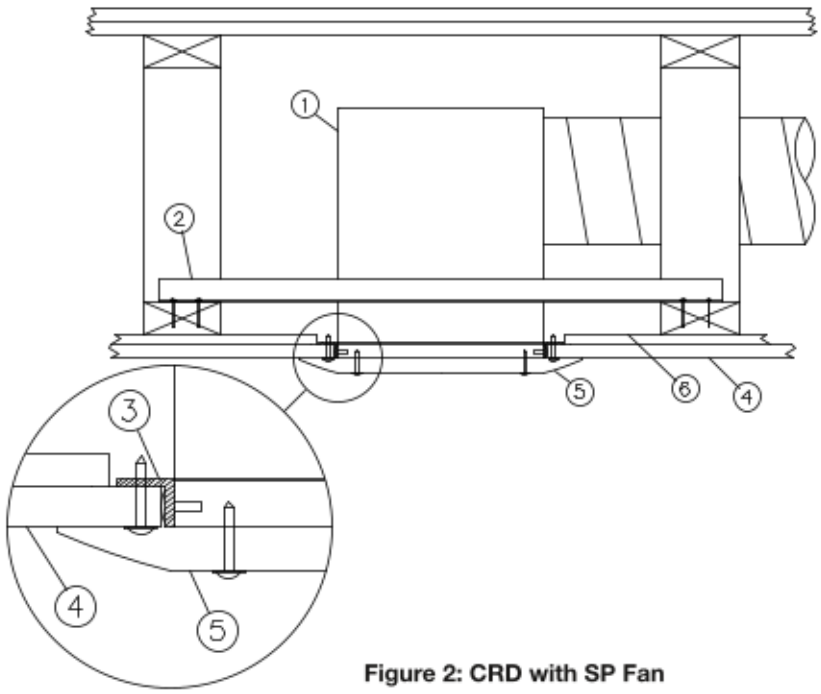
Damper Installation to a SP Fan

1. **General:** The fan/damper assemblies described in these instructions, when installed as shown, provide appropriate protection for air inlet or outlet penetrations in the ceiling membrane of floor/ceiling and roof/ceiling assemblies with fire resistance ratings of up to 3 hours.
2. **System Components:** All system components (ducts, duct drops, hanger wires, sleeves, and diffuser pan) must be constructed of steel. The diffuser core may be non-ferrous. Grilles may be non-metallic. Flexible duct (if used) must be Class 1 or Class 0 type, bearing the UL listing mark. Maximum length of flex duct shall not exceed 14 feet. The installations and air devices shown in these instructions illustrate general arrangement only. Installations must also incorporate any specific requirements in the FRD (UL Fire Resistance Directory). Note that both "Design Information - General" and individual ceiling/floor or ceiling/roof design listings apply.
3. **Ceiling Penetrations:** Ceiling penetration should be located within ceiling tiles, panels, or gypsum without necessitating cuts in the ceiling suspension main runners, cross tees, or trusses. If required, a maximum of one runner or cross tee may be cut to enable proper damper location and installation. Each cut end shall be supported by a minimum 12 SWG vertical hanger wire. a ½ in. clearance must be maintained between the air inlet/outlet and the cut end of the runner or cross tee. Cutting of wood trusses in combustible ceiling designs is not permitted.
4. **Connections:** Connections must be made using #8 sheet metal screws, 3/16 in. tubular steel rivets, tack or spot welds. Use a minimum of one connection per side for rectangular or square dampers and three equally spaced connections for round dampers. Space fasteners a maximum of 6 in. apart. Any W or H dimension larger than 12 in. requires a minimum of two connections per side. All screws or rivet attachments shall be placed a minimum of 3/16 in from the edge of the damper frame, duct drop, diffuser, or grille frame. When making connections, the ceiling radiation damper may slide over the neck or inside the neck of the diffuser, grille, or inlet/outlet device.

SP Fan Size	CRD Model						
	UL Classified		ETL (Warnock Hersey) Listed	"D" (See Figure 4)	"E" (See Figure 4)	Width (in.)	Height (in.)
	1 Hour Combustible	3 Hour Non-Combustible					
SP-B50, SP-B70, SP-B80, SP-B90, SP-B110,SP-B110ES, SP-B150, SP-B200, SP-L50, SP-L80	CRD-320WT	CRD-320 CRD-320L CRD-320 WT	CRD-320 CRD-320L	4½	15⅝	14⅜	12¼
SP-A50, SP-A70, SP-A90, SP-A110, SP-A125, SP-A190, SP-A50-90-VG, SP-A90-130-VG	CRD-310WT	CRD-310 CRD-310L CRD-310-WT	CRD-310 CRD-310L	5½	14⅝	13½	11⅛
SP-A250, SP-A290, SP-A390, SP-A390-VG, SP-A200	-	CRD-320 CRD-320L	CRD-320 CRD-320L	6¾	15½	14⅜	12¼
SP-A410, SP-A510, SP-A510-VG SP-A710, SP-A710-VG, SP-A780	-	CRD-350	CRD-350	9¼	19⅝	18 7/16	14 13/16
SP-A900, SP-A1050 SP-A1050-VG, SP-A1300, SP-A1410, SP-A1550		CRD-360	CRD-360	9¼	25⅜	24 3/16	14 13/16
SP-A700, SP-A700-VG		CRD-700	--	9¼	25⅛	24⅛	12¼

ETL Installation - 1 Hour Combustible Floor/Ceiling Assemblies

(formerly Warnock Hersey)



1: Fan/Damper Assembly
2: Mounting Angle
3: Plaster Flange
4: Gypsum Board
5: Grille
6: RC Channel

Figure 2: CRD with SP Fan

Ceiling Exhaust Fan Installation

1. Fan/damper assemblies installed in combustible floor ceiling assemblies with gypsum board ceilings require the use of a plaster flange (**Item 3 in Figure 2**). A plaster flange kit, which comes with all of the necessary mounting hardware, is supplied with the unit.
2. The fan/damper assembly is to be attached to the trusses using 2 - 1 in. x 1 in. x 16 ga. (25mm x 25mm x 1.5mm) or 2 - 1¼ in. x 1 in. x 20 ga. (32mm x 25mm x 1mm) mounting angles. Attach mounting angles to the damper with a minimum of 2 - #8 screws or 5⁄32 in. (4mm) diameter steel rivets.

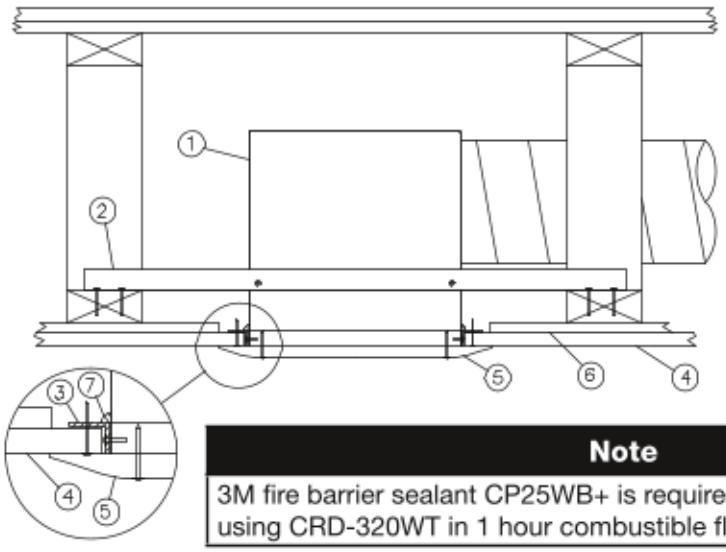
Note: Make sure the fasteners do not interfere with the damper operation.

3. Install the fan/damper assembly, with attached mounting angles, between the trusses as shown in **Figure 2** and attach mounting angles to the trusses using 4 - 1¼ in. long steel screws per mounting angle.
4. Run a minimum of 4 - 1 in. (25mm) long #6 screws through the gypsum board into the plaster flange as shown in **Figure 2**.

Grille Installation

Mount grille to underside of ceiling radiation damper using #10 x ½ in. Phillips head stainless steel sheet metal screws provided with SP fan.

UL/cUL Installation - 1 Hour Combustible Floor/Ceiling Assemblies



1. Fan/Damper assembly
2. Mounting angle
3. Plaster flange
4. Gypsum board
5. Grille
6. RC channel
7. 3M fire barrier sealant CP25WB+ (Required with CRD-320WT, optional for all other CRD models)

Note

3M fire barrier sealant CP25WB+ is required to be applied when using CRD-320WT in 1 hour combustible floor/ceiling assemblies.

Figure 3: CRD with SP Fan

Ceiling Exhaust Fan Installation

1. Fan/damper assemblies installed in combustible floor ceiling assemblies with gypsum board ceilings require the use of a plaster flange (**Figure 3, Item 3**). A plaster flange kit, which comes with all of the necessary mounting hardware, is supplied with the unit.
2. The fan/damper assembly is to be attached to the trusses using 2 - 1 in. x 1 in. x 16 ga. (25mm x 25mm x 1.5mm) or 2 - 1¼ in. x 1 in. x 20 ga. (32mm x 25mm x 1mm) mounting angles. Attach mounting angles to the damper with a minimum of 2 - #8 screws or 5/32 in. (4mm) diameter steel rivets.

Note: Make sure the fasteners do not interfere with the damper operation.

3. Install the fan/damper assembly, with attached mounting angles, between the trusses as shown in **Figure 3** and attach mounting angles to the trusses using 4 - 1¼ in. long steel screws per mounting angle.
4. Run a minimum of 8 - 1 in. (25mm) long #6 screws through the gypsum board into the plaster flange as shown in **Figure 3**.

Grille Installation

Mount grille to underside of ceiling radiation damper using #10 x ½ in. Phillips head stainless steel sheet metal screws provided with SP fan.

These instructions describe the installation of a CRD-310WT and CRD-320WT in designs: L528, L546, L558, L562, L574, L576, L581, L583, L585, L592, M501, M503, M508, P533, P538, P545, P547, P548, P554, and P580 as detailed in the UL Fire Resistance Directory.

GA File No.	UL Design No.
FC 5012	M508
FC 5078	L558
FC 5101	L574, M508
FC 5119	L592
FC 5121	L528, L546, L574, M508
FC 5514.4	L585
FC 5515	L528
FC 5515.3	M503
FC 5516	L528
FC 5519	L574
FC 5521	L562
FC 5528	L528
RC 2603	P533
RC 2604	P554
RC 2606	P545
RC 2609	P538
RC 2612	P545, P554
GA = Gypsum Association Fire Resistance Manual 22nd Edition	

UL/cUL Installation - 3 Hour Non Combustible Floor/Ceiling Assemblies

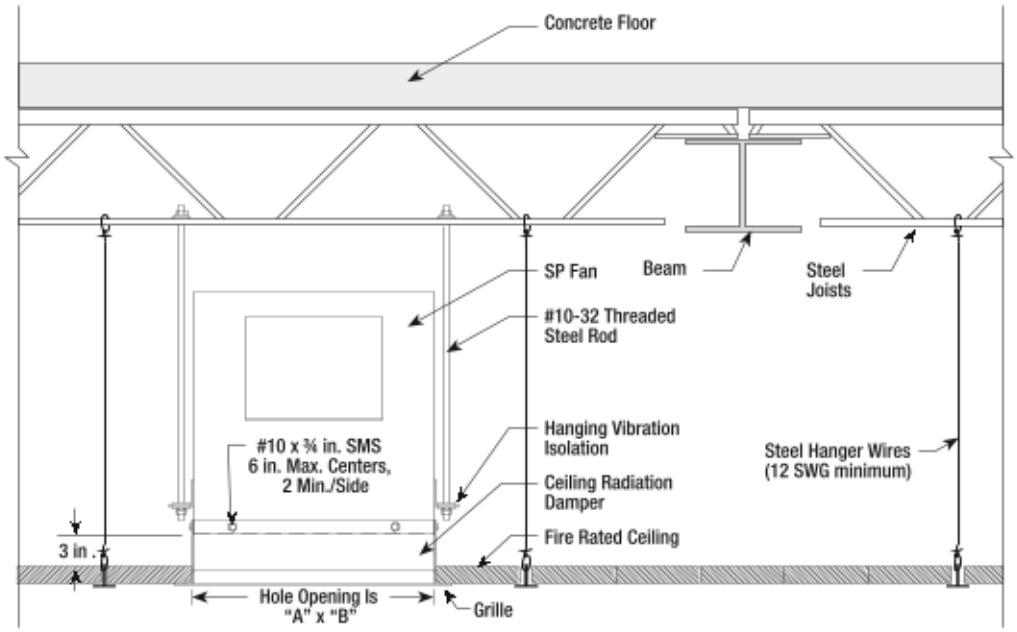


Figure 4

Ceiling Exhaust Fan Support

The following two mounting methods may be used.

1. Suspend fan/damper assembly using #10-32 threaded steel rod as shown in **Figure 5**. Suspend from joists or cold rolled channels (do not suspend from beams). If vibration isolators are used, fender washers must have a larger outside diameter than the holes in the fan mounting angle.
2. Support fan/damper assembly using (2) minimum 16 ga. x 1½ in. steel channels with 9/16 in. flanges. Suspend from joists or cold rolled channels (do not suspend from beams). Alternatively, bolt channels ends directly to joists or other cold rolled channels using minimum #10 bolts. See **Figure 6**.

Do NOT support fan/damper assembly by ceiling tile or ceiling grid (Tee) members when using with a suspended ceiling!

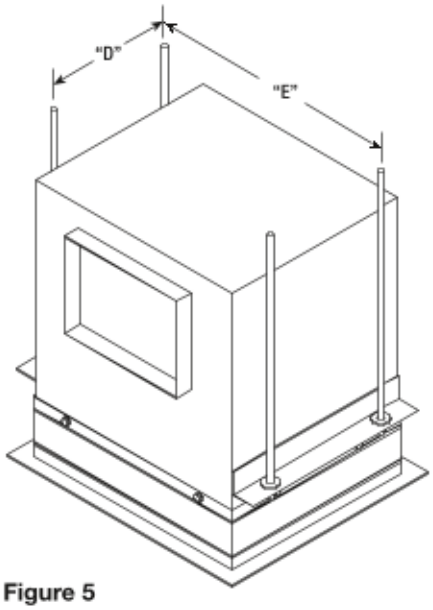


Figure 5

Grille Installation

Mount grille to underside of ceiling radiation damper using 2 - #10 x ½ in. Phillips head stainless steel sheet metal screws provided with SP fan.

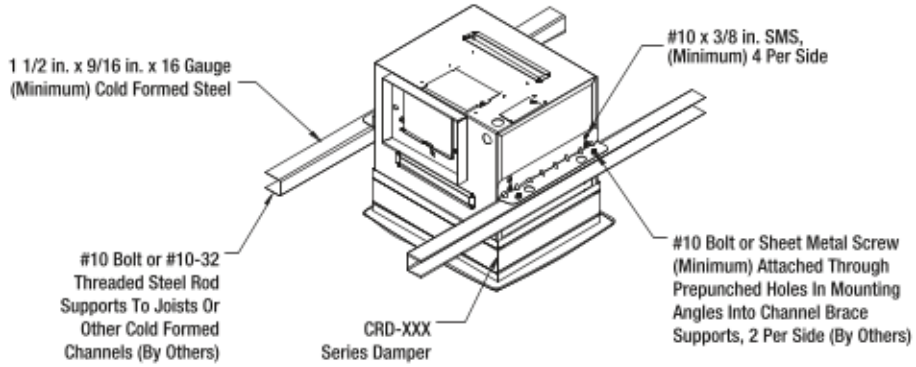


Figure 6

Damper Maintenance

Dampers do not typically require maintenance as long as they are kept dry and clean. If cleaning is necessary, use mild detergents or solvents. If lubrication is desired for components such as axle bearings, jackshaft bearings and jamb seals, do not use oil-based lubricants or any other lubricants that attract contaminants such as dust.

Damper Troubleshooting

The following is a possible cause and correction list for common concerns with the dampers.

Symptom	Possible Cause	Corrective Action
Damper does not fully open and/or close	Frame is 'racked' causing blades to bind on jamb seals	Adjust frame such that it is square and plumb
	Screws in damper linkage	Damper installed too far into wall. Move out to line as designated on damper label
	Contaminants on damper	Clean with a non-oil based solvent (see Damper Maintenance)
Link separated	Heat	Replace link

Our Commitment

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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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Installation, Operation and Maintenance Manuals

Job Title:	**JRMC - OBGYN AD**
Engineer:	Rob May
Elevation: (ft)	256
Date:	8/04/2023
Submitted By:	Dustin Easterly
Agent Order#:	71933DE3

AIRETECH CORPORATION
7631 NORTHSHORE PL
NORTH LITTLE ROCK, AR 72118
US
Phone: (501)280-0404
Fax: (501)280-9200
Email Address: dustin@airetechcorp.com

{S. GREENHECK
Building Value in Air.

PN 451329
Hanging Vibration Isolator Kit for Models SP and CSP

Assembly Instructions

Please read these instructions carefully before attem piing to assemble 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!

1. Upon receiving kit, check for any damage and report it immediately to the shipper. Also, check to see that all parts are accoun,ted for (see reverse side for parts list).
2. Determine desired location of mounting bracket on SP/CSP fan, 9/64 inch diameter holes are factory prepunched for attaching mounting brackets. If different locations are desired, drilling will be required.

   CAUTION: When drilling be certain not to penetrate motor or electrical components.

3. Insert neoprene grommets into large holes in mounting brackets. Thread one nut into each 1/4-20 threaded support rod (supplied by others) followed by one flat washer and a shaft sleeve. Insert end of support rod and sleeve into grommet. Install another flat washer and nut on end of support rod, refer to Figure 1.
4. Install hanging support rods using the following vibration isolator center1ine dimensions shown in table below.
5. Adjust support rods as required and tighten all fasteners.

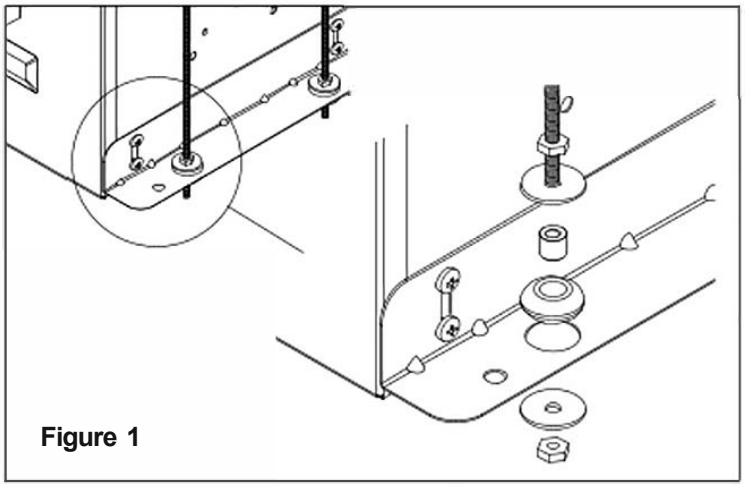


Figure 1

Isolator Centerline Dimensions		
Unit Size	A	B
B50-B200	4½ *(114)*	15⅝ *(397)*
A50-A190	5½*(140)*	14⅝ *(371)*
A200-A390	6¾ *(171)*	15½ *(394)*
A410, A510, A710,A780	9¼ *(235)*	19¼ *(497)*
A700	5½*(140)*	25¼*(638)*
A900-A1050, A1410-A1550	9¼ *(235)*	25⅛*(645)*
A1750,A2150	9¼ *(235)*	36¾ *(933)*
A3600	9¼ *(235)*	48⅛ *(1235)*

All dimensions shown in inches (millimeters).

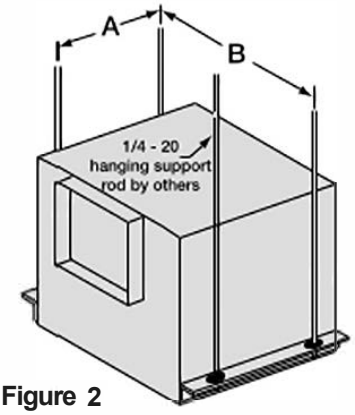


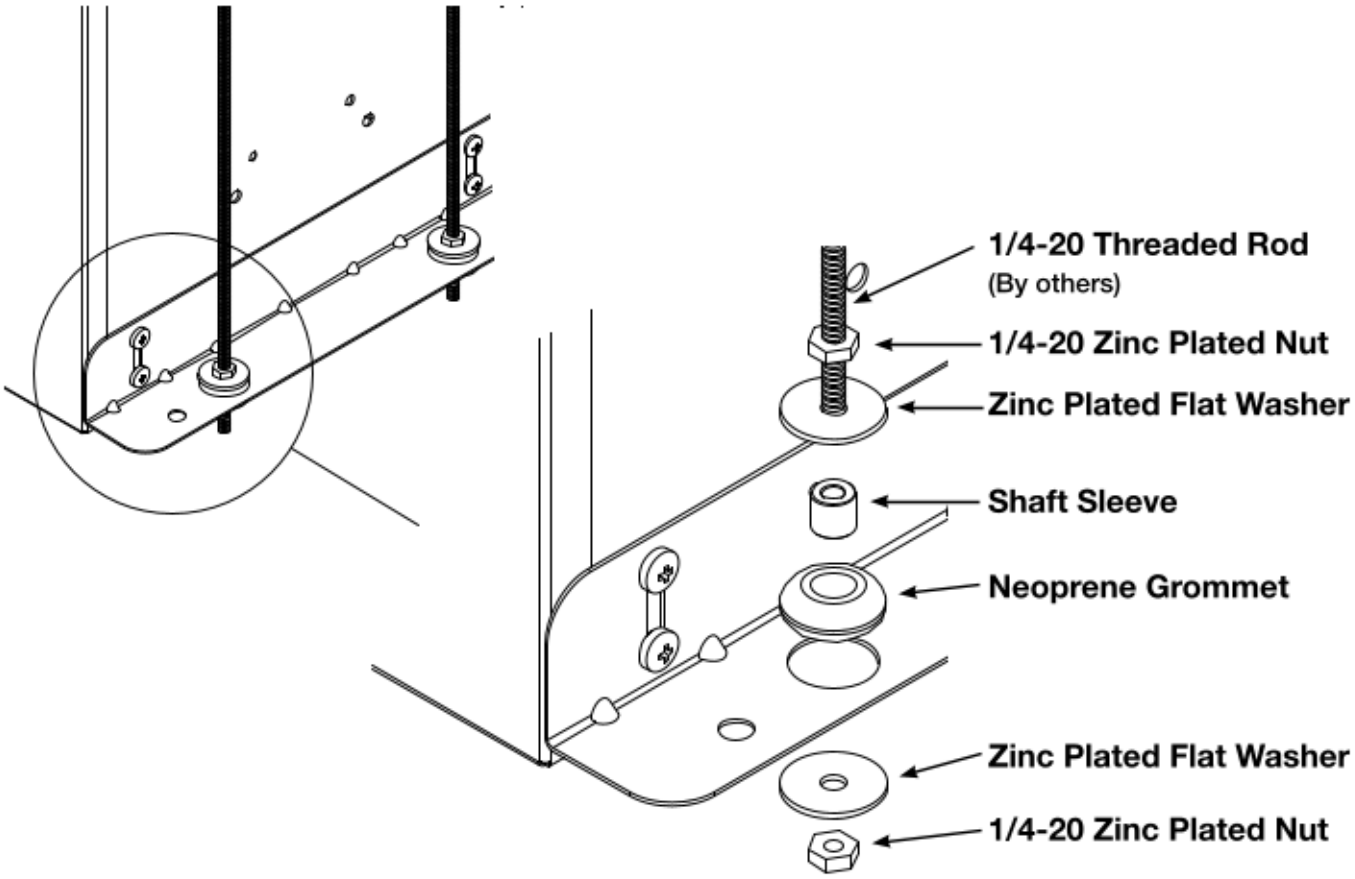
Figure 2

Maintenance

All fasteners should be checked for tightness each time maintenance checks are performed prior to restarting unit. A proper maintenance program will help these units deliver years of dependable service.

NOTE: **Make certain unit is not capable of operation during repairs.**

Hanging Vibration Isolator Parts List



Quantity	Part Number	Item Description
4	370007	Neoprene Grommets
8	415386	1/4-20 Zinc Plated Nuts
8	415084	Zinc Plated Flat Washers
4	472045	3/8 x 1/4 Shaft Sleeves

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Building Value in Air.

Phone: (715) 359-6171 • Fax: (715) 355-2399 • E-mail: gfcinfo@greenheck.com • Website: www.greenheck.com

SUBMITTAL

Job Name: **JRMC OBGYN**

Architect: Studio Architects
Engineer: HSA
Consultant: Robert May, PE
Contractor: Comfort Systems USA - AR
Elevation: (ft) 338
Date: 3/07/2023
Submitted By: Forrest Moseley

AIRETECH CORPORATION
7631 NORTHSHORE PL
NORTH LITTLE ROCK, AR 72118
US
Phone: (501)280-0404
Fax: (501)280-9200
Email Address: forrest@airetechcorp.com

Model: CSP-A700

Inline Cabinet Fan

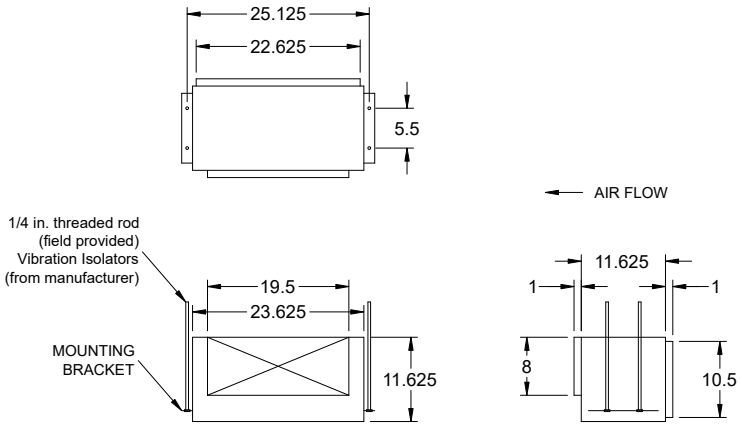
Tags: EF-1 EF-2

Standard Construction Features:

- Galvanized steel housing - Sound absorbing insulation - Outlet duct collar with integral spring loaded back draft damper - Forward curved wheel - Plug type disconnect - Adjustable mounting brackets - Square duct connection - Dual galvanized steel scroll design - Field rotatable discharge

Selected Options & Accessories:

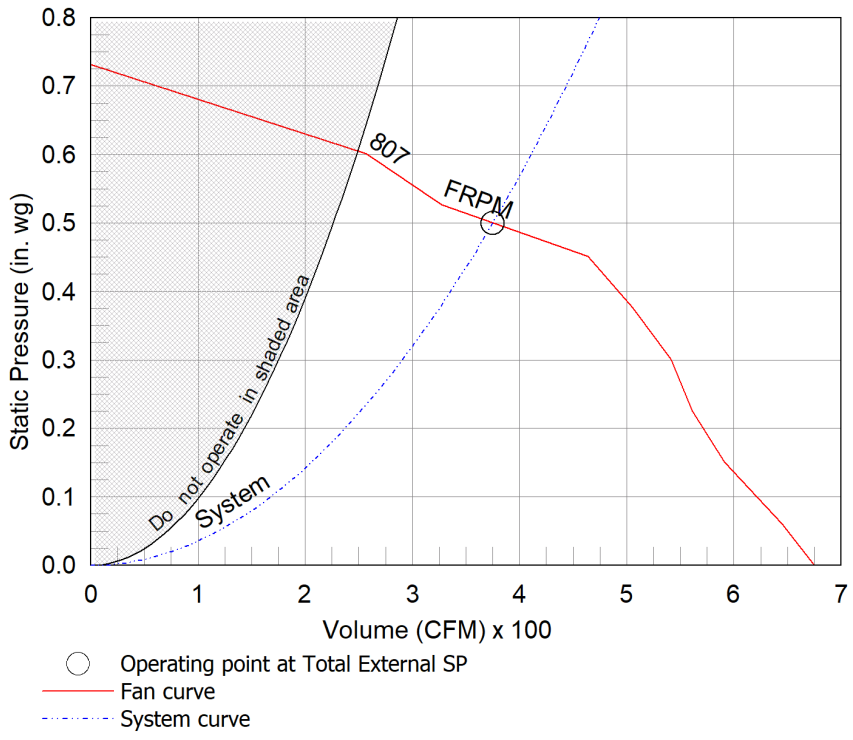
Motor rated for continuous use
Motor with Thermal Overload
Motor with CSA Approval
Motor with 40 Degree C Ambient Temperature
UL/cUL 507 Listed - Electric Fan
Solid State Speed Control, 6 Amp, Shipped Loose
Isolation Kit, (PN: VI KIT-SP/CSP), Shipped Loose
Adjustable easy installation mounting bracket
Polypropylene Wheel Material



Dimensional	
Quantity	2
Weight w/o Acc's (lb)	34
Weight w/ Acc's (lb)	36

Performance	
Requested Volume (CFM)	375
Actual Volume (CFM)	375
Total External SP (in. wg)	0.5
Fan RPM	807
* FLA (A)	3.3
Elevation (ft)	338
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Sones	3.0

Motor	
Motor Mounted	Yes
** Input Watts (W)	368
Voltage/Cycle/Phase	115/60/1
Enclosure	ODP



Notes:

All dimensions shown are in units of in.
*FLA is approximate and will vary slightly with the motor.
Sones - calculated using AMCA 301 at 5 ft
** Wattage is approximate and may vary between motors.