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 instructions could result in personal injury and/or property damage!

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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 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 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.
Damper Installation to a SP fan model

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, ⅛ 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 ¾ 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.

<table>
<thead>
<tr>
<th>SP Fan Size</th>
<th>UL Classified</th>
<th>WH Listed</th>
<th>“D”</th>
<th>“E”</th>
<th>Width (in.)</th>
<th>Height (in.)</th>
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<td>CRD-320</td>
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</table>
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 4. 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 ⅜ 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 5.

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

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.
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 6). A plaster flange kit, which comes with all of the necessary mounting hardware, is supplied with the unit. Follow the installation instructions that come with the kit to properly install the plaster flange.

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 - 1 1/4 in. x 1 in. x 20 ga. (32mm x 25mm x 1mm) mounting angles. Attach each 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 6 and attach mounting angles to the trusses using 4 - 1¼ in. long steel screws per mounting angle.

4. Run a minimum of four 1 in. (25mm) long #6 screws through the gypsum board into the plaster flange as shown in Figure 6.

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.

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.