

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 voiding of the product warranty and may result in personal injury and/or property damage.



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 38°C (100°F).

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.

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

Electrical Guidelines

Electrical and/or pneumatic connections to damper actuators should be made in accordance with wiring piping diagrams developed in compliance with applicable codes, ordinances and regulations.

Important!

Electrical input may be needed for this equipment. This work should be performed by a qualified electrician. Verify power before wiring actuator. Manufacturer is not responsible for any damage to, or failure of the unit caused by incorrect field wiring. To avoid causing death or serious bodily harm to building occupants, follow all instructions carefully. Dampers must close completely to preserve the integrity of the fire smoke separation.

Pre-Installation Guidelines

The basic intent of a proper installation is to secure the volume control damper into the opening in such a manner as to prevent distortion and disruption of damper operation. The following items will aid in completing the damper installation in a timely and effective manner.

1. Check the schedules for proper damper locations within the building. Visually inspect the damper for damage.

2. Lift or handle damper using sleeve or frame. Do not lift damper using blades, linkage, actuators, or jackshifting. When handling multiple sections assemblies, use sufficient support to evenly lift at each section mullion (see **Figure 1**).

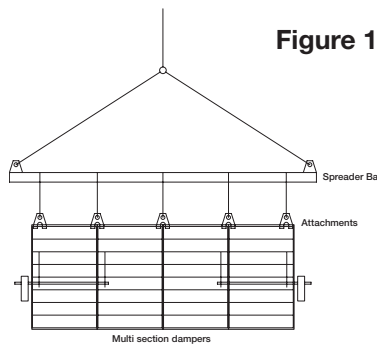


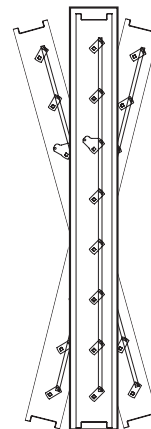
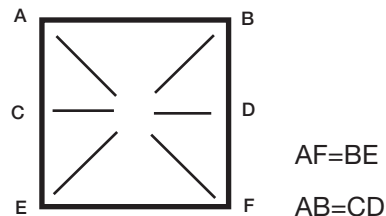
Figure 1

3. Do not install screws in damper frame that will interfere with unexposed blade linkage and prevent damper blades from opening and/or closing.
4. Damper must be installed into duct or opening square and free of twist or other misalignment. Damper must not be squeezed or stretched into duct or opening. Out of square, racked, twisted or misaligned installations can cause excessive leakage and/or torque requirements to exceed damper/ actuator design.

5. Damper and actuator must be kept clean, dry and protected from dirt, dust and other foreign materials prior to and after installation. Examples of such foreign materials include but are not limited to:
 - a) Mortar dust
 - b) Drywall dust
 - c) Firesafing materials
 - d) Wall texture
 - e) Paint overspray
6. Damper should be sufficiently covered as to prevent overspray if wall texturing or spray painting will be performed within 1.50m (5 feet) of the damper. Excessive dirt or foreign material deposits on damper can cause excessive leakage and/or torque requirements to exceed damper/actuator design.
7. Suitable access (actuators maintenance, etc.) must be provided for damper inspection and servicing. Where it is not possible to achieve sufficient size access, it will be necessary to install a removable section of duct.

Installation

1. Duct opening or opening square should be measured 6mm (1/4 inch) larger than damper dimension and should be straight and level (see **Figure 2**).



Do not twist or bow. Mount damper plumb in the opening.

Figure 2

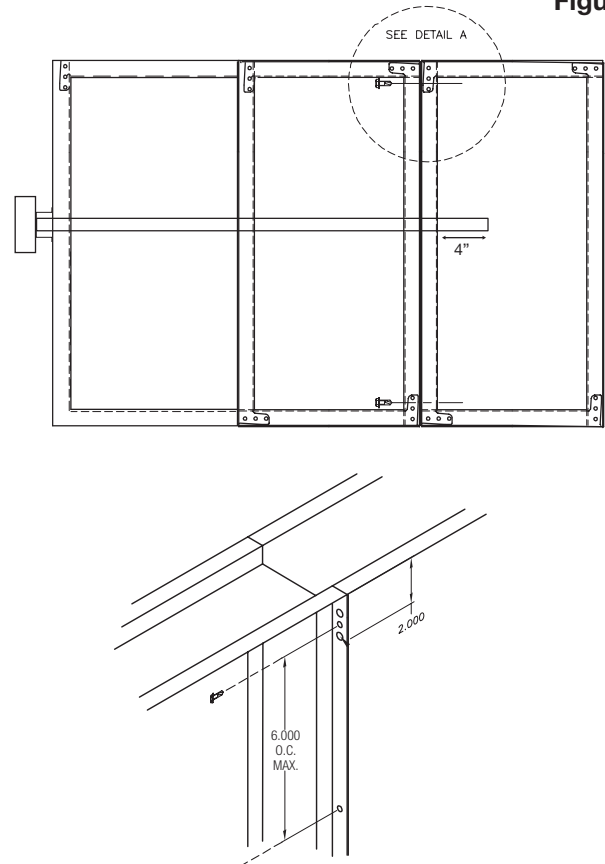
Installation (cont'd.)

2. If damper is more than two sections wide, it will be shipped as multiple section assembly and a single section together. The single section will be joined to the side of the multiple section where the jackshaft extends past the frame for about 102mm (4 inches) (see **Figure 3**).
3. A damper assembly is not restricted to a maximum number of sections but the assembly must not exceed the section sizes and overall sizes (see table below right).
4. The damper sections must be attached together with # 19mm (10 x 3/4 in.) max. sheet metal screws, 6mm (1/4 in.) diameter nuts and bolts, tack or spot welds, or 4mm (3/16 in.) diameter steel pop rivets. Attachments must be spaced a maximum of 152mm (6 in.) on centers and a maximum of 51mm (2 in.) from corners. Attachments must be made on front face and back face (air entering and air exiting side) of damper sections.
5. Two section high dampers require reinforcement using a 2mm (14 gauge), 127mm (5 in.) wide mullion or two individually sleeved units stacked vertically. When using two individually sleeved units, the sleeve acts as the mullion, therefore no mullion is required (mullions are not provided by manufacturer).
6. When the height or width is greater than 2,134mm (84 in.), the damper sections are shipped separate and field assembly is required. Before fastening damper sections together, the non-actuated damper section will need to be flipped upside down so that the linkage is on the same side as the actuated damper. After damper sections are fastened together, attach interconnecting angle as shown in **Figure 4**.
7. If no holes are present in the frame, drill 6mm (1/4 inch) diameter holes at 52mm (6 inch) centers and fasten frames together with M6x1.0 (1/4 - 20) bolts and nuts (see **Figure 4**).
8. Use shims between damper frame and duct opening or opening space to prevent distortion of frame by fasteners holding it in place. Brace at every horizontal mullion and vertically brace at every 2.4m (eight feet) of damper width for strength. Dampers in high velocity (610mm/s [2000 fpm] per second) may require more bracing.

Note

Manufacturer's dampers are specifically designed and engineered for structural integrity based on model and conditions. Attachment, framing, mating flanges, and anchoring of damper assemblies into openings, ductwork, or walls is the responsibility of the installer. Design calculation for these retaining and supporting members should be determined by field engineers for that particular installation.

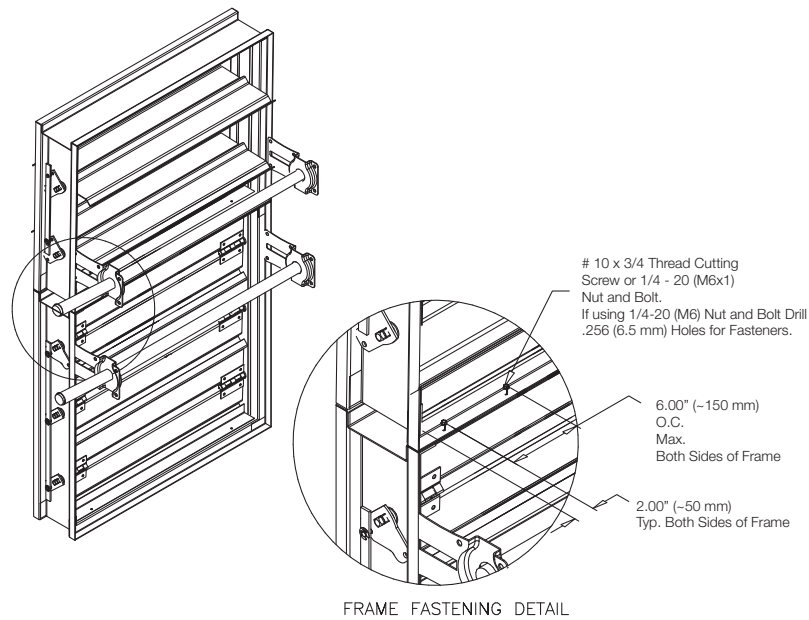
Figure 3



Damper Model	Maximum Single Section Size mm (W x H in.)	Maximum Overall Size for Multi-Section Dampers
VCD-20, VCD-23	1219 x 1880 (48 x 74)	Unlimited
VCD-33	1524x1880 (60x74)	Unlimited

Installation (cont'd.)

Figure 4



9. If the damper actuator is to be mounted out of the airstream, the extension pin should extend approximately 152mm (6 inches) beyond the frame. On jackshafted units, the jackshaft should extend through the jackshaft bearing assembly approximately 152mm (6 inches) beyond the frame.

10. Individual damper sections, as well as entire multiple section assemblies must be accurately sized and free from racking, twisting, or bending. Measure diagonally from upper corners to opposite lower corners of each section.

11. Damper blades, axles, and linkage must operate without binding. Before system operation, cycle dampers after installation to assure proper operation. On multiple section assemblies, all sections should open and close simultaneously.

Note

When you have a vertical damper installation, blades must be horizontal. When blades need to be vertical, you need a vertical blade damper (example: VCD-23V). These dampers are built so they don't crush the jamb seal.

Damper Maintenance

Manufacturer's dampers are designed to be trouble-free and hassle-free under normal operation. Dampers are to be installed square and straight so as to prevent binding during operation. The following annual damper maintenance suggestions will help to ensure proper damper operation and increase the life expectancy of the damper.

Foreign Matter Over the course of time, dirt and grime may collect on damper surfaces. The damper surfaces should be cleaned to prevent hindrance to airflow.

Moving Parts Make sure that parts such as linkage, bearings, blades, etc. that are intended to move freely, can do so. Lubricating these components can prevent possible rusting and unnecessary friction increase. Use only a moli-spray oil or similar

graphite based oil as regular lubricating oil will attract dirt.

Bearings, synthetic, oil impregnated, and ball bearings (without grease fittings) do not require lubrication. Ball bearings with grease fittings require only minimal grease.

Closure Remove foreign materials that may be interfering with blade closure or effective sealing of the blades with each other or with the frame.

Operation While operating the damper through its full cycle, check to see that the blades open and close properly. If there is a problem, check for loose linkage, especially at the actuator. Tighten the linkage where required.

Troubleshooting

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

Symptom	Possible Cause	Corrective Action
Damper does not fully open and/or fully close	Frame is 'racked' causing blades to bind on jamb seals	Adjust frame such that it is square and plumb
	Actuator linkage loose	Close damper, disconnect power, adjust and tighten linkage
	Defective actuator	Replace
	Screws in damper linkage	Locate screws and remove
	Actuator linkage hitting wall or floor	Damper installed too far into wall. Move out to line designated on damper label
	Contaminants on damper	Clean with a non oil-based solvent (see Damper Maintenance)
Actuator runs hot or makes a humming noise	Actuator prohibited from reaching end of stroke	Disconnect linkage from jackshaft, open damper, power actuator to end of spring, tighten linkage. Verify amp draw

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.



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