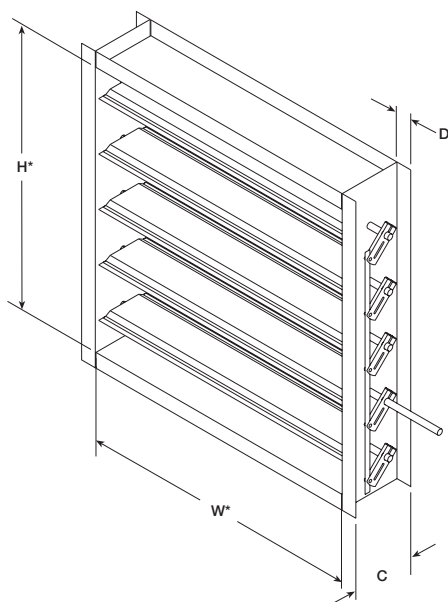




Part number 464604  
**HSD-401**  
Leakage Rated Smoke Dampers  
Vertical or Horizontal Mount

## Installation, Operation and Maintenance Instructions

These instructions apply to the installation of HSD-401 series leakage rated smoke dampers. Specific requirements in these instructions are mandatory. These instructions meet the requirements of UL 555S UL listing R13317.



HSD-401 Dampers are intended for installation in accordance with smoke damper requirements established by:

**National Fire Protection Association**  
NFPA Standards 80, 90A, 92A, 92B, & 105  
**BOCA National Building Codes**  
**ICBO Uniform Building Codes**  
**IBC International Building Codes**  
**SBCCI Standard Building Codes**

**“UL CLASSIFIED (see complete marking on product)”**  
**“UL CLASSIFIED to Canadian safety standards (see complete marking on product)”**  
UL Standard 555S (Classification #R13317)

### 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 120°F (49°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.**

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

### WARRANTY

Greenheck warrants this equipment to be free from defects in material and workmanship for a period of one year from the purchase date. Any units or parts which prove to be defective during the warranty period will be repaired or replaced at our option. Greenheck shall not be liable for damages resulting from misapplication or misuse of its products. Greenheck will not be responsible for any installation or removal costs. Greenheck will not be responsible for any service work or backcharges without prior written authorization.

### 1. SMOKE DAMPER REQUIREMENTS AND APPLICATION

Smoke dampers are required to close and prevent the passage of air and smoke through ducts or ventilation openings in smoke barriers. Smoke dampers are also applied in engineered smoke control systems to establish air pressure differentials and thereby prevent the spread of smoke. HSD-401 damper is designed to operate with blades running horizontally. Dampers can be vertically or horizontally installed at, in accordance with NFPA-90A, or adjacent to the point where the duct passes thru the smoke barrier.

Due to continuing research, Greenheck reserves the right to change specifications without notice.

## 2. LOCATION OF DAMPER IN DUCTWORK

Place the damper assembly in its proper position relative to the barrier. The plane of the closed damper blades must be within 24 in. (610mm) of the rated smoke barrier and before any duct inlets or outlets.

## 3. ATTACHING DAMPER TO THE DUCT

HSD-401 damper is a flange mounted to the duct, sleeve, or wall opening with  $\frac{3}{8}$  in. (10mm) minimum diameter bolts and spaced a maximum of 6 in. (152mm) apart, on center. Dampers can be attached directly to the fan, if required.

## 4. SEALING THE INSTALLATION

After installing the damper in the ductwork, seal the joint between the damper frame and the duct using Dow Corning RTV 732 Sealant. Make sure to press the sealant into the joint to guarantee a proper seal. Use the minimum amount of material required to completely seal the joint.

## 5. ACTUATOR CONNECTIONS

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

### Size Limitations

in inches (mm)	Maximum single section size	Maximum single section size when multi-section assembly	Maximum overall multi-section size*
HSD-401	60 x 60 (1524 x 1524)	48 x 60 (1219 x 1524)	120 x 60 (3048 x 1524) or 48 x 120 (1219 x 3048)

\* All multiple section assemblies are factory assembled.

## 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.

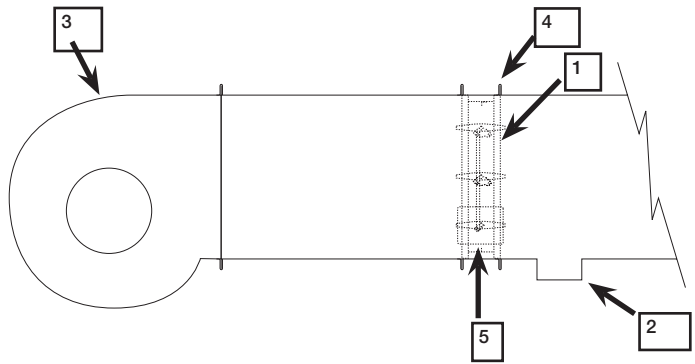
Dampers and their actuator(s) must be maintained, cycled, and tested in accordance with:

- The latest editions of NFPA 80, 90A, 92A, UL864, and local codes.
- Actuator manufacturer recommendations.

## 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 fully close	Frame is 'racked' or not round causing blades to bind on jamb seals or frame	Adjust frame such that it is square and plumb or round where applicable
	Actuator linkage loose	Close damper, disconnect power, adjust and tighten linkage
	Defective motor	Replace
	Screws in damper linkage	Locate screws and remove
	Contaminants on damper	Clean with a non-oil-based solvent (see Damper Maintenance)
Damper does not operate	No power supplied to the actuator	



### Item Description

1. Damper frame
2. Duct outlet
3. Fan (not limited to centrifugal)
4.  $\frac{3}{8}$  in. (10mm) minimum diameter bolts
5. Actuator

The actuators are to be installed to function per system requirements and to be controlled by smoke detection devices.

### FAN ISOLATION APPLICATION

For air handling equipment isolation, leakage rated dampers are designed to operate with blades running horizontally. Dampers can be installed in a vertical or horizontal position. Sealants and damper seal materials meet the requirements of NFPA90A for smoke developed rating ( $\leq 50$ ) and flame spread index ( $\leq 25$ ) as tested per UL723/ASTME84-91A/NFPA 255. Dampers can be attached to the fan system discharge or inlet without being 24 in. (610mm) of a smoke barrier when used as an air handling equipment isolation damper.

