



GREENHECK



VENCO PRODUCTS

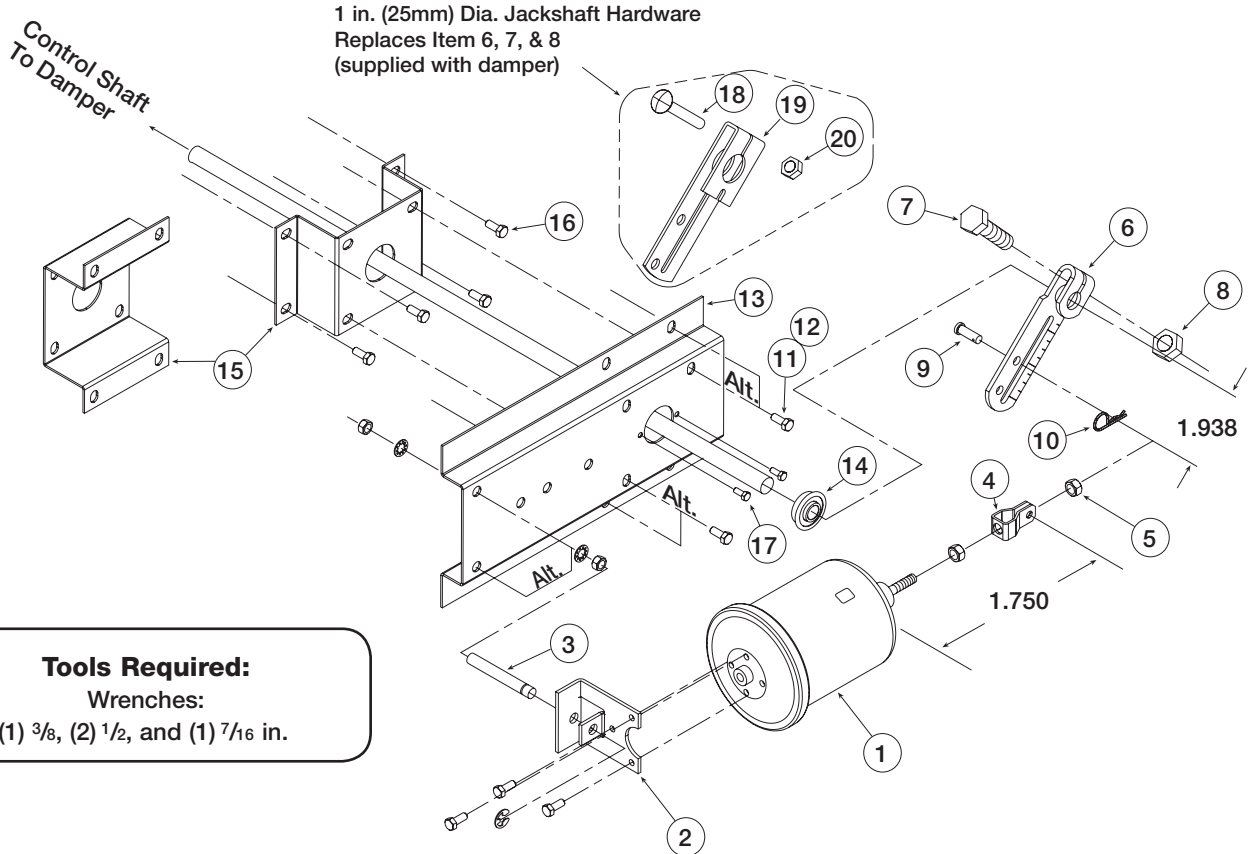
Part Number 454201
Siemens #3 Actuator
Model 331-4551 & 332-4551

UL Listed Pneumatic Actuator with Spring Return

INSTALLATION INSTRUCTIONS

These instructions apply to the external field installation of Siemens actuators on Greenheck models VCD Control Dampers when they are duct mounted or sleeved.

This Siemens pneumatic actuator has an 8 square inch effective diaphragm area and a 2³/₄ in. stroke. It extends to its holding position when air pressure is applied and spring returns to its fail position when the air supply is interrupted. This model has a maximum air pressure of 25 psi.



Tools Required:

Wrenches:

(1) 3/8, (2) 1/2, and (1) 7/16 in.

Part No.	Quantity	Description
1	1	Actuator Siemens #3
2	1	Swivel (assembled to actuator)
3	1	Post (assembled to actuator)
4	1	Clevis (assembled to actuator)
5	2	3/8 in.-24 Hex Nut (assembled to actuator)
6	1	1/2 in. Crankarm
7	1	5/16 in.-18 x 1 1/2 in. Bolt
8	1	5/16 in.-18 Spinlock Nut
9	1	1/4 in. x 1/2 in. Clevis Pin
10	1	Hitchpin Cotter

Part No.	Quantity	Description
11	4	1/4-20 x 1/2 in. Bolt
12	4	1/4-20 Spinlock Nut
13	1	Mounting Bracket
14	1	Ball Bearing
15	1	Stand Off Bracket
16	4	1/4-20 x 1/2 in. Self Threading Screw
17	2	#10 TEK Screw
18	1	3/8-16 x 2 1/2 in. Carriage Bolt
19	1	1 in. Crankarm (Knurled)
20	1	3/8-16 Spinlock Nut ZP



WARNING

Equipment Damage or Electrical Power Hazard. Line voltage can cause death or serious injury and short equipment circuitry. Disconnect power supply before installation.



CAUTION

Device Malfunction Hazard. Improper set screw tightening causes device malfunction. Tighten set screws with proper torque to prevent damper shaft slippage.

Instructions:

These installation instructions assume the damper is already mounted in a duct or sleeve with the damper shaft extending beyond the duct or sleeve 6 inches.

1. Install the stand off bracket.

Dampers with a jackshaft

- 1a. Mount the stand off bracket onto the jackshaft bracket with (4) 1/4-20 X 1/2 in. thread cutting screws, #16. Orient the anchor bracket perpendicular to the damper on the duct or sleeve so that the bracket's shaft hole is centered on the jackshaft.

Dampers without a jackshaft (Shaft Extension)

- 1b. Mount the stand off bracket spanning across the damper frame flanges. Orient the anchor bracket perpendicular to the damper on the duct or sleeve so that the bracket's shaft hole is centered on the shaft extension. Fasten to the damper frame with (4) #14 Tek screws or equal, supplied by others. Be sure not to run the screws into the damper linkage, which is between the flanges.

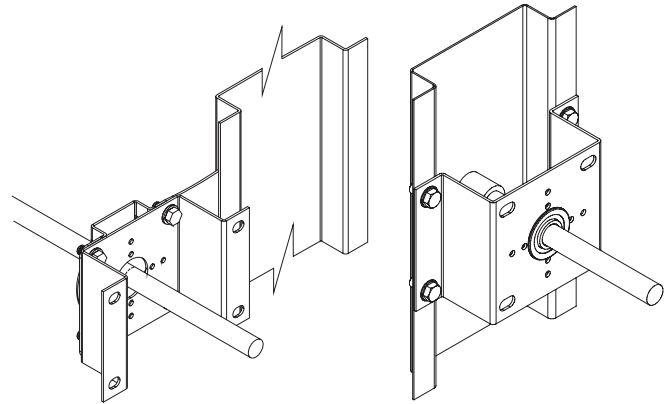
2. Mount the actuator and all factory assembled actuator parts to the mounting bracket (#13) with the (2) 5/16 in.-18 hex nuts supplied on the actuator assembly. Attach the assembly to the bracket using the post (#3) through the hole illustrated to the right on the diagram that corresponds to the correct fail direction.

Note: All fail rotations refer to the damper shaft rotation needed to achieve the desire blade fail position. Inspect the damper blades and the damper shaft to determine the proper damper shaft rotation for the desired blade fail position.

3. Mount the mounting bracket to the stand off bracket using (4) 1/4 in.-20 x 1/2 in. bolts, #11, and (4) 1/4 in. - 20 Spinlock nuts, #12, included with this kit. Use the outer four holes of the mounting bracket for jackshafted models and the inner four holes for directly driven models.

Note: The mounting bracket may be attached in three positions: parallel with the duct, perpendicular up from the duct, or perpendicular down from the duct. Choose a position that offers the most clearance for the application.

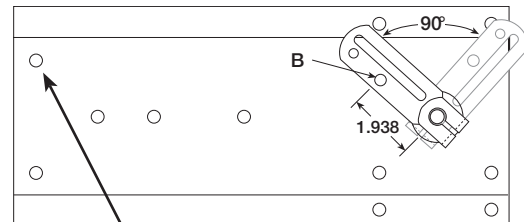
4. Note the damper shaft rotation for fail direction and position the crankarm in one of the positions shown in the illustrations to the right. Do not tighten the crankarm to the damper shaft.
5. Attach the crankarm to the clevis on the actuator with the clevis pin, #9, and the hitchpin cotter, #10, through the hole labeled "B" to the right. Position the damper blades in the desired fail position (open or closed). Tighten the crankarm to the damper shaft.



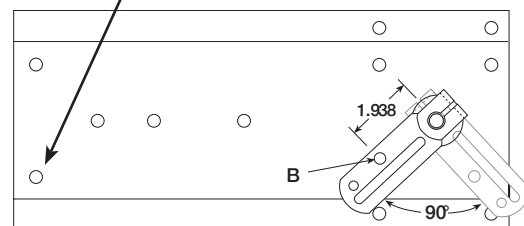
Orientation of Stand Off Bracket for a jackshaft driven damper

Orientation of Stand Off Bracket for a directly driven damper

Crankarm Orientation and Actuator Assembly Location for Counter Clockwise Fail Rotation



Actuator Assembly is fastened to the mounting plate through one of these holes



Crankarm Orientation and Actuator Assembly Location for Clockwise Fail Rotation

6. Run the supply pressure to the actuator and regulate it to a maximum of 25 psi.
7. Apply air pressure to the actuator.

The damper blades should fully open or close and return to the fail position when power is disconnected, if they do not, adjustments can be made by resetting the crankarm position on the damper or actuator shaft or by changing the distance from the actuator face to the center of the hole in the clevis.

