

D-4070

Pneumatic Piston Damper Actuator

Description

The D-4070 Two Stage Pneumatic Actuator is a multipurpose positioning device used to accurately position small dampers primarily on unit ventilators, Variable Air Volumes (VAVs), terminal units, and small ventilating dampers in response to output signals of a pneumatic controller or electro-pneumatic transducer.

The D-4070 was specifically designed to provide ASHRAE Cycle II and W control of unit ventilators where a minimum of outdoor air (15 to 50%) is admitted during the heating and ventilating stage and gradually increased to 100%, if needed, during the cooling and ventilating stage.

The D-4070 is a direct replacement for existing D-3070 actuators and a functional replacement for older D-255 actuators.

Refer to *D-4070 Two Stage Pneumatic Actuator Product Bulletin (LIT-2681082)* for important product information.

Features

- 2-way swivel connection ensures non-binding movement and full power delivery
- glass reinforced polymer housing which is lightweight, corrosion and chemical resistant

- telescoping linkage for fast and flexible installation
- economical because has 2 springs for two stage operation which functions as two separate actuators
- designed to provide ASHRAE Cycle 11 and W controls of unit ventilators

Applications

The D-4070 has a first stage nominal spring range of 3 to 6 psig (21 to 42 kPa) and can be furnished with a second stage spring range of either 9 to 12 psig (63 to 84 kPa) or 11 to 14 psig (77 to 98 kPa). The control air pressure for normal HVAC operation is 0-20 psig. The total stroke of the D-4070 is 2-3/4 inch (70 mm) and is adjustable from 0 to 50% during the first stage of operation.

The D-4070 incorporates several internal and external features that add functional flexibility. A 2-way swivel connection on the actuator cylinder head provides nonbinding movement. All actuators have a telescoping piston rod for easy linkage of the damper for attachment points up to 8-3/4 inches (214 mm) away from the face of the actuator. A swivel ball joint and slotted crank arm connector are furnished on all actuators for optional methods of linkage to the damper.



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When used with proportional control, the damper size is limited by the torque requirement.

Repair Information

If the D-4070 Pneumatic Piston Damper Actuator fails to operate within its specifications, replace the unit. For a replacement actuator, contact the nearest Johnson Controls® representative.

Selection Charts

D-4070 Pneumatic Piston Damper Actuator¹

Code Number	Nominal Spring Range, psig (kPa)
D-4070-1	3-6 (21-42) First Stage, 9-12 (63-84) Second Stage with Auxiliary Mounting Bracket
D-4070-2	3-6 (21-42) First Stage, 11-14 (35-70) Second Stage with Auxiliary Mounting Bracket
D-4070-6001	3-6 (21-42) First Stage, 9-12 (63-84) Second Stage body only
D-4070-6002	3-6 (21-42) First Stage, 11-14 (35-70) Second Stage body only

1. Check your UV standard equipment sheets for the various models for the unit ventilator manufacturers. When a unit ventilator manufacturer specifies a D-4070, be sure to select the one that is designed for that unit.

Technical Specifications

D-4070 2-stage Pneumatic Actuator	
Stroke	2-3/4 in. (70 mm)
Control Air Pressure	0 - 20 psig for HVAC, 25 psig (171 kPa) Maximum
Air Connections	1/8 in. NPT straight barbed fitting for 1/4 in. O.D. polytubing (furnished)
Ambient Storage Condition	-20 to 150°F (-29 to 66°C)
Ambient Operating Conditions	35 to 150°F (2 to 66°C)
Effective Diaphragm Area	6.7 in ² (45 cm ²)
Housing Material	Glass reinforced polymer, UL 94 HB flame class rating
Diaphragm Material	Synthetic elastomer
Dimensions	3-7/8 in. diameter x 9-15/16 in. long
Shipping Weight	3.5 lb (1.6 kg)

Accessories for D-4070 Damper Actuator

Code Number	Description	Weight, lb (kg)
D-3073-105	Mounting Post Kit, 5 per kit	0.5 (0.23)
D-3073-604	Ball Joint - weather resistant	0.5 (0.23)
D-3153-103	Rod - 8-3/4 inch (222 mm) replacement	1.0 (0.45)
D-3153-106	Auxiliary Mounting Bracket	1.0 (0.45)
D-3153-111	E-rings for Pivot Post, 10 per kit	0.5 (0.23)
D-3153-112	Mounting Nuts for Pivot Post, 10 per kit	0.5 (0.23)
DMPR-KC050	Crank Arm: 7/16 inch shaft radius adjustable to 2-3/4 inch radius	0.5 (0.23)
DMPR-KC051	Crank Arm: 3/8 inch shaft radius adjustable to 2-3/4 inch radius	0.5 (0.23)
DMPR-KC053	Crank Arm: 1/2 inch shaft radius adjustable to 2-3/4 inch radius	0.5 (0.23)
DMPR-KC054	Blade Arm Kit	1.3 (0.59)
DMPR-KC102	Rod - 4 feet (122 cm)	2.0 (0.91)
DMPR-KC251	Universal Mounting Bracket	3.5 (1.13)
DMPR-KC300	Swivel Ball Joint, 10 per kit	0.5 (0.23)

Maximum Force¹ Values at 20 psig (140 kPa) Supply

First Stage Spring Range, psig (kPa)	Second Stage Spring Range, psig (kPa)	Stroke	Force, lb (Newtons)	Torque Output for 90° Rotation
3 to 6 (21 to 42)	9 to 12 (63 to 84)	Power	53.6 (239)	73.7 in-lb (8.4 N-m)
		Return	20.1 (89)	27.6 in-lb (3.1 N-m)
3 to 6 (21 to 42)	11 to 14 (77 to 98)	Power	40.2 (179)	55.3 in-lb (6.3 N-m)
		Return	20.1 (89)	27.6 in-lb (3.1 N-m)

1. Force calculated using 6.7 lb/psig available actuator force.