JOHNSON CONTROLS

Controls Group 507 E. Michigan Street
P.O. Box 423, Milwaukee, WI 53202
Code No. Lit-1921025

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.

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 non-binding 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.

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

Accessories

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)

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)

To Order

Specify the code number from the following selection chart.

Selection Chart

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

Note: Check your UV standard equipment sheets for the various models for the unit ventilator manufacturers.

Note: Field repairs must not be made. For a replacement D-4070, contact the nearest Johnson Controls representative.

Note: When a unit ventilator manufacturer specifies a D-4070, be sure to select the one that is designed for that unit.

Maximum Force 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	Power	53.6 (239)	73.7 in·lb (8.4 N·m)
	(63 to 84)	Return	20.1 (89)	27.6 in·lb (3.1 N·m)
3 to 6 (21 to 42)	11 to 14	Power	40.2 (179)	55.3 in·lb (6.3 N·m)
	(77 to 98)	Return	20.1 (89)	27.6 in·lb (3.1 N·m)

Note: Force calculated using 6.7 lb/psig available actuator force.

The performance specifications are nominal and conform to acceptable industry standards. For applications at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products. © 02/99 Johnson Controls, Inc