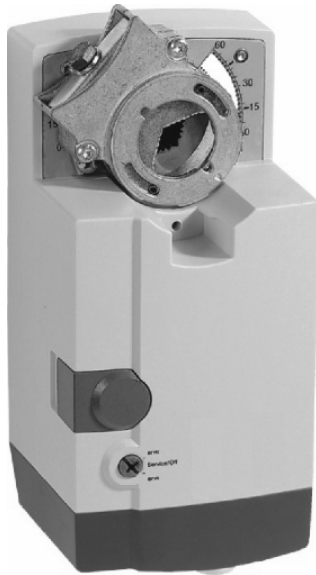


Honeywell

N20, N34 Series MN6120, MN6134

DAMPER ACTUATORS 20/34 Nm (175/300 lb-in)
FOR FLOATING/2-POSITION CONTROL

PRODUCT DATA



GENERAL

These direct-coupled damper actuators provide two-position and floating control for:

- rotary valves,
- air handlers,
- ventilation flaps,
- louvers, and
- reliable control for air damper applications with up to 50 sq.ft. (20 Nm / 175 lb-in) or 85 sq. ft. (34 Nm / 300 lb-in) (seal-less damper blades; air friction-dependent).

FEATURES

- **Self-centering shaft adapter**
- **Access cover to for easier wiring**
- **Declutch for manual adjustment**
- **Mechanical end limits (MN6120 only)**
- **Field-installable auxiliary switches**
- **Rotation direction selectable by switch**
- **Mountable in any orientation (no IP54 if upside down)**
- **Mechanical position indicator**

SPECIFICATIONS

Supply voltage

MN6120 / MN6134: 24 Vac $\pm 15\%$, 50/60 Hz

Nominal voltage

MN6120 / MN6134: 24 Vac, 50/60 Hz

All values stated hereinafter apply to operation under nominal voltage conditions.

Power consumption

MN6120: 6 VA / 6 W

MN6134: 9 VA / 9 W

Ambient limits

Ambient operating limits: $-5...+140^{\circ}\text{F}$ ($-20...+60^{\circ}\text{C}$)

Ambient storage limits: $-40...+175^{\circ}\text{F}$ ($-40...+80^{\circ}\text{C}$)

Relative humidity: 5...95%, non-condensing

Safety

Protection standard: IP54, NEMA2

Protection class: II as per EN 60730-1

Overvoltage category: II

Lifetime

Full strokes: 60000

Repositions: 1.5 million

Mounting

Round damper shaft: $3/8...1-1/16"$ (10...27 mm)

Square damper shaft: $3/8...11/16"$ (10...18 mm); 45° steps

Shaft length: min. $7/8"$ (22 mm)

Auxiliary switch (when included)

Rating: 5 A (resistive) / 3 A (inductive)

Triggering points: 5° / 85°

Torque rating

MN6120: 175 lb-in (20 Nm)

MN6134: 300 lb-in (34 Nm)

Runtime: 95 sec (60 Hz) / 110 sec (50 Hz)

Rotation stroke: $95^{\circ} \pm 3^{\circ}$

Dimensions: See "Dimensions" on page 6.

Weight: 1.45 kg (3 lbs. 3 oz.)

Noise rating: 40 dB(A) max. at 1 m



63-2588-02

PRODUCT IDENTIFICATION SYSTEM

M – Electrical motor
N – Fail Safe Function (Non-Spring Return)
61 – 24V Floating Control
72 – 24V Modulating Control
20 – 20 Nm (175 lb-in)
34 – 34 Nm (300 lb-in)
A – Standard Model
1 – No Feedback
2 – Voltage Feedback Signal
0 – No Internal Auxiliary Switches
2 – Two Internal Auxiliary Switches
XX – System Controlled Numbers

M	N	72	20	A	2	0	XX
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Fig. 1. Product Identification System

OPERATION/FUNCTIONS

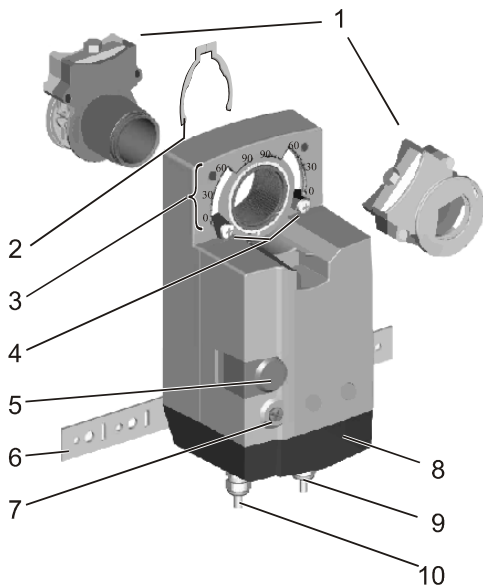


Fig. 2. Setting units and control elements

- Legend for Fig. 2:
- 1. Self-centering shaft adapter
 - 2. Retainer clip
 - 3. Rotational angle scales (0...90° / 90...0°)
 - 4. Mechanical end limits (20 Nm [175 lb-in] models, only)
 - 5. Declutch button
 - 6. Anti-rotation bracket
 - 7. Rotation direction switch
 - 8. Access cover
 - 9. Internal auxiliary switch wire
 - 10. Power and control switch wire

Contents of Package

The delivery package includes the actuator itself, parts 1 through 10 (see Fig. 2; in the case of U.S. models – e.g. MN6120 – parts 1 through 8), the anti-rotation bracket screws, and the SM mounting plate and screws.

Rotary Movement

The rotation direction (clockwise or counterclockwise) can be selected using the rotation direction switch (see part 7 in Fig. 2), thus eliminating the need to re-wire. To ensure tight closing of the dampers, the actuator has a total rotation stroke of 95°.

As soon as operating power is applied, the actuator may start to run. When power is removed, the actuator remains in position. For actuator-controller wiring instructions, see section “Wiring” on page 4.

Rotation Direction Switch

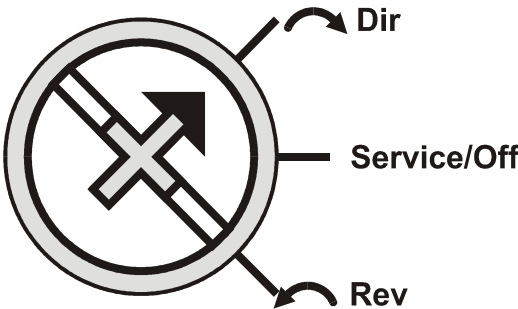


Fig. 3. Rotation Direction Switch

- Dir (“↗”) is the default shipping position. When the rotation direction switch is set to this position, the actuator internally switches the rotation direction control signals as stated in section “Wiring Diagrams” on page 5.

- “Service/Off”: When the rotation direction switch is set to this position, all actuator rotary movement is cancelled and all control signals are ignored, thus enabling the actuator to be manually operated (see section “Manual Adjustment”). The user can then perform maintenance/commissioning without having to remove power from the actuator. To return to the control mode, simply move the rotation direction switch to its former setting.
- Rev (“↺”): When the rotation direction switch is set to this position, the actuator follows signals as stated in section “Wiring Diagrams” on page 5.

Two-Position or Floating Control

The actuator is capable of being operated by either a two-position (open/close) or a floating (three-wire) controller. Refer to wiring diagrams for correct connection.

Position Indication

The hub adapter indicates the rotation angle position by means of the rotational angle scales (0...90° / 90...0°) provided in the actuator plate (see Fig. 4).

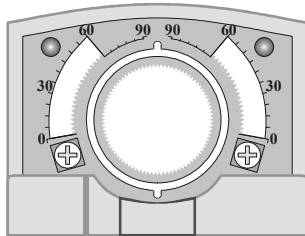


Fig. 4. Position indication

Manual Adjustment

IMPORTANT

To prevent equipment damage, you must remove power or set the rotation direction switch to the “Service/Off” position before manual adjustment.

After removing power or setting the rotation direction switch to the “Service/Off” position, the gear train can be disengaged using the declutch button, permitting the actuator shaft to be manually rotated to any position. The feedback signal will then follow the new position.

Limitation of Rotation Stroke

Two adjustable mechanical end limits (20 Nm [175 lb-in] models, only) are provided to limit the angle of rotation as desired (see Fig.5).

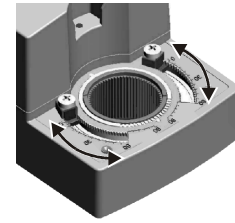


Fig. 5. Mechanical end limits

The mechanical end limits must be securely fastened in place as shown in Fig. 6. Specifically, it is important that they properly mesh with the rotational angle scales when the screws are tightened.

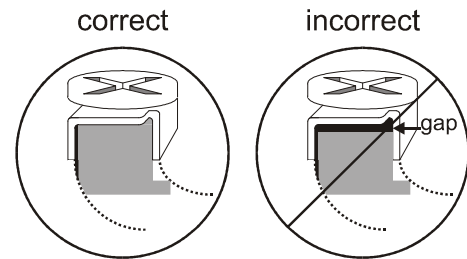


Fig. 6. Correct/incorrect tightening of end limits

Internal Auxiliary Switches

The internal auxiliary switches are set to switch from “common” to “normally open” at angles of 5° and 85°, respectively, from the totally counterclockwise position.

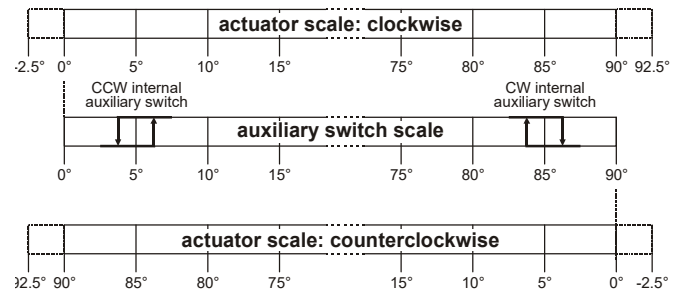


Fig. 7. Internal auxiliary switch triggering points

INSTALLATION

These actuators are designed for single-point mounting.

IMPORTANT

In order to prevent equipment damage, you must remove power or set the rotation direction switch to the “Service/Off” position before manual operation.

Mounting Instructions

All information and steps are included in the Installation Instructions supplied with the actuator.

Mounting Position

The actuators can be mounted in any position (no IP54 or NEMA2 if mounted upside down; see Fig. 8). Choose a mounting position permitting easy access to the actuator's cables and controls.

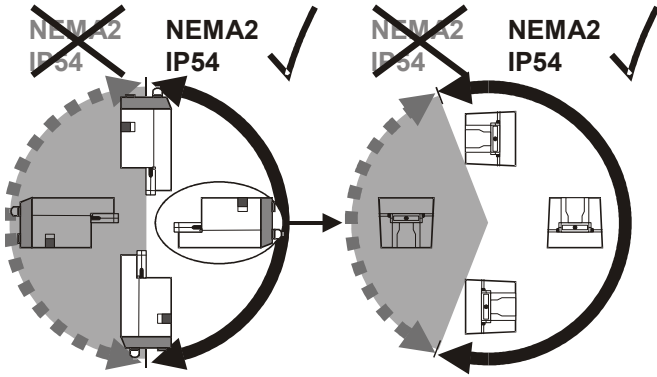


Fig. 8. Mounting for IP54/NEMA2

Mounting Bracket and Screws

If the actuator is to be mounted directly on a damper shaft, use the mounting bracket and screws included in the delivery package.

Self-Centering Shaft Adapter

The self-centering shaft adapter can be used for shafts having various diameters ($3/8...1-1/16"$ [10...27 mm]) and shapes (square or round).

In the case of short shafts, the shaft adapter may be reversed and mounted on the duct side.

Stroke Limitation with Mechanical End Limits

The mechanical end limits (20 Nm [175 lb-in] models, only) enable the stroke to be limited from 0...90° in increments of 3°.

Wiring

Access Cover

To facilitate wiring the actuator to the controller, the access cover can be detached from the actuator.

IMPORTANT

Remove power before detaching the access cover. Once the access cover has been removed, please take care to avoid damaging any of the parts now accessible.

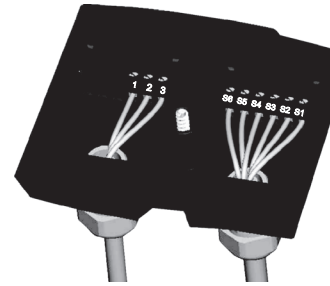


Fig. 9. Access cover

Depending upon the model, the access cover may have one or two terminal strips, including a layout with a description for each of the terminals.

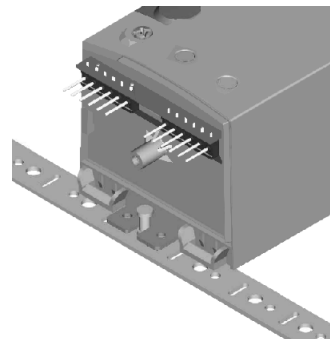
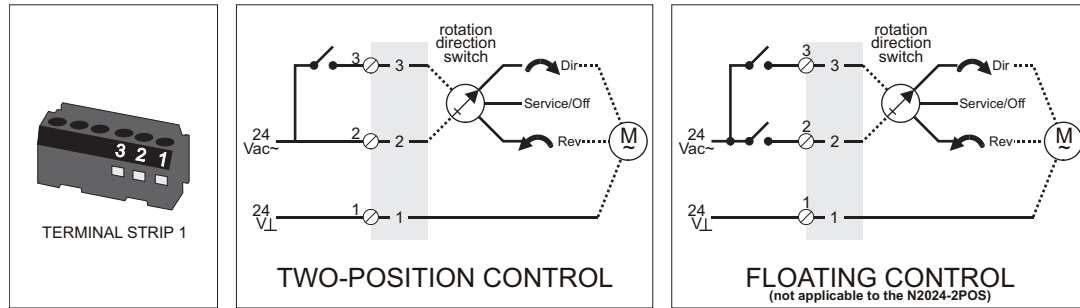


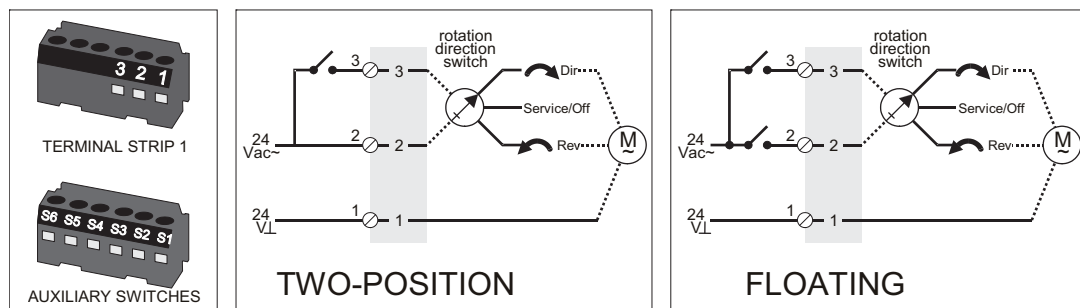
Fig. 10. Actuator with access cover removed

Wiring Diagrams

MN6120/MN6134



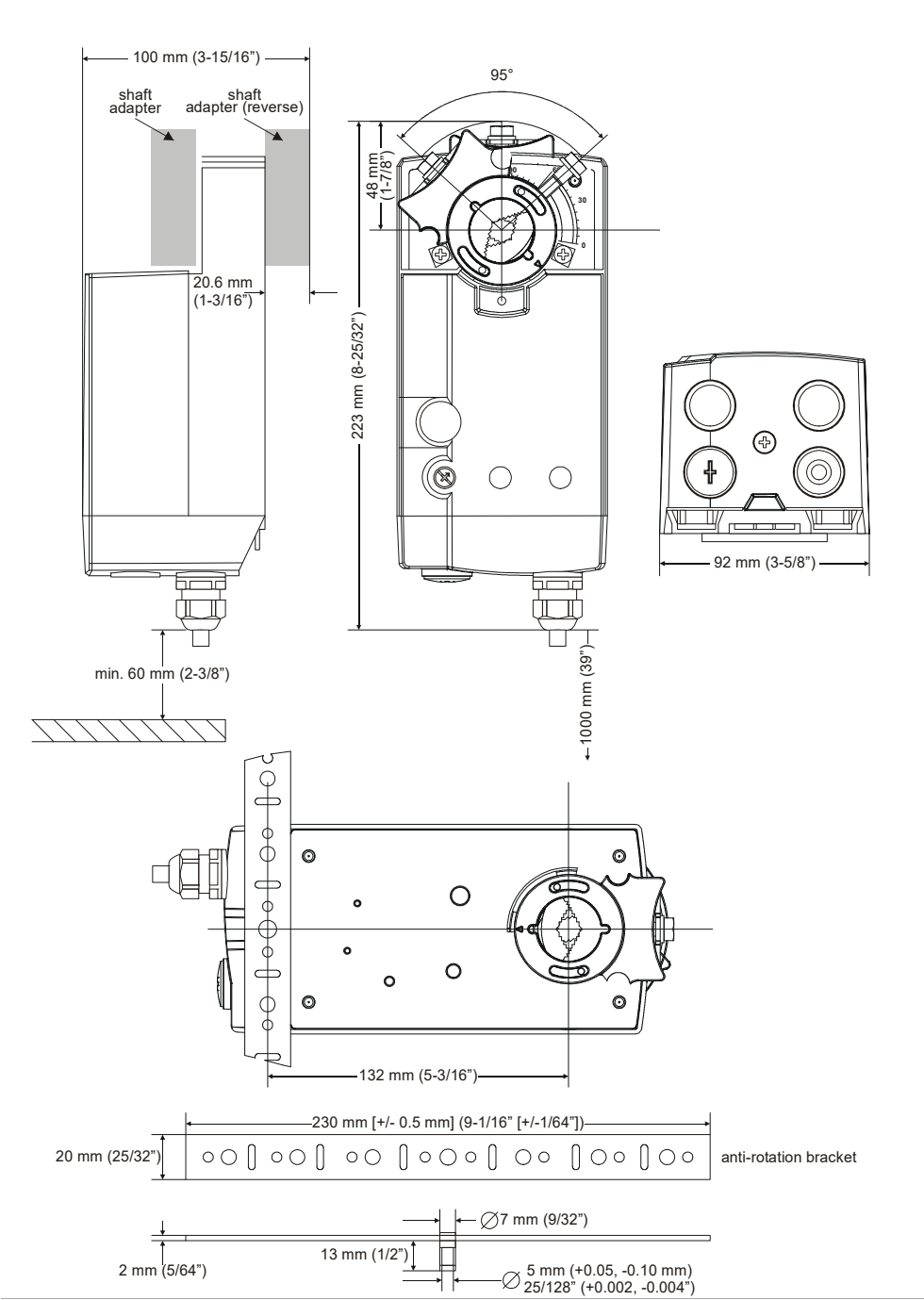
MN6120 WITH SWITCHES



NOTE: Internal auxiliary switches S1 and S4 must be connected to the same power source.

Connecting Cable		Terminal	Name			
			Floating		Two-Position	Two-Position
			Direct	Reverse	Direct	Reverse
Supply and signal lines		1	24 Vac ⊥	24 Vac ⊥	24 Vac ⊥	24 Vac ⊥
		2	24 Vac (clockwise)	24 Vac (counterclockwise)	24 Vac ~	24 Vac ~
		3	24 Vac (counterclockwise)	24 Vac (clockwise)	24 Vac (counterclockwise)	24 Vac (clockwise)
Auxiliary switched (when included)	CCW (left) 0-5°	S1	Common			
		S2	Closed			
		S3	Open			
		S4	Common			
		S5	Closed			
		S6	Open			
	5-85°	S1	Common			
		S2	Closed			
		S3	Open			
		S4	Common			
		S5	Closed			
		S6	Open			
	CW (right) 85-90°	S1	Common			
		S2	Closed			
		S3	Open			
		S4	Common			
		S5	Closed			
		S6	Open			

DIMENSIONS



N20, N34 SERIES MN6120, MN6134

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