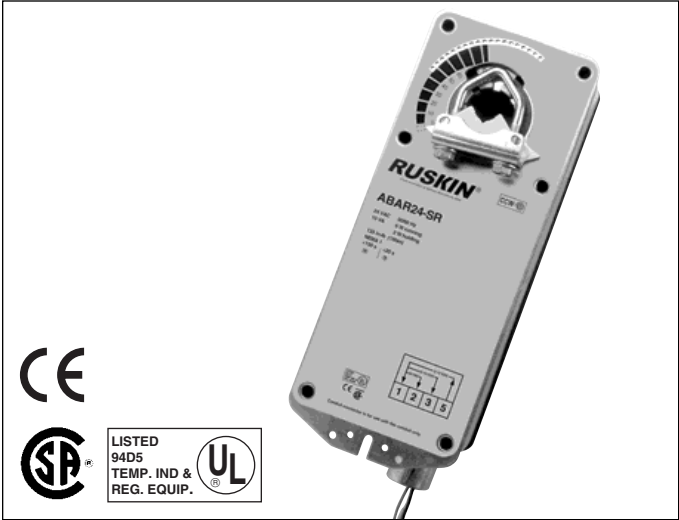


Proportional damper actuator, 24 V for 2 to 10 VDC, 0 to 20 V phasecut and 4 to 20 mA control signal.
Output signal of 2 to 10 VDC for position indication



Technical Data	ABAR24-SR
Power supply	24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption	running: 6 W ; holding: 2 W
Transformer sizing	10 VA (class 2 power source)
Electrical connection (4)	18", 18 GA single conductors 1/2" conduit connector
Electrical protection	auxiliary switch is double insulated
Overload protection	electronic throughout 0 to 95° rotation
Control signal Y	Y ₁ 0 to 10 VDC, Y ₂ 0 to 20 V phasecut, 0 to 20 mA
Input impedance	100 kΩ (0.1 mA), 8 kΩ (50 mW), 500Ω
Operating range	2 to 10 VDC, 2 to 10 V phasecut, 4 to 20 mA
Feedback output "U"	2 to 10 VDC (max. 0.5 mA) for 95°
Angle of rotation	mechanically limited to 95°
Torque	133 in-lb [15 Nm] constant
Direction of rotation	spring return reversible with CW/CCW mounting; control direction selected by switch: CW=CW with a decrease in signal CCW=CCW with a decrease in signal
Position indication	visual indicator, -5° to 90° (-5° is spring return position)
Manual override	3mm hex crank (shipped w/actuator)
Running time	150 sec. constant, independent of load, spring return < 20 sec
Humidity	5 to 95% RH noncondensing
Ambient temperature	-22°F to +122°F [-30°C to +50°C]
Storage temperature	-40°F to +176°F [-40°C to +80°C]
Housing	NEMA type 1
Housing material	zinc coated metal
Agency listings	UL 873 listed; CSA 4813 02 certified, CE
Noise level	max. 45 dB (A)
Servicing	maintenance free
Quality standard	ISO 9001
Weight	6.0 lbs (2.7 kg.)

Torque min. 133 in-lb, for control of air dampers

Application

For proportional modulation of dampers in HVAC systems.
Actuator sizing should be done in accordance with the damper manufacturer's specifications.

The actuator is mounted directly to a damper shaft up to 1/2" in diameter by means of its universal clamp, or up to a 1.05" jackshaft by removing the clamp insert. A crank arm and several mounting brackets are available for applications where the actuator cannot be direct coupled to the damper shaft.

The actuator operates in response to a 2 to 10 VDC, 2 to 10 V phasecut or, with the addition of a 500Ω resistor, a 4 to 20 mA control input from an electronic controller or positioner. A 2 to 10 VDC feedback signal is provided for position indication or master-slave applications.

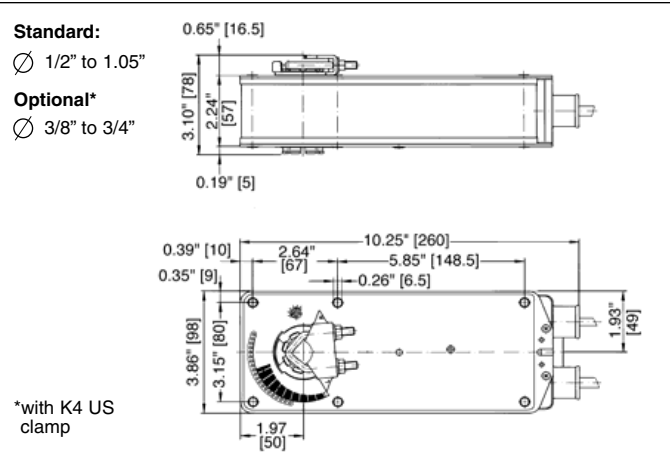
Operation

The ABAR series actuators provide true spring return operation for reliable fail-safe application and positive close-off on air tight dampers. The spring return system provides consistent torque to the damper with, and without, power applied to the actuator.

The ABAR series provides 95° of rotation and is provided with a graduated position indicator showing -5 to 90°. The AF has a unique manual positioning mechanism which allows the setting of any damper position within its 95° of rotation. The actuator is shipped in the zero position (5° from full fail-safe) to provide automatic compression against damper gaskets for tight shut-off. When power is applied, the manual mechanism is released and the actuator drives toward the full fail-safe position. The actuator will memorize the angle where it stops rotating and use this point for its zero position for its normal control operations.

The ABAR uses a brushless DC motor which is controlled by an Application Specific Integrated Circuit (ASIC) and a micro-processor. The microprocessor provides the intelligence to the ASIC to provide a constant rotation rate and to know the actuator's exact zero position. The ASIC monitors and controls the brushless DC motor's rotation and provides a digital rotation sensing function to prevent damage to the actuator in a stall condition. The actuator may be stalled anywhere in its normal rotation without the need of mechanical end switches.

Dimensions (All numbers in brackets are metric.)



Proportional damper actuator, 24 V for 0 to 10 VDC, or 0 to 20 mA control signal.
Output signal of 2 to 10 VDC for position indication



Technical Data	NBAR24-SR
Power supply	24 VAC $\pm$ 20% 50/60 Hz 24 VDC $\pm$ 10%
Power consumption	running: 3 W holding: 1 W
Transformer sizing	6 VA (class 2 power source)
Electrical connection (4)	18", 18 GA single conductors 1/2" conduit connector
Overload protection	Electronic throughout 0 to 95° rotation
Control signal	Y ₁ 0 to 10 VDC, 0 to 20 mA
Input impedance	100 k Ω (0.1 mA), 500 Ω
Operating Range	2 to 10 VDC, 4 to 20mA
Feedback output "U"	2 to 10 VDC (max. 0.5 mA) for 95°
Angle of rotation	95°, adjustable 30° to 95° w/accessory
Torque	60 in-lb [7 Nm] constant torque
Direction of rotation	spring return reversible with CW/CCW mounting; control direction selected by switch: CW=CW with a decrease in signal CCW=CCW with a decrease in signal
Position indication	visual indicator, 0° to 95° (0° is spring return position)
Running time (nominal)	motor: 150 sec constant, independent of load spring: < 60 sec
Humidity	5 to 95% RH noncondensing
Ambient temperature	-22°F to +122°F [-30°C to +50°C]
Storage temperature	-40°F to +176°F [-40°C to +80°C]
Housing	NEMA type 1
Housing material	zinc coated metal
Agency listings	UL 873 listed; CSA 4813 02 certified
Noise level	max. 45 dB (A)
Servicing	maintenance free
Quality standard	ISO 9001
Weight	6.0 lbs (2.7 kg.)

Torque min. 60 in-lb, for control of air dampers

Application

For proportional modulation of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specifications.

The actuator is mounted directly to a damper shaft up to 1/2" in diameter by means of its universal clamp, or up to a 1.05" jackshaft by removing the clamp insert. A crank arm and several mounting brackets are available for applications where the actuator cannot be direct coupled to the damper shaft.

The actuator operates in response to a 2 to 10 VDC, or with the addition of a 500 Ω resistor, a 4 to 20 mA control input from an electronic controller or positioner. A 2 to 10 VDC feedback signal is provided for position indication or master-slave applications.

Operation

The NBAR series actuators provide true spring return operation for reliable fail-safe application and positive close-off on air tight dampers. The spring return system provides consistent torque to the damper with, and without, power applied to the actuator. The NF series provides 95° of rotation and is provided with a graduated position indicator showing 0 to 95°.

The NBAR24-SR uses a brushless DC motor which is controlled by an Application Specific Integrated Circuit (ASIC) and a microprocessor. The microprocessor provides the intelligence to the ASIC to provide a constant rotation rate and to know the actuator's exact fail-safe position. The ASIC monitors and controls the brushless DC motor's rotation and provides a digital rotation sensing function to prevent damage to the actuator in a stall condition. The actuator may be stalled anywhere in its normal rotation without the need of mechanical end switches.

Dimensions (All numbers in brackets are metric.)

