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PA-ST1

User Manual

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Have any queries? Our expert engineers are here to help!



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SAFETY PRECAUTIONS

When installing and using your Progressive Automations linear actuator, basic safety precautions should always be followed. Please read all safety precautions thoroughly and be familiar with all functions of the product before use. Apply all other relevant precautions when operating electrical and moving mechanical devices.



DANGER

To reduce the risk of electrical shock and injuries:

- Do not attempt to modify or repair the actuator.
- Avoid using the actuator in environments with explosive gases or flammable materials.
- Avoid using the actuator beyond its specified Ingress Protection rating.
- Make sure that the power source is properly grounded. Neglecting proper grounding can result in a dangerous electrical hazard.



WARNING

To reduce personal harm and injury:

- Follow recommended load ratings and specifications for the actuator.
- Avoid leaving the actuator unattended during operation.
- Avoid operating the actuator in areas with high levels of airborne contaminants.
- Ensure a clear path for full extension and retraction of the actuator.
- Keep hands and body parts clear of the actuator while it is in motion.
- Exercise caution around pinch points and moving components during the actuator's operation.
- Keep all loose clothing, jewelry, and personal items away from the actuator's moving parts.

OPERATING NOTES

Warranty

Any attempts to disassemble or tamper with the actuator's internal components or operation outside of the advertised usage limitations will result in voiding the product's warranty. For more information on our warranty terms, visit:

<https://www.progressiveautomations.com/pages/warranty-terms>

Force Restrictions

Linear actuators must be used within the specified force rating outlined in this documentation. Load must be evenly distributed. Exceeding the recommended force rating may result in failure of the linear actuator. It may also damage the product and void the warranty. Please note that the weight of the load does not always equal the total force due to mechanical advantage, wherein the force may increase or decrease depending on the application.

Operation Time

Linear actuators must be operated within the specified operation time and frequency. Exceeding the duty cycle rating can significantly reduce the actuator's expected lifespan and will void the warranty.

SPECIFICATIONS

RATED LOAD CONFIGURATIONS

Rated Load (lbf)		12 VDC Current (A)		12 VDC Speed ¹ (inch/sec)	
Dynamic	Static	No Load	Full Load	No Load	Full Load
56	225	1.8	9.5	5.90	4.72
90	225	0.92	6.2	3.54	3.15
405	675	1.1	18.8	0.49	0.43
675	1125	1.2	18.8	0.28	0.22
900	1125	1.3	18.8	0.22	0.16

¹Speed specifications have a $\pm 10\%$ tolerance.

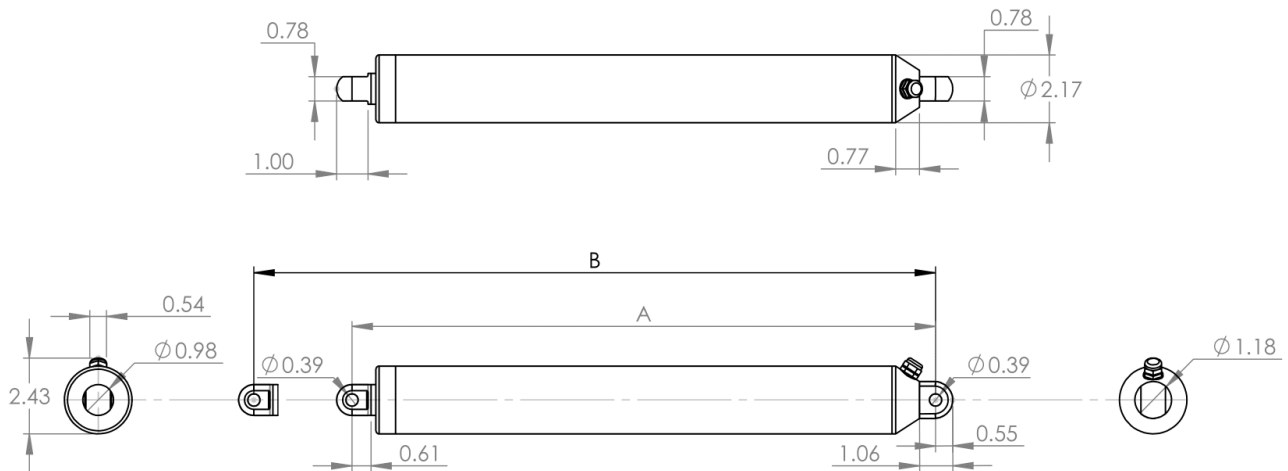
SPECIFICATIONS

Input Voltage	12VDC
Stroke	1" to 24"
Feedback	None
Duty Cycle	15% (2 Minutes on, 11 Minutes off)
Weather Protection	IP66
Operational Temperature	-20°C to 60°C (-4°F to 140°F)
Operating Noise	60 dB
Limit Switch	Built In (Non-Adjustable)
Cable Length	59"
Connector	Molex Mini-Fit Jr 2-Pin (Standard)
Front Mounting Hole Size	0.31"
Rear Mounting Hole Size	0.31"
Motor Type	Brushed DC Motor
Screw Type	ACME
Stroke Rod Material	Stainless Steel 304
Housing Material	Aluminum 6063
Gear Material	Powder Metallurgy / No. 45 Steel
Certifications	CE
Compatible Mounting Brackets	BRK-09

DIMENSIONS

Note: All dimensions are listed in inches.

DIAGRAM



HOLE TO HOLE LENGTH

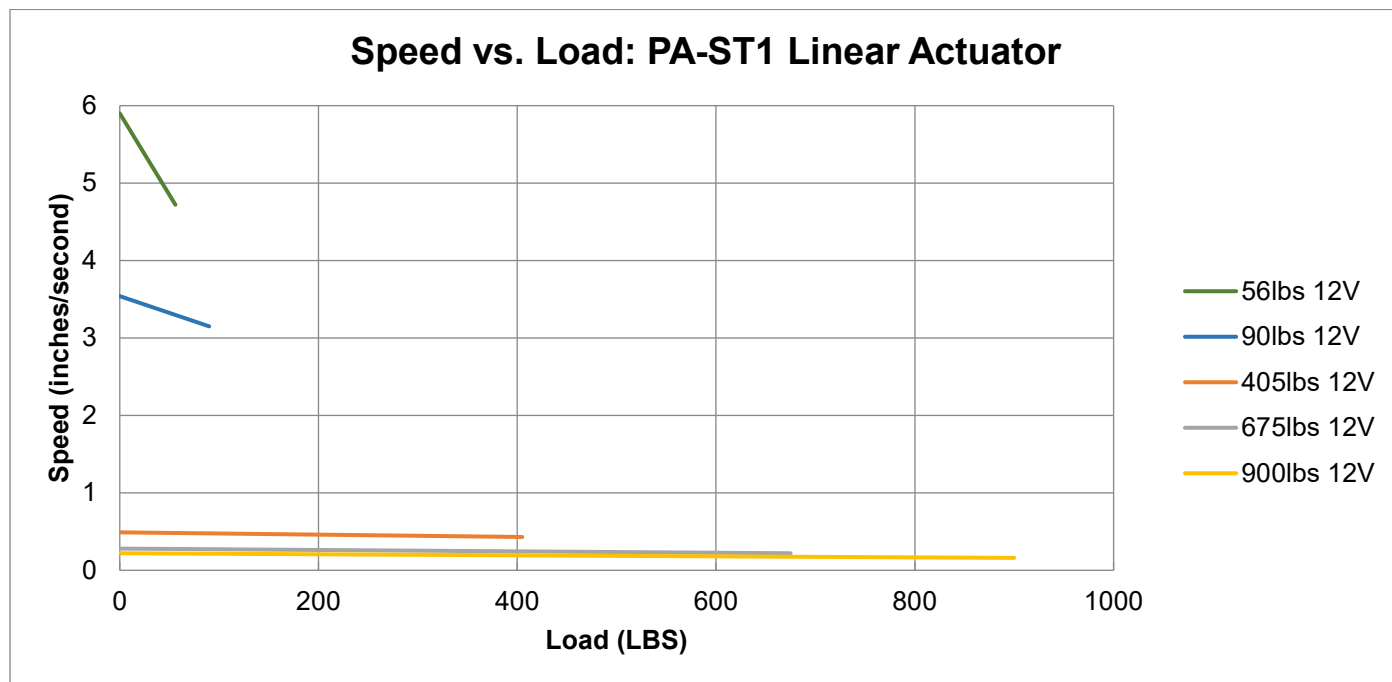
Stroke Length	1"	2"	3"	4"	6"	8"	10"	12"	16"	20"	24"
A (Fully Retracted)	13.8	14.8	15.8	16.8	18.8	20.8	22.8	24.8	28.8	32.8	36.8
B (Fully Extended)	14.8	16.8	18.8	20.8	24.8	28.8	32.8	36.8	44.8	52.8	60.8

1" ≤ Stroke Length ≤ 24"

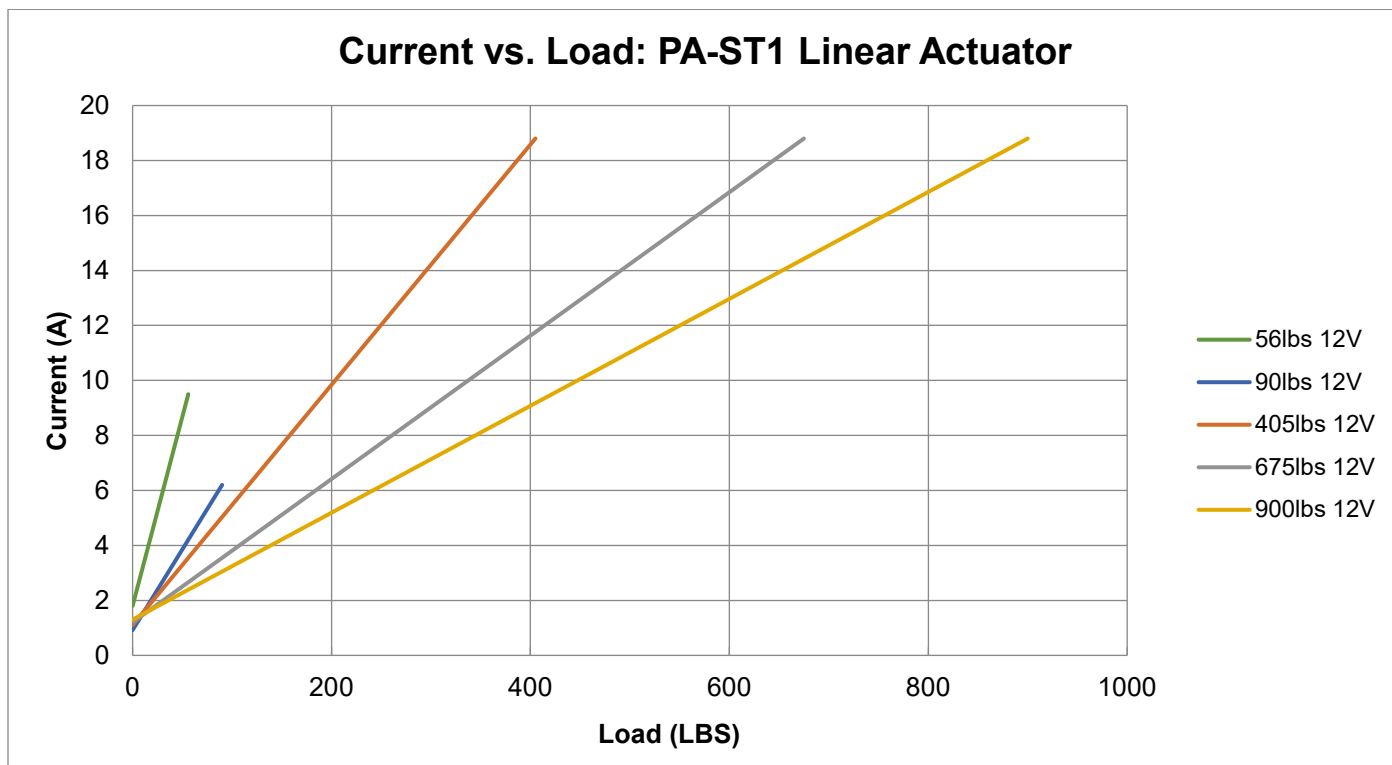
$$A \text{ (Fully Retracted)} = \text{Stroke Length} + 12.8''$$
$$B \text{ (Fully Extended)} = \text{Stroke Length} \times 2 + 12.8''$$

PERFORMANCE GRAPHS

SPEED VS LOAD

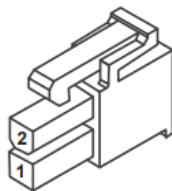


CURRENT VS LOAD



CONNECTORS

STANDARD - 2-PIN CONNECTOR



Pin Location	1	2
Function	Motor - (Retract)	Motor + (Extend)

	Force (lbf)	Part Name	Part Number	Mating Part Number
Housing	All	Molex Mini-Fit, Free Hanging, Dual Row, Receptacle	39-01-2020	39-01-3023
Motor Terminals	56, 90	Molex Mini-Fit Junior Female Terminal	39-00-0038	39-00-0040
Motor Terminals	405, 675, 900	Molex Mini-Fit HCS Female Terminal	44476-3111	44478-3112