ALN Series
Electric Linear (Push Type) Actuators

+1 413 233 1888
www.governors-america.com

1 OVERVIEW

GAC's ALN linear actuators provide highly accurate precise positioning for closed loop control with a minimum number of moving parts, prolonging the life of the actuator. With no sliding parts and totally sealed, reliability is outstanding and no maintenance is necessary. Engine applications include large block pumps, dual medium carburetors, and some large carburetors.

The linear actuator provides pushing force from its output shaft to control engine fuel in an electric engine governor system. The ALN is a proportional solenoid actuator where the output shaft position varies proportionally with current strength. An integral return spring provides a fail-safe feature, setting the output shaft to the zero fuel position when power is turned off.

SELECTION CHART

Product ***	12V	24V	Includes KT130* Clevis Kit	KT231M** Bosch RSV Left Side	KT232M** Bosch RSV Right Side
ALN025-12	■			■	■
ALN025A-12	■		■		
ALN025-24		■		■	■
ALN025A-24		■	■		
ALN050-12	■			■	■
ALN050A-12	■		■		
ALN050-24		■		■	■
ALN050A-24		■	■		

* KT130 Clevis Kit is available.
** KT231M and KT232M can be purchased separately.
*** KT682 ball socket linkage for use with 6mm connections is available.

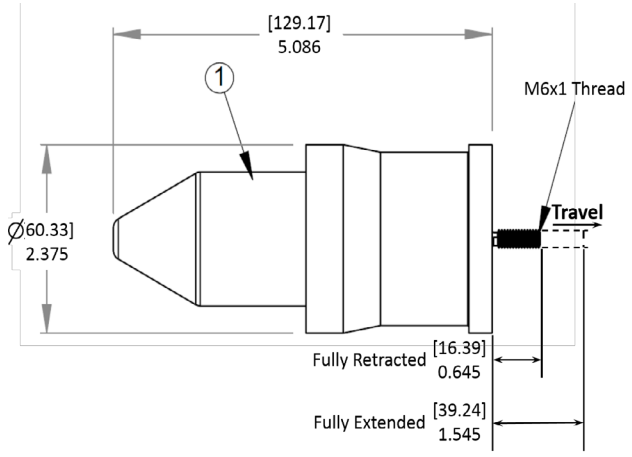
2 SPECIFICATIONS

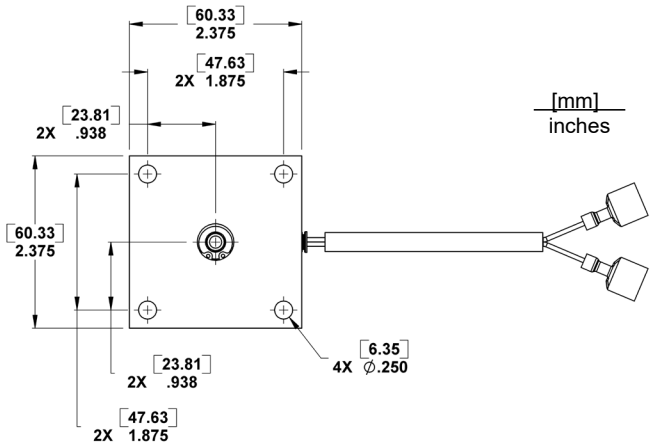
PERFORMANCE	
Operating Work	ALN025.....0.25 ft·lb [0.34 N·m] ALN050.....0.50 ft·lb [0.68 N·m]
Maximum Force	ALN025.....6.5 lbF [28.9 N] ALN050.....13.0 lbF [57.8 N]
Operating Stroke	0.9 in [22.8 mm]
Response Time	(10-90 %, 2-18 mm) 35 ms
ELECTRICAL POWER INPUT	
Operating Voltage (Dedicated Coil)	12 or 24 V DC ±20 %
Nominal Operating Current	ALN025, ALN050 1.6 A @ 12 V DC 0.8 A @ 24 V DC
Maximum Current (Continuous)	ALN025, ALN050 3.8 A @ 12 V DC 1.8 A @ 24 V DC
Coil Resistance	ALN025-12.....1.8 ± 0.2 Ω ALN025-24.....7.3 ± 0.2 Ω ALN050-12.....1.9 ± 0.2 Ω ALN050-24.....7.7 ± 0.2 Ω
Connection	18 AWG [0.8 mm²] leads

ENVIRONMENTAL	
Operating Temperature	-40 to 200 °F [-40 to 95 °C]
Relative Humidity	Up to 100 %
Vibration	20 g @ 20 to 500 Hz
Shock	20 g @11 ms
All Surface Finishes	Fungus Proof and Corrosion Resistant
Sealing	Oil, Water, and Dust Resistant
PHYSICAL	
Dimensions	See Section 3, Dimensions
Weight	ALN025..... 2.5 lbf [1.1 kgf] ALN050.....4.3 lbf [2.0 kgf]

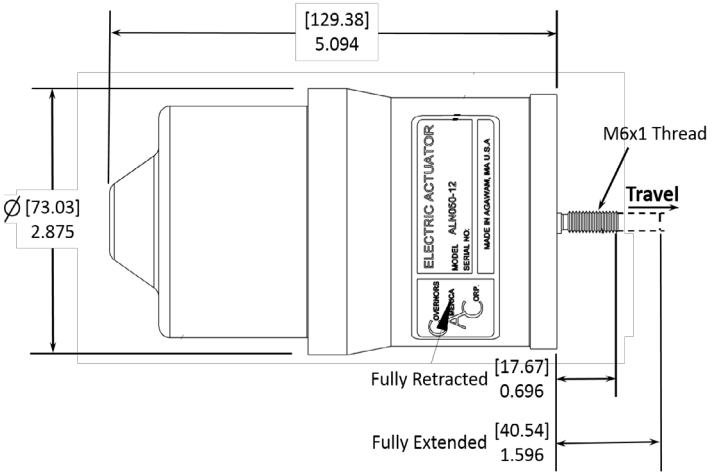
3 OUTLINE DIMENSIONS

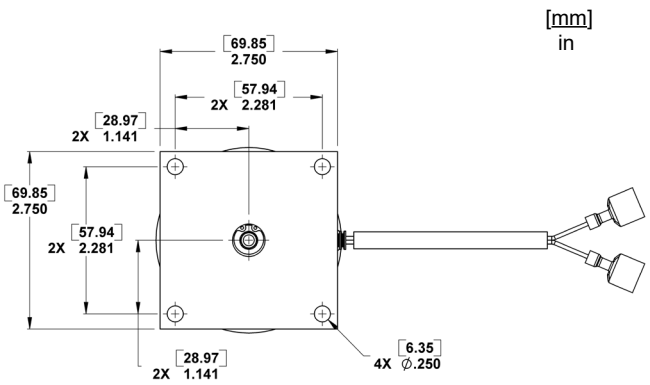
ALN025 OUTLINE DIMENSIONS





ALN050 OUTLINE DIMENSIONS





4 INSTALLATION

Use an overspeed shutdown device, independent of the governor system, to prevent loss of engine control which may cause personal injury or equipment damage.

Do not rely exclusively on the governor system electric actuator to prevent overspeed. A secondary shutoff device, such as a fuel solenoid must be used.

Keep the following in mind when mounting the actuator:

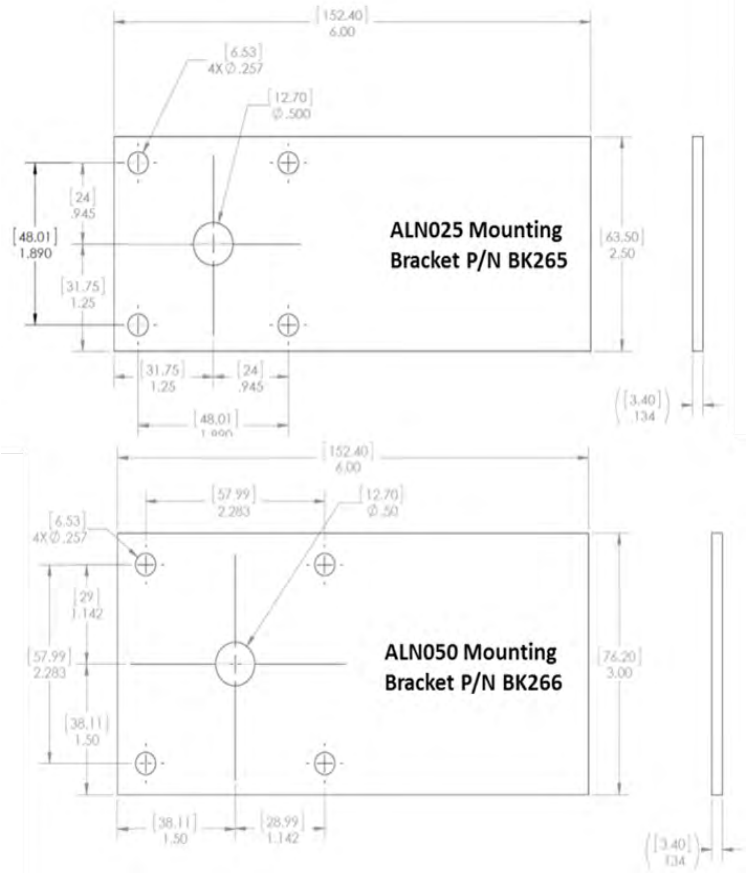
- The actuator must be rigidly mounted as close as possible to the fuel control lever of the engine.
- The actuator can be mounted in any orientation.
- The linkage between the actuator and the fuel control lever shall be as short as practical and in a straight line to ensure maximum force is available for best operation.
- Normal vibration from the engine will not affect the operation of the actuator.
- High quality rod end bearings should be used. Rod end bearings that have high friction can cause instability and ultimately require servicing.
- The linkage should be sturdy yet low in mass for faster speed of response.

NOTE Torque the nut and linkage to 6 - 7 lb·ft [8 - 9.5 N·m].

4 INSTALLATION (CONTINUED)

ACTUATOR MOUNTING PLATES

Starter Plates (BK266 and BK265) are available for both the ALN025 and ALN050 actuators to simplify their installation. These plates are Zinc plated (ASTM-B-633 Type II) for corrosion resistance.

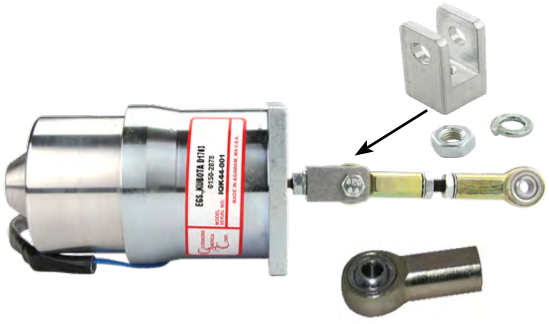


KT130 CLEVIS KIT FOR ALN SERIES ACTUATORS

The KT130 Clevis kit connects the M6 actuator threads to the linkage bearing rod end for all ALN series actuators.

Linkage components are available for ease of assembly:

Part Number	Description
BR200 (1/4-24), BR300 (M5), BR400 (M6) and BR500 (M8)	Bearing Rod Ends
RD102 (1/4-28) and RD233 (M6)	Threaded Rods



KT682 6MM LINKAGE ADAPTER KIT FOR ALN SERIES ACTUATORS

KT682 adapts the ALN to any application using a 6mm threaded rod for linkage.

5 WIRING

The ALN Series Electric Actuator is pre-wired for 12 or 24 V DC operation.

Do not use the ALN Series actuator on a 32-volt system, contact the factory for assistance.

DESCRIPTION	PART NUMBER	QTY PER ACTUATOR
Mating Connector	GAC: EC05-02-0035 AMP: 2-520184-2	2
Cable Harness Assembly 18 AWG, 5.0 in [1.52 m]	CH415-127	2
Cable Harness Assembly 18 AWG, 10.0 in [3.1m]	CH415-254	2

6 TROUBLESHOOTING

IF THE ACTUATOR FAILS TO MOVE TO FULL FUEL

If the actuator fails to move to full fuel, make the following tests:

1. Measure battery voltage at controller. See Section 2, Specifications, for the operating voltages.
2. Check the linkage. Manually operate linkage to see that it is not sticking or binding.

IF THE ACTUATOR FAILS TO MOVE TO MOVE

If the actuator fails to move, make the following tests:

1. Measure the coil resistance between the leads. See Section 2, Specifications, for expected resistance voltages.
2. Measure the resistance between one lead of the actuator and the housing of the actuator (infinity).
3. Clean any dirt or debris build up on the shaft causing binding that may cause binding.
4. Energize the actuator to full fuel following the procedure identified in your control unit's manual. If the actuator does not move it is defective.