Selecting the right product for your application is fast and easy with these useful features...

- Utilize specification filters to instantly narrow your search
- Compare specifications for multiple models (side-by-side)
- View individual specification pages for additional information
- View 3D models (download FREE eDrawings™ viewer)
- Download CAD drawings in various formats
- Request a customized part by entering changes to various standard specification values
- Submit an RFQ to a local distributor from a list provided or search for the local Warner Linear Area Sales Manager
- View your cart to check part selections, edit your profile, change your password, and view saved carts
- Search for a specific part number
- Data provided in both Imperial and Metric
- Easy access literature link

You can also search by entering a product part number or description.
**Warner Linear...**
**Customer Focused, Quality Driven**

Products designed and manufactured for reliable, long-lasting performance

---

**Quality Processes**

Warner Linear is dedicated to designing and manufacturing “Best-in-class” electromechanical actuators and controls.

We subscribe to a standard of quality derived from the Altra Business System (ABS), a series of progressive manufacturing methods designed to continuously improve production within our flexible work cell environment.

Our quality starts in product design. It is demonstrated in the attention given to design details and the refinement of prototypes. It is apparent in our fast response to requests for quotes, and our strict adherence to deadlines in every stage of the work flow.

**Design and Testing**

Our application engineers and design specialists work closely with our customers to define both lab and field testing requirements.

Our solid model design capabilities, computer assisted testing, and manufacturing floor pre-shipment cycle test, all provide assurance that your Warner Linear actuators will meet or exceed your expectations (for application and technical service call 1-800-825-9050).

Our linear actuator testing capabilities include dual load life cycling stands, low and high pressure wash down test tanks, lift test stands and thermal shock submersion. Our test service providers add material analysis, noise and vibration evaluation capabilities.

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**Custom Solutions**

We recognize how critical our actuators are to the overall performance of your equipment. Working closely with your engineering and development staff, we strive for an early understanding of how you want your linear actuator to perform.

Building a direct communication line from our engineer to your engineer provides a number of significant benefits.

- A teaming of creative resources.
- Joint understanding of our actuator capabilities and how they can be tailored to your application.
- An understanding of the lowest cost solution to meet your actuator requirements.
- Providing a complete solution that includes controls as required.
Linear actuators to meet your specific requirements

Warner Linear offers a full line of standard electric actuators, each specifically designed to meet the needs of light-duty, general-duty, or rugged-duty applications. All are engineered for maintenance-free, long-life service, providing maximum value for our customers.

**Light Duty**

**M-Track 1**
Compact, completely self-contained and sealed to allow for use in small spaces without sacrificing power or capability.

Drive Type: Acme Screw

<table>
<thead>
<tr>
<th>Load Capacity &amp; Speed</th>
<th>lbs. @ in./sec. (kg@mm/sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 @ 1.75</td>
<td>11@45</td>
</tr>
<tr>
<td>100 @ 0.45</td>
<td>44@11</td>
</tr>
<tr>
<td>165 @ 0.25</td>
<td>75@6</td>
</tr>
</tbody>
</table>

Stand. Stroke Length in. (mm)
2, 4, 6, 8, 10, 12
(50, 100, 150, 200, 254, 300)

Input Voltage (vdc):
12, 24

**Typical Applications:**
- Throttle Control
- Air Vent Opening
- Remote Window Operation
- Remote Mirror Positioning
- Gate Opening
- Shutter Control

**General Duty**

**B-Track K2vL**
Intended for severe service requirements and loads up to 600 lbs. (270kg). Lowest priced model in the B-Track family.

Drive Type: Hybrid Acme

<table>
<thead>
<tr>
<th>Load Capacity &amp; Speed</th>
<th>lbs. @ in./sec. (kg@mm/sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 @ 2.0</td>
<td>90@50</td>
</tr>
<tr>
<td>300 @ 1.0</td>
<td>135@25</td>
</tr>
<tr>
<td>600 @ 0.5</td>
<td>270@12</td>
</tr>
</tbody>
</table>

Stand. Stroke Length in. (mm)
2 to 12 in 2” increments
(50 to 300 in 50mm increments)

Input Voltage (vdc):
12, 24

**Typical Applications:**
- Fertilizer Gate Control
- Mower Decks
- Gate Openers
- Scooter & Cycle Lifts
- Pull Behind Implement Lifts
Actuator Controls

Simple extend/retract switch boxes

- SBC-DC
- SBC-AC

Basic controls and digital electronic options

- Adjustable stroke limits
- Fixed electronic stroke limits – ESL
- QS Quick Stop bi-directional current limit control
- Position feedback options – potentiometer or digital outputs

Microprocessor based controls (available for special needs)

- Signal Follower Function
- Programming pendant
- Adjustable position and current limit options
- Remote mounting capable

Rugged Duty

B-Track K2

Uses a patented straight line load transfer offering high load capability in a small package size. Bronze or Delrin® nut options available for high impact load applications up to 1,500 lbs. (680kg).

Drive Type: Hybrid Acme

Load Capacity & Speed

lbs. @ in./sec. (kg@mm/sec)

300 @ 2.0 135 @ 50
600 @ 1.0 270 @ 25
1200 @ 0.5 540 @ 12
1500 @ 0.35 680 @ 9

Stand. Stroke Length in. (mm)

2 to 24 in. 2" increments
(50 to 600 in. 50mm increments)

Input Voltage (vdc):

12, 24, 48, 90

Typical Applications:

Residential Mower Decks
Gate & Valve Operation
Snow Blowers
Spouts & Chutes
Engine Lifts
Tables
Wagon Lifts
Combine Concaves

Pg 16-17

B-Track K2x

Completely sealed, designed for tough, high load applications. Able to perform in harsh environments providing years of trouble-free service.

Drive Type: Ball Screw & Ball Nut

Load Capacity & Speed

lbs. @ in./sec. (kg@mm/sec)

600 @ 2.0 270 @ 25
1200 @ 1.0 540 @ 12
2200 @ 0.5 1000 @ 12
2800 @ 0.25 1270 @ 6

Stand. Stroke Length in. (mm)

4 to 24 in. 2" increments
(100 to 600 in. 50mm increments)

Input Voltage (vdc):

12, 24, 48, 90

Typical Applications:

Indoor Applications
Machine Tools
HVAC
Hood Lifts
Tables

Pg 18-21

B-Track K2Ac

Uses a patented straight line load transfer offering high load capability in a small package size. Bronze or Delrin® nut options available for high impact load applications up to 1,500 lbs. (680kg).

Drive Type: Hybrid Acme

Load Capacity & Speed

lbs. @ in./sec. (kg@mm/sec)

500 @ 2.0 225 @ 50
1000 @ 1.0 445 @ 25
1500 @ 0.5 680 @ 8

Stand. Stroke Length in. (mm)

4 to 24 in. 2" increments
(100 to 600 in. 50mm increments)

Input Voltage (vac):

115, 230

Typical Applications:

Engine Lifts
Tables
Indoor Applications
Machine Tools
Egg Rotation

 Pg 22-24

B-Track K2xac

Completely sealed, designed for tough, high load applications. Able to perform in harsh environments providing years of trouble-free service.

Drive Type: Ball Screw & Ball Nut

Load Capacity & Speed

lbs. @ in./sec. (kg@mm/sec)

500 @ 2.0 225 @ 50
1000 @ 1.0 445 @ 25
1500 @ 0.5 680 @ 8

Stand. Stroke Length in. (mm)

4 to 24 in. 2" increments
(100 to 600 in. 50mm increments)

Input Voltage (vac):

115, 230

Typical Applications:

Indoor Applications
Machine Tools
HVAC
Hood Lifts
Tables

Pg 25-28

Simple extend/retract switch boxes

- SBC-DC
- SBC-AC

Basic controls and digital electronic options

- Adjustable stroke limits
- Fixed electronic stroke limits – ESL
- QS Quick Stop bi-directional current limit control
- Position feedback options – potentiometer or digital outputs

Microprocessor based controls (available for special needs)

- Signal Follower Function
- Programming pendant
- Adjustable position and current limit options
- Remote mounting capable
Performance Features

*Warner Linear Actuators are available for a wide variety of applications.*

- Golf Cart Height Adjust
- Mower Blade Lift
- Solar Panel Adjust
- 55 Gallon Drum Lift
- Fire Engine Valve Adjust
- Automated Dumpster
- Scissor Lift Table
- Round Baler Cover Lift
- Walk Behind Floor Washer
- Bulldozer Engine Cover
- Air Foil Adjust
- Construction Sign Positioning
- Forage Harvester Spout Positioning
- Combine Spout Positioning
- Adjustable Height Work Table
- Conveyor Lateral Guide Positioning
- Street Sweeper Bristle Lift
- RV/Bus Compartment Extension

---

## Dependable Operation

### Compact design

A Warner Linear actuator with a two inch stroke can provide up to 2800 pounds (1270 kilograms) of force capacity in a compact package.

### Maintenance-free

Units are lubricated for life during assembly. There are no adjustments or maintenance required for units after they have left the factory. Consistent performance is provided for the entire life of the actuator.

---

## Equal capacity in both directions

Warner Linear actuators can push-and-pull or lift-and-lower loads ranging from one pound to over 2800 pounds (1270 kilograms) up to 24 inches (600 millimeters) with equal capacity in both directions of travel.

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## Efficient operation

Warner Linear actuators consist of an electric motor combined with a high efficiency gear train and lead screw. This direct conversion of electrical to mechanical energy results in effective, economic linear movement. Units are completely self contained and require minimal installation hardware or wiring.

---

## Superb load holding power

Warner Linear actuators operate loads in both tension and compression equally well. They will hold a load stationary without power in either direction. Static load holding capability will always exceed the dynamic load moving capability.

---

### Advantages

- No hydraulic pumps, hoses, valves, or leaks
- Holds load when power is off
- Overload clutches prevent damage due to excess weight
- Simple to install and use
- Easily adaptable for position control
- Integrated sensors provide electrical position signals
**Rugged and reliable**
Warner Linear actuators incorporate high strength, high quality components and are designed to assure trouble-free service. Rugged spur gearing, industrial quality synthetic lubricants and high performance motors combine to provide maximum capability and value for the end user. Units are gasketed and sealed for operation in industrial and mobile outdoor applications. Thermal overload switches are included for motor protection; and high performance corrosion protection features are standard.

**Energy efficient**
Electric control provides clean, smooth linear motion without fluids, plumbing or other expensive components. Warner Linear actuators require power only when in motion. No power is required to hold loads stationary.

**Lead screw drive systems**
Warner Linear actuators use either acme, hybrid rolled, or highly efficient ball bearing screws. Models which use acme or hybrid rolled screws with bronze or plastic nuts will not backdrive when power is off. A bi-directional load holding brake is a standard feature on all ball bearing units and holds loads in position when power is off.

**Overload protection**
Motors incorporate thermal switches in their windings to shut the actuator motor off in case of overheating or high overcurrent. Reset is automatic after the motor has cooled. A standard overload clutch detents if the load is excessive or reaches end of stroke.

*Note: Clutch is not incorporated in M-Track due to size constraints.*

**Versatile**
With their compact size, Warner Linear actuators can be located in confined areas, and move loads from 0 to 2800 pounds (1270 kilograms). Their static load holding ability ensures that a load will remain in position when power is turned off. Gearing ratios create speeds that range from 0.3 to over 2 inches (7 to 50 millimeters) per second. Standard models are mounted using two parallel pins and require only simple wiring and switches. They are self-contained, lubricated for life, and designed for use where rugged and durable performance is required for almost any lift-and-lower or push-and-pull application.

**Available customized features**
- Direct drive manual override
- Mounting and end fitting variations
- DC Motor voltage variations
- AC and DC motor options
- Motor lead wire connectors
- End of stroke limit switches – fixed or adjustable
- Position feedback outputs (0-10vdc scaled) – potentiometer and digital

**Also available**
- Basic switch box controls
- Integrated electronic position controls
M-Track Features

Light Duty Actuators

Key Features
- Compact size
- Efficient design
- Easy to use and install

Standard Models
M1

- Thermal overloads in windings protect the motor
- Integral end of stroke limit switches standard. No clutch required.
- Dual quad ring bearing provides double protection and rod support
- Lightweight aluminum extension rod
- Optional potentiometer assures accurate, consistent positioning feedback
- Integrated rear clevis for easy pin-to-pin mounting
- Compact spur gear design allows compact space requirements
# M-Track Configurator

## How To Select

### Step 1 – Determine Load and Stroke length requirements
Use the Quick Selection guide to identify the model that will provide the load capacity and stroke length needed for your application.

### Step 2 – Identify motor type and voltage
Select DC motor and motor voltage.

### Step 3 – Confirm Speed and Current draw requirements
Using the charts provided, confirm that unit speed and current draw is appropriate for the intended use.

### Step 4 – Confirm the application Duty Cycle
At full load capacity, actuators have a 25% duty cycle. Duty cycle is the amount of ‘on-time’ compared to cooling time. A unit that runs for 15 seconds should be off for 45 seconds.

### Important Unit Restrictions
Side loading and shock loads must be considered in actuator applications. Side loading and cantilevered mounting should be eliminated through proper machine design. Side loading will dramatically reduce unit life. While actuators can withstand limited shock loads, it is recommended that shock loading be avoided wherever possible. (See page 50)

### Step 5 – Unit Options
M-Track units include end-of-travel limit switches as a standard feature. For positional feedback, a 12K linear membrane potentiometer can be factory installed. The changing potentiometer value provides unit movement feedback for units that are not visible to the machine operator.

### Actuator Model No.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Voltage Options</th>
<th>Load Capacity</th>
<th>Screw Type</th>
<th>Stroke Length</th>
<th>Limit Switch</th>
<th>Potentiometer</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>D012</td>
<td>0025</td>
<td>A</td>
<td>02</td>
<td>L</td>
<td>N</td>
</tr>
</tbody>
</table>

### Motor Voltage Options

- D012 = 12 volt DC
- D024 = 24 volt DC

### Limit Switch Options

- L = Limit switches included

### Load Capacity

- 0025 = 25 lbs (11kg)
- 0100 = 100 lbs (44kg)
- 0165 = 165 lbs (75kg)

**Note:** Not all load ratings are standard for all units. Consult unit page for details.

### Screw Type

- A = Acme Screw

### Stroke Length (inches)

- 02 = 2 in. (50mm)
- 04 = 4 in. (100mm)
- 06 = 6 in. (150mm)
- 08 = 8 in. (200mm)
- 10 = 10 in. (254mm)
- 12 = 12 in. (300mm)

**Note:** Not all stroke lengths are standard on all units. Consult unit page for details.
M-Track 1 compact units are completely self-contained and sealed to allow use in small spaces without sacrificing power or capability. The load and length capabilities provide solutions for a diverse range of intermittent duty applications.

Functionally, M-Track 1 actuators are easily interchanged with comparable size hydraulic or pneumatic cylinders on intermittent duty applications. The actuator provides consistent, repeatable performance even for applications with operating conditions including temperature extremes, high humidity, or significant dust.

Typical Applications

- Valve and vent adjustments
- Light weight tilt or lift positioning
- Vise and clamp operations

### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>25 lbs. (11kg)</th>
<th>100 lbs. (44kg)</th>
<th>165 lbs. (75kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load Capacity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed at Full Load</td>
<td>1.75 in. (45mm)/sec</td>
<td>0.45 in. (11mm)/sec</td>
<td>0.25 in. (6mm)/sec</td>
</tr>
<tr>
<td>Input Voltage</td>
<td>12 or 24 volt DC for all models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static Load Capacity</td>
<td>300 lbs. (135kg) for all models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke Length</td>
<td>2, 4, 6, 8, 10 and 12 in. (50, 100, 150, 200, 254, 300 millimeters) for all models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clevis Ends</td>
<td>.25 in. (6.4mm) diameter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duty Cycle</td>
<td>25% for all models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation Temperature Range</td>
<td>-15º F to +150º F (-26º to + 65ºC) for all models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limit Switch</td>
<td>Fixed end of stroke limit switches standard for all units</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potentiometer</td>
<td>Linear membrane potentiometer optional on all units</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Features

- An Acme Screw drive delivers up to 165 pounds (75 kilograms) of force at a minimum extension rate of 0.25 inches (6.35 millimeters) per second
- The aluminum zinc alloy housing resists corrosion and provides protection from dirt, dust and humidity
- The M-Track 1 has a temperature operating range of –15º to +150º F (-26º to + 65ºC)
- Standard stroke lengths of 2, 4, 6, 8, 10, 12 inches (50, 100, 150, 200, 254, 300 millimeters) are available
- Internal limit switches automatically shut off the unit at end of stroke
- Optional potentiometer can provide positional location feedback
- IP65 capable on request
- Rod is non rotating during operation, can be rotated for mounting purposes
Performance Curves

Current vs Load

<table>
<thead>
<tr>
<th>Load lbs. (Kg)</th>
<th>0</th>
<th>220</th>
<th>460</th>
<th>670</th>
<th>900</th>
<th>1120</th>
<th>1350</th>
<th>1580</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current (Amps)</td>
<td>0</td>
<td>1.5</td>
<td>2.0</td>
<td>3.0</td>
<td>2.5</td>
<td>1.5</td>
<td>0.5</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Speed vs Load

<table>
<thead>
<tr>
<th>Load lbs. (Kg)</th>
<th>0</th>
<th>220</th>
<th>460</th>
<th>670</th>
<th>900</th>
<th>1120</th>
<th>1350</th>
<th>1580</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed (in/mm)</td>
<td>0</td>
<td>0.6</td>
<td>1.2</td>
<td>1.8</td>
<td>2.4</td>
<td>2.0</td>
<td>1.5</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Dimensions

<table>
<thead>
<tr>
<th>Stroke Length</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retracted Length (without POT sensor)</td>
<td>6.22</td>
<td>8.23</td>
<td>10.24</td>
<td>12.24</td>
<td>14.25</td>
<td>16.26</td>
</tr>
<tr>
<td>Retracted Length (with POT sensor)</td>
<td>7.55</td>
<td>9.57</td>
<td>11.57</td>
<td>13.58</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

![Diagram of dimensions and wire connections]

DELPHI PACK ON MALE CONNECTOR
9911773 BODY
620451 TERMINAL (2)
RED WIRE PORT "A"
BLACK WIRE PORT "B"
CONNECT (+) TO RED
(-) TO BLACK TO RETRACT
ACTUATOR
NO CONNECTOR ON POTENTIOMETER UNITS
ALL DIMENSIONS ARE NOMINAL UNLESS OTHERWISE SPECIFIED
B-Track Features

Rugged Duty Actuators

Key Features
- Weather-tight sealed
- Patented in-line load transfer
- Heavy wall rod and cover tube
- High performance motors
- Up to 2,800 lb. (1270kg) capacity

Standard Models
K2VL, K2, K2X, K2AC, K2XAC

Option Models
K2PL/K2XPL
K2JS/K2XJS
K2RA


High strength aluminum gear box provides maximum heat dissipation. High strength stainless thru-bolt fasteners provide high load capability. O-ring sealed and gasketed for washdown use.

Bi-directional holding brake standard on K2x models.

Ball bearing, Bronze or Delrin® screw nut configurations provide broad load and performance capability.

Hydraulic Cylinder type Rod Wiper Seal with integral extension rod bearing support for smooth operation and high side load capability.

Nitrotec® treated end fitting for superior strength and corrosion resistance.

Heavy wall extension tube has 30% stronger cross section compared to competitive products.

Optional electronic control module with integral electronic stroke limits and power connections. Adjustable torque limit option. For more information see Controls Section.

Integrated manual override – standard

Heavy Duty, Sealed Double Ball Bearing Motors
- Auto reset thermal protection
- Easy field replacement
- 12, 24, 48 or 90 volts (vdc) available (others available on request)
- Standard Packard 56 connector, others available
- Washdown sealed
- Solid mount pinion gear
- Lifetime bearing lube

Nitrotec® treated end fittings with integral O-ring seals for superior weather and corrosion resistance. 8 available mounting orientations.
How To Select

Step 1 – Determine Load and Stroke length requirements
Use the Quick Selection guide to identify the model family that will provide the load capacity and stroke length needed for your application.

Step 2 – Determine Gear Ratio
Select gear ratio from performance curves for allowable current draw and needed load.

Step 3 – Identify motor type and voltage
Select DC motor and motor voltage.

Step 4 – Motor Type
Select M for ignition protected motor. Select needed motor voltage.

Step 5 – Confirm the application Duty Cycle
At full load capacity, actuators have a 25% duty cycle. Duty cycle is the amount of ‘on-time’ compared to cooling time. A unit that runs for 15 seconds should be off for 45 seconds.

Step 6 – Select Nut Type
Select nut for unit selected. (K2x are all ball bearing).

Step 7 – Select Stroke Length
Choose standard lengths from chart. For special length consult factory.

Step 8 – Select end fitting orientation
Leave blank for standard orientation.

Important Unit Restrictions
Side loading and shock loads must be considered in actuator applications. Side loading and cantilevered mounting should be eliminated through proper machine design. Side loading will dramatically reduce unit life. While actuators can withstand limited shock loads, it is recommended that shock loading be avoided wherever possible. (See page 50)

### Control Model

- **P1.x**: Fixed Limit Switch
- **P2.x**: Adjustable Limit Switches
- **EP1.x**: Not Available

### Motor Voltage

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12V</td>
<td>12 volts</td>
</tr>
<tr>
<td>24V</td>
<td>24 volts</td>
</tr>
<tr>
<td>36V</td>
<td>36 volts</td>
</tr>
<tr>
<td>48V</td>
<td>48 volts</td>
</tr>
<tr>
<td>90V</td>
<td>90 volts</td>
</tr>
<tr>
<td>115V</td>
<td>115 volts</td>
</tr>
<tr>
<td>230V</td>
<td>230 volts</td>
</tr>
</tbody>
</table>

### Motor Type

- **M**: Ignition Protected Motor
- For standard motor, leave blank.

### Nut Type

- **BR**: Bronze Nut
- **BRL**: Bronze Nut - Long
- **DN**: Delrin® Nut
- *Leave blank for K2x*

### Actuator Model

- **K2x**
- **K2**
- **K2VL**

### Gear Ratio

- **G30**: 30:1
- **G20**: 20:1
- **G10**: 10:1
- **G05**: 5:1

### Base Fitting Alignment

- **R30**: 30° Fitting
- **R60**: 60° Fitting
- **R90**: 90° Fitting
- **R120**: 120° Fitting
- **R150**: 150° Fitting
- **Blank**: Standard

### Stroke Length

<table>
<thead>
<tr>
<th>Length</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>04</td>
<td>4.00 (100mm)</td>
</tr>
<tr>
<td>06</td>
<td>6.00 (150mm)</td>
</tr>
<tr>
<td>08</td>
<td>8.00 (200mm)</td>
</tr>
<tr>
<td>12</td>
<td>12.00 (300mm)</td>
</tr>
<tr>
<td>18</td>
<td>18.00 (450mm)</td>
</tr>
<tr>
<td>24</td>
<td>24.00 (600mm)</td>
</tr>
</tbody>
</table>

### Note

- See control pages for full listing of model numbers.
This value model of the B-track family is well suited for the toughest applications not needing the full load capability of standard K2 models. The K2vl uses a flange bronze bearing configuration for internal load transfer, offering the lowest cost while maintaining the rugged-duty performance capabilities of the B-track family.

K2vl units feature Nitrotec® corrosion protection on end fittings and rods, high performance powder coat paint on cover tubes and gear box covers, providing a totally sealed, weatherproof, and durable finish for years of trouble-free service.

**General Duty Actuator**
**DC Motor Acme Screw**
Up to 600 lbs. (270kg) Rated Load
Up to 2.7 in. (68.58mm)/sec. Travel Speed

**Features**
- Protective coatings and O-ring seals throughout
- Hybrid nut and screw design, no brake needed
- Ball detent overload clutch
- 2 to 12 inches (50 to 300 millimeters) stroke lengths
- Up to 600 pounds (270 kilograms) load capacities
- Speeds up to 2.7 inches (68.58 millimeters)/sec. travel
- Thermal overload incorporated into the motor
- Heavy wall construction
- Double ball bearing motors
- Heat treated gears
- Rugged extension rod bearing support
- Custom mounting options available

**Typical Applications**
- Flow gate open/close
- Deck and implement lifts for tractors and mobile applications
- Wheelchair and scooter lifts
- Bin and tank cover lifts
- Remote engine clutch engagement

**Load/Current/Speed/Duty Cycle**
- Maximum Static Rating: 3000 lbs. (1360kg) Static (in-line load)
- Refer to performance chart for load/current/speed capabilities
- Stroke Length Tolerance: +/- .06" (1.52mm)
- Motor is protected with auto reset breaker inside motor housing (temperature/current/time dependent)
- Overload clutch setting: +25% over rated dynamic load
- Duty cycle is time/temperature/load dependent, suggested guidelines are:
  - 50% max on-time/50% off-time for loads up to 50% of capability
  - 25% max on-time/75% off-time for loads between 50%-80% of capability
  - 10% max on-time/90% off-time for loads between 80%-100% of capability
- (Load/stroke profiles will allow some adjustment variation from these guidelines.)

**Operating Environment**
- Ambient temp range: -30°F to 140°F (-34ºC to 60ºC)
- Weather resistant enclosure & seals (IP 65 capable, 250 hour salt spray, 500 hour for paint)
- Normal operating voltage: 10-16 vdc (Ratings are at 12 vdc Normal.)

**Control/Connections**
- 14 gauge stranded lead wires-UL style 1230 w/PVC insulation Class F 105°C
- Lead wires abrasion protected with braided covering
- Use momentary contact double pole/double throw switch in powering unit for extend/retract operation. (ON)-(OFF)-(ON) DPDT
- Connectors:
  - Packard 56 series or Delphi Weather-Pack
  - Packard 56 series with 56 series blades (#2984883 & #2962987)
  - Delphi Weather-Pack series (#121015732 & #12010973)
### Performance Curves Imperial

#### K2vLG05

![Graph showing performance curves for K2vLG05](image)

#### K2vLG10

![Graph showing performance curves for K2vLG10](image)

#### K2vLG20

![Graph showing performance curves for K2vLG20](image)

### Performance Curves Metric

#### K2vLG05

![Graph showing performance curves for K2vLG05](image)

#### K2vLG10

![Graph showing performance curves for K2vLG10](image)

#### K2vLG20

![Graph showing performance curves for K2vLG20](image)
# B-Track K2Vl

## Dimensions

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<td>14.32</td>
<td>364</td>
<td>18.32</td>
<td>465</td>
</tr>
</tbody>
</table>

*Note: Special lengths available*

---

![Diagram of B-Track K2Vl Actuator](image)

**Note:**
- "A" extended: 22.32 (566.93)
- "B" retracted: 14.32 (363.73)

**Connections:**
- Lead wire length: 10 (254)
- Connect (+) to gray wire and (-) to black wire to extend the actuator.
- Packard 56 connector:
  - Gray wire connected to clip side.

**Dimensions:**
- Stroke: 24681012 in mm
- B-Track K2Vl:
  - K2VL B: 10.32 262 14.32 364 18.32 465 22.32 567 26.32 669 30.32 770

**Note:**
- Special lengths available.
The K2 is the base model in the B-Track family. It incorporates a patented in-line load transfer design which provides high load capability for rugged-duty use, efficient power use, compact package size, excellent corrosion and washdown protection, and high performance synthetic lubrication for life, all at an affordable price.

The K2 uses a solid bronze or Delrin® nut with a rolled hybrid screw yielding high impact capability and long screw life. Heavy-duty double-ended ball bearing motors, hardened gears, O-ring seals and an extension rod bearing system that provides best in class capabilities.

Now Available Standard Adjustable Limit Switch These easy to use adjustable switches are mounted in a channel on the cover tube with custom cap for protection. They are easily moved to enable the end-user the flexibility of setting the stroke length at any position within the full stroke capability. Just pop the cap off, loosen the set screw and slide the switch into the desired position.

<table>
<thead>
<tr>
<th>Load/Current/Speed/Duty Cycle</th>
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<tbody>
<tr>
<td>• Maximum Static Rating: 3000 lbs. (1360kg) Static (in-line load)</td>
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<tr>
<td>• Refer to performance chart for load/current/speed capabilities</td>
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<tr>
<td>• Stroke Length Tolerance: +/- .06&quot; (1.52mm)</td>
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<tr>
<td>• Motor is protected with auto reset breaker inside motor housing (temperature/current/time dependent)</td>
</tr>
<tr>
<td>• Overload clutch setting: +25% over rated dynamic load</td>
</tr>
<tr>
<td>• Duty cycle is time/temperature/load dependent, suggested guidelines are:</td>
</tr>
<tr>
<td>- 50% max on-time/50% off-time for loads up to 50% of capability</td>
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<tr>
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<tr>
<td>• Ambient temp range: -30°F to 140°F (-34ºC to 60ºC)</td>
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<tr>
<td>• Weather resistant enclosure &amp; seals (IP 65 capable, 250 hour salt spray, 500 hour for paint)</td>
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<tr>
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</tr>
<tr>
<td>• Lead wires abrasion protected with braided covering</td>
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<tr>
<td>• Use momentary contact double pole/double throw switch in powering unit for extend/retract operation. (ON)-(OFF)-(ON) DPDT</td>
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<td>• Connectors:</td>
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<tr>
<td>- Packard 56 series or Delphi Weather-Pack</td>
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<tr>
<td>- Packard 56 series with 56 series blades (#2984883 &amp; #2962987)</td>
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<tr>
<td>- Delphi Weather-Pack series (#121015792 &amp; #12010973)</td>
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### Dimensions

#### B-Track K2

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**Note:** Special lengths available

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**Note:** Special lengths available

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**ALL DIMENSIONS ARE NOMINAL UNLESS OTHERWISE SPECIFIED**

"A" RETRACTED "B" EXTENDED

APPROX. 10 (254) LEAD WIRE LENGTH CONNECT (+) TO GRAY WIRE AND (-) TO BLACK WIRE TO EXTEND ACTUATOR

TYP. BOTH ENDS

Ø 1.13 (28.70)

Ø 0.109 (2.78)

.509 (12.99)

.503 (12.78)

.38 (14.73)

.33 (8.40)

.25 (.635)

6.96 (176.78)
B-Track K2AC

Rugged Duty Actuator
AC Motor Acme Screw
Up to 1500 lbs. (680kg) Rated Load
Up to 2.1 in. (53.34mm)/sec. Travel Speed

The K2 is the base model in the B-Track family. It incorporates a patented in-line load transfer design which provides high load capability for rugged-duty use, efficient power use, compact package size, excellent corrosion and washdown protection, and high performance synthetic lubrication for life, all at an affordable price.

The K2 uses a solid bronze or Delrin® nut with a rolled hybrid screw yielding high impact capability and long screw life. Heavy-duty double-ended ball bearing motors, hardened gears, O-ring seals and an extension rod bearing system that provides best in class capabilities.

Now Available Standard Adjustable Limit Switch These easy to use adjustable switches are mounted in a channel on the cover tube with custom cap for protection. They are easily moved to enable the end-user the flexibility of setting the stroke length at any position within the full stroke capability. Just pop the cap off, loosen the set screw and slide the switch into the desired position.

### Features

- Protective coatings and O-ring seals throughout
- Patented in-line load system
- Hybrid nut and screw design, no brake needed
- Ball detent overload clutch
- 4 to 24 inches (100 to 600 millimeters) stroke lengths
- Up to 1500 pounds (680 kilograms) load capacities
- Speeds up to 2.1 inches (53.34 millimeters)/sec. travel
- Thermal overload incorporated into the motor
- Heavy wall construction
- Double ball bearing motors and heat treated gears
- Rugged extension rod bearing support
- Custom mounting options available
- Limit switches offered only in the adjustable version (EP1.x)

### Typical Applications

- Ergonomic lift tables
- Conveyor diverters
- Bin/tank cover lifts
- Roof vents

### Load/Current/Speed/Duty Cycle

- Maximum Static Rating: 3000 lbs. (1360kg) Static (in-line load)
- Refer to performance chart for load/current/speed capabilities
- Stroke Length Tolerance: +/- .06" (1.52mm)
- Motor is protected with auto reset breaker inside motor housing (temperature/current/time dependent)
- Overload clutch setting: +25% over rated dynamic load
- Duty cycle is time/temperature/load dependent, suggested guidelines are:
  - 50% max on-time/50% off-time for loads up to 50% of capability
  - 25% max on-time/75% off-time for loads between 50%-80% of capability
  - 10% max on-time/90% off-time for loads between 80%-100% of capability
- (Load/stroke profiles will allow some adjustment variation from these guidelines.)

### Operating Environment

- Ambient temp range: -30°F to 140°F (-34ºC to 60ºC)
- Weather resistant enclosure & seals (IP 65 capable, 250 hour salt spray, 500 hour for paint)
- Normal operating voltage: 10-16 vdc (Ratings are at 12 vdc Normal.)

### Control/Connections

- 14 gauge stranded lead wires-UL style 1230 w/PVC insulation Class F 105°C
- Lead wires abrasion protected with braided covering
- Use momentary contact double pole/double throw switch in powering unit for extend/retract operation. (ON)-OFF-(ON) DPDT
- Connectors:
  - Packard 56 series or Delphi Weather-Pack
  - Packard 56 series with 56 series blades (#2984883 & #2962987)
  - Delphi Weather-Pack series (#121015792 & #12010973)
## Dimensions

<table>
<thead>
<tr>
<th>Stroke</th>
<th>4</th>
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Note: Special lengths available

### B-Track K2

- Stroke A: 2K 608 (15.38) 323 (82.10) (both ends)
- Stroke B: 53 (134.62)

- Ø1.00 (25.4)
- Ø2.00 (50.8)
- Ø3.42 (86.47)

- 23.5 (600) long 4 wire cable connect green ground, white neutral, black hot to retract, red hot to extend.
The K2x model provides the highest load rating in its class. This model incorporates all of the base K2 features with a ball nut screw for a 2,800 lb. (1270kg) load capability within a compact package size. The K2x includes a bi-directional wrap spring brake for load holding capability. These units are well suited for the most demanding applications where an alternative to hydraulic or air cylinders is needed or where hydraulic power sources are not available.

Combining the K2x actuator with BTc control functionality results in precision actuator control at a fraction of the cost of more complicated servo actuator systems. See Controls Section for more information on BTc controls.

**Now Available Standard Adjustable Limit Switch** These easy to use adjustable switches are mounted in a channel on the cover tube with custom cap for protection. They are easily moved to enable the end-user the flexibility of setting the stroke length at any position within the full stroke capability. Just pop the cap off, loosen the set screw and slide the switch into the desired position.

### Load/Current/Speed/Duty Cycle
- **Maximum Static Rating:** 3000 lbs. (1360kg) Static (in-line load)
- **Refer to performance chart for load/current/speed capabilities**
- **Stroke Length Tolerance:** +/- .06" (1.52mm)
- **Motor is protected with auto reset breaker inside motor housing (temperature/current/time dependent)**
- **Overload clutch setting:** +25% over rated dynamic load
- **Duty cycle is time/temperature/load dependent, suggested guidelines are:**
  - 50% max on-time/50% off-time for loads up to 50% of capability
  - 25% max on-time/75% off-time for loads between 50%-80% of capability
  - 10% max on-time/90% off-time for loads between 80%-100% of capability
- **(Load/stroke profiles will allow some adjustment variation from these guidelines.)**

### Operating Environment
- **Ambient temp range:** -30°F to 140°F (-34ºC to 60ºC)
- **Weather resistant enclosure & seals** (IP 65 capable, 250 hour salt spray, 500 hour for paint)
- **Normal operating voltage:** 10-16 vdc (Ratings are at 12 vdc Normal.)
- **14 gauge stranded lead wires-UL style 1230 w/PVC insulation Class F 105°C**
- **Lead wires abrasion protected with braided covering**
- **Use momentary contact double pole/double throw switch in powering unit for extend/retract operation.** (ON)-OFF-(ON) DPDT
- **Connectors:**
  - Packard 56 series or Delphi Weather-Pack
  - Packard 56 series with 56 series blades (#2984883 & #2962987)
  - Delphi Weather-Pack series (#121015792 & #12010973)

### Typical Applications
- **Paving equipment**
- **Deck and implement lifts for tractors and mobile applications**
- ** Spray booms**
- **Scissor and dump box lifts**
B-Track K2x

Performance Curves Imperial

Current Draw

Speed

Performance Curves Metric

Current Draw

Speed
## Dimensions

### B-Track K2x

<table>
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<tr>
<th>Stroke</th>
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**Note:** Special lengths available

### B-Track K2x

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</table>

**Note:** Special lengths available

---

[Diagram of B-Track K2x with dimensions and notes.]
The K2x model provides the highest load rating in its class. This model incorporates all of the base K2 features with a ball nut screw for a 2,200 lb. (998kg) load capability within a compact package size. The K2x includes a bi-directional wrap spring brake for load holding capability. These units are well suited for the most demanding applications where an alternative to hydraulic or air cylinders is needed or where hydraulic power sources are not available.

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### Features
- Protective coatings and O-ring seals throughout
- Efficient in-line ball screw system
- Integral load holding brake
- Ball detent overload clutch
- 4 to 24 inches (100 to 600 millimeters) stroke lengths
- Up to 2,200 pounds (998 kilograms) load capacities
- Speeds up to 2.1 inches (53.34 millimeters)/sec. travel
- Thermal overload incorporated into the motor
- Heavy wall construction
- Double ball bearing motors and heat treated gears
- Rugged extension rod bearing support
- Custom mounting options available
- Limit switches offered only in the adjustable version (EP1.x)

### Typical Applications
- Engine Lifts
- Tables
- Indoor Applications
- Machine Tools
- Egg Rotation

### Load/Current/Speed/Duty Cycle
- Maximum Static Rating: 3000 lbs. (1360kg) Static (in-line load)
- Refer to performance chart for load/current/speed capabilities
- Stroke Length Tolerance: +/- .06" (1.52mm)
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Performance Curves Imperial

### K2xAC G05-115VAC

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### K2xAC G30-230VAC

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**B-Track K2xAC**
Performance Curves Metric

**K2xAC G05-115VAC**

**K2xAC G05-230VAC**

**K2xAC G10-115VAC**

**K2xAC G10-230VAC**

**K2xAC G20-115VAC**

**K2xAC G20-230VAC**

**K2xAC G30-115VAC**

**K2xAC G30-230VAC**
### Dimensions

<table>
<thead>
<tr>
<th>Stroke</th>
<th>Stroke Description</th>
<th>4 in</th>
<th>6 in</th>
<th>8 in</th>
<th>12 in</th>
<th>18 in</th>
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<tbody>
<tr>
<td>A</td>
<td></td>
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<tr>
<td>B</td>
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<td>1.54</td>
<td>Ø1.00 (25.4)</td>
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<td>(39.12)</td>
<td>(117.35)</td>
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**Note:** Special lengths available.

---

**B-Track K2x**

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**Dimensions Diagram**

---

**Warner Linear**

1-800-825-6544

P-1581-WL-A4 • 9/10
Warner Linear offers a broad range of standard actuators to suit many needs. We realize though, that often special application parameters dictate special actuator configurations and modifications. Warner Linear actuators are designed with this in mind, as many of our products can be readily customized to suit specific requirements.

Our products are built on modules that can be mixed and matched in final assembly. Our final assembly operations are configured to provide flexible assembly to accommodate custom orders, quickly and cost effectively.

If your application has a special need that our standard catalog products are unable to fit, please contact your Warner Linear representative or consult with our technical specialists so we can configure a product to fit your need.

A few of our standard special offerings:
• Special pin to pin lengths and stroke lengths
• Special end fittings and mounting configurations
• Special paints and motor lead wire lengths and connectors

Rod End Mounting Option Examples
(available for B-Track models only, consult factory for more options)

1. 1/2" Threaded rod end
2. 5/8" Threaded rod end
3. 1/2" Spherical rod end
4. 5/8" Spherical rod end
5. 1" Extended rod end
6. Flat sided rod end
7. 1/2" Threaded gear box end
8. 3/8" Rod end insert

Consult with factory for specific mounting configuration needs.
We recognize how critical our actuators are to the overall performance of your equipment. Working closely with your engineering and development staff, we strive for an early understanding of how you want your linear actuator to perform.

Building a direct communication line from our engineer to your engineer provides a number of significant benefits.

- A teaming of creative resources
- Joint understanding of our actuator capabilities and how they can be tailored to your application
- An understanding of the lowest cost solution to meet your actuator requirements
- Providing a complete solution that includes controls as required

**Warner Linear routinely provides actuators modified to meet specific customer application requirements**

Some common versions of these are shown as our K2PL/K2XPL and K2JS/K2XJS families.

Additional common modifications are:

**Tube/Trunion Mount**

**Modified Seal design for expanded contamination protection**
B-Track Power Lift models are modified K2 or K2x actuators. Power Lift units utilize all the standard components and retain all the performance features of the K2 family, without the external cover tube. This allows the Power Lift actuator features to be integrated into a variety of customer designed structures, where a cover tube is not needed.

Extended gear box screws are provided allowing easy attachment to a customer frame. A straight through manual override option is available as shown above. Suggested for tension applications only. Consult factory for compression loading applications.

### Power Lift Actuator
**DC Motor – Acme or Ball Screw**
Up to 2,200 lbs. (998kg) Rated Load
Up to 2.1 in. (53.34mm)/sec. Travel Speed

#### Features
- Protective coatings and O-ring seals throughout
- Efficient in-line load system
- Patented hybrid nut and screw design, no brake needed in K2 model.
- Integral load holding brake on K2x model
- Ball detent overload clutch
- 4 to 24 inches (100 to 600 millimeters) stroke lengths
- Up to 2200 pounds (998 kilograms) load capacities
- Speeds up to 2.1 inches (53.34 millimeters)/sec. travel
- Thermal overload incorporated into the motor
- Heavy wall construction
- Double ball bearing motors and heat treated gears
- Optional 90 vdc motor for use with SBC-AC control
- Custom mounting options available

#### Typical Applications
- Wheelchair and scooter lifts
- Traffic signs
- Beds and tables
- Light masts

### Load/Current/Speed/Duty Cycle
- Maximum Static Rating: 3000 lbs. (1360kg) Static (in-line load)
- Refer to performance chart for load/current/speed capabilities
- Stroke Length Tolerance: +/- .06" (1.52mm)
- Motor is protected with auto reset breaker inside motor housing (temperature/current/time dependent)
- Overload clutch setting: +25% over rated dynamic load
- Duty cycle is time/temperature/load dependent, suggested guidelines are:
  - 50% max on-time/50% off-time for loads up to 50% of capability
  - 25% max on-time/75% off-time for loads between 50%-80% of capability
  - 10% max on-time/90% off-time for loads between 80%-100% of capability

(Load/stroke profiles will allow some adjustment variation from these guidelines.)

### Operating Environment
- Ambient temp range: -30°F to 140°F (-34ºC to 60ºC)
- Weather resistant enclosure & seals (IP 65 capable, 250 hour salt spray, 500 hour for paint)
- Normal operating voltage: 10-16 vdc (Ratings are at 12 vdc Normal.)

### Control/Connections
- 14 gauge stranded lead wires-UL style 1230 w/PVC insulation Class F 105°C
- Lead wires abrasion protected with braided covering
- Use momentary contact double pole double throw switch in powering unit for extend/retract operation. (ON)-OFF-(ON) DPDT
- Connectors:
  - Packard 56 series or Delphi Weather-Pack
  - Packard 56 series with 56 series blades (#2984883 & #2962987)
  - Delphi Weather-Pack series (#121015792 & #12010973)
### B-Track K2PL / K2xPL

#### Performance Curves

See page 16 for K2PL performance curves.
See pages 26-27 for K2xPL performance curves.

#### Dimensions

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<th>14 (in)</th>
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Note: Special lengths available

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Note: Special lengths available

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Note: Special lengths available

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Note: Special lengths available
B-Track K2PL

B-Track K2xPL
B-Track K2JS / K2xJS

Jack Stand Actuator
DC Motor – Acme or Ball Screw
Up to 2,800 lbs. (1270kg) Rated Load
Up to 2.1 in. (53.34mm)/sec. Travel Speed

The B-Track Jack Stand actuator incorporates a large diameter extension rod providing the maximum offset load capability within the K2 family. The extension rod is slightly smaller than the cover tube and slides on Teflon® bearings within the cover tube. This feature makes the K2JS suitable for high-load, free-standing use.

A number of mounting options are available including trunnion mounts, or with standard flange plate (as shown). These units can be customized with an integral switch box, direct drive manual override, or pivoting footpad.

**Features**
- Protective coatings and O-ring seals throughout
- Efficient in-line ball screw system
- Integral load holding brake on K2x model
- Ball detent overload clutch
- 8 to 16 inches (200 to 400 millimeters) stroke lengths
- Up to 2,800 pounds (1270 kilograms) load capacities
- Speeds up to 2.1 inches (53.34 millimeters)/sec. travel
- Thermal overload incorporated into the motor
- Heavy wall construction
- Double ball construction and heat treated gears
- Rugged extension rod bearing support
- Custom mounting options available

**Typical Applications**
- Trailer jack stands
- Trailer and vehicle outriggers
- Implement lifts
- Machine height adjustment
- Camper lifts
- Load Levelers

**Load/Current/Speed/Duty Cycle**
- Maximum Static Rating: 3000 lbs. (1360kg) Static (in-line load)
- Refer to performance chart for load/current/speed capabilities
- Stroke Length Tolerance: +/- .06" (1.52 mm)
- Motor is protected with auto reset breaker inside motor housing (temperature/current/time dependent)
- Overload clutch setting: +25% over rated dynamic load
- Duty cycle is time/temperature/load dependent, suggested guidelines are:
  - 50% max on-time/50% off-time for loads up to 50% of capability
  - 25% max on-time/75% off-time for loads between 50%-80% of capability
  - 10% max on-time/90% off-time for loads between 80%-100% of capability
- (Load/stroke profiles will allow some adjustment variation from these guidelines.)

**Operating Environment**
- Ambient temp range: -30°F to 140°F (-34ºC to 60ºC)
- Weather resistant enclosure & seals (IP 65 capable, 250 hour salt spray, 500 hour for paint)
- Normal operating voltage: 10-16 vdc (Ratings are at 12 vdc Normal.)

**Control/Connections**
- 14 gauge stranded lead wires-UL style 1230 w/PVC insulation Class F 105°C
- Lead wires abrasion protected with braided covering
- Use momentary contact double pole/double throw switch in powering unit for extend/retract operation. (ON)-OFF-(ON) DPDT
- Connectors:
  - Packard 56 series or Delphi Weather-Pack
    - Packard 56 series with 56 series blades (#2984883 & #2982987)
    - Delphi Weather-Pack series (#121015792 & #12010973)
### Performance Curves


### Dimensions

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<th>Stroke</th>
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<th>14 in</th>
<th>16 in</th>
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Note: Special lengths available

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**B-Track K2.js**

**B-Track K2.x.js**

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"A" RETRACTED  "B" EXTENDED (22.35) (33.61) (33.61) (111.25) (44.45) (19.05) (50.8) (111.51)
## B-Track K2RA

### Rotary Actuator

**DC Motor**

*Up to 140 in-lb (16 Nm) Torque Output*

*Speeds from 250 to 850 RPM*

K2RA rotary actuators are motor driven gear boxes and use the base drive design and components of the K2 linear actuator. K2RA models incorporate all of the features of the K2 model providing excellent weatherproofing for outdoor applications. The same long-life motors, hardened gears, corrosion protection, and lubrication are utilized. Several output shaft and mounting configurations are available with the standard configuration shown above.

### Features

- Protective coatings and O-ring seals throughout
- Efficient in-line load system
- Ball detent overload clutch
- Speeds up to 850 RPM
- Thermal overload incorporated into the motor
- Heavy wall construction
- Double ball bearing motors and heat treated gears
- Rugged output bearing support
- Customized mounting configurations available
- Optional 24 vdc motor available to provide more speed selections

### Typical Applications

- Salt/seed spreaders
- Scooter lift mechanisms
- Spout rotation
- Turntables
- Cable winch

---

### Load/Current/Speed/Duty Cycle

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specifications</th>
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<tbody>
<tr>
<td><strong>Static (in-line load)</strong></td>
<td>Maximum Static Rating: 3000 lbs (1360kg)</td>
</tr>
<tr>
<td><strong>Performance Chart</strong></td>
<td>Refer to performance chart for current/speed capabilities</td>
</tr>
<tr>
<td><strong>Motor Protection</strong></td>
<td>Motor is protected with auto reset breaker inside motor housing (temperature/current/time dependent)</td>
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<tr>
<td><strong>Overload Clutch</strong></td>
<td>Overload clutch setting: match customer requirements</td>
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<tr>
<td><strong>Duty Cycle</strong></td>
<td>Duty cycle is time/temperature/load dependent, suggested guidelines are:</td>
</tr>
<tr>
<td></td>
<td>- 50% max on-time/50% off-time for loads up to 50% of capability</td>
</tr>
<tr>
<td></td>
<td>- 25% max on-time/75% off-time for loads between 50%-80% of capability</td>
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<tr>
<td></td>
<td>- 10% max on-time/90% off-time for loads between 80%-100% of capability</td>
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(Additional notes on Load/RPM profiles available.)

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### Operating Environment

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<th>Environment</th>
<th>Specifications</th>
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<tbody>
<tr>
<td><strong>Temperature</strong></td>
<td>Ambient temp range: -30°F to 140°F (-34°C to 60°C)</td>
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<tr>
<td><strong>Enclosure</strong></td>
<td>Weather resistant enclosure &amp; seals (IP 65 capable, 250 hour salt spray, 500 hour for paint)</td>
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<tr>
<td><strong>Voltage</strong></td>
<td>Normal operating voltage: 12, 24, 36, 48 vdc (Ratings are at 12 vdc Normal.)</td>
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</table>

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### Control/Connections

<table>
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<tr>
<th>Connection</th>
<th>Specifications</th>
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<tbody>
<tr>
<td><strong>Wiring</strong></td>
<td>14 gauge stranded lead wires - SAE J1128 SXL cross linked polyethylene insulation Class F 257°F (125°C)</td>
</tr>
<tr>
<td><strong>Protection</strong></td>
<td>Lead wires abrasion protected with braided covering</td>
</tr>
<tr>
<td><strong>Switching</strong></td>
<td>Use momentary contact double pole/double throw switch in powering unit. (ON)-(OFF)-(ON) DPDT</td>
</tr>
<tr>
<td><strong>Packard</strong></td>
<td>Packard 56 series or Delphi Weather-Pack</td>
</tr>
<tr>
<td><strong>Blades</strong></td>
<td>Packard 56 series with 56 series blades (#2984883 &amp; #2962987)</td>
</tr>
<tr>
<td><strong>Delphi</strong></td>
<td>Delphi Weather-Pack series (#121015792 &amp; #12010973)</td>
</tr>
</tbody>
</table>
Warner Linear Actuator Controls available for a wide variety of applications

Warner Linear provides a full line of actuator controls well suited for a broad range of application needs. They range from simple to use switch box controls for basic extend/retract function, to state-of-the-art microprocessor based digital electronic controls using SMT design and manufacturing processes.

**Offered functions:**
- Basic extend and retract
- Electric switch and electronic stroke limits
- End of stroke outputs
- Position feedback potentiometer and encoder outputs
- Electronic current limit – fixed and programmable
- Electronic dynamic braking
- Fixed, manual and electronic adjustable end stops
- Signal follower

**Dependable Operation**
Warner Linear controls are state-of-the-art using surface mount electronic components and automated circuit board manufacturing methods. Each control is field durability tested for use in demanding applications.

**Rugged and Reliable**
Use of SMT manufacturing processes assures consistent performance from control to control.
- Integrated actuator sensors are protected from the environment
- Solid-state electronic components and non-contact sensors (hall effect)
- Actuator mounted or remote mountable

**Easy To Use**
- Simple plug-and-play switch box controls are hassle-free – just plug in and connect the power clips.
- Basic position controls are integrated with the actuators to simplify ease of use and maintain the rugged duty capabilities of Warner Linear actuators. They are easy to use and plug-and-play ready.
- Advanced microprocessor based controls are also available. They employ digital electronics using SMT processes and offer a broad range of intelligent actuator control options. Consult your Warner Linear technical specialist on how advanced controls might suit your needs.

Warner Linear BTc controls are specifically designed for use with the B-Track line of actuators. Some controls and options are also suitable for use with the M-Track models.
Power Supply/Control/Accessory Selection Guide

Customer Provides Power

Switch Box for 12, 24, or 48 volt motor actuators
Input: 12ft (3.66m) cable
Output: 1ft cable or optional cables (M1, K2, K2x, RA actuators)

Switch Box for 115 or 230 volt actuators
Input: 6ft (1.83m) cable
Output: customer supplied connector (K2AC, K2xAC actuators)

Power Supply Required

12 or 24 volt DC Power Supply for M1 actuator
Options: AC input with plug
Switch included
Switch not included

24 volt DC Power Supply for K2/K2x actuator
Options: AC input with plug
Switch included
Switch not included

90 volt DC Power Supply for K2/K2x actuator
Options: AC input with plug
Switch included
Switch not included
Speed Potentiometer

NOTE: All power supply designs are provided with a one foot long cable for connection to actuator. Accessory cables are available in lengths of 5, 10, 20, 25 foot (1.524, 3.048, 6.096, 7.62mm) length.

Controls

End of travel limit switches
Factory set/not adjustable (P1)
Field Adjustable (EP1)

Current limit control

Position feedback control

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Simple Switch Box Controls

All actuators are controlled using an external-retract-off switching function. The SBC-DC and SBC-AC provide a simple mounted switch compatible with Warner Linear actuators.

**SBC-DC**

- **Power:** Compatible with 12, 24 and 48 volt DC actuators
- **Function:** Extend, Retract, Off via DPDT momentary toggle switch
- **Enclosure:** ABS plastic enclosure 4.7" L x 3.2" W x 2.2" H (119.38mm L x 81.28mm W x 55.88mm H)
- **Input Cable:** 12ft (3.66m), 2 wire, 14AWG cable with alligator clip ends
- **Output Cable:** 1ft (.30m) cable provided. Designate connector appropriate to actuator being used

Optional extension cables are available in 5-25ft (1.524 - 7.62m) lengths

**SBC-AC**

- **Power:** Compatible with 115 or 230 volt VAC input
- **Function:** Extend, Retract, Off via DPDT momentary contact switch
- **Enclosure:** 4.72" L x 4.72" W x 3.15" (119.89mm L x 119.89mm W x 80.01mm H) long dust tight enclosure
- **Protection:** Externally mounted 5 amp fuse on outside of enclosure for easy replacement
- **Input Cable:** 6ft (1.829m) open ended tinned AC input cable provided
- **Output Cable:** Sealed cable gland included for customer supplied output cable

**Optional Extension and Control Power Cables**

- Power supplies include a 1ft (.30m) length cable to connect to actuator.

- Accessory cables may be ordered in lengths of 5, 10, 20 and 25 feet (1.524, 3.048, 6.096 and 7.62 meters) with the appropriate connector for the actuator selected. (mini-packard, Packard 56, Weatherpack, Deutsch)

- Live Power (LP) cables are required to provide constant power to BTc Limit switch or potentiometer feedback circuits mounted on the actuator. LP cables provide two connectors.

- Signal Cable (SC) cables provide the LP cable with two additional connectors for use with limit switch or potentiometer feedback.
M-Track Power Supply

Extension Cable Part Number

<table>
<thead>
<tr>
<th></th>
<th>SBC</th>
<th>Number of Conductors</th>
<th>Cable Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC Power Supply</td>
<td>2</td>
<td>3</td>
<td>PC</td>
</tr>
</tbody>
</table>

Cable Type:
- PC = Power Cable (Carol “J” Cord with Shrink Sleeves)
- SC = Signal Cable (with Shrink Sleeves Only)
- LP = Live Power (22 AWG, 4 conductor wire but only use red & black wires. Trim white & green wires flush with insulation.)

Input Power:

<table>
<thead>
<tr>
<th>Cable Type</th>
<th>Extension Cable Part Number</th>
<th>AC Power Number of Cable Connector Dual Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AC=115 VAC Input AC2=230 VAC Input</td>
</tr>
</tbody>
</table>

Output Power:

<table>
<thead>
<tr>
<th>Connector Style</th>
<th>Input Wire Style</th>
<th>Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12V</td>
<td>A</td>
</tr>
</tbody>
</table>

SBC-AC Power Supply

Input: 85-264 volts AC

Output: 12 volts @ 5.4amps
         24 volts @ 2.7amps

Input Cable:
- Standard: 6ft (1.829m) (open end, tinned cable)
- Optional: 6ft (1.829m) with 115 VAC 3 prong plug

Output Cable:
- 1ft (.30m) length cable with 2-pin Packard 76 (for M-Track 1)
- Optional extension cables can be ordered in 5-25ft (1.524-7.62m) lengths

Enclosure:
- 4.72” x 4.72” x 3.15” (119.89mm L x 119.89mm W x 80.01mm H) polycarbonate housing NEMA 4, 4x, 12, 13

Operating Temperature:
- -30º F to 140º F (-34ºC to 60ºC)

Ratings:
- CE, TUV, UL/cUL Conducted EMI meets EN55022 and ROHS

Protection:
- External fuse provided

Switching:
- No switch or DPDT momentary switch
K2/K2X Power Supplies

SBC-AC/SBC-AC2 Power Supply 24 volt output

Input:
- AC: 115 volt AC
- AC2: 230 volt AC

Output:
- 24 volts @ 12 amps

Input Cable:
- Standard: 6 ft. (1.829m) open end, tinned cable
- Optional for 115 AC 6 ft. (1.829m) with 115 VAC 3 prong plug

Output Cable:
- Standard 1 ft. (.30m) cable: specify connector to match actuator:
  1) Mini Packard standard for M-Track actuators
  2) Packard 56 standard on K2 and K2x model actuators
  3) Packard WeatherPack optional on K2 and K2x model actuators
  4) Deutsch DT06-2S optional on K2 and K2x model actuators
- Optional extension output cables can be ordered in 5-25 ft. (1.524-7.62m) lengths

Enclosure:
- 6.69"L x 6.69"W x 3.54"H (169.93mm L x 169.93mm W x 89.916mm H) polycarbonate housing NEMA 4, 4x, 12, 13

Fusing:
- External fuse mounted on enclosure for easy replacement

Switching:
- DPDT momentary rocker switch for manual actuator control or
  Customer may supply their own switch

Live Power Option:
- When used with BTc control options (limit switch, potentiometer feedback) the Live Power option is required. Live power option provides a constant output power source for external control components regardless of output power to the actuator. (See Extension Cable selection to select the correct cable for this option.)
# K2/K2X Power Supplies

## SBC-AC/SBC-AC2 Power Supply 90 volt output

| Input: | AC: 115 volt AC  
| Input: | AC2: 230 volt AC  
| Output: | 90 volts DC @ 5 amps  
| Input Cable: | Standard: 6 ft. (1.829m) open end, tinned cable  
| Input Cable: | Optional for 115 AC 6 ft. (1.829m) with 115 VAC 3 prong plug  
| Output Cable: | 1 ft. (.30m) cable with 3-pin Deutsch connector  
| Output Cable: | Optional extension cables can be ordered in 5-25 ft. (1.524-7.62m) lengths  
| Enclosure: | 4.72"L x 4.72"W x 3.15"H (119.89mm L x 119.89mm W x 80.01mm H) polycarbonate housing NEMA 4, 4x, 12, 13  
| Fusing: | External fuse mounted on enclosure for easy replacement  
| Switching: | DPDT momentary rocker switch for manual actuator control or customer may supply their own switch  
| Potentiometer: | Optional speed pot allows for output voltage adjustment (varies actuator speed)  

### Connector Style and Wire Style:

- **Input Power**: AC=115 VAC Input  
- **Output Power**: 90V=90VDC  
- **Connector Style**: 4=Deutsch DT06-3S  
- **Input Wire Style**: Blank=6' (1.829m) Open (3) Strand Wire  
- **Output Wire Style**: A=6' (1.829m) Long 3 Prong Plug (Plug only available on 115 VAC unit)  
- **Switch**: S=Rocker Switch  
- **Potentiometer**: Blank=No Switch  

<table>
<thead>
<tr>
<th>Ac Power Supply</th>
<th>Input Power</th>
<th>Output Power</th>
<th>Connector Style</th>
<th>Input Wire Style</th>
<th>Switch</th>
<th>Potentiometer</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBC</td>
<td>AC=115 VAC</td>
<td>90V=90VDC</td>
<td>4</td>
<td>Blank=6' Open</td>
<td>S</td>
<td>Blank=No Pot</td>
</tr>
<tr>
<td>AC2</td>
<td>AC2=230VAC</td>
<td></td>
<td></td>
<td>A=6' Long 3 Prong Plug</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# P1 Electronic Stroke Limit Control

## Model Selection

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Input Voltage (vdc)</th>
<th>Maximum Output Current (Amps)</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1.0 (DC12)</td>
<td>12</td>
<td>25</td>
<td>Base = Electronic Stroke Limit with Electronic Dynamic Braking</td>
</tr>
<tr>
<td>P1.0 (DC24)</td>
<td>24</td>
<td>12.5</td>
<td>Base = Electronic Stroke Limit with Electronic Dynamic Braking</td>
</tr>
<tr>
<td>P1.1 (DC12)</td>
<td>12</td>
<td>25</td>
<td>Base &amp; LED Indicators on Housing</td>
</tr>
<tr>
<td>P1.1 (DC24)</td>
<td>24</td>
<td>12.5</td>
<td>Base &amp; LED Indicators on Housing</td>
</tr>
<tr>
<td>P1.2 (DC12)</td>
<td>12</td>
<td>25</td>
<td>Base &amp; +12 vdc Outputs</td>
</tr>
<tr>
<td>P1.2 (DC24)</td>
<td>24</td>
<td>12.5</td>
<td>Base &amp; +24 vdc Outputs</td>
</tr>
<tr>
<td>P1.2LE (DC12)</td>
<td>12</td>
<td>25</td>
<td>Base &amp; LED Outputs +5 vdc</td>
</tr>
<tr>
<td>P1.2LE (DC24)</td>
<td>24</td>
<td>12.5</td>
<td>Base &amp; LED Outputs +5 vdc</td>
</tr>
</tbody>
</table>

**Note:** For adjustable external end limits add E before P

## Wiring Diagrams

### P1 Module

![Wiring Diagram](P1-DC12/24.png)

- Motor 12 vdc or 24 vdc
- P1 Module
- + connected to gray wire
- +12 or 24 vdc - Switch Input
- + connected to black wire

### P1 Module with LED Indicators

![Wiring Diagram](P1.1-DC12/24.png)

- Motor 12 vdc or 24 vdc
- P1 Module with LED Indicators
- +12 or 24 vdc - Switch Input
- Extend LED
- Retract LED
- + connected to gray wire
- + connected to black wire

### P1 Module with +12 or +24 vdc Outputs or LED Outputs

![Wiring Diagram](P1.2-DC12/24.png)

- Motor 12 vdc or 24 vdc
- P1 Module with +12 or +24 or LED Outputs
- +12 or 24 vdc - Switch Input
- LED Hookup Example
- + connected to gray wire
- + connected to black wire
The P1.x Limit Switch control provides end of travel positioning through the use of a hall effect sensor and motor mounted relay.

Hall effect sensors are factory mounted within the actuator cover tube. The sensor position is set at the factory and is not field adjustable (See EP.1 for adjustable switch functions). The hall effect sensors are sealed for life and are not subject to wear.

The Electronic Stroke control package consists of the hall effect sensors and a motor mounted relay within an enclosure suited for harsh environments.

A Zener diode suppression is used on both input and outputs for added protection from electrical spikes. Unit reversing is achieved by reversing input power polarity to the motor.

### Specifications

<table>
<thead>
<tr>
<th>Power:</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 amps max. @ 12 volts</td>
</tr>
<tr>
<td>12.5 amps max. @ 24 volts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating Temperature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>-30° to +140° F (-34°C to 60°C)</td>
</tr>
</tbody>
</table>

### Options

- **P1.0** Standard Stroke Limit Control
- **P1.1** Same as P1.0 with two LEDs on the outside of the control module. LEDs indicate when end of travel has been reached.
- **P1.2** Same as P1.0 with two 12/24 volt, 0.5 amps outputs that can be used to signal an external switch, relay, lamp or PLC input.
- **P1.2LE** Two +5 VDC 25ma outputs plus a ground to provide a signal when end of travel is reached. This output can be used to power LEDs.
The EP1.x Limit Switch control provides end of travel positioning through the use of a magnetic switch and motor mounted relay. The EP1 limit switches are mounted in a channel on the actuator cover tube accessible below a durable cover. (for factory set limit switches see P1.0 designs). The EP1 switches are field adjustable.

The Electronic Stroke control package consists of the magnetic sensors and a motor mounted relay within an enclosure suited for harsh environments.

A Zener diode suppression is used on both input and outputs for added protection from electrical spikes. Unit reversing is achieved by reversing input power polarity to the motor.

<table>
<thead>
<tr>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power:</strong></td>
</tr>
<tr>
<td>25 amps max. @ 12 volts</td>
</tr>
<tr>
<td>12.5 amps max. @ 24 volts</td>
</tr>
<tr>
<td><strong>Operating Temperature:</strong></td>
</tr>
<tr>
<td>-30°F to 140°F (-34°C to 60°C)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EP1.0</strong> Standard Stroke Limit Control</td>
</tr>
<tr>
<td><strong>EP1.1</strong> Same as P1.0 with two LEDs on the outside of the control module. LEDs indicate when end of travel has been reached.</td>
</tr>
<tr>
<td><strong>EP1.2</strong> Same as P1.0 with two 12/24 volt, 0.5 amps outputs that can be used to signal an external switch, relay, lamp or PLC input.</td>
</tr>
<tr>
<td><strong>EP1.2LE</strong> Two +5 VDC 25ma outputs plus a ground to provide a signal when end of travel is reached. This output can be used to power LEDs.</td>
</tr>
</tbody>
</table>
The PQS Quick Stop Control is an adjustable bi-directional current control that monitors motor current draw during actuator movement. If current draw exceeds set point due to obstruction or overload, the control removes power from the motor stopping the actuator.

Current limits are set via potentiometers accessible from the side of the control housing. Current limits can be adjusted independently for each direction of movement.

Changing extend or retract load limits:
- Remove access plugs on the side of control.
- Rotate trim pot counter clockwise for min. load.
- Rotate trim pot clockwise for max. load.
- Adjust the Retract pot to control closing force.
- Adjust the extend pot to control lifting force.
- Adjust as viewed with extension rod pointing up.
- Reinstall access plugs.

### Wiring Diagrams

**PQS Module**

**PQS-DC12/24**

Motor

12 vdc or 24 vdc

PQS Module

- + connected to gray wire
- connected to black wire
- + 12 or 24 vdc
- - Switch Input

### Model Selection

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Input Voltage (vdc)</th>
<th>Maximum Output Current (Amps)</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>PQS 12</td>
<td>12</td>
<td>25</td>
<td>Base = Electronic Stroke Limit with Mid-stroke Current Limit and Electronic Dynamic Braking</td>
</tr>
<tr>
<td>PQS 24</td>
<td>24</td>
<td>12.5</td>
<td>Base = Electronic Stroke Limit with Mid-stroke Current Limit and Electronic Dynamic Braking</td>
</tr>
</tbody>
</table>

### Specifications

**Supply Power:**
- 25 amps @ 12 volts dc
- 12.5 amps @ 24 volts dc

**Operating Temperature:**
- -30˚ to 140˚ F (-34ºC to 60ºC)
The P2.0 Position Control is a microprocessor position feedback control providing a 0 -10 volt DC output indicating actuator travel. The control uses two inductive pulse count sensors and a counting wheel to accurately determine actuator position. A third sensor at the full retract position provides a zero or home position indication.

Hall Effect limit switches (those used in the P1.0 control) are used to provide end of travel positioning and will shut off actuator at both full extend and retract settings. All sensors are non-contact and sealed for life. They are integrated within the actuator and control to protect them from contamination.

Specifications

| Supply Power: | 25 amps @ 12 volts dc | 12.5 amps @ 24 volts dc |
| Operating Temperature: | -30° to 140° F (-34°C to 60°C) |
| Protection: | Zener diode suppression on the input and output for protection from electrical noise. |

Model Selection

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Input Voltage (vdc)</th>
<th>Maximum Output Current (Amps)</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2.0 (DC12)</td>
<td>12</td>
<td>25</td>
<td>Base = Electronic Stroke Limits with 0 to + 10V Analog Output and EDB</td>
</tr>
<tr>
<td>P2.0 (DC24)</td>
<td>24</td>
<td>12.5</td>
<td>Base = Electronic Stroke Limits with 0 to + 10V Analog Output and EDB</td>
</tr>
</tbody>
</table>
General Mounting Information

Warner Linear actuators are quickly and easily mounted by slipping pins through the holes at each end of the unit and into the brackets on the machine frame and load to be moved.

Use of solid pins provide maximum holding capability with a retaining ring or cotter pin on each end to prevent the solid pin from falling out of the mounting bracket (it is best to avoid roll pins and spring pins).

Mounting pins must be parallel to each other as shown above. Pins which are not parallel can cause excess vibration or actuator binding.

Loads should act along the axis of the actuator. Off-center loads may cause binding and lead to premature unit failure.

Ensure that mounting pins are supported at both ends. Cantilevered mounting is unacceptable. Failure to provide proper support will shorten unit life.

Do not attempt to mount M-Track actuators by the cover tube. The tube is not designed to support the forces required for tube mounting.

All actuator mounting supports must be capable of withstanding the load and torque developed when the unit extends or retracts. Restraining torque values are also provided with the details on each unit.

M-Track  Torque created 20 inch pounds (2.3 Nm)
All others  Torque created 100 inch pounds (2.3 Nm)
Axial load
A load along the axis of the actuator screw (see figure 1).

Back drive
Force applied on a ball bearing nut that causes rotational torque to reverse direction. A force sufficient to cause a unit to reverse direction.

BTc
B-Track control family.

Cantilevered mount
A mounting where the mounting pin is not supported on both sides. Cantilevered mounts are common causes of failure (see figure 2).

Clevis mount
A U-shaped metal piece that has the ends drilled to accept a pin or bolt (see figure 3).

Compression load
Compression loading will press on the unit (see figure 4).

Cover tube
The outer tube or cover that encloses the screw and extension tube for an actuator.

Current vs. load
The load on the motor is measured by amperes (current). Current draw will increase as load increases.

Cycle
Movement from a fully retracted to fully extended position and back to fully retracted.

Duty cycle
The amount of ‘on-time’ vs total time. A 25% duty cycle means that a unit operates for 10 seconds out of 40 seconds, or 4 seconds out of 16 seconds.

Eccentric load
An off-center load which may cause binding and shorten actuator life (see figure 5).

End play
The amount of backlash or movement between the extension tube and the body of the actuator.

Extension rate
The rate of speed at which the actuator extends or retracts. This will vary based on loading (impact of load on speed is greater on DC units than on AC units).

Efficiency
Ratio of input power to output power.

ESL
Electronic Stroke Limit magnetically activated hall effect switches that turn power off at end of stroke.
**Extended length**
The overall length of the actuator from the center of the rear clevis to the center of the extension tube pin hole when the unit is at full extension (see figure 6).

**Load**
The force, measured in pounds, that is applied as an axial load on the actuator.

**Load holding**
The ability of the actuator to hold a load stationary when power is off.

**Peak load**
The maximum dynamic load that will be applied to the actuator, or that the actuator is capable of moving.

**Pin mount**
The use of a dowel or pin through the hole in the clevis mount (on the rear of an actuator) or the extension tube (on the front of an actuator) (see figure 7).

**Radial load**
A load applied to the side of the extension tube or across the body of the actuator. Normally radial loading will have a negative impact on unit life (see figure 8).

**Restraining torque**
The torque required to prevent torque within the unit from causing rotation on the body or extension tube of the unit (see figure 9).

**Retracted length**
The overall length of the actuator from the center of the rear clevis to the center of the extension tube pin hole when the unit is at full retracted position (see figure 10).

**Side load**
See radial loading (see figure 8).

**Static load**
The maximum non-operating (or non-moving) load. Static load is the load holding capability of an actuator.

**Synchronous position**
Having more than one actuator extend and retract together maintaining ± 0.20 position relative to each other.

**Tension load**
A load that will tend to pull on the unit (see figure 11).

**Thermal overload**
A switch within the motor that will open if the motor exceeds a predetermined heat level.

---

*Figures:
1. Pin mount
2. Radial load also side loading
3. Restraining torque
4. Retracted length
5. Tension load*
Legacy products: From 2005 through 2009 Warner Linear provided the A-Track series of actuators. These have been replaced by the K2, K2AC, K2x, and K2xAC products which are direct replacements for the A-Track 2, 5, and 10 models.

The A-Track designs will continue to be available on a limited basis for some time to come. We do not recommend these for new applications but will continue to provide them as replacement items so long as supply is available.

### A-Track 2
Efficient design offering low cost power capability. For use in applications where moisture or environmental contamination exist.

- **Drive Type:** Acme Screw
- **Load Capacity & Speed**
  - lbs. @ in./sec. (kg@mm/sec)
  - 330 @ 1.0 150 @ 1.0
  - 500 @ 0.5 227 @ 0.5
- **Stand. Stroke Length in. (mm):**
  - 4, 6, 8, 12, 18, 24 (100, 150, 200, 450, 600)
- **Input Voltage (vdc):**
  - 12, 24
- **Typical Applications:**
  - Drum Lifts
  - Access Panel Lifts
  - Walk Behind
  - Sweeper/Polishers
  - Tractor Hood Lifts
  - Spout Positioning

### A-Track 5
Efficient design offering moderate power capability. For indoor use or where AC power is available.

- **Drive Type:** Acme or Ball Screw
- **Load Capacity & Speed**
  - lbs. @ in./sec. (kg@mm/sec)
  - 330 @ 1.2 120 @ 1.2
  - 500 @ 0.75 227 @ 0.75
  - 1000 @ 1.0 454 @ 1.0
  - 1300 @ 0.75 590 @ 0.75
- **Stand. Stroke Length in. (mm):**
  - 4, 6, 8, 12, 18, 24 (100, 150, 200, 450, 600)
- **Input Voltage (vac):**
  - 115, 230
- **Typical Applications:**
  - Work Table Positioning
  - Conveyor Positioning
  - Remote Louver Control
  - Door Opening
  - Vent Control
  - Scissor Lift Tables

### A-Track 10
Completely self-contained for more demanding outdoor applications requiring moderate load and duty cycle capability.

- **Drive Type:** Ball Screw
- **Load Capacity & Speed**
  - lbs. @ in./sec. (kg@mm/sec)
  - 500 @ 2.0 227 @ 2.0
  - 750 @ 1.0 340 @ 1.0
  - 1000 @ 0.5 454 @ 0.5
- **Stand. Stroke Length in. (mm):**
  - 4, 6, 8, 12, 18, 24 (100, 150, 200, 450, 600)
- **Input Voltage (vdc):**
  - 12, 24
- **Typical Applications:**
  - Boat Engine Covers
  - Round Baler Covers
  - Engine Hoods
  - Scooter Lifts
A-Track 2

DC Motor Acme Screw
Up to 500 lbs. (227kg) Rated Load
Up to 1.0 in. (25.4mm)/sec. Travel Speed

General Purpose DC Actuator
The A-Track 2 incorporates an Acme screw drive system that provides a value priced unit for moderate duty applications. The A-Track 2 includes lubrication for the life of the unit, combined with robust seal and O-ring design, creating a maintenance free design, even when used in applications with high humidity or dust.

Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load Capacity</td>
<td>330 lbs. (150kg) 500 lbs. (227kg)</td>
</tr>
<tr>
<td>Speed at Full Load</td>
<td>1.0 in. (25.4mm)/sec 0.50 in. (12.7mm)/sec</td>
</tr>
<tr>
<td>Input Voltage</td>
<td>12 or 24 volt for all models</td>
</tr>
<tr>
<td>Static Load Capacity</td>
<td>1000 lbs. (454kg) for all models</td>
</tr>
<tr>
<td>Stroke Length</td>
<td>4, 6, 8, 12, 18 and 24 inches (100, 150, 200, 300, 457, 610mm) for all models</td>
</tr>
<tr>
<td>Clevis Ends</td>
<td>.51 in. (13 mm) diameter</td>
</tr>
<tr>
<td>Duty Cycle</td>
<td>25% for all models</td>
</tr>
<tr>
<td>Operation Temperature Range</td>
<td>-15° F to +150° F (-26°C to + 65°C) for all models</td>
</tr>
<tr>
<td>Limit Switch</td>
<td>Optional adjustable travel limit switches (20:1 only) 500 lb. (227kg)</td>
</tr>
<tr>
<td>Potentiometer</td>
<td>Optional feedback potentiometer</td>
</tr>
<tr>
<td>Restraining Torque</td>
<td>100 in. lbs. (11.30Nm)</td>
</tr>
<tr>
<td>Thermal Overload</td>
<td>Thermal overload included in all motors</td>
</tr>
</tbody>
</table>

Features

- Sealed and gasketed for mobile or outdoor applications
- Overload clutch standard
- 4, 6, 8, 12, 18 and 24 inches (100, 150, 200, 300, 457 and 610 millimeters) stroke lengths
- 12 or 24 volt DC motors
- Acme screw drive
- Thermal overload included in double ball bearing motor.

Typical Applications

- Gate and valve positioning
- Tailgate lifts
- Mobile equipment spout positioning control
### Performance Curves

#### Current vs Load

![Graph showing current vs load for A-Track 2 with 12 vdc and 24 vdc.]

#### Speed vs Load

![Graph showing speed vs load for A-Track 2 with 12 vdc and 24 vdc.]

### Dimensions

#### With Limit Switches

<table>
<thead>
<tr>
<th>Stroke</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>12</th>
<th>18</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in</td>
<td>mm</td>
<td>in</td>
<td>mm</td>
<td>in</td>
<td>mm</td>
</tr>
<tr>
<td>A</td>
<td>13.31</td>
<td>338</td>
<td>15.31</td>
<td>389</td>
<td>17.13</td>
<td>435</td>
</tr>
<tr>
<td></td>
<td>21.26</td>
<td>540</td>
<td>30.39</td>
<td>772</td>
<td>36.38</td>
<td>924</td>
</tr>
<tr>
<td>B</td>
<td>4.01</td>
<td>102</td>
<td>6.02</td>
<td>153</td>
<td>7.99</td>
<td>203</td>
</tr>
<tr>
<td></td>
<td>12.0</td>
<td>305</td>
<td>17.99</td>
<td>457</td>
<td>24.01</td>
<td>610</td>
</tr>
</tbody>
</table>

#### Without Limit Switches

<table>
<thead>
<tr>
<th>Stroke</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>12</th>
<th>18</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in</td>
<td>mm</td>
<td>in</td>
<td>mm</td>
<td>in</td>
<td>mm</td>
</tr>
<tr>
<td>A</td>
<td>10.3</td>
<td>262</td>
<td>12.32</td>
<td>313</td>
<td>14.33</td>
<td>364</td>
</tr>
<tr>
<td></td>
<td>18.31</td>
<td>465</td>
<td>21.26</td>
<td>540</td>
<td>30.39</td>
<td>772</td>
</tr>
<tr>
<td>B</td>
<td>4.01</td>
<td>102</td>
<td>6.02</td>
<td>153</td>
<td>7.99</td>
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</tr>
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<td></td>
<td>12.0</td>
<td>305</td>
<td>17.99</td>
<td>457</td>
<td>24.01</td>
<td>610</td>
</tr>
</tbody>
</table>

#### Diagram of Dimensions

![Diagram showing dimensions of A-Track 2 with and without limit switches.]

- With Limit Switches
- Without Limit Switches

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**Notes:**
- A-Track 2
- Dimensions
- Performance Curves
- Current vs Load
- Speed vs Load
- With Limit Switches
- Without Limit Switches

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**Technical Specifications:**
- Current and speed values over a range of loads.
- Dimensions for installation and design guidelines.

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**Warner Linear**
- 1-800-825-6544
- P-1581-WL-A4 • 9/10
**A-Track 5**

**AC Motor Acme Screw**
Up to 500 lbs. (227kg) Rated Load
Up to 0.98 in. (25mm)/sec. Travel Speed

The A-Track 5 Acme screw actuator is a general purpose AC actuator with load capacities of 330 and 500 pounds (150 and 227kg) for use in moderate duty interior applications. The unit includes a power off motor stopping brake for faster stops and extra load holding capability. The Model 5 allows for stroke lengths of 4 to 24 inches (100 to 610mm) for in-plant or protected applications.

### Features
- Acme screw drive system
- 115 volt AC (60hz) and 230 volt AC (50hz) motors available
- 4, 6, 8, 12, 18 and 24 inches (100, 150, 200, 300, 457 and 610 millimeters) strokes
- Acme screw drive train
- Overload clutch standard
- Lubricated for life
- Capacitor included with motor

### Typical Applications
- Ergonomic lift tables
- Conveyor diverters
- Bin/tank cover lifts
- Roof vents

### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Load Capacity</strong></td>
<td>330 lbs. (150kg) 500 lbs. (227kg)</td>
</tr>
<tr>
<td><strong>Speed at Full Load</strong></td>
<td>0.98 in. (25mm)/sec 0.55 in. (14mm)/sec</td>
</tr>
<tr>
<td><strong>Input Voltage</strong></td>
<td>115 vac (60hz) and 230 vac (50hz) for both models</td>
</tr>
<tr>
<td><strong>Static Load Capacity</strong></td>
<td>1000 lbs. (454kg) for all models</td>
</tr>
<tr>
<td><strong>Stroke Length</strong></td>
<td>4, 6, 8, 12, 18 and 24 inches (100, 150, 200, 300, 457, 610mm) for all models</td>
</tr>
<tr>
<td><strong>Clevis Ends</strong></td>
<td>.51 in. (13mm) diameter</td>
</tr>
<tr>
<td><strong>Duty Cycle</strong></td>
<td>25% for all models</td>
</tr>
<tr>
<td><strong>Operation Temperature Range</strong></td>
<td>-15º F to +150º F (-26ºC to + 65ºC) for all models</td>
</tr>
<tr>
<td><strong>Limit Switch</strong></td>
<td>Optional adjustable travel limit switches (20:1 only) 500 lb. (227kg)</td>
</tr>
<tr>
<td><strong>Potentiometer</strong></td>
<td>Optional feedback potentiometer</td>
</tr>
<tr>
<td><strong>Restraining Torque</strong></td>
<td>100 inch pounds (11.30Nm)</td>
</tr>
<tr>
<td><strong>Thermal Overload</strong></td>
<td>Thermal overload included in all motors</td>
</tr>
</tbody>
</table>
Performance Curves

Current vs Load

Speed vs Load

Dimensions

With Limit Switches

<table>
<thead>
<tr>
<th>Stroke</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>12</th>
<th>18</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-Track 5 Acme</td>
<td>in</td>
<td>mm</td>
<td>in</td>
<td>mm</td>
<td>in</td>
<td>mm</td>
</tr>
<tr>
<td>A</td>
<td>17.95</td>
<td>456</td>
<td>19.92</td>
<td>506</td>
<td>21.89</td>
<td>556</td>
</tr>
<tr>
<td>B</td>
<td>4.01</td>
<td>102</td>
<td>6.02</td>
<td>153</td>
<td>7.99</td>
<td>203</td>
</tr>
</tbody>
</table>

Without Limit Switches

<table>
<thead>
<tr>
<th>Stroke</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>12</th>
<th>18</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-Track 5 Acme</td>
<td>in</td>
<td>mm</td>
<td>in</td>
<td>mm</td>
<td>in</td>
<td>mm</td>
</tr>
<tr>
<td>A</td>
<td>14.96</td>
<td>380</td>
<td>16.97</td>
<td>431</td>
<td>18.94</td>
<td>481</td>
</tr>
<tr>
<td>B</td>
<td>4.01</td>
<td>102</td>
<td>6.02</td>
<td>153</td>
<td>7.99</td>
<td>203</td>
</tr>
</tbody>
</table>
The A-Track 5 Ball Screw is a ball screw drive linear actuator for industrial and commercial applications. The unit provides load capacity up to 1300 pounds (590 kilograms) with either 115 volt or 230 volt AC motors. This unit includes a power off load holding brake which stops the motor from turning when power is off. The Model 5 allows for stroke lengths of 4 to 24 inches (100 to 610 millimeters) for in-plant or protected applications.
Performance Curves

Current vs Load

Speed vs Load

Dimensions

With Limit Switches

<table>
<thead>
<tr>
<th>Stroke</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>12</th>
<th>18</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>17.95</td>
<td>456</td>
<td>19.92</td>
<td>506</td>
<td>21.89</td>
<td>556</td>
</tr>
<tr>
<td>B</td>
<td>4.01</td>
<td>102</td>
<td>6.02</td>
<td>153</td>
<td>7.99</td>
<td>203</td>
</tr>
</tbody>
</table>

Without Limit Switches

<table>
<thead>
<tr>
<th>Stroke</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>12</th>
<th>18</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>14.96</td>
<td>380</td>
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<td>481</td>
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<td>102</td>
<td>6.02</td>
<td>153</td>
<td>7.99</td>
<td>203</td>
</tr>
</tbody>
</table>
A-Track 10

DC Motor Ball Screw
Up to 1000 lbs. (454kg) Rated Load
Up to 1.35 in. (34.29mm)/sec. Travel Speed

The A-Track 10 actuator is a DC motor driven, ball screw design suitable for applications requiring high load capacity. The A-Track 10 incorporates seals and O-rings to provide protection when used in outdoor, mobile or ambient contamination environments. This unit includes an integral load holding brake to provide stationary load holding while still providing the efficiency of a ball screw design actuator. The Model 10 provides load capacities up to 1000 pounds (454 kilograms) with stroke lengths to 24 inches (610 millimeters).

### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load Capacity</td>
<td>500 lbs. (227kg) 750 lbs. (340kg) 1000 lbs. (454kg)</td>
</tr>
<tr>
<td>Speed at Full Load</td>
<td>1.35 in. (34mm)/sec 0.85 in. (22mm)/sec 0.51 in. (13mm)/sec</td>
</tr>
<tr>
<td>Input Voltage</td>
<td>12 or 24 volt DC for all models</td>
</tr>
<tr>
<td>Static Load Capacity</td>
<td>3000 lbs. (1361kg) for all models</td>
</tr>
<tr>
<td>Stroke Length</td>
<td>4, 6, 8, 12, 18 and 24 inches (100, 150, 200, 300, 457 and 610mm) for all models</td>
</tr>
<tr>
<td>Clevis Ends</td>
<td>.51 in. (13mm) diameter</td>
</tr>
<tr>
<td>Duty Cycle</td>
<td>25%</td>
</tr>
<tr>
<td>Operation Temperature Range</td>
<td>-15º F to +150º F (-26ºC to 65ºC) for all models</td>
</tr>
<tr>
<td>Limit Switch</td>
<td>Optional Adjustable (20:1 only) 1000 lbs. (454kg)</td>
</tr>
<tr>
<td>Potentiometer</td>
<td>Optional for all models</td>
</tr>
<tr>
<td>Restraining Torque</td>
<td>100 in. lbs. (11.30Nm)</td>
</tr>
<tr>
<td>Thermal Overload</td>
<td>Overload clutch and motor thermal overload for all models</td>
</tr>
</tbody>
</table>

### Features

- Efficient ball screw drive system
- Load holding brake standard
- Overload clutch standard
- 4 to 24 inches (100 to 610 millimeters) stroke lengths
- Thermal overload incorporated into the motor

### Typical Applications

- Heavy duty platform lifts
- Deck and implement lifts for tractors and mobile applications
- Wheelchair and scooter lifts
- Bin and tank cover lifts
### Dimensions

#### With Limit Switches

<table>
<thead>
<tr>
<th>Stroke</th>
<th>4 in</th>
<th>6 in</th>
<th>8 in</th>
<th>12 in</th>
<th>18 in</th>
<th>24 in</th>
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<td>378</td>
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<td>429</td>
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<td>B</td>
<td>3.86</td>
<td>98</td>
<td>5.90</td>
<td>150</td>
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<td>201</td>
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</table>

#### Without Limit Switches

<table>
<thead>
<tr>
<th>Stroke</th>
<th>4 in</th>
<th>6 in</th>
<th>8 in</th>
<th>12 in</th>
<th>18 in</th>
<th>24 in</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>11.89</td>
<td>302</td>
<td>13.90</td>
<td>353</td>
<td>15.90</td>
<td>404</td>
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<tr>
<td>B</td>
<td>3.86</td>
<td>98</td>
<td>5.90</td>
<td>150</td>
<td>7.91</td>
<td>201</td>
</tr>
</tbody>
</table>

### Performance Curves

#### Current vs Load

- A-Track 10
  - 500 lbs. (227 kg) Capacity
  - 750 lbs. (340 kg) Capacity
  - 1000 lbs. (454 kg) Capacity

#### Speed vs Load

- A-Track 10
  - 500 lbs. (227 kg) Capacity
  - 750 lbs. (340 kg) Capacity
  - 1000 lbs. (454 kg) Capacity

#### Dimensions

- **A ± 0.15 (A ± 3.8)**
- **B ± 0.1 (B ± 2.5)**
## General Project Specifications

Mail or Fax to:

Warner Linear
Application Engineering
6593 Revlon Dr. Plant #1,
Belvidere, IL 61008

**FAX: 815-389-6678**
Phone: 800-825-9050

<table>
<thead>
<tr>
<th>Field</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
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</tr>
<tr>
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<tr>
<td>Name</td>
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</tr>
<tr>
<td>Title</td>
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### Project Specifications

<table>
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<tr>
<th>Category</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Dynamic Load</td>
<td>_______ kg _______ 0.00 lbs.</td>
</tr>
<tr>
<td>Side Load</td>
<td>_______ kg _______ 0.00 lbs.</td>
</tr>
<tr>
<td>Full Load Speed (min)</td>
<td>_______ mm/s _______ 0.00 inches/s</td>
</tr>
<tr>
<td>Full Load Speed (max)</td>
<td>_______ mm/s _______ 0.00 inches/s</td>
</tr>
<tr>
<td>Stroke</td>
<td>_______ mm _______ 0 inches</td>
</tr>
<tr>
<td>Life</td>
<td>_______ mm _______ 0 inches</td>
</tr>
</tbody>
</table>

**NOTE:** “Life” is total distance traveled in lifetime of product

<table>
<thead>
<tr>
<th>Environment</th>
<th>Operating Temperature:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>____C  Min _______ 32.0 F (0ºC)</td>
</tr>
<tr>
<td>Corrosives/Salt</td>
<td>____ C  Max _______ 32.0 F (0ºC)</td>
</tr>
<tr>
<td>Oil Splash</td>
<td>____</td>
</tr>
<tr>
<td>Moisture</td>
<td>____</td>
</tr>
<tr>
<td>Duty Cycle (for one full extend + retract)</td>
<td>____Time On (Time on +Time off)</td>
</tr>
<tr>
<td></td>
<td>____Cycles per day</td>
</tr>
</tbody>
</table>

| Maximum Noise Level       | _______ dB                                         |

<table>
<thead>
<tr>
<th>Load Movement</th>
<th>In dumping applications, when load first acts to compress screw and then to retract screw (or vice versa)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Extension Rod Mount</td>
<td></td>
</tr>
<tr>
<td>Gearbox Mount</td>
<td></td>
</tr>
<tr>
<td>Connector Type</td>
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</tr>
<tr>
<td>Mating Connector Required</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input Voltage Type</th>
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<tbody>
<tr>
<td>Input Voltage</td>
<td></td>
</tr>
<tr>
<td>Control Needed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If yes, which control</td>
</tr>
</tbody>
</table>
Selecting the right product for your application is fast and easy with these useful features...

- Utilize specification filters to instantly narrow your search
- Compare specifications for multiple models (side-by-side)
- View individual specification pages for additional information
- View 3D models (download FREE eDrawings™ viewer)
- Download CAD drawings in various formats
- Request a customized part by entering changes to various standard specification values
- Submit an RFQ to a local distributor from a list provided or search for the local Warner Linear Area Sales Manager
- View your cart to check part selections, edit your profile, change your password, and view saved carts
- Search for a specific part number
- Data provided in both Imperial and Metric
- Easy access literature link

You can also search by entering a product part number or description

Refine your search criteria with specification filters including:
- Gear Ratio
- Motor Voltage
- Motor Type
- Nut Type
- Stroke Length
- Base Fitting Alignment

Click on the Product Selector tab to start your search

Check out the new eCatalog at warnerlinear.com

The power of one, the strength of many.

Other product solutions from Altra Industrial Motion

Our comprehensive product offering is comprised of nine major categories including electromagnetic clutches and brakes, heavy duty clutches and brakes, overrunning clutches, gearing, engineered couplings, engineered bearing assemblies, linear products and belted drives. With thousands of product solutions available, Altra provides true single source convenience while meeting specific customer requirements. Many major OEM’s and end users prefer Altra products as their No.1 choice for performance and reliability.