

# LINEAR ACTUATORS

## DESIGN GUIDE



## INTRODUCTION

Duff-Norton has been manufacturing linear actuation products since 1883. We have earned a reputation for reliable, high quality products meeting the industrial lifting and positioning needs of our customers worldwide. Duff-Norton has been ISO 9001 registered since 1994.

Duff-Norton's wide range of Linear Actuator Products feature:

- Load capacities ranging from 27 to 2,000 pounds
- Gear or belt drives
- Acme screw and ball screw systems
- A variety of AC and DC voltages
- Limit switches or load limiting clutches
- Position feedback
- Custom models

Duff-Norton linear actuator products are specially designed for a variety of industrial and commercial applications. Our actuators are used for opening and closing, tilting and pivoting, lifting and lowering and positioning.

### NOTE

Duff-Norton has made every effort to ensure that the information contained in the publication is accurate and reliable. Determining the suitability of our products for specific applications is the user's responsibility.

### WARNING

The equipment shown in this catalog is intended for industrial use only and should not be used to lift, support, or otherwise transport people unless you have written statement from Duff-Norton, which authorizes the specific actuator used in your applications as suitable for moving people.

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# LINEAR ACTUATOR SELECTION GUIDE

## DETERMINE THE FOLLOWING LINEAR ACTUATOR REQUIREMENTS

- Capacity . . . . . The weight or force required to move and hold the load
- Voltage . . . . . The AC or DC motor voltage needed to operate the actuator
- Travel . . . . . The distance or range of motion
- Speed . . . . . The rate at which the linear actuator moves the load
- Duty Cycle . . . . . Percentage of time an actuator is in motion relative to total time
- Orientation . . . . . The relative position or direction in which the force is applied
- Environment . . . . . The surrounding conditions in which the system will operate

Once you determine the linear actuator specifications, selection of an actuator model can be simplified by using the Quick Reference Table on page 6.

# Linear Actuator Application Analysis Form



*Duff-Norton engineers will be pleased to make recommendations for your specific requirements. Complete this form and mail or fax it to Duff-Norton Company. There is no obligation for this service. Use a separate sheet to sketch your application, or send us your design drawings in complete confidence.*

Customer: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Phone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_

Contact: \_\_\_\_\_

Email Address: \_\_\_\_\_

1. How many pounds ( N ) do you need to move, or how great is the force you need to move (in pounds or newtons)? \_\_\_\_\_

2. How many inches (mm) do you need to move the load? \_\_\_\_\_

3. What is your available power source?

115 VAC, 60Hz       220 VAC, 50Hz       12 VDC       24VDC

Other (Please Specify) \_\_\_\_\_

4. Do you need:     Clutch       Limit Switch

5. How fast (inches/min. or mm/min.) do you want the actuator to extend or retract? \_\_\_\_\_

6. How many cycles per hour do you need the actuator to perform? \_\_\_\_\_

7. Do you require position feedback?     Yes       No

8. All AC actuators require a capacitor for operation. Do you want Duff-Norton to supply a capacitor?  
(NOTE: for 1500 pound and above capacity models, a capacitor is automatically supplied)

Yes, please supply capacitor       No, I will purchase a capacitor separately that  
meets the specifications outlined by Duff-Norton.

9. Do you have any special requirements such as weather resistant treatment, non standard lifting stroke, explosion proof, special end or mounting? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. How many actuators are required? \_\_\_\_\_



*If you have any questions or are in need of assistance please call our Application Engineers at 800-477-5002*









|   |
|---|
| <p><b>⚠ WARNING</b></p> <p>Improper use can result in personal injury.<br/>To avoid injury:</p> <ul style="list-style-type: none"><li>• Do not use actuators to lift, support, or transport people or loads over people, without written approval from Duff-Norton.</li><li>• Read all product warnings and operating instructions.</li></ul> |
|---|

Please mail or fax completed sheet to:

**Duff-Norton**<sup>®</sup>  
P.O. Box 7010 • Charlotte, NC 28241-7010  
FAX 704-588-1994  
www.duffnorton.com

# QUICK REFERENCE

| Series                            | LT  | LS  | TMD01   | TMD02   | HMPD<br>w/ Limit Switch  | HMPD<br>w/ Clutch   | HMPB  | HSPB  |  |
|-----------------------------------|---|---|---|---|--|---|---|---|--|
| <b>Capacity</b>                   | 27 to 225 lbs (120 to 1,000 N)  | 450 to 675 lbs (2,000 to 3,000 N)   | 100 lb (444 N)  | 250 lb (1,112 N)  | 250 lb (1,112 N)   | 250 lb (1,112 N)  | 250 lb (1,112 N)  | 250 lb (1,112 N)  |  |
| <b>Product Image</b>              |  |  |  |  |  |  |      |  |  |
| <b>Voltages</b>                   | 12 Vdc<br>or<br>24 Vdc  | 12 Vdc<br>or<br>115 Vac   | 12 Vdc<br>or<br>24 Vdc  | 12 Vdc<br>or<br>24 Vdc  | 12 Vdc   | 12 Vdc  | 115 Vac<br>(60 Hz)  | 115 Vac<br>(60 Hz)  |  |
| <b>Std. Stroke Lengths (inch)</b> | 1 to 11.8 in<br>(25 mm to 300 mm)   | 4, 8, 12, 24 in<br>(101, 203, 304, 608 mm)  | 2, 4, 6, 8, 10, 12 in<br>(50, 101, 152, 203, 254, 304 mm)                         | 2, 4, 6, 8, 10, 12 in<br>(50, 101, 152, 203, 254, 304 mm)                         | 3, 6, 12, 18 in<br>(76, 152, 304, 457 mm)  | 3, 6, 12, 18 in<br>(76, 152, 304, 457 mm)   | 3, 6, 12, 18 in<br>(76, 152, 304, 457 mm)   | 3, 6, 12, 18 in<br>(76, 152, 304, 457 mm)   |  |
|                                   | Custom Lengths Available  |   |   |   |  |   |   |   |  |
| <b>Max Speed at Rated Load</b>    | Up to 1.3 in/s<br>(33 mm/s)   | Up to .26 in/s<br>(6.6 mm/s)  | Up to 1 in/s<br>(25.4 mm/s)   | Up to .75 in/sec<br>(19 mm/s)   | Up to 2 in/s<br>(50 mm/s)  | Up to 2 in/sec<br>(50 mm/s)   | Up to 1.4 in/s<br>(35.5 mm/s)   | Up to 1.4 in/s<br>(35.5 mm/s)   |  |
| <b>Load Limiting Clutch</b>       | N/A   | N/A   | n/a   | n/a   | n/a  | Yes   | n/a   | Yes   |  |
| <b>LimitSwitches (adjustable)</b> | Standard  | Standard  | Optional  | Optional  | Yes  | n/a   | Yes   | n/a   |  |
| <b>Feedback</b>                   | Hall effect sensor or potentiometer optional                                      | N/A   | Optional  | Optional  | Optional   | n/a   | Optional  | n/a   |  |
| <b>Current Draw at Rated Load</b> | 3.5 A (12vdc)<br>2.0 A (24vdc)  | 10 A (12vdc)<br>1.6 A (115 Vac)   | 7 A (12vdc)<br>5 A (24vdc)  | 7 A (12vdc)<br>5 A (24vdc)  | 28 A   | 28 A  | 5:00 AM   | 5.1 A   |  |
| <b>Duty Cycle at Rated Load</b>   | Up to 900 in/hr<br>(22,860 mm/hr)   | 17%   | Up to 900 in/hr<br>(22,860 mm/hr)   | Up to 675 in/hr<br>(17,145 mm/hr)   | Up to 500 in/hr<br>(12,700 mm/hr)  | Up to 1,050 in/hr<br>(26,670 mm/hr)   | Up to 500 in/hr<br>(12,700 mm/hr)   | Up to 500 in/hr<br>(12,700 mm/hr)   |  |
| <b>Motor Overload Protection</b>  | N/A   | AC motor thermal protection   | n/a   | n/a   | Yes  | Yes   | Yes   | Yes   |  |
| <b>Environment</b>                | IP66  | N/A   | IP50  | IP50  | IP50 standard<br>IP52 optional   | IP50 standard<br>IP52 optional  | IP50 standard<br>IP52 optional  | IP50 standard<br>IP52 optional  |  |
| <b>Temperature Range</b>          | -13°F to 150°F<br>(-25°C to 65°C)   | 32°F to 110°F<br>(0°C to 43°C)  | -20°F to 120°F<br>(-28°C to 48°C)   | -20°F to 120°F<br>(-28°C to 48°C)   | -20°F to 120°F<br>(-28°C to 48°C)  | -20°F to 120°F<br>(-28°C to 48°C)   | -20°F to 120°F<br>(-28°C to 48°C)   | -20°F to 120°F<br>(-28°C to 48°C)   |  |
| <b>Restraining Torque</b>         | Keyed   | N/A   | Keyed   | Keyed   | 60 in-lbf<br>(6.7 Nm)  | 60 in-lbf<br>(6.7 Nm)   | 60 in-lbf<br>(6.7 Nm)   | 60 in-lbf<br>(6.7 Nm)   |  |
| <b>Translating Tube Material</b>  | Polished Aluminum   | Plated steel  | Stainless Steel   | Stainless Steel   | Steel<br>Zinc Chromate Plated  | Steel<br>Zinc Chromate Plated   | Steel<br>Zinc Chromate Plated   | Steel<br>Zinc Chromate Plated   |  |
| <b>Options</b>                    | Stainless steel translating tube<br>Third limit switch                            | N/A   | Adjustable Limit Switches<br>Pulse Generator<br>Feedback                          | Adjustable Limit Switches<br>Pulse Generator<br>Feedback                          | Potentiometer<br>Weather Sealant<br>Bellows Boot                                   | Weather Sealant<br>Bellows Boot   | Potentiometer<br>Capacitor<br>Weather Sealant<br>Capacitor<br>Enclosure<br>Bellows Boot | Capacitor<br>Weather Sealant<br>Capacitor<br>Enclosure<br>Bellows Boot              |  |
| <b>Catalog Sheet pdf code</b>     | LT  | LS  | TMD01   | TMD02   | HMPDLS   | HMPDC   | HMPB250   | HSPB  |  |
| <b>Catalog Page</b>               | 16-17   | 18-21   | 22-23   | 24-25   | 26-27  | 28-29   | 30-31   | 32-33   |  |

|  | MPD   | HMPB  | SPB   | TAC   | TAL   | LSPD  | SPA   | SPA   |
|--|---|---|---|---|---|---|---|---|
|  | 500 lb<br>(2,224 N)   | 500 lb<br>(2,224 N)   | 500 lb<br>(2,224 N)   | 500 lb<br>(2,224 N)   | 1,000 lb<br>(4,448 N)   | 1,500 lb<br>(6,672 N)   | 1,500 lb<br>(6,672 N)   | 2,000 lb<br>(8,896 N)   |
|  |  |  |                  |  |  |  |  |  |
|  | 12 Vdc<br>or<br>24 Vdc  | 115Vac<br>(60 Hz)   | 115 Vac (60 Hz) or<br>220 Vac (50 Hz)   | 12 Vdc or 24 Vdc  | 115 Vac (60 Hz) or<br>220/230 Vac (50/60 Hz)                                      | 12 Vdc<br>or<br>24 Vdc  | 115 Vac (60 Hz) or<br>220 Vac (50 Hz)   | 115 Vac (60 Hz) or<br>220 Vac (50 Hz)   |
|  | 3, 6, 12, 18 in<br>(76, 152, 304, 457 mm)   | 3, 6, 12, 18 in<br>(76, 152, 304, 457 mm)   | 3, 6, 12, 18 in<br>(76, 152, 304, 457 mm)   | 3, 6, 12, 18 in<br>(76, 152, 304, 457 mm)   | 4 (101.6), 8 (203.2),<br>12 (304.8)   | 3, 6, 12, 18, 24 in<br>(76, 152, 304, 457,<br>608 mm)                               | 3, 6, 12, 18, 24 in<br>(76, 152, 304, 457,<br>608 mm)                               | 3, 6, 12, 18, 24 in<br>(76, 152, 304, 457,<br>608 mm)                               |
|  | Custom Lengths Available  |   |   |   |   |   |   |   |
|  | Up to 0.85 in/s<br>(21.5 mm/s)  | Up to 1.33 in/s<br>(33.7 mm/s)  | Up to 1.3 in/s<br>(33.0 mm/s)   | Up to 0.45 in/s<br>(11.4 mm/s)  | Up to 0.45 in/s<br>(.36 mm/s)   | Up to 0.43 in/s<br>(10.9 mm/s)  | Up to 0.83 in/s<br>(21.0 mm/s)  | Up to 0.86 in/s<br>(21.8 mm/s)  |
|  | Available upon<br>request   | Available upon<br>request   | Yes   | Yes   | Available upon<br>request   | Available upon<br>request   | N/A   | N/A   |
|  | Standard  | Standard  | N/A   | N/A   | Standard  | Standard  | Standard  | Standard  |
|  | Potentiometer   | Potentiometer   | N/A   | N/A   | Potentiometer   | Potentiometer   | Potentiometer   | Potentiometer   |
|  | 23 A<br>(12 Vdc)<br>or<br>12 A<br>(24 Vdc)  | 5.5 A   | 2.1 A<br>(115 Vac,60 Hz)<br>1 A<br>(220 Vac,50 Hz)<br>5.5 A<br>(115Vac,60 Hz) high<br>Speed motor | 10 A (12 Vdc) or<br>5 A (24 Vdc)  | 4 A (115 Vac) or<br>2.0/2.5 A (220/230<br>Vac)                                    | 27 A  | 6.5 A<br>(115 Vac)<br>2 A<br>(220 Vac,50 Hz)  | up to 5.1 A   |
|  | Up to 510 in/hr<br>(12,954 mm/hr)   | Up to 510 in/hr<br>(12,954 mm/hr)   | Up to 500 in/hr<br>(12,700 mm/hr)   | 40%   | 17.5% (115 Vac) or<br>17%/14% (220/230)   | 410 in/hr<br>(10,414 mm/hr)   | up to 600 in/hr<br>(15,240 mm/hr)   | up to 600 in/hr<br>(15,240 mm/hr)   |
|  | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
|  | IP50 standard<br>IP52 optional  | IP50 standard<br>IP52 optional  | IP50 standard<br>IP52 optional  | IP50 standard<br>IP52 optional  | IP50  | IP50, IP52 optional   | IP50, IP52 optional   | IP50 standard<br>IP52 optional  |
|  | -20°F to 120°F<br>(-28°C to 48°C)   | -20°F to 120°F<br>(-28°C to 48°C)   | -20°F to 120°F<br>(-28°C to 48°C)   | -20°F to 120°F<br>(-28°C to 48°C)   | -20°F to 120°F<br>(-28°C to 48°C)   | -20°F to 120°F<br>(-28°C to 48°C)   | 15°F to 120°F<br>(-9°C to 48°C)   | 15°F to 120°F<br>(-9°C to 48°C)   |
|  | 60 in-lbf<br>(6.7 Nm)   | 60 in-lbf<br>(6.7 Nm)   | 60 in-lbf<br>(6.7 Nm)   | 40 in-lbf<br>(4.5 Nm)   | 80 in-lbf<br>(9 Nm)   | 215 in-lbf<br>(24.2 Nm)   | 215 in-lbf<br>(24.2 Nm)   | 180 in-lbf<br>(20.3 Nm)   |
|  | Steel<br>Zinc Chromate<br>Plated  | Steel<br>Zinc Chromate<br>Plated  | Steel<br>Zinc Chromate<br>Plated  | Stainless Steel   | Stainless Steel   | Steel<br>Zinc Chromate<br>Plated  | Steel<br>Zinc Chromate<br>Plated  | Steel<br>Zinc Chromate<br>Plated  |
|  | Potentiometer<br>Weather Resistant<br>Bellows Boot                                | Weather Resistant<br>Bellows Boot<br>Capacitor<br>Capacitor<br>Enclosure          | Weather Resistant<br>Capacitor<br>Capacitor Enclosure<br>Bellows Boot                             | Bellows Boot  | Bellows Boot  | Potentiometer<br>Bellows Boot<br>Weather Resistant                                  | Bellows Boot<br>Weather Resistant   | Threaded end<br>Weather Resistant<br>Trunnion Mounting<br>Bellows Boot              |
|  | MPD   | HMPB500   | SPB   | TAC   | TAL   | LSPD  | SPA1500   | SPA2000   |
|  | 34-35   | 36-37   | 38-39   | 40-41   | 42-43   | 44-45   | 46-47   | 48-49   |

# QUICK REFERENCE

| Series                     | SCW02   | SCW03   | SCW05   | SCW10  | SCW20   |  |
|----------------------------|---|---|---|--|---|--|
| Capacity                   | 4,000 lb (17,792 N)   | 6,000 lb (26,689 N)   | 10,000 lb (44,482 N)  | 20,000 lb (88,964 N)   | 35,000 lb (155,687 N)   |  |
| Product Image              |  |  |  |  |  |  |
| Voltages                   | 230/460 Vac Standard  | 230/460 Vac Standard  | 230/460 Vac Standard  | 230/460 Vac Standard   | 230/460 Vac Standard  |  |
| Std. Stroke Lengths (inch) | 6, 12, 18, 24, 36 in<br>(152, 304, 457, 609, 914 mm)                              | 6, 12, 18, 24, 36 in<br>(152, 304, 457, 609, 914 mm)                              | 6, 12, 18, 24, 36 in<br>(152, 304, 457, 609, 914 mm)                              | 6, 12, 18, 24, 36 in<br>(152, 304, 457, 609, 914 mm)                               | 6, 12, 18, 24, 36 in<br>(152, 304, 457, 609, 914 mm)                                |  |
|                            | Custom Lengths Available  |   |   |  |   |  |
| Max Speed at Rated Load    | Up to 72 in/s (1,828 mm/s)  | Up to 119 in/s (3,022 mm/s)   | Up to 135.6 in/s (3,444 mm/s)   | Up to 108 in/s (2,743 mm/s)  | Up to 21.6 in/s (548 mm/s)  |  |
| LimitSwitches (adjustable) | Standard  | Standard  | Standard  | Standard   | Standard  |  |
| Feedback                   | Optional  | Optional  | Optional  | Optional   | Optional  |  |
| Motor Overload Protection  | Optional  | Optional  | Optional  | Optional   | Optional  |  |
| Temperature Range          | 0°F to 120°F<br>(-18°C to 50°C)   | 0°F to 120°F<br>(-18°C to 50°C)   | 0°F to 120°F<br>(-18°C to 50°C)   | 0°F to 120°F<br>(-18°C to 50°C)  | 0°F to 120°F<br>(-18°C to 50°C)   |  |
| Translating Tube Material  | Hard Chrome Plated  | Hard Chrome Plated  | Hard Chrome Plated  | Hard Chrome Plated   | Hard Chrome Plated  |  |
| Options                    | Trunnion Mounting Bellows Boot  | Trunnion Mounting Bellows Boot  | Trunnion Mounting Bellows Boot  | Trunnion Mounting Bellows Boot   | Trunnion Mounting Bellows Boot  |  |
| Catalog Sheet pdf code     | SCW02   | SCW03   | SCW05   | SCW10  | SCW20   |  |
| Catalog Page               | 58-59   | 58-59   | 60-61   | 62-63  | 64-65   |  |



|  | SCW25   | SCN03   | SCN06   | SCN12  | SCN25   |
|--|---|---|---|--|---|
|  | 50,000 lb (222,411 N)   | 6,000 lb (26,689 N)   | 12,000 lb (53,378 N)  | 24,000 lb (106,752 N)  | 50,000 lb (222,409 N)   |
|  |  |  |  |  |  |
|  | 230/460 Vac Standard  | 230/460 Vac Standard  | 230/460 Vac Standard  | 230/460 Vac Standard   | 230/460 Vac Standard  |
|  | 6, 12, 18, 24, 36 in<br>(152, 304, 457, 609,<br>914 mm)                           | 6, 12, 18, 24, 36 in<br>(152, 304, 457, 609,<br>914 mm)                           | 6, 12, 18, 24, 36 in<br>(152, 304, 457, 609,<br>914 mm)                           | 6, 12, 18, 24, 36 in<br>(152, 304, 457, 609,<br>914 mm)                            | 6, 12, 18, 24, 36 in<br>(152, 304, 457, 609,<br>914 mm)                             |
|  | Custom Lengths Available  |   |   |  |   |
|  | Up to<br>19.8 in/s (502 mm/s)   | Up to<br>182.4 in/s (4,633 mm/s)  | Up to<br>379.5 in/s (9,639 mm/s)  | Up to<br>188.5 in/s (4,787 mm/s)   | Up to<br>259.7 in/s (6,596 mm/s)  |
|  | Standard  | Standard  | Standard  | Standard   | Standard  |
|  | Optional  | Optional  | Optional  | Optional   | Optional  |
|  | Optional  | Optional  | Optional  | Optional   | Optional  |
|  | 0°F to 120°F<br>(-18°C to 50°C)   | 0°F to 120°F<br>(-18°C to 50°C)   | 0°F to 120°F<br>(-18°C to 50°C)   | 0°F to 120°F<br>(-18°C to 50°C)  | 0°F to 120°F<br>(-18°C to 50°C)   |
|  | Hard Chrome Plated  | Hard Chrome Plated  | Hard Chrome Plated  | Hard Chrome Plated   | Hard Chrome Plated  |
|  | Trunnion Mounting<br>Bellows Boot   | Bellows Boot  | Bellows Boot  | Bellows Boot   | Bellows Boot  |
|  | SCW25   | SCN03   | SCN06   | SCN12  | SCN25   |
|  | 66-67   | 68-71   | 72-75   | 76-79  | 80-83   |

# APPLICATIONS

## Tilt / Pivot

Duff-Norton linear actuators can be used to tilt objects, fixed at one end, up to 180° from their starting positions. The extension and retraction of the actuator causes the object to pivot about its stationary end.



## Lift / Lower

Duff-Norton linear actuators can handle any lifting and lowering application up to 2000 lbs (910 kgs). As the translating tube of the actuator extends and retracts, the object that the actuator is attached to is raised and lowered at a consistent speed.



## Position

When an application requires periodic adjustment to the position of an object or objects, Duff-Norton linear actuators provide the solution. The motion of the actuator allows the operator to position an object by simply pushing a button.



## Portable Lighting

**PROBLEM:** Movie and construction crews need portable lighting for work at night. Lighting that is compact for travel and easily erected on location was difficult to find.

**SOLUTION:** Duff-Norton linear actuators mounted to the skeleton of the lighting system, allows the lights to be drawn flush against the vehicle, then fully extended on location at the flip of a switch. Additional actuators adjust the angle of the lighting fixtures

## Drill Press Table

**PROBLEM:** When work pieces of different sizes require manual machining, it is necessary to adjust the height of the drill press table. Adjusting the height of the table manually is both time consuming and fatiguing.

**SOLUTION:** A Duff-Norton linear actuator mounted under the table allows the operator to change the height of the table as often as needed using either hand or foot controls.

## Engine Assembly Fixture

**PROBLEM:** Fixture must be highly adjustable to specific positions for different procedures. The movement of the fixture must be smooth and reliable.

**SOLUTION:** Duff-Norton linear actuators are used to raise and lower the assembly fixture. This saves assembly time, reduces employee fatigue and work related injuries.

## Roll / Slide

When it is necessary to roll or slide an object or a mechanical assembly into position, a Duff-Norton linear actuator is the answer. The movement of the actuator causes the clamping, rolling or sliding of the desired object.



## Drum / Barrel Lifter

**PROBLEM:** Hazardous material sealed in drums must be handled and processed for disposal. It is desirable to minimize human involvement in the process.

**SOLUTION:** Two Duff-Norton linear actuators are used in each assembly. One operates a set of ratchet clamps that securely grasp the drum. The other actuator lifts the drum for pouring.

## Open / Close

A Duff-Norton linear actuator mounted on a door, gate, or valve allows opening and closing operations on either a timed, or on-demand basis. As the actuator retracts, the gate is opened at a steady rate; the extension of the actuator returns the gate to a closed position.



## Industrial Oven

**PROBLEM:** Industrial oven doors can be very large and must often be opened and closed on a timed basis to allow for steady flow of material in and out.

**SOLUTION:** A Duff-Norton linear actuator is connected to the oven door and operated by an electronic control system. The actuator opens and closes the door to allow materials to enter and exit when prompted by the control system.

## Tension

Duff-Norton linear actuators offer a perfect solution for applications in which tension on a conveyor or web must be maintained and adjusted. An actuator mounted on a frame or roller extends and retracts to control the tension in the system.



## Conveyor System

**PROBLEM:** The tension in conveyor belts must frequently be adjusted to allow for crates of different sizes and to take up slack in the system that develops with use.

**SOLUTION:** A Duff-Norton linear actuator is mounted to a roll at one end of the conveyor system. At the push of a button, the actuator adjusts the position of the roll, controlling the tension in the entire system. Actuators can also be used to reposition conveyor systems.

# SYSTEM CONFIGURATION

The NEW Duff Norton linear actuator system will allow you to control up to four linear actuators independently. A Duff Norton linear actuator system includes linear actuators, a controller and a hand set for operation.

System applications can include agricultural machinery, industrial automation and outdoor power equipment.

## Features & Benefits

- IP66 protection for outdoor applications
- Self locking ACME screw
- Easy assembly with plug and play technology
- Temperature Range: -13°F (-25°C) to 150°F (65°C)
- LED for power supply indication on the controller
- Electronic Overload Protection (controller)

| Controller    |          |           |
|---------------|----------|-----------|
| Part Number   | Power in | Power out |
| TC1-2241-1221 | 120 Vac  | 24 Vdc    |



## One Linear Actuator System

| Linear Actuator |            |          |             |         |                 | Hand Set     |                   |
|-----------------|------------|----------|-------------|---------|-----------------|--------------|-------------------|
| Part Number     | Load (lbs) | Feedback | Stroke (mm) | Voltage | Extension Cable | Part Number  | Number of Buttons |
| LT25-2-100      | 27         | No       | 100         | 24 Vdc  | LTEC            | TH1-121-2016 | 2                 |
| LT25-2-200      |            |          | 200         |         | LTEC            |              |                   |
| LT25-2-300      |            |          | 300         |         | LTEC            |              |                   |
| LT100-2-100     | 112        | No       | 100         | 24 Vdc  | LTEC            |              |                   |
| LT100-2-200     |            |          | 200         |         | LTEC            |              |                   |
| LT100-2-300     |            |          | 300         |         | LTEC            |              |                   |
| LT225-2-100     | 225        | No       | 100         | 24 Vdc  | LTEC            |              |                   |
| LT225-2-200     |            |          | 200         |         | LTEC            |              |                   |
| LT225-2-300     |            |          | 300         |         | LTEC            |              |                   |



## Two Linear Actuator System

| Linear Actuator |            |          |             |         |                 | Hand Set     |                   |
|-----------------|------------|----------|-------------|---------|-----------------|--------------|-------------------|
| Part Number     | Load (lbs) | Feedback | Stroke (mm) | Voltage | Extension Cable | Part Number  | Number of Buttons |
| LT25-2-100      | 27         | No       | 100         | 24 Vdc  | LTEC            | TH1-221-2016 | 4                 |
| LT25-2-200      |            |          | 200         |         | LTEC            |              |                   |
| LT25-2-300      |            |          | 300         |         | LTEC            |              |                   |
| LT100-2-100     | 112        | No       | 100         | 24 Vdc  | LTEC            |              |                   |
| LT100-2-200     |            |          | 200         |         | LTEC            |              |                   |
| LT100-2-300     |            |          | 300         |         | LTEC            |              |                   |
| LT225-2-100     | 225        | No       | 100         | 24 Vdc  | LTEC            |              |                   |
| LT225-2-200     |            |          | 200         |         | LTEC            |              |                   |
| LT225-2-300     |            |          | 300         |         | LTEC            |              |                   |



## Three Linear Actuator System

| Linear Actuator |            |          |             |         |                 | Hand Set     |                   |
|-----------------|------------|----------|-------------|---------|-----------------|--------------|-------------------|
| Part Number     | Load (lbs) | Feedback | Stroke (mm) | Voltage | Extension Cable | Part Number  | Number of Buttons |
| LT25-2-100      | 27         | No       | 100         | 24 Vdc  | LTEC            | TH1-321-2016 | 6                 |
| LT25-2-200      |            |          | 200         |         | LTEC            |              |                   |
| LT25-2-300      |            |          | 300         |         | LTEC            |              |                   |
| LT100-2-100     | 112        | No       | 100         | 24 Vdc  | LTEC            |              |                   |
| LT100-2-200     |            |          | 200         |         | LTEC            |              |                   |
| LT100-2-300     |            |          | 300         |         | LTEC            |              |                   |
| LT225-2-100     | 225        | No       | 100         | 24 Vdc  | LTEC            |              |                   |
| LT225-2-200     |            |          | 200         |         | LTEC            |              |                   |
| LT225-2-300     |            |          | 300         |         | LTEC            |              |                   |



## Four Linear Actuator System

| Linear Actuator |            |          |             |         |                 | Hand Set     |                   |
|-----------------|------------|----------|-------------|---------|-----------------|--------------|-------------------|
| Part Number     | Load (lbs) | Feedback | Stroke (mm) | Voltage | Extension Cable | Part Number  | Number of Buttons |
| LT25-2-100      | 27         | No       | 100         | 24 Vdc  | LTEC            | TH1-421-2016 | 8                 |
| LT25-2-200      |            |          | 200         |         | LTEC            |              |                   |
| LT25-2-300      |            |          | 300         |         | LTEC            |              |                   |
| LT100-2-100     | 112        | No       | 100         | 24 Vdc  | LTEC            |              |                   |
| LT100-2-200     |            |          | 200         |         | LTEC            |              |                   |
| LT100-2-300     |            |          | 300         |         | LTEC            |              |                   |
| LT225-2-100     | 225        | No       | 100         | 24 Vdc  | LTEC            |              |                   |
| LT225-2-200     |            |          | 200         |         | LTEC            |              |                   |
| LT225-2-300     |            |          | 300         |         | LTEC            |              |                   |



See page 16 for additional stroke lengths.

# SYSTEM CONFIGURATION

## SYNCHRONIZED

The NEW Duff Norton linear actuator system will allow you to synchronize two linear actuators and control another two linear actuators independently. A Duff Norton linear actuator system includes linear actuators, a controller and a hand set for operation.

System applications can include agricultural machinery, industrial automation and outdoor power equipment.

### Features & Benefits

- Ability to synchronize two linear actuators using hall sensors
- IP66 protection for outdoor applications
- Self locking ACME screw
- Easy assembly with plug and play technology
- Temperature Range: -13°F (-25°C) to 150°F (65°C)
- LED for power supply indication on the controller
- Electronic Overload Protection (controller)

| Controller    |          |           |
|---------------|----------|-----------|
| Part Number   | Power in | Power out |
| TC1-2241-1221 | 120 Vac  | 24 Vdc    |



## Two Synchronized Linear Actuator System

| Linear Actuator |            |             |             |         |                 | Hand Set      |                   |
|-----------------|------------|-------------|-------------|---------|-----------------|---------------|-------------------|
| Part Number     | Load (lbs) | Feedback    | Stroke (mm) | Voltage | Extension Cable | Part Number   | Number of Buttons |
| LT25-2-100H     | 27         | Hall Sensor | 100         | 24 Vdc  | N/A             | TH1-121-2016S | 2                 |
| LT25-2-200H     |            |             | 200         |         | N/A             |               |                   |
| LT25-2-300H     |            |             | 300         |         | N/A             |               |                   |
| LT100-2-100H    | 112        | Hall Sensor | 100         | 24 Vdc  | N/A             |               |                   |
| LT100-2-200H    |            |             | 200         |         | N/A             |               |                   |
| LT100-2-300H    |            |             | 300         |         | N/A             |               |                   |
| LT225-2-100H    | 225        | Hall Sensor | 100         | 24 Vdc  | N/A             |               |                   |
| LT225-2-200H    |            |             | 200         |         | N/A             |               |                   |
| LT225-2-300H    |            |             | 300         |         | N/A             |               |                   |



## Two Synchronized Linear Actuators plus one Independently operated Linear Actuator

| Linear Actuator |            |             |             |         |                 | Hand Set      |                   |
|-----------------|------------|-------------|-------------|---------|-----------------|---------------|-------------------|
| Part Number     | Load (lbs) | Feedback    | Stroke (mm) | Voltage | Extension Cable | Part Number   | Number of Buttons |
| LT25-2-100H     | 27         | Hall Sensor | 100         | 24 Vdc  | N/A             | TH1-321-2016S | 4                 |
| LT25-2-200H     |            |             | 200         |         | N/A             |               |                   |
| LT25-2-300H     |            |             | 300         |         | N/A             |               |                   |
| LT100-2-100H    | 112        | Hall Sensor | 100         | 24 Vdc  | N/A             |               |                   |
| LT100-2-200H    |            |             | 200         |         | N/A             |               |                   |
| LT100-2-300H    |            |             | 300         |         | N/A             |               |                   |
| LT225-2-100H    | 225        | Hall Sensor | 100         | 24 Vdc  | N/A             |               |                   |
| LT225-2-200H    |            |             | 200         |         | N/A             |               |                   |
| LT225-2-300H    |            |             | 300         |         | N/A             |               |                   |
| LT25-2-100      | 27         | No          | 100         | 24 Vdc  | LTEC            |               |                   |
| LT25-2-200      |            |             | 200         |         | LTEC            |               |                   |
| LT25-2-300      |            |             | 300         |         | LTEC            |               |                   |
| LT100-2-100     | 112        | No          | 100         | 24 Vdc  | LTEC            |               |                   |
| LT100-2-200     |            |             | 200         |         | LTEC            |               |                   |
| LT100-2-300     |            |             | 300         |         | LTEC            |               |                   |
| LT225-2-100     | 225        | No          | 100         | 24 Vdc  | LTEC            |               |                   |
| LT225-2-200     |            |             | 200         |         | LTEC            |               |                   |
| LT225-2-300     |            |             | 300         |         | LTEC            |               |                   |



## Two Synchronized Linear Actuators plus two Independently operated Linear Actuator

| Linear Actuator |            |             |             |         |                 | Hand Set      |                   |
|-----------------|------------|-------------|-------------|---------|-----------------|---------------|-------------------|
| Part Number     | Load (lbs) | Feedback    | Stroke (mm) | Voltage | Extension Cable | Part Number   | Number of Buttons |
| LT25-2-100H     | 27         | Hall Sensor | 100         | 24 Vdc  | N/A             | TH1-421-2016S | 6                 |
| LT25-2-200H     |            |             | 200         |         | N/A             |               |                   |
| LT25-2-300H     |            |             | 300         |         | N/A             |               |                   |
| LT100-2-100H    | 112        | Hall Sensor | 100         | 24 Vdc  | N/A             |               |                   |
| LT100-2-200H    |            |             | 200         |         | N/A             |               |                   |
| LT100-2-300H    |            |             | 300         |         | N/A             |               |                   |
| LT225-2-100H    | 225        | Hall Sensor | 100         | 24 Vdc  | N/A             |               |                   |
| LT225-2-200H    |            |             | 200         |         | N/A             |               |                   |
| LT225-2-300H    |            |             | 300         |         | N/A             |               |                   |
| LT25-2-100      | 27         | No          | 100         | 24 Vdc  | LTEC            |               |                   |
| LT25-2-200      |            |             | 200         |         | LTEC            |               |                   |
| LT25-2-300      |            |             | 300         |         | LTEC            |               |                   |
| LT100-2-100     | 112        | No          | 100         | 24 Vdc  | LTEC            |               |                   |
| LT100-2-200     |            |             | 200         |         | LTEC            |               |                   |
| LT100-2-300     |            |             | 300         |         | LTEC            |               |                   |
| LT225-2-100     | 225        | No          | 100         | 24 Vdc  | LTEC            |               |                   |
| LT225-2-200     |            |             | 200         |         | LTEC            |               |                   |
| LT225-2-300     |            |             | 300         |         | LTEC            |               |                   |



# LT SERIES

27 to 225 lbs

120 to 1,000 N



## Specifications

### CAPACITY

27 to 225 lbs (120 to 1,000N)

### VOLTAGE

12 or 24 VDC

### TEMPERATURE RANGE

-13°F to 150°F (-25°C to 65°C)

### STATIC LOAD

1,800 lbs (8,000 N)

### STROKES

2 to 11.8 in (50 to 300 mm)

### ENVIRONMENT

IP66 Protection

## Features & Benefits

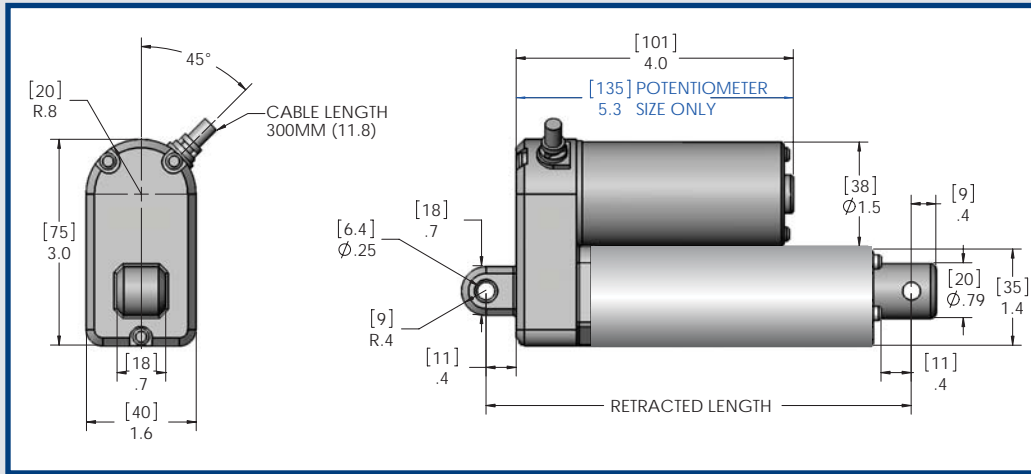
- Limit Switches - internal, factory preset
- Self Locking Acme Screw to prevent back driving
- Zinc Die Cast Housing for strength
- Aluminum outer tube for corrosion resistance
- Keyed translating tube to prevent rotation
- Polished aluminum translating tube for smooth operation
- Warranty - 1 year, parts and labor
- Gear Driven

\* This product is used in our Linear Actuator Systems. See page 12 for details.

## Options

- Potentiometer, Hall Effect, Reed or Optical Feedback
- Signal sending Limit Switch
- Third Limit Switch
- Stainless steel translating tube
- Custom cable lengths
- Wired or wireless handsets
- AC power supply for multiple actuators
- AC controller for synchronous operation
- Custom design models





LT Linear Actuators

PRODUCT INFORMATION

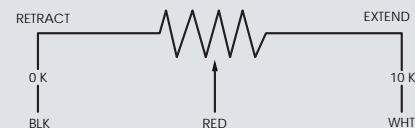
| Part Number | Rated Load lbs (N) | Stroke Lengths |     | Retracted Length |     | Voltage Vdc | Current Draw at Rated Load amp | Lifting Speed at Rated Load |      | Limit Switch | Duty Cycle |
|-------------|--------------------|----------------|-----|------------------|-----|-------------|--------------------------------|-----------------------------|------|--------------|------------|
|             |                    | in             | mm  | in               | mm  |             |                                | in/s                        | mm/s |              |            |
| LT25*-50    | 27 lbs (120N)      | 2              | 50  | 6.1              | 155 | 12 or 24    | 2.5 (12 Vdc)<br>1.5 (24 Vdc)   | 1.3                         | 33   | Yes          | 20%        |
| LT25*-100   |                    | 4              | 100 | 8                | 205 |             |                                |                             |      |              |            |
| LT25*-150   |                    | 5.9            | 150 | 10               | 255 |             |                                |                             |      |              |            |
| LT25*-200   |                    | 7.9            | 200 | 12               | 307 |             |                                |                             |      |              |            |
| LT25*-250   |                    | 9.8            | 250 | 14               | 357 |             |                                |                             |      |              |            |
| LT25*-300   | 11.8               | 300            | 16  | 407              |     |             |                                |                             |      |              |            |
| LT50*-50    | 54 lbs (240N)      | 2              | 50  | 6.1              | 155 | 12 or 24    | 3.5 (12 Vdc)<br>2.0 (24 Vdc)   | 0.9                         | 23   | Yes          | 20%        |
| LT50*-100   |                    | 4              | 100 | 8                | 205 |             |                                |                             |      |              |            |
| LT50*-150   |                    | 5.9            | 150 | 10               | 255 |             |                                |                             |      |              |            |
| LT50*-200   |                    | 7.9            | 200 | 12               | 307 |             |                                |                             |      |              |            |
| LT50*-250   |                    | 9.8            | 250 | 14               | 357 |             |                                |                             |      |              |            |
| LT50*-300   | 11.8               | 300            | 16  | 407              |     |             |                                |                             |      |              |            |
| LT100*-50   | 112 lbs (500N)     | 2              | 50  | 6.1              | 155 | 12 or 24    | 3.5 (12 Vdc)<br>2.0 (24 Vdc)   | 0.5                         | 12   | Yes          | 20%        |
| LT100*-100  |                    | 4              | 100 | 8                | 205 |             |                                |                             |      |              |            |
| LT100*-150  |                    | 5.9            | 150 | 10               | 255 |             |                                |                             |      |              |            |
| LT100*-200  |                    | 7.9            | 200 | 12               | 307 |             |                                |                             |      |              |            |
| LT100*-250  |                    | 9.8            | 250 | 14               | 357 |             |                                |                             |      |              |            |
| LT100*-300  | 11.8               | 300            | 16  | 407              |     |             |                                |                             |      |              |            |
| LT150*-50   | 169 lbs (750N)     | 2              | 50  | 6.1              | 155 | 12 or 24    | 3.5 (12 Vdc)<br>2.0 (24 Vdc)   | 0.3                         | 8    | Yes          | 20%        |
| LT150*-100  |                    | 4              | 100 | 8                | 205 |             |                                |                             |      |              |            |
| LT150*-150  |                    | 5.9            | 150 | 10               | 255 |             |                                |                             |      |              |            |
| LT150*-200  |                    | 7.9            | 200 | 12               | 307 |             |                                |                             |      |              |            |
| LT150*-250  |                    | 9.8            | 250 | 14               | 357 |             |                                |                             |      |              |            |
| LT150*-300  | 11.8               | 300            | 16  | 407              |     |             |                                |                             |      |              |            |
| LT225*-50   | 225 lbs (1,000N)   | 2              | 50  | 6.1              | 155 | 12 or 24    | 3.5 (12 Vdc)<br>2.0 (24 Vdc)   | 0.2                         | 6    | Yes          | 20%        |
| LT225*-100  |                    | 4              | 100 | 8                | 205 |             |                                |                             |      |              |            |
| LT225*-150  |                    | 5.9            | 150 | 10               | 255 |             |                                |                             |      |              |            |
| LT225*-200  |                    | 7.9            | 200 | 12               | 307 |             |                                |                             |      |              |            |
| LT225*-250  |                    | 9.8            | 250 | 14               | 357 |             |                                |                             |      |              |            |
| LT225*-300  | 11.8               | 300            | 16  | 407              |     |             |                                |                             |      |              |            |

\*Voltage: 1=12Vdc and 2=24Vdc

Contact factory for potentiometer models

Potentiometer / Hall Sensor Model

| Stroke Length            | 50 mm*    | 100 mm*    | 150 mm*    | 200 mm*    | 250 mm*    | 300 mm     |
|--------------------------|-----------|------------|------------|------------|------------|------------|
|                          | 1.9 in    | 3.9 in     | 5.9 in     | 7.9 in     | 7.9 in     | 11.8 in.   |
| Retracted Length mm (in) | 189 (7.4) | 239 (9.4)  | 289 (11.4) | 341 (13.4) | 391 (15.4) | 441 (17.4) |
| Extended Length mm (in)  | 239 (9.4) | 339 (13.3) | 439 (17.3) | 541 (21.3) | 641 (25.2) | 741 (29.2) |

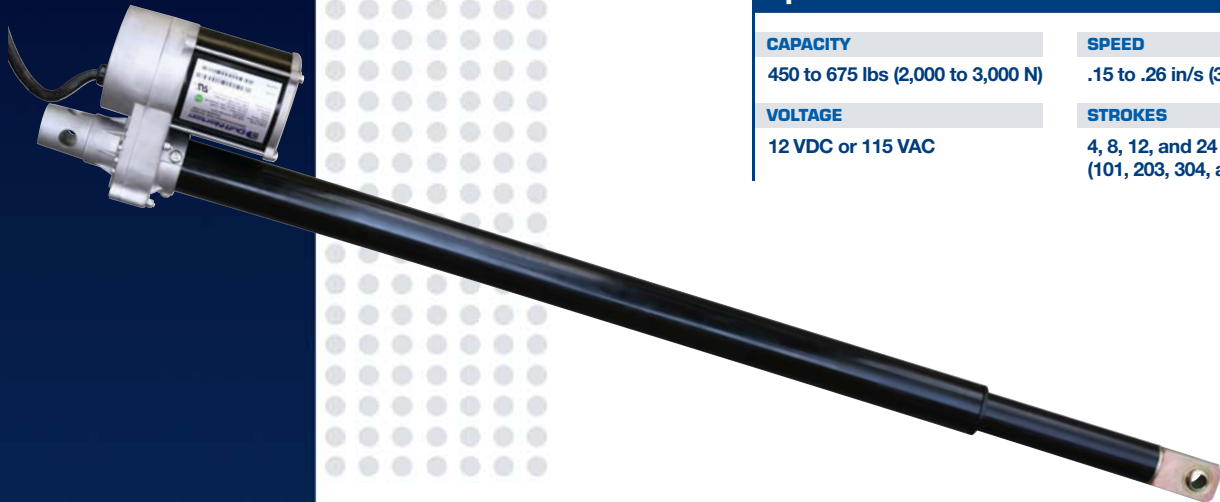
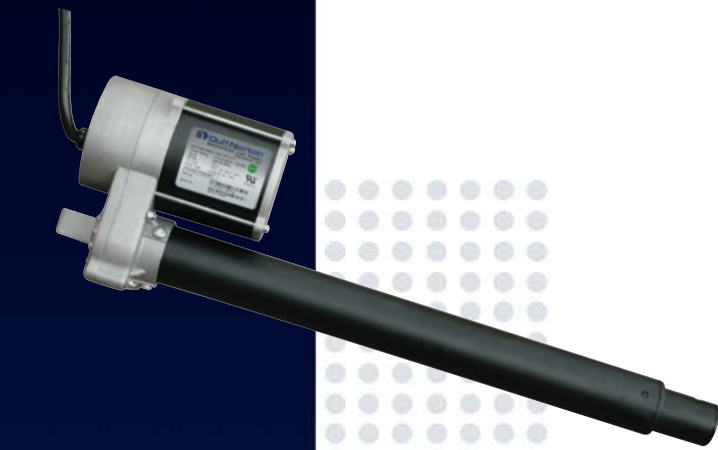


|                              |           |            |            |            |            |             |
|------------------------------|-----------|------------|------------|------------|------------|-------------|
| Potentiometer Stroke mm (in) | 50 (1.97) | 100 (3.94) | 150 (5.91) | 200 (7.87) | 250 (9.84) | 300 (11.81) |
| POT Travel (% of 10K)        | 47%       | 50%        | 71%        | 94%        | 39%        | 47%         |

# LS SERIES

450 to 675 lbs

2,000 to 3,000 N



## Specifications

### CAPACITY

450 to 675 lbs (2,000 to 3,000 N)

### SPEED

.15 to .26 in/s (3.8 to 6.6 mm/s)

### VOLTAGE

12 VDC or 115 VAC

### STROKES

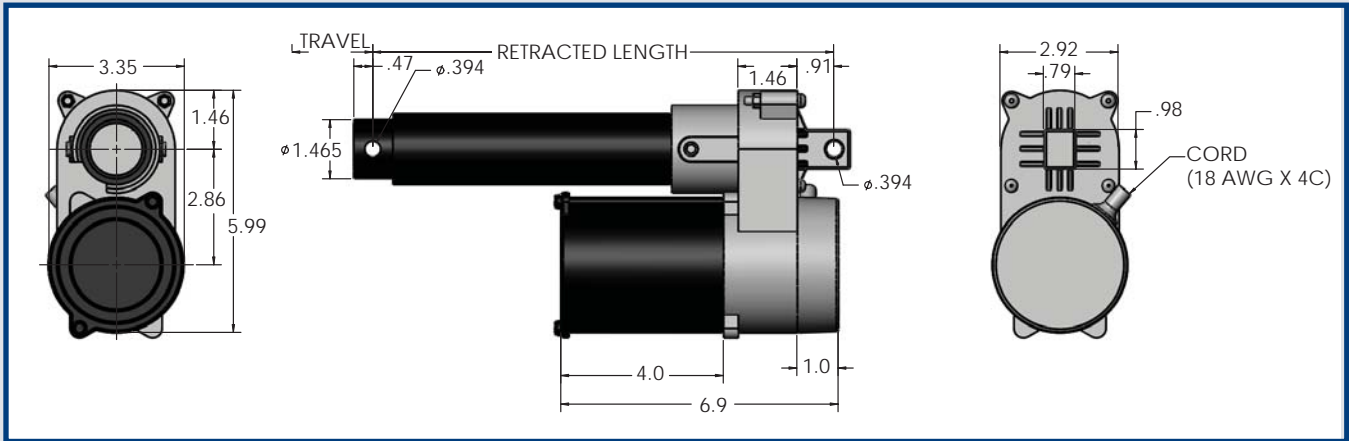
4, 8, 12, and 24 in  
(101, 203, 304, and 609 mm)

## Features & Benefits

- Loading: tension (pull) or compression (push) at rated load
- AC motor thermal protection to prevent over heating
- Internal limit switches
- Onboard capacitor for AC models
- Die cast aluminum housing for strength
- Steel translating tube and outer tube
- Self locking acme screw to prevent back driving
- CE compliant and UL recognized
- Custom models available



LS 25, 26 & 28

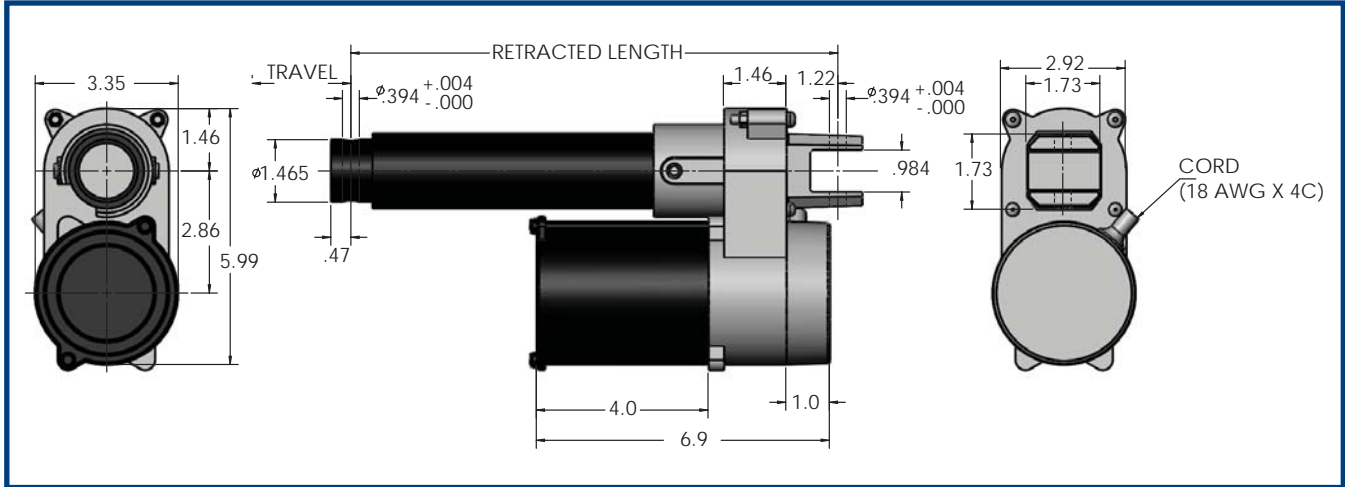


| LS 25, 26 & 28 Linear Actuators |               |            |       |        |      |                  |         |         |                                |       |      |              |                 |      |
|---------------------------------|---------------|------------|-------|--------|------|------------------|---------|---------|--------------------------------|-------|------|--------------|-----------------|------|
| PRODUCT INFORMATION             | Part Number   | Rated Load |       | Stroke |      | Retracted Length |         | Voltage | Current Draw at Rated Load (A) | Speed |      | Duty Cycle % | Shipping Weight |      |
|                                 |               | lbs        | N     | in     | mm   | in               | mm      |         |                                | in/s  | mm/s |              | lbs             | N    |
|                                 | LS25-1B5TN-04 | 450        | 2,000 | 4      | 101  | 11.4             | 290     | 115 Vac | 1.4                            | 0.26  | 6.6  | 17           | 9.1             | 40.4 |
| LS25-1B5TN-08                   | 8             |            |       | 203    | 15.4 | 391              | 9.8     |         |                                |       |      |              | 9.8             |      |
| LS25-1B5TN-12                   | 12            |            |       | 304    | 19.4 | 493              | 10.6    |         |                                |       |      |              | 10.6            |      |
| LS26-1B5TN-04                   | 560           | 2,491      | 4     | 101    | 11.4 | 290              | 115 Vac | 1.4     | 0.21                           | 5.3   | 17   | 9.1          | 9.1             |      |
| LS26-1B5TN-08                   |               |            | 8     | 203    | 15.4 | 391              |         |         |                                |       |      | 9.8          | 9.8             |      |
| LS26-1B5TN-12                   |               |            | 12    | 304    | 19.4 | 493              |         |         |                                |       |      | 10.6         | 10.6            |      |
| LS28-1B5TN-04                   | 675           | 3,002      | 4     | 101    | 11.4 | 290              | 115 Vac | 1.4     | 0.15                           | 3.8   | 17   | 9.1          | 9.1             |      |
| LS28-1B5TN-08                   |               |            | 8     | 203    | 15.4 | 391              |         |         |                                |       |      | 9.8          | 9.8             |      |
| LS28-1B5TN-12                   |               |            | 12    | 304    | 19.4 | 493              |         |         |                                |       |      | 10.6         | 10.6            |      |

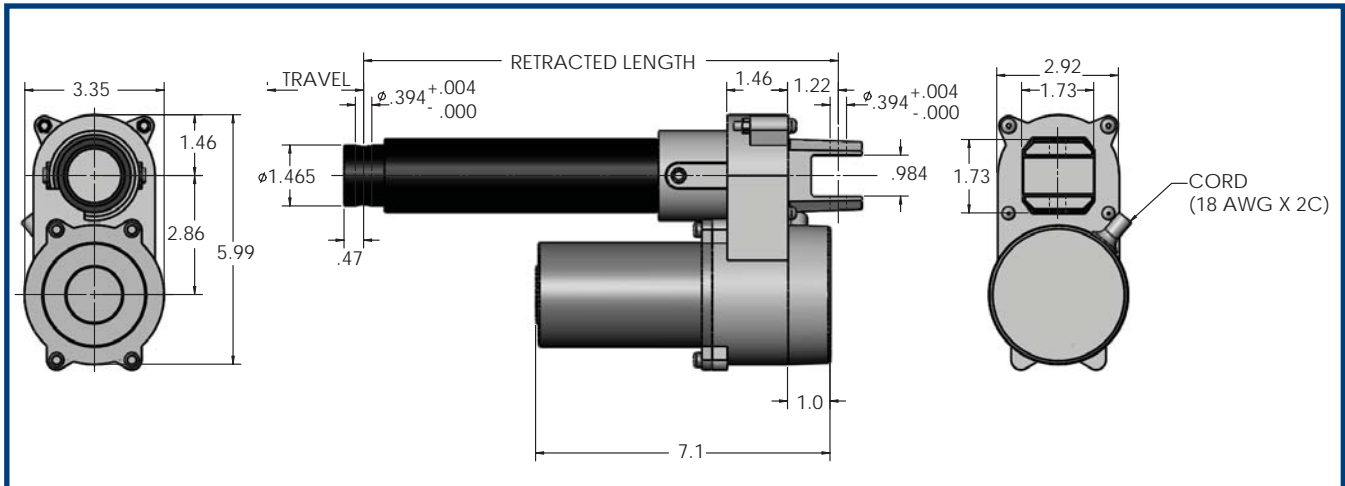
# LS SERIES



## LS 35 AC



## LS 35 DC

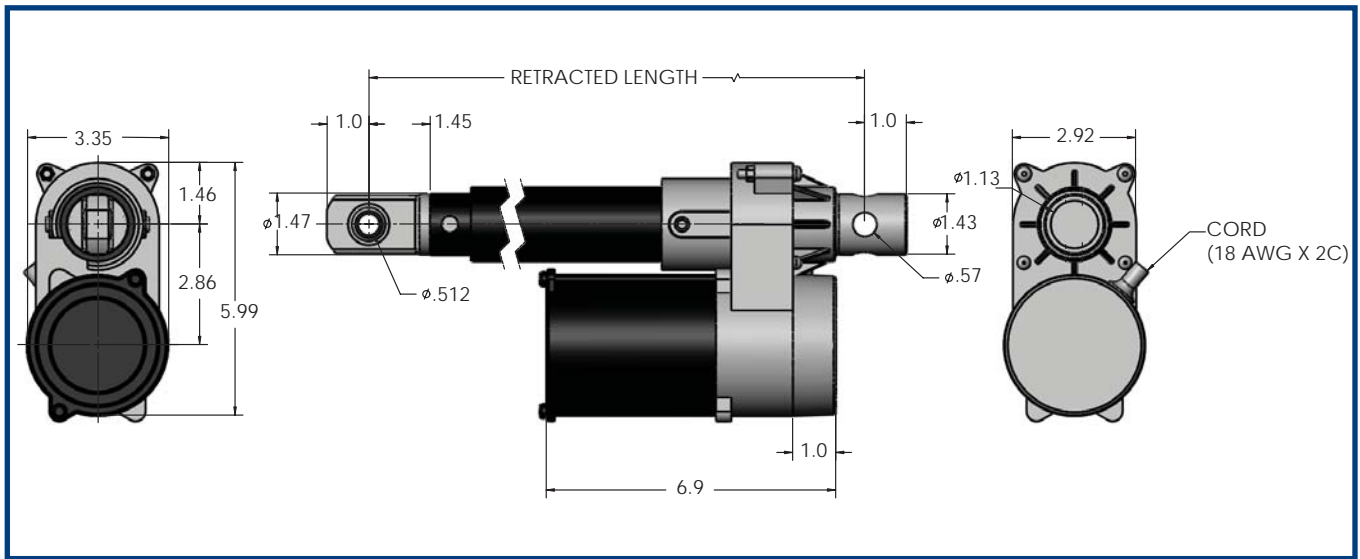


## LS 35 Linear Actuators

| Part Number   | Rated Load |       | Stroke |     | Retracted Length |     | Voltage | Current Draw at Rated Load (A) | Speed |      | Duty Cycle % | Shipping Weight |      |
|---------------|------------|-------|--------|-----|------------------|-----|---------|--------------------------------|-------|------|--------------|-----------------|------|
|               | lbs        | N     | in     | mm  | in               | mm  |         |                                | in/s  | mm/s |              | lbs             | N    |
| LS35-3B4TN-12 | 675        | 3,002 | 12     | 304 | 19.4             | 493 | 12Vdc   | 10                             | 0.21  | 5.3  | 17           | 8.6             | 8.6  |
| LS35-3B4TN-24 |            |       | 24     | 609 | 31.4             | 797 | 12Vdc   | 10                             | 0.21  | 5.3  |              | 10.8            | 10.8 |
| LS35-1B4TN-12 |            |       | 12     | 304 | 19.4             | 493 | 115Vac  | 1.6                            | 0.26  | 6.6  |              | 10.6            | 10.6 |
| LS35-1B4TN-24 |            |       | 24     | 609 | 31.4             | 797 | 115Vac  | 1.6                            | 0.26  | 6.6  |              | 12.8            | 12.8 |



**LS 48**



**LS 48 Linear Actuators**

| Part Number | Rated Load |       | Stroke |     | Retracted Length |     | Voltage | Current Draw at Rated Load (A) | Speed |      | Duty Cycle % | Shipping Weight |      |
|-------------|------------|-------|--------|-----|------------------|-----|---------|--------------------------------|-------|------|--------------|-----------------|------|
|             | lbs        | N     | in     | mm  | in               | mm  |         |                                | in/s  | mm/s |              | lbs             | N    |
| LS48-S001   | 660        | 2,935 | 24     | 609 | 38.8             | 984 | 115Vac  | 1.4                            | 0.15  | 3.8  | 17           | 21.6            | 21.6 |

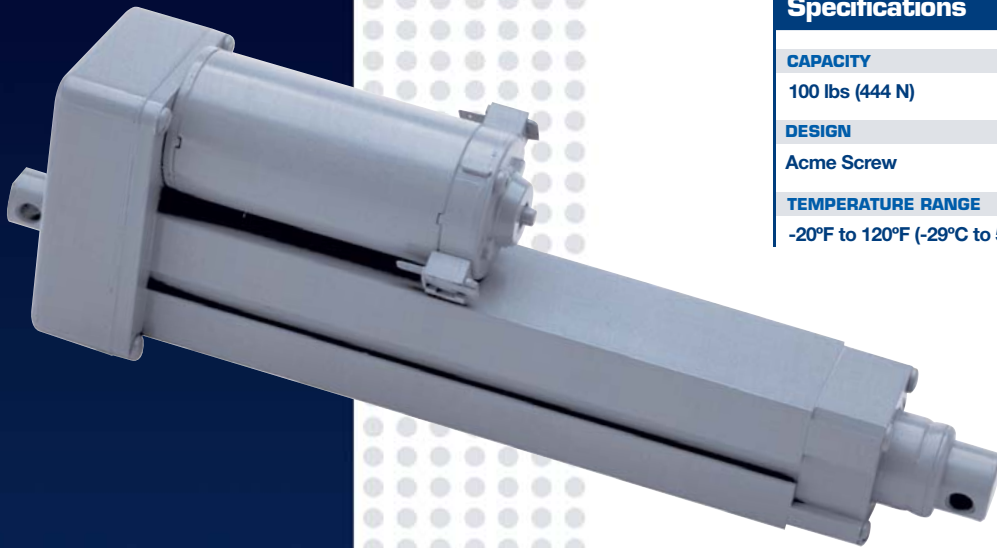
# TMD01 SERIES

100 lbs

444 N

## Specifications

|                                |                          |
|--------------------------------|--------------------------|
| <b>CAPACITY</b>                | <b>STATIC LOAD</b>       |
| 100 lbs (444 N)                | 300 lbs (1,332 N)        |
| <b>DESIGN</b>                  | <b>ENVIRONMENT</b>       |
| Acme Screw                     | IP50 Protection standard |
| <b>TEMPERATURE RANGE</b>       |                          |
| -20°F to 120°F (-29°C to 50°C) |                          |

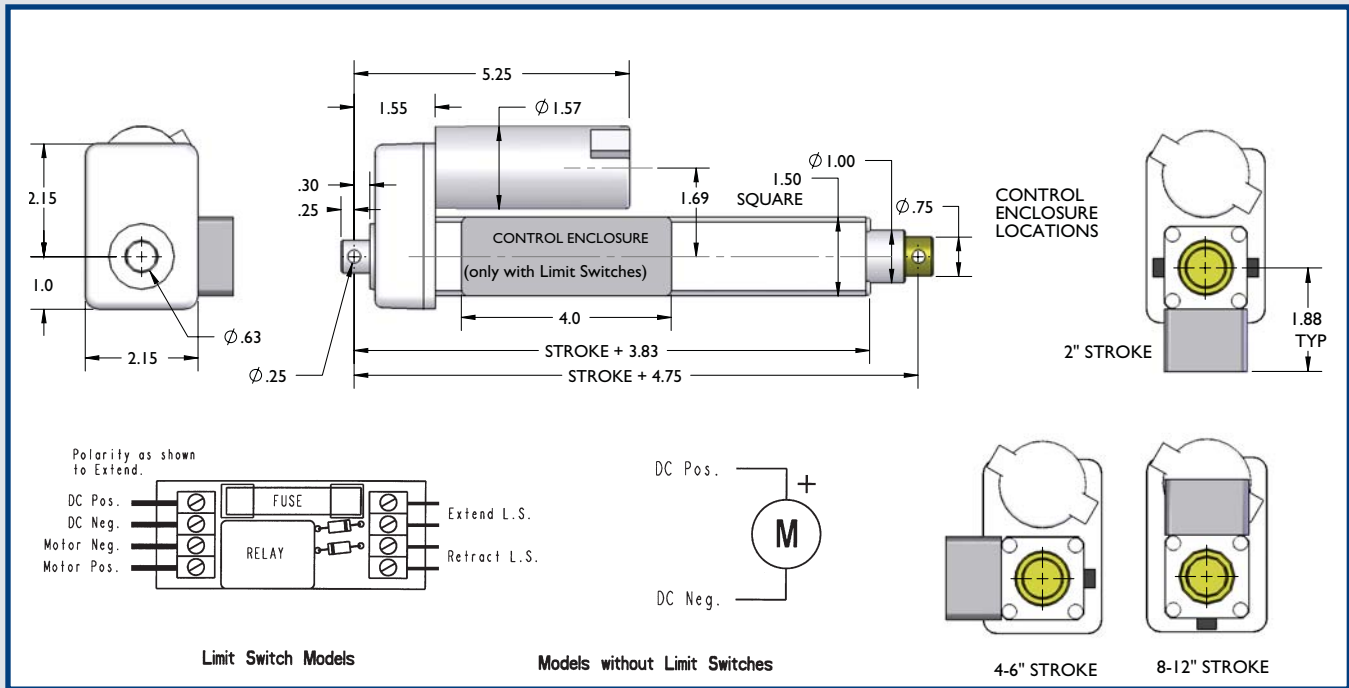


## Features & Benefits

- Compact design
- Timing belt drive for quiet operation
- Aluminum housing and outer tube
- Low current draw
- Double clevis mounting
- Easy to wire terminal strip (limit switch models)
- Keyed translating tube
- Permanent magnet motors - no thermal overload protection

## Options

- Adjustable Limit Switched - Includes control enclosure with fuse
- Pulse generator for feedback  
(Add "PTD" prefix)



**TMD01 Linear Actuator - 100 lb (444 N) Capacity**

PRODUCT INFORMATION

| Part Number   | Rated Load |     | Stroke Length |     | Retracted Length |     | Voltage | Current Draw at Rated Load (A) | Speed at Rated Load |      | Limit Switch              | Duty Cycle at Rated Load |        | Weight |      |
|---------------|------------|-----|---------------|-----|------------------|-----|---------|--------------------------------|---------------------|------|---------------------------|--------------------------|--------|--------|------|
|               | lbs        | N   | in            | mm  | in               | mm  |         |                                | in/s                | mm/s |                           | in/h                     | mm/h   | lbs    | N    |
| TMD01-1406-2  | 100        | 444 | 2             | 50  | 6.75             | 171 | 12Vdc   | 7                              | 0.7                 | 17.7 | No Limit Switches         | 600                      | 15,240 | 4      | 17.7 |
| TMD01-1406-4  |            |     | 4             | 101 | 8.75             | 222 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-1406-6  |            |     | 6             | 152 | 10.75            | 273 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-1406-8  |            |     | 8             | 203 | 12.75            | 323 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-1406-10 |            |     | 10            | 254 | 14.75            | 374 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-1406-12 |            |     | 12            | 304 | 16.75            | 425 |         |                                |                     |      |                           |                          | 5      | 22.2   |      |
| TMD01-1906-2  | 100        | 444 | 2             | 50  | 6.75             | 171 | 12Vdc   | 7                              | 0.7                 | 17.7 | Adjustable Limit Switches | 600                      | 15,240 | 4      | 17.7 |
| TMD01-1906-4  |            |     | 4             | 101 | 8.75             | 222 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-1906-6  |            |     | 6             | 152 | 10.75            | 273 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-1906-8  |            |     | 8             | 203 | 12.75            | 323 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-1906-10 |            |     | 10            | 254 | 14.75            | 374 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-1906-12 |            |     | 12            | 304 | 16.75            | 425 |         |                                |                     |      |                           |                          | 5      | 22.2   |      |
| TMD01-2406-2  | 100        | 444 | 2             | 50  | 6.75             | 171 | 24Vdc   | 5                              | 1                   | 25.4 | No Limit Switches         | 900                      | 22,860 | 4      | 17.7 |
| TMD01-2406-4  |            |     | 4             | 101 | 8.75             | 222 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-2406-6  |            |     | 6             | 152 | 10.75            | 273 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-2406-8  |            |     | 8             | 203 | 12.75            | 323 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-2406-10 |            |     | 10            | 254 | 14.75            | 374 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-2406-12 |            |     | 12            | 304 | 16.75            | 425 |         |                                |                     |      |                           |                          | 5      | 22.2   |      |
| TMD01-2906-2  | 100        | 444 | 2             | 50  | 6.75             | 171 | 24Vdc   | 5                              | 1                   | 25.4 | Adjustable Limit Switches | 900                      | 22,860 | 4      | 17.7 |
| TMD01-2906-4  |            |     | 4             | 101 | 8.75             | 222 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-2906-6  |            |     | 6             | 152 | 10.75            | 273 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-2906-8  |            |     | 8             | 203 | 12.75            | 323 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-2906-10 |            |     | 10            | 254 | 14.75            | 374 |         |                                |                     |      |                           |                          |        | 5      | 22.2 |
| TMD01-2906-12 |            |     | 12            | 304 | 16.75            | 425 |         |                                |                     |      |                           |                          | 5      | 22.2   |      |

\*\* For pulse generator models, use PTD model number prefix instead of TMD

# TMD02 SERIES

250 lbs

1,112 N

## Specifications

### CAPACITY

250 lbs (1,112 N)

### STATIC LOAD

300 lbs (1,332 N)

### DESIGN

Acme Screw

### ENVIRONMENT

IP50 Protection standard

### TEMPERATURE RANGE

-20°F to 120°F (-29°C to 50°C)



## Features & Benefits

- Compact design
- Timing belt drive for quiet operation
- Aluminum housing and outer tube
- Stainless steel translating tube
- Double clevis mounting
- Easy to wire terminal strip (limit switch models)
- Keyed translating tube
- Permanent magnet motors - no thermal overload protection

## Options

- Adjustable Limit Switched - Includes control enclosure with fuse
- Pulse generator for feedback  
(Add "PTD" prefix)



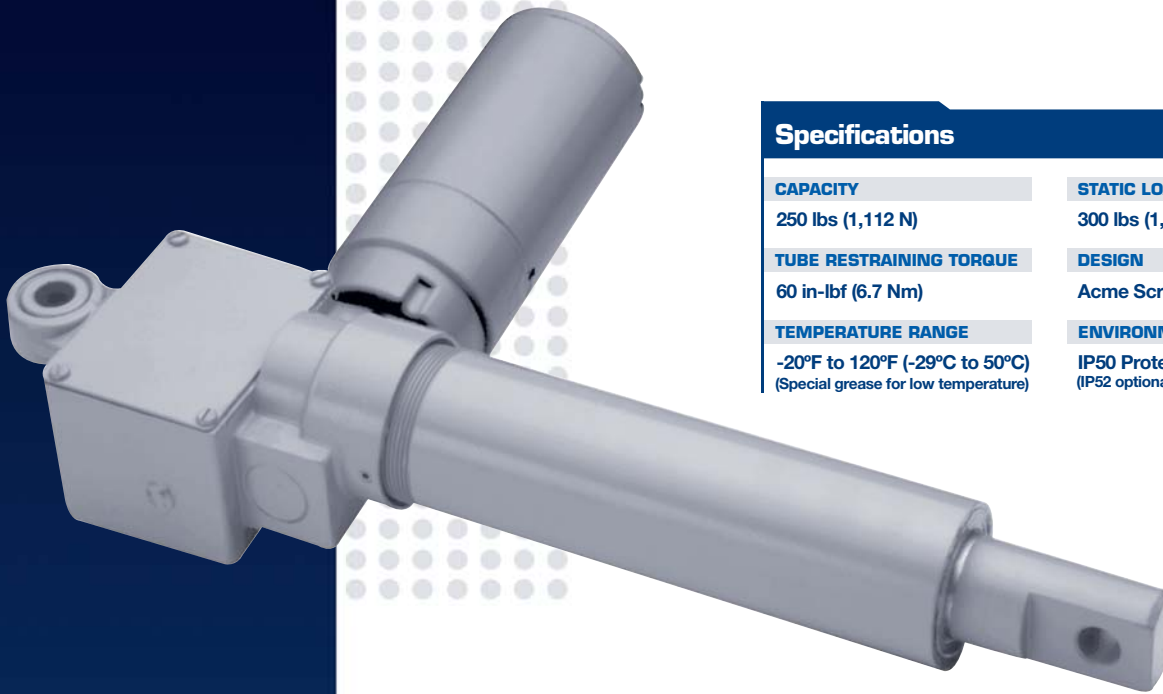


# HMPD SERIES

With Limit Switch

250 lbs

1,112 N



## Specifications

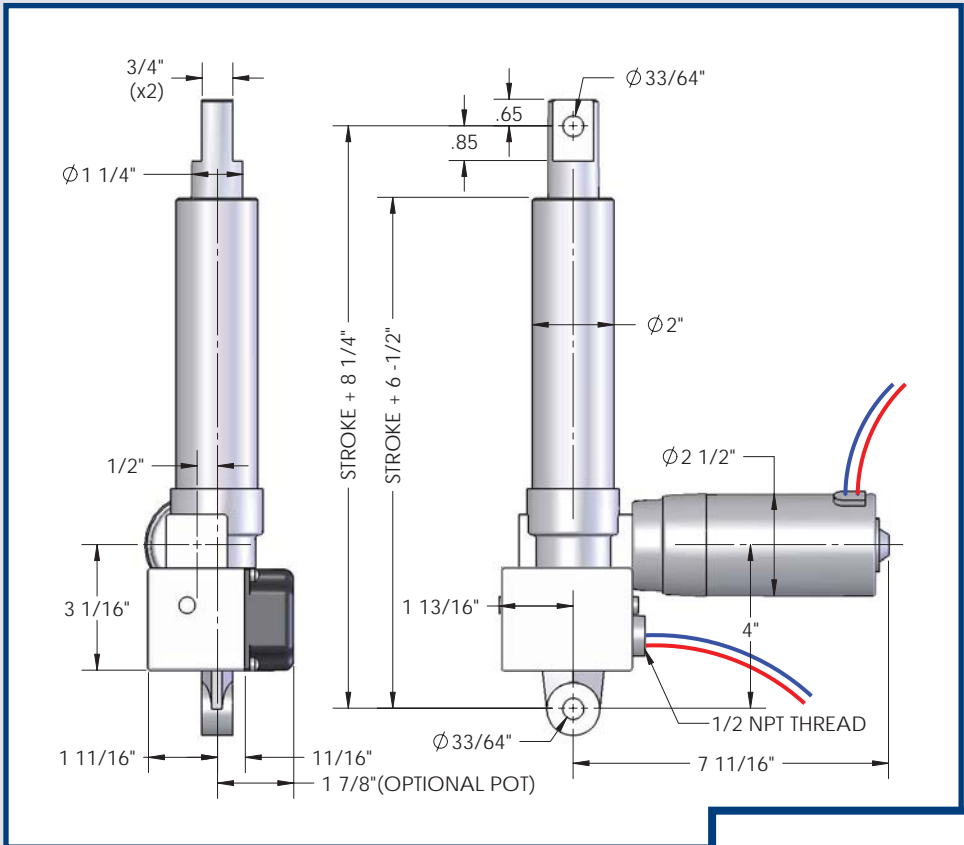
|  |   |
|--|---|
| <b>CAPACITY</b>  | <b>STATIC LOAD</b>                          |
| 250 lbs (1,112 N)  | 300 lbs (1,332 N)                           |
| <b>TUBE RESTRAINING TORQUE</b>   | <b>DESIGN</b>                               |
| 60 in-lbf (6.7 Nm)   | Acme Screw                                  |
| <b>TEMPERATURE RANGE</b>   | <b>ENVIRONMENT</b>                          |
| -20°F to 120°F (-29°C to 50°C)<br>(Special grease for low temperature) | IP50 Protection standard<br>(IP52 optional) |

## Features & Benefits

- Heavy duty design for long life in tough applications
- Aluminum housing and outer tube
- Steel translating tube – zinc chromate plated
- Double clevis mounting
- Spring Type Brake
- Internal adjustable limit switches
- Automatic reset thermal overload motor protection

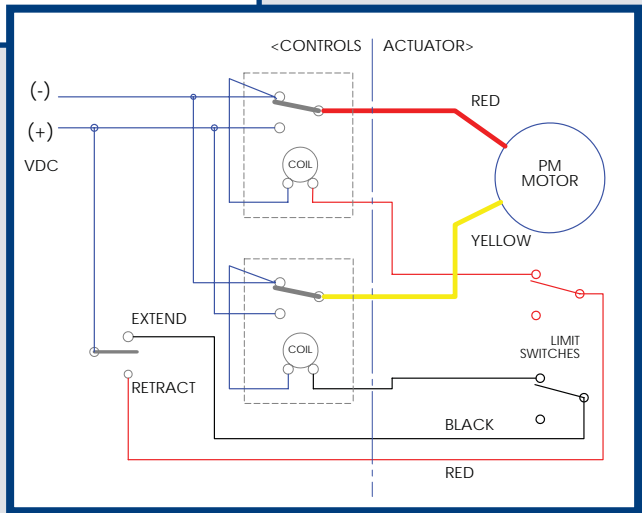
## Options

- Potentiometer Feedback (add “P” prefi x)
- Weather Resistant Sealant –IP52 (add “W” prefi x)
- Bellows Boot



**Note:**

(2) relays are required for DC limit switch models



| PRODUCT INFORMATION | HMPD Linear Actuator with limit switch - 250 lb (1,112 N) Capacity |            |    |               |       |                  |       |         |                                |                     |      |              |                          |      |        |   |
|---------------------|--|------------|----|---------------|-------|------------------|-------|---------|--------------------------------|---------------------|------|--------------|--------------------------|------|--------|---|
|                     | Part Number  | Rated Load |    | Stroke Length |       | Retracted Length |       | Voltage | Current Draw at Rated Load (A) | Speed at Rated Load |      | Limit Switch | Duty Cycle at Rated Load |      | Weight |   |
|                     |  | lbs        | N  | in            | mm    | in               | mm    |         |                                | in/s                | mm/s |              | in/h                     | mm/h | lbs    | N |
| HMPD3905-3          | 250  | 1,112      | 3  | 76            | 11.25 | 285              | 12Vdc | 28      | 2                              | 50                  | Yes  | 1,250        | 31,750                   | 10   | 44.4   |   |
| HMPD3905-6          |  |            | 6  | 152           | 14.25 | 362              |       |         |                                |                     |      |              |                          | 12   | 53.3   |   |
| HMPD3905-12         |  |            | 12 | 304           | 20.25 | 514              |       |         |                                |                     |      |              |                          | 14   | 62.2   |   |
| HMPD3905-18         |  |            | 18 | 457           | 26.25 | 666              |       |         |                                |                     |      |              |                          | 17   | 75.6   |   |

# HMPD SERIES

With Clutch

250 lbs

1,112 N



## Specifications

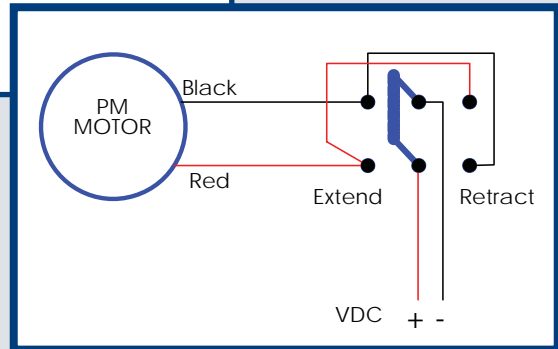
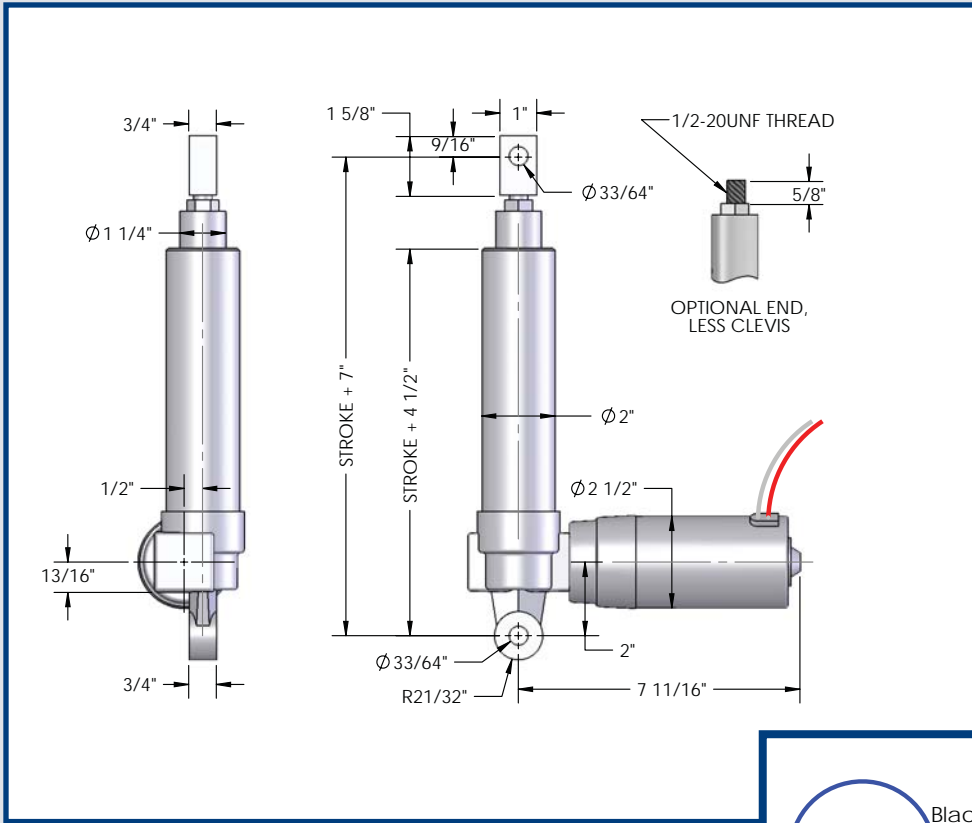
|  |   |
|--|---|
| <b>CAPACITY</b>  | <b>STATIC LOAD</b>                          |
| 250 lbs (1,112 N)  | 300 lbs (1,332 N)                           |
| <b>TUBE RESTRAINING TORQUE</b>   | <b>DESIGN</b>                               |
| 60 in-lbf (6.7 Nm)   | Acme Screw                                  |
| <b>TEMPERATURE RANGE</b>   | <b>ENVIRONMENT</b>                          |
| -20°F to 120°F (-29°C to 50°C)<br>(Special grease for low temperature) | IP50 Protection standard<br>(IP52 optional) |

## Features & Benefits

- Heavy duty design for long life in tough applications
- Aluminum housing and outer tube
- Steel translating tube – zinc chromate plated
- Double clevis mounting
- Patented Spring Type Brake
- Load limiting friction disc clutch
- Automatic reset thermal overload motor protection

## Options

- Weather Resistant Sealant – IP52 (add “W” prefi x)
- Bellows Boot
- 90 degree housing clevis mounting
- Threaded end (add “T” prefi x)



**PRODUCT INFORMATION**

**HMPD Linear Actuator with Clutch - 250 lb (1,112 N) Capacity**

| Part Number | Rated Load |       | Stroke Length |     | Retracted Length |     | Voltage | Current Draw at Rated Load (A) | Speed at Rated Load |      | Duty Cycle at Rated Load |        | Weight |      |
|-------------|------------|-------|---------------|-----|------------------|-----|---------|--------------------------------|---------------------|------|--------------------------|--------|--------|------|
|             | lbs        | N     | in            | mm  | in               | mm  |         |                                | in/s                | mm/s | in/h                     | mm/h   | lbs    | N    |
| HMPD3405-3  | 250        | 1,112 | 3             | 76  | 11.25            | 285 | 12Vdc   | 28                             | 2                   | 50   | 1,050                    | 26,670 | 8      | 35.5 |
| HMPD3405-6  |            |       | 6             | 152 | 14.25            | 362 |         |                                |                     |      |                          |        | 10     | 44.4 |
| HMPD3405-12 |            |       | 12            | 304 | 20.25            | 514 |         |                                |                     |      |                          |        | 12     | 53.3 |
| HMPD3405-18 |            |       | 18            | 457 | 26.25            | 666 |         |                                |                     |      |                          |        | 15     | 66.7 |

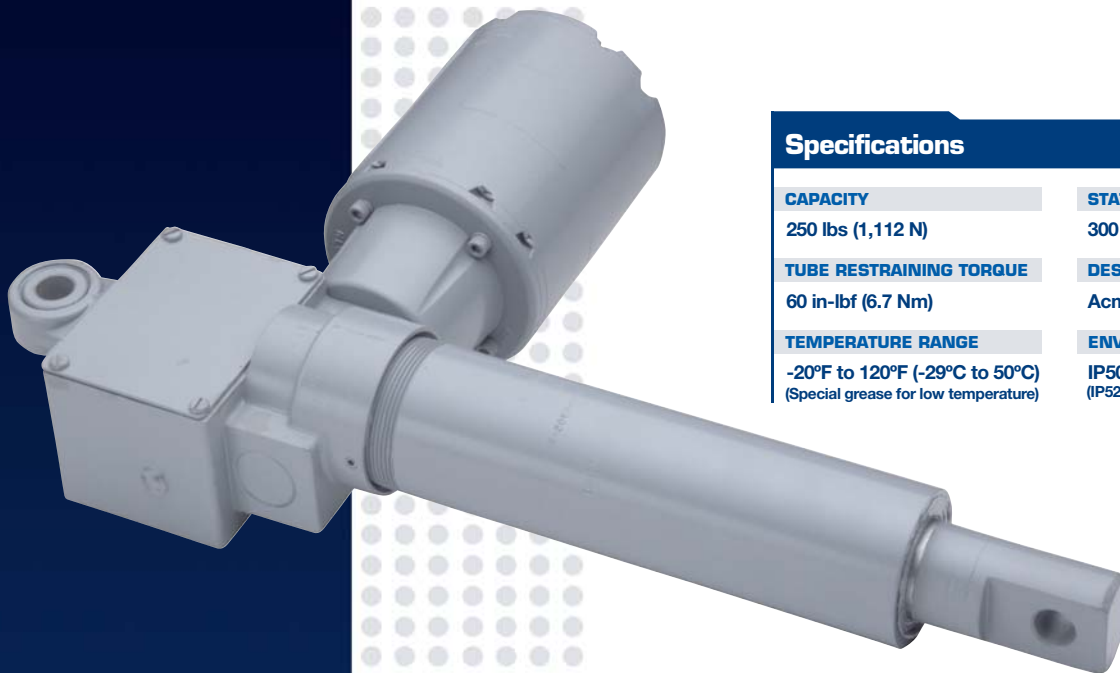
# HMPB SERIES

250 lbs

1,112 N

## Specifications

|  |   |
|--|---|
| <b>CAPACITY</b>  | <b>STATIC LOAD</b>                          |
| 250 lbs (1,112 N)  | 300 lbs (1,332 N)                           |
| <b>TUBE RESTRAINING TORQUE</b>   | <b>DESIGN</b>                               |
| 60 in-lbf (6.7 Nm)   | Acme Screw                                  |
| <b>TEMPERATURE RANGE</b>   | <b>ENVIRONMENT</b>                          |
| -20°F to 120°F (-29°C to 50°C)<br>(Special grease for low temperature) | IP50 Protection standard<br>(IP52 optional) |

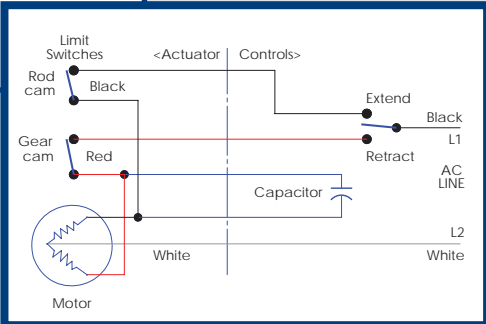
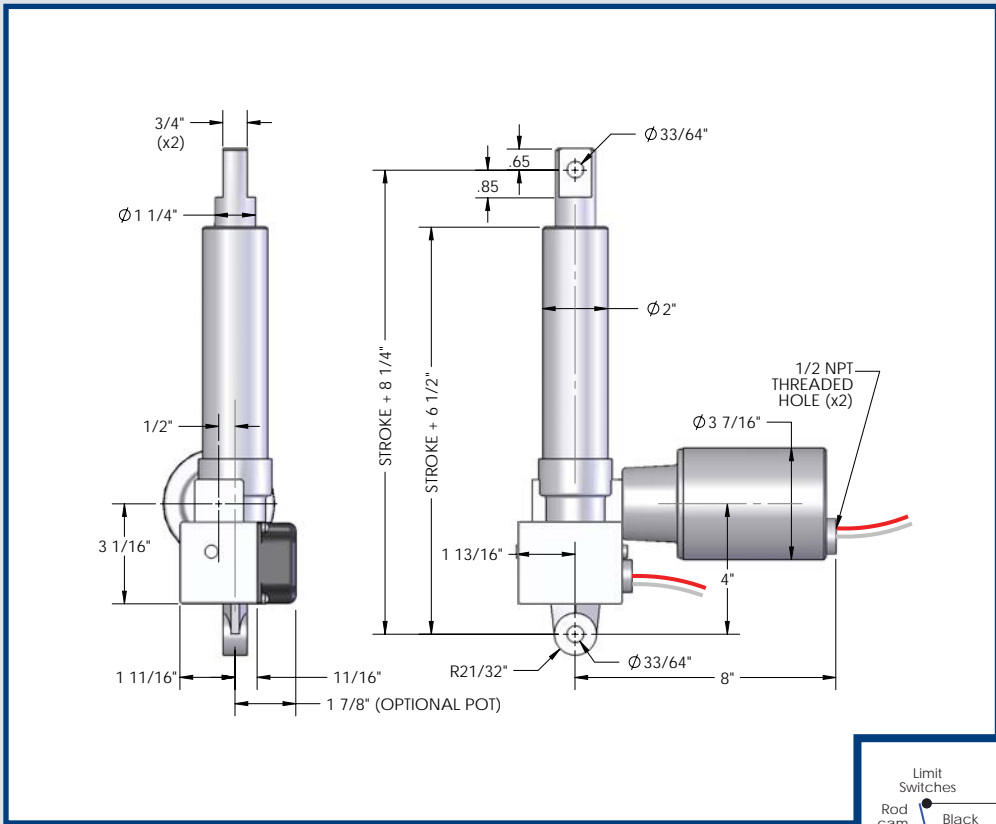


## Features & Benefits

- Heavy duty design for long life in tough applications
- Aluminum housing and outer tube
- Steel translating tube – zinc chromate plated
- Double clevis mounting
- Bi-directional Ball Type Brake
- Internal adjustable limit switches
- Automatic reset thermal overload motor protection

## Options

- Weather Resistant Sealant – IP52 (add “W” prefi x)
- Potentiometer (add “P” prefi x)
- Capacitor (see table)
- Bellows Boot



| HMPB Linear Actuator with limit switch - 250 lb (1,112 N) Capacity |             |            |       |               |       |                  |                 |                 |                                |                     |      |               |                          |        |        |      |
|--|-------------|------------|-------|---------------|-------|------------------|-----------------|-----------------|--------------------------------|---------------------|------|---------------|--------------------------|--------|--------|------|
| PRODUCT INFORMATION  | Part Number | Rated Load |       | Stroke Length |       | Retracted Length |                 | Voltage         | Current Draw at Rated Load (A) | Speed at Rated Load |      | Potentiometer | Duty Cycle at Rated Load |        | Weight |      |
|  |             | lbs        | N     | in            | mm    | in               | mm              |                 |                                | in/s                | mm/s |               | in/h                     | mm/h   | lbs    | N    |
|  | HMPB3905-3  | 250        | 1,112 | 3             | 76    | 11.25            | 285             | 115 Vac (60 Hz) | 5                              | 1.4                 | 35.5 | No            | 500                      | 12,700 | 11     | 48.9 |
| HMPB3905-6   | 6           |            |       | 152           | 14.25 | 362              | 13              |                 |                                |                     |      |               |                          |        | 57.8   |      |
| HMPB3905-12  | 12          |            |       | 304           | 20.25 | 514              | 16              |                 |                                |                     |      |               |                          |        | 71.1   |      |
| HMPB3905-18  | 18          |            |       | 457           | 26.25 | 666              | 18              |                 |                                |                     |      |               |                          |        | 80.0   |      |
| PHMPB3905-3  | 250         | 1,112      | 3     | 76            | 11.25 | 285              | 115 Vac (60 Hz) | 5               | 1.4                            | 35.5                | Yes  | 500           | 12,700                   | 12     | 53.3   |      |
| PHMPB3905-6  |             |            | 6     | 152           | 14.25 | 362              |                 |                 |                                |                     |      |               |                          | 14     | 62.2   |      |
| PHMPB3905-12   |             |            | 12    | 304           | 20.25 | 514              |                 |                 |                                |                     |      |               |                          | 17     | 75.6   |      |
| PHMPB3905-18   |             |            | 18    | 457           | 26.25 | 666              |                 |                 |                                |                     |      |               |                          | 19     | 84.5   |      |

Note: For all AC motors, a capacitor is required. The capacitor can be supplied by the customer or by Duff-Norton.

# HSPB SERIES

250 lbs

1,112 N



## Specifications

|  |   |
|--|---|
| <b>CAPACITY</b>  | <b>STATIC LOAD</b>                          |
| 250 lbs (1,112 N)  | 300 lbs (1,332 N)                           |
| <b>TUBE RESTRAINING TORQUE</b>   | <b>DESIGN</b>                               |
| 60 in-lbf (6.7 Nm)   | Acme Screw                                  |
| <b>TEMPERATURE RANGE</b>   | <b>ENVIRONMENT</b>                          |
| -20°F to 120°F (-29°C to 50°C)<br>(Special grease for low temperature) | IP50 Protection standard<br>(IP52 optional) |

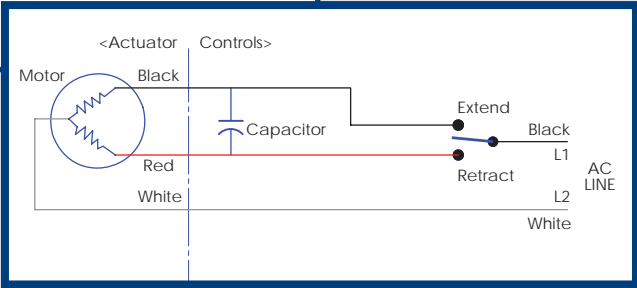
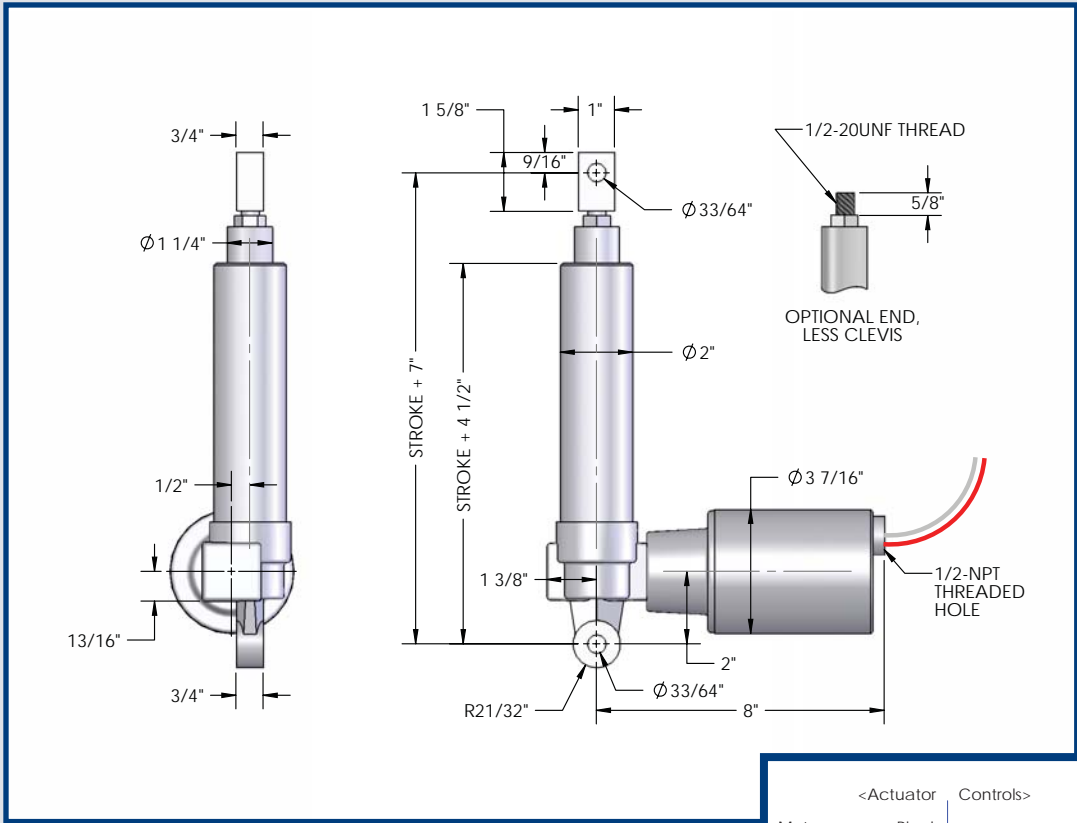
## Features & Benefits

- Heavy duty design for long life in tough applications
- Aluminum housing and outer tube
- Steel translating tube – zinc chromate plated
- Double clevis mounting
- Bidirectional Ball Type Brake
- Load limiting friction disc clutch
- Automatic reset thermal overload motor protection

## Options

- Weather Resistant Sealant – IP52 (add “W” prefix)
- Capacitor (see table)
- Bellows Boot
- Thread end (add “T” prefix)





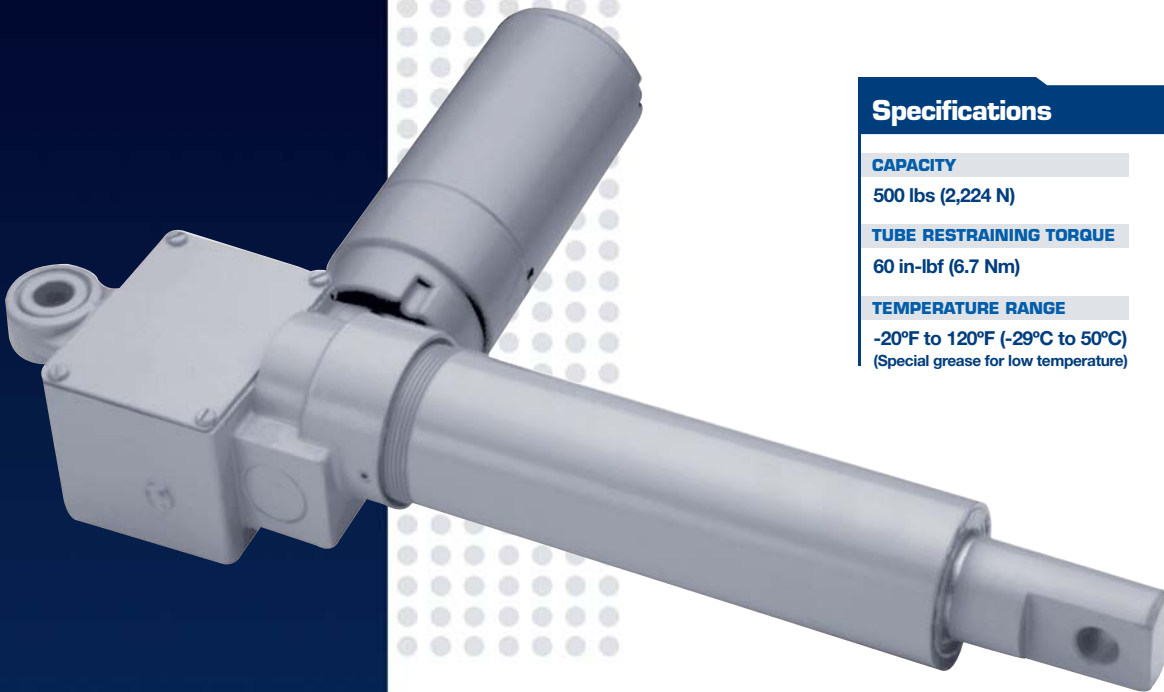
| HSPB Linear Actuator with limit switch - 250 lb (1,112 N) Capacity |            |       |               |     |                  |     |                 |                                |                     |      |                          |        |        |      |
|--|------------|-------|---------------|-----|------------------|-----|-----------------|--------------------------------|---------------------|------|--------------------------|--------|--------|------|
| Part Number  | Rated Load |       | Stroke Length |     | Retracted Length |     | Voltage         | Current Draw at Rated Load (A) | Speed at Rated Load |      | Duty Cycle at Rated Load |        | Weight |      |
|  | lbs        | N     | in            | mm  | in               | mm  |                 |                                | in/s                | mm/s | in/h                     | mm/h   | lbs    | N    |
| HSPB3405-3   | 250        | 1,112 | 3             | 76  | 10               | 254 | 115 Vac (60 Hz) | 5.1                            | 1.4                 | 35.5 | 500                      | 12,700 | 10     | 44.4 |
| HSPB3405-6   |            |       | 6             | 152 | 13               | 330 |                 |                                |                     |      |                          |        | 12     | 53.3 |
| HSPB3405-12  |            |       | 12            | 304 | 19               | 482 |                 |                                |                     |      |                          |        | 14     | 62.2 |
| HSPB3405-18  |            |       | 18            | 457 | 25               | 635 |                 |                                |                     |      |                          |        | 17     | 75.6 |

Note: For all AC motors, a capacitor is required. The capacitor can be supplied by the customer or by Duff-Norton.

# MPD SERIES

500 lbs

2,224 N



## Specifications

### CAPACITY

500 lbs (2,224 N)

### STATIC LOAD

750 lbs (3,336 N)

### TUBE RESTRAINING TORQUE

60 in-lbf (6.7 Nm)

### DESIGN

Acme Screw

### TEMPERATURE RANGE

-20°F to 120°F (-29°C to 50°C)  
(Special grease for low temperature)

### ENVIRONMENT

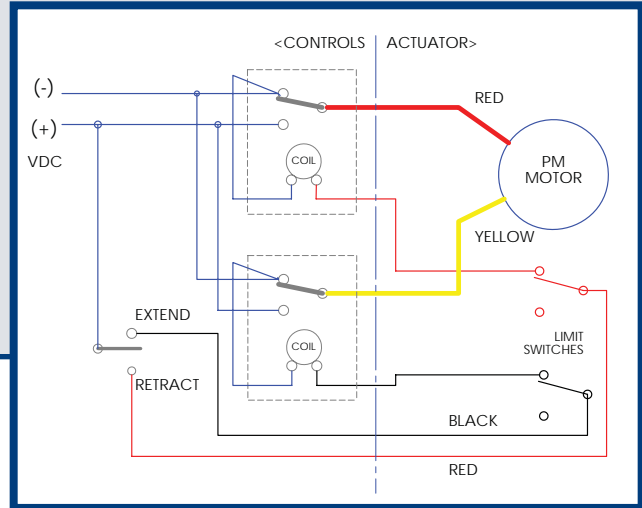
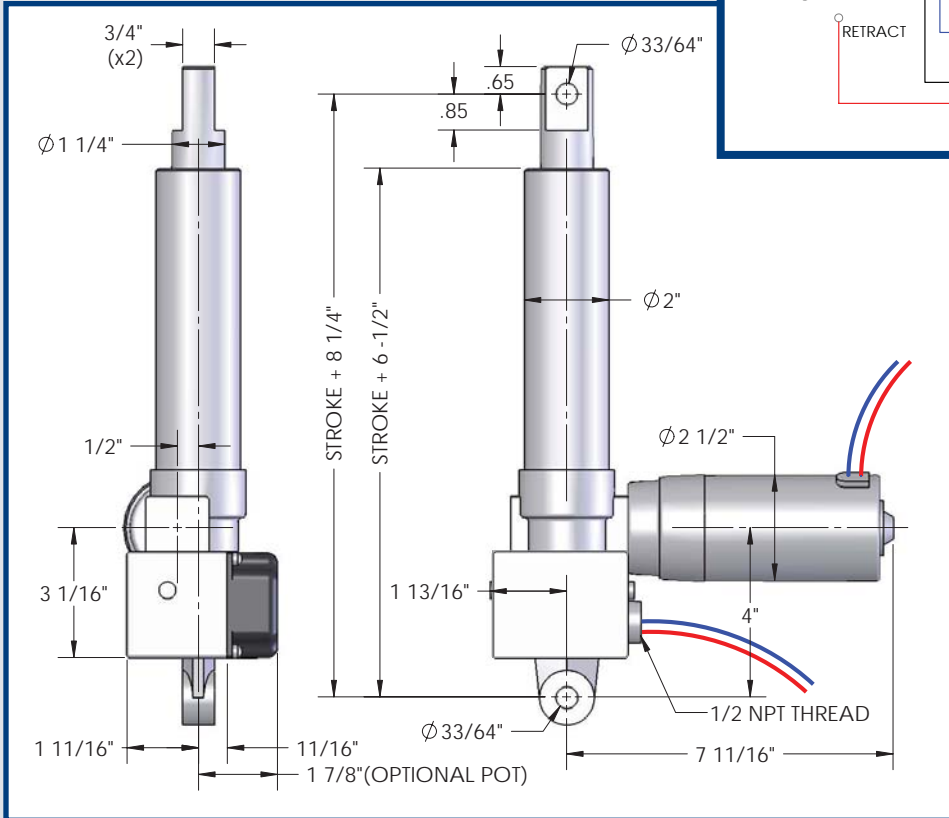
IP50 Protection standard  
IP52 Optional

## Features & Benefits

- Heavy duty design for long life in tough applications
- Patented Spring Type Brake
- Aluminum housing and outer tube
- Steel translating tube – zinc chromate plated
- Double clevis mounting
- Internal adjustable limit switches
- Automatic reset thermal overload motor protection

## Options

- Weather Resistant Sealant – IP52 (add “W” prefix)
- Potentiometer Feedback (add “P” prefix)
- Bellows Boot
- Thread End



**Note:**

(2) relays are required for DC limit switch models

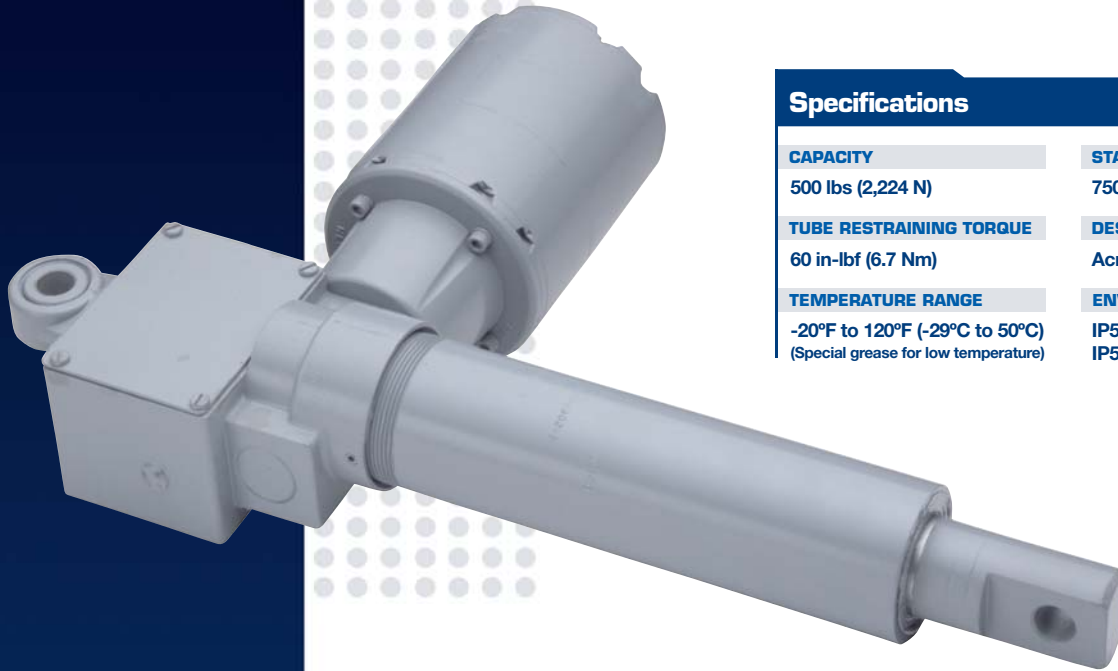
| MPD Linear Actuator - 500 lb (2,224 N) Capacity |             |            |       |               |       |                  |        |         |                                |                 |                     |      |              |                          |        |        |      |
|---|-------------|------------|-------|---------------|-------|------------------|--------|---------|--------------------------------|-----------------|---------------------|------|--------------|--------------------------|--------|--------|------|
| PRODUCT INFORMATION                             | Part Number | Rated Load |       | Stroke Length |       | Retracted Length |        | Voltage | Current Draw at Rated Load (A) |                 | Speed at Rated Load |      | Limit Switch | Duty Cycle at Rated Load |        | Weight |      |
|   |             | lbs        | N     | in            | mm    | in               | mm     |         | in/s                           | mm/s            | in/h                | mm/h |              | lbs                      | N      |        |      |
|   | MPD6905-3   | 500        | 2,224 | 3             | 76.2  | 11.25            | 285.7  | 12 Vdc  | 8A@                            | 100 lbs (444 N) | 0.75                | 19.0 | Yes          | 500                      | 12,700 | 13     | 57.8 |
| MPD6905-6                                       | 6           |            |       | 152.4         | 14.25 | 361.9            | 13A@   |         | 250 lbs (1,112 N)              | 15              |                     |      |              |                          |        | 66.7   |      |
| MPD6905-12                                      | 12          |            |       | 304.8         | 20.25 | 514.3            | 23A@   |         | 500 lbs (2,224 N)              | 18              |                     |      |              |                          |        | 80.0   |      |
| MPD6905-18                                      | 18          |            |       | 457.2         | 26.25 | 666.7            |        |         |                                | 20              |                     |      |              |                          |        | 88.9   |      |
| MPD6904-3                                       | 500         | 2,224      | 3     | 76.2          | 11.25 | 285.7            | 24 Vdc | 4A@     | 100 lbs (444 N)                | 0.85            | 21.5                | Yes  | 510          | 12,954                   | 13     | 57.8   |      |
| MPD6904-6                                       |             |            | 6     | 152.4         | 14.25 | 361.9            |        | 7A@     | 250 lbs (1,112 N)              |                 |                     |      |              |                          | 15     | 66.7   |      |
| MPD6904-12                                      |             |            | 12    | 304.8         | 20.25 | 514.3            |        |         |                                |                 |                     |      |              |                          | 18     | 80.0   |      |
| MPD6904-18                                      |             |            | 18    | 457.2         | 26.25 | 666.7            |        |         |                                |                 |                     |      |              |                          | 20     | 88.9   |      |

Clutch models are available upon request

# HMPB SERIES

500 lbs

2,224 N



## Specifications

### CAPACITY

500 lbs (2,224 N)

### STATIC LOAD

750 lbs (3,336 N)

### TUBE RESTRAINING TORQUE

60 in-lbf (6.7 Nm)

### DESIGN

Acme Screw

### TEMPERATURE RANGE

-20°F to 120°F (-29°C to 50°C)  
(Special grease for low temperature)

### ENVIRONMENT

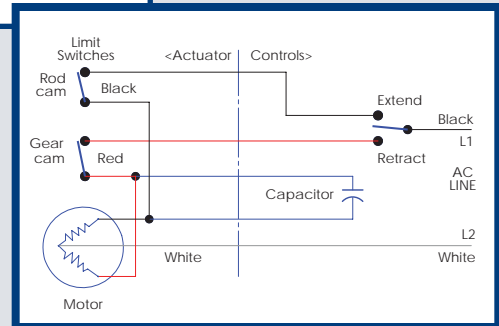
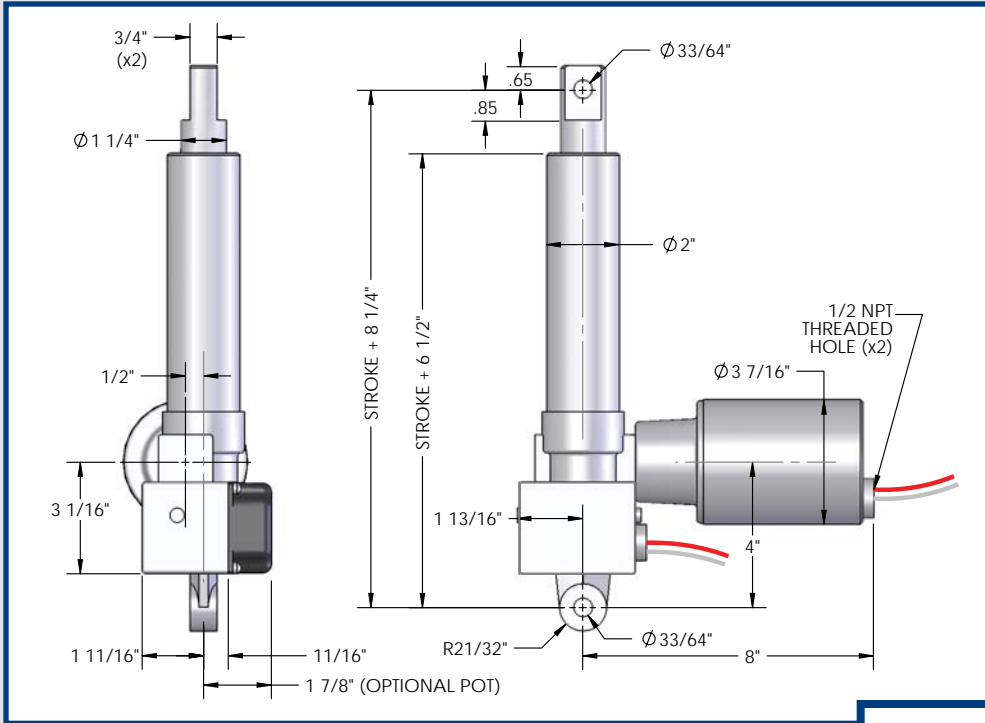
IP50 Protection standard  
IP52 Optional

## Features & Benefits

- Heavy duty design for long life in tough applications
- Bi-directional Ball Type Brake
- Aluminum housing and outer tube
- Steel translating tube – zinc chromate plated
- Double clevis mounting
- Internal adjustable limit switches
- Automatic reset thermal overload motor protection

## Options

- Potentiometer (add “P” prefix)
- Capacitor (see table)
- Weather Resistant Sealant – IP52 (add “W” prefix)
- Bellows Boot
- Threaded End



### HMPB Linear Actuator - 500 lb (2,224 N) Capacity

PRODUCT INFORMATION

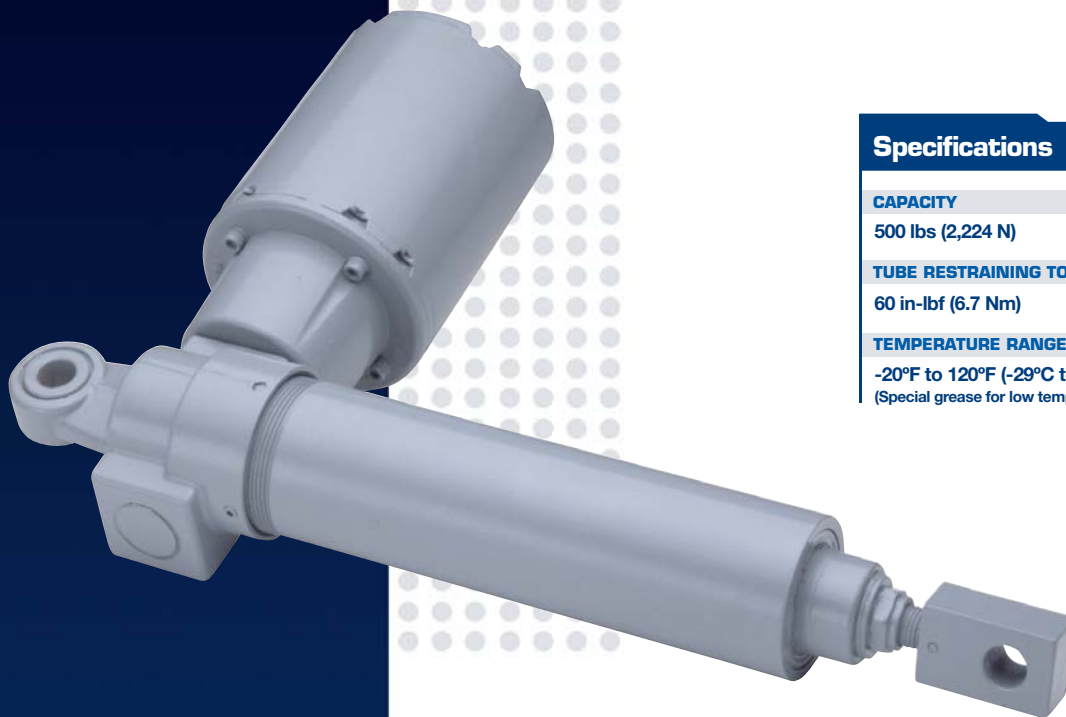
| Part Number  | Rated Load |       | Stroke Length |       | Retracted Length |       | Voltage           | Current Draw at Rated Load (A) |      |      | Limit Switch | Duty Cycle at Rated Load |        | Potentiometer | Capacitor                   | Weight |      |
|--------------|------------|-------|---------------|-------|------------------|-------|-------------------|--------------------------------|------|------|--------------|--------------------------|--------|---------------|-----------------------------|--------|------|
|              | lbs        | N     | in            | mm    | in               | mm    |                   | in/s                           | mm/s | in/h |              | mm/h                     | lbs    |               |                             | N      |      |
| HMPB6905-3   | 500        | 2,224 | 3             | 76.2  | 11.25            | 285.7 | 115Vac<br>(60 Hz) | 5.5                            | 1.33 | 33.7 | Yes          | 500                      | 12,700 | No            | SK6405-7-3<br>(64 - 72 MFD) | 11     | 48.9 |
| HMPB6905-6   |            |       | 6             | 152.4 | 14.25            | 361.9 |                   |                                |      |      |              |                          |        |               |                             | 13     | 57.8 |
| HMPB6905-12  |            |       | 12            | 304.8 | 20.25            | 514.3 |                   |                                |      |      |              |                          |        |               |                             | 16     | 71.1 |
| HMPB6905-18  |            |       | 18            | 457.2 | 26.25            | 666.7 |                   |                                |      |      |              |                          |        |               |                             | 18     | 80   |
| PHMPB6905-3  | 500        | 2,224 | 3             | 76.2  | 11.25            | 285.7 | 115Vac<br>(60 Hz) | 5.5                            | 1.33 | 33.7 | Yes          | 500                      | 12,700 | Yes           | SK6405-7-3<br>(64-72 MFD)   | 12     | 53.3 |
| PHMPB6905-6  |            |       | 6             | 152.4 | 14.25            | 361.9 |                   |                                |      |      |              |                          |        |               |                             | 14     | 62.2 |
| PHMPB6905-12 |            |       | 12            | 304.8 | 20.25            | 514.3 |                   |                                |      |      |              |                          |        |               |                             | 17     | 75.6 |
| PHMPB6905-18 |            |       | 18            | 457.2 | 26.25            | 666.7 |                   |                                |      |      |              |                          |        |               |                             | 19     | 84.5 |

Clutch models are available upon request

# SPB SERIES

500 lbs Clutch

2,224 N Clutch



## Specifications

### CAPACITY

500 lbs (2,224 N)

### STATIC LOAD

750 lbs (3,336 N)

### TUBE RESTRAINING TORQUE

60 in-lbf (6.7 Nm)

### DESIGN

Acme Screw

### TEMPERATURE RANGE

-20°F to 120°F (-29°C to 50°C)  
(Special grease for low temperature)

### ENVIRONMENT

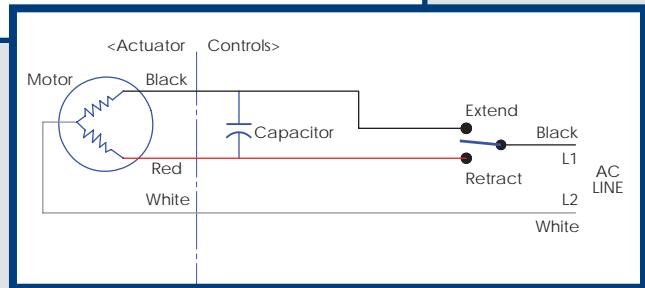
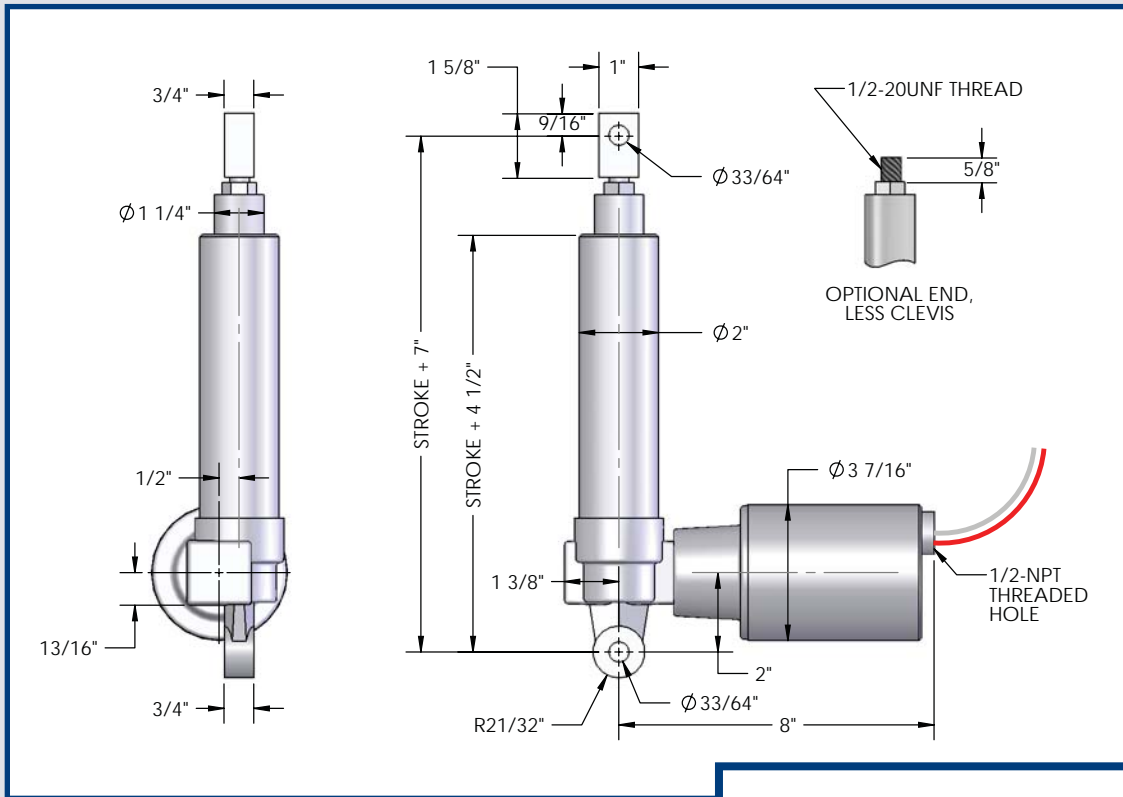
IP50 Protection standard  
IP52 Optional

## Features & Benefits

- Heavy duty design for long life in tough applications
- Patented Spring Type Brake
- Aluminum housing and outer tube
- Steel translating tube – zinc chromate plated
- Double clevis mounting
- Load limiting friction disc clutch
- Automatic reset thermal overload motor protection

## Options

- Capacitor (see table) - Standard on 220 VAC 50 hz model
- Weather Resistant Sealant – IP52 (add “W” prefix)
- Bellows Boot
- Thread end (add “T” prefix)



**SPB Series Clutch Model 500 lb (2,224 N) Capacity**

**PRODUCT INFORMATION**

| Part Number | Rated Load |       | Stroke Length |       | Retracted Length |       | Voltage         | Current Draw at Rated Load (A) | Speed at Rated Load |      | Clutch | High Speed Motor | Capacitor               | Duty Cycle at Rated Load |        | Weight lbs (N) |      |
|-------------|------------|-------|---------------|-------|------------------|-------|-----------------|--------------------------------|---------------------|------|--------|------------------|-------------------------|--------------------------|--------|----------------|------|
|             | lbs        | N     | in            | mm    | in               | mm    |                 |                                | in/s                | mm/s |        |                  |                         | in/h                     | mm/h   | lbs            | N    |
| SPB6405-3   | 500        | 2,224 | 3             | 76.2  | 10               | 254.0 | 115 Vac (60 Hz) | 2.1                            | 0.58                | 14.7 | Yes    | No               | SK6405-7-1 (28-33 MFD)  | 500                      | 12,700 | 10             | 44.4 |
| SPB6405-6   |            |       | 6             | 152.4 | 13               | 330.2 |                 |                                |                     |      |        |                  |                         |                          |        | 12             | 53.3 |
| SPB6405-12  |            |       | 12            | 304.8 | 19               | 482.6 |                 |                                |                     |      |        |                  |                         |                          |        | 14             | 62.2 |
| SPB6405-18  |            |       | 18            | 457.2 | 25               | 635.0 |                 |                                |                     |      |        |                  |                         |                          |        | 17             | 75.6 |
| SPB7405-3   | 500        | 2,224 | 3             | 76.2  | 10               | 254.0 | 220 Vac (50 Hz) | 1                              | 0.51                | 12.9 | Yes    | No               | SK6405-7-10 (28-33 MFD) | 440                      | 11,176 | 10             | 44.4 |
| SPB7405-6   |            |       | 6             | 152.4 | 13               | 330.2 |                 |                                |                     |      |        |                  |                         |                          |        | 12             | 53.3 |
| SPB7405-12  |            |       | 12            | 304.8 | 19               | 482.6 |                 |                                |                     |      |        |                  |                         |                          |        | 14             | 62.2 |
| SPB7405-18  |            |       | 18            | 457.2 | 25               | 635.0 |                 |                                |                     |      |        |                  |                         |                          |        | 17             | 75.6 |
| HSPB6405-3  | 500        | 2,224 | 3             | 76.2  | 10               | 254.0 | 115 Vac (60 Hz) | 5.5                            | 1.3                 | 33.0 | Yes    | Yes              | SK6405-7-3 (64-72 MFD)  | 500                      | 12,700 | 10             | 44.4 |
| HSPB6405-6  |            |       | 6             | 152.4 | 13               | 330.2 |                 |                                |                     |      |        |                  |                         |                          |        | 12             | 53.3 |
| HSPB6405-12 |            |       | 12            | 304.8 | 19               | 482.6 |                 |                                |                     |      |        |                  |                         |                          |        | 14             | 62.2 |
| HSPB6405-18 |            |       | 18            | 457.2 | 25               | 635.0 |                 |                                |                     |      |        |                  |                         |                          |        | 17             | 75.6 |

# TAC SERIES

500 lbs Clutch

2,224 N Clutch



## Specifications

### CAPACITY

500 lbs (2,224 N)

### STATIC LOAD

1,000 lbs (4,448 N)

### TUBE RESTRAINING TORQUE

40 in-lbf (4.5 Nm)

### DESIGN

Acme Screw

### TEMPERATURE RANGE

-20°F to 120°F (-29°C to 50°C)  
(Special grease for low temperature)

### ENVIRONMENT

IP50 Protection standard

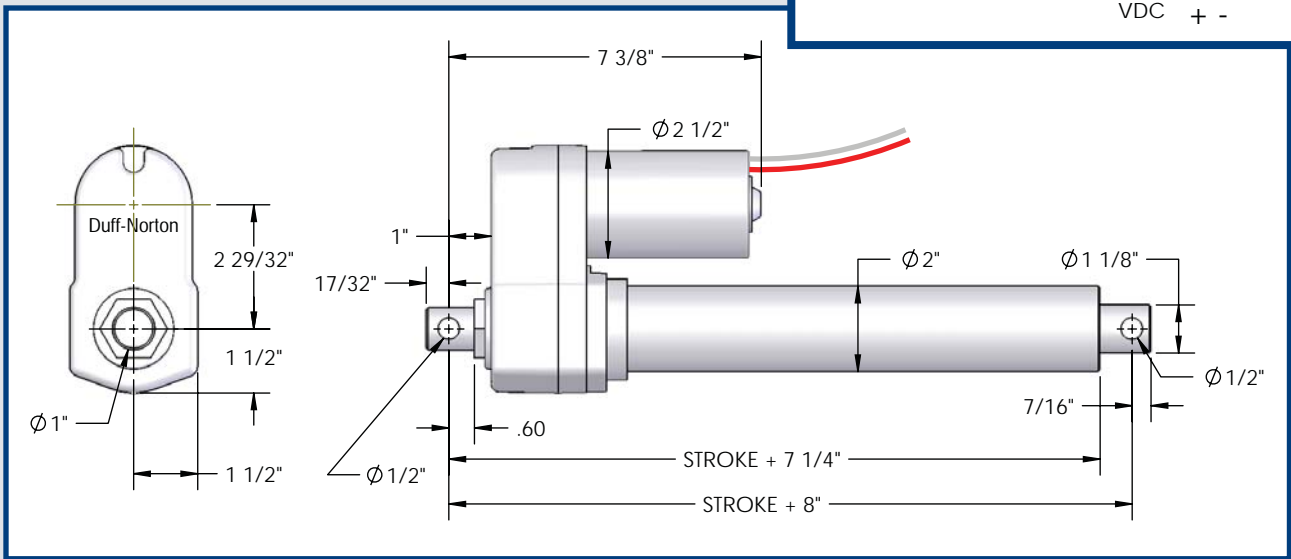
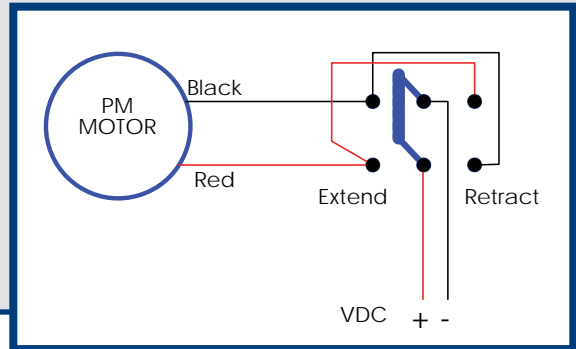
## Features & Benefits

- Heavy duty design for long life in tough applications
- Aluminum housing and outer tube
- Stainless steel translating tube
- Double clevis mounting
- Load limiting ball detent clutch
- Automatic reset thermal overload motor protection

## Options

- Bellows boot





| TAC Series Clutch Model 500 lb (2,224 N) Capacity |            |       |               |       |                  |       |         |                                |                     |      |              |        |                          |        |      |
|---|------------|-------|---------------|-------|------------------|-------|---------|--------------------------------|---------------------|------|--------------|--------|--------------------------|--------|------|
| Part Number                                       | Rated Load |       | Stroke Length |       | Retracted Length |       | Voltage | Current Draw at Rated Load (A) | Speed at Rated Load |      | Limit Switch | Clutch | Duty Cycle at Rated Load | Weight |      |
|   | lbs        | N     | in            | mm    | in               | mm    | Vdc     |                                | in/s                | mm/s |              |        |                          | lbs    | N    |
| TAC05-1D20-4                                      | 500        | 2,224 | 4             | 101.6 | 12               | 304.8 | 12      | 10                             | 0.45                | 11.4 | No           | Yes    | 40%                      | 15     | 66.7 |
| TAC05-1D20-8                                      |            |       | 8             | 203.2 | 16               | 406.4 |         |                                |                     |      |              |        |                          | 16     | 71.1 |
| TAC05-1D20-12                                     |            |       | 12            | 304.8 | 20               | 508.0 |         |                                |                     |      |              |        |                          | 17     | 75.6 |
| TAC05-2D20-4                                      | 500        | 2,224 | 4             | 101.6 | 12               | 304.8 | 24      | 5                              | 0.45                | 11.4 | No           | Yes    | 40%                      | 15     | 66.7 |
| TAC05-2D20-8                                      |            |       | 8             | 203.2 | 16               | 406.4 |         |                                |                     |      |              |        |                          | 16     | 71.1 |
| TAC05-2D20-12                                     |            |       | 12            | 304.8 | 20               | 508.0 |         |                                |                     |      |              |        |                          | 17     | 75.6 |

# TAL SERIES

1,000 lbs

4,448 N

## Specifications

### CAPACITY

1,000 lbs (8,896 N)

### STATIC LOAD

2,000 lbs (8,896 N)

### TUBE RESTRAINING TORQUE

80 in-lbf (9 Nm)

### DESIGN

Acme Screw

### TEMPERATURE RANGE

-20°F to 120°F (-29°C to 50°C)  
(Special grease for low temperature)

### ENVIRONMENT

IP50 Protection standard

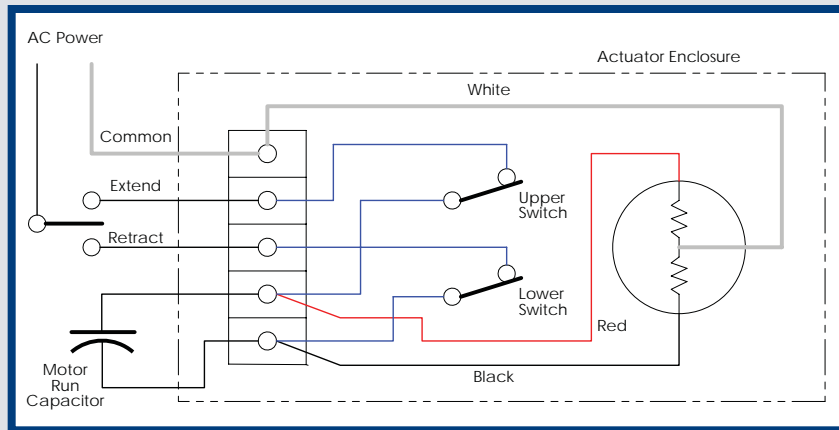
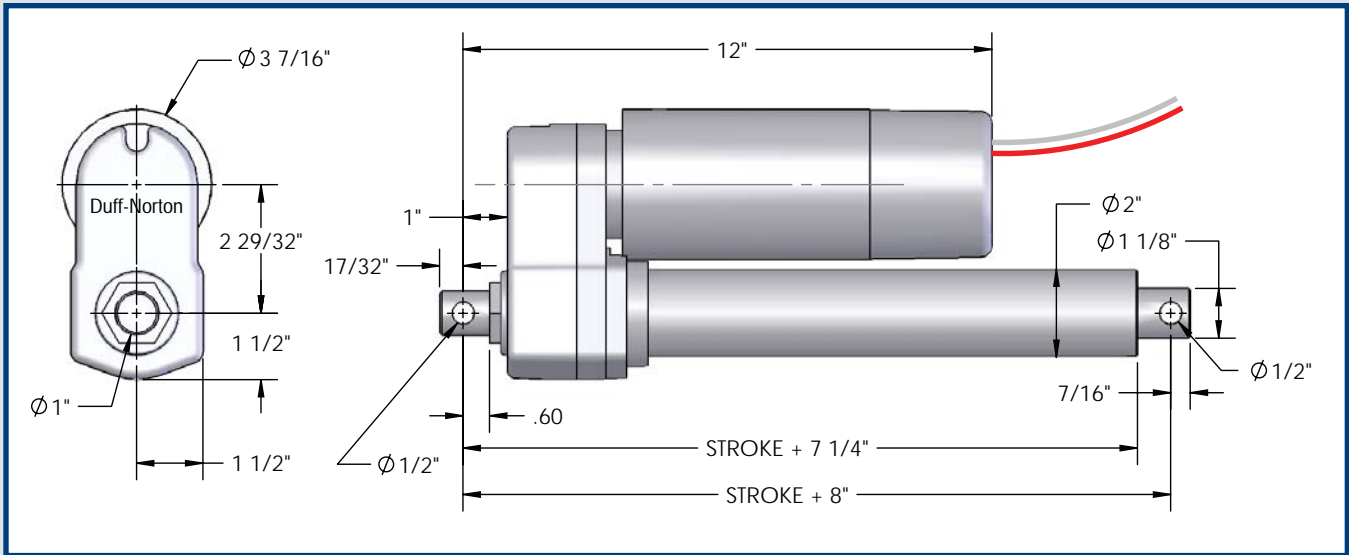


## Features & Benefits

- Heavy duty design for long life in tough applications
- Adjustable limit switches on motor end save space
- Aluminum housing and outer tube
- Stainless steel translating tube
- Double clevis mounting
- Automatic reset thermal overload motor protection

## Options

- Potentiometer feedback
- Capacitor (see table)
- Bellows Boot



| TAL Linear Actuator 1,000 lb (4,448 N) Capacity |            |       |               |       |                  |       |                            |                                |                     |            |              |                      |                          |        |      |
|---|------------|-------|---------------|-------|------------------|-------|----------------------------|--------------------------------|---------------------|------------|--------------|----------------------|--------------------------|--------|------|
| Part Number                                     | Rated Load |       | Stroke Length |       | Retracted Length |       | Voltage                    | Current Draw at Rated Load (A) | Speed at Rated Load |            | Limit Switch | Capacitor            | Duty Cycle at Rated Load | Weight |      |
|   | lbs        | N     | in            | mm    | in               | mm    |                            |                                | in/s                | mm/s       |              |                      |                          | lbs    | N    |
| TAL10-1A20-4                                    | 1,000      | 4,448 | 4             | 101.6 | 12               | 304.8 | 115 Vac (60 Hz)            | 4                              | 0.43                | 10.9       | Yes          | SK6405-7-15 (50 MFD) | 17.5%                    | 19     | 84.5 |
| TAL10-1A20-8                                    |            |       | 8             | 203.2 | 16               | 406.4 |                            |                                |                     |            |              |                      |                          | 21     | 93.4 |
| TAL10-1A20-12                                   |            |       | 12            | 304.8 | 20               | 508.0 |                            |                                |                     |            |              |                      |                          | 21     | 93.4 |
| TAL10-2A20-4                                    | 1,000      | 4,448 | 4             | 101.6 | 12               | 304.8 | 220 / 230 Vac (50 / 60 Hz) | 2.0/2.5                        | 0.45 / 0.37         | 11.4 / 9.4 | Yes          | SK6405-7-14 (15 MFD) | 17% (14%)                | 19     | 84.5 |
| TAL10-2A20-8                                    |            |       | 8             | 203.2 | 16               | 406.4 |                            |                                |                     |            |              |                      |                          | 21     | 93.4 |
| TAL10-2A20-12                                   |            |       | 12            | 304.8 | 20               | 508.0 |                            |                                |                     |            |              |                      |                          | 21     | 93.4 |

Clutch models are available upon request

# LSPD SERIES

1,500 lbs

6,672 N

## Specifications

### CAPACITY

1,500 lbs (6,672 N)

### STATIC LOAD

2,000 lbs (8,896 N)

### TUBE RESTRAINING TORQUE

215 in-lbf (24.2 Nm)

### DESIGN

Acme Screw

### TEMPERATURE RANGE

15°F to 120°F (-10°C to 50°C)

### ENVIRONMENT

IP50 Protection standard

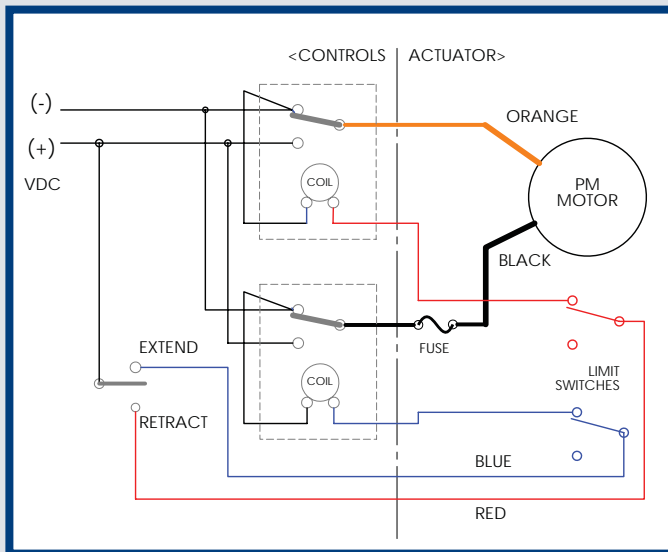
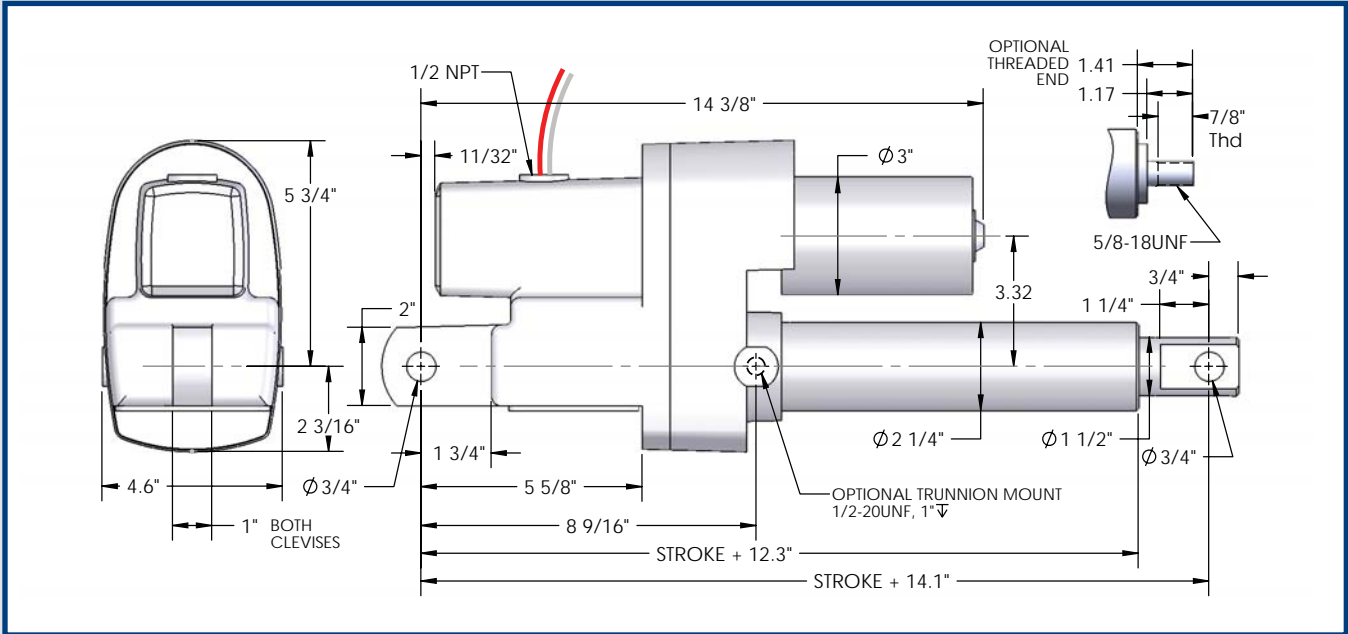


## Features & Benefits

- Heavy duty design for long life in tough applications
- Bi-directional spring type brake
- Aluminum housing and outer tube
- Steel translating tube – zinc chromate plated
- Double clevis mounting
- Internal adjustable limit switches

## Options

- Potentiometer (add “P” prefix)
- Weather Resistant Sealant – IP52 (add “W” prefix)
- Bellows Boot
- Trunnion Mounting (add “R” prefix)
- Thread end (add “T” prefix)



**Note:**

(2) relays are required for DC limit switch models

| LSPD Linear Actuator 1,500 lb (6,672 N) Capacity |            |       |               |       |                  |       |         |                                |                     |      |              |                          |        |        |       |
|--|------------|-------|---------------|-------|------------------|-------|---------|--------------------------------|---------------------|------|--------------|--------------------------|--------|--------|-------|
| Part Number                                      | Rated Load |       | Stroke Length |       | Retracted Length |       | Voltage | Current Draw at Rated Load (A) | Speed at Rated Load |      | Limit Switch | Duty Cycle at Rated Load |        | Weight |       |
|  | lbs        | N     | in            | mm    | in               | mm    |         |                                | in/s                | mm/s |              | in/h                     | mm/h   | lbs    | N     |
| LSPD6415-3                                       | 1,500      | 6,672 | 3             | 76.2  | 17.1             | 434.3 | 12 Vdc  | 27                             | 0.43                | 10.9 | Yes          | 410                      | 10,414 | 29     | 128.9 |
| LSPD6415-6                                       |            |       | 6             | 152.4 | 20.1             | 510.5 |         |                                |                     |      |              |                          |        | 31     | 137.8 |
| LSPD6415-12                                      |            |       | 12            | 304.8 | 26.1             | 662.9 |         |                                |                     |      |              |                          |        | 33     | 146.7 |
| LSPD6415-18                                      |            |       | 18            | 457.2 | 32.1             | 815.3 |         |                                |                     |      |              |                          |        | 35     | 155.6 |
| LSPD6415-24                                      |            |       | 24            | 609.6 | 38.1             | 967.7 |         |                                |                     |      |              |                          |        | 37     | 164.5 |

Clutch models are available upon request

# SPA SERIES

1,500 lbs

6,672 N

## Specifications

### CAPACITY

1,500 lbs (6,672 N)

### STATIC LOAD

2,000 lbs (8,896 N)

### TUBE RESTRAINING TORQUE

215 in-lbf (24.2 Nm)

### DESIGN

Acme Screw

### TEMPERATURE RANGE

15°F to 120°F (-10°C to 50°C)

### ENVIRONMENT

IP50 Protection standard

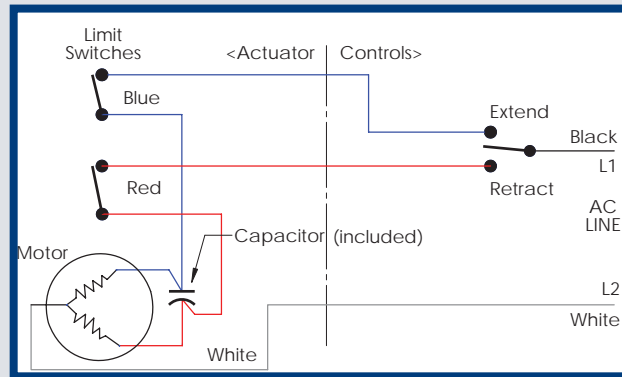
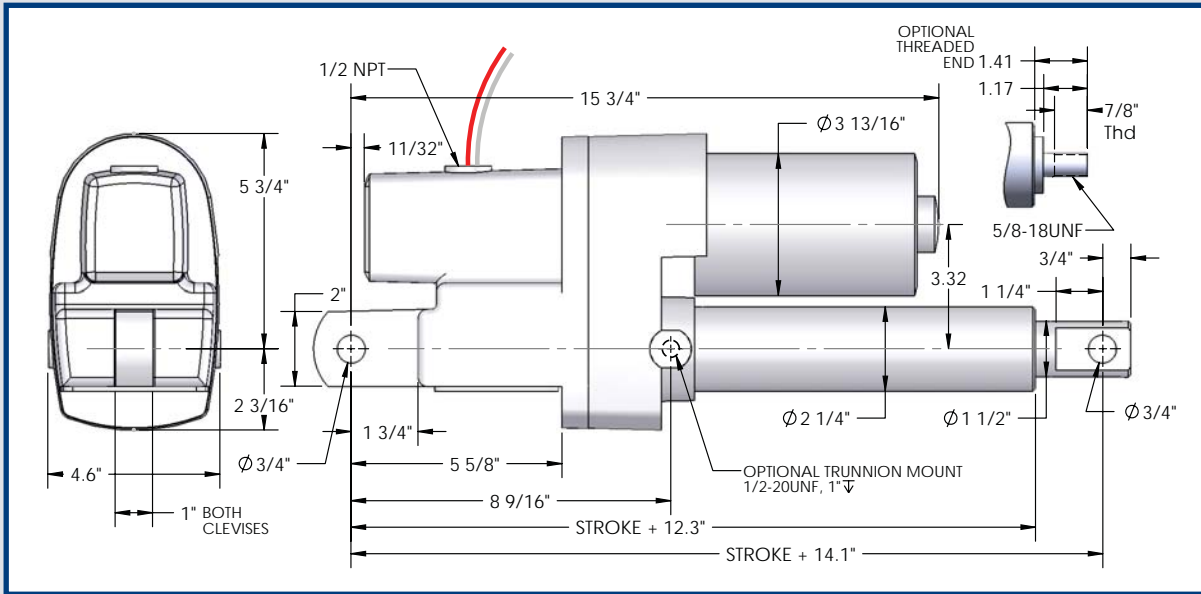


## Features & Benefits

- Heavy duty design for long life in tough applications
- Built in capacitor included
- Bi-directional spring type brake
- Aluminum housing and outer tube
- Steel translating tube – zinc chromate plated
- Double clevis mounting
- Internal adjustable limit switches
- Automatic reset thermal overload motor protection

## Options

- Potentiometer Feedback
- Weather Resistant Sealant – IP52 (add “W” prefix)
- Bellows Boot
- Trunnion Mounting (add “R” prefix)
- Thread end (add “T” prefix)



SPA Series - 1,500 lb (6,672 N) Capacity

PRODUCT INFORMATION

| Part Number | Rated Load lbs (N) |       | Stroke Length |       | Retracted Length |       | Voltage         | Current Draw at Rated Load (A) | Speed at Rated Load |      | Limit Switch | Potentiometer | Duty Cycle at Rated Load |        | Weight |       |
|-------------|--------------------|-------|---------------|-------|------------------|-------|-----------------|--------------------------------|---------------------|------|--------------|---------------|--------------------------|--------|--------|-------|
|             | lbs                | N     | in            | mm    | in               | mm    |                 |                                | in/s                | mm/s |              |               | in/h                     | mm/h   | lbs    | N     |
| SPA6415-3   | 1,500              | 6,672 | 3             | 76.2  | 17.1             | 434.3 | 115 Vac (60 Hz) | 6.5                            | 0.83                | 21.0 | Yes          | No            | 500                      | 12,700 | 31     | 137.8 |
| SPA6415-6   |                    |       | 6             | 152.4 | 20.1             | 510.5 |                 |                                |                     |      |              |               |                          |        | 33     | 146.7 |
| SPA6415-12  |                    |       | 12            | 304.8 | 26.1             | 662.9 |                 |                                |                     |      |              |               |                          |        | 35     | 155.6 |
| SPA6415-18  |                    |       | 18            | 457.2 | 32.1             | 815.3 |                 |                                |                     |      |              |               |                          |        | 37     | 164.5 |
| SPA6415-24  |                    |       | 24            | 609.6 | 38.1             | 967.7 |                 |                                |                     |      |              |               |                          |        | 39     | 173.4 |
| PSPA6415-3  | 1,500              | 6,672 | 3             | 76.2  | 17.1             | 434.3 | 115 Vac (60 Hz) | 6.5                            | 0.83                | 21.0 | Yes          | Yes           | 500                      | 12,700 | 31     | 137.8 |
| PSPA6415-6  |                    |       | 6             | 152.4 | 20.1             | 510.5 |                 |                                |                     |      |              |               |                          |        | 33     | 146.7 |
| PSPA6415-12 |                    |       | 12            | 304.8 | 26.1             | 662.9 |                 |                                |                     |      |              |               |                          |        | 35     | 155.6 |
| PSPA6415-18 |                    |       | 18            | 457.2 | 32.1             | 815.3 |                 |                                |                     |      |              |               |                          |        | 37     | 164.5 |
| PSPA6415-24 |                    |       | 24            | 609.6 | 38.1             | 967.7 |                 |                                |                     |      |              |               |                          |        | 39     | 173.4 |
| SPA7415-3   | 1,500              | 6,672 | 3             | 76.2  | 17.1             | 434.3 | 220 Vac (50 Hz) | 2                              | 0.68                | 17.2 | Yes          | No            | 600                      | 15,240 | 31     | 137.8 |
| SPA7415-6   |                    |       | 6             | 152.4 | 20.1             | 510.5 |                 |                                |                     |      |              |               |                          |        | 33     | 146.7 |
| SPA7415-12  |                    |       | 12            | 304.8 | 26.1             | 662.9 |                 |                                |                     |      |              |               |                          |        | 35     | 155.6 |
| SPA7415-18  |                    |       | 18            | 457.2 | 32.1             | 815.3 |                 |                                |                     |      |              |               |                          |        | 37     | 164.5 |
| SPA7415-24  |                    |       | 24            | 609.6 | 38.1             | 967.7 |                 |                                |                     |      |              |               |                          |        | 39     | 173.4 |
| PSPA7415-3  | 1,500              | 6,672 | 3             | 76.2  | 17.1             | 434.3 | 220 Vac (50 Hz) | 2                              | 0.68                | 17.2 | Yes          | Yes           | 600                      | 15,240 | 31     | 137.8 |
| PSPA7415-6  |                    |       | 6             | 152.4 | 20.1             | 510.5 |                 |                                |                     |      |              |               |                          |        | 33     | 146.7 |
| PSPA7415-12 |                    |       | 12            | 304.8 | 26.1             | 662.9 |                 |                                |                     |      |              |               |                          |        | 35     | 155.6 |
| PSPA7415-18 |                    |       | 18            | 457.2 | 32.1             | 815.3 |                 |                                |                     |      |              |               |                          |        | 37     | 164.5 |
| PSPA7415-24 |                    |       | 24            | 609.6 | 38.1             | 967.7 |                 |                                |                     |      |              |               |                          |        | 39     | 173.4 |

# SPA SERIES

2,000 lbs

8,896 N

## Specifications

### CAPACITY

2,000 lbs (8,896 N)

### STATIC LOAD

2,000 lbs (8,896 N)

### TUBE RESTRAINING TORQUE

180 in-lbf (20.3 Nm)

### DESIGN

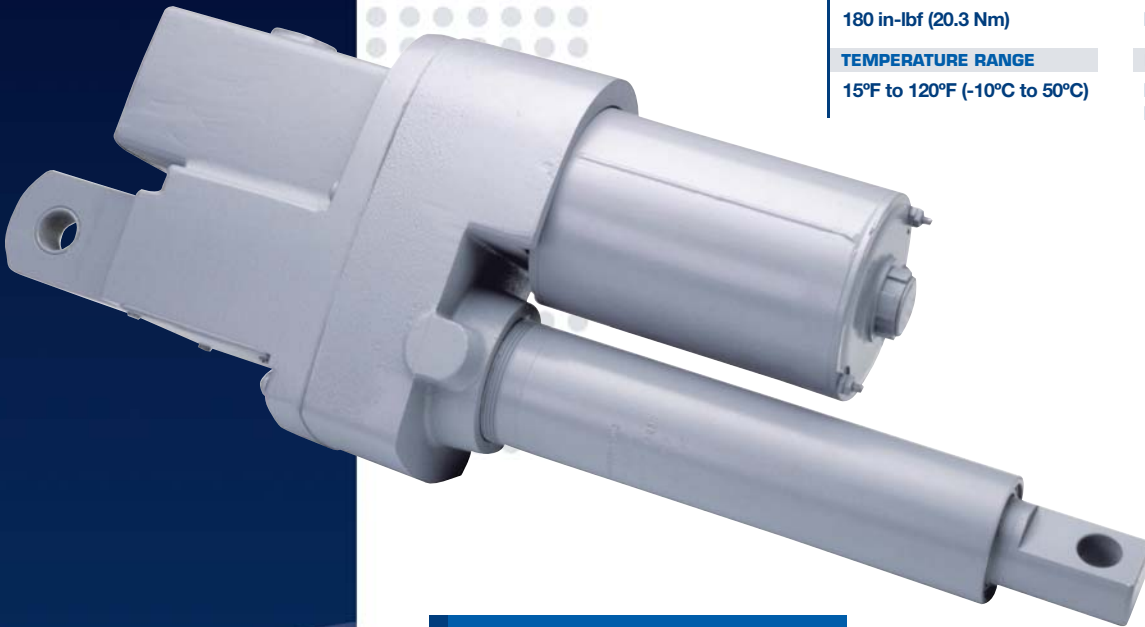
Ball Screw Drive

### TEMPERATURE RANGE

15°F to 120°F (-10°C to 50°C)

### ENVIRONMENT

IP50 Protection standard  
IP52 Optional



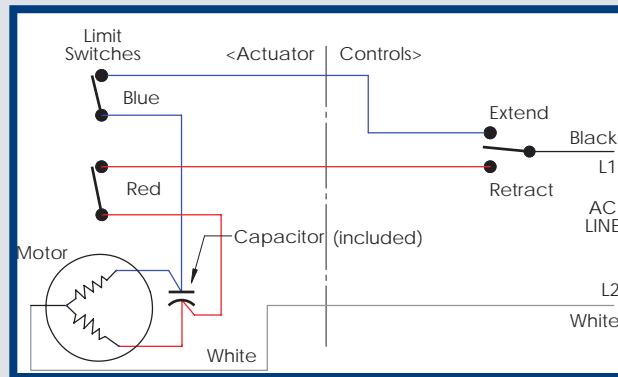
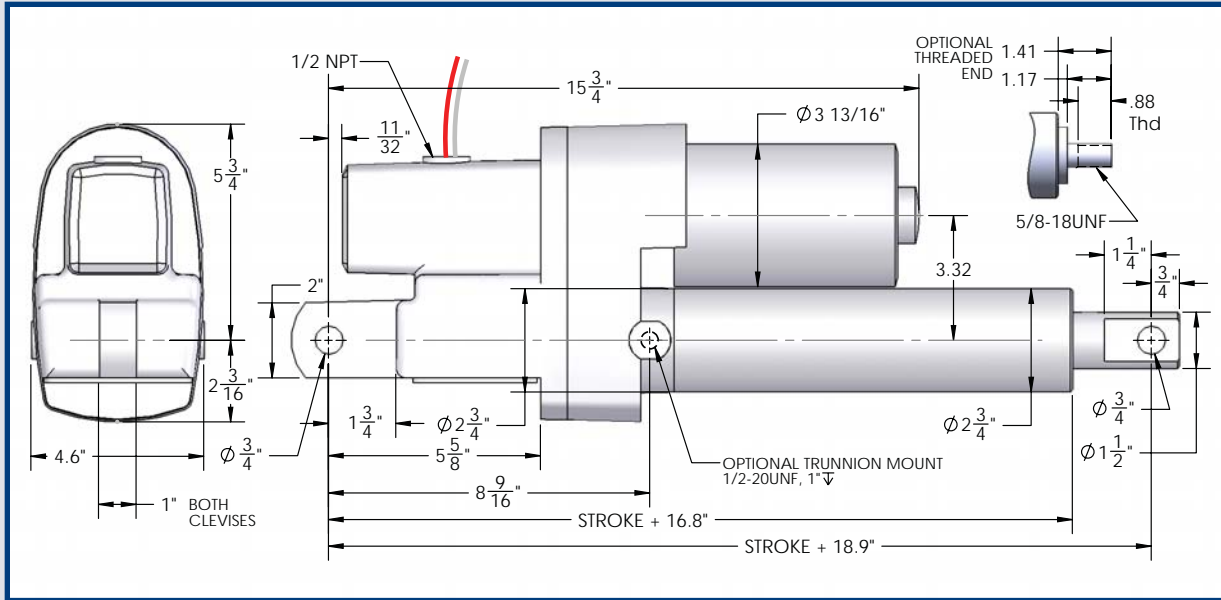
## Features & Benefits

- Heavy duty design for long life in tough applications
- Built in capacitor included
- Automatic set spring type brake
- Aluminum housing and outer tube
- Steel translating tube – steel zinc chromate plated
- Double clevis mounting
- Internal adjustable limit switches

## Options

- Weather Resistant Sealant – IP52 (add “W” prefix)
- Bellows Boot
- Trunnion Mounting (add “R” prefix)
- Potentiometer Feedback
- Thread end (add “T” prefix)





**SPA Series 2,000 lb (8,896 N) Capacity**

| Part Number | Rated Load lbs (N) |       | Stroke Length |       | Retracted Length |        | Voltage         | Current Draw at Rated Load (A) | Speed at Rated Load |      | Limit Switch | Duty Cycle at Rated Load |        | Weight |       |
|-------------|--------------------|-------|---------------|-------|------------------|--------|-----------------|--------------------------------|---------------------|------|--------------|--------------------------|--------|--------|-------|
|             | lbs                | N     | in            | mm    | in               | mm     |                 |                                | in/s                | mm/s |              | in/h                     | mm/h   | lbs    | N     |
| SPA6420-3   | 2,000              | 8,896 | 3             | 76.2  | 21.9             | 556.2  | 115Vac (60 Hz)  | 5.1                            | 0.86                | 21.8 | Yes          | 600                      | 15,240 | 31     | 787.4 |
| SPA6420-6   |                    |       | 6             | 152.4 | 24.9             | 632.4  |                 |                                |                     |      |              |                          |        | 33     | 146.7 |
| SPA6420-12  |                    |       | 12            | 304.8 | 30.9             | 784.8  |                 |                                |                     |      |              |                          |        | 35     | 155.6 |
| SPA6420-18  |                    |       | 18            | 457.2 | 36.9             | 937.2  |                 |                                |                     |      |              |                          |        | 37     | 164.5 |
| SPA6420-24  |                    |       | 24            | 609.6 | 42.9             | 1089.6 |                 |                                |                     |      |              |                          |        | 39     | 990.6 |
| PSPA6420-3  | 2,000              | 8,896 | 3             | 76.2  | 21.9             | 556.2  | 115Vac (60 Hz)  | 5.1                            | 0.86                | 21.8 | Yes          | 600                      | 15,240 | 31     | 787.4 |
| PSPA6420-6  |                    |       | 6             | 152.4 | 24.9             | 632.4  |                 |                                |                     |      |              |                          |        | 33     | 146.7 |
| PSPA6420-12 |                    |       | 12            | 304.8 | 30.9             | 784.8  |                 |                                |                     |      |              |                          |        | 35     | 155.6 |
| PSPA6420-18 |                    |       | 18            | 457.2 | 36.9             | 937.2  |                 |                                |                     |      |              |                          |        | 37     | 164.5 |
| PSPA6420-24 |                    |       | 24            | 609.6 | 42.9             | 1089.6 |                 |                                |                     |      |              |                          |        | 39     | 990.6 |
| SPA7420-3   | 2,000              | 8,896 | 3             | 76.2  | 21.9             | 556.2  | 220 Vac (50 Hz) | 2                              | 0.68                | 17.2 | Yes          | 630                      | 16,002 | 31     | 787.4 |
| SPA7420-6   |                    |       | 6             | 152.4 | 24.9             | 632.4  |                 |                                |                     |      |              |                          |        | 33     | 146.7 |
| SPA7420-12  |                    |       | 12            | 304.8 | 30.9             | 784.8  |                 |                                |                     |      |              |                          |        | 35     | 155.6 |
| SPA7420-18  |                    |       | 18            | 457.2 | 36.9             | 937.2  |                 |                                |                     |      |              |                          |        | 37     | 164.5 |
| SPA7420-24  |                    |       | 24            | 609.6 | 42.9             | 1089.6 |                 |                                |                     |      |              |                          |        | 39     | 990.6 |

PRODUCT INFORMATION

Contact factory for potentiometer models

# MODULAR ACTUATORS

100 to 2,000 lbs

444 to 8,896 N



Duff-Norton Modular Actuators allow use in a wide range of applications by matching standard actuator models with AC or DC electric, air, hydraulic or explosion-proof drive units.

The rotating screw models, featuring a traveling lift nut, permit reliable load positioning in locations which are relatively free of dust, dirt and moisture.

Translating tube units, with an enclosed lifting screw and translating tube, are specified when environmental contamination is anticipated.

Optional limit switches and transducers are also available for both actuator types.

## Features & Benefits

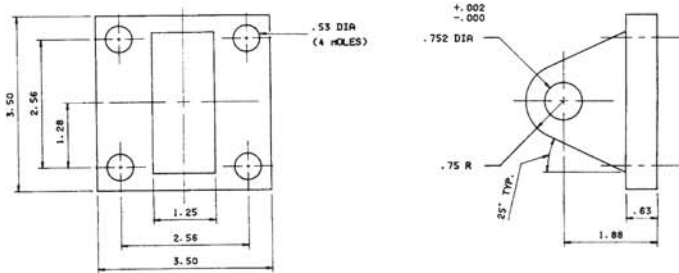
- Integral housing flange engineered for NEMA 56 frame motor. C-face mounting. (NEMA 42 and 48 and IEC71 frame motor C-face mounting options available).
- Rated loads to 2,000 lbs., depending on actuator gear ratio and motor horsepower.
- Lift speeds to 170 inches per minute (varied with load and hp/rpm of motor).
- Standard travel up to 24 inches. (consult Duff-Norton engineering for longer travel options).
- Can be tandem-coupled for synchronous operation.
- Optional motors, limit switches and position indicating transducer.
- Clevis attachment accessories available for mounting: eye bracket, clevis bracket and pivot pin.

**WARNING:** These actuators are intended for industrial use only and should not be used to lift, support or otherwise transport people unless you have a written statement from Duff-Norton company which authorizes the specific actuator unit, as used in your application, as suitable for moving people.

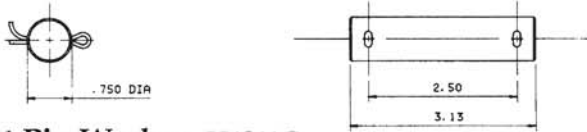
Clevis attachments are available for modular actuators. Attachments are suitable for either housing end or translating tube end. Mounting hardware is not included.

### Clevis Accessories

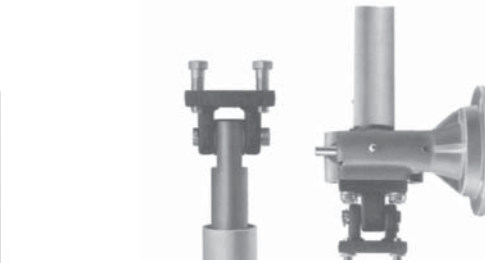
#### Eye Bracket SK2465-60EB



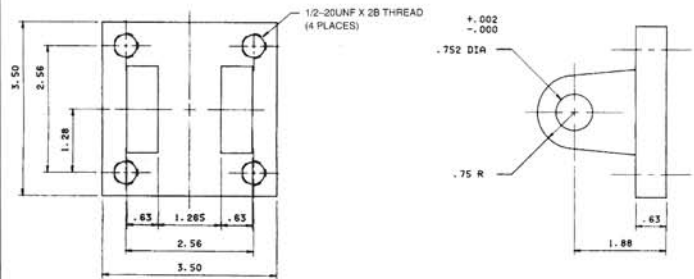
#### Pivot Pin SK2465-62PP



#### Pivot Pin Washer H4211C

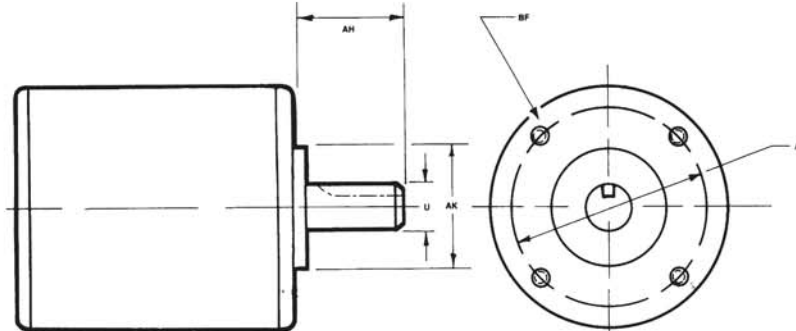


#### Clevis Bracket SK2465-61CB



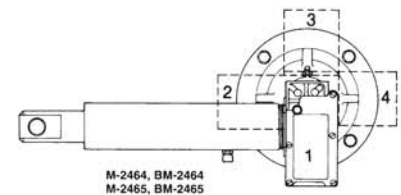
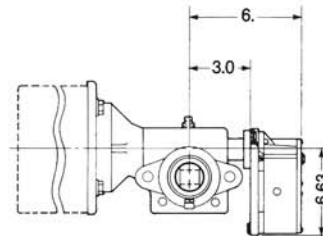
### Ordering Information

(For special motor flange)



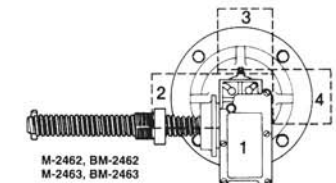
| Required Motor Information |      |    |    |    |   |          |    |
|----------------------------|------|----|----|----|---|----------|----|
| Manufacturer               | Type | AH | AK | AJ | U | Key Size | BF |
|                            |      |    |    |    |   |          |    |

### Limit Switch



| POSITION                         | 1 | 2 | 3 | 4 |
|----------------------------------|---|---|---|---|
| M-2462, M-2463, BM-2462, BM-2463 | C | A | D | C |
| M-2464, M-2465, BM-2464, BM-2465 | C | X | D | C |

- (A) MINIMUM POSITION OF NUT MAY BE AFFECTED.
- (C) ROTARY LIMIT SWITCH EXTENDS BELOW BASE OF ACTUATOR UNIT.
- (D) SEALED ELECTRIC ELBOW WOULD EXTEND BELOW BASE OF ACTUATOR UNIT.
- (X) RECOMMENDED
- (-) NOT RECOMMENDED

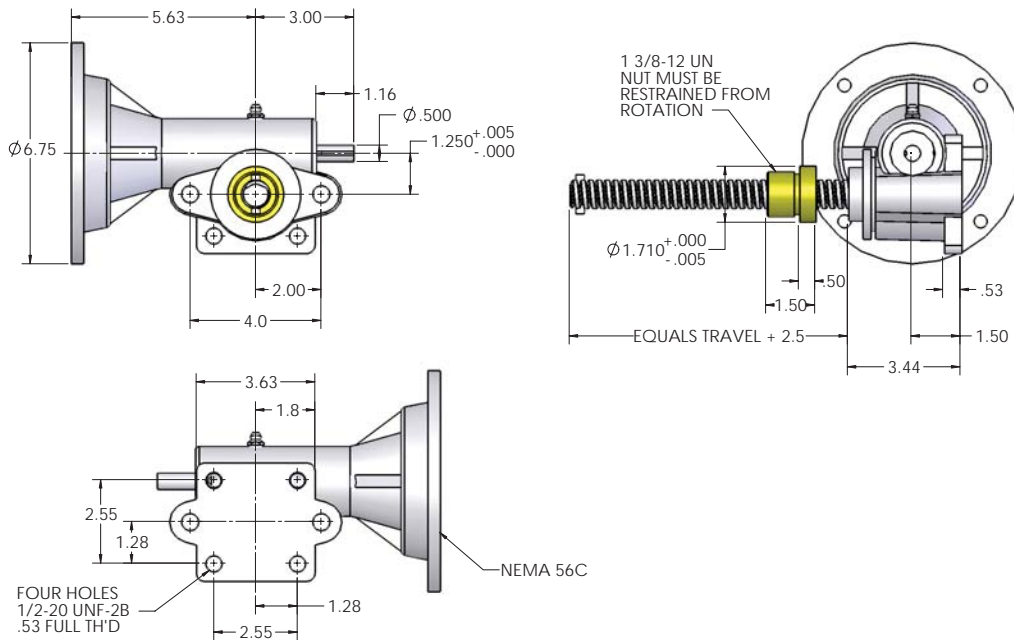


POSITION NO. OF SWITCH

# ROTATING MACHINE SCREW MODELS

## Features & Benefits

- Integral 56 frame, C-face mounting flange.
- Three-piece flexible coupling for easy motor assembly (included).
- Four threaded holes in base for standard hydraulic cylinder, clevis end accessory attachment. Tapped 1/2 20 UNF-2B.
- Rolled thread lifting screw, with work hardened finish, reduces coefficient of friction between screw and lifting nut. Provides smooth, efficient operation and long service.
- Steel worm and bronze gear set for quiet operation. Available in 5:1 and 20:1 ratios.
- Rugged, lightweight aluminum housing is corrosion resistant.
- Bronze lifting nut for longer life.
- Standard grease fitting on housing for easy lubrication of worm gear.
- Stop-pin at end of lifting screw prevents inadvertent run-off of lifting nut.



Rotating Machine Screw Models

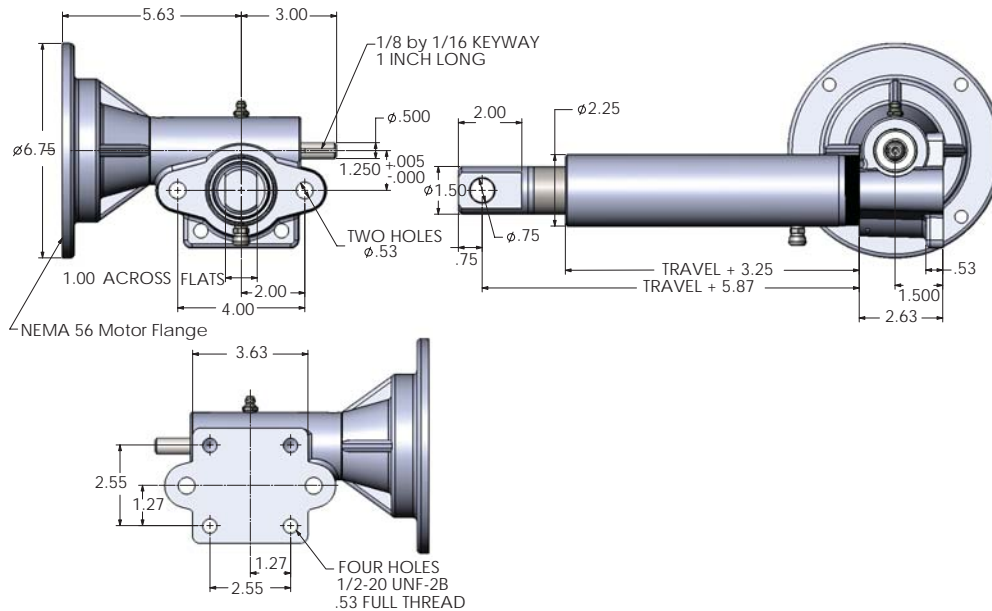
| PRODUCT INFORMATION | Model Number                               | "T" Screw Dia. | Turns of Worm 1" Travel |      | Torque lb./in. @ 1000 lb. Loads |      | Motor RPM | Rated Loads  |      |              |      |              |      | Lifting Speed in / min |      |
|---------------------|--|----------------|-------------------------|------|---------------------------------|------|-----------|--------------|------|--------------|------|--------------|------|------------------------|------|
|                     |  |                | Ratio                   |      | Ratio                           |      |           | 1/3 HP Motor |      | 1/2 HP Motor |      | 3/4 HP Motor |      | Ratio                  |      |
|                     |  |                | 5:1                     | 20:1 | 5:1                             | 20:1 |           | 5:1          | 20:1 | 5:1          | 20:1 | 5:1          | 20:1 | 5:1                    | 20:1 |
|                     |  |                | lbs                     |      | lbs                             |      |           | lbs          |      | lbs          |      | lbs          |      | lbs                    |      |
|                     |  |                | lbs                     |      | lbs                             |      |           | lbs          |      | lbs          |      | lbs          |      | lbs                    |      |
| M-2462              | .875 Dia. Acme<br>.25 Pitch<br>R.H. Double | 10             | 40                      | 39   | 18                              | 1725 | 300       | 700          | 500  | 1000         | 700  | 1500         | 170  | 43                     |      |
|                     |  |                |                         |      |                                 |      | 1140      | 450          | 1000 | 700          | 1500 | 1100         | 2000 | 114                    | 28   |
| M-2463              | 1.0 Dia. Acme<br>.25 Pitch<br>R.H. Single  | 20             | 80                      | 29   | 14                              | 1725 | 400       | 900          | 600  | 1400         | 900  | 2000         | 86   | 21                     |      |
|                     |  |                |                         |      |                                 |      | 1140      | 600          | 1400 | 900          | 2000 | 1400         | 2000 | 57                     | 14   |

- Note: 1. Model M-2462 is self lowering and a motor brake should be used.  
 2. Model M-2463 may drift .75 in. (20:1 ratio) to 2.0 in. (5:1 ratio) when motor is shut off. If this is undesirable, a motor brake should be employed.  
 3. When ordering other than 56C-face actuators contact applications engineering at 800-477-5002.

# TRANSLATING TUBE MACHINE SCREW MODELS

## Features & Benefits

- Outer aluminum tube is corrosion-resistant and protects translating tube, lifting screw and nut.
- Wiper-scraper seal in end of outer tube keeps dirt out and lubricants in.
- Bronze guide bushing inside of outer tube reduces lateral movement of translating screw.
- Translating tube zinc coated for weather-resistance.
- Single or double lead lifting screw and nut for high efficiency and long wear.
- Vent in outer tube prevents pressure build-up in the actuator.
- Furnished with standard clevis end on translating tube. Threaded end is available; and on special order, depending on application, any type of threaded connection may be substituted.



Translating Tube Machine Screw Models

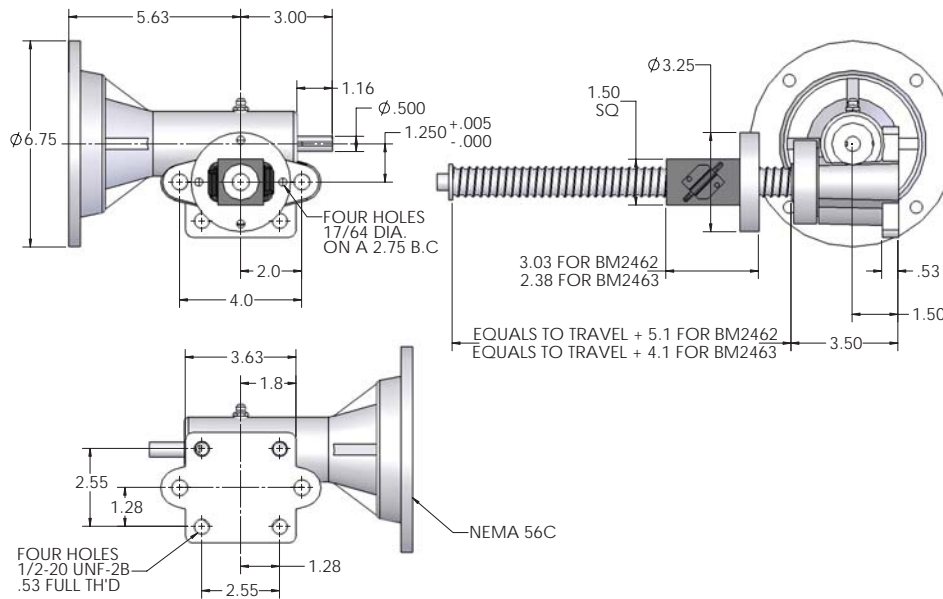
| PRODUCT INFORMATION | Model Number                               | "T" Screw Dia. | Turns of Worm 1" Travel |      | Torque lb./in. @ 1000 lb. Loads |      | Motor RPM | Rated Loads  |      |              |      |              |      | Lifting Speed in /min |      |
|---------------------|--|----------------|-------------------------|------|---------------------------------|------|-----------|--------------|------|--------------|------|--------------|------|-----------------------|------|
|                     |  |                | Ratio                   |      | Ratio                           |      |           | 1/3 HP Motor |      | 1/2 HP Motor |      | 3/4 HP Motor |      | Ratio                 |      |
|                     |  |                | 5:1                     | 20:1 | 5:1                             | 20:1 |           | 5:1          | 20:1 | 5:1          | 20:1 | 5:1          | 20:1 | 5:1                   | 20:1 |
|                     |  |                | lbs                     | lbs  | lbs                             | lbs  |           | lbs          | lbs  | lbs          | lbs  | lbs          | lbs  | lbs                   | lbs  |
|                     |  |                |                         |      |                                 |      |           |              |      |              |      |              |      |                       |      |
| M-2464              | .875 Dia. Acme<br>.25 Pitch<br>R.H. Double | 10             | 40                      | 39   | 18                              | 1725 | 300       | 700          | 500  | 1000         | 700  | 1500         | 170  | 43                    |      |
|                     |  |                |                         |      |                                 |      | 1140      | 450          | 1000 | 700          | 1500 | 1100         | 2000 | 114                   | 28   |
| M-2465              | 1.0 Dia. Acme<br>.25 Pitch<br>R.H. Single  | 20             | 80                      | 29   | 14                              | 1725 | 400       | 900          | 600  | 1400         | 900  | 2000         | 86   | 21                    |      |
|                     |  |                |                         |      |                                 |      | 1140      | 600          | 1400 | 900          | 2000 | 1400         | 2000 | 57                    | 14   |

- Note: 1. Model M-2464 is self lowering and a motor brake should be used.  
 2. Model M-2465 may drift .75 in. (20:1 ratio) to 2.0 in. (5:1 ratio) when motor is shut off. If this is undesirable, a motor brake should be employed.  
 3. When ordering other than 56C-face actuators contact applications engineering at 800-477-5002.

# ROTATING BALL SCREW MODELS

## Features & Benefits

- Integral 56 frame, C-face mounting flange.
- Three-piece flexible coupling for easy motor assembly (included).
- Four threaded holes in base for standard clevis end accessory attachment. Tapped 1/2-20 UNF-2B.
- Ball-bearing type screw and mating nut with rolling contact reduces friction to a minimum providing capability for higher speed and longer life with less power requirement.
- Steel worm and bronze gear set for quiet operation. Available in 5:1 and 20:1 ratios.
- Rugged, lightweight aluminum housing is corrosion resistant.
- Standard grease fitting on housing for easy lubrication of worm gear.
- Stop-disc at end of lifting screw prevents inadvertent run-off of ball nut.



## Rotating Ball Screw Models

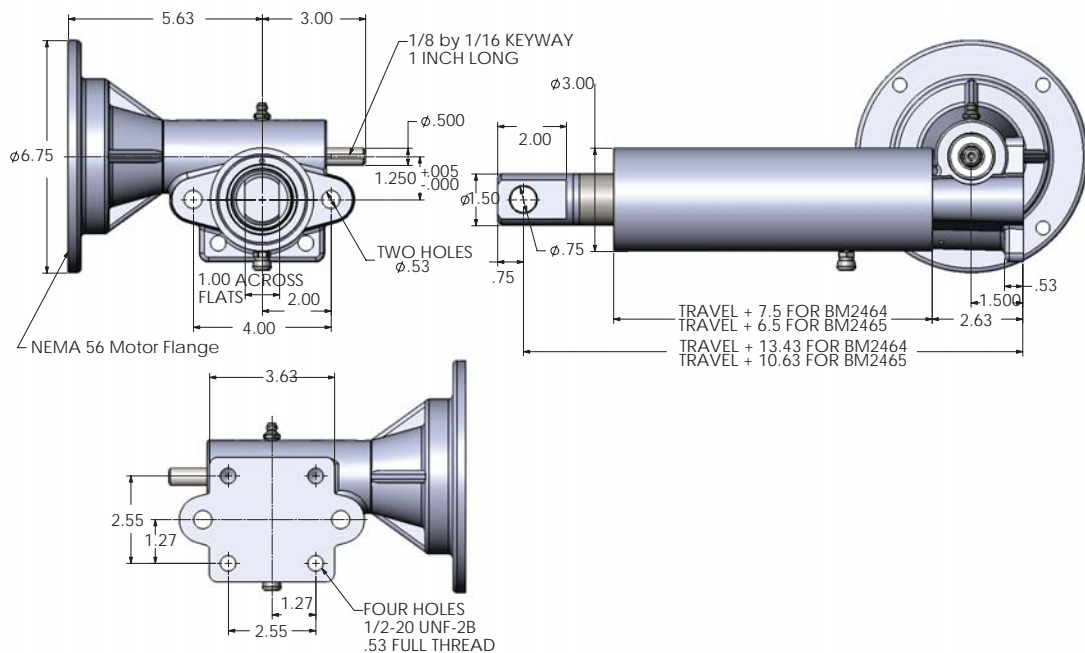
| PRODUCT INFORMATION | Model Number                      | "T" Screw Dia. | Turns of Worm 1" Travel |      | Torque lb./in. @ 100 lb. Loads |      | Motor RPM | Rated Loads  |      |              |      |              |      |              |      | Lifting Speed in / min |      |
|---------------------|-----------------------------------|----------------|-------------------------|------|--------------------------------|------|-----------|--------------|------|--------------|------|--------------|------|--------------|------|------------------------|------|
|                     |                                   |                | Ratio                   |      | Ratio                          |      |           | 1/4 HP Motor |      | 1/3 HP Motor |      | 1/2 HP Motor |      | 3/4 HP Motor |      | Ratio                  |      |
|                     |                                   |                | 5:1                     | 20:1 | 5:1                            | 20:1 |           | 5:1          | 20:1 | 5:1          | 20:1 | 5:1          | 20:1 | 5:1          | 20:1 | 5:1                    | 20:1 |
|                     |                                   |                | lbs                     | lbs  | lbs                            | lbs  |           | lbs          | lbs  | lbs          | lbs  | lbs          | lbs  | lbs          | lbs  | lbs                    | lbs  |
| BM-2462             | 1.00 Dia. x 1.000 Lead Ball Screw | 5              | -                       | 5.3  | -                              | 1725 | 100       | -            | 200  | -            | 300  | -            | 500  | -            | 345  | -                      |      |
|                     |                                   |                |                         |      |                                | 1140 | 200       | -            | 300  | -            | 500  | -            | 700  | -            | 228  | -                      |      |
| BM-2463             | 1.0 Dia. x .250 Lead Ball Screw   | 20             | 80                      | 1.3  | 0.6                            | 1725 | 600       | 1500         | 900  | 2000         | 1300 | -            | 2000 | -            | 86   | 21                     |      |
|                     |                                   |                |                         |      |                                | 1140 | 1000      | -            | 1300 | -            | 2000 | -            | -    | -            | 57   | 14                     |      |

- Note: 1. Model BM-2462 and BM-2463 are self lowering and a motor brake must be used.
2. Due to high travel speed of BM-2462, it is important that a brake with a minimum response time be used. An independently controlled direct acting brake (6ft.-lb for 3/4 HP motors and 3ft.-lb. for smaller motors) is recommended.
3. When ordering other than 56C-face actuators contact applications engineering at 800-477-5002.

# TRANSLATING TUBE BALL SCREW MODELS

## Features & Benefits

- Outer aluminum tube is corrosion-resistant and protects translating tube, lifting screw and nut.
- Wiper-scraper seal in end of outer tube keeps dirt out and lubricants in.
- Bronze guide bushing inside of outer tube reduces lateral movement of translating screw.
- Translating tube zinc coated for weather-resistance.
- Single or quadruple lead ball-bearing type lifting screw and nut for higher efficiency and long life.
- Vent in outer tube prevents pressure build-up in the actuator.
- Furnished with standard clevis end on translating tube. Threaded end is available; and on special order, depending on application, any type of threaded connection may be substituted.



Translating Tube Ball Screw Models

| PRODUCT INFORMATION | Model Number                      | "T" Screw Dia. | Turns of Worm 1" Travel |      | Torque lb./in. @ 100 lb. Loads |      | Motor RPM | Rated Loads  |      |              |      |              |      |              |      | Lifting Speed in / min |      |
|---------------------|-----------------------------------|----------------|-------------------------|------|--------------------------------|------|-----------|--------------|------|--------------|------|--------------|------|--------------|------|------------------------|------|
|                     |                                   |                | Ratio                   |      | Ratio                          |      |           | 1/4 HP Motor |      | 1/3 HP Motor |      | 1/2 HP Motor |      | 3/4 HP Motor |      | Ratio                  |      |
|                     |                                   |                | 5:1                     | 20:1 | 5:1                            | 20:1 |           | 5:1          | 20:1 | 5:1          | 20:1 | 5:1          | 20:1 | 5:1          | 20:1 | 5:1                    | 20:1 |
|                     |                                   |                | lbs                     |      | lbs                            |      |           | lbs          |      | lbs          |      | lbs          |      | lbs          |      | lbs                    |      |
|                     |                                   |                | lbs                     |      | lbs                            |      |           | lbs          |      | lbs          |      | lbs          |      | lbs          |      | lbs                    |      |
| BM-2464             | 1.00 Dia. x 1.000 Lead Ball Screw | 5              | -                       | 5.3  | -                              | 1725 | 100       | -            | 200  | -            | 300  | -            | 500  | -            | 345  | -                      |      |
|                     |                                   |                |                         |      |                                |      | 1140      | 200          | -    | 300          | -    | 500          | -    | 700          | -    | 228                    | -    |
| BM-2465             | 1.0 Dia. x .250 Lead Ball Screw   | 20             | 80                      | 1.3  | 0.6                            | 1725 | 600       | 1500         | 900  | 2000         | 1300 | -            | 2000 | -            | 86   | 21                     |      |
|                     |                                   |                |                         |      |                                |      | 1140      | 1000         | -    | 1300         | -    | 2000         | -    | -            | -    | 57                     | 14   |

- Note: 1. Model BM-2464 and BM-2465 are self lowering and a motor brake must be used.  
 2. Due to the high travel speed of BM-2464, it is important that a brake with a minimum response time be used. An independently controlled direct acting brake (6ft.-lb. for 3/4 HP motors and 3ft.-lb. for smaller motors) is recommended.  
 3. When ordering other than 56C-face actuators contact applications engineering at 800-477-5002.

# ELECTRIC CYLINDERS

Duff-Norton manufactures the industry's broadest range of high capacity electric cylinders. From 2 to 25 tons (17 to 186 kN), choose from clevis or trunnion mounting; offset, right angle, parallel in-line mounting; standard, with speeds up to 6.3 in/s (160 mm/s).

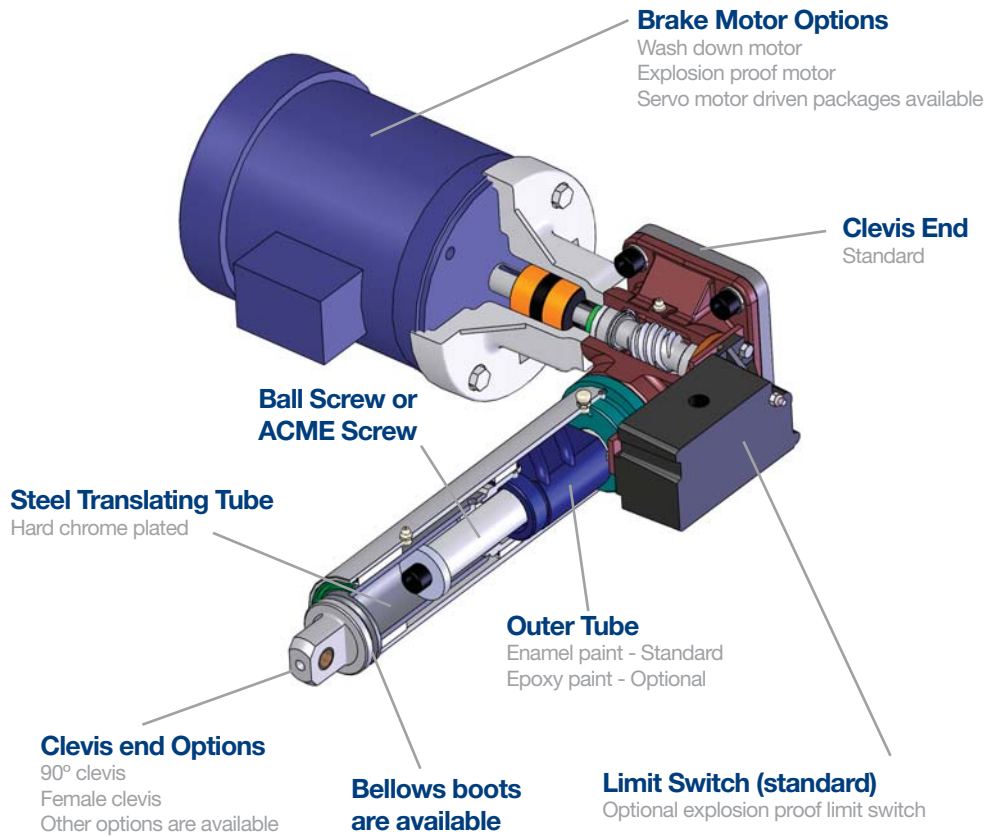


## Application Examples

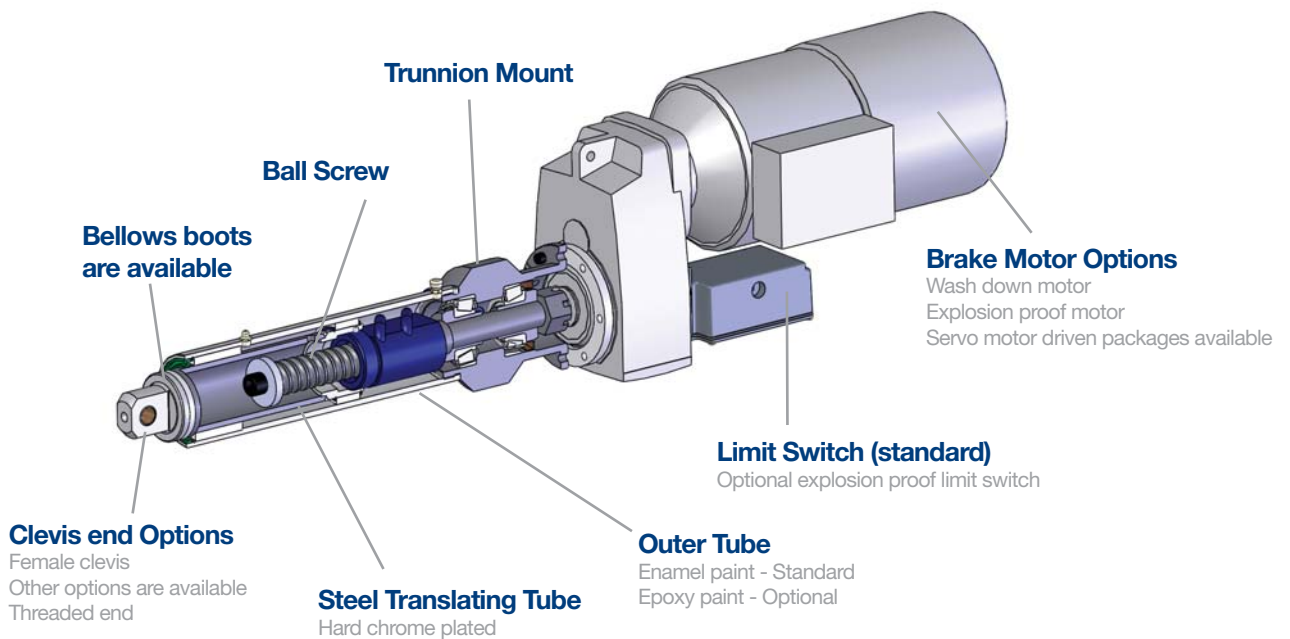
- Slide Gates
- Antennas
- Agricultural equipment
- Security barriers
- Dampers
- Orthopedic tables
- Air ventilation valve
- Pipe conveyors
- Oven doors
- Medical equipment
- Asphalt testing equipment
- Processing tank doors
- Ergonomic furniture



# SCW SUPERCYLINDER

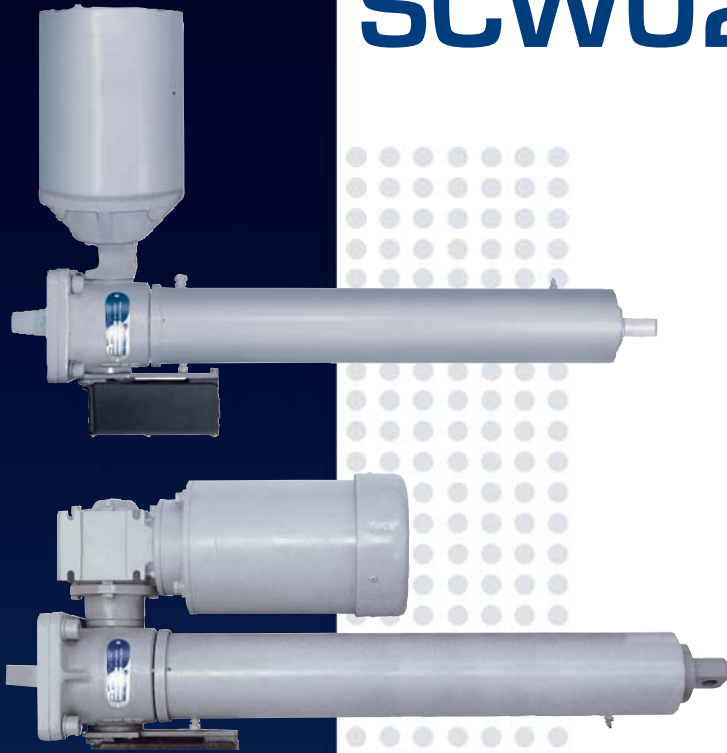


# SCN SUPERCYLINDER



# SCW02 & SCW03 SERIES

2 & 3 Ton  
17 & 26.6 kN



## Specifications

|                               |   |
|-------------------------------|---|
| <b>CAPACITY</b>               | <b>SPEEDS</b>                                       |
| 2 to 3 Ton (17 to 26.6 kN)    | Up to 119 in/min (3,022 mm/min)                     |
| <b>BRAKE MOTOR</b>            | <b>STROKES</b>                                      |
| 230/460 Vac, 3 ph, 60 Hz      | Up to 59 in (1,498 mm)                              |
| <b>TEMPERATURE RANGE</b>      | * For other temperatures please consult the factory |
| 0°F to 120°F (-18°C to 50°C)* |   |

## Features & Benefits

- Easy to install - reduces installation costs
- Custom designed for your application
- Low maintenance design - easy to maintain after installation
- Long product life expectancy
- Ball screw or acme screw
- Ductile iron housing
- Chrome plated translating tube
- Adjustable end of stroke limit switches
- Double clevis mounting

## Options

- Food grade component options available
- Explosion proof motor and limit switch
- Product designs for outdoor applications
- Manual override
- Other special packages are available upon your application needs

## SCW02 & SCW03 Electric Cylinder - 2 & 3 Ton

PRODUCT INFORMATION

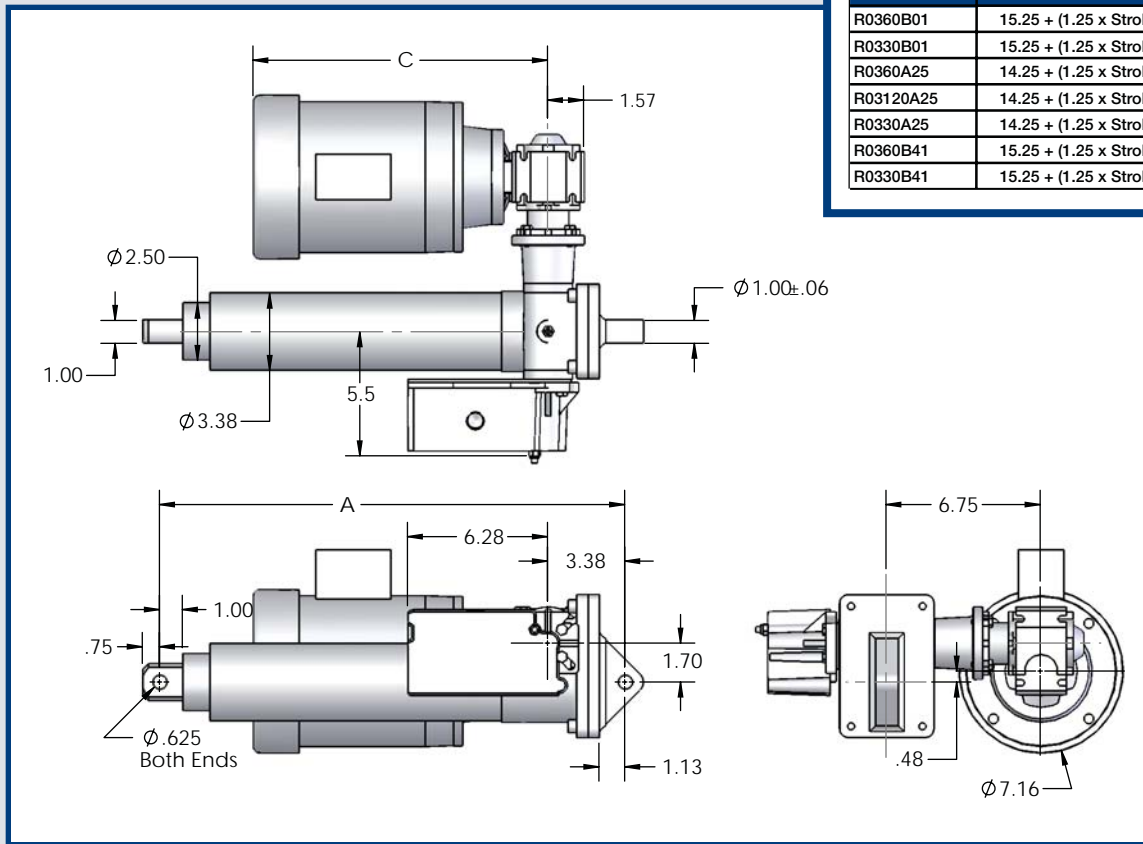
| Part Number  | Rated Load |        | Standard Stroke Lengths |                         | Retracted Length              | Speed at Rated Load |        | Max Stroke |       | Motor |      | Approx. Weight                   | Weight Adder per inch of stroke |
|--------------|------------|--------|-------------------------|-------------------------|-------------------------------|---------------------|--------|------------|-------|-------|------|----------------------------------|---------------------------------|
|              | lbs        | N      | in                      | mm                      | in (mm)                       | in/min              | mm/min | in         | mm    | HP    | kW   |                                  |                                 |
| <b>SCW02</b> |            |        |                         |                         |                               |                     |        |            |       |       |      |                                  |                                 |
| W0206A25     | 2,360      | 10,497 | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 14.25 (362) + (1.25 x stroke) | 72                  | 1,828  | 51         | 1,295 | 2     | 1.49 | Contact factor for exact weights |                                 |
| W0206B25     | 3,280      | 14,590 |                         |                         | 15.25 (387) + (1.25 x stroke) | 72                  | 1,828  | 58         | 1,473 | 1     | 0.74 |                                  |                                 |
| W0224B25     | 3,500      | 15,568 |                         |                         | 15.25 (387) + (1.25 x stroke) | 18                  | 457    | 56         | 1,422 | 1/2   | 0.37 |                                  |                                 |
| W0212B25     | 4,000      | 17,792 |                         |                         | 15.25 (387) + (1.25 x stroke) | 36                  | 914    | 52         | 1,320 | 3/4   | 0.55 |                                  |                                 |
| <b>SCW03</b> |            |        |                         |                         |                               |                     |        |            |       |       |      |                                  |                                 |
| R0360B01     | 3,480      | 15,479 | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 15.25 (387) + (1.25 x stroke) | 29                  | 731    | 56         | 1,422 | 1/2   | 0.37 | Contact factor for exact weights |                                 |
| R0330B01     | 3,600      | 16,013 |                         |                         | 15.25 (387) + (1.25 x stroke) | 57                  | 1447   | 55         | 1,397 | 1     | 0.74 |                                  |                                 |
| W0306B41     | 4,300      | 19,127 |                         |                         | 15.25 (387) + (1.25 x stroke) | 119                 | 3022   | 54         | 1,371 | 2     | 1.49 |                                  |                                 |
| R0360A25     | 5,100      | 22,685 |                         |                         | 14.25 (362) + (1.25 x stroke) | 7                   | 182    | 35         | 889   | 1/2   | 0.37 |                                  |                                 |
| R03120A25    | 5,300      | 23,575 |                         |                         | 14.25 (362) + (1.25 x stroke) | 4                   | 91     | 34         | 863   | 1/3   | 0.24 |                                  |                                 |
| R0330A25     | 5,330      | 23,709 |                         |                         | 14.25 (362) + (1.25 x stroke) | 14                  | 365    | 34         | 863   | 1     | 0.74 |                                  |                                 |
| R0360B41     | 5,600      | 24,910 |                         |                         | 15.25 (387) + (1.25 x stroke) | 11                  | 289    | 47         | 1,193 | 1/3   | 0.24 |                                  |                                 |
| R0330B41     | 6,000      | 26,689 |                         |                         | 15.25 (387) + (1.25 x stroke) | 23                  | 594    | 46         | 1,168 | 3/4   | 0.55 |                                  |                                 |

Consult factory for additional speeds and capacities

Stroke lengths are available in 1" increments, please contact factory for details

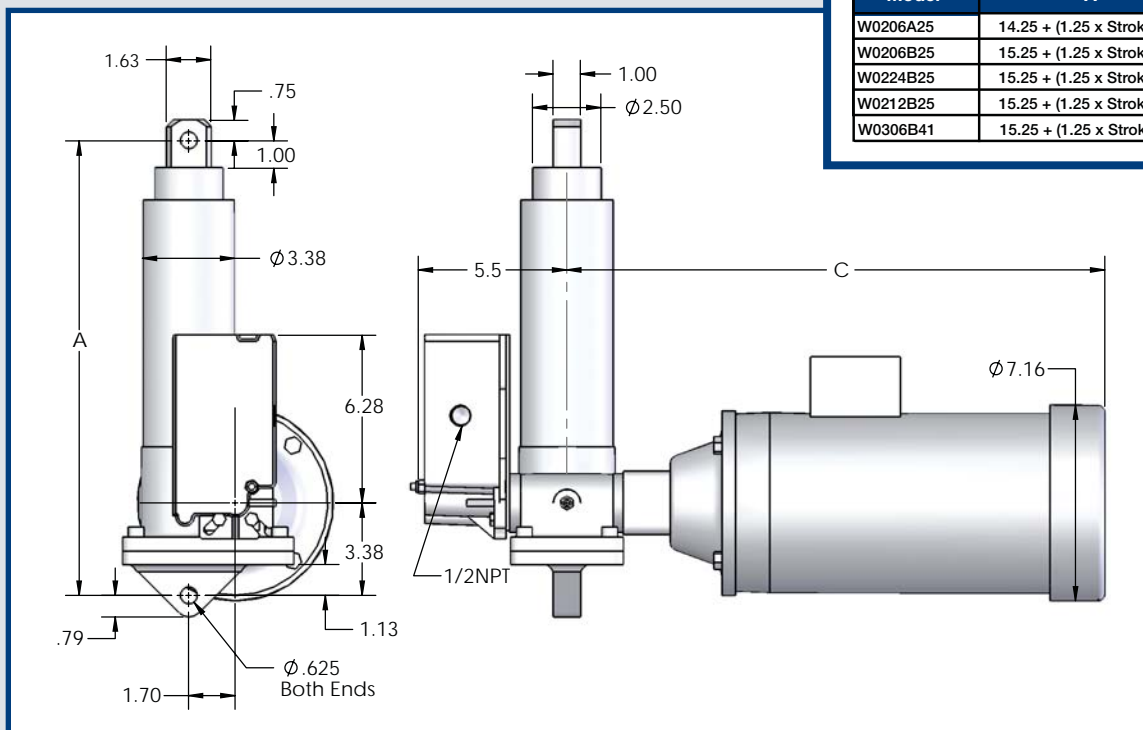
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### Parallel Motor



| Model     | A                       | C     |
|-----------|-------------------------|-------|
| R0360B01  | 15.25 + (1.25 x Stroke) | 17.14 |
| R0330B01  | 15.25 + (1.25 x Stroke) | 17.64 |
| R0360A25  | 14.25 + (1.25 x Stroke) | 17.14 |
| R03120A25 | 14.25 + (1.25 x Stroke) | 15.64 |
| R0330A25  | 14.25 + (1.25 x Stroke) | 17.64 |
| R0360B41  | 15.25 + (1.25 x Stroke) | 15.64 |
| R0330B41  | 15.25 + (1.25 x Stroke) | 17.14 |

### Right Angle Motor

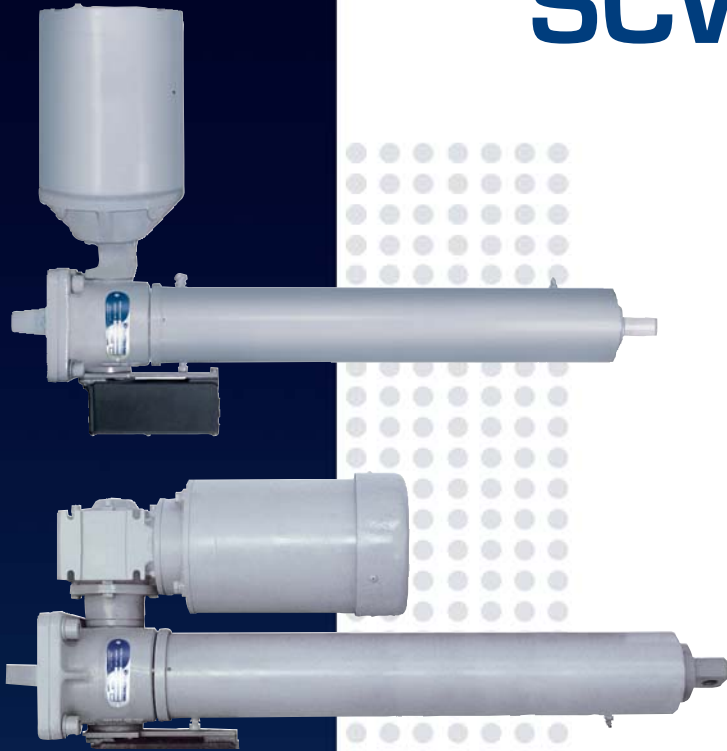


| Model    | A                       | C    |
|----------|-------------------------|------|
| W0206A25 | 14.25 + (1.25 x Stroke) | 22.1 |
| W0206B25 | 15.25 + (1.25 x Stroke) | 19.7 |
| W0224B25 | 15.25 + (1.25 x Stroke) | 19.2 |
| W0212B25 | 15.25 + (1.25 x Stroke) | 19.2 |
| W0306B41 | 15.25 + (1.25 x Stroke) | -    |

# SCW05 SERIES

5 Ton

44.4 kN



## Specifications

### CAPACITY

5 Ton (44.4 kN)

### BRAKE MOTOR

230/460 Vac, 3 ph, 60 Hz

### TEMPERATURE RANGE

0°F to 120°F (-18°C to 50°C)\*

### SPEEDS

Up to 135.6 in/min (3,444 mm/min)

### STROKES

Up to 79 in (2,006 mm)

\* For other temperatures please consult the factory

## Features & Benefits

- Easy to install - reduces installation costs
- Custom designed for your application
- Low maintenance design - easy to maintain after installation
- Long product life expectancy
- Ball screw or acme screw
- Ductile iron housing
- Chrome plated translating tube
- Adjustable end of stroke limit switches
- Double clevis mounting

## Options

- Food grade component options available
- Explosion proof motor and limit switch
- Product designs for outdoor applications
- Manual override
- Other special packages are available upon your application needs

## SCW05 Electric Cylinder - 5Ton

PRODUCT INFORMATION

| Part Number | Rated Load |        | Standard Stroke Lengths |                               | Retracted Length<br>in (mm)  | Speed at Rated Load |        | Max Stroke |       | Motor |      | Approx. Weight                    | Weight Adder per inch of stroke |
|-------------|------------|--------|-------------------------|-------------------------------|------------------------------|---------------------|--------|------------|-------|-------|------|-----------------------------------|---------------------------------|
|             | lbs        | N      | in                      | mm                            |                              | in/min              | mm/min | in         | mm    | HP    | kW   |                                   |                                 |
| W0506B47    | 5,850      | 26,022 | 6, 12,<br>18, 24,<br>36 | 152, 304,<br>457, 609,<br>914 | 19.0 (482) + (1.25 x stroke) | 135.6               | 3,444  | 79         | 2,006 | 3     | 2.2  | Contact factory for exact weights |                                 |
| R0560B47    | 8,900      | 39,589 |                         |                               | 19.0 (482) + (1.25 x stroke) | 13.2                | 335    | 65         | 1,651 | 1/2   | 0.37 |                                   |                                 |
| R0530B47    | 9,200      | 40,923 |                         |                               | 19.0 (482) + (1.25 x stroke) | 27                  | 685    | 64         | 1,625 | 1     | .74  |                                   |                                 |
| R0545B18    | 9,280      | 41,279 |                         |                               | 19.5 (495) + (1.25 x stroke) | 72                  | 828    | 62         | 1,572 | 2     | 1.49 |                                   |                                 |
| R05240B47   | 10,000     | 44,482 |                         |                               | 19.0 (482) + (1.25 x stroke) | 3                   | 76     | 61         | 1,549 | 1/4   | .18  |                                   |                                 |
| R05120B47   | 10,000     | 44,482 |                         |                               | 18.0 (457) + (1.25 x stroke) | 6.6                 | 167    | 61         | 1,549 | 1/3   | .24  |                                   |                                 |
| R0560A37    | 10,000     | 44,482 |                         |                               | 18.0 (457) + (1.25 x stroke) | 10.8                | 274    | 57         | 1,447 | 1-1/2 | 1.1  |                                   |                                 |
| R0545B47    | 10,000     | 44,482 |                         |                               | 19.0 (482) + (1.25 x stroke) | 18                  | 457    | 61         | 1,549 | 3/4   | .55  |                                   |                                 |
| R0530A37    | 10,000     | 44,482 |                         |                               | 18.0 (457) + (1.25 x stroke) | 21                  | 533    | 57         | 1,447 | 3     | 2.2  |                                   |                                 |

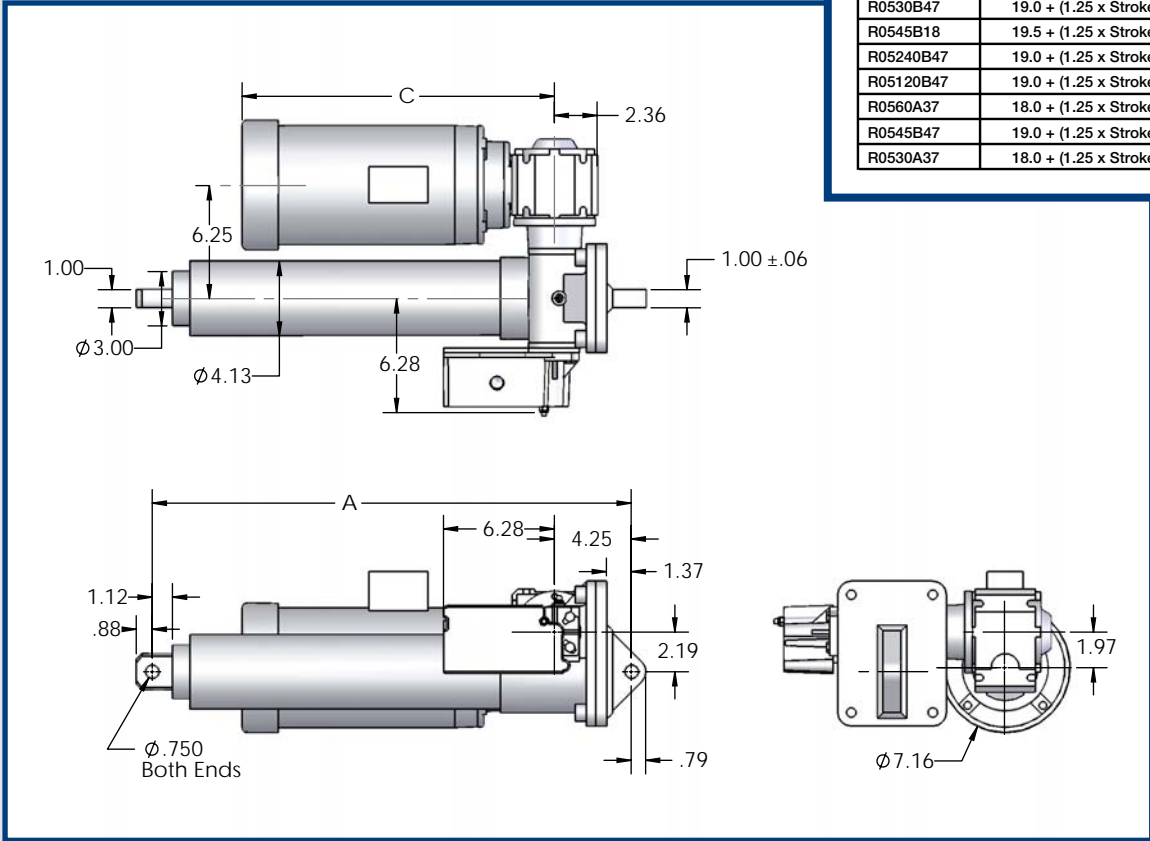
Consult factory for additional speeds and capacities

Stroke lengths are available in 1" increments, please contact factory for details

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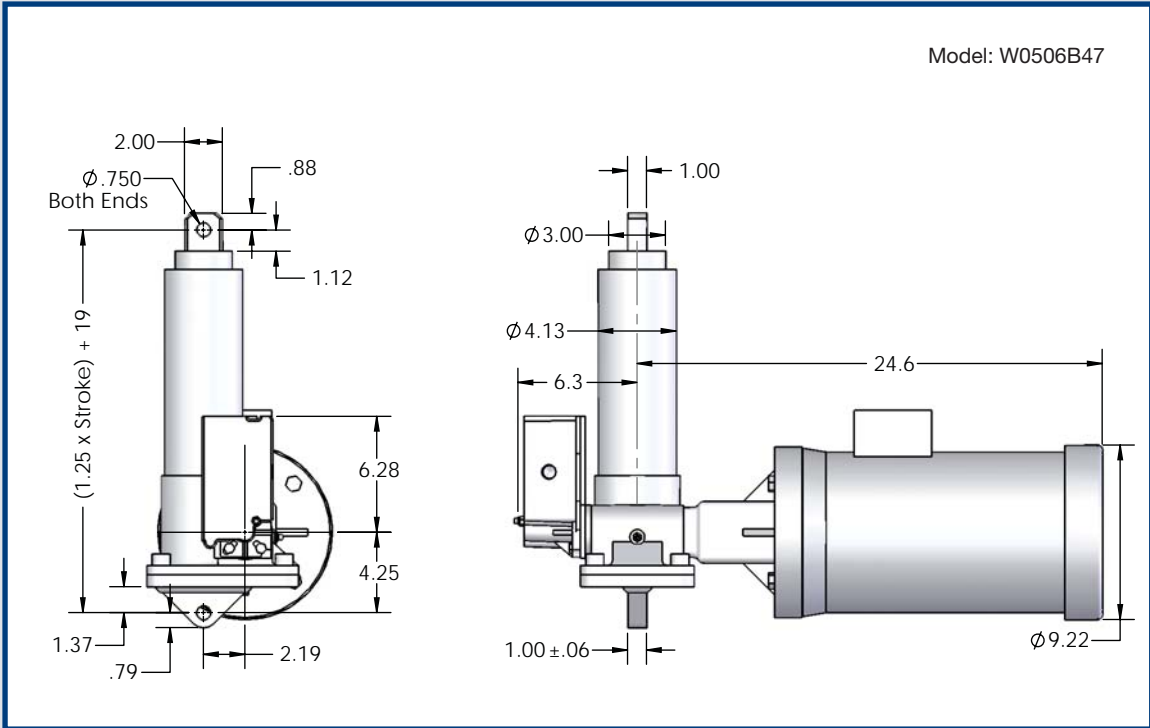
## Parallel Motor

| Model     | A                      | C     |
|-----------|------------------------|-------|
| R0560B47  | 19.0 + (1.25 x Stroke) | 17.26 |
| R0530B47  | 19.0 + (1.25 x Stroke) | 17.76 |
| R0545B18  | 19.5 + (1.25 x Stroke) | 21.77 |
| R05240B47 | 19.0 + (1.25 x Stroke) | 15.76 |
| R05120B47 | 19.0 + (1.25 x Stroke) | 15.76 |
| R0560A37  | 18.0 + (1.25 x Stroke) | 19.61 |
| R0545B47  | 19.0 + (1.25 x Stroke) | 17.26 |
| R0530A37  | 18.0 + (1.25 x Stroke) | 21.77 |



## Right Angle Motor

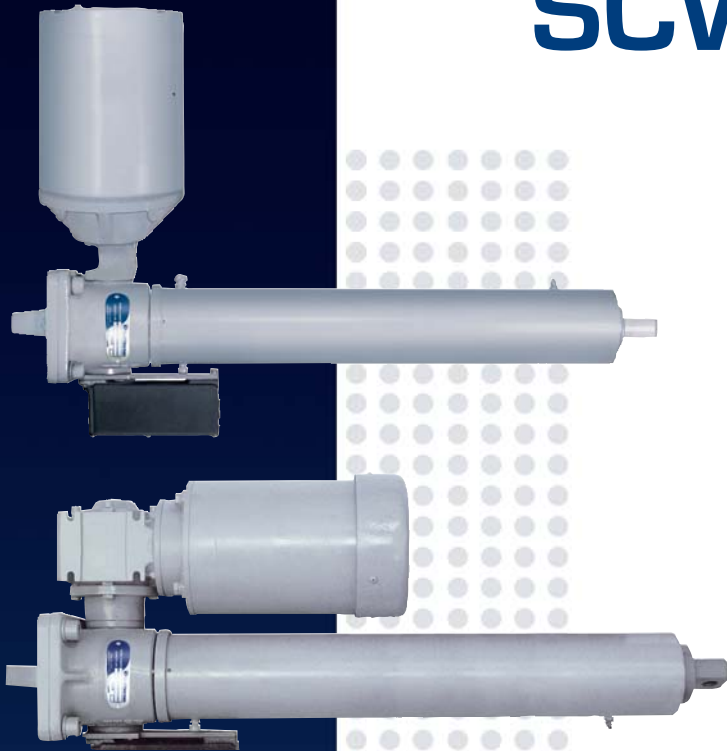
Model: W0506B47



# SCW10 SERIES

10 Ton

88.9 kN



## Specifications

### CAPACITY

10 Ton (89.9 kN)

### SPEEDS

Up to 108 in/min (2,743 mm/min)

### BRAKE MOTOR

230/460 Vac, 3 ph, 60 Hz

### STROKES

Up to 108 in (2,743 mm)

### TEMPERATURE RANGE

0°F to 120°F (-18°C to 50°C)\*

\* For other temperatures please consult the factory

## Features & Benefits

- Easy to install - reduces installation costs
- Custom designed for your application
- Low maintenance design - easy to maintain after installation
- Long product life expectancy
- Ball screw or acme screw
- Ductile iron housing
- Chrome plated translating tube
- Adjustable end of stroke limit switches
- Double clevis mounting

## Options

- Food grade component options available
- Explosion proof motor and limit switch
- Product designs for outdoor applications
- Manual override
- Other special packages are available upon your application needs

## SCW10 Electric Cylinder - 10 Ton

PRODUCT INFORMATION

| Part Number | Rated Load |        | Standard Stroke Lengths |                         | Retracted Length               | Speed at Rated Load |        | Max Stroke |       | Motor |      | Approx. Weight                    | Weight Adder per inch of stroke |
|-------------|------------|--------|-------------------------|-------------------------|--------------------------------|---------------------|--------|------------|-------|-------|------|-----------------------------------|---------------------------------|
|             | lbs        | N      | in                      | mm                      | in (mm)                        | in/min              | mm/min | in         | mm    | HP    | kW   |                                   |                                 |
| W1012B50    | 9,600      | 42,702 | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 22.125 (562) + (1.25 x stroke) | 72                  | 1828   | 108        | 2,743 | 3     | 2.20 | Contact factory for exact weights |                                 |
| W1008B50    | 11,000     | 48,930 |                         |                         | 22.125 (562) + (1.25 x stroke) | 108                 | 2743   | 108        | 2,743 | 5     | 3.70 |                                   |                                 |
| R1060B50    | 15,500     | 68,947 |                         |                         | 22.125 (562) + (1.25 x stroke) | 14.4                | 365    | 108        | 2,743 | 1     | 0.74 |                                   |                                 |
| R1080A50    | 17,500     | 77,843 |                         |                         | 19.625 (498) + (1.25 x stroke) | 10.8                | 274    | 73         | 1,854 | 2     | 1.49 |                                   |                                 |
| R10160B50   | 18,900     | 84,071 |                         |                         | 22.125 (562) + (1.25 x stroke) | 5.4                 | 137    | 108        | 2,743 | 1/2   | 0.37 |                                   |                                 |
| R10320A50   | 20,000     | 88,964 |                         |                         | 19.625 (498) + (1.25 x stroke) | 2.7                 | 68     | 69         | 1,752 | 3/4   | 0.55 |                                   |                                 |
| R10160A50   | 20,000     | 88,964 |                         |                         | 19.625 (498) + (1.25 x stroke) | 5.4                 | 137    | 69         | 1,752 | 1-1/2 | 1.10 |                                   |                                 |
| R1080B50    | 20,000     | 88,964 |                         |                         | 22.125 (562) + (1.25 x stroke) | 10.8                | 274    | 108        | 2,743 | 1     | 0.74 |                                   |                                 |
| R1040B50    | 20,000     | 88,964 |                         |                         | 22.125 (562) + (1.25 x stroke) | 21.6                | 548    | 108        | 2,743 | 2     | 1.49 |                                   |                                 |
| R1040A50    | 20,000     | 88,964 |                         |                         | 19.625 (498) + (1.25 x stroke) | 21.6                | 548    | 69         | 1,752 | 5     | 3.70 |                                   |                                 |

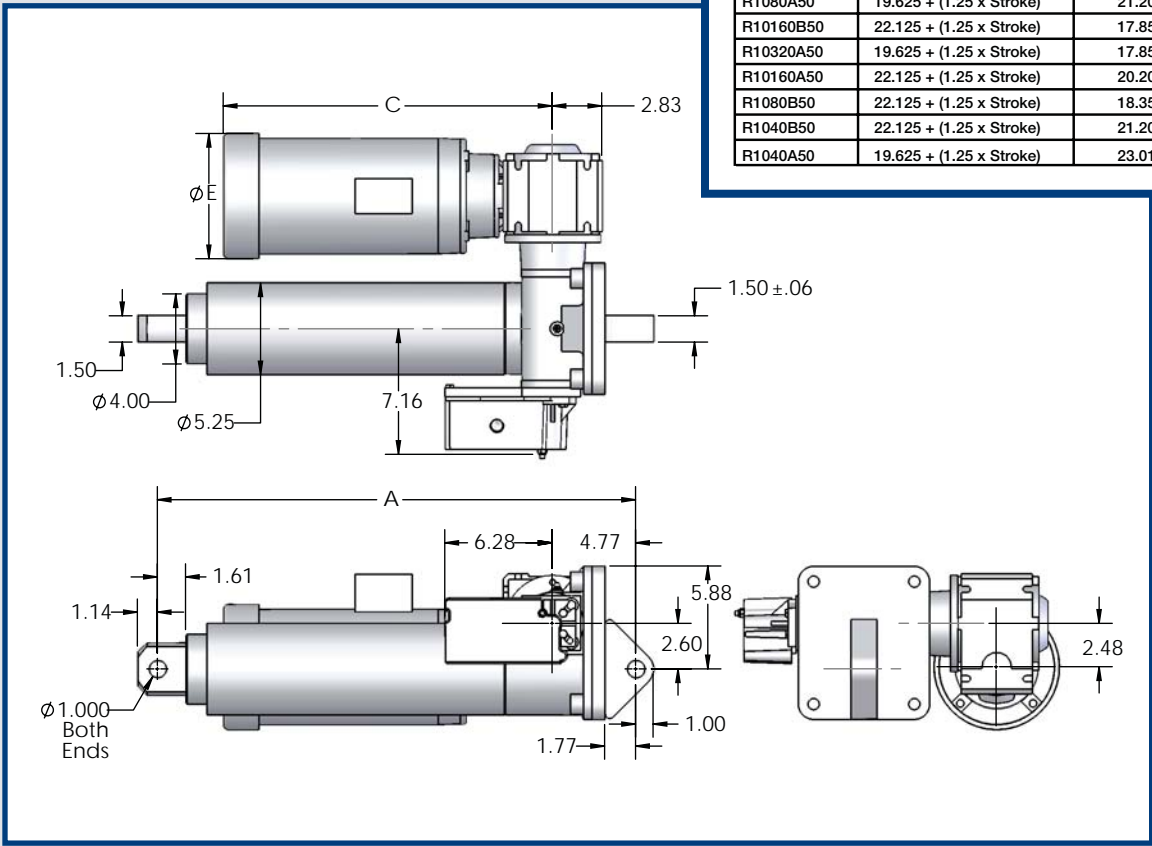
Consult factory for additional speeds and capacities

Stroke lengths are available in 1" increments, please contact factory for details

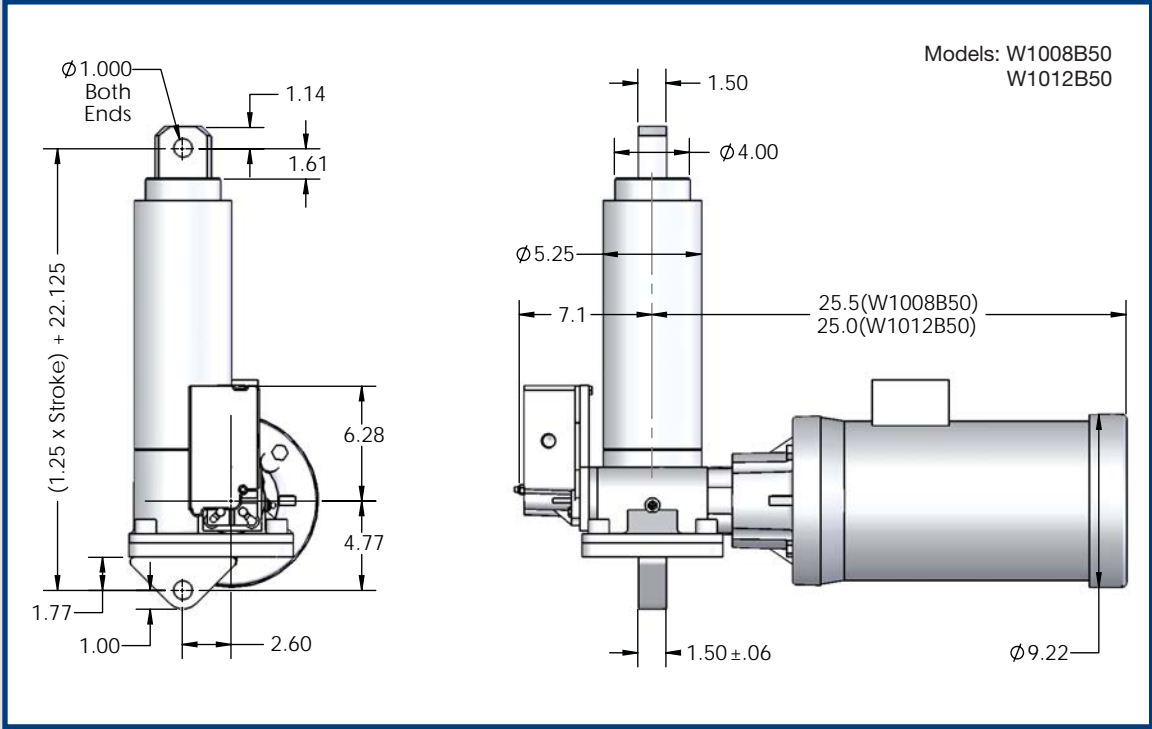
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### Parallel Motor

| Model     | A                        | C     | E    |
|-----------|--------------------------|-------|------|
| R1060B50  | 22.125 + (1.25 x Stroke) | 18.35 | 7.16 |
| R1080A50  | 19.625 + (1.25 x Stroke) | 21.20 | 7.16 |
| R10160B50 | 22.125 + (1.25 x Stroke) | 17.85 | 7.16 |
| R10320A50 | 19.625 + (1.25 x Stroke) | 17.85 | 7.16 |
| R10160A50 | 22.125 + (1.25 x Stroke) | 20.20 | 7.16 |
| R1080B50  | 22.125 + (1.25 x Stroke) | 18.35 | 7.16 |
| R1040B50  | 22.125 + (1.25 x Stroke) | 21.20 | 7.16 |
| R1040A50  | 19.625 + (1.25 x Stroke) | 23.01 | 9.22 |



### Right Angle Motor



# SCW20 SERIES

20 Ton

177.9 kN



## Specifications

### CAPACITY

20 Ton (177.9 kN)

### BRAKE MOTOR

230/460 Vac, 3 ph, 60 Hz

### TEMPERATURE RANGE

0°F to 120°F (-18°C to 50°C)\*

### SPEEDS

Up to 21.6 in/min (2,743 mm/min)

### STROKES

Up to 132 in (3,352 mm)

\* For other temperatures please consult the factory

## Features & Benefits

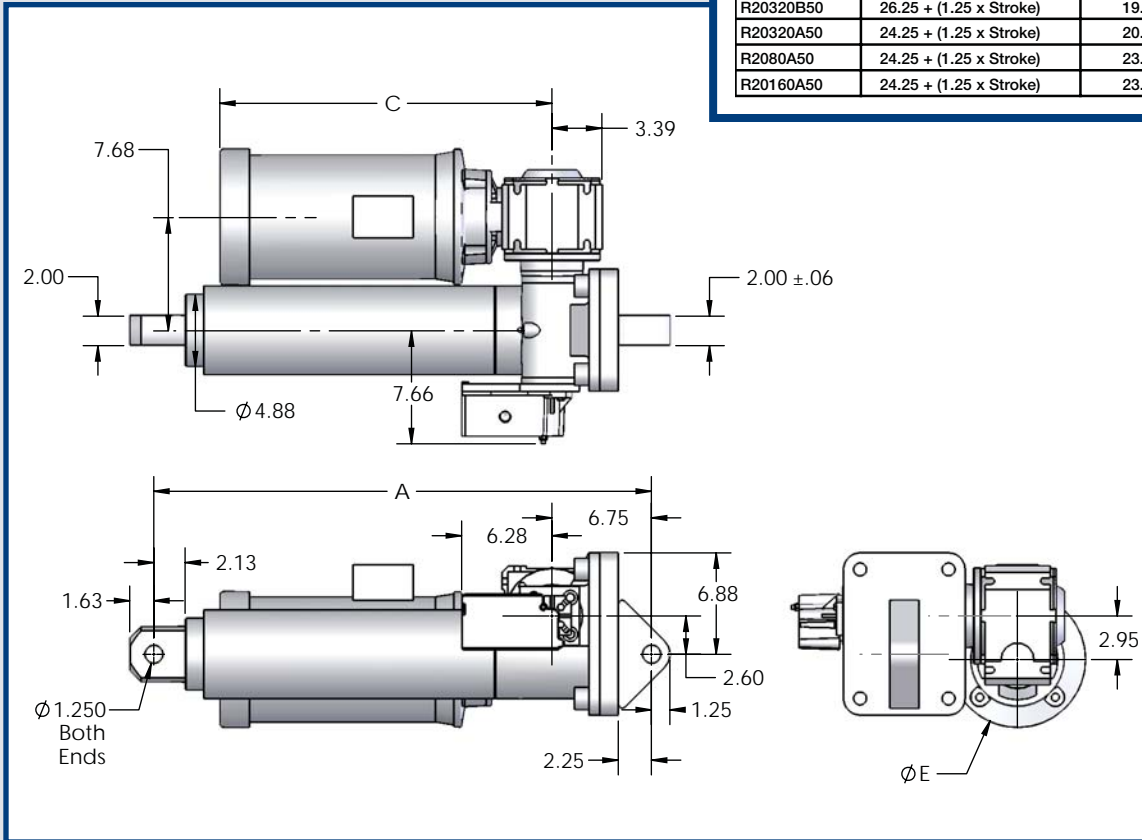
- Easy to install - reduces installation costs
- Custom designed for your application
- Low maintenance design - easy to maintain after installation
- Long product life expectancy
- Ball screw or acme screw
- Ductile iron housing
- Chrome plated translating tube
- Adjustable end of stroke limit switches
- Double clevis mounting

## Options

- Food grade component options available
- Explosion proof motor and limit switch
- Product designs for outdoor applications
- Manual override
- Other special packages are available upon your application needs



| Model     | A                       | C     | E    |
|-----------|-------------------------|-------|------|
| R20160B50 | 26.25 + (1.25 x Stroke) | 19.09 | 7.16 |
| R2080B50  | 26.25 + (1.25 x Stroke) | 20.97 | 7.16 |
| R2060B50  | 26.25 + (1.25 x Stroke) | 21.97 | 7.16 |
| R2040B50  | 26.25 + (1.25 x Stroke) | 23.07 | 9.22 |
| R20320B50 | 26.25 + (1.25 x Stroke) | 19.09 | 7.16 |
| R20320A50 | 24.25 + (1.25 x Stroke) | 20.97 | 7.16 |
| R2080A50  | 24.25 + (1.25 x Stroke) | 23.52 | 9.22 |
| R20160A50 | 24.25 + (1.25 x Stroke) | 23.07 | 9.22 |



SCW20 Electric Cylinder

| PRODUCT INFORMATION | Part Number | Rated Load |                               | Standard Stroke Lengths |                               | Retracted Length<br>in (mm)   | Speed at Rated Load |        | Max Stroke |       | Motor<br>HP kW | Approx. Weight | Weight Adder per inch of stroke   |
|---------------------|-------------|------------|-------------------------------|-------------------------|-------------------------------|-------------------------------|---------------------|--------|------------|-------|----------------|----------------|-----------------------------------|
|                     |             | lbs        | N                             | in                      | mm                            |                               | in/min              | mm/min | in         | mm    |                |                |                                   |
|                     | R20160B50   | 26,800     | 119,212                       | 6, 12,<br>18, 24,<br>36 | 152, 304,<br>457, 609,<br>914 | 26.25 (666) + (1.25 x stroke) | 5.4                 | 137    | 132        | 3,352 | 3/4            | 0.55           | Contact factory for exact weights |
| R2080B50            | 29,300      | 130,332    | 26.25 (666) + (1.25 x stroke) |                         |                               | 10.8                          | 274                 | 132    | 3,352      | 1-1/2 | 1.10           |                |                                   |
| R2060B50            | 29,700      | 132,112    | 26.25 (666) + (1.25 x stroke) |                         |                               | 14.4                          | 365                 | 132    | 3,352      | 2     | 1.49           |                |                                   |
| R2040B50            | 30,700      | 136,560    | 26.25 (666) + (1.25 x stroke) |                         |                               | 21.6                          | 548                 | 132    | 3,352      | 3     | 2.20           |                |                                   |
| R20320B50           | 30,900      | 137,450    | 26.25 (666) + (1.25 x stroke) |                         |                               | 2.7                           | 68                  | 132    | 3,352      | 1/2   | 0.37           |                |                                   |
| R20320A50           | 32,000      | 142,343    | 24.25 (616) + (1.25 x stroke) |                         |                               | 2.7                           | 68                  | 99     | 2,514      | 1-1/2 | 1.10           |                |                                   |
| R2080A50            | 32,000      | 142,343    | 24.25 (616) + (1.25 x stroke) |                         |                               | 10.8                          | 274                 | 99     | 2,514      | 5     | 3.70           |                |                                   |
| R20160A50           | 35,000      | 155,687    | 24.25 (616) + (1.25 x stroke) |                         |                               | 5.4                           | 137                 | 95     | 2,413      | 3     | 2.20           |                |                                   |

Consult factory for additional speeds and capacities  
 Stroke lengths are available in 1" increments, please contact factory for details

# SCW25 SERIES

25 Ton

222 kN



## Specifications

### CAPACITY

25 Ton (222 kN)

### BRAKE MOTOR

230/460 Vac, 3 ph, 60 Hz

### TEMPERATURE RANGE

0°F to 120°F (-18°C to 50°C)\*

### SPEEDS

Up to 19.58 in/min (502 mm/min)

### STROKES

Up to 140 in (3,581 mm)

\* For other temperatures  
please consult the factory

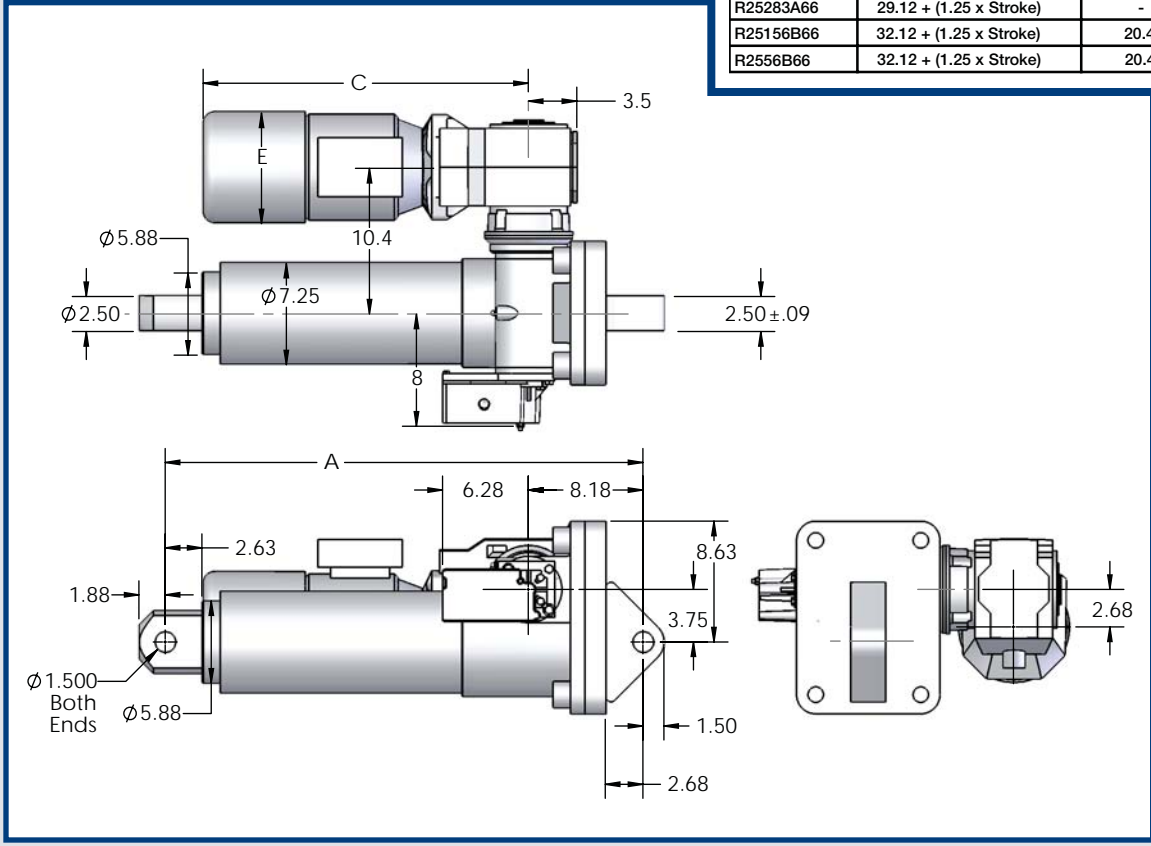
## Features & Benefits

- Easy to install - reduces installation costs
- Custom designed for your application
- Low maintenance design - easy to maintain after installation
- Long product life expectancy
- Ball screw or acme screw
- Ductile iron housing
- Chrome plated translating tube
- Adjustable end of stroke limit switches
- Double clevis mounting

## Options

- Food grade component options available
- Explosion proof motor and limit switch
- Product designs for outdoor applications
- Manual override
- Other special packages are available upon your application needs

| Model     | A                       | C     | E     |
|-----------|-------------------------|-------|-------|
| R25150A66 | 29.12 + (1.25 x Stroke) | 23.23 | 7.91  |
| R2578B66  | 32.12 + (1.25 x Stroke) | 22.24 | 7.91  |
| R25104A66 | 29.12 + (1.25 x Stroke) | 28.51 | 10.47 |
| R25115B66 | 32.12 + (1.25 x Stroke) | 20.43 | 7.20  |
| R25334B66 | 32.12 + (1.25 x Stroke) | 17.83 | 6.50  |
| R25283A66 | 29.12 + (1.25 x Stroke) | -     | -     |
| R25156B66 | 32.12 + (1.25 x Stroke) | 20.43 | 7.20  |
| R2556B66  | 32.12 + (1.25 x Stroke) | 20.43 | 7.20  |



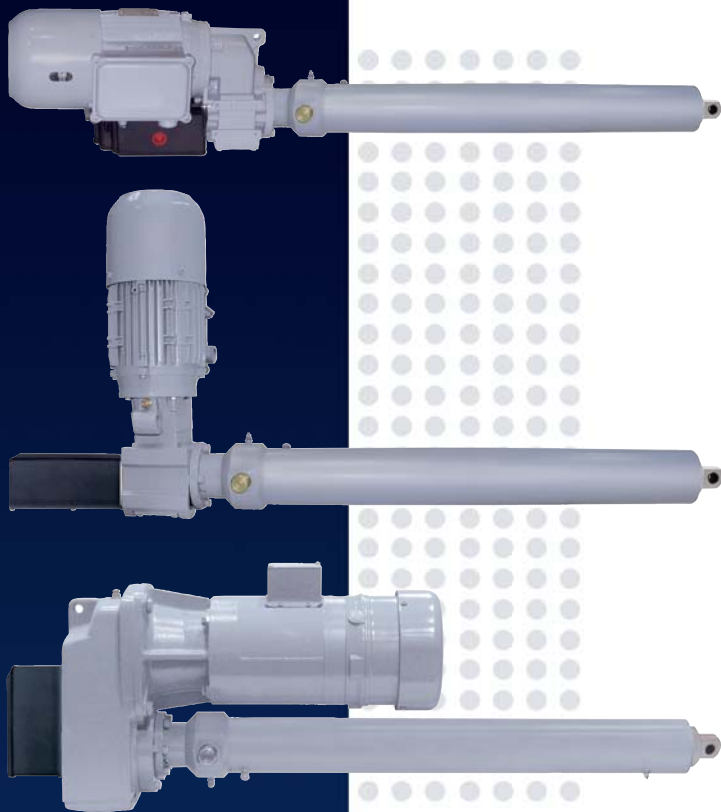
SCW25 Electric Cylinder

| PRODUCT INFORMATION | Part Number | Rated Load |                               | Standard Stroke Lengths |                         | Retracted Length<br>in (mm)   | Speed at Rated Load |        | Max Stroke in (mm) |       | Motor |     | Approx. Weight                    | Weight Adder per inch of stroke |
|---------------------|-------------|------------|-------------------------------|-------------------------|-------------------------|-------------------------------|---------------------|--------|--------------------|-------|-------|-----|-----------------------------------|---------------------------------|
|                     |             | lbs        | N                             | in                      | mm                      |                               | in/min              | mm/min | in                 | mm    | HP    | kW  |                                   |                                 |
|                     | R25150A66   | 47,400     | 210,845                       | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 29.12 (739) + (1.25 x stroke) | 7.2                 | 182    | 140                | 3,581 | 5     | 3.7 | Contact factory for exact weights |                                 |
| R2578B66            | 49,300      | 219,297    | 32.12 (815) + (1.25 x stroke) |                         |                         | 14.4                          | 365                 | 130    | 3,327              | 3     | 2.2   |     |                                   |                                 |
| R25104A66           | 49,500      | 220,186    | 29.12 (739) + (1.25 x stroke) |                         |                         | 10.8                          | 274                 | 138    | 3,505              | 7-1/2 | 5.5   |     |                                   |                                 |
| R25115B66           | 49,900      | 221,966    | 32.12 (815) + (1.25 x stroke) |                         |                         | 9.6                           | 243                 | 130    | 3,302              | 2     | 1.49  |     |                                   |                                 |
| R25334B66           | 50,000      | 222,411    | 32.12 (815) + (1.25 x stroke) |                         |                         | 3                             | 76                  | 130    | 3,302              | 2     | 1.49  |     |                                   |                                 |
| R25283A66           | 50,000      | 222,411    | 32.12 (815) + (1.25 x stroke) |                         |                         | 3.6                           | 91                  | 137    | 3,479              | 3/4   | .55   |     |                                   |                                 |
| R25156B66           | 50,000      | 222,411    | 32.12 (815) + (1.25 x stroke) |                         |                         | 7.2                           | 182                 | 130    | 3,302              | 5     | 3.7   |     |                                   |                                 |
| R2556B66            | 50,000      | 222,411    | 32.12 (815) + (1.25 x stroke) |                         |                         | 19.8                          | 502                 | 130    | 3,302              | 5     | 3.7   |     |                                   |                                 |

Consult factory for additional speeds and capacities  
 Stroke lengths are available in 1" increments, please contact factory for details

# SCN03 SERIES

3 Ton  
26.6 kN



## Specifications

### CAPACITY

3 Ton (26.6 kN)

### BRAKE MOTOR

TEFC 230/460 Vac, 3 ph, 60 Hz

### TEMPERATURE RANGE

0°F to 120°F (-18°C to 50°C)\*

### SPEEDS

Up to 182.4 in/min (4,633 mm/m)

### STROKES

Up to 61 in (1,549 mm)

\* For other temperatures  
please consult the factory

## Features & Benefits

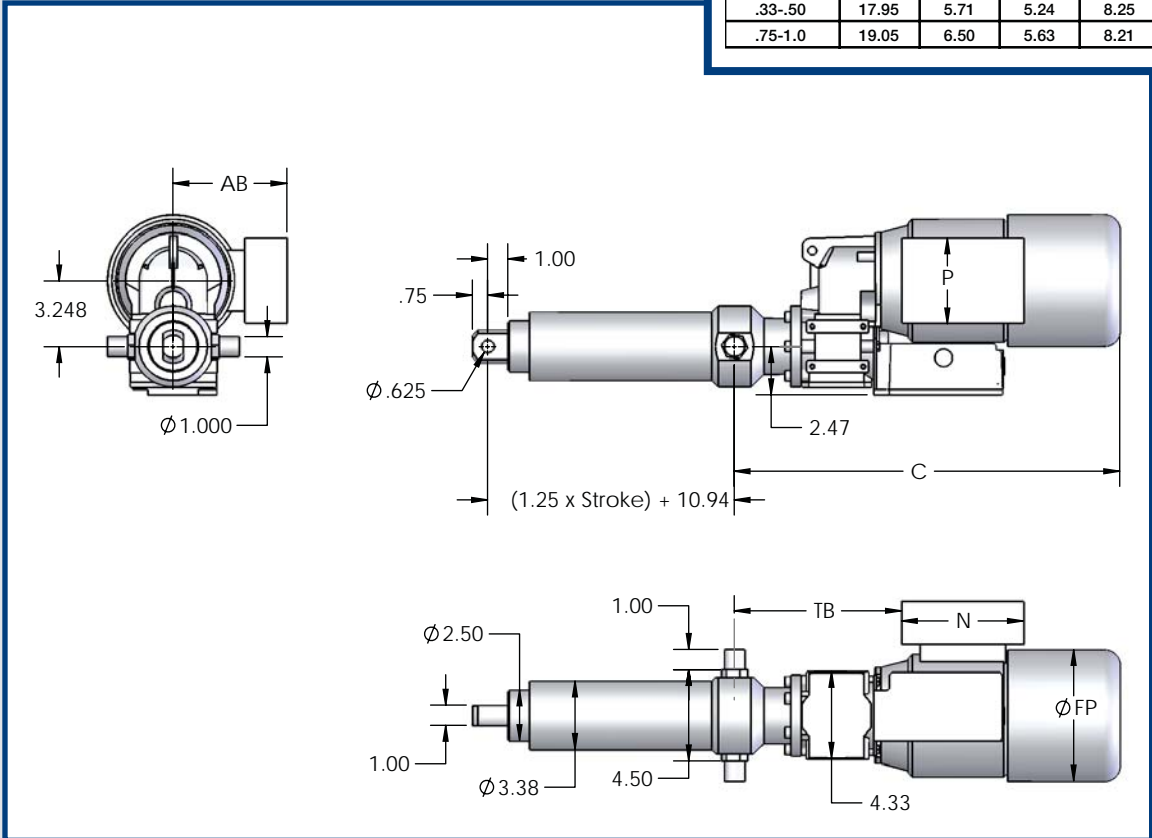
- Easy to install - reduces installation costs
- Custom designed for your application
- Low maintenance design - easy to maintain after installation
- Long product life expectancy
- Ball screw
- Ductile iron housing
- Chrome plated translating tube
- Adjustable end of stroke limit switches
- Clevis and trunnion mounting
- Motor configuration include: parallel, right angle and off set

## Options

- Food grade component options available
- Product designs for outdoor applications
- Manual override
- Other special packages are available upon your application needs



| Motor HP | C     | FP   | AB   | TB   | N    | P    |
|----------|-------|------|------|------|------|------|
| .16-.25  | 17.00 | 5.17 | 4.84 | 7.94 | 5.20 | 3.43 |
| .33-50   | 17.95 | 5.71 | 5.24 | 8.25 | 5.20 | 3.43 |
| .75-1.0  | 19.05 | 6.50 | 5.63 | 8.21 | 6.02 | 4.25 |



### 3 Ton Electric Cylinder (SCN) - Off Set Motor

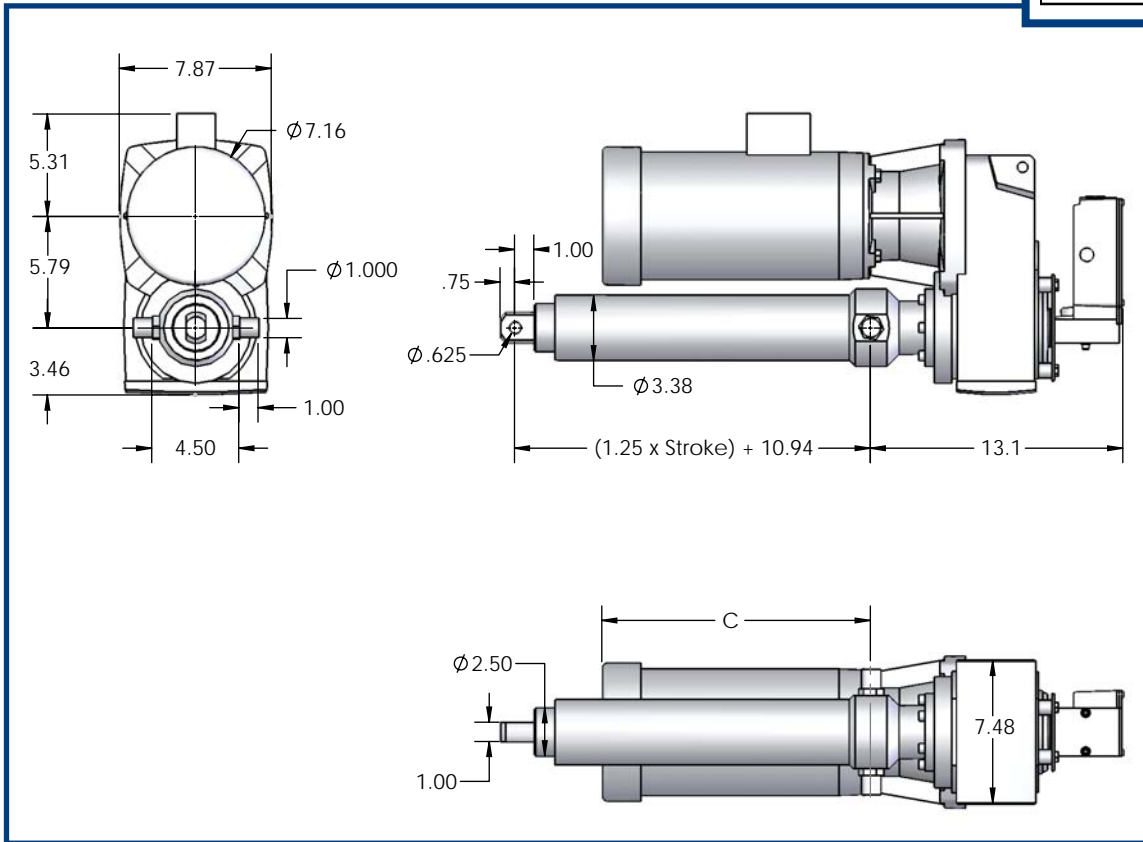
| PRODUCT INFORMATION | Part Number | Rated Load |         | Standard Stroke Lengths |                               | Retracted Length | Speed   |        | Max Stroke |       | Motor | Approx. Weight | Weight Adder per inch of stroke |
|---------------------|-------------|------------|---------|-------------------------|-------------------------------|------------------|---------|--------|------------|-------|-------|----------------|---------------------------------|
|                     |             | lbs        | N       | in                      | mm                            |                  | in (mm) | in/min | mm/min     | in    |       |                |                                 |
|                     | NZ03-0424   | 2,134      | 9,492   |                         |                               |                  |         | 165.6  | 4,206      | 61    | 1,549 | 1              | 0.74                            |
| NZ03-0534           | 2,687       | 11,952     |         |                         |                               |                  | 131.5   | 3,340  | 61         | 1,549 | 1     | 0.74           |                                 |
| NZ03-1166           | 2,934       | 13,051     |         |                         |                               |                  | 60.2    | 1,529  | 61         | 1,549 | 1/2   | 0.37           |                                 |
| NZ03-0635           | 3,196       | 14,216     |         |                         |                               |                  | 110.6   | 2,809  | 61         | 1,549 | 1     | 0.74           |                                 |
| NZ03-0864           | 3,261       | 14,505     |         |                         |                               |                  | 81.3    | 2,065  | 61         | 1,549 | 3/4   | 0.56           |                                 |
| NZ03-0949           | 3,582       | 15,933     | 6, 12,  | 152, 304,               | 10.94 (277) + (1.25 x stroke) |                  | 74.0    | 1,880  | 59         | 1,499 | 3/4   | 0.56           |                                 |
| NZ03-0726           | 3,654       | 16,253     | 18, 24, | 457, 609,               |                               |                  | 96.7    | 2,456  | 59         | 1,499 | 1     | 0.74           |                                 |
| NZ03-2235           | 3,712       | 16,511     | 36      | 914                     |                               |                  | 31.4    | 798    | 58         | 1,473 | 1/3   | 0.24           |                                 |
| NZ03-1879           | 4,728       | 21,031     |         |                         |                               |                  | 37.4    | 950    | 52         | 1,321 | 1/2   | 0.37           |                                 |
| NZ03-4185           | 5,265       | 23,419     |         |                         |                               |                  | 16.8    | 427    | 49         | 1,245 | 1/4   | 0.19           |                                 |
| NZ03-8171           | 6,000       | 26,689     |         |                         |                               |                  | 8.6     | 218    | 44         | 1,118 | 1/6   | 0.12           |                                 |
| NZ03-5933           | 6,000       | 26,689     |         |                         |                               |                  | 11.8    | 300    | 41         | 1,041 | 1/4   | 0.19           |                                 |
| NZ03-3773           | 6,000       | 26,689     |         |                         |                               |                  | 18.6    | 472    | 45         | 1,143 | 1/3   | 0.24           |                                 |

Consult factory for additional speeds and capacities  
 Stroke lengths are available in 1" increments, please contact factory for details

# SCN03 SERIES



| Motor HP | C     |
|----------|-------|
| 1/3      | 11.92 |
| 1/2-3/4  | 13.42 |
| 1        | 13.92 |
| 1 1/2    | 15.36 |

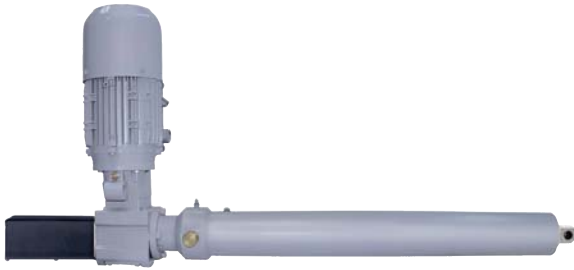


## 3 Ton Electric Cylinder (SCN) - Parallel Motor

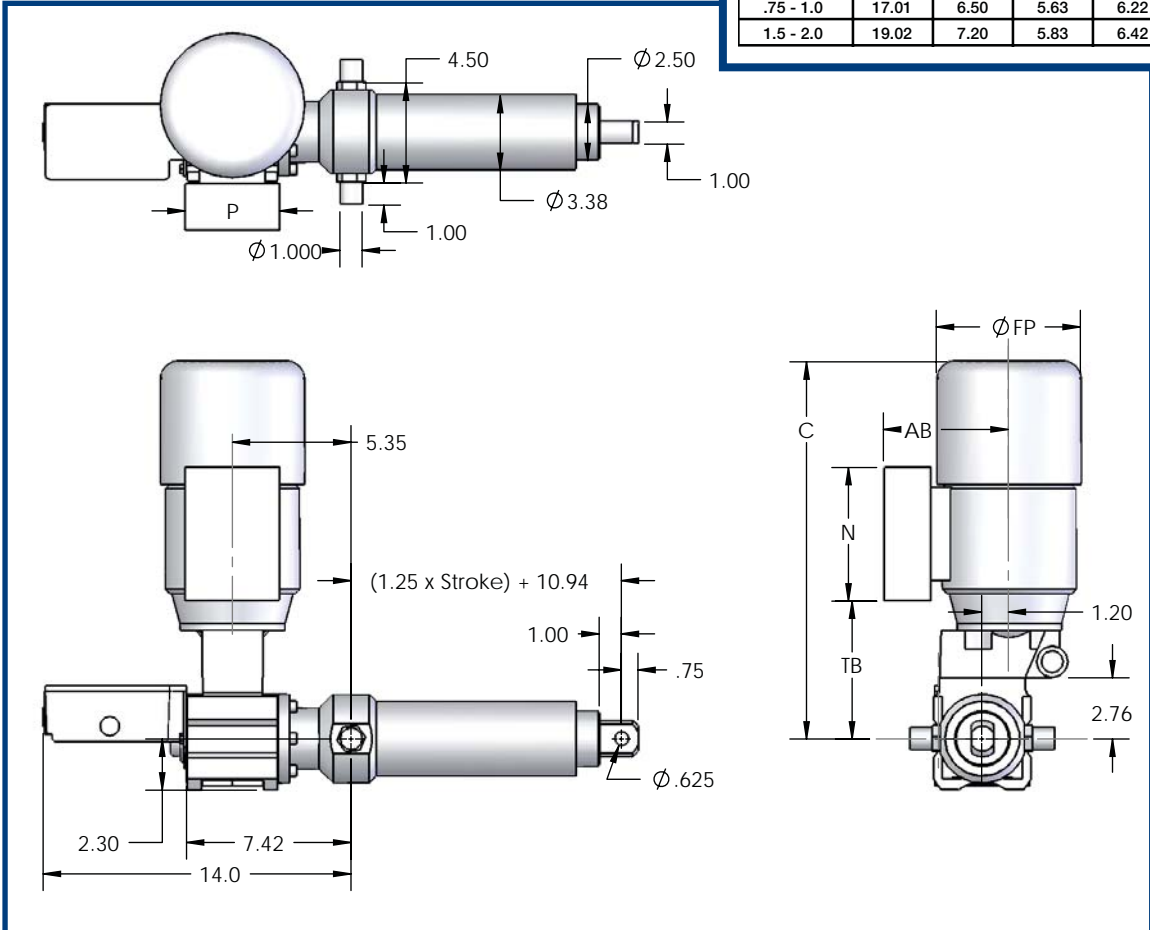
| PRODUCT INFORMATION | Part Number | Rated Load |        | Standard Stroke Lengths |                         | Retracted Length<br>in (mm)   | Speed  |        | Max Stroke |       | Motor |      | Approx. Weight                    | Weight Adder per inch of stroke |
|---------------------|-------------|------------|--------|-------------------------|-------------------------|-------------------------------|--------|--------|------------|-------|-------|------|-----------------------------------|---------------------------------|
|                     |             | lbs        | N      | in                      | mm                      |                               | in/min | mm/min | in         | mm    | HP    | kW   |                                   |                                 |
|                     |             |            |        |                         |                         |                               |        |        |            |       |       |      |                                   |                                 |
|                     | NU03-0572   | 2,879      | 12,806 | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 10.94 (277) + (1.25 x stroke) | 122.7  | 3,117  | 61         | 1,549 | 1     | 0.74 | Contact factory for exact weights |                                 |
|                     | NU03-1181   | 2,972      | 13,220 |                         |                         |                               | 59.4   | 1,509  | 61         | 1,549 | 1/2   | 0.37 |                                   |                                 |
|                     | NU03-1851   | 3,074      | 13,673 |                         |                         |                               | 37.9   | 963    | 61         | 1,549 | 1/3   | 0.24 |                                   |                                 |
|                     | NU03-0837   | 3,159      | 14,051 |                         |                         |                               | 83.9   | 2,131  | 61         | 1,549 | 3/4   | 0.56 |                                   |                                 |
|                     | NU03-2683   | 3,375      | 15,012 |                         |                         |                               | 26.2   | 665    | 61         | 1,549 | 1/4   | 0.19 |                                   |                                 |
|                     | NU03-0451   | 3,404      | 15,141 |                         |                         |                               | 155.7  | 3,955  | 61         | 1,549 | 1-1/2 | 1.11 |                                   |                                 |
|                     | NU03-4511   | 3,632      | 16,155 |                         |                         |                               | 15.6   | 396    | 59         | 1,499 | 1/6   | 0.12 |                                   |                                 |

Consult factory for additional speeds and capacities

Stroke lengths are available in 1" increments, please contact factory for details



| Motor HP  | C     | FP   | AB   | TB   | N    | P    |
|-----------|-------|------|------|------|------|------|
| .16 - .25 | 14.96 | 5.17 | 4.84 | 5.94 | 5.20 | 3.43 |
| .33 - .50 | 15.91 | 5.71 | 5.24 | 6.26 | 5.20 | 3.43 |
| .75 - 1.0 | 17.01 | 6.50 | 5.63 | 6.22 | 6.02 | 4.25 |
| 1.5 - 2.0 | 19.02 | 7.20 | 5.83 | 6.42 | 6.02 | 4.25 |



3 Ton Electric Cylinder (SCN) - Right Angle Motor

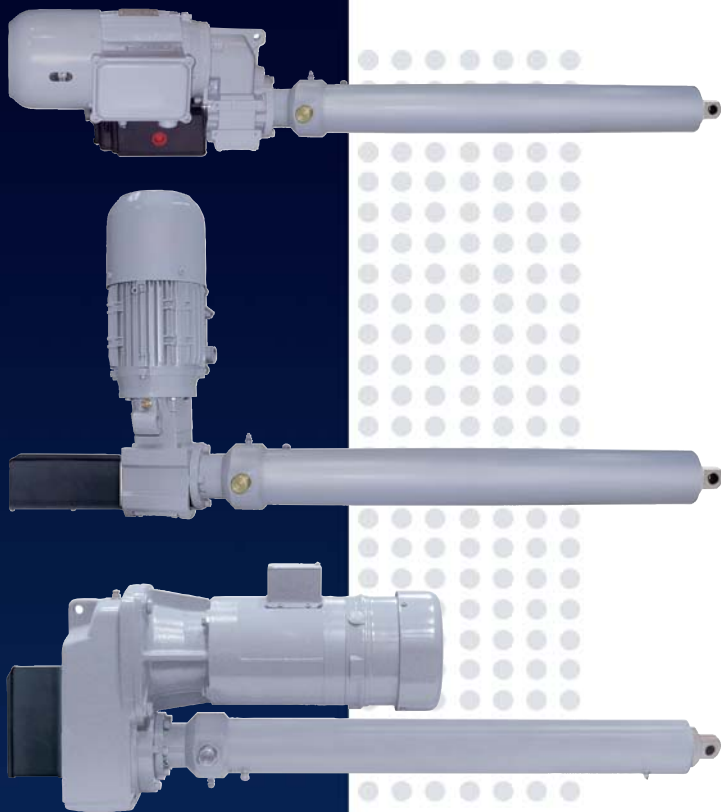
| PRODUCT INFORMATION | Part Number | Rated Load |        | Standard Stroke Lengths |                         | Retracted Length<br>in (mm)   | Speed  |        | Max Stroke |       | Motor<br>HP kW | Approx. Weight | Weight Adder per inch of stroke   |
|---------------------|-------------|------------|--------|-------------------------|-------------------------|-------------------------------|--------|--------|------------|-------|----------------|----------------|-----------------------------------|
|                     |             | lbs        | N      | in                      | mm                      |                               | in/min | mm/min | in         | mm    |                |                |                                   |
|                     | NL03-0524   | 2,637      | 11,729 | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 10.94 (277) + (1.25 x stroke) | 134.0  | 3,404  | 61         | 1,549 | 1              | 0.74           | Contact factory for exact weights |
| NL03-1106           | 2,783       | 12,379     | 63.5   |                         |                         |                               | 1,613  | 61     | 1,549      | 1/2   | 0.37           |                |                                   |
| NL03-0385           | 2,906       | 12,926     | 182.4  |                         |                         |                               | 4,633  | 61     | 1,549      | 1-1/2 | 1.11           |                |                                   |
| NL03-1756           | 2,916       | 12,971     | 40.0   |                         |                         |                               | 1,016  | 61     | 1,549      | 1/3   | 0.24           |                |                                   |
| NL03-0787           | 2,970       | 13,211     | 89.2   |                         |                         |                               | 2,266  | 61     | 1,549      | 3/4   | 0.56           |                |                                   |
| NL03-2639           | 3,320       | 14,768     | 26.6   |                         |                         |                               | 676    | 61     | 1,549      | 1/4   | 0.19           |                |                                   |
| NL03-4783           | 3,851       | 17,130     | 14.7   |                         |                         |                               | 373    | 57     | 1,448      | 1/6   | 0.12           |                |                                   |

Consult factory for additional speeds and capacities  
 Stroke lengths are available in 1" increments, please contact factory for details

# SCN06 SERIES

6 Ton

53 kN



## Specifications

### CAPACITY

6 Ton (53 kN)

### BRAKE MOTOR

TEFC 230/460 Vac, 3 ph, 60 Hz

### TEMPERATURE RANGE

0°F to 120°F (-18°C to 50°C)\*

### SPEEDS

Up to 320.8 in/min (8,147 mm/min)

### STROKES

Up to 80 in (2,032 mm)

\* For other temperatures please consult the factory

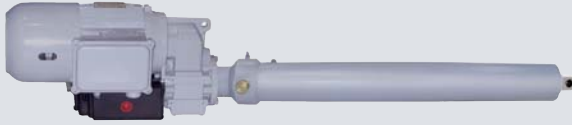
## Features & Benefits

- Easy to install - reduces installation costs
- Custom designed for your application
- Low maintenance design - easy to maintain after installation
- Long product life expectancy
- Ball screw
- Ductile iron housing
- Chrome plated translating tube
- Adjustable end of stroke limit switches
- Clevis and trunnion mounting
- Motor configuration include: parallel, right angle and off set

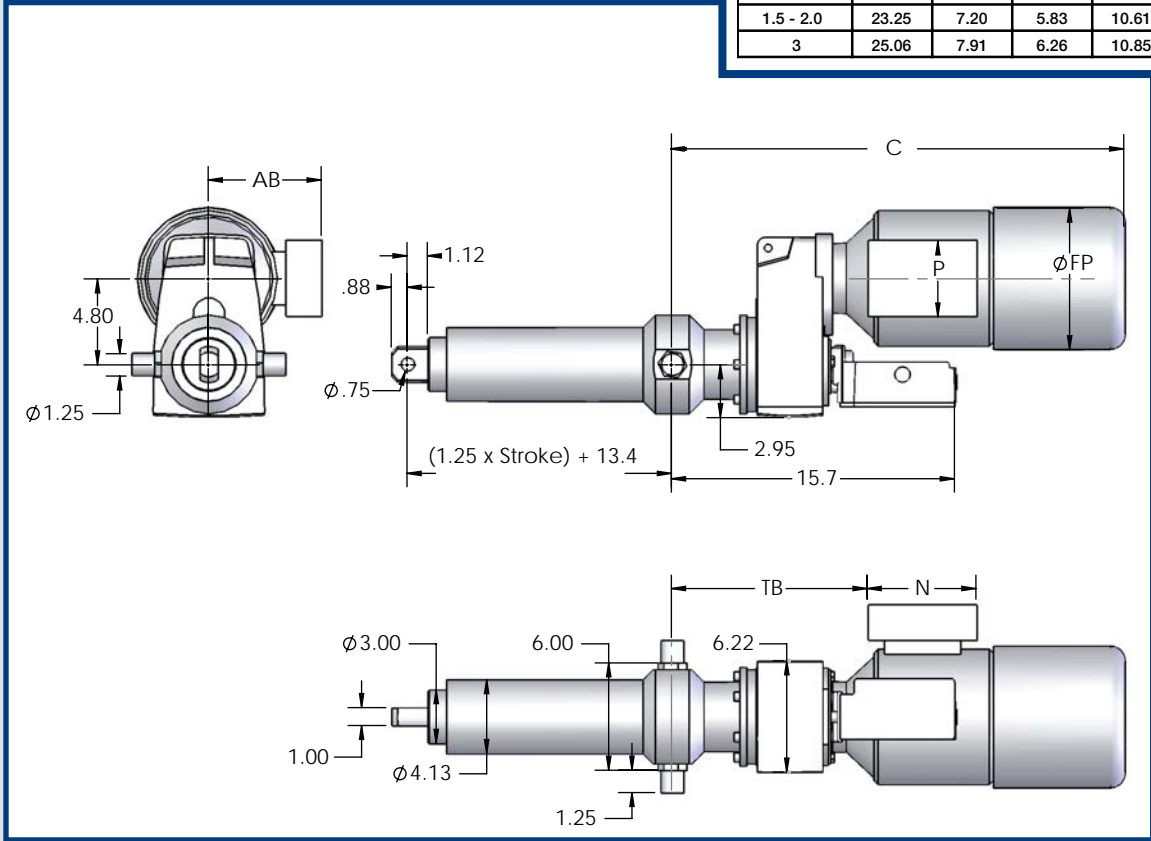
## Options

- Food grade component options available
- Explosion proof motor and limit switch
- Product designs for outdoor applications
- Manual override
- Other special packages are available upon your application needs





| Motor HP  | C     | FP   | AB   | TB    | N    | P    |
|-----------|-------|------|------|-------|------|------|
| .16 - .25 | 18.33 | 5.17 | 4.84 | 9.31  | 5.20 | 3.43 |
| .33 - .50 | 20.00 | 5.71 | 5.24 | 10.14 | 5.20 | 3.43 |
| .75 - 1.0 | 21.21 | 6.50 | 5.63 | 10.42 | 6.02 | 4.25 |
| 1.5 - 2.0 | 23.25 | 7.20 | 5.83 | 10.61 | 6.02 | 4.25 |
| 3         | 25.06 | 7.91 | 6.26 | 10.85 | 6.02 | 4.25 |



6 Ton Electric Cylinder (SCN) - Off Set Motor

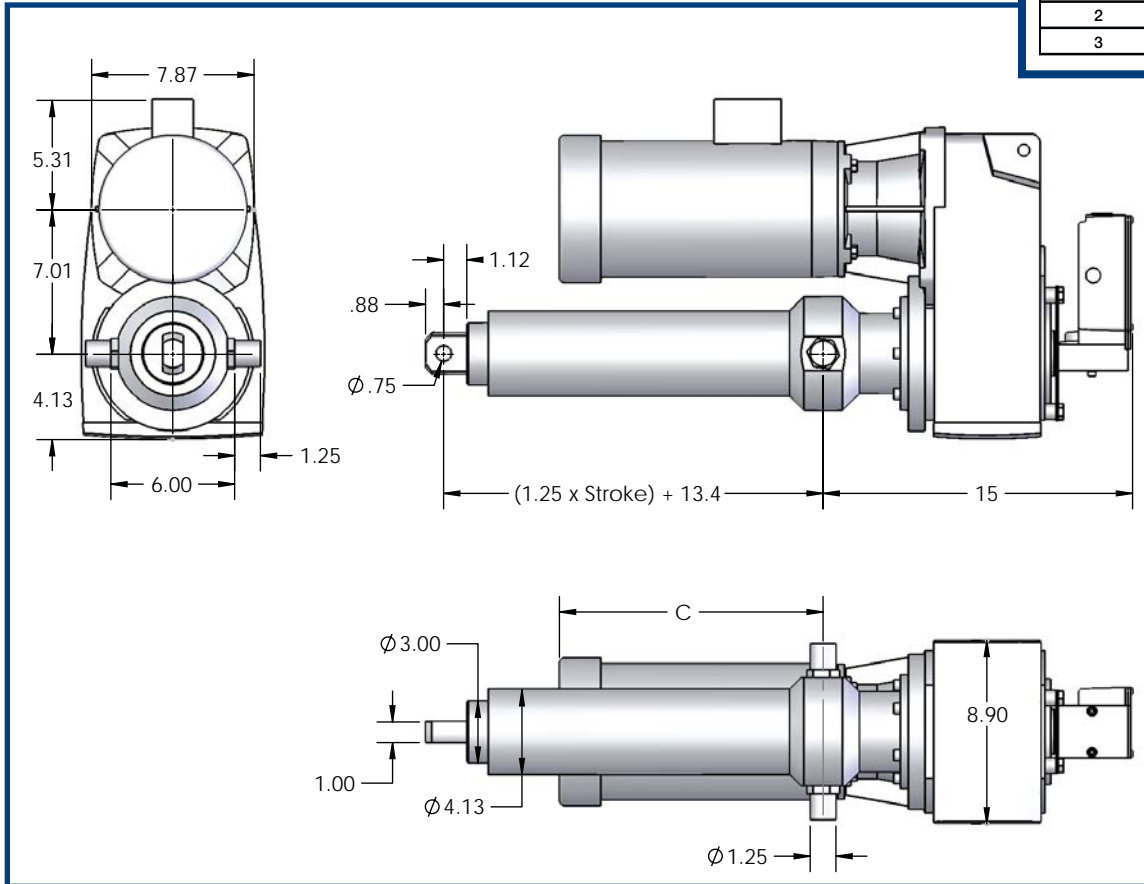
| Part Number | Rated Load |        | Standard Stroke Lengths |                         | Retracted Length             | Speed  |        | Max Stroke |       | Motor | Approx. Weight | Weight Adder per inch of stroke   |
|-------------|------------|--------|-------------------------|-------------------------|------------------------------|--------|--------|------------|-------|-------|----------------|-----------------------------------|
|             | lbs        | N      | in                      | mm                      | in (mm)                      | in/min | mm/min | in         | mm    | HP    |                |                                   |
| NZ06-0643   | 5,645      | 25,112 | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 13.4 (340) + (1.25 x stroke) | 125.3  | 3,183  | 80         | 2,032 | 2     | 1.49           | Contact factory for exact weights |
| NZ06-1411   | 6,194      | 27,553 |                         |                         |                              | 57.1   | 1,451  | 78         | 1,981 | 1     | 0.74           |                                   |
| NZ06-0479   | 6,308      | 28,061 |                         |                         |                              | 168.2  | 4,273  | 77         | 1,956 | 3     | 2.20           |                                   |
| NZ06-1034   | 6,809      | 30,287 |                         |                         |                              | 77.9   | 1,979  | 74         | 1,880 | 1-1/2 | 1.11           |                                   |
| NZ06-0547   | 7,204      | 32,044 |                         |                         |                              | 147.3  | 3,742  | 72         | 1,829 | 3     | 2.20           |                                   |
| NZ06-1721   | 7,555      | 33,606 |                         |                         |                              | 46.8   | 1,189  | 70         | 1,778 | 1     | 0.74           |                                   |
| NZ06-1176   | 7,744      | 34,446 |                         |                         |                              | 68.5   | 1,740  | 69         | 1,753 | 1-1/2 | 1.11           |                                   |
| NZ06-0918   | 8,060      | 35,852 |                         |                         |                              | 87.8   | 2,229  | 68         | 1,727 | 2     | 1.49           |                                   |
| NZ06-2522   | 8,304      | 36,936 |                         |                         |                              | 32.0   | 812    | 67         | 1,702 | 3/4   | 0.55           |                                   |
| NZ06-4107   | 9,015      | 40,099 |                         |                         |                              | 19.6   | 498    | 64         | 1,626 | 1/2   | 0.37           |                                   |
| NZ06-2057   | 9,030      | 40,168 |                         |                         |                              | 39.2   | 995    | 64         | 1,626 | 1     | 0.74           |                                   |
| NZ06-7217   | 10,455     | 46,506 |                         |                         |                              | 11.2   | 284    | 60         | 1,524 | 1/3   | 0.24           |                                   |
| NZ06-3208   | 10,562     | 46,983 |                         |                         |                              | 25.1   | 638    | 59         | 1,499 | 3/4   | 0.55           |                                   |
| NZ06-15812  | 12,000     | 53,378 |                         |                         |                              | 5.1    | 129    | 46         | 1,168 | 1/4   | 0.19           |                                   |
| NZ06-11816  | 12,000     | 53,378 |                         |                         |                              | 6.8    | 173    | 54         | 1,372 | 1/4   | 0.19           |                                   |
| NZ06-10950  | 12,000     | 53,378 |                         |                         |                              | 7.4    | 187    | 48         | 1,219 | 1/3   | 0.24           |                                   |
| NZ06-5889   | 12,000     | 53,378 |                         |                         |                              | 13.7   | 348    | 54         | 1,372 | 1/2   | 0.37           |                                   |

Consult factory for additional speeds and capacities  
 Stroke lengths are available in 1" increments, please contact factory for details

# SCN06 SERIES



| Motor HP | C     |
|----------|-------|
| 1/3      | 11.16 |
| 1/2 3/4  | 12.66 |
| 1        | 13.16 |
| 1 1/2    | 14.16 |
| 2        | 15.16 |
| 3        | 16.04 |

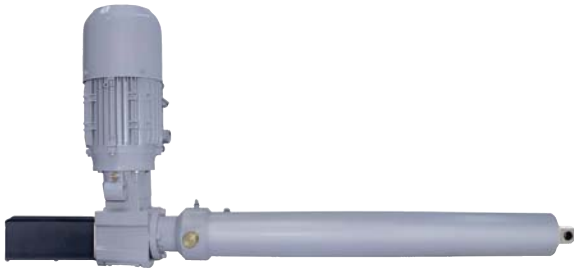


## 6 Ton Electric Cylinder (SCN) - Parallel Motor

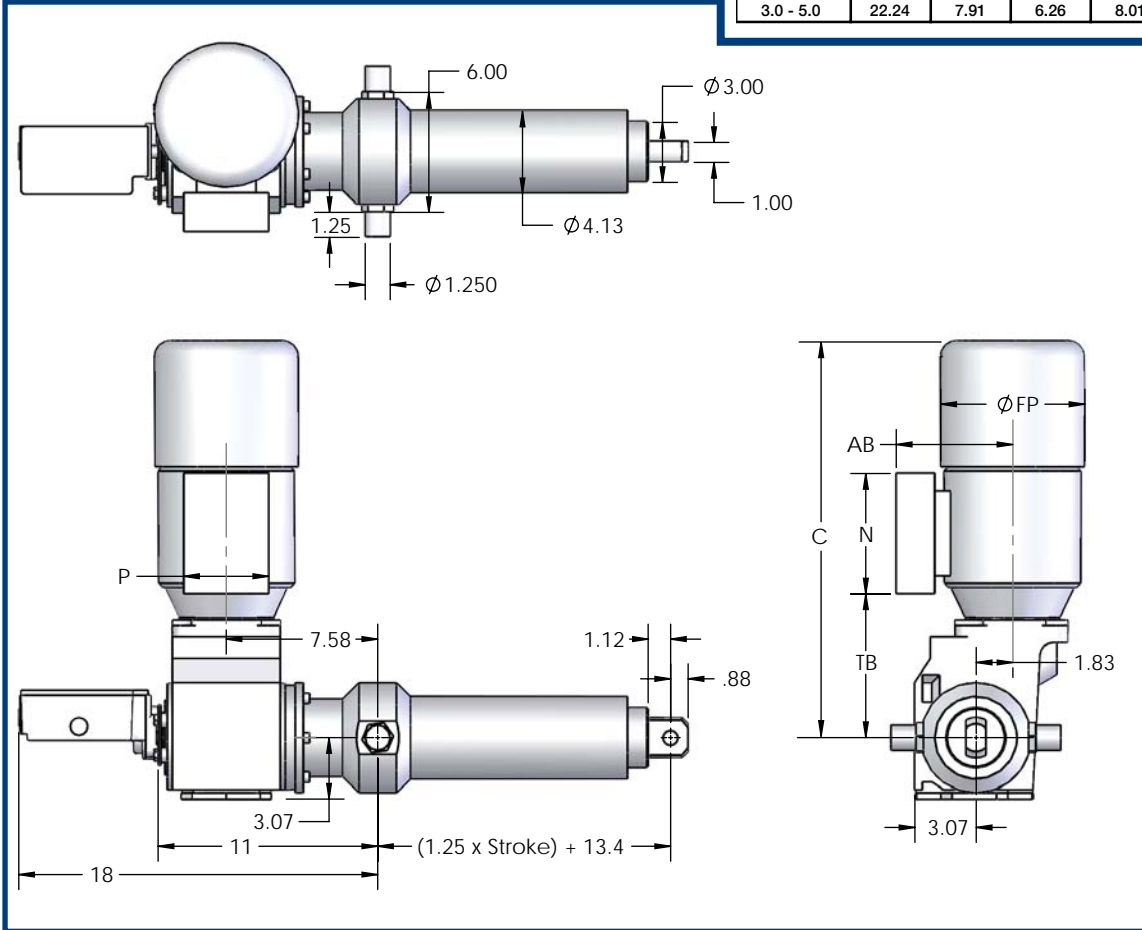
| PRODUCT INFORMATION | Part Number | Rated Load |        | Standard Stroke Lengths |                         | Retracted Length             | Speed   |        | Max Stroke |       | Motor | Approx. Weight | Weight Adder per inch of stroke   |
|---------------------|-------------|------------|--------|-------------------------|-------------------------|------------------------------|---------|--------|------------|-------|-------|----------------|-----------------------------------|
|                     |             | lbs        | N      | in                      | mm                      |                              | in (mm) | in/min | mm/min     | in    |       |                |                                   |
|                     | NU06-0831   | 7,296      | 32,454 | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 13.4 (340) + (1.25 x stroke) | 97.0    | 2,463  | 72         | 1,829 | 2     | 1.49           | Contact factory for exact weights |
| NU06-1667           | 7,318       | 32,552     | 48.3   |                         |                         |                              | 1,228   | 71     | 1,803      | 1     | 0.74  |                |                                   |
| NU06-2371           | 7,806       | 34,722     | 34.0   |                         |                         |                              | 863     | 69     | 1,753      | 3/4   | 0.55  |                |                                   |
| NU06-3777           | 8,290       | 36,875     | 21.3   |                         |                         |                              | 542     | 67     | 1,702      | 1/2   | 0.37  |                |                                   |
| NU06-0670           | 8,823       | 39,251     | 120.3  |                         |                         |                              | 3,055   | 65     | 1,651      | 3     | 2.20  |                |                                   |
| NU06-6412           | 9,288       | 40,319     | 12.6   |                         |                         |                              | 319     | 63     | 1,600      | 1/3   | 0.24  |                |                                   |
| NU06-1411           | 9,291       | 41,328     | 57.1   |                         |                         |                              | 1,451   | 63     | 1,600      | 1-1/2 | 1.11  |                |                                   |
| NU06-2245           | 9,855       | 43,837     | 35.9   |                         |                         |                              | 912     | 62     | 1,575      | 1     | 0.74  |                |                                   |
| NU06-1138           | 9,992       | 44,446     | 70.8   |                         |                         |                              | 1,798   | 61     | 1,549      | 2     | 1.49  |                |                                   |
| NU06-3193           | 10,513      | 46,764     | 25.2   |                         |                         |                              | 641     | 60     | 1,524      | 3/4   | 0.55  |                |                                   |
| NU06-5297           | 11,627      | 51,719     | 15.2   |                         |                         |                              | 386     | 57     | 1,448      | 1/2   | 0.37  |                |                                   |
| NU06-11223          | 12,000      | 53,378     | 7.2    |                         |                         |                              | 182     | 48     | 1,219      | 1/3   | 0.24  |                |                                   |

Consult factory for additional speeds and capacities

Stroke lengths are available in 1" increments, please contact factory for details



| Motor HP  | C     | FP   | AB   | TB   | N    | P    |
|-----------|-------|------|------|------|------|------|
| .16 - .25 | 15.79 | 5.17 | 4.84 | 6.47 | 5.20 | 3.43 |
| .33 - .50 | 16.73 | 5.71 | 5.24 | 7.30 | 5.20 | 3.43 |
| .75 - 1.0 | 17.83 | 6.50 | 5.63 | 7.58 | 6.02 | 4.25 |
| 1.5 - 2.0 | 20.43 | 7.20 | 5.83 | 7.77 | 6.02 | 4.25 |
| 3.0 - 5.0 | 22.24 | 7.91 | 6.26 | 8.01 | 6.02 | 4.25 |



### 6 Ton Electric Cylinder (SCN) - Right Angle Motor

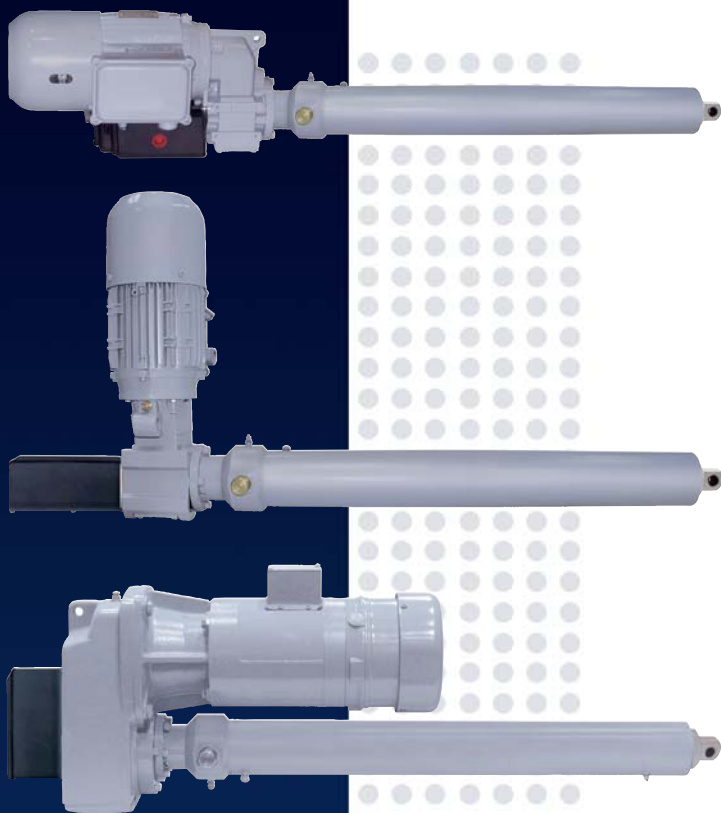
| PRODUCT INFORMATION | Part Number | Rated Load |        | Standard Stroke Lengths |                         | Retracted Length             | Speed   |        | Max Stroke |       | Motor | Approx. Weight | Weight Adder per inch of stroke   |
|---------------------|-------------|------------|--------|-------------------------|-------------------------|------------------------------|---------|--------|------------|-------|-------|----------------|-----------------------------------|
|                     |             | lbs        | N      | in                      | mm                      |                              | in (mm) | in/min | mm/min     | in    |       |                |                                   |
|                     | NLH6-0530   | 3,280      | 14,594 | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 13.4 (340) + (1.25 x stroke) | 320.8   | 8147.0 | 80         | 2,032 | 3     | 2.20           | Contact factory for exact weights |
| NLH6-0947           | 3,907       | 17,383     | 179.5  |                         |                         |                              | 4560.0  | 80     | 2,032      | 2     | 1.49  |                |                                   |
| NL06-0829           | 7,278       | 32,376     | 97.2   |                         |                         |                              | 2469.0  | 72     | 1,829      | 2     | 1.49  |                |                                   |
| NL06-1706           | 7,489       | 33,312     | 47.2   |                         |                         |                              | 1200.0  | 71     | 1,803      | 1     | 0.74  |                |                                   |
| NL06-1139           | 7,500       | 33,362     | 70.7   |                         |                         |                              | 1797.0  | 71     | 1,803      | 1-1/2 | 1.11  |                |                                   |
| NL06-2433           | 8,011       | 35,632     | 33.1   |                         |                         |                              | 841.0   | 68     | 1,727      | 3/4   | 0.55  |                |                                   |
| NL06-3862           | 8,477       | 37,707     | 20.9   |                         |                         |                              | 530.0   | 68     | 1,676      | 1/2   | 0.37  |                |                                   |
| NL06-6285           | 9,105       | 40,500     | 12.8   |                         |                         |                              | 326.0   | 64     | 1,626      | 1/3   | 0.24  |                |                                   |
| NL06-1084           | 9,517       | 42,335     | 74.3   |                         |                         |                              | 1888.0  | 63     | 1,600      | 2     | 1.49  |                |                                   |
| NL06-0732           | 9,640       | 42,882     | 110.1  |                         |                         |                              | 2796.0  | 62     | 1,575      | 3     | 2.20  |                |                                   |
| NL06-3380           | 11,129      | 49,502     | 23.8   |                         |                         |                              | 606.0   | 58     | 1,473      | 3/4   | 0.55  |                |                                   |
| NL06-5500           | 12,000      | 53,378     | 14.7   |                         |                         |                              | 372.0   | 56     | 1,422      | 1/2   | 0.37  |                |                                   |

Consult factory for additional speeds and capacities  
 Stroke lengths are available in 1" increments, please contact factory for details

# SCN12 SERIES

12 Ton

106.7 kN



## Specifications

### CAPACITY

12 Ton (106.7 kN)

### BRAKE MOTOR

TEFC 230/460 Vac, 3 ph, 60 Hz

### TEMPERATURE RANGE

0°F to 120°F (-18°C to 50°C)\*

### SPEEDS

Up to 188.5 in/min (4,787 mm/min)

### STROKES

Up to 110 in (2,794 mm)

\* For other temperatures please consult the factory

## Features & Benefits

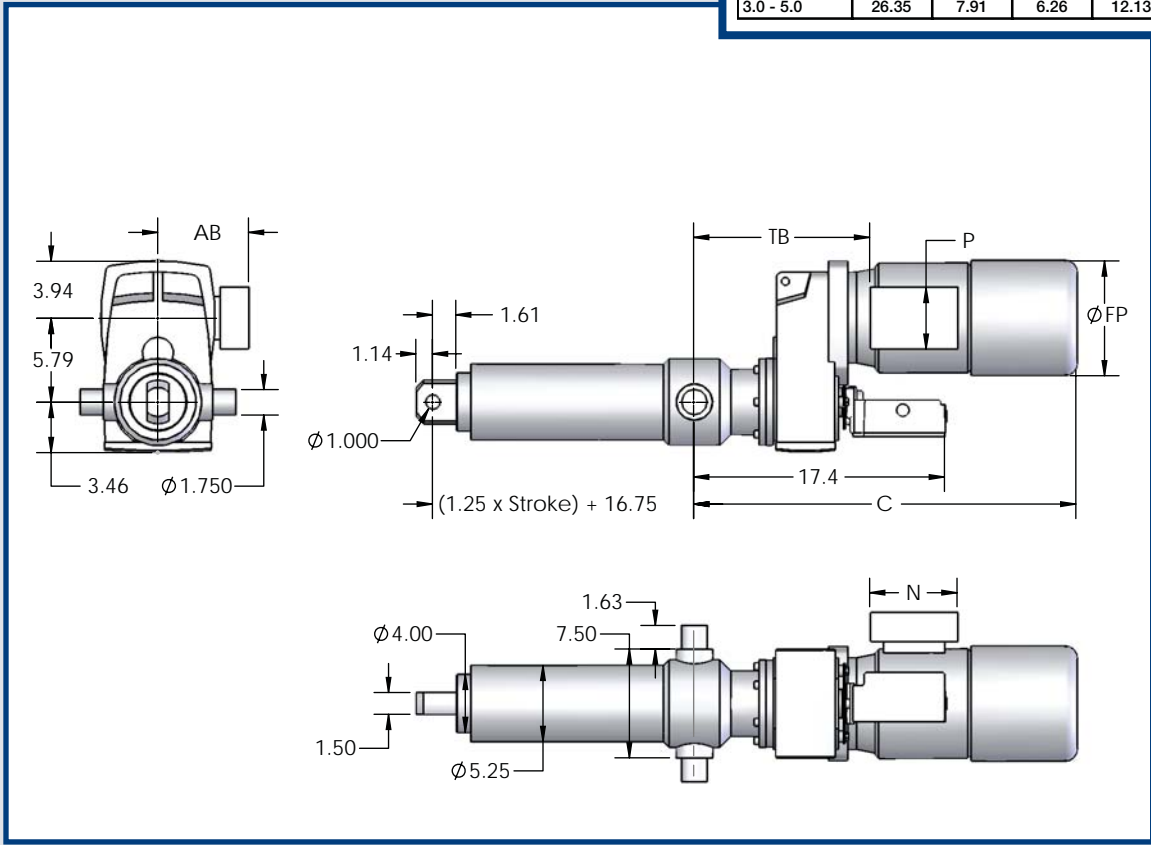
- Easy to install - reduces installation costs
- Custom designed for your application
- Low maintenance design - easy to maintain after installation
- Long product life expectancy
- Ball screw
- Ductile iron housing
- Chrome plated translating tube
- Adjustable end of stroke limit switches
- Clevis and trunnion mounting
- Motor configuration include: parallel, right angle and off set

## Options

- Food grade component options available
- Explosion proof motor and limit switch
- Product designs for outdoor applications
- Manual override
- Other special packages are available upon your application needs



| Motor HP  | C     | FP   | AB   | TB    | N    | P    |
|-----------|-------|------|------|-------|------|------|
| .33 - .50 | 25.84 | 5.71 | 5.24 | 11.62 | 5.20 | 3.43 |
| .75 - 1.0 | 25.92 | 6.50 | 5.63 | 11.70 | 6.02 | 4.25 |
| 1.5 - 2.0 | 26.11 | 7.20 | 5.85 | 11.90 | 6.02 | 4.25 |
| 3.0 - 5.0 | 26.35 | 7.91 | 6.26 | 12.13 | 6.02 | 4.25 |

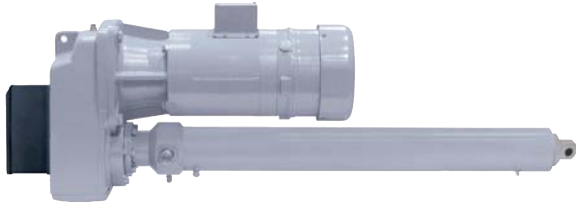


12 Ton Electric Cylinder (SCN) - Off Set Motor

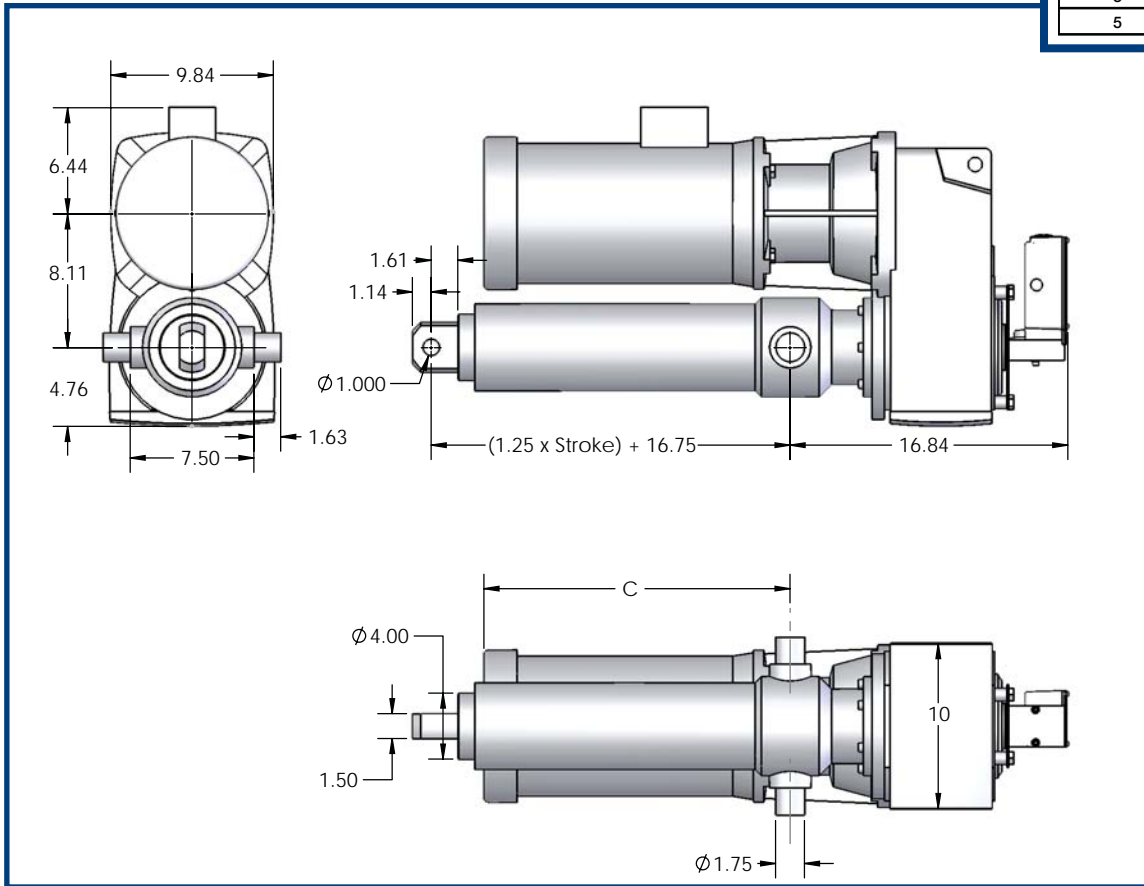
| Part Number | Rated Load |         | Standard Stroke Lengths |                         | Retracted Length              | Speed  |        | Max Stroke |       | Motor |      | Approx. Weight                    | Weight Adder per inch of stroke |
|-------------|------------|---------|-------------------------|-------------------------|-------------------------------|--------|--------|------------|-------|-------|------|-----------------------------------|---------------------------------|
|             | lbs        | N       | in                      | mm                      | in (mm)                       | in/min | mm/min | in         | mm    | HP    | kW   |                                   |                                 |
| NZ12-0451   | 9,305      | 41,390  | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 16.75 (425) + (1.25 x stroke) | 188.5  | 4,787  | 110        | 2,794 | 5     | 3.72 | Contact factory for exact weights |                                 |
| NZ12-1181   | 14,620     | 65,031  |                         |                         |                               | 72.0   | 1,828  | 110        | 2,794 | 3     | 2.23 |                                   |                                 |
| NZ12-1851   | 15,277     | 67,950  |                         |                         |                               | 45.9   | 1,116  | 110        | 2,794 | 2     | 1.49 |                                   |                                 |
| NZ12-3718   | 15,343     | 68,244  |                         |                         |                               | 22.9   | 581    | 110        | 2,794 | 1     | 0.74 |                                   |                                 |
| NZ12-2683   | 16,607     | 73,869  |                         |                         |                               | 31.7   | 805    | 110        | 2,794 | 1-1/2 | 1.12 |                                   |                                 |
| NZ12-1653   | 20,464     | 91,022  |                         |                         |                               | 51.4   | 1,306  | 102        | 2,591 | 3     | 2.23 |                                   |                                 |
| NZ12-2497   | 20,608     | 91,664  |                         |                         |                               | 34.0   | 865    | 102        | 2,591 | 2     | 1.49 |                                   |                                 |
| NZ12-1015   | 20,942     | 93,151  |                         |                         |                               | 83.7   | 2,127  | 101        | 2,565 | 5     | 3.72 |                                   |                                 |
| NZ12-3654   | 22,618     | 100,603 |                         |                         |                               | 23.3   | 591    | 97         | 2,464 | 1-1/2 | 1.12 |                                   |                                 |
| NZ12-27627  | 24,000     | 106,752 |                         |                         |                               | 3.1    | 78     | 85         | 2,159 | 1/4   | 0.19 |                                   |                                 |
| NZ12-23611  | 24,000     | 106,752 |                         |                         |                               | 3.6    | 91     | 80         | 2,032 | 1/3   | 0.25 |                                   |                                 |
| NZ12-18511  | 24,000     | 106,752 |                         |                         |                               | 4.6    | 117    | 91         | 2,311 | 1/3   | 0.25 |                                   |                                 |
| NZ12-14996  | 24,000     | 106,752 |                         |                         |                               | 5.7    | 144    | 82         | 2,083 | 1/2   | 0.37 |                                   |                                 |
| NZ12-12751  | 24,000     | 106,752 |                         |                         |                               | 6.7    | 169    | 89         | 2,261 | 1/2   | 0.37 |                                   |                                 |
| NZ12-10407  | 24,000     | 106,752 |                         |                         |                               | 8.2    | 207    | 80         | 2,032 | 3/4   | 0.56 |                                   |                                 |
| NZ12-8242   | 24,000     | 106,752 |                         |                         |                               | 10.3   | 262    | 91         | 2,311 | 3/4   | 0.56 |                                   |                                 |
| NZ12-6967   | 24,000     | 106,752 | 12.2                    | 310                     | 85                            | 2,159  | 1      | 0.74       |       |       |      |                                   |                                 |

Consult factory for additional speeds and capacities  
 Stroke lengths are available in 1" increments, please contact factory for details

# SCN12 SERIES



| Motor HP  | C     |
|-----------|-------|
| 1/3       | 11.84 |
| 1/2 - 3/4 | 13.34 |
| 1         | 13.84 |
| 1 - 1/2   | 14.84 |
| 2         | 15.84 |
| 3         | 16.07 |
| 5         | 16.52 |



## 12 Ton Electric Cylinder (SCN) - Parallel Motor

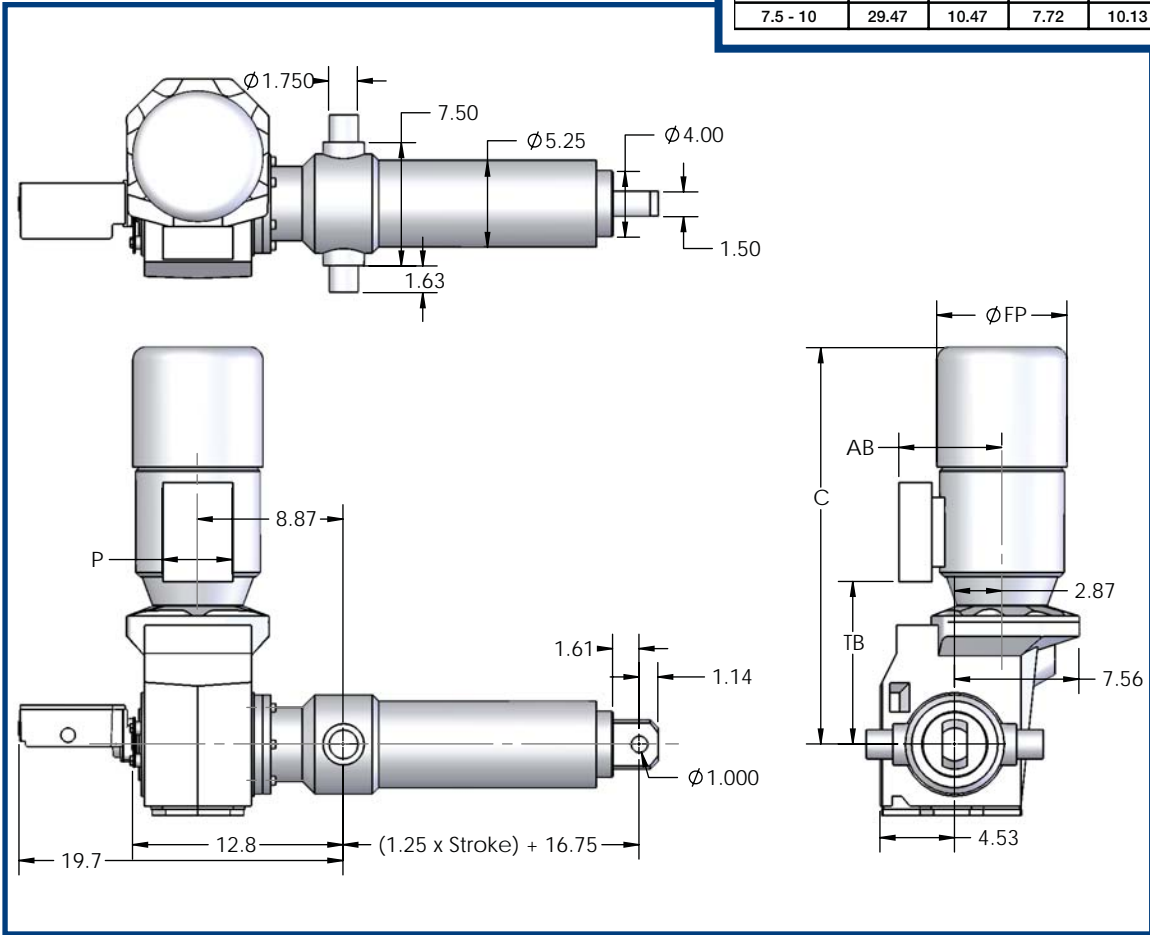
| PRODUCT INFORMATION | Part Number | Rated Load |        | Standard Stroke Lengths |                         | Retracted Length<br>in (mm)   | Speed  |        | Max Stroke |       | Motor<br>HP kW | Approx. Weight | Weight Adder per inch of stroke   |
|---------------------|-------------|------------|--------|-------------------------|-------------------------|-------------------------------|--------|--------|------------|-------|----------------|----------------|-----------------------------------|
|                     |             | lbs        | N      | in                      | mm                      |                               | in/min | mm/min | in         | mm    |                |                |                                   |
|                     | NU12-0470   | 9,697      | 43,134 | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 16.75 (425) + (1.25 x stroke) | 180.9  | 4,594  | 110        | 2,794 | 5              | 3.72           | Contact factory for exact weights |
| NU12-1818           | 15,004      | 66,738     | 46.8   |                         |                         |                               | 1,188  | 110    | 2,794      | 2     | 1.49           |                |                                   |
| NU12-4505           | 18,590      | 82,689     | 18.9   |                         |                         |                               | 479    | 108    | 2,743      | 1     | 0.74           |                |                                   |
| NU12-1520           | 18,817      | 83,698     | 55.9   |                         |                         |                               | 1,420  | 107    | 2,718      | 3     | 2.23           |                |                                   |
| NU12-0923           | 19,044      | 84,708     | 92.1   |                         |                         |                               | 2,339  | 106    | 2,692      | 5     | 3.72           |                |                                   |
| NU12-15540          | 21,162      | 94,128     | 5.5    |                         |                         |                               | 139    | 100    | 2,540      | 1/3   | 0.25           |                |                                   |
| NU12-2625           | 21,664      | 96,363     | 32.4   |                         |                         |                               | 822    | 99     | 2,515      | 2     | 1.49           |                |                                   |
| NU12-3681           | 22,785      | 101,347    | 23.1   |                         |                         |                               | 587    | 96     | 2,438      | 1-1/2 | 1.12           |                |                                   |
| NU12-11078          | 22,857      | 101,668    | 7.7    |                         |                         |                               | 195    | 96     | 2,438      | 1/2   | 0.37           |                |                                   |
| NU12-9052           | 24,000      | 106,752    | 9.4    |                         |                         |                               | 239    | 86     | 2,184      | 3/4   | 0.56           |                |                                   |

Consult factory for additional speeds and capacities

Stroke lengths are available in 1" increments, please contact factory for details



| Motor HP  | C     | FP    | AB   | TB    | N    | P    |
|-----------|-------|-------|------|-------|------|------|
| .33 - .50 | 19.47 | 5.71  | 5.24 | 9.82  | 5.20 | 3.43 |
| .75 - 1.0 | 20.69 | 6.50  | 5.63 | 9.90  | 6.02 | 4.25 |
| 1.5 - 2.0 | 22.73 | 7.20  | 5.83 | 10.09 | 6.02 | 4.25 |
| 3.0 - 5.0 | 24.55 | 7.91  | 6.26 | 10.33 | 6.02 | 4.25 |
| 7.5 - 10  | 29.47 | 10.47 | 7.72 | 10.13 | 7.28 | 5.47 |



12 Ton Electric Cylinder (SCN) - Right Angle Motor

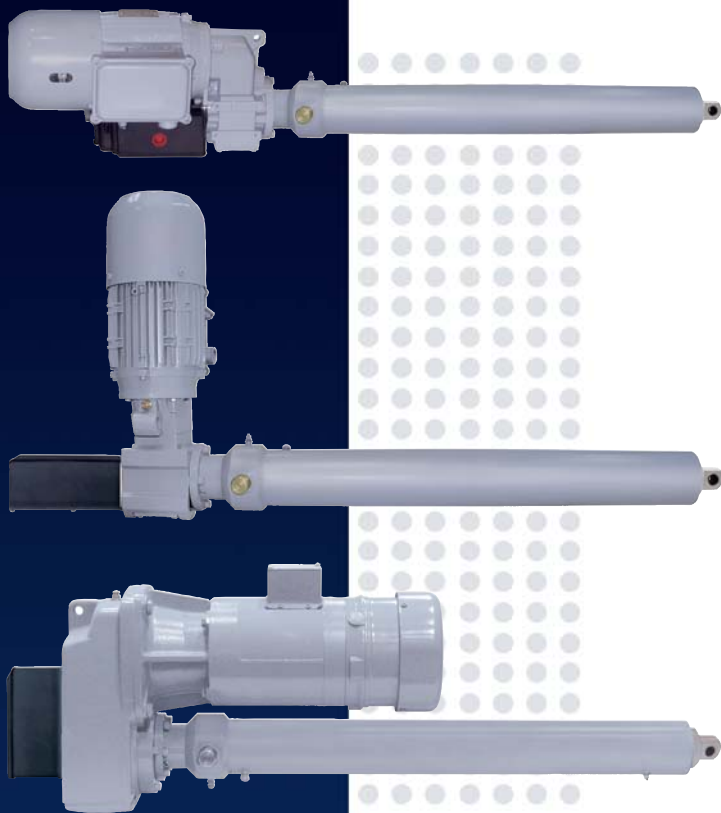
| PRODUCT INFORMATION | Part Number | Rated Load |                         | Standard Stroke Lengths       |                               | Retracted Length<br>in (mm) | Speed  |        | Max Stroke |       | Motor<br>HP kW | Approx. Weight | Weight Adder per inch of stroke   |
|---------------------|-------------|------------|-------------------------|-------------------------------|-------------------------------|-----------------------------|--------|--------|------------|-------|----------------|----------------|-----------------------------------|
|                     |             | lbs        | N                       | in                            | mm                            |                             | in/min | mm/min | in         | mm    |                |                |                                   |
|                     | NL12-1783   | 14,715     | 65,454                  |                               |                               |                             | 47.7   | 1,211  | 110        | 2,794 | 2              | 1.49           | Contact factory for exact weights |
| NL12-0481           | 14,887      | 66,215     |                         |                               |                               | 176.7                       | 4,489  | 110    | 2,794      | 7-1/2 | 5.50           |                |                                   |
| NL12-0760           | 15,681      | 69,749     |                         |                               |                               | 111.8                       | 2,841  | 110    | 2,794      | 5     | 3.72           |                |                                   |
| NL12-4077           | 16,824      | 74,833     |                         |                               |                               | 20.8                        | 530    | 110    | 2,794      | 1     | 0.74           |                |                                   |
| NL12-2844           | 17,604      | 78,303     | 6, 12,<br>18, 24,<br>36 | 152, 304,<br>457, 609,<br>914 | 16.75 (425) + (1.25 x stroke) | 29.9                        | 759    | 110    | 2,794      | 1-1/2 | 1.12           |                |                                   |
| NL12-1560           | 19,312      | 85,901     |                         |                               |                               | 54.5                        | 1,384  | 105    | 2,667      | 3     | 2.23           |                |                                   |
| NL12-6401           | 19,811      | 88,117     |                         |                               |                               | 13.3                        | 337    | 104    | 2,642      | 3/4   | 0.56           |                |                                   |
| NL12-0641           | 19,838      | 88,241     |                         |                               |                               | 132.8                       | 3,368  | 104    | 2,642      | 7-1/2 | 5.50           |                |                                   |
| NL12-2539           | 20,955      | 93,208     |                         |                               |                               | 33.5                        | 850    | 101    | 2,565      | 2     | 1.49           |                |                                   |
| NL12-3661           | 22,661      | 100,796    |                         |                               |                               | 23.2                        | 590    | 97     | 2,464      | 1-1/2 | 1.12           |                |                                   |
| NL12-5602           | 23,117      | 102,824    |                         |                               |                               | 15.2                        | 385    | 96     | 2,438      | 1     | 0.74           |                |                                   |

Consult factory for additional speeds and capacities  
Stroke lengths are available in 1" increments, please contact factory for details

# SCN25 SERIES

25 Ton

222 kN



## Specifications

### CAPACITY

25 Ton (222 kN)

### BRAKE MOTOR

TEFC 230/460 Vac, 3 ph, 60 Hz

### TEMPERATURE RANGE

0°F to 120°F (-18°C to 50°C)\*

### SPEEDS

Up to 259.7 in/min (6,596 mm/min)

### STROKES

Up to 161 in (4,089 mm)

\* For other temperatures please consult the factory

## Features & Benefits

- Easy to install - reduces installation costs
- Custom designed for your application
- Low maintenance design - easy to maintain after installation
- Long product life expectancy
- Ball screw
- Ductile iron housing
- Chrome plated translating tube
- Adjustable end of stroke limit switches
- Clevis and trunnion mounting
- Motor configuration include: parallel, right angle and off set

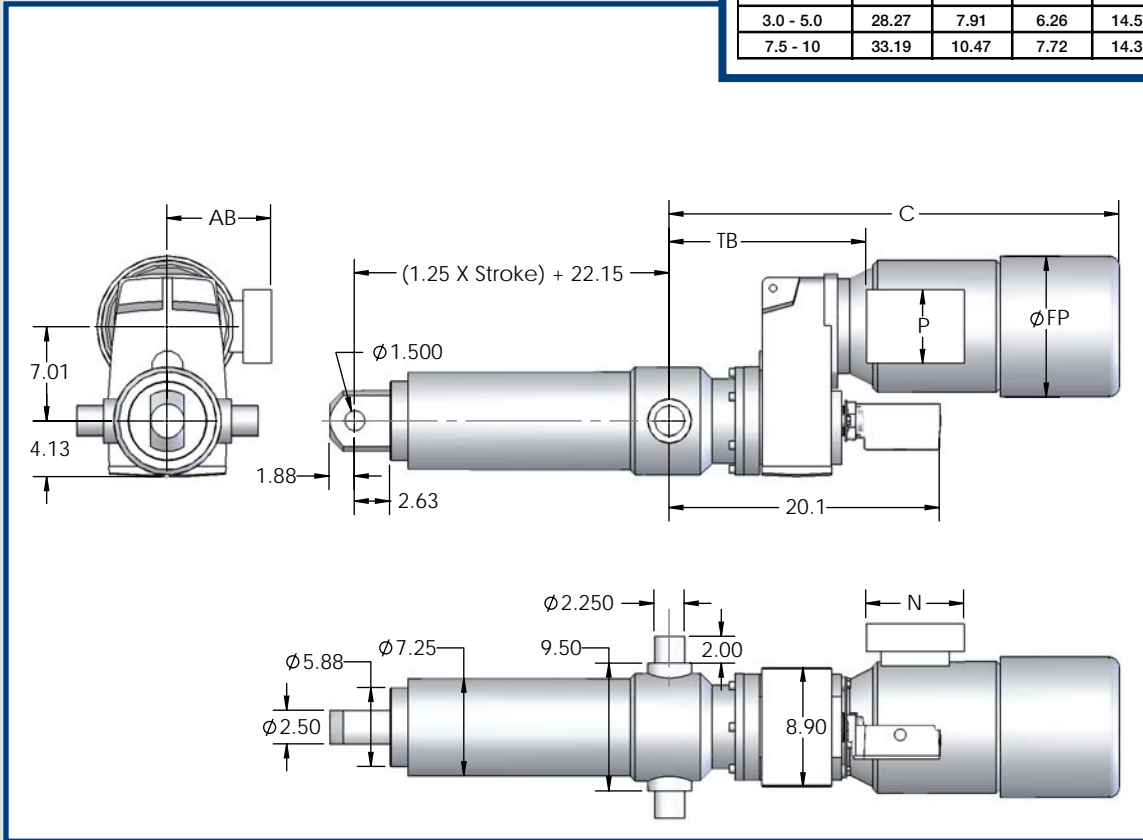
## Options

- Food grade component options available
- Explosion proof motor and limit switch
- Product designs for outdoor applications
- Manual override
- Other special packages are available upon your application needs





| Motor HP  | C     | FP    | AB   | TB    | N    | P    |
|-----------|-------|-------|------|-------|------|------|
| .33 - .50 | 23.19 | 5.71  | 5.24 | 14.05 | 5.20 | 3.43 |
| .75 - 1.0 | 24.41 | 6.50  | 5.63 | 14.13 | 6.02 | 4.25 |
| 1.5 - 2.0 | 26.45 | 7.20  | 5.83 | 14.33 | 6.02 | 4.25 |
| 3.0 - 5.0 | 28.27 | 7.91  | 6.26 | 14.57 | 6.02 | 4.25 |
| 7.5 - 10  | 33.19 | 10.47 | 7.72 | 14.37 | 7.28 | 5.47 |



25 Ton Electric Cylinder (SCN) - Off Set Motor

| Part Number | Rated Load |         | Standard Stroke Lengths |                         | Retracted Length              | Speed  |        | Max Stroke |       | Motor |      | Approx. Weight                    | Weight Adder per inch of stroke |
|-------------|------------|---------|-------------------------|-------------------------|-------------------------------|--------|--------|------------|-------|-------|------|-----------------------------------|---------------------------------|
|             | lbs        | N       | in                      | mm                      | in (mm)                       | in/min | mm/min | in         | mm    | HP    | kW   |                                   |                                 |
| NZ25-0448   | 14,005     | 62,298  | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 22.15 (562) + (1.25 x stroke) | 250.4  | 6360.0 | 161        | 4,089 | 10    | 7.40 | Contact factory for exact weights |                                 |
| NZ25-2371   | 22,236     | 98,912  |                         |                         |                               | 47.3   | 1202.0 | 161        | 4,089 | 3     | 2.23 |                                   |                                 |
| NZ25-1667   | 26,057     | 115,905 |                         |                         |                               | 67.3   | 1709.0 | 161        | 4,089 | 5     | 3.72 |                                   |                                 |
| NZ25-1138   | 26,682     | 118,686 |                         |                         |                               | 98.6   | 2504.0 | 161        | 4,089 | 7-1/2 | 5.50 |                                   |                                 |
| NZ25-0980   | 30,637     | 136,277 |                         |                         |                               | 114.5  | 2908.0 | 161        | 4,089 | 10    | 7.40 |                                   |                                 |
| NZ25-1411   | 33,083     | 147,158 |                         |                         |                               | 79.5   | 2019.0 | 160        | 4,064 | 7-1/2 | 5.50 |                                   |                                 |
| NZ25-2245   | 35,091     | 156,092 |                         |                         |                               | 50.0   | 1269.0 | 155        | 3,937 | 5     | 3.72 |                                   |                                 |
| NZ25-12693  | 39,681     | 176,506 |                         |                         |                               | 8.8    | 224.0  | 146        | 3,708 | 1     | 0.74 |                                   |                                 |
| NZ25-6412   | 40,090     | 178,328 |                         |                         |                               | 17.5   | 444.0  | 145        | 3,683 | 2     | 1.49 |                                   |                                 |
| NZ25-40858  | 42,151     | 187,494 |                         |                         |                               | 2.7    | 70.0   | 141        | 3,581 | 1/3   | 0.25 |                                   |                                 |
| NZ25-19069  | 44,710     | 198,877 |                         |                         |                               | 5.9    | 149.0  | 137        | 3,479 | 3/4   | 0.56 |                                   |                                 |
| NZ25-28714  | 44,883     | 199,645 |                         |                         |                               | 3.9    | 99.0   | 137        | 3,479 | 1/2   | 0.37 |                                   |                                 |
| NZ25-10088  | 47,305     | 210,422 |                         |                         |                               | 11.1   | 282.0  | 133        | 3,378 | 1-1/2 | 1.12 |                                   |                                 |
| NZ25-5297   | 49,678     | 220,977 |                         |                         |                               | 21.2   | 538.0  | 130        | 3,302 | 3     | 2.23 |                                   |                                 |
| NZ25-48256  | 49,783     | 221,442 |                         |                         |                               | 2.3    | 59.0   | 130        | 3,302 | 1/3   | 0.25 |                                   |                                 |
| NZ25-23083  | 50,000     | 222,409 |                         |                         |                               | 4.9    | 123.0  | 125        | 3,175 | 3/4   | 0.56 |                                   |                                 |
| NZ25-16146  | 50,000     | 222,409 |                         |                         |                               | 6.9    | 176.0  | 129        | 3,076 | 1     | 0.74 |                                   |                                 |
| NZ25-11223  | 50,000     | 222,409 |                         |                         |                               | 10.0   | 254.0  | 127        | 3,225 | 1-1/2 | 1.12 |                                   |                                 |
| NZ25-8874   | 50,000     | 222,409 | 12.6                    | 321.0                   | 123                           | 3,124  | 2      | 1.49       |       |       |      |                                   |                                 |

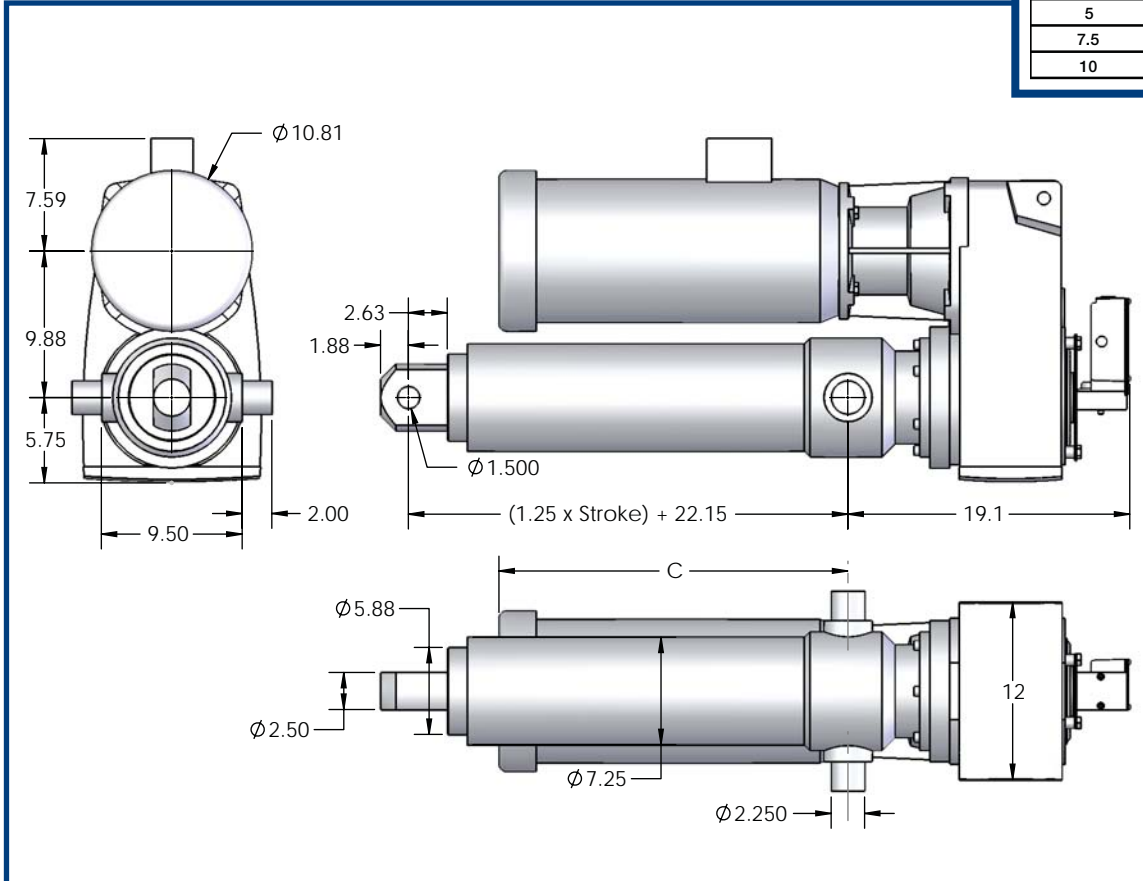
Consult factory for additional speeds and capacities

Stroke lengths are available in 1" increments, please contact factory for details

# SCN25 SERIES



| Motor HP  | C     |
|-----------|-------|
| 1/2 - 3/4 | 14.12 |
| 1         | 14.62 |
| 1 - 1/2   | 15.80 |
| 2         | 16.80 |
| 3         | 16.86 |
| 5         | 17.31 |
| 7.5       | 22.79 |
| 10        | 25.49 |

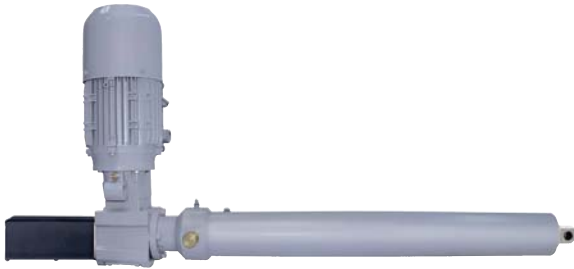


## 25 Ton Electric Cylinder (SCN) - Parallel Motor

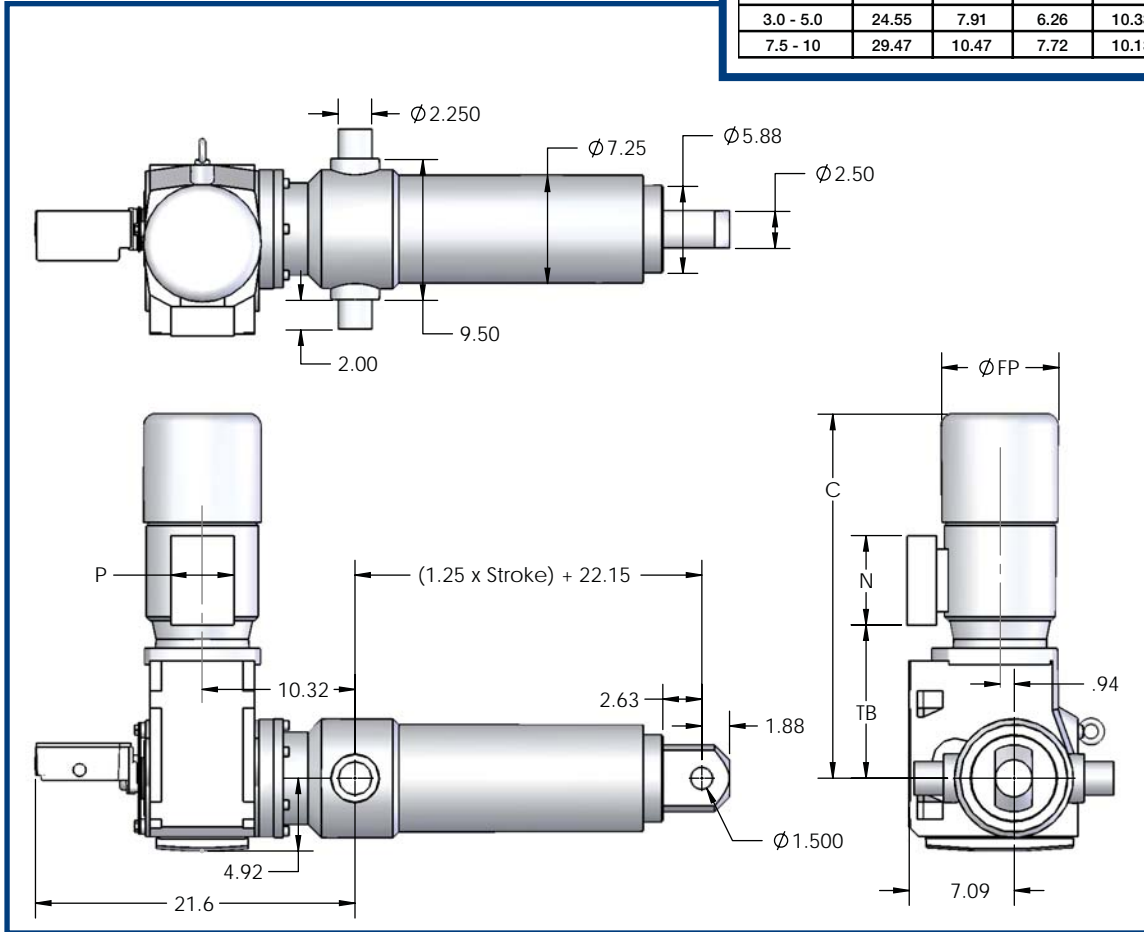
| PRODUCT INFORMATION | Part Number | Rated Load |        | Standard Stroke Lengths |                         | Retracted Length<br>in (mm)   | Speed  |        | Max Stroke |       | Motor |      | Approx. Weight                    | Weight Adder per inch of stroke |
|---------------------|-------------|------------|--------|-------------------------|-------------------------|-------------------------------|--------|--------|------------|-------|-------|------|-----------------------------------|---------------------------------|
|                     |             | lbs        | N      | in                      | mm                      |                               | in/min | mm/min | in         | mm    | HP    | kW   |                                   |                                 |
|                     | NU25-0432   | 13,505     | 60,073 | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 22.15 (562) + (1.25 x stroke) | 259.7  | 6596.0 | 161        | 4,089 | 10    | 7.40 | Contact factory for exact weights |                                 |
| NU25-3050           | 28,605      | 127,238    | 36.8   |                         |                         |                               | 934.0  | 161    | 4,089      | 3     | 2.23  |      |                                   |                                 |
| NU25-2036           | 31,824      | 141,561    | 55.1   |                         |                         |                               | 1400.0 | 161    | 4,089      | 5     | 3.72  |      |                                   |                                 |
| NU25-1538           | 36,060      | 160,403    | 73.0   |                         |                         |                               | 1853.0 | 153    | 3,886      | 7-1/2 | 5.50  |      |                                   |                                 |
| NU25-1300           | 40,640      | 180,775    | 86.3   |                         |                         |                               | 2192.0 | 144    | 3,657      | 10    | 7.40  |      |                                   |                                 |
| NU25-13403          | 41,900      | 186,379    | 8.4    |                         |                         |                               | 213.0  | 142    | 3,606      | 1     | 0.74  |      |                                   |                                 |
| NU25-1888           | 44,267      | 196,906    | 59.4   |                         |                         |                               | 1509.0 | 138    | 3,505      | 7-1/2 | 5.50  |      |                                   |                                 |
| NU25-10019          | 46,982      | 208,983    | 11.2   |                         |                         |                               | 284.0  | 134    | 3,403      | 1-1/2 | 1.12  |      |                                   |                                 |
| NU25-8161           | 50,000      | 222,409    | 13.7   |                         |                         |                               | 349.0  | 129    | 3,276      | 2     | 1.49  |      |                                   |                                 |
| NU25-5555           | 50,000      | 222,409    | 20.2   |                         |                         |                               | 513.0  | 127    | 3,225      | 3     | 2.23  |      |                                   |                                 |

Consult factory for additional speeds and capacities

Stroke lengths are available in 1" increments, please contact factory for details



| Motor HP  | C     | FP    | AB   | TB    | N    | P    |
|-----------|-------|-------|------|-------|------|------|
| .33 - .50 | 19.47 | 5.71  | 5.24 | 9.82  | 5.20 | 3.43 |
| .75 - 1.0 | 20.69 | 6.50  | 5.63 | 9.90  | 6.02 | 4.25 |
| 1.5 - 2.0 | 22.73 | 7.20  | 5.83 | 10.09 | 6.02 | 4.25 |
| 3.0 - 5.0 | 24.55 | 7.91  | 6.26 | 10.33 | 6.02 | 4.25 |
| 7.5 - 10  | 29.47 | 10.47 | 7.72 | 10.13 | 7.28 | 5.47 |



25 Ton Electric Cylinder (SCN) - Right Angle Motor

| PRODUCT INFORMATION | Part Number | Rated Load |         | Standard Stroke Lengths |                         | Retracted Length<br>in (mm)   | Speed  |        | Max Stroke |       | Motor |      | Approx. Weight                    | Weight Adder per inch of stroke |
|---------------------|-------------|------------|---------|-------------------------|-------------------------|-------------------------------|--------|--------|------------|-------|-------|------|-----------------------------------|---------------------------------|
|                     |             | lbs        | N       | in                      | mm                      |                               | in/min | mm/min | in         | mm    | HP    | kW   |                                   |                                 |
|                     | NL25-0848   | 26,510     | 117,921 | 6, 12, 18, 24, 36       | 152, 304, 457, 609, 914 | 22.15 (562) + (1.25 x stroke) | 132.3  | 3360.0 | 161        | 4,089 | 10    | 7.40 | Contact factory for exact weights |                                 |
| NL25-2023           | 31,621      | 140,657    | 55.5    |                         |                         |                               | 1409.0 | 161    | 4,089      | 5     | 3.72  |      |                                   |                                 |
| NL25-3561           | 33,397      | 148,556    | 31.5    |                         |                         |                               | 800.0  | 159    | 4,038      | 3     | 2.23  |      |                                   |                                 |
| NL25-1708           | 40,046      | 178,133    | 65.7    |                         |                         |                               | 1668.0 | 145    | 3,683      | 7-1/2 | 5.50  |      |                                   |                                 |
| NL25-6408           | 40,065      | 178,217    | 17.5    |                         |                         |                               | 445.0  | 145    | 3,683      | 2     | 1.49  |      |                                   |                                 |
| NL25-13944          | 43,591      | 193,900    | 8.0     |                         |                         |                               | 204.0  | 139    | 3,530      | 1     | 0.74  |      |                                   |                                 |
| NL25-29585          | 46,244      | 205,701    | 3.8     |                         |                         |                               | 96.0   | 135    | 3,429      | 1/2   | 0.37  |      |                                   |                                 |
| NL25-19745          | 46,295      | 205,927    | 5.7     |                         |                         |                               | 144.0  | 135    | 3,429      | 3/4   | 0.56  |      |                                   |                                 |
| NL25-2966           | 46,361      | 206,223    | 37.8    |                         |                         |                               | 961.0  | 135    | 3,429      | 5     | 3.72  |      |                                   |                                 |
| NL25-1573           | 49,175      | 218,738    | 71.3    |                         |                         |                               | 1811.0 | 131    | 3,327      | 10    | 7.40  |      |                                   |                                 |
| NL25-11077          | 50,000      | 222,409    | 10.1    |                         |                         |                               | 257.0  | 127    | 3,225      | 1-1/2 | 1.12  |      |                                   |                                 |
| NL25-9350           | 50,000      | 222,409    | 12.0    |                         |                         |                               | 305.0  | 120    | 3,048      | 2     | 1.49  |      |                                   |                                 |
| NL25-5917           | 50,000      | 222,409    | 19.0    |                         |                         |                               | 482.0  | 123    | 3,124      | 3     | 2.23  |      |                                   |                                 |

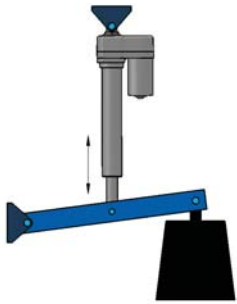
Consult factory for additional speeds and capacities

Stroke lengths are available in 1" increments, please contact factory for details

# INSTALLATION INFORMATION

## Loading

Duff-Norton Linear Actuators can be used in tension, compression, or combination tension/compression applications. Examples of tension and compression are shown below:

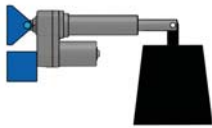


**Tension**



**Compression**

It is important to mount the actuator so that side loading and eccentric loading are avoided. A clevis mount actuator should always be free to pivot on its clevis pins. No brackets or supports should be used that restrain the actuator housing or outer tube. To optimize the performance and life of the actuator, it should be mounted so that the load is applied along the longitudinal axis of the translating tube. Examples of proper and improper loading arrangements are shown to the side.



**Side Loading**



**Eccentric Loading**



**Tension Example:  
Styrofoam Manipulator**



**Tension & Compression Example:  
Valve opening and closing**



**Compression Example:  
Access Door**

### **WARNING**

The equipment shown in this catalog is intended for industrial use only and should not be used to lift, support, or otherwise transport people unless you have written statement from Duff-Norton, which authorizes the specific actuator used in your applications as suitable for moving people.

# TERMS OF SALE

All sales by Seller are made pursuant to the following terms. No other or additional terms or conditions are or will be accepted.

## **ACCEPTANCE OF ORDERS -**

All orders, whether placed directly or through an agent, and all subsequent amendments thereto, are subject to a final approval and acceptance by Seller's main office.

## **LIMITATION OF WARRANTIES, REMEDIES AND DAMAGES -**

THE WARRANTY STATED BELOW IS GIVEN IN PLACE OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE. NO PROMISE OR AFFIRMATION OF FACT MADE BY ANY AGENT OR REPRESENTATIVE OF SELLER SHALL CONSTITUTE A WARRANTY BY SELLER OR GIVE RISE TO ANY LIABILITY OR OBLIGATION.

Seller warrants that on the date of its delivery to carrier the goods are free from defects in workmanship and materials.

SELLER'S SOLE OBLIGATION IN THE EVENT OF BREACH OF WARRANTY OR CONTRACT OR FOR NEGLIGENCE OR OTHERWISE WITH RESPECT TO GOODS SOLD SHALL BE EXCLUSIVELY LIMITED TO REPAIR OR REPLACEMENT, F.O.B. SELLER'S POINT OF SHIPMENT, OF ANY PARTS WHICH SELLER DETERMINES TO HAVE BEEN DEFECTIVE or if Seller determines that such repair or replacement is not feasible, to a refund of the purchase price upon return of the goods to Seller.

Any action against Seller for breach of warranty, negligence or otherwise must be commenced within one year after such cause of action accrues.

NO CLAIM AGAINST SELLER FOR ANY DEFECT IN THE GOODS SHALL BE VALID OR ENFORCEABLE UNLESS BUYER'S WRITTEN NOTICE THEREOF IS RECEIVED BY SELLER WITHIN ONE YEAR FROM THE DATE OF SHIPMENT.

Seller shall not be liable for any damage, injury or loss arising out of the use of the goods if, prior to such damage, injury or loss, such goods are (1) damaged or misused following Seller's delivery to carrier; (2) not maintained, inspected, or used in compliance with applicable law and Seller's written instructions and recommendations; or (3) installed, repaired, altered or modified without compliance with such law, instructions or recommendations.

UNDER NO CIRCUMSTANCES SHALL SELLER BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES AS THOSE TERMS ARE DEFINED IN SECTION 2-715 OF THE UNIFORM COMMERCIAL CODE.

## **TERMS OF PAYMENT -**

Unless otherwise stated herein, payment of each invoice is required within thirty (30) days after date of shipment. Any balance unpaid after the required payment date shall be subject to a service charge of 1% per month from such date.

## **PRICE ADJUSTMENTS -**

Amendments made by the Buyer to orders already placed shall, without formal notice to the Buyer, be subject to extra charges. If the estimated shipping date for the goods is more than sixty (60) days after date of order, the price of the goods are subject to increase by Seller.

## **TAXES -**

Any sales, use, excise, and other taxes applicable to this transaction and the goods and/or services furnished by Seller are not included in the price and shall be paid by Buyer when due. If Seller pays any such taxes, Buyer shall reimburse Seller upon demand.

## **INDEMNIFICATION AND SAFE OPERATION -**

Buyer shall comply with and require its employees to comply with directions set forth in instructions and manuals furnished by Seller and shall use and require its employees to follow such instructions and manuals and to use reasonable care in the use and maintenance of the goods. Buyer shall not remove or permit anyone to remove any warning or instruction signs on the goods. In the event of personal injury or damage to property or business arising from the use of the goods, Buyer shall, within forty-eight (48) hours thereafter, give Seller written notice of such injury or damage. Buyer shall cooperate with Seller in investigating any such injury or damage and in the defense of any claims arising therefrom.

If Buyer fails to comply with this section or if any injury or damage is caused, in whole or in part, by Buyer's failure to comply with applicable federal or state safety requirements, Buyer shall indemnify and hold Seller harmless against any claims, loss or expense for injury or damage arising from the use of the goods.

## **GOVERNING LAW -**

This agreement shall be governed by and construed under the laws of the State of New York.

## **DELIVERY AND DELAYS -**

Unless otherwise specified herein, deliveries shall be F.O.B. Seller's point of shipment and risk of loss shall pass to Buyer upon Seller's delivery to carrier. All shipping dates are approximate and Seller shall not be liable for loss or damage because of delays occasioned by labor disputes, damage to facilities, or failure of suppliers or subcontractors to meet scheduled deliveries or any other cause beyond Seller's reasonable control or making its performance commercially impracticable.

Notwithstanding other provisions hereof, if shipment is delayed at Buyer's request, the goods shall be deemed to be stored at Buyer's risk and expense and Seller may thereupon bill Buyer for the full price and storage costs. Buyer shall pay such bill within 30 days after mailing thereof.

## **BUYER'S INSPECTION UPON RECEIPT OF SHIPMENT -**

Buyer shall inspect the goods as soon as received. If any loss or damage is discovered, Buyer must notify both the carrier and Seller at once. Seller will cooperate with Buyer in filing claims with the carrier.

## **CHANGES AND CANCELLATION -**

Seller reserves the right to change or cancel any order whenever circumstances require allocation of production or delivery or Seller deems change or cancellation to be necessary to comply with applicable laws, ordinances, regulations, directives or administrative actions. Seller reserves the right to make changes in materials or design which it determines appropriate for the goods.

## **SECURITY INTEREST AND REPOSSESSION -**

Until full payment has been made therefor, Seller shall have a security interest in goods shipped to Buyer and the goods shall remain personal property. Upon request Buyer shall execute and deliver to Seller security agreements and financing statements further evidencing Seller's security interest. Buyer authorizes Seller to file a financing statement or statements relating to the goods, without Buyer's signature thereon, as Seller may deem appropriate and appoints Seller as Buyer's attorney-in-fact for the limited purpose of executing (without requiring Seller to do so) financing statements in Buyer's name and performing other acts which Seller deems appropriate to perfect and continue its security interest and to protect and preserve the goods.

In the event Buyer defaults in making any payment due Seller, Seller in addition to any other rights or remedies provided by law, shall have the right, with or without legal process, to enter the place where said goods are located and to repossess the goods in accordance with the Uniform Commercial Code.

## **ASSURANCES -**

Shipment by Seller shall at all times be subject to the prior approval of its credit personnel and Seller may, at any time, decline to make shipment except upon receipt of prior payment or upon other terms and conditions or security satisfactory to such personnel.

## **PATENTS -**

Except as to goods manufactured according to design supplied by Buyer, Seller will defend and hold Buyer free and harmless in a suit or proceeding brought against Buyer insofar as it is based on a claim that use of the goods by Buyer constitutes an infringement of any existing U.S. Patents, provided, however, that Buyer gives Seller prompt written notice of such suit or proceeding; permits Seller, through its counsel, to defend and/or settle the same; and gives Seller all necessary information, assistance and authority to enable Seller so to do. If Buyer's use of the goods is held to constitute infringement and further use is enjoined, Seller shall, at its option, either (i) procure for Buyer the right to continue using the goods; or (ii) replace the goods with non-infringing goods; or (iii) modify the goods to non-infringing goods. The foregoing states Seller's entire liability for patent infringement and shall not be construed to render Seller liable for damages based on product output.

## **MISCELLANEOUS -**

This instrument constitutes the entire agreement between Seller and Buyer, superseding all previous understandings and writings regarding this transaction. Any amendment or modification of this Agreement shall be void unless in writing and signed by Seller.

No delay or omission by Seller in exercising any right or remedy hereunder shall be a waiver thereof or of any other right or remedy, and no single or partial exercise thereof shall preclude any other or further exercise thereof or the exercise of any other right or remedy. All rights and remedies of Seller are cumulative.

Sales made pursuant to this Agreement shall be governed by the Uniform Commercial Code as the same may from time to time be construed and in effect in the state wherein Seller has its main office.

## **ARBITRATION -**

All disputes that may arise between the parties regarding the interpretation of the contract and the legal effect of the contract shall, to the exclusion of any court of law, be arbitrated and determined in accordance with the latest Commercial Arbitration Rules of the American Arbitration Association. The arbitration proceeding shall be held in the city in that state where the principal office of the Seller is located. The parties recognize and consent to the above mentioned arbitration association's jurisdiction over each and every one of them.

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# FREQUENTLY ASKED QUESTIONS

## What are the advantages of using Duff-Norton linear actuators over other linear motion solutions?

Duff-Norton linear actuators offer a packaged solution to your motion requirements. The integration of the actuator and motor simplifies the process of specifying and purchasing components for your motion system. Also, Duff-Norton linear actuators offer many advantages over hydraulic cylinders when low maintenance, installation and operating costs and environmental impact are considerations. Regardless of how simple your requirements or how complex, Duff-Norton Controls are available for all electromechanical actuators and can be customized to suit your application. In addition, Duff-Norton's application engineers can help you determine which actuator best suits your application and environment.

## Can two or more Duff-Norton linear actuators be synchronized?

Tandem actuators can be used in certain applications. Small differences in motor speed may cause the actuators to get out of synchronization. Use of clutch models allows alignment when actuator is fully extended or retracted. Contact Duff-Norton application engineers to discuss your application.

## What is the difference between static load and dynamic load?

Dynamic, working, or lifting load is the force that will be applied to the actuator while it is in motion. Static load, also called holding load, is the force that will be applied to the actuator when it is not in motion.

## What's duty cycle and how is it calculated?

Duty cycle, measured in inches per hour, is the total distance an actuator may travel (extension and retraction) in an hour with equally spaced intervals between each cycle. Duty cycle may also be expressed as a percentage, which is simply the ratio of on time to total time (on and off time). AC actuators operate between no load and rated load with very little change in duty cycle. In DC models, duty cycle is approximately inversely proportional to load (percent of rated capacity).

## Are Duff-Norton limit switches pre-set?

Duff-Norton does not preset limit switches on its linear actuators. Limit switches allow you the flexibility to set the limits of travel on your actuator to fit your particular application. Easy to follow instructions are included in the installation manual, and you may phone the factory if further assistance is required. The customer is responsible for properly setting the limit switch in the unit. If the limit switches are not set, or are improperly set, the unit may be damaged during operation. In addition, limit switches may require resetting if the translating tube of your actuator is rotated manually, as this will change the limit switch setting.

## What are side loading and eccentric loading, and why should they be avoided?

Side loading, or radial loading, is a force applied perpendicular to the actuator centerline. Eccentric loading is any force whose center of gravity does not act through the longitudinal axis of the actuator. Both side loading and eccentric loading should always be avoided as they can cause binding and shorten the life of the actuator.

## What are the "Do's" and "Don'ts" of mounting Duff-Norton electromechanical actuators?

Duff-Norton linear actuators can be used in tension, compression, or combination applications. Eccentric and side loading should be avoided. Please consult the technical data sheets to ensure that all hardware used in conjunction with the actuator can withstand the maximum restraining torque.

## What are the most common factors in the failure of a linear actuator?

Improper loading, failure to set limit switches, excessive duty and extreme environments may contribute to premature actuator failure.

## Can I adjust the speed of a Duff-Norton linear actuator in the field?

No, typical lifting speeds at various capacities within the operating range of each actuator are graphed on the technical data sheets. Should you have an application which requires lower speed, our application engineers can recommend another model or, if required, one that is customized for your application.

## Can Duff-Norton actuators perform complex tasks?

Yes. Complex positioning tasks can be managed through the use of position feedback devices and electronic controls.

## What does the clutch do?

The friction disk clutch in Duff-Norton linear actuators is set to slip when the rated load limit of the actuator is exceeded. This is to prevent damage to the actuator due to jamming, or overheating resulting from an excessive load. The load will be held securely should the clutch slip. The clutch also allows end of travel protection, but is not designed to be slipped repeatedly. Select a Duff-Norton actuator with internal limit switches or install external limit switches; if a clutch model will be slipped repeatedly.

## Do Duff-Norton linear actuators require maintenance?

Maintenance is minimal but Duff-Norton recommends periodic lubrication to maintain optimal performance. The installation and maintenance guide will give you specific instructions for your model.

## Does Duff-Norton make larger linear actuators?

Duff-Norton's linear actuators are rated for capacities up to 2,000 lbs. Duff-Norton also offers a full line of mechanical actuators with capacities up to 250 tons, motorized actuators up to 75 tons. In addition, Duff-Norton also offers customized controls that may be used in conjunction with any actuation system.

## How can I determine which Duff-Norton linear actuator is best suited for my application?

Technical information pertaining to each model is contained in individual technical data sheets (see enclosed literature request form.) Should you require any further assistance in selecting the proper actuator for your application, please call your local stocking distributor, or Duff-Norton's application engineering department at (800) 477-5002.

# GLOSSARY

- Axial Load** ..... A load whose center of gravity runs through the axis of the actuator screw
- Ball Brake** ..... Used on smaller AC motor units, the ball brake is a bi-directional brake that limits drift when the unit is under a full load
- Cantilever Mount** ..... A pin mount where the pin is not supported on both sides. Deflection of the pin can cause binding. This type of mount is unacceptable
- Current Draw** ..... Amount of current (amperes) required by a motor to move a load. It increases as the load increases
- Cycle** ..... A complete sequence of extension and retraction by the actuator
- Double Lead Screw** ..... A double lead screw has two separate threads that wrap around the outside diameter of the screw. The advantage of this type of screw is the lifting nut will travel twice the distance with each single turn of the screw
- Duty Cycle** ..... Percentage of time an actuator is in motion relative to total time. Example: If the total running time for an actuator is 20 seconds in every minute, the duty cycle is 33%
- Eccentric Load** ..... A load whose center of gravity does not go through the screw axis. Off-center loads cause binding and shorten the actuator's life
- Extension/Retraction Rate** ..... The speed at which an actuator extends and retracts. In DC models the speed can depend on the load
- Jog** ..... To move the actuator in short increments
- Limit Switch** ..... A device used to limit the extension or retraction of an actuator to a pre-set position
- Load** ..... Material to be moved by the actuator
- Overload Clutch** ..... A built-in device that slips when the actuator reaches a predetermined load limit preventing damage to the unit
- Peak Load** ..... The maximum momentary load that an actuator can control
- Pivot Mount** ..... A clevis mount that allows the actuator to pivot while in operation
- Potentiometer** ..... A device that provides position feedback information from an actuator
- Restraining Torque** ..... The amount of torque exerted on the brackets during operation
- Screw Pitch** ..... The screw pitch is the distance from a point on a screw thread to the equivalent point on an adjacent thread
- Side Load** ..... A load exerted on the side of the actuator housing or translating tube. Side loading can shorten the life of an actuator. Also called radial load
- Spring Brake** ..... A bi-directional no-back type brake that is automatically activated by pinion torsion and released when the motor turns
- Spur Gear** ..... A gear wheel with radial teeth parallel to its axis
- Static Load** ..... The maximum load an actuator can hold when not operating
- Stroke Length** ..... The total travel of the translating tube from retracted to fully extended
- Tension Load** ..... A load that pulls on the actuator along the axis of its screw
- Translating Tube** ..... The tube that extends in and out of the actuator
- Wiper Seal** ..... A seal between the actuator housing and the translating tube to keep contaminants out of the actuator. Also called a scraper seal

**Duff-Norton** Also Manufactures...



**Screw Jacks**



**Cubic Screw Jacks**



**Bevel Gear  
Screw Jacks**



**Screws & Nuts**



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