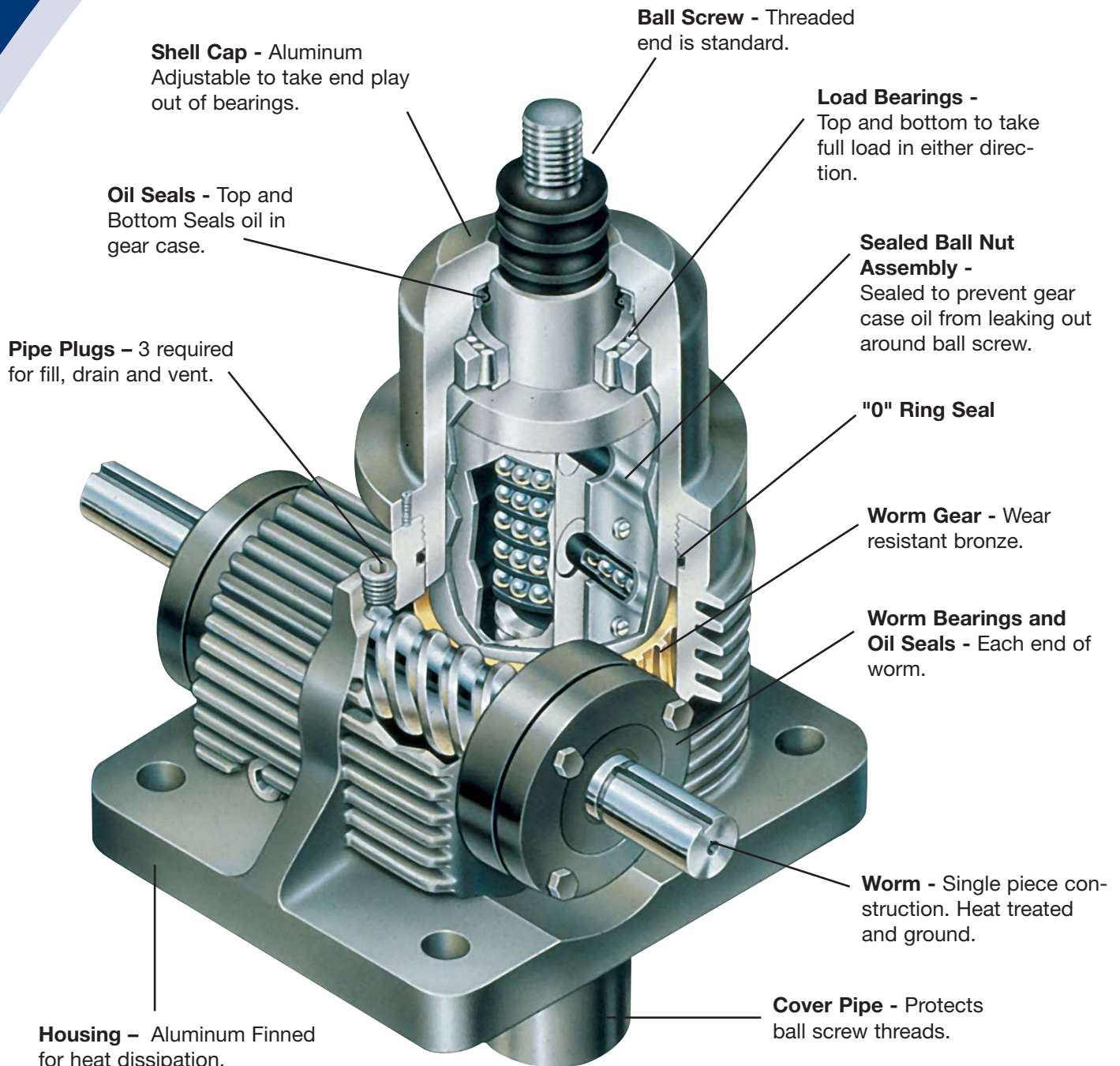


Continuous Duty Cycle Actuators

Features

- Predictable life.
- Continuous operation.
- Oil lubricated.
- High mechanical and thermal efficiency
- 12 models available.
- Capacity 3,500 to 27,000 pounds
- Available with C-Face motor adaptors and speed reducers



Continuous Duty Actuator Model Numbering System

Continuous Duty Cycle Actuators

FL – TKM – 7515 – 6 – 1R

Model Prefix

R – Reducer
F – C-face Adapter
L – Limit Switch
E – Encoder
J – Rotary Counter

Screw End & Configuration

T – Threaded End
C – Clevis End
M – Top Plate
P – Plain End

K – Anti-Rotation Screw
CC – Double Clevis

D – Inverted Rotating
U – Upright Rotating

Series & Capacity No.

Series:
Standard Models (75xx, 7511, 7515, 7522)
Special Models (85xx, 8511, 8515, 8522)

Capacities:
Upright model suffixes end as shown.
Inverted model suffixes lower the capacity number by one digit.
Rotating model suffixes raise the capacity number by one digit.

M – Base Model

Travel

1" increment travels are always represented using the exact travel amount.

Travels with fractional lengths are quoted using that length, but are serialized when the order is processed.

Serialized digits in this position may also be used for other models containing special features.

Model Suffix

B – Boot
L – Single End Worm Ext. Left
R – Single End Worm Ext. Right
1 – Optional Ratio #1
2 – Optional Ratio #2
X – Supplied without cover pipe

Continuous Duty Cycle Actuators

Features

- 25 Configured Models Available. Upright or inverted translating screw, rotating screw available and double clevis.
- Maximum Load Capacities range from 3,500 to 27,000 pounds.
- Rated Load Capacities (load at which actuator life is 1,000 hours) range from 2,000 to 13,000 pounds.
- High Mechanical Efficiency - The unit's mechanical efficiency (as high as 70%) is due to the heat-treated ball bearing screw and mating nut, hardened and ground alloy steel worm, wear resistant bronze worm gear and oil bath lubrication.
- High Thermal Efficiency - The continuous duty cycle actuator units have high thermal efficiency (100% on-time at rated loads and at least 33% on-time at maximum loads)
- High Speed - Designed to run at a worm speed of 1750 rpm fully loaded. Higher speeds possible with less than capacity loads. Screw speed up to 120 inches per minute.
- Positive Action - High reliability; needs no pumps, hoses or valves. Can be synchronized for multiple usage.
- Less Power Required - Efficient design needs less power for given thrust; cuts power requirements.
- Worm gearing meets AGMA Standards.
- Sand-cast aluminum housings for added heat dissipation.
- Available with C-Face Motor Adaptors and Reducers.

Maximum Allowable Duty Cycle at 1750 RPM Input Speed

| Model No. | Max. Capacity | 75% Max. Capacity | Rated Capacity |
|-----------|---------------|-------------------|----------------|
| 7511 | 100% | 100% | 100% |
| 7515 | 33% | 67% | 100% |
| 7522 | 33% | 67% | 100% |

Note: Duty cycles are based on 100°F temperature rise above ambient not to exceed 200°F using Duff-Norton's standard oil.

Duff-Norton 7500 Series high duty cycle actuators are specifically designed for continuous operation within certain load limitations (see Maximum Allowable Duty Cycle chart above). The precision worm gear set operates in an oil bath that improves thermal efficiency.

In addition, the precision drive arrangement permits the accurate prediction of operating life in terms of millions of inches of travel. This important feature allows optimum maintenance and replacement scheduling, so as to minimize downtime.

NEW

NEW

Continuous Duty Actuator Performance

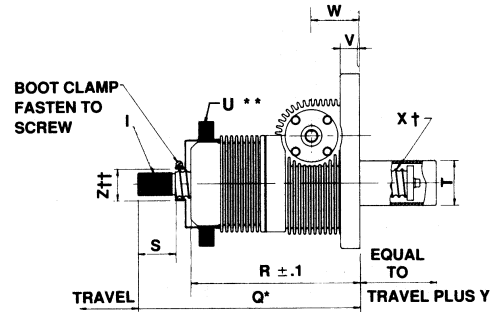
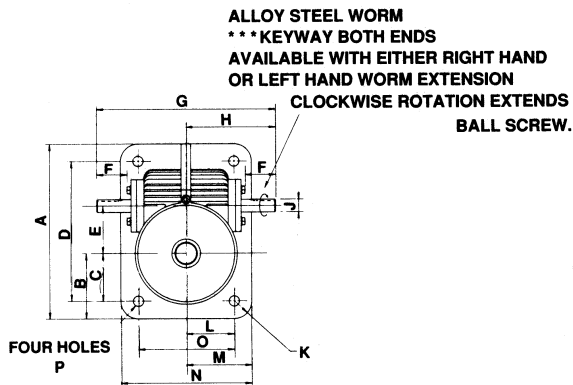
| Model No. | 7511 | 75151 (HL) | 7515 | 75221 (HL) | 7522 |
|--|-------------|------------|-------------|------------|-------------|
| Max. Speed Cface Driven (in/min)** (pg. 114) | 118.5 | 215.5 | 102.0 | 161.5 | 81.0 |
| Max. Speed Red. Driven (in/min)** (pg. 110) | 14.4 | 43 | 20.4 | 57.4 | 27.2 |
| Max. Load Capacity (lbs.) | 3,500 | 5,500 | 12,000 | 13,500 | 27,000 |
| Rated Load Capacity (lbs. - 1000 hours life) | 2,000 | 3,200 | 5,200 | 12,000 | 13,000 |
| Lifting Screw (Dia. x Lead) | 1.17 x .413 | 1.5 x 1.00 | 1.50 x .474 | 2.25 x 1.0 | 2.25 x .500 |
| Worm Gear Ratio | 6:1 | 8:1 | 8:1 | 10 2/3:1 | 10 2/3:1 |
| Turns of Worm for 1" Raise | 14.526 | 8.000 | 16.889 | 10.667 | 21.333 |
| Horsepower per Actuator (Max. @ 1750 RPM) | 2 | 5 | 5 | 10 | 10 |
| Key Torque (in-lb) | 260 | 975 | 1000 | 2400 | 2400 |
| Starting Torque (in-lb @ Max. Load) | 75 | 200 | 200 | 420 | 420 |
| Running Torque (in-lb @ Max. Load) | 60 | 170 | 170 | 350 | 350 |
| Hold Back Torque* (lb-ft at Max. Load) | 4 | 9 | 9 | 12 | 12 |
| Actuator Efficiency Rating (Percentage) | 63.91 | 64.36 | 66.52 | 57.55 | 57.55 |
| Weight with Base Raise of 6" (lbs.) | 19 | 43 | 43 | 95 | 95 |
| Weight for Each Additional 1" Raise (lbs.) | .4 | .9 | .9 | 1.5 | 1.5 |

*Note: Hold Back Torque is resisting torque at the worm shaft to keep load from running down.

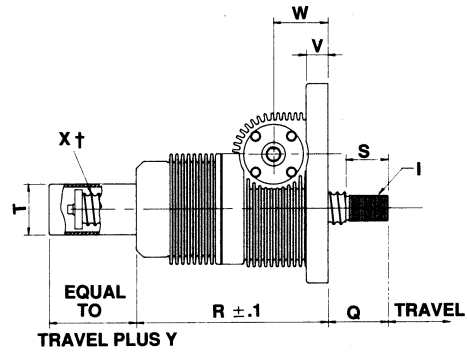
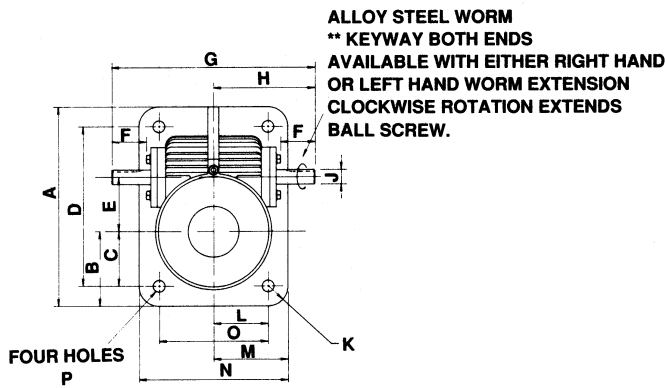
All actuator units can be supplied with standard raises up to 24 inches. Special raises up to 20 feet are available upon request. Standard inverted keyed models do not have a cover pipe (except for the 1-ton and 75-ton models). Closed height dimensions may increase for actuators supplied with bellows boots. See page 147.

Note: See page 107 for Ball Screw and Nut Life Expectancy

Typical 7500 Series Actuator with Upright Translating Screw



Typical 7500 Series Actuator with Inverted Translating Screw



Continuous Duty Actuators Dimensional Specifications

| Model No. | Dimensions (inches) | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|-------|-------|----|---------------------------|------|-----|-----|---------------------|--------------------------|---------|-------|-------|--------|-------|-------|-----------------|----------------|-------|---------|---------------------------|--------|--------------------|-------------------------------|---|-----------------|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q* | R | S | T | U** | V | W | X [†] | Y | Z ^{††} |
| 7511 Upright | 7 | 2 3/4 | 2.20 | 6 | +/-0.01 1.703 | 1.12 | 8.6 | 4.3 | 3/4 16UNF 2A | +0.00 -0.02 -0.500 | 1/2 R | 2 1/4 | 2 3/4 | 5 1/2 | 4 1/2 | 13/32 | +/-0.06 10.4 | +/-0.06 8.4 | 1 1/8 | 1 21/32 | 7 O.D. X 4 I.D. | 3/4 | +/-0.005 2.500 | 1.171 Dia. .413 Lead | 2 | 1.5 |
| 7515 or 75151 Upright | 8 3/4 | 2 7/8 | 2 | 7 | +0.003 -0.000 2.598 | 1.68 | 11 | 5.5 | 1 14UNS 2A | +0.00 -0.02 1.000 | 7/8 R | 2 7/8 | 3 3/4 | 7 1/2 | 5 3/4 | 11/16 | +/-1 11.2 | +/-1 9.2 | 1 1/8 | 2 3/8 | 7 O.D. X 3/4 I.D. | 4 1 | +/-0.005 2.750 | 1.500 Dia. .474 Lead | 2 | - |
| 7522 or 75221 Upright | 13 3/4 | 5 1/8 | 3 3/4 | 11 | +0.005 -0.000 3.750 | 2.38 | 14 | 7.0 | 1 3/4 12UN 2A | +0.00 -0.02 1.000 | 1 3/8 R | 3 3/4 | 5 1/8 | 10 1/4 | 7 1/2 | 13/16 | +/-1 16.6 | +/-1 13.2 | 2 1/4 | 3 1/2 | 9.8 O.D. X 6.8 I.D. | 1 1/2 | +/-0.005 3.7500 | 2.250 Dia. .500 Lead | 3 | - |
| 7510 Inverted | 7 | 2 3/4 | 2.20 | 6 | +/-0.01 1.703 | 1.12 | 8.6 | 4.3 | 3/4 16UNF 2A | +0.00 -0.02 -0.500 | 1/2 R | 2 1/4 | 2 3/4 | 5 1/2 | 4 1/2 | 13/32 | +/-0.06 10.4 | +/-0.06 8.4 | 1 1/8 | 1 21/32 | 7 O.D. X 4 I.D. | 3/4 | +/-0.005 2.500 | 1.171 Dia. .413 Lead | 2 | - |
| 7514 or 75141 Inverted | 8 3/4 | 2 7/8 | 2 | 7 | +0.003 -0.000 2.598 | 1.68 | 11 | 5.5 | 1 14UNS 2A | +0.00 -0.02 1.000 | 7/8 R | 2 7/8 | 3 3/4 | 7 1/2 | 5 3/4 | 11/16 | +/-1 11.2 | +/-1 9.2 | 1 1/8 | 2 3/8 | 7 O.D. X 3/4 I.D. | 4 1 | +/-0.005 2.750 | 1.500 Dia. .474 Lead | 2 | - |
| 7521 or 75211 Inverted | 13 3/4 | 5 1/8 | 3 3/4 | 11 | +0.005 -0.000 3.750 | 2.38 | 14 | 7.0 | 1 3/4 12UN 2A | +0.00 -0.02 1.000 | 1 3/8 R | 3 3/4 | 5 1/8 | 10 1/4 | 7 1/2 | 13/16 | +/-1 16.6 | +/-1 13.2 | 2 1/4 | 3 1/2 | 9.8 O.D. X 6.8 I.D. | 1 1/2 | +/-0.005 3.7500 | 2.250 Dia. .500 Lead | 3 | - |

*Closed height

†Dimension includes diameter of ball screw with indicated lead for right-hand single thread.

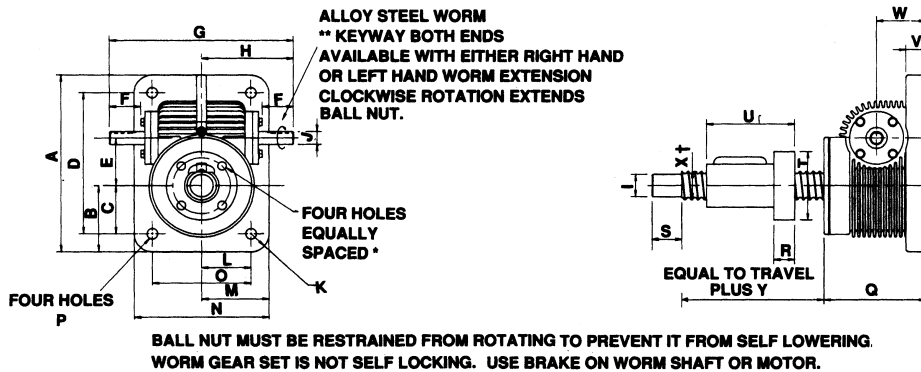
**Bellows boot (optional) ††Hub dia. for boot attachment

***Keyway for Model 7511 is 1/8 x 5/64 x 15/16 LG.

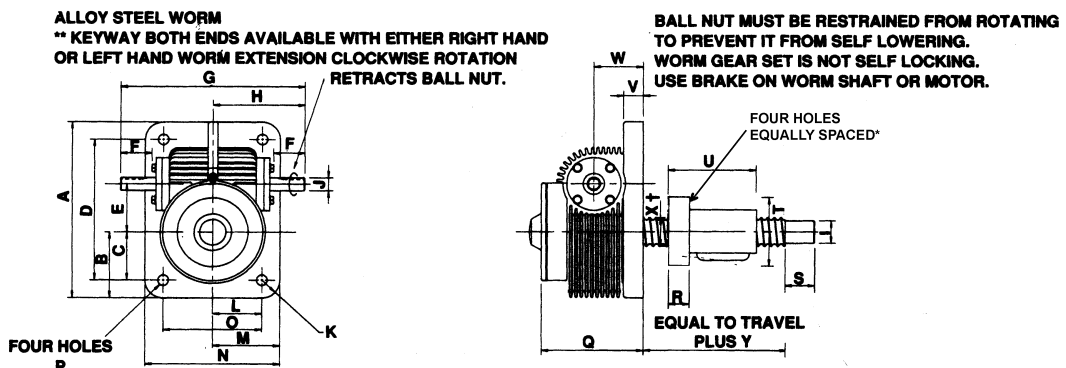
NOTE: When ordering, specify load and duty cycle. Keyway for Models 7515 & 7522 is 1/4 x 1/8 x 11/2.

Continuous Duty Cycle Actuators

Typical 7500 Series Actuator with Upright Rotating Screw



Typical 7500 Series Actuator with Inverted Rotating Screw



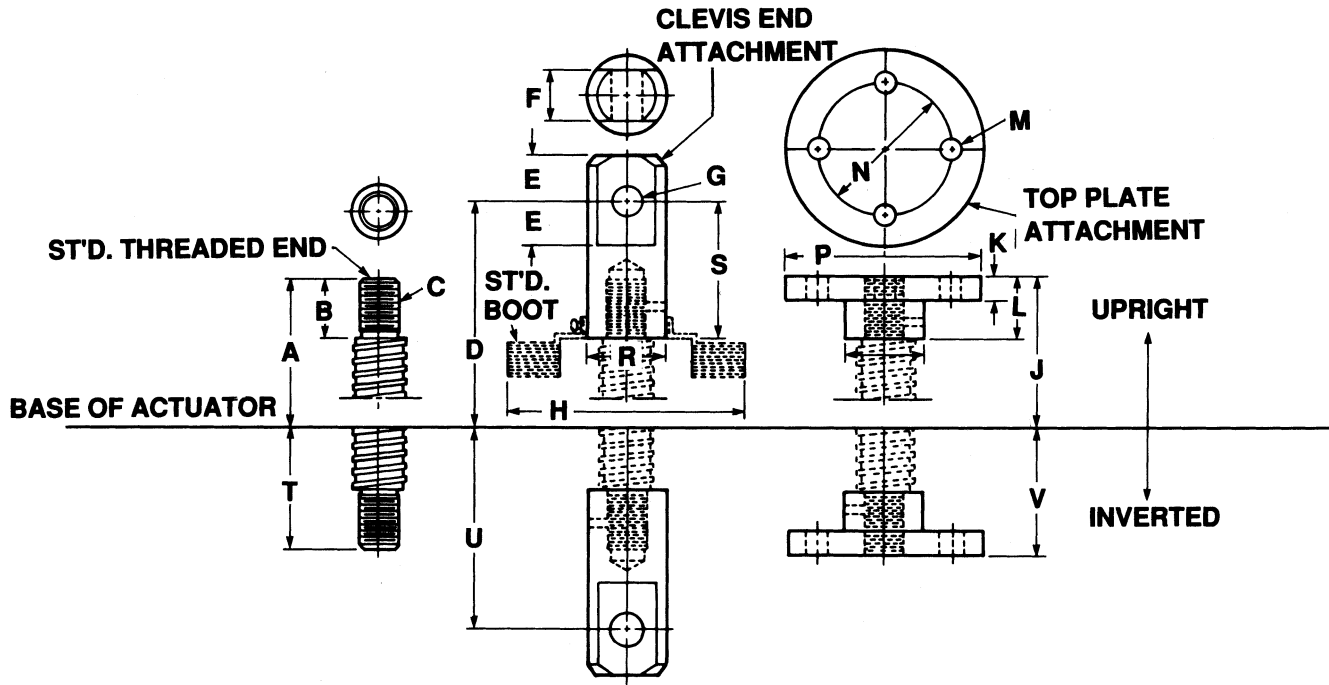
| Model No. | Dimensions (inches) | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|---------------------|-------|-------|----|--------------------------|------|-----|-----|-------------------------|-------------------------|---------|-------|-------|--------|-------|-------|-------------|----------------|-------|-------|-----------------------------|-------|--------------------|-------------------------------|------|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X [†] | Y |
| UM7512 Upright | 7 | 2 3/4 | 2.20 | 6 | +/-0.01 1.703 | 1.12 | 8.6 | 4.3 | +0.00 -0.02 .750 | +0.00 -0.02 .500 | 1/2 R | 2 1/4 | 2 3/4 | 5 1/2 | 4 1/2 | 13/32 | +/-1 1/4 | .832 | 1.13 | 4.250 | 3.395 | 3/4 | +/-0.005 2.500 | 1.171 Dia. .413 Lead | 3.75 |
| UM7516 or UM75161 Upright | 8 3/4 | 2 7/8 | 2 | 7 | +0.03 -0.00 2.598 | 1.68 | 11 | 5.5 | +0.00 -0.02 1.000 | +0.00 -0.02 1.000 | 7/8 R | 2 7/8 | 3 3/4 | 7 1/2 | 5 3/4 | 11/16 | +/-1 3/4 | .895 | 1 | 4.937 | 4.33 Std or 3.65 HL | 1 | +/-0.005 2.750 | 1.500 Dia. .474 Lead | 4.75 |
| UM7523 or UM75231 Upright | 13 3/4 | 5 1/8 | 3 3/4 | 11 | +0.005 -0.00 3.750 | 2.38 | 14 | 7.0 | +0.00 -0.02 1.750 | +0.00 -0.02 1.000 | 1 3/8 R | 3 3/4 | 5 1/8 | 10 1/4 | 7 1/2 | 13/16 | +/-1 3/4 | +/-10 1.582 | 2 1/4 | 5.375 | 6.706 Std or 6.739 HL | 1 1/2 | +/-0.005 3.7500 | 2.250 Dia. .500 Lead | 8.0 |
| DM7512 Inverted | 7 | 2 3/4 | 2.20 | 6 | +/-0.01 1.703 | 1.12 | 8.6 | 4.3 | +0.00 -0.02 .750 | +0.00 -0.02 .500 | 1/2 R | 2 1/4 | 2 3/4 | 5 1/2 | 4 1/2 | 13/32 | +/-1 1/4 | .832 | 1.13 | 4.250 | 3.395 | 3/4 | +/-0.005 2.500 | 1.171 Dia. .413 Lead | 3.75 |
| DM7516 or DM75161 Inverted | 8 3/4 | 2 7/8 | 2 | 7 | +0.03 -0.00 2.598 | 1.68 | 11 | 5.5 | +0.00 -0.02 1.000 | +0.00 -0.02 1.000 | 7/8 R | 2 7/8 | 3 3/4 | 7 1/2 | 5 3/4 | 11/16 | +/-1 3/4 | .895 | 1 | 4.937 | 4.33 Std or 3.65 HL | 1 | +/-0.005 2.750 | 1.500 Dia. .474 Lead | 4.75 |
| DM7523 or DM75231 Inverted | 13 3/4 | 5 1/8 | 3 3/4 | 11 | +0.005 -0.00 3.750 | 2.38 | 14 | 7.0 | +0.00 -0.02 1.750 | +0.00 -0.02 1.000 | 1 3/8 R | 3 3/4 | 5 1/8 | 10 1/4 | 7 1/2 | 13/16 | +/-1 3/4 | +/-10 1.582 | 2 1/4 | 5.375 | 6.706 Std or 6.739 HL | 1 1/2 | +/-0.005 3.7500 | 2.250 Dia. .500 Lead | 8.0 |

†Dimension includes diameter of ball screw with indicated lead for right-hand single thread **Keyway for Model UM-7512 is 1/8 x 5/64 x 15/16 LG. Keyway for Models UM-7516 & UM-7523 is 1/4 x 1/8 x 1 1/2. NOTE: When ordering, specify load and duty cycle.

*Model No. UM-7516: 17/32 dia. on 4.06 dia. bolt circle. Model No. UM-7523: 21/32 dia. on 4.375 dia. bolt circle. Model No. UM-7512: 25/64 dia. on 3.44 dia. bolt circle.

7500 Series Standard Screw Ends

Continuous Duty Cycle Actuators



| Model No. | Dimensions (Inches) | | | | | | | | | | | | | | | | | | | |
|-----------|---------------------|-------|-----------------|--------|-------|-------|-------------------|---------|---------|------|--------|-------|-------|-------|-------|-------|-------|-------|--------|--|
| | A* | B | C | D* | E | F | G | H | J* | K | L | M | N | P | R | S | T* | U* | V* | |
| 7511 | 10 3/8 | 1 1/8 | 3/4"-16-UNF-2A | 11 1/2 | 3/4 | 1 | 1/2" +.008/-000 | 7 | 10 7/16 | 7/16 | 1 3/16 | 13/32 | 3 | 4 1/4 | 1 1/2 | 2 1/4 | 2 | 3 1/8 | 2 1/16 | |
| 7515 | 11 1/4 | 1 1/8 | 1"-14-UNS-2A | 13 | 1 1/4 | 1 1/4 | 3/4" +.010/-000 | 7 | 11 1/4 | 5/8 | 1 1/4 | 11/16 | 3 1/2 | 5 | 1 3/4 | 2 7/8 | 2 | 3 3/4 | 2 1/16 | |
| 7522 | 16 5/8 | 2 1/4 | 1 3/4"-12-UN-2A | 19 1/8 | 1 3/4 | 1 3/4 | 1 1/4" +.010/-000 | 9 13/16 | 16 5/8 | 1 | 2 5/16 | 13/16 | 5 | 7 | 2 5/8 | 4 3/4 | 3 3/8 | 5 7/8 | 3 7/16 | |

*Closed dimensions may increase for actuator units supplied with bellows boots. Call factory.
 Note: Lifting screws listed above are not keyed. Must be held to prevent rotation.

