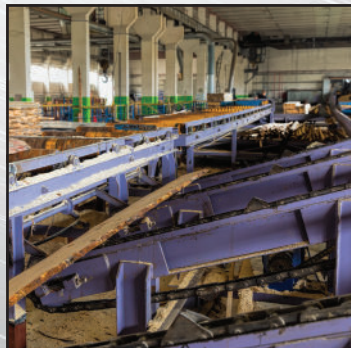


**CURTISS -
WRIGHT**



FTX Series Product Catalog



FTX Series

High Force Actuators

Hydraulic Cylinder Replacement

Hydraulic cylinders provide long life and high force in a small package size. The FTX Series high force electric actuators were designed specifically to allow migration from traditional hydraulic actuation to electric. Based on planetary roller screw technology, the FTX offers life and force density not attainable with more common ball screw based electric actuators. With up to 15X the life and 2X the force density, the roller screw based FTX is the right choice when migrating from hydraulic to electric actuation.

Rugged and Reliable

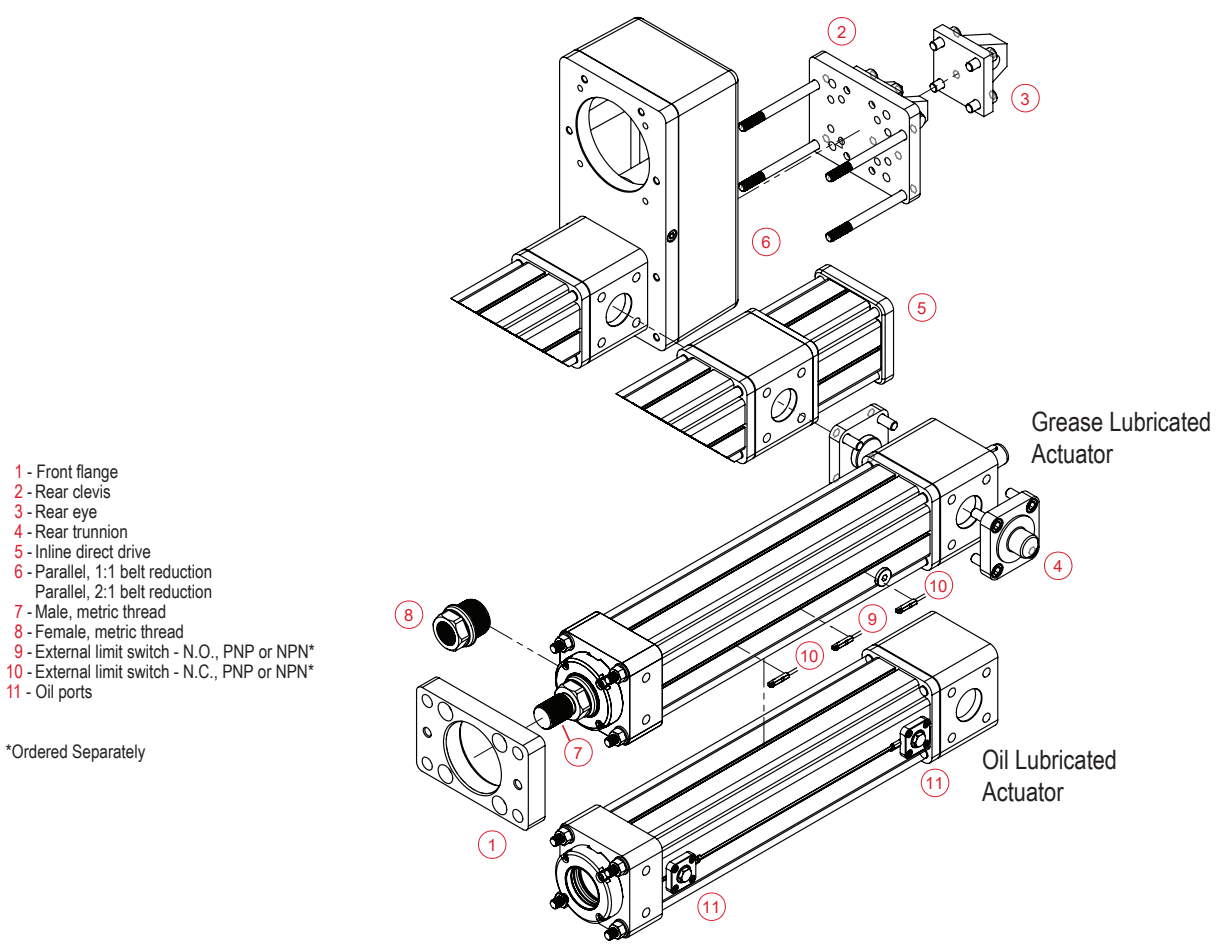
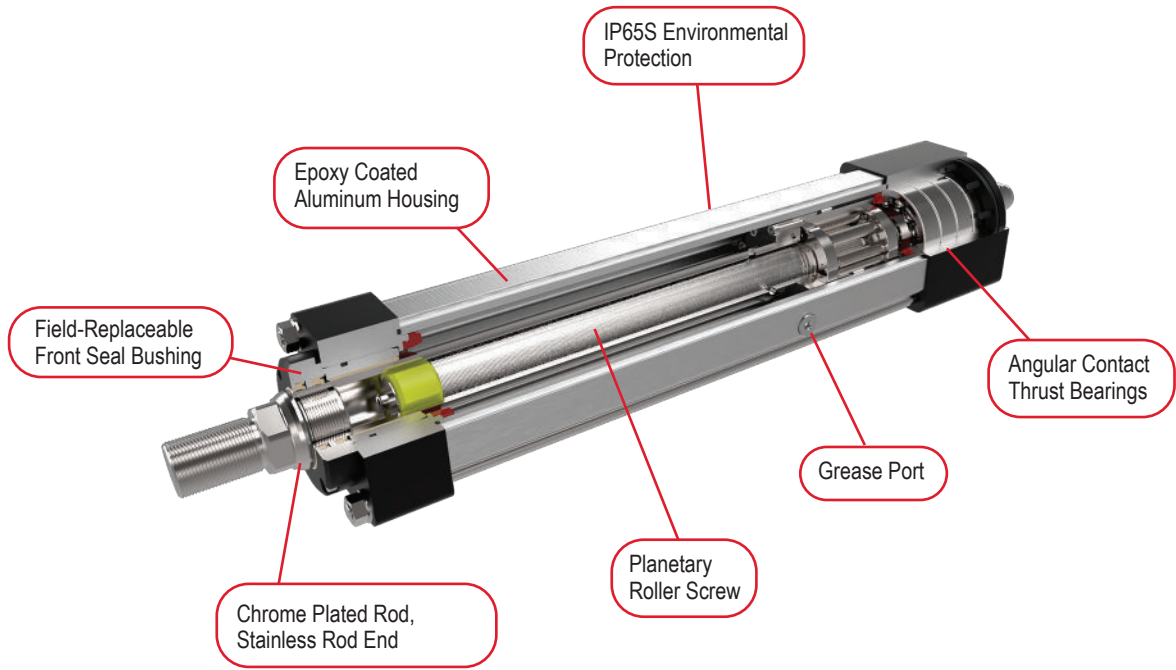
Hydraulic cylinders are commonly installed in harsh industrial settings. Therefore all FTX Series models are environmentally sealed to IP65S. In addition, its planetary roller screw mechanism withstands significantly higher shock loads than weaker ball screw alternatives. Migrate to electric with confidence knowing the FTX Series is every bit as rugged and reliable as the hydraulics they are designed to replace.

Minimal Maintenance

More and more machine builders are looking to eliminate the mess and downtime associated with hydraulic fluid leaks. Electric actuation not only eliminates the problems associated with fluid leaks, it offers significantly higher levels of performance and flexibility than is possible even with servo-hydraulic solutions. FTX Series roller screw actuators allow machine builders to meet the ever-increasing performance demands of their customers while minimizing or eliminating the maintenance issues associated with traditional hydraulic solutions.

| Operating Conditions and Usage | | |
|--------------------------------|-------------------|----------------|
| Accuracy: | | |
| Screw Travel Variation | mm (in) | 0.030 (0.0012) |
| Screw Lead Error | mm/300 mm (in/ft) | 0.025 (0.001) |
| Screw Lead Backlash | mm (in) | 0.06 (0.002) |
| Ambient Conditions: | | |
| Standard Ambient Temperature | °C | 0° to 85° |
| Low Temperature Grease Option | | -40° |
| IP Rating | | IP65S |

Product Features



*Ordered Separately

Mechanical Specifications

FTX095

| | | 05 | 10 | 20 |
|--|----------------------|--------|--------|--------|
| Screw Lead | mm | 5 | 10 | 20 |
| | in | 0.197 | 0.394 | 0.787 |
| Maximum Force | kN | 22.2 | 22.2 | 22.2 |
| | lbf | 5,000 | 5,000 | 5,000 |
| Life at Maximum Force | km | 392 | 626 | 1440 |
| | in x 10 ⁶ | 15.4 | 24.6 | 56.7 |
| C _s (Dynamic Load Rating)* | kN | 95.2 | 88.3 | 92.5 |
| | lbf | 21,400 | 19,850 | 20,800 |
| Maximum Input Torque | Nm | 22.1 | 44.3 | 88.5 |
| | lbf-in | 196 | 392 | 783 |
| Max Rated RPM @ Input Shaft | RPM | 4,500 | 4,500 | 4,500 |
| Maximum Linear Speed @ Maximum Rated RPM | mm/sec | 373 | 750 | 1,500 |
| | in/sec | 14.7 | 29.5 | 59.3 |
| Friction Torque (Typical) | Nm | 1.12 | 1.12 | 1.12 |
| | lbf-in | 10 | 10 | 10 |

Weights kg (lbs)

| | | |
|---|----|------|
| Base Actuator Weight (Zero Stroke) | kg | 10 |
| | lb | 21 |
| Actuator Weight Adder (Per 25 mm of stroke) | kg | 0.39 |
| | lb | 0.87 |
| Adder for Inline (excluding motor) | kg | 2.9 |
| | lb | 6.5 |
| Adder for Parallel Drive (excluding motor) | kg | 13.1 |
| | lb | 28.9 |
| Adder for Front Flange | kg | 1.9 |
| | lb | 4.2 |
| Adder for Rear Clevis | kg | 5.3 |
| | lb | 11.7 |
| Adder for Rear Eye | kg | 5.1 |
| | lb | 11.3 |
| Adder for Rear Trunnion | kg | 1.9 |
| | lb | 4.3 |

| Base Unit Inertia | | Zero Stroke [kg-m ² (lbf-in-sec ²)] | Add per 25 mm [kg-m ² (lbf-in-sec ²)] | |
|--------------------------|--------------------------------|--|--|--|
| 5 mm Lead | | 8.27 x 10 ⁻⁴ (7.32 x 10 ⁻³) | 2.19 x 10 ⁻⁶ (1.94 x 10 ⁻⁵) | |
| 10 mm Lead | | 8.33 x 10 ⁻⁴ (7.37 x 10 ⁻³) | 2.42 x 10 ⁻⁶ (2.14 x 10 ⁻⁵) | |
| 20 mm Lead | | 8.57 x 10 ⁻⁴ (7.58 x 10 ⁻³) | 3.31 x 10 ⁻⁶ (2.93 x 10 ⁻⁵) | |
| Inline Drive Inertia | Inline Unit - w/Motor Coupling | Inline Unit - w/Motor Coupling For Gearbox Mount | Add per 25 mm | |
| 5 mm Lead | | 9.27 x 10 ⁻⁴ (8.20 x 10 ⁻³) | 1.09 x 10 ⁻³ (9.62 x 10 ⁻³) | 2.19 x 10 ⁻⁶ (1.94 x 10 ⁻⁵) |
| 10 mm Lead | | 9.33 x 10 ⁻⁴ (8.26 x 10 ⁻³) | 1.09 x 10 ⁻³ (9.67 x 10 ⁻³) | 2.42 x 10 ⁻⁶ (2.14 x 10 ⁻⁵) |
| 20 mm Lead | | 9.57 x 10 ⁻⁴ (8.47 x 10 ⁻³) | 1.12 x 10 ⁻³ (9.89 x 10 ⁻³) | 3.31 x 10 ⁻⁶ (2.93 x 10 ⁻⁵) |
| Parallel Drive Inertia | | 1:1 Reduction | 2:1 Reduction | |
| 5 mm Lead (zero stroke) | | 4.90 x 10 ⁻³ (4.34 x 10 ⁻²) | 2.22 x 10 ⁻³ (1.97 x 10 ⁻²) | |
| Add per 25 mm stroke | | 2.19 x 10 ⁻⁶ (1.94 x 10 ⁻⁵) | 5.48 x 10 ⁻⁷ (4.85 x 10 ⁻⁶) | |
| 10 mm Lead (zero stroke) | | 4.91 x 10 ⁻³ (4.34 x 10 ⁻²) | 2.23 x 10 ⁻³ (1.97 x 10 ⁻²) | |
| Add per 25 mm stroke | | 2.42 x 10 ⁻⁶ (2.14 x 10 ⁻⁵) | 6.04 x 10 ⁻⁷ (5.34 x 10 ⁻⁶) | |
| 20 mm Lead (zero stroke) | | 4.93 x 10 ⁻³ (4.37 x 10 ⁻²) | 2.23 x 10 ⁻³ (1.98 x 10 ⁻²) | |
| Add per 25 mm stroke | | 3.31 x 10 ⁻⁶ (2.93 x 10 ⁻⁵) | 8.28 x 10 ⁻⁷ (7.33 x 10 ⁻⁶) | |

FTX125

| | | 05 | 10 |
|--|----------------------|--------|--------|
| Screw Lead | mm | 5 | 10 |
| | in | 0.197 | 0.394 |
| Maximum Force | kN | 44.5 | 44.5 |
| | lbf | 10,000 | 10,000 |
| Life at Maximum Force | km | 249.2 | 486.3 |
| | in x 10 ⁶ | 9.81 | 19.14 |
| C _a (Dynamic Load Rating)* | kN | 163.7 | 162.4 |
| | lbf | 36,800 | 36,500 |
| Maximum Input Torque | Nm | 46.5 | 82.3 |
| | lbf-in | 412 | 728 |
| Max Rated RPM @ Input Shaft | RPM | 3,500 | 3,500 |
| Maximum Linear Speed @ Maximum Rated RPM | mm/sec | 292 | 583 |
| | in/sec | 11.5 | 23 |
| Friction Torque (Typical) | Nm | 2.23 | 2.23 |
| | lbf-in | 20 | 20 |

Weights kg (lbs)

| | | |
|---|----|------|
| Base Actuator Weight (Zero Stroke) | kg | 21 |
| | lb | 47 |
| Actuator Weight Adder (Per 25 mm of stroke) | kg | 0.84 |
| | lb | 1.85 |
| Adder for Inline (excluding motor) | kg | 6.8 |
| | lb | 15.0 |
| Adder for Parallel Drive (excluding motor) | kg | 25.6 |
| | lb | 56.5 |
| Adder for Front Flange | kg | 3.6 |
| | lb | 7.9 |
| Adder for Rear Clevis | kg | 6.5 |
| | lb | 14.3 |
| Adder for Rear Eye | kg | 6.3 |
| | lb | 13.8 |
| Adder for Rear Trunnion | kg | 3.1 |
| | lb | 6.8 |

C_a Derating

| FTX125 | | 05 | 10 |
|---|-----|--------|--------|
| *C _a (Dynamic Load Rating) Greater than 900mm Stroke | kN | 143.4 | 162.4 |
| | lbf | 32,240 | 36,500 |

| Base Unit Inertia | | Zero Stroke [kg-m ² (lbf-in-sec ²)] | Add per 25 mm [kg-m ² (lbf-in-sec ²)] |
|--------------------------|--|--|--|
| 5 mm Lead | | 2.55 x 10 ⁻³ (2.26 x 10 ⁻²) | 4.62 x 10 ⁻⁵ (4.09 x 10 ⁻⁴) |
| 10 mm Lead | | 2.56 x 10 ⁻³ (2.27 x 10 ⁻²) | 4.65 x 10 ⁻⁵ (4.12 x 10 ⁻⁴) |
| Inline Drive Inertia | <32 mm Motor Shaft Diameter | >32 mm Motor Shaft Diameter | Add per 25 mm |
| 5 mm Lead | 2.81 x 10 ⁻³ (2.49 x 10 ⁻²) | 3.35 x 10 ⁻³ (2.97 x 10 ⁻²) | 4.62 x 10 ⁻⁵ (4.09 x 10 ⁻⁴) |
| 10 mm Lead | 2.82 x 10 ⁻³ (2.50 x 10 ⁻²) | 3.36 x 10 ⁻³ (2.98 x 10 ⁻²) | 4.65 x 10 ⁻⁵ (4.12 x 10 ⁻⁴) |
| Parallel Drive Inertia | | 1:1 Reduction | 2:1 Reduction |
| 5 mm Lead (zero stroke) | | 9.43 x 10 ⁻³ (8.34 x 10 ⁻²) | 4.66 x 10 ⁻³ (4.12 x 10 ⁻²) |
| Add per 25 mm stroke | | 4.62 x 10 ⁻⁵ (4.09 x 10 ⁻⁴) | 1.15 x 10 ⁻⁵ (1.02 x 10 ⁻⁴) |
| 10 mm Lead (zero stroke) | | 9.44 x 10 ⁻³ (8.35 x 10 ⁻²) | 4.66 x 10 ⁻³ (4.13 x 10 ⁻²) |
| Add per 25 mm stroke | | 4.65 x 10 ⁻⁵ (4.12 x 10 ⁻⁴) | 1.16 x 10 ⁻⁵ (1.03 x 10 ⁻⁴) |

FTX160

| | | 06 | 12 | 30 |
|--|----------------------|--------|--------|--------|
| Screw Lead | mm | 6 | 12 | 30 |
| | in | 0.236 | 0.472 | 1.181 |
| Maximum Force | kN | 89.0 | 89.0 | 89.0 |
| | lbf | 20,000 | 20,000 | 20,000 |
| Life at Maximum Force | km | 154.9 | 416.6 | 358.9 |
| | in x 10 ⁶ | 6.1 | 16.4 | 21.2 |
| C _a (Dynamic Load Rating)* | kN | 263.7 | 290.0 | 233.0 |
| | lbf | 59,275 | 65,200 | 52,400 |
| Maximum Input Torque | Nm | 106 | 212 | 531 |
| | lbf-in | 940 | 1,880 | 4,699 |
| Max Rated RPM @ Input Shaft | RPM | 2,000 | 2,000 | 2,000 |
| Maximum Linear Speed @ Maximum Rated RPM | mm/sec | 201 | 401 | 1000 |
| | in/sec | 7.9 | 15.8 | 39.0 |
| Friction Torque (Typical) | Nm | 4.54 | 4.54 | 4.54 |
| | lbf-in | 40 | 40 | 40 |

Weights kg (lbs)

| | | |
|---|----|-------|
| Base Actuator Weight (Zero Stroke) | kg | 49 |
| | lb | 108 |
| Actuator Weight Adder (Per 25 mm of stroke) | kg | 1.62 |
| | lb | 3.6 |
| Adder for Inline (excluding motor) | kg | 14.2 |
| | lb | 31.5 |
| Adder for Parallel Drive (excluding motor) | kg | 53.1 |
| | lb | 117.8 |
| Adder for Front Flange | kg | 7.4 |
| | lb | 16.4 |
| Adder for Rear Clevis | kg | 21.2 |
| | lb | 48.8 |
| Adder for Rear Eye | kg | 22.4 |
| | lb | 49.7 |
| Adder for Rear Trunnion | kg | 10.9 |
| | lb | 24.2 |

C_a Derating

| FTX160 | | 06 | 12 | 30 |
|---|-----|--------|--------|--------|
| *C _a (Dynamic Load Rating) Greater than 900mm Stroke | kN | 223.6 | 261.2 | 233 |
| | lbf | 50,270 | 58,720 | 52,400 |

| Base Unit Inertia | | Zero Stroke [kg-m ² (lbf-in-sec ²)] | | Add per 25 mm [kg-m ² (lbf-in-sec ²)] |
|--------------------------|-----------------------------|--|--|--|
| 6 mm Lead | | 1.35 x 10 ⁻² (1.19 x 10 ⁻¹) | | 2.57 x 10 ⁻⁴ (2.27 x 10 ⁻³) |
| 12 mm Lead | | 1.35 x 10 ⁻² (1.20 x 10 ⁻¹) | | 2.58 x 10 ⁻⁴ (2.28 x 10 ⁻³) |
| 30 mm Lead | | 1.38 x 10 ⁻² (1.22 x 10 ⁻¹) | | 2.66 x 10 ⁻⁴ (2.36 x 10 ⁻³) |
| Inline Drive Inertia | <32 mm Motor Shaft Diameter | >32 mm Motor Shaft Diameter | Add per 25 mm | |
| 6 mm Lead | | 1.47 x 10 ⁻² (1.30 x 10 ⁻¹) | 1.67 x 10 ⁻² (1.48 x 10 ⁻¹) | 2.57x 10 ⁻⁴ (2.27 x 10 ⁻³) |
| 12 mm Lead | | 1.47 x 10 ⁻² (1.30 x 10 ⁻¹) | 1.68 x 10 ⁻² (1.49 x 10 ⁻¹) | 2.58 x 10 ⁻⁴ (2.28 x 10 ⁻³) |
| 30 mm Lead | | 1.50 x 10 ⁻² (1.33 x 10 ⁻¹) | 1.71 x 10 ⁻² (1.51 x 10 ⁻¹) | 2.66 x 10 ⁻⁴ (2.36 x 10 ⁻³) |
| Parallel Drive Inertia | 1:1 Reduction | | 2:1 Reduction | |
| 6 mm Lead (zero stroke) | | 5.27 x 10 ⁻² (4.67 x 10 ⁻¹) | | 2.30 x 10 ⁻² (2.04 x 10 ⁻¹) |
| Add per 25 mm stroke | | 2.57 x 10 ⁻⁴ (2.27 x 10 ⁻³) | | 6.42 x 10 ⁻⁵ (5.68 x 10 ⁻⁴) |
| 12 mm Lead (zero stroke) | | 5.28 x 10 ⁻² (4.67 x 10 ⁻¹) | | 2.30 x 10 ⁻² (2.04 x 10 ⁻¹) |
| Add per 25 mm stroke | | 2.58 x 10 ⁻⁴ (2.28 x 10 ⁻³) | | 6.45 x 10 ⁻⁵ (5.71 x 10 ⁻⁴) |
| 30 mm Lead (zero stroke) | | 5.30 x 10 ⁻² (4.69 x 10 ⁻¹) | | 2.31 x 10 ⁻² (2.05 x 10 ⁻¹) |
| Add per 25 mm stroke | | 2.66 x 10 ⁻⁴ (2.36 x 10 ⁻³) | | 6.66 x 10 ⁻⁵ (5.89 x 10 ⁻⁴) |

FTX215

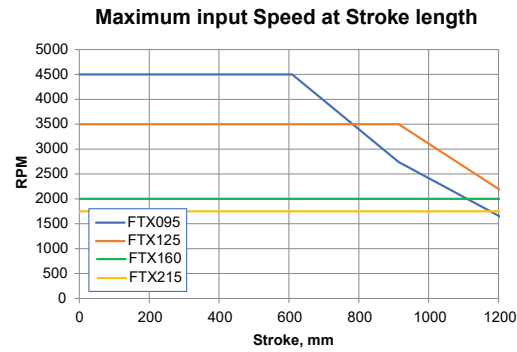
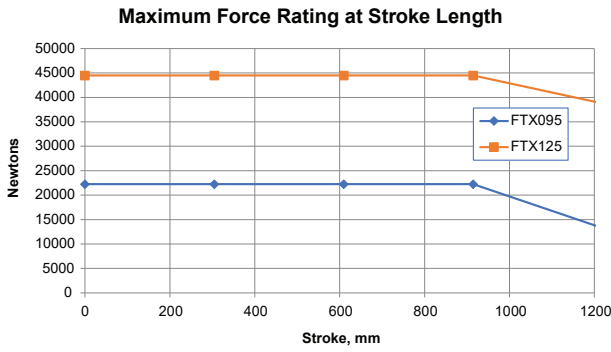
| | | 06 | 12 | 30 |
|--|----------------------|--------|--------|--------|
| Screw Lead | mm | 6 | 12 | 30 |
| | in | 0.236 | 0.472 | 1.181 |
| Maximum Force | kN | 177.9 | 177.9 | 177.9 |
| | lbf | 40,000 | 40,000 | 40,000 |
| Life at Maximum Force | km | 78.7 | 161.8 | 414.3 |
| | in x 10 ⁶ | 3.1 | 6.4 | 16.3 |
| C _a (Dynamic Load Rating)* | kN | 398 | 423 | 376 |
| | lbf | 89,500 | 95,200 | 84,700 |
| Maximum Input Torque | Nm | 243 | 425 | 976 |
| | lbf-in | 2,148 | 3,760 | 8,642 |
| Max Rated RPM @ Input Shaft | RPM | 1,750 | 1,750 | 1,750 |
| Maximum Linear Speed @ Maximum Rated RPM | mm/sec | 175 | 351 | 875 |
| | in/sec | 6.9 | 13.8 | 34.4 |
| Friction Torque (Typical) | Nm | 5.65 | 5.65 | 5.65 |
| | lbf-in | 50 | 50 | 50 |

Weights kg (lbs)

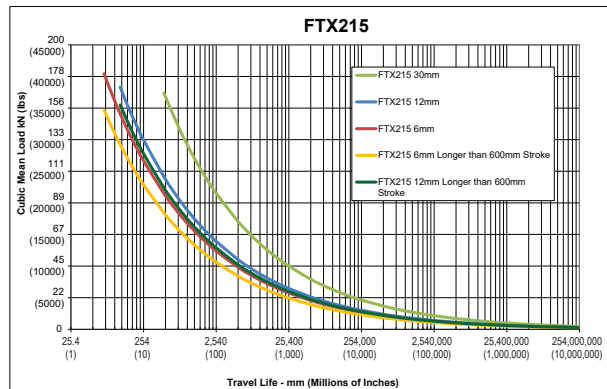
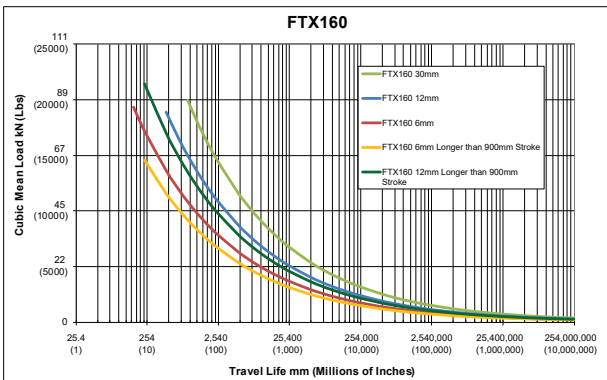
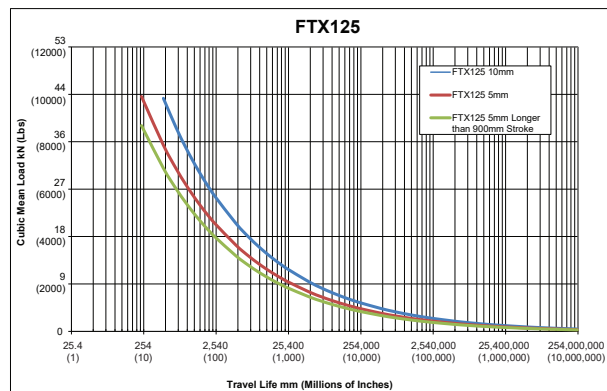
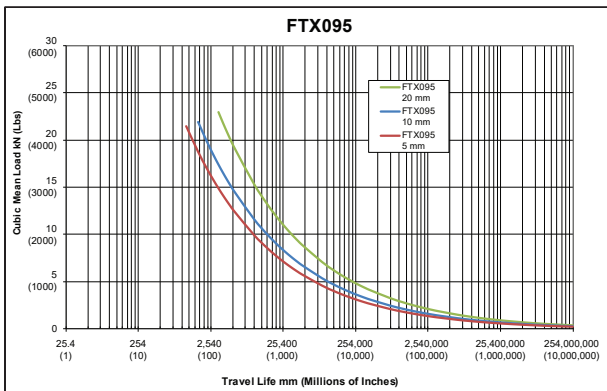
| | | |
|---|----|-------|
| Base Actuator Weight (Zero Stroke) | kg | 103 |
| | lb | 227 |
| Actuator Weight Adder (Per 25 mm of stroke) | kg | 2.70 |
| | lb | 5.96 |
| Adder for Inline (excluding motor) | kg | 38.6 |
| | lb | 85.1 |
| Adder for Parallel Drive (excluding motor) | kg | 62.3 |
| | lb | 137.3 |
| Adder for Front Flange | kg | 26.7 |
| | lb | 58.8 |
| Adder for Rear Clevis | kg | 32.5 |
| | lb | 71.6 |
| Adder for Rear Eye | kg | 32.5 |
| | lb | 71.6 |
| Adder for Rear Trunnion | kg | 9.6 |
| | lb | 21.2 |

| C _a Derating | | | | |
|---|-----|--------|--------|--------|
| FTX215 | | 06 | 12 | 30 |
| *C _a (Dynamic Load Rating) Greater than 900mm Stroke | kN | 359.8 | 346.7 | 376 |
| | lbf | 80,900 | 77,950 | 84,700 |

| Base Unit Inertia | Zero Stroke [kg-m ² (lbf-in-sec ²)] | | Add per 25 mm [kg-m ² (lbf-in-sec ²)] |
|--------------------------|--|--|--|
| 6 mm Lead | 4.25 x 10 ⁻² (3.76 x 10 ⁻¹) | | 8.00 x 10 ⁻⁴ (7.08 x 10 ⁻³) |
| 12 mm Lead | 4.26 x 10 ⁻² (3.77 x 10 ⁻¹) | | 8.02 x 10 ⁻⁴ (7.10 x 10 ⁻³) |
| 30 mm Lead | 4.31 x 10 ⁻² (3.82 x 10 ⁻¹) | | 8.15 x 10 ⁻⁴ (7.21 x 10 ⁻³) |
| Inline Drive Inertia | <55 mm Motor Shaft Diameter | >55 mm Motor Shaft Diameter | Add per 25 mm |
| 6 mm Lead | 4.43 x 10 ⁻² (3.92 x 10 ⁻¹) | 6.15 x 10 ⁻² (5.44 x 10 ⁻¹) | 8.00 x 10 ⁻⁴ (7.08 x 10 ⁻³) |
| 12 mm Lead | 4.44 x 10 ⁻² (3.93 x 10 ⁻¹) | 6.16 x 10 ⁻² (5.45 x 10 ⁻¹) | 8.02 x 10 ⁻⁴ (7.10 x 10 ⁻³) |
| 30 mm Lead | 4.49 x 10 ⁻² (3.98 x 10 ⁻¹) | 6.21 x 10 ⁻² (5.50 x 10 ⁻¹) | 8.15 x 10 ⁻⁴ (7.21 x 10 ⁻³) |
| Parallel Drive Inertia | 1:1 Reduction | | 2:1 Reduction |
| 6 mm Lead (zero stroke) | 9.42 x 10 ⁻² (8.34 x 10 ⁻¹) | | 3.50 x 10 ⁻² (3.10 x 10 ⁻¹) |
| Add per 25 mm stroke | 8.00 x 10 ⁻⁴ (7.08 x 10 ⁻³) | | 2.00 x 10 ⁻⁴ (1.77 x 10 ⁻³) |
| 12 mm Lead (zero stroke) | 9.43 x 10 ⁻² (8.34 x 10 ⁻¹) | | 3.50 x 10 ⁻² (3.10 x 10 ⁻¹) |
| Add per 25 mm stroke | 8.02 x 10 ⁻⁴ (7.10 x 10 ⁻³) | | 2.01 x 10 ⁻⁴ (1.78 x 10 ⁻³) |
| 30 mm Lead (zero stroke) | 9.48 x 10 ⁻² (8.39 x 10 ⁻¹) | | 3.52 x 10 ⁻² (3.11 x 10 ⁻¹) |
| Add per 25 mm stroke | 8.15 x 10 ⁻⁴ (7.21 x 10 ⁻³) | | 2.04 x 10 ⁻⁴ (1.80 x 10 ⁻³) |



Estimated Service Life



The L_{10} expected life of a roller screw linear actuator is expressed as the linear travel distance that 90% of properly maintained roller screws manufactured are expected to meet or exceed. This is not a guarantee and these charts should be used for estimation purposes only.

The underlying formula that defines this value is:
Travel life in millions of inches, where:

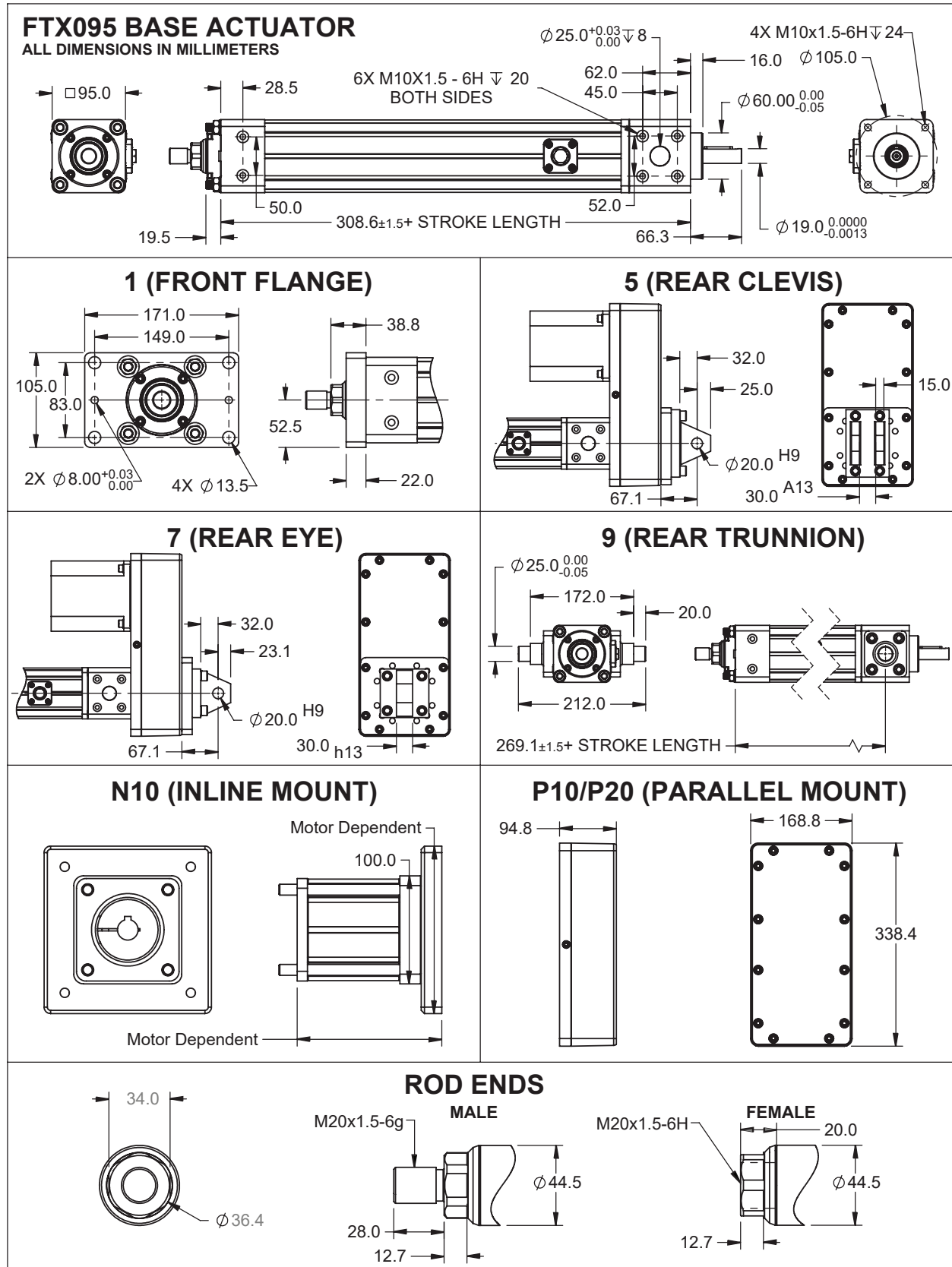
$$L_{10} = \left(\frac{C_a}{F_{cmf}} \right)^3 \times \ell$$

C_a = Dynamic load rating (lbf)
 F_{cmf} = Cubic mean applied load (lbf)
 ℓ = Roller screw lead (inches)

Service Life Estimate Assumptions:

- Sufficient quality and quantity of lubrication is maintained throughout service life
- Bearing and screw temperature between 20° C and 40° C
- No mechanical hard stops (external or internal) or impact loads
- No external side loads
- Does not apply to short stroke, high frequency applications such as fatigue testing or short stroke, high force applications such as pressing.

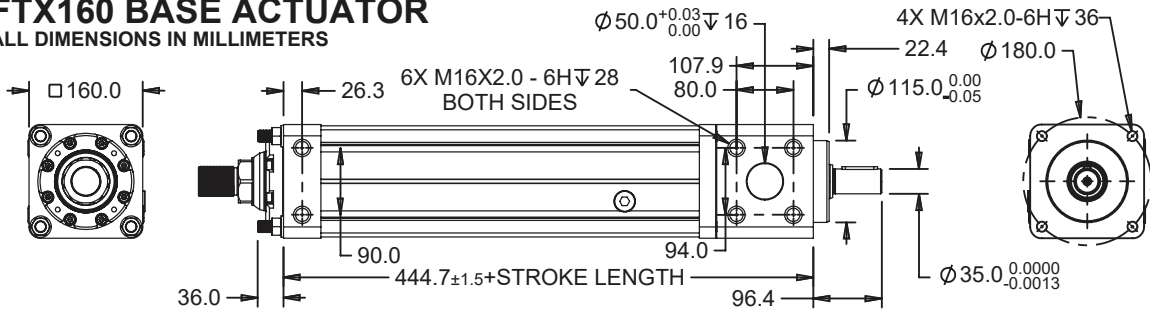
Dimensions



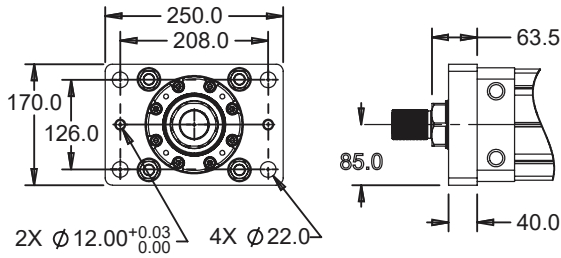
Pre-sale drawings and models are representative and are subject to change.

FTX160 BASE ACTUATOR

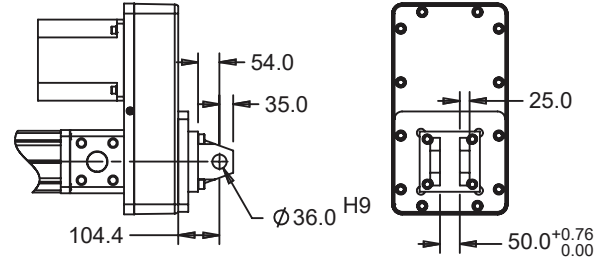
ALL DIMENSIONS IN MILLIMETERS



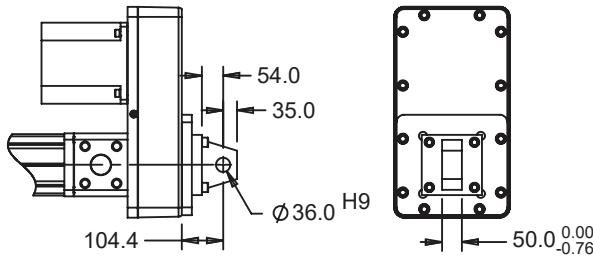
1 (FRONT FLANGE)



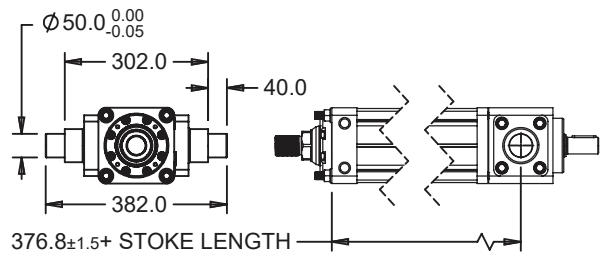
5 (REAR CLEVIS)



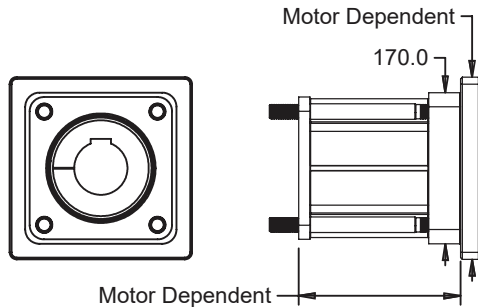
7 (REAR EYE)



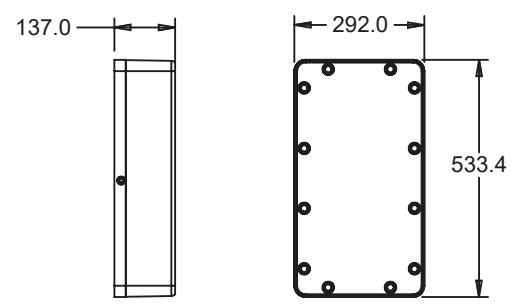
9 (REAR TRUNNION)



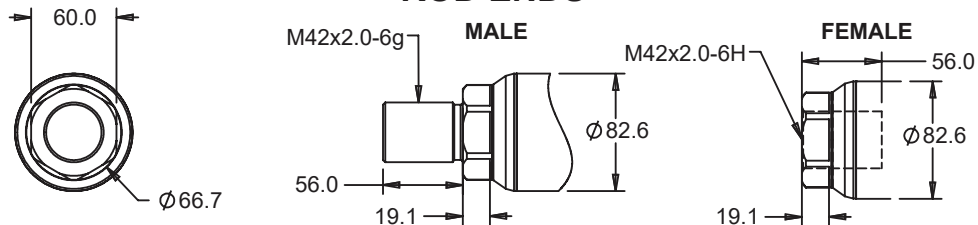
N10 (INLINE MOUNT)



P10/P20 (PARALLEL MOUNT)



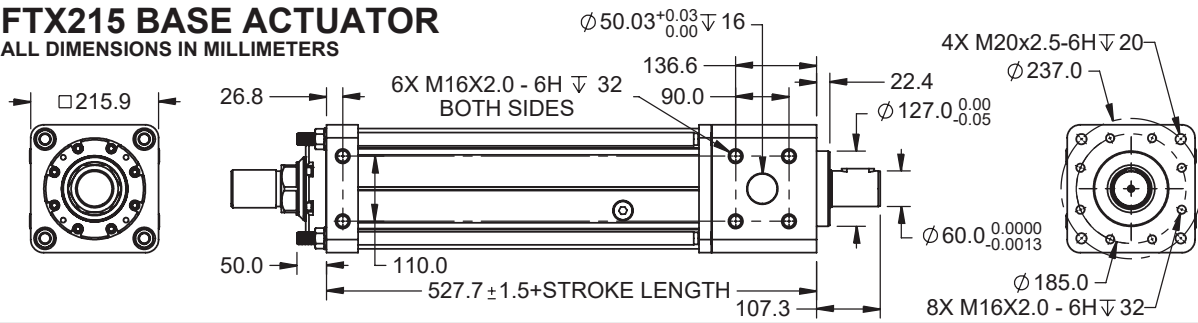
ROD ENDS



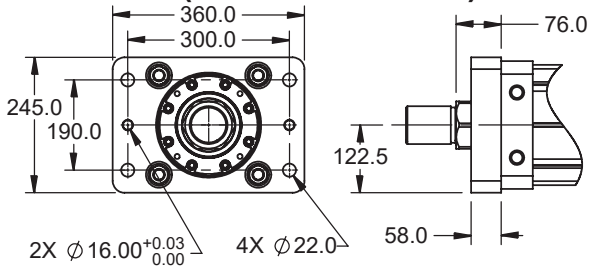
Pre-sale drawings and models are representative and are subject to change.

FTX215 BASE ACTUATOR

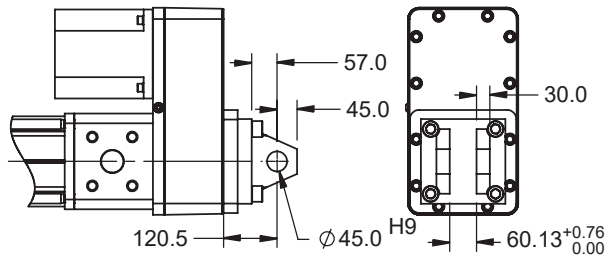
ALL DIMENSIONS IN MILLIMETERS



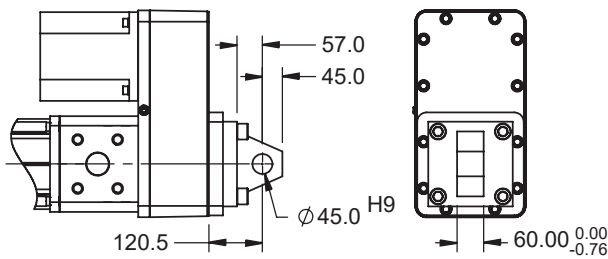
1 (FRONT FLANGE)



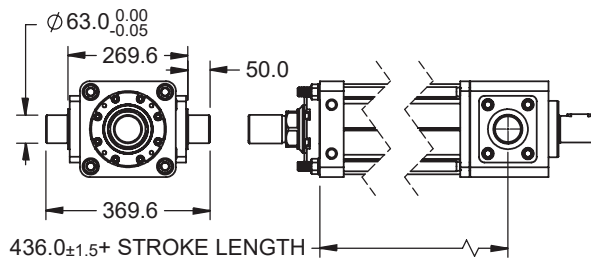
5 (REAR CLEVIS)



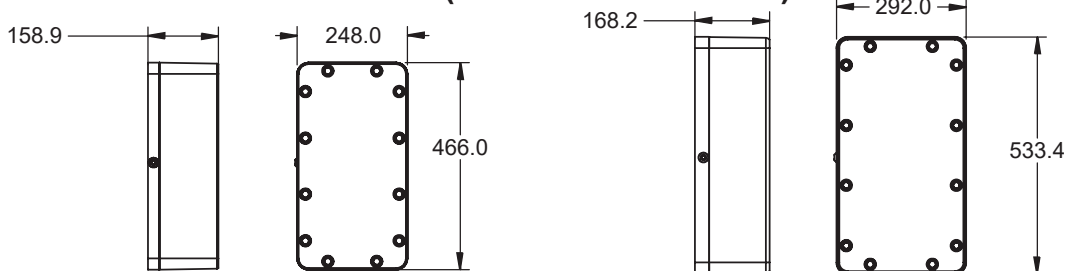
7 (REAR EYE)



9 (REAR TRUNNION)

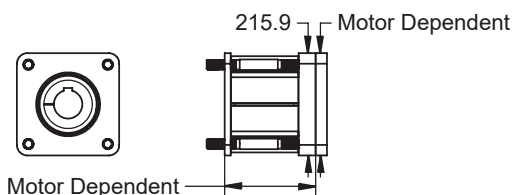


P10/P20 (PARALLEL MOUNT)

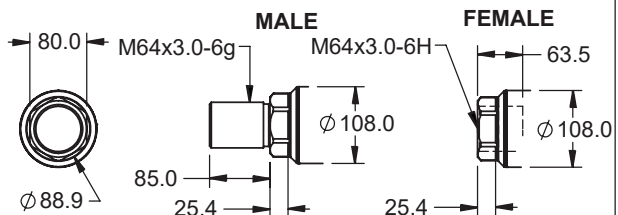


NOTE: 248mm WIDE HOUSING USED FOR MOTORS WITH 215mm MOUNTING B.C AND SMALLER, 1:1
292mm WIDE HOUSING USED FOR ALL 2:1 DRIVE MOTORS

N10 (INLINE MOUNT)

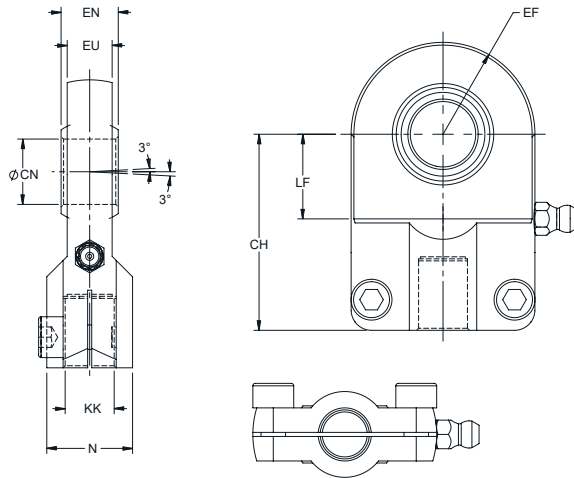


ROD ENDS



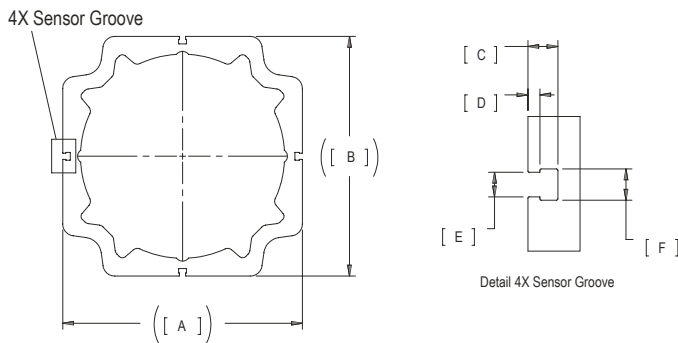
Pre-sale drawings and models are representative and are subject to change.

Rod Eye, Spherical



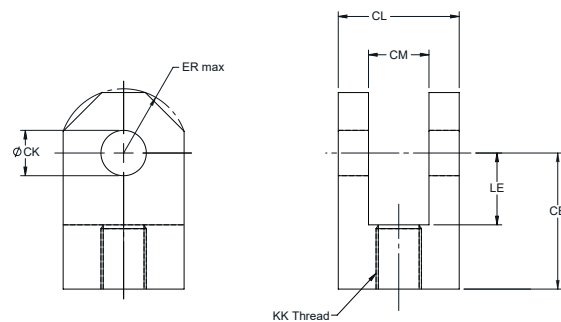
| | | FTX095 | FTX125 | FTX160 | FTX215 |
|----------|----|------------|------------|------------|------------|
| AV | mm | 29.0 | 46.0 | 55.0 | 86.0 |
| | in | 1.14 | 1.81 | 2.17 | 3.39 |
| CH | mm | 85.0 | 130.0 | 150.0 | 240.0 |
| | in | 3.35 | 5.12 | 5.91 | 9.45 |
| CN | mm | 30.0 | 50.0 | 60.0 | 100.0 |
| | in | 1.18 | 1.97 | 2.36 | 3.94 |
| EF (max) | mm | 41.0 | 61.0 | 80.0 | 120.0 |
| | in | 1.61 | 2.40 | 3.15 | 4.72 |
| EN | mm | 22.0 | 35.0 | 44.0 | 70.0 |
| | in | 0.87 | 1.38 | 1.73 | 2.76 |
| EU (max) | mm | 20.0 | 31.0 | 39.0 | 57.0 |
| | in | 0.79 | 1.22 | 1.54 | 2.24 |
| KK | | M20X1.5 6H | M33X2.0 6H | M42X2.0 6H | M64X3.0 6H |
| LF (min) | mm | 35.0 | 58.0 | 68.0 | 116.0 |
| | in | 1.38 | 2.28 | 2.68 | 4.57 |
| N (max) | mm | 37.0 | 57.0 | 69.0 | 110.0 |
| | in | 1.46 | 2.24 | 2.72 | 4.33 |

Case Dimensions



| | | FTX095 | FTX125 | FTX160 | FTX215 |
|---|----|--------|--------|--------|--------|
| A | mm | 94 | 118 | 156 | 203 |
| | in | 3.7 | 4.6 | 6.1 | 8.0 |
| B | mm | 94 | 118 | 156 | 203 |
| | in | 3.7 | 4.6 | 6.1 | 8.0 |
| C | mm | 4.9 | 5.6 | 5.5 | 6.4 |
| | in | 0.19 | 0.22 | 0.22 | 0.25 |
| D | mm | 1.1 | 1.8 | 1.7 | 2.5 |
| | in | 0.4 | 0.07 | 0.07 | 0.10 |
| E | mm | 5.2 | 5.2 | 5.3 | 5.2 |
| | in | 0.21 | 0.21 | 0.21 | 0.21 |
| F | mm | 6.6 | 6.6 | 6.6 | 6.6 |
| | in | 0.26 | 0.26 | 0.26 | 0.26 |

Rod Clevis



| | | FTX095 | FTX125 | FTX160 | FTX215 |
|------------|----|------------|------------|------------|------------|
| CE | mm | 60.0 | 99.0 | 113.0 | 168.0 |
| | in | 2.36 | 3.90 | 4.45 | 6.61 |
| Ø CK | mm | 20.0 h9 | 36.0 h9 | 45.0 h9 | 70.0 h9 |
| | in | 0.79 | 1.42 | 1.77 | 2.76 |
| CL | mm | 62.0 | 103.0 | 123.0 | 163.0 |
| | in | 2.44 | 4.06 | 4.84 | 6.42 |
| CM | mm | 30.0 | 50.0 | 60.0 | 80.0 |
| | in | 1.18 | 1.97 | 2.36 | 3.15 |
| Ø ER (max) | mm | 29.0 | 50.0 | 53.0 | 78.0 |
| | in | 1.14 | 1.97 | 2.09 | 3.07 |
| LE (min) | mm | 32.0 | 54.0 | 57.0 | 83.0 |
| | in | 1.26 | 2.13 | 2.24 | 3.27 |
| KK | | M20X1.5 6H | M33X2.0 6H | M42X2.0 6H | M64X3.0 6H |

Standard Motor/Gearbox Mount Codes for the FTX

| FTX095 Motor / Gearbox Mounts | | | | | | | | | | | | | | | |
|-------------------------------|--|---|-------------|-------------------|---|-------------------|-------------------|---|-------------|-------------------|---|-----------------|-------------------|---|-------------|
| None | | Inline | | | | Parallel 1:1 | | | | Parallel 2:1 | | | | | |
| | | Motor Flange Code | | Dimension in mm | | Motor Flange Code | | Dimension in mm | | Motor Flange Code | | Dimension in mm | | | |
| Motor Flange Code | Motor Flange Code | Bolt Circle | Pilot Diam. | Motor Flange Code | Bolt Circle | Pilot Diam. | Motor Flange Code | Bolt Circle | Pilot Diam. | Motor Flange Code | Bolt Circle | Pilot Diam. | Motor Flange Code | Bolt Circle | Pilot Diam. |
| NMT- | 00 | N10- | 02 | 68 | 60 | P10- | 02 | 68 | 60 | P20- | 02 | 68 | 60 | | |
| | | N10- | 04 | 75 | 60 | P10- | 04 | 75 | 60 | P20- | 04 | 75 | 60 | | |
| | | N10- | 05 | 85 | 70 | P10- | 05 | 85 | 70 | P20- | 05 | 85 | 70 | | |
| | | N10- | 10 | 100 | 80 | P10- | 10 | 100 | 80 | P20- | 10 | 100 | 80 | | |
| | | N10- | 11 | 115 | 95 | P10- | 11 | 115 | 95 | P20- | 11 | 115 | 95 | | |
| | | N10- | 12 | 130 | 110 | P10- | 12 | 130 | 110 | P20- | 12 | 130 | 110 | | |
| | | N10- | 13 | 130 | 95 | P10- | 13 | 130 | 95 | P20- | 13 | 130 | 95 | | |
| | | N10- | 14 | 145 | 110 | P10- | 14 | 145 | 110 | P20- | 14 | 145 | 110 | | |
| | | N10- | 19 | 165 | 130 | P10- | 19 | 165 | 130 | P20- | 19 | 165 | 130 | | |
| Motor Shaft Code | Motor Shaft Code | Shaft Diam. | Key Width* | Motor Shaft Code | Shaft Diam. | Key Width* | Motor Shaft Code | Shaft Diam. | Key Width* | Motor Shaft Code | Shaft Diam. | Key Width* | Motor Shaft Code | Shaft Diam. | Key Width* |
| 00 | AA | 24 | 8 | AA | 24 | 8 | AA | 24 | 8 | AA | 24 | 8 | AA | 24 | 8 |
| | BA | 22 | 6 | BA | 22 | 6 | BA | 22 | 6 | BA | 22 | 6 | BA | 22 | 6 |
| | CA | 22 | 8 | CA | 22 | 8 | CA | 22 | 8 | CA | 22 | 8 | CA | 22 | 8 |
| | DA | 20 | 6 | DA | 20 | 6 | DA | 20 | 6 | DA | 20 | 6 | DA | 20 | 6 |
| | EA | 19 | 6 | EA | 19 | 6 | EA | 19 | 6 | EA | 19 | 6 | EA | 19 | 6 |
| | FA | 16 | 5 | FA | 16 | 5 | FA | 16 | 5 | FA | 16 | 5 | FA | 16 | 5 |
| | GA | 14 | 5 | GA | 14 | 5 | GA | 14 | 5 | GA | 14 | 5 | GA | 14 | 5 |
| | LA | 28 | 8 | LA | 28 | 8 | LA | 28 | 8 | LA | 28 | 8 | LA | 28 | 8 |
| | MA | 32 | 10 | MA | 32 | 10 | | | | | | | | | |
| Shaft Length | Shaft Length | | | Shaft Length | | | Shaft Length | | | Shaft Length | | | Shaft Length | | |
| 000 | 030, 032, 040, 048, 050, 055, 058, 060, 063, 065, 070, 080 | Pick closest shaft length within 2mm if your exact length is not listed | | 038-084 | Allowable shaft length range in 1 mm increments | | 038-084 | Allowable shaft length range in 1 mm increments | | 038-084 | Allowable shaft length range in 1 mm increments | | 038-084 | Allowable shaft length range in 1 mm increments | |

*Key not required for operation

FTX125 Motor / Gearbox Mounts

| None | | Inline | | | | Parallel 1:1 | | | | Parallel 2:1 | | | |
|-------------------|----|-------------------|----|-------------|-------------|-------------------|----|-------------|-------------|-------------------|----|-------------|-------------|
| | | Dimension in mm | | | | Dimension in mm | | | | Dimension in mm | | | |
| Motor Flange Code | | Motor Flange Code | | Bolt Circle | Pilot Diam. | Motor Flange Code | | Bolt Circle | Pilot Diam. | Motor Flange Code | | Bolt Circle | Pilot Diam. |
| NMT- | 00 | N10- | 05 | 85 | 70 | P10- | 05 | 85 | 70 | P20- | 05 | 85 | 70 |
| | | N10- | 10 | 100 | 80 | P10- | 10 | 100 | 80 | P20- | 10 | 100 | 80 |
| | | N10- | 12 | 130 | 110 | P10- | 12 | 130 | 110 | P20- | 12 | 130 | 110 |
| | | N10- | 14 | 145 | 110 | P10- | 14 | 145 | 110 | P20- | 14 | 145 | 110 |
| | | N10- | 18 | 120 | 90 | P10- | 18 | 120 | 90 | P20- | 19 | 165 | 130 |
| | | N10- | 19 | 165 | 130 | P10- | 19 | 165 | 130 | P20- | 20 | 200 | 114.3 |
| | | N10- | 20 | 200 | 114.3 | P10- | 20 | 200 | 114.3 | P20- | 21 | 215 | 130 |
| | | N10- | 21 | 215 | 130 | P10- | 21 | 215 | 130 | P20- | 23 | 215 | 180 |
| | | N10- | 23 | 215 | 180 | P10- | 23 | 215 | 180 | | | | |

| Motor Shaft | Motor Shaft Code | Shaft Diam. | Key Width* | Motor Shaft code | Shaft Diam. | Key Width* | Motor Shaft Code | Shaft Diam. | Key Width* |
|-------------|------------------|-------------|------------|------------------|-------------|------------|------------------|-------------|------------|
| 00 | AA | 24 | 8 | AA | 24 | 8 | AA | 24 | 8 |
| | AB | 28 | 10 | AB | 28 | 10 | AB | 28 | 10 |
| | BA | 22 | 6 | BA | 22 | 6 | BA | 22 | 6 |
| | DA | 20 | 6 | DA | 20 | 6 | DA | 20 | 6 |
| | EA | 19 | 6 | EA | 19 | 6 | EA | 19 | 6 |
| | LA | 28 | 8 | LA | 28 | 8 | LA | 28 | 8 |
| | MA | 32 | 10 | MA | 32 | 10 | MA | 32 | 10 |
| | NA | 35 | 10 | NA | 35 | 10 | NA | 35 | 10 |
| | PA | 38 | 10 | PA | 38 | 10 | YA | 24 | 10 |
| | RA | 42 | 12 | RA | 42 | 12 | | | |
| | SA | 42 | 10 | SA | 42 | 10 | | | |
| | YA | 24 | 10 | YA | 24 | 10 | | | |

| Shaft Length | Shaft Length | | Shaft Length | | Shaft Length | |
|--------------|--|---|--------------|---|--------------|---|
| 000 | 040, 046, 049, 050, 055, 058, 060, 063, 065, 068, 072, 080, 082, 088, 097, 100, 102, 105, 112, 113 | Pick closest shaft length within 2mm if your exact length is not listed | 040-099 | Allowable shaft length range in 1 mm increments | 048-099 | Allowable shaft length range in 1 mm increments |

*Key not required for operation

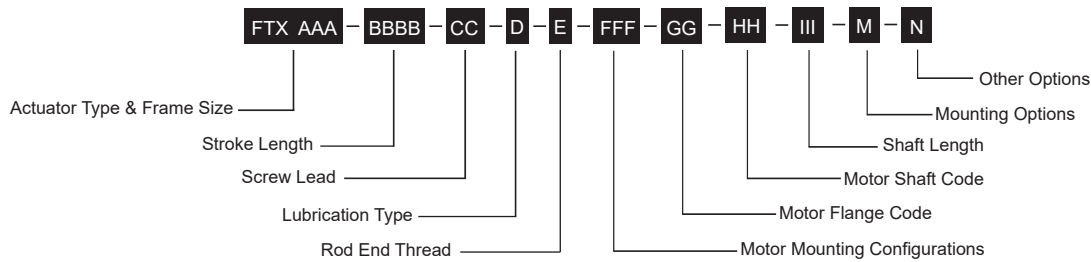
FTX160 Motor / Gearbox Mounts

| None | | Inline | | | | Parallel 1:1 | | | | Parallel 2:1 | | | |
|-------------------|---|---|-------------|-------------------|---|-----------------|-------------------|---|-------------|-------------------|-------------|-------------|-------|
| | | Dimension in mm | | | | Dimension in mm | | | | Dimension in mm | | | |
| Motor Flange Code | Motor Flange Code | Bolt Circle | Pilot Diam. | Motor Flange Code | Bolt Circle | Pilot Diam. | Motor Flange Code | Bolt Circle | Pilot Diam. | Motor Flange Code | Bolt Circle | Pilot Diam. | |
| NMT- | 00 | N10- | 10 | 100 | 80 | P10- | 10 | 100 | 80 | P20- | 10 | 100 | 80 |
| | | N10- | 12 | 130 | 110 | P10- | 12 | 130 | 110 | P20- | 12 | 130 | 110 |
| | | N10- | 18 | 120 | 90 | P10- | 18 | 120 | 90 | P20- | 18 | 120 | 90 |
| | | N10- | 19 | 165 | 130 | P10- | 19 | 165 | 130 | P20- | 19 | 165 | 130 |
| | | N10- | 20 | 200 | 114.3 | P10- | 20 | 200 | 114.3 | P20- | 20 | 200 | 114.3 |
| | | N10- | 21 | 215 | 130 | P10- | 21 | 215 | 130 | P20- | 21 | 215 | 130 |
| | | N10- | 22 | 215 | 160 | P10- | 22 | 215 | 160 | P20- | 23 | 215 | 180 |
| | | N10- | 23 | 215 | 180 | P10- | 23 | 215 | 180 | P20- | 24 | 235 | 200 |
| | | N10- | 24 | 235 | 200 | P10- | 24 | 235 | 200 | P20- | 25 | 265 | 230 |
| | | N10- | 25 | 265 | 230 | P10- | 25 | 265 | 230 | | | | |
| Motor Shaft Code | Motor Shaft Code | Shaft Diam. | Key Width* | Motor Shaft Code | Shaft Diam. | Key Width* | Motor Shaft Code | Shaft Diam. | Key Width* | | | | |
| 00 | AA | 24 | 8 | AA | 24 | 8 | AA | 24 | 8 | | | | |
| | BA | 22 | 6 | BA | 22 | 6 | BA | 22 | 6 | | | | |
| | LA | 28 | 8 | LA | 28 | 8 | LA | 28 | 8 | | | | |
| | MA | 32 | 10 | MA | 32 | 10 | MA | 32 | 10 | | | | |
| | NA | 35 | 10 | NA | 35 | 10 | NA | 35 | 10 | | | | |
| | PA | 38 | 10 | PA | 38 | 10 | PA | 38 | 10 | | | | |
| | QA | 40 | 12 | QA | 40 | 12 | QA | 40 | 12 | | | | |
| | RA | 42 | 12 | RA | 42 | 12 | RA | 42 | 12 | | | | |
| | SA | 42 | 10 | SA | 42 | 10 | SA | 42 | 10 | | | | |
| | UA | 55 | 16 | UA | 55 | 16 | ZA | 25 | 8 | | | | |
| | ZA | 25 | 8 | ZA | 25 | 8 | | | | | | | |
| Shaft Length | Shaft Length | | | Shaft Length | | | Shaft Length | | | | | | |
| 000 | 040, 048, 050, 055, 058, 060, 070, 072, 080, 082, 085, 088, 097, 100, 105, 110, 112, 113, 116 | Pick closest shaft length within 2mm if your exact length is not listed | | 060-124 | Allowable shaft length range in 1 mm increments | | 060-124 | Allowable shaft length range in 1 mm increments | | | | | |

*Key not required for operation

| FTX215 Motor / Gearbox Mounts | | | | | | | | | | | | | |
|-------------------------------|---|---|-------------|-------------------|---|-------------------|-------------------|---|-------------|-------------------|---|-----------------|-------------------|
| None | | Inline | | | | Parallel 1:1 | | | | Parallel 2:1 | | | |
| | | Motor Flange Code | | Dimension in mm | | Motor Flange Code | | Dimension in mm | | Motor Flange Code | | Dimension in mm | |
| Motor Flange Code | Motor Flange Code | Bolt Circle | Pilot Diam. | Motor Flange Code | Bolt Circle | Pilot Diam. | Motor Flange Code | Bolt Circle | Pilot Diam. | Motor Flange Code | Bolt Circle | Pilot Diam. | Motor Flange Code |
| NMT- | 00 | N10- | 19 | 165 | 130 | P10- | 19 | 165 | 130 | P20- | 19 | 165 | 130 |
| | | N10- | 22 | 215 | 160 | P10- | 22 | 215 | 160 | P20- | 23 | 215 | 180 |
| | | N10- | 23 | 215 | 180 | P10- | 23 | 215 | 180 | P20- | 25 | 265 | 230 |
| | | N10- | 24 | 235 | 200 | P10- | 24 | 235 | 200 | P20- | 26 | 300 | 250 |
| | | N10- | 25 | 265 | 230 | P10- | 25 | 265 | 230 | | | | |
| | | N10- | 26 | 300 | 250 | P10- | 26 | 300 | 250 | | | | |
| Motor Shaft Code | Motor Shaft Code | Shaft Diam. | Key Width* | Motor Shaft Code | Shaft Diam. | Key Width* | Motor Shaft Code | Shaft Diam. | Key Width* | Motor Shaft Code | Shaft Diam. | Key Width* | Motor Shaft Code |
| 00 | PA | 38 | 10 | PA | 38 | 10 | PA | 38 | 10 | PA | 38 | 10 | PA |
| | QA | 40 | 12 | QA | 40 | 12 | QA | 40 | 12 | QA | 40 | 12 | QA |
| | RA | 42 | 12 | RA | 42 | 12 | RA | 42 | 12 | RA | 42 | 12 | RA |
| | TA | 48 | 14 | TA | 48 | 14 | TA | 48 | 14 | TA | 48 | 14 | TA |
| | UA | 55 | 16 | UA | 55 | 16 | UA | 55 | 16 | | | | |
| | VA | 60 | 18 | VA | 60 | 18 | VA | 60 | 18 | | | | |
| | WA | 65 | 18 | WA | 65 | 18 | WA | 65 | 18 | | | | |
| Shaft Length | Shaft Length | | | Shaft Length | | | Shaft Length | | | Shaft Length | | | Shaft Length |
| 000 | 080, 082, 085, 097, 100, 102, 105, 110, 112, 116, 140 | Pick closest shaft length within 2mm if your exact length is not listed | | 070-155 | Allowable shaft length range in 1 mm increments | | 070-155 | Allowable shaft length range in 1 mm increments | | 070-155 | Allowable shaft length range in 1 mm increments | | 070-155 |

*Key not required for operation



AAA = Frame Size

- 095 = 95 mm
- 125 = 125 mm
- 160 = 160 mm
- 215 = 215 mm

BBBB = Stroke Length

- 0150 = 150 mm
- 0300 = 300 mm
- 0600 = 600 mm
- 0900 = 900 mm
- 1200 = 1200 mm

CC = Screw Lead

- 05 = 5 mm (FTX095, FTX125)
- 06 = 6 mm (FTX160, FTX215)
- 10 = 10 mm (FTX095, FTX125)
- 12 = 12 mm (FTX160, FTX215)
- 20 = 20 mm (FTX095)
- 30 = 30 mm (FTX160, FTX215)

D = Lubrication Type

- 1 = Grease
- 2 = Oil
- 3 = Low Temperature Grease (to -40° C)

E = Rod End Thread

- A = Male, Metric
- B = Female, Metric
- M = Male, English³
- F = Female, English³

FFF = Motor Mounting Configurations¹

- NMT = None, base unit only
- N10 = Inline, includes shaft coupling
- P10 = Parallel, 1:1 belt reduction
- P20 = Parallel, 2:1 belt reduction

GG = Motor/Gearbox Flange Code

See standard motor/gearbox mounting code dimension sheet

HH = Motor Shaft Code

See standard motor/gearbox mounting code dimension sheet

III = Shaft Length

See standard motor/gearbox mounting code dimension sheet

M = Mounting Options

- N = None
- 1 = Front Flange, Metric
- 5 = Rear Clevis, Metric²
- 7 = Rear Eye, Metric²
- 9 = Rear Trunnion, Metric
- F = Front Flange, English³
- C = Rear Clevis, English³ - FT Equivalent (Not available on FTX215)
- G = Rear Clevis, Metric³ - FT Equivalent (Not available on FTX125 or FTX215)

N = Other Options

- N = None



For options or specials not listed above, please contact Exlar

NOTES:

1. Always discuss your motor selection with your local sales representative.
2. Not available with inline or NMT motor mount, contact your local sales representative.
3. Available option. May add lead time

FTX Series Accessories

| Exlar Part Number | Switches Type |
|-------------------|---|
| 43403 | Normally Open PNP Limit Switch (10-30 VDC, 1m. 3 wire embedded cable) |
| 43404 | Normally Closed PNP Limit Switch (10-30 VDC, 1m. 3 wire embedded cable) |
| 67634 | Normally Open NPN Limit Switch (10-30 VDC, 1m. 3 wire embedded cable) |
| 67635 | Normally Closed NPN Limit Switch (10-30 VDC, 1m. 3 wire embedded cable) |

Warranty and Limitations of Liability

WARRANTY AND LIMITATION OF LIABILITY: Please see our warranty on our website here: [Division Policies | About | Actuation Division | Curtiss-Wright Actuation Group \(cw-actuation.com\)](#) for details.

USA & CANADA

Exlar Automation
18400 West 77th Street
Chanhassen, MN 55317
Phone: 855-620-6200 (US & Canada)
Fax: 952-368-4877

ASIA

Exlar Asia Pacific
1007 Pine City Hotel
8 Dong An Road, Xuhui District
Shanghai 200032 China
Phone: +86 021-6495-7868

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