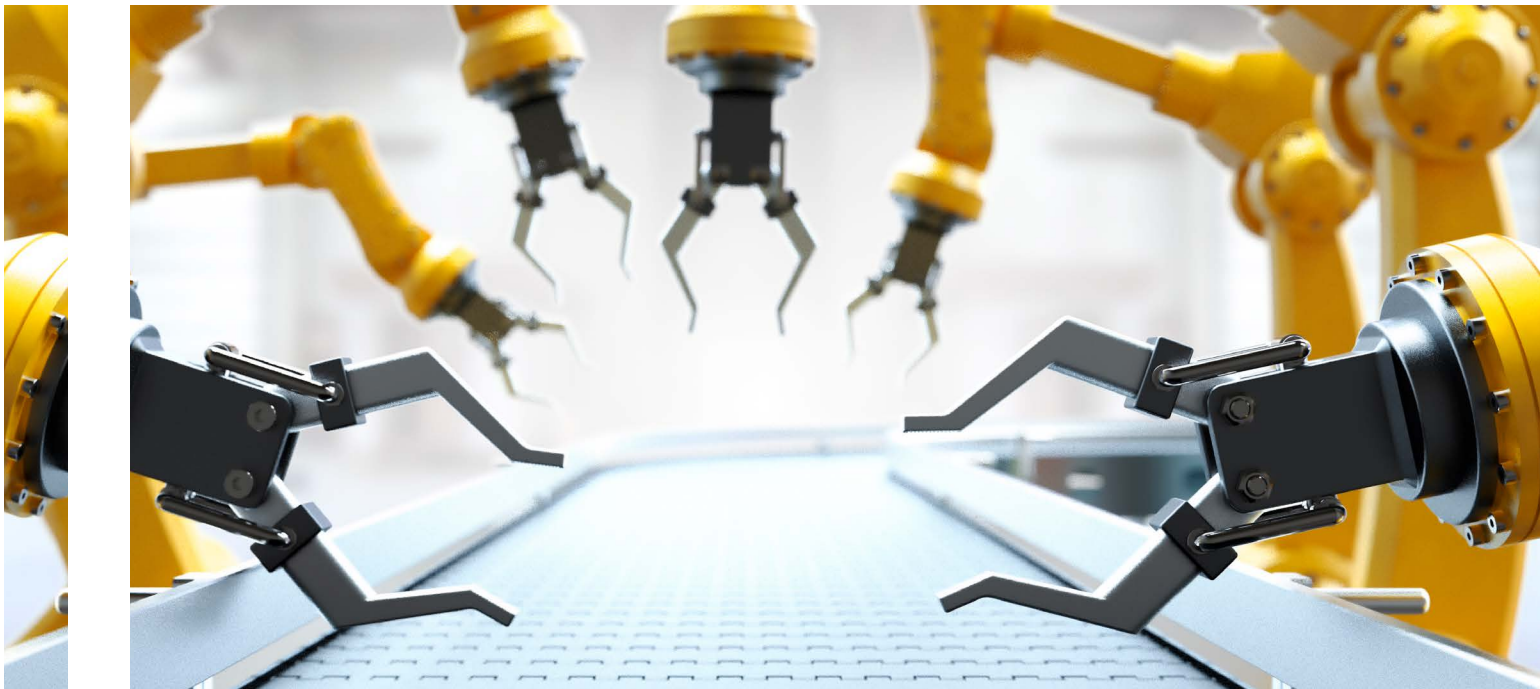


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Tritex[®] TTX Catalog

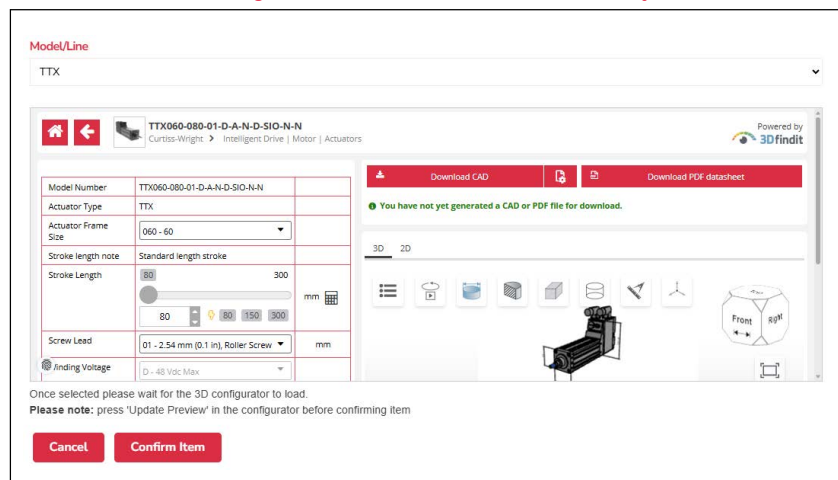
Intelligent Electric Drive Motor Actuator



Table of Contents

Intelligent Servo Drive/Motor/Actuator	3	Tritex TTX (DC Power)	12
Reduce Panel Space.....	3	Linear Actuators	12
Reduce Costs.....	3	Tritex TTX Models	12
Linear Applications	4	Communications & I/O	13
Flexible Communications	4	Digital Inputs:	13
Improves Power, Performance, and Reliability	4	Digital Outputs:	13
Tritex TTX Models	5	SIO	13
Tritex TTX AC and DC Models.....	5	Analog Output (Voltage):	13
Feedback Type	5	IA4	13
Option Boards and I/O	5	Analog Output (4-20 mA):.....	13
Standard Communications (All Models)	5	Standard Communications:.....	13
Tritex TTX Option Boards	5	Tritex TTX Mechanical Specifications	15
Connectivity	5	Tritex TTX060.....	15
Tritex TTX Operation	6	Tritex TTX080.....	15
Operating Modes	6	Tritex TTX Weights.....	16
Expert User Interface	7	Tritex TTX Options	17
Protocol Options.....	7	Internal Holding Brake	17
Modbus TCP	7	External Anti-rotate Assembly.....	17
EtherNet/IP	7	Tritex TTX L10 Estimated Service Life	18
ProfiNet IO	7	Service Life Estimate Assumptions	18
Motion Setup	8	Speed vs. Force Curves	19
Control Page	8	Temperature Derating.....	19
Monitoring and Diagnostics	8	Tritex TTX060 DC Voltage	19
Configuring I/O	8	Tritex TTX080 - AC Voltage	20
Scope	8	Tritex TTX080 - DC Voltage.....	20
Homing	8	Tritex TTX Dimensions	21
Teach Mode	8	Tritex TTX060.....	21
Application Flexibility	9	Tritex TTX080.....	23
Tritex TTX Benefits.....	9	Tritex TTX Cables and Accessories	26
Tritex TTX Agency Approval	11	Tritex TTX Actuator Ordering Information	27
Tritex TTX (AC Power)	11	Warranty and Limitations of Liability	27

[Configure and Download Your Model Today!](#)





Tritex® TTX

Intelligent Electric Drive Motor Actuator

Key Features

- All-in-one actuator
- Reduces space and cost
- Improves performance and reliability
- Ideal for stand alone applications

Applications

- Automotive
 - Bending, flexible tooling, dispensing
- Food and Beverage
 - Forming / packaging, sealing, molding
- Plastics
 - Mold locking, opening and closing gate valves
- Forestry
 - Fence guides, clamping

Intelligent Servo Drive/Motor/Actuator

By combining the latest electronic power technology with advanced thermal management modeling technology, Exlar® has set a new benchmark for electric actuator performance versus size. Tritex TTX actuators now integrate an AC or DC powered servo drive, digital position controller, brushless motor and linear actuator in one elegant, compact, sealed package. Now you can distribute motion control and resolve your application challenges with one integrated device. Simply connect power, I/O, communications and go!

Reduce Panel Space

Tritex TTX actuators are the highest power density, smallest footprint servo drive devices on the market. Finally, you can incorporate a fully electronic solution in the space of your existing hydraulic or pneumatic cylinder. You can also eliminate troublesome ball screw actuators; and the space previously consumed by panel mount servo drives and motion controllers is no longer needed. Tritex TTX actuators may also reduce the size of your machine design while significantly improving reliability.

Reduce Costs

Now you can eliminate the labor costs for mounting and wiring panels because the Tritex TTX houses the servo drive, digital positioner, and actuator in one convenient package. Cable costs are also significantly reduced by eliminating the need for expensive, high-maintenance specialty servo cables. All that is required is an economical standard AC or DC power cord, and standard communication cable for digital and analog I/O.

These actuators also eliminate the issues associated with power signals and feedback signals traveling long distances from servo drive to servo motor. With the Tritex TTX, the servo drive and motor are always integrated in the same housing.

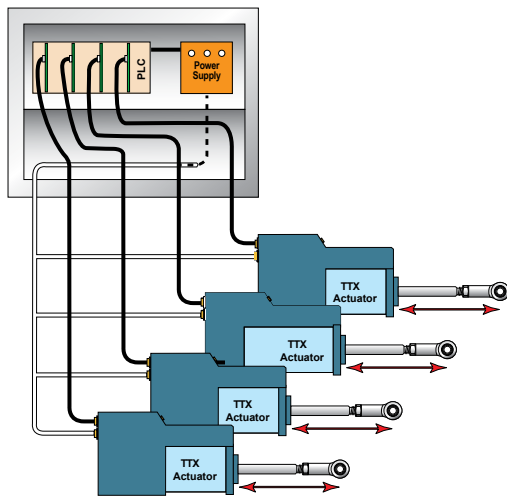
Flexible Communications

Digital and analog I/O, plus popular communication networks, such as Modbus TCP, Modbus RTU (standard), EtherNet/IP, and PROFINET IO, allow the Tritex TTX to become an integral part of your control architecture or machine control processes.

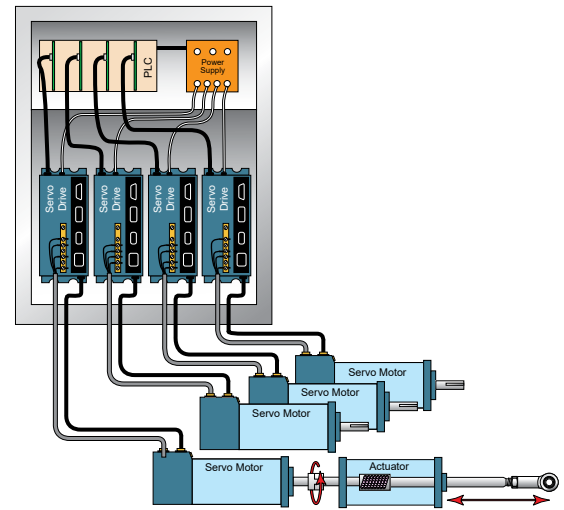
Improves Power, Performance, and Reliability

Tritex TTX actuators give you unrivaled power, performance, and reliability. No longer are you limited to trivial amounts of force or speeds so slow that many motion applications are not possible.

Tritex TTX Systems



Alternative Systems



Linear Applications

Tritex TTX linear actuators employ a superior inverted roller screw mechanism for converting rotary motion to highly robust and long-life linear motion. These characteristics enable the Tritex TTX actuator to solve applications that previously required pneumatic or hydraulic cylinders. No additional mechanisms (such as acme or ball screws) are necessary to convert the actuator's rotary power into linear motion in order to move the load.

The simple to configure, yet robust interface software allows either the AC or DC Tritex TTX actuators to perform nearly any motion control application. The Tritex TTX linear actuator can be programmed to follow an analog command signal, making it ideal for numerous factory automation applications

Tritex TTX Models

Tritex TTX AC and DC Models

Tritex TTX high mechanical capacity actuator

Feedback Type

- Absolute Feedback (analog hall with multi-turn, battery backup)

Option Boards and I/O

Standard I/O:

- 8 - Digital Inputs
- 8 - Digital Outputs
- 1 - ± 10 V Analog Input
- 1 - 0-10 V Analog Output

EtherNet/IP - Includes all standard I/O

Modbus TCP - Includes all standard I/O

PROFINET I/O - Includes all standard I/O

4-20 mA - 4 digital inputs, 3 digital outputs, Isolated 4-20 mA input, Isolated 4-20 mA output

Standard Communications (All Models)

- 1 RS485 port, Modbus RTU, opto-isolated for programming, controlling and monitoring

Tritex TTX Option Boards

- Option boards offer adding functionality to the base Tritex TTX actuators
 - Terminal board for customer I/O
- Isolated 4-20 mA analog input and output
 - Communication buses
 - EtherNet/IP
 - Modbus TCP
 - ProfiNet IO

Connectivity

- Internal terminals accessible through removable cover
- M23 Power Connector (DC & AC Models differ)
- M23 I/O
- M8 connector for RS485 (may use internal connection instead)
- M12 connector for Ethernet options (may use internal connection instead)
- Power and I/O connectors may be removed by customer for M25 threaded port
- Power and I/O connectors may be replaced by customer with cable glands
- Power and I/O connectors may be replaced by customer with 1/2 inch NPT adaptors

Tritex TTX Operation

The Tritex TTX actuators can operate in one of five different motion-producing modes. These modes solve an endless variety of applications in industrial automation, medical equipment, fastening and joining, blow molding, injection molding, testing, food processing, and more.

Programmed functions are stored in the Tritex TTX non-volatile memory. A standard RS485 serial interface allows control, programming, and monitoring of all aspects of the motor or actuator as it performs your application. Optional communications protocols are available.

Operating Modes

Move to a position (or switch)

The Tritex TTX actuators allow you to execute up to 16 programmed positions or distances. You may also use a limit switch or other input device as the end condition of a move. This combination of index flexibility provides a simple solution for point-to-point indexing.

Move to a preset force

The Tritex TTX allows you to terminate your move upon the achievement of a programmed torque or force. This is an ideal mode for pressing and clamping applications.

Position proportional to an analog signal

Ideal for process control solutions, the Tritex TTX provides the functionality to position a control valve by following an analog input signal. Therefore, it delivers precise valve control — which can be challenging with other electric, hydraulic, or pneumatic actuators.

Velocity proportional to an analog signal

Tritex TTX actuators offer you the capability to control velocity with an analog signal.

Force proportional to analog signal

Perfect for pressing applications, you can control force with an analog input while in force mode.

Selectable Input Functions

- Enable
- Execute Move (0-15)
- Dedicated Position
- Jog+
- Jog-
- Jog Fast
- Home
- Extend Switch
- Retract Switch
- Home Switch
- Teach Enable
- Teach Move (1-16)
- Select Move
- Stop
- Hold
- Reset Faults
- Alternate Mode (allows you to switch between 2 operating modes)

Selectable Output Functions

- Enabled
- Homed
- Ready (Enabled and Homed)
- Fault
- Warning
- Fault or Warning Active
- Move (0-15) in Progress
- Homing
- Jogging
- Jogging+
- Jogging-
- Motion
- In Position
- At Home Position
- At Move (0-15)
- Position
- Stopped
- Holding
- In Current Limit
- In Current Fold Back
- Above Rated Current
- Home

Expert User Interface

Expert, the Tritex TTX user interface software, provides you with a simple way to select all aspects of configuration and control required to set up and operate a Tritex TTX actuator. Easy-to-use tabbed pages provide access to input all of the parameters necessary to successfully configure your motion application. ‘Application’ files give you a convenient way to store and redistribute configurations amongst multiple computers, and ‘Drive’ files allow the same configuration to be distributed to multiple Tritex TTX actuators. Motion setup, homing, teach mode, tuning parameters, jogging, I/O configurations, and local control are all accomplished with ease using Expert software.

Protocol Options

The standard communication protocol for Tritex is an RS485 connection using Modbus RTU. The Modbus protocol provides a simple and robust method to connect industrial electronic devices on the same network. The Expert software acts as a Modbus Master and the Tritex TTX acts as the follower device, only responding to requests commanded through the software. The Expert software allows full access to commissioning, configuring, monitoring, and controlling the Tritex TTX.

In addition, the following protocol options are available by selecting the communication option boards. Initial commissioning of a Tritex TTX actuator must be performed with the Modbus RTU protocol.

Modbus TCP

Modbus TCP couples Modbus communication structure from Modbus RTU with Ethernet connectivity. The Modbus TCP option is fully supported by the Expert software and offers seamless commissioning, configuring, monitoring and controlling the Tritex II. Communication protocol DSP 301 is supported as well as DSP 402 supporting Profile Torque, Profile Velocity, Profile Position and Homing. Setup on the system is most easily achieved with the Expert software using the RS485 port. A Modbus mapping table allows you

to map all of the parameters you wish to read and modify into a register bank of up to 100 registers. This allows a PLC program to perform a single read operation and a single write operation to all the parameters.

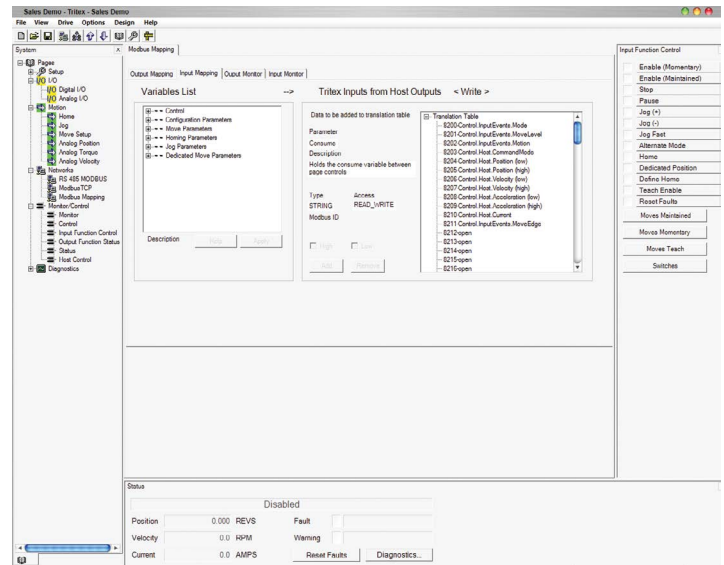
EtherNet/IP

EtherNet/IP allows you to change, monitor, and control the Tritex TTX through implicit or explicit messaging initiated from your Rockwell PLC. Tritex parameters are set up through the Expert software using a Tritex TTX parameter to EtherNet/IP parameter mapping table. Up to 100 input, and 100 output 16 bit registers can be mapped to Tritex TTX parameters.

ProfiNet IO

ProfiNet IO allows you to change, monitor and control the Tritex TTX Series from your PROFINET enabled PLC. Tritex parameters are set up through the Expert software using a Tritex TTX parameter to PROFINET IO parameter mapping table. Up to 100 input and 100 output, 16 bit registers can be mapped to Tritex TTX parameters.

Modbus Mapping Screen



Motion Setup

Exlar configuration provides several templates for various applications. These can serve as your configuration, or as a starting point for your configuration. You can also begin by selecting configuration details specific to your application. At the click of a button, you can configure a move to position, move to switch, or move to force motion. Tritex TTX products offer absolute and incremental motion, as well as moves ending on a condition, such as a specific force or torque.

Control Page

The Expert control page gives you the ability to initiate all motion functions from one simple screen. This screen provides you with very easy system start-up and testing, without all the inconvenience of machine wiring. The control page offers the capability to enable and disable the drive, and perform fast and slow jogs. This gives you the ability to verify motion, before needing any I/O wiring.

Monitoring and Diagnostics

All input functions can be monitored and activated from the Expert monitor page, and all output functions can be monitored. Critical fault and status data is available as a separate page as well as a fixed window on the bottom of each page of the software.

Configuring I/O

A drop down menu allows all I/O to be set up in a matter of minutes. Inputs can be configured to be maintained or momentary, depending on the application requirements. Input and output logic can be inverted with a single click.

Scope

The Expert Software includes a four-channel digital oscilloscope feature. You can select up to four Tritex drive parameters to be monitored simultaneously.

For high speed requirements, the data can be captured in the drive's memory at an adjustable rate, down to 100 micro seconds, and then uploaded for plotting. The plots can be saved or printed, and the captured data can be saved as a comma separated file for further analysis with third party spreadsheets.

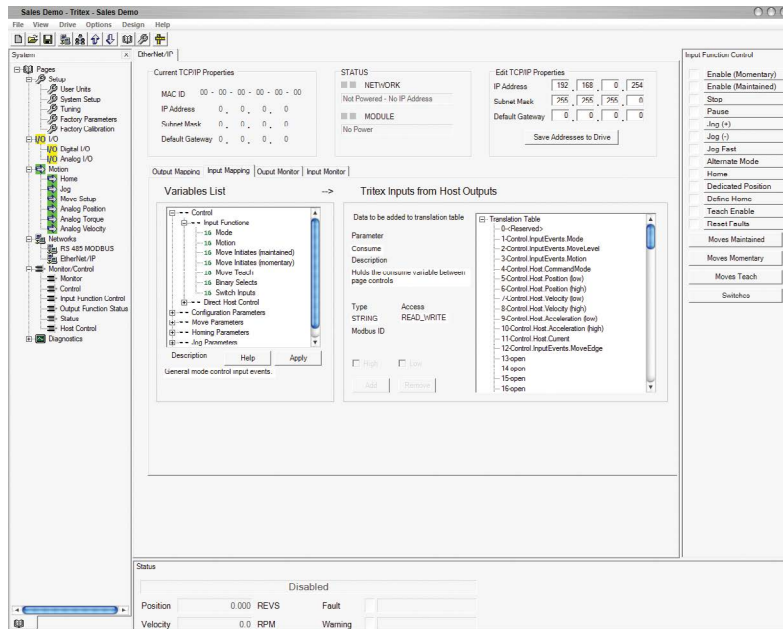
Homing

You can home to an input, by using a proximity or limit switch, or home to a specific force or torque. Homing to a force or torque is ideal for setting up applications that require motion referenced to a hard stop, like the closed position of a valve, or the final position of a press.

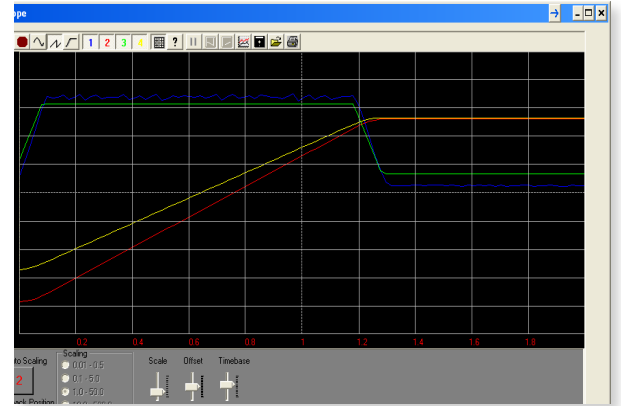
Teach Mode

In this mode, you can jog the actuator to the desired position, and activate an input. Alternatively, you can click a button in the Expert software and the current position of the actuator becomes the defined distance or absolute position associated with a particular move command.

Ethernet IP Mapping Screen



Scope



Application Flexibility

Tritex TTX actuators outperform other electric, hydraulic and pneumatic actuators by providing small hysteresis and dead band, quick response to small signal changes, and stable dynamic responses. Fully programmable to follow an analog or digital signal representing either position or force, the Tritex TTX linear actuator is well suited for many applications with thrust requirements up to 4404 N.

Additionally, Tritex TTX actuators can be mounted on any valve from any manufacturer giving you maximum flexibility.

Tritex TTX Benefits

Extreme Accuracy

Exlar actuators do not rely on air or oil pressure to move. Each move can be programmed resulting in accuracy and repeatability better than 0.1%.

100% Duty Cycle

The design of the Tritex TTX allows for reliable, long life (15x similar sized ballscrew actuators) at 100% duty cycle operation due to an integrated inverted roller screw, a high-torque servo motor, and a decentralized servo drive into a compact, power-dense package.

Built in Positioner

Tritex TTX Series actuators include a built in positioner with a 4-20 mA or digital signal to tell you the exact stroke position. An analog output is also available.

Flexibility

These actuators include digital I/O and analog control. This provides the user with options for additional control such as emergency stop, +/- jog, or various diagnostic conditions.

Low Power Consumption

The Tritex TTX actuator only uses the current needed for a given force. This extreme efficiency makes it suitable for use with solar panels and batteries.

Fast Response and Stroke Speeds

Most other electric actuators are known for being slow—a major disadvantage. Tritex TTX response rate is measured in milliseconds. Stroke speeds can be up to 762 mm/s.

Hydraulic Replacement

Tritex actuators have comparable capabilities as hydraulic cylinders but without the cost or maintenance issues. High force, fast speeds, and precise movements make it a superior substitute for traditional hydraulic applications.

Absolute Feedback

The absolute feedback option gives the actuator memory after teaching the motion limits. So upon power loss, the battery backup will maintain the motion limits.

Diagnostics

All inputs and outputs can be monitored including position, temperature, current, and many more. An oscilloscope feature allows you to select up to four parameters to be monitored simultaneously. The data can be captured in the drive's memory at an adjustable rate, down to 100 microsecond, and then uploaded for plotting.

The screenshot displays the Tritex TTX actuator control interface, which includes several key sections:

- Actuator Direction:** A dropdown menu set to "Extend to Close".
- Close Valve:** Parameters when valve is Closed: 4.000 mA, 0.000 REVS.
- Open Valve:** Parameters when valve is Open: 20.000 mA, 0.000 REVS.
- Valve Stroke:** A note stating: "The first valve stroke length will be the difference between the Open Valve Position and the Closed Valve Position. Note: The Open Valve Position must be greater than the Close Valve Position."
- Velocity/Acceleration:** Velocity Limit: 100.0 RPM, Acceleration Limit: 3000 RPM/S.
- Manual Teach Controls:** Includes buttons for "Jog to Closed Position", "Teach Closed Position", "Jog to Open Position", and "Teach Open Position". A "Digital (Log) Mode" button is also present.
- Valve Seating:**
 - Close Valve: Travel Cut-off Position: 0.00 %, Enable valve seating at Closed position:
 - Open Valve: Travel Cut-off Position: 100.00 %, Enable valve seating at Open position:
 - Seating Limits: Seating Velocity: 10.0 RPM, Peak Seating Current: 2.0 AMPS, Foldback Seating Current: 2.0 AMPS.
- System Status (Top Left):** Power-Up: 69, Time: 19.08 HRS.
- Last Fault/Warning Table:**

Fault Name	Count	Power-Up	Time [HRS]
Peak Current	0	0	0.00
Continuous Current	6	43	0.48
Position Tracking	34	60	10.82
Low Bus Voltage	0	0	0.00
High Bus Voltage	1	14	0.00
Following Error	1	65	11.83
Board Temperature	0	0	0.00
Communications	10	67	19.00
Actuator Temperature	0	0	0.00
Abs Hall Battery	0	0	0.00
Loss of Signal	0	0	0.00
Hardware Current Trip	0	0	0.00
- Recent Fault History Table:**

Power-Up	Time [HRS]	Fault Name
1	67	19.00 Communications
2	66	17.23 Communications
3	66	15.58 Communications
4	66	13.92 Communications
5	65	12.45 Communications
6	65	11.83 Following Error
7	65	11.68 Communications
8	60	10.82 Position Tracking
9	59	10.62 Position Tracking
10	58	10.62 Position Tracking
- Maximum Stress Values:**
 - Current: 20.5 AMPS
 - Voltage: 114.72 VOLTS
 - Board Temp: 52.5 DEG(C)
 - Actuator Temp: 0.0 DEG(C)
- Current Power-On Stress Values:**
 - Current: 0.0
 - Voltage: 23.91

Tritex TTX Agency Approval

Shown below are additional agency approvals applied to Tritex TTX actuators.

		Agency Standards & Approvals	
		Tritex TTX-AC Models	Tritex TTX-DC Models
UL		UL 1004-1	N/A
		UL 1004-3	
		UL 1004-6	
		UL 508C (TTX AC)	
CSA		CSA C22.2 NO. 77	N/A
		CSA C22.2 NO. 100	
		CSA C22.2 NO. 274 (PCB)	
CE	EMC	EN 61800-3:2004+A1:2012 Part 3	EN 61800-3
	Safety	EN 61800-5-1	N/A
	RoHS	RoHS 2011/65/EU	RoHS 2011/65/EU
UKCA		EN 61800-3:2004+A1:2012 Part 3	EN 61800-3:2004+A1:2012 Part 3
Vibration	Qual. Test Only	2.5 grms; 5 to 500 Hz	5.0 grms; 5 to 500 Hz
ODVA		EtherNet/IP	EtherNet/IP
PROFINET		PI Tested for PROFINET IO	PI Tested for PROFINET IO

Tritex TTX (AC Power)

No Compromising on Power, Performance or Reliability

With forces up to 5,897 N (1,326 lbf) continuous and speeds to 635 mm/s (25 in/s), the AC TTX inear actuators also offer a benefit that no other integrated product offers: POWER! No longer are you limited to trivial amounts of force, or speeds so slow that many motion applications are not possible. The Tritex TTX with AC power electronics operates with maximum reliability over a broad range of ambient temperatures: 0 °C to +65 °C. The AC powered Tritex TTX actuators contain a 1.5 kW servo amplifier and a very capable motion controller. With standard features such as analog following for position, compound moves, move chaining, and individual force/torque control for each move, the Tritex TTX is the ideal solution for most motion applications.

Tritex TTX Models

- Tritex TTX high mechanical capacity actuator, 80 mm

Power Requirements

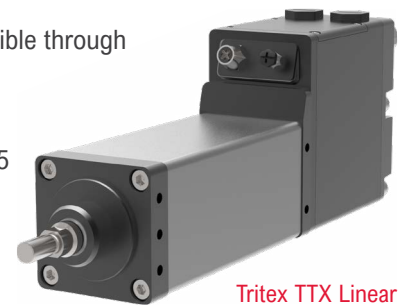
- AC Power 100-200 Vac, ±10%, single phase
- Built-in AC line filter
- Connections for external braking resistor

Feedback

- Absolute Feedback (analog hall with multi-turn, battery backup)

Connectivity

- Internal terminals accessible through removable cover
- M23 connectors
- M8 connector for RS485
- M12 connector for Ethernet options



Tritex TTX Linear AC Actuator

Tritex TTX (DC Power)

Linear Actuators

No Compromising on Power, Performance or Reliability

With forces up to 4,970 N (1,117 lbf) continuous and speeds up to 508 mm/s (20 in/s). The DC Tritex TTX linear actuators also offer a benefit that no other integrated product offers: POWER! No longer are you limited to trivial amounts of force, or speeds so slow that many motion applications are not possible. The new Tritex TTX with DC power electronics operates with maximum reliability over a large temperature range: 0 °C to +65 °C. The DC powered Tritex TTX actuators contain a 750 W servo amplifier and a very capable motion controller. With standard features such as analog following for position, compound moves, move chaining, and individual force/torque control for each move, the Tritex TTX is the ideal solution for most motion applications.



Tritex TTX Linear DC Actuator

Tritex TTX Models

- Tritex TTX high mechanical capacity actuator, 80 mm

Power Requirements

- DC Power 12-48 Vdc nominal
- Connections for external braking resistor

Feedback

- Absolute Feedback (analog hall with multi-turn, battery backup)

Connectivity

- Internal terminals accessible through removable cover
- M23 connectors
- M8 connector for RS485
- M12 connector for Ethernet options

Operating Conditions and Usage for AC and DC Units		
Accuracy:		
Screw Lead Error	µm / 300 mm	25
	in/ft	0.001
Screw Travel Variation	µm / 300 mm	30
	in/ft	0.0012
Screw Lead Backlash	0.1524 mm Maximum 0.006 in Maximum	
IP Rating	IP66S	
Standard Ambient Temperature*	°C	0 to 65
	°F	32 to 149
Friction Torque (typical)	Frame Size (Nm)	060 (0.12)
		080 (0.23)

Communications & I/O

All models include digital IO and an isolated RS485 communication port. Digital I/O is isolated from other channels as a group, with all channels referenced to the negative side of the I/O supply.

The IO count and type vary with the actuator model and option module selected.

Digital Inputs:

- 10 to 30 Vdc Opto-isolated but common return

Digital Outputs:

- 30 Vdc maximum
- Opto-isolated but common supply & return
100 mA continuous output Isolated

SIO

Analog Input (Voltage):

- ±10 Vdc Range
- 13 bit resolution over full range
- May be assigned to control Position, Velocity, Torque, or Velocity Override.

Analog Output (Voltage):

- 0 -10 Vdc Range
- 11 bit resolution over full range
- May be assigned to monitor one of many internal parametes.

IA4

Analog Input (4-20 mA):

- 16 bit resolution Isolated
- Assignable to Position, Velocity, or Torque command

Analog Output (4-20 mA):

- 12 bit resolution
- Assignable to Position, Velocity, Current, Temperature, etc

Standard Communications:

- 1 RS485 port opto-isolated, for programming, controlling and monitoring. Uses Modbus RTU protocol

Tritex TTX AC and DC I/O		
	SIO, EIP, PIO, TCP	IA4
Digital inputs	8	4
Digital outputs	4	3
Analog input, voltage	1	0
Analog output, voltage	1	0
Analog input 4-20 mA	0	1
Analog output 4-20 mA	0	1

TRITEX® TTX INTELLIGENT ELECTRIC DRIVE MOTOR ACTUATOR

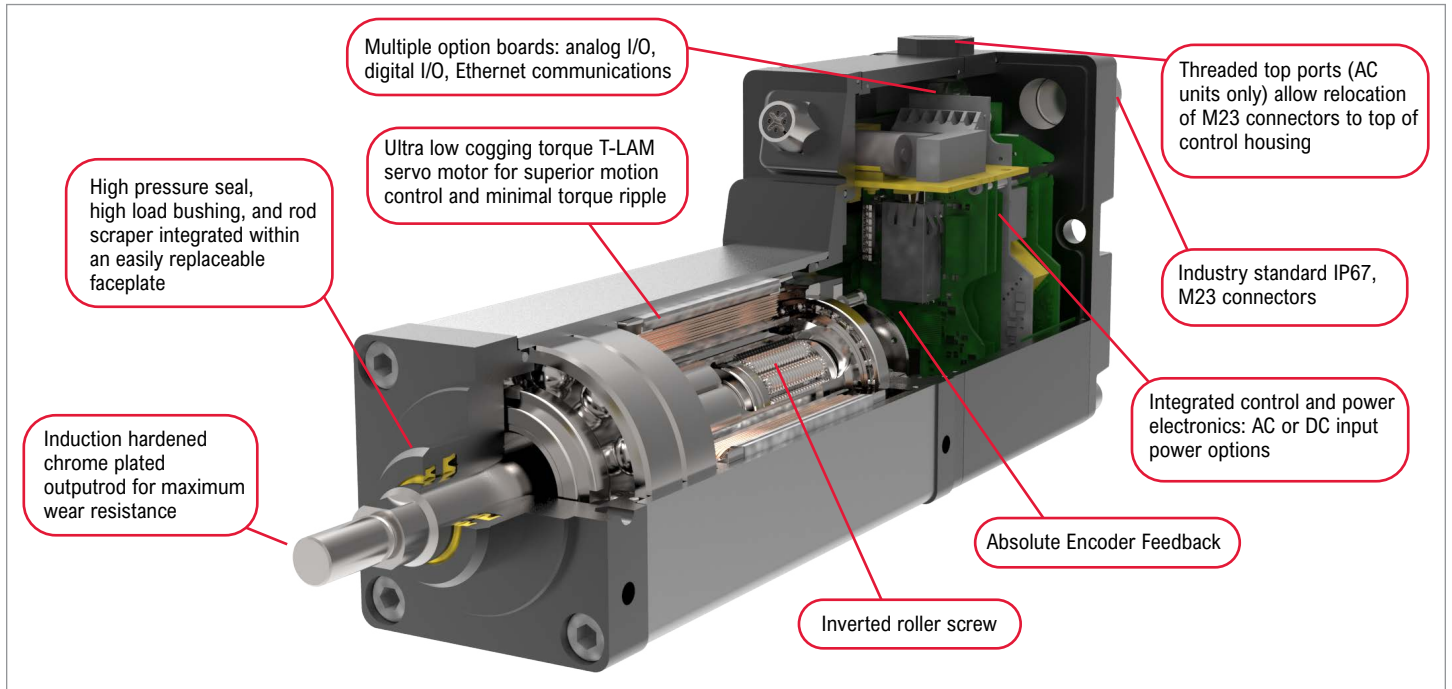


Figure 1: Product Features

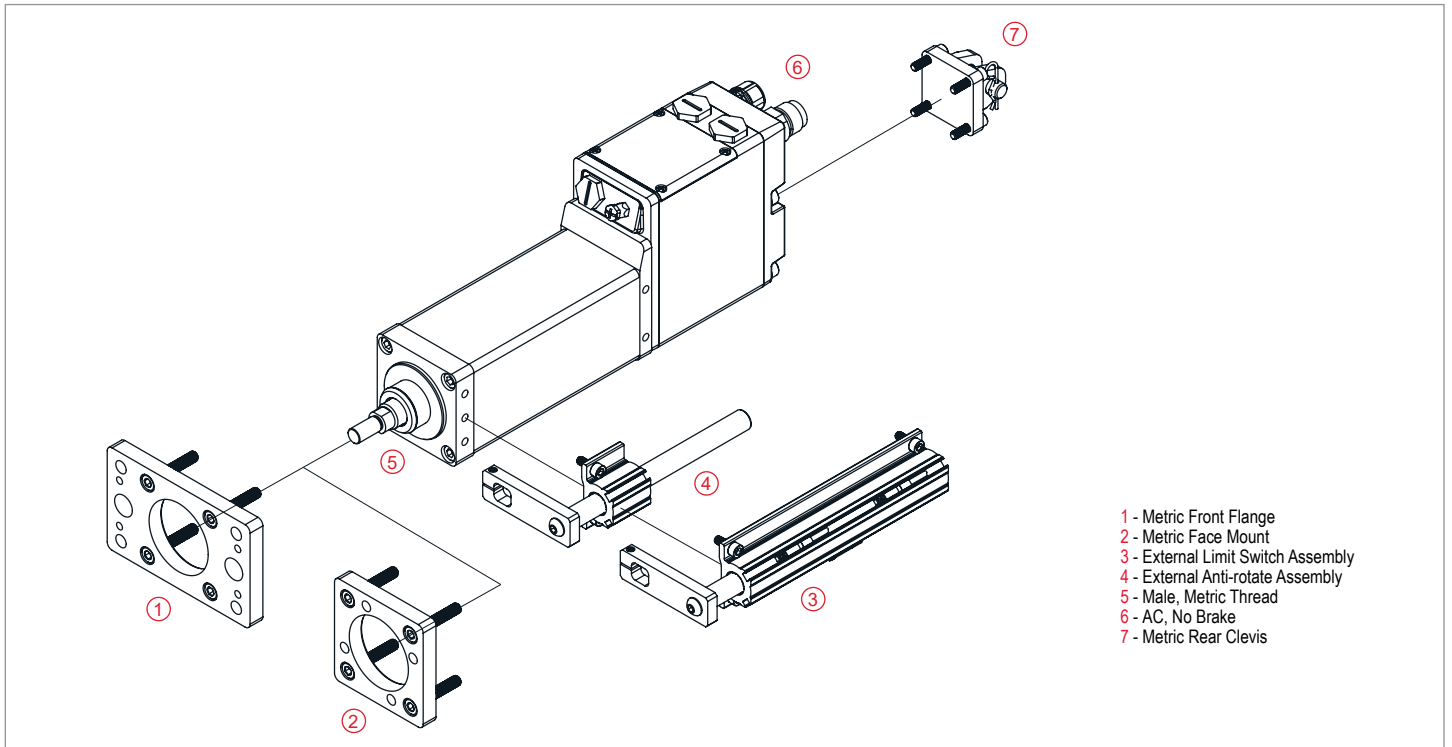


Figure 2: Exploded View

Tritex TTX Mechanical Specifications

Tritex TTX060

	Stroke mm (in)	Screw Lead mm (in)	Continuous Force Rating N (lbf)		Peak Force Rating N (lbf)		Max Velocity mm/s (in/s)		Dynamic Load Rating N (lbf)	Armature Inertia kg-m ² (in-lb-s ²)	Maximum Continuous Input Current	
			4 (Vac)	D (Vdc)	4 (Vac)	D (Vdc)	4 (Vac)	D (Vdc)			A (Vac) Arms	D (Vdc) Arms
TTX060-080-01	80 (3.15)	2.54 (0.1)	5,897 (1,326)	4,970 (1,117)	11,794 (2,651)	8,946 (2,011)	127 (5.0)	102 (4.0)	24,535 (5,516)	0.00007367 (0.000652)	18.0	
TTX060-080-02		5.08 (0.2)	3,342 (751)	2,816 (633)	6,683 (1,502)	5,069 (1,140)	254 (10.0)	203 (8.0)	25,798 (5,800)			
TTX060-080-04		10.16 (0.4)	1,415 (318)	1,193 (268)	2,830 (636)	2,147 (483)	635 (25.0)	508 (20.0)	21,795 (4,900)			
TTX060-150-01	150 (5.9)	2.54 (0.1)	5,897 (1,326)	4,970 (1,117)	11,794 (2,651)	8,946 (2,011)	127 (5.0)	102 (4.0)	24,535 (5,516)	0.00008689 (0.000769)		
TTX060-150-02		5.08 (0.2)	3,342 (751)	2,816 (633)	6,683 (1,502)	5,069 (1,140)	254 (10.0)	203 (8.0)	25,798 (5,800)			
TTX060-150-04		10.16 (0.4)	1,415 (318)	1,193 (268)	2,830 (636)	2,147 (483)	635 (25.0)	508 (20.0)	21,795 (4,900)			
TTX060-300-01	300 (11.8)	2.54 (0.1)	5,897 (1,326)	4,970 (1,117)	11,794 (2,651)	8,946 (2,011)	127 (5.0)	102 (4.0)	24,535 (5,516)	0.00011537 (0.001021)		
TTX060-300-02		5.08 (0.2)	3,342 (751)	2,816 (633)	6,683 (1,502)	5,069 (1,140)	254 (10.0)	203 (8.0)	25,798 (5,800)			
TTX060-300-04		10.16 (0.4)	1,415 (318)	1,193 (268)	2,830 (636)	2,147 (483)	635 (25.0)	508 (20.0)	21,795 (4,900)			

Specifications subject to change without notice. Test data derived using NEMA recommended aluminum heatsink 10" x 10" x 3/8" at 25 °C ambient. Maximum velocities listed at maximum voltages.

Tritex TTX080

	Stroke mm (in)	Screw Lead mm (in)	Continuous Force Rating N (lbf)		Peak Force Rating N (lbf)		Max Velocity mm/s (in/s)		Dynamic Load Rating N (lbf)	Armature Inertia kg-m ² (in-lb-s ²)	Maximum Continuous Input Current	
			4 (Vac)	D (Vdc)	4 (Vac)	D (Vdc)	4 (Vac)	D (Vdc)			A (Vac) Arms	D (Vdc) Arms
TTX080-100-01	100 (3.9)	2.54 (0.1)	5,897 (1,326)	4,970 (1,117)	11,794 (2,651)	8,946 (2,011)	127 (5.0)	102 (4.0)	24,535 (5,516)	0.000340 (0.003013)	4.1	18.0
TTX080-100-02		5.08 (0.2)	3,342 (751)	2,816 (633)	6,683 (1,502)	5,069 (1,140)	254 (10.0)	203 (8.0)	25,798 (5,800)			
TTX080-100-05		12.7 (0.5)	1,415 (318)	1,193 (268)	2,830 (636)	2,147 (483)	635 (25.0)	508 (20.0)	21,795 (4,900)			
TTX080-150-01	150 (5.9)	2.54 (0.1)	5,897 (1,326)	4,970 (1,117)	11,794 (2,651)	8,946 (2,011)	127 (5.0)	102 (4.0)	24,535 (5,516)	0.000369 (0.003267)		
TTX080-150-02		5.08 (0.2)	3,342 (751)	2,816 (633)	6,683 (1,502)	5,069 (1,140)	254 (10.0)	203 (8.0)	25,798 (5,800)			
TTX080-150-05		12.7 (0.5)	1,415 (318)	1,193 (268)	2,830 (636)	2,147 (483)	635 (25.0)	508 (20.0)	21,795 (4,900)			
TTX080-300-01	300 (11.8)	2.54 (0.1)	5,897 (1,326)	4,970 (1,117)	11,794 (2,651)	8,946 (2,011)	127 (5.0)	102 (4.0)	24,535 (5,516)	0.000455 (0.004029)		
TTX080-300-02		5.08 (0.2)	3,342 (751)	2,816 (633)	6,683 (1,502)	5,069 (1,140)	254 (10.0)	203 (8.0)	25,798 (5,800)			
TTX080-300-05		12.7 (0.5)	1,415 (318)	1,193 (268)	2,830 (636)	2,147 (483)	635 (25.0)	508 (20.0)	21,795 (4,900)			
TTX080-450-01	450 (17.7)	2.54 (0.1)	5,897 (1,326)	4,970 (1,117)	11,794 (2,651)	8,946 (2,011)	127 (5.0)	102 (4.0)	24,535 (5,516)	0.000541 (0.004790)		
TTX080-450-02		5.08 (0.2)	3,342 (751)	2,816 (633)	6,683 (1,502)	5,069 (1,140)	254 (10.0)	203 (8.0)	25,798 (5,800)			
TTX080-450-05		12.7 (0.5)	1,415 (318)	1,193 (268)	2,830 (636)	2,147 (483)	635 (25.0)	508 (20.0)	21,795 (4,900)			

Specifications subject to change without notice. Test data derived using NEMA recommended aluminum heatsink 10" x 10" x 3/8" at 25 °C ambient. Maximum velocities listed at maximum voltages.

Tritex TTX Weights

Tritex TTX060

Description	Weight kg (lb)
TTX060-080	3.64 (8.0)
TTX060-150	4.13 (9.09)
TTX060-300	5.20 (11.43)
Brake Adder	0.65 (1.42)
Front Flange (1)	0.4 (0.89)
Tapped Face (3)	0.25 (.54)
Rear Clevis (5)	0.21 (0.46)
Imperial Flange (F)	0.3 (0.67)
Imperial Clevis (C)	0.33 (0.72)
Anti Rotate (80 mm stroke)	0.46 (1.0)
Anti Rotate (150 mm stroke)	0.54 (1.2)
Anti Rotate (300 mm stroke)	0.72 (1.6)
Limit Switch Assembly (80 mm stroke)	0.67 (1.5)
Limit Switch Assembly (150 mm stroke)	0.81 (1.8)
Limit Switch Assembly (300 mm stroke)	1.11 (2.5)

Tritex TTX060 Brake Specifications		
Brake Holding Torque (minimum)	Nm	2.5
	lbf-in	22
Brake Voltage	Vdc	24 (-10%/+6%)
Nominal Brake Current at 24 Vdc	A	0.46
Brake Engage/Disengage Time (typical)	ms	10/25

Tritex TTX080

Description	Weight kg (lb)
TTX080-100	5.5 (12.2)
TTX080-150	6.2 (13.5)
TTX080-300	8.0 (17.6)
TTX080-450	9.8 (21.6)
Brake Adder	1.1 (2.5)
Front Flange (1)	1.0 (2.2)
Tapped Face (3)	0.6 (1.2)
Rear Clevis (5)	0.4 (0.8)
Imperial Flange (F)	0.8 (1.8)
Imperial Clevis (C)	0.8 (1.7)
Anti Rotate (100 mm stroke)	0.5 (1.1)
Anti Rotate (150 mm stroke)	0.6 (1.3)
Anti Rotate (300 mm stroke)	0.8 (1.8)
Anti Rotate (450 mm stroke)	1.1 (2.4)
Limit Switch Assembly (100 mm stroke)	0.9 (1.9)
Limit Switch Assembly (150 mm stroke)	1.0 (2.3)
Limit Switch Assembly (300 mm stroke)	1.6 (3.5)
Limit Switch Assembly (450 mm stroke)	2.1 (4.7)

Tritex TTX080 Brake Specifications		
Brake Holding Torque (minimum)	Nm	4.5
	lbf-in	40
Brake Voltage	Vdc	24 (-10%/+6%)
Nominal Brake Current at 24 Vdc	A	0.5
Brake Engage/Disengage Time (typical)	ms	18/35

Tritex TTX Options

Internal Holding Brake

This option provides an internal holding brake. The brake is spring activated and electrically released.

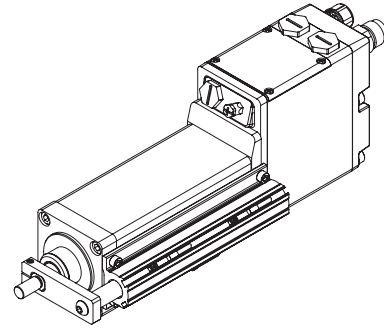
External Anti-rotate Assembly

This option allows external limit switches to be mounted to the TTX actuator. Anti-rotation is required for operation. These switches provide travel indication to the controller and are adjustable (Limit switches sold separately).

The external limit switch accessory for the TTX Series of linear actuators allows the user to externally mount adjustable switches for use as the end of travel limit switches or home position sensors.

(Limit switches sold separately from actuator)

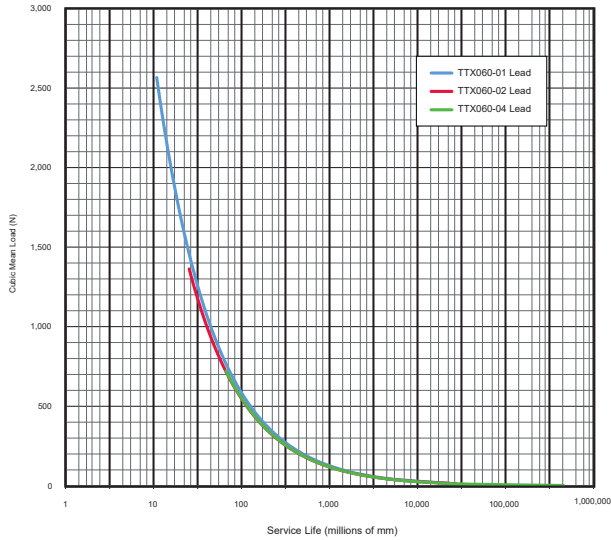
NOTE: Accessory option “L” required in model mask to order



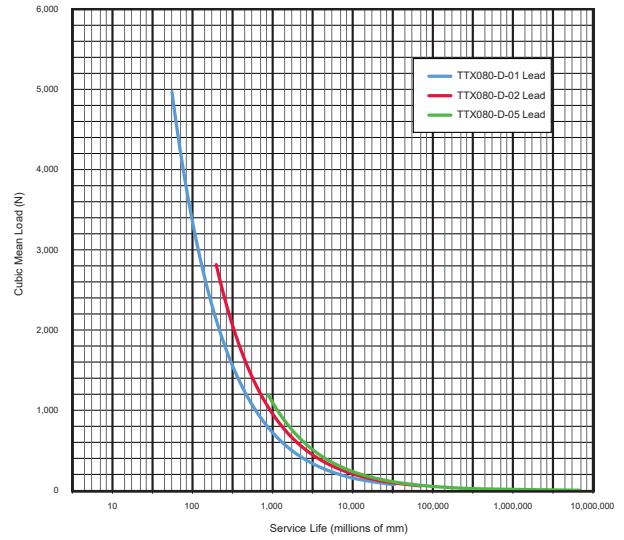
Switch Type	Exlar Part Number	Turck Part Number
Normally Closed Switch, PNP	43404	BIM-UNT-RP6X
Normally Open Switch, PNP	43403	BIM-UNT-AP6X
Normally Closed Switch, NPN	67635	BIM-UNT-RN6X
Normally Open Switch, NPN	67634	BIM-UNT-AN6X

Tritex TTX L10 Estimated Service Life

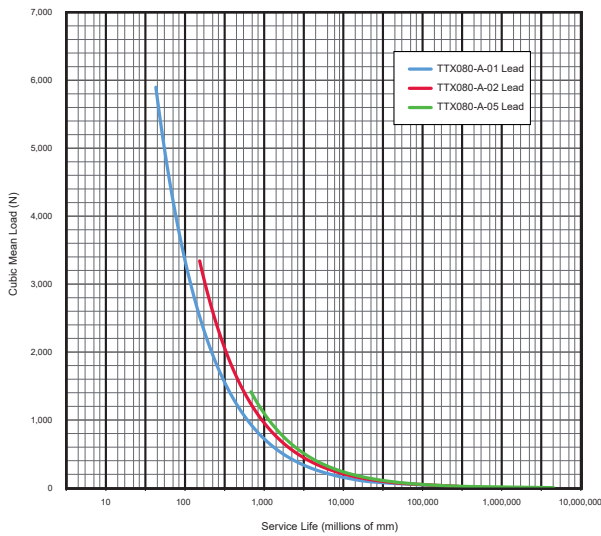
Tritex TTX060 - DC Voltage



Tritex TTX080 - DC Voltage



Tritex TTX080- AC Voltage



Service Life Estimate Assumptions:

- Sufficient quality and quantity of lubrication is maintained throughout service life (please refer to the engineering reference section for lubrication interval estimates.)
- 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. (For information on calculating estimating life for unique applications please refer to www.actuation.curtisswright.com.)

Speed vs. Force Curves

Temperature Derating

The speed/torque curves are based on 25 °C ambient conditions. The actuators may be operated at ambient temperatures up to 85 °C.

Elevated Ambient Temp Factor (%) =

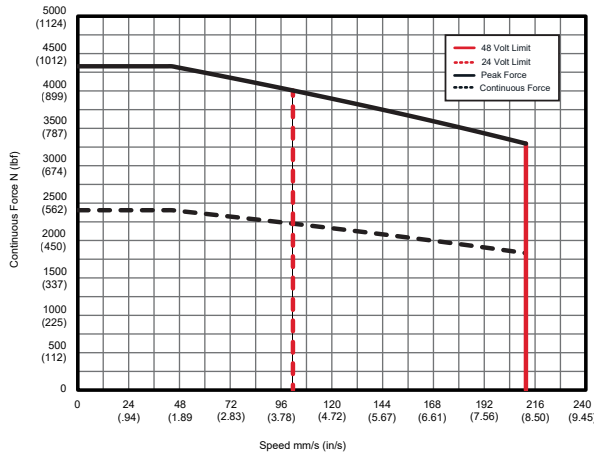
$$100\% \times \sqrt{\frac{\text{Max Rated Temp } [-130 \text{ }^\circ\text{C}] - \text{Environment Temp } [\text{in } ^\circ\text{C}]}{\text{Max Rated Temp } [-130 \text{ }^\circ\text{C}] - \text{Rated Ambient } [-25 \text{ }^\circ\text{C}]}} =$$

$$100\% \times \sqrt{\frac{130 \text{ }^\circ\text{C} - \text{Environment Temp}}{105 \text{ }^\circ\text{C}}} = \text{\% of published continuous @ 25 }^\circ\text{C}$$

Tritex TTX060 DC Voltage

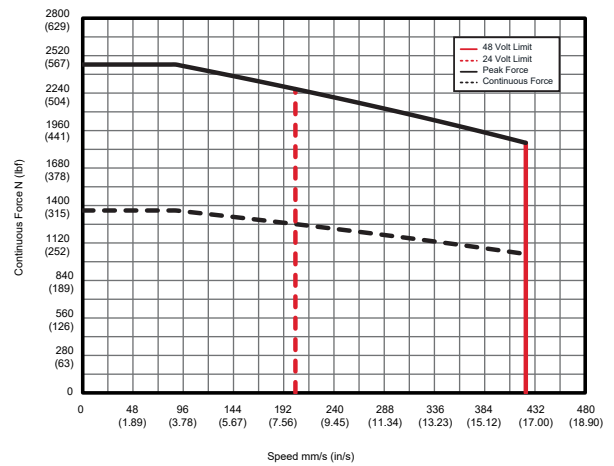
Tritex TTX060 - 01

2.54 mm (0.1 in) Screw Lead



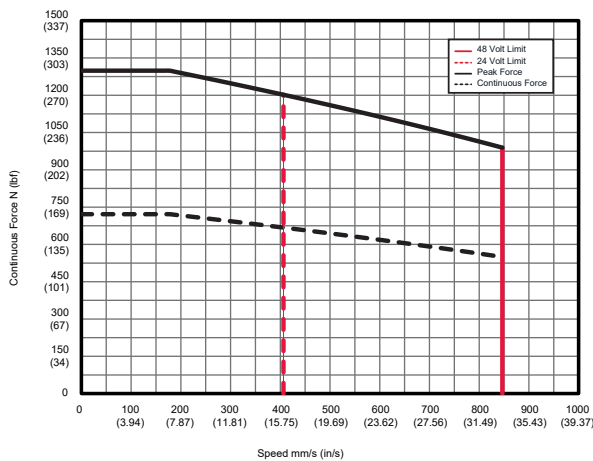
Tritex TTX060 - 02

5.08 mm (0.2 in) Screw Lead



Tritex TTX060 - 04

10.16 mm (0.4 in) Screw Lead

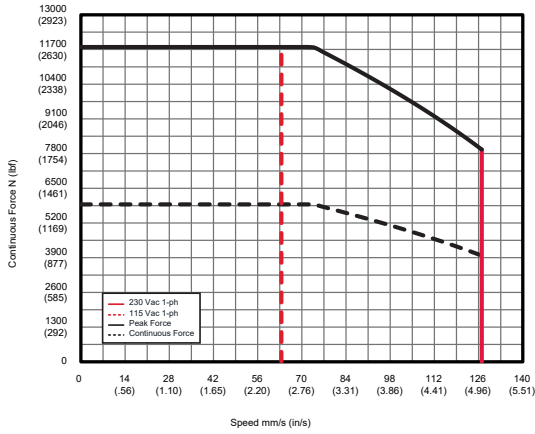


Tritex TTX080 - AC Voltage

Tritex TTX080 - DC Voltage

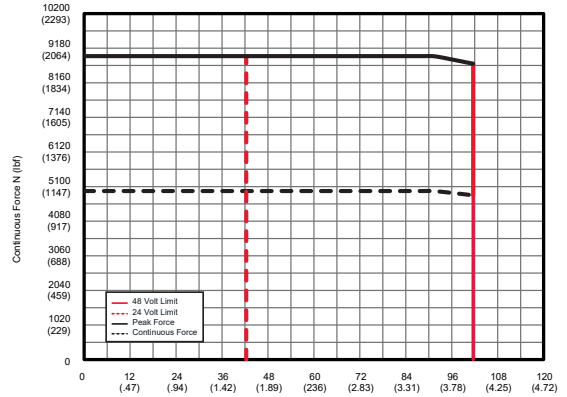
Tritex TTX080 - 01

2.54 mm (0.1 in) Screw Lead



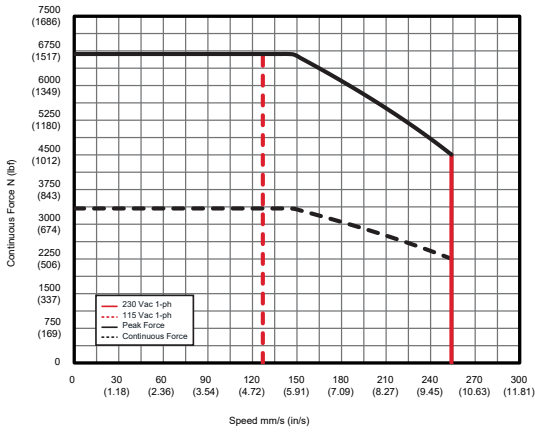
Tritex TTX080 - 01

2.54 mm (0.1 in) Screw Lead



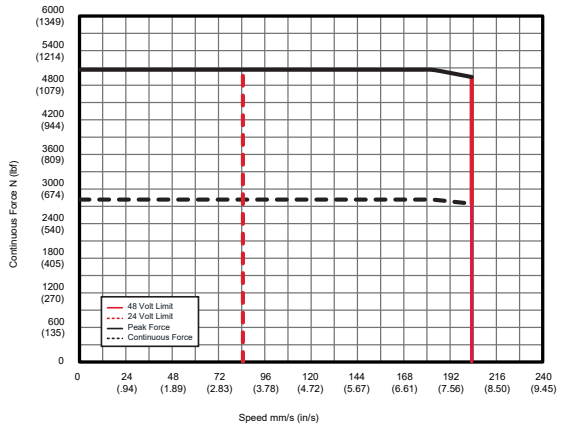
Tritex TTX080 - 02

5.08 mm (0.2 in) Screw Lead



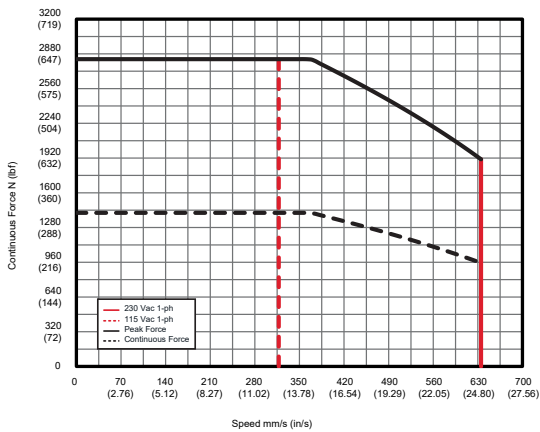
Tritex TTX080 - 02

5.08 mm (0.2 in) Screw Lead



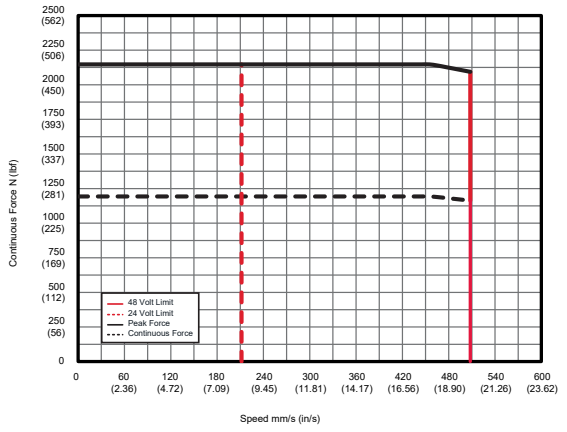
Tritex TTX080 - 05

12.7 mm (0.5 in) Screw Lead



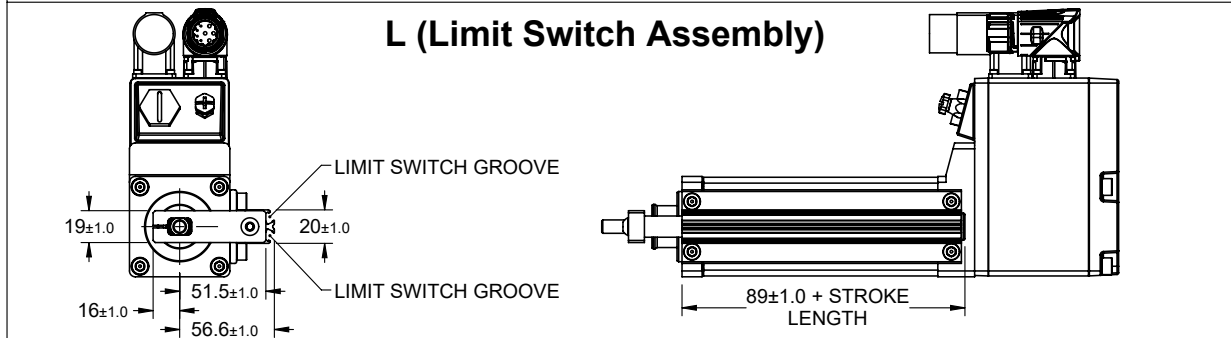
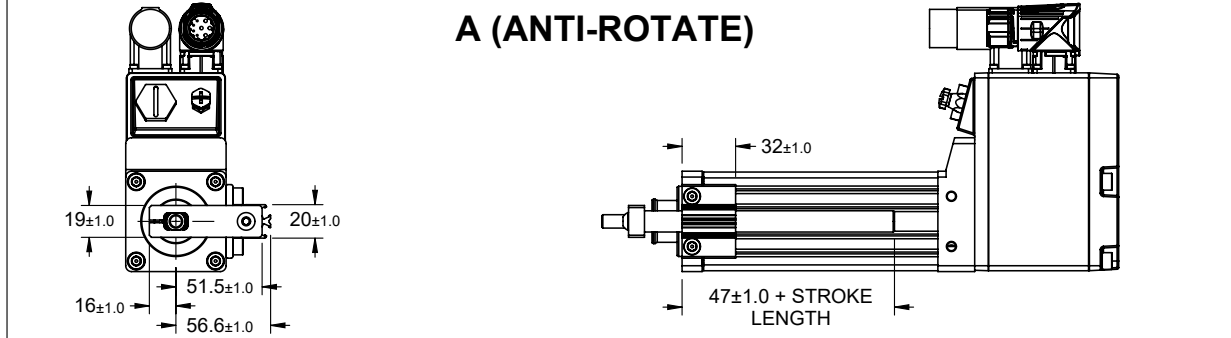
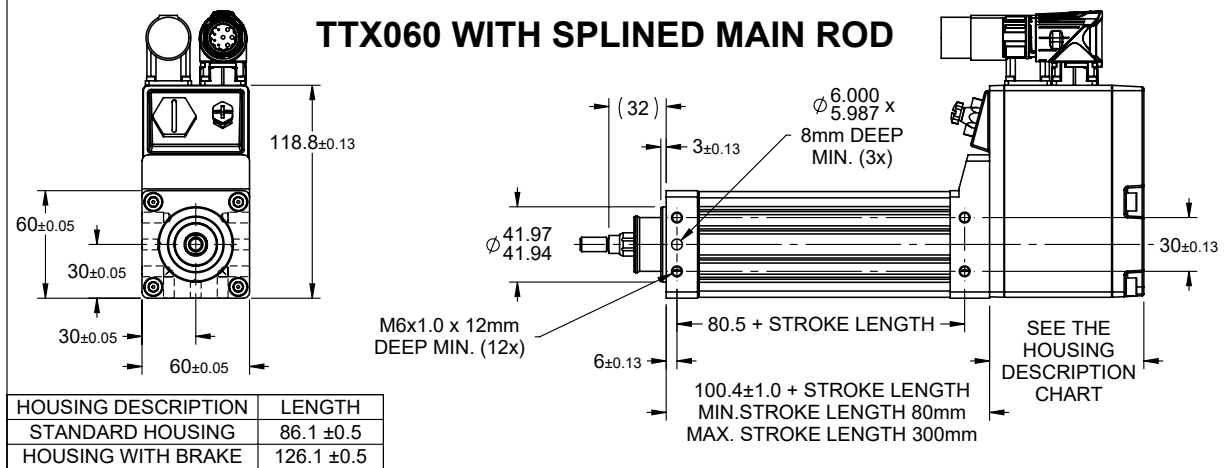
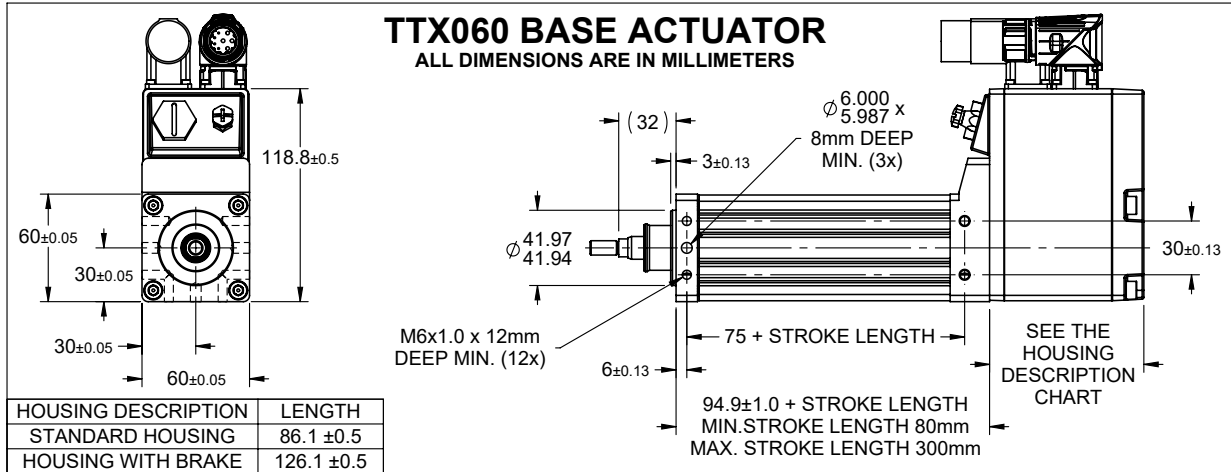
Tritex TTX080 - 05

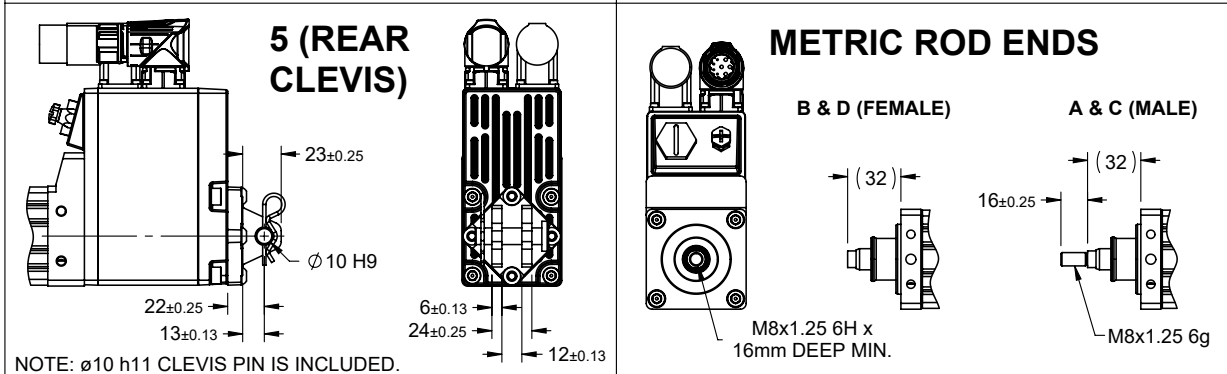
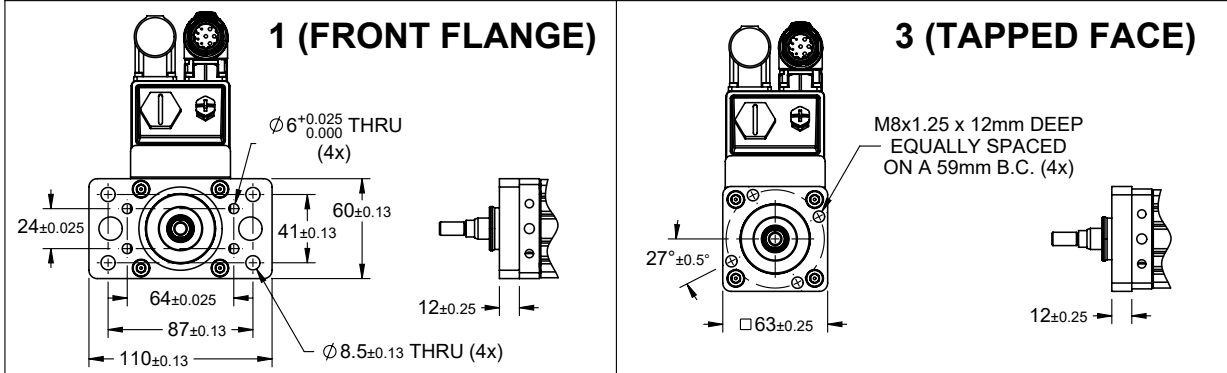
12.7 mm (0.5 in) Screw Lead



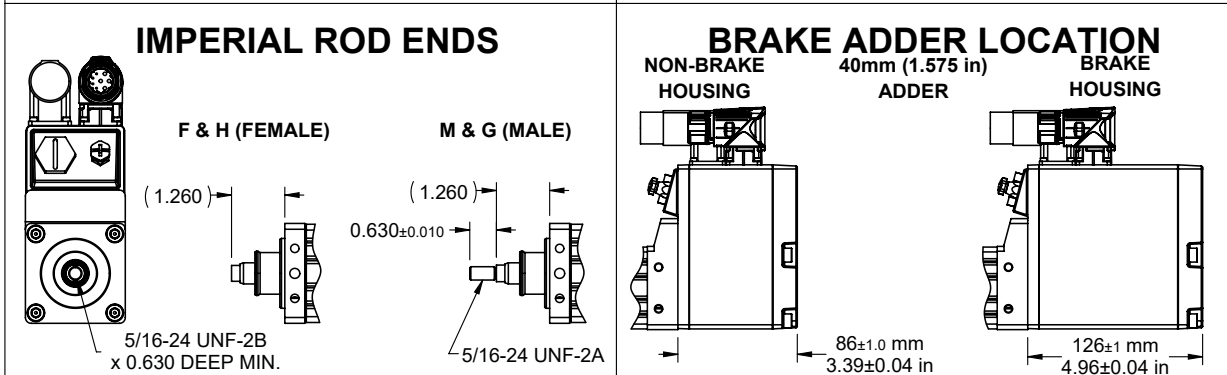
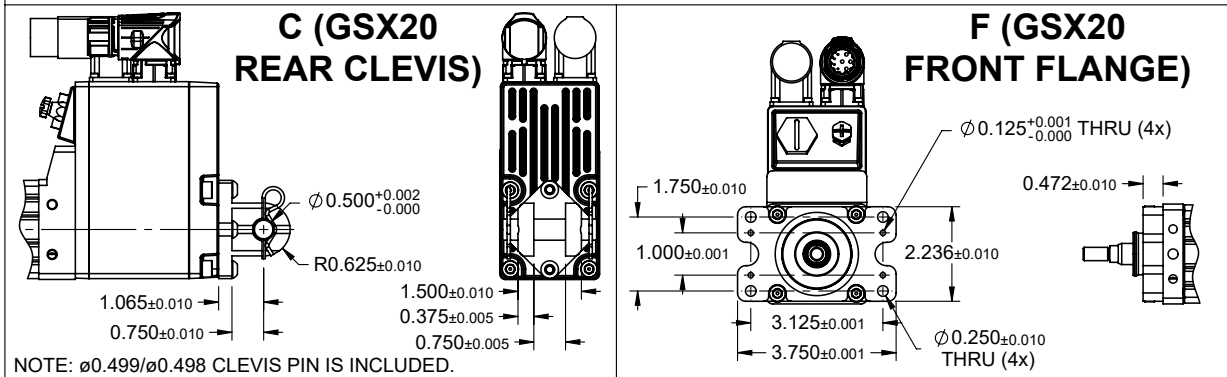
Tritex TTX Dimensions

Tritex TTX060

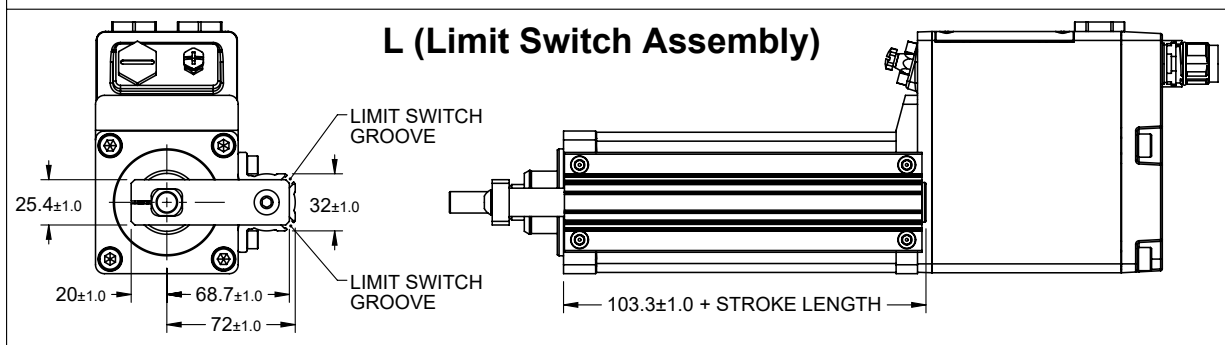
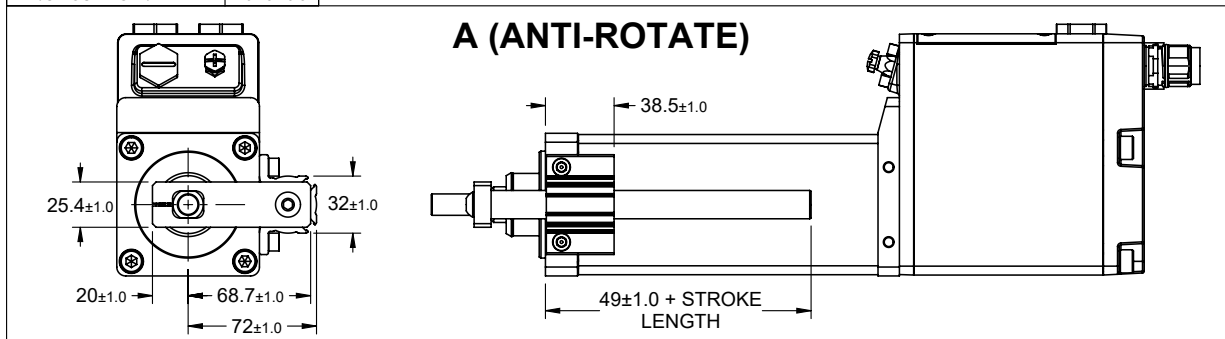
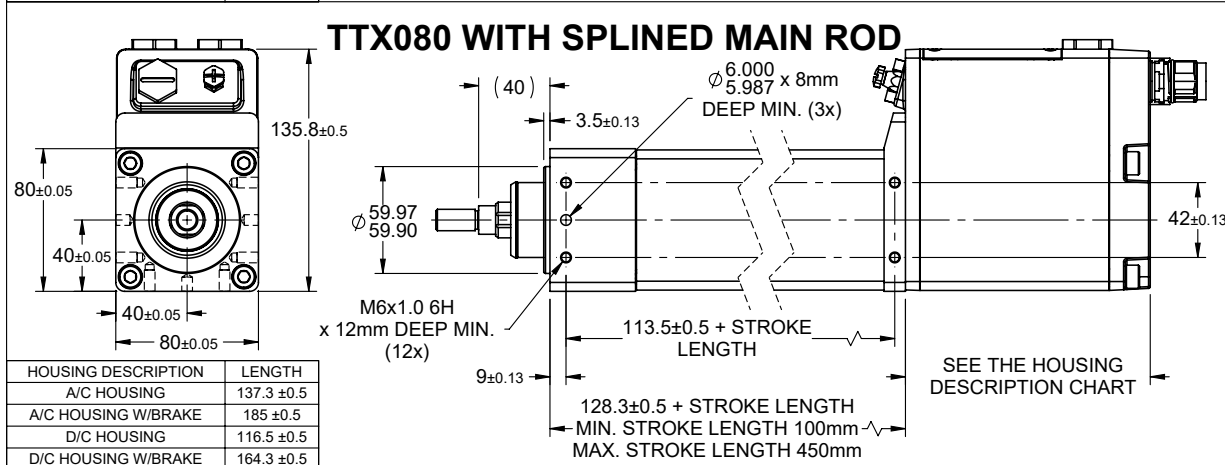
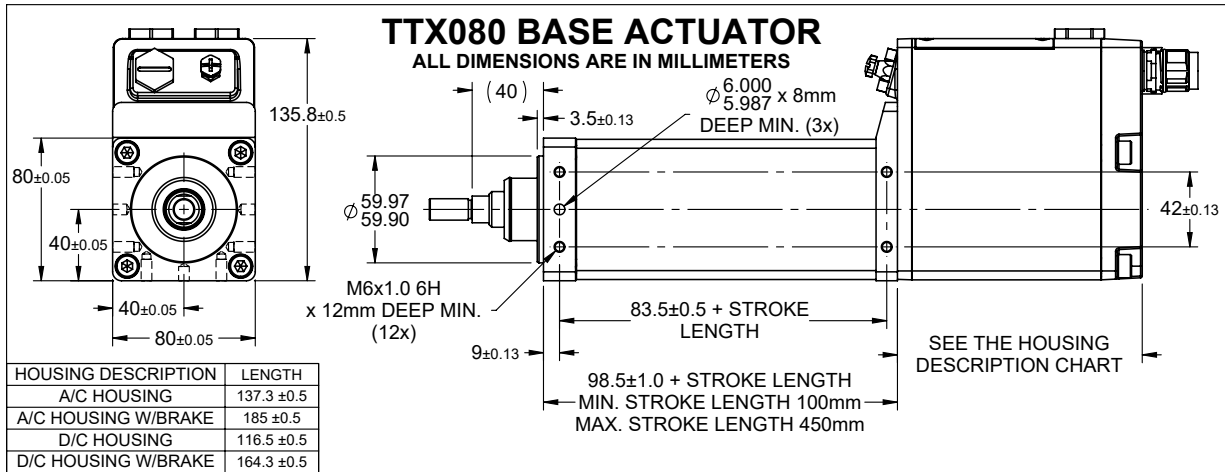


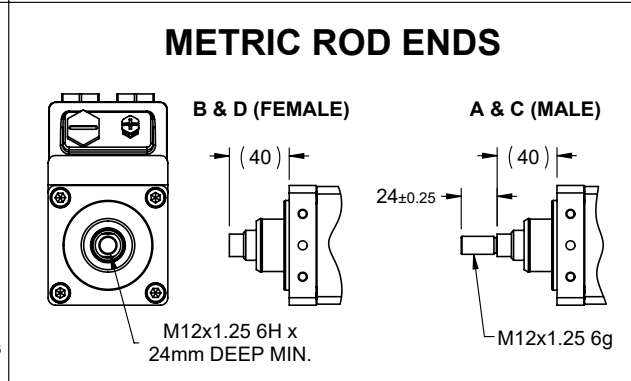
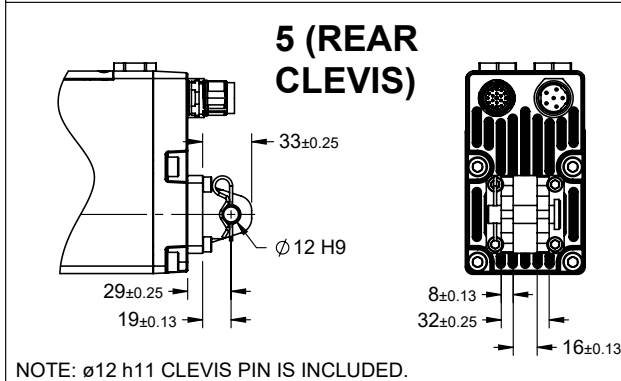
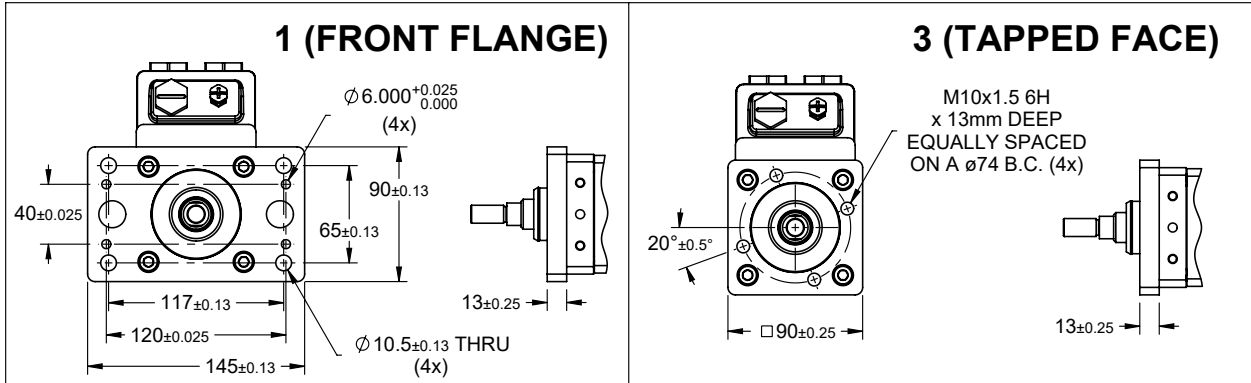


TTX060 IMPERIAL OPTIONS
ALL DIMENSIONS ARE IN INCHES

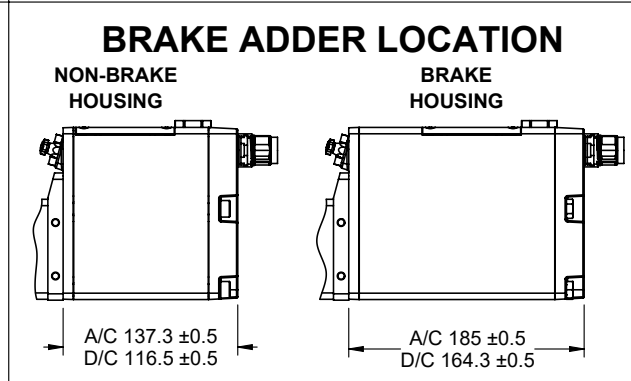
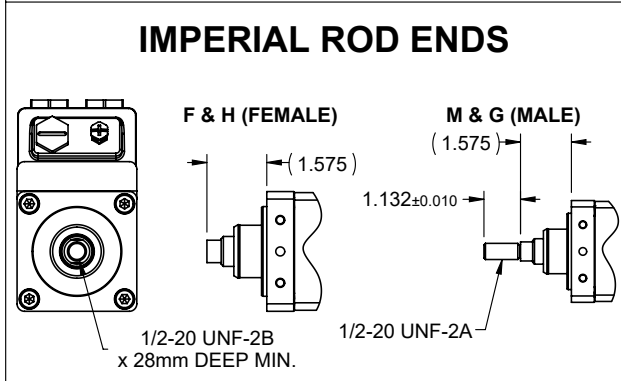
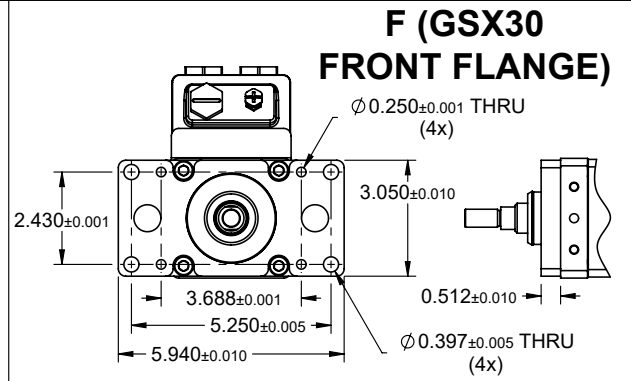
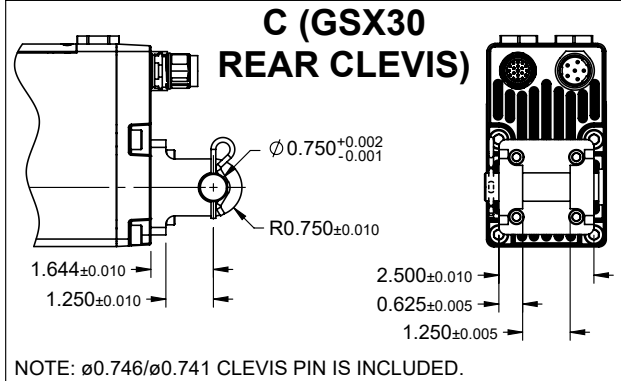


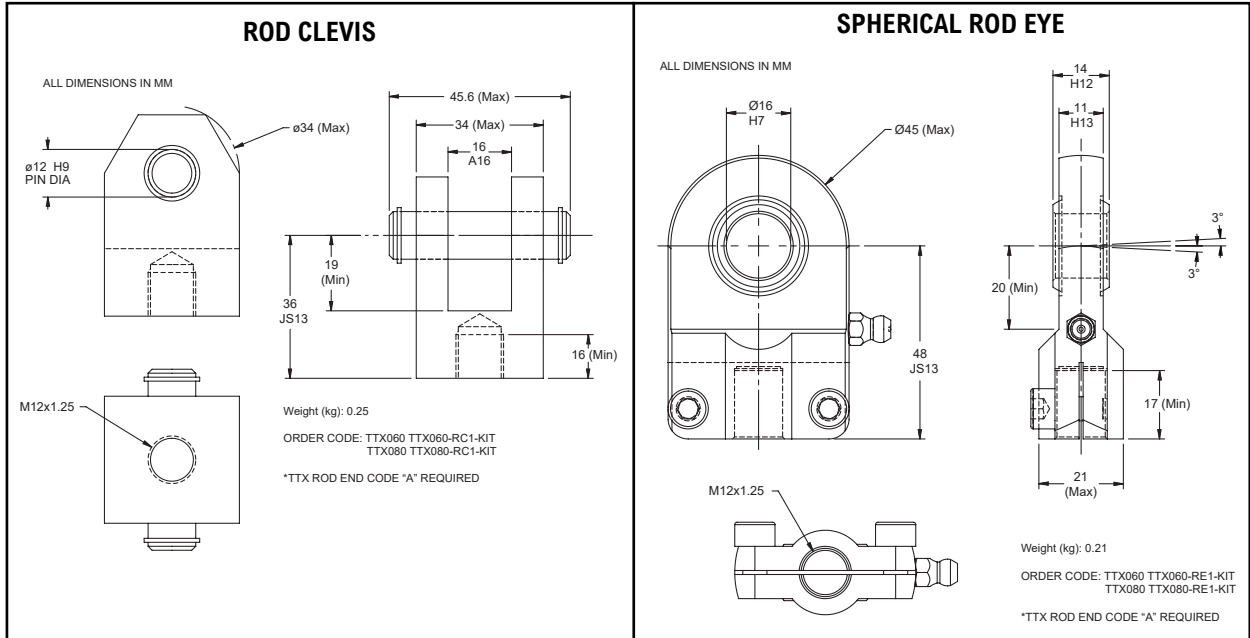
Tritex TTX080





TTX080 IMPERIAL OPTIONS
ALL DIMENSIONS ARE IN INCHES





Tritex TTX Cables and Accessories

Tritex TTX Cables & Accessories	Part No.
"I" Connection	
Power cables, molded M23 style connector, 8 pin, xxx = length in feet. Standard lengths 15, 25, 50 feet (DC Stator)	CBL-TTIPC-SMI-xxx
Power cable with M23 6 pin xxx = Length in feet, std lengths 15, 25, 50, 75, 100 (AC Stator)	CBL-T2IPC-SMI-xxx
I/O cables, molded M23 style connector, 19 pin, xx = length in feet. Standard lengths 15, 25, 50 feet	CBL-TTIOC-SMI-xxx
Communications Accessories - RECOMMENDED PC COMMUNICATIONS CABLE	
PC to Tritex TTX Communications cable-USB/RS485 to M8 connector, 6 feet	CBL-T2USB485-M8-006
PC to Tritex TTX Communications cable-USB/RS485 to M8 connector, 15 feet	CBL-T2USB485-M8-015
Multi-Drop RS485 Accessories	
RS485 splitter - M8 Pin plug to double M8 Socket receptacle	TT485SP
Multidrop Communications Cable for use with TT485SP, 6 feet	CBL-TTDAS-006
Multidrop Communications Cable for use with TT485SP, 15 feet	CBL-TTDAS-015
Multi-Purpose Communications Accessories	
Communication cable, PICO type connector, 4 pin, xxx = length in meters, Standard lengths 4.572, 7.62, 15.24 meters	CBL-TTCOM-xxx



CBL-T2USB485-M8-006 or 015
Our recommended communications cable.
No special drivers or setup required for use
with MS Windows™.



CBL-TTIOC-SMI-xxx



CBL-TTIPC-SMI-xxx / CBL-T2IPC-SMI-xxx



CBL-TTCOM-xxx
Use with CBL-T2USB485-xxx
for long cable runs.

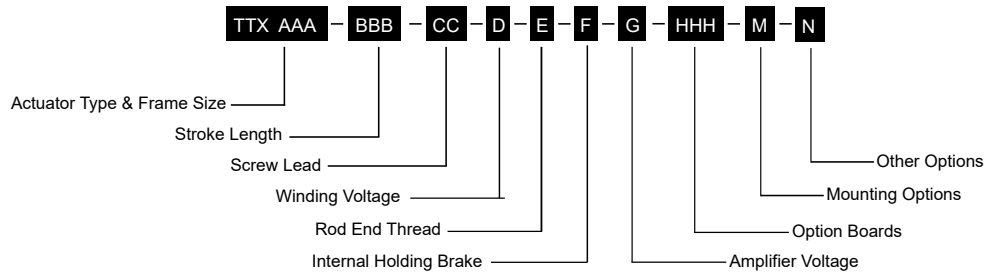


CBL-TTDAS-006 or 015
For use with TT485SP for
multi-drop applications.



TT485SP
RS485 communications splitter.
Use to daisy-chain multiple Tritex
TTX actuators.

Tritex TTX Actuator Ordering Information



Tritex TTX Actuator Type

Tritex TTX = Intelligent Drive Motor Actuator

AAA = Tritex TTX Actuator Frame Size

060 = 60 mm (2.36 in)
080 = 80 mm (3.15 in)

BBB = Stroke Length

080 = 80 mm - Tritex TTX060 only
100 = 100 mm - Tritex TTX080 only
150 = 150 mm
300 = 300 mm
450 = 450 mm - Tritex TTX080 only

CC = Screw Lead

01 = 2.54 mm (0.1 in)
02 = 5.08 mm (0.2 in)
04 = 10.2 mm (0.4 in) - Tritex TTX060 only
05 = 12.7 mm (0.5 in) - Tritex TTX080 only

D = Winding Voltage

4 = 230 Vac Max - Tritex TTX080 only
D = 48 Vdc Max

E = Rod End Thread

A = Male Metric
B = Female Metric²
C = Male Metric, Splined²
D = Female Metric, Splined²
F = Female Standard²
G = Male Standard, Splined²
H = Female Standard, Splined²
L = Female Metric, 17-4 Stainless²
M = Male Standard²
R = Male Metric, 17-4 Stainless²
V = Female Standard, 17-4 Stainless²
W = Male Standard, 17-4 Stainless²

F = Internal Holding Brake

N = No Brake
B = Internal Holding Brake, Electrically Released

G = Amplifier Voltage

A = 230 Vac 1-ph Max Input - Tritex TTX080 only
D = 48 Vdc Max Input

HHH = Option Boards

SIO = Standard I/O Interconnect
IA4 = 4-20 mA Analog I/O
EIP = SIO plus EtherNet/IP w/M12 connector
PIO = SIO plus PROFINET IO w/M12 connector
TCP = SIO plus Modbus TCP w/M12 connector

M = Mounting Options

N = None
1 = Front Flange, Metric
3 = Tapped Face, Metric
5 = Rear Clevis, Metric
F = Front Flange, Standard²
C = Rear Clevis, Standard²

N = Accessory Options

N = None
A = Anti-Rotate Assembly
L = Limit Switch Housing / Anti-Rotate Assembly¹

NOTES

- ¹Switches sold separately
- ²Available option. May add lead time.



For Tritex TTX options or specials not listed above, please contact:
cha_applications@curtisswright.com

Warranty and Limitations of Liability

Please see our warranty on our website here: <https://www.cw-actuation.com/en-gb/about/terms-conditions> for details.



SENSORS & ACTUATION

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