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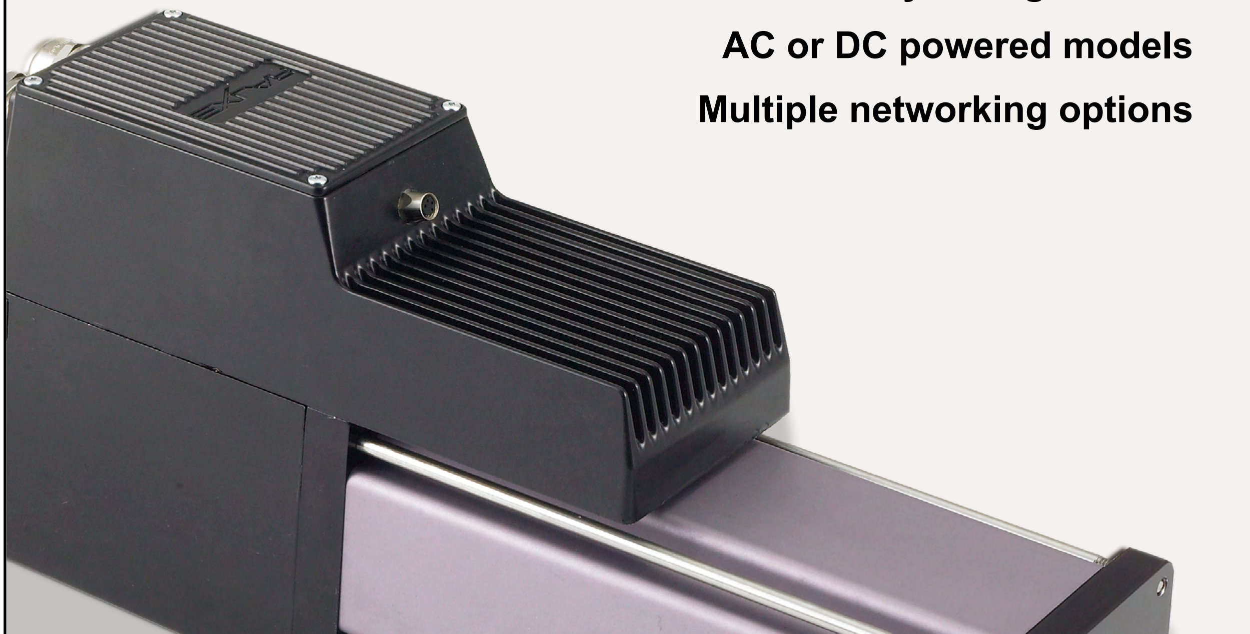
TRITEX II® SERIES

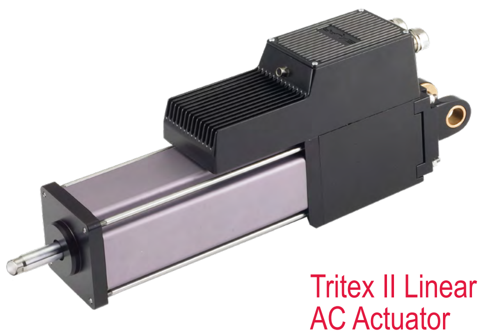
FULLY INTEGRATED SERVO DRIVE/MOTOR/ACTUATOR

Linear or Rotary configurations

AC or DC powered models

Multiple networking options





Tritex II Linear
AC Actuator

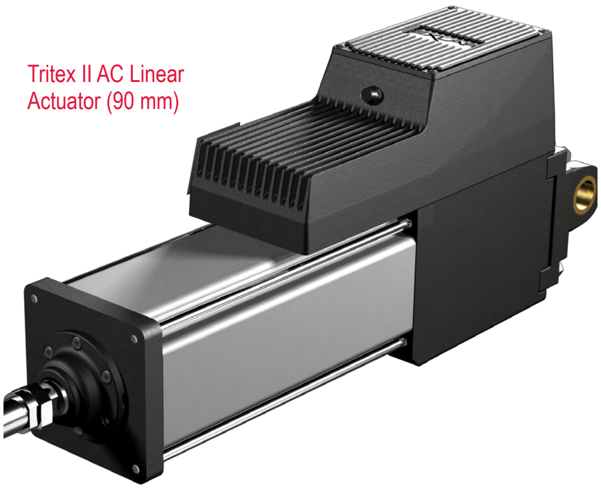
Tritex II Rotary
AC Actuator

Tritex II AC

No Compromising on Power, Performance or Reliability

With forces to approximately 3,225 lbf (14 kN) continuous and 5,400 lbf peak (24 kN), and speeds to 33 in/sec (800 mm/sec), the AC Tritex II 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. And the Tritex II with AC power electronics operates with maximum reliability over a broad range of ambient temperatures: -40˚C to +65˚C. The AC powered Tritex II 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 II Series is the ideal solution for most motion applications.

Tritex II AC Linear Actuator (90 mm)



Tritex II Models

- T2X high mechanical capacity actuator
- R2M rotary motor
- R2G rotary gearmotor

Power Requirements

- AC Power 100V - 240V, +/- 10%, single phase
- Built-in AC line filter
- Connections for external braking resistor

Feedback Types

- Analog Hall with 1000 count/motor rev resolution
- Incremental encoder with 8192 count resolution
- Absolute Feedback (analog hall with multi-turn, battery backup)

Connectivity

- Inernal terminals acessible through removable cover
- Threaded NPT ports

Technical Characteristics	
Frame Sizes in (mm)	2.9 (75), 3.5 (90), 4.5(115)
Screw Leads	0.1 (2), 0.2 (5), 0.5 (13), 0.75 (19)
Standard Stroke Lengths in (mm)	3 (75), 4 (100), 6 (150), 10 (250), 12 (300), 14 (350), 18 (450)
Force Range	up to 3225 lbf (14 kN)
Maximum Speed	up to 33.3 in/s (846 mm/s)

Operating Conditions and Usage		
Accuracy:		
Screw Lead Error	in/ft (µm / 300 mm)	0.001 (25)
Screw Travel Variation	in/ft (µm / 300 mm)	0.0012 (30)
Screw Lead Backlash	in	0.004 (T2X),
Ambient Conditions:		
Standard Ambient Temperature	°C	0 to 65
Extended Ambient Temperature**	°C	-40 to 65
Storage Temperature	°C	-40 to 85
IP Rating		T2X = IP65S R2M/R2G = IP65S R2M/G075 = IP66S
NEMA ratings	R2M090 R2M115	UL Type 4 UL Type 4
Vibration		2.5 g rms, 5 to 500 hz

*Ratings for R2M075 at 40°C, operation over 40°C requires de-rating. Ratings for R2M090 and R2M115 at 25°C, operation over 25°C requires de-rating.
**Consult Exlar for extended temperature operation.

Communications & I/O

Digital Inputs:
10 to 30 VDC Opto-isolated

Digital outputs:
30 VDC maximum
100 mA continuous output Isolated

Analog Input AC:
0-10V or +/-10V
0-10V mode, 12 bit resolution
+/-10V mode, 12 bit resolution on 90/115, 13 bit resolution on 75 assignable to Position, Velocity,
Torque, or Velocity Override commands.

Analog Output AC:
0-10V
12 bit resolution on 90/115, 11 bit resolution on 75

IA4 option:
4-20 mA input
16 bit resolution Isolated
Assignable to Position, Velocity, or Torque command

4-20 mA output
12 bit resolution
Assignable to Position, Velocity, Current, Temperature, etc

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

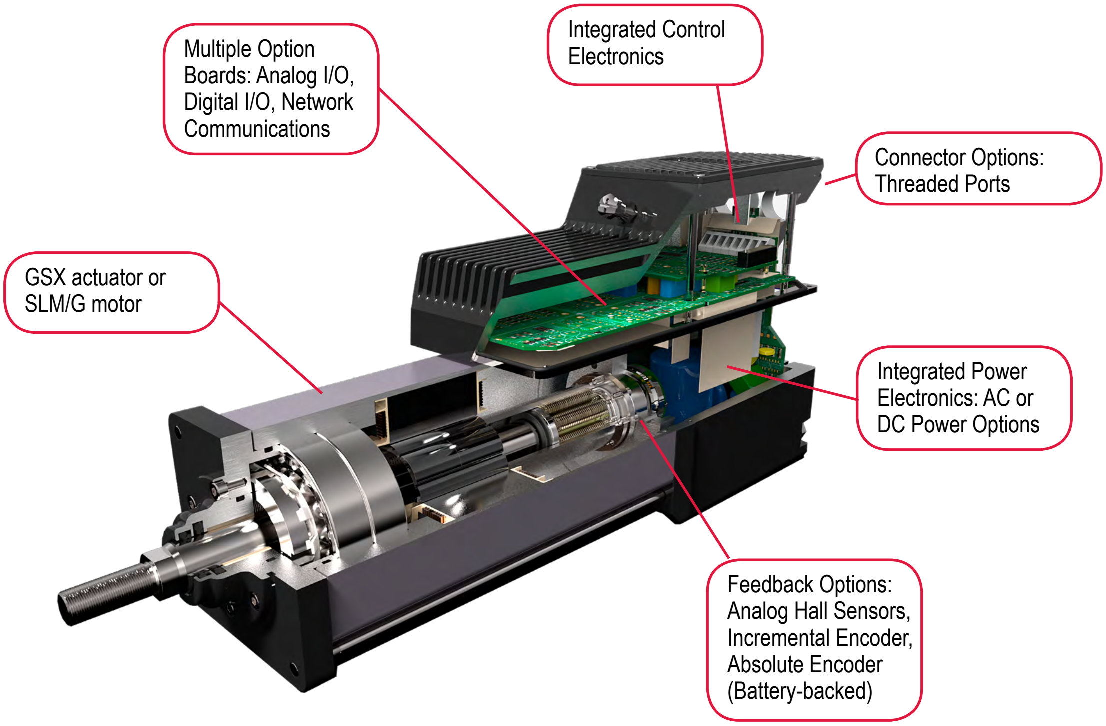
The IO count and type vary with the actuator model and option module selected.

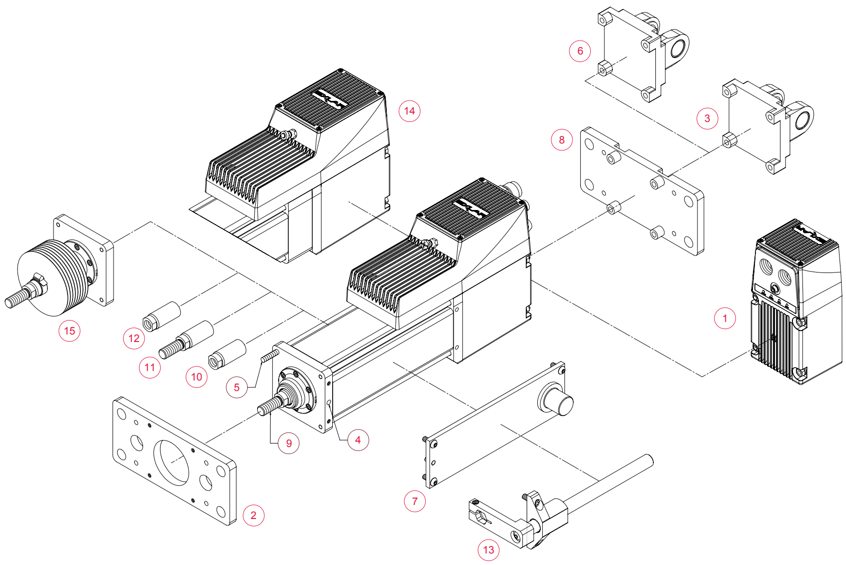
All models include isolated digital IO, and an isolated RS485 communication port when using Modbus RTU protocol.

Tritex II AC I/O

	75/90/115 mm frame with SIO, EIP, PIO, TCP	90/115 mm frame with IA4	75 mm frame with IA4	90/115 mm frame with CAN	75 mm frame with CAN
Isolated digital inputs	8	8	4	8	4
Isolated digital outputs	4	4	3	4	3
Analog input, non isolated	1	1	0	0	0
Analog output, non isolated	1	1	0	0	0
Isolated 4-20ma input	0	1	1	0	0
Isolated 4-20ma output	0	1	1	0	0

Product Features





1 - NPT Threaded Port via Adapter with Internal Terminals, 1/2" NPT
2 - Front flange and front flange* 3- Rear clevis 4 - Side mount*, double side mount, metric side mount*, and metric double side mount
5 - Extended tie rods and metric extended tie rods 6 - Metric rear clevis 7 - Side trunnion and metric side trunnion 8 - Front flange and rear flange
9 - Male, metric thread 10 - Female, metric thread 11 - Male, US standard thread 12 - Female, US standard thread
13 - External anti-rotate 14 - Rear brake 15 - Protective Bellows

*Consult Factory

Industries and Applications

Hydraulic cylinder replacement
Ball screw replacement
Pneumatic cylinder replacement

Automotive
- Clamping
- Dispensing
- Automated Assembly
- Flexible Tooling

Food Processing
- Depositing
- Slicing
- Diverters / Product Conveyance
- Sealing

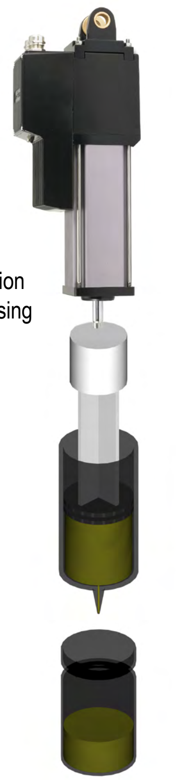
Process Control
- Oil & Gas Wellhead Valve Control
- Pipeline Valve Control
- Damper Control
- Knife Valve Control
- Chemical pumps

Entertainment / Simulation
- Ride Motion Bases
- Animatronics

Medical Equipment
- Volumetric Pumps

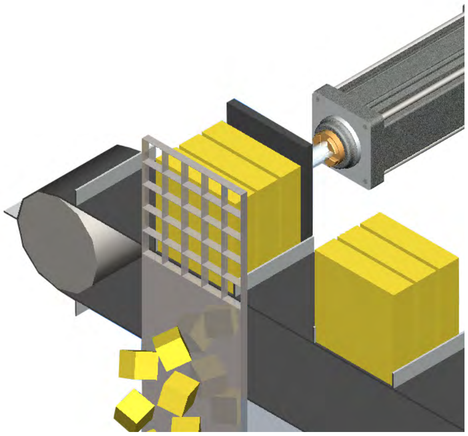
Plastics
- Forming
- Part Eject
- Core Pull

Material Handling
- Robotic End Effectors
- Edge Guiding



Exlar actuators can provide precision at high force loads for fluid dispensing in a medical environment.

Efficient food processing and packaging operations demand robust technologies that are powerful, durable, precise, and safe for food. Exlar products are ideal for these for harsh, high-capacity production environments



Mechanical Specifications

T2X075

		Stator	1 Stack	2 Stack	3 Stack
Lead		RPM @ 240 VAC	4000	3000	2000
0.1	Continuous Force	lbf (N)	589 (2,620)	990 (4,404)	NA
	Peak Force	lbf (N)	1,178 (5,240)	1,980 (8,808)***	NA
	Max Speed	in/sec (mm/sec)	6.67 (169)	5.00 (127)	NA
	C_a (Dynamic Load Rating)	lbf (N)	5516 (24536)		NA
0.2	Continuous Force	lbf (N)	334 (1,486)	561 (2,496)	748 (3,327)
	Peak Force	lbf (N)	668 (2,971)	1,122 (4,991)	1,495 (6,650)
	Max Speed	in/sec (mm/sec)	13.33 (339)	10.00 (254)	6.67 (169)
	C_a (Dynamic Load Rating)	lbf (N)	5800 (25798)		
0.5	Continuous Force	lbf (N)	141 (627)	238 (1,059)	317 (1,410)
	Peak Force	lbf (N)	283 (1,259)	475 (2,113)	633 (2,816)
	Max Speed	in/sec (mm/sec)	33.33 (847)	25.00 (635)	16.67 (423)
	C_a (Dynamic Load Rating)	lbf (N)	4900 (21795)		
Drive Current @ Continuous Force		Amps	3.1	3.8	3.6
Available Stroke Lengths		in (mm)	3 (76), 6 (150), 10 (254),12 (305), 14 (356), 18 (457)		
Inertia (zero stroke)		lb-in-s²/ Kg-m²	0.002655 (0.000003000)	0.002829 (0.000003196)	0.003003 (0.0000033963)
Inertia Adder (per inch of stroke)		lb-in-s²/in/ Kg-m²/in	0.0001424 (0.0000001609)		
Approximate Weight		lb (kg)	10.8 (4.9) for 3 inch stroke, 1 stack. Add 1.1 (0.5) per inch of stroke. Add 1.1 (0.5) per motor stack. Add .8 (0.4) for brake.		
Operating Temperature Range*			-20C to 65C (-40˚C available, consult Exlar)		
Continuous AC Input Current**		Amps	4.3	4	3.6

* Ratings based on 40˚C conditions.

** Continuous input current rating is defined by UL and CSA

*** T2X peak force for 0.1 inch lead is 2073 lbf (9221 N).

T2X090

		Stator	1 Stack	2 Stack	3 Stack
Lead		RPM @ 240 VAC	4000	4000	3000
0.1	Continuous Force	lbf (N)	1,130 (5062)	1,488 (6619)	NA
	Peak Force	lbf (N)	2,260 (10053)	2,700 (12010)***	NA
	Max Speed	in/sec (mm/sec)	6.67 (169)	6.67 (169)	NA
	C_a (Dynamic Load Rating)	lbf (N)	5516 (24536)		NA
0.2	Continuous Force	lbf (N)	640 (2847)	843 (3750)	1,113 (4951)
	Peak Force	lbf (N)	1,281 (5698)	1,687 (7504)	2,225 (9897)
	Max Speed	in/sec (mm/sec)	13.33 (338)	13.33 (338)	10.00 (254)
	C_a (Dynamic Load Rating)	lbf (N)	5800 (25798)		
0.5	Continuous Force	lbf (N)	271 (1205)	357 (1588)	471 (2095)
	Peak Force	lbf (N)	542 (2410)	714 (3176)	942 (4190)
	Max Speed	in/sec (mm/sec)	33.33 (846)	33.33 (846)	25.00 (635)
	C_a (Dynamic Load Rating)	lbf (N)	4900 (21795)		
Drive Current @ Continuous Force		Amps	5.7	7.5	7.5
Available Stroke Lengths		in (mm)	3 (75), 6 (150), 10 (254), 12 (300), 18 (450)		
Inertia (zero stroke)		lb-in-s²/ Kg-m²	0.002655 (0.000003000)	0.002829 (0.000003196)	0.003003 (0.0000033963)
Inertia Adder (per inch of stroke)		lb-in-s²/in/ Kg-m²/in	0.0001424 (0.0000001609)		
Approximate Weight		lb (kg)	14 (6.35) for 3 inch stroke, 1 stack. Add 1 (0.5) per inch of stroke. Add 3 (1.4) per motor stack. Add 3 (1.4) for brake.		
Operating Temperature Range*			-20 to 65˚ C (-40˚C available, consult Exlar)		
Continuous AC Input Current**		Amps	6.3	6.3	6.3

* Ratings based on 25˚C conditions.

** Continuous input current rating is defined by UL and CSA.

*** T2X peak force for 0.1 inch lead is 2700 lbf (12010 N).

T2X115

Lead		Stator	1 Stack	2 Stack	3 Stack
Lead		RPM @ 240 VAC	3000	2000	1500
0.1	Continuous Force	lbf (N)	2,060 (9,163)	3,224 (14,341)	NA
	Peak Force	lbf (N)	4,120 (18,327)	5,400 (24,020)***	NA
	Max Speed	in/sec (mm/sec)	5.00 (127)	3.33 (84)	NA
	C_a (Dynamic Load Rating)	lbf (N)	7900 (35141)		NA
0.2	Continuous Force	lbf (N)	1,177 (5,235)	1,843 (8,198)	2,380 (10,586)
	Peak Force	lbf (N)	2,354 (10,471)	3,685 (16,392)	4,760 (21,174)
	Max Speed	in/sec (mm/sec)	10.00 (254)	6.67 (169)	5.00 (127)
	C_a (Dynamic Load Rating)	lbf (N)	8300 (36920)		
0.5	Continuous Force	lbf (N)	530 (2,358)	829 (3,688)	1,071 (4,764)
	Peak Force	lbf (N)	1,059 (4711)	1,658 (7,375)	2,142 (9,528)
	Max Speed	in/sec (mm/sec)	25.00 (635)	16.67 (423)	12.50 (317)
	C_a (Dynamic Load Rating)	lbf (N)	7030 (31271)		
0.75	Continuous Force	lbf (N)	353 (1,570)	553 (2,460)	714 (3,176)
	Peak Force	lbf (N)	706 (3,140)	1,106 (4,920)	1,428 (6,352)
	Max Speed	in/sec (mm/sec)	37.5 (953)	25 (635)	17.75 (450)
	C_a (Dynamic Load Rating)	lbf (N)	6335 (28179)		
Drive Current @ Continuous Force		Amps	8.5	8.5	8.5
Available Stroke Lengths		in (mm)	4 (102), 6 (150), 10 (254), 12 (300), 18 (450)		
Inertia (zero stroke)		$lb\text{-}in\text{-}s^2$/ $Kg\text{-}m^2$	0.01132 (0.000012790)	0.01232 (0.00001392)	0.01332 (0.00001505)
Inertia Adder (per inch of stroke)		$lb\text{-}in\text{-}s^2/in$/ $Kg\text{-}m^2/in$	0.0005640 (0.0000006372)		
Approximate Weight		lb (kg)	34 (15.5) for 6 inch stroke, 1 stack. Add 2 (1) per inch of stroke. Add 8 (4) per motor stack. Add 4 (2) for brake.		
Operating Temperature Range*		-20 to 65˚ C (-40˚C available, consult Exlar)			
Continuous AC Input Current**		Amps	8.3	8.3	8.3

* Ratings based on 25˚C conditions.

** Continuous input current rating is defined by UL and CSA.

*** T2X peak force for 0.1 inch lead is 5400 lbf (24020 N).

Rear Brake Current Draw

T2X075	0.50 Amps @ 24 VDC
T2X090	0.67 Amps @ 24 VDC
T2X115	0.75 Amps @ 24 VDC

DEFINITIONS:

Continuous Force: The linear force produced by the actuator at continuous motor torque.

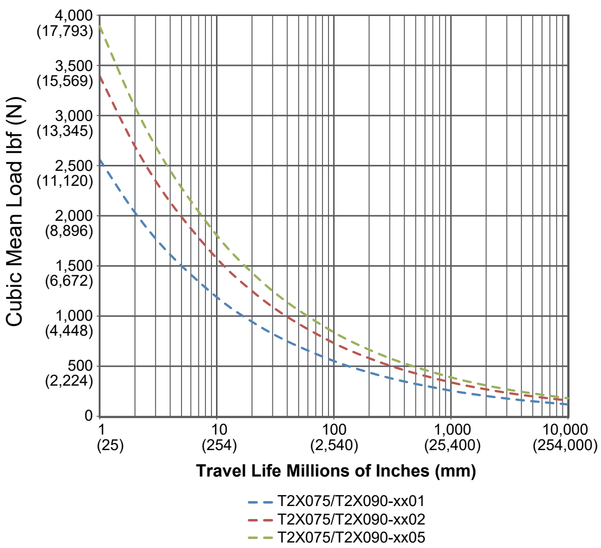
Peak Force: The linear force produced by the actuator at peak motor torque.

Max Speed: The maximum rated speed produced by the actuator at rated voltage.

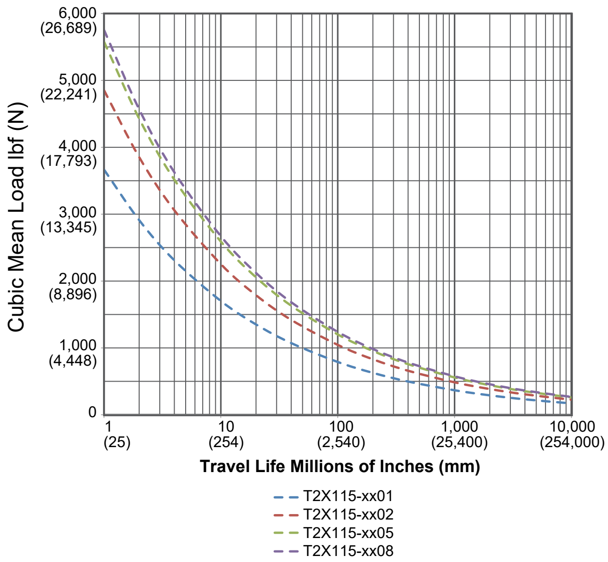
C_a (Dynamic Load Rating): A design constant used in calculating the estimated travel life of the roller screw.

Estimated Service Life

T2X075 and T2X090 Estimated L_{10} Travel Life



T2X115 Estimated L_{10} Travel 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 are expected to meet or exceed. For higher than 90% reliability, the result should be multiplied by the following factors: 95% x 0.62; 96% x 0.53; 97% x 0.44; 98% x 0.33; 99% x 0.21. This is not a guarantee; these charts should be used for estimation purposes only.

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

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

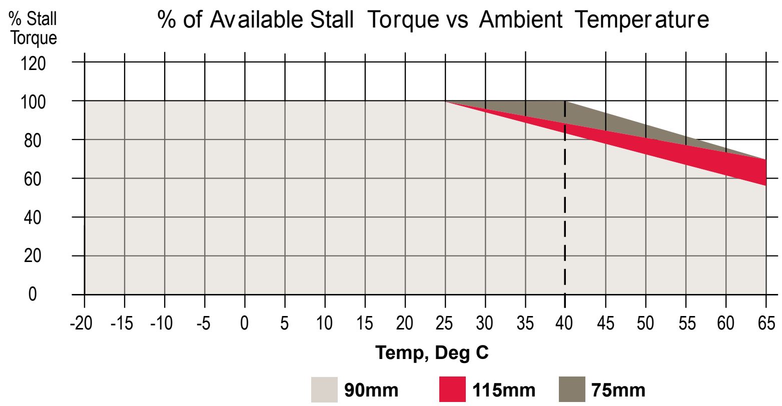
$$L_{10} = \left(\frac{C_a}{F_{cml}}\right)^3 \times \ell$$

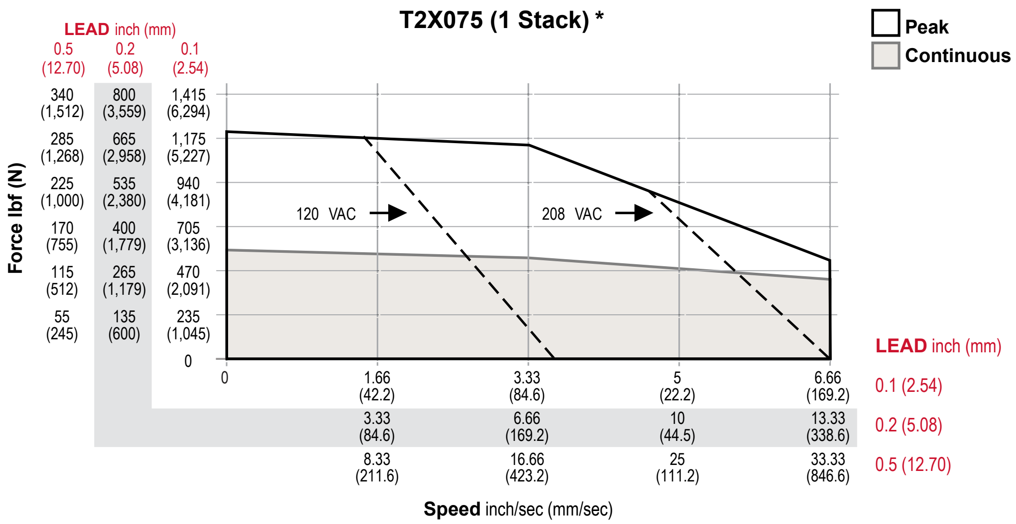
All curves represent properly lubricated and maintained actuators.

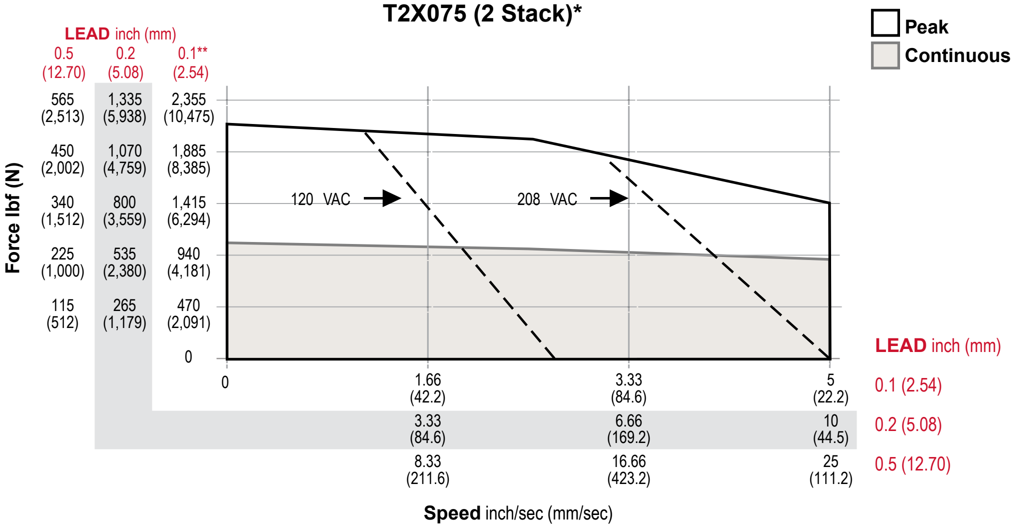
Speed vs. Force Curves

Temperature Derating

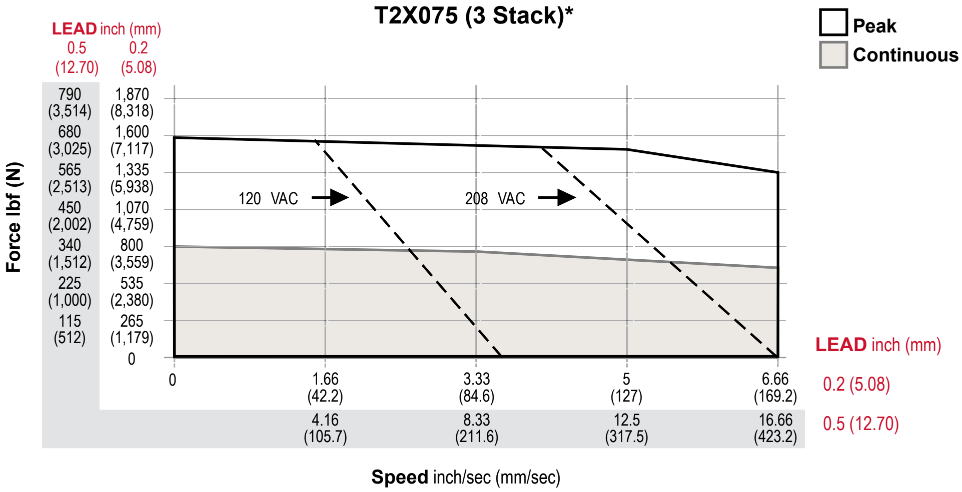
The speed/torque curves are based on 25° C ambient conditions. The actuators may be operated at ambient temperatures up to 65° C. Use the curve (shown right) for continuous torque/force deratings above 25° C.





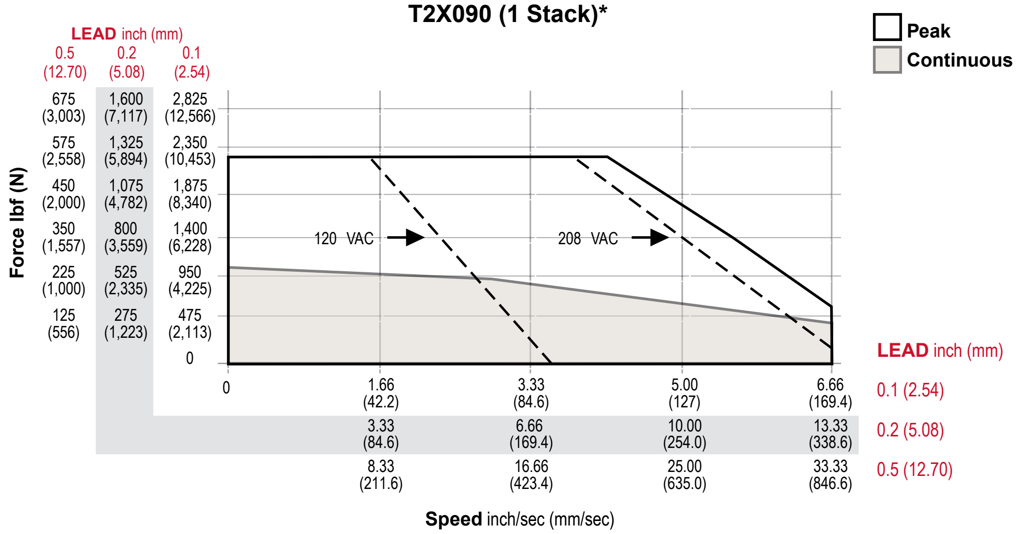


**T2X peak force for 0.1 inch lead is 2073 lbf (9221 N).

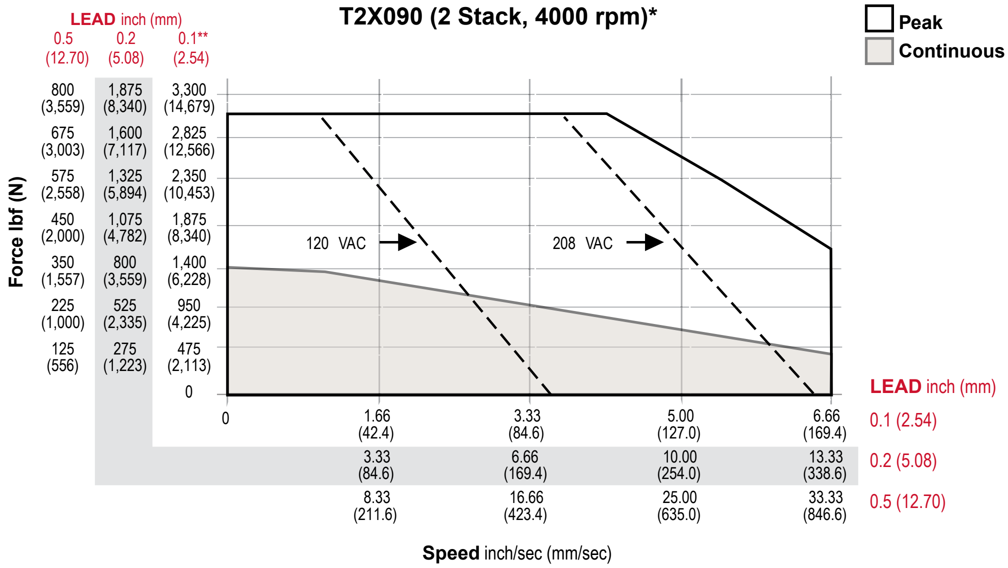


*Test data derived using NEMA recommended aluminum heatsink 10" x 10" x 3/8" at 40°C ambient.

T2X090 (1 Stack)*

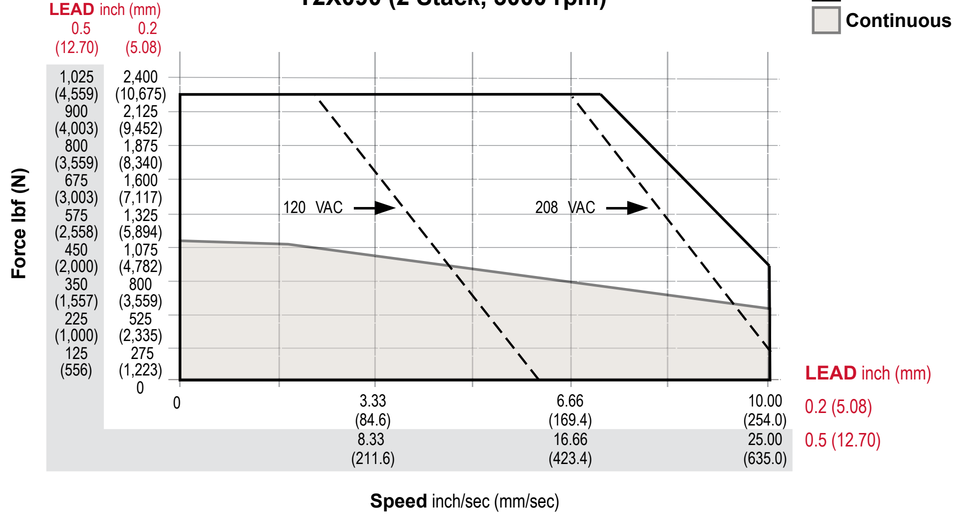


T2X090 (2 Stack, 4000 rpm)*



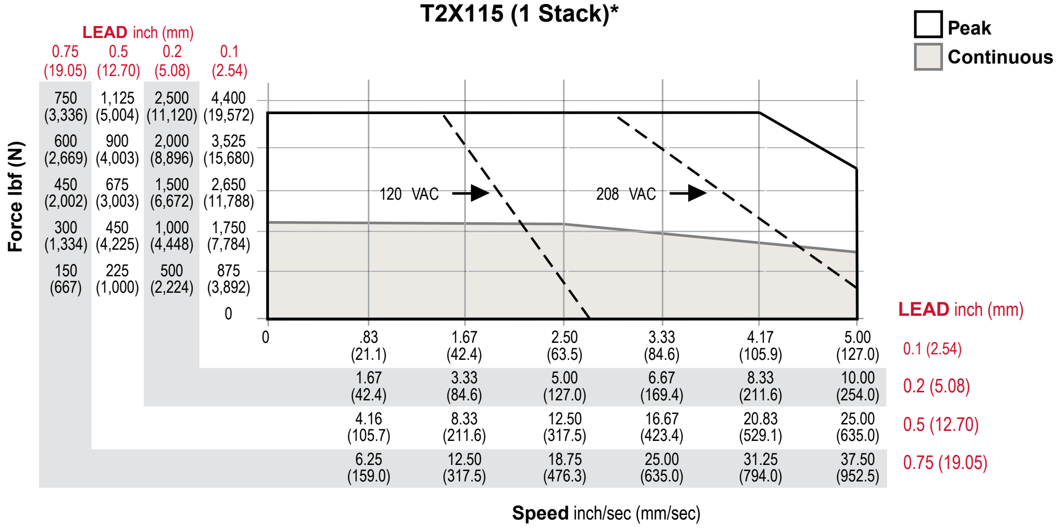
**T2X peak force for 0.1 inch lead is 2700 lbf (12010 N).

T2X090 (2 Stack, 3000 rpm)*

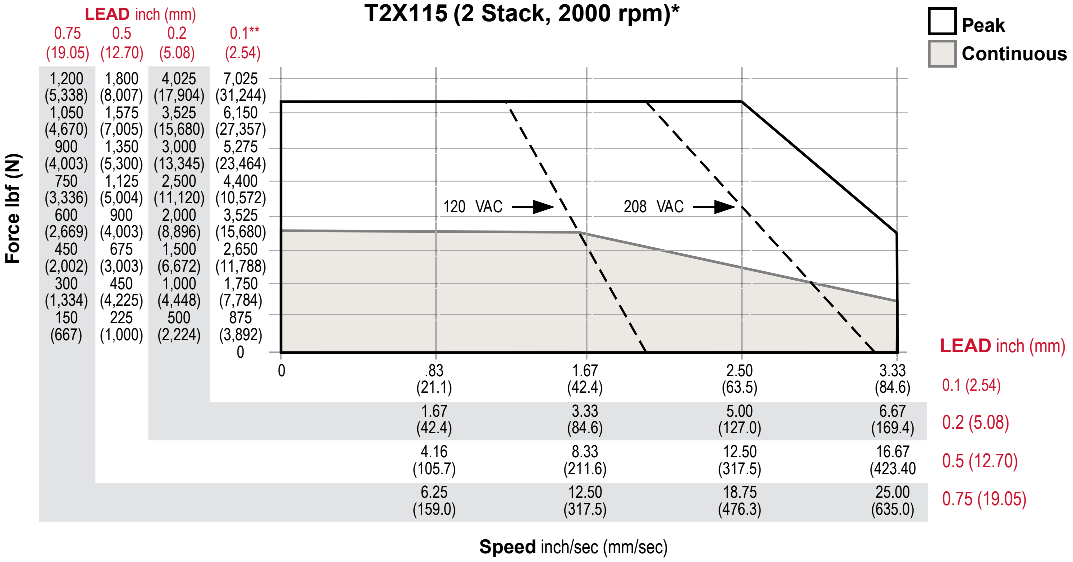


*Test data derived using NEMA recommended aluminum heatsink 10" x 10" x 3/8" at 25°C ambient.

T2X115 (1 Stack)*

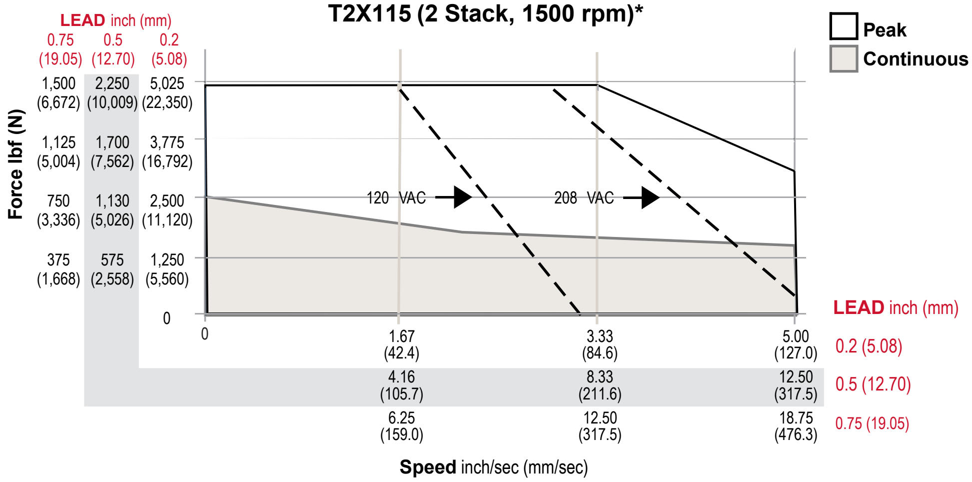


T2X115 (2 Stack, 2000 rpm)*



**T2X peak force for 0.1 inch lead is 5400 lbf (24020 N).

T2X115 (2 Stack, 1500 rpm)*



*Test data derived using NEMA recommended aluminum heatsink 12" x 12" x 1/2" at 25°C ambient.

Options

AR = External Anti-rotate Assembly

This option provides a rod and bushing to restrict the actuator rod from rotating when the load is not held by another method. Shorter actuators have single sided anti-rotation attachments. Longer lengths require attachments on both sides for proper operation. For AR dimensions, see page 46.

RB = Rear Electric Brake

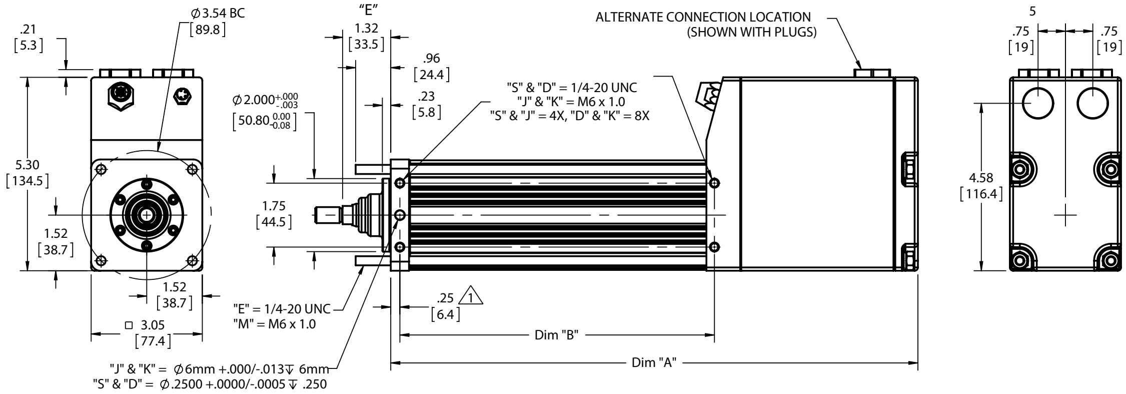
This option provides an internal holding brake. The brake is spring activated and electrically released.

PB = Protective Bellows

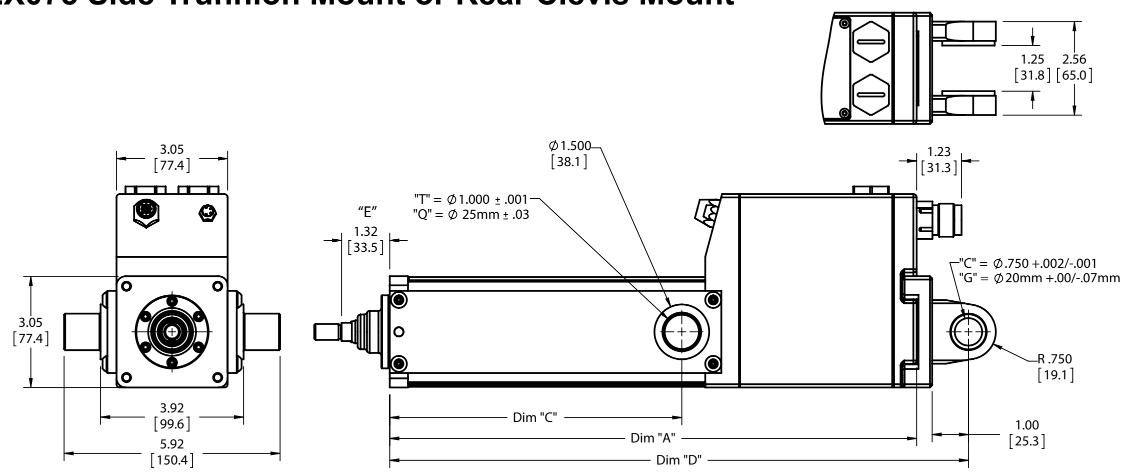
This option provides an accordion style protective bellows to protect the main actuator rod from damage due to abrasives or other contaminants in the environment in which the actuator must survive. The standard material of this bellows is S2 Neoprene Coated Nylon, Sewn Construction. This standard bellows is rated for environmental temperatures of -40 to 250 degrees F. Longer strokes may require the main rod of the actuator to be extended beyond standard length. Not available with extended tie rod mounting option. Please contact your local sales representative.

Dimensions

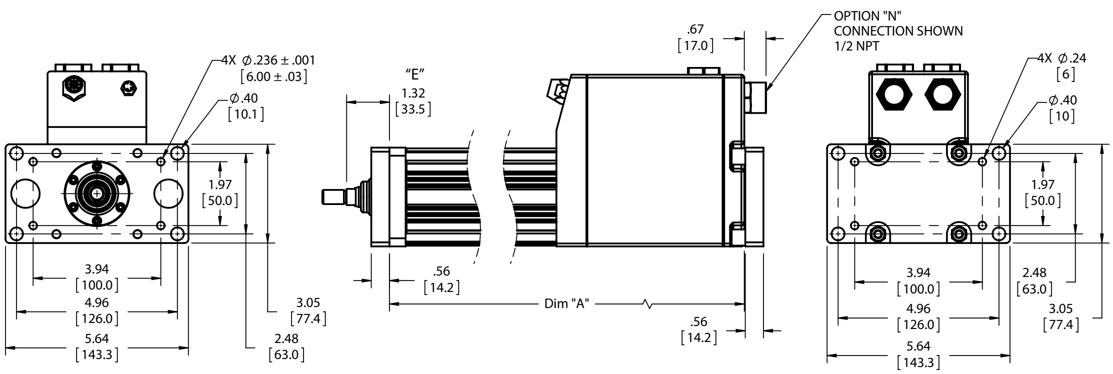
T2X075 Double Side Mount or Extended Tie Rod Mount



T2X075 Side Trunnion Mount or Rear Clevis Mount



T2X075 Front, Rear, or Front and Rear Flange Mount

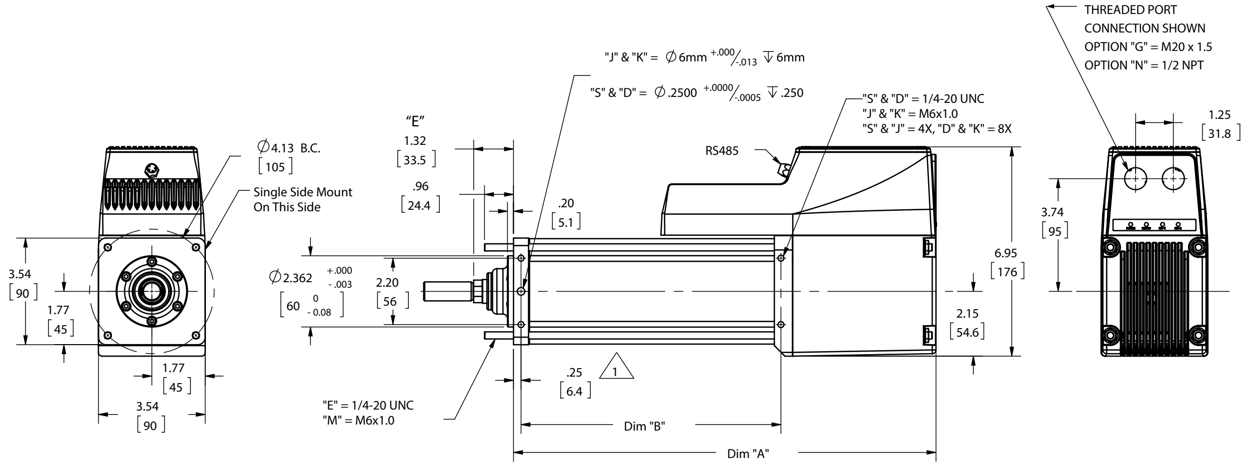


DIM	3 in (75 mm) stroke in (mm)	6 in (150 mm) stroke in (mm)	10 in (250 mm) stroke in (mm)	12 in (300 mm) stroke in (mm)	14 in (350 mm) stroke in (mm)	18 in (450 mm) stroke in (mm)
A	11.98 (304.3)	14.45 (367.0)	18.95 (481.3)	20.95 (532.1)	22.95 (582.9)	26.95 (684.5)
B	6.15 (156.2)	8.62 (218.9)	13.12 (333.2)	15.12 (384.0)	17.12 (434.8)	21.12 (536.4)
C	5.38 (136.7)	8.00 (203.2)	10.00 (254.0)	12.00 (304.8)	14.00 (355.6)	18.00 (457.2)
D	13.40 (340.4)	15.87 (403.1)	20.37 (517.4)	22.37 (568.2)	24.37 (619.0)	28.37 (720.6)

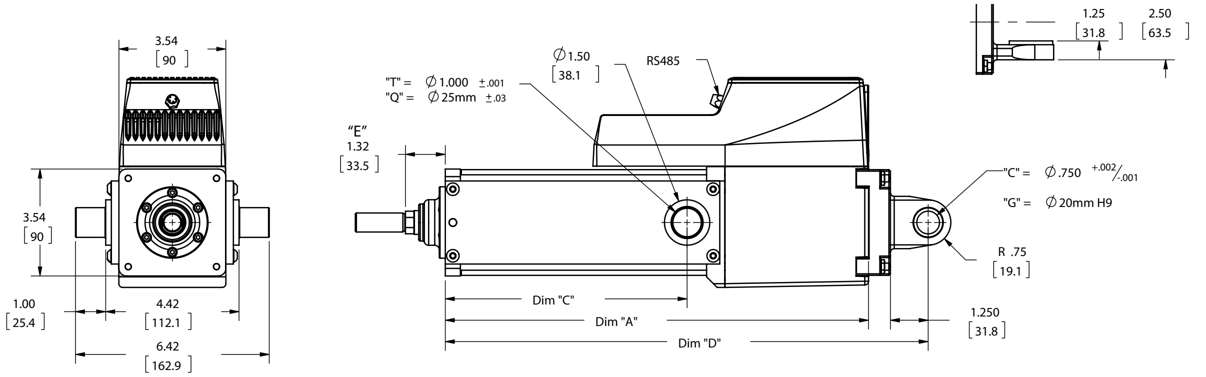
* Add 1.61 inches to dimensions "A", "B" and "D" if ordering a brake. Add 1.2 inches to dimensions "A", "C" and "D" and dimension if ordering a splined Δ main rod.
**Add 2 in (50.8 mm) to dimension "E" if ordering protective bellows.

Pre-sale drawings and models are representative and are subject to change. Certified drawings and models are available for a fee. Consult your local Exlar representative for details.

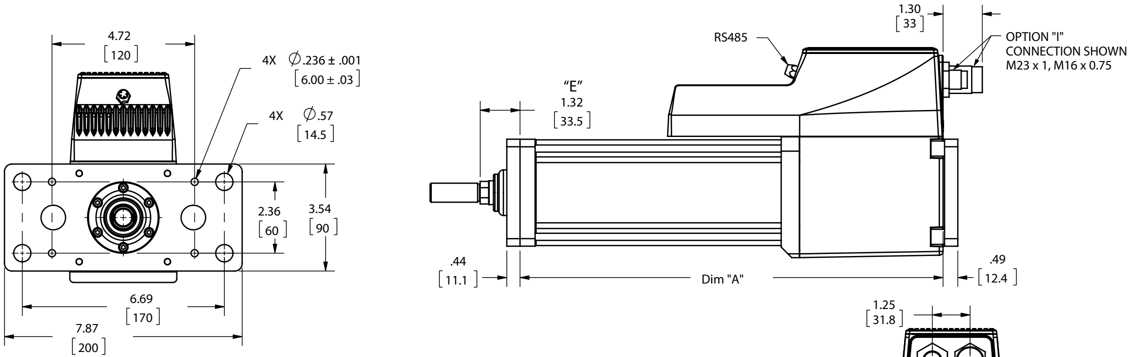
T2X090 Double Side Mount or Extended Tie Rod Mount



T2X090 Side Trunnion Mount or Rear Clevis Mount

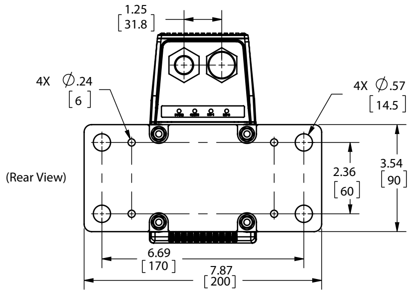


T2X090 Front, Rear, or Front and Rear Flange Mount



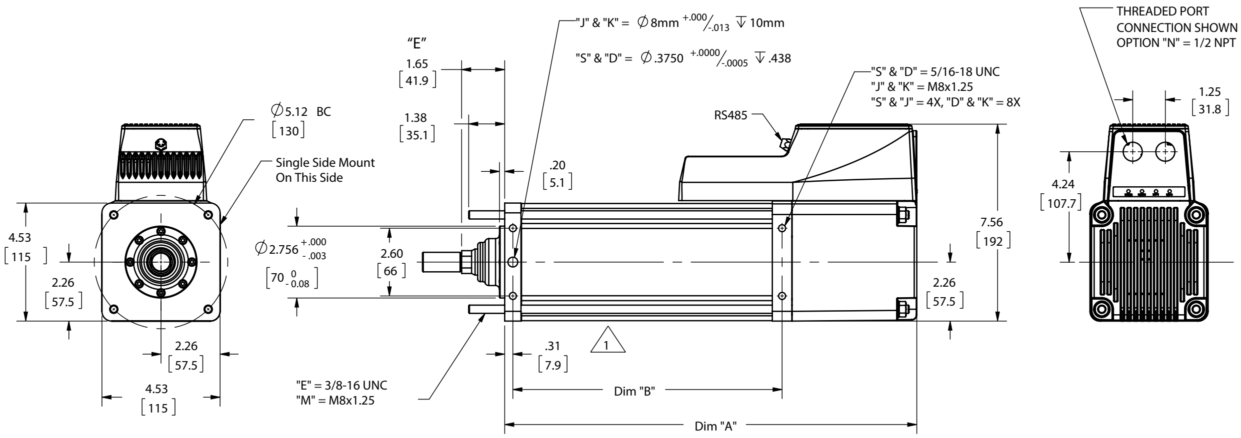
DIM	3 in (75 mm) stroke in (mm)	6 in (150 mm) stroke in (mm)	10 in (250 mm) stroke in (mm)	12 in (300 mm) stroke in (mm)	18 in (450 mm) stroke in (mm)
A	11.54 (293.1)	14.01 (355.9)	18.53 (470.7)	20.53 (521.5)	26.53 (673.9)
B	6.15 (156.1)	8.62 (218.9)	13.12 (333.3)	15.12 (384.1)	21.12 (536.4)
C	5.38 (136.7)	8.01 (203.4)	10.00 (254.0)	12.00 (304.8)	18.00 (457.2)
D	13.52 (343.3)	15.99 (406.1)	20.49 (520.4)	22.49 (571.2)	28.49 (723.6)

* Add 1.61 inches to dimensions "A", "B" and "D" if ordering a brake. Add 1.78 inches to dimensions "A", "C" and "D" and dimension if ordering a splined △1 main rod.
**Add 2 in (50.8 mm) to dimension "E" if ordering protective bellows.

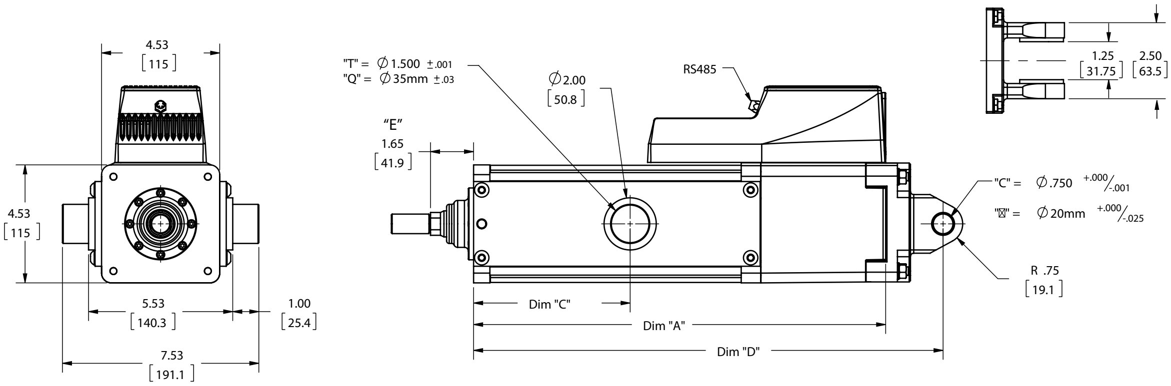


Pre-sale drawings and models are representative and are subject to change. Certified drawings and models are available for a fee. Consult your local Exlar representative for details.

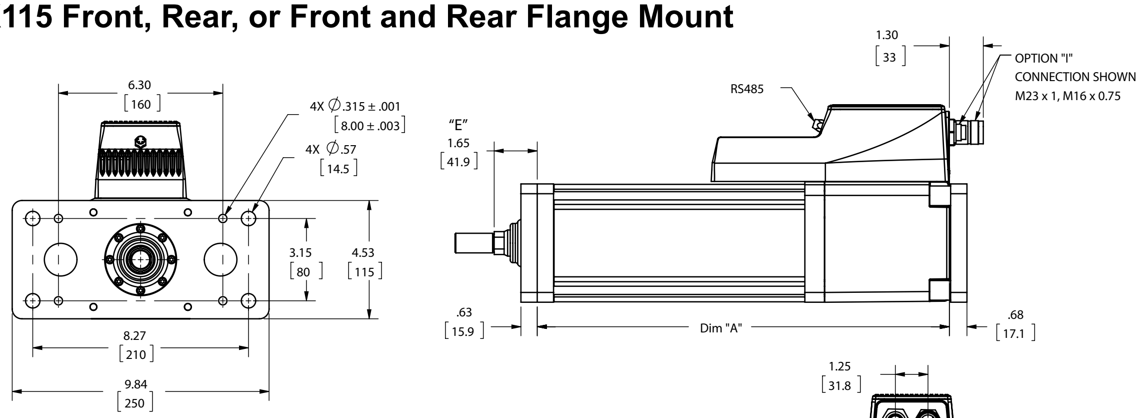
T2X115 Double Side Mount or Extended Tie Rod Mount

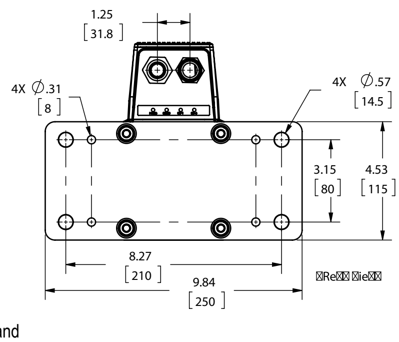


T2X115 Side Trunnion Mount or Rear Clevis Mount



T2X115 Front, Rear, or Front and Rear Flange Mount





DIM	4 in (102 mm) stroke in (mm)	6 in (152 mm) stroke in (mm)	10 in (254 mm) stroke in (mm)	12 in (305 mm) stroke in (mm)	18 in (457 mm) stroke in (mm)
A	13.79 (350.3)	15.79 (401.1)	19.79 (502.7)	21.79 (553.5)	27.79 (705.9)
B	8.31 (211.1)	10.31 (261.8)	14.31 (363.5)	16.31 (414.3)	22.31 (566.7)
C	4.00 (101.6)	6.00 (152.4)	10.00 (254.0)	12.00 (304.8)	18.00 (457.2)
D	15.99 (406.1)	17.99 (456.9)	21.99 (558.5)	23.99 (609.3)	29.99 (761.7)

* Add 2.33 inches to dimensions “A”, “B” and “D” if ordering a brake. Add 1.77 inches to dimensions “A”, “C” and “D” and dimension if ordering a splined Δ main rod.

**Add 2 in (50.8 mm) to dimension “E” if ordering protective bellows.

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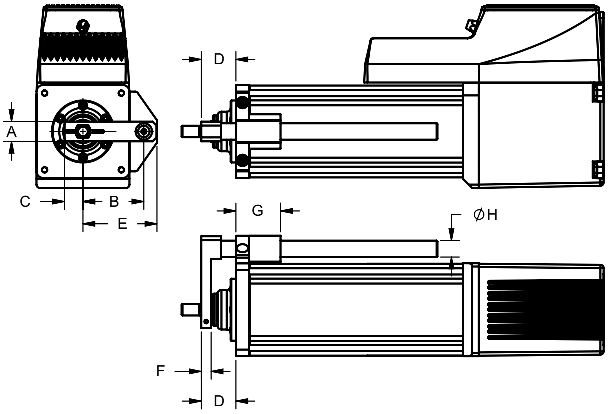
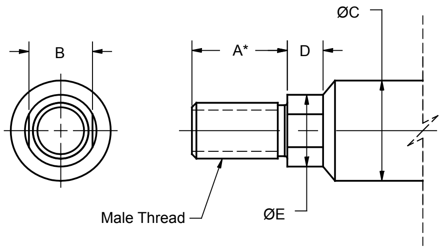
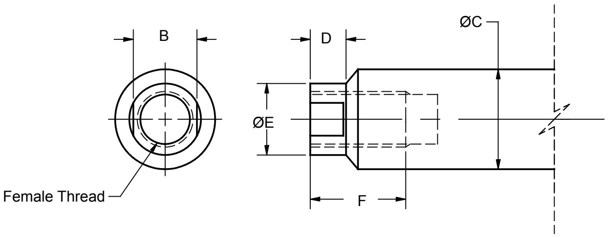
Anti-Rotate Option



DIM in (mm)	T2X075	T2X090	T2X115
A	0.82 (20.8)	0.75 (19.1)	1.13 (28.7)
B	2.20 (56.0)	2.32 (58.9)	3.06 (77.7)
C	0.60 (15.3)	0.70 (17.8)	1.00 (25.4)
D	1.32 (33.5)	1.32 (33.5)	1.65 (41.9)
E	2.70 (68.7)	2.82 (71.6)	3.63 (92.2)
F	0.39 (9.9)	0.38 (9.7)	0.50 (12.7)
G	1.70 (43.2)	1.70 (43.2)	1.97 (50.0)
ØH	0.63 (16.0)	0.63 (16.0)	0.75 (19.1)

Actuator Rod End Option

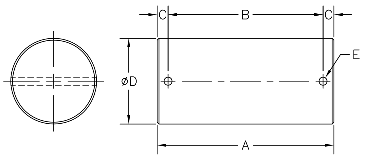




DIM in (mm)	T2X075	T2X090	T2X115
A*	0.750 (19.1)*	1.250 (31.8)	1.500 (38.1)
B	0.500 (12.7)	0.625 (17.0)	0.750 (19.1)
ØC	0.625 (15.9)	0.787 (20.0)	1,000 (25.4)
D	0.281 (7.1)	0.281 (7.1)	0.381 (9.7)
ØE	0.562 (14.3)	0.725 (18.4)	0.875 (22.2)
F	0.750 (19.1)	1,000 (25.4)	1,000 (25.4)
Male–Inch “M”, “W”	7/16-20 UNF-2A	1/2-20 UNF-2A	3/4-16 UNF-2A
Male–Metric “A”, “R”	M12 x 1.75 6g	M16 x 1.5 6g	M16 x 1.5 6g
Female–Inch “F”, “V”	7/16-20 UNF-2B	1/2-20 UNF-2B	5/8-18 UNF-2B
Female–Metric “B”, “L”	M10 x 1.5 6h	M16 x 1.5 6h	M16 x 1.5 6h

*When ordering the male M12x1.75 main rod for the T2X075 dimension “A” will be 1.57 in (40 mm)

Clevis Pin



DIM	T2X075 / T2X090	T2X075 / T2X090	T2X115
in (mm)	CP050 Rod Eye, Rod Clevis	CP075 Rear Clevis	CP075 Rod Eye, Rod Clevis, Spherical Eye, Rear Clevis
A	2.28 (57.9)	3.09 (78.5)	3.09 (78.5)
B	1.94 (49.28)	2.72 (69.1)	2.72 (69.1)
C	0.17 (4.32)	0.19 (4.82)	1.19 (4.82)
ØD	0.50 -0.001/-0.002 (112.7 mm +0.00/-0.05)	0.75 -0.001/-0.002 (19.1 mm +0.00/-0.05)	0.75 -0.001/-0.002 (19.1 mm +0.00/-0.05)
ØE	0.106 (2.69)	0.14 (3.56)	0.14 (3.56)

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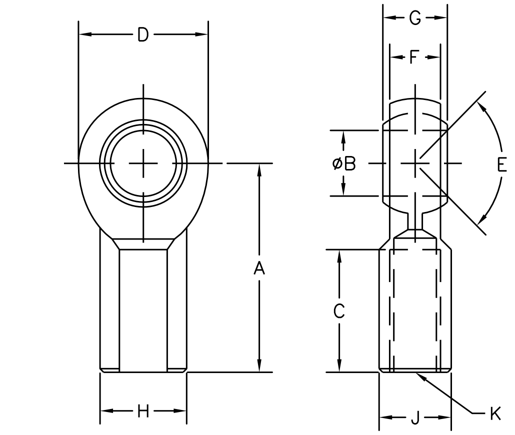
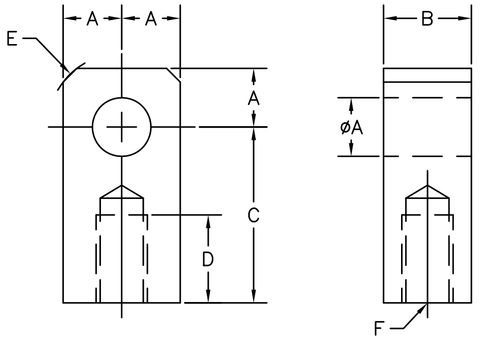
Spherical Rod Eye



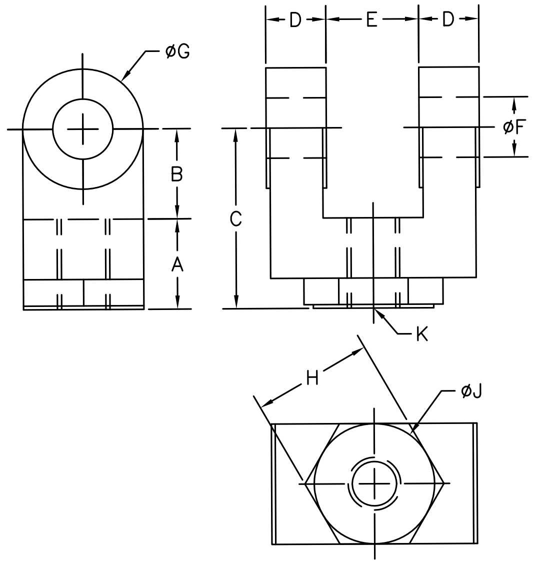
DIM in (mm)	T2X075	T2X090	T2X115
	SRM044	SRM050	SRM075
A	1.81 (46.0)	2.125 (54.0)	2.88 (73.2)
ØB	0.438 (11.13)	0.500 (12.7)	0.75 (19.1)
C	1.06 (26.9)	1.156 (29.4)	1.72 (43.7)
D	1.13 (28.7)	1.312 (33.3)	1.75 (44.5)
E	14 Deg	6 Deg	14 Deg
F	0.44 (11.1)	0.500 (12.7)	0.69 (17.5)
G	0.56 (14.2)	0.625 (15.9)	0.88 (22.3)
H	0.75 (19.1)	0.875 (22.2)	1.13 (28.7)
J	0.63 (16.0)	0.750 (19.1)	1.00 (25.4)
K	7/16-20	1/2-20	3/4-16

Rod Eye



DIM in (mm)	T2X075	T2X090	T2X115
	RE050	REI050	RE075
ØA	0.50 (12.7)	0.50 (12.7)	0.75 (19.05)
B	0.75 (19.1)	0.75 (19.05)	1.25 (31.8)
C	1.50 (38.1)	1.50 (38.1)	2.06 (52.3)
D	0.75 (19.1)	0.75 (19.05)	1.13 (28.7)
E	0.63 (15.9)	0.375 (9.53)	0.88 (22.2)
F	7/16-20	1/2-20	3/4-16

Rod Clevis



DIM in (mm)	T2X075	T2X090	T2X115
	RC050	RCI050	RC075
A	0.750 (19.05)	0.750 (19.05)	1.125 (28.58)
B	0.750 (19.05)	0.750 (19.05)	1.25 (31.75)
C	1.500 (38.1)	1.500 (38.1)	2.375 (60.3)
D	0.500 (12.7)	0.500 (12.7)	0.625 (15.88)
E	0.765 (19.43)	0.765 (19.43)	1.265 (32.12)
ØF	0.500 (12.7)	0.500 (12.7)	0.75 (19.1)
ØG	1.000 (25.4)	1.000 (25.4)	1.50 (38.1)
H	1.000 (25.4)	1.000 (25.4)	1.25 (31.75)
ØJ	1.000 (25.4)	N/A	1.25 (31.75)
K	7/16-20	1/2-20	3/4-16

Pre-sale drawings and models are representative and are subject to change. Certified drawings and models are available for a fee. Consult your local Exlar representative for details.

Mechanical Specifications

R2M/G075

Rotary Motor Torque and Speed Ratings

	Stator	1 Stack	2 Stack	3 Stack
	RPM at 240 VAC	4000	3000	2000
Continuous Torque	lbf-in (Nm)	13 (1.47)	21 (2.37)	28 (3.16)
Peak Torque	lbf-in (Nm)	25 (2.8)	42 (4.75)	56 (6.33)
Drive Current @ Continuous Torque	Amps	3.1	3.8	3.8
Operating Temperature Range*	-20 to 65˚ C (-40˚C available, consult Exlar)			
Continuous AC Input Current**	Amps	4.3	4	3.6

* Ratings based on 40˚C ambient conditions.
** Continuous input current rating is defined by UL and CSA.
For output torque of R2G gearmotors, multiply by ratio and efficiency. Please note maximum allowable output torques shown below.

Inertia

	Stator	1 Stack	2 Stack	3 Stack
R2M Motor Armature Inertia (+/-5%)	lb-in-sec^2 (kg-cm^2)	0.000545 (0.6158)	0.000973 (1.0996)	0.001401 (1.5834)
R2G Gearmotor Armature Inertia* (+/-5%)	lbf-in-sec^2 (kg-cm^2)	0.000660 (0.7450)	0.001068 (1.2057)	0.001494 (1.6868)

*Add armature inertia to gearing inertia for total R2G system inertia.

Radial Load and Bearing Life

RPM	50	100	250	500	1000	3000
R2M075 lbf (N)	278 (1237)	220 (979)	162 (721)	129 (574)	102 (454)	71 (316)
R2G075 lbf (N)	343 (1526)	272 (1210)	200 (890)	159 (707)	126 (560)	88 (391)

Side load ratings shown above are for 10,000 hour bearing life at 25 mm from motor face at given rpm.

Gearmotor Mechanical Ratings

Model	Ratio	Maximum Allowable Output Torque-Set by User lbf-in (Nm)	Output Torque at Motor Speed for 10,000 Hour Life		
			1000 RPM lbf-in (Nm)	2500 RPM lbf-in (Nm)	4000 RPM lbf-in (Nm)
R2G075-004	4:1	1618 (182.8)	384 (43.4)	292 (32.9)	254 (28.7)
R2G075-005	5:1	1446 (163.4)	395 (44.6)	300 (33.9)	260 (29.4)
R2G075-010	10:1	700 (79.1)	449 (50.7)	341 (38.5)	296 (33.9)

Two torque ratings for the R2G gearmotors are given in the table above. The left hand columns give the maximum (peak) allowable output torque for the indicated ratios of each size R2G gearmotor. This is not the rated output torque of the motor multiplied by the ratio of the reducer.

It is possible to select a configuration of the motor selection and gear ratio such that the rated motor torque, multiplied by the gear ratio exceeds these ratings. It is the responsibility of the user to ensure that the settings of the system do not allow these values to be exceeded.

The right hand columns give the output torque at the indicated speed which will result in 10,000 hour life (L10). The setup of the system will determine the actual output torque and speed.

Gearing Reflected Inertia

Single Reduction		
Gear Stages	lbf-in-sec^2	(kg-cm^2)
4:1	0.000095	(0.107)
5:1	0.000062	(0.069)
10:1	0.000017	(0.019)

Backlash and Efficiency

	Single Reduction	Double Reduction
Backlash at 1% Rated Torque	10 Arc min	13 Arc min
Efficiency	91%	86%

Motor and Gearmotor Weights

		R2M075 without Gears	R2G075 with 1 Stage Gearing	Added Weight for Brake
1 Stack Stator	lb (kg)	7.4 (3.4)	9.8 (4.4)	1.0 (0.5)
2 Stack Stator	lb (kg)	9.2 (4.2)	11.6 (5.3)	
3 Stack Stator	lb (kg)	11 (4.9)	13.4 (6.1)	

R2M/G090

Rotary Motor Torque and Speed Ratings

	Stator	2 Stack	2 Stack	3 Stack
	RPM at 240 VAC	4000	3000	2000
Continuous Torque	lbf-in (Nm)	30 (3.4)	40 (4.5)	52 (5.9)
Peak Torque	lbf-in (Nm)	60 (6.8)	80 (9.0)	105 (11.9)
Drive Current @ Continuous Torque	Amps	7.5	7.5	6.6
Operating Temperature Range*	-20 to 65˚ C (-40˚C available, consult Exlar)			
Continuous AC Input Current**	Amps	6.3	6.3	6.3

* Ratings based on 25˚C ambient conditions.
** Continuous input current rating is defined by UL and CSA.

For output torque of R2G gearmotors, multiply by ratio and efficiency. Please note maximum allowable output torques shown below.

Inertia

	Stator	2 Stack	3 Stack
R2M Motor Armature Inertia (+/-5%)	lb-in-sec^2 (kg-cm^2)	0.00097 (1.09)	0.00140 (1.58)
R2G Gearmotor Armature Inertia* (+/-5%)	lbf-in-sec^2 (kg-cm^2)	0.00157 (1.77)	0.00200 (2.26)

*Add armature inertia to gearing inertia for total inertia.

Radial Load and Bearing Life

RPM	50	100	250	500	1000	3000
R2M090 lbf (N)	427 (1899)	340 (1512)	250 (1112)	198 (881)	158 (703)	109 (485)
R2G090 lbf (N)	350 (1557)	278 (1237)	205 (912)	163 (725)	129 (574)	89 (396)

Side load ratings shown above are for 10,000 hour bearing life at 25 mm from motor face at given rpm.

Gearmotor Mechanical Ratings

Model	Ratio	Maximum Allowable Output Torque-Set by User lbf-in (Nm)	Output Torque at Motor Speed for 10,000 Hour Life		
			1000 RPM lbf-in (Nm)	2500 RPM lbf-in (Nm)	4000 RPM lbf-in (Nm)
R2G090-004	4:1	2078 (234.8)	698 (78.9)	530 (59.9)	460 (51.9)
R2G090-005	5:1	1798 (203.1)	896 (101.2)	680 (76.8)	591 (66.8)
R2G090-010	10:1	1126 (127.2)	1043 (117.8)	792 (89.4)	688 (77.7)
R2G090-016	16:1	2078 (234.8)	1057 (119.4)	803 (90.7)	698 (78.9)
R2G090-020	20:1	2078 (234.8)	1131 (127.8)	859 (97.1)	746 (84.3)
R2G090-025	25:1	1798 (203.1)	1452 (164.1)	1103 (124.6)	958 (108.2)
R2G090-040	40:1	2078 (234.8)	1392 (157.3)	1057 (119.4)	918 (103.7)
R2G090-050	50:1	1798 (203.1)	1787 (201.9)	1358 (153.4)	1179 (133.2)
R2G090-100	100:1	1126 (127.2)	1100 (124.3)	1100 (124.3)	1100 (124.3)

Two torque ratings for the R2G gearmotors are given in the table above. The left hand columns give the maximum (peak) allowable output torque for the indicated ratios of each size R2G gearmotor. This is not the rated output torque of the motor multiplied by the ratio of the reducer.
It is possible to select a configuration of the motor selection and gear ratio such that the rated motor torque, multiplied by the gear ratio exceeds these ratings. It is the responsibility of the user to ensure that the settings of the system do not allow these values to be exceeded.
The right hand columns give the output torque at the indicated speed which will result in 10,000 hour life (L10). The setup of the system will determine the actual output torque and speed.

Gearing Reflected Inertia

Single Reduction			Double Reduction		
Gear Stages	lbf-in-sec^2	(kg-cm^2)	Gear Stages	lbf-in-sec^2	(kg-cm^2)
4:1	0.000154	(0.174)	16:1	0.000115	(0.130)
5:1	0.000100	(0.113)	20:1, 25:1	0.0000756	(0.0854)
10:1	0.0000265	(0.0300)	40:1, 50:1, 100:1	0.0000203	(0.0230)

Backlash and Efficiency

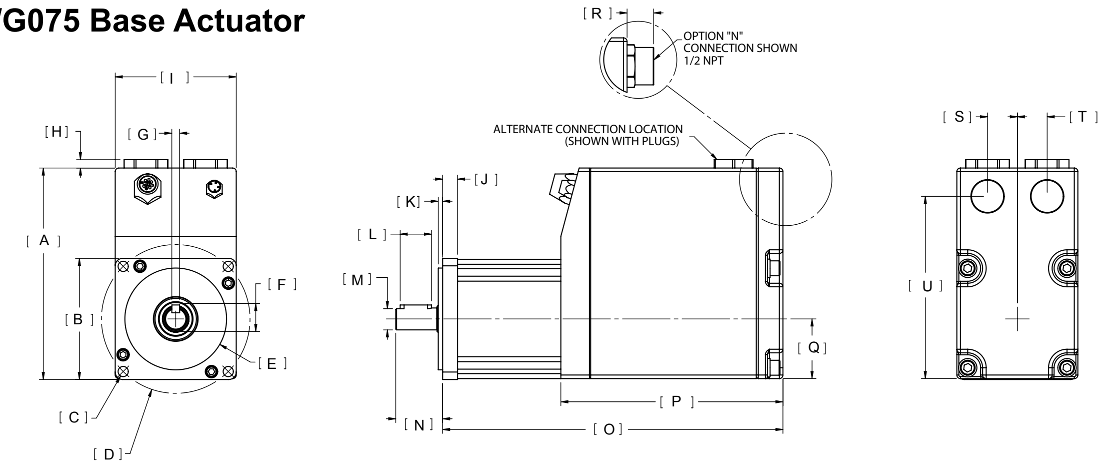
	Single Reduction	Double Reduction
Backlash at 1% Rated Torque	10 Arc min	13 Arc min
Efficiency	91%	86%

Motor and Gearmotor Weights

		R2M090 without Gears	R2G090 with 1 Stage Gearing	R2G090 with 2 Stage Gearing	Added Weight for Brake
2 Stack Stator	lb (kg)	14 (6.4)	22 (10)	25 (11.3)	1.5 (0.7)
3 Stack Stator	lb (kg)	17 (7.7)	25 (11.3)	28 (12.7)	

Dimensions

R2M/G075 Base Actuator



		R2M075	R2G075			R2M075	R2G075
A	in	5.32	5.32	**L**	in	0.79	0.79
	mm	135.1	135.1		mm	20.0	20.0
B	in	□ 3.05	□ 3.05	**M**	in	Ø 0.5512 / 0.5508	Ø 0.6302 / 0.6298
	mm	77.4	77.4		mm	14 h6	16 j6
C	in	4X Ø 0.26 ON BC	4X Ø 0.26 ON BC	**N**	in	1.18	1.18
	mm	6.5	6.5		mm	30.0	30.0
D	in	Ø 3.74 BC	Ø 3.74 BC	**O**	in	See Below	See Below
	mm	95.0	95.0		mm	See Below	See Below
E	in	Ø 2.5587 / 2.5580	Ø 2.5587 / 2.5580	**P**	in	5.59	5.59
	mm	65 g6	65 g6		mm	142.0	142.0
F	in	0.70	0.70	**Q**	in	1.50	1.50
	mm	17.9	17.9		mm	38.1	38.1
G	in	Ø 0.1969 / 0.1957	Ø 0.1969 / 0.1957	**R**	in	0.67	0.67
	mm	5 h9	5 h9		mm	17.0	17.0
H	in	0.21	0.21	**S**	in	0.75	0.75
	mm	5.3	5.3		mm	19.1	19.1
I	in	3.05	3.05	**T**	in	0.75	0.75
	mm	77.4	77.4		mm	19.1	19.1
J	in	0.38	0.45	**U**	in	4.58	4.58
	mm	9.5	11.5		mm	116.4	116.4
K	in	0.11	0.11				
	mm	2.8	2.8				

R2M075

With Brake Option			
DIM	1 Stack Stator	2 Stack Stator	3 Stack Stator
O	9.85 (250.2)	10.85 (275.6)	11.85 (301.0)

Without Brake Option			
DIM	1 Stack Stator	2 Stack Stator	3 Stack Stator
O	8.57 (217.7)	9.57 (243.1)	10.57 (268.5)

R2G075

Without Brake Option			
DIM	1 Stack Stator 1 Stage Gearhead	2 Stack Stator 1 Stage Gearhead	3 Stack Stator 1 Stage Gearhead
O	10.19 (258.8)	11.19 (284.2)	12.19 (309.6)

With Brake Option			
DIM	1 Stack Stator 1 Stage Gearhead	2 Stack Stator 1 Stage Gearhead	3 Stack Stator 1 Stage Gearhead
O	11.42 (290.1)	12.42 (315.5)	13.42 (340.9)

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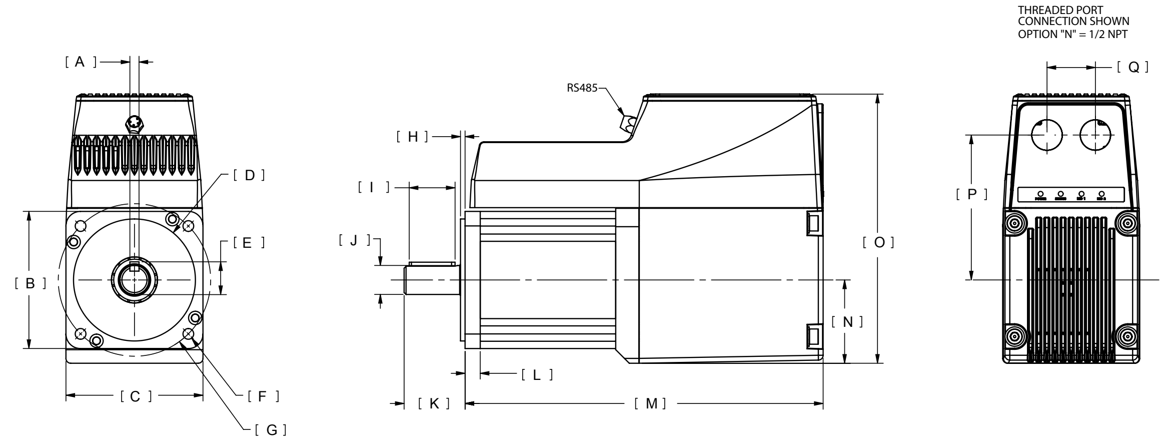
R2M/G090 Base Actuator



		R2M090	R2G090			R2M090	R2G090
A	in	0.2360 / 0.2348	0.2362 / 0.2350	**J**	in	Ø 0.7480 / 0.7475	Ø 0.8665 / 0.8659
	mm	6 h9	6 h9		mm	19 h6	22 j6
B	in	3.54	3.54	**K**	in	1.57	1.89
	mm	90	90		mm	40	48
C	in	3.54	3.54	**L**	in	0.39	0.63
	mm	90	90		mm	10	16
D	in	Ø 3.1492 / 3.1485	Ø 3.1492 / 3.1485	**M**	in	See Below	See Below
	mm	80 g6	80 g6		mm	See Below	See Below
E	in	0.85	0.96	**N**	in	2.15	2.15
	mm	21.5	24.5		mm	55	55
F	in	4X Ø 0.28 ON BC	4X Ø 0.257 ON BC	**O**	in	6.95	6.95
	mm	7	6.5		mm	177	177
G	in	Ø 3.94 BC	Ø 3.94 BC	**P**	in	3.74	3.74
	mm	100	100		mm	95	95
H	in	0.12	0.118	**Q**	in	1.25	1.25
	mm	3	3		mm	32	32
I	in	1.38	1.417				
	mm	35	36				

R2M090

Without Brake Option		
DIM	2 Stack Stator	3 Stack Stator
M	10.25 (256.3)	11.25 (285.8)

With Brake Option		
DIM	2 Stack Stator	3 Stack Stator
M	11.6 (294.6)	12.6 (320.0)

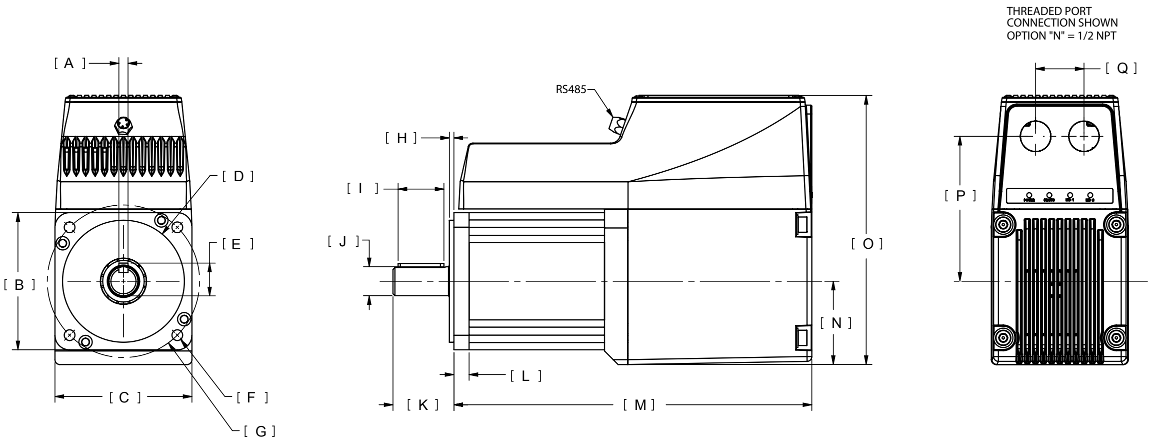
R2G090

Without Brake Option		
DIM	2 Stack Stator 1 Stage Gearhead	3 Stack Stator 1 Stage Gearhead
M	12.36 (313.9)	13.36 (339.3)
DIM	2 Stack Stator 2 Stage Gearhead	3 Stack Stator 2 Stage Gearhead
M	13.63 (346.2)	14.63 (371.6)

With Brake Option		
DIM	2 Stack Stator 1 Stage Gearhead	3 Stack Stator 1 Stage Gearhead
M	13.67 (347.2)	14.67 (372.6)
DIM	2 Stack Stator 2 Stage Gearhead	3 Stack Stator 2 Stage Gearhead
M	14.94 (379.5)	15.94 (404.9)

Pre-sale drawings and models are representative and are subject to change. Certified drawings and models are available for a fee. Consult your local Exlar representative for details.

R2M/G115 Base Actuator



		R2M115	R2G115			R2M115	R2G115
A	in	0.3150 / 0.3135	0.3937 / 0.3923	J	in	Ø 0.9449 / 0.9444	Ø 1.2603 / 1.2596
	mm	8 h9	10 h9		mm	24 h6	32 j6
B	in	4.53	4.530	K	in	1.97	2.55
	mm	115	115		mm	50	65
C	in	4.53	4.530	L	in	0.45	0.64
	mm	115	115		mm	12	16
D	in	Ø 4.3302 / 4.3294	Ø 4.3302 / 4.3294	M	in	See Below	See Below
	mm	110 g6	110 g6		mm	See Below	See Below
E	in	1.06	1.380	N	in	2.27	2.27
	mm	27	35		mm	58	58
F	in	4 X Ø 0.34 ON BC	4 X Ø 0.34 ON BC	O	in	7.56	7.56
	mm	8.5	8.5		mm	192	192
G	in	Ø 5.12 BC	Ø 5.12 BC	P	in	4.23	4.23
	mm	130	130		mm	108	108
H	in	0.16	0.16	Q	in	1.25	1.25
	mm	4	4		mm	32	32
I	in	1.41	1.58				
	mm	35.9	40				

R2M115

Without Brake Option			With Brake Option		
DIM	1 Stack Stator	2 Stack Stator	DIM	1 Stack Stator	2 Stack Stator
M	9.87 (250.7)	11.87 (301.5)	M	11.60 (294.6)	13.60 (345.4)

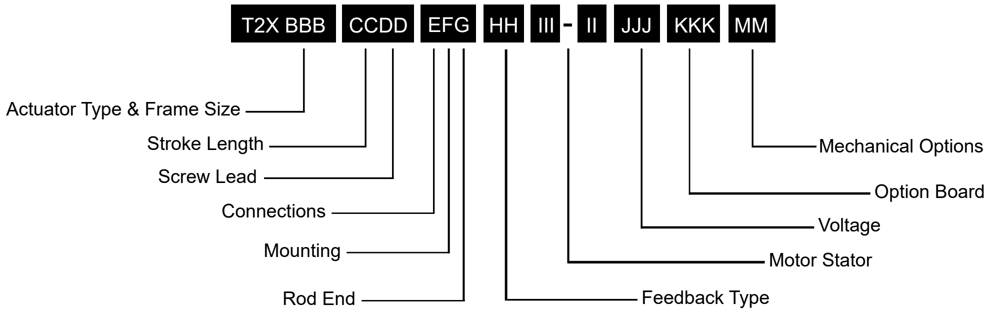
R2G115

Without Brake Option			With Brake Option		
DIM	1 Stack Stator 1 Stage Gearhead	2 Stack Stator 1 Stage Gearhead	DIM	1 Stack Stator 1 Stage Gearhead	2 Stack Stator 1 Stage Gearhead
M	13.88 (352.6)	15.88 (403.4)	M	15.43 (391.9)	17.43 (442.7)
DIM	1 Stack Stator 2 Stage Gearhead	2 Stack Stator 2 Stage Gearhead	DIM	1 Stack Stator 2 Stage Gearhead	2 Stack Stator 2 Stage Gearhead
M	15.49 (393.4)	17.49 (444.2)	M	17.04 (432.8)	19.04 (483.6)

Pre-sale drawings and models are representative and are subject to change. Certified drawings and models are available for a fee. Consult your local Exlar representative for details.

Notes

Tritex II AC Linear Ordering Guide



T2X = Actuator Type
T2X = Tritex II Linear Actuator, high mechanical capacity

BBB = Actuator Frame Size
075 = 75 mm
090 = 90 mm
115 = 115 mm

CC = Stroke Length
03 = 3 inch (76 mm) (N/A T2X115)
04 = 4 inch (102 mm) (T2X115 only)
06 = 6 inch (150 mm)
10 = 10 inch (254 mm)
12 = 12 inch (305 mm)
18 = 18 inch (457 mm)

DD = Screw Lead (linear travel per screw revolution)
01 = 0.1 inch (2.54 mm)
02 = 0.2 inch (5.08 mm)
05 = 0.5 inch (12.7 mm)
08 = 0.75 inch (19.05 mm) (T2X115 only) [2]

E = Connections
N = NPT Threaded Port via Adapter with Internal Terminals, 1/2" NPT

F = Mounting
C = Rear Clevis
D = Double Side Mount
E = Extended Tie Rod
F = Front Flange
B = Front and Rear Flange, English
G = Metric Rear Clevis
K = Metric Double Side Mount
M = Metric Extended Tie Rod
Q = Metric Side Trunnion
R = Rear Flange
T = Side Trunnion

G = Rod End
A = Male Metric Thread [1]
B = Female Metric Thread [1]
F = Female US Standard Thread [1]
M = Male US Standard Thread [1]

HH = Feedback Type
HD = Analog Hall Device
IE = Incremental Encoder, 8192 count resolution
AF = Absolute Feedback

III-II = Motor Stator, All 8 Pole
T2X075 Stator Specifications
138-40 = 1 Stack, 230 VAC, 4000 rpm
238-30 = 2 Stack, 230 VAC, 3000 rpm
338-20 = 3 Stack, 230 VAC, 2000 rpm

T2X090 Stator Specifications
138-40 = 1 Stack, 230 VAC, 4000 rpm
238-40 = 2 Stack, 230 VAC, 4000 rpm
238-30 = 2 Stack, 230 VAC. 3000 rpm [5]

T2X115 Stator Specifications
138-30 = 1 Stack, 230 VAC, 3000 rpm
238-20 = 2 Stack, 230 VAC, 2000 rpm [7]
238-15 = 2 Stack, 230 VAC, 1500 rpm [5,7] (N/A with 0.1" lead)

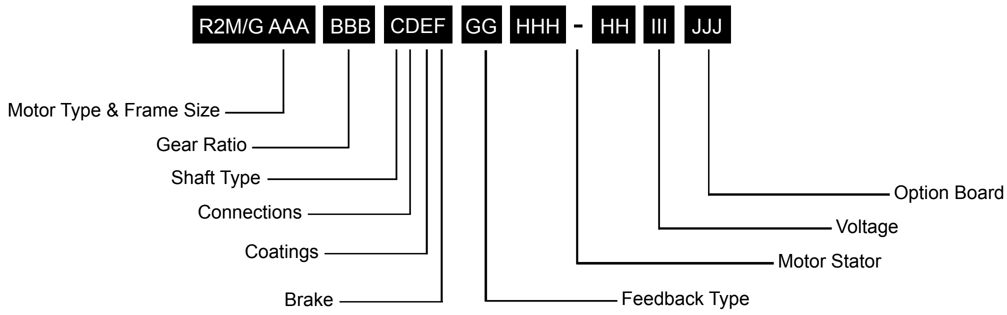
JJJ = Voltage
230 = 115-230 VAC, single phase

KKK = Option Board
SIO = Standard I/O Interconnect
IA4 = 4-20 mA Analog I/O
CON = CANOpen, without M12 [6]
EIN = SIO plus Ethernet/IP without M12 connector [6]
PIN = SIO plus Profinet IO without M12 connector [6]
TCN = SIO plus Modbus TCP without M12 connector [9]

MM = Mechanical Options [3]
AR = External Anti-rotate
L1/2/3 = External Limit Switches [4]
RB = Rear Brake
PB = Protective Bellows (N/A with extended tie rod mounting option)

NOTES:
1. Chrome-plated carbon steel. Threads not chrome-plated.
2. 0.75 lead not available above 12 inch stroke.
3. For extended temperature operation consult factory for model number.
4. Limit switch option requires AR option.
5. N/A with 0.1 inch lead
6. Requires customer supplied Ethernet cable through I/O port for Class 1 Division 2 compliance only.
7. Not available with 4 inch stroke.

For options or specials not listed above or for extended temperature operation, please contact Exlar



R2M/G = Motor Type
R2M = Tritex II AC Rotary Motor
R2G = Tritex II AC Rotary Gearmotor

AAA = Frame Size
075 = 75 mm
090 = 90 mm
115 = 115 mm

BBB = Gear Ratio
Blank = R2M
Single Reduction Ratios
004 = 4:1
005 = 5:1
010 = 10:1
Double Reduction Ratios (N/A on 75 mm)
016 = 16:1 020 = 20:1
025 = 25:1 040 = 40:1
050 = 50:1 100 = 100:1

C = Shaft Type
K = Keyed
R = Smooth/Round

D = Connections
N = NPT Threaded Port with Internal Terminals, 1/2" NPT

E = Coating Options
G = Exlar Standard

F = Brake Option
S = No Brake, Standard
B = Electric Brake, 24 VDC

GG = Feedback Type
HD = Analog Hall Device
IE = Incremental Encoder, 8192 Count Resolution
AF = Absolute Feedback

HHH-HH = Motor Stators
R2M/G075 Stator Specifications
138-40 = 1 Stack, 230 VAC, 4000 rpm
238-30 = 2 Stack, 230 VAC, 3000 rpm
338-20 = 3 Stack, 230 VAC, 2000 rpm

R2M/G090 Stator Specifications
238-40 = 2 Stack, 230 VAC, 4000 rpm
238-30 = 2 Stack, 230 VAC, 3000 rpm
338-20 = 3 Stack, 230 VAC, 2000 rpm

R2M/G115 Stator Specifications
138-30 = 1 Stack, 230 VAC, 3000 rpm
238-20 = 2 Stack, 230 VAC, 2000 rpm
238-15 = 2 Stack, 230 VAC, 1500 rpm

III = Voltage
230 = 115-230 VAC, Single Phase

JJJ = Option Board
SIO = Standard I/O Interconnect
IA4 = 4-20 mA Analog I/O
CON = CANOpen, without M12 connector [1]
EIN = SIO plus Ethernet/IP without M12 connector [1]
PIN = SIO plus Profinet IO without M12 connector [1]
TCN = SIO plus Modbus TCP without M12 connector [1]

For options or specials not listed above or for extended temperature operation, please contact Exlar

NOTES:
1. Requires customer supplied Ethernet cable through I/O port for Class 1 Division 2 compliance only.
2. For extended temperature operation consult factory for model number.

Return to table of contents

Tritex II DC

Linear & Rotary Actuators

No Comproming on Power, Performance or Reliability

With forces to approximately 950 lbs (4kN) continuous and 1,300 lbf peak (6 kN), and speeds to 33 in/sec (800 mm/sec), the DC Tritex II 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. And the new Tritex II with DC power electronics operates with maximum reliability over a broad range of ambient temperatures: -40˚C to +65˚C. The DC powered Tritex II 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 II Series is the ideal solution for most motion applications.

Tritex II Linear DC Actuator

Tritex II Models

- TDX high mechanical capacity actuator, 75 mm
- RDM rotary motor, 75, and 90 mm
- RDG rotary gearmotor, 75, and 90 mm

Power Requirements

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

Feedback Types

- Analog Hall with 1000 count resolution
- Incremental encoder with 8192 count resolution
- Absolute Feedback (analog hall with multi-turn, battery backup)

Connectivity

- Internal terminals accessible through removable cover (75 and 90 mm models)
- Threaded ports for cable glands (75 and 90 mm models)

Technical Characteristics	
Frame Sizes in (mm)	2.9 (75)
Screw Leads in (mm)	0.1 (2), 0.2 (5), 0.4 (10), 0.5 (13)
Standard Stroke Lengths in (mm)	3 (75), 6 (150), 10 (250), 12 (300), 14 (350), 18 (450)
Force Range	up to 872 lbf (3879 N)
Maximum Speed	up to 33.3 in/s (846 mm/s)

Operating Conditions and Usage		
Accuracy:		
Screw Lead Error	in/ft (μm / 300 mm)	0.001 (25)
Screw Travel Variation	in/ft (μm / 300 mm)	0.0012 (30)
Screw Lead Backlash	in	0.004 (TDX)
Ambient Conditions:		
Standard Ambient Temperature	°C	0 to 65
Extended Ambient Temperature**	°C	-40 to 65
Storage Temperature	°C	-40 to 85
IP Rating		TDX = IP66S RDM/RDG = IP66S
NEMA Ratings		None
Vibration		5.0 g rms, 5 to 500 hz

* Ratings at 40°C, operation over 40°C requires de-rating.

** Consult Exlar for extended temperature operation.

Communications & I/O

Digital Inputs:
9 to 30 VDC Opto-isolated

Digital outputs:
30 VDC maximum
100 mA continuous output
Isolated
Short circuit and over temperature protected

Analog Input DC:
0-10V or +/-10V
0-10V mode, 12 bit resolution
+/-10V mode, 13 bit resolution assignable to Position, Velocity, Torque, or Velocity override command

Analog Output DC:
0-10V
11 bit resolution

IA4 option:
4-20 mA input
16 bit resolution
Isolated
Assignable to Position, Velocity, Torque, or Velocity Override command

4-20 mA output
12 bit resolution
Assignable to Position, Velocity, Current, Temperature, etc.

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

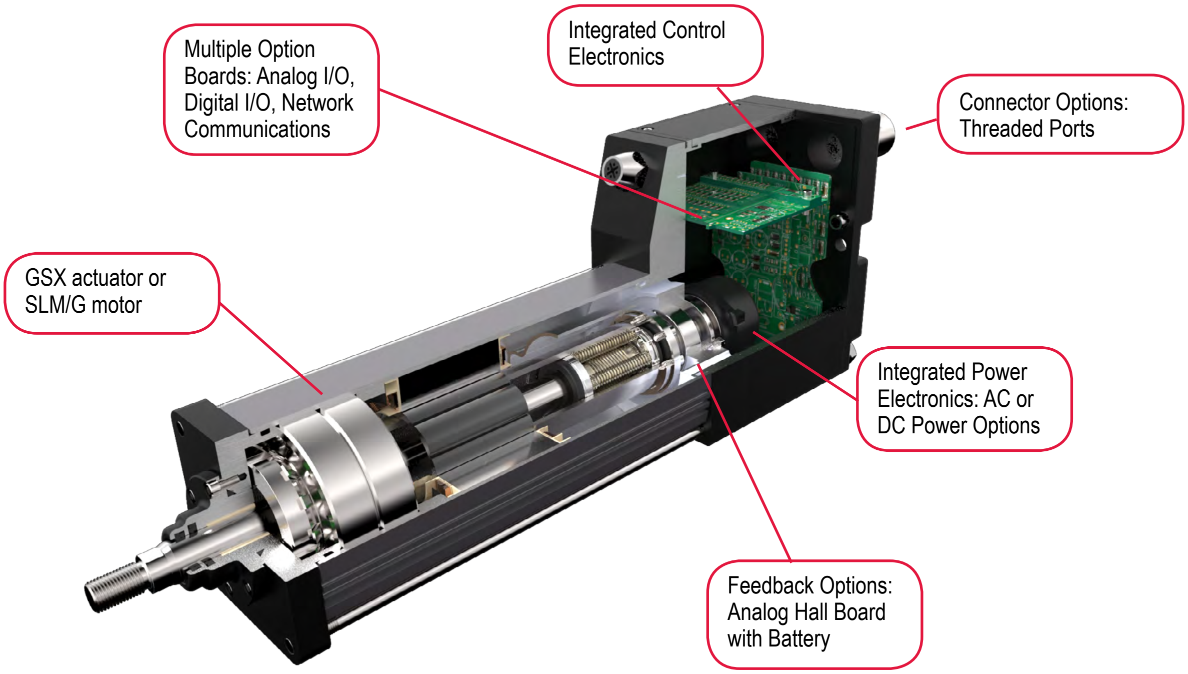
Tritex II DC I/O

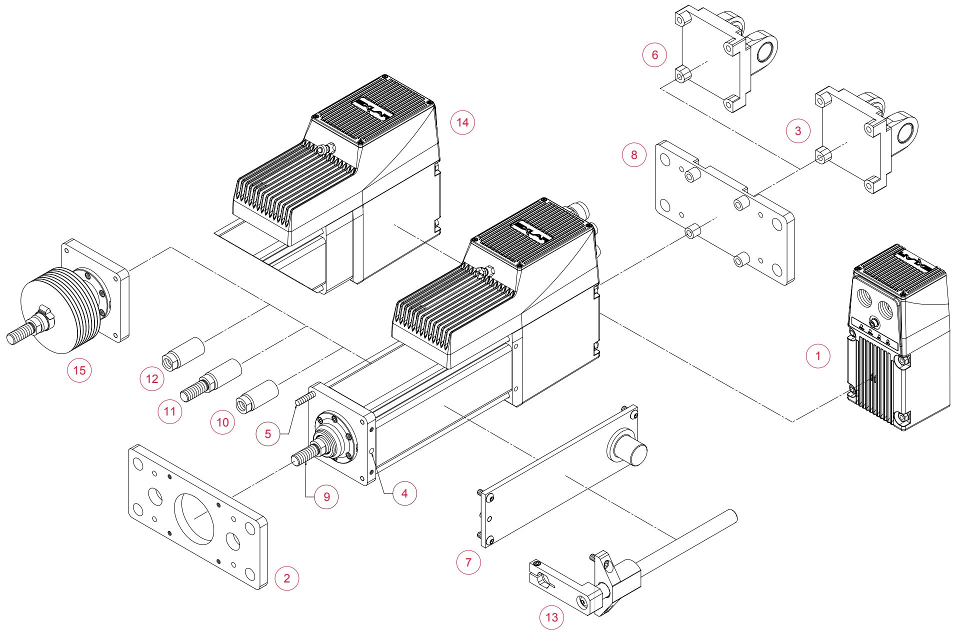
	75/90 mm frame with SIO, EIP, PIO, TCP	75/90 mm frame with IA4	75/90 mm frame with CAN
Isolated digital inputs	8	4	4
Isolated digital outputs	4	3	3
Analog input, non isolated	1	0	0
Analog output, non isolated	1	0	0
Isolated 4-20ma input	0	1	0
Isolated 4-20ma output	0	1	0

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

All models include isolated digital IO, and an isolated RS485 communication port when using Modbus RTU protocol.

Product Features





1 -NPT Threaded Port via Adapter with Internal Terminals, 1/2" NPT (75 mm only)
2 - Front & Rear Flange and Front Flange* 3 - Rear Clevis
4 - Double Side Mount, Metric Side Mount*, Metric Double Side Mount, Side Mount* 5 - Extended Tie Rod and Metric Extended Tie Rod 6 - Metric Rear Clevis
7 - Metric Side Trunnion and Side Trunnion 8 - Female Metric Thread and Male Metric Thread SS 9 - Male Metric Thread and Male Metric Thread SS
10 - Female Metric Thread and Female Metric Thread SS 11 - Male US Standard Thread and Male, US Standard Thread SS
12 - Female US Standard Thread and Female US Standard Thread SS 13 - External Anti-rotate 14 - Rear Brake 15 - Protective Bellows

*Consult Factory

Industries and Applications

Hydraulic cylinder replacement
Ball screw replacement
Pneumatic cylinder replacement

Mobile Equipment

- Unmanned Vehicles

Process Control

- Oil & Gas Wellhead Valve Control
- Pipeline Valve Control
- Damper Control
- Knife Valve Control
- Chemical pumps

Entertainment / Simulation

- Ride Motion Bases
- Animatronics

Since no fluids and associated equipment (pumps, compressors, filters, accumulators, hose/tubing, oil testing, etc.) are required, electromechanical actuators offer greater energy efficiency, less environmental impact and lower total life-cycle cost.

The Tritex II Series DC actuators integrate a DC powered servo drive, digital position controller, brushless motor, and linear actuator in a compact, sealed package making it perfect for environments where AC power is difficult to achieve.

Mechanical Specifications

TDX075

		Stator	1 Stack	2 Stack	3 Stack
Lead		RPM @ 48 VDC	3000	3000	2000
0.1	Continuous Force	lbf (N)	613 (2727)	872 (3879)	NA
	Peak Force	lbf (N)	884 (3932)	1190 (5293)	NA
	Max Speed @ 48 VDC	in/sec (mm/sec)	5.00 (127)	5.00 (127)	NA
	C_a (Dynamic Load Rating)	lbf (N)	5516 (24536)		NA
0.2	Continuous Force	lbf (N)	347 (1544)	494 (2197)	774 (3443)
	Peak Force	lbf (N)	501 (2229)	674 (2998)	1095 (4871)
	Max Speed @ 48 VDC	in/sec (mm/sec)	10.00 (254)	10.00 (254)	6.67 (169.4)
	C_a (Dynamic Load Rating)	lbf (N)	5800 (25798)		
0.5	Continuous Force	lbf (N)	147 (654)	209 (930)	328 (1459)
	Peak Force	lbf (N)	212 (943)	286 (1272)	464 (2064)
	Max Speed @ 48 VDC	in/sec (mm/sec)	25.00 (635)	25.00 (635)	16.67 (423.4)
	C_a (Dynamic Load Rating)	lbf (N)	4900 (21795)		
Drive Current @ Continuous Force		Amps	18.5	22.5	22.5
Available Stroke Lengths in (mm)			3 (75), 6 (150), 10 (254), 12 (300), 14 (355), 18 (450)		
Inertia (zero stroke)		lb-in-s^2/ Kg-m^2	0.01132 (0.000012790)	0.01232 (0.00001392)	0.01332 (0.00001505)
Inertia Adder (per unit of stroke)		lb-in-s^2/in/ Kg-m^2/in	0.0005640 (0.0000006372)		
Approximate Weight lb (kg)			11 lbs – 3 in stroke, add 1 lb per inch of stroke, add 3 lbs per stack, add 3 lbs for brake. (5 kg – 75 mm stroke, 1 stack, add 0.5 kg per 25 mm of stroke, add 1.4 kg per stack, add 1.4 kg for brake.)		
Operating Temperature Range**			-20 to 65° C (-40°C available, consult Exlar)		
Maximum Continuous Power Supply Current*		Amps	15	18	18

**Power supply current is based on software current limit, not thermal limit. Consideration for peak current should also be considered when sizing power supplies.*
***Rating based on 40° C ambient conditions.*

DEFINITIONS:

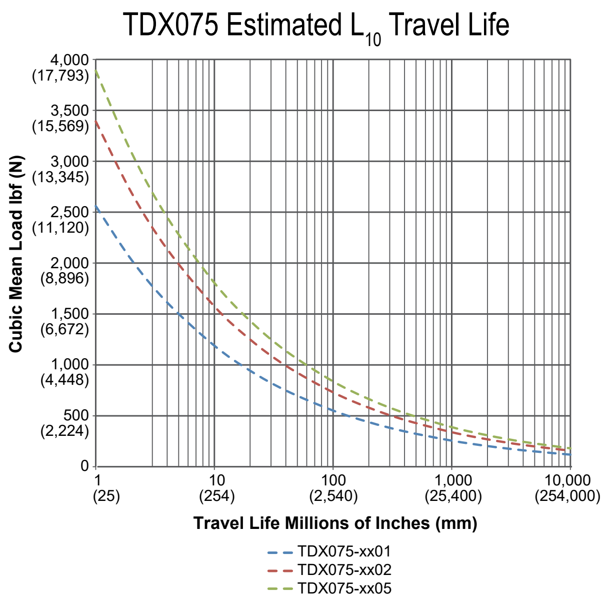
Continuous Force: The linear force produced by the actuator at continuous motor torque.

Peak Force: The linear force produced by the actuator at peak motor torque.

Max Speed: The maximum rated speed produced by the actuator at rated voltage.

C_a (Dynamic Load Rating): A design constant used in calculating the estimated travel life of the roller screw.

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 are expected to meet or exceed. For higher than 90% reliability, the result should be multiplied by the following factors: 95% x 0.62; 96% x 0.53; 97% x 0.44; 98% x 0.33; 99% x 0.21. This is not a guarantee; these charts should be used for estimation purposes only.

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

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

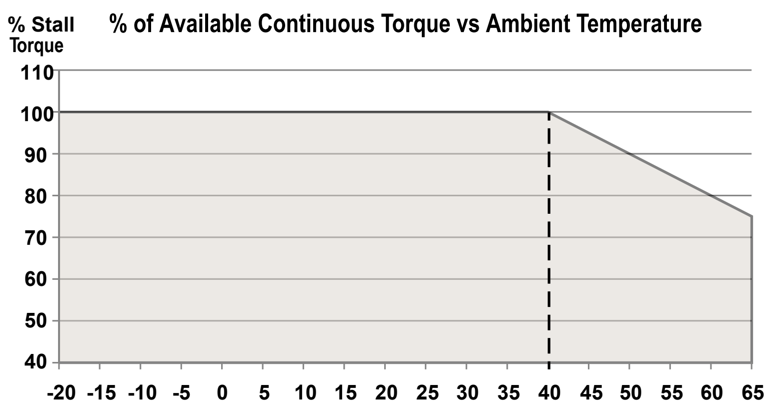
C_a = Dynamic load rating (lbf)
F_{cml} = Cubic mean applied load (lbf)
ℓ = Roller screw lead (inches)

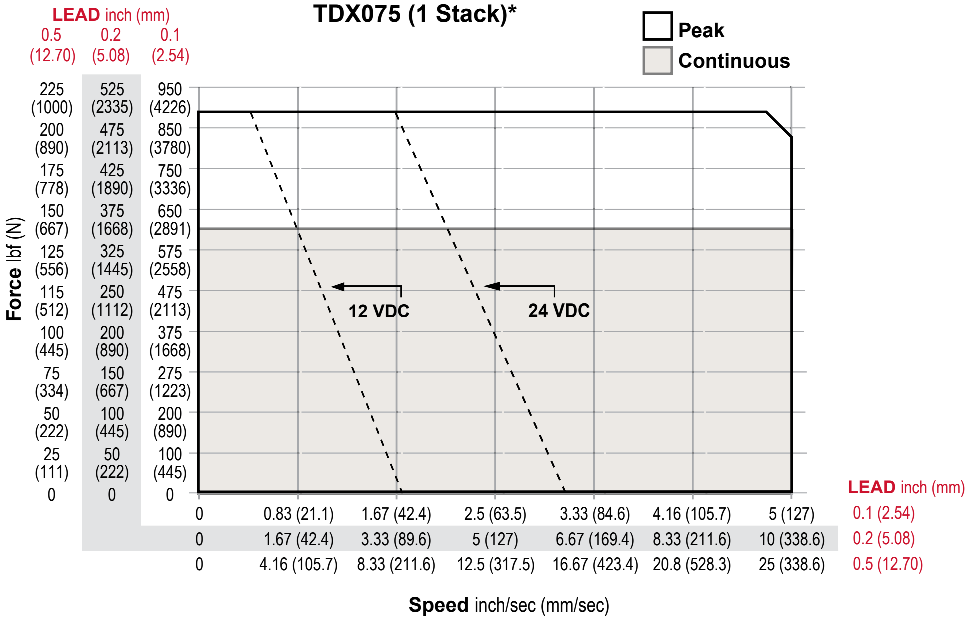
All curves represent properly lubricated and maintained actuators.

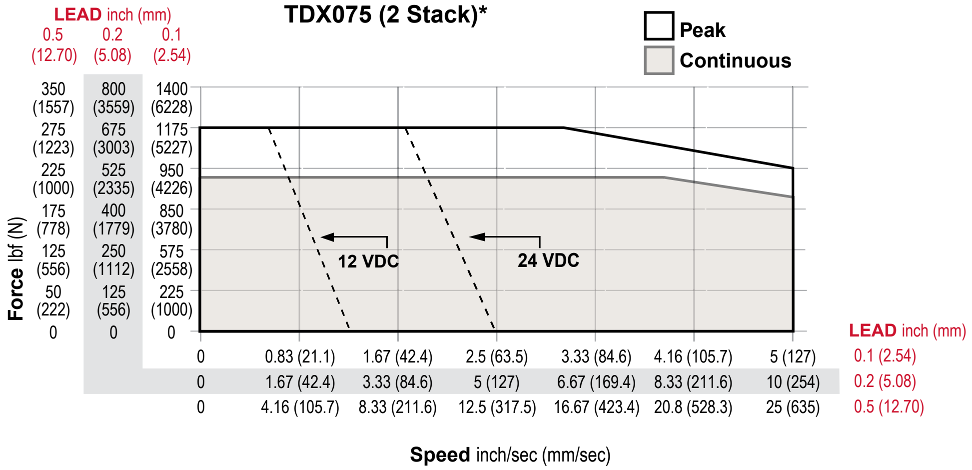
Speed vs. Force Curves

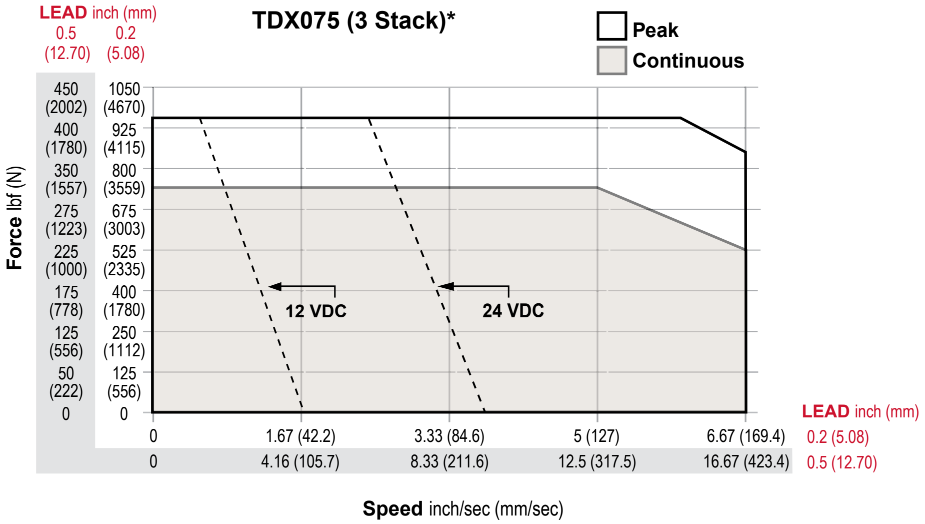
Temperature Derating

The speed/torque curves are based on 40° C ambient conditions. The actuators may be operated at ambient temperatures up to 65° C. Use the curve (shown right) for continuous torque/force deratings above 40° C.









*Test data derived using NEMA recommended aluminum heatsink 10” x 10” x 3/8” at 40°C ambient.

Options

AR = External Anti-rotate Assembly

This option provides a rod and bushing to restrict the actuator rod from rotating when the load is not held by another method. Shorter actuators have single sided anti-rotation attachments. Longer lengths require attachments on both sides for proper operation. For AR dimensions, see page 64.

RB = Rear Electric Brake

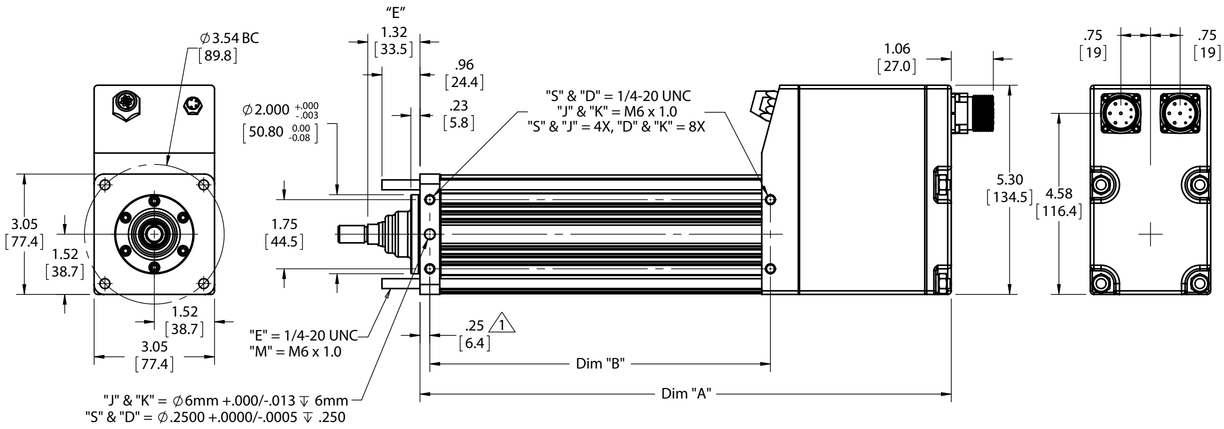
This option provides an internal holding brake. The brake is spring activated and electrically released.

PB = Protective Bellows

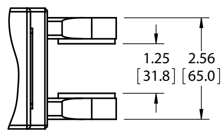
This option provides an accordion style protective bellows to protect the main actuator rod from damage due to abrasives or other contaminants in the environment in which the actuator must survive. The standard material of this bellows is S2 Neoprene Coated Nylon, Sewn Construction. This standard bellows is rated for environmental temperatures of -40 to 250 degrees F. Longer strokes may require the main rod of the actuator to be extended beyond standard length. Not available with extended tie rod mounting option. Please contact your local sales representative.

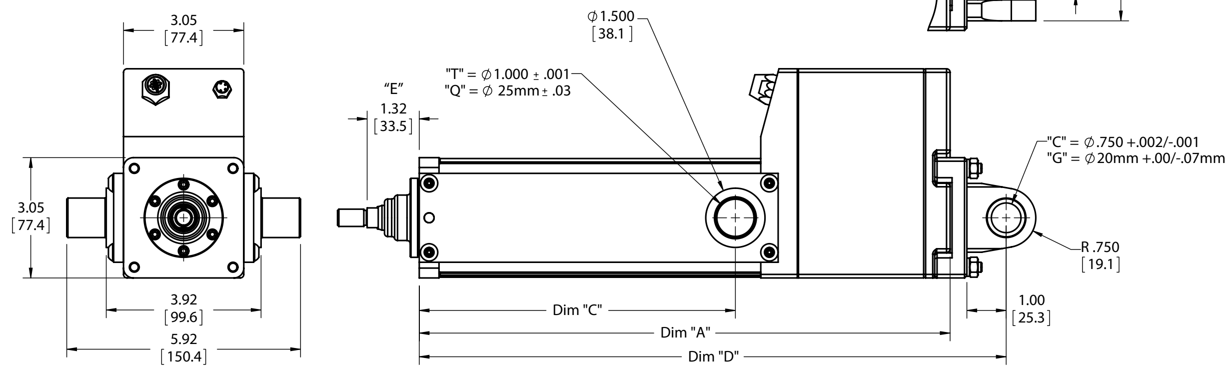
Dimensions

TDX075 Double Side Mount or Extended Tie Rod Mount

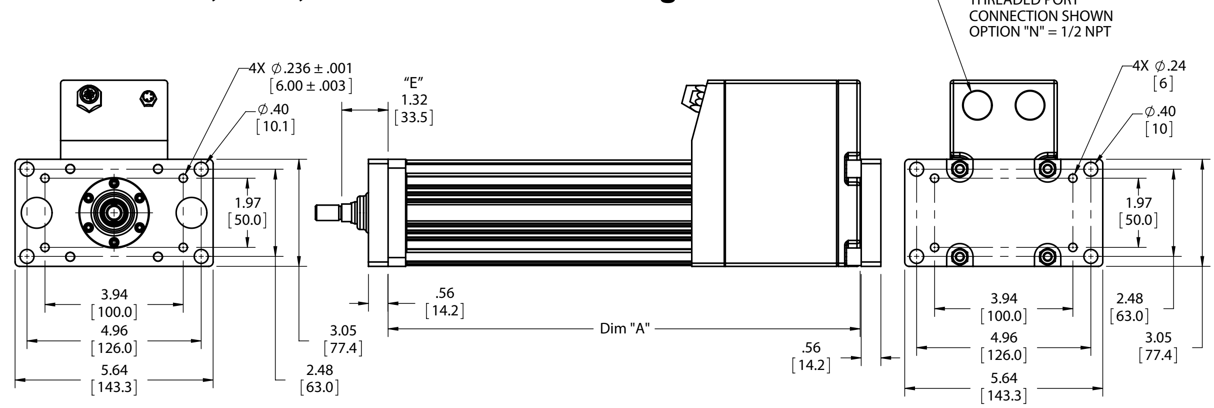


TDX075 Side Trunnion Mount or Rear Clevis Mount





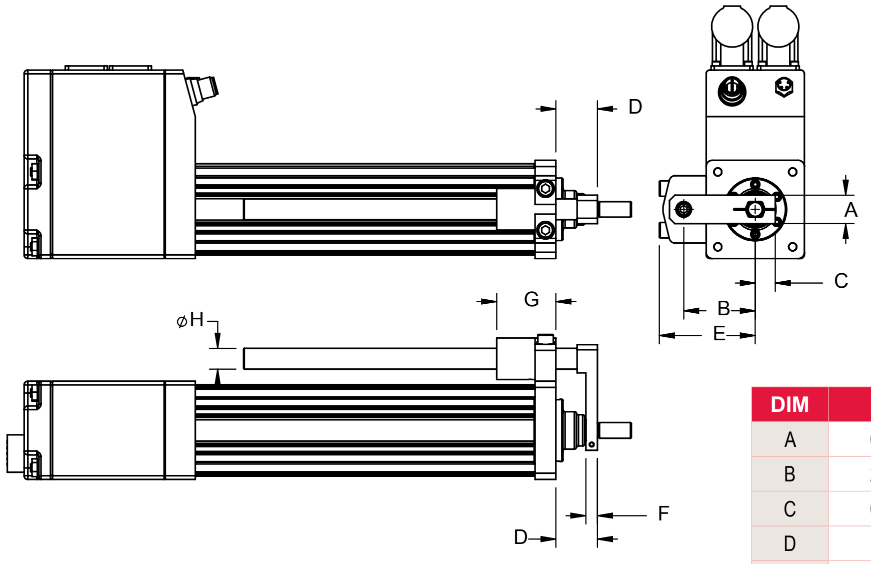
TDX075 Front, Rear, or Front and Rear Flange Mount



DIM	3 inch (75 mm) stroke in (mm)	6 inch (150 mm) stroke in (mm)	10 inch (250 mm) stroke in (mm)	12 inch (300 mm) stroke in (mm)	14 inch (350 mm) stroke in (mm)	18 inch (450 mm) stroke in (mm)
A	10.98 (278.9)	13.45 (341.6)	17.95 (455.9)	19.95 (506.7)	21.95 (557.5)	25.95 (659.1)
B	6.15 (156.2)	8.62 (218.9)	13.12 (333.2)	15.12 (384.0)	17.12 (434.8)	21.12 (536.4)
C	5.38 (136.7)	8.00 (203.2)	10.00 (254.0)	12.00 (304.8)	14.00 (355.6)	18.00 (457.2)
D	12.40 (315.0)	14.87 (377.7)	19.37 (492.0)	21.37 (542.8)	23.37 (593.6)	27.37 (695.2)

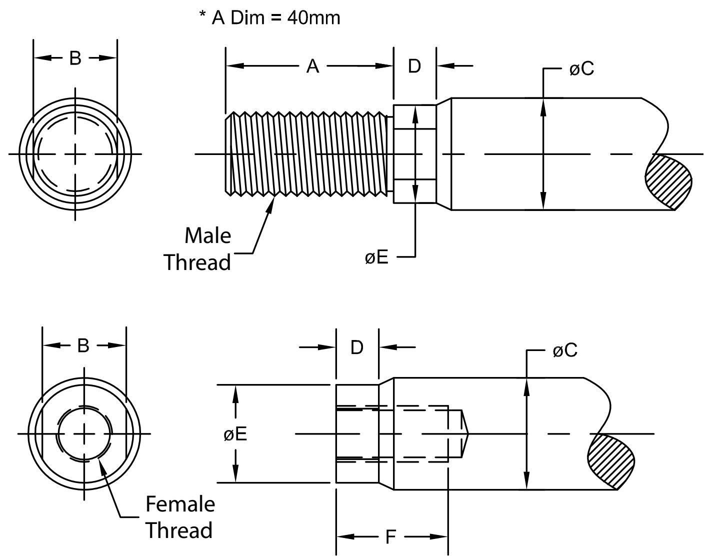
* Add 1.61 inches to dimensions "A", "B" and "D" if ordering a brake. Add1.2 inches to dimensions "A", "C" and "D" and dimension if ordering a splined Δ main rod.
**Add 2 inches (50.8 mm) to "E" if ordering protective bellows.

Anti-Rotate Option



DIM	TDX075
A	0.82 (20.9)
B	2.21 (56.1)
C	0.60 (15.2)
D	1.32 (33.5)
E	2.71 (68.8)
F	0.39 (9.9)
G	1.70 (43.2)
ØH	0.63 (15.9)

Actuator Rod End Option

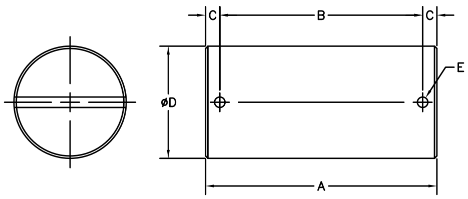


DIM	TDX075
A	0.750 (19.1)
B	0.500 (12.7)
ØC	0.625 (15.9)
D	0.281 (7.1)
ØE	0.562 (14.3)
F	0.750 (19.1)
Male–Inch	7/16-20 UNF-2A
Male–Metric	M12 x 1.75-6g*
Female–Inch	7/16-20 UNF-2B
Female–Metric	M10 x 1.5-6h

*When ordering the male M12x1.75 main rod for the TDX075 dimension “A” will be 1.57 in (40 mm)

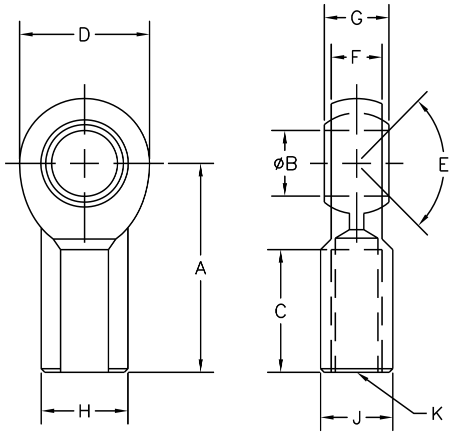
Pre-sale drawings and models are representative and are subject to change. Certified drawings and models are available for a fee. Consult your local Exlar representative for details.

Clevis Pin



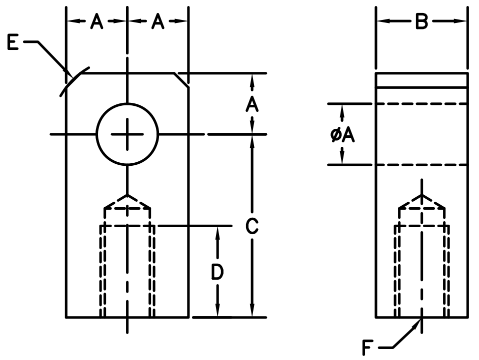
DIM	TDX075
	CP075 in (mm) Rear Clevis
A	3.09 (78.5)
B	2.72 (69.1)
C	1.19 (4.82)
ØD	0.75 (19.1) -0.001/-0.002
ØE	0.14 (3.56)

Spherical Rod Eye



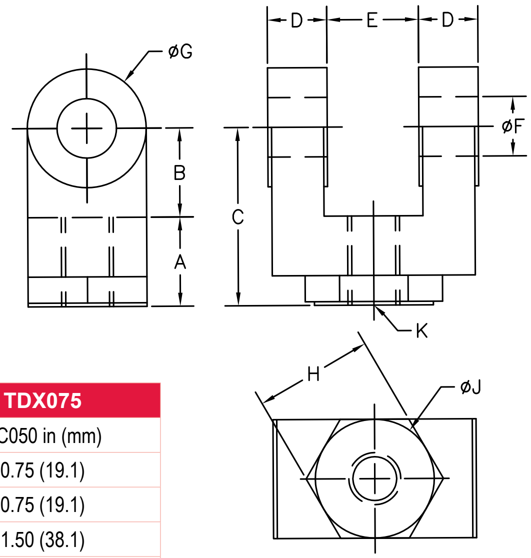
DIM	TDX075
	SRM044 in (mm)
A	1.81 (46.0)
ØB	0.438 (11.13)
C	1.06 (26.9)
D	1.13 (28.7)
E	14 Deg
F	0.44 (11.1)
G	0.56 (14.2)
H	0.75 (19.1)
J	0.63 (16.0)
K	7/16-20

Rod Eye



DIM	TDX075
	RE050 in (mm)
ØA	0.50 (12.7)
B	0.75 (19.1)
C	1.50 (38.1)
D	0.75 (19.1)
E	0.63 (15.9)
F	7/16-20

Rod Clevis



DIM	TDX075
	RC050 in (mm)
A	0.75 (19.1)
B	0.75 (19.1)
C	1.50 (38.1)
D	0.50 (12.7)
E	0.765 (19.43)
ØF	0.50 (12.7)
ØG	1.00 (25.4)
H	1.00 (25.4)
ØJ	1.00 (25.4)
K	7/16-20

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Mechanical Specifications

RDM/G075

Rotary Motor Torque and Speed Ratings

	Stator	1 Stack	2 Stack	3 Stack
	RPM at 48 VDC	4000	3000	2000
Continuous Torque	lbf-in (Nm)	13 (1.46)	18.5 (2.09)	29 (3.28)
Peak Torque	lbf-in (Nm)	18.9 (2.08)	28 (3.16)	41 (4.63)
Drive Current @ Continuous Torque	Amps	22	22	22
Operating Temperature Range**	-20 to 65° C (-40°C available, consult Exlar)			
Maximum Continuous Power Supply Current*	Amps	15	18	18

* Power supply current is based on software current limit, not thermal limit. Consideration for peak current should also be considered when sizing power supplies. For output torque of RDG gearmotors, multiply by ratio and efficiency. Please note maximum allowable output torques shown below.

** Ratings based on 40° C ambient conditions.

Inertia

	Stator	1 Stack	2 Stack	3 Stack
RDM Motor Armature Inertia (+/-5%)	lb-in-sec^2 (kg-cm^2)	0.000545 (0.6158)	0.000973 (1.0996)	0.001401 (1.5834)
RDG Gearmotor Armature Inertia* (+/-5%)	lbf-in-sec^2 (kg-cm^2)	0.000660 (0.7450)	0.001068 (1.2057)	0.001494 (1.6868)

*Add armature inertia to gearing inertia for total inertia.

Radial Load and Bearing Life

RPM	50	100	250	500	1000	3000
RDM075 lbf (N)	278 (1237)	220 (979)	162 (721)	129 (574)	102 (454)	71 (316)
RDG075 lbf (N)	343 (1526)	272 (1210)	200 (890)	159 (707)	126 (560)	88 (391)

Side load ratings shown above are for 10,000 hour bearing life at 25 mm from motor face at given rpm.

Gearmotor Mechanical Ratings

Model	Ratio	Maximum Allowable Output Torque-Set by User lbf-in (Nm)	Output Torque at Motor Speed for 10,000 Hour Life		
			1000 RPM lbf-in (Nm)	2500 RPM lbf-in (Nm)	4000 RPM lbf-in (Nm)
RDG075-004	4:1	1618 (182.8)	384 (43.4)	292 (32.9)	254 (28.7)
RDG075-005	5:1	1446 (163.4)	395 (44.6)	300 (33.9)	260 (29.4)
RDG075-010	10:1	700 (79.1)	449 (50.7)	341 (38.5)	296 (33.4)

Two torque ratings for the RDG gearmotors are given in the table above. The left hand columns give the maximum (peak) allowable output torque for the indicated ratios of each size RDG gearmotor. This is not the rated output torque of the motor multiplied by the ratio of the reducer.

It is possible to select a configuration of the motor selection and gear ratio such that the rated motor torque, multiplied by the gear ratio exceeds these ratings. It is the responsibility of the user to ensure that the settings of the system do not allow these values to be exceeded.

The right hand columns give the output torque at the indicated speed which will result in 10,000 hour life (L10). The setup of the system will determine the actual output torque and speed.

Gearing Reflected Inertia

	Single Reduction (+/-5%)	
Gear Stages	lbf-in-sec^2	(kg-cm^2)
4:1	0.000095	(0.107)
5:1	0.000062	(0.069)
10:1	0.000117	(0.019)

Backlash and Efficiency

	Single Reduction
Backlash at 1% Rated Torque	10 Arc min
Efficiency	91%

Motor and Gearmotor Weights

		RDM075 without Gears	RDG075 with 1 Stage Gearing	Added Weight for Brake
1 Stack Stator	lb (kg)	7.4 (3.4)	9.8 (4.4)	1.0 (0.5)
2 Stack Stator	lb (kg)	9.2 (4.2)	11.6 (5.3)	
3 Stack Stator	lb (kg)	11 (4.9)	13.4 (6.1)	

RDM/G090

Rotary Motor Torque and Speed Ratings

	Stator	1 Stack	2 Stack	3 Stack
	RPM at 48 VDC	3300	1800	1400
Continuous Torque	lbf-in (Nm)	17 (1.92)	28 (3.16)	41 (4.63)
Peak Torque	lbf-in (Nm)	21.8 (2.46)	36 (4.07)	52.8 (5.97)
Drive Current @ Continuous Torque	Amps	22	22	22
Operating Temperature Range**	-20 to 65° C (-40°C available, consult Exlar)			
Maximum Continuous Power Supply Current*	Amps	18	18	18

* Power supply current is based on software current limit, not thermal limit. Consideration for peak current should also be considered when sizing power supplies. For output torque of RDG gearmotors, multiply by ratio and efficiency. Please note maximum allowable output torques shown below.
** Ratings based on 40° C ambient conditions.

Inertia

	Stator	1 Stack	2 Stack	3 Stack
RDM Motor Armature Inertia (+/-5%)	lb-in-sec² (kg-cm²)	0.00054 (0.609)	0.00097 (1.09)	0.00140 (1.58)
RDG Gearmotor Armature Inertia* (+/-5%)	lbf-in-sec² (kg-cm²)	0.00114 (1.29)	0.00157 (1.77)	0.00200 (2.26)

*Add armature inertia to gearing inertia for total inertia.

Radial Load and Bearing Life

RPM	50	100	250	500	1000	3000
RDM090 lbf (N)	427 (1899)	340 (1512)	250 (1112)	198 (881)	158 (703)	109 (485)
RDG090 lbf (N)	350 (1557)	278 (1237)	205 (912)	163 (725)	129 (574)	89 (396)

Side load ratings shown above are for 10,000 hour bearing life at 25 mm from motor face at given rpm.

Gearmotor Mechanical Ratings

Model	Ratio	Maximum Allowable Output Torque-Set by User lbf-in (Nm)	Output Torque at Motor Speed for 10,000 Hour Life		
			1000 RPM lbf-in (Nm)	2500 RPM lbf-in (Nm)	3300 RPM lbf-in (Nm)
RDG090-004	4:1	2078 (234.8)	698 (78.9)	530 (59.9)	488 (55.1)
RDG090-005	5:1	1798 (203.1)	896 (101.2)	680 (76.8)	626 (70.7)
RDG090-010	10:1	1126 (127.2)	1043 (117.8)	792 (89.5)	729 (82.4)
RDG090-016	16:1	2078 (234.8)	1057 (119.4)	803 (90.7)	739 (83.5)
RDG090-020	20:1	2078 (234.8)	1131 (127.8)	859 (97.1)	790 (89.3)
RDG090-025	25:1	1798 (203.1)	1452 (164.1)	1103 (124.6)	1015 (114.7)
RDG090-040	40:1	2078 (234.8)	1392 (157.3)	1057 (119.4)	973 (109.9)
RDG090-050	50:1	1798 (203.1)	1787 (201.9)	1358 (153.4)	1249 (141.1)
RDG090-100	100:1	1126 (127.2)	1100 (124.3)	1100 (124.3)	1100 (124.3)

Two torque ratings for the RDG gearmotors are given in the table above. The left hand columns give the maximum (peak) allowable output torque for the indicated ratios of each size RDG gearmotor. This is not the rated output torque of the motor multiplied by the ratio of the reducer.

It is possible to select a configuration of the motor selection and gear ratio such that the rated motor torque, multiplied by the gear ratio exceeds these ratings. It is the responsibility of the user to ensure that the settings of the system do not allow these values to be exceeded.
The right hand columns give the output torque at the indicated speed which will result in 10,000 hour life (L10). The setup of the system will determine the actual output torque and speed.

Gearing Reflected Inertia

Single Reduction			Double Reduction		
Gear Stages	lbf-in-sec²	(kg-cm²)	Gear Stages	lbf-in-sec²	(kg-cm²)
4:1	0.0000154	(0.174)	16:1	0.000115	(0.130)
5:1	0.0000100	(0.113)	20:1, 25:1	0.0000756	(0.0854)
10:1	0.0000265	(0.0300)	40:1, 50:1, 100:1	0.0000203	(0.0230)

Backlash and Efficiency

	Single Reduction	Double Reduction
Backlash at 1% Rated Torque	10 Arc min	13 Arc min
Efficiency	91%	86%

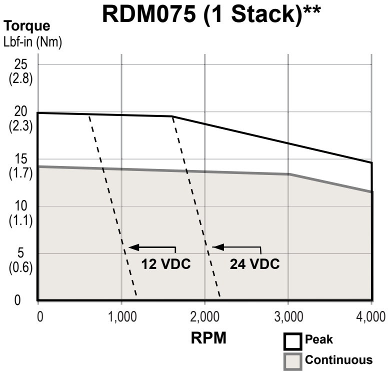
Motor and Gearmotor Weights

		RDM090 without Gears	RDG090 with 1 Stage Gearing	RDG090 with 2 Stage Gearing	Added Weight for Brake
1 Stack Stator	lb (kg)	12.5 (5.7)	20.5 (9.3)	23.5 (10.7)	1.5 (0.7)
2 Stack Stator	lb (kg)	15.5 (7.0)	23.5 (10.7)	26.5 (12)	
3 Stack Stator	lb (kg)	18.5 (8.4)	26.5 (12.0)	29.5 (13.4)	

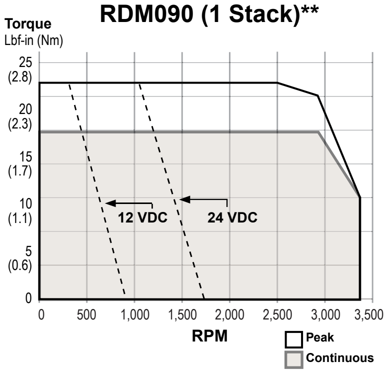
Speed vs. Force Curves

RDM075	RDM090

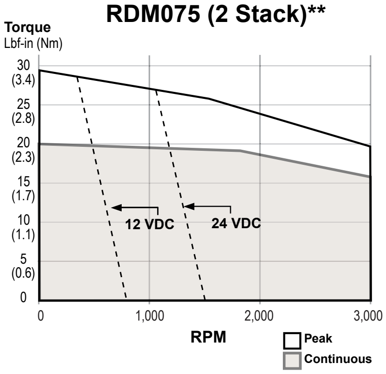
RDM075 (1 Stack)**



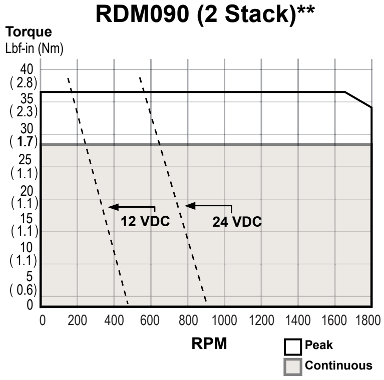
RDM090 (1 Stack)**



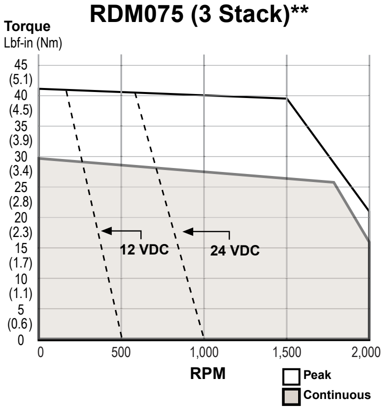
RDM075 (2 Stack)**



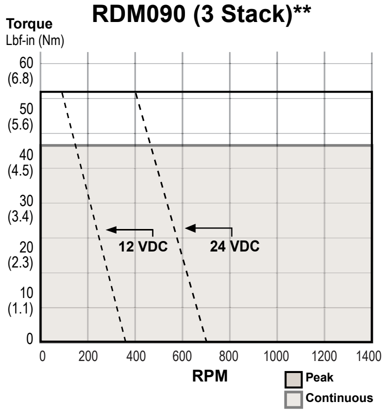
RDM090 (2 Stack)**



RDM075 (3 Stack)**



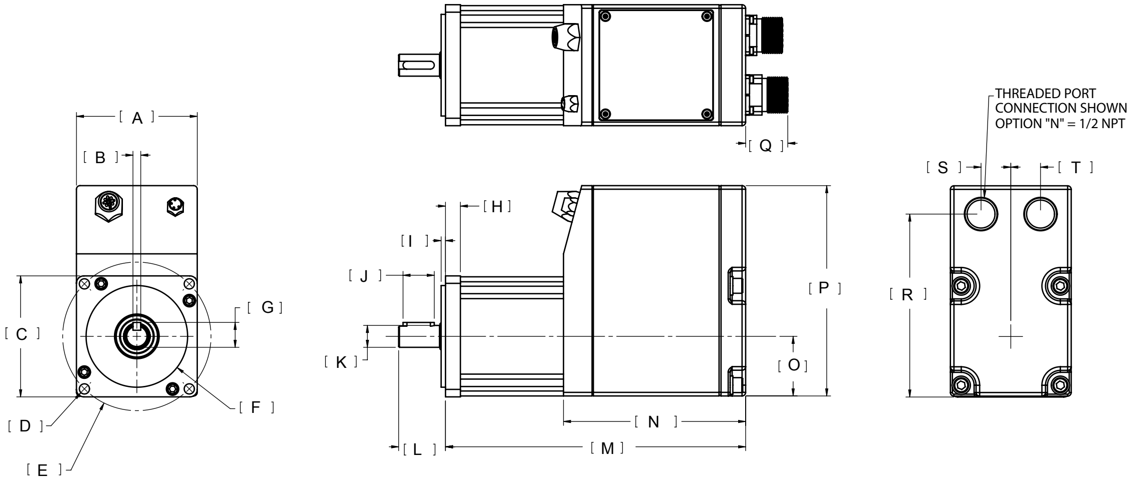
RDM090 (3 Stack)**



For RDG gearmotors, multiply torque by ratio and efficiency. Divide speed by gear ratio.
**RDM075 and RDM090 test data derived using NEMA recommended aluminum heatsink 10" x 10" x 3/8" at 40°C ambient

Dimensions

RDM/G075 Base Actuator



		RDM075	RDG075			RDM075	RDG075
A	in	3.05	3.05	K	in	Ø 0.5512 / 0.5508	Ø 0.6302 / 0.6298
	mm	77.4	77.4		mm	14 h6	16 j6
B	in	Ø 0.1969 / 0.1957	Ø 0.1969 / 0.1957	L	in	1.18	1.18
	mm	5 h9	5 h9		mm	30.0	30.0
C	in	□ 3.05	□ 3.05	M	in	See Below	See Below
	mm	77.4	77.4		mm	See Below	See Below
D	in	4X Ø 0.26 ON BC	4X Ø 0.26 ON BC	N	in	4.59	4.59
	mm	6.5	6.5		mm	116.6	116.6
E	in	Ø 3.74 BC	Ø 3.74 BC	O	in	1.5	1.5
	mm	95.0	95.0		mm	38.1	38.1
F	in	Ø 2.5587 / 2.5580	Ø 2.5587 / 2.5580	P	in	5.30	5.30
	mm	65 g6	65 g6		mm	134.5	134.5
G	in	0.63	0.70	Q	in	1.06	1.06
	mm	15.9	17.9		mm	27.0	27.0
H	in	0.38	0.45	R	in	4.61	4.61
	mm	9.5	11.5		mm	117.0	117.0
I	in	0.11	0.11	S	in	0.75	0.75
	mm	2.8	2.8		mm	19.1	19.1
J	in	0.79	0.79	T	in	0.75	0.75
	mm	20.0	20.0		mm	19.1	19.1

RDM075

Without Brake Option			
DIM	1 Stack Stator	2 Stack Stator	3 Stack Stator
M	7.57 (192.3)	8.57 (217.7)	9.57 (243.1)

With Brake Option			
DIM	1 Stack Stator	2 Stack Stator	3 Stack Stator
M	8.85 (224.8)	9.85 (250.2)	10.85 (275.6)

RDG075

Without Brake Option			
DIM	1 Stack Stator 1 Stage Gearhead	2 Stack Stator 1 Stage Gearhead	3 Stack Stator 1 Stage Gearhead
M	9.19 (233.4)	10.19 (258.8)	11.19 (284.2)

With Brake Option			
DIM	1 Stack Stator 1 Stage Gearhead	2 Stack Stator 1 Stage Gearhead	3 Stack Stator 1 Stage Gearhead
M	10.42 (264.7)	11.42 (290.1)	12.42 (315.5)

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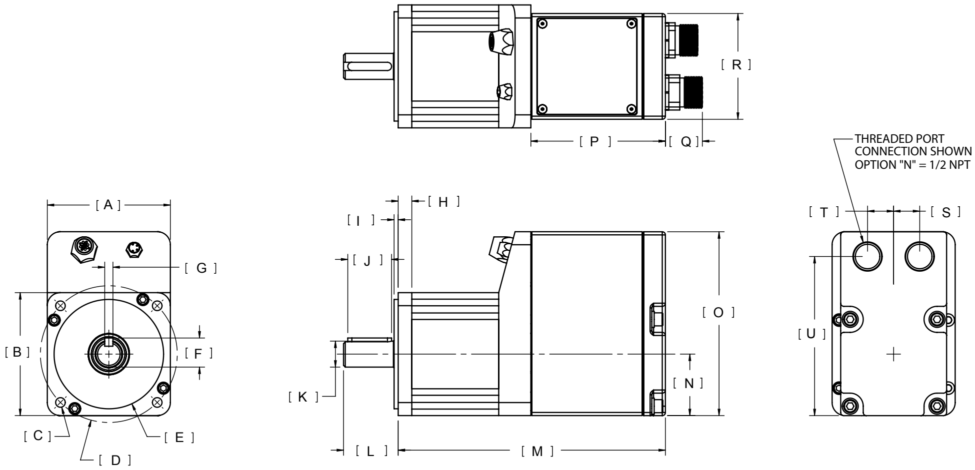
RDM/G090 Base Actuator



		RDM90	RDG090			RDM090	RDG090
A	in	3.54	3.54	L	in	1.57	1.89
	mm	90	90		mm	39.6	48.0
B	in	3.54	3.54	M	in	See Below	See Below
	mm	90	90		mm	See Below	See Below
C	in	4X Ø 0.28	4X Ø 0.26	N	in	1.77	1.77
	mm	7.0	6.5		mm	45.0	45.0
D	in	Ø 3.94 BC	Ø 3.94 BC	O	in	5.30	5.30
	mm	100.0	100.0		mm	134.5	134.5
E	in	Ø 3.1492 / 3.1485	Ø 3.1492 / 3.1485	P	in	3.87	3.87
	mm	80 g6	80 g6		mm	98.3	98.3
F	in	0.85	0.96	Q	in	1.06	1.06
	mm	21.5	24.3		mm	27.0	27.0
G	in	Ø 0.2362 / 0.2350	Ø 0.2362 / 0.2350	R	in	3.05	3.05
	mm	6 h9	6 h9		mm	77.4	77.4
H	in	0.39	0.63	S	in	0.75	0.75
	mm	10.0	15.9		mm	19.1	19.1
I	in	0.12	0.12	T	in	0.75	0.75
	mm	3.0	3.0		mm	19.1	19.1
J	in	1.26	1.42	U	in	4.58	4.58
	mm	32.0	36.0		mm	116.4	116.4
K	in	Ø 0.7480 / 0.7475	Ø 0.8665 / 0.8659				
	mm	19 h6	22 j6				

RDM090

Without Brake Option			
DIM	1 Stack Stator	2 Stack Stator	3 Stack Stator
M	7.69 (195.3)	8.69 (220.7)	9.69 (246.1)

With Brake Option			
DIM	1 Stack Stator	2 Stack Stator	3 Stack Stator
M	9.0 (228.6)	10.00 (254.0)	11.00 (279.4)

RDG090

Without Brake Option			
DIM	1 Stack Stator 1 Stage Gearhead	2 Stack Stator 1 Stage Gearhead	3 Stack Stator 1 Stage Gearhead
M	10.80 (274.3)	11.80 (299.7)	12.80 (325.1)
DIM	1 Stack Stator 2 Stage Gearhead	2 Stack Stator 2 Stage Gearhead	3 Stack Stator 2 Stage Gearhead
M	12.06 (306.3)	13.06 (331.7)	14.06 (357.1)

With Brake Option			
DIM	1 Stack Stator 1 Stage Gearhead	2 Stack Stator 1 Stage Gearhead	3 Stack Stator 1 Stage Gearhead
M	12.13 (308.1)	13.11 (333.0)	14.11 (358.4)
DIM	1 Stack Stator 2 Stage Gearhead	2 Stack Stator 2 Stage Gearhead	3 Stack Stator 2 Stage Gearhead
M	13.37 (339.6)	14.37 (365.0)	15.37 (390.4)

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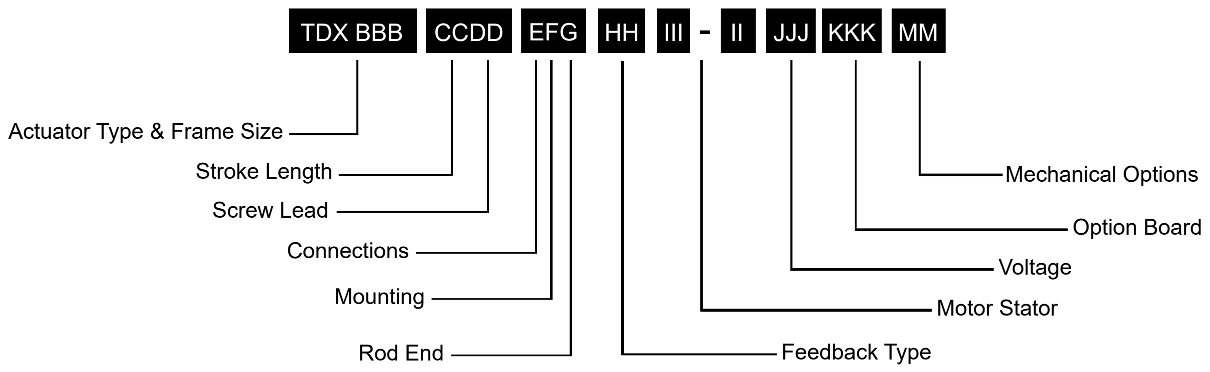
Notes



TDX = Actuator Type
TDX = Tritex II Linear Actuator, high mechanical capacity

BBB = Actuator Frame Size
060 = 60 mm
075 = 75 mm

CC = Stroke Length
03 = 3 inch (76 mm)
06 = 6 inch (150 mm)
10 = 10 inch (254 mm)
12 = 12 inch (305 mm)
14 = 14 inch (356 mm) (75 mm only)
18 = 18 inch (457 mm) (75 mm only)

DD = Screw Lead (linear travel per screw revolution)
01 = 0.1 inch (2.54 mm)
02 = 0.2 inch (5.08 mm)
04 = 0.4 inch (10.16 mm) (60 mm only)
05 = 0.5 inch (12.7 mm) (75 mm only)

E = Connections
N = NPT Threaded Port via Adapter with Internal Terminals, 1/2" NPT (75 mm only)

F = Mounting
C = Rear Clevis
G = Metric Rear Clevis
D = Double Side Mount
K = Metric Double Side Mount
E = Extended Tie Rod
M = Metric Extended Tie Rod
F = Front Flange
R = Rear Flange
T = Side Trunnion
Q = Metric Side Trunnion

G = Rod End
M = Male US Standard Thread [1]
A = Male Metric Thread [1]
F = Female US Standard Thread [1]
B = Female Metric Thread [1]

HH = Feedback Type
HD = Analog Hall Device
IE = Incremental Encoder, 8192 count resolution
AF = Absolute Feedback [6]

III-II = Motor Stator, All 8 Pole
TDX075 Stator Specifications
1B8-30 = 1 Stack, 48 VDC, 3000 rpm
2B8-30 = 2 Stack, 48 VDC, 3000 rpm
3B8-20 = 3 Stack, 48 VDC, 2000 rpm [2]

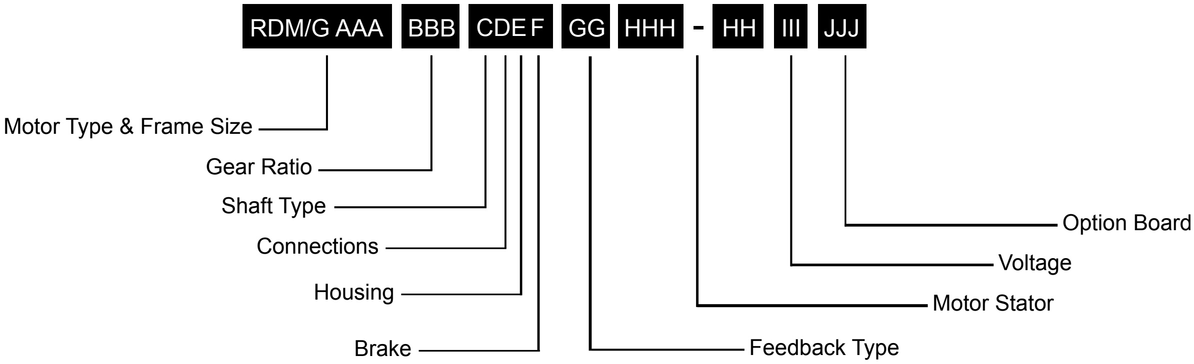
JJJ = Voltage
048 = 12-48 VDC

KKK = Option Board
SIO = Standard IO Interconnect
IA4 = 4-20 mA Analog I/O
CON = CANOpen, non-connectorized [5]
EIN = SIO plus Ethernet/IP without M12 connector [5]
PIN = SIO plus Profinet IO without M12 connector [5]
TCN = SIO plus Modbus TCP without M12 connector [5]

MM = Mechanical Options [3]
AR = External Anti-rotate
L1/2/3 = External Limit Switches (7)
RB = Rear Brake
PB = Protective Bellows [4]

NOTES:
1. Chrome-plated carbon steel. Threads not chrome-plated.
2. Not available on 0.1 inch lead.
3. For extended temperature operation consult factory for model number.
4. Not available with extended tie rod mounting option.
5. Requires customer supplied Ethernet cable through I/O port for Class 1 Division 2 compliance only.
6. When ordering a RDM or RDG 60 mm or other sizes with top mounted connectors the battery backup for AF feedback must be mounted externally. A DIN rail mounted board and battery is supplied, Exlar PN 48224.

For options or specials not listed above or for extended temperature operation, please contact Exlar



RDM/G = Motor Type
RDM = Tritex II DC Rotary Motor
RDG = Tritex II DC Rotary Gearmotor

AAA = Frame Size
060 = 60 mm
075 = 75 mm
090 = 90 mm

BBB = Gear Ratio
Blank = RDM
Single Reduction Ratios
004 = 4:1   005 = 5:1   010 = 10:1
Double Reduction Ratios (NA on 75 mm)
016 = 16:1   020 = 20:1
025 = 25:1   040 = 40:1
050 = 50:1   100 = 100:1

C = Shaft Type
K = Keyed
R = Smooth/Round

D = Connections
N = NPT threaded port internal terminals, 1/2” NPT (75 & 90 mm only)

E = Housing Options
G = Exlar Standard

F = Brake Options
S = No Brake, Standard
B = Electric Brake, 24 VDC

GG = Feedback Type
HD = Analog Hall Device
IE = Incremental Encoder, 8192 Count Resolution
AF = Absolute Feedback [3]

HHH-HH = Motor Stators - All 8 Pole
RDM/G075 Stator Specifications
1B8-40 = 1 Stack, 48 VDC, 4000 rpm
2B8-30 = 2 Stack, 48 VDC, 3000 rpm
3B8-20 = 3 Stack, 48 VDC, 2000 rpm

RDM/G090 Stator Specifications
1B8-33 = 1 Stack, 48 VDC, 3300 rpm
2B8-18 = 2 Stack, 48 VDC, 1800 rpm
3B8-14 = 3 Stack, 48 VDC, 1400 rpm

III = Voltage
048= 12-48 VDC

JJJ = Option Board
SIO = Standard I/O Interconnect
IA4 = + 4-20 mA Analog I/O
CON = CANOpen, non-connectorized [2]
EIN = SIO plus EtherNet/IP without M12 connector [2]
PIN = SIO plus Profinet IO without M12 connector [2]
TCN = SIO plus Modbus TCP without M12 connector [2]

For options or specials not listed above or for extended temperature operation, please contact Exlar

NOTES:
1. For extended temperature operation consult factory for model number.
2. Requires customer supplied Ethernet cable through I/O port for Class 1 Division 2 compliance only. Also N/A on 60 mm.
3. When ordering a RDM or RDG 60 mm or other sizes with top mounted connectors the battery backup for AF feedback must be mounted externally. A DIN rail mounted board and battery is supplied, Exlar PN 48224.”