## Pacific Scientific T22NRLC-LNN-NS-00 Stepper Motor



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# Kollmorgen Stepper Solutions Catalog

including AC Synchronous Motors



# Kollmorgen. Every solution comes from a real understanding of the challenges facing machine designers and users.

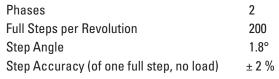
The ever-escalating demands of the marketplace mean increased pressure on machine designers and users at every turn. Time constraints. Demands for better performance. Having to think about the next-generation machine even before the current one is built. While expectations are enormous, budgets are not. Kollmorgen's innovative motion solutions and broad range of quality products help engineers not only overcome these challenges but also build truly differentiated machines.

Because motion matters, it's our focus. Motion can distinctly differentiate a machine and deliver a marketplace advantage by improving its performance. This translates to overall increased efficiency on the factory floor. Perfectly deployed machine motion can make your customer's machine more reliable and efficient, enhance accuracy and improve operator safety. Motion also represents endless possibilities for innovation. We've always understood this potential, and thus have kept motion at our core, relentlessly developing products that offer precision control of speed, accuracy and position in machines that rely on complex motion.

# T2 Series Stepper Motors

#### **General Specifications**

- NEMA Size 23
- High Torque at moderate speeds
- Inch standard mounting
- CE cUR and UR compliant
- Unipolar or Bipolar windings
- Features: leadwire connection, flat or smooth shaft
- Options: MS connector, terminal boxes, encoder mounting provisions,
   200 LPR, 400 LPR encoders with line drivers
- Custom Motors



Operating Temperature  $-20^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$  Insulation Class Class B, 130°C Insulation Voltage Rating 340 Vdc

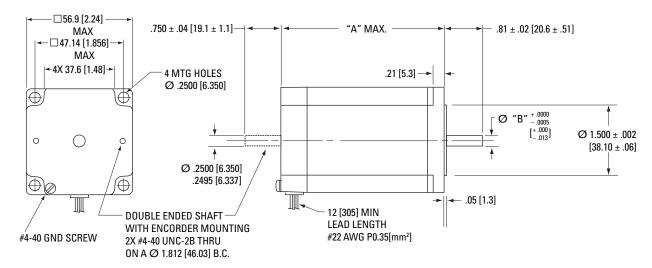
Insulation Resistance 100 Megohms



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## **T2 Outline Drawings**

#### **Leadwire Hookup Models**

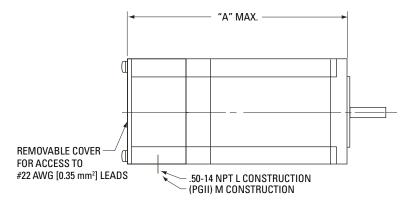


Dimensions in inches [mm]

Model	"A" Max	"B" Max			
T2H	1.64 (41.6)	0.2500 (6.35)			
T21	2.21 (56.1)				
T22	3.06 (77.7)				
T23	4.06 (103.1)	0.3125 (7.94)			

#### **Terminal Box Construction**

Model	"A" Max
T2H	2.84 (72.1)
T21	3.41 (86.6)
T22	4.26 (108.2)
T23	5.26 (133.6)



Dimensions in inches [mm]

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# T2 Series Stepper Motors

#### **T2 Performance Data**

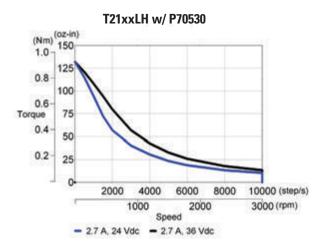
Motor Model Number		Config.		Holding Torque (2 phases on)	Rated Current/ Phase	Phase Resistance	Phase Inductance	Detent Torque	Thermal Resistance	Rotor Inertia	Weight	Shaft Loading*	
												Radial Force	Axial Force
		Parallel	Series	oz-in (Nm) +/-10%	Amps DC	Ohms +/-10%	mH Typical	oz-in (Nm)	Mounted °C/Watt	oz-in-s² (kg-m² x 10 <sup>-3</sup> )	lb (kg)	lb (N)	lb (N)
×	T2HxxHK	•			5.3	0.19	0.63	2.0 (0.014)	6.14	0.00154 (0.0109)	1.1 (0.50)	15 (67)	25 (111)
Short Stack	T2HxxHJ	•		74	4.0	0.28	1.0						
ort:	T2HxxLH		•	(0.52)	2.7	0.64	2.5						
2 S	T2HxxLD		•		1.1	3.6	16						
1 Stack	T21xxHK	•			5.4	0.23	1.1	3.0 (0.021)	4.64	0.0034 (0.024)	1.5 (0.68)	15 (67)	25 (111)
	T21xxHJ	•			4.1	0.33	1.8						
	T21xxLC		•	180 (1.27)	0.4	42.9	209						
	T21xxLH		•		2.7	0.85	4.6						
	T21xxLE		•		1.4	3.0	16						
	T21xxLD		•		1.1	4.9	30						
2 Stack	T22xxHK	•		280 (1.98)	6.6	0.20	0.85	6.0 (0.042)	3.69	0.0056 (0.040)	2.2 (1.0)	15 (67)	25 (111)
	T22xxHJ	•			4.1	0.49	2.5						
	T22xxLC		•		0.46	41.4	209						
	T22xxLH		•		3.3	0.75	3.4						
	T22xxLG		•		2.5	1.3	7.1						
	T22xxLE		•		1.5	2.9	17						
3 Stack	T23xxHK	•		380 (2.68)	6.0	0.28	1.5		3.04	0.0084 (0.059)	3.3 (1.5)	15 (67)	25 (111)
	T23xxHJ	•			3.8	0.64	3.9						
	T23xxLC		•		0.67	23.5	136	7.0 (0.049)					
	T23xxLH		•		3.0	1.0	6.2						
	T23xxLF		•		1.8	2.8	17						
	T23xxLE		•		1.5	4.1	24						

Note: \*Maximum shaft loading based on 20,000 hours of operation at 1500 rpm.

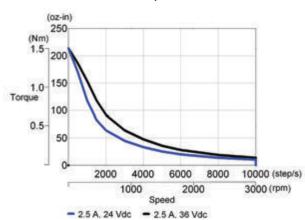
See page 90 for T series connector diagrams and switching sequence.

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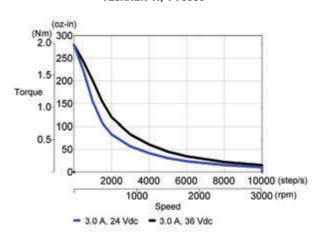
#### **T2 Performance Curves - DC Drive Models**



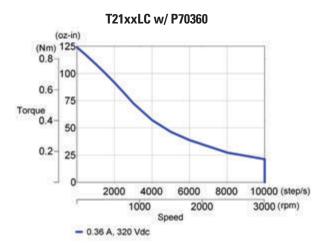
#### T22xxLG w/ P70530



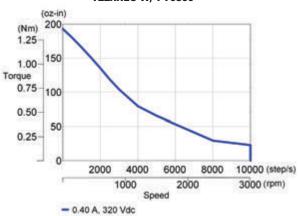
#### T23xxLH w/ P70530



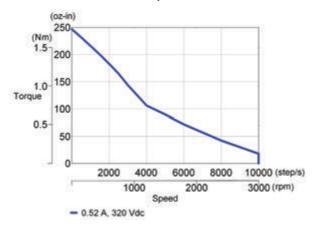
#### **T2 Performance Curves - AC Drive Models**



T22xxLC w/ P70360



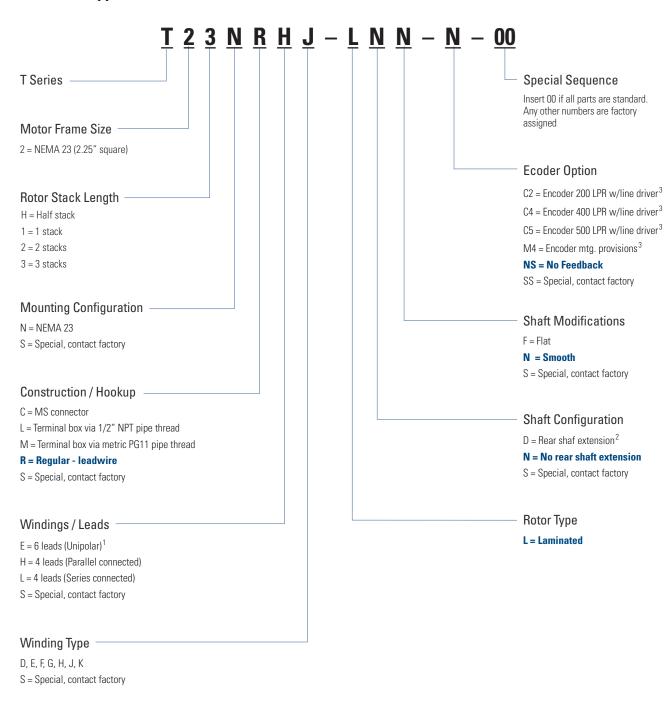
#### T23xxLC w/ P70360



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# Model Nomenclature

#### **T2 Series Stepper Motor**



#### Notes:

- 1. N/A with "C" Construction / Hookup option
- 2. "R" Construction / Hookup only, required for motors with encoders
- 3. Requires "R" Construction / Hookup option and "D" Shaft Configuration option

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