Tolomatic
EXCELLENCE *IN MOTION*®

ACS STEPPER DRIVE & STEPPER MOTORS

ACTUATOR CONTROL SOLUTIONS

LINEAR SOLUTIONS MADE EASY

ACS – Actuator Control Solutions

WHAT IS THE ACS?

The ACS is an extremely easy-to-use stepper drive & controller developed specifically to be used with electric actuators. Simply select the configured Tolomatic actuator in the software to automatically set-up most of the necessary parameters to create motion in the desired linear units (mm or inch).

ACS DRIVE/CONTROLLER (3604-9651) CAPABILITIES:

- Operation Modes
  - » 4, 8, or 16 configurable move commands (absolute, incremental, jog, or home move types) with motion commanded via digital inputs.
  - » Analog input positioning mode (0-10Vdc or 4-20mA)
  - » Pneumatic mode replaces pneumatic valve operation for simple motion
  - » Modbus RTU over RS485 provides infinite positioning
- Adjustable motion profile parameters. Position, velocity, accel, decel, force parameters are Independently configurable for up to 16 moves.
- Force limiting
- Ability to reduce holding current for energy savings
- End point correction
- Zone output based on position
- Configurable digital I/O (24Vdc Opto-Isolated, sourcing or sinking)
- Compatible with most 24Vdc 2-phase stepper motors

ACS DRIVE/CONTROLLER ETHERNET/IP OPTION (3604-9654) ADDITIONAL CAPABILITIES

- Infinite positioning with EtherNet/IP commands
- Dual port with internal switch for daisy chaining
- Analog output echoing actuator position

ACS DRIVE/CONTROLLER MODBUS TCP OPTION (3604-9655) ADDITIONAL CAPABILITIES

- Infinite positioning with Modbus TCP commands
- Dual port with internal switch for daisy chaining
- Analog output echoing actuator position

ACS DRIVE/CONTROLLER SPECIFICATIONS

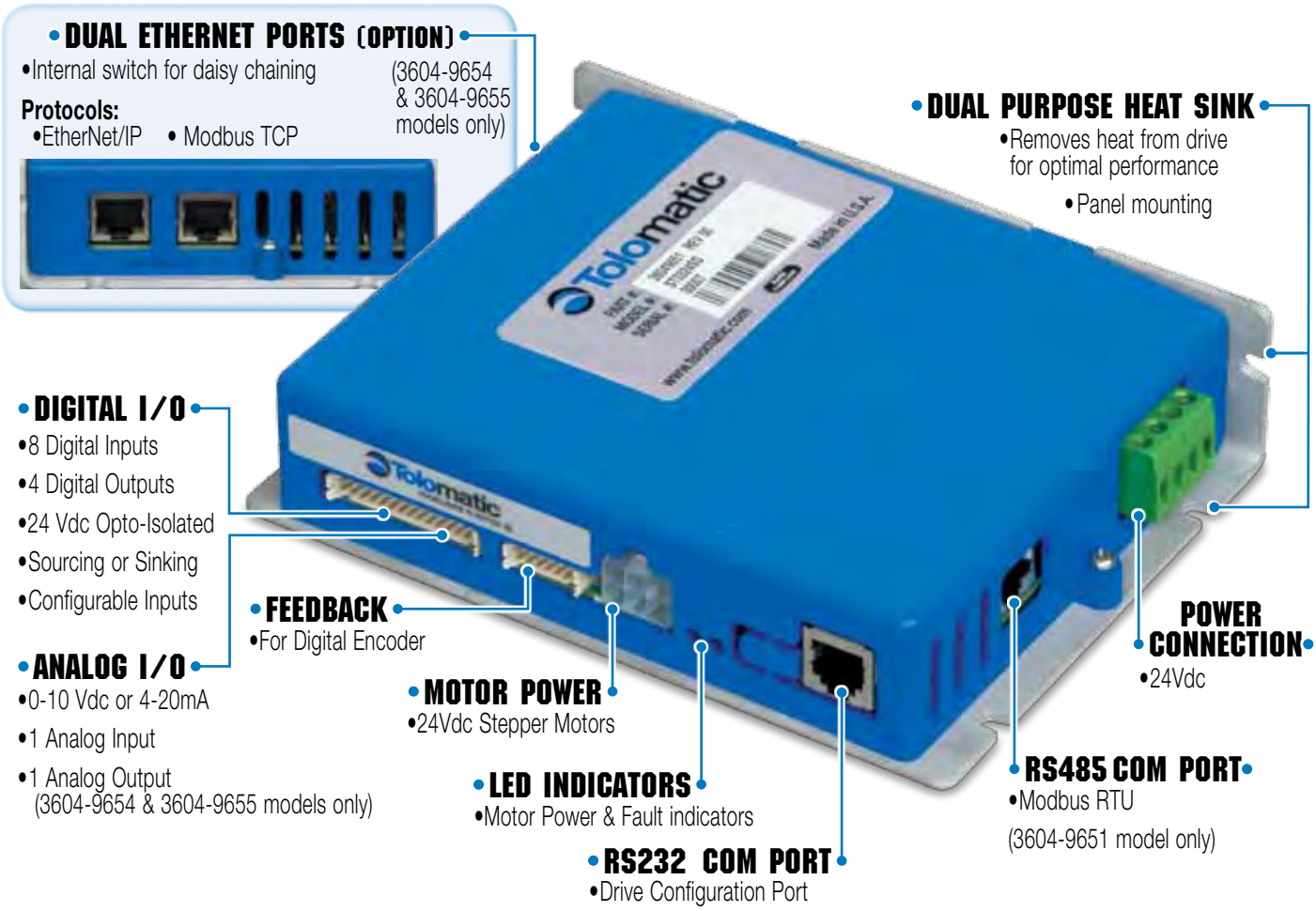
DRIVE POWER	
Current - Max	4A
Voltage Nominal	20 - 28V
Over Voltage	30V
Under Voltage	18V
Absolute Maximum Voltage	35V
Logic Current Draw (24V)	100 mA

OPERATING CONDITIONS	
Ambient Temperature	77°F, 25°C Nominal
Operating Temperature	32 - 104°F, 0 - 40°C
Storage Temperature	32-158°F, 0-70°C
Humidity	0 - 90% non-condensing

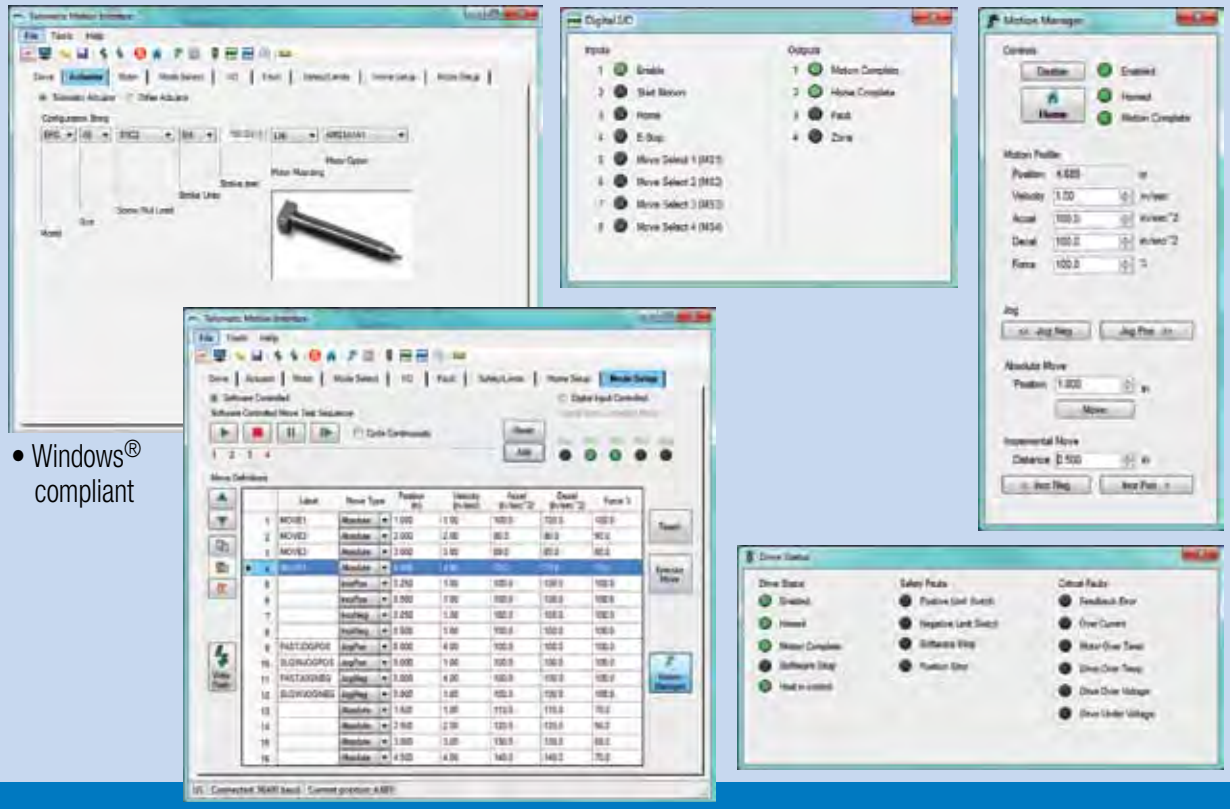
See ACS Hardware and Installation Guide #3604-4173 for more details.

ACS – Stepper Features

MODELS: 3604-9651, 3604-9654, 3604-9655



EASY TO USE CONFIGURATION SOFTWARE



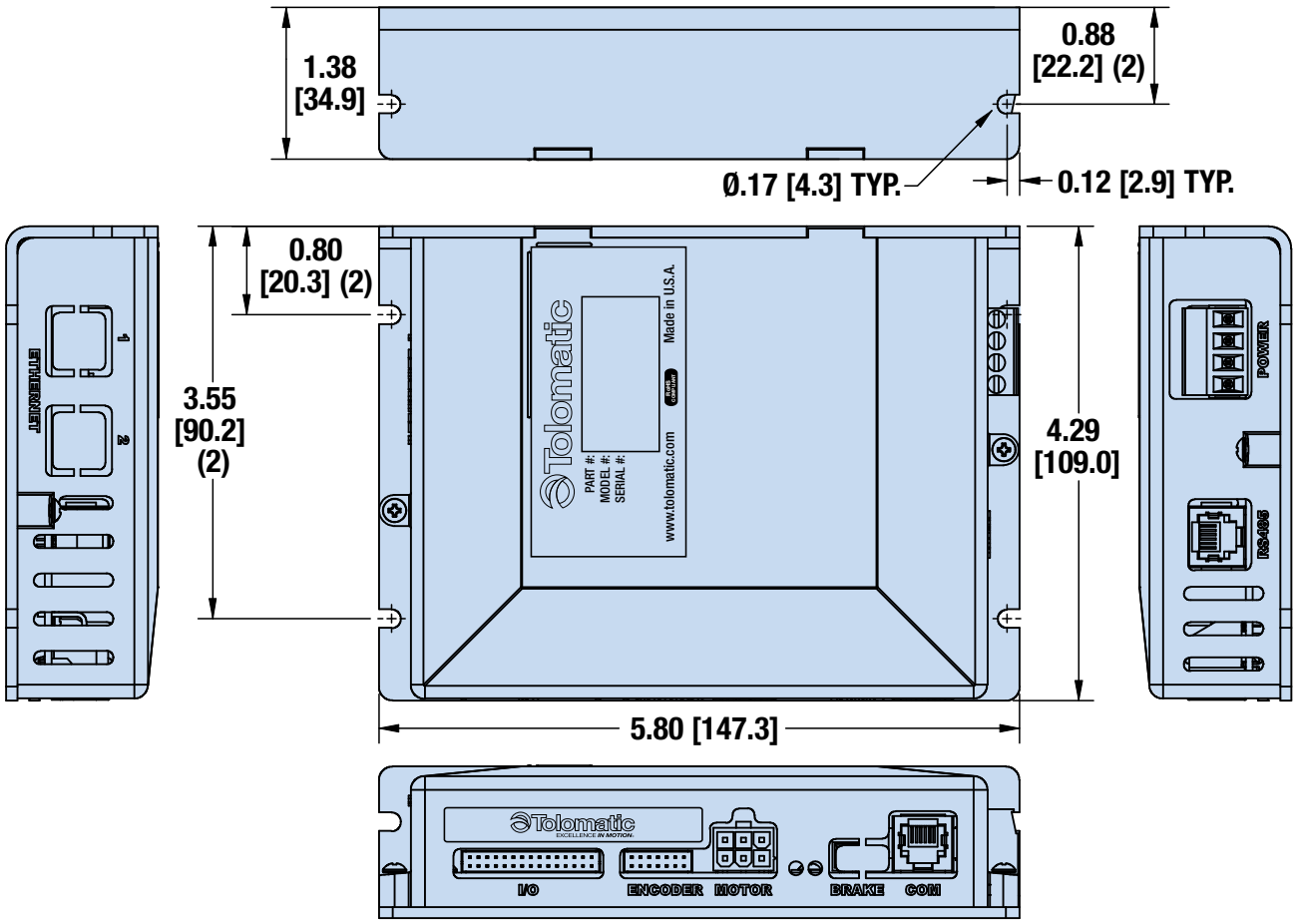
• Windows® compliant

SIZING SOFTWARE AVAILABLE AT WWW.TOLOMATIC.COM ACTUATOR SIZING

DIMENSIONS

3D CAD available at www.tolomatic.com

ACS DRIVE/CONTROLLER DIMENSIONS



Stepper Motors

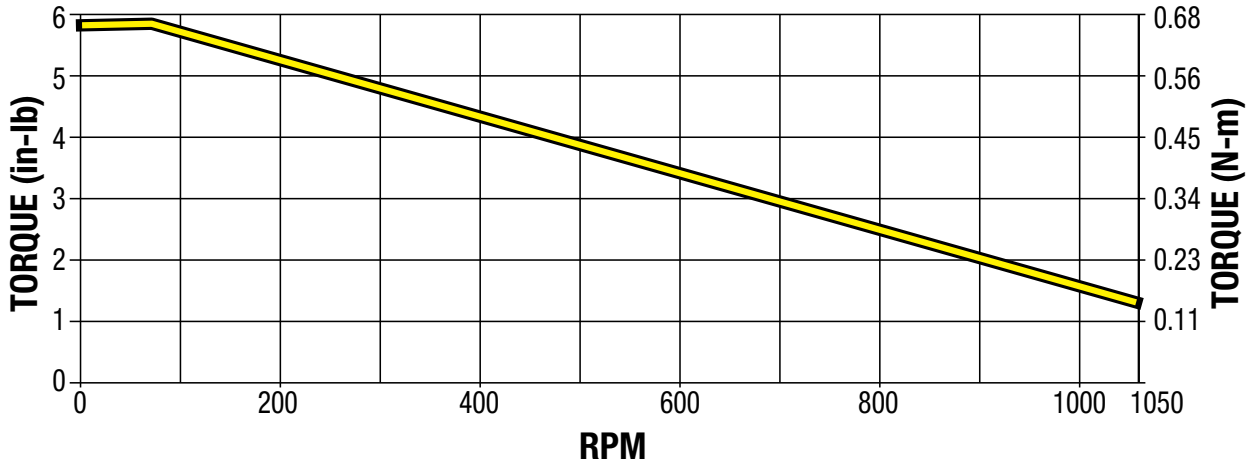
MOTOR SPECIFICATIONS

Specifications	NEMA 11		NEMA 17		NEMA 23	
Motor Type	Bipolar Stepper, 1.8° per Step					
Encoder	Differential; 500 line (2000 count post quad)					
Resistance	3.5 Ω		2.4 Ω		1.5 Ω	
Inductance	2.3 mH		4.5 mH		3.7 mH	
Rated Current	1 Arms		1.5 Arms		2 Arms	
Maximum Torque	0.813 in-lbs	0.092 N-m	4.4 in-lbs	0.497 N-m	6.25 in-lbs	0.706 N-m
Maximum RPM	1500 RPM		900 RPM		1050 RPM	
Degree per Step	1.8°		1.8°		1.8°	
Rotor Inertia	0.006 lb-in^2	17.588 g-cm^2	0.028 lb-in^2	81.939 g-cm^2	0.075 lb-in^2	219.481 g-cm^2

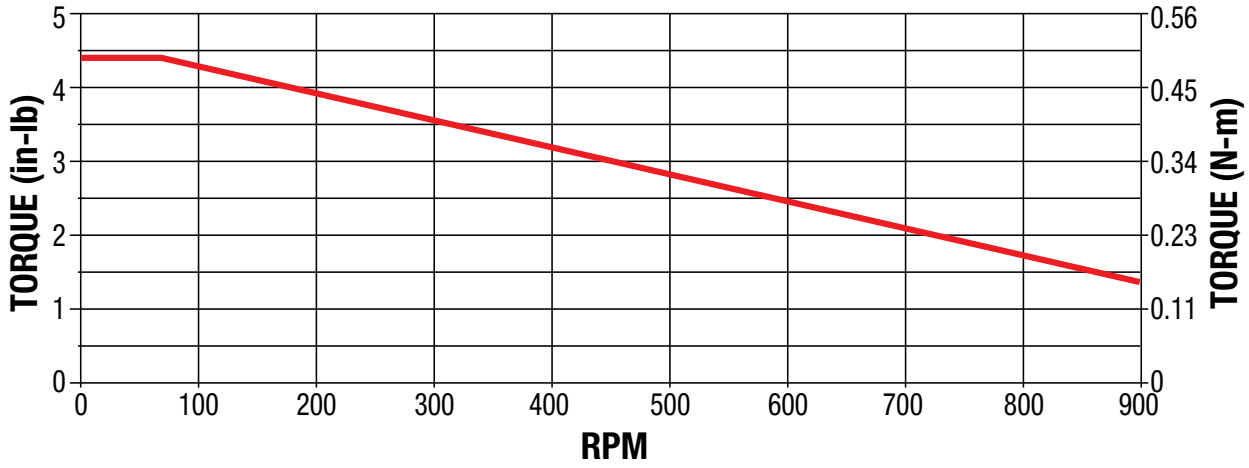
SIZING SOFTWARE AVAILABLE AT WWW.TOLOMATIC.COM
ACTUATOR SIZING

PERFORMANCE DATA WITH ACS DRIVE/CONTROLLER

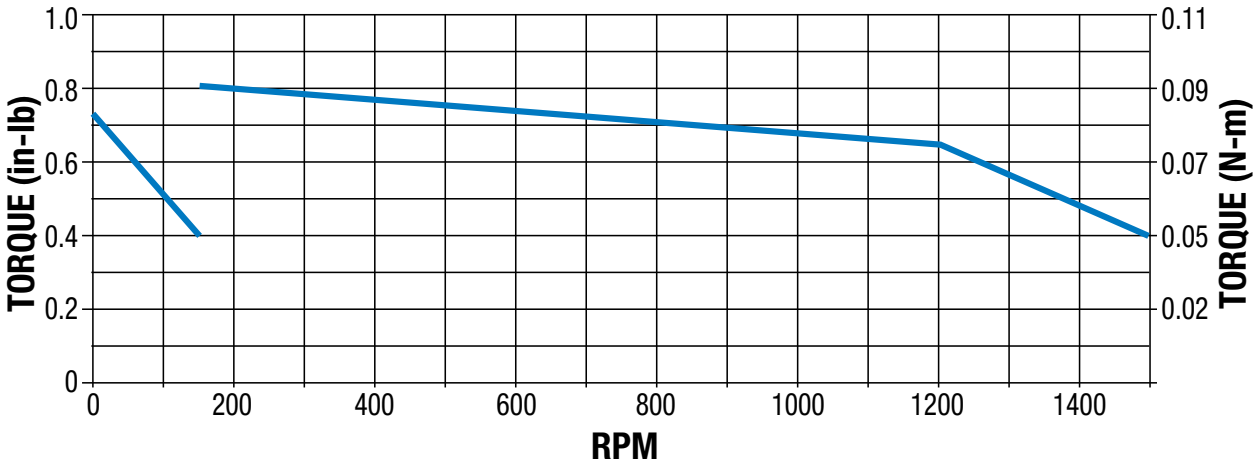
SPEED vs TORQUE - NEMA23 MOTOR



SPEED vs TORQUE - NEMA17 MOTOR



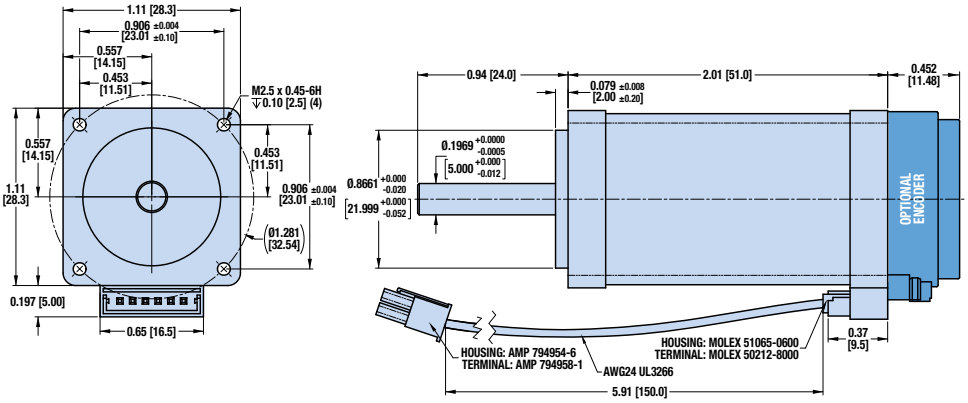
SPEED vs TORQUE - NEMA11 MOTOR



TOLOMATIC MOTOR DIMENSIONS

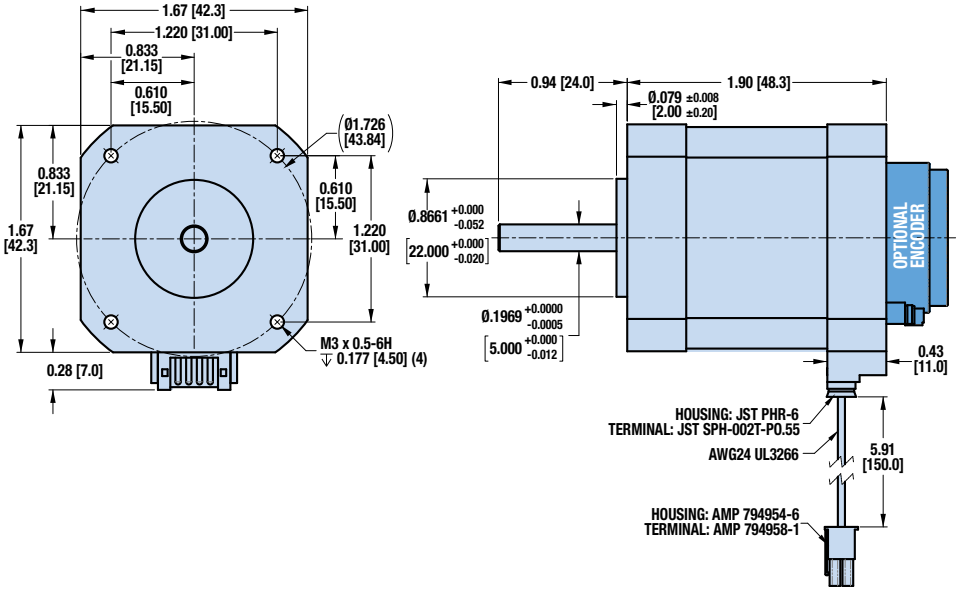
3D CAD available at www.tolomatic.com

NEMA11 DIMENSIONS



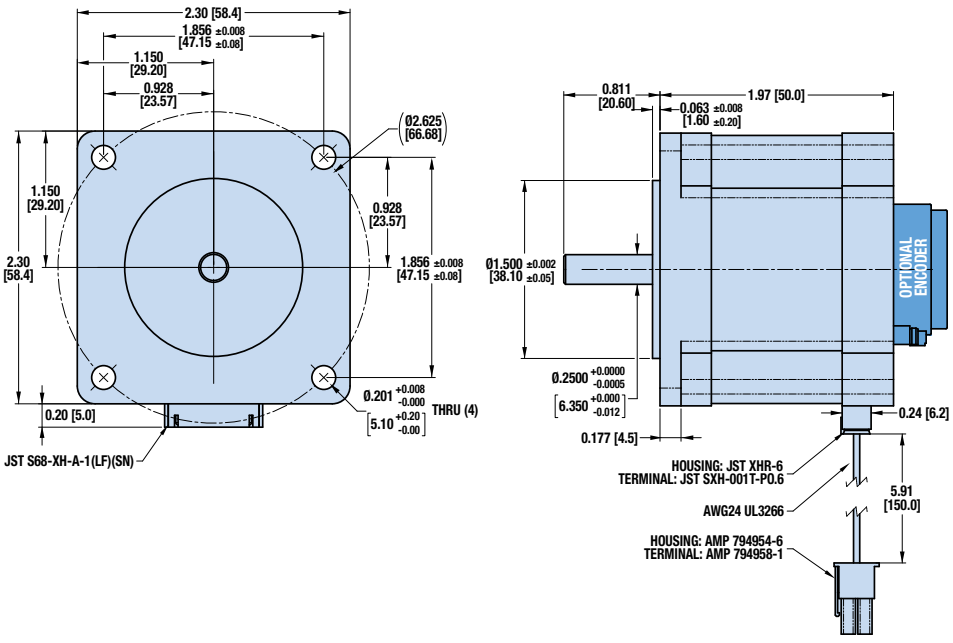
Code	Description
AMS1A1C1	NEMA11 motor no encoder
AMS1A1A1	NEMA11 motor with encoder

NEMA17 DIMENSIONS



Code	Description
AMS1B1C1 AMS1B1G1	NEMA17 motor no encoder
AMS1B1A1 AMS1B1E1	NEMA17 motor with encoder

NEMA23 DIMENSIONS



Code	Description
AMS1C1C1 AMS1C1G1	NEMA23 motor, no encoder
AMS1C1A1 AMS1C1E1	NEMA23 motor, with encoder

DRIVE ORDERING

15 DAYS BUILT-TO-ORDER

S T 0 3 2 4 S D C R 5 3

STEPPER ORDER CODE	
ST	Tolomatic ACS Stepper Drive

CURRENT	
03	Current

VOLTAGE	
24	Voltage

DRIVE ORDER CODE	
SD	Standard/Basic Drive with RS232
ED	Standard/Basic Drive with EtherNet /IP
MD	Standard/Basic Drive with Modbus TCP

CABLE(S) ORDER CODE	
CR3[_]	Cable(s) of 3m Length
CR5[_]	Cable(s) of 5m Length
[**1**]	Motor Cable
[**2**]	Motor and Encoder Cables
[**3**]	Motor, Encoder and I/O Cables
[**4**]	Motor and I/O Cables
[**5**]	I/O Cables

MOTOR ORDERING

A M S 1 B 1 E 1

MOTOR ORDER CODE	
AM	Tolomatic Motor

NOTE: Your Motor Here (YM) is available on ERD15 & ERD20 sizes for non-Tolomatic motors

MOTOR TYPE	
S1	Stepper Motor

FRAME SIZE	
A1	11 Frame Motor (ERD06)
B1	17 Frame Motor (ERD10)
C1	23 Frame Motor (ERD15)

NOTE: Each ERD size has only one motor size choice

MOTOR OPTIONS	
A1	Encoder
C1	No Encoder
E1	Encoder with SS2 option
G1	No Encoder SS2 option

SERVICE PARTS ORDERING

ACS DRIVE/CONTROLLER, CABLES & MOTOR REPLACEMENT PARTS

	Part No.	Description
1.	3604-9651	ACS Stepper Drive/Controller (model ST0324SD)
	3604-9654	ACS Stepper Drive/Controller, EtherNet/IP (Analog Output) (model ST0324ED)
	3604-9655	ACS Stepper Drive/Controller, Modbus TCP (Analog Output) (model ST0324MD)
2.	3604-1766	Motor Power Cable (3 m)
	3604-1767	Motor Power Cable (5 m)
3.	3604-1768	Encoder Cable (3 meter length)
	3604-1769	Encoder Cable (5 meter length)
4.	3604-1770	I/O Cable (3 meter length)
	3604-1771	I/O Cable (5 meter length)
5.	3604-9044	Starter Kit (includes RJ 12 cable; D-Sub to RJ converter; USB to RS232 Converter and Tolomatic Motion Interface CD)

3604-9526	Tolomatic Motion Interface CD
3604-1795	USB to RS232 Converter
3604-9043	RJ cable and D-Sub to RJ Converter Combo

Code	Part No.	Description
AMS1A1C1	3604-1779	NEMA11 motor no encoder (ERD06)
AMS1A1A1	3604-1780	NEMA11 motor with encoder (ERD06)
AMS1B1C1 AMS1B1G1	3604-1775	NEMA17 motor no encoder (ERD10)
AMS1B1A1 AMS1B1E1	3604-1776	NEMA17 motor with encoder (ERD10)
AMS1C1C1 AMS1C1G1	3604-1777	NEMA23 motor, no encoder (ERD15)
AMS1C1A1 AMS1C1E1	3604-1778	NEMA23 motor, with encoder (ERD15)

NOTE: All 5 items from table at left are recommended for complete ACS system. Order items 1-5 by part numbers

Part No.	Description
2190-1304	Input Power Connector

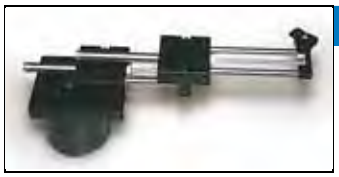
THE TOLOMATIC DIFFERENCE What you expect from the industry leader:

EXCELLENT CUSTOMER SERVICE & TECHNICAL SUPPORT

Our people make the difference! Expect prompt, courteous replies to all of your application and product questions.

INDUSTRY LEADING DELIVERIES

Tolomatic continues to offer the fastest delivery of standard catalog products. Modified and custom products ship weeks ahead of the competition.



INNOVATIVE PRODUCTS

From standard catalog products... to modified products... to completely unique custom products, Tolomatic designs and builds the best solutions for your challenging applications.

ONLINE SIZING & SELECTION SOFTWARE

Online sizing that is easy to use, accurate and always up-to-date. Input your application data and the software will determine a Tolomatic electric actuator to meet your requirements.

3D MODELS & 2D DRAWINGS AVAILABLE ON THE WEB

Easy to access CAD files are available in many popular formats.

ALSO CONSIDER THESE OTHER TOLOMATIC PRODUCTS:

PNEUMATIC PRODUCTS

RODLESS CYLINDERS: Band Cylinders, Cable Cylinders, MAGNETICALLY COUPLED CYLINDERS/SLIDES; GUIDED ROD CYLINDER SLIDES

"FOLDOUT" BROCHURE #9900-9075
PRODUCTS BROCHURE #9900-4028

ELECTRIC PRODUCTS

ROD & GUIDED ROD STYLE ACTUATORS, HIGH THRUST ACTUATORS, SCREW & BELT DRIVE RODLESS ACTUATORS, MOTORS, DRIVES AND CONTROLLERS

"FOLDOUT" BROCHURE #9900-9074
PRODUCTS BROCHURE #9900-4016

POWER TRANSMISSION PRODUCTS

GEARBOXES: Float-A-Shaft®, Slide-Rite®; DISC CONE CLUTCH; CALIPER DISC BRAKES

"FOLDOUT" BROCHURE #9900-9076
PRODUCTS BROCHURE #9900-4029

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