

ACSI ACTUATOR CONTROL SOLUTIONS

INTEGRATED SERVO MOTOR/DRIVE/CONTROLLER



Ether**CAT**® 

CE **EtherNet/IP**
 **ODVA**
CONFORMANT

PROFI
NET
PI CERTIFIED
PROFIBUS • PROFINET

 **Modbus**

LINEAR SOLUTIONS MADE EASY

ACSI – Motor/Drive/Controller

WHAT IS THE ACSI?

The ACSI is an extremely easy-to-use integrated servo motor / 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) or revs.

BASIC CAPABILITIES:

- Operation Modes
 - » 4 configurable move commands (absolute, incremental, jog, velocity or home move types) with motion commanded via digital inputs.
 - » Analog input positioning mode (0-10Vdc or 4-20mA)
 - » Analog output echoing actuator position
 - » Pneumatic mode replaces pneumatic valve operation for simple motion
- Adjustable motion profile parameters. Position, velocity, accel, decel, force parameters are independently configurable for all moves.
- Force limiting
- Zone output based on position
- Configurable digital I/O (24Vdc Opto-Isolated, sourcing or sinking)
- USB configuration port

ETHERNET/IP **EtherNet/IP™** OPTION

- Infinite positioning with EtherNet/IP CIP I/O commands
- Dual port with internal switch for daisy chaining
- Device level ring (DLR) compatible
- ODVA conformant, Plugfest certified



PROFINET OPTION



- Infinite positioning with PROFINET commands
- Dual port with internal switch for daisy chaining
- PI certified

MODBUS TCP OPTION



- Infinite positioning with Modbus TCP commands
- Dual port with internal switch for daisy chaining

ETHERCAT OPTION



- Infinite positioning EtherCAT commands
- Dual port with internal switch for daisy chaining



ACSI – Features

DIGITAL I/O

- 24 VDC Digital I/O control for flexible easy operating modes
- Opto-isolated

ANALOG IN/OUT

- 0-10VDC or
- 4-20 mA

DUAL ETHERNET PORTS

- Supports Star, Daisy Chain and Ring Topologies

EtherNet/IP™

ODVA
CONFORMANT

ETHERNET/IP

- AOP: Add on profile
- AOI: Add on Instructions
- DLR: Device Level Ring

PROFINET

PROFI
NET **PI**
PROFINET - PROFIBUS

MODBUS TCP

Modbus

INPUT SUPPLY

- 10 VDC to 60 VDC
- Logic & Drive Power

M12 CONNECTORS

- Industry standard connectors

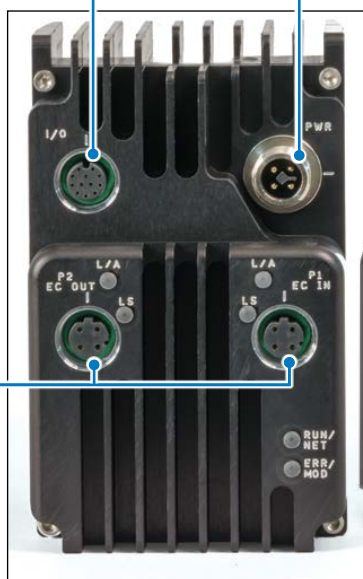
USB CONFIGURATION PORT

QUALITY TESTED

- Each ACSI is performance tested at Tolomatic before shipping
- Mounted, configured and tested on Tolomatic electric actuators

IP65

Protected against dust and low pressure water jets, limited ingress



VIBRATION TESTED

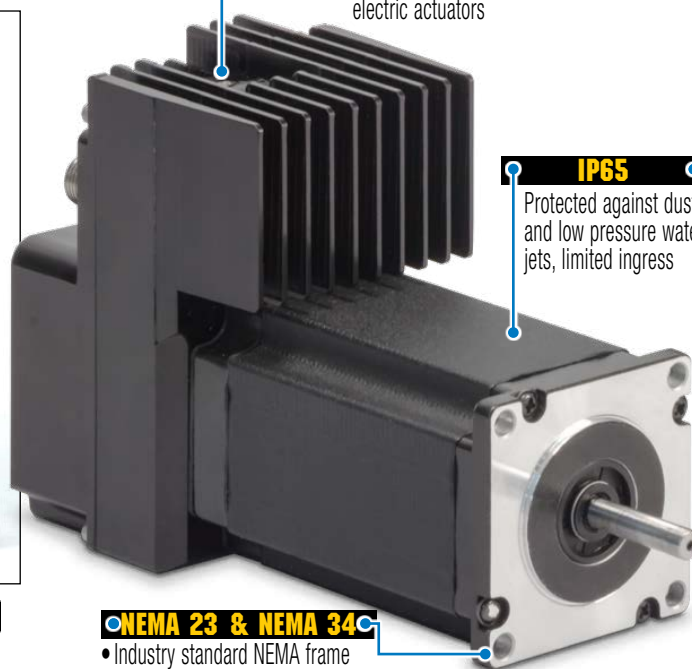
- 0-500 Hz, 2 G, 3-Axis, 1-hour

ETHERCAT

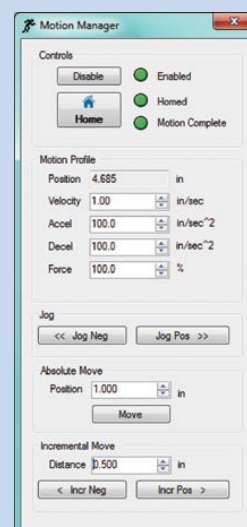
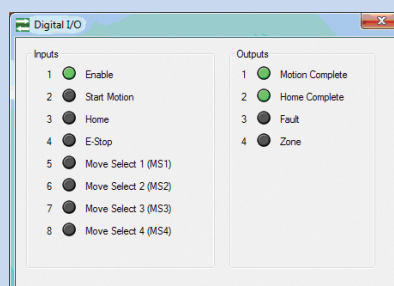
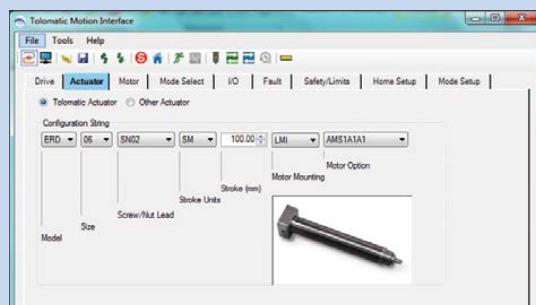
EtherCAT

NEMA 23 & NEMA 34

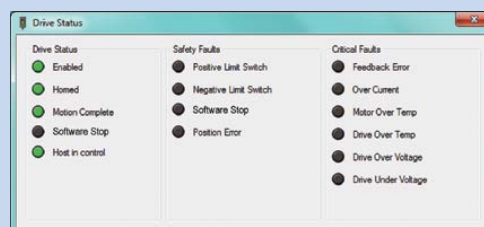
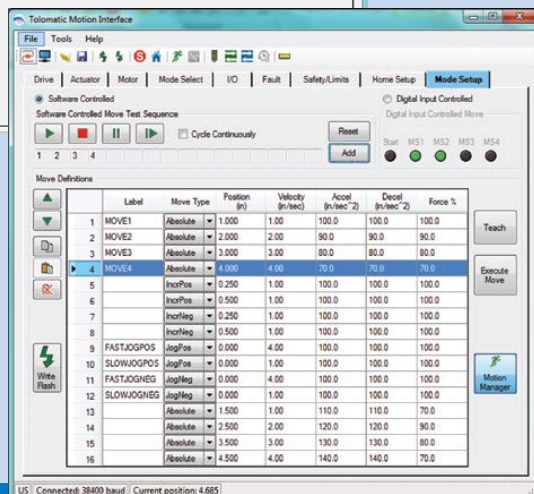
- Industry standard NEMA frame sizes



EASY TO USE CONFIGURATION SOFTWARE



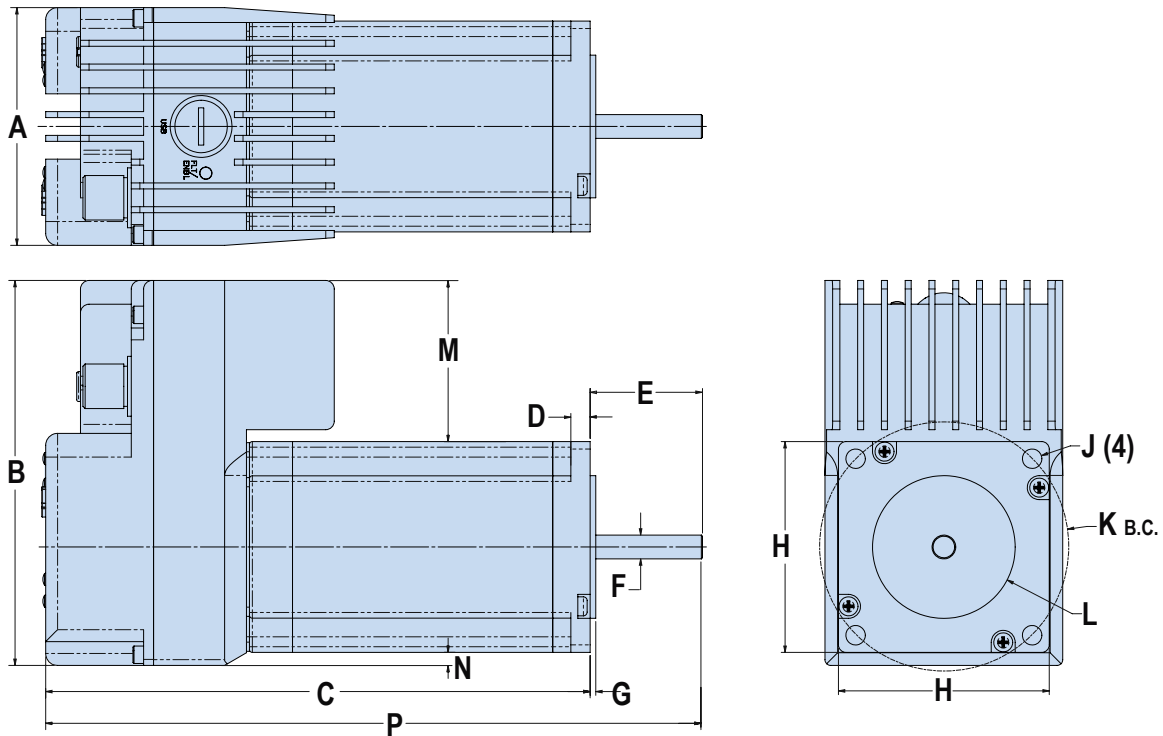
- Windows® compliant



ACSI – Motor/Drive/Controller

DIMENSIONS  3D CAD available at www.tolomatic.com

ACSI SERVO MOTOR / DRIVE / CONTROLLER DIMENSIONS



		23	34
A	in	2.50	2.50
	mm	63.5	63.5
B	in	4.05	4.49
	mm	102.8	113.9
C	in	5.73	5.92
	mm	145.4	150.4

		23	34
D	in	0.20	0.39
	mm	5.2	10.0
E	in	0.900	1.25
	mm	22.86	31.8
F	in	Ø.2500	Ø.5000
	mm	6.350	12.700
G	in	0.059	0.063
	mm	1.50	1.60

		23	34
H	in	2.22	3.38
	mm	56.3	85.8
J	in	Ø.20	Ø.22
	mm	5.2	5.5
K	in	Ø2.625	Ø3.875
	mm	66.68	98.43
L	in	Ø1.500	Ø2.875
	mm	38.10	73.03

		23	34
M	in	1.70	1.11
	mm	43.1	28.3
N	in	0.14	0.00
	mm	3.5	0.0
P	in	6.63	7.17
	mm	168.26	182.20

ACSI Specifications

OPERATING POWER	
Voltage Nominal	10V - 60V
Over Voltage	65V
Under Voltage	9V
Absolute Maximum Voltage	70V
Logic Current Draw (24V)	<200 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 ACSI Hardware and Installation Guide (#3604-4185) for more details.

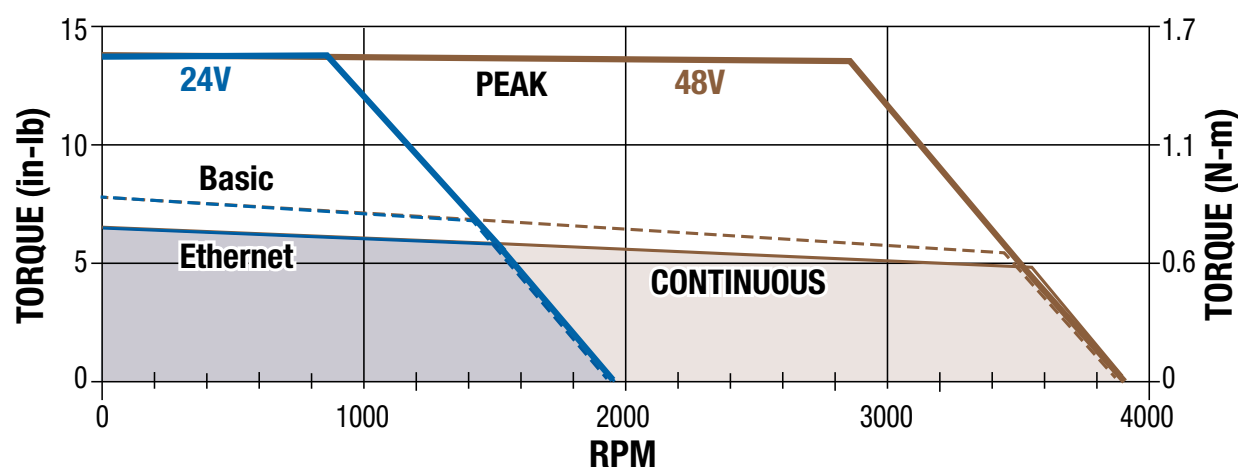
ACSI – Motor/Drive/Controller

ACSI SPECIFICATIONS

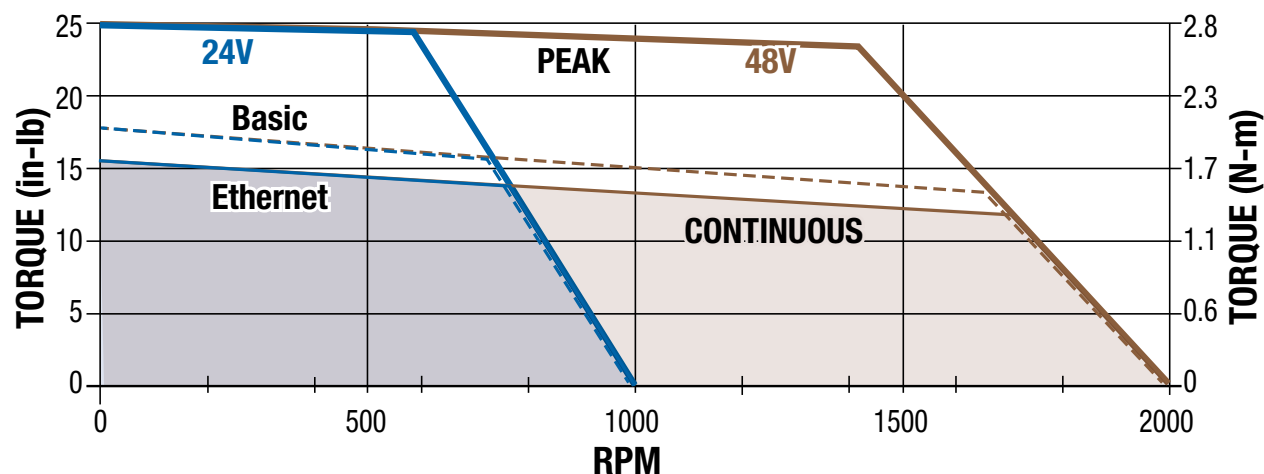
	NEMA 23				NEMA 34			
	Basic		Ethernet		Basic		Ethernet	
Continuous Torque	5.4 in-lbs	0.61 N-m	4.9 in-lbs	0.55 N-m	13.6 in-lbs	1.53 N-m	12.0 in-lbs	1.35 N-m
Peak Torque	13.8 in-lbs		1.56 N-m		25.0 in-lbs		2.82 N-m	
Max. Continuous Current	11.46 Amps		9.6 Amps		12.7 Amps		11.37 Amps	
Max. Peak Current	20 Amps				20 Amps			
Rated Speed	3500 RPM				1750 RPM			
Max. Speed	3850 RPM				2050 RPM			
Rotor Inertia	0.075 lb-in ²		0.220 kg-cm ²		0.546 lb-in ²		1.600 kg-cm ²	
Unit Weight	3.8 lb		1.72 kg		7.2 lb		3.27 kg	
Motor Poles	8							
Max Case Temp	185°F (85°C)							
Encoder	Differential 1024 lines/rev (4096 counts per rev)							

PERFORMANCE DATA

SPEED vs TORQUE - ACSI23



SPEED vs TORQUE - ACSI34



Electronic Motor Brake

SPECIFICATIONS

The Electronic Motor Brake is available in NEMA 23 & 34 frame sizes.

It fits on 23 & 34 frame stepper, servo and ACSI motors see dimensional drawings to confirm shaft size and other dimensions.

The brake is recommended for vertical or inclined applications where there can be no backdrive during power off.

When 24 VDC is connected, the brake will be deactivated and the motor can turn freely. It is recommended to use the brake only as a holding brake and not as an emergency brake.

The Electronic Motor Brake comes with a 10m cable with M8 connector.



NEMA FRAME SIZE	HOLDING TORQUE	INPUT SHAFT DIA.	OUTPUT SHAFT DIA.	CONNECTION	CURRENT @24VDC	WEIGHT (W/O CABLE)	IP RATING
	in-lbs	inch	inch			lb	
	[Nm]	[mm]	[mm]		Amp	[kg]	
23	13.28	0.250	0.250	M8	0.45 Amp	0.99	IP55
	[1.5]	[6.35]	[6.35]			[0.45]	
34	15.05	0.500	0.500	M8	0.23 Amp	3.13	IP55
	[1.7]	[12.7]	[12.7]			[1.42]	

Recommended torque clamping Screw 2.5 ft-lbs [3.4 Nm]

Electronic Motor Brakes are primarily sold as part of a complete assembly including actuator and motor. Tolomatic will install and test the completed actuator, Electronic Motor Brake, and motor assembly before shipping. **Call Tolomatic if you wish to install an Electronic Motor Brake on an existing actuator.**

Contact Tolomatic for other motor mounting options.

(⚠) Tolomatic assumes no responsibility that an electronic motor brake will fit or perform with your motor or actuator if sold separately.)

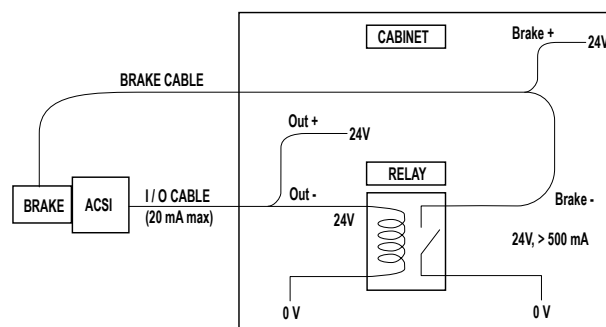
BRAKE OUTPUT

The brake output is a 20mA low current output with braking logic controlled by the drive. It obeys the timing configured using Tolomatic Motion Interface Software. The brake output requires hardware to interface it to the higher currents required to operate a brake.

BRAKE OUTPUT SPECIFICATIONS

Parameter	Value	Units
Input Voltage	24	V
Continuous Current (max.)	20	mA
Output Voltage Drop (20 mA)	2	V

BRAKE OUTPUT WIRING DIAGRAM

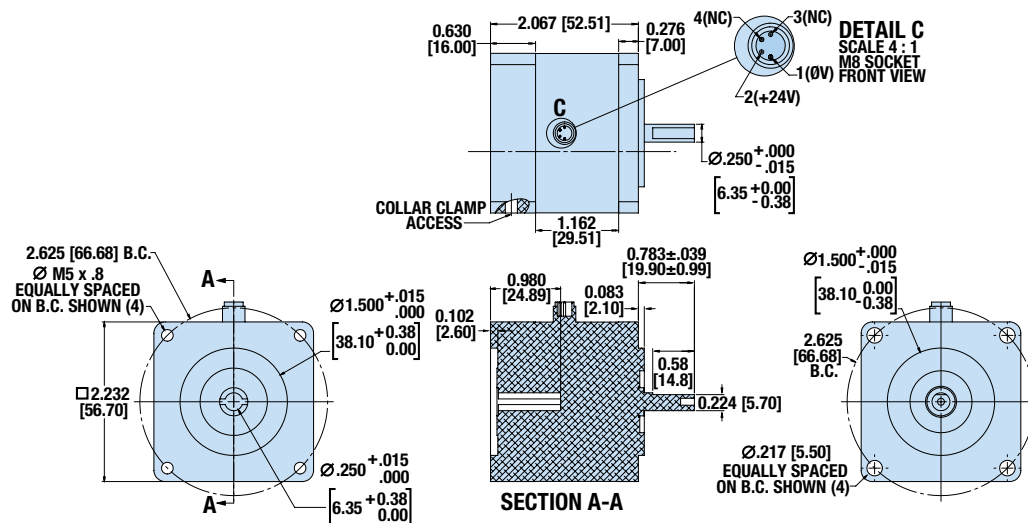


Electronic Motor Brake

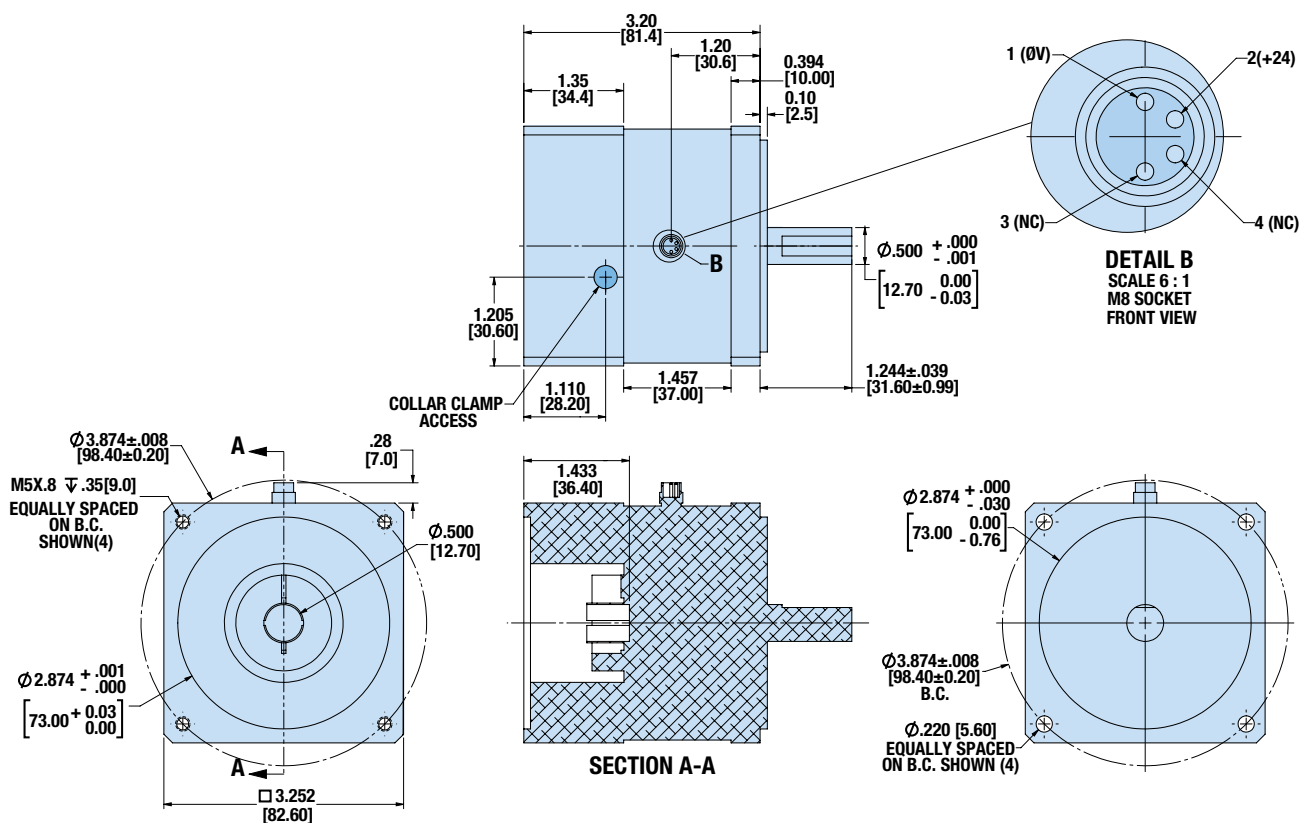
SIZE: ALL

DIMENSIONS  3D CAD available at www.tolomatic.com

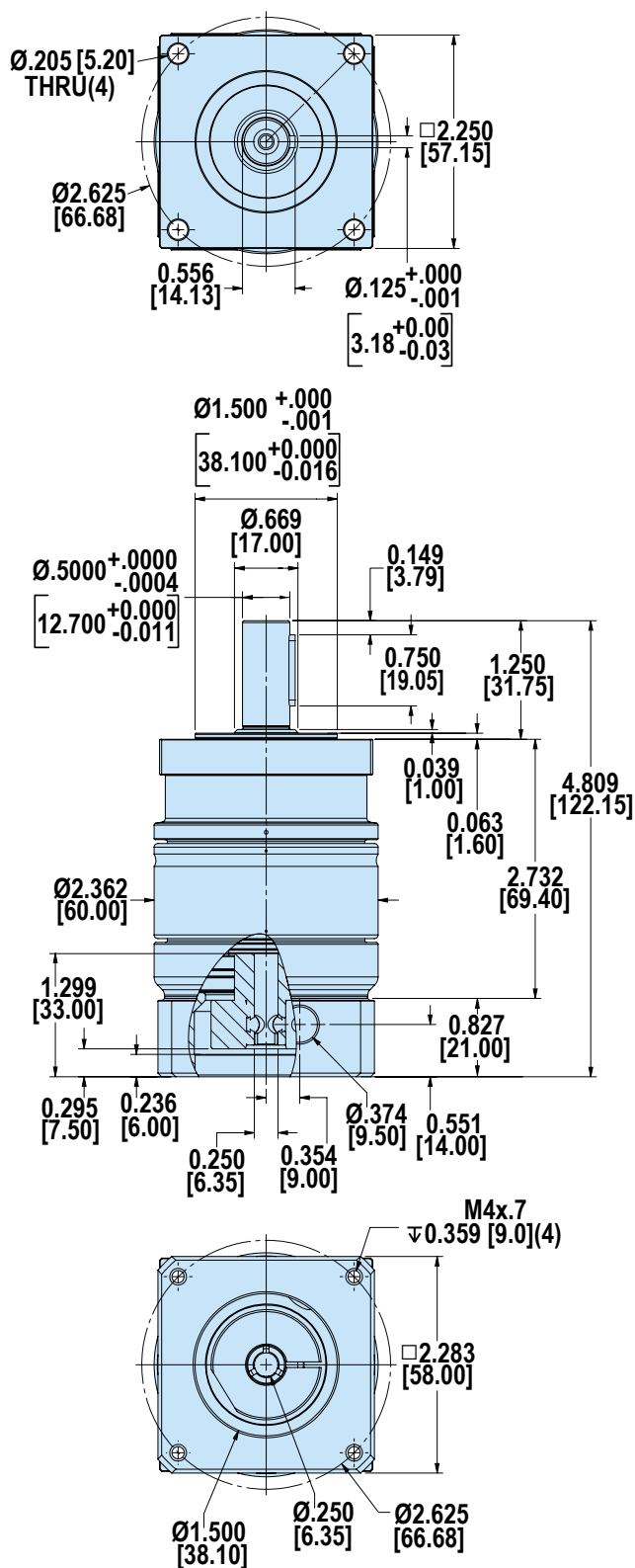
NEMA23 DIMENSIONS



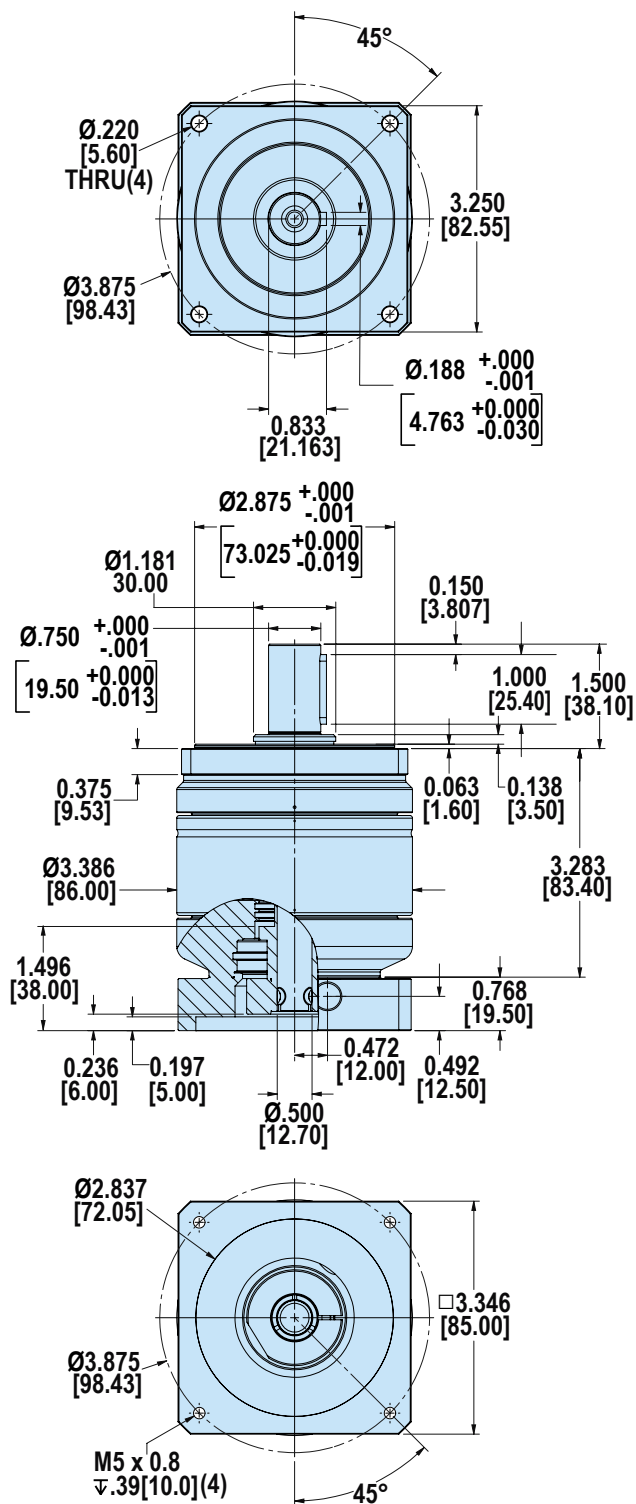
NEMA34 DIMENSIONS



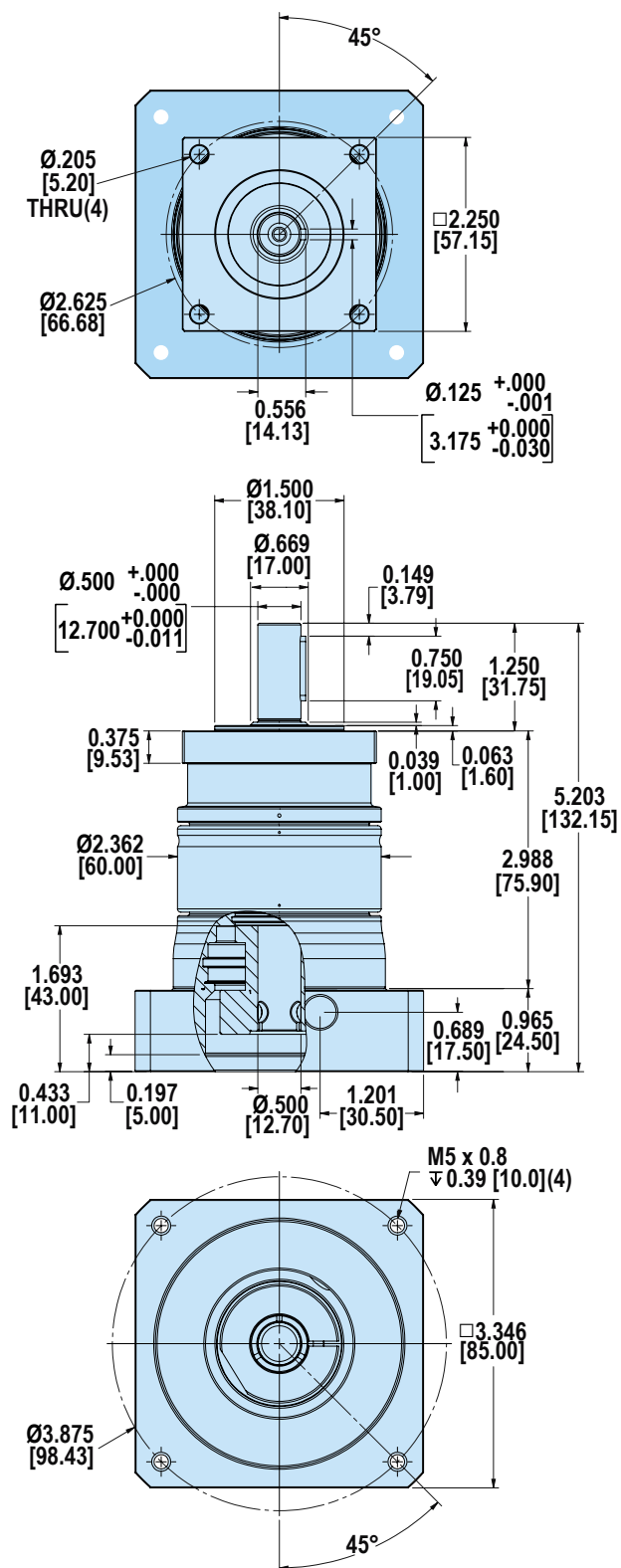
NEMA23 DIMENSIONS



NEMA34 DIMENSIONS



NEMA23/34 DIMENSIONS



ACSI – Service Parts Ordering

ACSI MOTOR/DRIVE/CONTROLLER, CABLES & REPLACEMENT PARTS

Accessory Parts

Tolomatic ACSI Cables				
PART NUMBER	DESCRIPTION	LENGTH	CONNECTOR 1	CONNECTOR 2
3604-2089	CABLE, 3M, M12 A Code 12P/M, Digital I/O	3 Meter	M12, 12 Pin	Flying leads
3604-2090	CABLE, 5M, M12 A Code 12P/M, Digital I/O	5 Meter	M12, 12 Pin	Flying leads
3604-2091	CABLE, 10M, M12 A Code 12P/M, Digital I/O	10 Meter	M12, 12 Pin	Flying leads
3604-2092	CABLE, 3M, M12 D Code 4P/M TO ETHERNET RJ45	3 Meter	M12, Ethernet	RJ45, Ethernet
3604-2093	CABLE, 5M, M12 D Code 4P/M TO ETHERNET RJ45	5 Meter	M12, Ethernet	RJ45, Ethernet
3604-2094	CABLE, 10M, M12 D Code 4P/M TO ETHERNET RJ45	10 Meter	M12, Ethernet	RJ45, Ethernet
3604-2109	CABLE, 1M, M12 D Code 4P/M TO ETHERNET M12	1 Meter	M12, Ethernet	M12, Ethernet
3604-2095	CABLE, 3M, M12 D Code 4P/M TO ETHERNET M12	3 Meter	M12, Ethernet	M12, Ethernet
3604-2096	CABLE, 5M, M12 D Code 4P/M TO ETHERNET M12	5 Meter	M12, Ethernet	M12, Ethernet
3604-2097	CABLE, 10M, M12 D Code 4P/M TO ETHERNET M12	10 Meter	M12, Ethernet	M12, Ethernet
3604-2100	CABLE, 3M, M12 T Code 4P/F, POWER	3 Meter	M12, 4 Pin	Flying leads
3604-2101	CABLE, 5M, M12 T Code 4P/F, POWER	5 Meter	M12, 4 Pin	Flying leads
3604-2102	CABLE, 10M, M12 T Code 4P/F, POWER	10 Meter	M12, 4 Pin	Flying leads

ACSI Power Supplies		
PART NUMBER	DESCRIPTION	VOLTAGE
3604-2147	POWER SUPPLY,48VDC,120W,2.5A	48VDC
3604-2148	POWER SUPPLY,48VDC,240W,5A	48VDC
3604-2149	POWER SUPPLY,48VDC,480W,10A	48VDC

ACSI Accessories	
PART NUMBER	DESCRIPTION
2180-1163	SHUNT REGULATOR 50W, 24-80VDC
3604-2157	10 M BRAKE CABLE
3604-2145	CABLE,USB,2M,A MALE-MICRO B MALE

Tolomatic Gearheads	
PART NUMBER	DESCRIPTION
3604-2219	GEARHEAD 23F, 3:1
3604-2220	GEARHEAD 23F, 5:1
3604-2221	GEARHEAD 23F, 10:1
3604-2222	GEARHEAD 34F, 3:1
3604-2223	GEARHEAD 34F, 5:1
3604-2224	GEARHEAD 34F, 10:1
3604-2225	GEARHEAD 23F/34F, 3:1
3604-2226	GEARHEAD 23F/34F, 5:1
3604-2227	GEARHEAD 23F/34F, 10:1

ACSI Ordering

TOLOMATIC MOTOR		PROTOCOL					FRAME SIZE		ENCODER / BRAKE		GEARHEAD							
CODE	AM	I	2	3	4	5	6	C1	D1	A	B	1	2	3	4	5	6	7
DESCRIPTION	Drive / Controller	Integrated Servo	Basic (I/O only)	EtherNet/IP DLR	Modbus/TCP	EtherCAT	Profinet I/O	Nema 23	Nema 34	Incremental encoder	Incremental encoder, inline brake	No reduction	5:1 Gearhead	10:1 Gearhead	5:1 Gearhead, 23 frame output	10:1 Gearhead, 23 frame output	3:1 Gearhead	3:1 Gearhead, 23 frame output

AMI

3

C1

A

1

CR

3

4

CABLE OPTIONS

CABLE OPTIONS	
CODE	DESCRIPTION
CR31	CR31: Power cable, 3m
CR34	CR34: Power & I/O cables, 3m
CR35	CR35: I/O cable, 3m
CR36	CR36: Power & M12/RJ45 Ethernet cables, 3m
CR37	CR37: Power, M12/RJ45 Ethernet & I/O cables, 3m
CR51	CR51: Power cable, 5m
CR55	CR55: I/O cable, 5m
CR56	CR56: Power & M12/RJ45 Ethernet cables, 5m
CR57	CR57: Power, M12/RJ45 Ethernet & I/O cables, 5m
CR58	CR58: Power & I/O cables, 5m
CR101	CR101: Power cable, 10m
CR105	CR105: I/O cable, 10m
CR106	CR106: Power & M12/RJ45 Ethernet cables, 10m
CR107	CR107: Power, M12/RJ45 Ethernet & I/O cables, 10m
CR108	CR108: Power & I/O cables, 10m

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The Tolomatic Difference Expect More From the Industry Leader:



INNOVATIVE PRODUCTS

Tolomatic designs and builds the best standard products, modified products & unique custom products for your challenging applications.



FAST DELIVERY

The fastest delivery of catalog products... Electric products are built-to-order in 15 or 20 days; Pneumatic & Power Transmission products in 5 days.



ACTUATOR SIZING

Online sizing that is easy to use, accurate and always up-to-date. Find a Tolomatic electric actuator to meet your requirements.



YOUR MOTOR HERE

Match your motor with compatible mounting plates that ship with any Tolomatic electric actuator.



LIBRARY

Easy to access CAD files available in the most popular formats to place directly into your assembly.



SUPERIOR SERVICE

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

Also Consider These Other Tolomatic Products:

Electric Products

Rod & Guided Rod Style Actuators, High Thrust Actuators, Screw & Belt Drive Rodless Actuators, Motors, Drives and Controllers

"Foldout" Brochure #9900-9074



Pneumatic Products

Rodless Cylinders: Band Cylinders, Cable Cylinders, Magnetically Coupled Cylinders/Slides; Guided Rod Cylinder Slides

"Foldout" Brochure #9900-9075



Power Transmission Products

Gearboxes: Float-A-Shaft®, Slide-Rite®, Disc Cone Clutch; Caliper Disc Brakes

"Foldout" Brochure #9900-9076



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