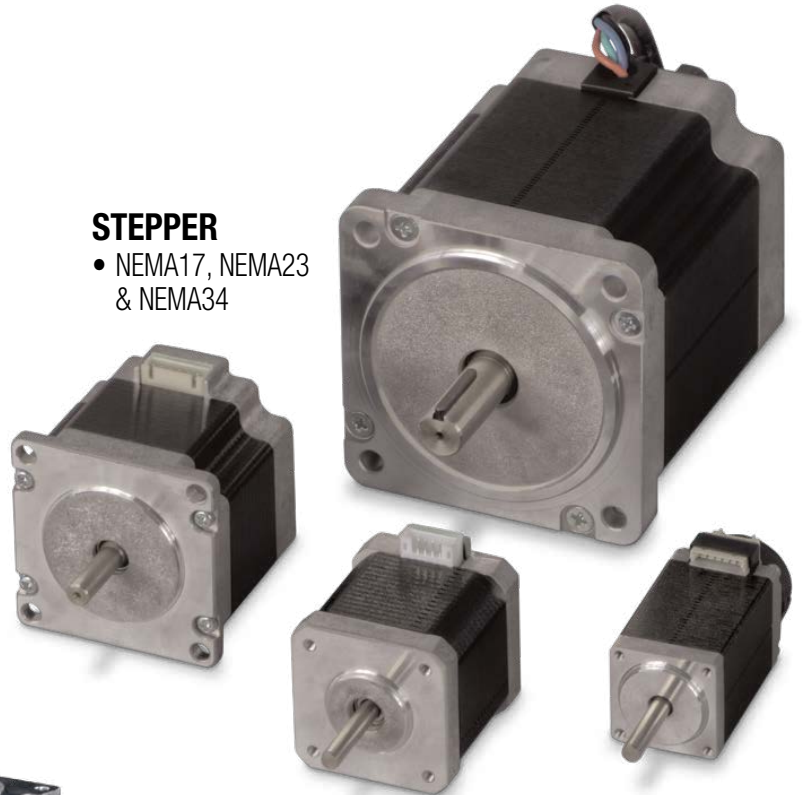


STEPPER MOTORS SERVO MOTORS

STEPPER

- NEMA17, NEMA23 & NEMA34



SERVO

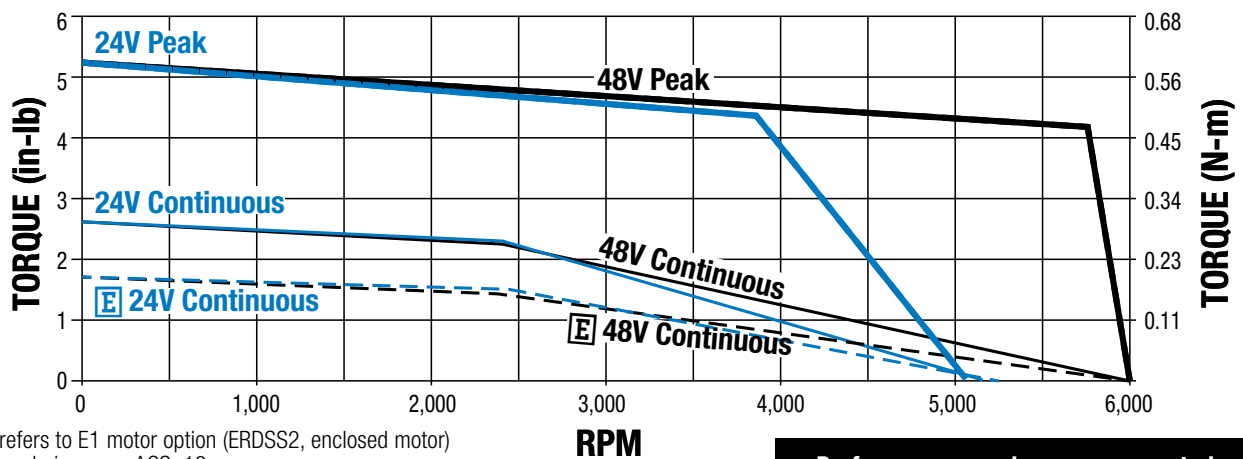
- NEMA23 & NEMA34

MOTOR SPECIFICATIONS

	Units		NEMA 23						NEMA 34			
			AMV2C1A1		AMV2C2A1		AMV2C3A1		AMV2D1A1		AMV2D2A1	
Continuous Torque	in-lbs	<i>N-m</i>	2.613	0.30	4.43	0.50	7.156	0.81	5.988	0.68	9.875	1.12
Peak Torque	in-lbs	<i>N-m</i>	5.225	0.59	8.86	1.00	15.3	1.73	12.0	1.36	19.75	2.23
Resistance	Ohms		0.23		0.205		0.616		0.25		0.208	
Inductance	mH		0.244		0.305		0.915		0.325		0.399	
Torque Constant (Kt)	in-lbs/A	<i>N-m/A</i>	0.3	0.034	0.511	0.058	0.886	0.100	0.692	0.078	1.14	0.129
Back EMF Constant (Ke)	V/kRPM		3.570		6.06		10.5		8.190		13.5	
Max. Continuous Current	Amps		10		10		9.32		10		10	
Max. RPM	RPM		6,000		6,000		6,000		5,000		5,000	
Rotor Inertia	lb-in ²	<i>kg-mm²</i>	0.024	7.02	0.048	14.05	0.048	14.05	0.241	70.53	0.507	148.37
Motor Weight	lb	<i>kg</i>	1.38	0.63	2.05	0.93	2.05	0.93	3.10	1.41	4.60	2.09
Motor Poles	8											
Max Case Temp	185°F (85°C)											
Encoder	Differential 500 lines/rev (2000 counts per rev)											

PERFORMANCE DATA WITH ACS DRIVE/CONTROLLER

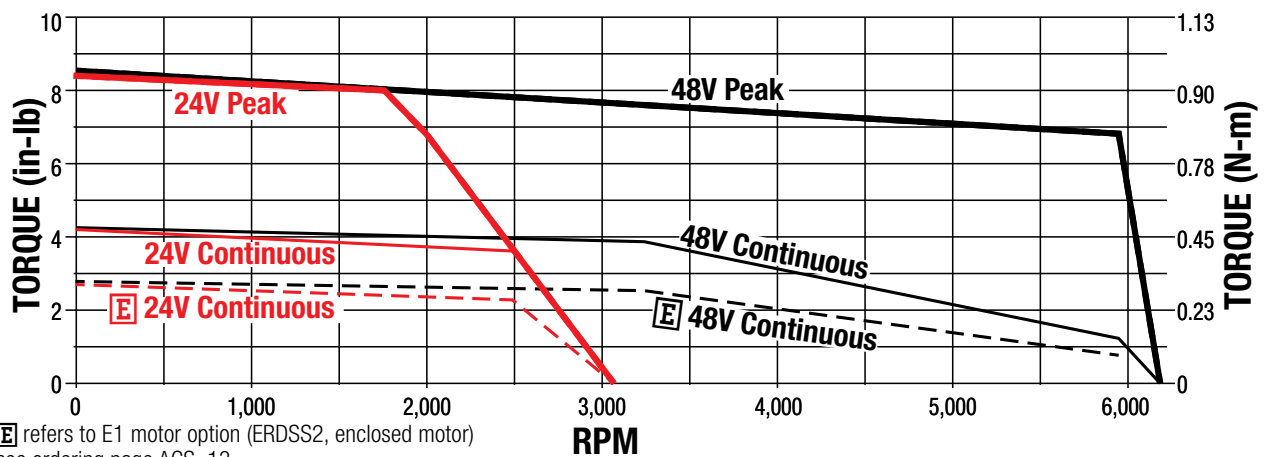
SPEED vs TORQUE - NEMA23 MOTOR, AMV2C1A1



E refers to E1 motor option (ERDSS2, enclosed motor)
see ordering page ACS_13

Performance graphs were generated using the DISCONTINUED ACS Drive. Similar performance can be expected when using comparable drives

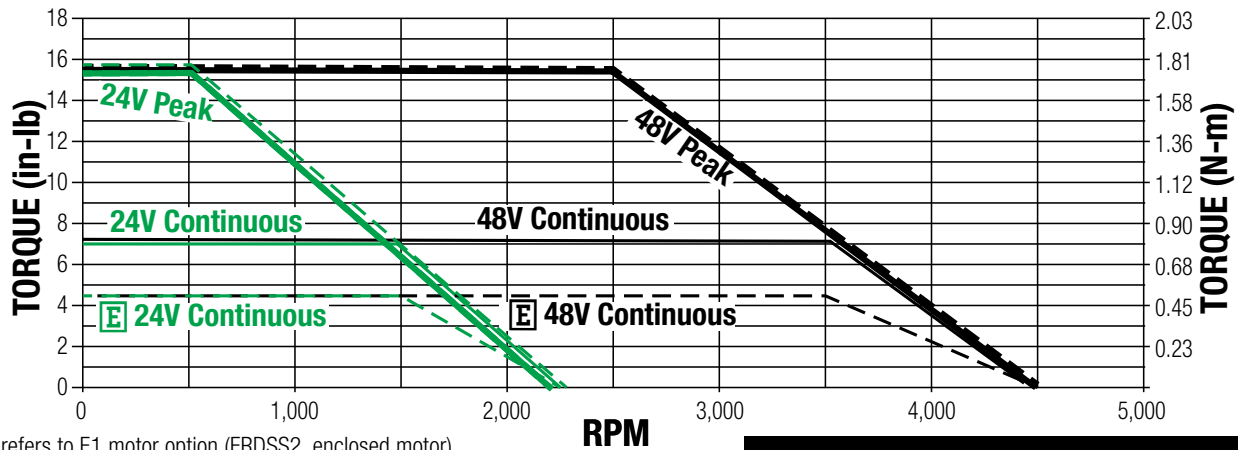
SPEED vs TORQUE - NEMA23 MOTOR, AMV2C2A1



E refers to E1 motor option (ERDSS2, enclosed motor)
see ordering page ACS_13

PERFORMANCE DATA WITH ACS DRIVE/CONTROLLER

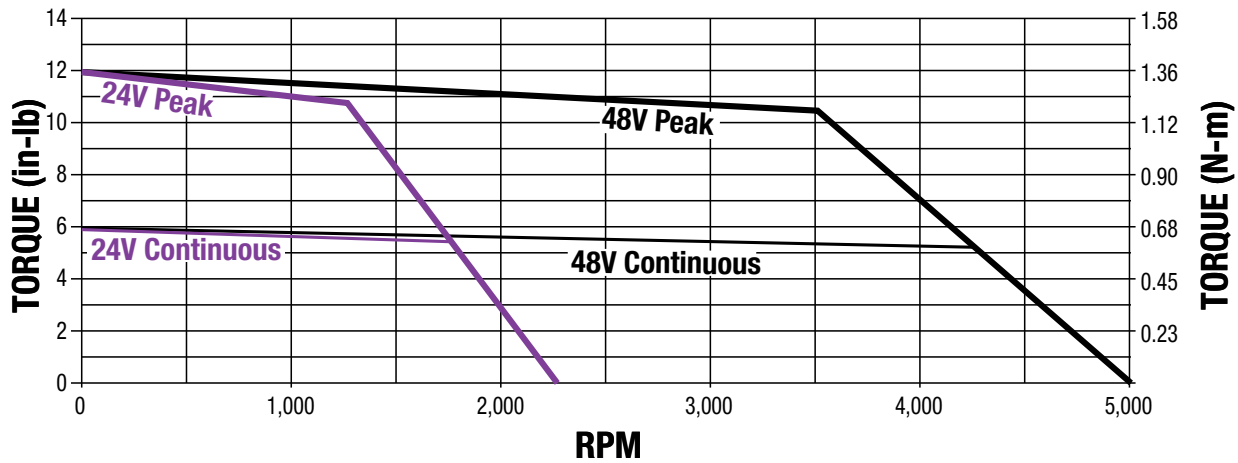
SPEED vs TORQUE - NEMA23 MOTOR, AMV2C3A1



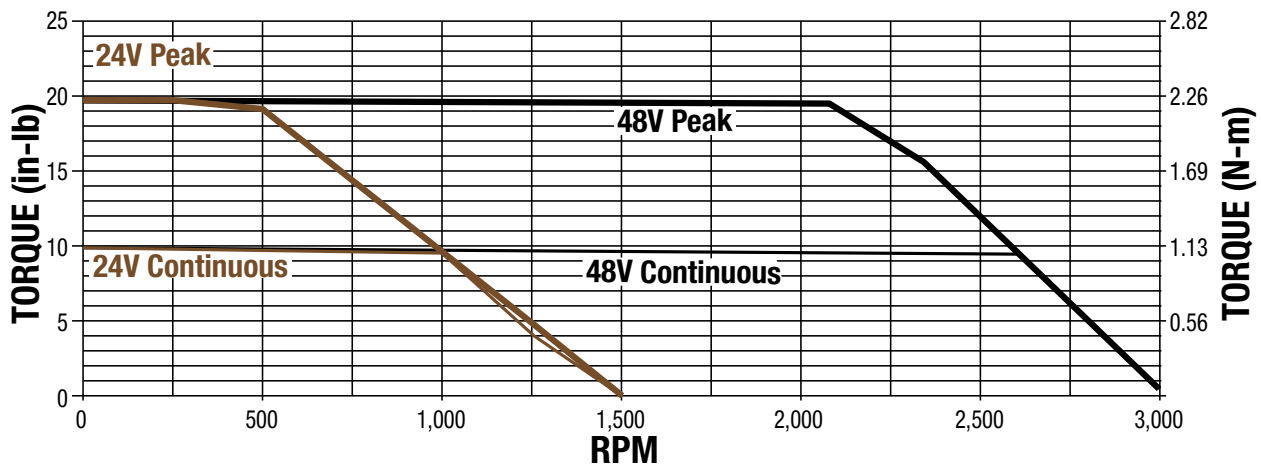
Ⓜ refers to E1 motor option (ERDSS2, enclosed motor)
see ordering page ACS_13

Performance graphs were generated using the DISCONTINUED ACS Drive. Similar performance can be expected when using comparable drives

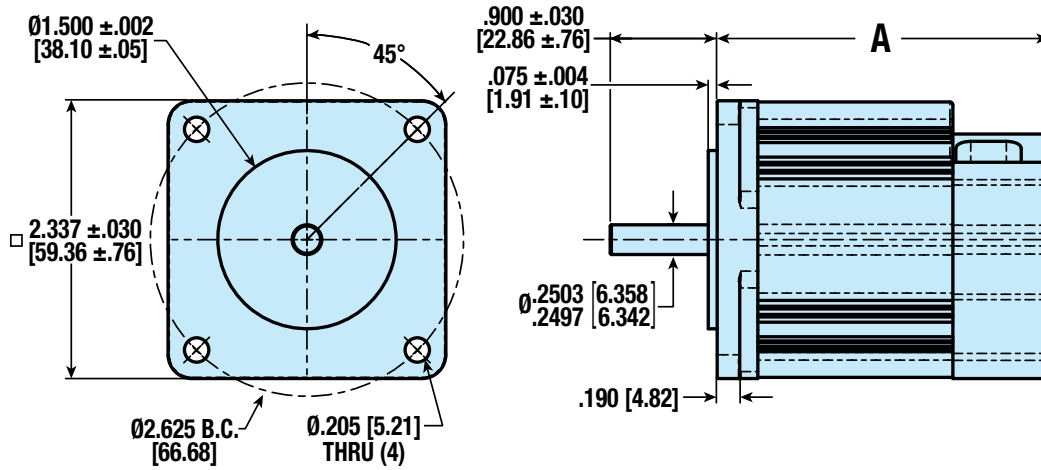
SPEED vs TORQUE - NEMA34 MOTOR, AMV2D1A1



SPEED vs TORQUE - NEMA34 MOTOR, AMV2D2A1

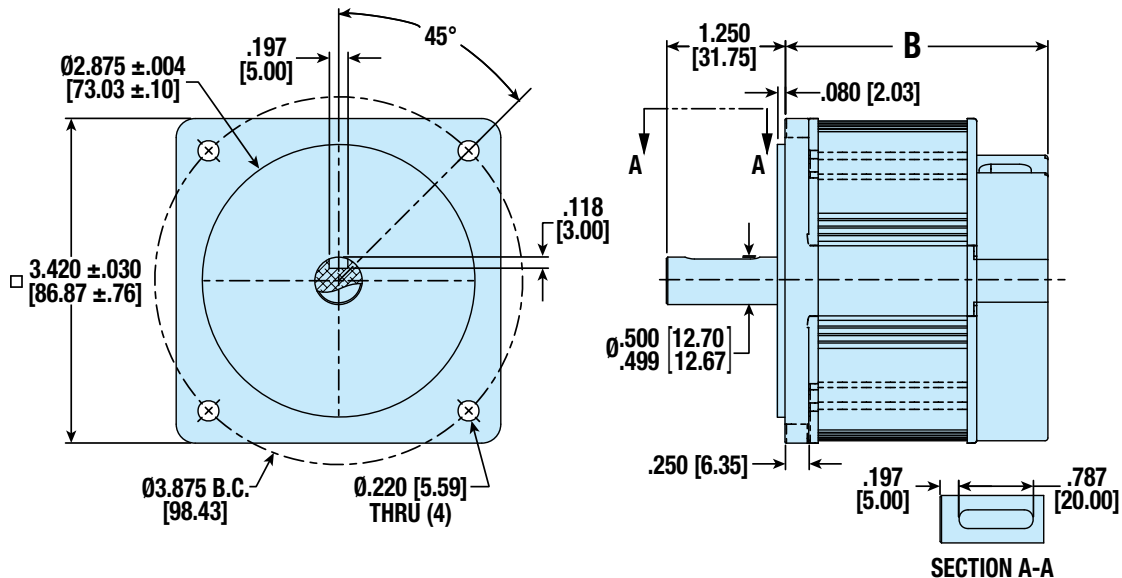


NEMA23 DIMENSIONS



A	
2.790" [70.87mm] ± 0.100" [2.54mm]	– AMV2C1A1
3.540" [89.92mm] ± 0.100" [2.54mm]	– AMV2C2A1
3.540" [89.92mm] ± 0.100" [2.54mm]	– AMV2C3A1

NEMA34 DIMENSIONS



B	
2.770" [70.36mm] ± 0.100" [2.54mm]	– AMV2D1A1
3.510" [89.15mm] ± 0.100" [2.54mm]	– AMV2D2A1

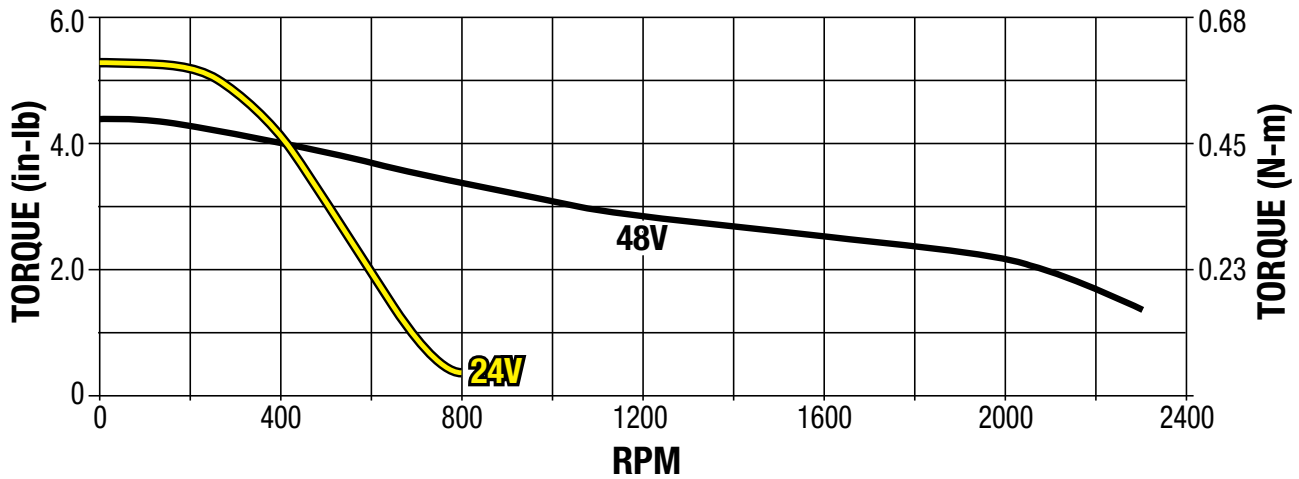
MOTOR SPECIFICATIONS

Specifications	Units	NEMA 17		NEMA 23 1STK		NEMA 23 2STK		NEMA 34 1STK		NEMA 34 2STK	
Resistance	Ohms	2.4		1.5		0.39		0.138		0.188	
Inductance	mH	4.5		3.7		1.53		1.13		2	
Rated Current	Amps-Peak/Phase	1.5		2		5		10		10	
Max. Torque	in-lbs	5.26		7.53		13.4		24.3		53.0	
	<i>N-m</i>	0.59		0.85		1.51		2.75		6.0	
Maximum RPM		2000		1200		2000		2000		1850	
Degree per Step		1.8°		1.8°		1.8°		1.8°		1.8°	
Rotor Inertia	lb-in ²	0.028		0.075		0.133		0.324		0.546	
	<i>kg-mm²</i>	8.19		21.95		38.92		94.82		159.78	
Motor Weight	lb	0.79		1.21		2.20		3.53		5.95	
	<i>kg</i>	0.36		0.55		1.00		1.60		2.70	
Motor Type		Bipolar Stepper, 1.8° per Step									
Encoder		Differential; 500 line/rev (2000 count post quad)/rev									

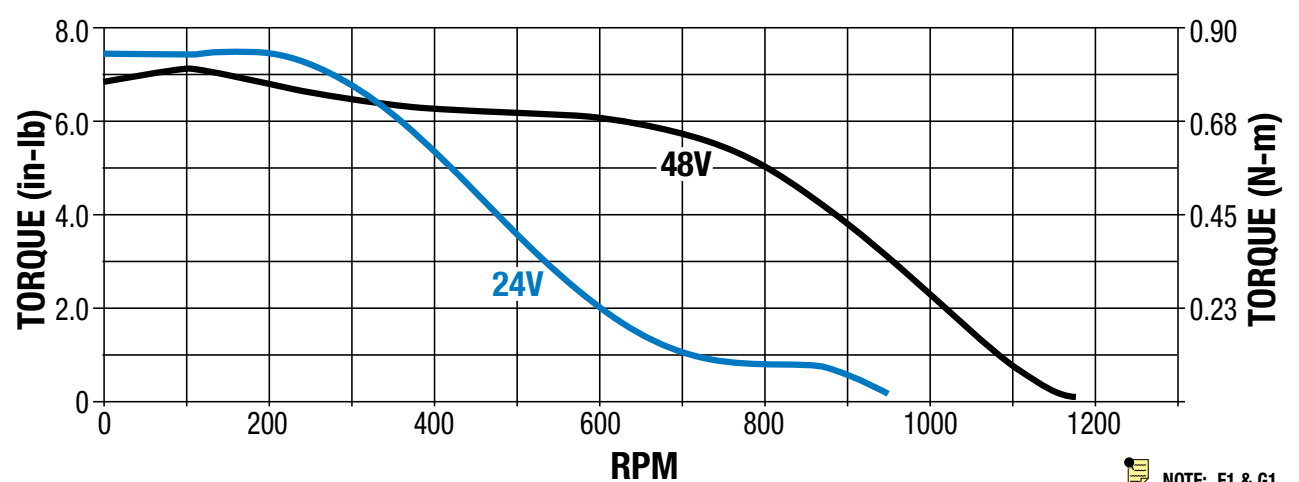
PERFORMANCE DATA WITH ACS DRIVE/CONTROLLER

Performance graphs were generated using the DISCONTINUED ACS Drive. Similar performance can be expected when using comparable drives

SPEED vs TORQUE - NEMA17 MOTOR - AMS1B1C1



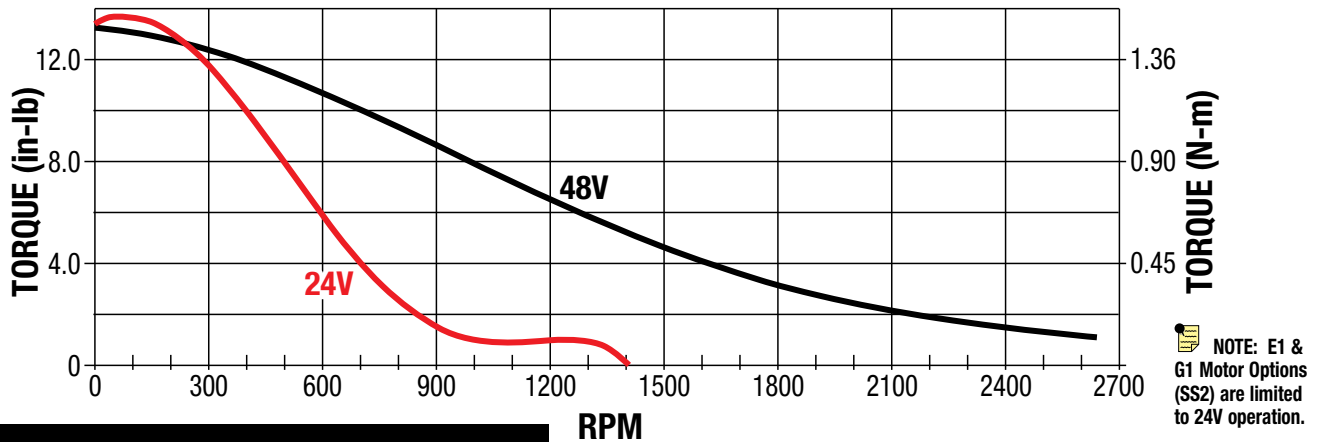
SPEED vs TORQUE - NEMA23 1 STACK MOTOR - AMS1C1C1



NOTE: E1 & G1 Motor Options (SS2) are limited to 24V operation.

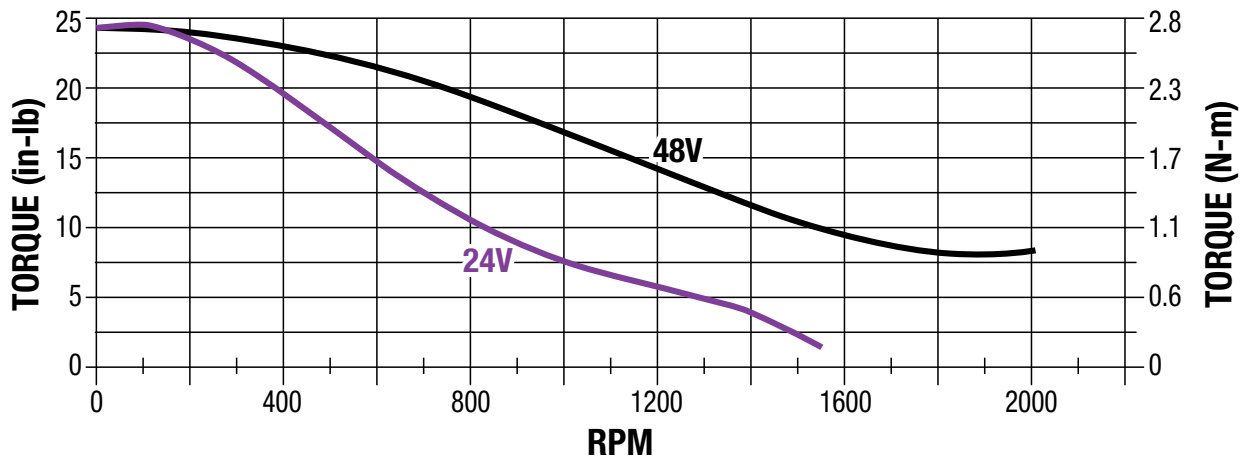
PERFORMANCE DATA WITH ACS DRIVE/CONTROLLER

SPEED vs TORQUE - NEMA23 2 STACK MOTOR - AMS1C2C1

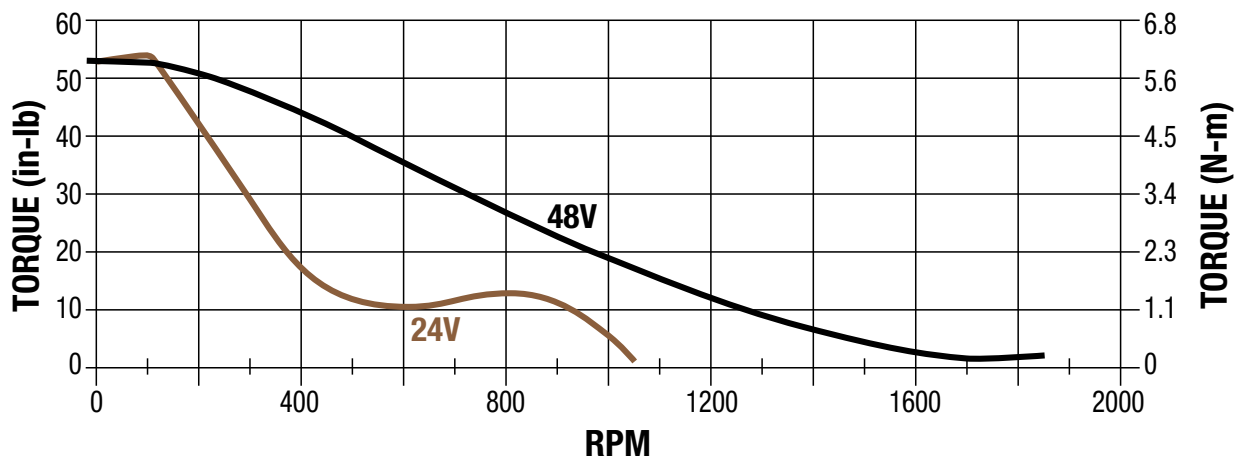


Performance graphs were generated using the DISCONTINUED ACS Drive. Similar performance can be expected when using comparable drives

SPEED vs TORQUE - NEMA34 1 STACK MOTOR - AMS1D1C1



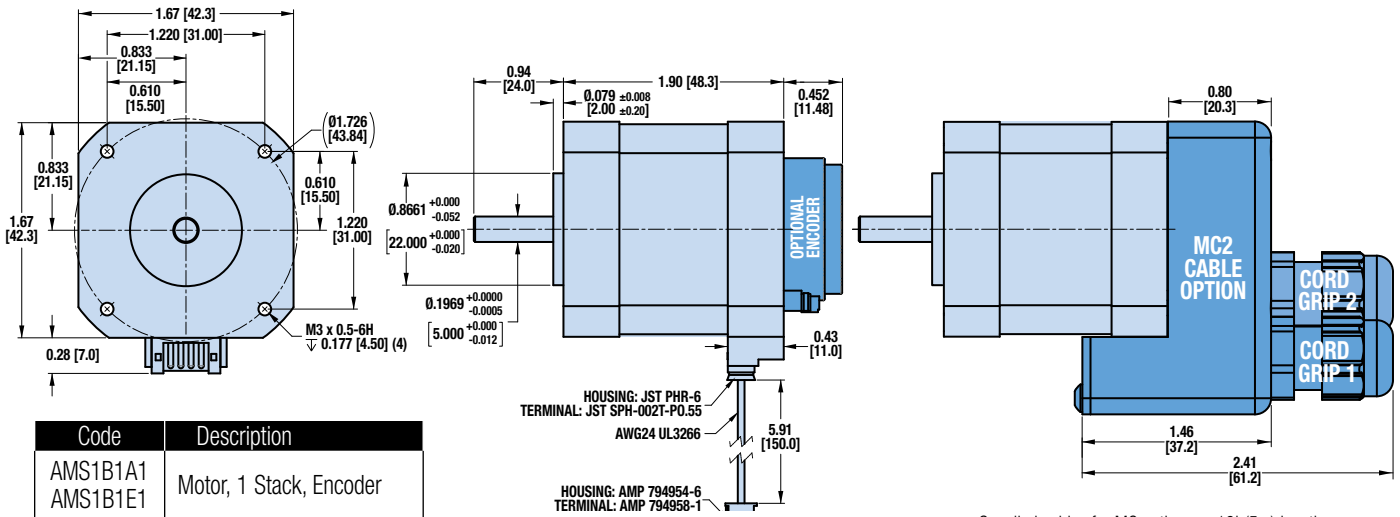
SPEED vs TORQUE - NEMA34 2 STACK MOTOR - AMS1D2C1





DIMENSIONS

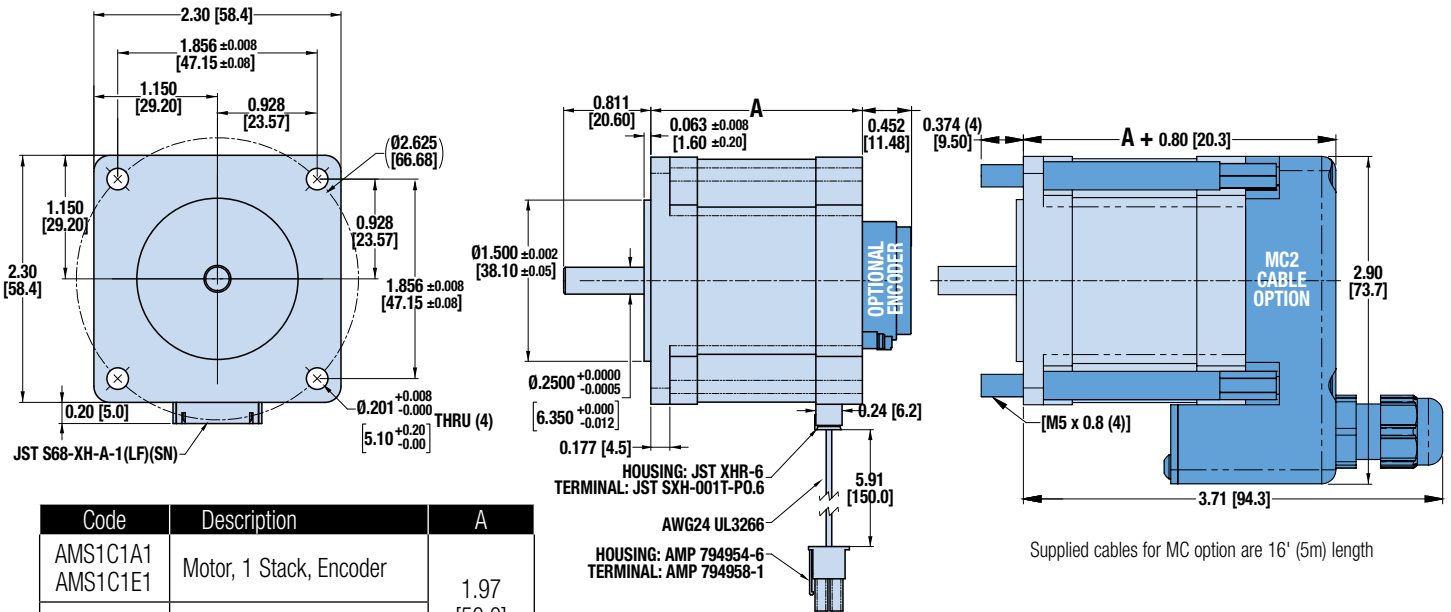
NEMA17 DIMENSIONS



Supplied cables for MC option are 16' (5m) length

Code	Description
AMS1B1A1 AMS1B1E1	Motor, 1 Stack, Encoder
AMS1B1C1 AMS1B1G1	Motor, 1 Stack, No Encoder

NEMA23 DIMENSIONS



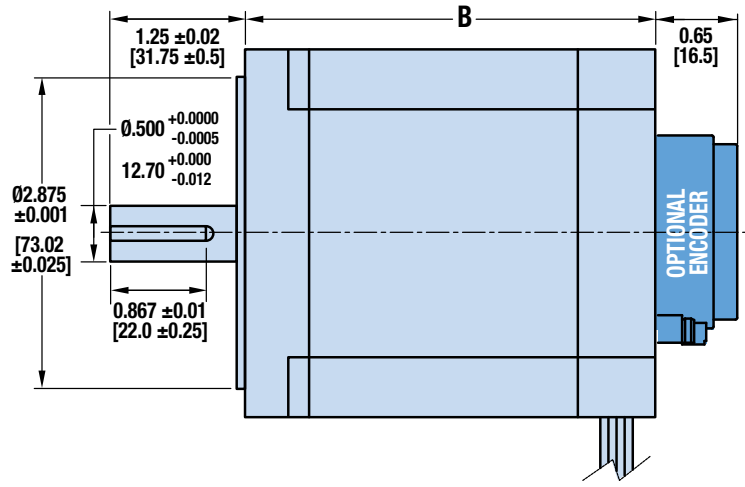
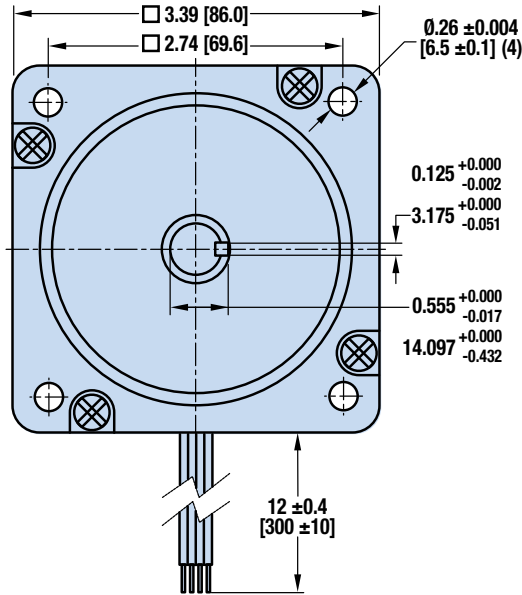
Supplied cables for MC option are 16' (5m) length

Code	Description	A
AMS1C1A1 AMS1C1E1	Motor, 1 Stack, Encoder	1.97 [50.0]
AMS1C1C1 AMS1C1G1	Motor, 1 Stack, No Encoder	
AMS1C2A1 AMS1C2E1	Motor, 2 Stack, Encoder	3.03 [77.0]
AMS1C2C1 AMS1C2G1	Motor, 2 Stack, No Encoder	



DIMENSIONS

NEMA34 DIMENSIONS



Code	Description	B
AMS1D1A1	Motor, 1 Stack, Encoder	2.62
AMS1D1C1	Motor, 1 Stack, No Encoder	[66.6]
AMS1D2A1	Motor, 2 Stack, Encoder	3.82
AMS1D2C1	Motor, 2 Stack, No Encoder	[97.0]

SPECIFICATIONS

The electronic motor brake is available in NEMA 23 & 34 frame sizes. It fits on 23 & 34 frame stepper and servo 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 5m 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		Amp	lb	
	[Nm]	[mm]	[mm]			[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.

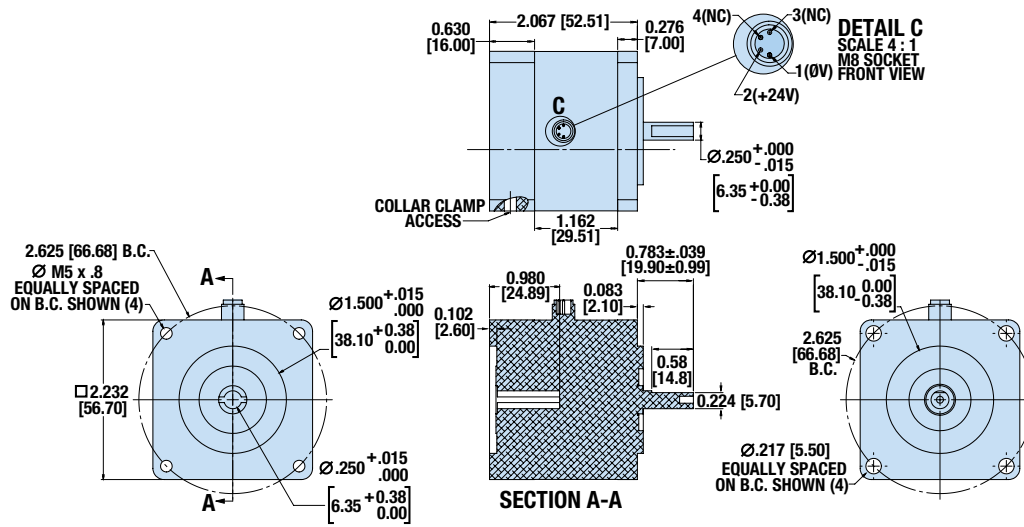
(⚠ Tolomatic assumes no responsibility that an electronic motor brake will fit or perform with your motor or actuator if sold separately.)

Electronic Motor Brake

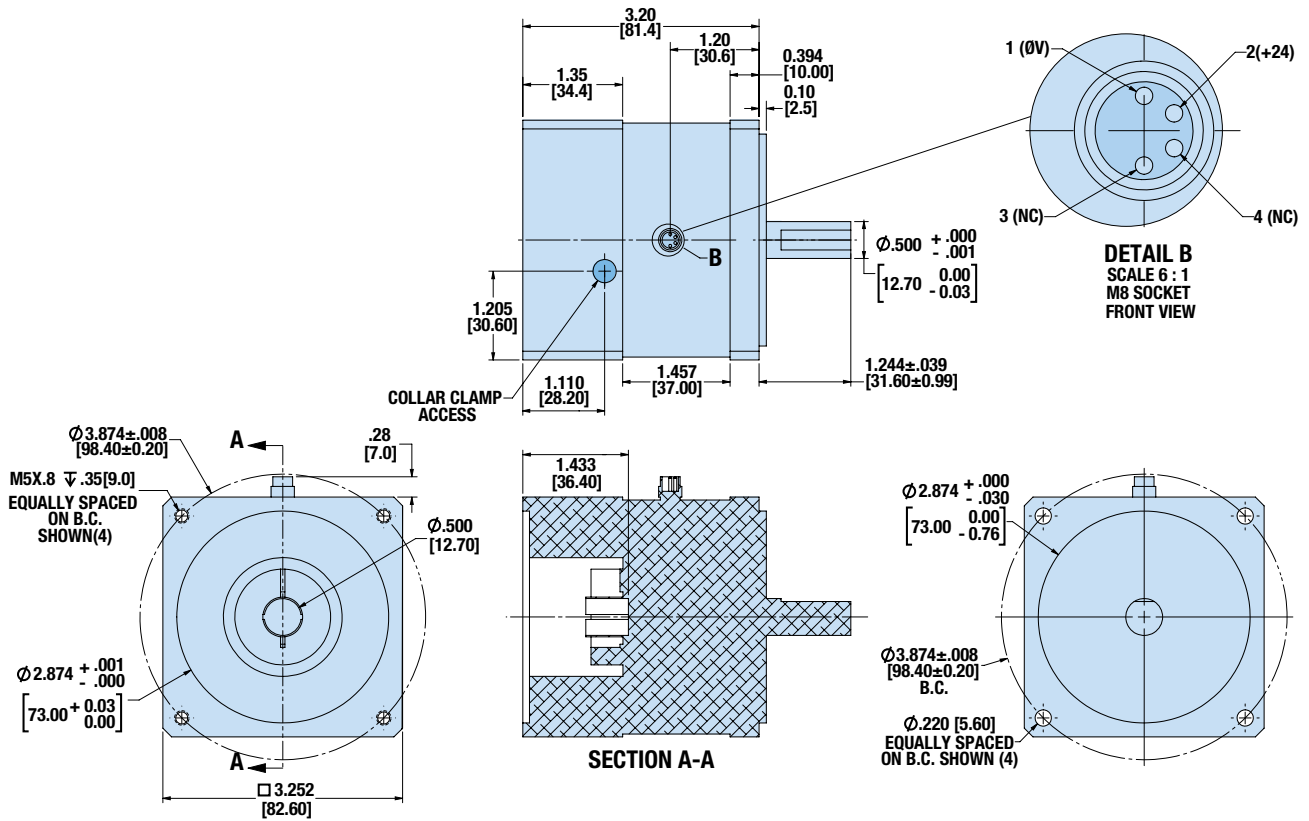
SIZE: ALL

DIMENSIONS

NEMA23 DIMENSIONS



NEMA34 DIMENSIONS



Ordering



MOTOR

AM V2 C1 A 1

MOTOR ORDER CODE	
AM	Tolomatic Motor

MOTOR TYPE	
V2	Servo Motor
S1	Stepper Motor

STEPPER FRAME SIZE	
B1*†	17 Frame Motor
C1†	23 Frame 1 Stack Motor
C2	23 Frame 2 Stack Motor
D1	34 Frame 1 Stack Motor
D2	34 Frame 2 Stack Motor

SERVO FRAME SIZE	
C1	23 Frame Motor, 1 stack
C2	23 Frame Motor, 2 stack
C3	23 Frame Motor, 2 stack
D1	34 Frame Motor, 1 stack
D2	34 Frame Motor, 2 stack

ENCODER/BRAKE			
Code	Encoder	Brake	SS2§
A	Yes	-	-
B	Yes	Yes	-
C	-	-	-
D	-	Yes	-
§E	Yes	-	Yes
§G	-	-	Yes

GEARHEAD*			
Code	Gearhead	Output Frame Size	Input Frame Size
1	No reduction		
2	5:1	Equal Frame Size	
3	10:1	Equal Frame Size	
4	5:1	23	34
5	10:1	23	34
6	3:1	Equal Frame Size	
7	3:1	23	34



*NOTE: Gearheads not available for the 17 frame motors

†NOTE: MC Cable Option available for 17 & 23 frame 1 stack motors ONLY

§SS2 Applies only to (ERD10, ERD15 & ERD20) SS2 option actuators see ERD catalog 2190-4000 for complete details

Service Parts Ordering

CABLES & MOTOR REPLACEMENT PARTS

SERVO MOTORS			
Code	Part No.	Frame Size	Description
AMV2C1A1	3604-1845	Nema 23	Motor, 1 Stack, Encoder, Winding B
AMV2C2A1	3604-1847	Nema 23	Motor, 2 Stack, Encoder, Winding B
AMV2C3A1	3604-1846	Nema 23	Motor, 2 Stack, Encoder, Winding A
AMV2D1A1	3604-1849	Nema 34	Motor, 1 Stack, Encoder, Winding B
AMV2D2A1	3604-1851	Nema 34	Motor, 2 Stack, Encoder, Winding B

STEPPER MOTORS			
Code	Part No.	Frame Size	Description
AMS1B1A1 AMS1B1E1	3604-1776	Nema 17	Motor, 1 Stack, Encoder
AMS1B1C1 AMS1B1G1	3604-1775	Nema 17	Motor, 1 Stack, No Encoder
AMS1C1A1 AMS1C1E1	3604-1778	Nema 23	Motor, 1 Stack, Encoder
AMS1C1C1 AMS1C1G1	3604-1777	Nema 23	Motor, 1 Stack, No Encoder
AMS1C2A1 AMS1C2E1	3604-1955	Nema 23	Motor, 2 Stack, Encoder
AMS1C2C1 AMS1C2G1	3604-1954	Nema 23	Motor, 2 Stack, No Encoder
AMS1D1A1	3604-1957	Nema 34,	Motor, 1 Stack, Encoder
AMS1D1C1	3604-1956	Nema 34,	Motor, 1 Stack, No Encoder
AMS1D2A1	3604-1962	Nema 34	Motor, 2 Stack, Encoder
AMS1D2C1	3604-1961	Nema 34	Motor, 2 Stack, No Encoder

ACCESSORIES	
Part No.	Description
3604-1842	Servo - Motor Power/Encoder Cable (3 m)
3604-1843	Servo - Motor Power/Encoder Cable (5 m)
3604-1943	Servo - Motor Power/Encoder Cable (10 m)
3604-1708	Stepper - Motor Power Cable (3 m)
3604-1709	Stepper - Motor Power Cable (5 m)
3604-1710	Stepper - Motor Power Cable (10 m)
3604-2228	34 Stepper - Motor Power Cable (3 m)
3604-2229	34 Stepper - Motor Power Cable (5 m)
3604-2230	34 Stepper - Motor Power Cable (10 m)
3604-1768	17,23 Stepper - Encoder Cable (3 meter length)
3604-1769	17,23 Stepper - Encoder Cable (5 meter length)

ACCESSORIES	
Part No.	Description
3604-1969	17,23 Stepper - Encoder Cable (10 meter length)
3604-1971	34 Stepper - Encoder Cable (3 meter length)
3604-1972	34 Stepper - Encoder Cable (5 meter length)
3604-1973	34 Stepper - Encoder Cable (10 meter length)
3604-1770	I/O Cable (3 meter length)
3604-1771	I/O Cable (5 meter length)
3604-1965	Replacement Brake Cable (3 meter length)
3604-1949	Replacement Brake Cable (5 meter length)
3604-1966	Replacement Brake Cable (10 meter length)

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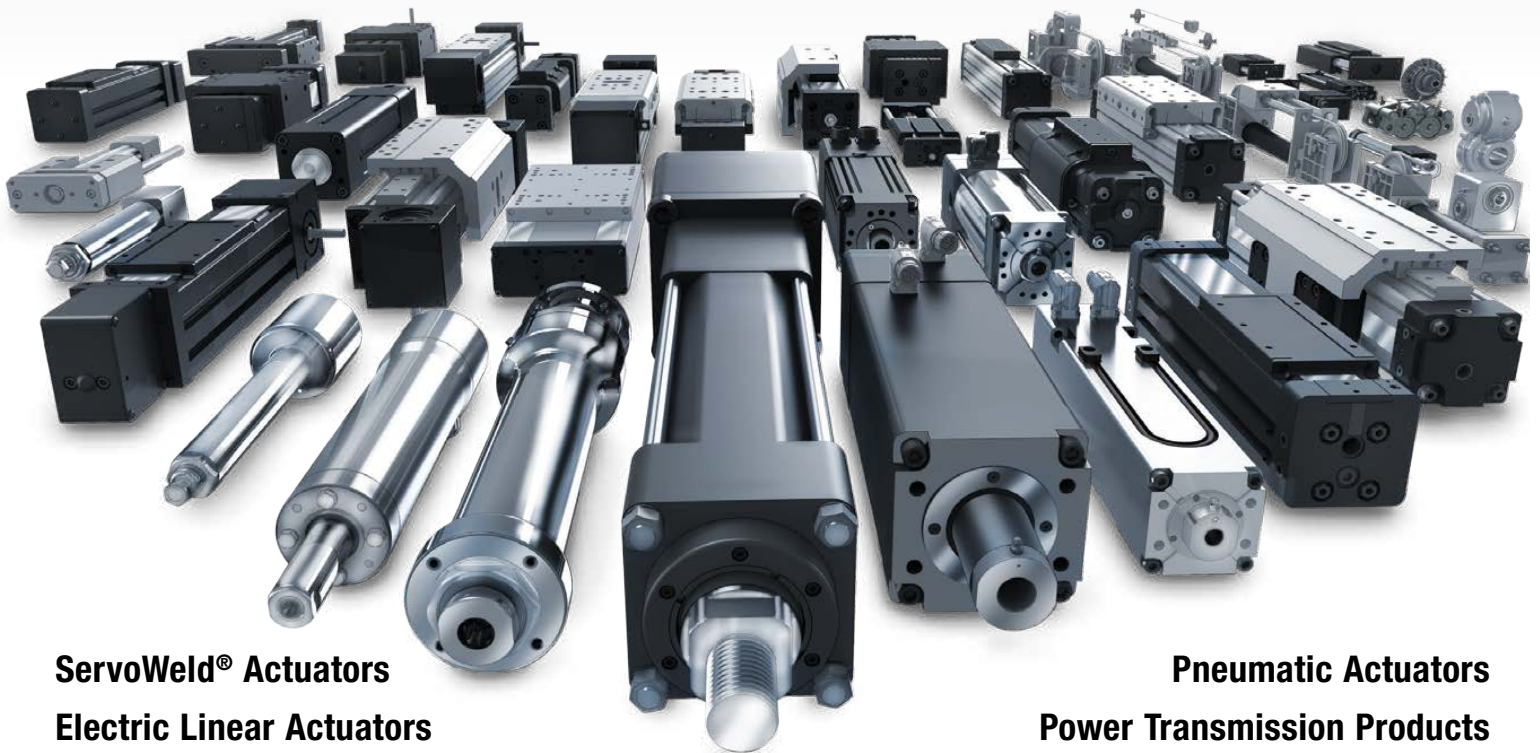
CAD LIBRARY

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