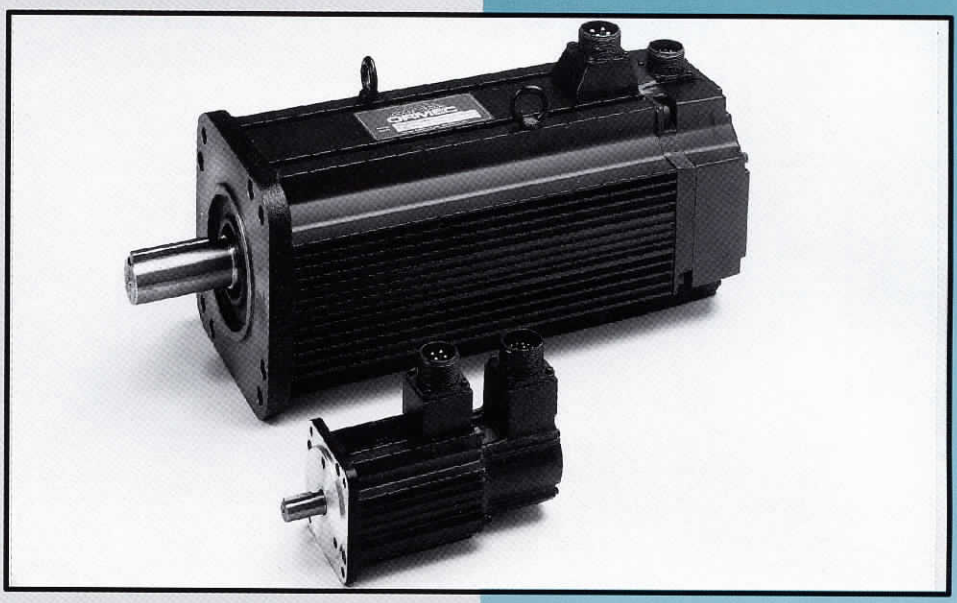
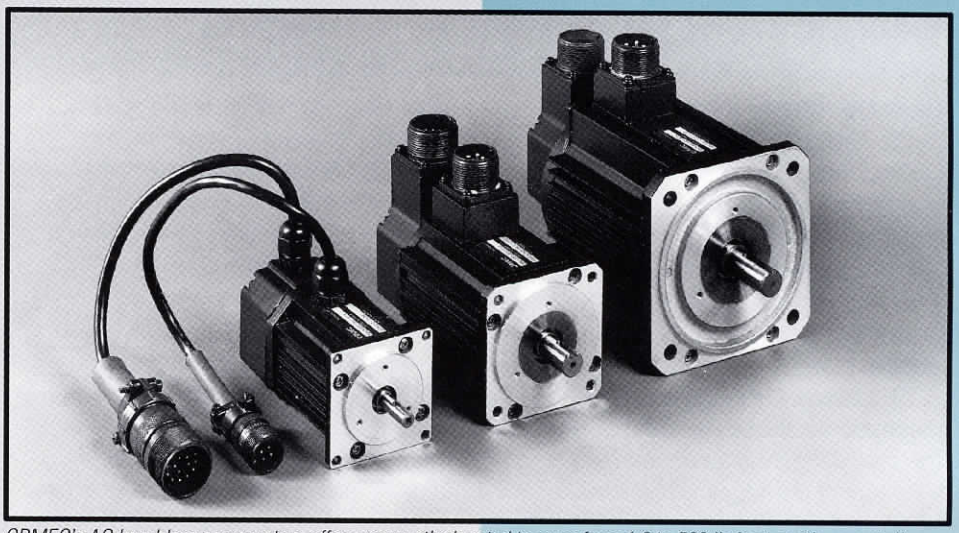
ORMEC Servomotor Overview

ORMEC's AC brushless servomotors (A, B, C & E-Series) feature a wide range of torques, conservatively rated from 1.6 to 560 lb-in at continuous stall. High torque-to-inertia ratios mean more delivered power for high performance applications. Rugged and powerful, yet compact and lightweight, they feature industry standard mounting dimensions.

These AC brushless motors completely eliminate brush wear maintenance problems and feature extremely durable construction which includes long thermal time constants and oversized bearings.

Rugged industrial quality position encoders are built-in, and feature high accuracy with up to 24,000 counts per revolution. Equally rugged MS Series connectors provide interconnect to both motor and encoder.





ORMEC's AC brushless servomotors offer conservatively rated torques from 1.6 to 560 lb-in at continuous stall.

Motor/Drive Combinations

The performance of these servomotors is a direct function of the factory-matched motor/drive combination.

ORMEC's servodrives are all microprocessor-based, and provide a wide range of output power from 50 watts to 6.1 kilowatts.

High peak torques are provided, and peak torques of twice the rated torque are available for up to a minute allowing the motor/drive to handle high inertia loads & heavy duty requirements.

High bandwidth current mode operation and fully digital position transducers provide response & accuracy for demanding applications, while totally eliminating potentiometer adjustments.

Each motor/amplifier pair is individually matched to provide both RMS and peak current (torque) limiting.

A full array of diagnostic fault detection is communicated to the position controls through the standard axis interface.

A-Series Servomotors & S-Series Servodrives

Model	Max. RPM	Peak/Stall Torque	Motor Inertia	Servodrive	Power[1]	Current[2]	Size (HxWxD)[3]
MAC-A010A	4,000	26/10 lb-in	0.00045 lb-in-sec^2	SAC-S03A/101A	700	2.1	13.8 x 6.3 x 7.2
MAC-A015B	4,000	36/15 lb-in	0.00067 lb-in-sec^2	SAC-S04B/101A	1100	3.0	13.8 x 6.3 x 7.2
MAC-A030C	4,000	65/30 lb-in	0.0025 lb-in-sec^2	SAC-S08C/101A	2100	5.8	13.8 x 6.3 x 7.2
MAC-A055D	4,000	122/55 lb-in	0.0029 lb-in-sec^2	SAC-S12D/101A	3100	8.4	13.8 x 6.3 x 7.2
MAC-A110F	4,000	257/110 lb-in	0.0051 lb-in-sec^2	SAC-S26F/101A	6000	16.5	17.8 x 6.3 x 7.2

B-Series Servomotors & S-Series Servodrives

Model	Max. RPM	Peak/Stall Torque	Motor Inertia	Servodrive	Power[1]	Current[2]	Size (HxWxD)[3]
MAC-B010A	2,500	26/10 lb-in	0.0011 lb-in-sec^2	SAC-S03A/101B	700	2.1	13.8 x 6.3 x 7.2
MAC-B020A	2,500	52/20 lb-in	0.0018 lb-in-sec^2	SAC-S03A/101B	700	2.1	13.8 x 6.3 x 7.2
MAC-B025A	2,500	80/26 lb-in	0.012 lb-in-sec^2	SAC-S04B/101B	1100	3.0	13.8 x 6.3 x 7.2
MAC-B050C	2,500	135/53 lb-in	0.0215 lb-in-sec^2	SAC-S08C/101B	2100	5.8	13.8 x 6.3 x 7.2
MAC-B080D	2,500	220/80 lb-in	0.0325 lb-in-sec^2	SAC-S12D/101B	3100	8.4	13.8 x 6.3 x 7.2
MAC-B110E	2,500	302/110 lb-in	0.0591 lb-in-sec^2	SAC-S19E/101B	4100	11.3	17.8 x 6.3 x 7.2
MAC-B200F	2,500	480/200 lb-in	0.0972 lb-in-sec^2	SAC-S26F/101B	6000	16.5	17.8 x 6.3 x 7.2
MAC-B330G	2,500	675/330 lb-in	0.127 lb-in-sec^2	SAC-S33G/101B	8000	22.0	17.8 x 6.3 x 10.4

C-Series Servomotors & S-Series Servodrives

Model	Max. RPM	Peak/Stall Torque	Motor Inertia	Servodrive	Power[1]	Current[2]	Size (HxWxD)[3]
MAC-C290F	2,000	570/290 lb-in	0.127 lb-in-sec^2	SAC-S26F/101C	6000	16.5	17.8 x 6.3 x 7.2
MAC-C410G	1,500	818/410 lb-in	0.213 lb-in-sec^2	SAC-S33G/101C	8000	22.0	17.8 x 6.3 x 10.4
MAC-C560H	1,500	945/560 lb-in	0.213 lb-in-sec^2	SAC-S45H/101C	11,000	30.0	17.8 x 7.5 x 11.2

E-Series Servomotors & Servodrives

Model	Max. RPM	Peak/Stall Torque	Motor Inertia	Servodrive	Power[1]	Volts/Current[4]	Size (HxWxD)[3]
MAC-E002A1	4,000	4.2/1.6 lb-in	6.8 x 10^{-5} lb-in-sec^2	SAC-E01A1	300	115/3.1	10 x 3 x 12.8
MAC-E002A2	4,500	4.2/1.6 lb-in	6.8 x 10^{-5} lb-in-sec^2	SAC-E01A2	300	230/1.6	10 x 3 x 12.8
MAC-E003B1	4,000	8.4/3.2 lb-in	1.1 x 10^{-4} lb-in-sec^2	SAC-E02B1	500	115/5.2	10 x 4 x 12.8
MAC-E003B2	4,500	8.4/3.2 lb-in	1.1 x 10^{-4} lb-in-sec^2	SAC-E02B2	500	230/2.6	10 x 3 x 12.8
MAC-E007C1	4,000	17/6.5 lb-in	4.5 x 10^{-4} lb-in-sec^2	SAC-E03C1	750	115/7.8	10 x 4 x 12.8
MAC-E007C2	4,500	17/6.5 lb-in	4.5 x 10^{-4} lb-in-sec^2	SAC-E03C2	750	230/3.9	10 x 4 x 12.8
MAC-E009G2	4,000	26/9.6 lb-in	4.5 x 10^{-4} lb-in-sec^2	SAC-E03G2	1000	230/5.1	10 x 4 x 12.8
MAC-E010D1	4,000	25/9.7 lb-in	6.8 x 10^{-4} lb-in-sec^2	SAC-E04D1	1000	115/10.4	10 x 4 x 12.8
MAC-E010D2	4,500	25/9.7 lb-in	6.8 x 10^{-4} lb-in-sec^2	SAC-E04D2	1000	230/5.2	10 x 4 x 12.8
MAC-E015H2	4,000	36/15 lb-in	2.4 x 10^{-3} lb-in-sec^2	SAC-E03H2	1300	230/7.0	10 x 4 x 12.8
MAC-E016E2	4,500	42/16 lb-in	2.4 x 10^{-3} lb-in-sec^2	SAC-E05E2	1400	230/7.3	10 x 4 x 12.8
MAC-E023F2	4,000	59/23 lb-in	3.3 x 10^{-3} lb-in-sec^2	SAC-E06F2	1600	230/8.3	10 x 5 x 12.8
MAC-E030J2	4,000	65/30 lb-in	2.4 x 10^{-3} lb-in-sec^2	SAC-E08J2	2100	230/9.8	10 x 5 x 12.8

[1] Power listed is the required incoming line power in watts when the motor is operating at rated output. To determine total incoming power requirements, add up the listed values for each servodrive/motor combination in the system.
[2] Current listed is the recommended slow-blow fuse capacity for each leg of the three-phase power. To select fuses for the system, add the recommended fuse capacities for each servodrive/motor combination in the system
[3] The servodrives are designed to be mounted on a vertical panel and the dimensions listed---length (or height), width and overall required panel depth, are in inches.
[4] Voltage and current listed is the recommended slow-blow fuse capacity of the single-phase power. To select fuses for the system, add the recommended fuse capacities for each servodrive/motor combination in the system.

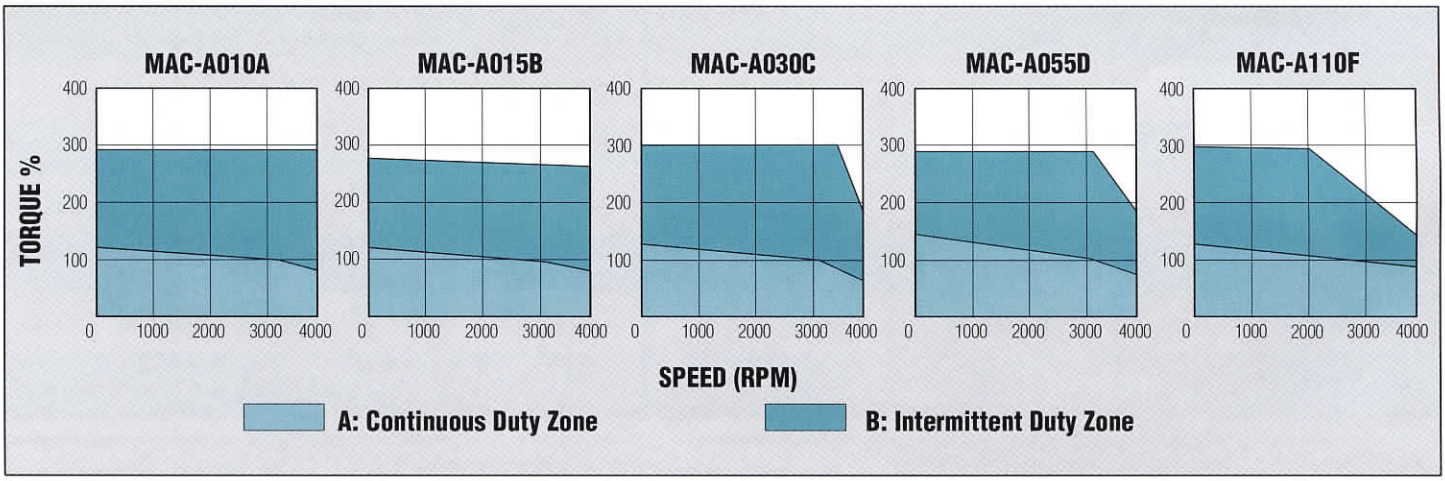
Servomotors

A-Series AC Brushless Servomotors

Performance Specifications (1)	Units	A010A	A015B	A030C	A055D	A110F
Maximum Speed	RPM	4000	4000	4000	4000	4000
Continuous Stall Torque	lb-in	10	15	30	55	110
Rated Speed	RPM	3000	3000	3000	3000	3000
Rated Torque	lb-in	9	13	23	44	88
Rated Power	HP	0.43	0.62	1.1	2.1	4.2
Rated Power	watts	319	461	816	1561	3122
Peak Torque	lb-in	26	36	65	122	257
Continuous Stall Torque/Inertia	radians/sec^2	22,222	22,388	12,000	18,966	21,569
Mechanical Specifications						
Moment of Inertia	lb-in-sec^2	0.00045	0.00067	0.0025	0.0029	0.0051
Friction Torque, Static	lb-in	0.5	0.7	1.9	1.9	3.2
Weight	lbs	6.0	7.3	13.2	24.3	52.9
Mounting Bolt Diameter	in	3.543	3.543	5.118	5.709	7.874
Pilot Diameter	in	2.756	2.756	4.331	4.331	4.500
Shaft Diameter	mm	14	14	16	19	22
Length, mounting face to rear	in	5.85	6.71	7.83	8.01	11.65
Maximum Radial Shaft Load	lbs	57	57	90	108	156
Maximum Axial Shaft Load	lbs	24	24	35	35	46
Electrical Specifications						
Torque Sensitivity	lb-in/amp	3.06	3.27	4.06	4.36	4.51
Servodrive		S03A	S04B	S08C	S12D	S26F
Servodrive Input Power (three-phase)	volts	230	230	230	230	230
Continuous Motor Current	amps	3.1	4.3	5.3	10.4	26
Peak Motor Current	amps	8.5	11	16	28	57
Motor Thermal Specifications						
Ambient Temperature	degrees C	40	40	40	40	40
Thermal Time Constant	minutes	15	18	45	50	55
Insulation Class		B	B	F	F	F
Encoder & Tach Specifications (2)						
Encoder Resolution	linecount	1500	1500	1500	1500	1500
Tachometer Sensitivity	volts/kRPM	2	2	2	2	2

(1) Ratings are for an ambient temperature of 40 degrees C. (2) Effective encoder resolution is jumper selectable on the servodrive.

Torque vs. Speed Characteristics



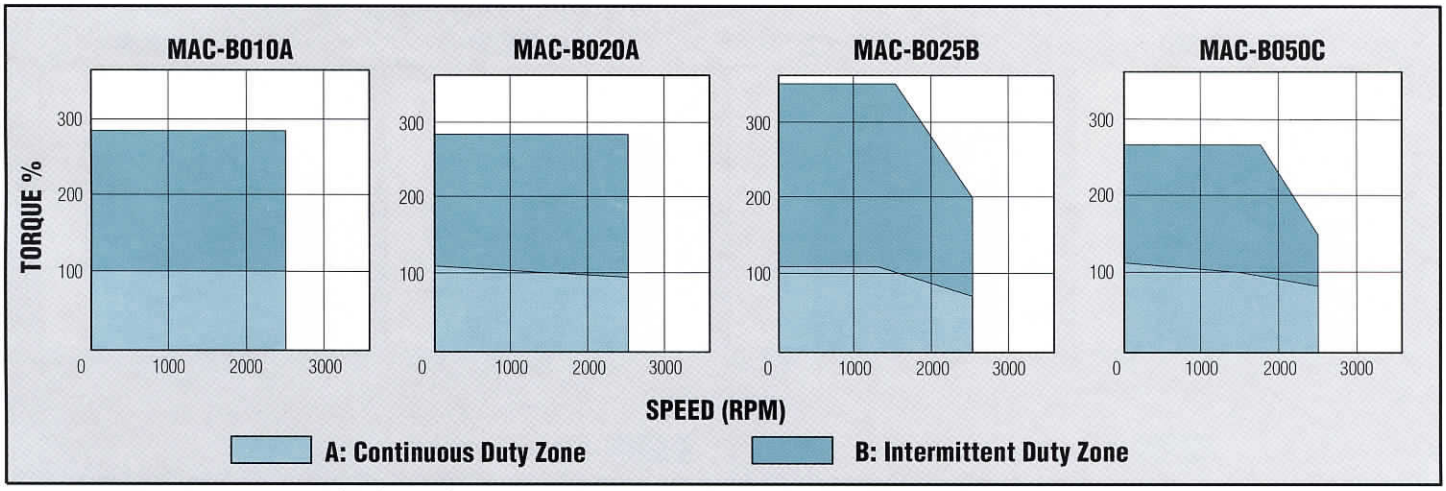
Note: Torque percentage is compared with Rated Torque @ 3000 RPM

B-Series AC Brushless Servomotors

Performance Specifications (1)	Units	B010A	B020A	B025B	B050C
Maximum Speed	RPM	2500	2500	2500	2500
Continuous Stall Torque	lb-in	10	20	26	53
Rated Speed	RPM	1500	1500	1500	1500
Rated Torque	lb-in	8.8	18	25.5	50
Rated Power	HP	0.21	0.43	0.61	1.2
Rated Power	watts	156	319	452	887
Peak Torque	lb-in	26	52	80	135
Continuous Stall Torque/Inertia	radians/sec^2	9,091	11,111	2,167	2,465
Mechanical Specifications					
Moment of Inertia	lb-in-sec^2	0.0011	0.0018	0.012	0.0215
Friction Torque, Static	lb-in	0.5	0.7	1.9	2.6
Weight	lbs	11.0	12.0	22.0	33.0
Mounting Bolt Diameter	in	3.937	3.937	5.709	5.709
Pilot Diameter	in	3.150	3.150	4.331	4.331
Shaft Diameter	mm	14	14	19	19
Length, mounting face to rear	in	6.03	7.86	7.99	10.24
Maximum Radial Shaft Load	lbs	33	33	110	110
Maximum Axial Shaft Load	lbs	11	11	22	22
Electrical Specifications					
Torque Sensitivity	lb-in/amp	3.1	6.1	7.3	7.9
Servodrive		S03A	S03A	S04B	S08C
Servodrive Input Power (three-phase)	volts	230	230	230	230
Continuous Motor Current	amps	3.0	3.0	3.8	6.2
Peak Motor Current	amps	8.5	8.5	11	17
Motor Thermal Specifications					
Ambient Temperature	degrees C	40	40	40	40
Thermal Time Constant	minutes	15	18	45	50
Insulation Class		F	F	F	F
Encoder & Tach Specifications (2)					
Encoder Resolution	linecount	6000	6000	6000	6000
Tachometer Sensitivity	volts/kRPM	3	3	3	3

(1) Ratings are for an ambient temperature of 40 degrees C. (2) Effective encoder resolution is jumper selectable on the servodrive

Torque vs. Speed Characteristics



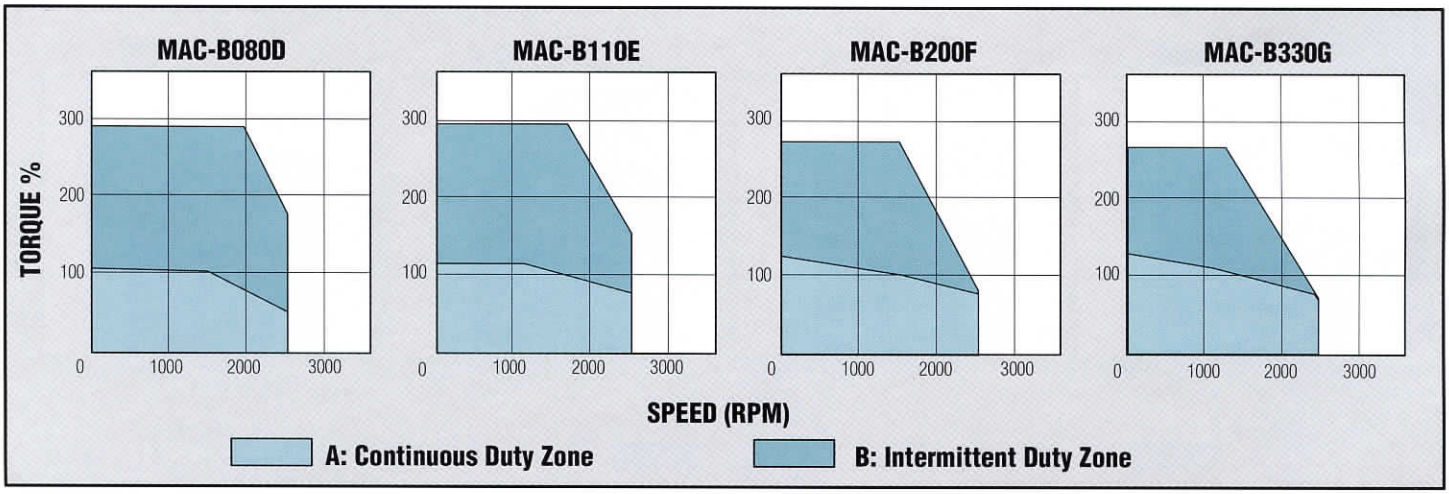
Note: Torque percentage is compared with Rated Torque @ 1500 RPM

B-Series AC Brushless Servomotors

Performance Specifications (1)	Units	B080D	B110E	B200F	B330G
Maximum Speed	RPM	2500	2500	2500	2500
Continuous Stall Torque	lb-in	80	110	200	330
Rated Speed	RPM	1500	1500	1500	1500
Rated Torque	lb-in	76	103	168	255
Rated Power	HP	1.8	2.5	4.0	6.1
Rated Power	watts	1348	1827	2980	4523
Peak Torque	lb-in	220	302	480	675
Continuous Stall Torque/Inertia	radians/sec^2	2,462	1,861	2,058	2,598
Mechanical Specifications					
Moment of Inertia	lb-in-sec^2	0.0325	0.0591	0.0972	0.127
Friction Torque, Static	lb-in	3.2	4.1	4.4	5.4
Weight	lbs	46.0	53.0	71.0	95.0
Mounting Bolt Diameter	in	5.709	7.874	7.874	7.874
Pilot Diameter	in	4.331	4.500	4.500	4.500
Shaft Diameter	mm	22	35	35	35
Length, mounting face to rear	in	13.70	10.67	12.96	16.30
Maximum Radial Shaft Load	lbs	154	332	332	332
Maximum Axial Shaft Load	lbs	77	110	110	110
Electrical Specifications					
Torque Sensitivity	lb-in/amp	7.9	8.4	8.4	8.8
Servodrive		S12D	S19E	S26F	S33G
Servodrive Input Power (three-phase)	volts	230	230	230	230
Continuous Motor Current	amps	9.7	15	20	30
Peak Motor Current	amps	28	36	57	77
Motor Thermal Specifications					
Ambient Temperature	degrees C	40	40	40	40
Thermal Time Constant	minutes	55	55	60	65
Insulation Class		F	F	F	F
Encoder & Tach Specifications (2)					
Encoder Resolution	linecount	6000	6000	6000	6000
Tachometer Sensitivity	volts/kRPM	3	3	3	3

(1) Ratings are for an ambient temperature of 40 degrees C. (2) Effective encoder resolution is jumper selectable on the servodrive.

Torque vs. Speed Characteristics



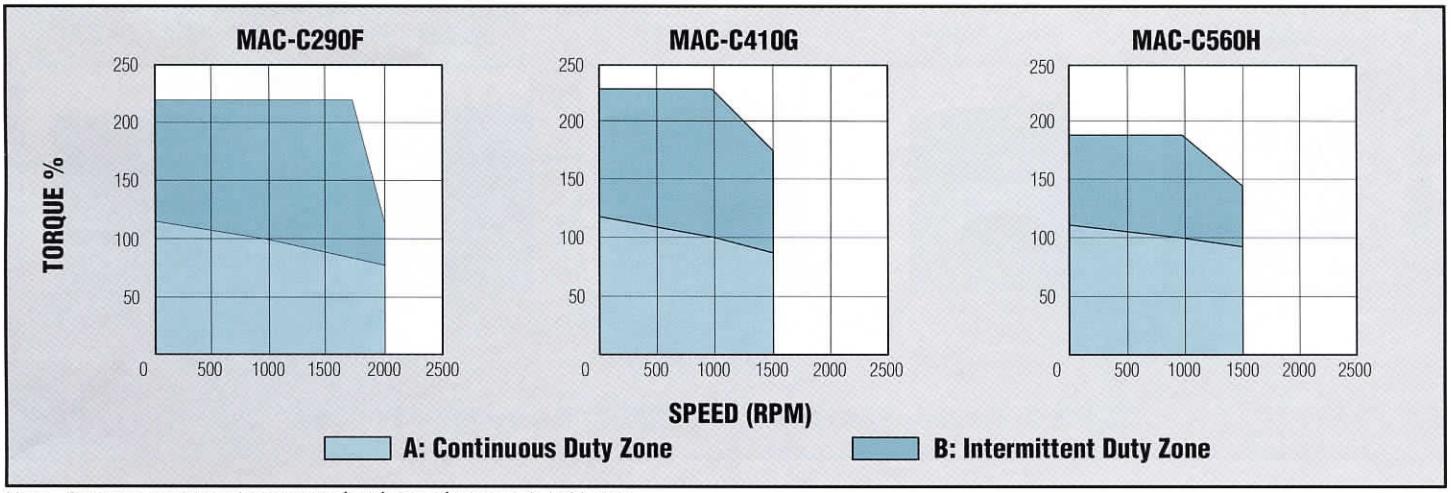
Note: Torque percentage is compared with Rated Torque @ 1500 RPM

C-Series AC Brushless Servomotors

Performance Specifications (1)	Units	C290F	C410G	C560H (3)
Maximum Speed	RPM	2000	1500	1500
Continuous Stall Torque	lb-in	290	410	560
Rated Speed	RPM	1000	1000	1000
Rated Torque	lb-in	258	381	518
Rated Power	HP	4.10	6.05	8.22
Rated Power	watts	3051	4505	6126
Peak Torque	lb-in	570	818	945
Continuous Stall Torque/Inertia	radians/sec^2	2283	1925	2629
Mechanical Specifications				
Moment of Inertia	lb-in-sec^2	0.127	0.213	0.213
Friction Torque, Static	lb-in	4.5	5.5	6.2
Weight	lbs	95.0	154.0	165.0
Mounting Bolt Diameter	in	7.874	7.874	7.874
Pilot Diameter	in	4.500	4.500	4.500
Shaft Diameter	mm	35	42	42
Length, mounting face to rear	in	16.30	28.55	32.29
Maximum Radial Shaft Load	lbs	330	400	400
Maximum Axial Shaft Load	lbs	110	135	135
Electrical Specifications				
Torque Sensitivity	lb-in/amp	10.0	11.7	11.7
Servodrive		S26F	S33G	S45H
Servodrive Input Power (three-phase)	volts	230	230	230
Continuous Motor Current	amps	26	33	45
Peak Motor Current	amps	57	70	81
Motor Thermal Specifications				
Ambient Temperature	degrees C	40	40	40
Thermal Time Constant	minutes	15	15	18
Insulation Class		F	F	F
Encoder & Tach Specifications (2)				
Encoder Resolution	linecount	6000	6000	6000
Tachometer Sensitivity	volts/kRPM	4	4	4

(1) Ratings are for an ambient temperature of 40 C. (2) Effective encoder resolution is jumper selectable on the servodrive.
(3) TEFC (Totally Enclosed Fan Cooled)

Torque vs. Speed Characteristics



Note: Torque percentage is compared with Rated Torque @ 1000 RPM

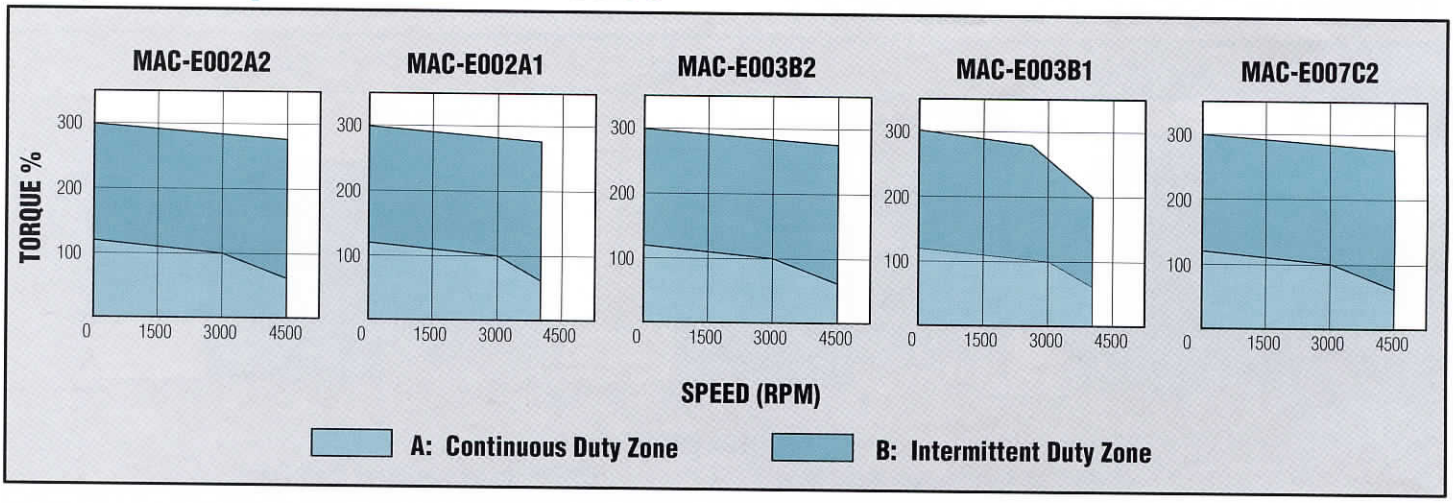
E-Series AC Brushless Servomotors

Performance Specifications (1)	Units	E002A2	E002A1	E003B2	E003B1	E007C2
Maximum Speed	RPM	4500	4000	4500	4000	4500
Continuous Stall Torque	lb-in	1.62	1.62	3.24	3.24	6.5
Rated Speed	RPM	3000	3000	3000	3000	3000
Rated Torque	lb-in	1.41	1.41	2.81	2.81	5.63
Rated Power	HP	0.07	0.07	0.13	0.13	0.27
Rated Power	watts	50	50	100	100	200
Peak Torque	lb-in	4.22	4.22	8.44	8.44	16.9
Continuous Stall Torque/Inertia	radians/sec^2	24,000	24,000	29,455	29,455	14,444
Mechanical Specifications						
Moment of Inertia	lb-in-sec^2	0.000068	0.000068	0.00011	0.00011	0.00045
Friction Torque, Static	lb-in	0.1	0.1	0.1	0.1	0.2
Weight	lbs	2.2	2.2	2.9	2.9	4.4
Mounting Bolt Diameter	in	3.150	3.150	3.150	3.150	3.543
Pilot Diameter	in	1.970	1.970	1.970	1.970	2.756
Shaft Diameter	mm	8	8	8	8	14
Length, mounting face to rear	in	4.00	4.00	4.69	4.69	4.98
Maximum Radial Shaft Load	lbs	18	18	18	18	55
Maximum Axial Shaft Load	lbs	9	9	9	9	22
Electrical Specifications						
Torque Sensitivity	lb-in/amp	1.41	0.83	2.01	1.17	2.01
Servodrive		E01A2	E01A1	E02B2	E02B1	E03C2
Servodrive Input Power (one-phase)	volts	230	115	230	115	230
Continuous Motor Current	amps	1.0	1.7	1.4	2.4	2.8
Peak Motor Current	amps	3.0	5.1	4.2	7.2	8.4
Motor Thermal Specifications						
Ambient Temperature	degrees C	40	40	40	40	40
Thermal Time Constant	minutes	12	12	14	14	16
Insulation Class		B	B	B	B	B
Encoder & Tach Specifications (2)						
Encoder Resolution	linecount	1500	1500	1500	1500	1500
Tachometer Sensitivity	volts/kRPM	2	2	2	2	2

(1) Ratings are obtained with armature temperature of 75 C. (2) Effective encoder resolution is jumper selectable on the servodrive.

Servomotors

Torque vs. Speed Characteristics



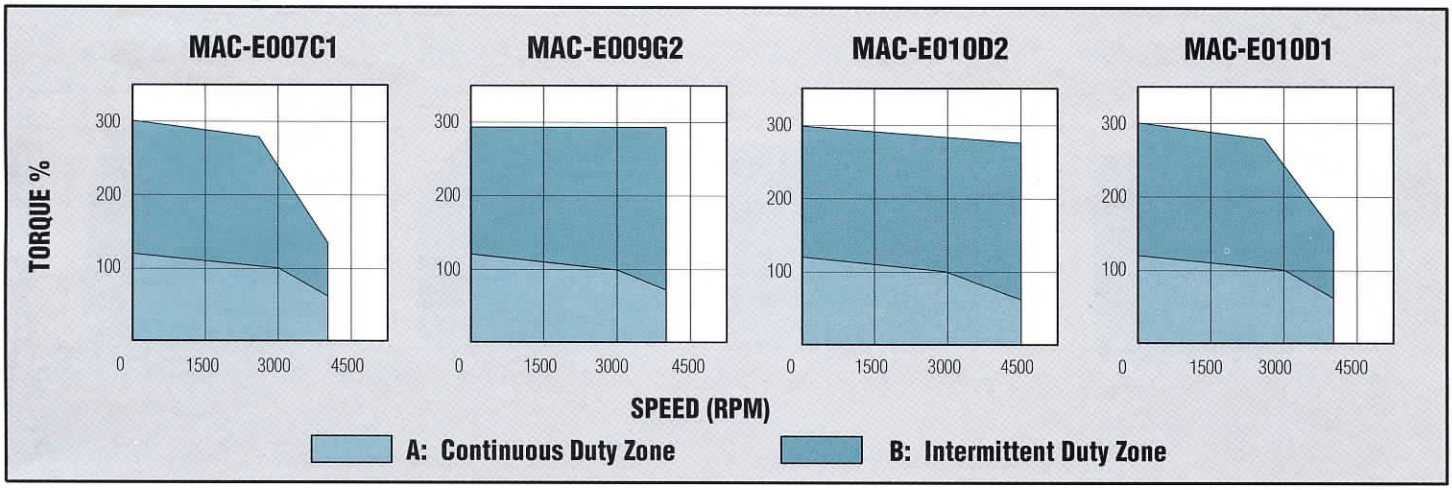
Note: Torque percentage is compared with Rated Torque @ 3000 RPM

E-Series AC Brushless Servomotors

Performance Specifications (1)	Units	E007C1	E009G2	E010D2	E010D1
Maximum Speed	RPM	4000	4000	4500	4000
Continuous Stall Torque	lb-in	6.5	9.6	9.7	9.7
Rated Speed	RPM	3000	3000	3000	3000
Rated Torque	lb-in	5.63	9	8.45	8.45
Rated Power	HP	0.27	0.43	0.40	0.40
Rated Power	watts	200	319	300	300
Peak Torque	lb-in	16.9	26	25.3	25.3
Continuous Stall Torque/Inertia	radians/sec^2	14,444	22,222	14,265	14,265
Mechanical Specifications					
Moment of Inertia	lb-in-sec^2	0.00045	0.00045	0.00068	0.00068
Friction Torque, Static	lb-in	0.2	0.5	0.3	0.3
Weight	lbs	4.4	6.0	5.7	5.7
Mounting Bolt Diameter	in	3.543	3.543	3.543	3.543
Pilot Diameter	in	2.756	2.756	2.756	2.756
Shaft Diameter	mm	14	14	14	14
Length, mounting face to rear	in	4.98	5.85	5.93	5.93
Maximum Radial Shaft Load	lbs	55	57	55	55
Maximum Axial Shaft Load	lbs	22	24	22	22
Electrical Specifications					
Torque Sensitivity	lb-in/amp	1.31	3.06	2.28	1.41
Servodrive		E03C1	E03G2	E04D2	E04D1
Servodrive Input Power (one-phase)	volts	115	230	230	115
Continuous Motor Current	amps	4.3	3.1	3.7	6.0
Peak Motor Current	amps	12.9	8.5	11.1	18.0
Motor Thermal Specifications					
Ambient Temperature	degrees C	40	40	40	40
Thermal Time Constant	minutes	16	15	17	17
Insulation Class		B	B	B	B
Encoder & Tach Specifications (2)					
Encoder Resolution	linecount	1500	1500	1500	1500
Tachometer Sensitivity	volts/kRPM	2	2	2	2

(1) Ratings are for an ambient temperature of 40 degrees C. (2) Effective encoder resolution is jumper selectable on the servodrive.

Torque vs. Speed Characteristics



Note: Torque percentage is compared with Rated Torque @ 3000 RPM

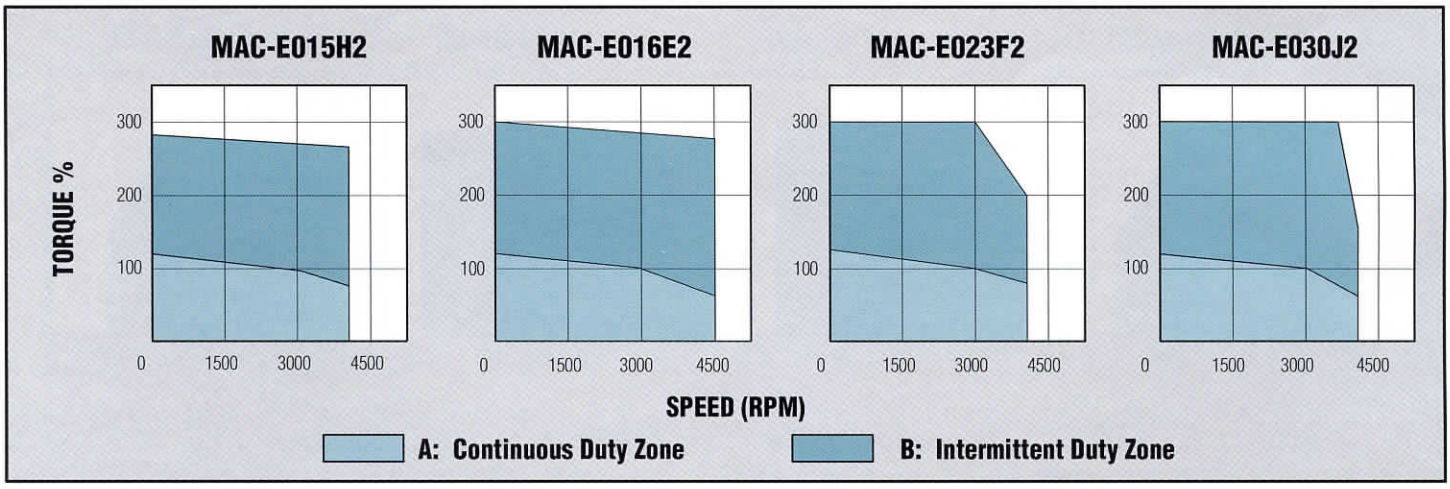
E-Series AC Brushless Servomotors

Performance Specifications (1)	Units	E015H2	E016E2	E023F2	E030J2
Maximum Speed	RPM	4000	4500	4000	4000
Continuous Stall Torque	lb-in	15	16.2	22.7	30
Rated Speed	RPM	3000	3000	3000	3000
Rated Torque	lb-in	13	14.1	19.7	23
Rated Power	HP	0.62	0.7	0.9	1.1
Rated Power	watts	461	500	700	816
Peak Torque	lb-in	36	42.2	59.1	65
Continuous Stall Torque/Inertia	radians/sec^2	22,388	6,715	6,879	12,000
Mechanical Specifications					
Moment of Inertia	lb-in-sec^2	0.00067	0.00241	0.0033	0.0025
Friction Torque, Static	lb-in	0.7	0.4	0.5	1.9
Weight	lbs	7.3	9.7	11.8	13.2
Mounting Bolt Diameter	in	3.543	5.118	5.118	5.118
Pilot Diameter	in	2.756	4.331	4.331	4.331
Shaft Diameter	mm	14	16	16	16
Length, mounting face to rear	in	6.71	6.67	7.58	7.83
Maximum Radial Shaft Load	lbs	57	88	88	90
Maximum Axial Shaft Load	lbs	24	33	33	35
Electrical Specifications					
Torque Sensitivity	lb-in/amp	3.27	2.66	3.46	4.06
Servodrive		E04H2	E05E2	E06F2	E08J2
Servodrive Input Power (one-phase)	volts	230	230	230	230
Continuous Motor Current	amps	4.3	5.3	5.7	5.3
Peak Motor Current	amps	11	15.9	17.1	16
Motor Thermal Specifications					
Ambient Temperature	degrees C	40	40	40	40
Thermal Time Constant	minutes	18	18	20	45
Insulation Class		B	B	B	F
Encoder & Tach Specifications (2)					
Encoder Resolution	linecount	1500	1500	1500	1500
Tachometer Sensitivity	volts/kRPM	2	2	2	2

(1) Ratings are for an ambient temperature of 40 degrees C. (2) Effective encoder resolution is jumper selectable on the servodrive.

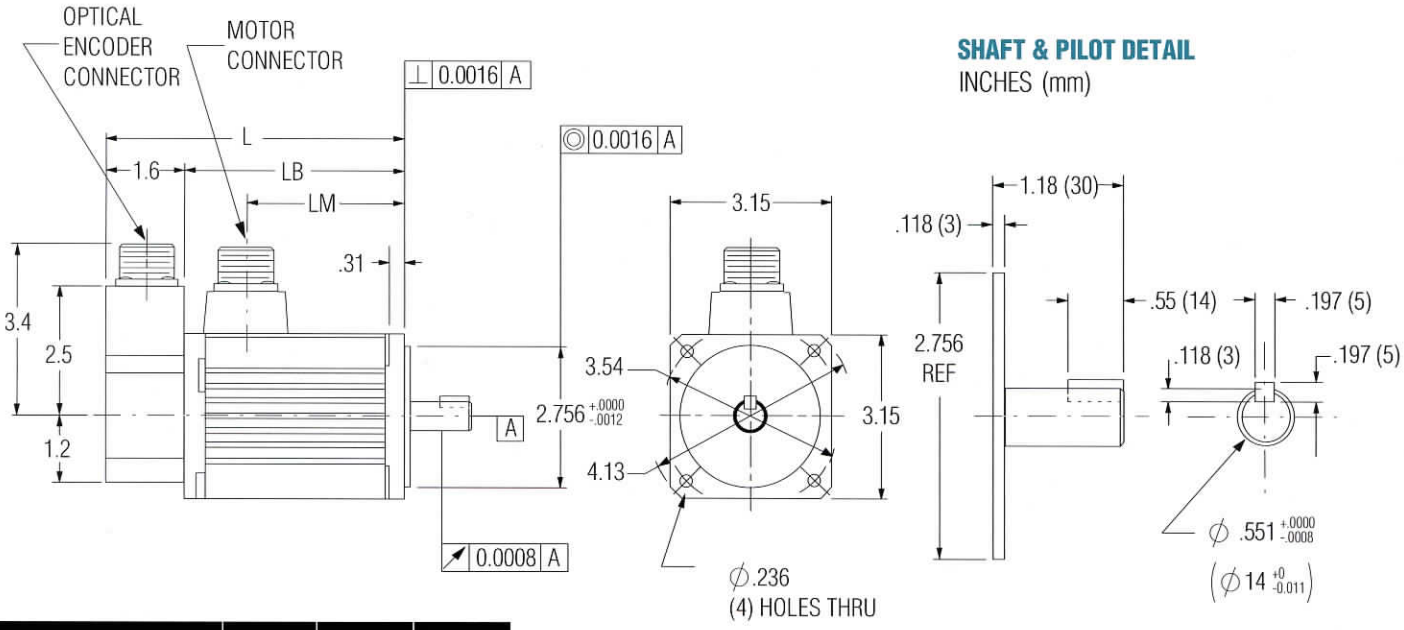
Servomotors

Torque vs. Speed Characteristics



Note: Torque percentage is compared with Rated Torque @ 3000 RPM

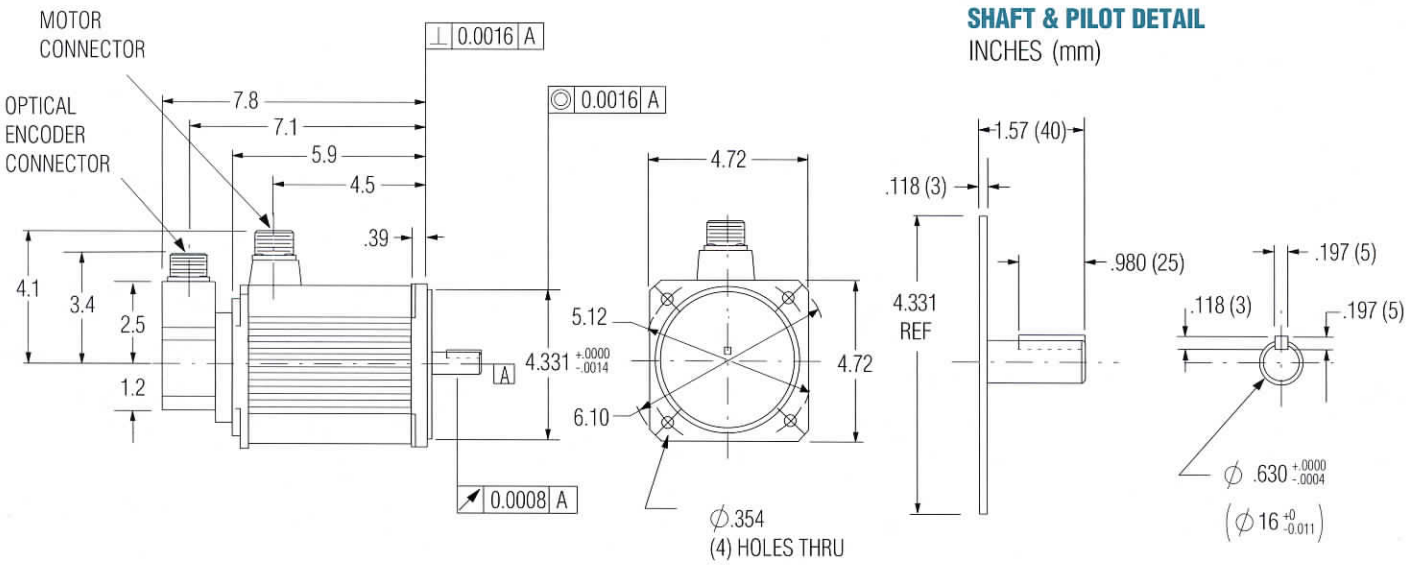
A010A, E009G2, A015B & E015H2 Outline Drawings



Dimensions	L	LB	LM
MAC-A010A/MAC-E009G2	5.9	4.3	3.1
MAC-A015B/MAC-E015H2	6.7	5.2	4.0

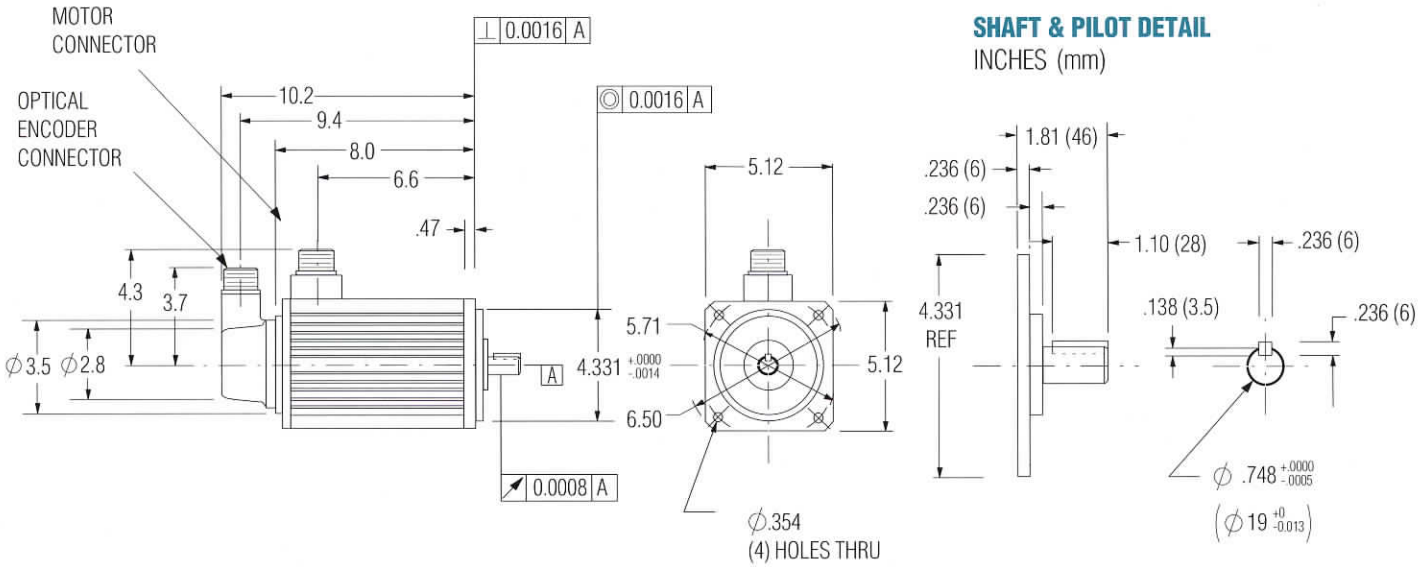
Note: Minimum cable clearance from motor centerline for Encoder Cable is 6.2 in; for Motor Cable is 5.5 in.

A030C & E030J2 Outline Drawings



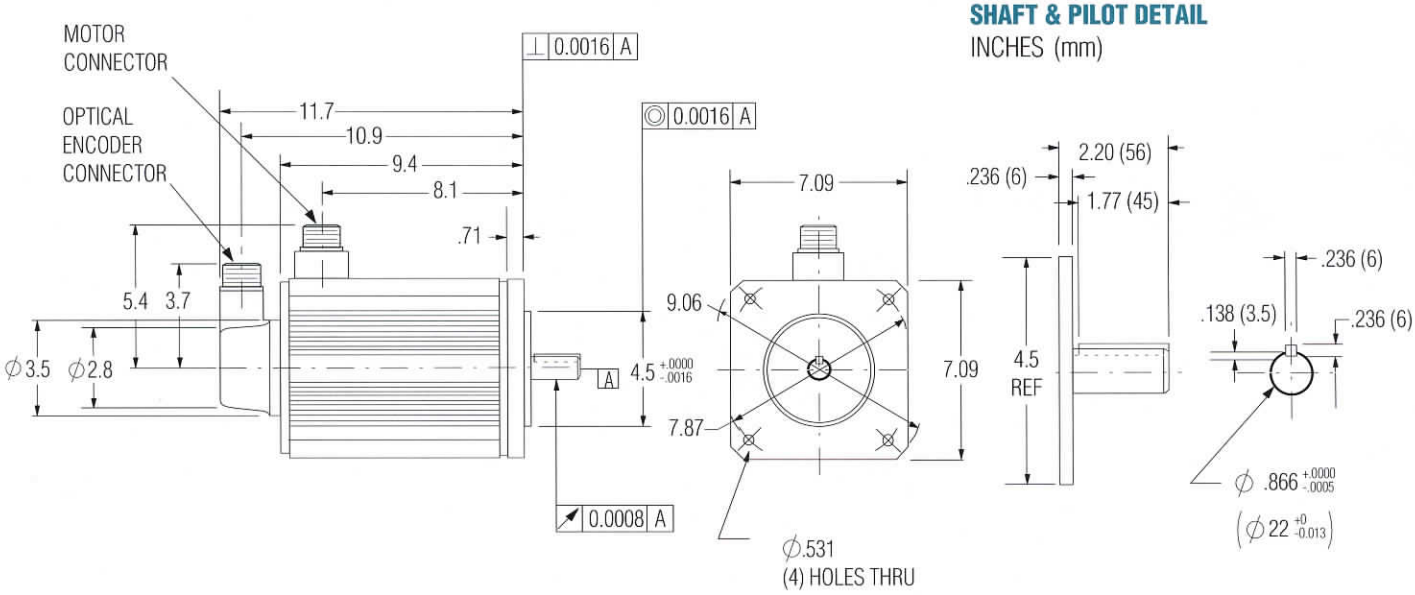
Note: Minimum cable clearance from motor centerline for Encoder Cable is 6.2 in; for Motor Cable is 6.8 in.

A055D Outline Drawing



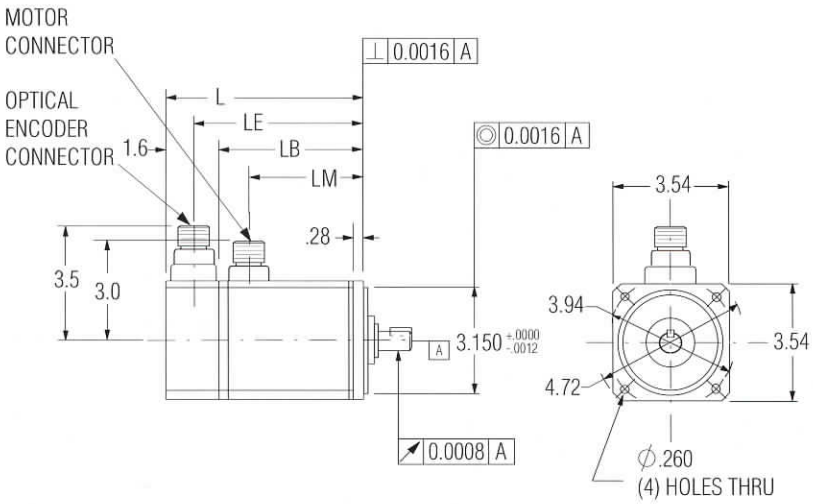
Note: Minimum cable clearance from motor centerline for Encoder Cable is 6.5 in; for Motor Cable is 7.1 in.

A110F Outline Drawing

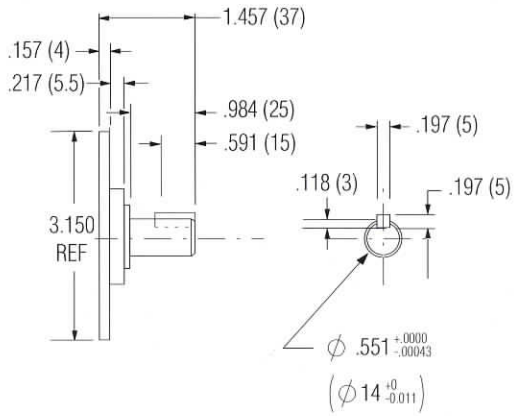


Note: Minimum cable clearance from motor centerline for Encoder Cable is 6.6 in; for Motor Cable is 8.2 in.

B010A & B020A Outline Drawings



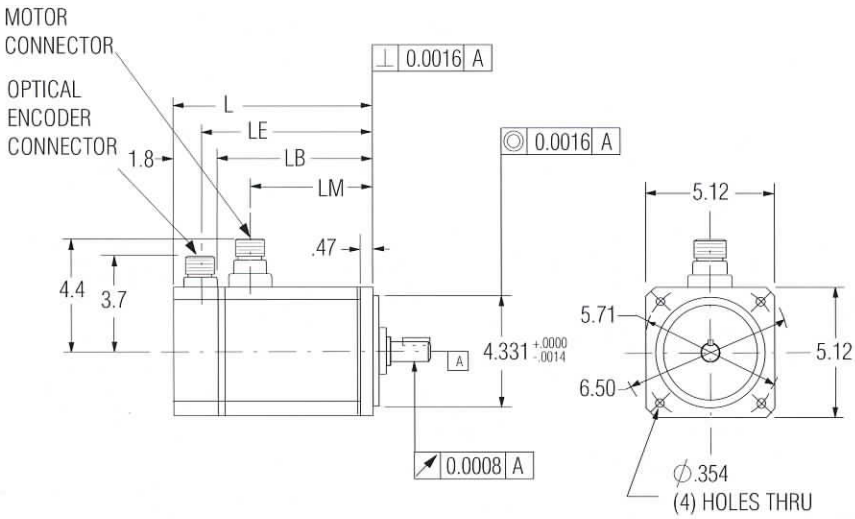
SHAFT & PILOT DETAIL
INCHES (mm)



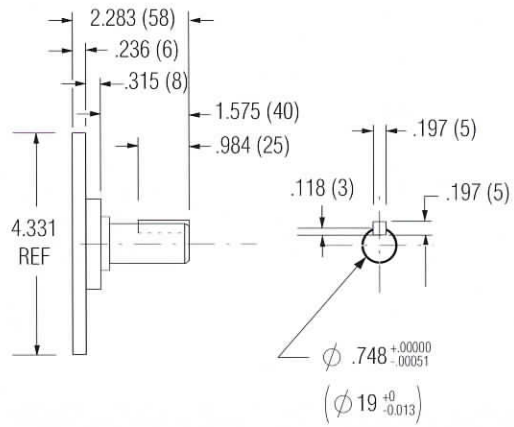
Dimensions	L	LB	LM	LE
MAC-B010A	6.0	4.4	3.5	5.2
MAC-B020A	7.8	6.3	5.3	7.0

Note: Minimum cable clearance from motor centerline for Encoder Cable is 5.6 in; for Motor Cable is 5.1 in.

B025B & B050C Outline Drawings



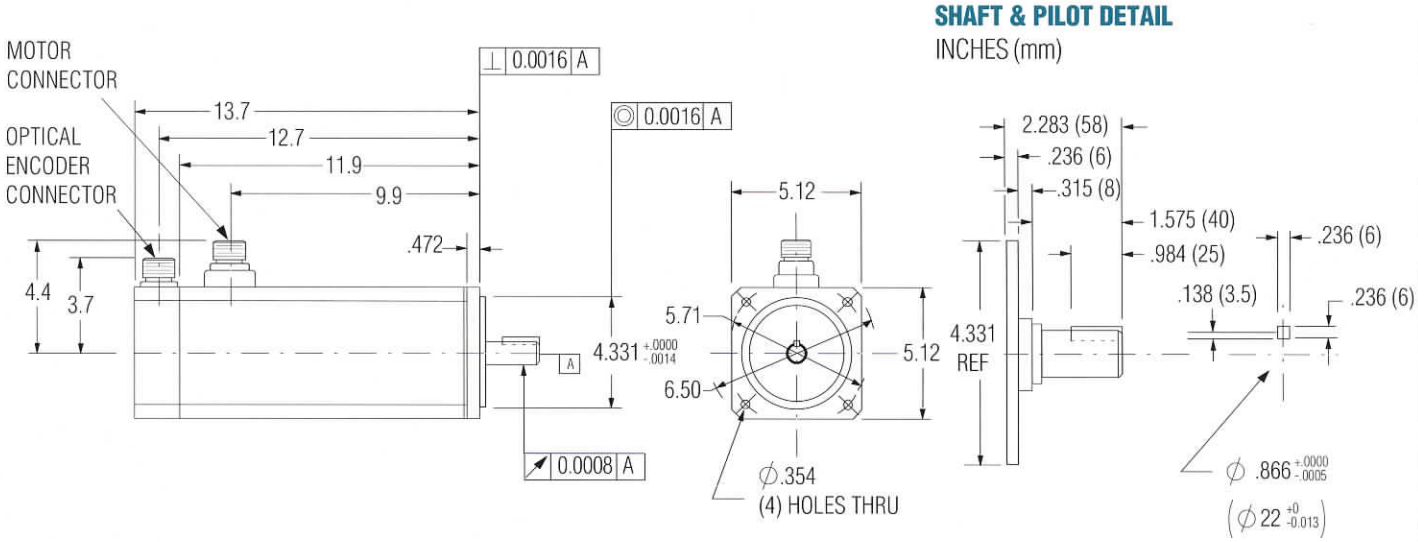
SHAFT & PILOT DETAIL
INCHES (mm)



Dimensions	L	LB	LM	LE
MAC-B025B	8.0	6.2	4.9	6.9
MAC-B050C	10.2	8.4	7.1	9.2

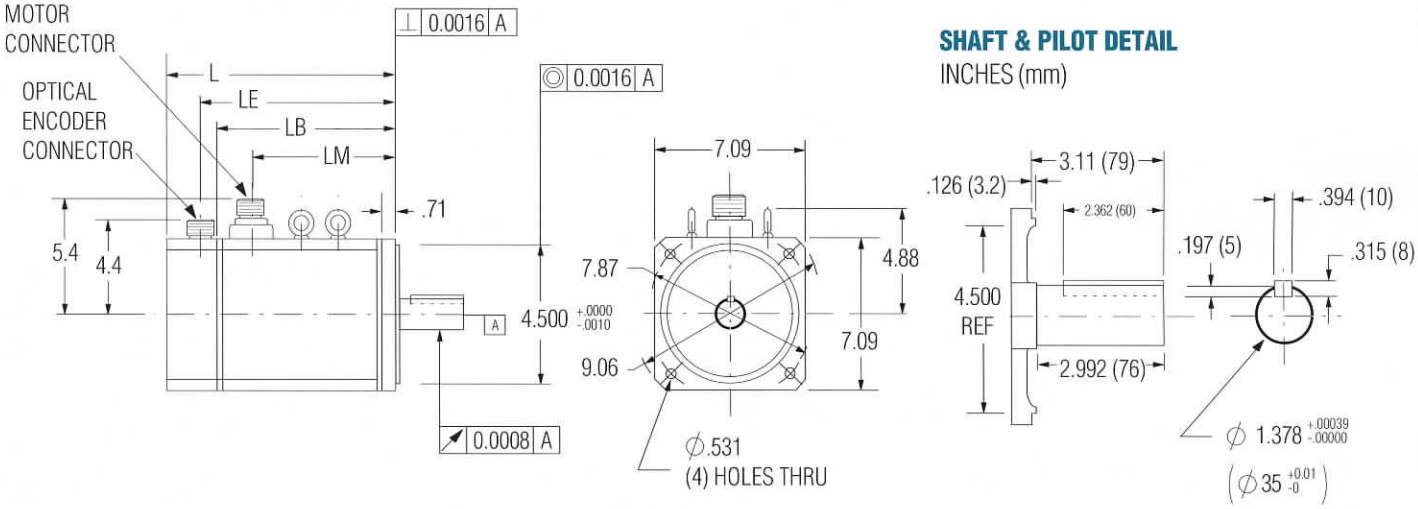
Note: Minimum cable clearance from motor centerline for Encoder Cable is 6.4 in; for Motor Cable is 6.7 in.

B080D Outline Drawing



Note: Minimum cable clearance from motor centerline for Encoder Cable is 6.4 in; for Motor Cable is 6.6 in.

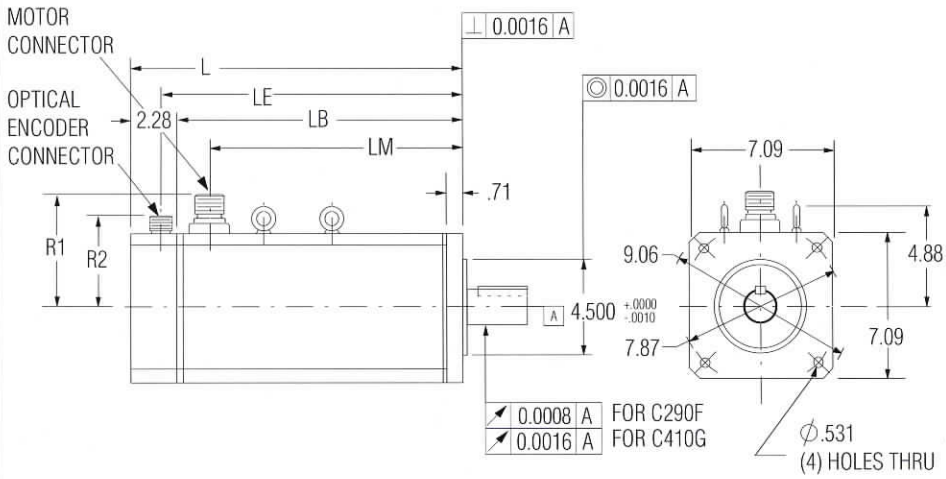
B110E, B200F & B330G Outline Drawings



Dimensions	L	LB	LM	LE
MAC-B110E	10.7	8.4	6.7	9.1
MAC-B200F	13.0	10.7	9.0	11.4
MAC-B330G	16.3	14.0	12.4	14.8

Note: Minimum cable clearance from motor centerline for Encoder Cable is 7.0 in; for Motor Cable is 8.1 in.

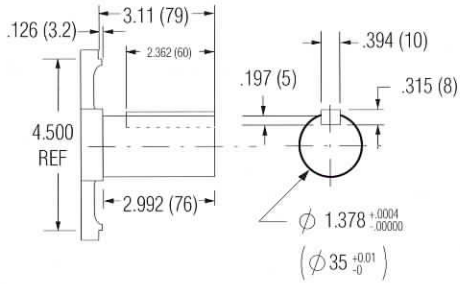
C290F & C410G Outline Drawings



Note: Minimum cable clearance from motor centerline for Encoder Cable is 7.9 in; for Motor Cable is 9.0 in.

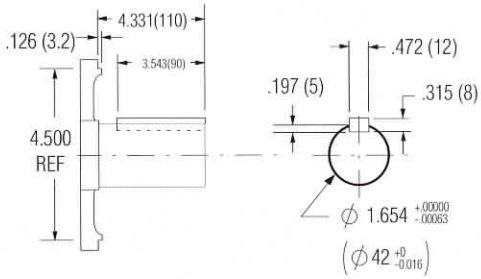
C290F SHAFT & PILOT DETAIL

INCHES (mm)



C410G SHAFT & PILOT DETAIL

INCHES (mm)



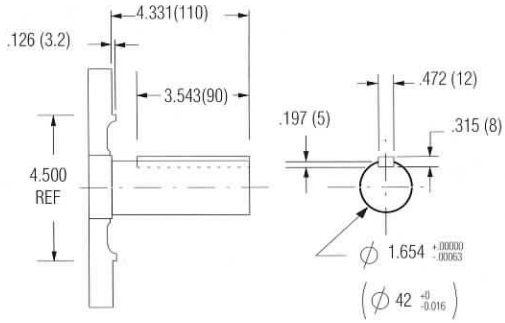
Dimensions	L	LB	LM	LE	R1	R2
MAC-C290F	16.3	14.0	12.4	14.8	5.4	4.3
MAC-C410G	24.2	21.9	19.0	23.1	5.9	3.9

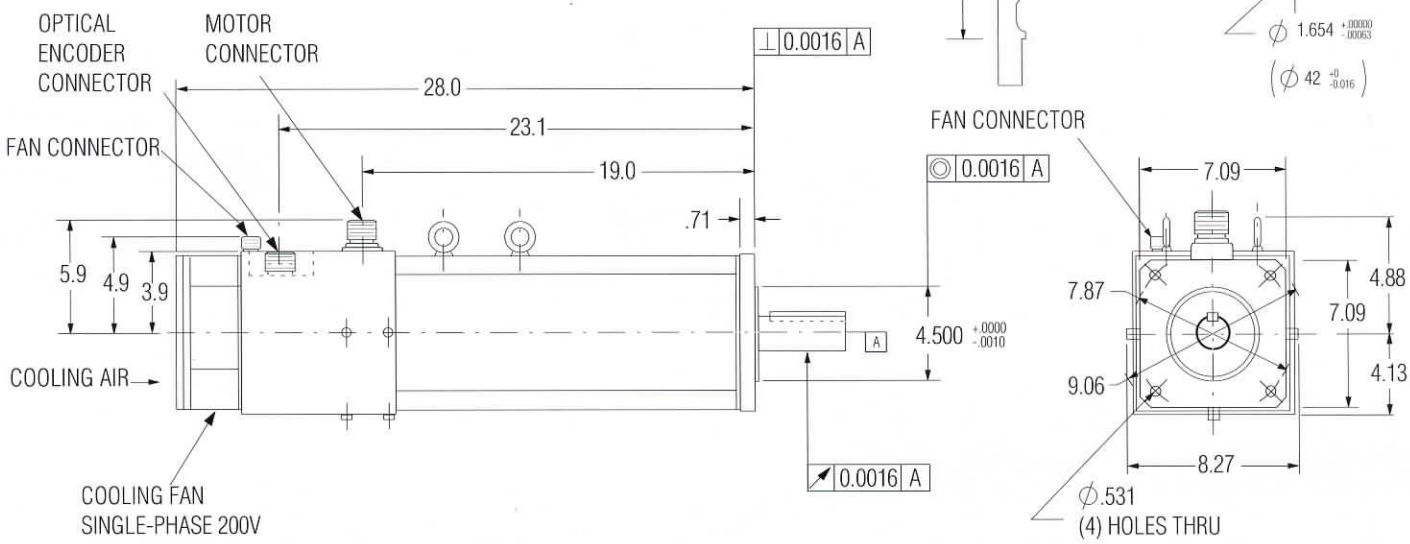
C560H Outline Drawing

Note: Minimum cable clearance from motor centerline for Encoder Cable is 7.5 in; for Motor Cable is 9.0 in; for Fan Cable is 6.7 in.

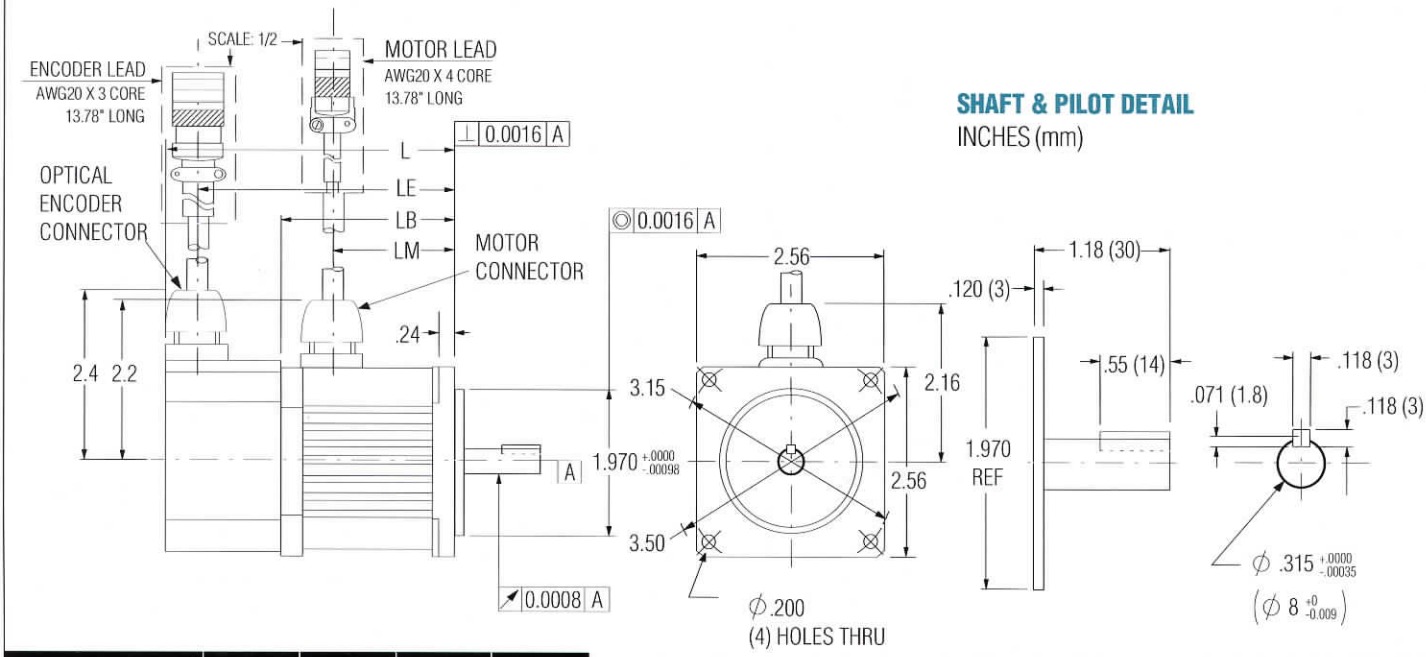
SHAFT & PILOT DETAIL

INCHES (mm)





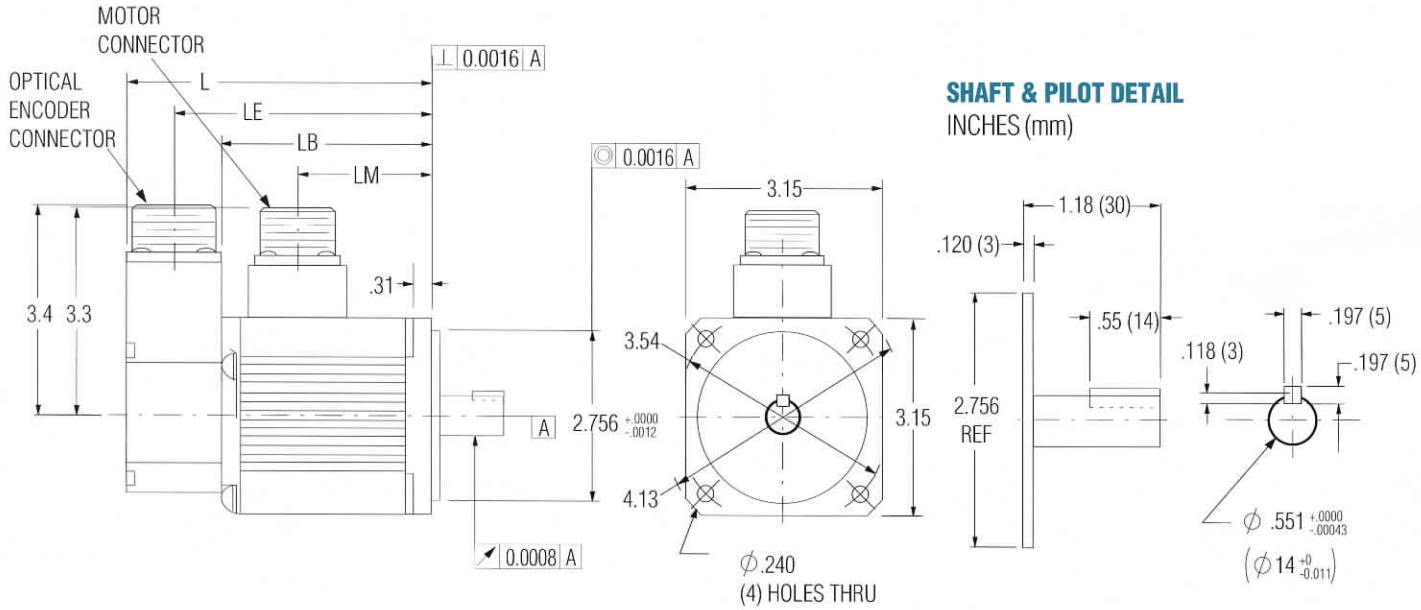
E002A & E003B Outline Drawings



Dimensions	L	LB	LM	LE
MAC-E002A	4.0	2.5	1.7	3.6
MAC-E003B	4.7	3.2	2.4	4.3

Note: Minimum cable clearance from motor centerline for Encoder Cable is 5.1 in; for Motor Cable is 5.6 in.

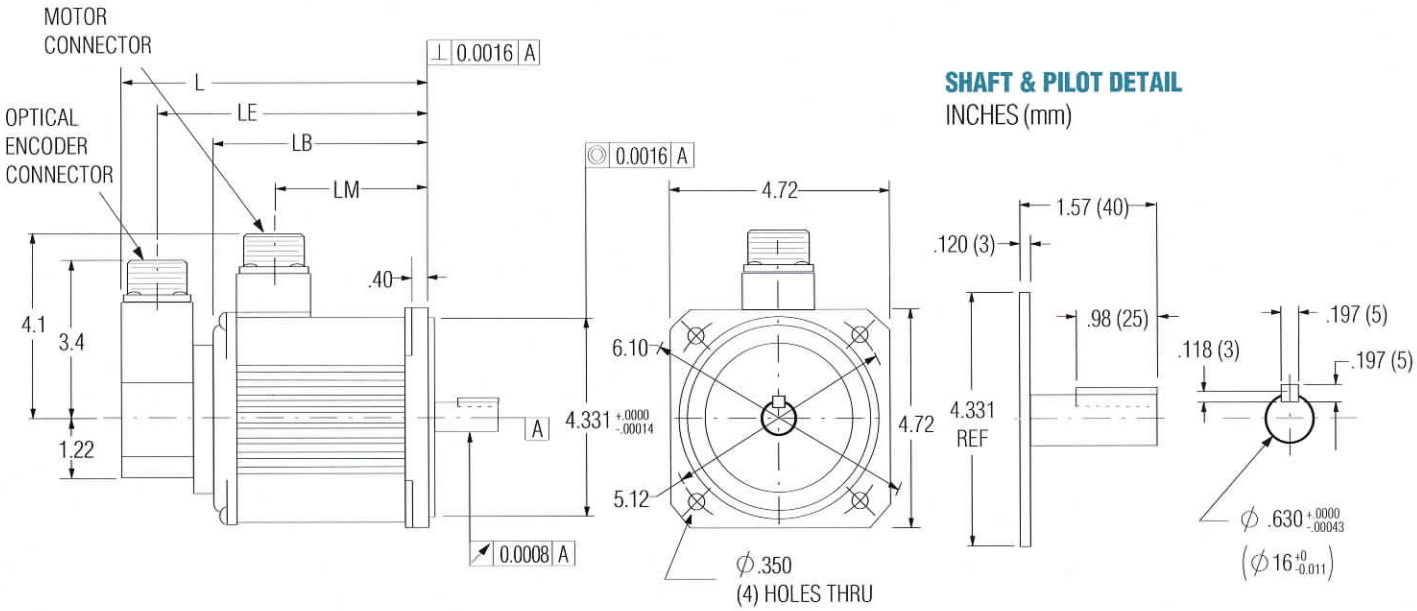
E007C & E010D Outline Drawings



Dimensions	L	LB	LM	LE
MAC-E007C	5.0	3.4	2.2	4.2
MAC-E010D	5.9	4.4	3.2	5.2

Note: Minimum cable clearance from motor centerline for Encoder Cable is 6.4 in; for Motor Cable is 6.7 in.

E016E2 & E023F2 Outline Drawings



Dimensions	L	LB	LM	LE
MAC-E016E2	6.7	4.7	3.4	5.9
MAC-E023F2	7.6	5.6	4.3	6.8

Note: Minimum cable clearance from motor centerline for Encoder Cable is 7.0 in; for Motor Cable is 7.5 in.

Servomotor/Drive Interface Cables

ORMEC offers standard, 100% computer-tested motor and encoder cables for reliably interfacing to all of our AC brushless servomotors. The two drawings (at right) illustrate the motor/drive interface cabling used for either S-series or E-series servodrives.

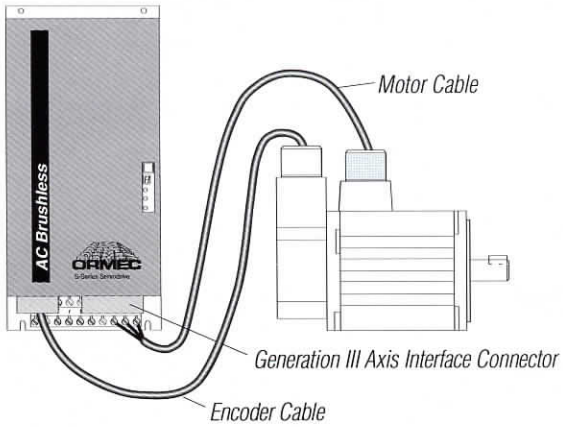
Encoder Cables

CBL-SMAC/X	Encoder Cable for interfacing to S-Series servodrives, 1-150 ft
CBL-SMACE/X	Encoder Cable, for interfacing to E-Series servodrives, 1-150 ft

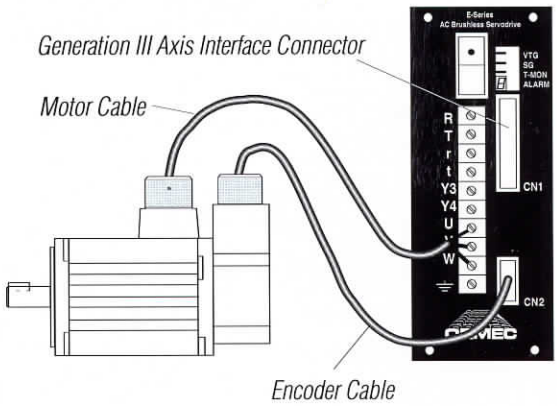
Motor Cables

CBL-SMAC1/X	Motor Cable for MAC-E007, E010, A010, A015, B025 & B080 servomotors, 1-150 ft
CBL-SMAC2/X	Motor Cable for E016, E023, A030 & A055, 1-150 ft
CBL-SMAC3/X	Motor Cable for E002, E003, B010 & E020, 1-150 ft
CBL-SMAC4/X	Motor Cable for MAC-A110, 1-150 ft
CBL-SMAC5/X	Motor Cable for MAC-B110, 1-150 ft
CBL-SMAC6/X	Motor Cable for MAC-B200, B330 & C290, 1-150 ft
CBL-SMAC7/X	Motor Cable for MAC-C410 & C560, 1-150 ft
CBL-SMACF/X	Motor Fan Cable for MAC-C560 blower, 1-150 ft

S-SERIES SERVODRIVE INTERFACE CABLING



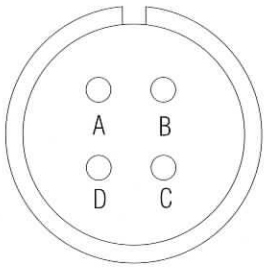
E-SERIES SERVODRIVE INTERFACE CABLING



Servomotor Connectors & Cables

MOTOR RECEPTACLE/CABLE

A	Phase U	RED
B	Phase V	WHT
C	Phase W	BLK
D	Ground	GRN

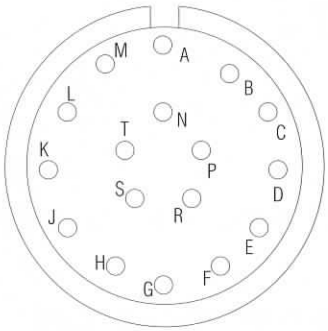


ENCODER RECEPTACLE - MS3102A20-29P (mates with MS3106E20-29S)

A	Channel A output	K	Channel U output
B	Channel A' output	L	Channel U' output
C	Channel B output	M	Channel V output
D	Channel B' output	N	Channel V' output
E	Channel Z output	P	Channel W output
F	Channel Z' output	R	Channel W' output
G	OV	S	--
H	+5 VDC	T	--
J	Frame Ground	-	--

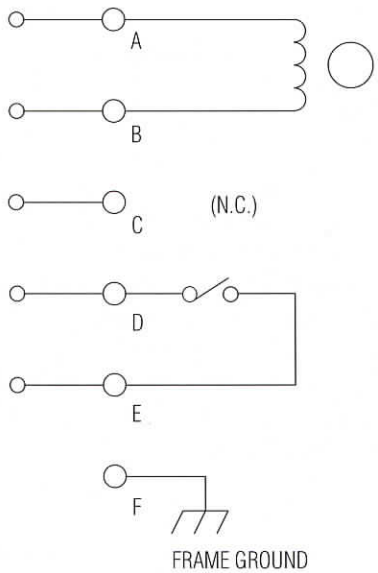
CONNECTORS

Motor	Mating
MAC-A010A MAC-A015B MAC-B025C MAC-B050C MAC-B080D MAC-E009G MAC-E015H	MS3102A18-10P	MS3106E18-10S
MAC-A030C MAC-A055D MAC-A110F MAC-E030J	MS-3102A20-4P	MS3106E20-4S
MAC-B010A MAC-B020A	MS3102A14S-2P	MS3106E14S-2S
MAC-B110E MAC-B200F MAC-B330G MAC-C290F	MS3102A22-22P	MS3106E22-22S
MAC-C410G MAC-C560H	MS3102A32-17P	MS3108B32-17S
MAC-E002A MAC-E003B	MS3101A14S-2P	MS3106E14S-2S
MAC-E007C MAC-E010D	MS3102A18-10P	MS3106E18-10S
MAC-E016E MAC-E023F	MS3102A20-4P	MS3106E20-4S



Motor, Encoder and Fan Cables are listed in the Ordering Guide

FAN MOTOR 200 VAC 1φ



Mating Connector: MS3106B14S-6S

Overspeed Alarm Contact: ON at 1800 ± 150 RPM

Contact Capacity: resistive load 10VA max (100V max, 0.5A max)

FAN TERMINAL CONNECTOR - MS3102A14S-6P (mates with MS3106B14-6S (MAC-C560H only)

A	FAN MOTOR
B	FAN MOTOR
C	----------
D	ALARM CONTACT
E	ALARM CONTACT
F	FRAME GROUND