

ORMEC's N-series AC brushless servo motors provide high torque-to-inertia ratios and excellent continuous torque and peak torque performance. With a compact design, these industrial-quality servo motors incorporate high performance permanent magnets and a highly efficient stator winding design. This provides excellent power density.

The N-series servo motors eliminate brush wear maintenance problems and feature extremely durable construction. They include heavy duty bearings.

Rugged MS connectors provide reliable interconnections to motors and optical encoders including an option battery backed absolute encoders.



*ORMEC's N-series servo motors offer continuous stall torques ranging from 2.8 to 1240 lb-in (.3 to 140 N·m)*

### Features

- Continuous stall torques from 2.8 to 1,240 lb-in (.3 to 140 N·m)
- High peak torques from 85 to 2,124 in-lb (10 to 240 N·m)
- Output power from 100 to 22,000 watts (.1 to 30 HP)
- High maximum speeds from 2,000 to 6,000 RPM
- 230 VAC and 460 VAC operation
- Incremental and absolute encoder resolutions up to one million counts per revolution
- Class F insulation provides additional thermal headroom for longer winding life under rated operating conditions
- Minimum torque ripple & cogging for smooth low-speed performance
- Totally Enclosed Non-ventilated (TENV) standard IP-67 rating except shaft opening, optional shaft oil seal is available.
- Optional fail-safe holding brakes.

### Motor/Drive Combinations

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

ORMEC's drives provide software controlled all-digital performance for consistent operation that eliminating analog potentiometer adjustments.

High bandwidth operation and a high-resolution serial encoder provide the response and accuracy required for demanding applications.

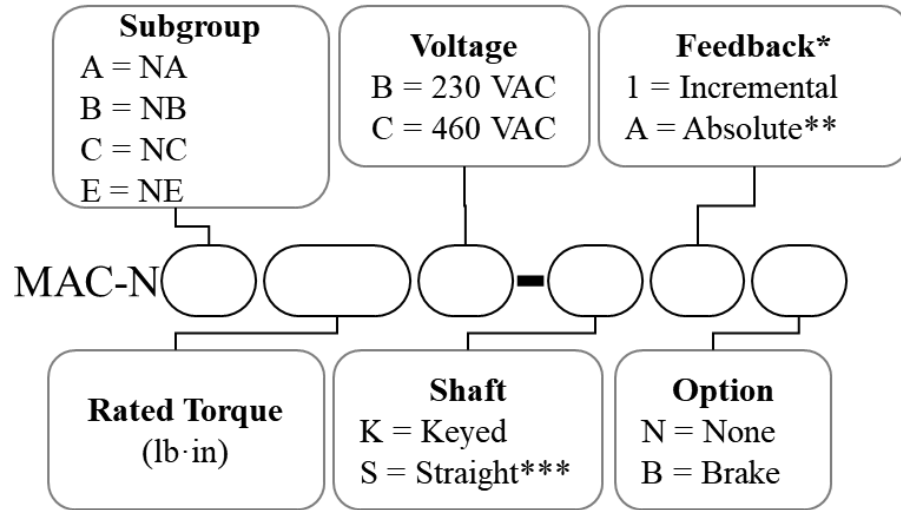
Peak torque up to three times the rated torque is available for a few seconds, allowing the motor/drive to handle high inertial loads and heavy-duty cycle requirements.

Each drive's motor parameters are software configurable for high performance and RMS current limiting.

### Table of Contents

Motor Model Numbers	2
Motor Power Ratings	2
Compatibility Chart	3
200VAC Motor Specifications	4
400VAC Motor Specifications	11
Motors w/brakes Specifications	17
Motor Outline Drawings	18
Motor Cable Numbers	26
Cable Selections	27
Cable Drawings	28

# Motor Model Numbers & Power Ratings



\*20-Bit Resolution Incremental and Absolute Encoders

\*\* MAC-NE, NC available with Absolute Feedback and Keyed Shaft Only

200 VAC		
Rated Power		Motor Model
Watts	HP	
100	0.13	MAC-NE003B
200	0.27	MAC-NE006B
400	0.54	MAC-NE011B
750	1.01	MAC-NE021B
1500	2.01	MAC-NE042B
1000	1.34	MAC-NA030B
2000	2.68	MAC-NA055B
3000	4.02	MAC-NA090B
4000	5.36	MAC-NA110B
5000	6.71	MAC-NA140B
850	1.14	MAC-NB055B
1300	1.74	MAC-NB080B
1800	2.41	MAC-NB100B
2900	3.89	MAC-NB200B
4400	5.90	MAC-NB300B
5500	7.38	MAC-NB330B
7500	10.06	MAC-NB465B
11000	14.75	MAC-NB700B

400 VAC		
Rated Power		Motor Model
Watts	HP	
1000	1.34	MAC-NA030C
2000	2.68	MAC-NA055C
3000	4.02	MAC-NA090C
4000	5.36	MAC-NA110C
5000	6.71	MAC-NA140C
850	1.14	MAC-NB055C
1300	1.74	MAC-NB080C
1800	2.41	MAC-NB100C
2900	3.89	MAC-NB200C
4400	5.90	MAC-NB300C
5500	7.38	MAC-NB330C
7500	10.06	MAC-NB465C
11000	14.75	MAC-NB700C
15000	20.10	MAC-NB840C
22000	29.50	MAC-NC1200C

# Compatibility Chart

ORMEC's all-digital drive technology provides the ability to control a variety of servomotors with a single servo drive. The chart (below) provides an overview of servo drive capability with ORMEC's N-Series servomotors.

The recommended servo drive (⊛) provides sufficient power to provide the continuous torques specified for the corresponding servomotor.

Compatible servo drives (✓) may be used instead of the recommended servo drive to increase the amount or duration of peak torque allowing each servo drive model to support a wider range of servomotors, simplifying the stocking of spare parts.

Motor Model Numbers xxx	SAC-S2DMxxx-Nabcd; SAC-S2Dxxx-Nabcd or SAC-X2Dxxx-Nabcd														Input Power <sup>(1) (2)</sup> Watts/amps
	230 VAC Drives							460 VAC Drives							
	203	205	210	215	225	235	260	403	405	410	417	425	435	450	
MAC-NE003B	⊛														100/.086
MAC-NE006B	⊛														200/2.0
MAC-NE011B	⊛														400/2.6
MAC-NE021B			⊛												750/5.4
MAC-NE042B			⊛												1,500/9.2
MAC-NA030B			⊛												1,100 / 4.8
MAC-NA030C								⊛							1,100 / 2.4
MAC-NA055B				⊛											2,100 / 9.1
MAC-NA055C										⊛					2,100 / 4.6
MAC-NA090B					⊛	✓									3,300 / 14
MAC-NA090C										⊛					3,300 / 7.2
MAC-NA110B					⊛	✓	✓								4,290 / 19
MAC-NA110C											⊛	✓			4,290 / 9.3
MAC-NA140B						⊛	✓								5,390 / 23
MAC-NA140C											⊛	✓			5,390 / 12
MAC-NB055B			⊛												940 / 4.1
MAC-NB055C										⊛					940 / 2.0
MAC-NB080B				⊛											1,430 / 6.2
MAC-NB080C											⊛				1,430 / 3.1
MAC-NB100B					⊛										1,980 / 8.6
MAC-NB100C											⊛				1,870 / 4.1
MAC-NB200B					⊛	✓									3,190 / 14
MAC-NB200C												⊛			3,190 / 7
MAC-NB300B						⊛	✓								4,840 / 21
MAC-NB300C												⊛	✓		4,840 / 11
MAC-NB330B							⊛								6,050 / 26
MAC-NB330C													⊛		6,050 / 13
MAC-NB465B							⊛								8,250 / 36
MAC-NB465C													⊛	✓	8,250 / 18
MAC-NB700B							⊛								12,100 / 53
MAC-NB700C														⊛	12,100 / 26
MAC-NB840C															⊛ 16,500 / 35.9
MAC-N1200C															⊛ 24,200 / 52.6

⊛ Recommended drive model

✓ Compatible drive model

<sup>1</sup> Power listed is the incoming line power, in watts, when the motor is operating at rated output. To determine the total incoming power requirements, add up the listed values for each servomotor/servo drive combination in the system.

<sup>2</sup> Current listed, in amps, 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 servomotor/servo drive combination in the system.

# 200 VAC Motor Specifications

Specifications for Motors with Brakes on page 17

Performance Specifications		Units	MAC-NE003B	MAC-NE006B	MAC-NE011B
Servo Drive Model Number			SAC-x203	SAC-x203	SAC-x203
Continuous Stall Torque*	lb·in		2.8	5.6	11.2
	N·m		0.32	0.64	1.27
Rated Torque*	lb·in		2.8	5.6	11.2
	N·m		0.32	0.64	1.27
Rated Speed		RPM	3000	3000	3000
Peak Torque*	lb·in		8.5	16.9	33.8
	N·m		0.96	1.91	3.82
Maximum Speed		RPM	6000	6000	6000
Rated Power	Watts		100	200	400
	HP		0.13	0.27	0.54
Rated Torque/Inertia		radians/sec <sup>2</sup>	53716	24221	31051

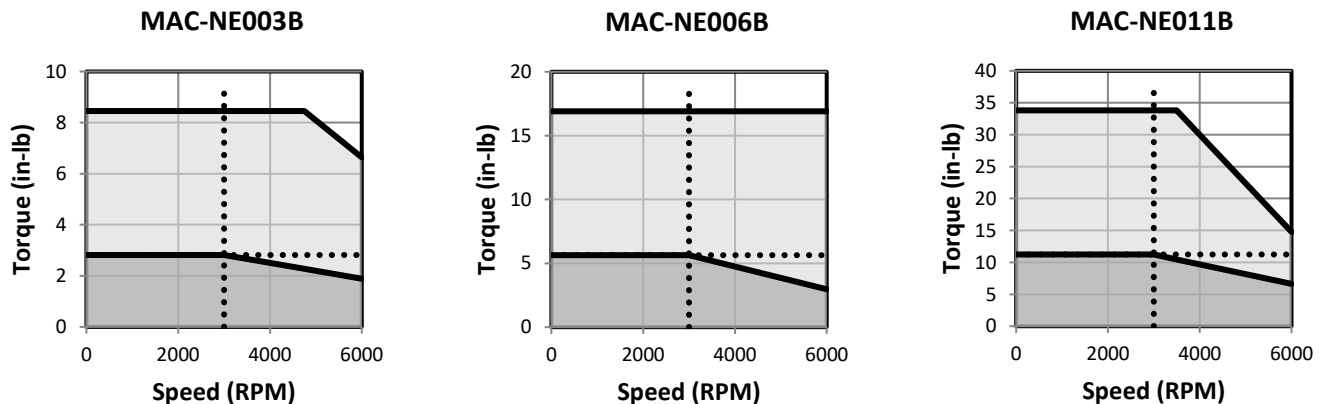
Mechanical Specifications					
Moment of Inertia	lb·in·sec <sup>2</sup> x 10 <sup>-3</sup>		0.052	0.233	0.362
	kg·m <sup>2</sup> x 10 <sup>-4</sup>		0.0592	0.263	0.409
Servomotor Weight	lbs		1.10	2.43	3.09
	kg		0.50	1.10	1.40
Maximum Radial Shaft Load	lbs		18	55	55
	N		78	245	245
Maximum Axial Shaft Load	lbs		11	15	15
	N		49	68	68

Electrical Specifications					
Torque Sensitivity	lb·in/Amp <sub>RMS/φ</sub>		3.55	3.14	4.64
	N·m/Amp <sub>RMS/φ</sub>		0.401	0.355	0.524
Servo Drive Input Power		volts AC	230	230	230
Continuous Motor Current		Amp <sub>S<sub>RMS/φ</sub></sub>	0.86	2	2.6
Peak Motor Current		Amp <sub>S<sub>RMS/φ</sub></sub>	2.8	6.4	8.4

Thermal Specifications					
Thermal Time Constant		minutes	8	14	16
Ambient Temperature		degrees C	40	40	40
Insulation Class			F	F	F

\* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

## Torque vs. Speed Characteristics (at 230 VAC)



■ Intermittent Duty Zone

□ Continuous Duty Zone

••••• Rated Speed & Torque

# 200 VAC Motor Specifications

Specifications for Motors with Brakes on page 17

Performance Specifications	Units	MAC-NE021B	MAC-NE042B
Servo Drive Model Number		SAC-x210	SAC-x210
Continuous Stall Torque*	lb·in	21.2	42.2
	N·m	2.39	4.77
Rated Torque*	lb·in	21.2	42.2
	N·m	2.39	4.77
Rated Speed	RPM	3000	3000
Peak Torque*	lb·in	63.4	126.6
	N·m	7.16	14.30
Maximum Speed	RPM	6000	6000
Rated Power	Watts	750	1500
	HP	1.00	2.01
Rated Torque/Inertia	radians/sec <sup>2</sup>	11381	11866

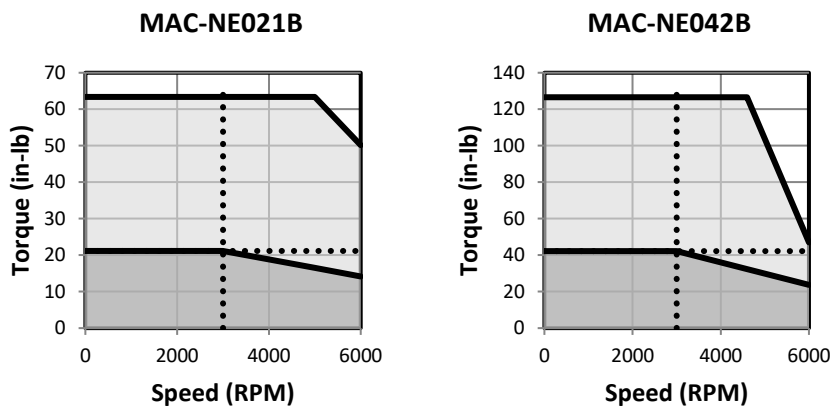
Mechanical Specifications			
Moment of Inertia	lb·in·sec <sup>2</sup> x 10 <sup>-3</sup>	1.859	3.558
	kg·m <sup>2</sup> x 10 <sup>-4</sup>	2.1	4.02
Servomotor Weight	lbs	9.26	14.55
	kg	4.20	6.60
Maximum Radial Shaft Load	lbs	88	110
	N	392	490
Maximum Axial Shaft Load	lbs	33	33
	N	147	147

Electrical Specifications			
Torque Sensitivity	lb·in/Amp <sub>RMS/φ</sub>	4.21	4.95
	N·m/Amp <sub>RMS/φ</sub>	0.476	0.559
Servo Drive Input Power	volts AC	230	230
Continuous Motor Current	Amps <sub>RMS/φ</sub>	5.4	9.2
Peak Motor Current	Amps <sub>RMS/φ</sub>	16.5	28

Thermal Specifications			
Thermal Time Constant	minutes	18	18
Ambient Temperature	degrees C	40	40
Insulation Class		F	F

\* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

## Torque vs. Speed Characteristics (at 230 VAC)



■ Intermittent Duty Zone    □ Continuous Duty Zone    ●●●● Rated Speed & Torque

# 200 VAC Motor Specifications

Specifications for Motors with Brakes on page 17

Performance Specifications	Units	MAC-NA030B	MAC-NA055B	MAC-NA090B
Servo Drive Model Number		SAC-x210	SAC-x215	SAC-x225
Continuous Stall Torque*	lb·in	28.1	56.3	86.7
	N·m	3.18	6.36	9.80
Rated Torque*	lb·in	28.1	56.3	86.7
	N·m	3.18	6.36	9.80
Rated Speed	RPM	3000	3000	3000
Peak Torque*	lb·in	84.4	169.0	232.3
	N·m	9.54	19.10	26.25
Maximum Speed	RPM	6000	5000	5000
Rated Power	Watts	1000	2000	3100
	HP	1.34	2.68	4.16
Rated Torque/Inertia	radians/sec <sup>2</sup>	18276	25749	14000

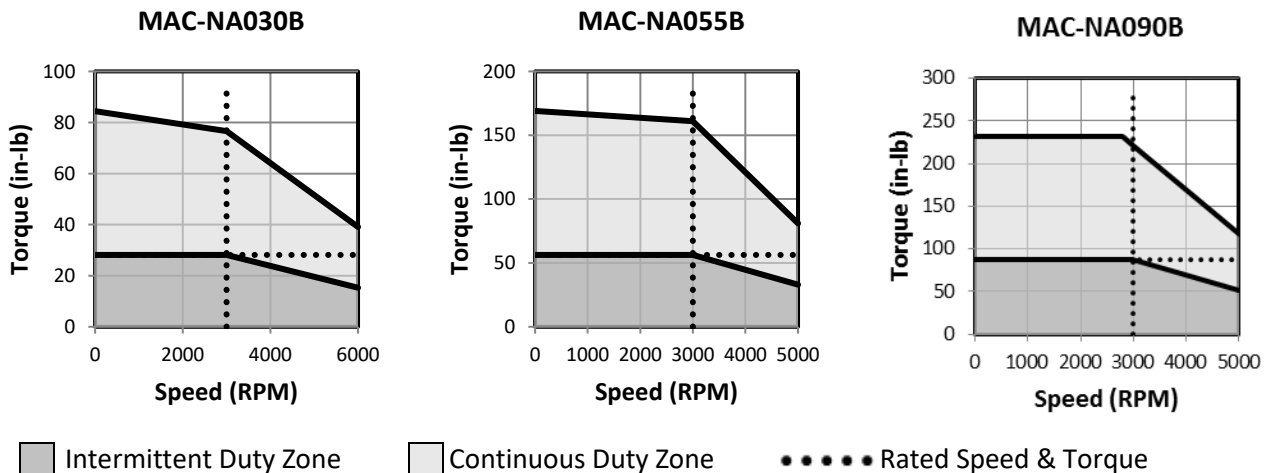
Mechanical Specifications				
Moment of Inertia	lb·in·sec <sup>2</sup> x 10 <sup>-3</sup>	1.540	2.186	6.196
	kg·m <sup>2</sup> x 10 <sup>-4</sup>	1.74	2.47	7
Servomotor Weight	lbs	9.04	11.90	23.15
	kg	4.10	5.40	10.50
Maximum Radial Shaft Load	lbs	154	154	220
	N	686	686	980
Maximum Axial Shaft Load	lbs	44	44	88
	N	196	196	392

Electrical Specifications				
Torque Sensitivity	lb·in/Amp <sub>RMS/φ</sub>	5.63	4.97	5.15
	N·m/Amp <sub>RMS/φ</sub>	0.636	.561	.582
Servo Drive Input Power	volts AC	230	230	230
Continuous Motor Current	Amps <sub>RMS/φ</sub>	5.7	12.1	17.9
Peak Motor Current	Amps <sub>RMS/φ</sub>	17	42	59

Thermal Specifications				
Thermal Time Constant	minutes	12	23	33
Ambient Temperature	degrees C	40	40	40
Insulation Class		F	F	F

\* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

## Torque vs. Speed Characteristics (at 230 VAC)



# 200 VAC Motor Specifications

Specifications for Motors with Brakes on page 17

Performance Specifications		Units	MAC-NA110B	MAC-NA140B
Servo Drive Model Number			SAC-x225	SAC-x235
Continuous Stall Torque*	lb-in		111.5	139.8
	N·m		12.60	15.80
Rated Torque*	lb-in		109.8	139.8
	N·m		12.40	15.80
Rated Speed	RPM		3000	3000
Peak Torque*	lb-in		217.2	351.1
	N·m		24.55	39.67
Maximum Speed	RPM		5000	5000
Rated Power	Watts		3900	5000
	HP		5.23	6.71
Rated Torque/Inertia	radians/sec <sup>2</sup>		12918	12846

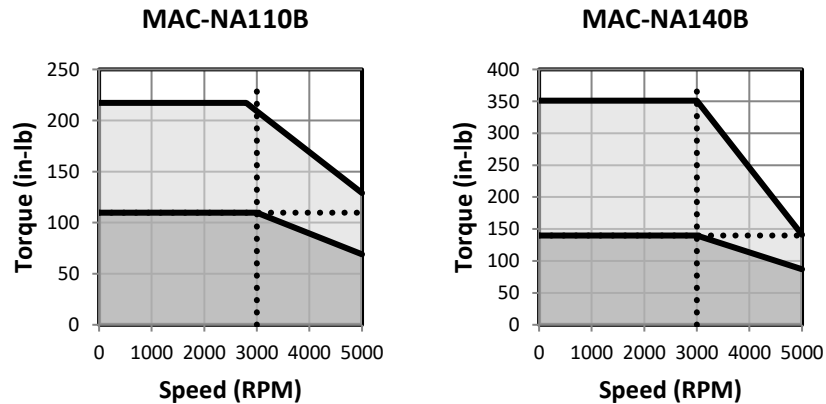
Mechanical Specifications			MAC-NA110B	MAC-NA140B
Moment of Inertia	lb-in-sec <sup>2</sup> x 10 <sup>-3</sup>		8.497	10.886
	kg-m <sup>2</sup> x 10 <sup>-4</sup>		9.6	12.3
Servomotor Weight	lbs		29.76	36.38
	kg		13.50	16.50
Maximum Radial Shaft Load	lbs		264	264
	N		1176	1176
Maximum Axial Shaft Load	lbs		88	88
	N		392	392

Electrical Specifications			MAC-NA110B	MAC-NA140B
Torque Sensitivity	lb-in/Amp <sub>RMS/φ</sub>		4.59	5.35
	N·m/Amp <sub>RMS/φ</sub>		0.519	0.604
Servo Drive Input Power	volts AC		230	230
Continuous Motor Current	Amp <sub>S<sub>RMS</sub>/φ</sub>		25.4	27.6
Peak Motor Current	Amp <sub>S<sub>RMS</sub>/φ</sub>		77	84

Thermal Specifications			MAC-NA110B	MAC-NA140B
Thermal Time Constant	minutes		36	40
Ambient Temperature	degrees C		40	40
Insulation Class			F	F

\* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

## Torque vs. Speed Characteristics (at 230 VAC)



Intermittent Duty Zone
  Continuous Duty Zone
  Rated Speed & Torque

# 200 VAC Motor Specifications

Specifications for Motors with Brakes on page 17

Performance Specifications	Units	MAC-NB055B	MAC-NB080B	MAC-NB100B
Servo Drive Model Number		SAC-x210	SAC-x215	SAC-x225
Continuous Stall Torque*	lb·in	53.1	80.5	110.6
	N·m	6.00	9.10	12.50
Rated Torque*	lb·in	47.7	73.8	101.8
	N·m	5.39	8.34	11.50
Rated Speed	RPM	1500	1500	1500
Peak Torque*	lb·in	122.1	206.2	254.0
	N·m	13.80	23.30	28.70
Maximum Speed	RPM	3000	3000	3000
Rated Power	Watts	800	1300	1800
	HP	1.07	1.74	2.41
Rated Torque/Inertia	radians/sec <sup>2</sup>	3878	4191	4423

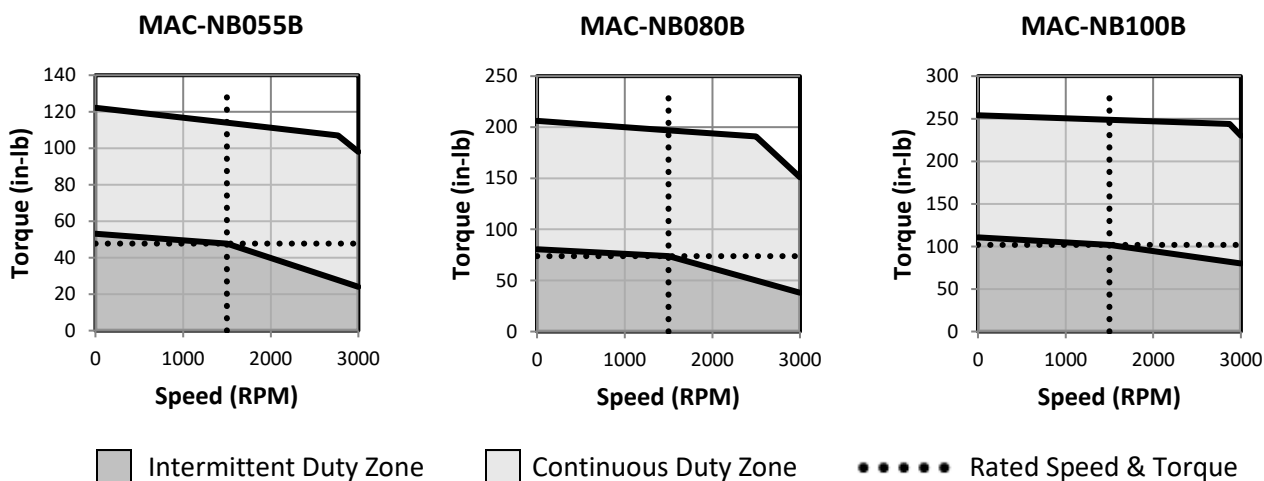
Mechanical Specifications				
Moment of Inertia	lb·in·sec <sup>2</sup> x 10 <sup>-3</sup>	12.303	17.613	23.012
	kg·m <sup>2</sup> x 10 <sup>-4</sup>	13.9	19.9	26
Servomotor Weight	lbs	12.13	15.65	18.96
	kg	5.50	7.10	8.60
Maximum Radial Shaft Load	lbs	110	154	220
	N	490	686	980
Maximum Axial Shaft Load	lbs	22	77	88
	N	98	343	392

Electrical Specifications				
Torque Sensitivity	lb·in/Amp <sub>RMS/φ</sub>	7.60	7.89	6.62
	N·m/Amp <sub>RMS/φ</sub>	0.859	0.891	0.748
Servo Drive Input Power	volts AC	230	230	230
Continuous Motor Current	Amps <sub>RMS/φ</sub>	6.9	10.7	16.7
Peak Motor Current	Amps <sub>RMS/φ</sub>	17	28	42

Thermal Specifications				
Thermal Time Constant	minutes	17	25	34
Ambient Temperature	degrees C	40	40	40
Insulation Class		F	F	F

\* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

## Torque vs. Speed Characteristics (at 230 VAC)





# 200 VAC Motor Specifications

Specifications for Motors with Brakes on page 17

Performance Specifications	Units	MAC-NB200B	MAC-NB300B	MAC-NB330B
Servo Drive Model Number		SAC-x225	SAC-x235	SAC-x260
Continuous Stall Torque*	lb·in	178.8	267.3	319.5
	N·m	20.20	30.20	36.10
Rated Torque*	lb·in	164.6	251.4	309.8
	N·m	18.60	28.40	35.00
Rated Speed	RPM	1500	1500	1500
Peak Torque*	lb·in	356.4	524.4	775.3
	N·m	40.27	59.25	87.60
Maximum Speed	RPM	3000	3000	3000
Rated Power	Watts	2900	4500	5500
	HP	3.89	6.03	7.38
Rated Torque/Inertia	radians/sec <sup>2</sup>	4043	4207	3933

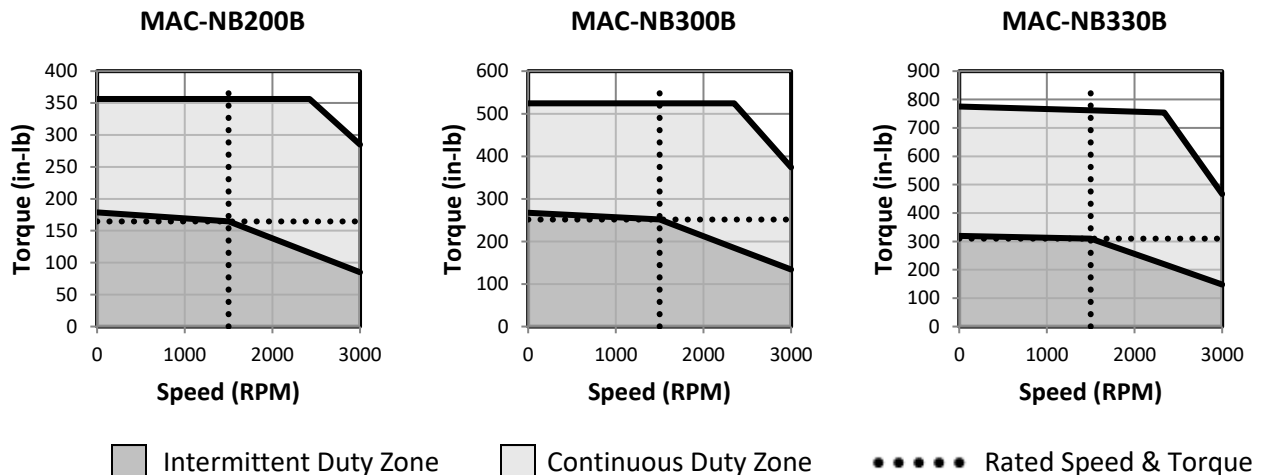
Mechanical Specifications				
Moment of Inertia	lb·in·sec <sup>2</sup> x 10 <sup>-3</sup>	40.713	59.743	78.772
	kg·m <sup>2</sup> x 10 <sup>-4</sup>	46	67.5	89
Servomotor Weight	lbs	29.76	38.58	47.40
	kg	13.50	17.50	21.50
Maximum Radial Shaft Load	lbs	330	330	397
	N	1470	1470	1764
Maximum Axial Shaft Load	lbs	110	110	132
	N	490	490	588

Electrical Specifications				
Torque Sensitivity	lb·in/Amp <sub>RMS/φ</sub>	7.51	8.27	7.71
	N·m/Amp <sub>RMS/φ</sub>	0.848	0.934	0.871
Servo Drive Input Power	volts AC	230	230	230
Continuous Motor Current	Amps <sub>RMS/φ</sub>	23.8	32.8	42.1
Peak Motor Current	Amps <sub>RMS/φ</sub>	56	84	110

Thermal Specifications				
Thermal Time Constant	minutes	35	36	44
Ambient Temperature	degrees C	40	40	40
Insulation Class		F	F	F

\* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

## Torque vs. Speed Characteristics (at 230 VAC)



# 200 VAC Motor Specifications

Specifications for Motors with Brakes on page 17

Performance Specifications		Units	MAC-NB465B	MAC-NB700B
Servo Drive Model Number			SAC-x260	SAC-x260
Continuous Stall Torque*	lb-in		442.5	619.5
	N·m		50.00	70.00
Rated Torque*	lb-in		424.8	619.5
	N·m		48.00	70.00
Rated Speed		RPM	1500	1500
Peak Torque*	lb-in		972.2	1327.6
	N·m		109.85	150.00
Maximum Speed		RPM	3000	2000
Rated Power	Watts		7500	11000
	HP		10.06	14.75
Rated Torque/Inertia		radians/sec <sup>2</sup>	3840	2893

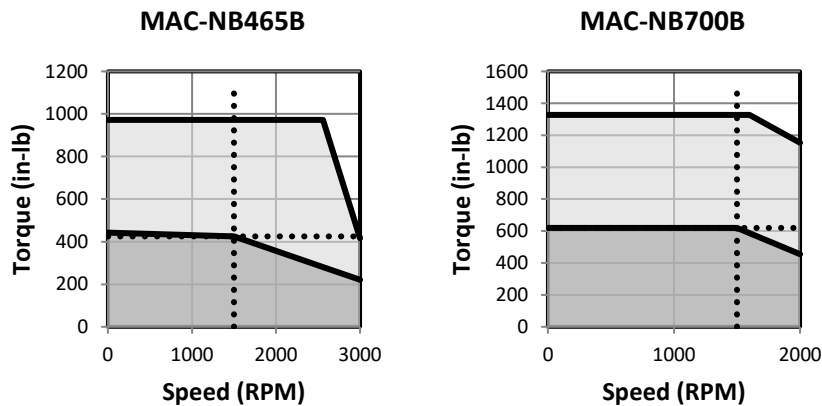
Mechanical Specifications			MAC-NB465B	MAC-NB700B
Moment of Inertia	lb-in-sec <sup>2</sup> x 10 <sup>-3</sup>		110.634	214.188
	kg-m <sup>2</sup> x 10 <sup>-4</sup>		125	242
Servomotor Weight	lbs		65.04	125.66
	kg		29.50	57.00
Maximum Radial Shaft Load	lbs		397	397
	N		1764	1764
Maximum Axial Shaft Load	lbs		132	132
	N		588	588

Electrical Specifications			MAC-NB465B	MAC-NB700B
Torque Sensitivity	lb-in/Amp <sub>RMS/φ</sub>		8.47	11.68
	N·m/Amp <sub>RMS/φ</sub>		0.957	1.32
Servo Drive Input Power		volts AC	230	230
Continuous Motor Current		Amp <sub>S<sub>RMS/φ</sub></sub>	54.7	58.6
Peak Motor Current		Amp <sub>S<sub>RMS/φ</sub></sub>	130	140

Thermal Specifications			MAC-NB465B	MAC-NB700B
Thermal Time Constant		minutes	46	68
Ambient Temperature		degrees C	40	40
Insulation Class			F	F

\* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

## Torque vs. Speed Characteristics (at 230 VAC)



Intermittent Duty Zone
  Continuous Duty Zone
  Rated Speed & Torque

# 400 VAC Motor Specifications

Specifications for Motors with Brakes on page 17

Performance Specifications	Units	MAC-NA030C	MAC-NA055C	MAC-NA090C
Servo Drive Model Number		SAC-x403	SAC-x410	SAC-x410
Continuous Stall Torque*	lb·in	28.1	56.3	86.7
	N·m	3.18	6.36	9.80
Rated Torque*	lb·in	28.1	56.3	86.7
	N·m	3.18	6.36	9.80
Rated Speed	RPM	3000	3000	3000
Peak Torque*	lb·in	84.4	169.0	260.2
	N·m	9.54	19.10	29.40
Maximum Speed	RPM	6000	5000	5000
Rated Power	Watts	1000	2000	3100
	HP	1.34	2.68	4.16
Rated Torque/Inertia	radians/sec <sup>2</sup>	18276	25749	14000

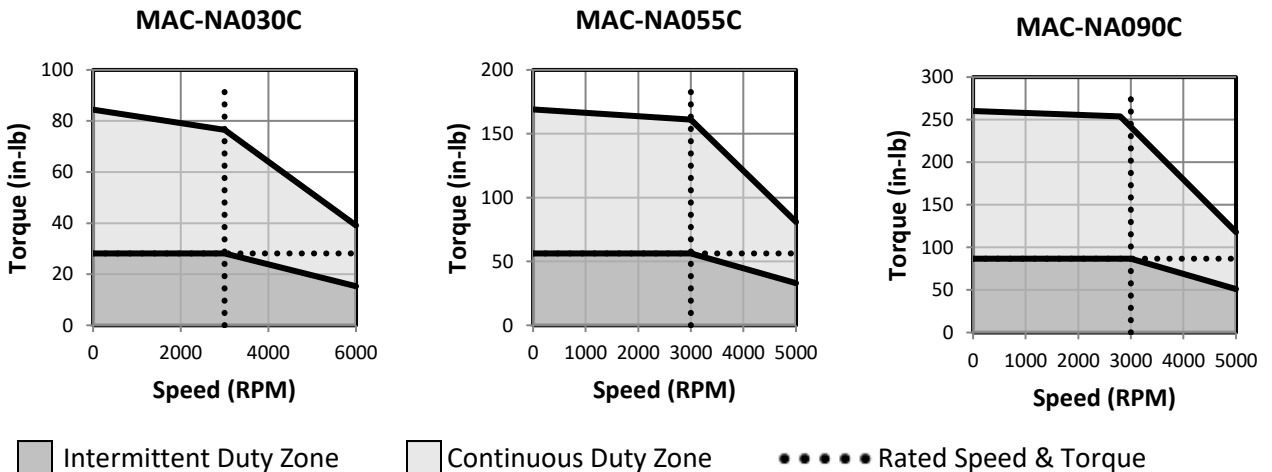
Mechanical Specifications				
Moment of Inertia	lb·in·sec <sup>2</sup> x 10 <sup>-3</sup>	1.540	2.186	6.196
	kg·m <sup>2</sup> x 10 <sup>-4</sup>	1.74	2.47	7
Servomotor Weight	lbs	9.04	11.90	23.15
	kg	4.10	5.40	10.50
Maximum Radial Shaft Load	lbs	154	154	220
	N	686	686	980
Maximum Axial Shaft Load	lbs	44	44	88
	N	196	196	392

Electrical Specifications				
Torque Sensitivity	lb·in/Amp <sub>RMS/φ</sub>	11.24	10.44	10.27
	N·m/Amp <sub>RMS/φ</sub>	1.27	1.18	1.16
Servo Drive Input Power	volts AC	460	460	460
Continuous Motor Current	Amp <sub>S<sub>RMS/φ</sub></sub>	2.8	6.1	8.9
Peak Motor Current	Amp <sub>S<sub>RMS/φ</sub></sub>	8.5	20	28

Thermal Specifications				
Thermal Time Constant	minutes	12	23	33
Ambient Temperature	degrees C	40	40	40
Insulation Class		F	F	F

\* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

## Torque vs. Speed Characteristics (at 460 VAC)



# 400 VAC Motor Specifications

Specifications for Motors with Brakes on page 17

Performance Specifications	Units	MAC-NA110C	MAC-NA140C
Servo Drive Model Number		SAC-x415	SAC-x415
Continuous Stall Torque*	lb·in	111.5	139.8
	N·m	12.60	15.80
Rated Torque*	lb·in	111.5	139.8
	N·m	12.60	15.80
Rated Speed	RPM	3000	3000
Peak Torque*	lb·in	334.6	421.3
	N·m	37.80	47.60
Maximum Speed	RPM	5000	5000
Rated Power	Watts	4000	5000
	HP	5.36	6.71
Rated Torque/Inertia	radians/sec <sup>2</sup>	13125	12846

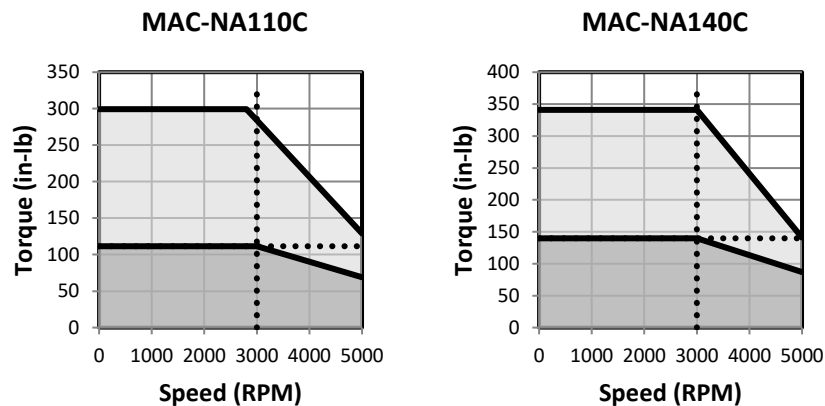
Mechanical Specifications			
Moment of Inertia	lb·in·sec <sup>2</sup> x 10 <sup>-3</sup>	8.497	10.886
	kg·m <sup>2</sup> x 10 <sup>-4</sup>	9.6	12.3
Servomotor Weight	lbs	29.76	36.38
	kg	13.50	16.50
Maximum Radial Shaft Load	lbs	264	264
	N	1176	1176
Maximum Axial Shaft Load	lbs	88	88
	N	392	392

Electrical Specifications			
Torque Sensitivity	lb·in/Amp <sub>RMS/φ</sub>	9.38	10.71
	N·m/Amp <sub>RMS/φ</sub>	1.06	1.21
Servo Drive Input Power	volts AC	460	460
Continuous Motor Current	Amp <sub>S<sub>RMS/φ</sub></sub>	12.5	13.8
Peak Motor Current	Amp <sub>S<sub>RMS/φ</sub></sub>	38	42

Thermal Specifications			
Thermal Time Constant	minutes	36	40
Ambient Temperature	degrees C	40	40
Insulation Class		F	F

\* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

## Torque vs. Speed Characteristics (at 460 VAC)



■ Intermittent Duty Zone    ■ Continuous Duty Zone    ●●●●● Rated Speed & Torque

# 400 VAC Motor Specifications

Specifications for Motors with Brakes on page 17

Performance Specifications	Units	MAC-NB055C	MAC-NB080C	MAC-NB100C
Servo Drive Model Number		SAC-x405	SAC-x410	SAC-x410
Continuous Stall Torque*	lb·in	53.1	80.5	110.6
	N·m	6.00	9.10	12.50
Rated Torque*	lb·in	47.7	73.8	101.8
	N·m	5.39	8.34	11.50
Rated Speed	RPM	1500	1500	1500
Peak Torque*	lb·in	122.1	206.2	254.0
	N·m	13.80	23.30	28.70
Maximum Speed	RPM	3000	3000	3000
Rated Power	Watts	800	1300	1800
	HP	1.07	1.74	2.41
Rated Torque/Inertia	radians/sec <sup>2</sup>	3878	4191	4423

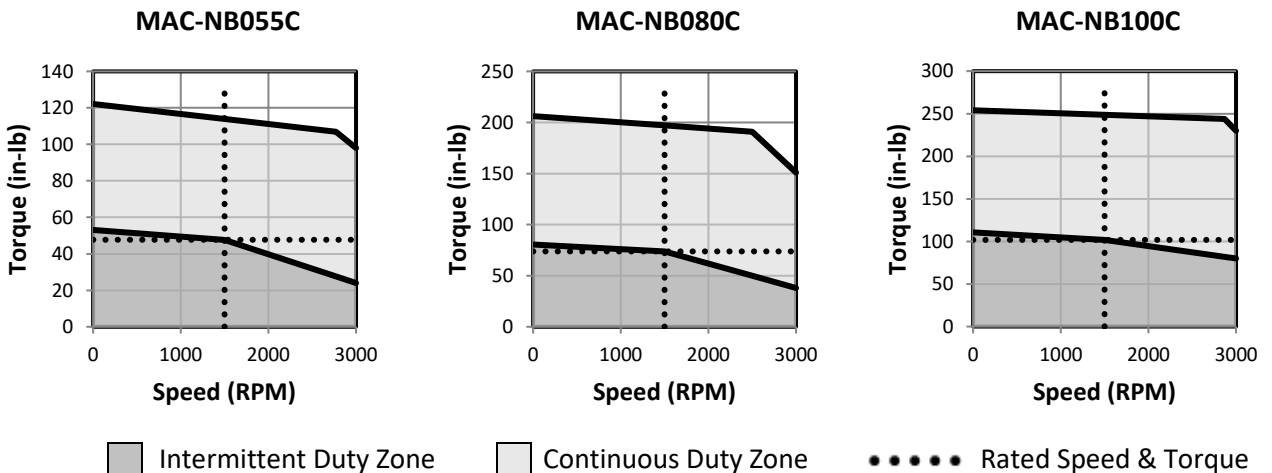
Mechanical Specifications				
Moment of Inertia	lb·in·sec <sup>2</sup> x 10 <sup>-3</sup>	12.303	17.613	23.012
	kg·m <sup>2</sup> x 10 <sup>-4</sup>	13.9	19.9	26
Servomotor Weight	lbs	12.13	15.65	18.96
	kg	5.50	7.10	8.60
Maximum Radial Shaft Load	lbs	110	154	220
	N	490	686	980
Maximum Axial Shaft Load	lbs	22	77	88
	N	98	343	392

Electrical Specifications				
Torque Sensitivity	lb·in/Amp <sub>RMS/φ</sub>	15.22	15.75	13.28
	N·m/Amp <sub>RMS/φ</sub>	1.72	1.78	1.5
Servo Drive Input Power	volts AC	460	460	460
Continuous Motor Current	Amp <sub>RMS/φ</sub>	3.5	5.4	8.4
Peak Motor Current	Amp <sub>RMS/φ</sub>	8.5	14	20

Thermal Specifications				
Thermal Time Constant	minutes	17	25	34
Ambient Temperature	degrees C	40	40	40
Insulation Class		F	F	F

\* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

## Torque vs. Speed Characteristics (at 460 VAC)



# 400 VAC Motor Specifications

Specifications for Motors with Brakes on page 17

Performance Specifications	Units	MAC-NB200C	MAC-NB300C	MAC-NB330C
Servo Drive Model Number		SAC-x417	SAC-x417	SAC-x425
Continuous Stall Torque*	lb·in	178.8	267.3	319.5
	N·m	20.20	30.20	36.10
Rated Torque*	lb·in	164.6	251.4	309.8
	N·m	18.60	28.40	35.00
Rated Speed	RPM	1500	1500	1500
Peak Torque*	lb·in	399.2	629.3	775.3
	N·m	45.10	71.10	87.60
Maximum Speed	RPM	3000	3000	3000
Rated Power	Watts	2900	4500	5500
	HP	3.89	6.03	7.38
Rated Torque/Inertia	radians/sec <sup>2</sup>	4043	4207	3933

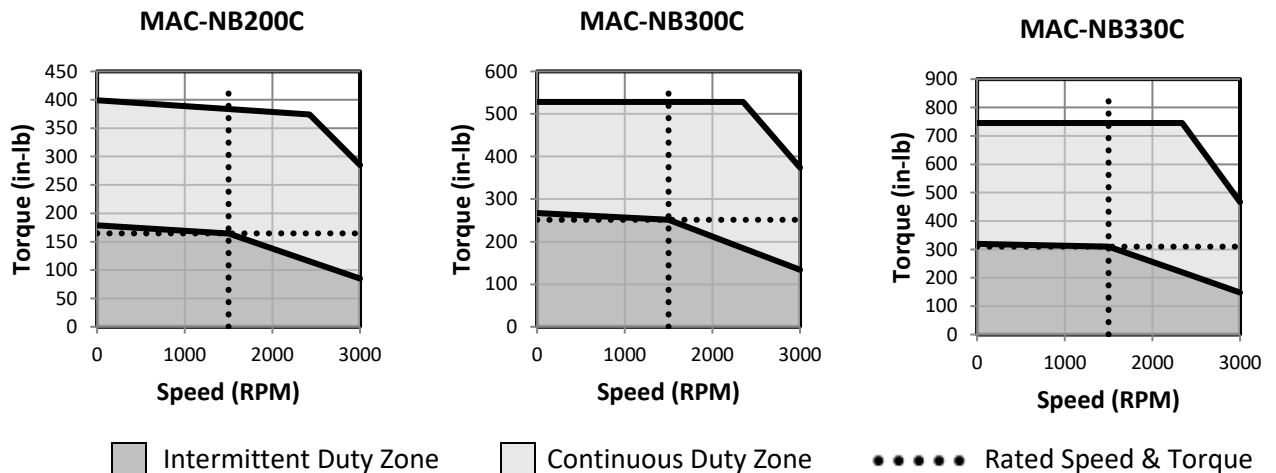
Mechanical Specifications				
Moment of Inertia	lb·in·sec <sup>2</sup> x 10 <sup>-3</sup>	40.713	59.743	78.772
	kg·m <sup>2</sup> x 10 <sup>-4</sup>	46	67.5	89
Servomotor Weight	lbs	29.76	38.58	47.40
	kg	13.50	17.50	21.50
Maximum Radial Shaft Load	lbs	330	330	397
	N	1470	1470	1764
Maximum Axial Shaft Load	lbs	110	110	132
	N	490	490	588

Electrical Specifications				
Torque Sensitivity	lb·in/Amp <sub>RMS/φ</sub>	15.05	17.08	15.93
	N·m/Amp <sub>RMS/φ</sub>	1.7	1.93	1.8
Servo Drive Input Power	volts AC	460	460	460
Continuous Motor Current	Amp <sub>RMS/φ</sub>	11.9	16.5	20.8
Peak Motor Current	Amp <sub>RMS/φ</sub>	28	40.5	52

Thermal Specifications				
Thermal Time Constant	minutes	35	36	44
Ambient Temperature	degrees C	40	40	40
Insulation Class		F	F	F

\* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

## Torque vs. Speed Characteristics (at 460 VAC)



# 400 VAC Motor Specifications

Specifications for Motors with Brakes on page 17

Performance Specifications	Units	MAC-NB465C	MAC-NB700C
Servo Drive Model Number		SAC-x435	SAC-x435
Continuous Stall Torque*	lb·in	442.5	619.5
	N·m	50.00	70.00
Rated Torque*	lb·in	424.8	619.5
	N·m	48.00	70.00
Rated Speed	RPM	1500	1500
Peak Torque*	lb·in	1053.2	1548.9
	N·m	119.00	175.00
Maximum Speed	RPM	3000	2000
Rated Power	Watts	7500	11000
	HP	10.06	14.75
Rated Torque/Inertia	radians/sec <sup>2</sup>	3840	2893

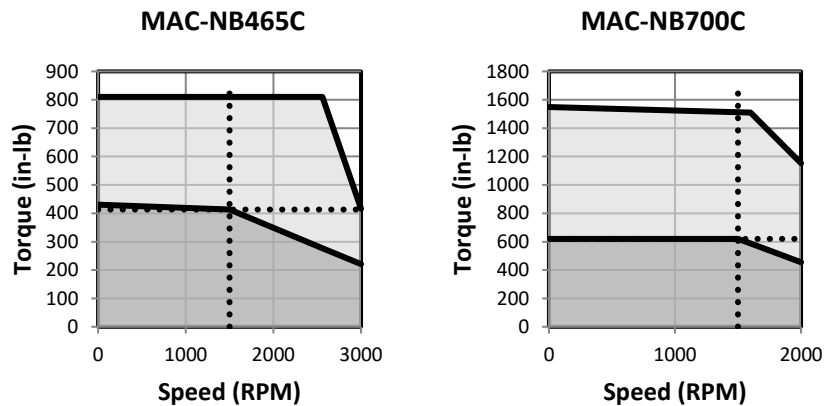
Mechanical Specifications			
Moment of Inertia	lb·in·sec <sup>2</sup> x 10 <sup>-3</sup>	110.634	214.188
	kg·m <sup>2</sup> x 10 <sup>-4</sup>	125	242
Servomotor Weight	lbs	65.04	125.66
	kg	29.50	57.00
Maximum Radial Shaft Load	lbs	397	397
	N	1764	1764
Maximum Axial Shaft Load	lbs	132	132
	N	588	588

Electrical Specifications			
Torque Sensitivity	lb·in/Amp <sub>RMS/φ</sub>	16.99	23.37
	N·m/Amp <sub>RMS/φ</sub>	1.92	2.64
Servo Drive Input Power	volts AC	460	460
Continuous Motor Current	Amp <sub>S<sub>RMS/φ</sub></sub>	25.7	28.1
Peak Motor Current	Amp <sub>S<sub>RMS/φ</sub></sub>	65	70

Thermal Specifications			
Thermal Time Constant	minutes	46	68
Ambient Temperature	degrees C	40	40
Insulation Class		F	F

\* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

## Torque vs. Speed Characteristics (at 460 VAC)



■ Intermittent Duty Zone    □ Continuous Duty Zone    ●●●●● Rated Speed & Torque

# 400 VAC Motor Specifications

Specifications for Motors with Brakes on page 17

Performance Specifications	Units	MAC-NB840C	MAC-NC1200C
Servo Drive Model Number		SAC-x450	SAC-x450
Continuous Stall Torque*	lb·in	844.4	1239.1
	N·m	95.40	140.00
Rated Torque*	lb·in	844.4	1239.1
	N·m	95.40	140.00
Rated Speed	RPM	1500	1500
Peak Torque*	lb·in	1982.6	2581.5
	N·m	224.00	291.67
Maximum Speed	RPM	2000	2000
Rated Power	Watts	15000	22000
	HP	20.12	29.50
Rated Torque/Inertia	radians/sec <sup>2</sup>	3149	3825

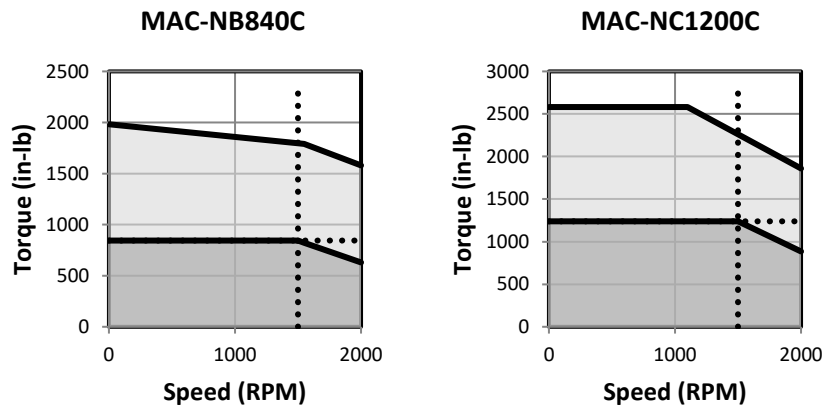
Mechanical Specifications			
Moment of Inertia	lb·in·sec <sup>2</sup> x 10 <sup>-3</sup>	268.18	323.94
	kg·m <sup>2</sup> x 10 <sup>-4</sup>	303	366
Servomotor Weight	lbs	147.71	209.44
	kg	67.00	95.00
Maximum Radial Shaft Load	lbs	1124	1322
	N	4998	5880
Maximum Axial Shaft Load	lbs	485	485
	N	2156	2156

Electrical Specifications			
Torque Sensitivity	lb·in/Amp <sub>RMS/φ</sub>	24.25	30.45
	N·m/Amp <sub>RMS/φ</sub>	2.74	3.44
Servo Drive Input Power	volts AC	460	460
Continuous Motor Current	Amp <sub>S<sub>RMS/φ</sub></sub>	37.2	44
Peak Motor Current	Amp <sub>S<sub>RMS/φ</sub></sub>	85	100

Thermal Specifications			
Thermal Time Constant	minutes	112	158
Ambient Temperature	degrees C	40	40
Insulation Class		F	F

\* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

## Torque vs. Speed Characteristics (at 460 VAC)



■ Intermittent Duty Zone    ■ Continuous Duty Zone    ●●●●● Rated Speed & Torque



# Motors with Fail-Safe Brake Specifications

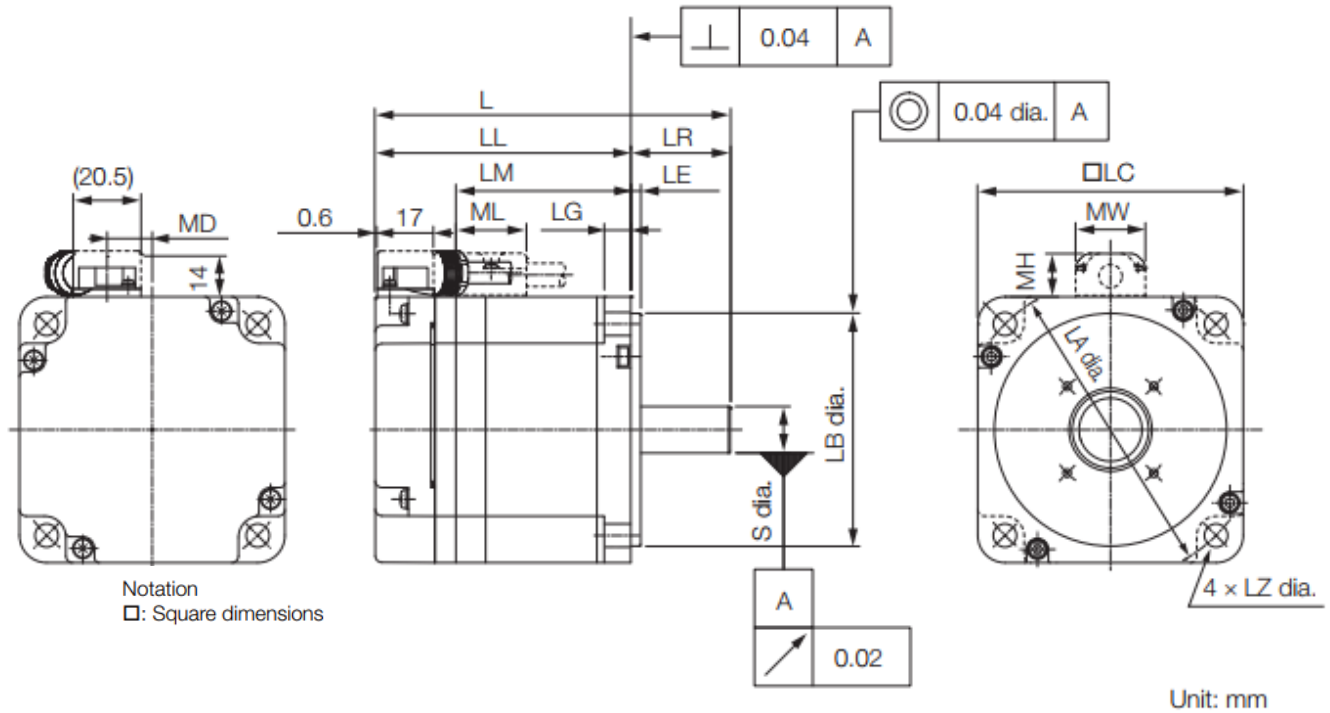
Servo Motor Model	Brake Holding Torque	Motor Length w/brake	Motor Weight w/brake	Brake Rated Current	Brake Voltage	Moment of Inertia w/Brake
	lb-in (N-m)	in (mm)	lb (kg)	Amps	VDC	lb-in-sec <sup>2</sup> x 10 <sup>-3</sup> (kg-m <sup>2</sup> x 10 <sup>-4</sup> )
MAC-NE003	2.83	4.53	1.54	0.25	24	0.079
	0.32	115	0.7			0.089
MAC-NE006	5.66	5.06	3.53	0.31	24	0.367
	0.64	128.5	1.6			0.415
MAC-NE011	11.24	5.45	4.19	0.31	24	0.497
	1.27	138.5	1.9			0.561
MAC-NE021	21.15	6.30	12.57	0.31	24	2.638
	2.39	160	5.7			2.98
MAC-NE042	42.22	7.38	17.86	0.31	24	4.337
	4.77	187.5	8.1			4.90
MAC-NA030	69	7.4	12.1	0.013	24	1.761
	7.84	188	5.5			1.99
MAC-NA055	69	8.4	15.0	0.013	24	2.407
	7.84	214	6.8			2.72
MAC-NA090	177	9.1	28.7	0.11	24	8.143
	20	232	13.0			9.2
MAC-NA110	177	10.6	35.3	0.11	24	10.444
	20	269	16.0			11.8
MAC-NA140	177	12.2	41.9	0.11	24	12.834
	20	309	19.0			14.5
MAC-NB055	112	6.8	16.5	0.41	24	14.161
	12.7	173	7.5			16
MAC-NB080	173	7.4	19.8	0.41	24	19.472
	19.6	189	9.0			22
MAC-NB100	173	8.1	24.3	0.41	24	24.871
	19.6	207	11.0			28.1
MAC-NB200	381	8.2	43.0	0.077	24	48.237
	43.1	208	19.5			54.5
MAC-NB300	381	9.1	51.8	0.077	24	67.266
	43.1	232	23.5			76
MAC-NB330	643	10.4	60.6	1.05	24	86.295
	72.6	265	27.5			97.5
MAC-NB465	643	12.2	77.2	1.05	24	118.60
	72.6	311	35.0			134
MAC-NB700	746	15.0	143.3	1.33	24	231.00
	84.3	382	65.0			261
MAC-NB840	1014	19	187.4	1.46	24	301.810
	114.6	482	85			341
MAC-NC1200	2107	25.1	286.6	2.24	24	399.169
	238	638	130			451

Note: Brakes with a rated current below 1 Amp can be powered directly from the drive. Brakes with higher rated current require a separate power supply.

# Motor Outline Drawings

For length and weight of models with fail-safe brake option, see page 17. Contact ORMEC Application Engineering for additional details.

## MAC-NE003, MAC-NE006 & MAC-NE011



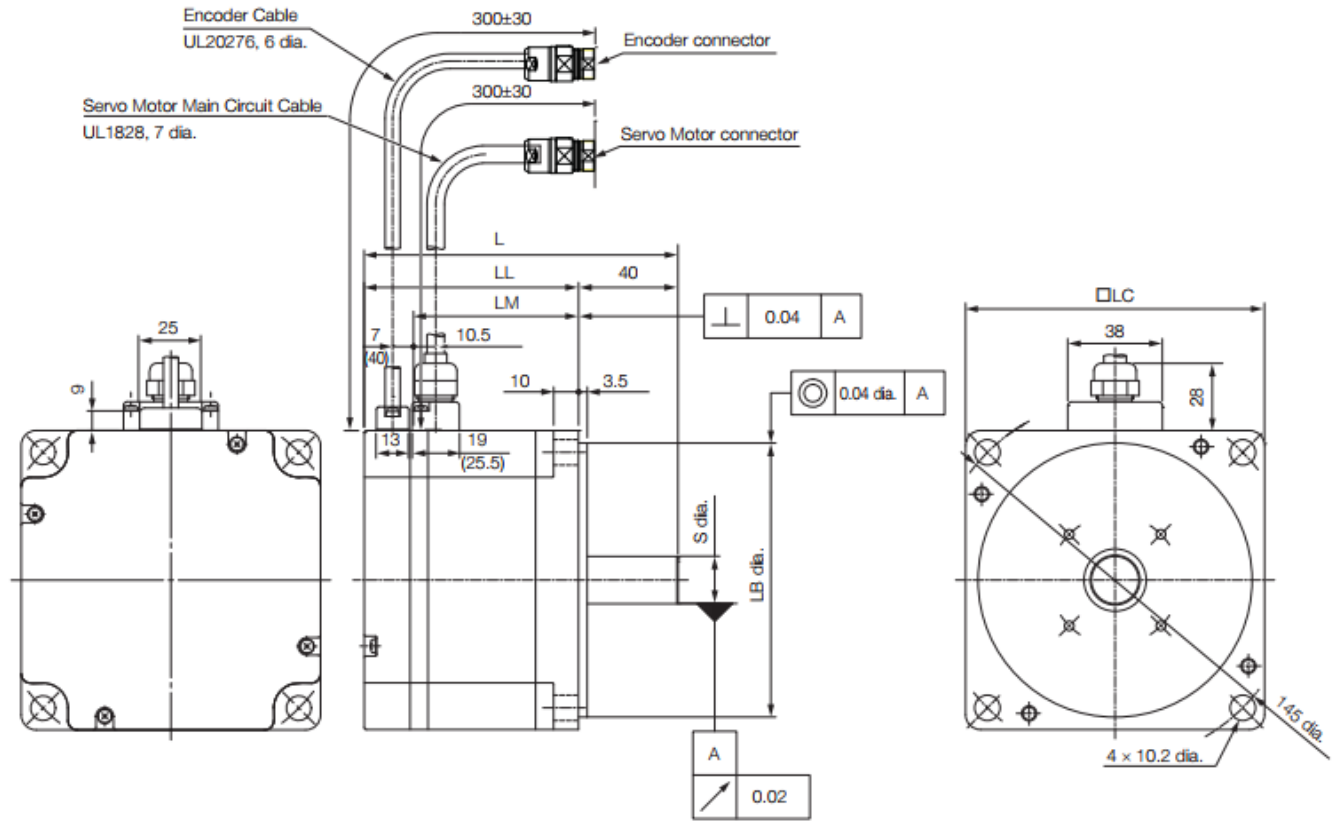
	L		LL		LM	
	IN	MM	IN	MM	IN	MM
MAC-NE003	3.35	85	2.36	60	1.417	36
MAC-NE006	3.82	97	2.64	67	1.693	43
MEC-NE011	4.21	107	3.03	77	2.087	53

	FLANGE DIMENSIONS														S
	LR		LE		LG		LC		LA		LB		LZ		
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	
MAC-NE003	0.98	25	0.118	3	0.236	6	2.362	60	2.76	70	1.97	50	0.217	5.5	8
MAC-NE006	1.18	30	0.118	3	0.315	8	3.150	80	3.54	90	2.76	70	0.276	7	14
MEC-NE011	1.18	30	0.118	3	0.315	8	3.150	80	3.54	90	2.76	70	0.276	7	14

	MD		MW		MH		ML	
	IN	MM	IN	MM	IN	MM	IN	MM
MAC-NE003	0.33	8.5	0.75	19	0.472	12	0.787	20
MAC-NE006	0.54	13.6	0.83	21	0.512	13	0.827	21
MEC-NE011	0.54	13.6	0.83	21	0.512	13	0.827	21

# Motor Outline Drawings

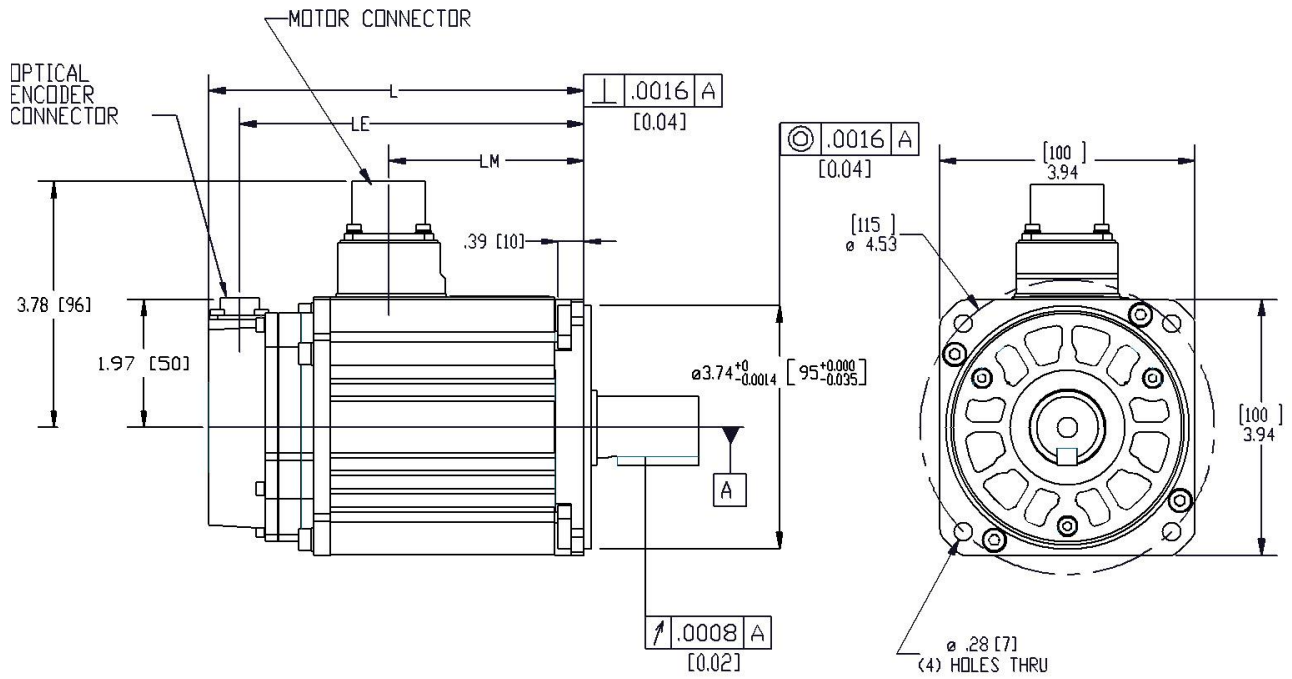
## MAC-NE021 & MAC-NE042



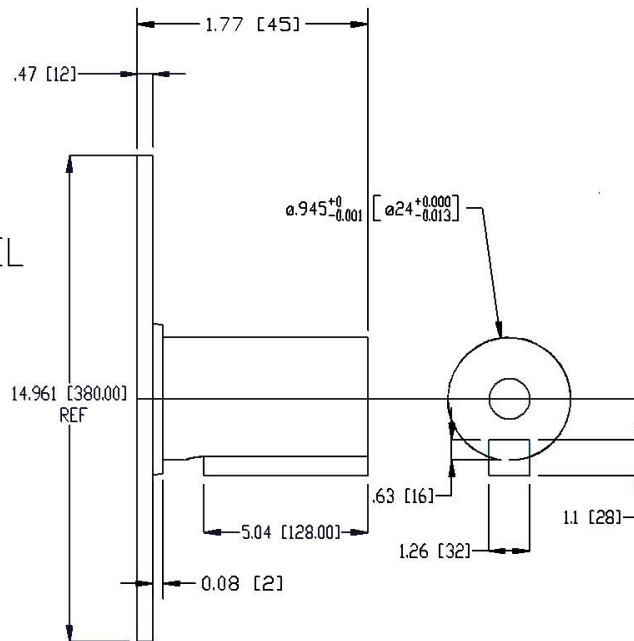
	L		LL		LM		LB		LC		S	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
MAC-NE021	4.98	127	3.41	87	2.66	68	4.33	110	4.7	120	0.748	19
MAC-NE042	6.08	155	4.51	115	3.76	96	4.33	110	4.7	120	0.748	19

# Motor Outline Drawings

## MAC-NA030 & MAC-NA055



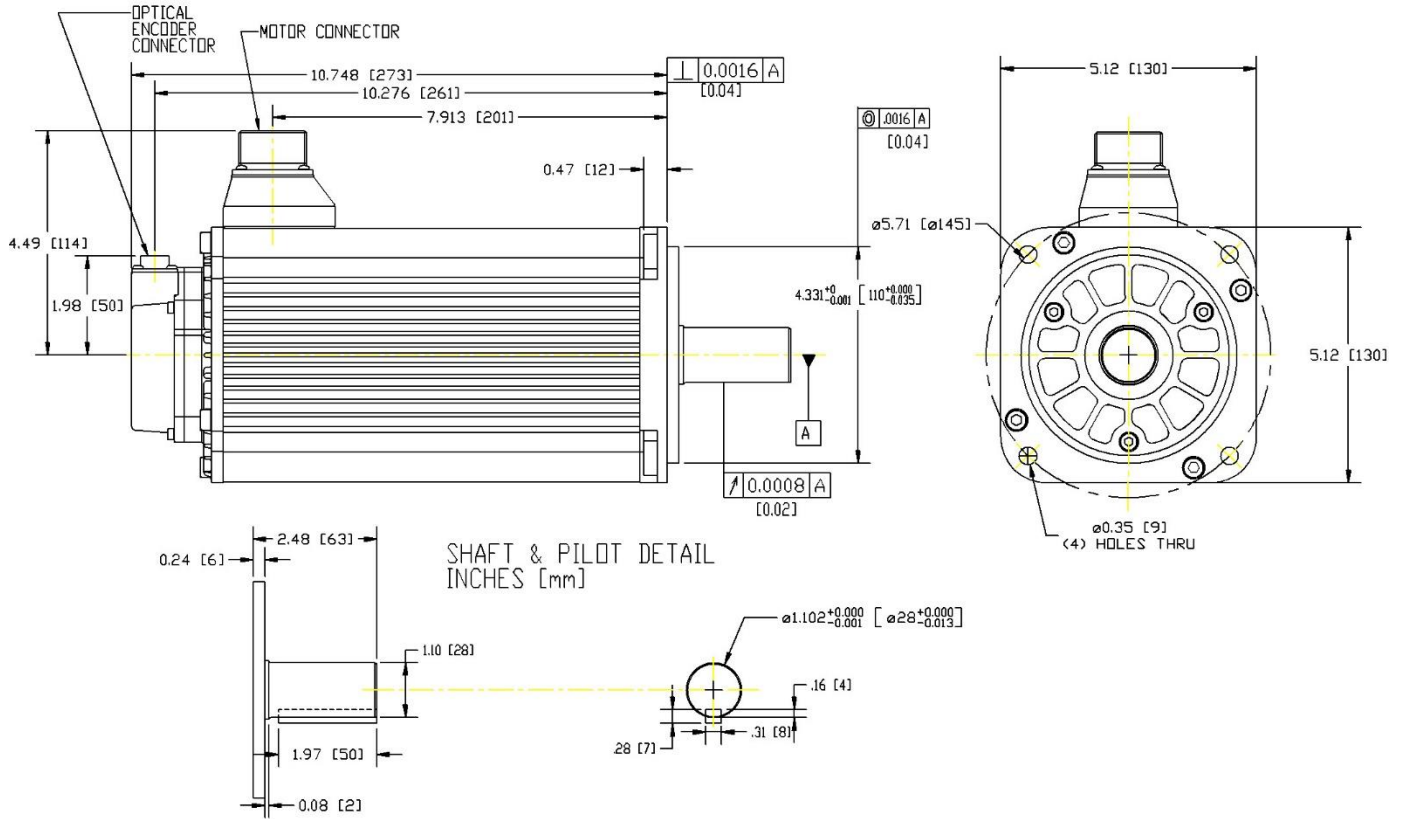
SHAFT & PILOT DETAIL  
INCHES [mm]



	L		LE		LM	
	Inches	mm	Inches	mm	Inches	mm
MAC-NA030	5.8	147	5.3	135	2.6	67
MAC-NA055	6.8	173	6.3	161	3.7	93

# Motor Outline Drawings

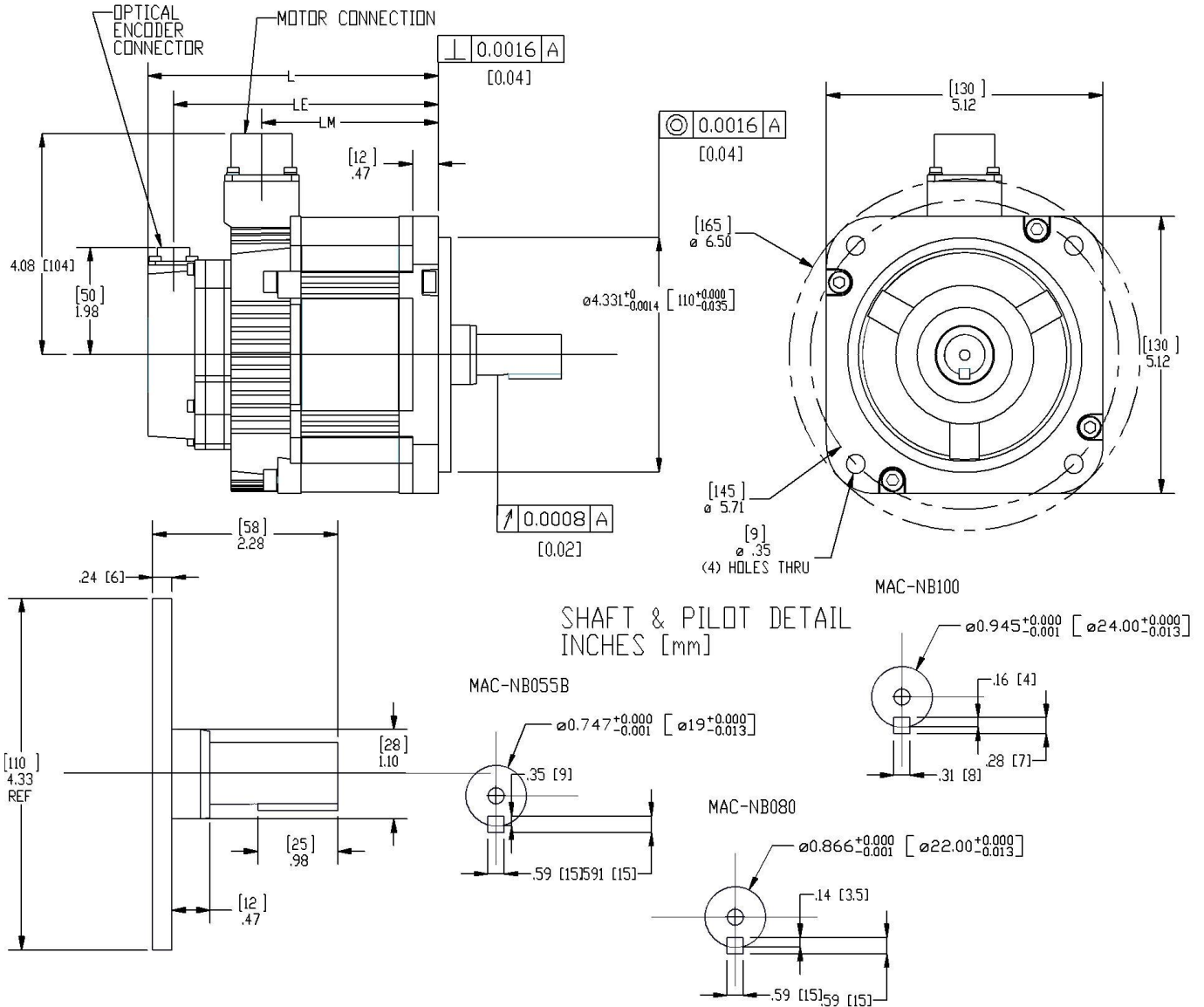
## MAC-NA090, MAC-NA110 & MAC-NA140



	L		LE		LM	
	Inches	mm	Inches	mm	Inches	mm
MAC-NA090	7.7	196	7.2	184	4.5	114
MAC-NA110	9.2	233	8.7	221	5.9	151
MAC-NA140	10.7	273	10.3	261	7.5	191

# Motor Outline Drawings

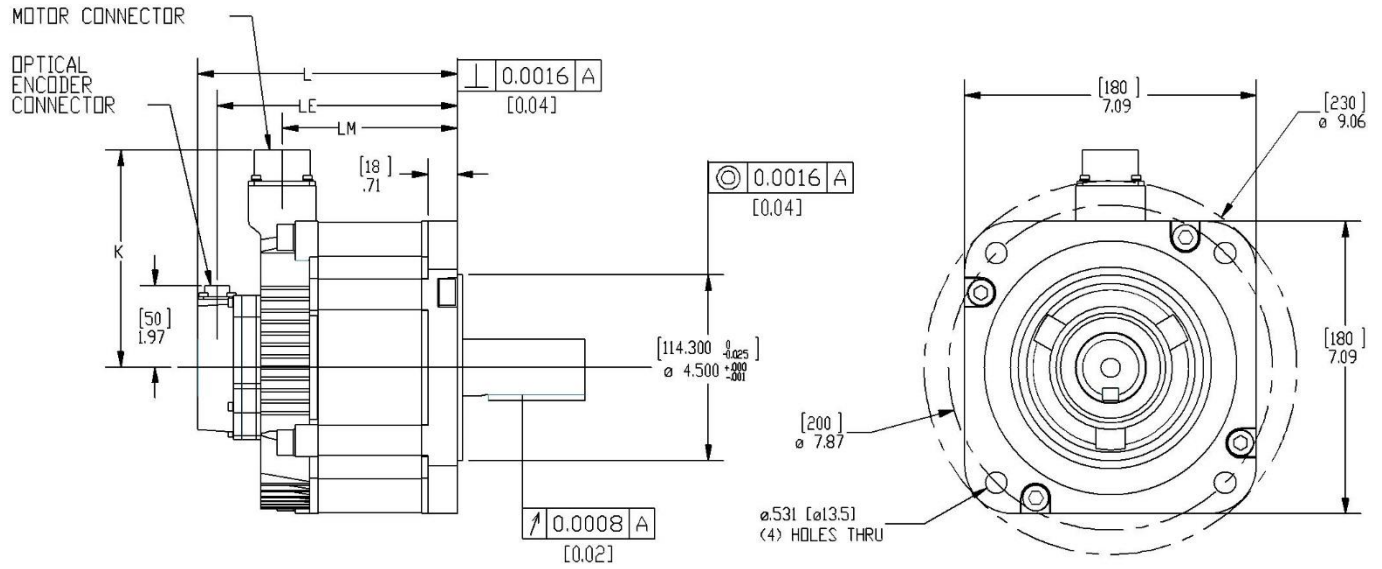
## MAC-NB055, MAC-NB080 & MAC-NB100



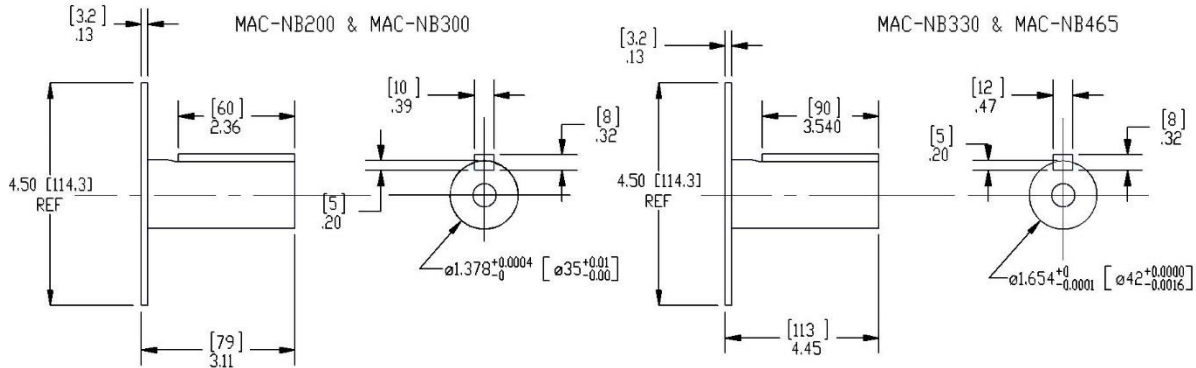
	L		LE		LM	
	Inches	mm	Inches	mm	Inches	mm
MAC-NB055	5.4	137	4.5	115	3.3	83
MAC-NB080	6.0	153	5.2	131	3.9	99
MAC-NB100	6.7	171	5.9	149	4.6	117

# Motor Outline Drawings

## MAC-NB200, MAC-NB300, MAC-NB330 & MAC-NB465



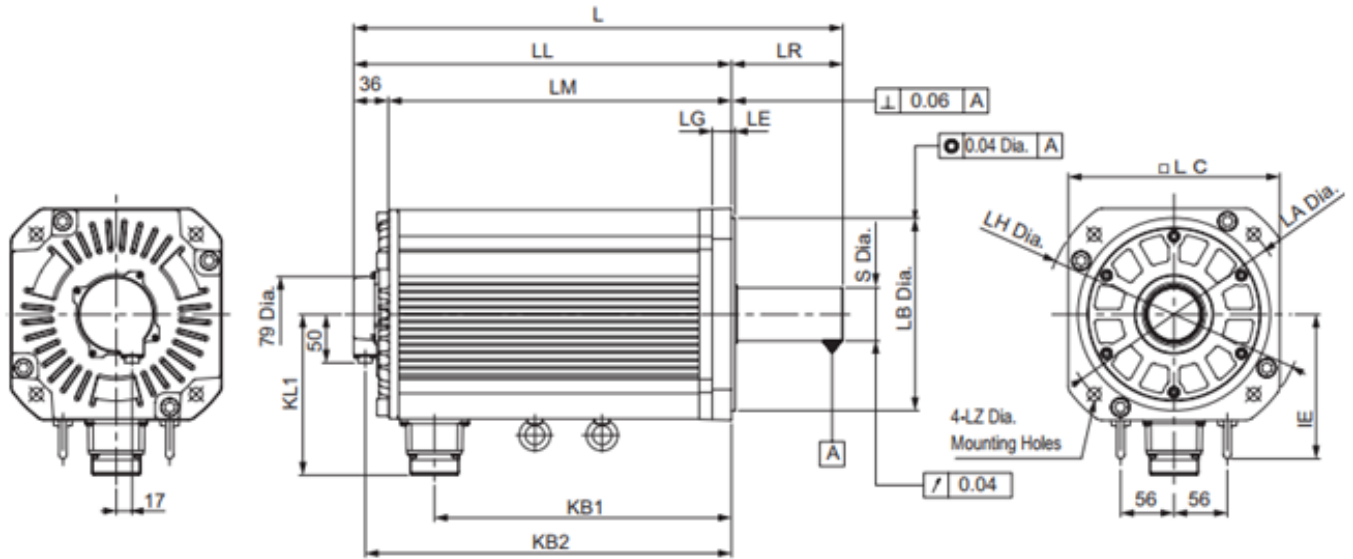
### SHAFT & PILOT DETAIL INCHES [mm]



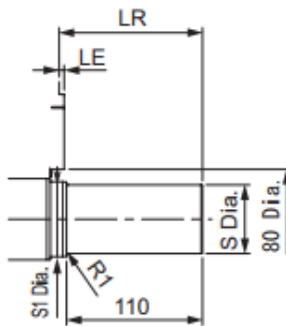
	L		LE		LM	
	Inches	mm	Inches	mm	Inches	mm
MAC-NB200	6.3	160	5.8	148	4.3	108
MAC-NB300	7.2	184	6.8	172	5.2	132
MAC-NB330	8.7	221	8.1	205	6.4	163
MAC-NB465	10.5	267	9.9	251	8.2	209

# Motor Outline Drawings

## MAC-NB700 & MAC-NB840



Shaft End

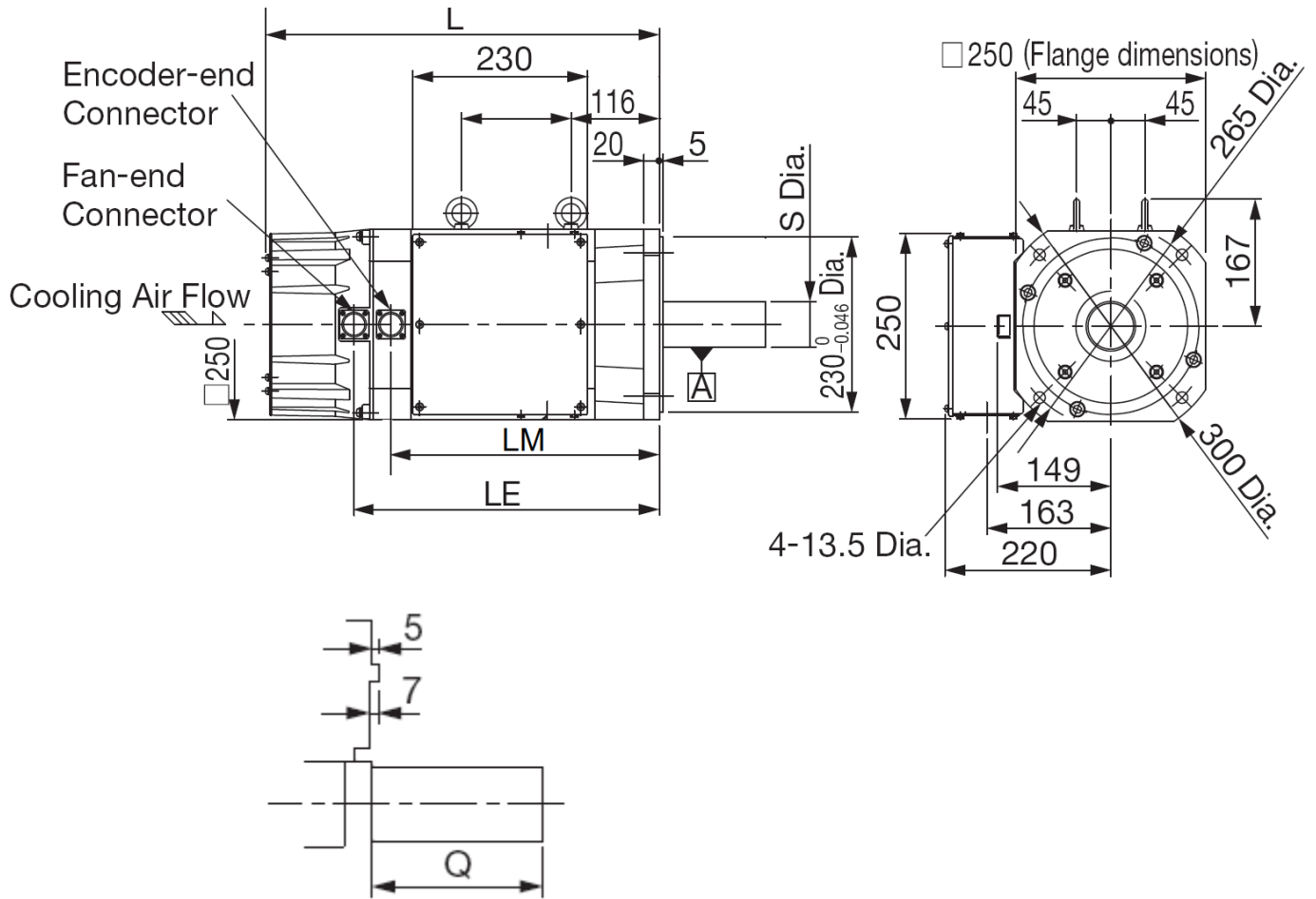


	L		LE		LM		$\phi S$			S1		
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm		
MAC-NB700	13.03	331	12.56	319	9.72	247	1.65	$\begin{matrix} 0 \\ -0.0006 \end{matrix}$	42	$\begin{matrix} 0 \\ -0.016 \end{matrix}$	1.97	50
MAC-NB840	15.47	393	15	381	12.17	309	2.17	$\begin{matrix} +0.0012 \\ +0.0004 \end{matrix}$	55	$\begin{matrix} +0.030 \\ +0.011 \end{matrix}$	2.36	60



# Motor Outline Drawings

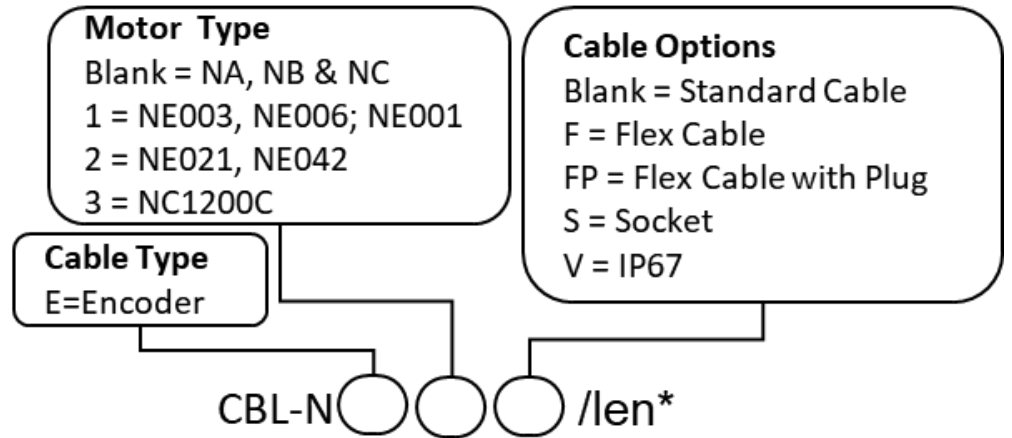
## MAC-NC1200



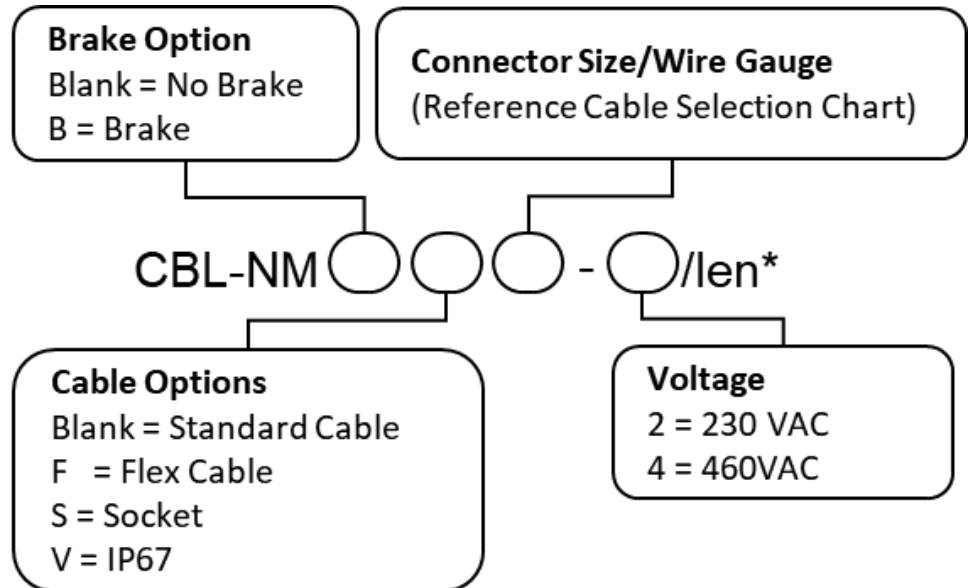
	L		LE		LM		Q		$\varnothing S$			
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm		
MAC-NC1200	20.39	518	15.79	401	13.9	353	5.51	140	2.36	$+0.0012$ $+0.0004$	60	$+0.030$ $+0.011$

# Encoder, Motor and Brake Cables Numbers

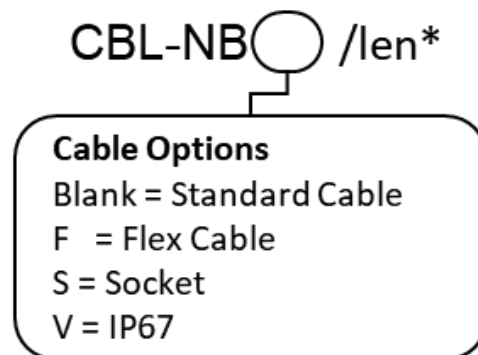
## Feedback Cable



## Motor Cable



## Brake-only Cable



\*Standard Length specified in 5 ft. (1.52m) increment

# Encoder, Motor and Brake Cables Selection

N-Series Motors Cables								
	Motor Model	Cables <sup>1</sup>			Adapter Cables <sup>2</sup>			
		Motor	w/Brake	Encoder	Motor	Brake	Encoder	
<b>200 VAC</b>	MAC-NE003B	CBL-NM7-2	CBL-NMB7-2 <sup>3</sup>	CBL-NE1	N/A	N/A	CBL-XHM-NE	
	MAC-NE006B	CBL-NM8-2	CBL-NMB8-2 <sup>3</sup>					
	MAC-NE011B							
	MAC-NE021B	CBL-NM9-2	CBL-NMB9-2 <sup>3</sup>	CBL-NE2				
	MAC-NE042B							
	MAC-NA030B	CBL-NM1-2	CBL-NMB1-2 <sup>3</sup>	CBL-NE				
	MAC-NA055B							
	MAC-NA090B	CBL-NM2-2	CBL-NMB2-2 <sup>3</sup>					
	MAC-NA110B	CBL-NMB	CBL-NMB3-2 <sup>3</sup>					
	MAC-NA140B							
	MAC-NB055B							
	MAC-NB080B							
	MAC-NB100B							
	MAC-NB200B							
	MAC-NB300B							
	MAC-NB330B							
	MAC-NB465B							
MAC-NB700B								
MAC-NB700B	CBL-NM6-2				N/A	CBL-XHMB-NB		
<b>400 VAC</b>	MAC-NA030C	CBL-NM1-4	CBL-NMB		CBL-NE	N/A	CBL-XHMB-NB	CBL-XHM-NE
	MAC-NA055C	CBL-NM2-4						
	MAC-NA090C	CBL-NM3-4						
	MAC-NA110C							
	MAC-NA140C							
	MAC-NB055C			CBL-NM1-4				
	MAC-NB080C	CBL-NM2-4						
	MAC-NB100C	CBL-NM4-4						
	MAC-NB200C							
	MAC-NB300C							
	MAC-NB330C							
	MAC-NB465C	CBL-NM6-4						
	MAC-NB700C							
	MAC-NB840C							
MAC-NC1200	CBL-NM7-4 CBL-NT <sup>4</sup> CBL-NF <sup>4</sup>	CBL-NMB2	CBL-NE3	N/A	N/A			

All cables can be ordered with the IP67 or flex option by adding a "V" or "F" in the part number.

See previous page for cable lengths designation and increments

See page 26 for model numbering details.

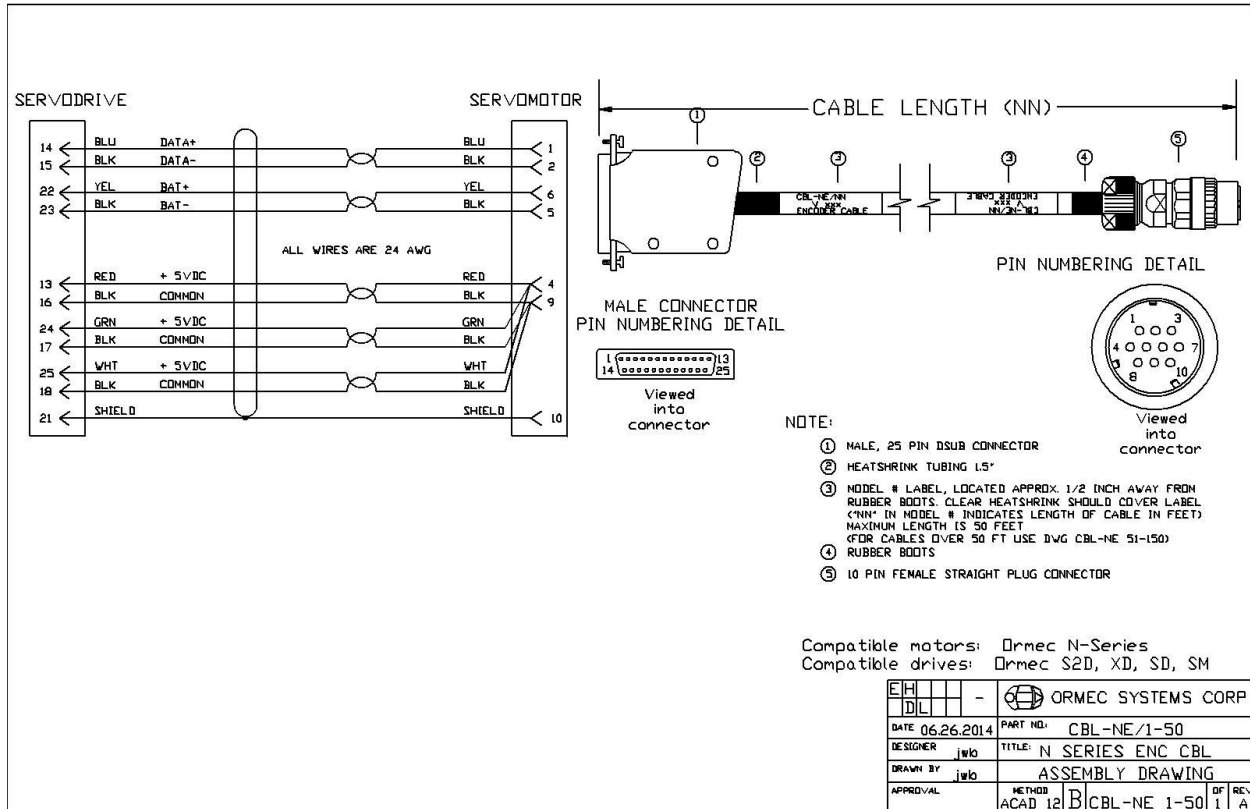
<sup>1</sup> Standard cables for new installations.

<sup>2</sup> Adapter cables are used when N-series motors replaces H-series motor, retaining existing H-series cables. Adapter modifies at the motor.

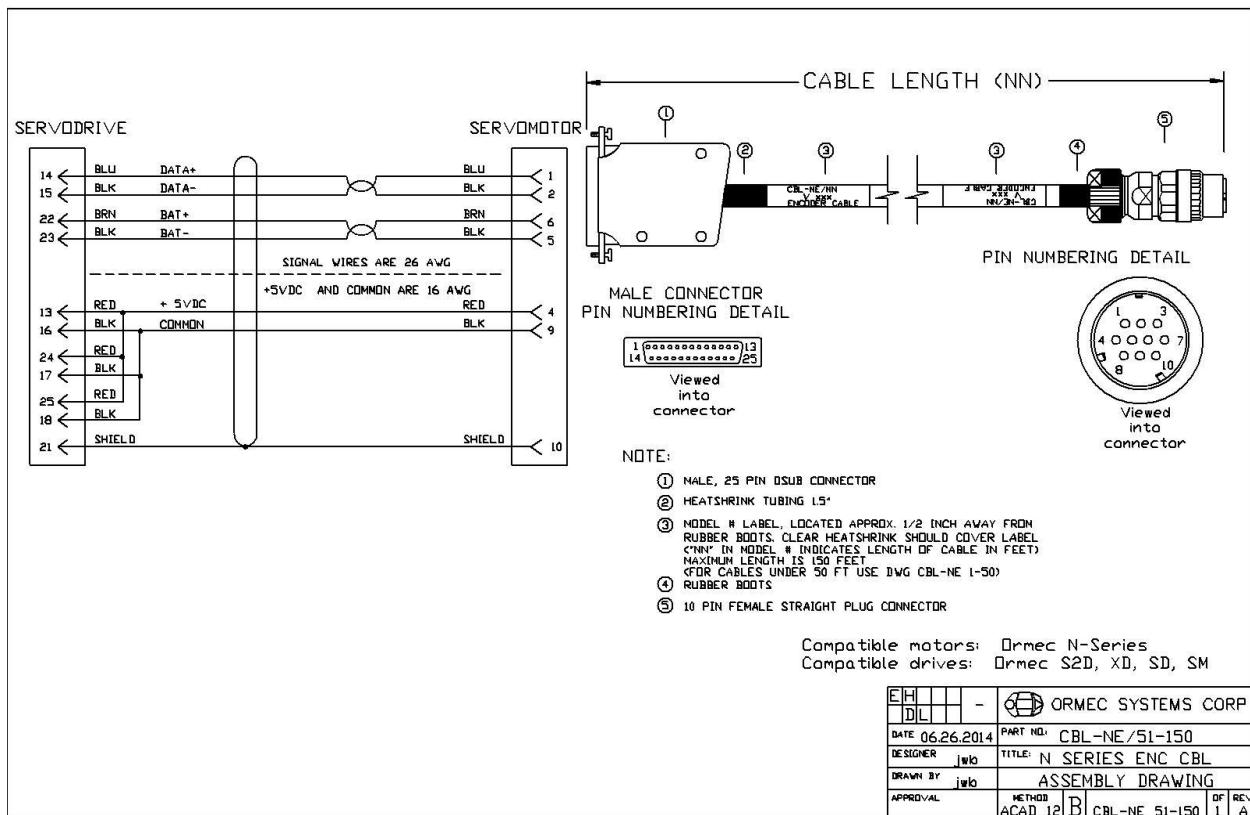
<sup>3</sup> Power Cable Integrated into Motor Cable for one cable

<sup>4</sup> MAC-NC1200C Cables also requires separate Thyristor and Fan Cables, CBL-NT/x and CBL-NF/x respectively

# Encoder, Motor and Brake Cable Drawings

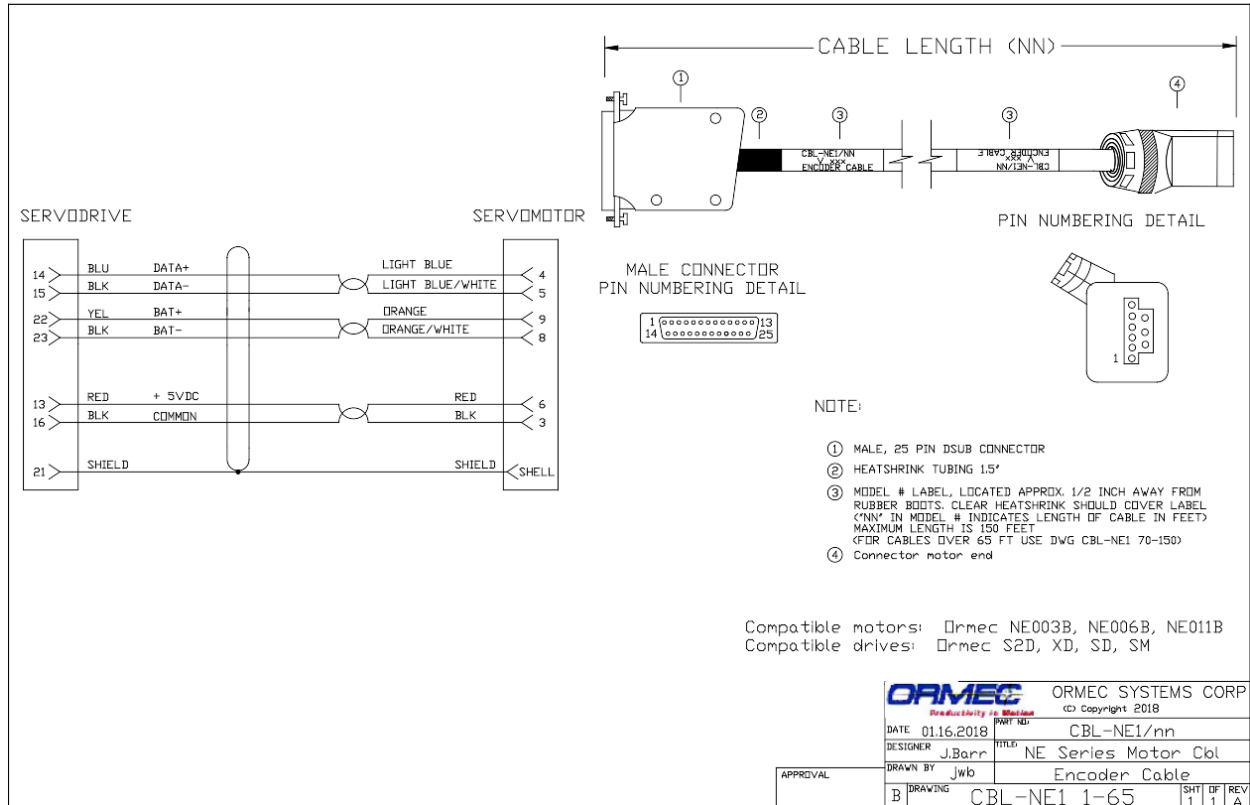


CBL-NE/x (1-50 Feet at increments of 5 feet)

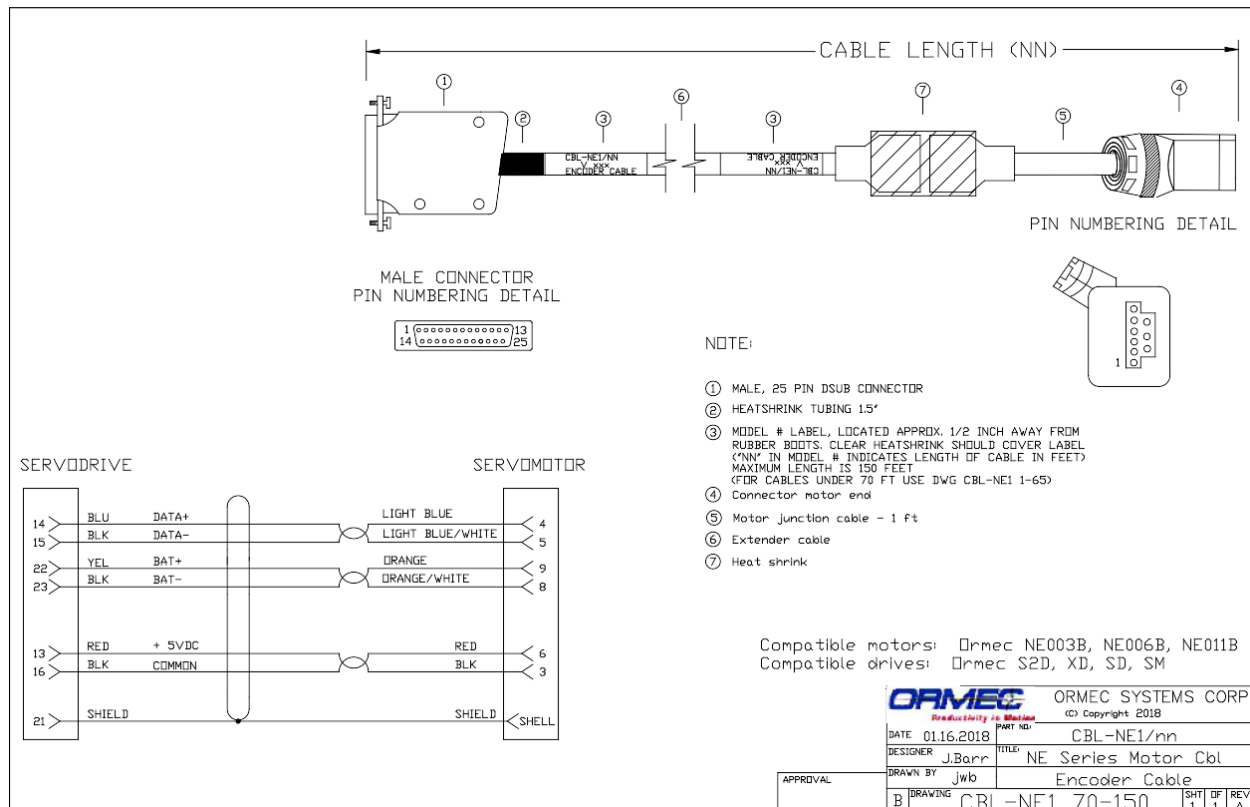


CBL-NE/x (55-150 Feet at increments of 5 feet)

# Encoder, Motor and Brake Cable Drawings

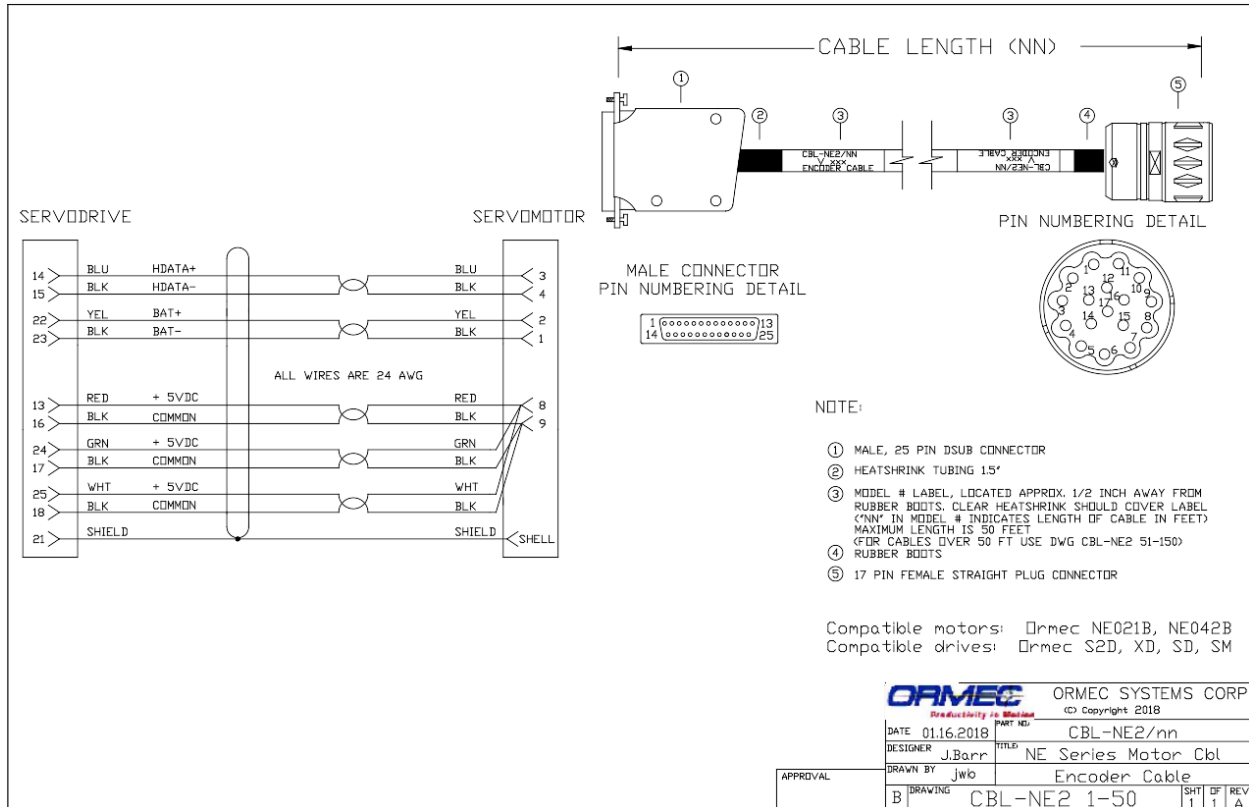


CBL-NE1/x (1-65 Feet at increments of 5 feet)

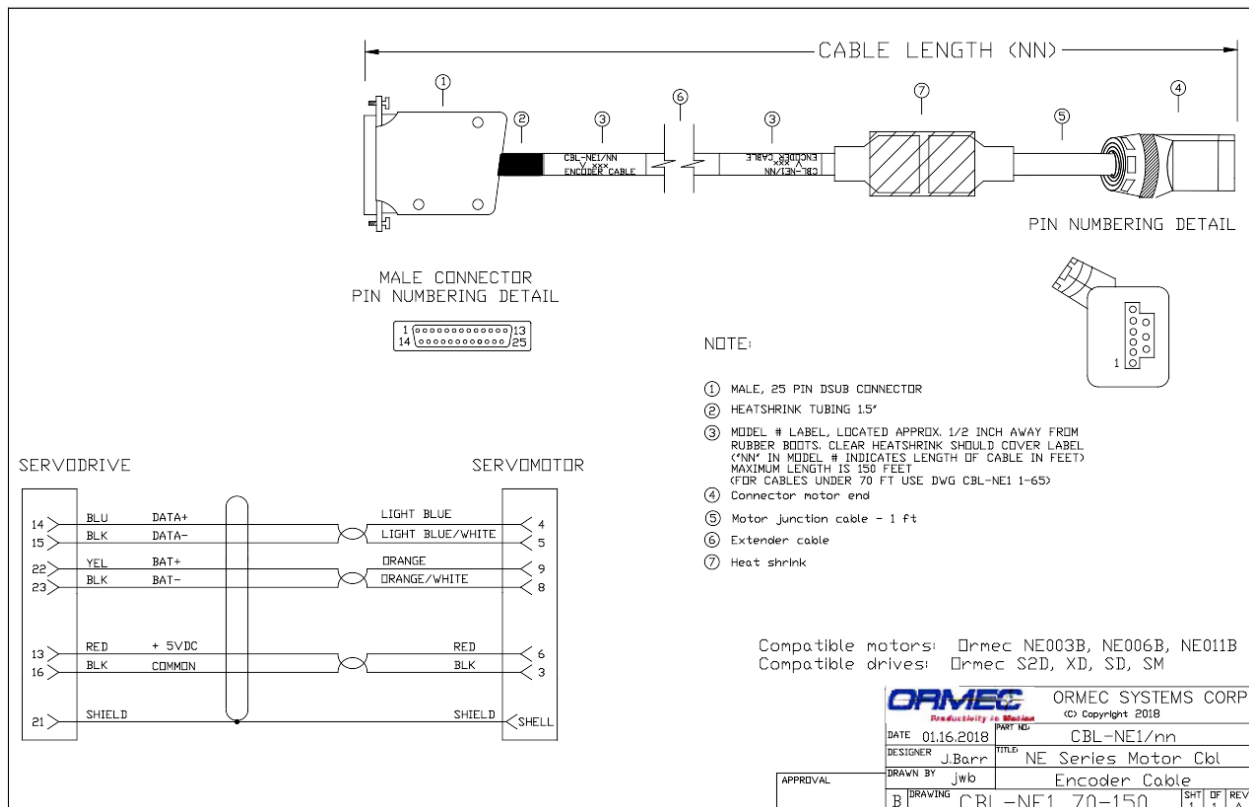


CBL-NE1/x (70-150 Feet at increments of 5 feet)

# Encoder, Motor and Brake Cable Drawings

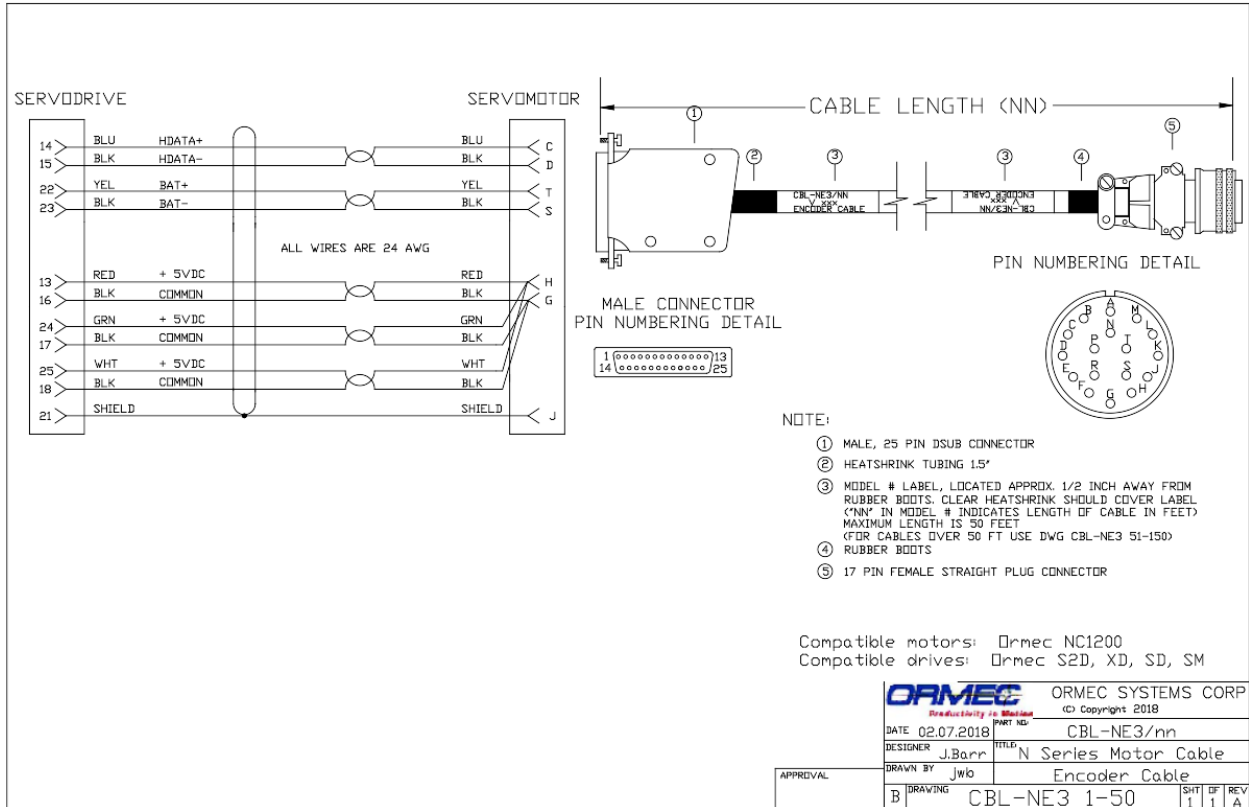


CBL-NE2/x (1-65 Feet at increments of 5 feet)

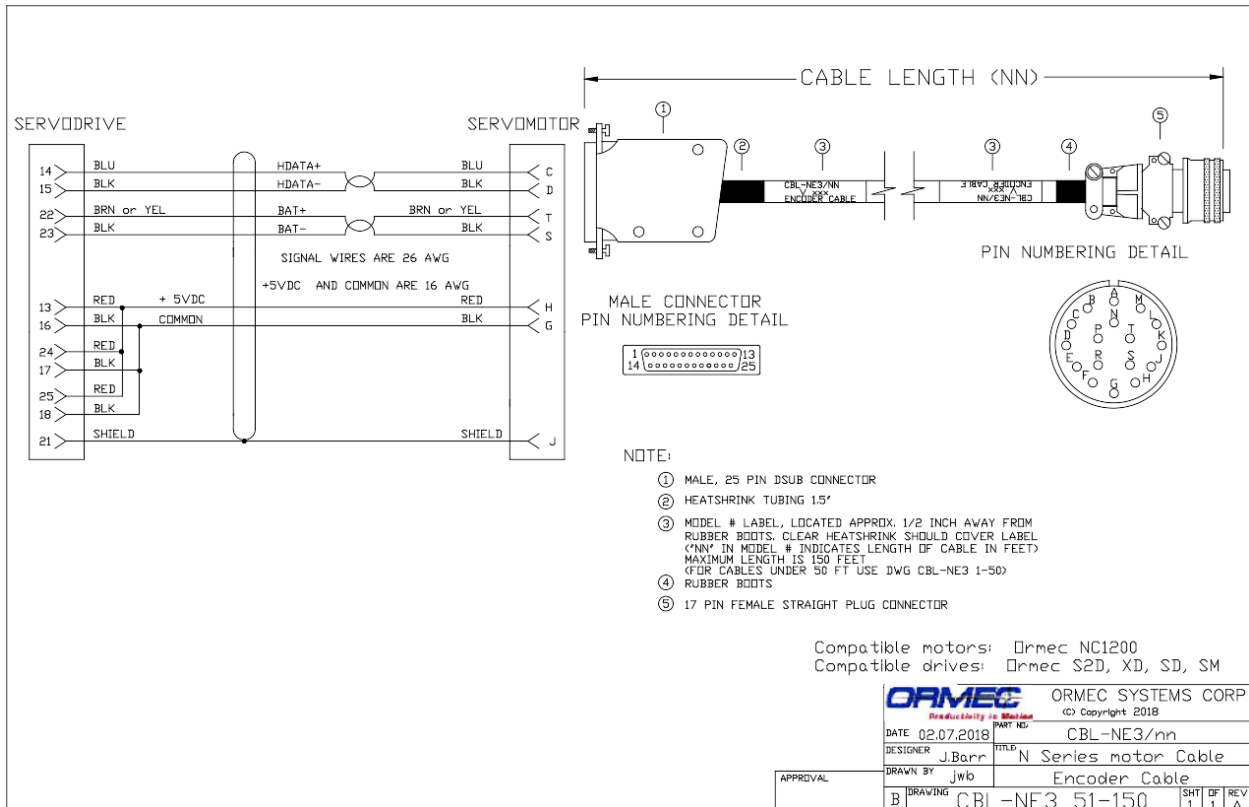


CBL-NE2/x (70-150 Feet at increments of 5 feet)

# Encoder, Motor and Brake Cable Drawings



CBL-NE3/x (1-50 Feet at increments of 5 feet)



CBL-NE3/x (55-150 Feet at increments of 5 feet)

# Encoder, Motor and Brake Cable Drawings

Alternate constructions. Wire marking may vary.

CABLE LENGTH (NN)  
MAXIMUM LENGTH 150 FEET

6"

TINNED LEADS

Alternate constructions. Wire marking may vary.

U V W GND GND

RED WHT BLK GRN/YEL SHIELD

RED BRN BLK DRG

NM 1-6 NM 7-8 NM 9

1 2 3 4 5 6 7

4 3 2 1 6 5 7

NOTE:

- PLUG, STRAIGHT FOR NM 1, 2, 3, 4 and 9, RIGHT ANGLE FOR NM 5, 6, 7 and 8
- CABLE CLAMP
- CABLE SIZE, SEE TABLE
- MODEL# LABEL, LOCATE APPROX. 1/2 INCH AWAY FROM ENDS OF CABLE  
MODEL NUMBER SHOULD READ AS SHOWN IN TABLE BELOW  
(\*NN\* IN MODEL# INDICATES LENGTH OF CABLE IN FEET)  
MAXIMUM CABLE LENGTH IS 150 FEET.
- HEAT SHRINK, BLACK
- RUBBER BOOT, IF required

Note: O.D. is nominal.

CABLE	④ LABEL	③ CABLE SIZE	FOR MOTOR
CBL-NM1-2	CBL-NM1-2/NN	4 COND, 14 AWG, 600V, .042" O.D.	MAC-NA030B, 055B, NB055B, 080B
CBL-NM2-2	CBL-NM2-2/NN	4 COND, 10 AWG, 600V, .053" O.D.	MAC-NA090B, 110B, NB200B
CBL-NM3-2	CBL-NM3-2/NN	4 COND, 8 AWG, 600V, .072" O.D.	MAC-NA140B, NB300B
CBL-NM4-2	CBL-NM4-2/NN	4 COND, 12 AWG, 600V, .044" O.D.	MAC-NB100B
CBL-NM5-2	CBL-NM5-2/NN	4 COND, 6 AWG, 600V, .119" O.D.	MAC-NB330B
CBL-NM6-2	CBL-NM6-2/NN	4 COND, 4 AWG, 600V, .112" O.D.	MAC-NB465B, 700B
CBL-NM1-4	CBL-NM1-4/NN	4 COND, 18 AWG, 600V, .036" O.D.	MAC-NA030C, NB055C
CBL-NM2-4	CBL-NM2-4/NN	4 COND, 14 AWG, 600V, .042" O.D.	MAC-NA055C, NB080C, 100C
CBL-NM3-4	CBL-NM3-4/NN	4 COND, 14 AWG, 600V, .042" O.D.	MAC-NA090C, 110C, 140C, NB200C
CBL-NM4-4	CBL-NM4-4/NN	4 COND, 12 AWG, 600V, .044" O.D.	MAC-NB300C
CBL-NM5-4	CBL-NM5-4/NN	4 COND, 10 AWG, 600V, .053" O.D.	MAC-NB330C
CBL-NM6-4	CBL-NM6-4/NN	4 COND, 8 AWG, 600V, .072" O.D.	MAC-NB465C, 700C, 840C
CBL-NM7-2	CBL-NM7-2/NN	4 COND, 20 AWG, 600V, .037" O.D.	MAC-NE003B
CBL-NM8-2	CBL-NM8-2/NN	4 COND, 20 AWG, 600V, .037" O.D.	MAC-NE006B, 011B
CBL-NM9-2	CBL-NM9-2/NN	4 COND, 14 AWG, 600V, .042" O.D.	MAC-NE021B, 042B

HEATSHRINK IS TO BE USED INSIDE THE CONNECTOR COVERING BOTH THE WIRE AND THE SOLDER CUP.

SOLDERING DETAIL:

NM9

NM7, 8

CONNECTOR END VIEW

CONNECTOR END VIEW

CONNECTOR END VIEW

CONNECTOR END VIEW

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DATE 03.29.2018 PART NO. CBL-NMx/nn

DESIGNER J.Barr TITLE N/NE MOTOR CABLES

DRAWN BY jwb TITLE Power cable w/o brake

APPROVAL B DRAWING CBL-NMX SHT 1 OF 1 REV 1 C

CBL-NMa-b/x

Alternate constructions. Wire marking may vary.

CABLE LENGTH (NN)  
MAXIMUM LENGTH 150 FEET

30"

6"

TINNED LEADS

Alternate constructions. Wire marking may vary.

U V W GND BRAKE BRAKE GND GND

RED WHT BLK GRN/YEL SHIELD

RED BRN BLK DRG

NM 1-3 NM 7-8 NM 9

1 2 3 4 5 6 7

4 3 2 1 6 5 7

NOTE:

- PLUG, STRAIGHT
- CABLE CLAMP
- CABLE SIZE, SEE TABLE
- MODEL# LABEL, LOCATE APPROX. 1/2 INCH AWAY FROM ENDS OF CABLE  
(\*NN\* IN MODEL# INDICATES LENGTH OF CABLE IN FEET)  
MAXIMUM CABLE LENGTH IS 150 FEET.  
LABEL SHOULD READ AS SHOWN IN TABLE BELOW
- HEAT SHRINK, BLACK

HEATSHRINK IS TO BE USED INSIDE THE CONNECTOR COVERING BOTH THE WIRE AND THE SOLDER CUP.

SOLDERING DETAIL:

NM9

NM7, 8

CONNECTOR END VIEW

CONNECTOR END VIEW

CONNECTOR END VIEW

CONNECTOR END VIEW

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DATE 01.16.2018 PART NO. CBL-NMBx/nn

DESIGNER J.Barr TITLE N/NE MOTOR CABLES

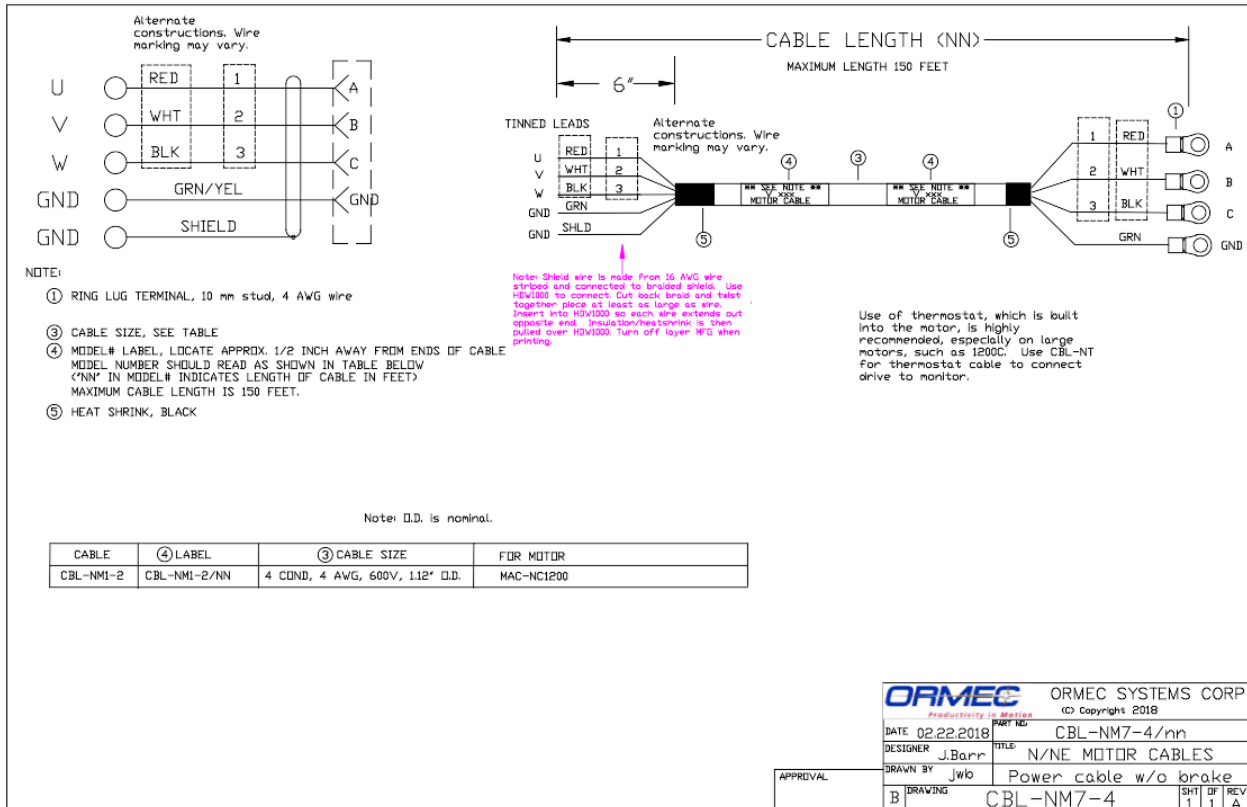
DRAWN BY jwb TITLE Power cable w/ brake

APPROVAL B DRAWING CBL-NMBX SHT 1 OF 1 REV 1 B

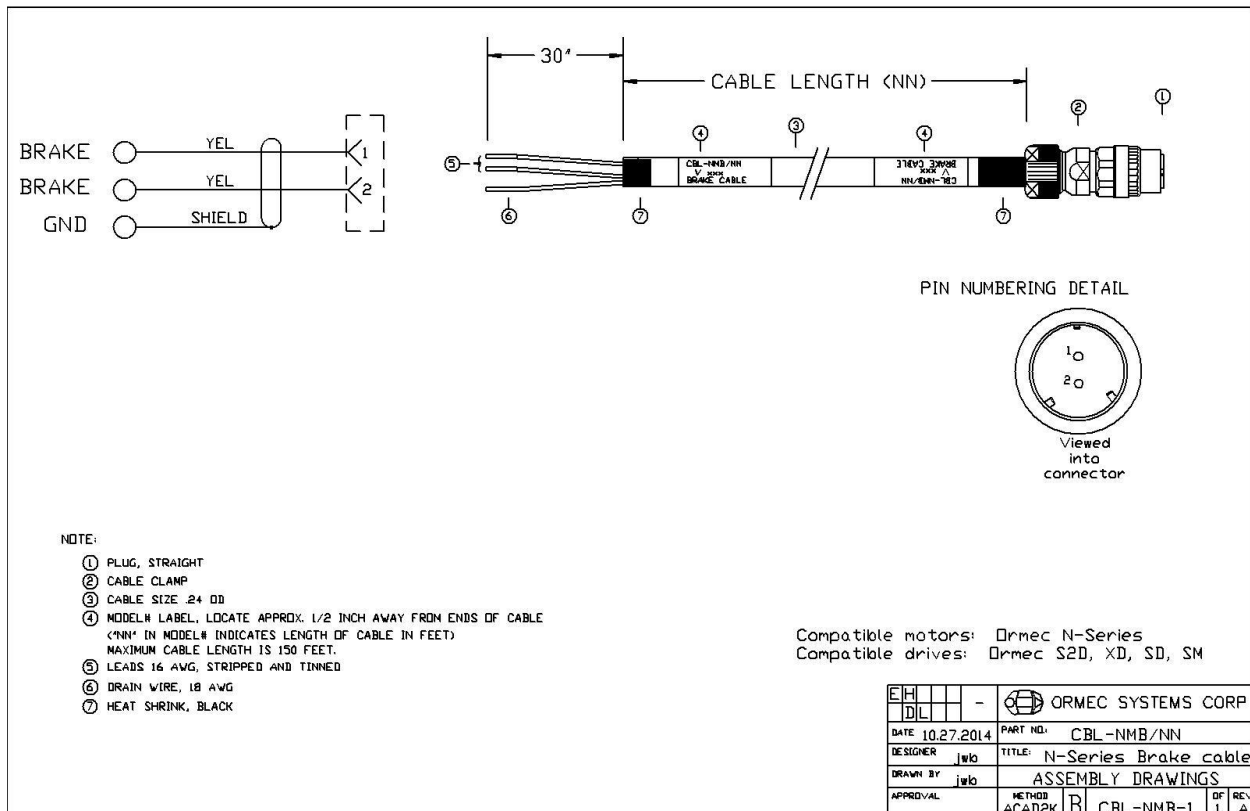
CBL-NMba-b/x



# Encoder, Motor and Brake Cable Drawings

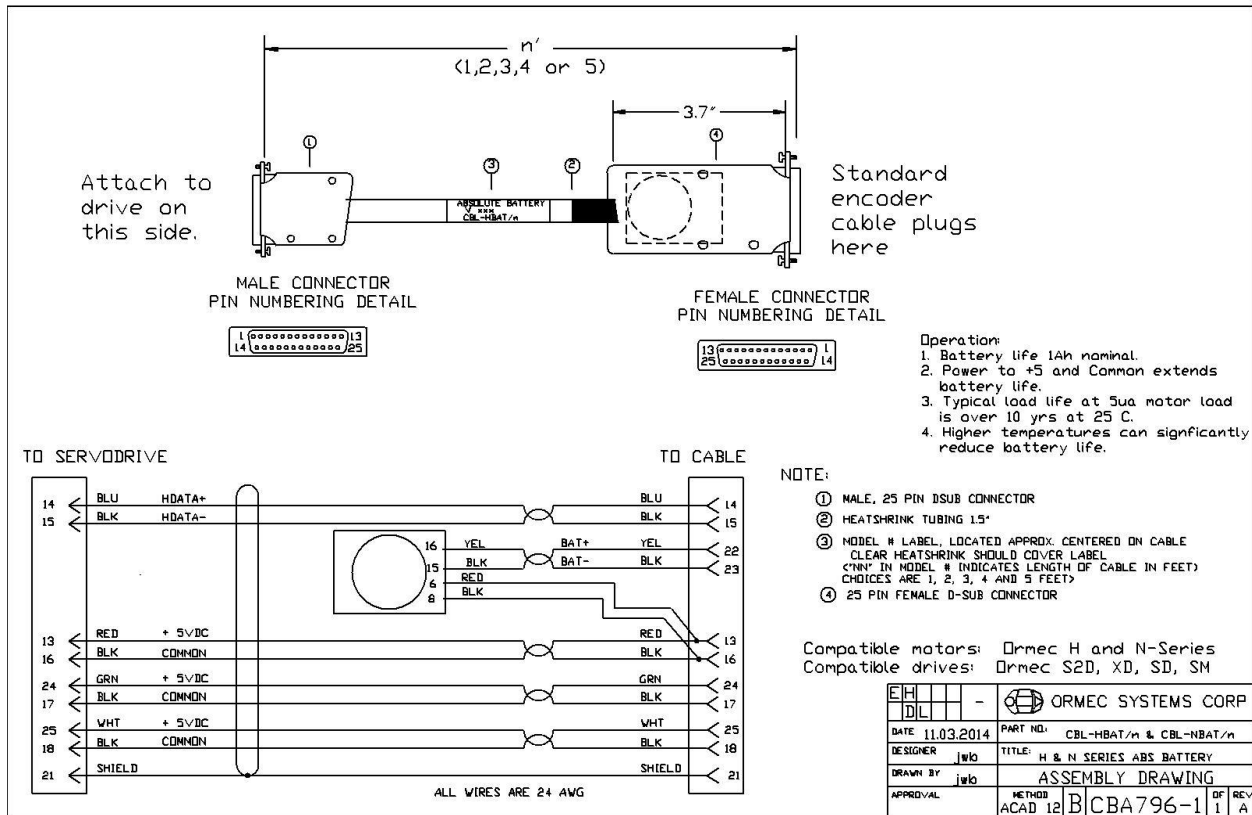


CBL-NM7-4/x

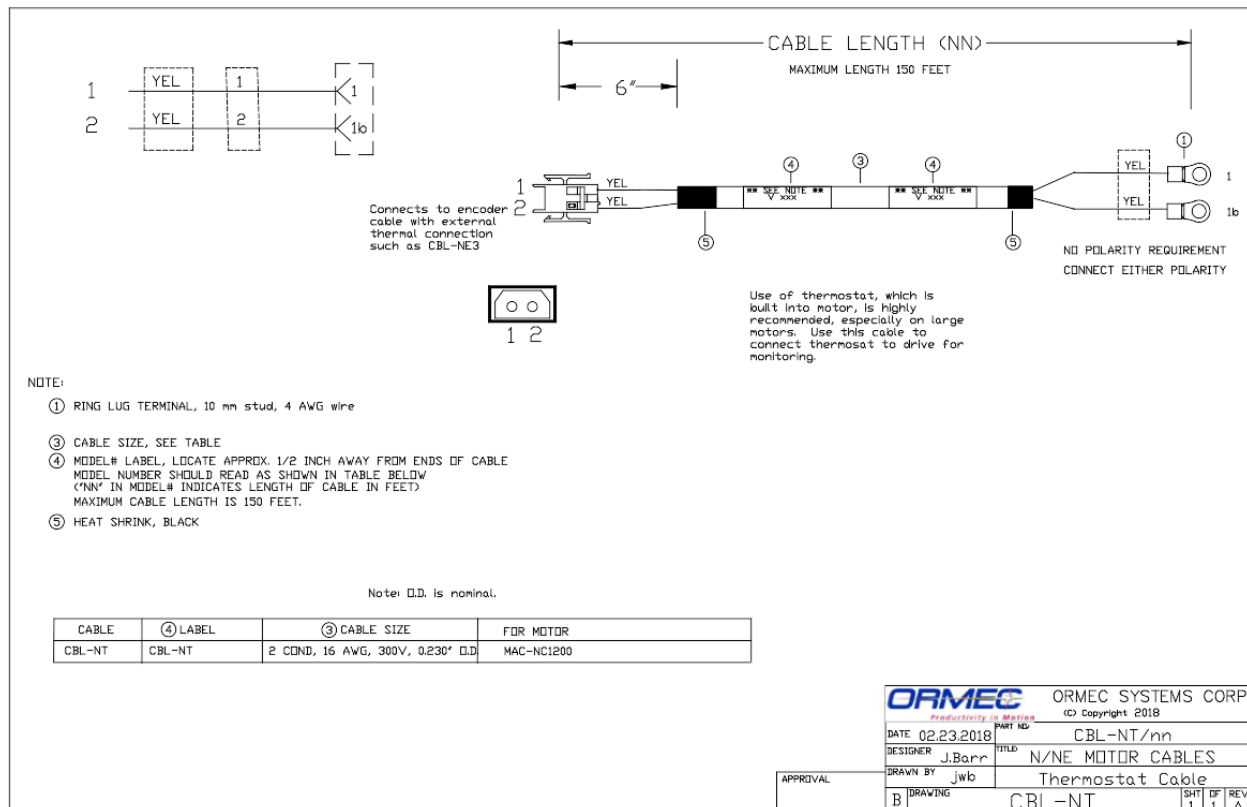


CBL-NMB/x

# Encoder, Motor and Brake Cable Drawings

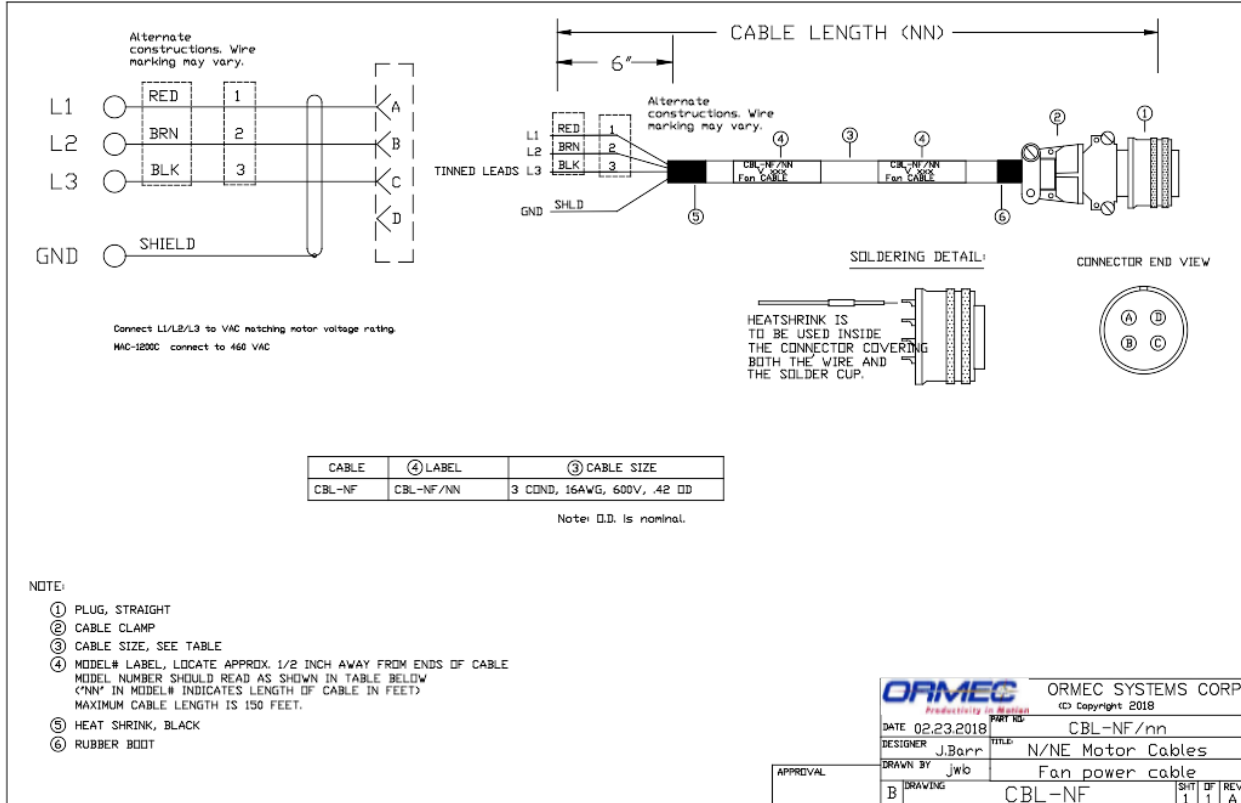


CBL-NBAT/x (1 = 1, 2, or 3)



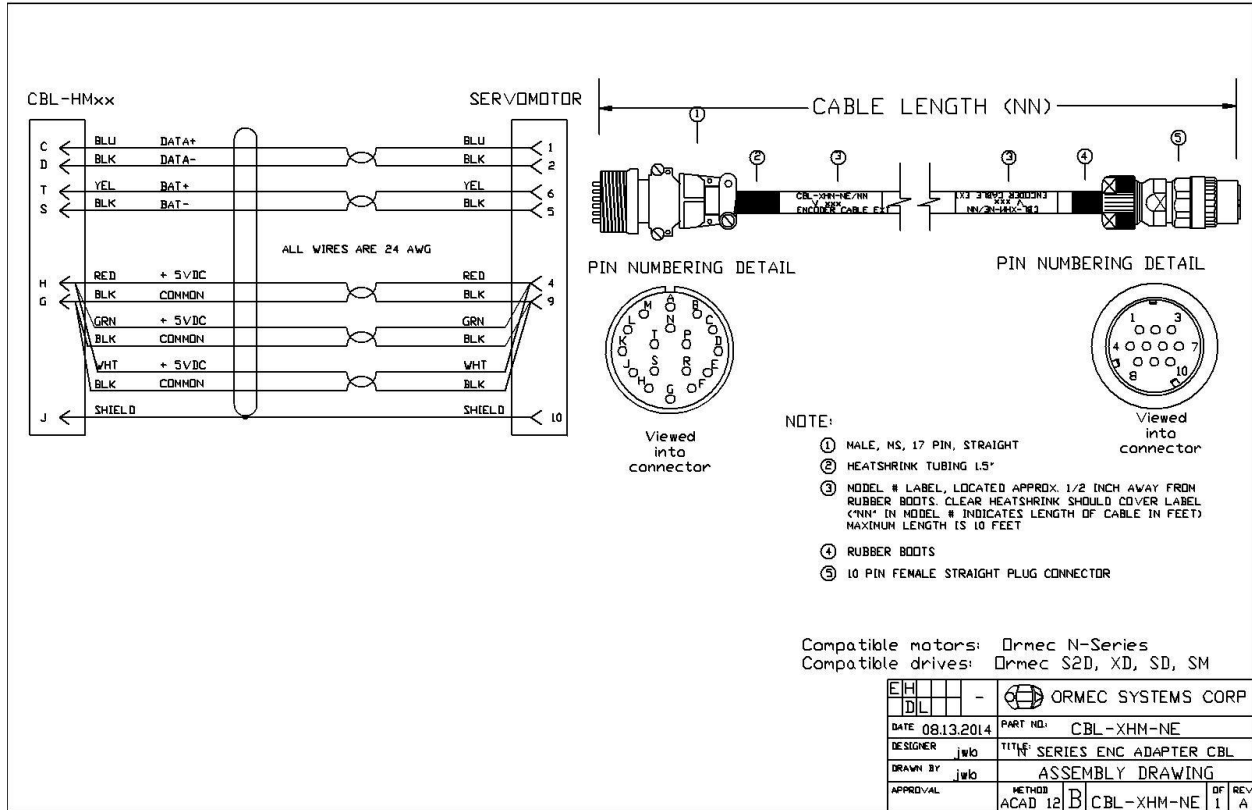
CBL-NT/x

# Encoder, Motor and Brake Cable Drawings

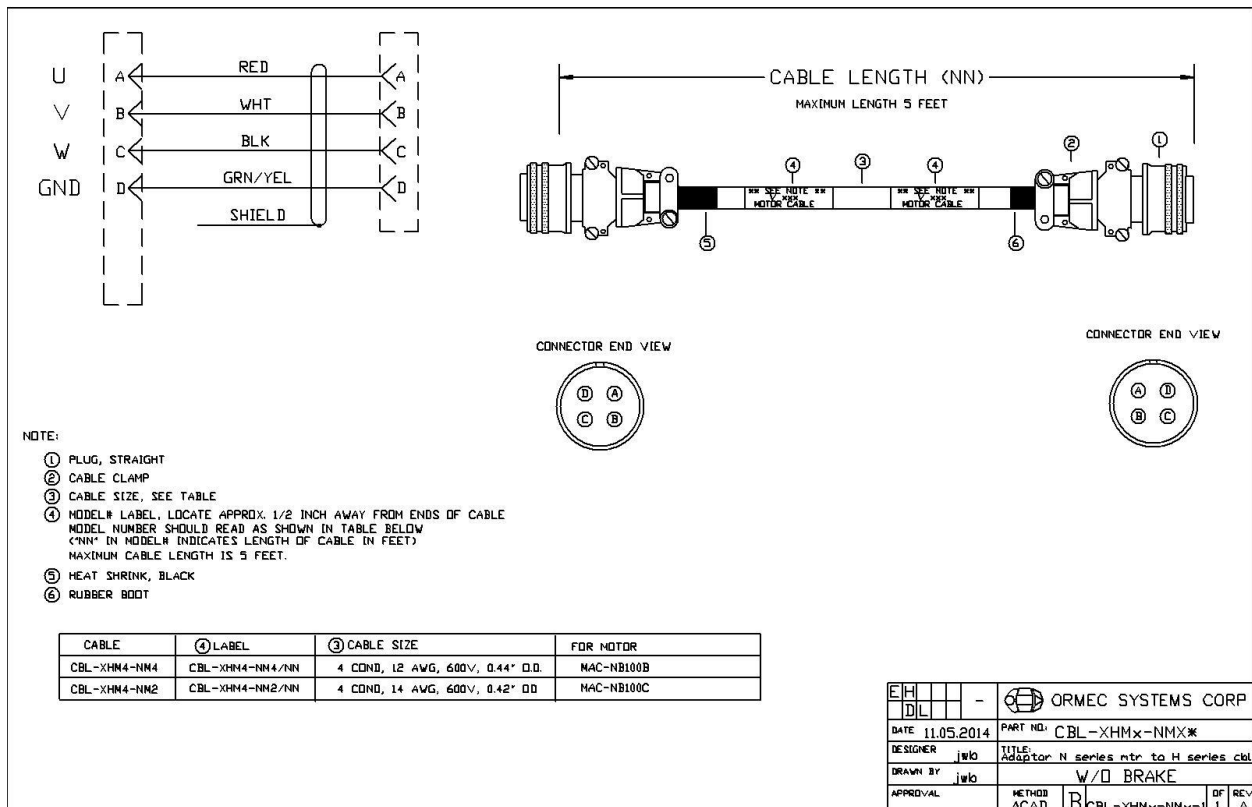


CBL-NF/x

# Encoder, Motor and Brake Cable Drawings



CBL-XHM-NE



CBL-XHMx-NMx

# Encoder, Motor and Brake Cable Drawings

**NOTE:**

- PLUG, STRAIGHT FOR MAC-N Series motor
- CABLE CLAMP
- CABLE SIZE, SEE TABLE
- MODEL# LABEL, LOCATE APPROX. 1/2 INCH AWAY FROM ENDS OF CABLE  
MODEL NUMBER SHOULD READ AS SHOWN IN TABLE BELOW  
'NN' IN MODEL# INDICATES LENGTH OF CABLE IN FEET  
MAXIMUM CABLE LENGTH IS 5 FEET.
- HEAT SHRINK, BLACK
- RUBBER BOOT
- CABLE SIZE, SEE TABLE

CABLE	④ LABEL	③ CABLE SIZE	⑦ CABLE SIZE	FOR MOTOR
CBL-XHMB1-NN1	CBL-XHMB1-NN1	4 COND, 14 AWG, 600V, 0.42" O.D.	2 COND, 16 AWG, 0.24" O.D.	MAC-NB055B, 080B
CBL-XHMB2-NN2	CBL-XHMB2-NN2	4 COND, 10 AWG, 600V, 0.53" O.D.	2 COND, 16 AWG, 0.24" O.D.	MAC-NB200B
CBL-XHMB3-NN3	CBL-XHMB3-NN3	4 COND, 8 AWG, 600V, 0.72" O.D.	2 COND, 16 AWG, 0.24" O.D.	MAC-NB300B
CBL-XHMB4-NN4	CBL-XHMB4-NN4	4 COND, 12 AWG, 600V, 0.44" O.D.	2 COND, 16 AWG, 0.24" O.D.	MAC-NB100B

EH	DL	-	ORMEC SYSTEMS CORP
DATE	10.31.2014	PART NO.	CBL-XHMBx-NNx
DESIGNER	jwb	TITLE:	N to H series adaptor
DRAWN BY	jwb	Brake adaptor	
APPROVAL	ACAD	METHOD	B CBL-XHMBxNNx-1 1 A

CBL-XHMBa-NMb

**NOTE:**

- PLUG, STRAIGHT
- CABLE CLAMP
- CABLE SIZE .24 O.D.
- MODEL# LABEL, LOCATE APPROX. 1/2 INCH AWAY FROM ENDS OF CABLE  
'NN' IN MODEL# INDICATES LENGTH OF CABLE IN FEET  
MAXIMUM CABLE LENGTH IS 5 FEET.
- LEADS 16 AWG, STRIPPED AND TINNED
- DRAIN WIRE, 18 AWG
- HEAT SHRINK, BLACK

Compatible motors: Ormec N-Series  
Compatible drives: Ormec S2D, XD, SD, SM

EH	DL	-	ORMEC SYSTEMS CORP
DATE	11.05.2014	PART NO.	CBL-XHMB-NB/NN
DESIGNER	jwb	TITLE:	N ser Brake to HMSWB cbl
DRAWN BY	jwb	ASSEMBLY DRAWINGS	
APPROVAL	ACAD2K	METHOD	B CBL-XHMB-NB-1 1 A

CBL-XHMB-NB

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Technical Publication: ORMEC-MKT-0200-02

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