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CM

Open Loop Stepper Motors



Introduction to Leadshine

Leadshine is an internationally renowned brand and industry-leading enterprise in the precision motion control field.

Leadshine is an internationally renowned brand and industry-leading enterprise in the precision motion control field. Since its establishment in 1997, Leadshine has been pursuing the vision of "promoting the upgrade of the equipment manufacture industry and replacing manual labor", and focusing on the R&D, production, sales, and services of high-tech products like servo motor drive systems, stepper motor drive systems, and motion controllers to help customers realize dreams and mutual benefits through consistent, persistent effort. According to the statistics from authoritative research institutions, Leadshine has been the global-leading motion control product supplier in terms of production and sales volume for 10 consecutive years. Thanks to the advantages of stability and reliability, Leadshine products have been long time used by thousands of excellent equipment manufacturers in the electronic equipment manufacturing industry in many countries.



Headquarters(Shenzhen)



Servo Motors Production Base(Shanghai)

Key Numbers for Leadshine

20000000

Over the mature application of more than 20million sets, Leadshine's products still run stably and create benefits without stop.

100000

According to the statistics from third-party authoritative institutions, Leadshine's products have been or are being used by over 100,000 customers till now.

20

Always focuses on the motion control industry for 20 years.

Continuously accumulates for 20 years, industry trend oriented and customer centered Facilitates the development of industries and creates benefits for customers.

Insists on innovation over the past 20 years, and always treats innovation as the core competitive edge and prioritizes forging products with higher stability and performance.

1

China's first professional motion control enterprise.

First one to create Easy servo drive product in China.

The sales volume of stepper motor drives ranked No. 1 in the world all the time.

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NEMA 24 2-phase IP65 waterproof

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3.1 CM Series Stepper Motors
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01 Table for Quickly Selecting CM Series Stepper Motor

1.1 Table for Quickly Selecting

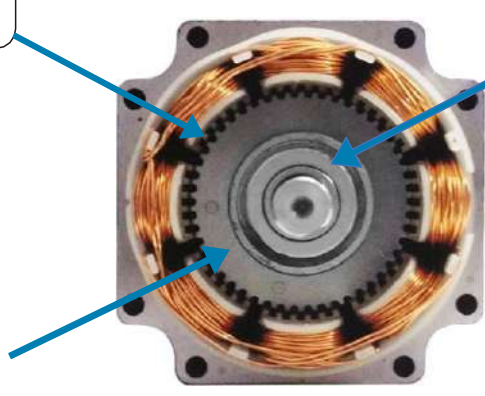
1 CM series stepper motor quickly selecting table

Motor phase	Frame size	Length	Model	Holding Torque N.m, Speed 0~2400rpm																
				0	0.1	0.2	0.5	1	2	4	8	12	20							
2 Phase 1.8°	20mm	33mm	20CM003																	
		45mm	20CM005																	
	28mm	32mm	28CM006																	
		41mm	28CM010																	
	35mm	51mm	28CM013																	
		31mm	35CM015																	
	42mm	47mm	35CM04																	
		33mm	42CM02																	
	42mm	40mm	42CM04																	
		47mm	42CM06																	
		60mm	42CM08																	
	57mm	41mm	57CM06																	
		56mm	57CM13																	
		76mm	57CM23																	
	60mm (D57 Model)	84mm	57CM26																	
		67mm	D57CM21																	
		88mm	D57CM31																	
	57mm (XModele)	55mm	57CM12X																	
		76mm	57CM21X																	
		80mm	57CM22X																	
60mm	68mm	60CM22X																		
	86mm	60CM30X																		
86mm	66mm	86CM35																		
	80mm	86CM45																		
	98mm	86CM80																		
	118mm	86CM85																		
		129mm	86CM120																	

02 CM Series Stepper Motors

2.1 Overview

A stepper motor, as a type of open loop control motor, is a key executive component in mechatronics widely used in various automated control systems. The bands and specifications of stepper motors on the current market are complicated. The stepper motors from Europe, the United States, and Japan are of high price, while Chinese stepper motors are cheaper but not of the same good quality, which troubles equipment manufacturers a lot during selection. Leadshine has always been committed to developing "cost-effective" open loop and closed loop stepper motors. Leadshine integrates relevant technical resources and spends more than one year on research and design and finally creates the brand-new CM series stepper motor. The CM series is high-performance, low-cost stepper motors manufactured by Leadshine using the latest design, latest technique, and imported core materials from Japan. The CM series provides greater torque, lower heat, and better running stability compared with most of stepper motors on the market. As a result of large-scale automated production lines and strict quality management system, this series of stepper motors is more stable, reliable, superior, and consistent.



Large Torque:
Uses the latest magnetic circuit optimization design solution to realize small volume and large torque.

High Stability:
Core components are made of preferential imported materials to ensure the stable and reliable running of the motor.

Low Heat:
Employs high grade and high performance punches to reduce the heat generated by the motor.

High Consistency:
Large-scale automated production lines and strict quality management system ensure the batch consistency of products.

Stepper Motors with Brake

In addition to standard stepper motors, the CM series

also includes the stepper motors with double shaGs, brake, and waterproof to apply to various applications.

Compared with ordinary spring brakes, permanent

magnet brakes produce less noise (no mechanical noise), respond fast (30 ms response time, only 1/10 of that of spring brakes), have a long service life, generate low heat, and consume low power. CM series stepper motor with a brake is configured with the cutting-edge permanent magnet brake that is more suitable for vertical motion and protects better against power failure.



CM Series Stepper Motor

Waterproof Stepper Motors

Different from a standard stepper motor, CM series waterproof stepper motor is protected to **IP65** with its rear cover redesigned, its lead replaced with a waterproof connector, a new type of sealing material used between the front and rear end covers and the motor body, the motor body completely waterproofed, and the shaG end of the motor applied with high-quality oil seal. Therefore CM series waterproof stepper motor is suitable for application with damp, water spray, and oil spray.



Ingress Protection Rating: IP65

Dustproof:
Prevents dust from entering

Waterproof:
Prevents water intrusion from different directions.

Digital Stepper Drives Introduction

Leadshine digital stepper drives are comprehensively upgraded from the electrical parameters of CM series stepper motor, and will perform better by working with CM series stepper motor.



2.2 Part Number

57 CM 06 — (—A)

① ② ③ ④ ⑤ ⑥ ⑦

① Motor Frame Size

42: NEMA 17 motor
57: NEMA 23 motor
D57: NEMA 23 motor with larger body
60: NEMA 24 motor
86: NEMA 34 motor

② Motor Phase

Blank: 2 phase motor
3 : 3 phase motor

④ Holding Torque

For NEMA 8/11/14 motor: Divide the value by 100
044 : 0.44N.m

For NEMA 17/23/24/34 motor: Divide the value by 10
06: 0.6N.m

⑤ Motor Rate Current

Blank: Standard rate current
4A : Rate current 4A

⑥ Standard Customized Specification

SZ : Double shaft motor
BZ : Brake motor
FS : Waterproof motor

⑦ Customized model

Specifications

Step Angle	1.8°
Position Accuracy	±0.09°
Temp Rise(Max.)	Max. 85K
Operation Environment	Temperature: -10°C+50°C ; Humidity: 85% Max
Insulation Class	B
Insulation Resistance	MIN 100 M Ω , 500 V DC
Dielectric Strength	500 VAC, 1 min
Radial Play	0.025 mm Max. (Load 5N)
Axial Play	0.075 mm Max. (Load 10N)

Motor Size	NEMA17	NEMA23	NEMA24	NEMA34
Store Temperature	-10°C+50°C			
Store Humidity	85% Max.			
Operation Environment	Non-corrosive gas and dust; No direct contact with water, oil (except the waterproof type)			
Radial Load(N) (Distance to the flange 10mm)	30	75	90	300
Axial Load(N)	Less than motor weight			

2.3 Motor Specifications

NEMA 8 2-phase

Overview:

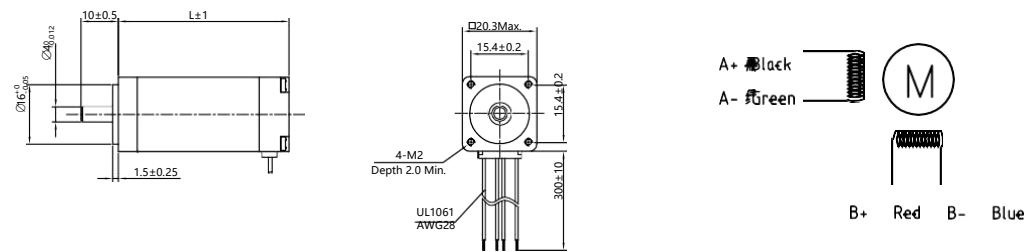
CM series NEMA 8 two-phase stepper motor covers two types of standard motors: 0.03 N.m and 0.05 N.m.

Note: In such specifications tables, (**) represents recommended models with permanent inventory;



Standard Model:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg.cm ²)	Matching Drives
33	20CM003	0.03	0.6	5.7	2.6	0.003	EM415S
45	20CM005	0.05	0.6	7	3.4	0.004	EM415S

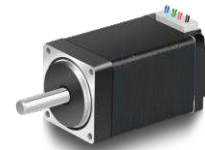


NEMA 11 2-phase

Overview:

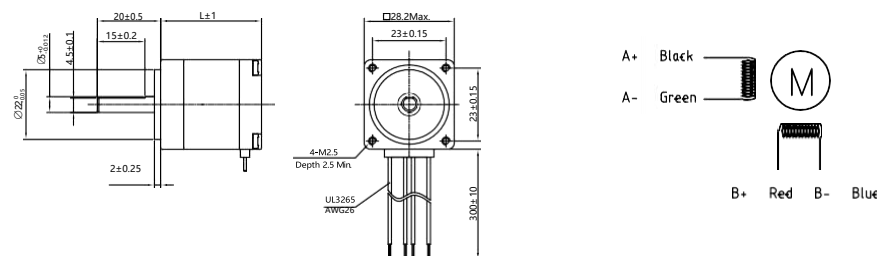
CM series NEMA 11 two-phase stepper motor covers multiple types of standard motors from 0.06 Nm to 0.13 Nm.

Note: In such specifications tables, (**) represents recommended models with permanent inventory;



Standard Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg.cm ²)	Matching Drives
32	28CM006	0.06	1.2	1.4	1.0	0.009	EM415S
41	28CM010	0.1	1.2	1.8	1.6	0.013	EM415S
51	28CM013	0.13	1.2	2.2	2.3	0.018	EM415S



NEMA 14 2-phase

Overview:

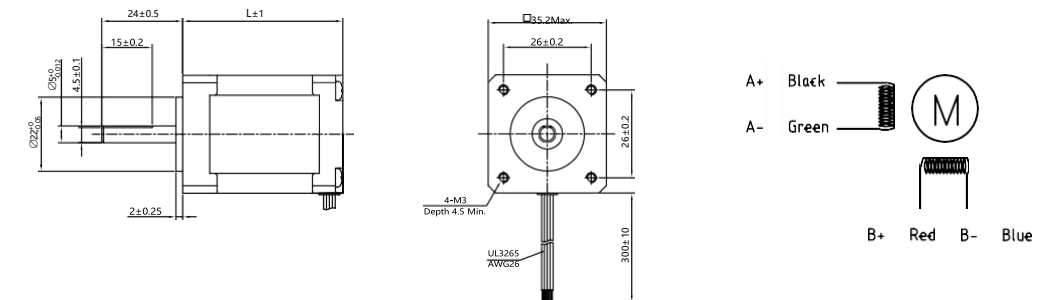
CM series NEMA 14 two-phase stepper motor covers two types of standard motors: 0.15 N.m and 0.4 N.m.

Note: In such specifications tables, (**) represents recommended models with permanent inventory;



Standard Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg.cm ²)	Matching Drives
31	35CM015	0.15	2	0.8	1.3	0.019	EM422S
47	35CM04	0.36	2	1.2	1.9	0.026	EM422S



NEMA 17 2-phase

Overview:

CM series NEMA 17 two-phase stepper motor covers multiple types of standard motors from 0.2 Nm to 0.8 Nm.

Note: In such specifications tables, (**) represents recommended models with permanent inventory;



NEMA 23 2-phase

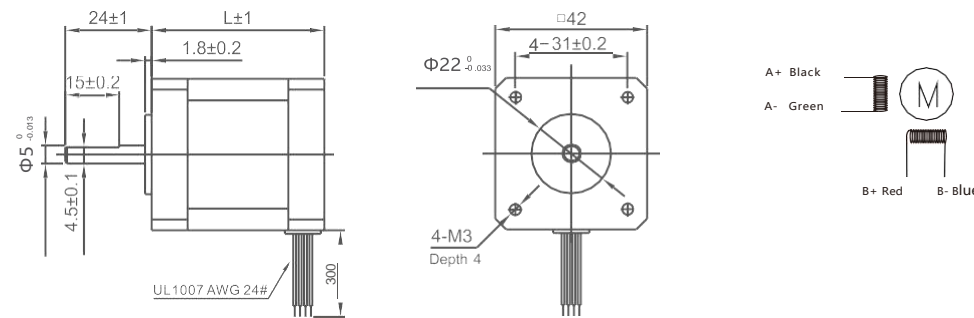
Overview:

CM series NEMA 23 (including the Large NEMA 23) two-phase stepper motor covers multiple types of standard motors from 0.6 N.m to 3.1 N.m, along with the motors with double shafts, brake, and waterproof to apply to various applications.



Standard Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg cm ²)	Matching Drives
33	42CM02-1A	0.21	1	4.5	6.5	0.035	EM415S
	42CM02	0.21	1.5	1.4	1.4	0.035	EM422S
40	42CM04-1A	0.4	1	4.0	7.9	0.054	EM415S
	42CM04	0.4	1.5	2.3	4.3	0.054	EM422S
47	42CM06-1A	0.6	1.5	2.2	4.5	0.072	EM422S
	42CM06	0.6	2.5	0.9	1.6	0.072	EM432S
60	42CM08-1A	0.8	1.5	3.0	6.9	0.110	EM422S
	42CM08	0.8	2.5	1.0	2.4	0.110	EM432S

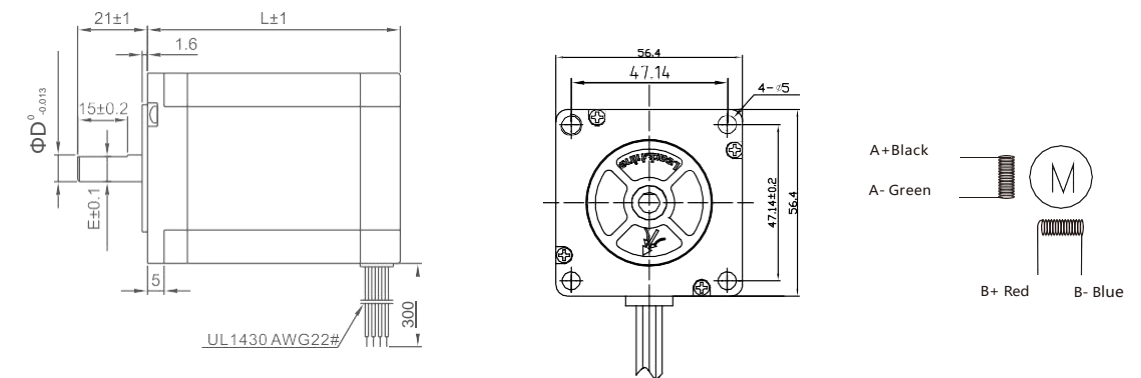


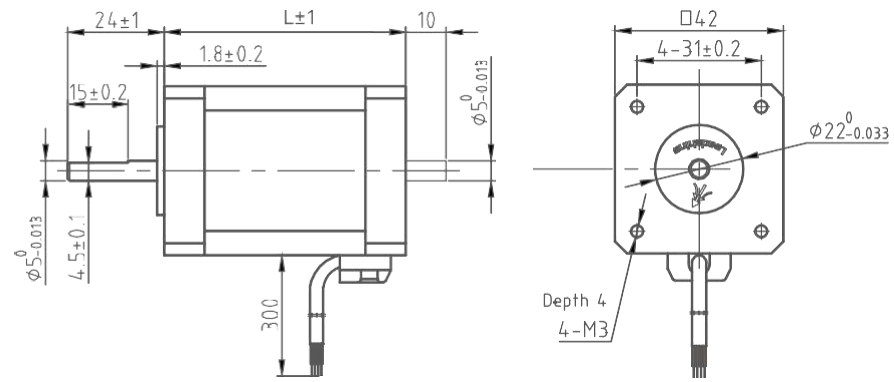
Double Shafts Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg cm ²)	Matching Drives
47	42CM06-SZ	0.6	2.5	0.9	1.6	0.072	EM432S
60	42CM08-SZ	0.8	2.5	1.0	2.4	0.110	EM432S

Standard Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Detent Torque	Inertia (Kg cm ²)	Matching Drives
41	57CM06	0.6	3	0.7	1.4	0.02	0.12	EM542S
55	57CM13-3A	1.3	3	0.8	2.8	0.04	0.3	EM542S
	57CM13	1.3	4	0.42	1.6			EM542S/EM556S
	57CM12X	1.2	4	0.6	1.4			EM542S/EM556S
76	57CM21X	2.1	4	0.6	2.4	0.07	0.48	EM542S/EM556S
	57CM23-3A	2.1	3	1.1	4.2			EM542S
76	57CM23-4A	2.3	4	0.5	2	0.07	0.5	EM542S/EM556S
	57CM23	2.3	5	0.38	1.75			EM556S
80	57CM22X	2.2	5	0.34	1.74	0.07	0.5	EM556S/EM870S
85	57CM26-4A	2.6	4	0.8	3.2	0.08	0.52	EM542S/EM556S
	57CM26	2.6	5	0.44	2			EM556S/EM870S

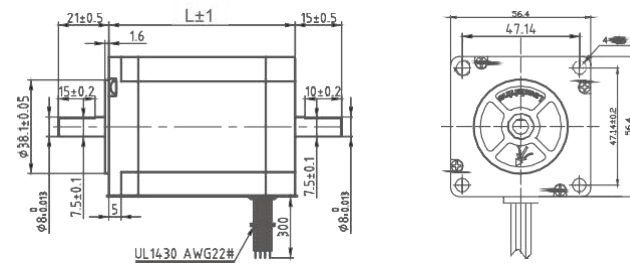




Model	L(mm)	D(mm)	E(mm)
57CM06	41	6.35	6.85
57CM13	55	6.35	6.85
57CM13-3A	55	6.35	6.85
57CM23	76	8	8.5
57CM23-3A	76	8	8.5
57CM23-4A	76	8	8.5
57CM23-4A-0-16	76	6.35	6.85
57CM26	84	8	8.5
57CM26-4A	84	8	8.5
57CM26-4A-0-16	84	6.35	6.85

Double Shafts Models:

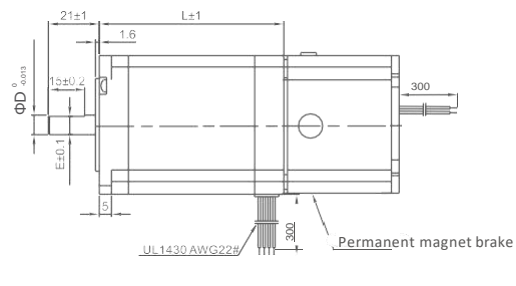
Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Detent Torque(N.m)	Inertia (Kg.cm ²)
55	57CM13-SZ	1.3	4	0.42	1.6	0.04	0.3
76	57CM23-SZ	2.3	5	0.38	1.75	0.07	0.48
84	57CM26-SZ	2.6	5	0.44	2	0.08	0.52



Model	L(mm)	D(mm)	E(mm)
57CM13-SZ	56	6.35	5.8
57CM23-SZ	80	8	7.5
57CM26-SZ	84	8	7.5

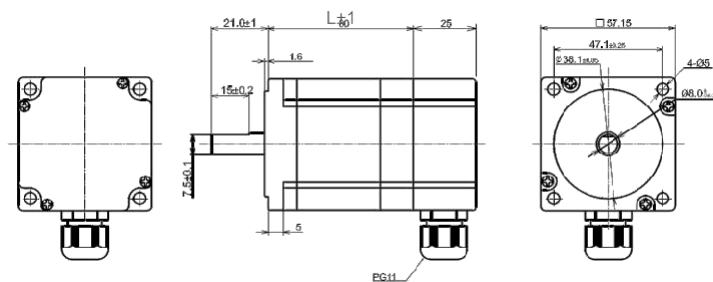
Brake Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Detent Torque(N.m)	Inertia (Kg.cm ²)
96	57CM13-BZ	1.3	4	0.42	1.6	0.04	0.3
116	57CM23-BZ	2.3	5	0.38	1.75	0.06	0.48



Waterproof Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Detent Torque(N.m)	Inertia (Kg.cm ²)
65	57CM13-FS	1.3	4	0.42	1.6	0.04	0.3
90	57CM23-FS	2.3	5	0.38	1.75	0.06	0.48



NEMA 23(Continuous) 2-phase

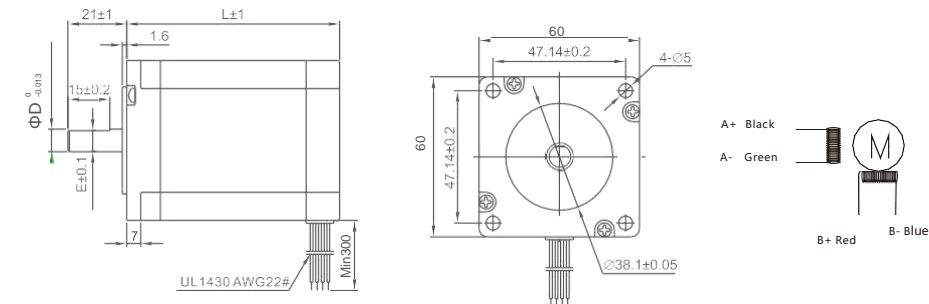
Overview:

CM series larger NEMA 23 two-phase stepper motors have the external size of NEMA 24 motor, but the installation of NEMA 23 motors. there are two types of standard motors: 2.1 N.m and 3.1 N.m.



Standard Models:

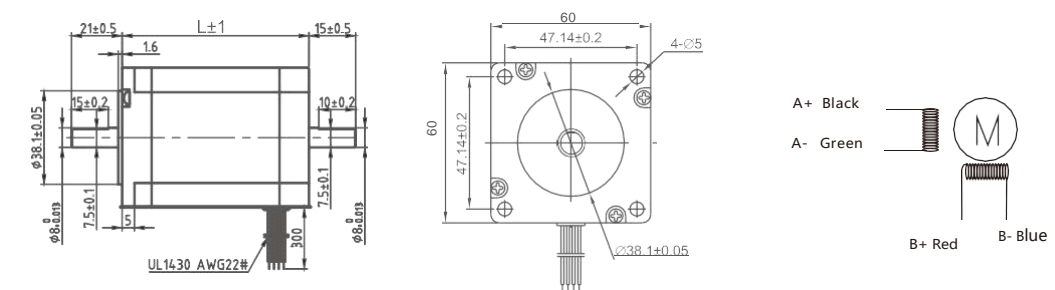
Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Detent Torque(N.m)	Inertia (Kg.cm ²)	Matching Drives
67	D57CM21-4A	2.1	4	0.5	1.77	0.09	0.57	EM556S
	D57CM21	2.1	5	0.21	0.75			EM556S/EM870S
88	D57CM31-4A	3.1	4	0.62	2.8	0.10	0.84	EM556S
	D57CM31	3.1	5	0.26	1.18			EM556S/EM870S



Model	L(mm)	D(mm)	E(mm)
D57CM21	67	8	7.5
D57CM31	88	8	7.5

Double Shafts Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Detent Torque(N.m)	Inertia (Kg.cm ²)
67	D57CM21-SZ	2.1	5	0.21	0.75	0.09	0.57
88	D57CM31-SZ	3.1	5	0.26	1.18	0.10	0.84



NEMA 24 2-phase

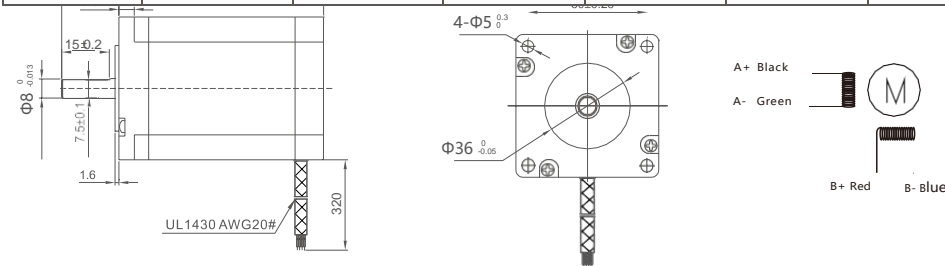
Overview:

CM series NEMA 24 two-phase stepper motor covers two types of standard motors: 2.2 N.m and 3.0 N.m.



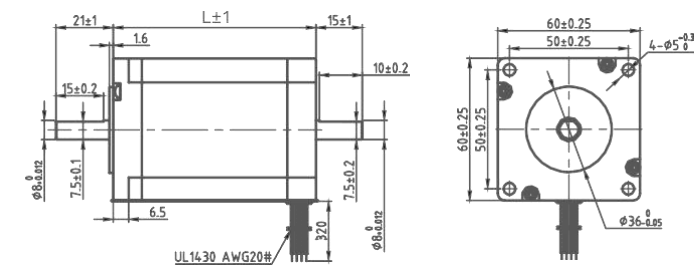
Standard Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Detent Torque(N.m)	Inertia (Kg.cm ²)	Matching Drives
67	60CM22X (*)	2.2	5	0.33	1.05	0.07	0.49	EM556S/EM870S
85	60CM30X (*)	3.0	5	0.46	2.0	0.08	0.69	EM556S/EM870S



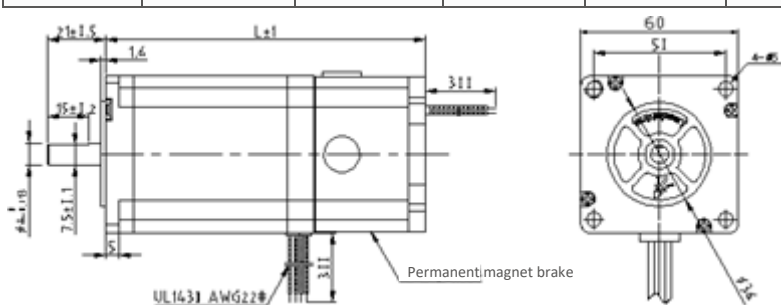
Double Shafts Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Detent Torque(N.m)	Inertia (Kg.cm ²)
67	60CM22X-SZ	2.2	5	2.2	1.05	0.07	0.49
85	60CM30X-SZ	3.0	5	3.0	2.0	0.08	0.69



Brake Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Detent Torque(N.m)	Inertia (Kg.cm ²)
107	60CM22X-BZ	2.2	5	2.2	1.05	0.07	0.49
125	60CM30X-BZ	3.0	5	3.0	2.0	0.08	0.69



NEMA 34 2-phase

Overview:

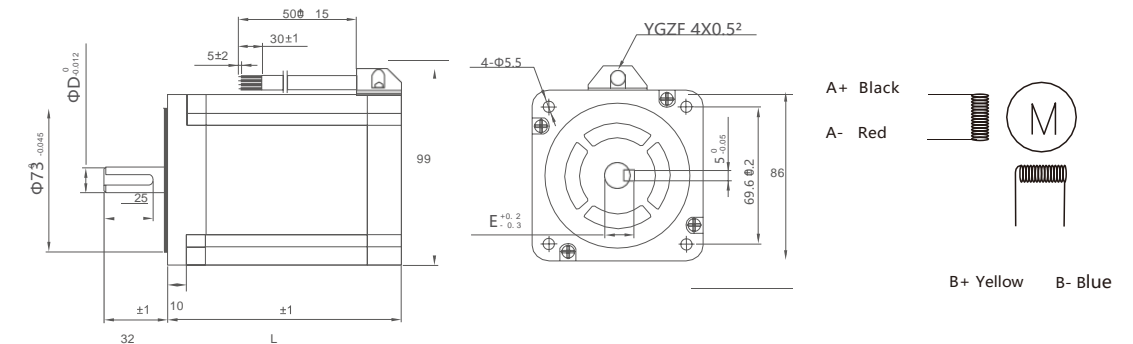
CM series NEMA 34 two-phase stepper motor covers multiple types of standard motors from 3.5 N.m to 12 N.m, along with the motors with double shafts, brake, and waterproof system to apply to various scenarios.



Note: In such specifications tables, (**) represents recommended models with permanent inventory; (*) represents the models with permanent inventory. Models with temporary inventory are stocked for four to six weeks.

Standard Models:

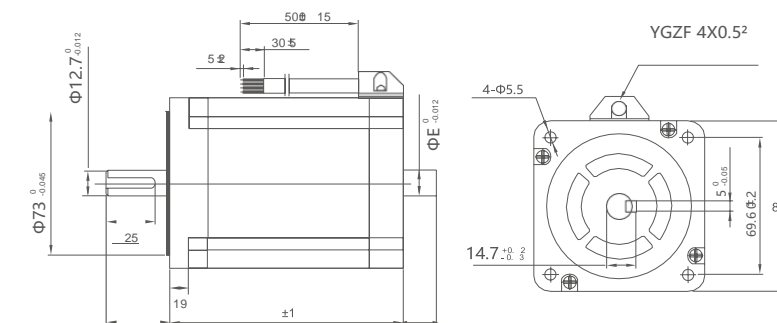
Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg.cm ²)	Matching Drives
65	86CM35	3.5	4	0.42	2.67	1.00	EM556S/EM870S
80	86CM45	4.5	6	0.43	2.95	1.40	EM880S/EM882S
98	86CM80	8.0	6	0.63	4.0	2.50	EM880S/EM882S
118	86CM85	8.5	6	0.53	4.25	2.70	EM880S/EM882S
129	86CM120	12.0	6	0.75	5.30	2.94	EMA882S



Model	L(mm)	D(mm)	E(mm)
86CM35	65	12.7	14.7
86CM45	80	12.7	14.7
86CM80	98	12.7	14.7
86CM85	118	12.7	14.7
86CM120	129	14	16

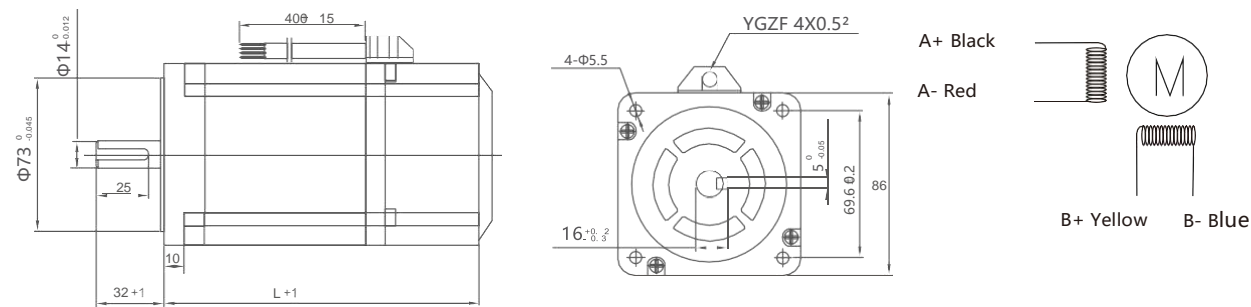
Double Shafts Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg.cm ²)	Matching Drives
80	86CM45-SZ	4.5	6	0.43	2.95	1.40	EM880S/EM882S
118	86CM85-SZ	8.5	6	0.53	4.25	2.70	EM880S/EM882S



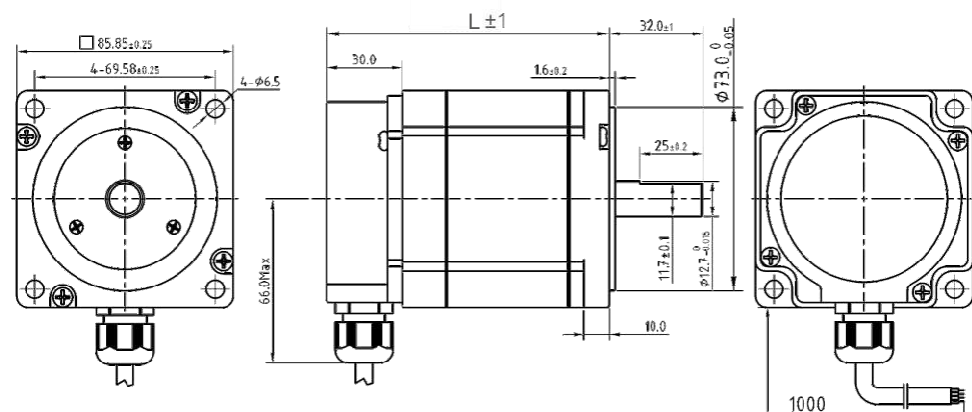
Brake Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg cm ²)	Matching Drives
114	86CM45-BZ	4.5	6	0.43	2.95	1.40	EM880S/EM882S
132	86CM80-BZ	8.0	6	0.63	4.0	2.50	EM880S/EM882S
152	86CM85-BZ	8.5	6	0.53	4.25	2.70	EM880S/EM882S
163	86CM120-BZ	12.0	6	0.75	5.30	2.94	EMA882S

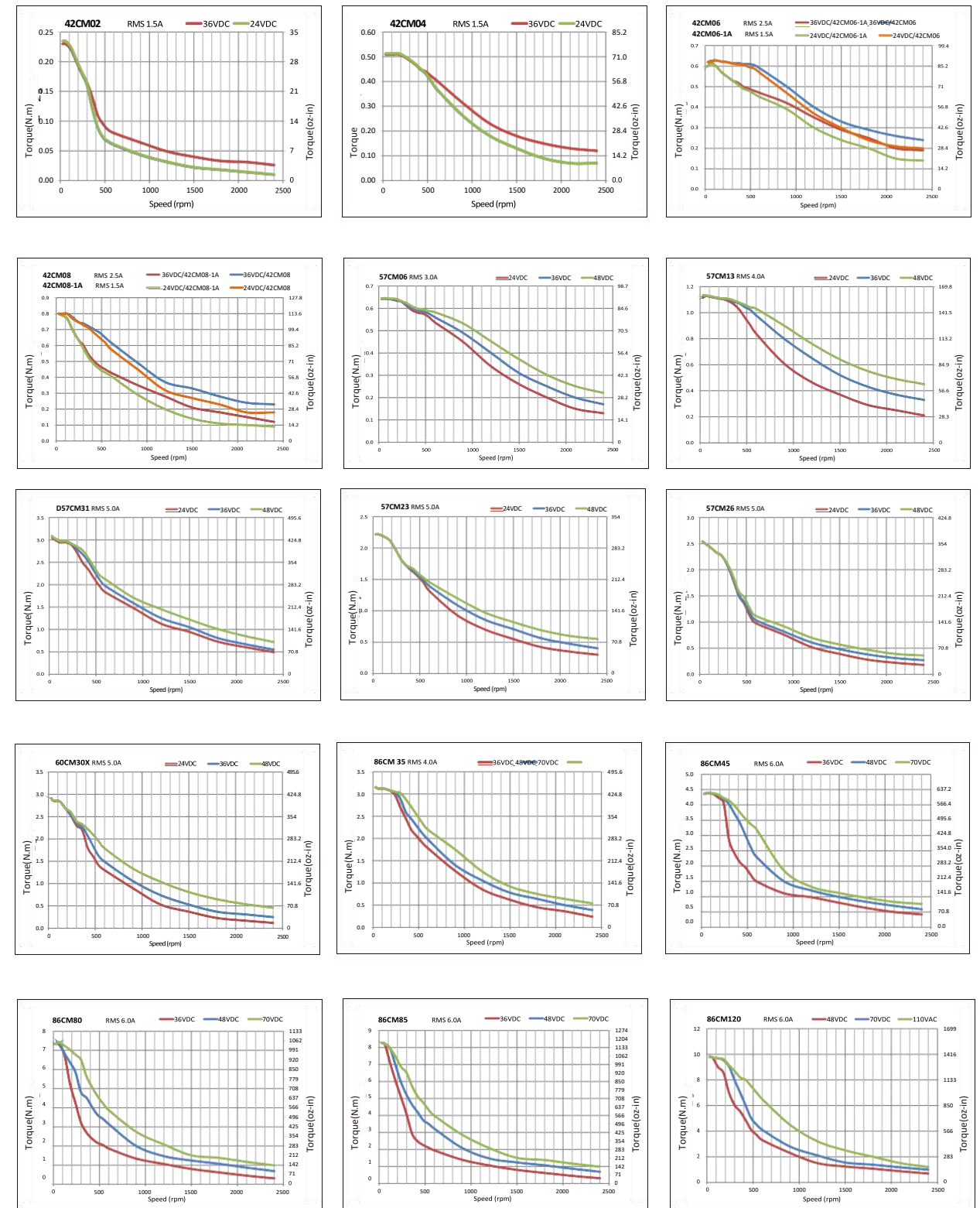


Waterproof Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg cm ²)	Matching Drives
90	86CM45-FS	4.5	6	0.43	2.95	1.40	EM880S/EM882S
108	86CM80-FS	8.0	6	0.63	4.0	2.50	EM880S/EM882S
128	86CM85-FS	8.5	6	0.53	4.25	2.70	EM880S/EM882S
139	86CM120-FS	12.0	6	0.75	5.30	2.94	EMA882S



Speed Torque Curves:



CM Series Stepper Motors

Step Angle	Frame Size	Length	Model	Rate Current	Holding Torque	Matching Drives	Remark
2-Phase 1.8°	NEMA 8	33mm	20CM003	0.6A	0.03Nm	EM415S	
		45mm	20CM005	0.6A	0.05Nm	EM415S	
	NEMA 11	32mm	28CM006	1.2A	0.06Nm	EM415S	
		41mm	28CM010	1.2A	0.1Nm	EM415S	
		51mm	28CM013	1.2A	0.13Nm	EM415S	
	NEMA 14	31mm	35CM015	2A	0.15Nm	EM422S	
		47mm	35CM04	2A	0.4Nm	EM422S	
	NEMA 17	33mm	42CM02-1A	1A	0.2Nm	EM415S	
			42CM02	1.5A	0.2Nm	EM422S	
		40mm	42CM04-1A	1A	0.4Nm	EM415S	
			42CM04	1.5A	0.4Nm	EM422S	
		47mm	42CM06-1A	1.5A	0.6Nm	EM422S	
			42CM06	2.5A	0.6Nm	EM432S	Performance in high-speed
			42CM06-SZ	2.5A	0.6Nm	EM432S	Motor with dual shaft
		60mm	42CM08-1A	1.5A	0.8Nm	EM422S	
			42CM08	2.5A	0.8Nm	EM432S	Performance in high-speed
		42CM08-SZ	2.5A	0.8Nm	EM432S	Motor with dual shaft	
	NEMA 23	41mm	57CM06	3A	0.6Nm	EM542S	
		56mm	57CM13	4A	1.3 Nm	EM556S	
			57CM13-SZ	4A	1.3 Nm	EM556S	Motor with dual shaft
			57CM13-BZ	4A	1.3 Nm	EM556S	Motor with brake
			57CM13-FS	4A	1.3 Nm	EM556S	Motor with waterproof
		76mm	57CM23-4A	4A	2.3 Nm	EM556S	
			57CM23	5A	2.3 Nm	EM556S/EM870S	Performance in high-speed
			57CM23-SZ	5A	2.3 Nm	EM556S/EM870S	Motor with dual shaft
			57CM23-BZ	5A	2.3 Nm	EM556S/EM870S	Motor with brake
			57CM23-FS	5A	2.3 Nm	EM556S/EM870S	Motor with waterproof
		84mm	57CM26-4A	4A	2.6 Nm	EM556S	
			57CM26	5A	2.6 Nm	EM556S/EM870S	Performance in high-speed
	57CM26-SZ		5A	2.6 Nm	EM556S/EM870S	Motor with dual shaft	

03 Ordering Information

Step Angle	Frame Size	Length	Model	Rate Current	Holding Torque	Matching Drives	Remark
2-Phase 1.8°	NEMA 23	67mm	D57CM21-4A	4A	2.1 Nm	EM556S	
			D57CM21	5A	2.1 Nm	EM556S/EM870S	Performance in high-speed
			D57CM21-SZ	5A	2.1 Nm	EM556S/EM870S	
		88mm	D57CM31-4A	4A	3.1 Nm	EM556S	
			D57CM31	5A	3.1 Nm	EM556S/EM870S	Performance in high-speed
			D57CM31-SZ	5A	3.1 Nm	EM556S/EM870S	Motor with dual shaft
	NEMA 23	55mm	57CM12X	4A	1.2 Nm	EM556S	
		76mm	57CM21X	5A	2.1 Nm	EM556S/EM870S	
		80mm	57CM22X	5A	2.2 Nm	EM556S/EM870S	
	NEMA 34	68mm	60CM22X	5A	2.2 Nm	EM556S/EM870S	Motor with dual shaft
			60CM22X-SZ	5A	2.2 Nm	EM556S/EM870S	Motor with brake
			60CM22X-BZ	5A	2.2 Nm	EM556S/EM870S	
		86mm	60CM30X	5A	3.0 Nm	EM556S/EM870S	
			60CM30X-SZ	5A	3.0 Nm	EM556S/EM870S	Motor with dual shaft
			60CM30X-BZ	5A	3.0 Nm	EM556S/EM870S	Motor with brake
		66mm	86CM35	4A	4.0 Nm	EM556S/EM870S	
		80mm	86CM45	6A	4.5 Nm	EM880S/EM882S	
			86CM45-SZ	6A	4.5 Nm	EM880S/EM882S	Motor with dual shaft
			86CM45-BZ	6A	4.5 Nm	EM880S/EM882S	Motor with brake
			86CM45-FS	6A	4.5 Nm	EM880S/EM882S	Motor with waterproof
		98mm	86CM80	6A	8.0 Nm	EM880S/EM882S	
		118mm	86CM85	6A	8.5 Nm	EM880S/EM882S	
			86CM85-SZ	6A	8.5 Nm	EM880S/EM882S	Motor with dual shaft
			86CM85-BZ	6A	8.5 Nm	EM880S/EM882S	Motor with brake
86CM85-FS	6A	8.5 Nm	EM880S/EM882S	Motor with waterproof			
129mm	86CM120	6A	12 Nm	EMA882S			