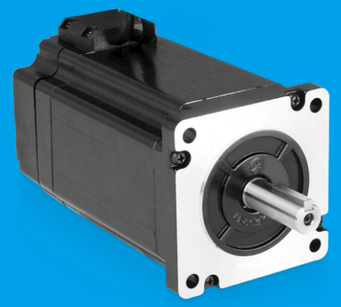
CS-M Series

Closed Loop Stepper Motor

- Replace ES-M series easy servo motor
- Frame size of NEMA 8 to 34
- High reliability and high precision
- Reliable encoder solution



Introduction

CS-M series closed loop stepper motor integrated the CM series stepper motor and encoder, which can provide large torque, low heat and reliable position feedback signals. CS-M series also includes the types with brake, waterproof and different resolution. As a result of large-scale automated production lines and strict quality management system, CS-M series motors are more stable, reliable, superior, consistent and has a lower lost. Most of ES-M easy servo motors will be replaced by CS-M motors.

Encoder Specifications

Encoder Resolution	1000 ppr, 2500 ppr, 5000 ppr
Encoder Current	Typical 56mA /Max. 59mA
Low Level	0.4v@20mA Max
High Level	2.4v@-20mA Min

Motor Specifications

Step Angle	1.8°
Position Accuracy	±0.09°
Temp Rise(Max.)	Max. 85K
Operation Environment	Temperature：-10℃+50℃；Humidity: 85% Max
Insulation Class	B
Insulation Resistance	MIN 100 MΩ，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)

Installation & Operation Conditions

Motor Size	NEMA17	NEMA23	NEMA24	NEMA34
Store Temperature	-10℃+50℃			
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			

ATB Automation
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Closed Loop Stepper Motor Overview

1. Below matched drives are Pulse Control type, EtherCAT and Modbus RS485 types are also available;
2. 3-phase high voltage closed loop stepper motors are ES2-MH series, others are CS-M series;
3. Contact Leadshine for other model such as NEMA 8 to NEMA14 motors, inch shaft diameter, etc.

Phase/ Series	Frame Size	Length(mm)	Model	Holding Torque (N.m)	Matching Drives	Remark
2-phase/ CS-M	NEMA 17	56	CS-M21702	0.2	CS1-D507	
		63	CS-M21704	0.4	CS1-D507	This motor is not recommended
		70	CS-M21706	0.6	CS1-D507	
		83	CS-M21708	0.8	CS1-D507	
	NEMA 23	60	CS-M22306	0.6	CS1-D507	
		75	CS-M22313	1.3	CS1-D507	Replace ES-M22310
		109	CS-M22313B	1.3	CS1-D507	Motor with brake
		94	CS-M22313WP	1.3	CS1-D507	Motor with waterproof
		95	CS-M22323	2.3	CS1-D507	Replace ES-M22320
		131	CS-M22323B	2.3	CS1-D507	Motor with brake
		115	CS-M22323WP	2.3	CS1-D507	Motor with waterproof
		103	CS-M22326	2.6	CS1-D507	
		86	CS-M22321-L	2.1	CS1-D507	NEMA23 motor with large body
		105	CS-M22331-L	3.1	CS1-D507	NEMA23 motor with large body
	NEMA 24	89	CS-M22422	2.2	CS1-D507	
		129	CS-M22422B	2.2	CS1-D507	Motor with brake
		113	CS-M22422WP	2.2	CS1-D507	Motor with waterproof
		107	CS-M22430	3.0	CS1-D507	
		143	CS-M22430B	3.0	CS1-D507	Motor with brake
		130	CS-M22430WP	3.0	CS1-D507	Motor with waterproof
	NEMA 34	95	CS-M23435	3.5	CS-D808	
		109	CS-M23445	4.5	CS-D808	
		134	CS-M23445B	4.5	CS-D808	Motor with brake
		115	CS-M23445WP	4.5	CS-D808	Motor with waterproof
		127	CS-M23480	8.0	CS-D808	
		152	CS-M23480B	8.0	CS-D808	Motor with brake
		133	CS-M23480WP	8.0	CS-D808	Motor with waterproof
		147	CS-M23485	8.5	CS-D808	
		172	CS-M23485B	8.5	CS-D808	Motor with brake
		153	CS-M23485WP	8.5	CS-D808	Motor with waterproof
		158	CS-M234120	12	CS-D808	
		183	CS-M234120B	12	CS-D808	Motor with brake
		164	CS-M234120WP	12	CS-D808	Motor with waterproof
3-phase/ ES2-MH	NEMA 34	157	ES2-MH33480	8.0	ES2-3DA2306	
		190	ES2-MH33480B	8.0	ES2-3DA2306	Motor with brake
		162	ES2-MH33480WP	8.0	ES2-3DA2306	Motor with waterproof
		184	ES2-MH334100	10	ES2-3DA2306	
		218	ES2-MH334100B	10	ES2-3DA2306	Motor with brake
		191	ES2-MH334100WP	10	ES2-3DA2306	Motor with waterproof
	NEMA 42	162	ES2-MH342120	12	ES2-3DA2306	
		207	ES2-MH342120B	12	ES2-3DA2306	Motor with brake
		167	ES2-MH342120WP	12	ES2-3DA2306	Motor with waterproof
		244	ES2-MH342200	20	ES2-3DA2306	

Note: Contact Leadshine for Gearboxes and Encoder information.

Closed Loop Stepper Motors

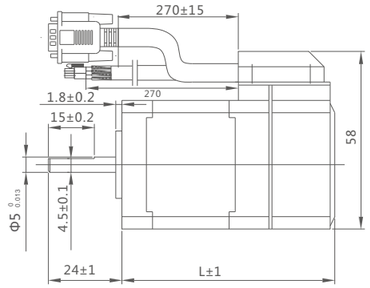
Closed Loop Stepper Motor Specifications

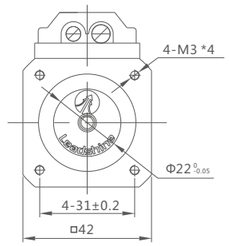
NEMA 17 (42mm)

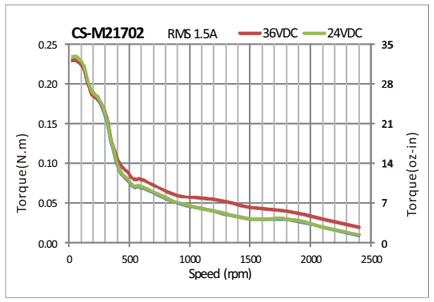
Standard Models:

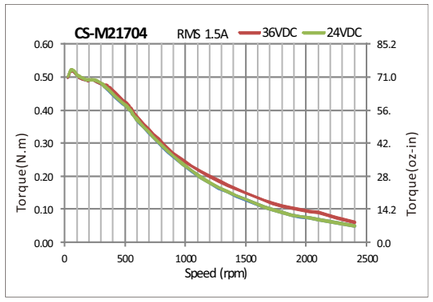
Model	Length (mm)	Holding torque (N·m)	Rated current (A)	Inertia ($Kg·cm^2$)
CS-M21702	56	0.2	1.5	0.023
CS-M21704	63	0.4	1.5	0.045
CS-M21706	70	0.6	2.5	0.077
CS-M21708	83	0.8	2.5	0.11

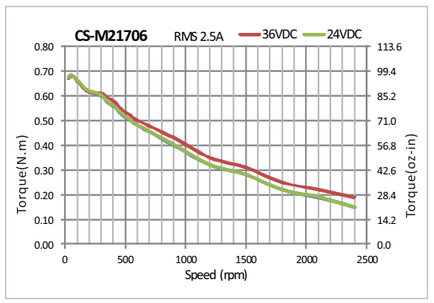
Unit: mm 1inch=25.4mm

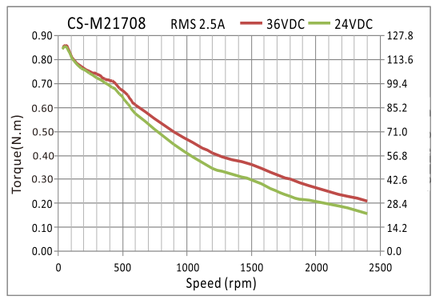










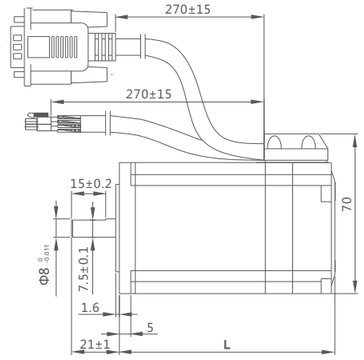


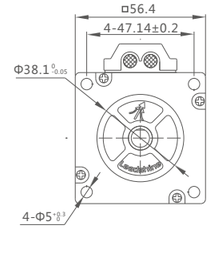
NEMA 23 (57mm)

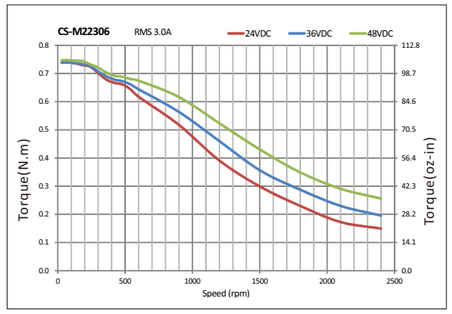
Standard Models:

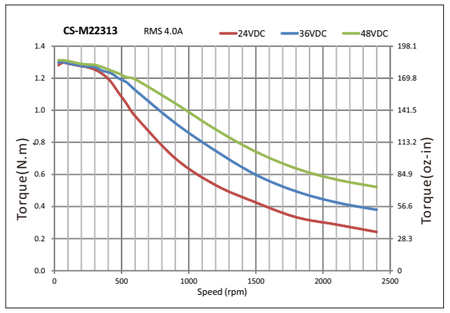
Model	Length (mm)	Holding torque (N·m)	Rated current (A)	Inertia ($Kg·cm^2$)
CS-M22306	60	0.6	3.0	0.131
CS-M22313	75	1.3	4.0	0.3
CS-M22323	95	2.3	5.0	0.48
CS-M22326	103	2.6	5.0	0.7

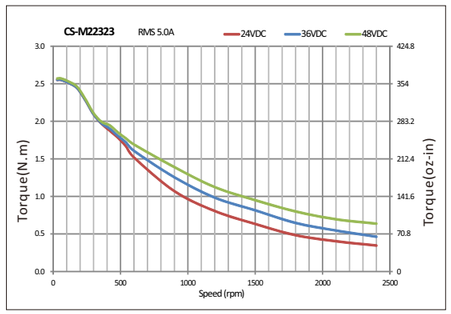
Unit: mm 1inch=25.4mm

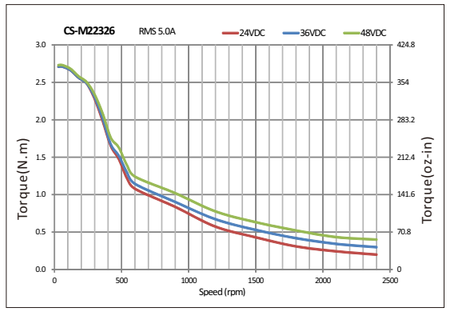










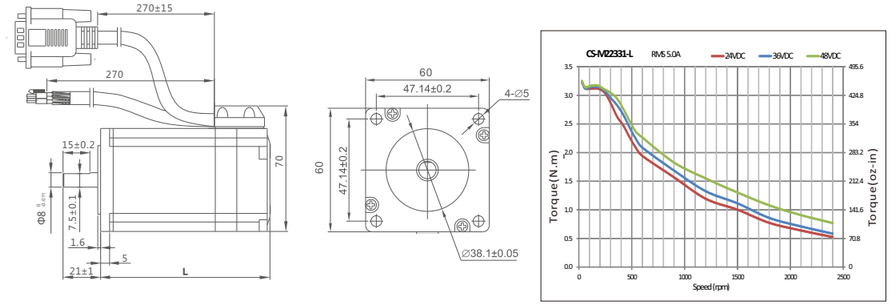


NEMA 23 (57mm)

Standard Models:

Model	Length (mm)	Holding torque (N·m)	Rated current (A)	Inertia ($Kg·cm^2$)
CS-M22321-L	86	2.1	5.0	0.49
CS-M22331-L	105	3.1	5.0	0.69

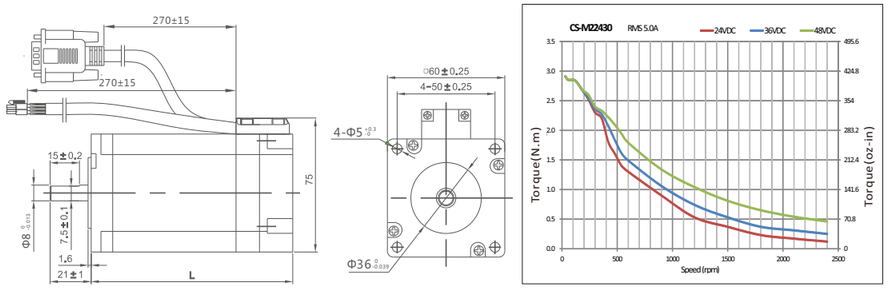
Unit: mm 1inch=25.4mm



NEMA 24 (60mm)

Standard Models:

Model	Length (mm)	Holding torque (N·m)	Rated current (A)	Inertia ($Kg·cm^2$)
CS-M22422	86	2.2	5.0	0.49
CS-M22430	103	3.0	5.0	0.69

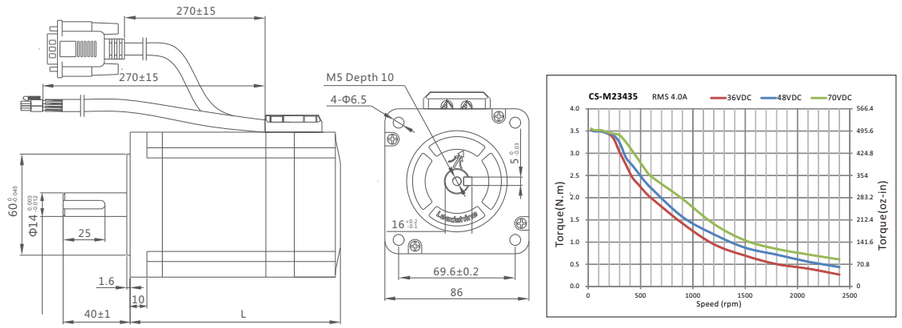


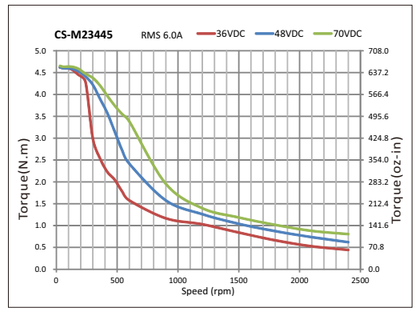
NEMA 34 (86mm)

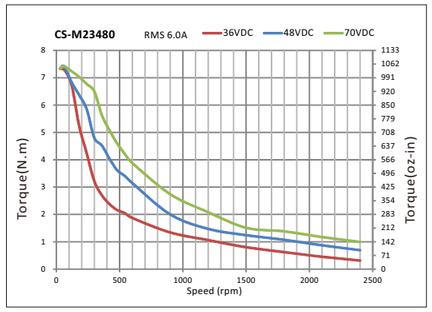
Standard Models:

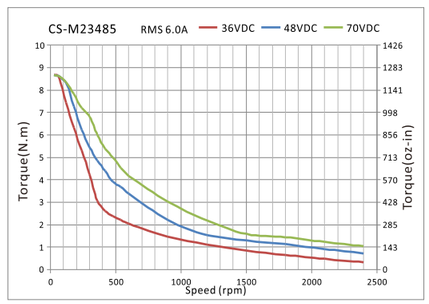
Model	Length (mm)	Holding torque (N·m)	Rated current (A)	Inertia ($Kg·cm^2$)
CS-M23435	95	3.5	4.0	1.0
CS-M23445	109	4.5	6.0	1.95
CS-M23480	127	8.0	6.0	2.5
CS-M23485	147	8.5	6.0	2.8
CS-M234120	158	12.0	6.0	3.0

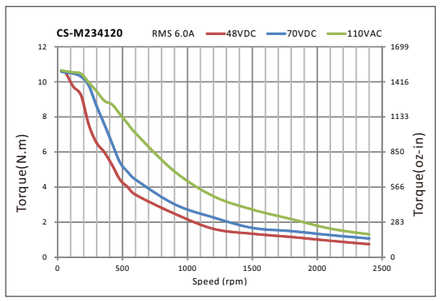
Unit: mm 1inch=25.4mm











3-phase: NEMA 34, 42

Standard Models:

Model	Length (mm)	Holding torque (N·m)	Rated current (A)	Inertia ($Kg·cm^2$)
ES2-MH33480	158	8.0	6.0	3.0
ES2-MH334100	185	10.0	6.0	3.0
ES2-MH342120	162	12.0	4.2	10.8
ES2-MH342200	244	20.0	5.2	17

Unit: mm 1inch=25.4mm