



CS-M

Closed Loop Stepper Motors

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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 electronics, robotics, machine tools, laser, health care, and textiles industries and exported to over 60 countries.



Headquarters(Shenzhen)



Servo Motors Production Base(Shanghai)

Key Numbers for Leadshine

20000000

Over the mature application of more than 20 million 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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- 3.1 CS-M Series Closed Loop Stepper Motors -----

Encoder Specifications

Encoder Resolution	1000PPR (4000CPR)
Encoder Current	Typical 56mA /Max. 59mA
Low Level	0.4v@20mA Max
High Level	2.4v@-20mA Min

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 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°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 17 Closed Loop

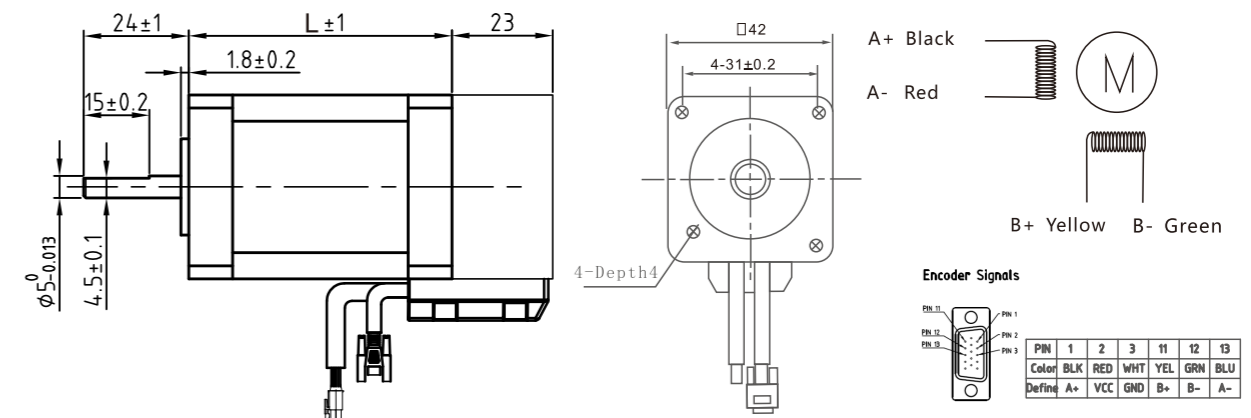
Overview:

CS-M series NEMA 17 closed loop stepper motor covers multiple types of standard motors from 0.2 N.m to 0.8 N.m.



Standard Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg.cm ²)
56	CS-M21702	0.2	1.5	1.4	1.4	0.035
62	CS-M21704	0.4	1.5	2.3	4.3	0.054
70	CS-M21706	0.6	2.5	0.9	1.6	0.072
83	CS-M21708	0.8	2.5	1.0	2.4	0.110



NEMA 23 Closed Loop

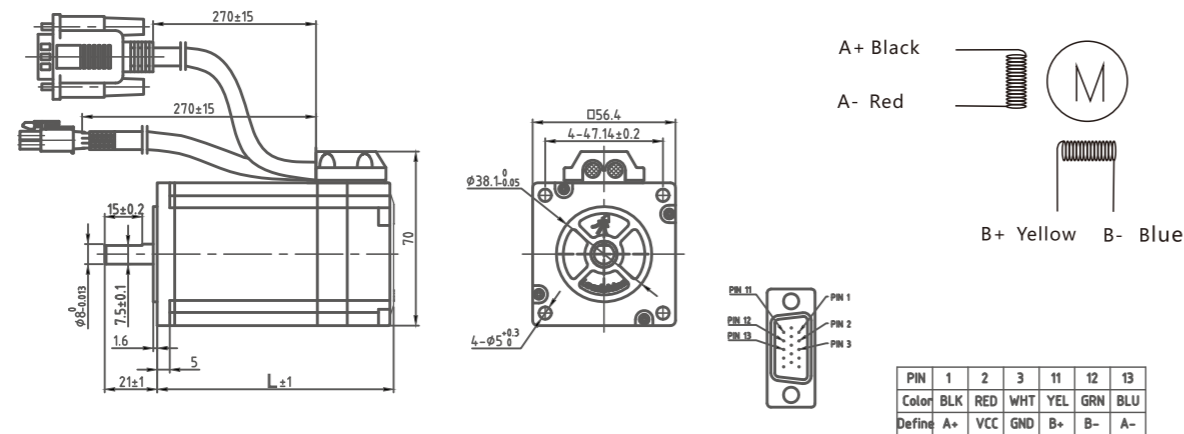
Overview:

CS-M series NEMA 23 stepper motor covers multiple types of standard motors from 0.6 N.m to 2.6 N.m, along with the motors with double shafts, brake, and waterproof system to apply to various scenarios.



Standard Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg cm ²)
60	CS-M22306	0.6	3	0.7	1.4	0.120
75	CS-M22313	1.3	4	0.42	1.6	0.300
78	CS-M22312	1.2	4	0.6	1.4	0.300
99	CS-M22321	2.1	5	0.6	2.4	0.480
96	CS-M22323	2.3	5	0.38	1.75	0.480
104	CS-M22326	2.6	5	0.44	2	0.520



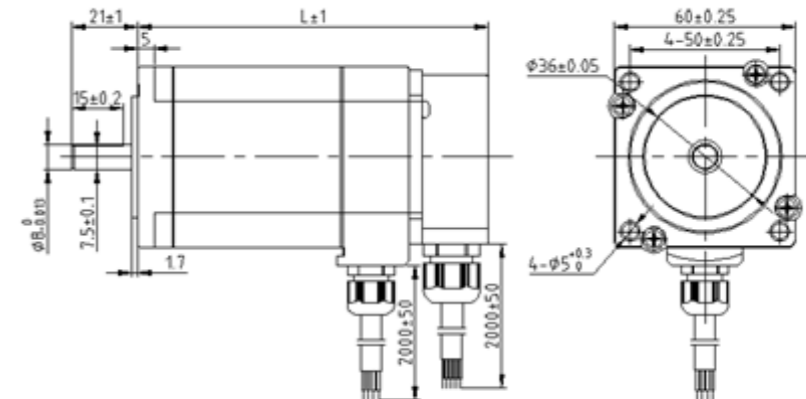
Brake Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg cm ²)
109	CS-M22313B	1.3	4	0.42	1.6	0.300
131	CS-M22323B	2.3	5	0.38	1.75	0.480



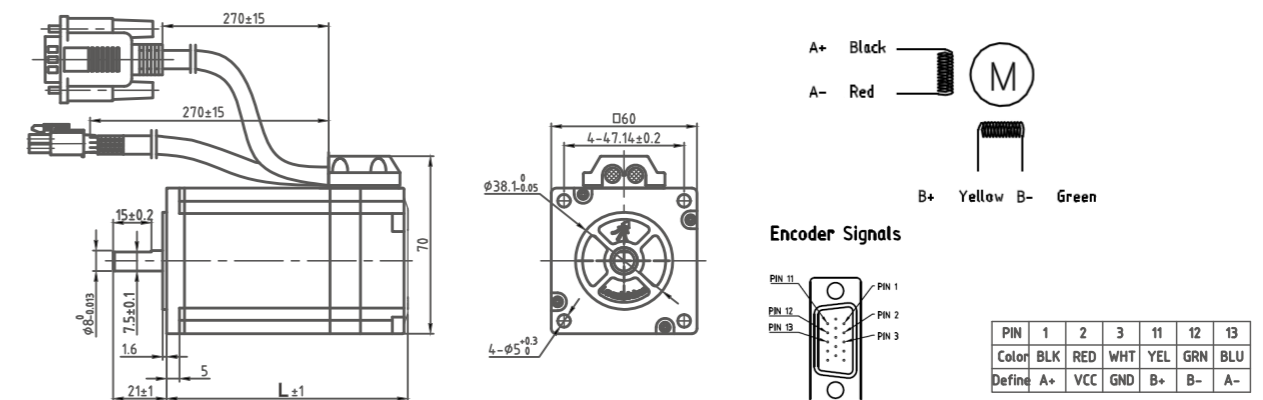
Waterproof Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg cm ²)
95	CS-M22313B	1.3	4	0.42	1.6	0.300
115	CS-M22323B	2.3	5	0.38	1.75	0.480



Standard Models(Large NEMA 23):

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg cm ²)
86	CS-M22321-L	2.1	5	0.32	1.3	0.570
105	CS-M22331-L	3.1	5	0.4	1.8	0.840



NEMA 24 Closed Loop

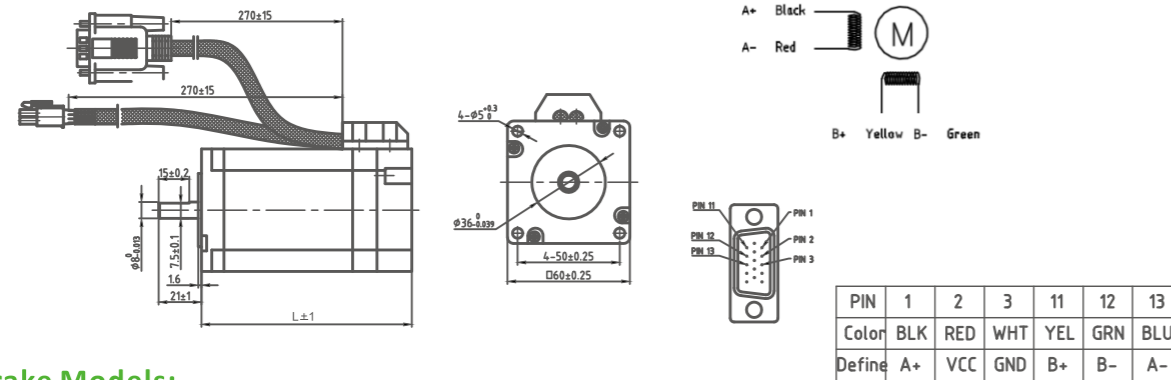
Overview:

CME series NEMA 24 closed loop stepper motor covers two types of standard motors: 0.15 N.m and 0.4 N.m. along with the motors with double shafts, brake, and waterproof system to apply to various scenarios.



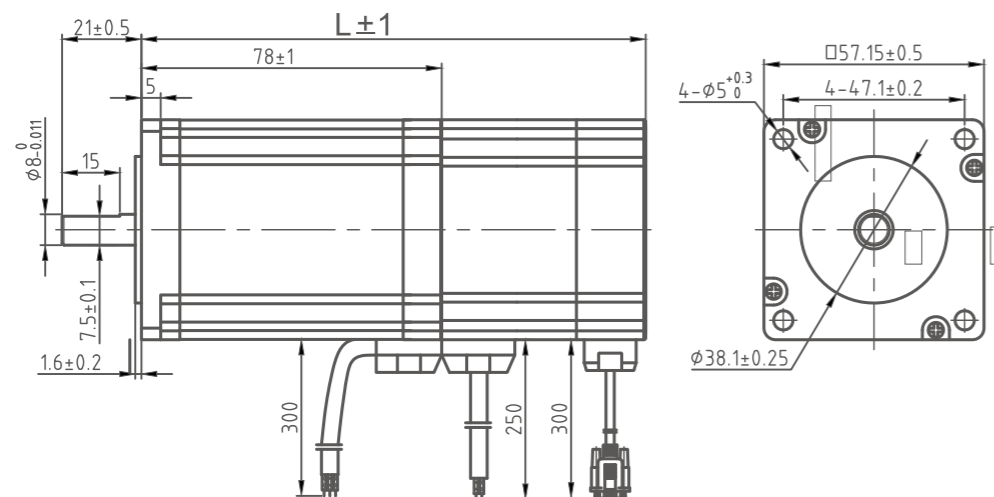
Standard Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg cm ²)
89	CS-M22422	2.2	5	0.33	1.05	0.490
107	CS-M22430	3.0	5	0.46	2.0	0.690



Brake Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg cm ²)
129	CS-M22422B	2.2	5	0.33	1.05	0.490
143	CS-M22430B	3.0	5	0.46	2.0	0.690



NEMA 34 Closed Loop

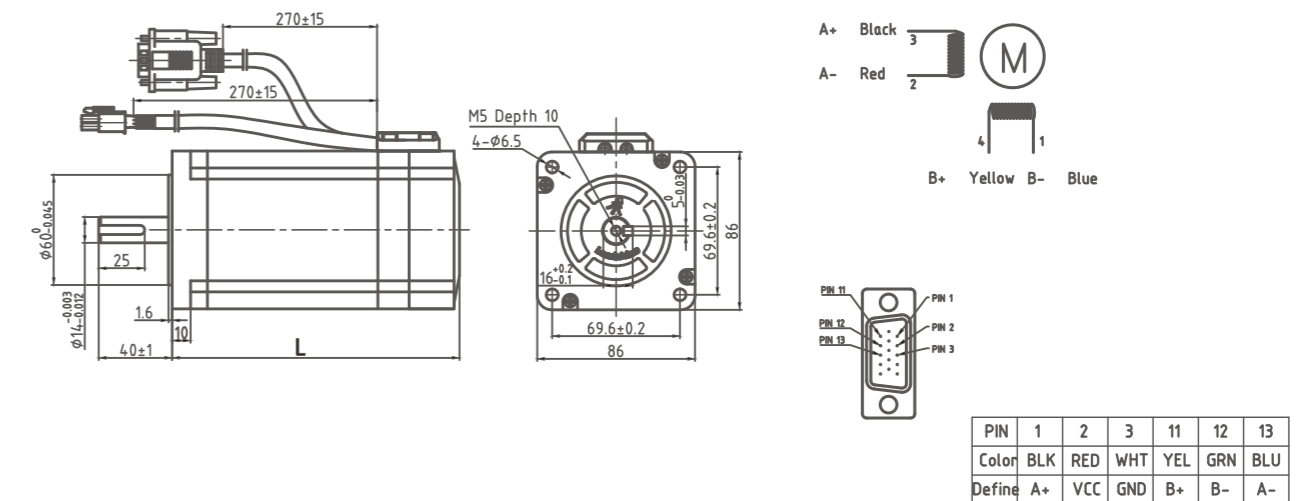
Overview:

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.



Standard Models:

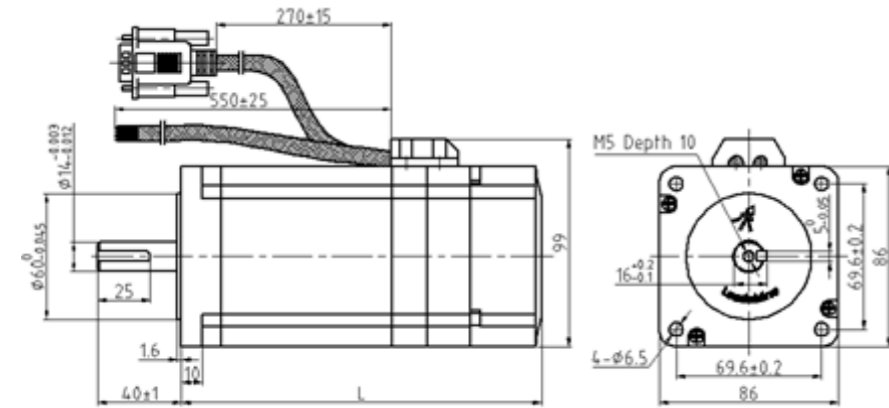
Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg cm ²)
95	CS-M23435	3.5	4	0.42	2.67	1.00
109	CS-M23445	4.5	6	0.43	2.95	1.40
126	CS-M23480	8.0	6	0.63	4.	2.50
147	CS-M23485	8.5	6	0.53	4.25	2.70
158	CS-M234120	12.0	6	0.75	5.30	2.94



Brake Models:

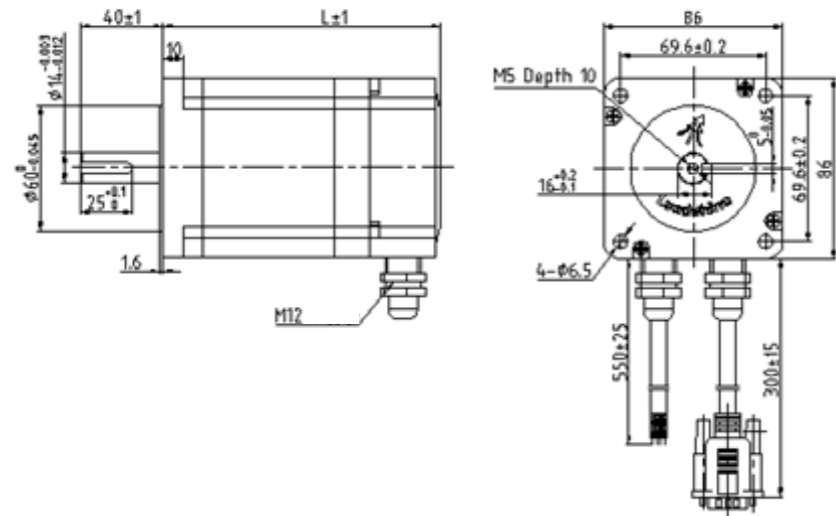
Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg cm ²)
134	CS-M23445B	4.5	6	0.43	2.95	1.40
152	CS-M23480B	8.0	6	0.63	4.	2.50
172	CS-M23485B	8.5	6	0.53	4.25	2.70
183	CS-M234120B	12.0	6	0.75	5.30	2.94

Voltage	Friction Torque	Power	Insulation Class
DC24V	4.5N.m	12W	F

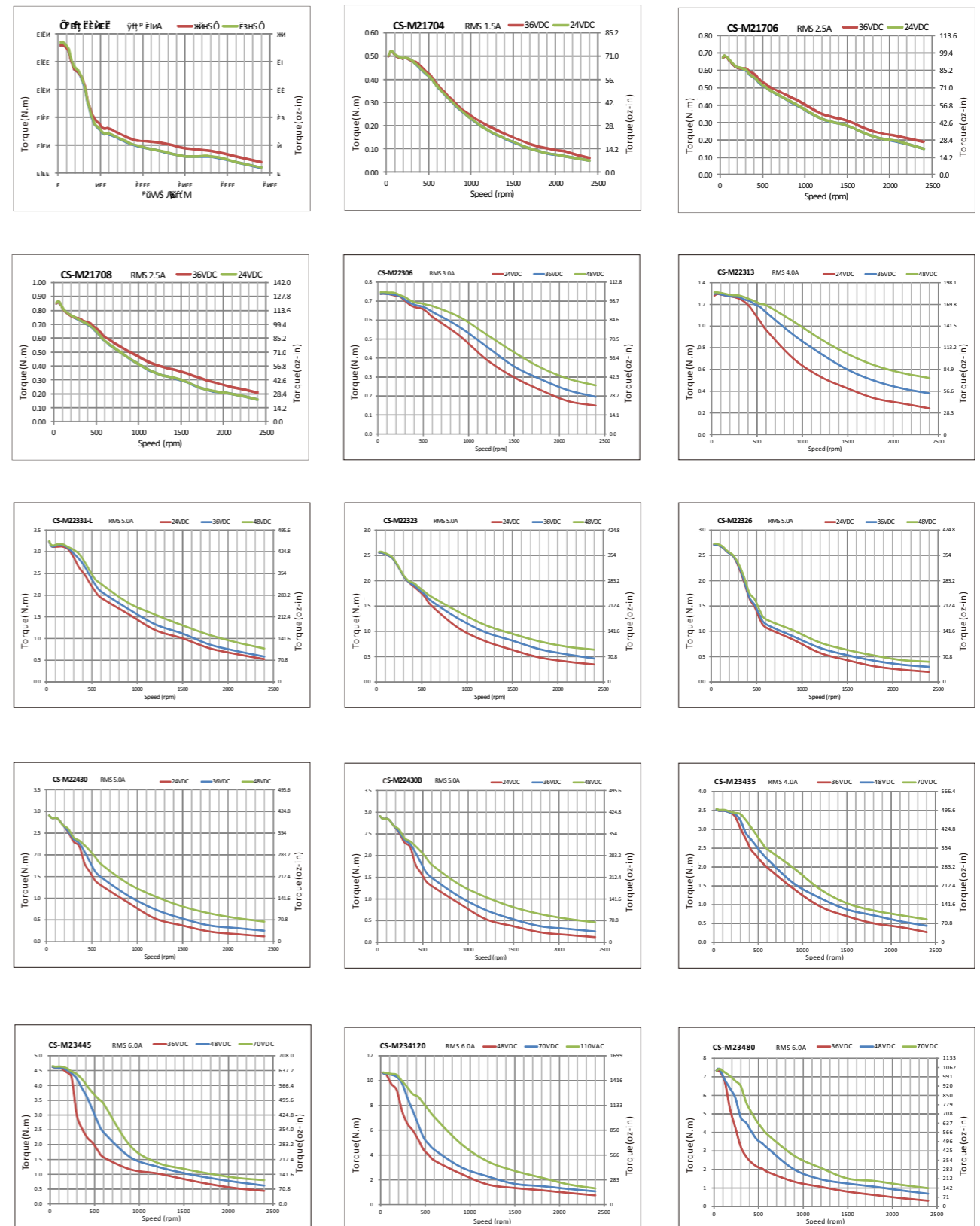


Waterproof Models:

Length (mm)	Model	Holding Torque (N.m)	Rate Current (A)	Resistance/Phase(Ω)	Inductance/Phase(mH)	Inertia (Kg.cm ²)
115	CS-M23445WP	4.5	6	0.43	2.95	1.40
133	CS-M23480WP	8.0	6	0.63	4.	2.50
153	CS-M23485WP	8.5	6	0.53	4.25	2.70
164	CS-M234120WP	12.0	6	0.75	5.30	2.94

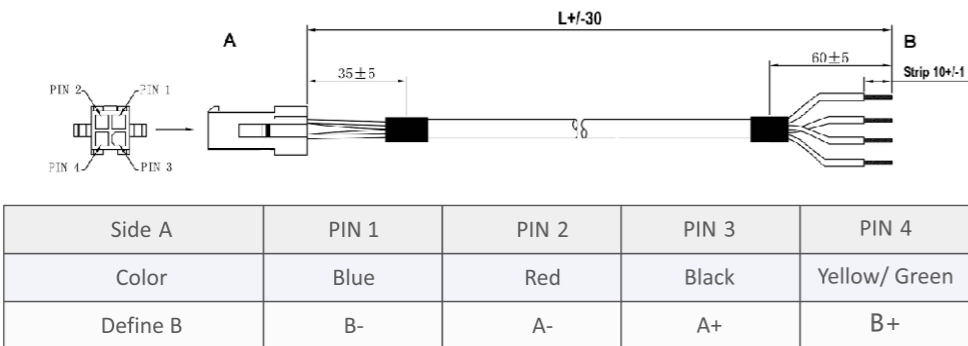


Speed-Torque Curves:



2.4 Cables

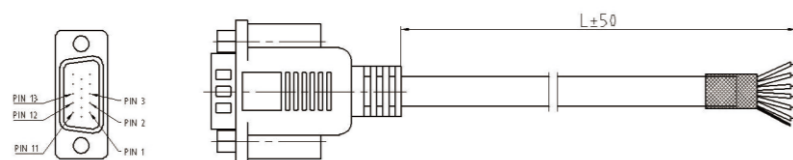
1 Picture for Motor Extension Cable



Model	Length(L)
CABLEH-RZ1M5	1.5M
CABLEH-RZ3M0	3M
CABLEH-RZ5M0	5M
CABLEH-BM10M0	10M

2 Picture for Encoder Extension Cable

Side A connecting with motor Side B connecting with drive



Side A	PIN 1	PIN 2	PIN 3	PIN 11	PIN 12	PIN 13
Color	Black	Yellow	White	Blue	Green	Red
Define B	A+	VCC	GND	B+	B-	A-

Model	Length(L)
CABLEH-BM1M5	1.5M
CABLEH-BM3M0	3M
CABLEH-BM5M5	5.5M
CABLEH-BM8M0	8M
CABLEH-BM10M0	10M
CABLEH-BM13M0	13M

03 Ordering Information

CS-M Series Closed Loop Stepper Motors

Frame Size	Length	Model	Holding Torque	Matching Drives	Accessories	Remark	
NEMA 17	56mm	CS-M21702	0.2Nm	CS1-D403	CABLEH-RZ series motor extension cable		
	63mm	CS-M21704	0.4Nm	CS1-D403			
	70mm	CS-M21706	0.6Nm	CS1-D403			
	83mm	CS-M21708	0.8Nm	CS1-D403			
NEMA 23	60mm	CS-M22306	0.6Nm	CS1-D403			
		CS-M22312	1.2 Nm	CS1-D508			
		CS-M22313	1.3 Nm	CS1-D508		Motor with brake	
		CS-M22313B	1.3 Nm	CS1-D508		Motor with waterproof	
	75mm	CS-M22313WP	1.3 Nm	CS1-D508			
		96mm	CS-M22321	2.1 Nm		CS1-D508	
			CS-M22323	2.3 Nm		CS1-D508	Motor with brake
CS-M22323B	2.3 Nm		CS1-D508	Motor with waterproof			
104mm	CS-M22323WP	2.3 Nm	CS1-D508				
NEMA 24	86mm	CS-M22326	2.6 Nm	CS1-D508	CABLEH-BM series encoder extension cable		
	89mm	CS-M22321	2.1 Nm	CS1-D508		Motor with brake	
	105mm	CS-M22331	3.1 Nm	CS1-D508			
NEMA 24	89mm	CS-M22422	2.2 Nm	CS1-D508	CABLE-PC Communication cable		
		CS-M22422B	2.2 Nm	CS1-D508		Motor with brake	
	107mm	CS-M22430	3.0 Nm	CS1-D508			
		CS-M22430B	3.0 Nm	CS1-D508		Motor with brake	
NEMA 34	95mm	CS-M23435	4.0 Nm	CS1-D808			
	109mm	CS-M23445	4.5 Nm	CS1-D808			
		CS-M23445B	4.5 Nm	CS1-D808	Motor with brake		
		CS-M23445WP	4.5 Nm	CS1-D808	Motor with waterproof		
	127mm	CS-M23480	8.0 Nm	CS1-D808			
		CS-M23480B	8.0 Nm	CS1-D808	Motor with brake		
		CS-M23480WP	8.0 Nm	CS1-D808	Motor with waterproof		
	147mm	CS-M23485	8.5 Nm	CS1-D808			
		CS-M23485B	8.5 Nm	CS1-D808	Motor with brake		
		CS-M23485WP	8.5 Nm	CS1-D808	Motor with waterproof		
	158mm	CS-M234120	12 Nm	CS1-D808			
CS-M234120B		12 Nm	CS1-D808	Motor with brake			
CS-M234120WP		12 Nm	CS1-D808	Motor with waterproof			

Table for Quickly Selecting CS-M Series Closed Loop Stepper Motor

CS-M Series Closed Loop Stepper Motors

Order Information