

drylin® E | Stepper motors | Product overview

Various NEMA stepper motor options



Motor with stranded wires

Motors with stranded wires are the least expensive and the most common stepper motors. The connecting wires (length 30cm) for this type exit from the housing and will be configured with a JST connector. They are usually installed in machines and equipment that have an additional housing or are used in clean environments.



Motor with connector

The connector interface provides a high IP65 protection level (IP: International Protection). The higher the IP rating, the better the motor is protected from the ingress of dirt and water.



Motor with connector and encoder

The encoder (for increased machine reliability) sends signals from the motor to the motor control. The encoder verifies that the required linear motion has occurred precisely.



Motor with connector, encoder and brake

The brake can hold the payload in position when the motor is not under power. This is used as a safety feature during power failures – recommended for vertically mounted systems.



All motors are delivered with a machined flat motor shaft (D-cut) for increased torque resistance.

Installation sizes of NEMA stepper motors

NEMA11: Tiny but with plenty of power

This motor has very compact dimensions. Even so, heavy loads can be moved with the suitable lead screw pitch. This motor is typically used on small test and analysis equipment and miniature adjustments.

NEMA17: Small, but lots of power

This little motor has impressive torque and high RPMs. Reliable operation at fast travel with low loads.

NEMA23: The best known stepper motor size

Versatile choice due to the high torque and rotational speed. This motor is the best choice for most applications with medium loads.

NEMA23XL: The power motor in the medium installation size

A development extension of the typical NEMA23 with nearly twice the torque. The assembly dimensions are identical to the NEMA23, allowing many applications.

NEMA34: The power pack in the large installation size







Applications with higher loads are implemented using the largest installation size. Heavy-duty format adjustments or parallel dual axis setups are among its primary duties.

Technical data

Distance over hubs		28	42	56	60	86
Motor		NEMA11	NEMA17	NEMA23	NEMA23XL	NEMA34
Connection dimensions	[mm]	28 x 28	42 x 42	56 x 56	60 x 60	86 x 86
Maximum voltage	[VDC]	60	60	60	60	60
Nominal voltage	[VDC]	24-48	24-48	24-48	24-48	24-48
Nominal current	[A]	1.0	1.8	4.2	4.2	6.4
Holding torque	[Nm]	0.13	0.5	2.0	3.5	5.9
Ratchet torque	[Nm]	0.004	0.022	0.068	0.075	0.210
Step angle	[°]	1.8	1.8	1.8	1.8	1.8
Resistance/phase	[Ω]	2.30 ±10%	1.75 ±10%	0.5 ±10%	0.65 ±10%	0.33 ±10%
Inductivity/phase	[mH]	1.40 ±20%	3.30 ±20%	1.90 ±20%	3.20 ±20%	3.00 ±20%
Moment of inertia - rotor	[kgcm ²]	0.02	0.08	0.48	0.84	2.70
Shaft load, axial	[N]	7	7	15	15	65
Shaft load, radial	[N]	20	20	52	63	200

Encoder

Operating voltage	[VDC]	5
Signals/rotation	[1/min]	500
Zero signal/index		yes
Line driver		RS422 Protocol

Signal shape (Clockwise motor rotation)	[CW]	A	
		A/	
		B	
		B/	
		N	
		N/	

Technical data

Plate size brake		28	42	56	60	86
		NEMA11	NEMA17	NEMA23	NEMA23XL	NEMA34
Operating voltage	[VDC]	–	24 ±10%	24 ±10%	24 ±10%	24 ±10%
Output rating	[W]	–	8	10	10	11
Holding torque	[Nm]	–	0.4	1.0	1.0	2.0
Mass moment of inertia	[kgcm ²]	–	0.01	0.02	0.02	0.07

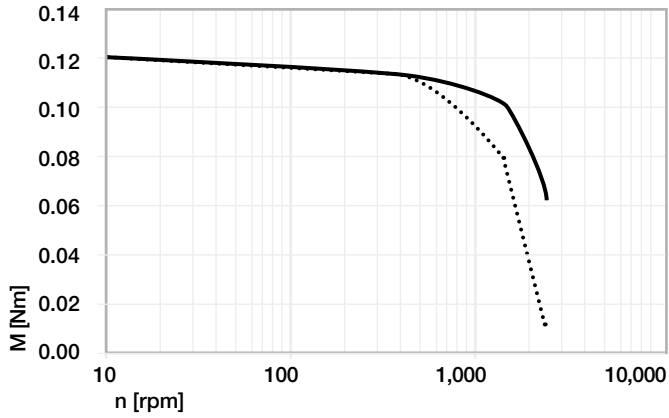
Mass moment of inertia		28	42	56	60	86
		NEMA11	NEMA17	NEMA23	NEMA23XL	NEMA34
Product weight	[kg]	0.25	0.32	1.12	1.56	3.20
With encoder	[kg]	0.27	0.34	1.14	1.58	3.30
With encoder and brake	[kg]	–	0.58	1.36	1.82	3.60

Operating data

Ambient temperature	[°C]	–10 to +50
Max. allowable temperature increase	[°C]	80
Insulation class		B
Air humidity (non condensing)	[%]	85
IP rating - motor housing		IP65 (shaft seal IP52, motor with stranded wires IP40)
CE conformity		EMC directive

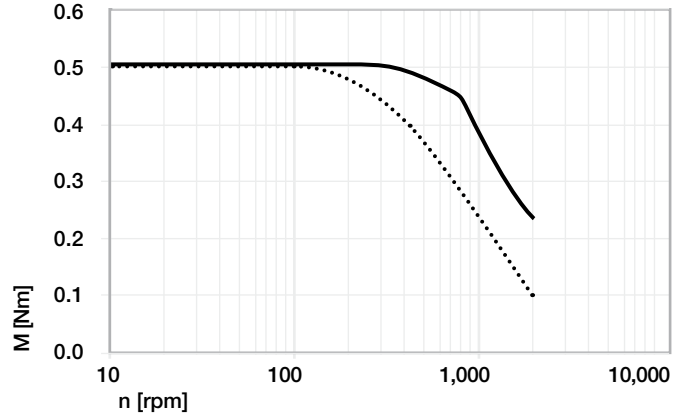
Flange size 28 (NEMA11)

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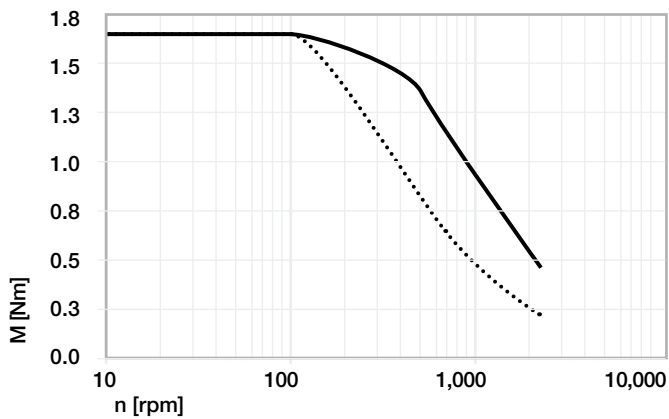
Flange size 42 (NEMA17)

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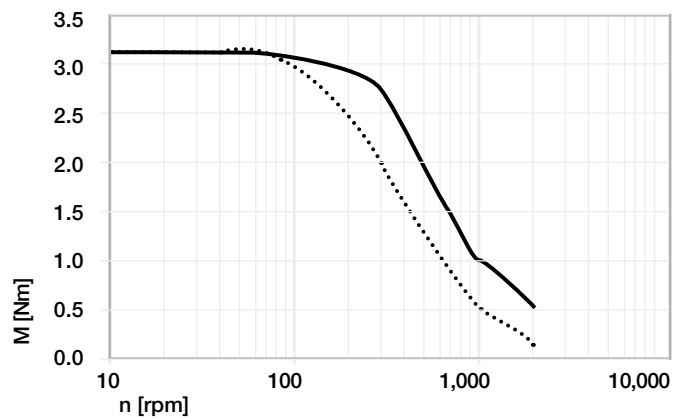
Flange size 56 (NEMA23)

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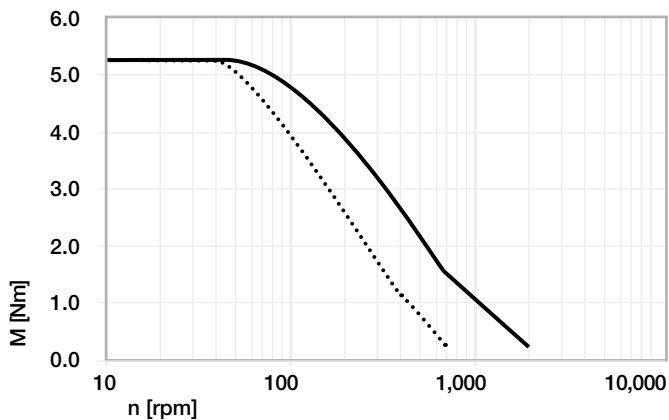
Flange size 60 (NEMA23XL)

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Flange size 86 (NEMA34)

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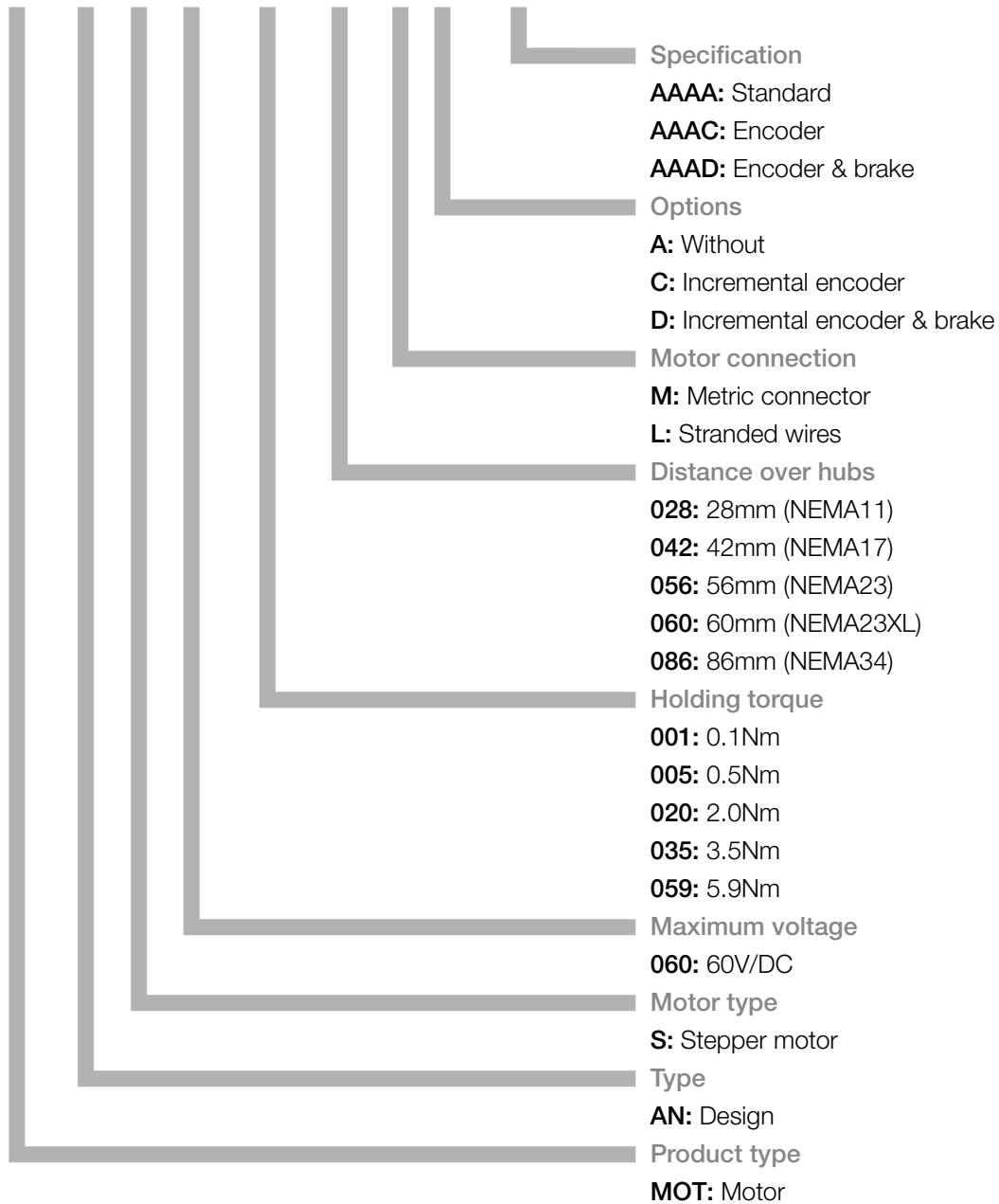
----- 24VDC ——— 48VDC

The characteristic curves are determined in quarter step mode



Order key

MOT-AN-S-060-020-056-M-A-AAAA



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