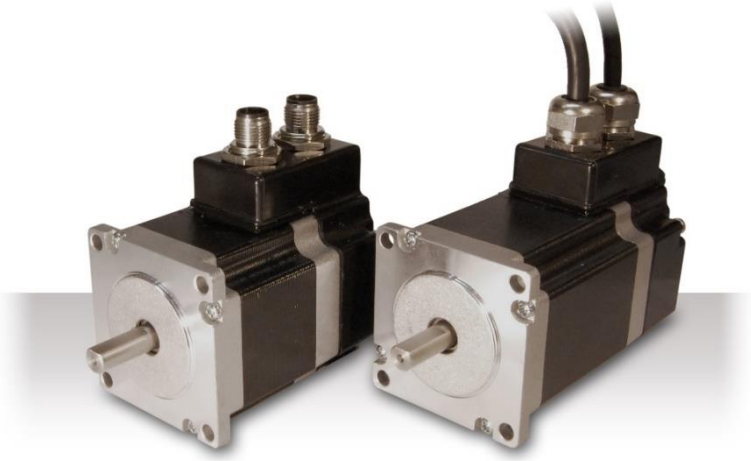
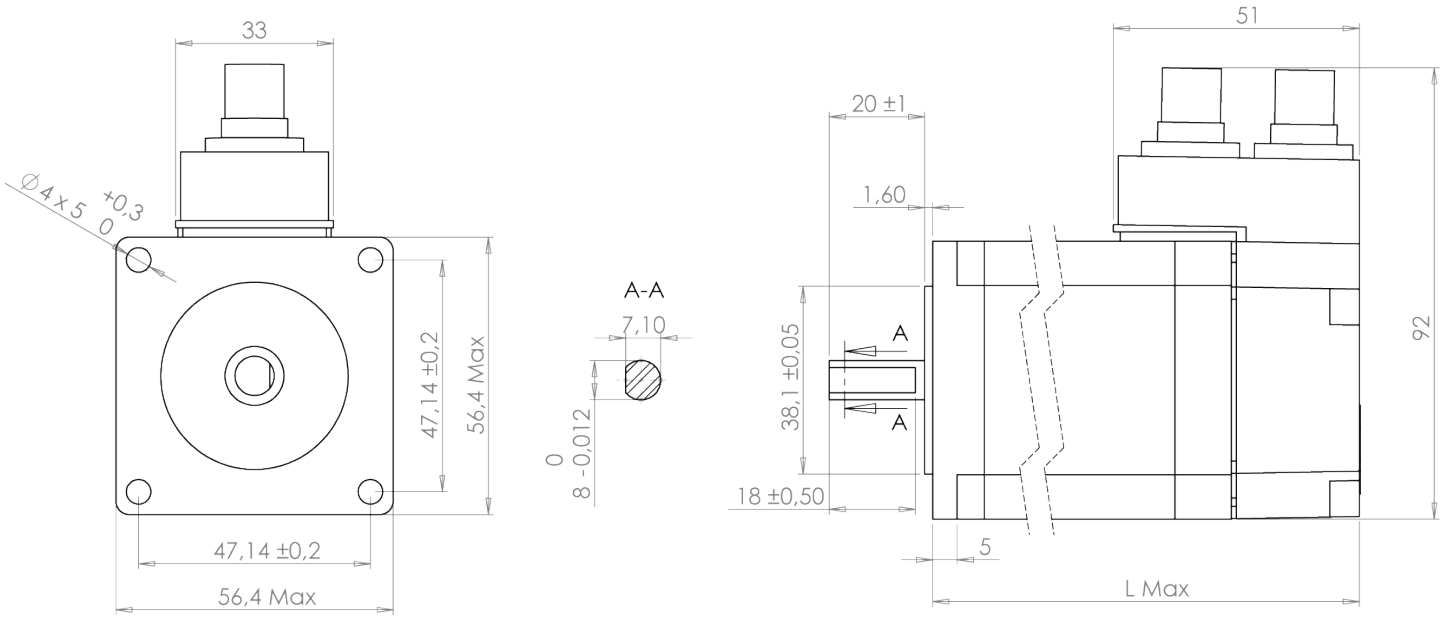
Range of high torque stepping motors with integrated encoder.
Available in compact housing with M12 connectors or cable. The cable can be chosen between standard (T suffix) and flexible for drag chain (F suffix).



Mechanical specifications:



Motor specifications:

	Model	M1241…	M1262…	M1264…	M1270…	M1271…
Length (L Max)	mm	82	102	102	126	126
Holding Torque	Nm	1.1	1.8	1.8	3.0	3.0
Detent Torque	Nm	0.035	0.06	0.06	0.1	0.1
Phase Current	Arms	4.2	4.2	6.0	4.2	6.0
Phase Inductance	mH	1.2	1.8	1.0	3.0	1.5
Phase Resistance	Ohm	0.4	0.55	0.3	0.8	0.4
Insulation Class		B	B	B	B	B
Rotor Inertia	g/cm^2	280	440	440	680	680
Weight	Kg	0.80	1.18	1.18	1.62	1.62
Shaft Max. Radial Force [1]	N	80	80	80	80	80
Shaft Max. Axial Force	N	15	15	15	15	15
Standard protection grade	IP	60	60	60	60	60

[1] At 20mm from the flange

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Encoder electrical specifications:

	Model	**…E106**
Line Counts		1000
Index		YES
Supply Voltage	Vdc	5 +/-8%
Supply Current	mA	<70 (no load)
Output		Differential Line Driver EIA standard RS-422
Max. Frequency	KHz	100

Cable:

Model		**M12..E…T5** **M12..E…F5**	**M12..E…T20** **M12..E…F20**
Cable length	m	0.5	2.0

Motor Connections:

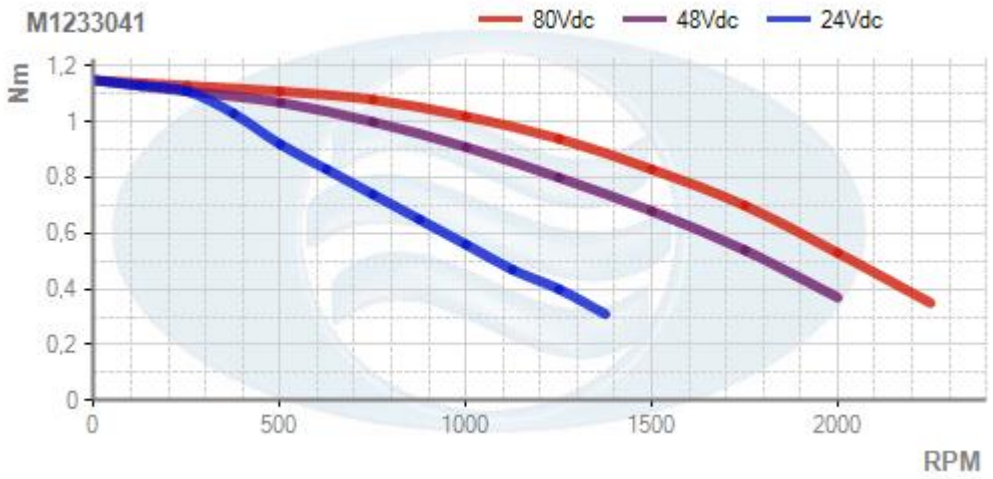
Signal	*Pin (M12 version)*	*Wire Color (cable version)*		*Note*
A-	1	Green	Black L2	A- Phase Stepper Motor
A+	2	Brown	Black L1	A+ Phase Stepper Motor
B+	3	Yellow	Black L3	B+ Phase Stepper Motor
B-	4	White	Yellow/Green	B- Phase Stepper Motor
n.u.	5	(Shield)	(Shield)	Unconnected in the stepper motor

Encoder Connections:

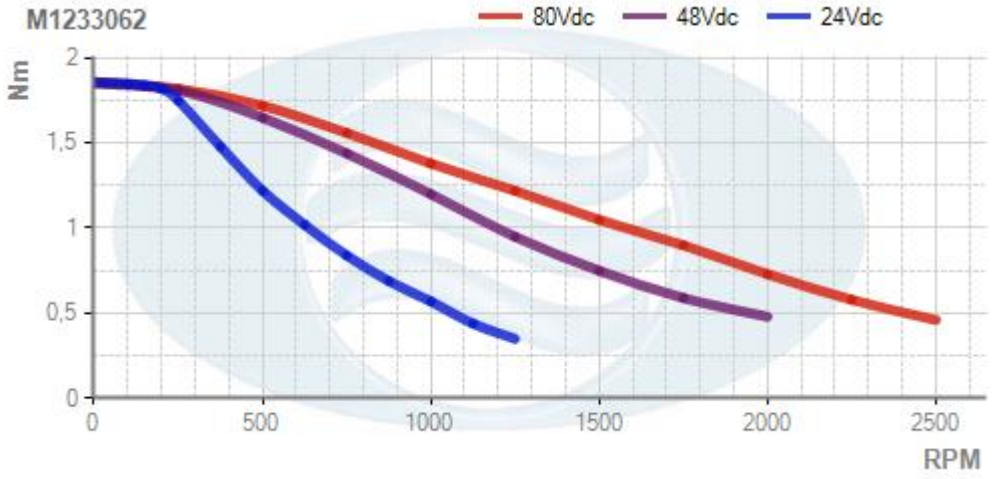
Signal	*Pin (M12 version)*	*Wire Color (cable version)*	*Note*
A+	1	White	A phase positive differential Line Driver signals
A-	2	Brown	A phase negative differential Line Driver signals
B+	3	Green	B phase positive differential Line Driver signals
B-	4	Yellow	B phase negative differential Line Driver signals
0V	5	Grey (Black)	Encoder supply reference
I+	6	Pink (Violet)	I (index/zero) phase positive differential Line Driver signals
I-	7	Blue	I (index/zero) phase negative differential Line Driver signals
+5V	8	Red	Positive Encoder supply

Motor Torque Curve:

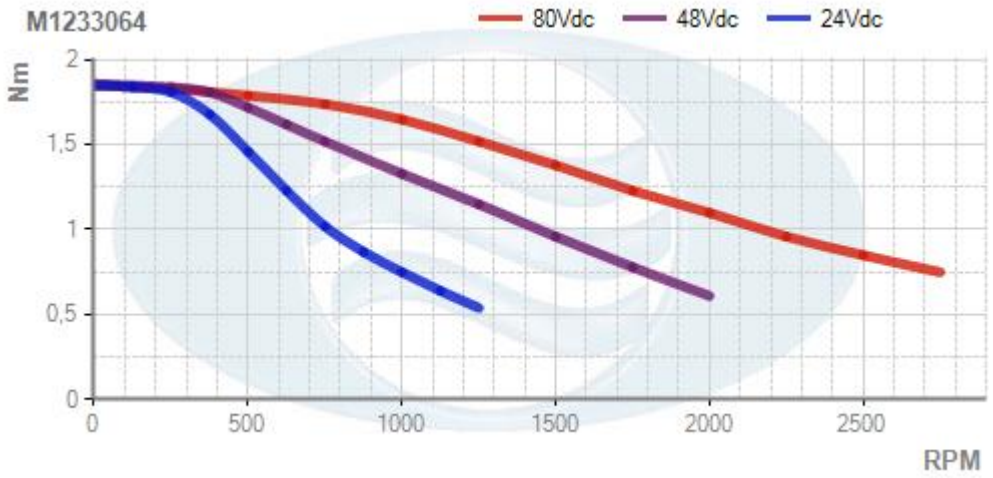
M1241…



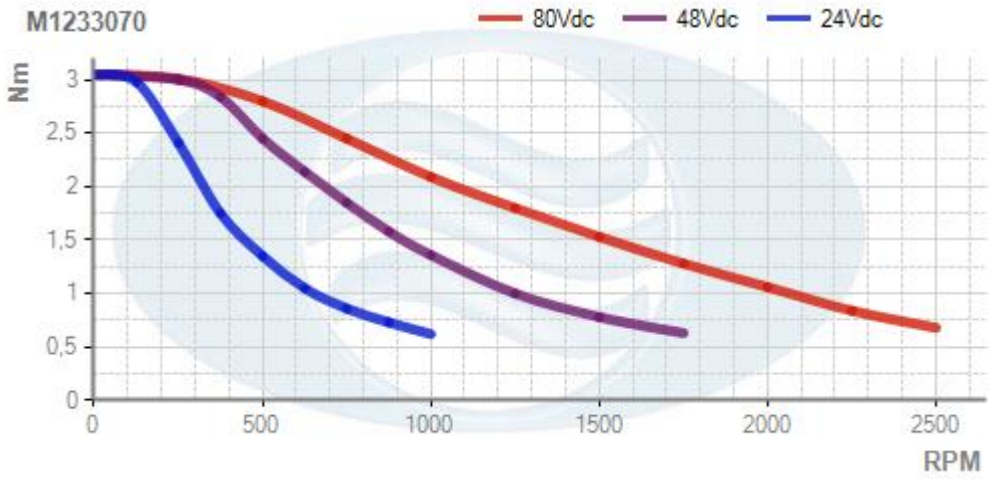
M1262…



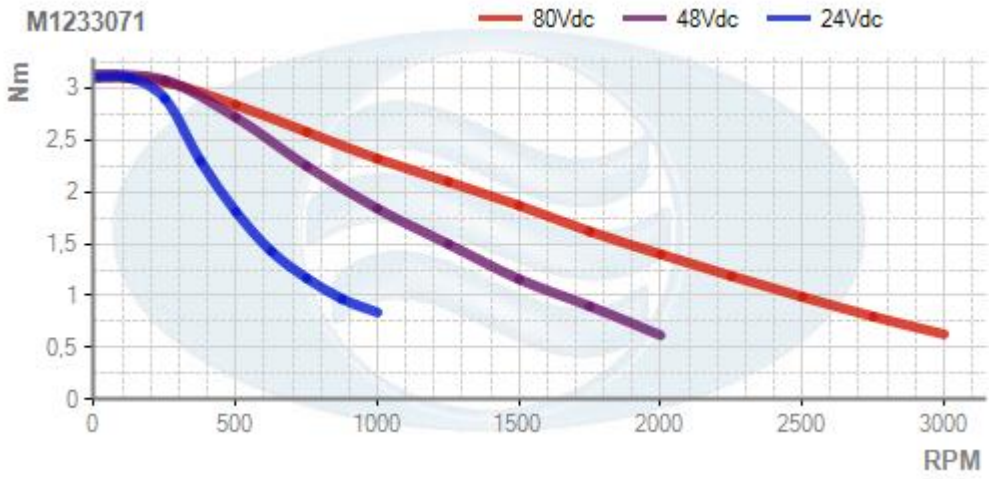
M1264…



M1270…


M1233070
80Vdc
48Vdc
24Vdc
Nm
3
2,5
2
1,5
1
0,5
0
0
500
1000
1500
2000
2500
RPM

M1271…


M1233071
80Vdc
48Vdc
24Vdc
Nm
3
2,5
2
1,5
1
0,5
0
0
500
1000
1500
2000
2500
3000
RPM

About this document, Safety, Use conditions, Disclaimer, Warranty:

The present datasheet applies to the standard series of NEMA23 stepper motor with Encoder. Customized products or with a different Hardware or Firmware revision may have features and behaviors different to what herein described. It is technician and user's responsibility to use the documents appropriate to the products used.

LAM Technologies reserves the right to modify at any moment the present document without obligation to give prior notice. This includes, for example, but not limited to, diagrams, images, organization of chapters, technical specifications of the product, features, warranty, etc.

The information contained herein replace any previously issued document.

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This datasheet is intended for technicians specialized in automation or similar disciplines. In case the arguments, the terms, or the concepts expressed should not be clear you can contact our technical support writing to support@lamtechnologies.com. It is prohibited to use the products herein described if you are not sure to have understood their features and how to use and install them.

ATTENTION

The following are safety warnings and practices of primary importance that need to be fully understood and applied by the user. The user who does not fully understand the content below, or was not able to apply it totally, should not use the product for any reason.

The devices described in this datasheet are components. The user is responsible of the installation and use of the product that must be used only if in compliance with the rules and regulations in force. Furthermore, the user must have the technical skills needed to fully understand the features, the setting parameters and the instructions given herein. The user must also apply all the laws and specific rules of the Country and/or application in which the product is used.

The user must make the motor housing and shaft inaccessible when the motor is powered on. The user must also consider that the motor produces a voltage when the shaft turns. Protect the motor shaft from any external drive operation before working on the motor.

During operation the product generates heat that can raise the temperature of certain parts (the stator for example, but not only) to values which can cause burns. Such condition persists for a long time even after the product has been turned off. The user must provide protections and appropriate warnings as well as instructing the user, the technical support and maintenance staff. The user must also describe this condition in the service manual of the finished product.

The here described high performance motor is able to generate strong accelerations, with high torque. It is therefore essential to never touch the mechanical parts with the motor powered on. The user must provide the application so that this condition is always granted.

It is the user's responsibility to define whether it is necessary to ground the motor, depending on its intended use.

The product could be permanently damaged by corrosive substances (such as gas, salts, etc.), liquid or corruptive dusts. Even a long and strong exposure to strong vibrations can cause its damage.

In some fault conditions, the motor can sparks and fire. The housing and the components placed nearby the motor must be chosen to tolerate this eventuality and to avoid the spread of fire.

The products must never be used in explosive atmospheres (Ex areas).

The products must not be used in life support application or where the failure of the product, even in part, can cause death or damage to people, animals or things, or cause economic loss. The user not able to ensure this condition should not use the products described in this datasheet.

Do not dismantle the product, do not try and repair it and do not modify it unless expressly authorized by LAM Technologies.

Failure to follow the indications included in this datasheet can cause permanent damage to the product. For example, to power supply the product with voltage higher than the maximum one allowed, to invert the polarity of the same, to connect or disconnect the motor with the drive enabled, etc. are cause of permanent damage.

Even if the products have been designed and realized with extreme care, there is always the possibility that under unpredictable circumstances and modes the products show malfunctions. Therefore, for any reason, the products described in this datasheet must be used in life support application and in all those cases in which the unexpected failure of the product could be cause of death or damage to people, things, animals or cause economic loss.

LAM Technologies reserves the right to make changes without prior notice to the products including design, technical specification, manufacturing process and functionality. LAM Technologies expressly declines any responsibility for any damage, whether direct or indirect, arising from the use of these products. The user who disagrees with these conditions should not use the LAM Technologies products.

LAM Technologies warrants the products described in this datasheet against defects in materials or workmanship for a period of 12 months. This warranty does not apply to defects, damages caused by improper use, incorrect installation or inadequate maintenance. This warranty does not apply in case the products are received modified or integrated with other parts and/or products not expressly authorized or provided for by LAM Technologies. This warranty does not apply also in case the product's label has been removed or modified.
Any request for assistance must be sent to the purchase source of the product. In case of direct purchase from LAM Technologies, a returned material authorization number (RMA) must be obtained, before shipping the device, from support@lamtechnologies.com clearly specifying the product's code, the serial number, the problem found and the assistance required. The RMA number must be clearly written on each shipping document otherwise the parcel could be rejected. The customer shall be responsible for the packaging and shipping of the defective product to LAM Technologies and shipment must be made charges prepaid. The product inspected, repaired or replaced will be available to be collected at LAM Technologies'. In case of repair under warranty LAM Technologies can, at its own discretion, repair or replace the product. No cost for material or service will be charged in case of repair under warranty.

The above warranty does not apply to the software. LAM Technologies shall not be liable for any direct or indirect damages such as, but not limited to, costs of removal and installation, lost profits, deriving from the use or the impossibility to use the software. The user who disagree with or cannot accept what stated herein, should not use or install the software.

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