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1-604-569-3780 *Direct*
1-888-276-8033 *Toll Free*
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NMS Series Datasheet



- NEMA size 08 to 23 stepper motors offer a range of size and torque
- Up to 3000 rpm speed and 1.8 N m torque
- HS02 home sensor and magnet included
- Designed for use with MCC Family controllers or any 2-phase stepper motor controller
- With AutoDetect, Zaber controllers automatically configure settings for the connected peripheral

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NMS Series Overview

These NEMA stepper motors are designed to connect directly to our MCC Family controllers using a single cable. Set-up is easy with AutoDetect. Once connected, the controller will automatically detect and configure the motor. A detachable home sensor (HS02) and magnet are included.

For more information visit: https://www.zaber.com/products/stepper-motors/NMS

NMS Series Part Numbering & Options

NMS 08 - T4A

Motor Size	Connector
08 — NEMA 08 **11** — NEMA 11 **17** — NEMA 17 **23** — NEMA 23	**T4A** — D-sub 15 inline connector with Auto Detect

NMS Series Drawings

• View all drawings and documents at zaber.com

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NMS Series Specifications

Overview

Specification	Value
Built-in Controller	No
Recommended Controller	MCC (48 V) Recommended
AutoDetect	Yes

Positioning Performance

Specification	Value
Microstep Size (Default Resolution)	0.028125 ° (490.866 µrad)

Speed

Specification	Value
Maximum Speed	18000 °/s (3 rpm)
Minimum Speed	0.017172 °/s (299.703 µrad/s)
Speed Resolution	0.017172 °/s (299.703 µrad/s)

Encoder & Sensing

Specification	Value
Limit or Home Sensing	Magnetic home sensor

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Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Connection	D-sub 15

Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Weight	Maximum Torque	Motor Rated Current	Motor Winding Resistance
NMS08-T4A	0.07 kg (0.154 lb)	0.035 N·m (0.026 lb·ft)	600 mA/phase	6.5 ohms/phase
NMS11-T4A	0.21 kg (0.463 lb)	0.17 N·m (0.125 lb·ft)	1500 mA/phase	2.05 ohms/phase
NMS17-T4A	0.36 kg (0.794 lb)	0.58 N·m (0.428 lb·ft)	2300 mA/phase	1 ohms/phase
NMS23-T4A	1.01 kg (2.227 lb)	1.8 N·m (1.328 lb·ft)	3000 mA/phase	0.53 ohms/phase

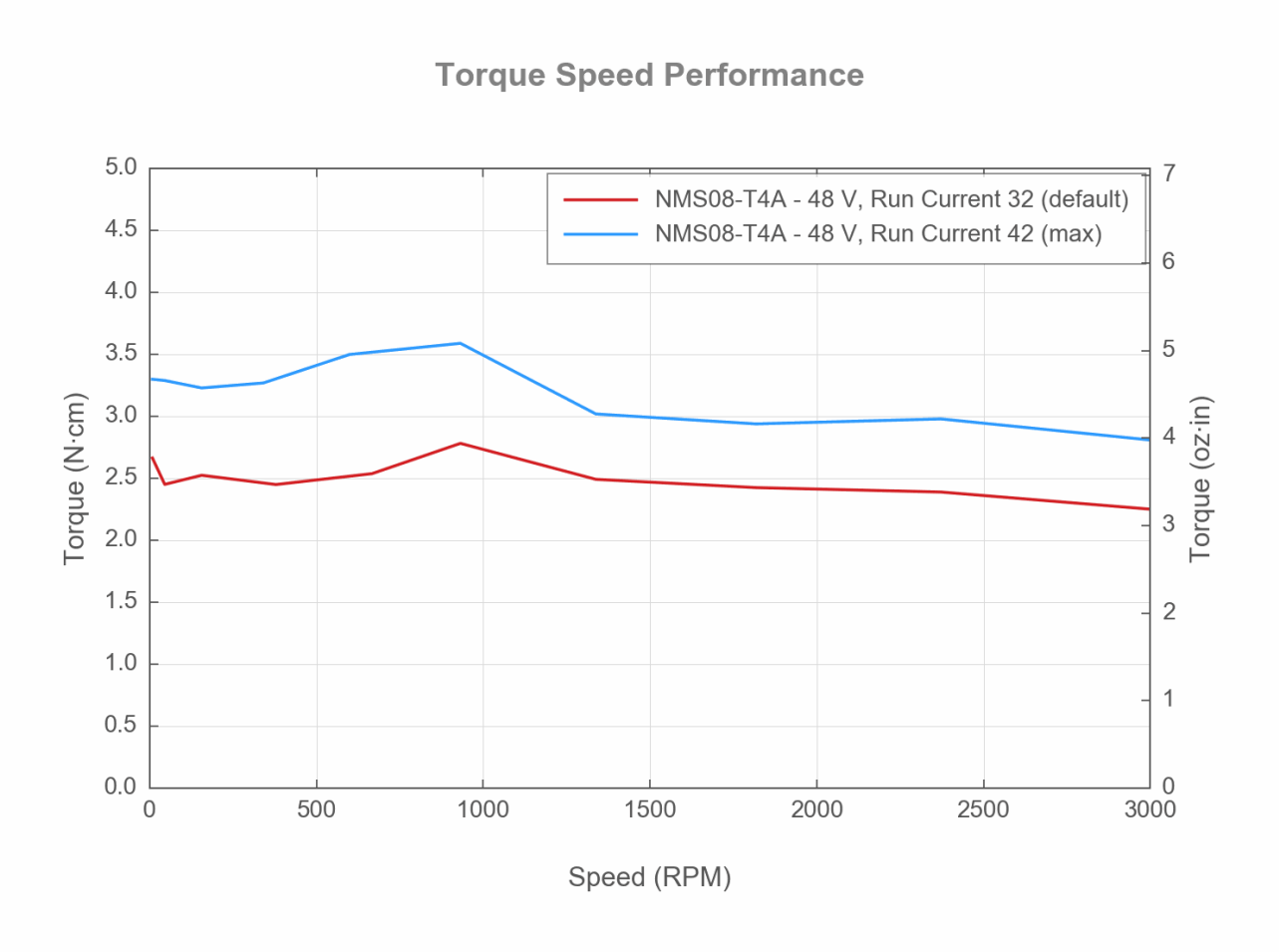
Part Number	Motor Winding Inductance	Motor Frame Size
NMS08-T4A	3.5 mH/phase	NEMA 8
NMS11-T4A	1 mH/phase	NEMA 11
NMS17-T4A	2.2 mH/phase	NEMA 17
NMS23-T4A	2 mH/phase	NEMA 23

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NMS Series Charts

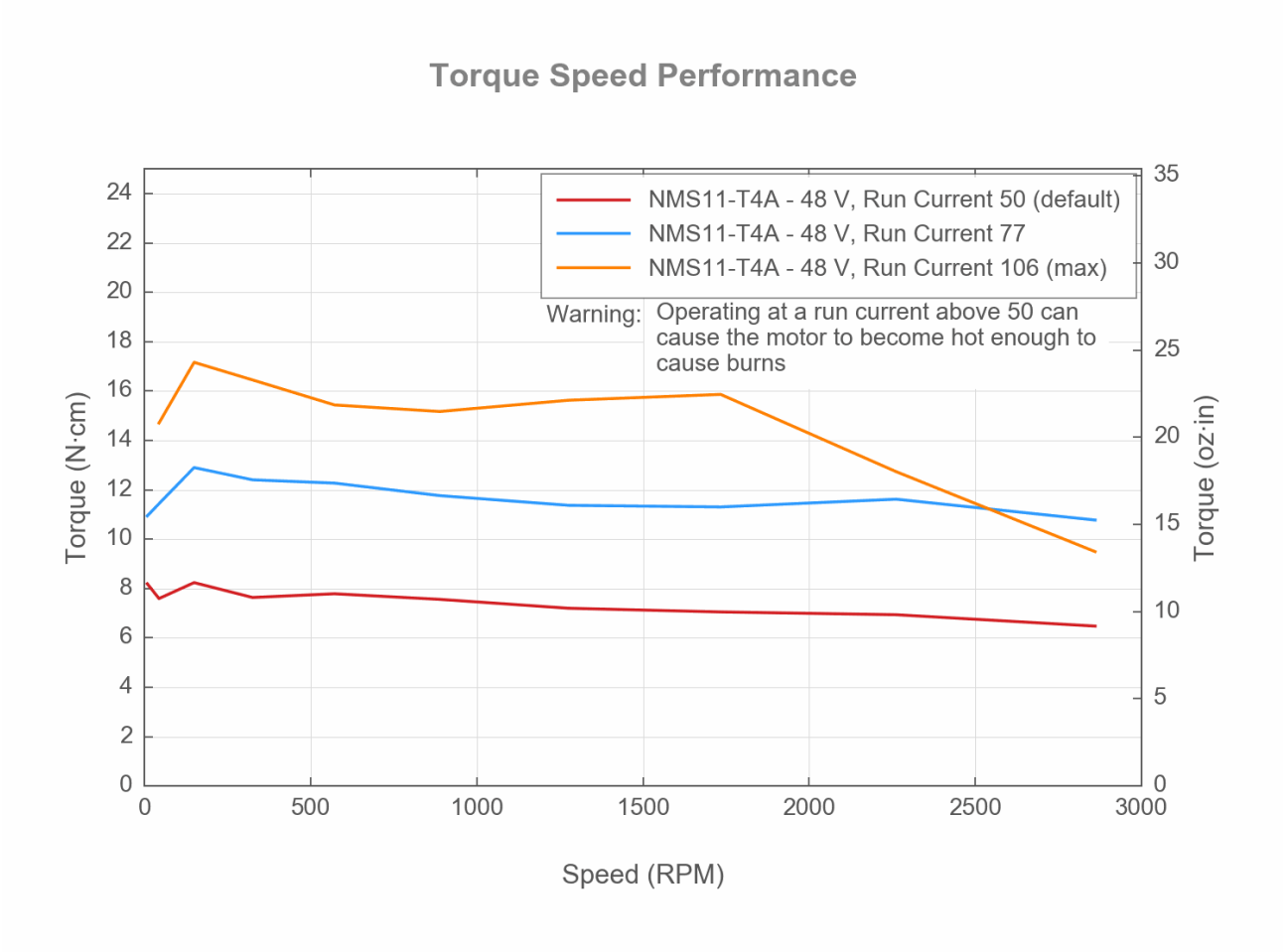
NMS08 TORQUE SPEED



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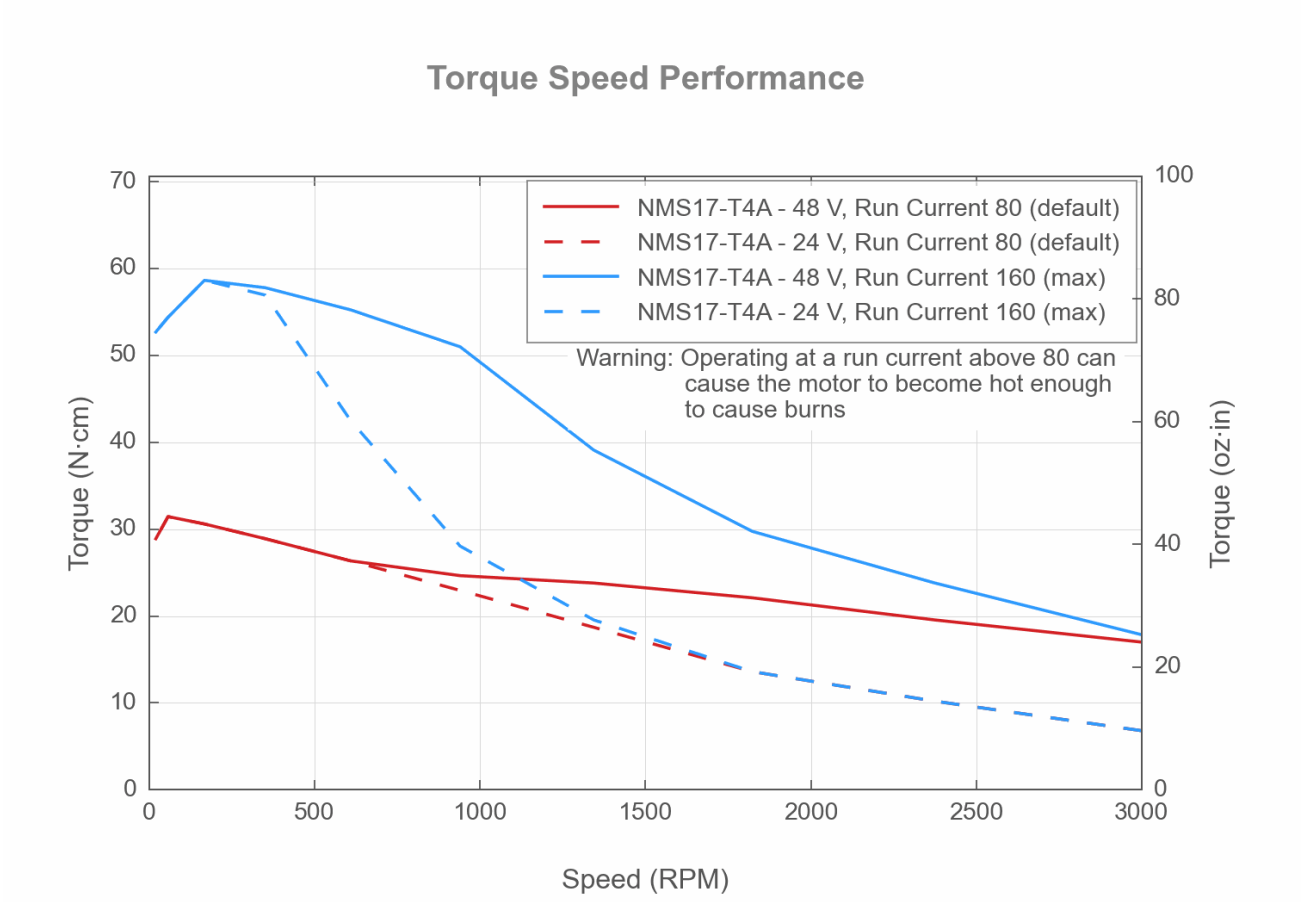
NMS11 TORQUE SPEED



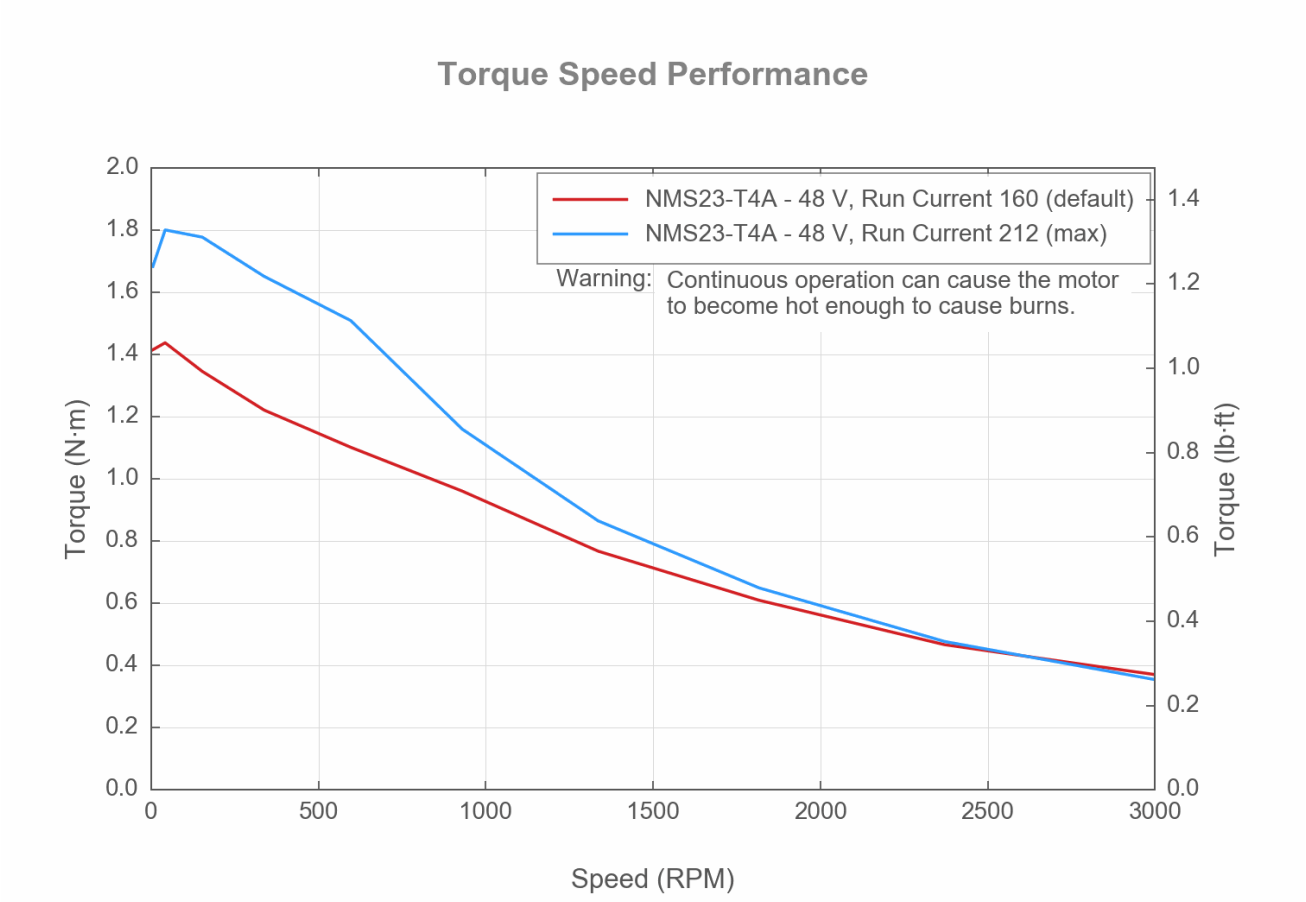
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NMS17 TORQUE SPEED



NMS23 TORQUE SPEED



Contact

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NMS-E Series Datasheet



- NEMA size 08 to 34 stepper motors offer a range of size and torque
- Up to 3000 rpm speed and 5.25 N m torque
- HS02 home sensor and magnet included
- Built-in encoders provide slip/stall detection and recovery
- Optional integrated power-off brake
- Designed for use with MCC Family controllers or any 2-phase stepper motor controller
- With AutoDetect, Zaber controllers automatically configure settings for the connected peripheral

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NMS-E Series Overview

These NEMA stepper motors are designed to connect directly to our MCC family of controllers. Set-up is easy with AutoDetect. Once connected, the controller will automatically detect and configure the motor. The built-in encoder allows closed-loop operation and slip/stall recovery features. A detachable home sensor (HS02) and magnet are included. An optional power-off brake is available on NEMA 23 and NEMA 34 sized steppers to secure the payload across power cycles.

For more information visit: https://www.zaber.com/products/stepper-motors/NMS-E

NMS-E Series Part Numbering & Options

NMS 08 - _ E03 _ T4A

Motor Size

- **08** — NEMA 08
- **11** — NEMA 11
- **17** — NEMA 17
- **23** — NEMA 23
- **34** — NEMA 34

Brake Option

- **None** — No Brake
- **B** — Brake

Encoder Options

- **E01** — Motor Encoder, 500 CPR
- **E03** — Motor Encoder, 200 CPR
- **E08** — Motor Encoder, 400 CPR

P1

- **None** — Standard stepper motor
- **P1** — For use with LC40 guides

Connector

- **T3A** — D-sub 15 panel mount connector with Auto Detect
- **T4A** — D-sub 15 inline connector with Auto Detect
- **T10A** — D-sub 26 panel mount connector with Auto Detect
- **T11A** — D-sub 15 panel mount connector and M12 T-code connector with Auto Detect
- **T12A** — D-sub 26 panel mount connector and M12 T-code connector with Auto Detect

NMS-E Series Drawings

• View all drawings and documents at zaber.com

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NMS-E Series Specifications

Overview

Specification	Value
Built-in Controller	No
Recommended Controller	MCC (48 V) Recommended
AutoDetect	Yes

Positioning Performance

Specification	Value
Microstep Size (Default Resolution)	0.028125 ° (490.866 µrad)

Speed

Specification	Value
Maximum Speed	18000 °/s (3 rpm)
Minimum Speed	0.017172 °/s (299.703 µrad/s)
Speed Resolution	0.017172 °/s (299.703 µrad/s)

Encoder & Sensing

Specification	Value
Encoder Type	Rotary quadrature encoder (incremental)
Limit or Home Sensing	Magnetic home sensor

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Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)

Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Weight	Maximum Torque	Maximum Brake Torque	Encoder Resolution
NMS08-E03T4A	0.07 kg (0.154 lb)	0.035 N·m (0.026 lb·ft)		200 CPR (8 states/rev)
NMS11-E03T4A	0.21 kg (0.463 lb)	0.17 N·m (0.125 lb·ft)		200 CPR (8 states/rev)
NMS17-E01T4A	0.36 kg (0.794 lb)	0.58 N·m (0.428 lb·ft)		500 CPR (2 states/rev)
NMS23-BE08P1T10A	1.926 kg (4.246 lb)	1.8 N·m (1.328 lb·ft)	1.5 N·m (1.107 lb·ft)	400 CPR (16 states/rev)
NMS23-BE08T10A	1.926 kg (4.246 lb)	1.8 N·m (1.328 lb·ft)	1.5 N·m (1.107 lb·ft)	400 CPR (16 states/rev)
NMS23-E08P1T3A	1.3 kg (2.866 lb)	1.8 N·m (1.328 lb·ft)		400 CPR (16 states/rev)
NMS23-E08T4A	1.01 kg (2.227 lb)	1.8 N·m (1.328 lb·ft)		400 CPR (16 states/rev)
NMS34-BE01T12A	4.1 kg (9.039 lb)	5.25 N·m (3.874 lb·ft)	2 N·m (1.476 lb·ft)	500 CPR (2 states/rev)
NMS34-E01T11A	3.1 kg (6.834 lb)	5.25 N·m (3.874 lb·ft)		500 CPR (2 states/rev)

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Part Number	Motor Rated Current	Motor Winding Resistance	Motor Winding Inductance	Motor Connection
NMS08-E03T4A	600 mA/phase	6.5 ohms/phase	3.5 mH/phase	D-sub 15
NMS11-E03T4A	1500 mA/phase	2.05 ohms/phase	1 mH/phase	D-sub 15
NMS17-E01T4A	2300 mA/phase	1 ohms/phase	2.2 mH/phase	D-sub 15
NMS23-BE08P1T10A	3000 mA/phase	0.53 ohms/phase	2 mH/phase	D-sub 26
NMS23-BE08T10A	3000 mA/phase	0.53 ohms/phase	2 mH/phase	D-sub 26
NMS23-E08P1T3A	3000 mA/phase	0.53 ohms/phase	2 mH/phase	D-sub 15
NMS23-E08T4A	3000 mA/phase	0.53 ohms/phase	2 mH/phase	D-sub 15
NMS34-BE01T12A	9470 mA/phase	0.23 ohms/phase	2.1 mH/phase	M12 T-code (motor) and D-sub 26 (sensors)
NMS34-E01T11A	9470 mA/phase	0.23 ohms/phase	2.1 mH/phase	M12 T-code (motor) and D-sub 15 (sensors)

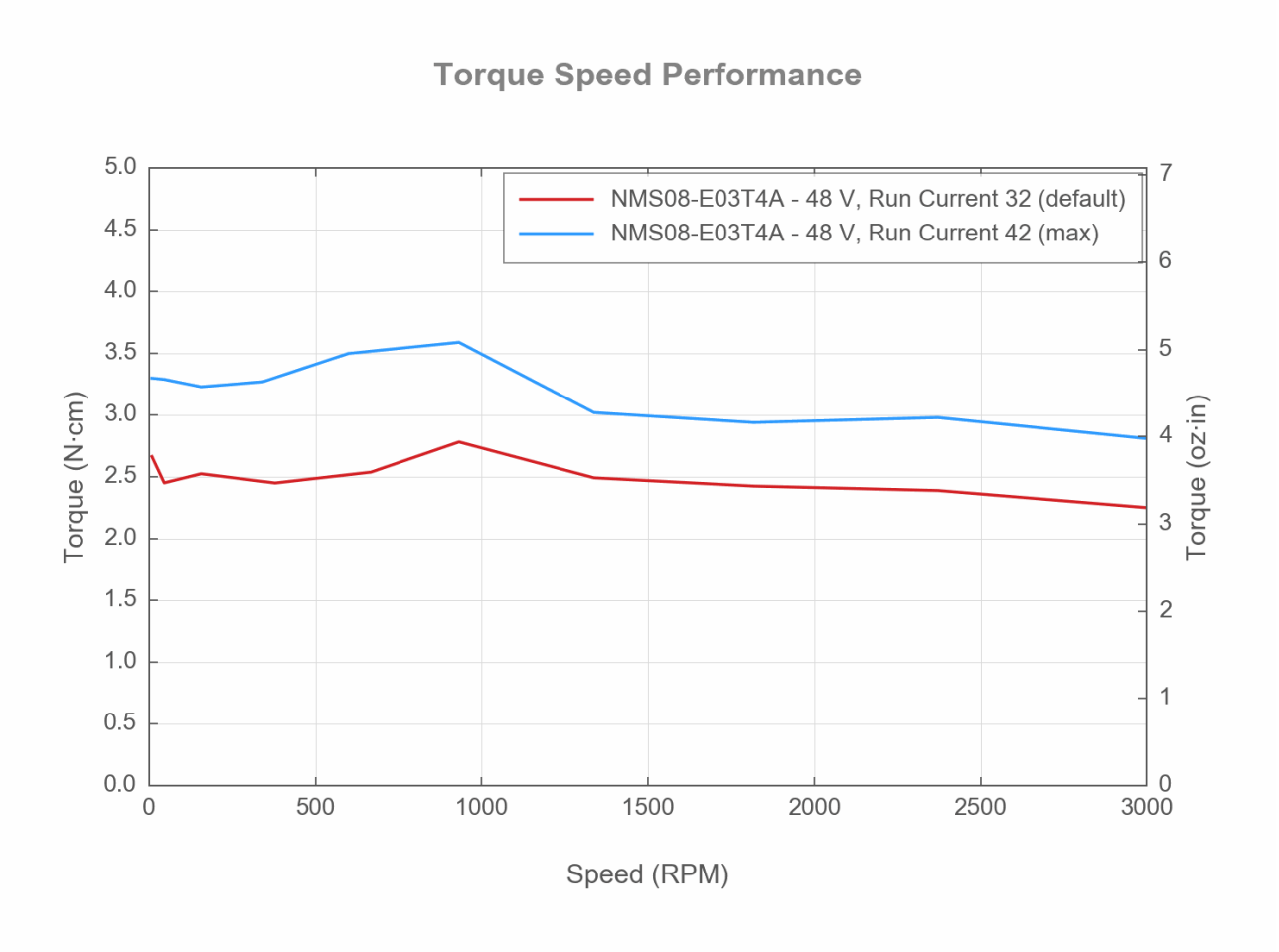
Part Number	Motor Frame Size
NMS08-E03T4A	NEMA 8
NMS11-E03T4A	NEMA 11
NMS17-E01T4A	NEMA 17
NMS23-BE08P1T10A	NEMA 23
NMS23-BE08T10A	NEMA 23
NMS23-E08P1T3A	NEMA 23
NMS23-E08T4A	NEMA 23
NMS34-BE01T12A	NEMA 34
NMS34-E01T11A	NEMA 34

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NMS-E Series Charts

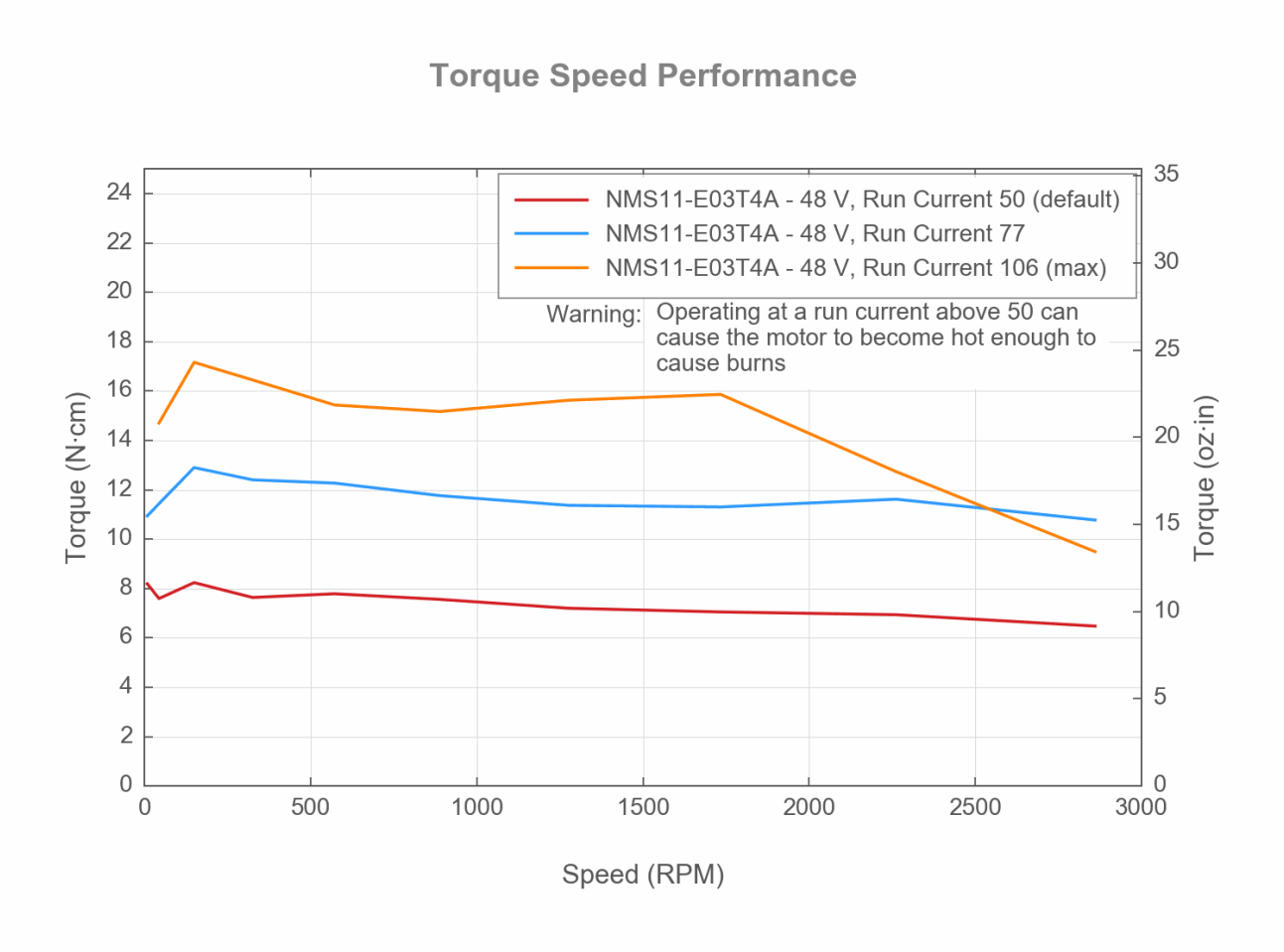
NMS08 E TORQUE SPEED



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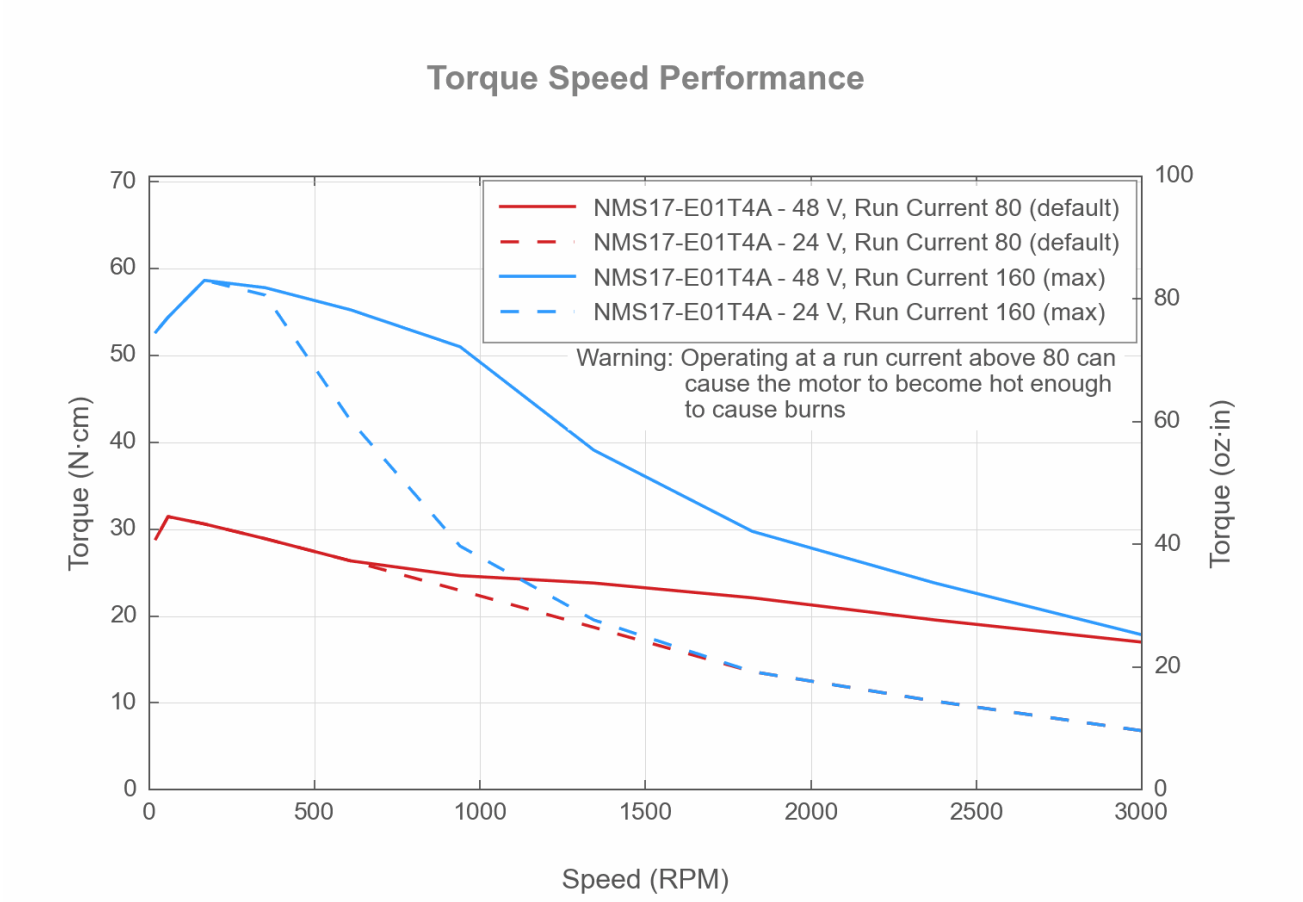
NMS11 E TORQUE SPEED



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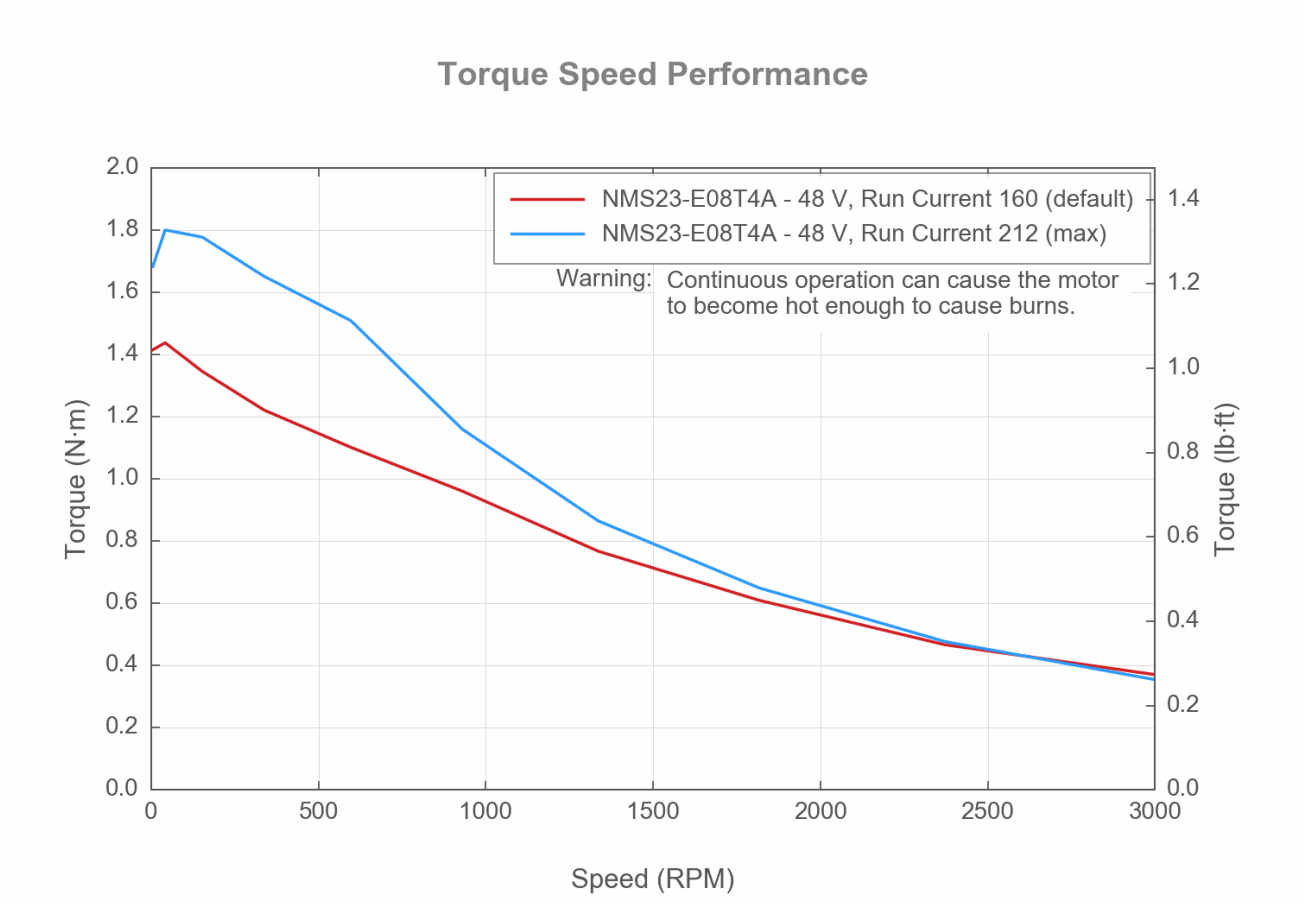
NMS17 E TORQUE SPEED



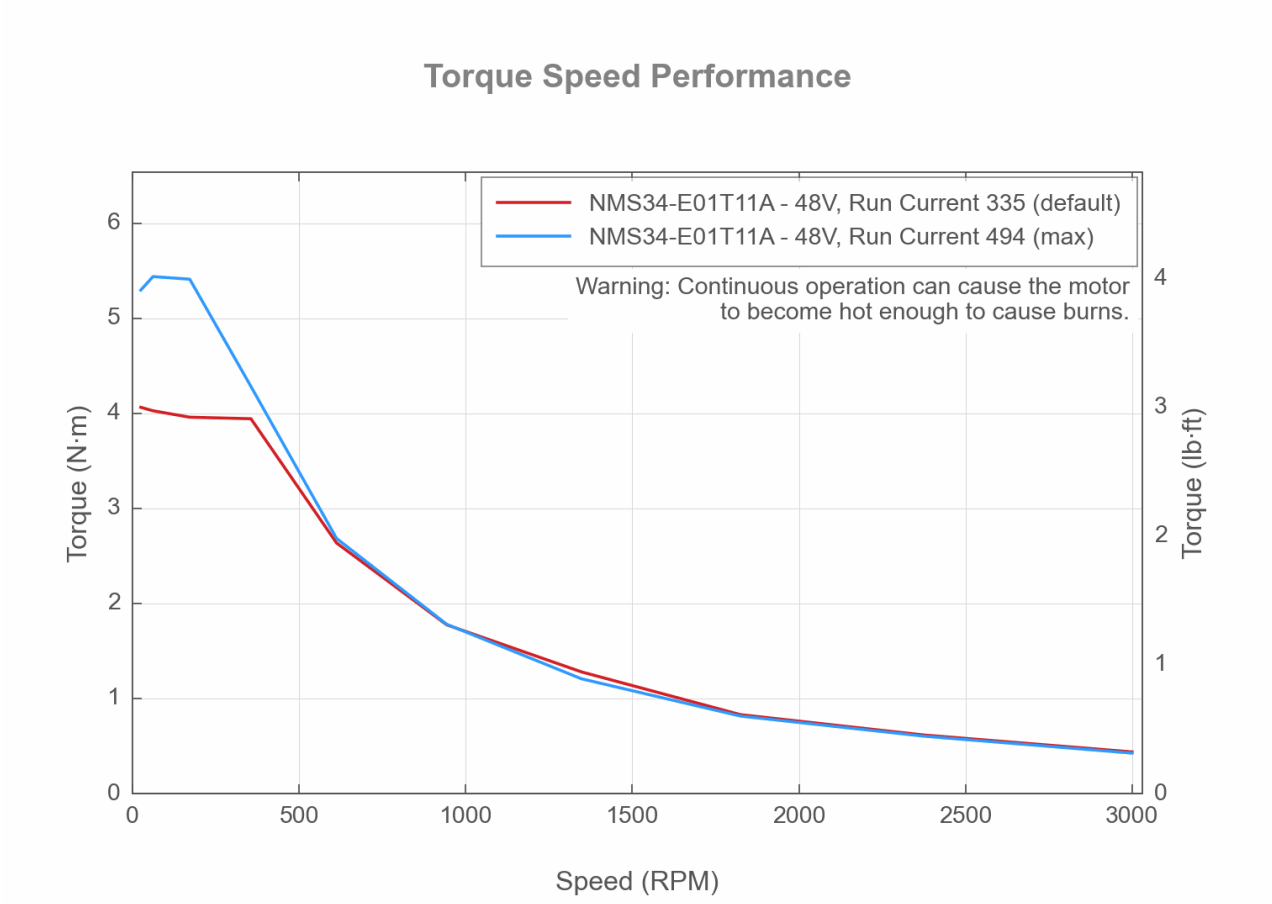
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NMS23 E TORQUE SPEED



NMS34 E01T11A Torque Speed Performance



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X-NMS Series Datasheet



- NEMA 17 and 23 stepper motors with built-in controllers
- Up to 3000 rpm speed and 1.8 N m torque
- Daisy-chains data and power with X-series products
- Home sensor and magnet included, optional away sensor
- Custom versions available

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X-NMS Series Overview

These NEMA size 17 and 23 stepper motors have built-in controllers. A detachable home sensor HS02 and magnet are included. An additional HS02L150 Hall effect sensor can be purchased to function as an away sensor. These motors are standalone units requiring only a standard 24 V or 48 V power supply.

An indexed knob provides convenient manual control for versatile operation even without a computer. The motors connect to the USB 2.0 or RS-232 port of any computer and can be daisy-chained with any other Zaber products. Convenient locking, 4-pin, M8 connectors on the unit allow for secure connection between units. The chain also shares power, so multiple X-Series products can use a single power supply.

For more information visit: https://www.zaber.com/products/stepper-motors/X-NMS

X-NMS Series Part Numbering & Options

X-NMS 17

Motor Size
17 — NEMA 17
23 — NEMA 23

X-NMS Series Drawings

• View all drawings and documents at zaber.com

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X-NMS Series Specifications

Overview

Specification	Value
Built-in Controller	Yes
LED Indicators	Yes

Positioning Performance

Specification	Value
Accuracy (unidirectional)	0.25 ° (4.3625 mrad)
Repeatability	<0.1 ° (<1.745 mrad)
Microstep Size (Default Resolution)	0.028125 ° (490.866 µrad)
Default Resolution	1/64 of a step

Speed

Specification	Value
Maximum Speed	18000 °/s (3 rpm)
Minimum Speed	0.017172 °/s (299.703 µrad/s)
Speed Resolution	0.017172 °/s (299.703 µrad/s)

Encoder & Sensing

Specification	Value
Encoder Type	None

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Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)

Power and Communication

Specification	Value
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Locking 4-pin M8
Power Supply	24-48 VDC
Power Plug	2-pin Screw Terminal

Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Weight	Maximum Torque	Motor Rated Current	Motor Frame Size
X-NMS17	0.58 kg (1.279 lb)	0.58 N·m (0.428 lb·ft)	2300 mA/phase	NEMA 17
X-NMS23	1.3 kg (2.866 lb)	1.8 N·m (1.328 lb·ft)	3000 mA/phase	NEMA 23

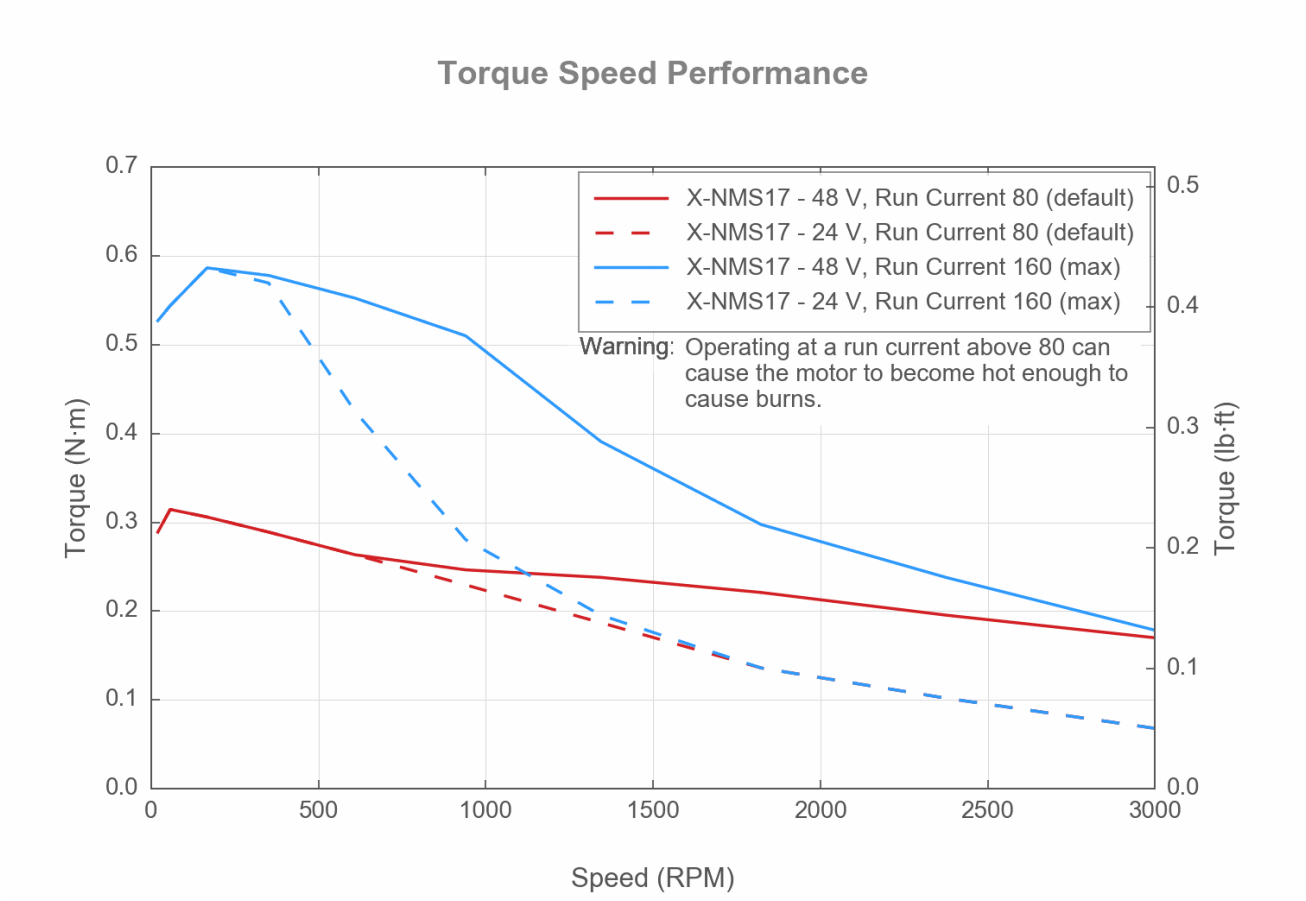
Part Number	Maximum Current Draw	Mounting Interface
X-NMS17	1900 mA	M3 threaded holes
X-NMS23	3500 mA	4.5 mm thru holes

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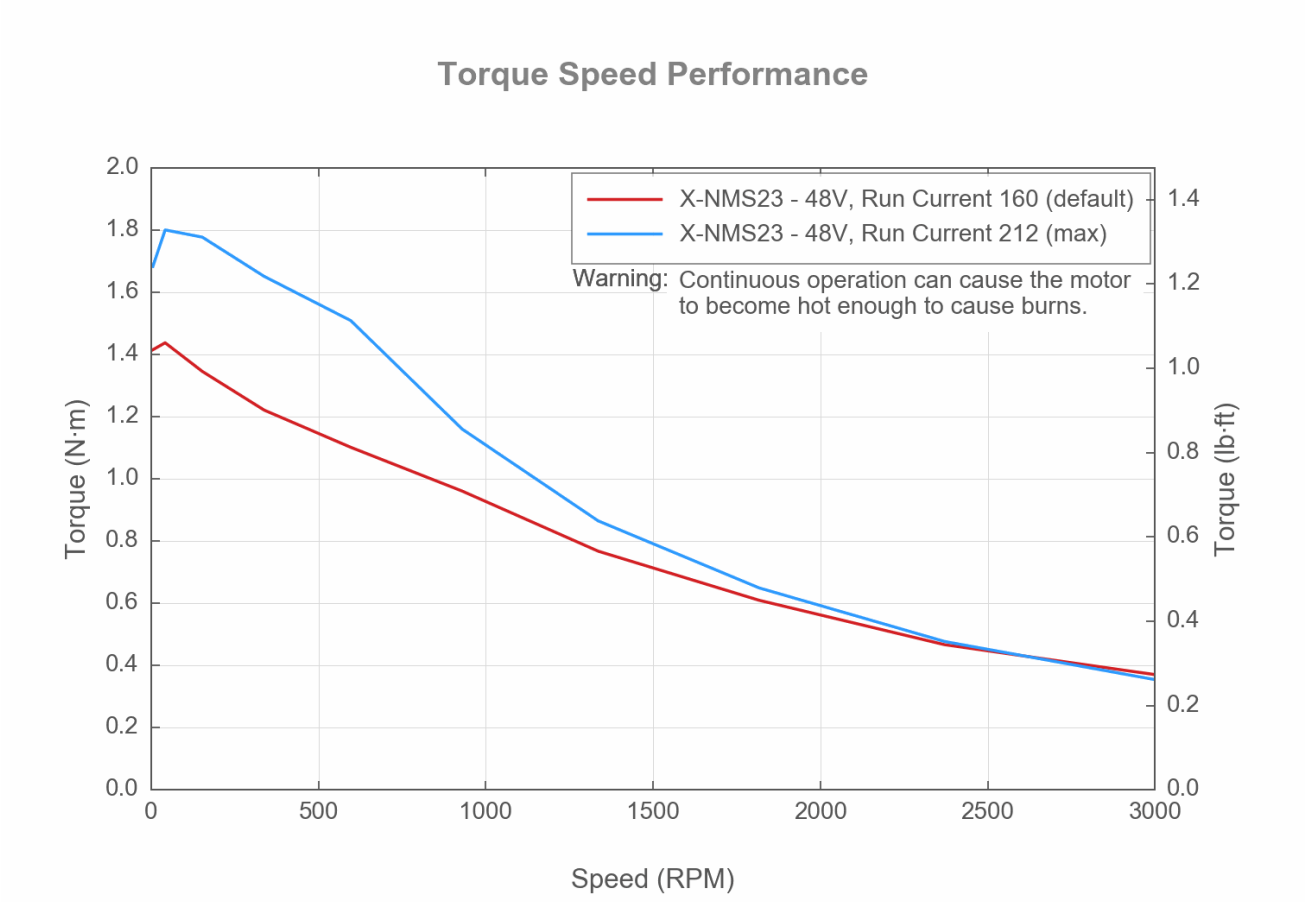
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X-NMS Series Charts

X NMS17 TORQUE SPEED



X NMS23 TORQUE SPEED



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X-NMS-E Series Datasheet



- NEMA 17 and 23 stepper motors with built-in controllers and encoders
- Up to 3000 rpm speed and 1.8 N m torque
- Daisy-chains data and power with X-series products
- Home sensor and magnet included, optional away sensor
- Optional integrated power-off brake
- Custom versions available

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X-NMS-E Series Overview

These NEMA size 17 and 23 stepper motors have built-in controllers and encoders for stall detection and recovery. A detachable home sensor HS02 and magnet are included. An additional HS02L150 Hall effect sensor can be purchased to function as an away sensor. These motors are standalone units requiring only a standard 24 V or 48 V power supply.

An indexed knob provides convenient manual control for versatile operation even without a computer. The motors connect to the USB 2.0 or RS-232 port of any computer and can be daisy-chained with any other Zaber products. Convenient locking, 4-pin, M8 connectors on the unit allow for secure connection between units. An optional power-off brake is available on NEMA 23 sized steppers to secure the payload across power cycles. The chain also shares power, so multiple X-Series products can use a single power supply.

For more information visit: https://www.zaber.com/products/stepper-motors/X-NMS-E

X-NMS-E Series Part Numbering & Options

X-NMS 17 - _ E01 _

Motor Size	Brake Option	Encoder Options	P1
17 — NEMA 17	**None** — No Brake	**E01** — Motor Encoder, 500 CPR	**None** — Standard stepper motor
23 — NEMA 23	**B** — Brake	**E08** — Motor Encoder, 400 CPR	**P1** — For use with LC40 guides

X-NMS-E Series Drawings

• View all drawings and documents at zaber.com

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X-NMS-E Series Specifications

Overview

Specification	Value
Built-in Controller	Yes
LED Indicators	Yes

Positioning Performance

Specification	Value
Accuracy (unidirectional)	0.25 ° (4.3625 mrad)
Repeatability	<0.1 ° (<1.745 mrad)
Microstep Size (Default Resolution)	0.028125 ° (490.866 µrad)
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Brake Torque	1.5 N·m (1.107 lb·ft)

Speed

Specification	Value
Maximum Speed	18000 °/s (3 rpm)
Minimum Speed	0.017172 °/s (299.703 µrad/s)
Speed Resolution	0.017172 °/s (299.703 µrad/s)

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Encoder & Sensing

Specification	Value
Encoder Type	Rotary quadrature encoder (incremental)

Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)

Power and Communication

Specification	Value
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Locking 4-pin M8
Power Supply	24-48 VDC
Power Plug	2-pin Screw Terminal

Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Weight	Maximum Torque	Encoder Resolution	Motor Rated Current
X-NMS17-E01	0.58 kg (1.279 lb)	0.58 N·m (0.428 lb·ft)	500 CPR (2 states/rev)	2300 mA/phase
X-NMS23-BE08	1.926 kg (4.246 lb)	1.8 N·m (1.328 lb·ft)	400 CPR (16 states/rev)	3000 mA/phase

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X-NMS23-BE08P1	1.926 kg (4.246 lb)	1.8 N·m (1.328 lb·ft)	400 CPR (16 states/rev)	3000 mA/phase
X-NMS23-E08	1.3 kg (2.866 lb)	1.8 N·m (1.328 lb·ft)	400 CPR (16 states/rev)	3000 mA/phase
X-NMS23-E08P1	1.3 kg (2.866 lb)	1.8 N·m (1.328 lb·ft)	400 CPR (16 states/rev)	3000 mA/phase

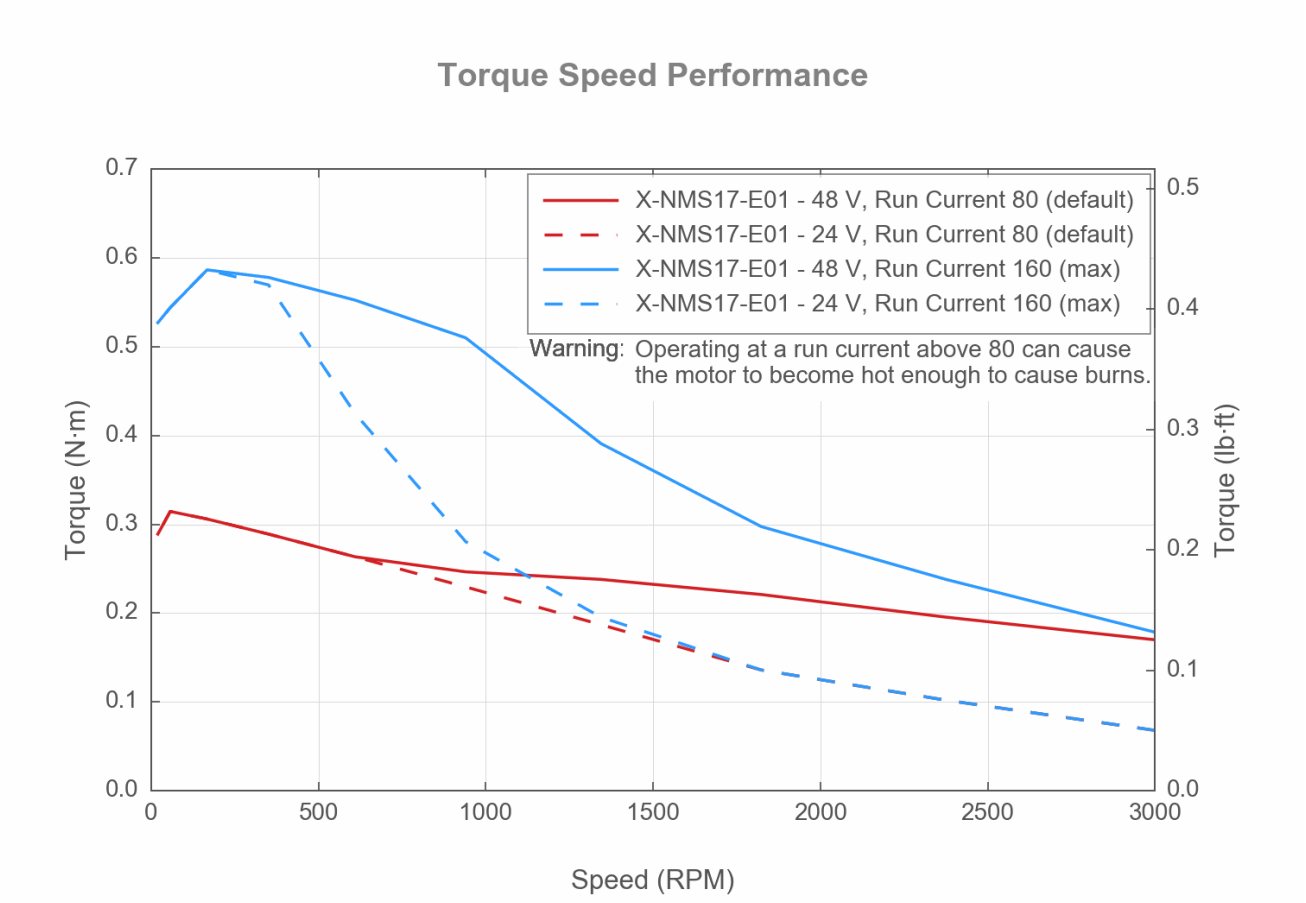
Part Number	Motor Frame Size	Maximum Current Draw	Mounting Interface
X-NMS17-E01	NEMA 17	1900 mA	M3 threaded holes
X-NMS23-BE08	NEMA 23	3500 mA	4.5 mm thru holes
X-NMS23-BE08P1	NEMA 23	3500 mA	4.5 mm thru holes
X-NMS23-E08	NEMA 23	3500 mA	4.5 mm thru holes
X-NMS23-E08P1	NEMA 23	3500 mA	4.5 mm thru holes

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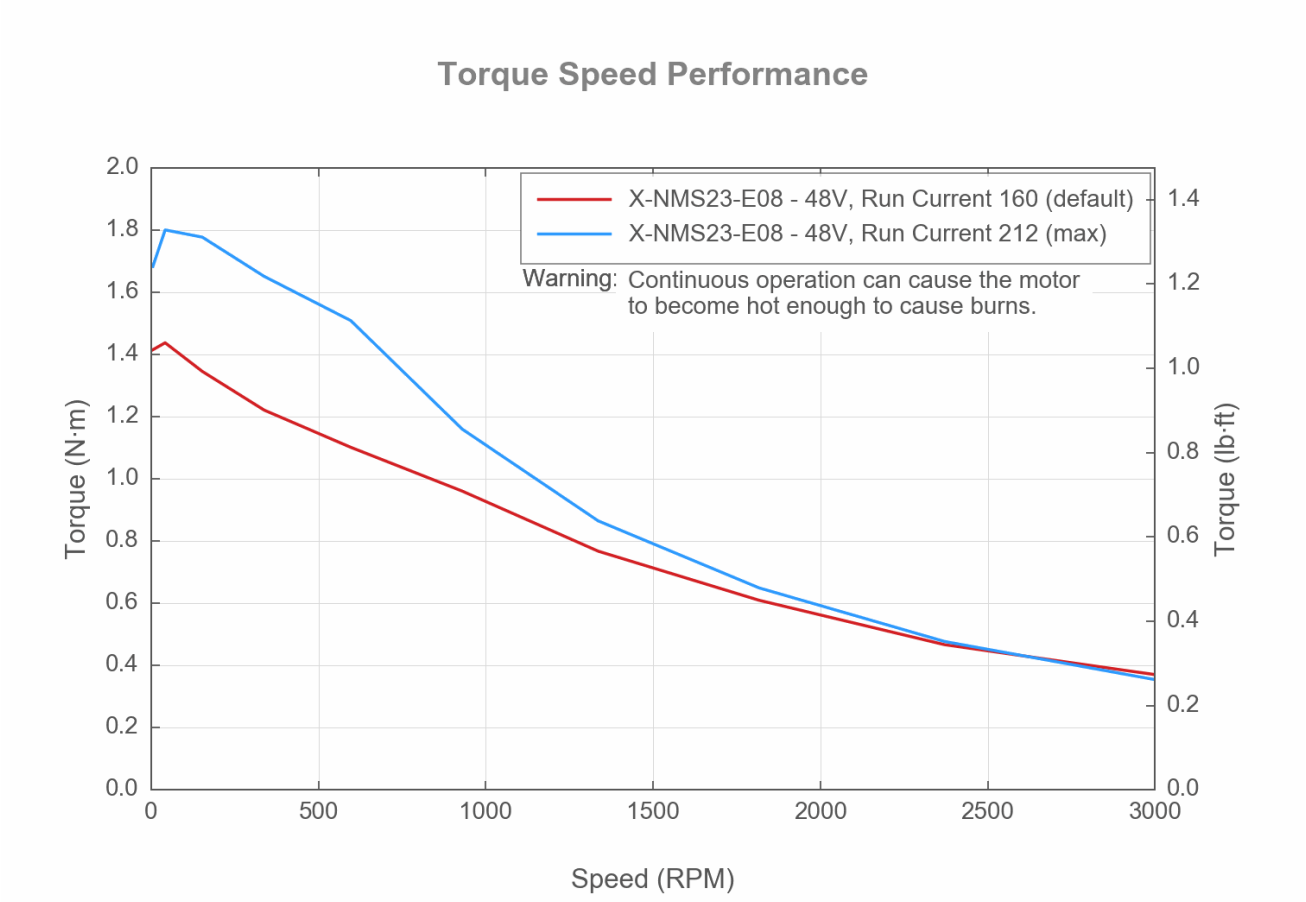
1-604-569-3780 *Direct*
1-888-276-8033 *Toll Free*
1-604-648-8033 *Fax*

X-NMS-E Series Charts

X NMS17 E01 TORQUE SPEED



X NMS23 E08 TORQUE SPEED



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