

Servo Motors

Overview

Tuning-Free
NX Series

Tuning-Free
NX

Page

NX Series..... C-8

Tuning-Free Servo Motor and Driver NX Series



For detailed information about regulations and standards, please see the Oriental Motor website.



The tuning-free servo motor and driver in the **NX** Series are easy to operate and allow for smooth operation with large inertial loads and belt mechanisms.



See Full Product Details Online
www.orientalmotor.com

● Manual

● Specifications

● Dimensions

● CAD

● Characteristics

● Connection and Operation

Features

Easy Operation

As with a stepper motor, stable operation can be achieved in high inertia drive and belt mechanism drive applications without gain adjustment. Also, adjusting the gain manually enables operation under even more stringent load conditions.

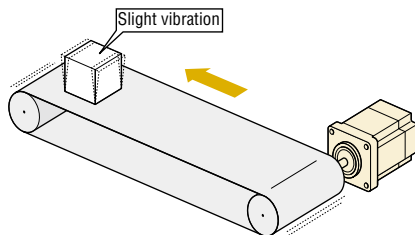
● Achieves High Inertia Drive

With automatic tuning, operation up to 50 times the rotor inertia is possible. With manual tuning, operation up to 100 times the rotor inertia is possible.

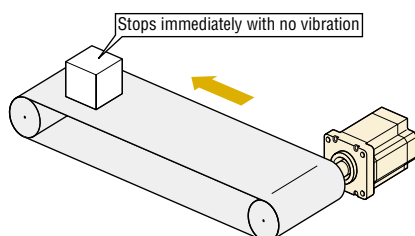
● Achieves Smooth Operation with Belt Mechanisms

Belt mechanisms can be operated with the same performance as a stepper motor without the occurrence of vibration before stopping.

● Conventional Products



● NX Series



Easy Handling

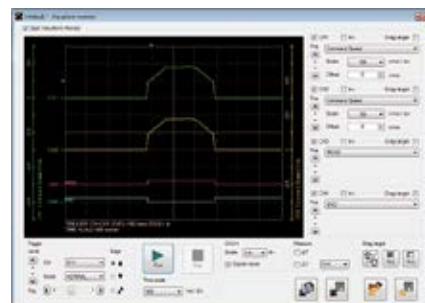
Basic settings and adjustments are made with switches and potentiometers on the front panel. This design allows for easy control without a computer, and even saves the hassle of complicated UP and DOWN key operations.



Easy Setting and Easy Monitoring

By using the support software (**MEXE02**) or the separately sold control module (**OPX-2A**), parameters can be changed, functions set, and monitoring performed to better suit your system.

● Operating Status Waveform Monitoring*



*Monitoring the operating status waveform requires the support software (**MEXE02**). The support software can be downloaded from the website. Please contact us for details.

4 Control Modes

This servo unit can operate in 4 control modes. Also, with the support software (**MEXE02**) or the separately sold control module (**OPX-2A**), the functions of each control mode can be extended.

● Position Control

The built-in, high resolution 20-bit absolute encoder enables highly accurate positioning.

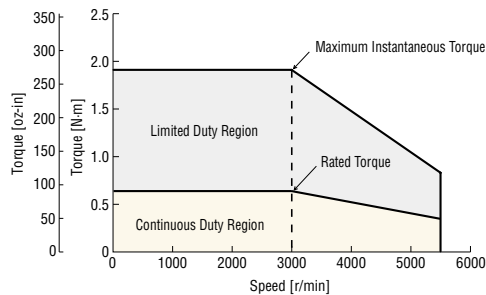
◇ High Speed and High Response

High speed positioning can be performed utilizing the high-speed and high-response characteristics.

Maximum Speed **5500** r/min

Factory Settling Time **60 to 70** ms

NXM620A

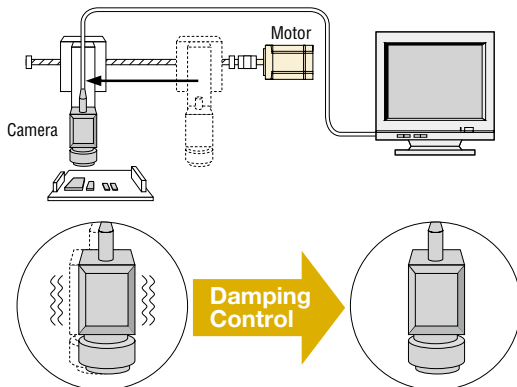


◇ Damping Control

Eliminates load resonance by adjusting the potentiometer. This adjustment can be made easily and without searching for the resonance frequency.

<Application Example: Image inspection equipment>

Camera vibration during stopping can be suppressed by using the damping control.

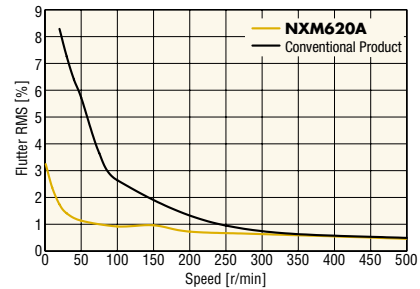


◇ Absolute System

Use as an absolute system by attaching an optional battery **BAT01A** (sold separately) is possible. The current position of the encoder can be stored, so resetting after a blackout or similar occurrence is easy.

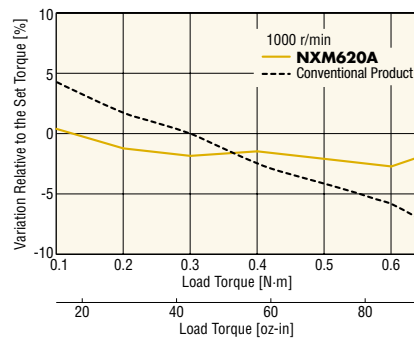
● Speed Control

The reduction of motor cogging torque and the use of a high resolution encoder have substantially reduced variation in rotation in the low speed range (the flutter characteristic), resulting in smooth operation even at low speeds.



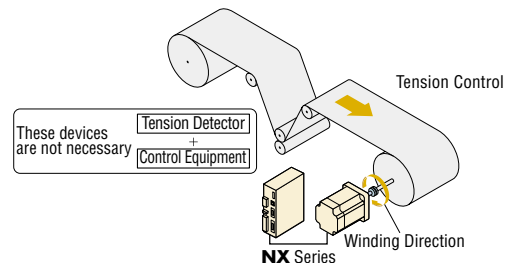
● Torque Control

Variation of the generated torque relative to the set torque (torque accuracy) has been improved, resulting in highly accurate torque control.



● Tension Control

Tension control such as winding film can be easily performed without using a tension detector or control equipment.



Degree of Protection IP65

These motors conform to IP65 and are ideal for use in environments requiring dust resistance and water resistance. (Excluding installation surface and connector locations)

Separate Main Power Supply and Control Power Supply

A control power supply terminal that is separate from the main power supply is provided. Even when the main power supply is cut off in the case of, for example, an emergency stop, operations such as position detection and alarm contents checking can be performed if 24 VDC power is supplied to the control power supply terminal. (Operation with only the main power supply is also possible.)

Conforms to Semiconductor Equipment and Materials International Standards “SEMI F47”

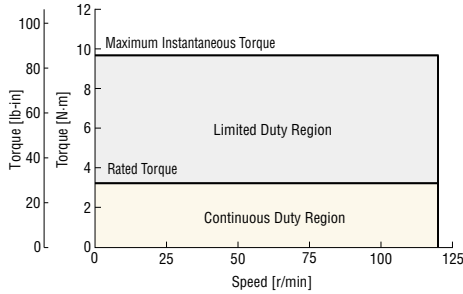
- Conforms to SEMI Standards regarding power supply voltage drop.
- Effective for use in semiconductor equipment.
(Always evaluate the product with it mounted on actual equipment.)

High Performance Geared Motors

● High Torque and Wide Speed Range

These geared motors fully utilize the motor output torque.

NXM65A-PS25



● PS Geared Type

The **PS** geared type is a geared motor that employs a planetary gear mechanism.

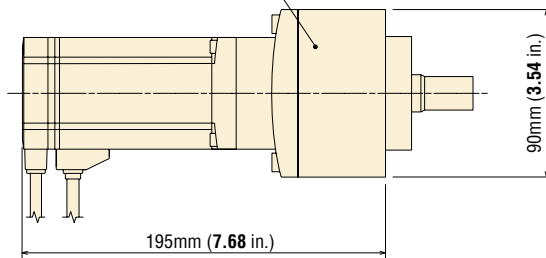
◇ Low Backlash

The backlash is 15 arc minutes (0.25°) max. These motors can be used in a wide range of applications.

◇ Compact and Lightweight Design

These are compact, lightweight geared motors.


PS Geared Type
NXM940A-PS10
Mass: 3.5 kg (7.7 lb.)



◇ Product Line of PS Geared Type

The product line includes geared motors with an output of 50~400 W.

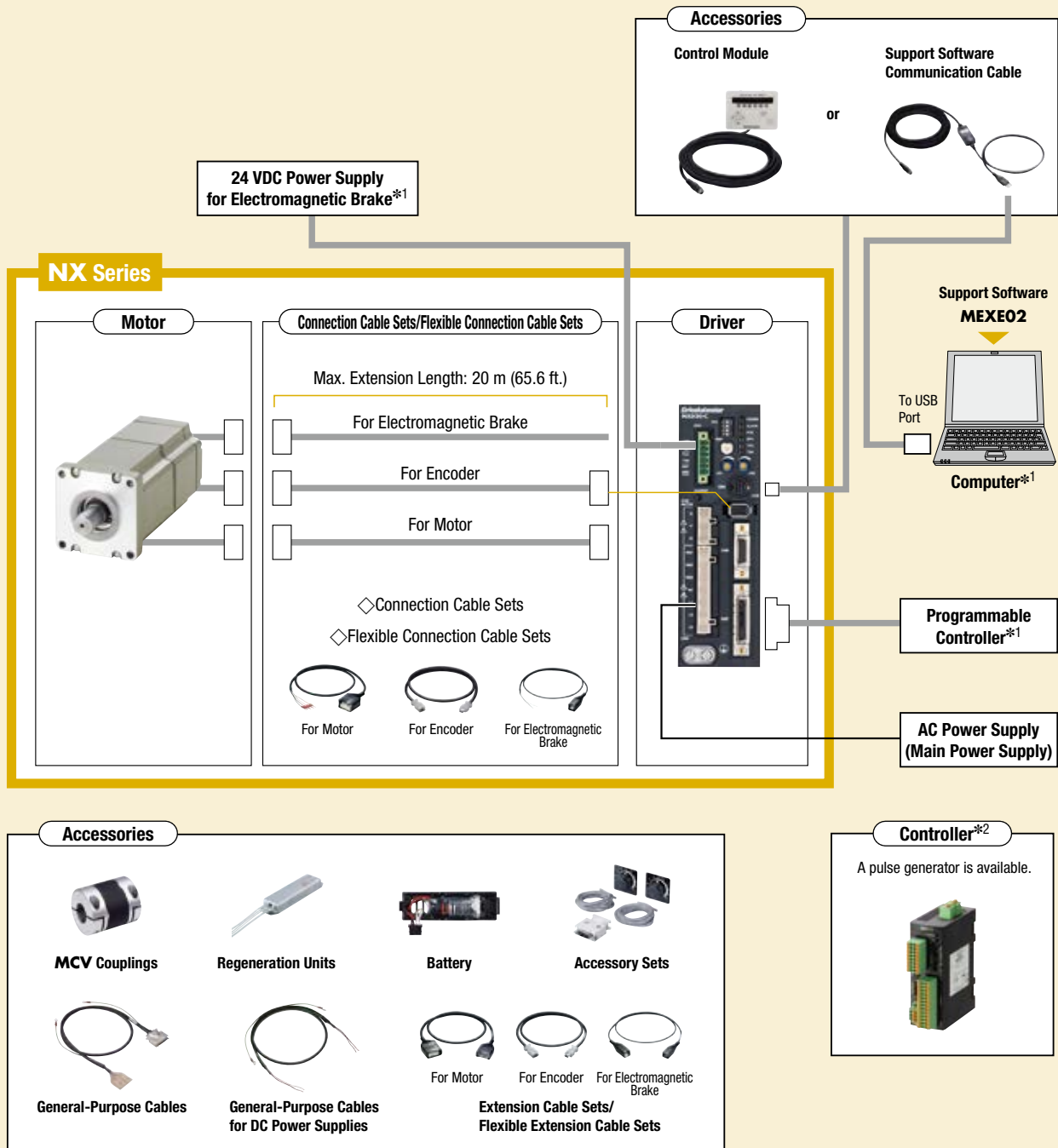
[“□60 (□2.36)” indicates a motor frame size of 60 mm (2.36 in.).]

Geared Type	Gear Ratio	Power Supply Input	Output Power			
			50 W (1/15 HP)	100 W (1/8 HP)	200 W (1/4 HP)	400 W (1/2 HP)
PS Geared Type (Planetary Gear Mechanism) 	5, 10, 25	Single-Phase 100-115 VAC	□60 (□2.36)	□60 (□2.36)	□90 (□3.54)	
		Single-Phase/Three-Phase 200-230 VAC	□60 (□2.36)	□60 (□2.36)	□90 (□3.54)	
		Three-Phase 200-230 VAC				□90 (□3.54)

System Configuration

Standard Type with Electromagnetic Brake

An example of a single axis system configuration with the **SCX11** controller in position control mode is shown below.



*1 Not supplied.

*2 Required only for the position control mode.

● The **MEXE02** can be downloaded from Oriental Motor Website Download Page. The USER MANUAL described the operating methods of this product is provided. For detail, contact the nearest Oriental Motor sales office or download from Oriental Motor Website Download Page. <http://www.orientalmotor.com/>

● The system configuration shown above is an example. Other combinations are available.

Product Number

Motor

NXM 6 10 M - PS 25

① ② ③ ④ ⑤ ⑥

Driver

NXD 20 - A

① ② ③

Connection Cable Sets/Flexible Connection Cable Sets

CC 050 V N F B

① ② ③ ④ ⑤ ⑥

Product Line

Motor

◇ Standard Type

Output Power	Product Name	List Price
50 W (1/15 HP)	NXM45A	\$546.00
100 W (1/8 HP)	NXM410A	\$574.00
200 W (1/4 HP)	NXM620A	\$650.00
400 W (1/2 HP)	NXM640A	\$679.00
750 W (1 HP)	NXM975A	\$944.00

◇ PS Geared Type

Output Power	Product Name	List Price
50 W (1/15 HP)	NXM65A-PS5	\$1,007.00
	NXM65A-PS10	\$1,007.00
	NXM65A-PS25	\$1,096.00
100 W (1/8 HP)	NXM610A-PS5	\$1,035.00
	NXM610A-PS10	\$1,035.00
	NXM610A-PS25	\$1,124.00
200 W (1/4 HP)	NXM920A-PS5	\$1,225.00
	NXM920A-PS10	\$1,225.00
	NXM920A-PS25	\$1,379.00
400 W (1/2 HP)	NXM940A-PS5	\$1,255.00
	NXM940A-PS10	\$1,255.00
	NXM940A-PS25	\$1,408.00

①	Motor Type	NXM: NX Series Motor
②	Motor Frame Size	4: 42 mm (1.65 in.)
		6: 60 mm (2.36 in.) [60 mm (2.36 in.)]
		9: 85 mm (3.35 in.) [90 mm (3.54 in.)] [] is the gearhead frame size
③	Output Power	5: 50 W (1/15 HP) 10: 100 W (1/8 HP) 20: 200 W (1/4 HP) 40: 400 W (1/2 HP) 75: 750 W (1 HP)
④	Output Shaft Configuration	A: Standard M: With Electromagnetic Brake
⑤	Geared Type	PS: PS Geared Type Blank: Standard Type
⑥	Gear Ratio	

①	Driver Type	NXD: NX Series Driver
②	Applicable Motor	20: 50 W (1/15 HP) 100 W (1/8 HP) 200 W (1/4 HP)
		75: 400 W (1/2 HP) 750 W (1 HP)
③	Power Supply Input	A: Single-Phase 100-115 VAC C: Single-Phase/Three-Phase 200-230 VAC S: Three-Phase 200-230 VAC

①		CC: Cable
②	Length	010: 1 m (3.3 ft.) 020: 2 m (6.6 ft.)
		030: 3 m (9.8 ft.) 050: 5 m (16.4 ft.)
		070: 7 m (23.0 ft.) 100: 10 m (32.8 ft.)
		150: 15 m (49.2 ft.) 200: 20 m (65.6 ft.)
③	Reference Number	
④	Applicable Product	N: NX Series
⑤	Cable Type	F: Connection Cable Sets B: Flexible Connection Cable Sets
⑥	Description	Blank: Without Electromagnetic Brake B: With Electromagnetic Brake

◇ Standard Type with Electromagnetic Brake

Output Power	Product Name	List Price
50 W (1/15 HP)	NXM45M	\$826.00
100 W (1/8 HP)	NXM410M	\$854.00
200 W (1/4 HP)	NXM620M	\$930.00
400 W (1/2 HP)	NXM640M	\$959.00
750 W (1 HP)	NXM975M	\$1,224.00

◇ PS Geared Type with Electromagnetic Brake

Output Power	Product Name	List Price
50 W (1/15 HP)	NXM65M-PS5	\$1,287.00
	NXM65M-PS10	\$1,287.00
	NXM65M-PS25	\$1,376.00
100 W (1/8 HP)	NXM610M-PS5	\$1,315.00
	NXM610M-PS10	\$1,315.00
	NXM610M-PS25	\$1,404.00
200 W (1/4 HP)	NXM920M-PS5	\$1,505.00
	NXM920M-PS10	\$1,505.00
	NXM920M-PS25	\$1,659.00
400 W (1/2 HP)	NXM940M-PS5	\$1,535.00
	NXM940M-PS10	\$1,535.00
	NXM940M-PS25	\$1,688.00

● Driver

Power-Supply Input	Applicable Motor	Product Name	List Price
Single-Phase 100-115 VAC	50 W (1/15 HP) 100 W (1/8 HP) 200 W (1/4 HP)	NXD20-A	\$847.00
Single-Phase/ Three-Phase 200-230 VAC	50 W (1/15 HP) 100 W (1/8 HP) 200 W (1/4 HP)	NXD20-C	\$847.00
Three-Phase 200-230 VAC	400 W (1/2 HP) 750 W (1 HP)	NXD75-S	\$980.00

● Connection Cable Sets/Flexible Connection Cable Sets

Use a flexible connection cable set if the cable will be bent.

Extension cables and flexible extension cables that can extend the connection cables are available.

◇ For Motor

Type	Length m (ft.)	Product Name	List Price
Connection Cable Sets	1 (3.3)	CC010VNF	\$100.00
	2 (6.6)	CC020VNF	\$115.00
	3 (9.8)	CC030VNF	\$130.00
	5 (16.4)	CC050VNF	\$161.00
	7 (23.0)	CC070VNF	\$192.00
	10 (32.8)	CC100VNF	\$238.00
	15 (49.2)	CC150VNF	\$315.00
Flexible Connection Cable Sets	20 (65.6)	CC200VNF	\$391.00
	1 (3.3)	CC010VNR	\$107.00
	2 (6.6)	CC020VNR	\$130.00
	3 (9.8)	CC030VNR	\$153.00
	5 (16.4)	CC050VNR	\$200.00
	7 (23.0)	CC070VNR	\$246.00
	10 (32.8)	CC100VNR	\$315.00
	15 (49.2)	CC150VNR	\$430.00
	20 (65.6)	CC200VNR	\$545.00

◇ For Motor/Electromagnetic Brake

Type	Length m (ft.)	Product Name	List Price
Connection Cable Sets	1 (3.3)	CC010VNF	\$120.00
	2 (6.6)	CC020VNF	\$138.00
	3 (9.8)	CC030VNF	\$156.00
	5 (16.4)	CC050VNF	\$192.00
	7 (23.0)	CC070VNF	\$228.00
	10 (32.8)	CC100VNF	\$281.00
	15 (49.2)	CC150VNF	\$371.00
Flexible Connection Cable Sets	20 (65.6)	CC200VNF	\$460.00
	1 (3.3)	CC010VNR	\$132.00
	2 (6.6)	CC020VNR	\$161.00
	3 (9.8)	CC030VNR	\$191.00
	5 (16.4)	CC050VNR	\$249.00
	7 (23.0)	CC070VNR	\$308.00
	10 (32.8)	CC100VNR	\$397.00
	15 (49.2)	CC150VNR	\$544.00
	20 (65.6)	CC200VNR	\$691.00

■ Included

● Motor

Type	Included	Parallel Key	Operating Manual
Standard Type	—		1 Copy
PS Geared Type	1 piece		

● Driver

Type	Included	Connector	Operating Manual
Common to All Types		<ul style="list-style-type: none"> • CN1 connector (1 piece) • CN2 connector (1 piece) • CN3 connector (1 piece) • CN7 connector (1 piece) • Connector wiring lever (1 piece) 	1 Copy

● Connection Cable Sets/Flexible Connection Cable Sets

Type	Included	Operating Manual
Connection Cable Set	—	
Flexible Connection Cable Sets	1 Copy	

For details (specifications, characteristics, dimensions and more) on these products, please either refer to our website or contact technical support or your nearest Oriental Motor sales office.

www.orientalmotor.com