

# MEGAPOSITIONER™

High-rigidity and large-output-torque precision rotary positioning unit using speed reducer and Megatorque Motor™

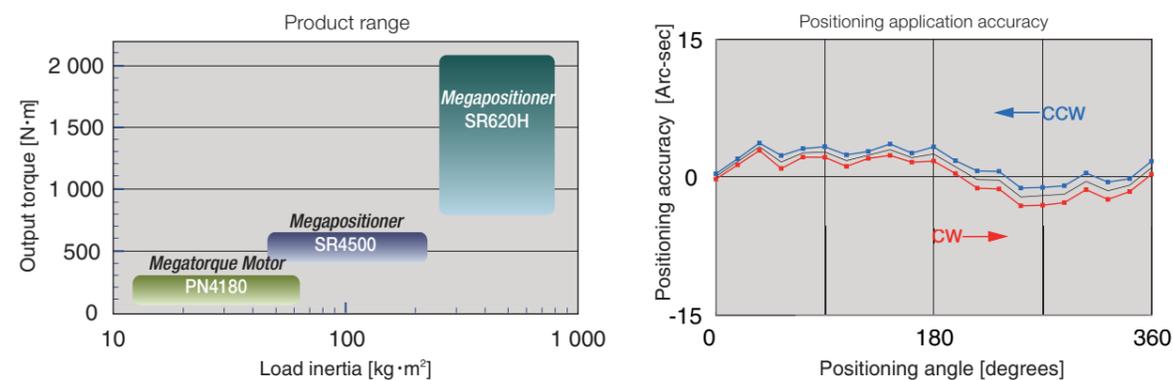
## ◆ Features

### 1 High-speed positioning of large-inertia loads

Precision speed reducer combined with Megatorque Motor effectively attenuates reflected load fluctuation and disturbance for high speed positioning.  
Max. output torque of 1,960 N·m and applicable inertia up to 700 kg·m<sup>2</sup>. (Model SR6)

### 2 High-accuracy positioning performance

Provides +/- 5 arc-sec repeatability (precision type) using rigid-shaft design zero-backlash speed reducer driven by high positioning accuracy Megatorque Motor.



### 3 Low profile, compact footprint and large through holes

Minimized footprint includes motor with 222 mm low-profile height (Model SR6).  
Output axis has 145 mm large through holes (Model SR6).

### 4 Max. 10 μm rotor run-out with high rigidity

High moment rigidity in low profile design achieved with custom bearings.  
Moment load: Max. 9000 N·m, Rotor run-out: Max. 10 μm (Model SR6)

### 5 Custom Driver Unit with positioning controller function

Positioning operation can be controlled without complicated communications or additional controller.  
Home position sensor incorporated so Megapositioner can be connected directly to Driver Unit.



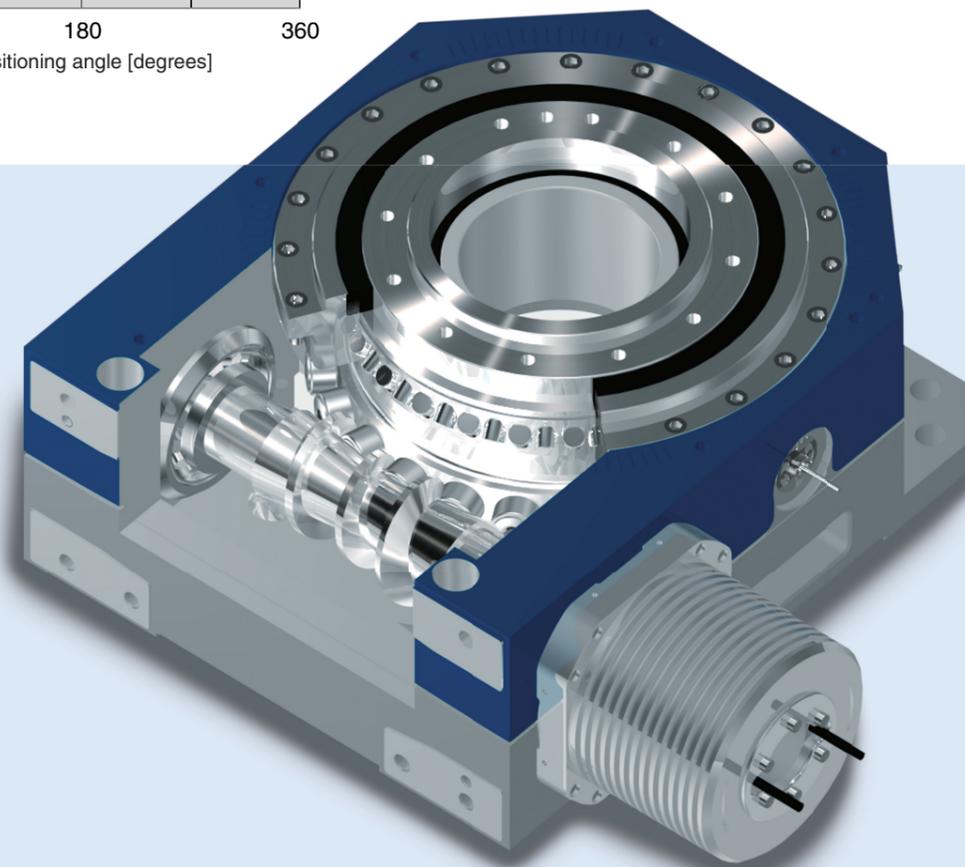
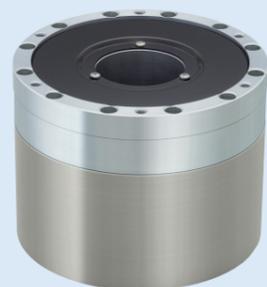
## ◆ Product Configuration

### Megatorque Motor™

(PS series: High-speed outer rotor type)

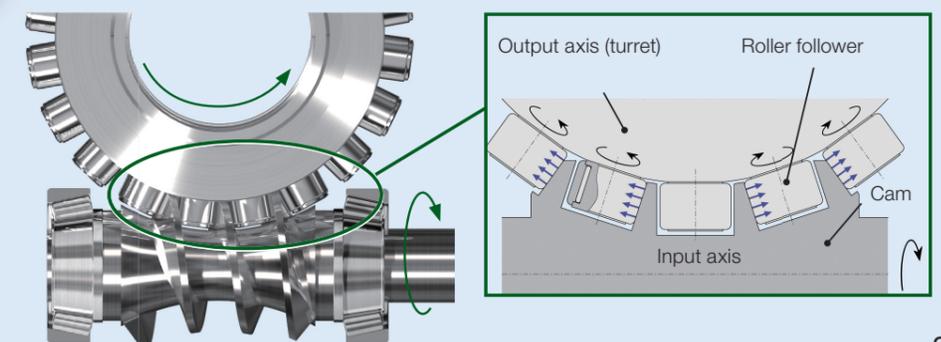
This direct drive motor features high torque, high speed and compact size.

It is capable of handling load inertia up to 100 times the rotor inertia. The combination of proprietary disturbance observer and preview-based feed-forward control configuration enables very-high-speed positioning.



### Zero-backlash precision speed reducer

Zero-backlash design is achieved by an input screw shape in which output roller followers contact the output contact screw at consistent preload. This design enables precise positioning in any rotating direction and maintains accuracy without developing any wear.



# Megapositioner

## Megapositioner reference number

Example of reference number: **XY – SR 6 20H FN001 E01**

Megapositioner

Size

Max. output torque [N·m]  
H indicates hecto (10<sup>2</sup>) units

Driver Unit No.  
E01: Standard  
C01: CC-Link



Design no.  
FN001: Standard, FN002: High-precision

## Megapositioner specifications

| Item                                   | Model | XY-SR4500FN001                                                                                    | XY-SR4500FN002 | XY-SR620HFN001 | XY-SR620HFN002 |
|----------------------------------------|-------|---------------------------------------------------------------------------------------------------|----------------|----------------|----------------|
| Max. torque [N·m]                      |       | 500                                                                                               |                | 1 960          |                |
| Rated torque [N·m]                     |       | 80                                                                                                |                | 520            |                |
| Max. speed [S <sup>-1</sup> ]          |       | 0.42                                                                                              |                | 0.21           |                |
| Rated speed [S <sup>-1</sup> ]         |       | 0.25                                                                                              |                | 0.04           |                |
| Speed reduction ratio                  |       | 20                                                                                                |                | 24             |                |
| Sensor resolution [counts/rev]         |       | 52 428 800                                                                                        |                | 62 914 560     |                |
| Accuracy [arc-rec]                     |       | 60                                                                                                | 40             | 60             | 40             |
| Repeatability [arc-rec]                |       | ±15                                                                                               | ±5             | ±15            | ±5             |
| Rotor run out [μm]                     |       | 10                                                                                                |                |                |                |
| Max. axial load [N]                    |       | 11 600*                                                                                           |                | 32 700*        |                |
| Max. radial load [N]                   |       | 10 200*                                                                                           |                | 28 900*        |                |
| Max. moment load [N·m]                 |       | 820*                                                                                              |                | 2 770*         |                |
| Max. load inertia [kg·m <sup>2</sup> ] |       | 200                                                                                               |                | 700            |                |
| Through hole diameter [mm]             |       | 115                                                                                               |                | 145            |                |
| Weight [kg]                            |       | 100                                                                                               |                | 240            |                |
| Environmental conditions               |       | 5 to 40 °C, 20 to 80% humidity.<br>In indoor use, free from dust, condensation and corrosive gas. |                |                |                |

\* Load rating is with all max loads applied. Load ratings vary due to combination of applied loads. Refer to allowable load chart for details. Load condition, load inertia, rigidity and resonance frequency must be considered for proper positioning. Please consult with NSK for details.

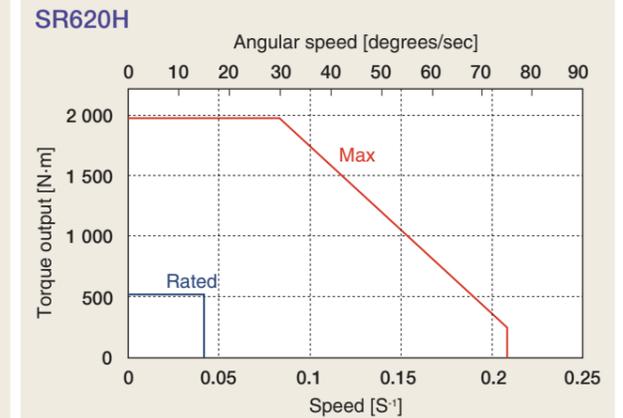
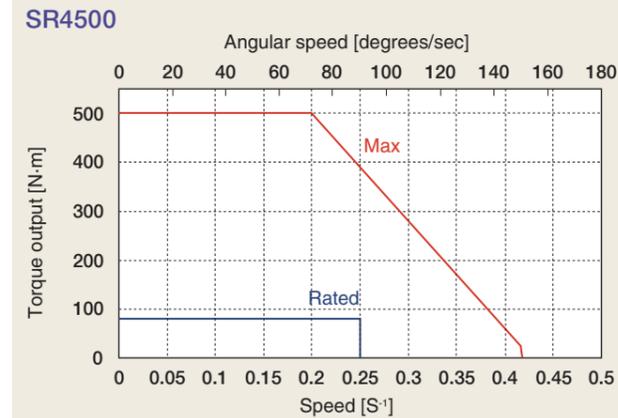


SR620H

SR4500

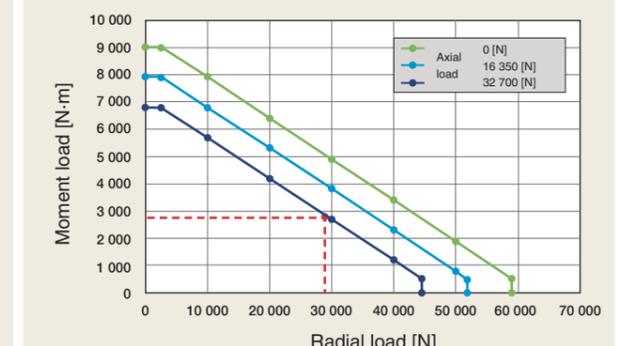
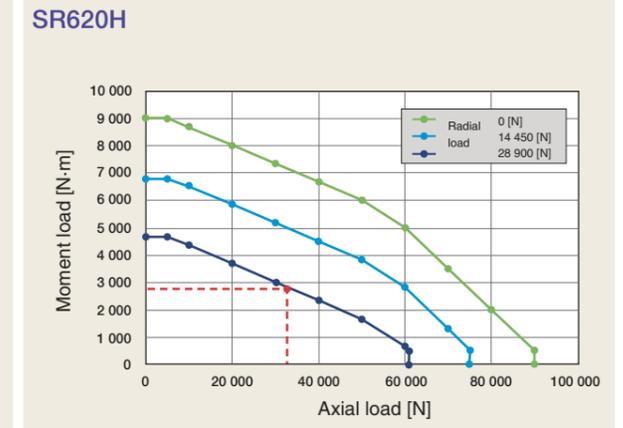
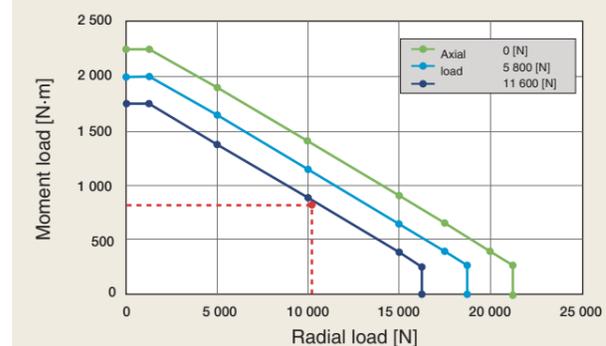
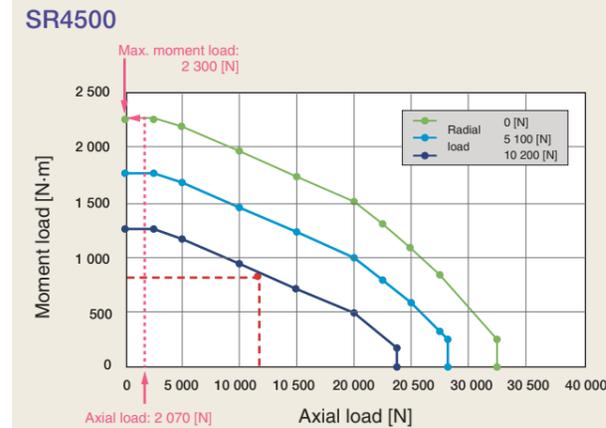
## Rotational speed and output torque characteristics

### Torque-speed curve



- Please refer to the selection guide.
- Please consult NSK in if positioning exceeds 360° or for continuous rotation.

## Allowable load chart



The load chart above shows static allowable load on the output axis. Please consult with NSK for dynamic or impact loads.

