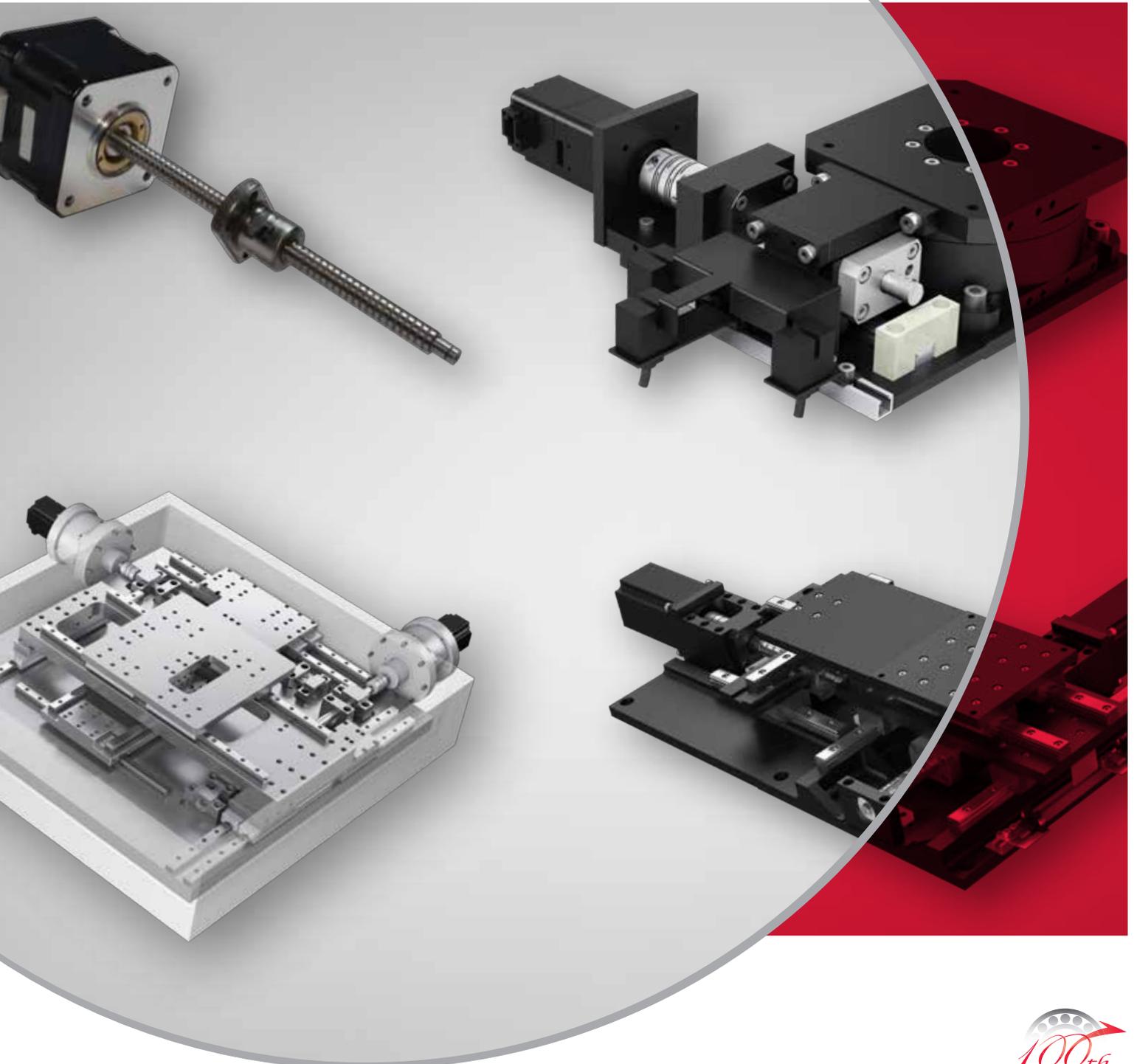




# NSK INTEGRATION CAPABILITIES FOR XY TABLES AND PRECISION LINEAR MOTION ASSEMBLIES

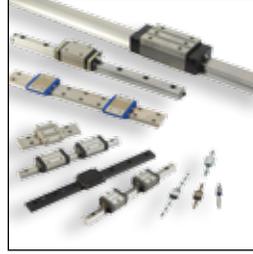


# NSK Product Offerings



## Ball Screw Products

- › High accuracy and rigidity ensure optimal performance.
- › Compact design for space saving applications.
- › Available in various diameter, length, lead, accuracy, preload and recirculation options.
- › Armoloy™ chrome plating option available.



## Linear Guide Products

- › Interchangeable rail and linear slide sold separately or as assembled components.
- › Shock resistant design.
- › Universal slider.
- › Ability to butt rails.
- › Armoloy™ chrome plating option available.



## Robot Modules™ Products

- › Integrated linear axis system that uses NSK linear guides, ball screws, and Monocarrier™ actuators.
- › Ergonomic design, sealed in an aluminum housing.
- › High accuracy and repeatability.
- › Pre-assembled axis reduces time and labor cost.
- › Motor-ready design for customer flexibility.



## Megatorque™ Motor Products

- › Direct drive technology.
- › Maintenance-free operation.
- › Easy Installation.
- › Compact design with through hole for easy wire management.
- › Accurate, micron-level repeatability with no backlash.
- › Accessories available including a drive controller, mounting brackets, etc.



## Monocarrier™ Linear Actuator Products

- › Easy-to-install ball screw, linear guide and support units integrated into one structure.
- › Lightweight, compact design.
- › Long operating life and maintenance-free operation.
- › Rust-resistant, chrome plated standard material.



## Support Units for Ball Screws

- › Reduces maintenance cost, no re-lubrication is required.
- › Offers high dust protection.
- › Extends ball screw product life.
- › Provides maximum performance for applications from light to heavy loads.
- › Standard stock options available.



## K1™ Lubrication Units

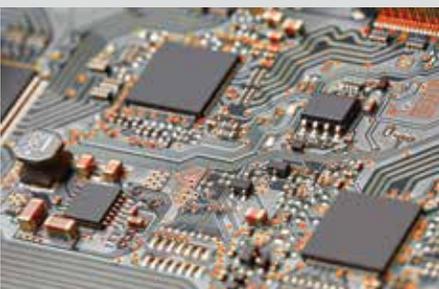
- › Long-term, maintenance-free lubrication unit that is available for ball screws, linear guides, Robot Modules™ and Monocarrier™ product.
- › No maintenance required for 5 years or up to 10,000 km operational distance.
- › All precision linear products can be equipped with K1™ lubrication units.
- › Optional accessory.



## SPACEA Bearings

- › Designed to withstand extreme environment conditions.
- › Special environments include vacuum, clean, corrosive, high-temperature, heavily contaminated, and non-magnetic requirements.

# What is Integration?



NSK manufactures a wide selection of products including ball screws, linear guides, actuators, Robot Modules™, Megatorque™ motors, radial bearings and accessories. All of these core products can be integrated to deliver a customized solution.

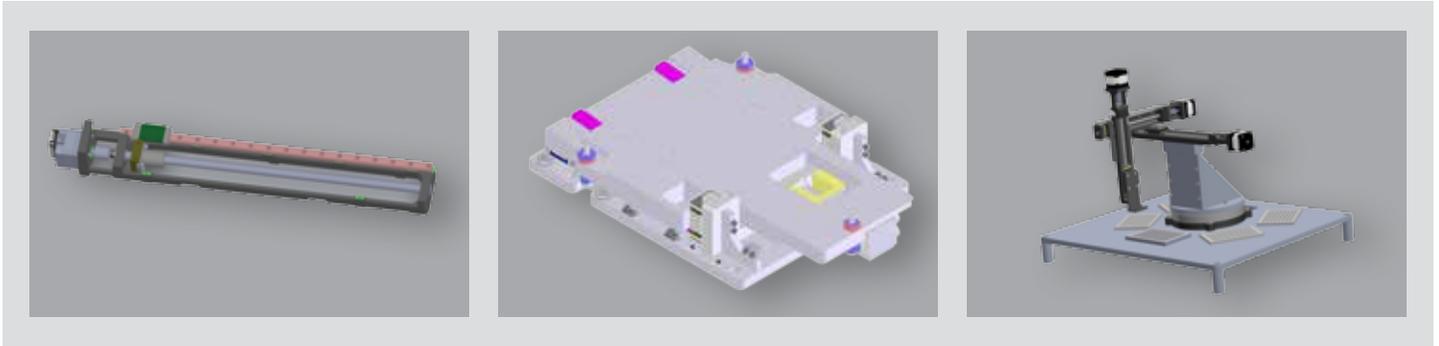
## What is Integration?

It means combining mechanical and/or electrical parts to achieve a specific function.

In order to achieve a specific function, the proposed design could be a single or multi-axis system using a combination linear and/or rotary product. Therefore, NSK staffs a dedicated team of Engineers to collaborate and develop OEM integrated solutions. Backed by quality products, NSK delivers synergy of design and components for superior performance, cost, and ease of implementation.

These solutions can be tailored for many different application types including processing assembly, testing and transportation for automotive, factory automation, food and beverage, medical, semiconductor, and other industrial sectors.

# One-Axis vs. Complex Integration



NSK's dedicated staff of engineers can help facilitate one-axis or complex integration. One-axis integration, such as a linear actuator that has been pre-tested with limit sensors and motor can be executed by our Integration Assembly Team and delivered turn-key in a short amount of time. A complex integration, such as multi-axis motion, restrictive envelope requirements, challenging load conditions and harsh environments commonly requires the expertise of our Mechatronics and/or Bearing Design Engineer and a collaborative design process with the customer to meet the project's timeline.

## "One-Axis" Integration Examples:

- › Designing integrated ball screw with motor mount
- › Supplying Monocarrier™ with motors, shield and sensors installed
- › Mounting linear guide, ball screw and bearing supports to base

## "Complex" Integration Examples:

- › Multi-axis movement
- › High accuracy requirements
- › Stand-alone, customized solution

## Customer Benefit:

- › Reduces customer design and integration time
- › Saves customer time to focus on other aspects of their project
- › Assembled by trained experts and audited to NSK quality standards
- › Reduces procurement costs from multiple suppliers
- › Convenient single source supplier

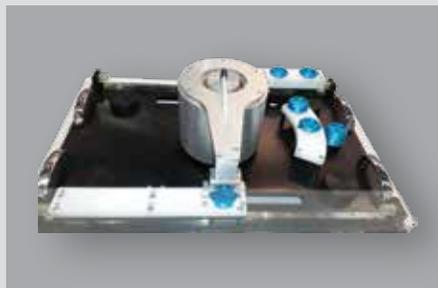
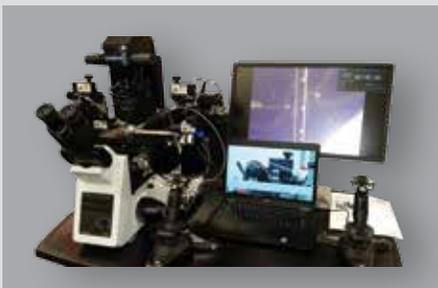
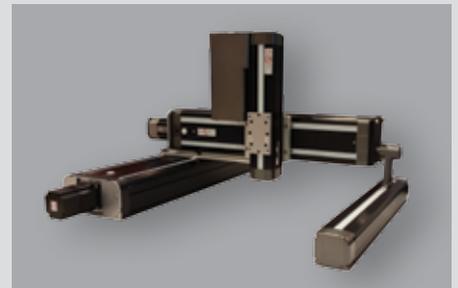
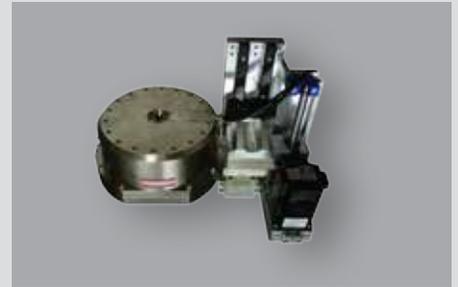
# Domestic Integration Capabilities

NSK's facility in Franklin, Indiana is dedicated to manufacturing precision products and serving a global market. Certified to ISO9001:2008 and ISO14001:2004 standards, our state-of-the-art facility includes the following resources to meet specialized needs for assembly and XY table production.

- > Dedicated assembly room
- > Class 1000 clean room
- > Class 10 clean bench
- > Assembly and test capabilities
- > Experienced assembly team
- > Experienced mechanical and electrical engineering staff
- > Quality department support team
- > Qualified (audited) sub-suppliers

## Driving Factors to Consider Integration:

- > Streamline
  - Consolidate multiple components into single, customized part number.
- > Simplify
  - Reduce design, test and installation time.
- > Support
  - Collaborate with NSK Application Engineers.
- > System
  - Develop a one-axis or complex assembly.



## Worldwide Sales Offices

### NSK Ltd. Headquarters, Tokyo, Japan

Asia Business Strategic Division-  
Headquarters tel: 81-03-3779-7145  
Industrial Machinery Bearings Division-  
Headquarters tel: 81-03-3779-7227  
Automotive Division-Headquarters  
Needle Roller Bearings Strategic  
Division-Headquarters tel: 81-03-3779-7189  
Precision Machinery & Parts  
Division-Headquarters tel: 81-03-3779-2563  
Division-Headquarters tel: 81-03-3779-7219

[www.nsk.com](http://www.nsk.com)

### Africa

#### South Africa:

NSK South Africa (Pty) Ltd.  
Johannesburg tel: 27-011-458-3600

### Asia and Oceania

#### Australia:

NSK Australia Pty. Ltd. [www.nskaustralia.com.au](http://www.nskaustralia.com.au)  
Melbourne tel: 61-03-9764-8302

#### China:

NSK Hong Kong Ltd. tel: 86-2739-9933  
Hong Kong  
Kunshan NSK Co., Ltd. tel: 86-0520-730-5654  
Kunshan Plant  
Changshu NSK Needle Bearing Co., Ltd. tel: 86-0512-5230-1111  
Jiangsu Plant  
Guizhou HS NSK Bearings Co., Ltd. tel: 86-0853-3521505  
Anshun Plant  
NSK Steering Systems Dongguan Co., Ltd. tel: 86-0769-262-0960  
Dongguan Plant  
Zhangjiagang NSK Precision Machinery Co., Ltd. tel: 86-0512-5867-6496  
Jiangsu Plant  
Timken-NSK Bearings (Suzhou) Co., Ltd. tel: 86-0512-6665-5666  
Jiangsu Plant  
NSK China Technology Center  
Jiangsu tel: 86-0512-5771-5654  
NSK (Shanghai) Trading Co., Ltd. tel: 86-021-6235-0198  
Shanghai tel: 86-010-6590-8161  
Beijing tel: 86-020-3786-4833  
Guangzhou tel: 86-0853-3522522  
Anshun tel: 86-028-8661-4200  
Chengdu tel: 86-0755-25904886  
Shenzhen tel: 86-0431-8988682  
Changchun  
NSK (China) Investment Co., Ltd. tel: 86-021-6235-0198  
Shanghai

#### India:

Rane NSK Steering Systems Ltd. tel: 91-044-274-66002  
Chennai  
NSK Ltd. India Branch Office  
Chennai tel: 91-044-2446-6862

### Indonesia:

PT. NSK Bearings Manufacturing Indonesia  
Jakarta tel: 62-021-898-0155  
PT. NSK Indonesia  
Jakarta tel: 62-021-252-3458

### Korea:

NSK Korea Co., Ltd. [www.kr.nsk.com](http://www.kr.nsk.com)  
Seoul tel: 82-02-3287-0300  
Changwon Plant tel: 82-055-287-6001

### Malaysia:

NSK Bearings (Malaysia) Sdn. Bhd. tel: 60-03-7722-3372  
Kuala Lumpur  
NSK Micro Precision (M) Sdn. Bhd. tel: 60-03-961-6288  
Malaysia Plant

### New Zealand:

NSK New Zealand Ltd. [www.nsk-rhp.co.nz](http://www.nsk-rhp.co.nz)  
Auckland tel: 64-09-276-4992

### Philippines:

NSK Representative Office  
Makati City tel: 63-02-893-9543

### Russia:

NSK Polska Sp. z o.o. tel: 7-812-3325071  
Saint-Petersburg

### Singapore:

NSK International (Singapore) Pte Ltd. tel: 65-6496-8000  
Singapore [www.nsk-singapore.com.sg](http://www.nsk-singapore.com.sg)  
NSK Singapore (Pte) Ltd. tel: 65-6496-8000  
Singapore

### Taiwan:

Taiwan NSK Precision Co., Ltd. tel: 886-02-2509-3305  
Taipei

### Thailand:

NSK Bearings (Thailand) Co., Ltd. tel: 66-02-6412-150  
Bangkok  
SIAM NSK Steering Systems Co., Ltd. tel: 66-038-522-343-350  
Chachoengsao tel: 66-038-522-343-350  
NSK Asia Pacific Technology Center (Thailand) Co., Ltd. tel: 66-038-454631-454633  
Chonburi

### United Arab Emirates:

NSK Bearings Gulf Trading Co. tel: 971-4-804-8205  
Dubai

### Vietnam:

NSK Representative Office tel: 84-04-935-1269  
Hanoi

### Europe

NSK Europe Ltd. [www.nskeurope.com](http://www.nskeurope.com)  
(European Headquarters) tel: 44-01628-509800  
Maidenhead, U.K.

### France:

NSK France S.A.S. tel: 33-1-30573939  
Paris

### Germany:

NSK Deutschland GmbH tel: 49-2102-4810  
Düsseldorf

### Italy:

NSK Italia S.p.A. tel: 39-02-995191  
Milano

### Poland:

NSK Polska Sp. z o.o. tel: 48-22-6451525  
Warsaw

### Spain:

NSK Spain S.A. tel: 34-93-2892763  
Barcelona

### Turkey:

NSK Rulmanlari Orta Dogu Tic. Ltd Sti tel: 90-216-4777111

### United Kingdom:

NSK UK Ltd. tel: 44-1636-605123  
Newark

### North and South America

NSK Americas, Inc. (American Headquarters)  
Ann Arbor tel: 1-734-913-7500

#### Argentina:

NSK Argentina SRL tel: 54-011-4762-6556  
Buenos Aires

#### Brazil:

NSK Brasil Ltda. [www.br.nsk.com](http://www.br.nsk.com)  
São Paulo tel: 55-011-3269-4700

#### Canada:

NSK Canada Inc. [www.ca.nsk.com](http://www.ca.nsk.com)  
Toronto tel: 1-905-890-0740

#### Mexico:

NSK Rodamientos Mexicana, S.A. de C.V. [www.mx.nsk.com](http://www.mx.nsk.com)  
Mexico City tel: 52-55-36822900

#### United States of America:

NSK Corporation [www.nskamericas.com](http://www.nskamericas.com)  
Ann Arbor tel: 1-734-913-7500

NSK American Technology Center  
Ann Arbor tel: 1-734-913-7500

NSK Precision America, Inc. [www.nskamericas.com](http://www.nskamericas.com)  
Franklin tel: 800-255-4773

NSK Steering Systems America, Inc. [www.nssa.nsk.com](http://www.nssa.nsk.com)  
Bennington, Vermont tel: 1-802-442-5448

NSK Latin America, Inc. [www.la.nsk.com](http://www.la.nsk.com)  
Miami tel: 1-305-477-0605

NSK Ltd. has a basic policy not to export any products or technology designated as controlled items by export-related laws. When exporting the products in this brochure, the laws of the exporting country must be observed. Specifications are subject to change without notice and without any obligation on the part of the manufacturer. Every care has been taken to ensure the accuracy of the data contained in this brochure, but no liability can be accepted for any loss or damage suffered through errors or omissions. We will gratefully acknowledge any additions or corrections.

