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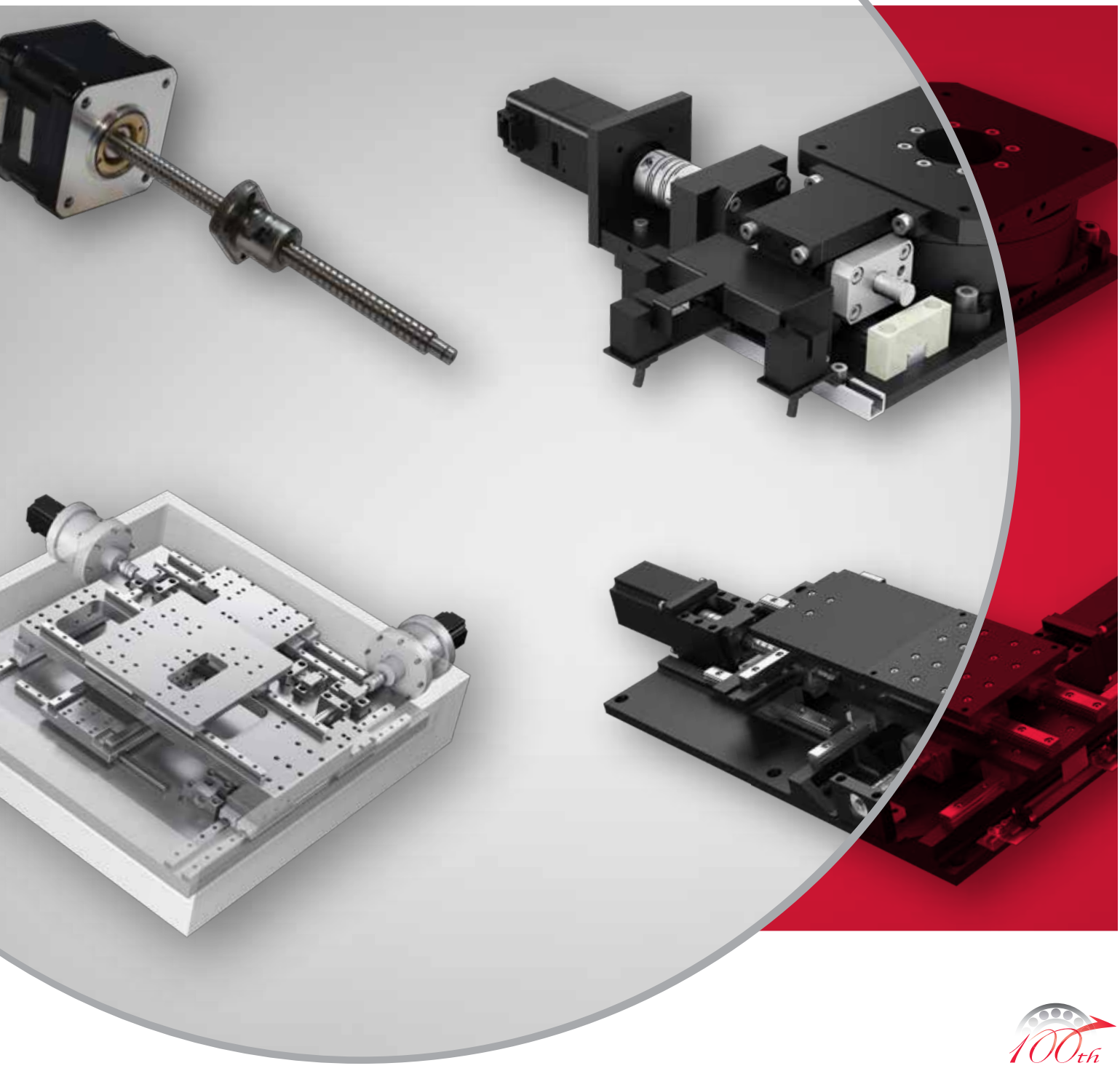
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NSK

NSK INTEGRATION CAPABILITIES FOR XY TABLES AND PRECISION LINEAR MOTION ASSEMBLIES



100th Since 1916

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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.



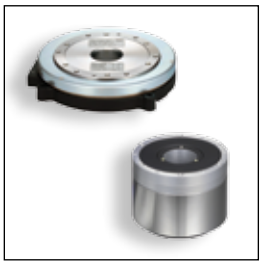
Linear Guide Products

- 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.



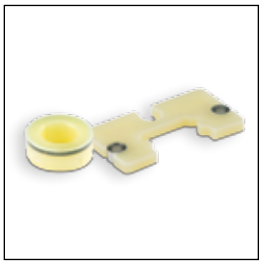
Monocarrier™ Linear Actuator Products

- 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.

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What is Integration?









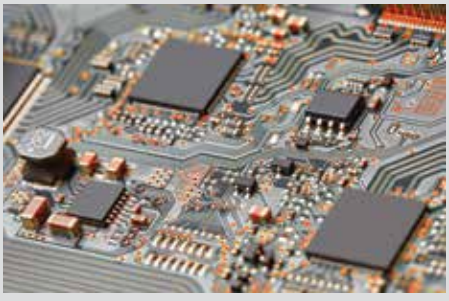
NSK manufactures a wide selection of products including ball screws, linear guides, actuators, Robot Modules™, Megatorque™ motors, radial bearings and accessories. All of these core products can be integrated to deliver a customized solution.

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.

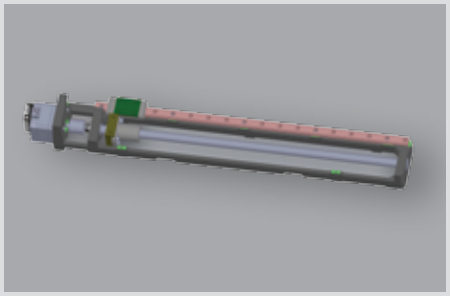
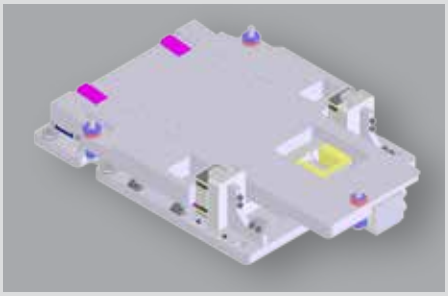
These solutions can be tailored for many different application types including processing assembly, testing and transportation for automotive, factory automation, food and beverage, medical, semiconductor, and other industrial sectors.







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

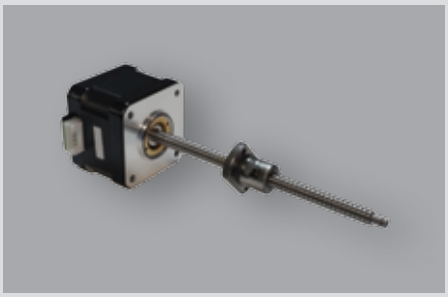
Domestic Integration Capabilities

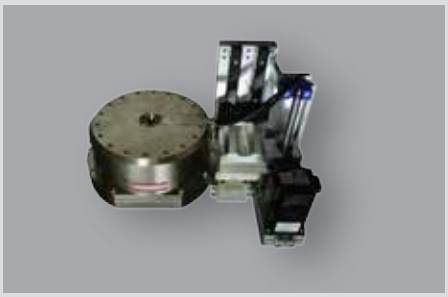
NSK's facility in Franklin, Indiana is dedicated to manufacturing precision products and serving a global market. Certified to ISO9001:2008 and ISO14001:2004 standards, our state-of-the-art facility includes the following resources to meet specialized needs for assembly and XY table production.

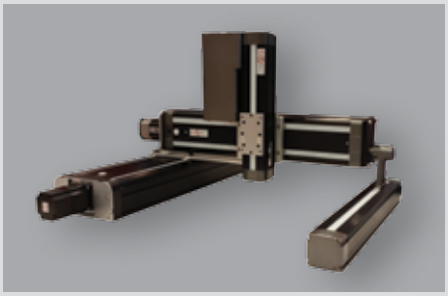
- Dedicated assembly room
- Class 1000 clean room
- Class 10 clean bench
- Assembly and test capabilities
- Experienced assembly team
- Experienced mechanical and electrical engineering staff
- Quality department support team
- Qualified (audited) sub-suppliers

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.

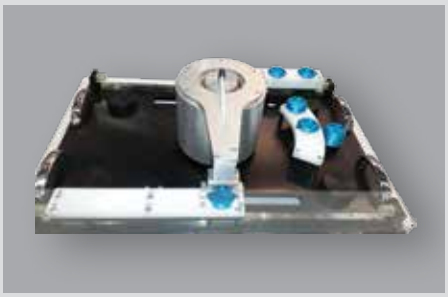


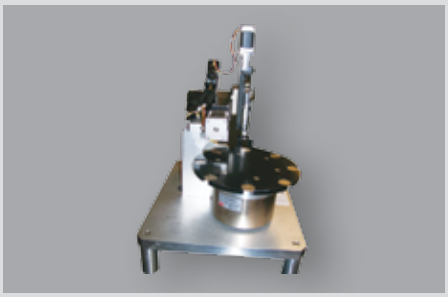














Worldwide Sales Offices

NSK Ltd. Headquarters, Tokyo, Japan **www.nsk.com**
Asia Business Strategic Division-Headquarters tel: 81-03-3779-7145
Industrial Machinery Bearings Division-Headquarters tel: 81-03-3779-7227
Automotive Division-Headquarters tel: 81-03-3779-7189
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Precision Machinery & Parts Division-Headquarters tel: 81-03-3779-7219

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
Melbourne tel: 61-03-9764-8302

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

India:
Rane NSK Steering Systems Ltd.
Chennai tel: 91-044-274-66002
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
Seoul tel: 82-02-3287-0300
Changwon Plant tel: 82-055-287-6001

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

New Zealand:
NSK New Zealand Ltd. 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.
Saint-Petersburg tel: 7-812-3325071

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

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

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

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

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

Europe

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

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

Germany:
NSK Deutschland GmbH
Düsseldorf tel: 49-2102-4810

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

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

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

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

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

North and South America

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

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

Brazil:
NSK Brasil Ltda. www.br.nsk.com
São Paulo tel: 55-011-3269-4700

Canada:
NSK Canada Inc. www.ca.nsk.com
Toronto tel: 1-905-890-0740

Mexico:
NSK Rodamientos Mexicana, S.A. de C.V. www.mx.nsk.com
Mexico City tel: 52-55-36822900

United States of America:
NSK Corporation 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
Franklin tel: 800-255-4773

NSK Steering Systems America, Inc. www.nssa.nsk.com
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