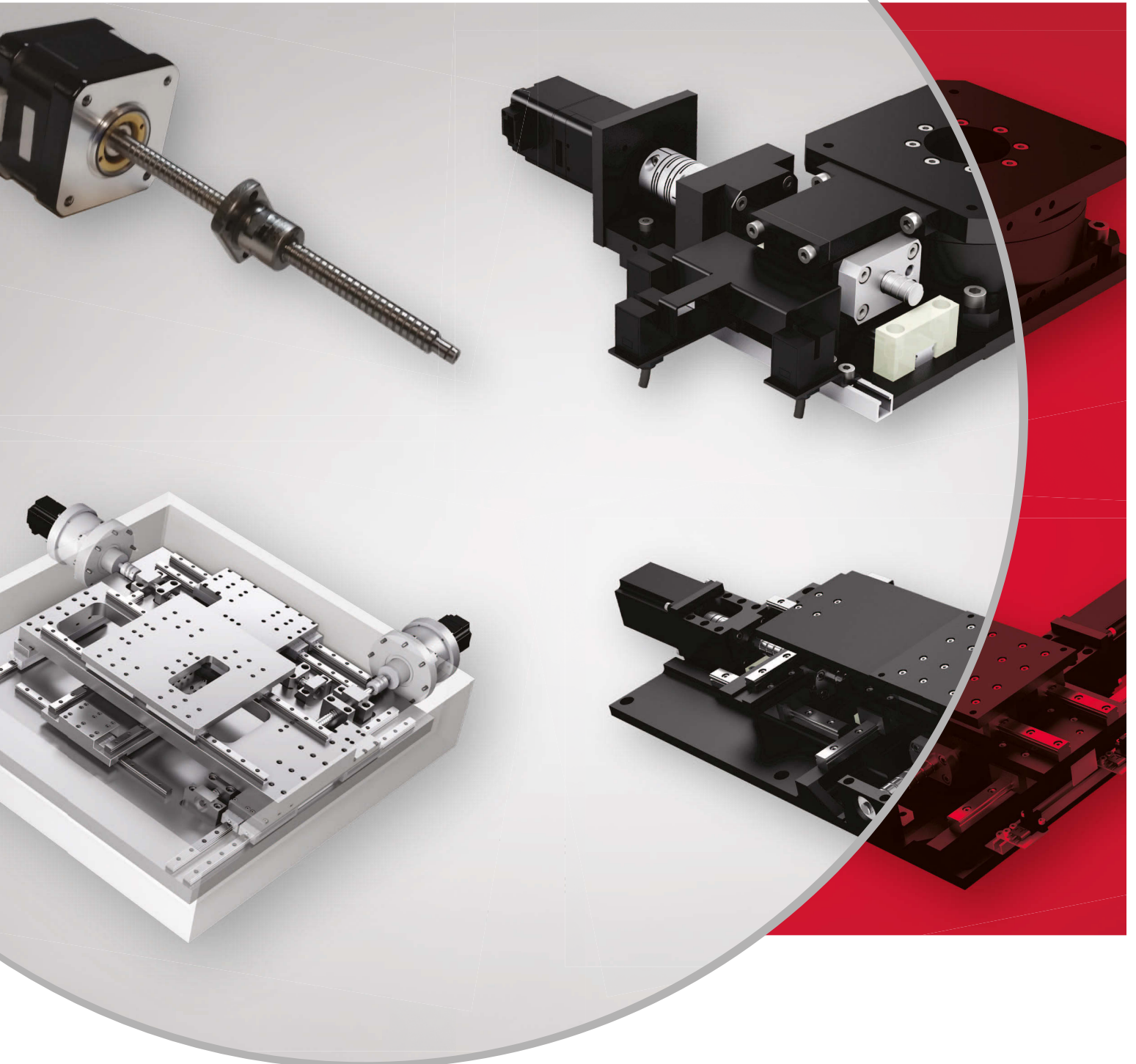


NSK INTEGRATION CAPABILITIES FOR XY TABLES AND PRECISION LINEAR MOTION ASSEMBLIES



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

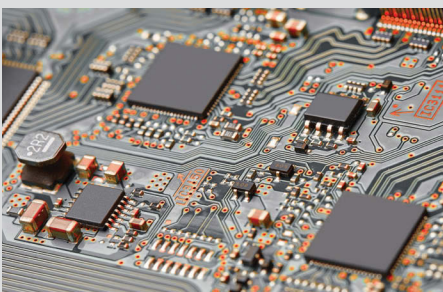
- › Long-term, maintenance-free lubrication unit that is available for ball screws, linear guides, Robot Modules™ and Monocarrier™ product.
- › No maintenance required for 5 years or up to 10,000 km operational distance.
- › All precision linear products can be equipped with K1™ lubrication units.
-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

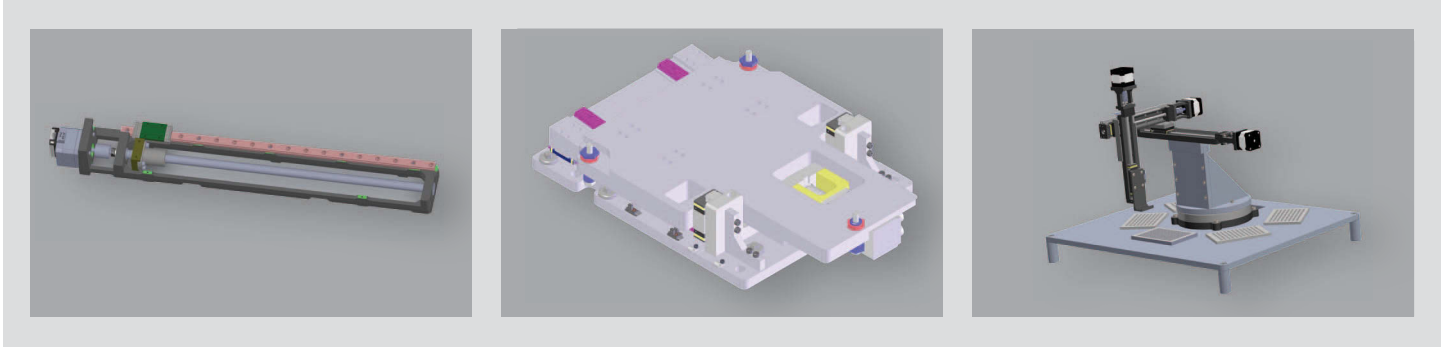
It means combining mechanical and/or electrical parts to achieve a specific function.

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

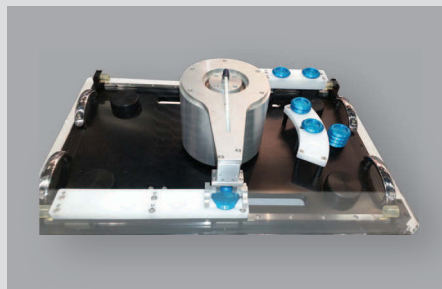
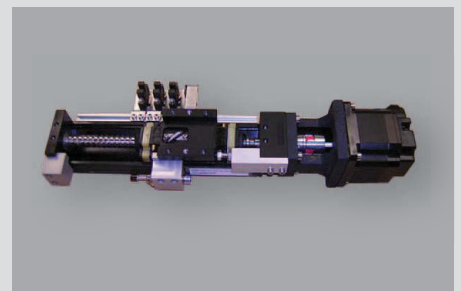
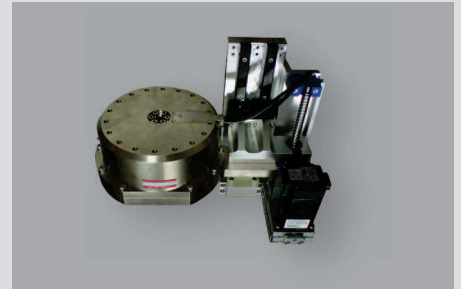
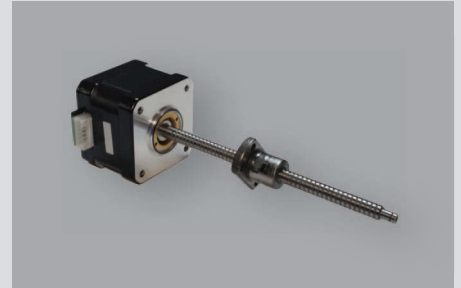
Domestic Integration Capabilities

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.





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