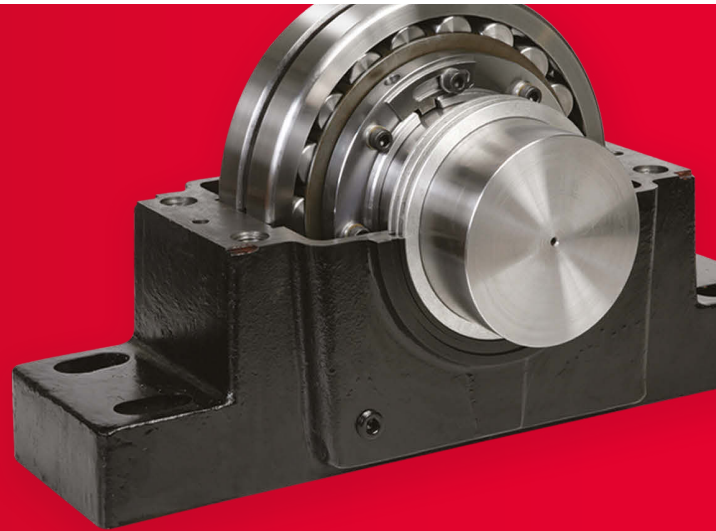


# NSK

## NSK BEARING AND LINEAR SOLUTIONS



STAY IN MOTION. STAY IN CONTROL.

# ASSET IMPROVEMENT PROGRAM



NSK's Asset Improvement Program is a collaborative initiative that combines your facility's knowledge with the engineering expertise and innovation of NSK. NSK will work with you – at your location – to assess and identify ways to increase efficiencies, lower your costs, reduce downtime and increase profitability.

NSK has identified multiple tools for partnering with our customers to reach maximum performance, maximum efficiency and maximum service of their bearings and equipment.

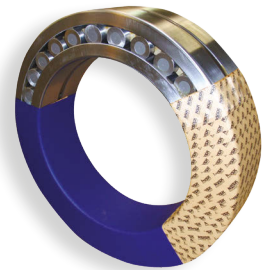
## FIELD SERVICES



- › After the Sale Support of NSK Products
- › Industry Specific Maintenance Training
- › Machine and Bearing Failure Analysis
- › Bearing Inspections
- › Troubleshooting
- › Bearing Storage Solutions
- › Tilt and Deflection Testing
- › Slewing Ring Installation and Removal
- › Service Work Quotes
- › Reconditioning/Repair Determinations
- › Bolt Retorque

## RECONDITIONING

- › No inspection fee
- › We are able to recondition all brands of roller bearings from 0" to 56"
- › Lead times never exceed 10 weeks for full rebuilds and shorter for less severe repairs
- › Shorter lead times than manufacture of new
- › Significant cost savings over purchase of new
- › Detailed reports with pictures
- › Quote and report prepared within 14 days of receiving product



## TRAINING



- › Can accommodate class sizes from one to several dozen
- › Completely customized content relevant to needs, audience, and industry - Steel industry, Paper Industry, Machine Tool, Mining
- › Hands-on installation/removal and maintenance tool training available

## BALL SCREW REPAIR

- › Repair capability of NSK and other manufacturers
- › Free evaluation and quote
- › Expedited repairs available
- › Replacement ball screws from our Franklin Indiana Plant



Contact NSK today to learn more about the Asset Improvement Program.

## NSK PROPRIETARY STEEL TYPES

- › Tough and Long Life (TL): provides superior resistance to inner ring fractures making it ideal for machinery operating under high temperature conditions
- › Tough Steel (TF) Series: have been designed for outstanding toughness under harsh conditions; they combine longer service life and superior resistance against wear, seizure, heat and use with contaminated lubrication
  - Water Tough Steel (WTF™): provides 3 times the service life under conditions of water infiltration and power debris (iron oxide) contamination compared to carburized bearings
  - High Tough Steel (HTF™): provides 7 times the service life with contaminated lubrication and 1.5 times the service life under clean lubrication compared to conventional bearings and offers 20% improvement in seizure resistance
  - Super Tough Steel (STF™): provides 10 times the service life with contaminated lubrication and twice the service life under clean lubrication compared to conventional bearings and offers 40% improvement in seizure resistance and improved heat resistance (4 times the service life at 160°C)



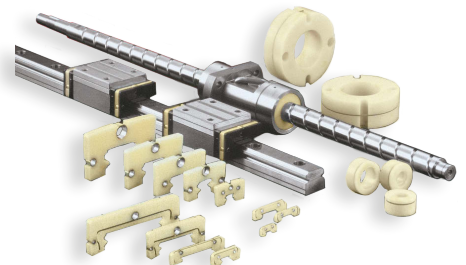
## DOUBLE CONTACT SEALS (DDU)



- › Designed for maximum protection against all contaminants
- › The patent pending triple lip mechanism gives excellent dust and water protection
- › With lower speed and temperature limits, this seal is used in situations where maximum sealing is critical

## K1™ LUBRICATION UNITS

- › Long-term, maintenance-free usage
- › Requires no maintenance for up to 5 years or 10,000 km operational distance
- › Prevention of oil-related environmental pollution
- › Effective in environments where the lubricant is washed away
- › Maintains efficiency in dusty environments
- › Available on ball screws, linear guides, monocarriers and toughcarriers



## SOLID LUBE



- › Reduce maintenance costs and down time
- › Keep contaminants out of bearing
- › Extend bearing life
- › Improve housekeeping by eliminating the dripping of grease and oil
- › Available in several formulations, including H-1 and H-2 formulas which meet applicable USDA and FDA standards

## COMPACT FA SERIES BALL SCREW QUICK SHIP PROGRAM

- › 4 week delivery on standard catalog lengths
- › Shaft diameters from 10mm-25mm with various lead and stroke ranges are available
- › Domestically manufactured
- › Manufactured to accept NSK ball screw support bearings
- › Custom lengths available (additional 2-4 weeks)



# BEARING PRODUCTS



## BALL BEARINGS

- › **Types:**
  - Deep Groove
  - Angular Contact
  - Self-Aligning
  - BL Max Type
  - Thrust
- › **Innovations:**
  - Tough Steel (TF)
  - Solid Lube
  - Molded Oil™
- › **Features and Benefits:**
  - High quality steel
  - Advanced grease technology
  - High grade balls
  - Super finished raceways
  - Patented seals to resist contamination
  - Cages - polyamide, steel and brass



## CYLINDRICAL ROLLER BEARINGS

- › **Types:**
  - Single Row - NU, NJ, NUP, N or NF
  - Double Row - NNU or NN
  - Four Row
  - Self-Aligning
- › **Innovations:**
  - Tough Steel (TF)
  - Sealed-Clean™
  - Solid Lube
- › **Features and Benefits:**
  - High radial load capacity
  - Suited for high speed applications
  - Cages - polyamide, steel and brass



## TAPERED ROLLER BEARINGS

- › **Types:**
  - Single Row
  - Double Row
  - Four Row
- › **Innovations:**
  - Molded Oil™
  - Tough Steel (TF)
  - Sealed-Clean™
  - Solid Lube
- › **Features and Benefits:**
  - Low heat generation
  - Reduced wear
  - High axial load carrying capacity
  - Cage - steel





## SUPER PRECISION BEARINGS

- › Types:
  - Deep Groove Ball
  - Angular Contact
  - Cylindrical
  - Ball Screw Support
- › Innovations:
  - ROBUST Series
- › Features and Benefits:
  - Single and double row versions available
  - Low heat generation
  - Improved seizure resistance
  - Stable operation in ultra high speed
  - Cages - polyamide, brass, and phenolic resin



## THRUST BEARINGS

- › Types:
  - Ball
  - Spherical
  - Taper
  - Cylindrical
  - Needle
- › Innovations:
  - Solid Lube
- › Features and Benefits:
  - High axial load carrying capacity
  - High axial rigidity
  - High quality steel
  - Cages - steel and brass



## SPHERICAL ROLLER BEARINGS

- › Types:
  - Shaker Screen
  - Triple Ring
- › Innovations:
  - High Performance Steel (HPS™)
  - Molded Oil™
  - Tough and Long Life (TL)
  - Tough Steel (TF)
  - Solid Lube
- › Features and Benefits:
  - Seal Technology - different sealing materials are offered depending on the operating temperature of the bearing
  - Special surface treatment of NSK spherical roller bearings increases resistance to wear.
  - Cages - polyamide, steel and brass



## SPLIT PILLOW BLOCKS

- › Types:
  - SAF
  - SDAF
- › Features and Benefits:
  - Easy mounting and dismounting of pre-assembled shafts
  - Sealing options including V-ring seals, labyrinth seals or heavy-duty taconite seals
  - Case end covers available
  - Multi relubrication points

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## TOOLS



- › Types:
  - Fitting tool
  - Ball bearing pusher and puller
  - Straightener and tri-section press plates
  - Sine bar gages
  - Hydraulic nuts
  - Hydraulic pump
  - Spanner wrench
  - Induction heaters
- › Features and Benefits:
  - Useful in the quick, easy and safe installation and removal of bearings
  - Heaters are available in a variety of sizes suitable for both small and large bearings

Literature for all NSK products is available for download at our website:  
[www.nskamericas.com](http://www.nskamericas.com)  
 Select Downloads and Browse Literature to search through our database.



## LINEAR GUIDE

- › Types:
  - NH, NS and LW (wide) Series - general application
  - RA and RB (low profile) Series - high rigidity roller guide
  - PU/PE and LU/LE Series - miniature and miniature wide rail
- › Features and Benefits:
  - Maintenance-free operation with K1™ lubrication units
  - Wide range of accuracy and preload options



## BALL SCREW

- › Types:
  - Precision ground
  - Compact FA
  - Rolled
- › Features and Benefits:
  - Low noise
  - High speed
  - Compact design
  - High load and rigidity



## MONOCARRIER™

- › Types:
  - MCM Series - lightweight type
  - MCH Series - rigid type
  - Toughcarrier™ - super high-load capacity roller type
- › Features and Benefits:
  - Easy-to-install ball screw/linear guide/support unit package
  - Long life, maintenance free operation and corrosion resistant coating



## ROBOT MODULE

- › Types:
  - RS - light loads
  - RM - moderate loads
  - RH - heavy loads
- › Features and Benefits:
  - Easily combined into multi-axis systems
  - Completely sealed unit
  - Maintenance-free operation with K1™ lubrication units
  - Uses NSK ball screws, linear guides and monocarrier actuators



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