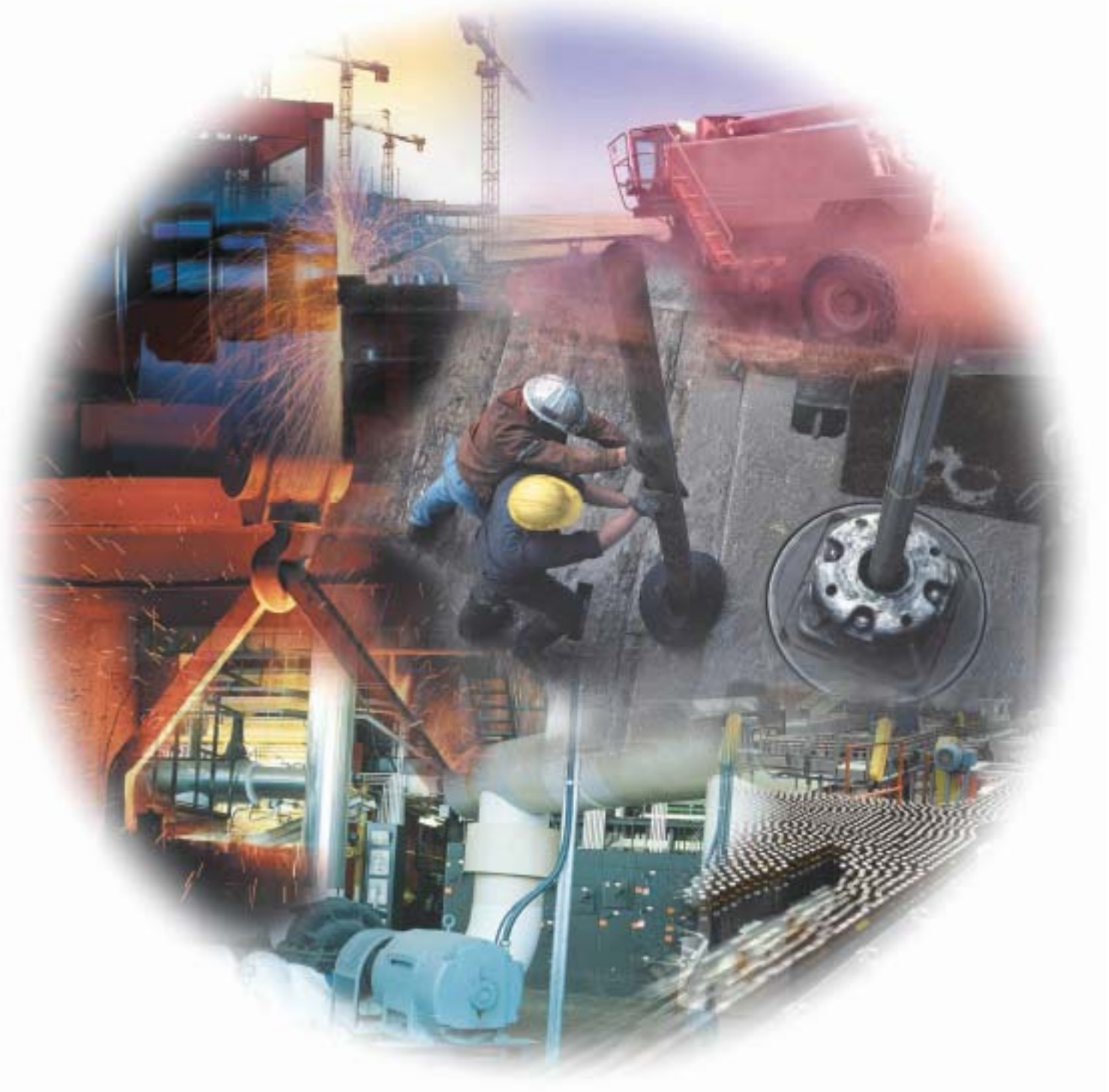


MOTION & CONTROL
NSK



Bearings for industry

Introduction to NSK

NSK is the world leader in ball bearings

NSK is the world's largest manufacturer of ball screws

NSK is the world's largest supplier of automotive steering systems

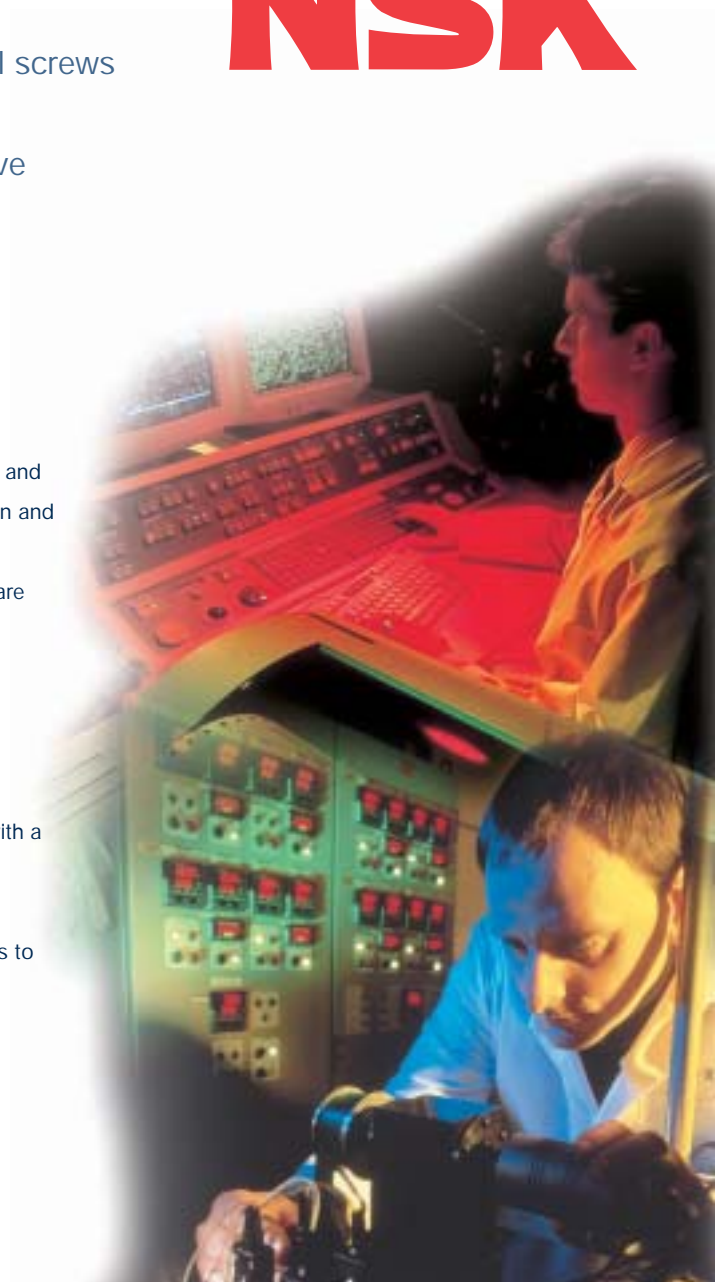
NSK invests more in research & development than any other bearing manufacturer in the world

NSK was established in 1916. Today it is a world leader in the manufacture and supply of bearings, automotive components and steering systems, precision and mechatronic products. With a turnover greater than 5 billion euro, the NSK Group employs more than 23,000 people world-wide. Within Europe there are around 5,000 employees across its network of sales and manufacturing operations, research and development facilities and support services.

Innovative, responsive and dynamic

Each day more than three million of the NSK Group's bearings will be used throughout the world in leading brand products. From miniature bearings with a 1mm bore to a massive 5m diameter, bearings from the NSK Group can be found in applications as diverse as computer disc drives to tunnel boring machines, from jet engines to washing machines and from semi-conductors to manufacturing equipment in steel mills.

NSK



An Impressive Portfolio of Value-added Products and Service

■ Market Leading Brands

Our two highly successful brands, NSK and RHP, are available from our Authorised Distributors. These industry leading brands offer a huge range of standard products as well as a broad range of specialist bearings.

■ Superb Product Quality

In choosing NSK you will be getting product from one of the worlds largest bearing manufacturers producing 130 million bearings every month. All products are guaranteed quality and backed up by our manufacture guarantee.

■ Excellent Product Availability

NSK is a leading source for bearings. Our Authorised Distributors are the best possible people from whom to buy bearings.

■ User Friendly Electronic Services

NSK has adopted the challenge of the electronic age giving full support to our Authorised Distributors.

■ Technical Expertise

All products sold through our Authorised Distributors have our full technical and commercial after sales service guarantee. We can also offer free advice such as bearing selection from our highly experienced team of application and service engineers.

■ Specialists in Industry Sectors

We are experienced in diverse, often difficult applications with proven expertise in many sectors from bearings for video recorders, to steel mills.

■ Training

Our interactive product knowledge course is available on our website www.eu.nsk.com for our Authorised Distributors. We can also offer on site training and assistance from our engineers, and care and maintenance training for end users if required.

■ Marketing Support

Our sales are backed up by a wide range of marketing communications activities. We issue regular newsletter and offer free catalogues and technical literature.

■ Extensive Research & Development

Our European Technology Centre (ETC) in the UK is one of three centres. ETC interchanges data and information with our other two technical centres in Japan and America. Over £70m is invested annually into research and development.



Products and Service through Authorised Distribution...

Products with Value-Added

NSK provides a range of bearing products designed to deliver ultimate reliability and performance in a wide range of environments.



Ball Bearings

(catalogue: E1101e)

- Double row radial
- Single row angular contact
- Double row angular contact
- Double row self-aligning
- Thrust
- Miniature
- Single row radial
(catalogue: ADPM/BSL)



Roller Bearings

Cylindrical roller - EW Series, Steel cage
(catalogue: E1238a)

Cylindrical roller - EM Series, Brass cage
(catalogue: E1237a)

Spherical roller - EA Series
(catalogue: E1207a)

Spherical roller - EJ Series
(catalogue: EJSL)

Tapered roller
(catalogue: E1101e)

Super Precision

(catalogue: C859/b)

- Super Precision Angular Contact
- Super Precision hybrid
- Ultra
- Ultra hybrid
- Robust Series
(catalogue: E1236)



Plummer Blocks

(catalogue: PBH)

Spherical Roller



Self-Lube® Housed Bearings

(catalogue:BSL/S875)

Cast iron housings

Pressed steel housings

Pillow block units

Square flange

Round flange

Various locking arrangements

High/Low temperature inserts

Silver-Lube® corrosion resistant bearing units

(catalogue:SVLB)

NSK Catalogue List

Below is a list of NSK catalogues that are available to you.

To obtain a free catalogue, either call **freephone 0500 232 7464**, or you

can order from our Website at **www.eu.nsk.com**

| Code Title | |
|---------------------------|---|
| General Catalogues | |
| C825 | RHP Bearing Replacement Handbook |
| E1101e | NSK Rolling Bearings |
| E125c | NSK Large Size Rolling Bearings |
| Roller Bearings | |
| A379 | NSK H-Series Spherical Roller Bearings |
| E1205 | NSK Spherical Roller Bearings - TL Series |
| E1206a | NSK Full Complement Cylindrical Roller Bearings for Crane Sheaves |
| E1207a | NSK Spherical Roller Bearings - EA Series |
| E1218 | NSK Full-Complement Cylindrical Roller Bearings with Seals for Crane Sheaves |
| E1219 | NSK Quick-Assembly Tapered (QAT) Roller Bearings |
| E1226 | NSK N Series Crossed Roller Bearings |
| E1237a | NSK Cylindrical Roller Bearings - New standard EM Series |
| E1238a | NSK Cylindrical Roller Bearings - New standard EW series |
| E1239 | NSK Axle Bearings For Railway Rolling Stock - Cylindrical Roller Bearings |
| E1240 | NSK Axle Bearings for Railway Rolling Stock - Spherical Roller Bearings |
| E9003 | NSK Handling Instructions for Spherical Roller Bearings |
| EJSL | RHP EJ Spherical Roller Bearings |
| EVBSL | RHP Extra-capacity Vibratory Bearings |
| EVB-SL | RHP EVB Spherical Roller Bearings |
| Ball Bearings | |
| BFEM | NSK Bearings for Electric Motors |
| E126e | NSK Miniature Ball Bearings |
| Self-Lube® | |
| C855a | RHP Self-Lube® Bearings |
| E1154b | NSK Ball Bearing Units |
| E1155 | NSK Ball Bearing Units Handbook |
| E1232 | NSK Ball Bearing Units Steel Series |
| E1233 | NSK Ball Bearing Units with Ductile Cast Iron Housing |
| E1234 | NSK Triple-Seals Bearings for Ball Bearing Units |
| E1235 | NSK Ball Bearing Unit Stainless Series |
| S875c | RHP Guide to Self-Lube® Bearings |
| SLHLT | RHP Self-Lube® - HLT Inserts |
| SLSLB | RHP Self-Lube® "S" Lock - 6 page |
| SLSLF | RHP Self-Lube® "S" Lock - 1 Page |
| SVLB | RHP Silver-Lube® Corrosion Resistant Bearing Units - 16 pages |
| SLF | RHP Silver-Lube® Corrosion Resistant Bearing Units - 1 page |
| Super Precision | |
| C826a | RHP Super Precision Bearings |
| C859b | RHP Super Precision Angular Contact Ball Bearings |
| E1212 | NSK Ball Screw Support Bearings Made With EP Series |
| E1236 | NSK High Speed Precision Bearings for Machine Tool Applications - Robust Series |
| E124b | NSK Precision Rolling Bearing for Machine Tool Spindles |
| E1392a | NSK Precision Ceramic Angular Contact Ball Bearings |
| SPUB | Ultra High Speed Super Precision Bearings |
| SPUF | Ultra High Speed Super Precision Bearings - 1 Page |
| Other | |
| E1156 | NSK Bearings for Railway Rolling Stock |
| E1202 | NSK Large Hi-TF Bearings |
| E1203 | NSK Large Super-TF Bearings |
| E1208a | NSK Spacea™ Series |
| E1210 | NSK Bearings for Paper Making Machines |
| E1216 | NSK Molded Oil™ Bearings |
| E1220a | NSK SNN Series Plummer Blocks |
| E1223 | NSK Spacea™ Series SJ Bearings for High Temperatures |
| E1225 | NSK Extra-Capacity Sealed-Clean Roll Neck Bearings |
| E1227 | NSK Spacea™ Series Bearings for Vacuum Environments |
| E1228 | NSK Spacea™ Series Corrosion Resistant Bearings |
| E1229 | NSK Spacea™ Series Bearings for Clean Environments |
| E1230 | NSK Bearings for Iron & Steel Works |
| E1241 | NSK Bearings for Traction Motors |
| E390 | NSK Rolling Bearings for Continuous Casters |
| E395 | NSK Roll Unit Bearings for Tention Levelers |
| E7005 | NSK Bearing Doctor |
| E728 | NSK Technical Report |
| E9001 | NSK Roll Neck Bearing Manual |
| MBD | RHP Metric Bearing Designation Card |
| PBH | RHP Plummer Block Housings and Accessories |

Typical Bearing Solutions in Industry

■ Specialists in Industry

NSK is experienced in diverse, often difficult applications with proven expertise in many sectors. Industry provides extreme working environments - NSK will always provide the bearing solution.

■ Steel Industry

Dramatic advances involving cleaner steel, advanced bearing cages and other innovations have provided bearings that can hold up under the intense challenges of the steel industry. NSK has the advantages to keep mills running smoothly in spite of the harsh environments and abrasive contaminants.

The **Super-TF bearing** technology provides outstanding toughness under harsh conditions. Incorporating new materials and new heat treatment technology, it combines long service life under contaminated lubrication with good resistance to wear, seizure and heat.

An example of this is the latest generation of sealed Four Row Tapered Roller Bearings for Rolling Mill Rollnecks. This technology extends bearing life, increases maintenance intervals and significantly reduces premature failures, thus decreasing end user lifetime costs.



■ Aggregates, Mining & Construction

Aggregate, mining and construction applications require bearings tough enough to withstand harsh working environments, abrasive contaminants and tremendous pressure. These applications demand bearings that resist wear in spite of constant vibration, misalignment and shock loads.

For example, **NSK EVB/CAME-VS Series** has been developed for arduous conditions encountered in such vibratory operations as mineral crushing, civil grading and earthmoving.



Another example is the **NSK EA Series** which is a 'Next Generation' range of high-performance Spherical Roller bearing.

The new design offers the advantages of longer life through reduced heat generation, low wear, high strength and improved heat resistance. User benefits include improved cost performance, stable operations and maximum efficiency.



■ Machine Tool

In challenging applications like machining centres bearings must be able to perform high-speed operations with low heat generation. NSK bearings perform precisely and reliably every day in a range of machine tool applications including grinding, milling and drilling. For example, our **Super Precision bearings** in ultra high speed grinding spindles.

The rotational speed of integral grinders is usually extremely high, therefore most applications have spring preload and are lubricated by oil-air or oil-mist. The **NSK BGR series** is specially designed for these applications. They have a counterbored inner ring to accommodate the oil spray, an outer ring guided phenolic resin cage with a 15-degree contact angle and P2 (ABEC 9) precision grade.

■ Pumps & Compressors

A variety of NSK bearings for pumps and compressors are uniquely designed to bring the qualities you want most: long bearing life and low noise. Choose from a range of products with a full spectrum of advantages, including the following:

- **Machined brass cage**

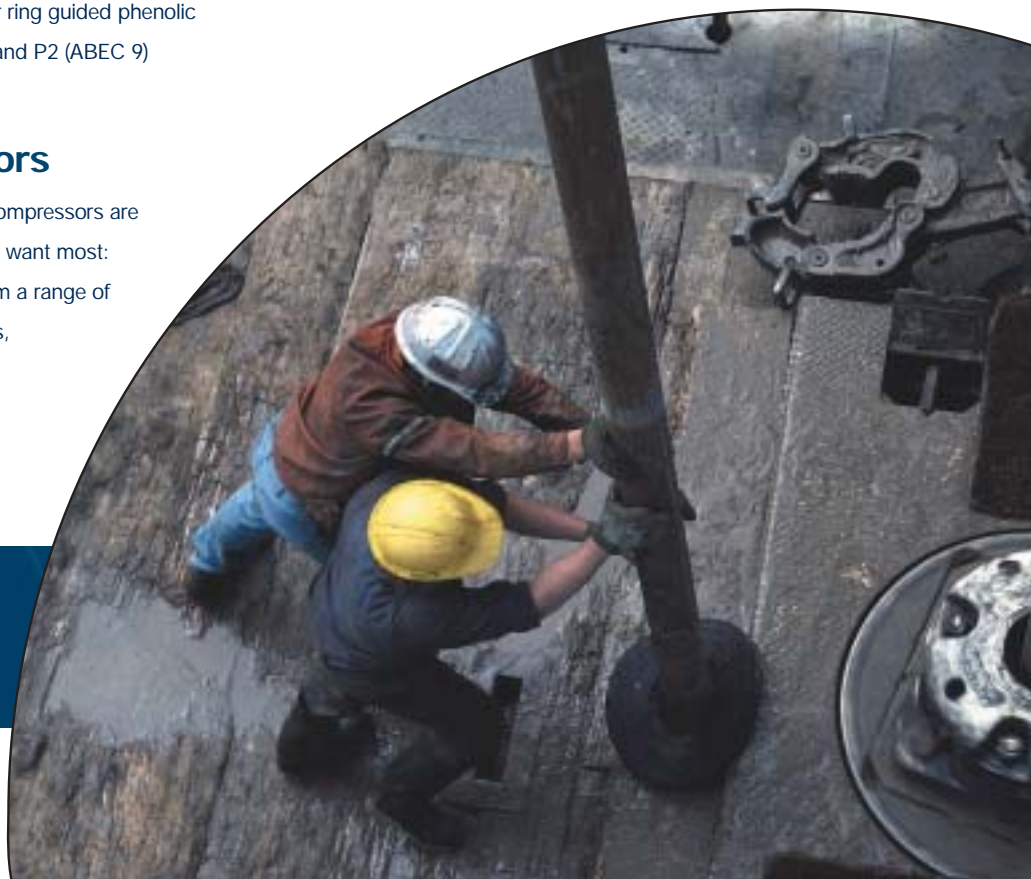
Angular Contact ball bearing which all conform to API 610 standard, to meet the rigorous demands of centrifugal pumps.

- **Spherical Roller bearings**, for slurry and deep well pumps, have a double-row of self-aligning rollers capable of carrying heavy loads and moderate thrust loads in either direction.

- **Tapered Roller bearings** for slurry pumps reliably handle combinations of heavy radial and thrust loads with low to moderate speeds.

- **Cylindrical bearings** for slurry pumps have large radial load carrying capacities, coupled with the structural ability to handle high speeds.

Angular Contact ball bearings, Cylindrical Roller bearings and Spherical Roller bearings are available for a range of compressor applications. Special features for high speeds and high operating temperature are also available.





■ Self-Lube®

Self-Lube® units provide simple and effective bearing arrangement. Reliability, simplicity and ease of assembly have resulted in their popularity in food processing, agricultural and construction industries.

A corrosion resistant range of bearings and housings, the **Silver-Lube®** is available for applications where frequent washdowns are necessary, optimum hygiene standards are required and good chemical resistance is important.

■ NSK World Leader in Ball Bearings

NSK's ball bearings are supplied to many different industry sectors and involve wide-ranging application. Satisfying application demands with product of the highest quality and the closest involvement with industry is all part of the NSK service.

For example, bearings for electrical appliance motors are a very important market for NSK - including air conditioner fans, range hood fans, washing



machines, vacuum cleaner motors and ceiling fan motors. Motor bearings must generate very little noise - NSK bearings hold low-noise performance grease and are finished to a super smooth condition.

Other application examples include printers, copiers, power tools, alternators and general machinery.



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Printed in England Ref:BF1/A/E/E/1/08.02

