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# Spherical roller bearings

BEARINGS EUROPE

NBI®

Premium brand

*The data provided in this catalogue is only for information purposes. For more specific information, please contact our engineering department.*

*Every care has been taken in the making of this catalogue to ensure the accuracy of the publication but no liability can be assumed for any incorrect or incomplete data.*

*NBI Bearings Europe reserves the right to make any modification without prior notice in the interest of technical progress.*



**www.gruponbi.com**

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# The company

NBI is a Premium brand serving the market since 2002.

Key positions are covered by professionals with vast experience in the bearing industry. The main features of NBI Bearings Europe to be highlighted are:

Commercial capacity:

— Focused on supplying bearings for high technical requirement applications to OEM customers. A large list of leading OEM clients' referrals backs NBI's reputation.

— Sales and customer service teams, formed by more than 25 people providing a personalized service, are located in Spain, China, Romania, Brazil and India.

— Romania-based highly experienced application engineering team that provides the best pre-sales & after-sales technical assistance.

— Distribution centers for on-time deliveries in Spain, China and India.

Technical expertise:

— Own design and R&D teams in Spain that have supported the development of a new proprietary design software. Product portfolio that covers CRB, SRB, TRB, CRTB, SPB and CF. NBI is continuously adding new items to its Enhanced bearing line.

— Manufacturing plants in Spain, China and India.

— Fully equipped metrology, metallographic and other tests laboratories.

Financial position:

— Solid financial health thanks to a robust cash position.

— Publicly listed in the BME Grow (Spanish stock exchange market for small and medium sized companies) since 2015 with stable core shareholders.

# Vision

Develop a solid group of companies focused on the design, manufacturing and marketing of precision bearings and high value-added technical products that are especially aimed at industrial sectors.

With a value proposition recognized by our clients and supported by the following pillars:

- **Extraordinary customer service.** Fulfill our quality commitments and delivery deadlines with close attention.
- **Continuous innovation** focused on own product design.
- **Pre-sales & after-sales technical service** as a differentiating element.
- **Supply chain** based on close and long-term relationships and mutual trust.
- **Operational excellence** focused on doing more with less.

Focused on achieving:

- **Satisfaction of our clients** Gain their trust and loyalty through multi-year agreements, and consequently achieve a *win-win* relationship.
- **Persons** committed and proud of working at NBI. **Own Culture and Values.**
- **Satisfied shareholders.** Generating sustainable profitability in the medium-term always with absolute transparency.

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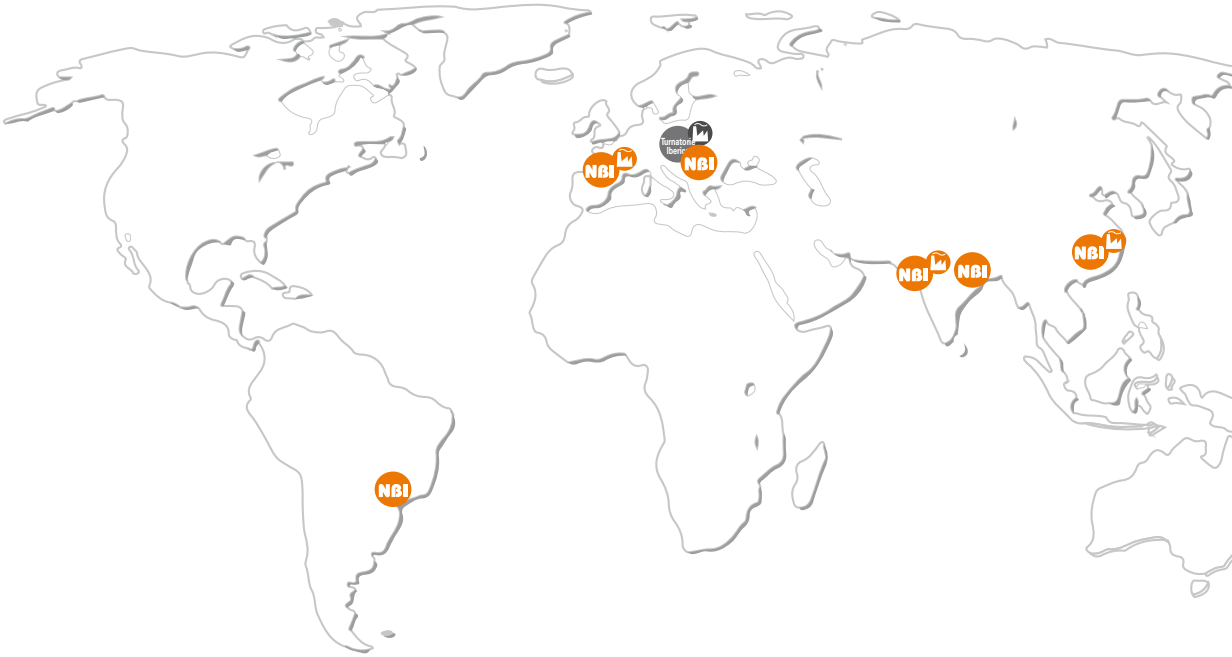



## Bearings business unit

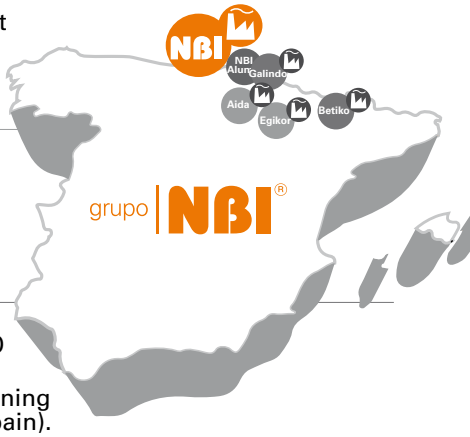
NBI BEARINGS EUROPE
NBI headquartes, R&D, designing, manufacturing plant, warehouse and sales office in Oquendo (Spain).

NBI INDIA, PVT. LTD.
Manufacturing plant and warehouse in Ahmedabad and sales office in Kolkata (India).

NBI BEARINGS ROMANIA
Application engineering and sales office in Bucharest (Romania).

NBI BEARINGS DO BRAZIL
Sales office in Sorocoba (Brazil).

CRONOS
Manufacturing plant warehouse and sales office.




## Metal transformation business unit

EGIKOR
Technical office and metal stamping plant in Ermua (Spain).

AIDA INGENIERÍA
Technical office and boiler-making plant in Artea (Spain).

## Precision machining business unit

INDUSTRIAS METALÚRGICAS GALINDO
Technical office and precision machining plant in Mungia (Spain).

INDUSTRIAS BETIKO
Technical office and multi-spindle machining plant in Bergara (Spain).

## Aluminium injection business unit

NBI ALUMINIUM
Technical office, components and aluminum casting in Mungia (Spain).

TURNATORIE IBERICA
Technical office and aluminium components´ plant (HPDC) in Oradea (Romania).

# NBI Enhanced bearings line

## ENHANCED+: new bearing line

NBI has developed a proprietary software, de-soft to design CRB, SRB and TRB series.

NBI combines experience in designing and producing bearings with the latest technology in material research and manufacturing technology to create a new bearing line with superior benefits:

- Improved dynamic load capacity and consequently, longer operating time.
- Reduced friction and lower operating temperature.
- Downsizing possibility
- Lower overall costs.

Main improvements:

- Higher steel purity and adjusted composition according to the ring thickeness and roller section.
- Optimized microstructure: Aichelin roller hearth salt bath furnace.
- Enhanced surfaces finish and topography.
- Refined internal design and contact geometry, taking advantage of NBI proprietary design software.

Cylindrical Roller Bearing (CRB)

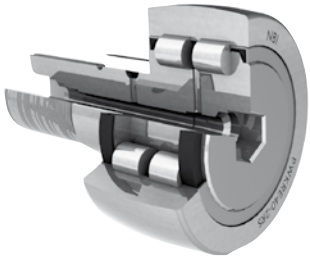
Spherical Roller Bearing (SRB)

Taper Roller Bearing (TRB)

ENHANCED +

Cylindrical Roller Thrust Bearing (CRTB)

Spherical Plain Bearing (SPB)



Cam Follower (CF)

## Advanced calculation capabilities

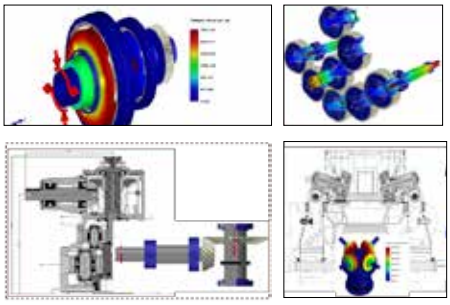
NBI's application engineering team provides each client with the best technical advice whatever the situation:
- For new applications under development.
- For changes in the parameters of the operational regime of the machines.
- For solving repetitive bearing damages in specific positions within a client's applications.
- For a better understanding on how certain environmental factors influence the bearings performance.

### FOR GEARBOXES, DRIVELINES AND VARIOUS OTHER APPLICATIONS

### Innovative solutions

Strategic partnership with Romax. Working very closely with the development team of Romax to improve and add new features. Currently, NBI has 6 licenses.

Using state-of-the-art computer analysis tools, NBI is capable of running accurate computer simulations of customer's application and perform a complex analysis of the bearing system.



NBI's PROPRIETARY SOFTWARE

### ADVANCED BEARING-ROPE SHEAVES CALCULATION SYSTEM

Considering design & operational factors, such as sheave material & geometry, rope load, wrap and fleet angles and working temperature.

### NBI can calculate

Lifetime rating based on ISO/TS 16281.

Static safety factor based on loads and contact stress.

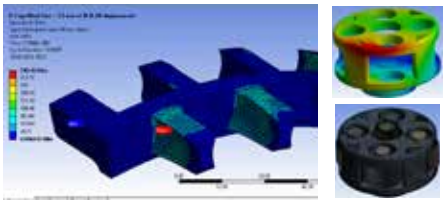
Operating radial clearance due to the interference produced by bearing with sheave and bushing.

Contact stress between bearing and sheave.

### FINITE ELEMENT ANALYSIS

### Advanced modelling and simulation

Calculations account for the impact of all operating conditions, bearings micro-geometry, and environmental factors such as non asymmetric housings or shafts or other flexible components, for the most accurate results.



# Laboratories

In-house metallographic, metrology and other tests laboratories equipped with the latest technology. Strategic partnership with some of the most advanced Spanish technological centers: CEIT IK4 and Tekniker IK4. These fully equipped laboratories are shared by the application engineering, design, R&D and manufacturing teams.

## Metrology laboratory

- Conditioned quality room equipped with temperature and humidity control systems.
- ZEISS coordinate measurement machine 3D for rings, cages, rolling elements and models.
- Taylor Hobson roundness testers for small and large rings as well as for harmonics.
- Taylor Hobson profilometer-roughness testers for small and large bearings.
- Optical comparator to measure contour form.
- Trimos high precision calibration system for creating own masterpieces and in-house calibration of measurement devices.

## Metallographic laboratory

- Spectrometer and elementary inorganic analyzers LECO for raw material composition.
- Inverted optical brightfield microscope for the measurement of non-metallic inclusion carbides, grain size and microstructure.
- Hardness tester for HRB, HRC & HV.
- Scanning electron microscope for fracture & substructure analysis.
- Focus Ion Beam (FIB) equipment for material structure, composition & layer thickness analysis.
- X-ray fluorescence measuring system for zinc coating thickness measurement.
- Magnetic particle test bench for detecting superficial and sub-superficial cracks.
- Submerged ultrasonic bearing automatic inspection for internal defects.
- Nital etching for grinding burns inspection.
- X-ray diffractometer for the detection of stresses and retained austenite content.
- Dilatometer for thermal stabilization & simulation of heat treatments.

## Other tests laboratory

- Accelerated bearing life testers for small and medium sizes.
- Equipment to measure and evaluate capacities and behavior of different sealing systems for bearings.
- Tailor-made machine to test adherence between fabric and steel.
- Salt fog chamber for evaluating different advanced anti-corrosion coatings performance.
- Virtual tool for bearing performance analysis

# Manufacturing plants - Oquendo (Spain)

Investment up to now of 10 million euros. 2.500 $m^2$ surface for manufacturing (total area 5.500 $m^2$).

Equipped with the latest European technology, that allows to achieve high-precision bearings. All processes are performed by CNC controlled equipment.
Team formed of managers and operators with many years of experience in bearing production.

In-house metallographic, metrology and other tests laboratories equipped with the latest technology.

Long-term investment plan in place with the following purposes:
- Extend the area dedicated to production.
- Increase the volume of bearing output on the already existing range (reinforcing the bottleneck capacity).
- Widen the existing range of diameter sizes and bearing types.
- Incorporate key processes in-house: heat treatment.

Certified with: ISO 9001:2015

Manufacturing line

General view manufacturing plant

Automatic robot


**Current capacity (mm)**
Inner diameter 80 ÷ 240
Outer diameter 100 ÷ 400

**Incoming capacity (mm)**
Inner diameter 240 -700
Outer diameter 400 ÷ 1.000

# Manufacturing plants - Wujin (China)

Investment up to now 18 million euros. 15.000 $m^2$ surface for manufacturing (total area 35.000 $m^2$).

Equipped with the latest Chinese technology, that allows to achieve high-precision bearings. All processes are performed by CNC controlled equipment. 220 grinders and 40 turning machines available. 17 small, 5 medium and 2 large bearing grinding lines. Factory is equipped with an Aichelin heat treatment line. A turning workshop is also avalaible. Ability to design and manufacture its own grinders.

Team formed of managers and operators with many years of experience in bearing production.

In-house metallographic, metrology and other tests laboratories equipped with the latest technology.

Long-term investment plan in place with the following purposes:
- Extend the area dedicated to production.
- Increase the volume of bearing output on the already existing range (reinforcing the bottleneck capacity).
- Widen the existing range of diameter sizes and bearing types.

Certified with: IATF 16949:2016. TÜV, ISO 14001:2015. DNV and ISO 45001:2018. DNV.

Large sizes grinding line

CRB small sizes grinding line

CRB medium sizes grinding line


**Current capacity (mm)**
Inner diameter 20 ÷ 1.400
Outer diameter 30 ÷ 1.600

Specialized in CRB and TRB

# Manufacturing plants - Ahmedabad (India)


Investment up to now 3 million euros. 3.000 $m^2$ surface for manufacturing.

Equipped with the latest Indian technology, that allows to achieve high-precision bearings. All processes are
performed by CNC controlled equipment.

Team formed of managers and operators with many years of experience in bearing production.

In-house metallographic, metrology and other tests laboratories equipped with the latest technology.

Long-term investment plan in place with the following purposes:
- Extend the area dedicated to production.
- Increase the volume of bearing output on the already existing range (reinforcing the bottleneck capacity).
- Widen the existing range of diameter sizes and bearing types.
- Incorporate key processes in-house: heat treatment.

Certified with: ISO 9001:2015. TÜV.

SRB grinding line

SRB grinding line

Washing line


**Current capacity (mm)**
SRB-TRB
Inner diameter 40 ÷ 125
Outer diameter 100 ÷ 200

**Incoming capacity (mm)**
SRB
Inner diameter 120 ÷ 200
Outer diameter < 400

# Spherical roller bearings

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# Spherical roller bearings

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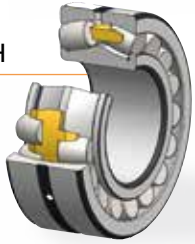
2..-K-E-W33-ENH

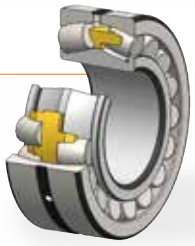
2..-MC-W33-ENH



2..-K-MC-W33-ENH

2..-CA-W33-ENH

2..-K-CA-W33-ENH



2..-K-CA-W33-ENH+H

2..-K-CA-W33-ENH+H-H

2..-K-CA-W33-ENH+AH

2..-K-CA-W33-ENH+AH-H

## Spherical Roller Bearings - Generalities

Spherical roller bearings are non-separable, double-row radial bearings, featuring a built-in capability for self-alignment, able to compensate internally for shaft deflections and housing distortions caused by inaccurate machining, shaft bending, shocks or heavy loads.

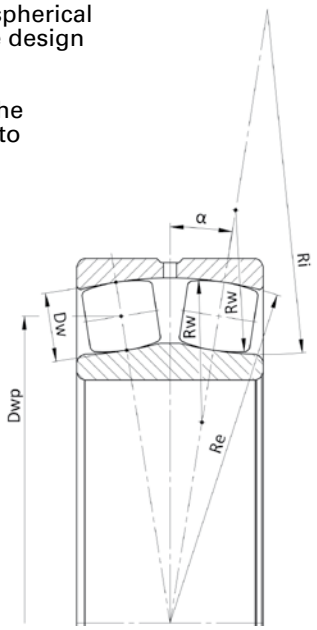
The self-alignment ability combined with a robust construction allows the use of spherical roller bearing for the support of long and heavy shafts, hence making the spherical roller bearing an ideal choice for many heavy-duty applications in processing industries, including aggregates, mining, quarrying and earth-moving, bulk material handling, cement, constructions, power generation, wood processing, paper, power transmission, to name just a few.

The main design feature of the spherical roller bearings is the spherical shaping of the rolling elements and raceways. Spherical profile design is based on osculation.

Osculation is defined as the ratio of the radius of curvature of the rolling element to that of the raceway in a direction transverse to the direction of rolling.

$$\phi_i = \frac{Rw}{Ri}$$

$$\phi_o = \frac{Rw}{Re}$$




$\phi_i$ = Osculation of inner raceway-roller contact

$\phi_o$ = Osculation of outer raceway-roller contact

Where, as detailed also in the sketch:

Rw → Roller profile radius

Ri, Re → Inner and outer raceway radius of curvature

$\alpha$ → Contact angle

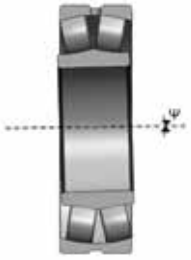
Dwp → Pitch diameter

Dw → Roller diameter

The contact angle $\alpha$ allows spherical roller bearing to handle not only radial loads but also combined radial and axial loads. On the other hand, the spherical geometry of the outer ring raceway in interaction with the barrel-shaped rollers, enables misalignment support capability to the spherical roller bearings. When misaligned, the assembly of the inner ring and rollers will automatically self-center relative to the outer ring, allowing proper transfer of the load through the central area of the rollers. This capability offers a good contact stress distribution between rollers and raceways, and by well-designed conformity ratios, problems such as end loading of the rollers (stress concentrations at the extremity of the rollers) are eliminated.

## Misaligment

Spherical roller bearings are the optimal bearing type for misalignment compensation. The maximum permissible misalignment from their centre position (Ψ), is dependent upon bearing series design.




Misalignment capability of a spherical roller bearing is defined by the point where the roller-outer raceway contact is truncated. This value defines the limit of the roller length in outward direction. Cage design limits the roller length in inward direction.

Since the cage requirements cannot be modified, the maximum misalignment value is the main factor in determining the roller length and hence the contact angle of the bearing. Lower misalignment capabilities yield longer rollers with larger contact angles. Larger misalignment capabilities yield shorter rollers with narrower contact angles.

**Maximum permissible misalignment for NBI spherical roller bearings**

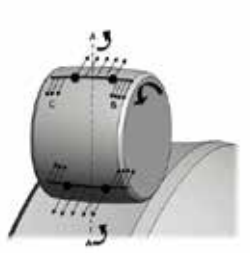
| Bearing series | Maximum permissible misalignment Ψ≤ [°] |
|---|---|
| 213 | 1,0 |
| 222 | 1,5 |
| 223 | 2,0 |
| 230 | 1,5 |
| 231 | 2.0 |
| 232 | 2,0 |
| 238 | 1,5 |
| 239 | 1,5 |
| 240 | 1,5 |
| 241 | 2.0 |
| 248 | 1,5 |
| 249 | 2,5 |

Table n° 01

* Please note that these above tabulated angular values are valid only in conditions of static misalignment (the angular deviation is not variable during operation), and if the rotating element is the inner ring.

## Self-alignment and sliding friction

In spherical roller bearings, pure rolling motion only occurs on 2 points at each contact area between roller and raceways, elsewhere friction forces are generated by sliding. For constant angular velocity, the higher linear speed is on the center of the roller and the lower linear speed at the ends of the roller. If the sliding forces from roller ends (B and C areas) are not balanced the roller will have the tendency to skew around A-A axis.



Due to this natural phenomenon known as Heathcote slip, spherical roller bearings generate more friction and torque. Therefore the bearing micro-geometry (especially the raceways surface finish and texture), as well as the lubrication conditions, are very important for obtaining the desired performance in operating conditions.

## Boundary dimensions and tolerances

The main dimension of the standard spherical roller bearings conform to DIN 635 / Part 2. The dimensional and geometrical tolerances of the standard spherical roller bearings conform to tolerance class PN according to DIN 620 / Part 2 and ISO 492.

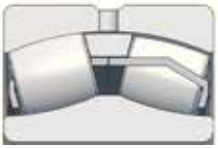
NBI Enhanced spherical roller bearing are manufactured as standard to P6 tolerance class for running accuracy. NBI is able to manufacture bearings with tighter tolerances according to the application specific requirements.

## NBI spherical roller bearing design

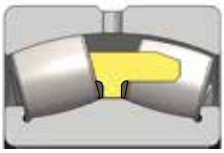
All NBI spherical roller bearing products have in common several features that contribute to an enhanced performance:

- Internal geometry optimized for high load carrying capacity
- Symmetrical rollers
- Osculation ratios optimized for achieving lower stress levels, lower torque, good roller stability and traction forces
- High steel purity and optimized microstructure by isothermal hardening
- Reduced raceway roughness and improved textures
- Dimensional stabilization for high temperatures

NBI spherical roller bearings are produced in several designs, depending on bearing series and size. The main differences are in the design of the inner ring and/or cages: There are five different models of cages with different characteristics according to material and shape depending on the application where the bearing is in use.

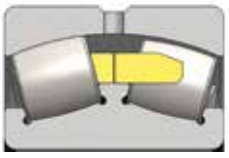


**E design**
- Symmetrical rollers
- Two hardened window-type steel cages
- Independent rows
- Cages guided on outer ring via a floating guiding ring
- Flangeless inner ring

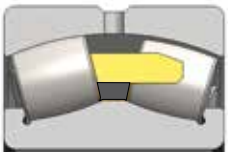


**CA design**
- Symmetrical rollers
- One piece figer-type machined brass cage
- Cages guided on inner ring through integrated central rib
- Inner ring has retaining flanges with slots for roller loading

**MA design**
- Symmetrical rollers
- Two pieces figer-type machined brass cages
- Independent rows
- Cages guided on outer ring
- Inner ring has retaining flanges with slots for roller loading



**MB design**
- Symmetrical rollers
- Two pieces figer-type machined brass cages
- Independent rows
- Cages guided on inner ring
- Inner ring has central rib for cage riding, and retaining flanges with slots for roller loading



**MC design**
- Symmetrical rollers
- One piece figer-type machined brass cage
- Cage guided on rollers
- Inner ring has retaining flanges with slots for roller loading

For the availability of spherical roller bearings with other cages, please contact NBI.

## Lubrication features

NBI spherical roller bearings are produced incorporate simple lubrication features as standard: circumferential groove and lubricating holes in the outer ring. These features are identified with the suffix W33.

For rotating housing / stationary shaft applications, the lubrication holes and groove may be also provided in inner ring, at request.

## Radial internal clearance

For the radial internal clearance of spherical roller bearings a distinction must be made between bearings with cylindrical or tapered bores. Because of the risk of applying accidental preloading to the bearing during mounting, bearings with tapered bores feature larger values of clearance compared to cylindrical bore bearings even in the same clearance group.

NBI spherical roller bearings are standard produced to normal clearance group CN (no suffix on bearing reference). NBI also produces spherical roller bearings with enlarged radial internal clearance (C3, C4 or C5) or reduced radial internal clearance (C2). These values conform, where standardised, to DIN 620 / part 4 and ISO 5753 / part 1 respectively.

Non-standardized or application customized radial internal clearance values also are available by special request.

**Radial internal clearance of NBI spherical roller bearings, bore diameter ≤ 250 mm [µm]**

Spherical roller bearings with cylindrical bore

| Bore diameter d [mm] | > ≤ | -- 24 | 24 30 | 30 40 | 40 50 | 50 65 | 65 80 | 80 100 | 100 120 | 120 140 | 140 160 | 160 180 | 180 200 | 200 225 | 225 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clearance group C2 | min | 10 | 15 | 15 | 20 | 20 | 30 | 35 | 40 | 50 | 60 | 65 | 70 | 80 | 90 |
| | max | 20 | 25 | 30 | 35 | 40 | 50 | 60 | 75 | 95 | 110 | 120 | 130 | 140 | 150 |
| Clearance group CN (normal) | **min** | **20** | **25** | **30** | **35** | **40** | **50** | **60** | **75** | **95** | **110** | **120** | **130** | **140** | **150** |
| | **max** | **35** | **40** | **45** | **55** | **65** | **80** | **100** | **120** | **145** | **170** | **180** | **200** | **220** | **240** |
| Clearance group C3 | min | 35 | 40 | 45 | 55 | 65 | 80 | 100 | 120 | 145 | 170 | 180 | 200 | 220 | 240 |
| | max | 45 | 55 | 60 | 75 | 90 | 110 | 135 | 160 | 190 | 220 | 240 | 260 | 290 | 320 |
| Clearance group C4 | min | 45 | 55 | 60 | 75 | 90 | 110 | 135 | 160 | 190 | 220 | 240 | 260 | 290 | 320 |
| | max | 60 | 75 | 80 | 100 | 120 | 145 | 180 | 210 | 240 | 280 | 310 | 340 | 380 | 420 |
| Clearance group C5 | min | 60 | 75 | 80 | 100 | 120 | 145 | 180 | 210 | 240 | 280 | 310 | 340 | 380 | 420 |
| | max | 75 | 95 | 100 | 125 | 150 | 185 | 225 | 260 | 300 | 350 | 390 | 430 | 470 | 520 |

Table n° 02

Spherical roller bearings with tapered bore

| Bore diameter d [mm] | > / ≤ | -- 24 | 24 30 | 30 40 | 40 50 | 50 65 | 65 80 | 80 100 | 100 120 | 120 140 | 140 160 | 160 180 | 180 200 | 200 225 | 225 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clearance group C2 | min | 15 | 20 | 25 | 30 | 40 | 50 | 55 | 65 | 80 | 90 | 100 | 110 | 120 | 140 |
| | max | 25 | 30 | 35 | 45 | 55 | 70 | 80 | 100 | 120 | 130 | 140 | 160 | 180 | 200 |
| Clearance group CN (normal) | **min** | **25** | **30** | **35** | **45** | **55** | **70** | **80** | **100** | **120** | **130** | **140** | **160** | **180** | **200** |
| | **max** | **35** | **40** | **50** | **60** | **75** | **95** | **110** | **135** | **160** | **180** | **200** | **220** | **250** | **270** |
| Clearance group C3 | min | 35 | 40 | 50 | 60 | 75 | 95 | 110 | 135 | 160 | 180 | 200 | 220 | 250 | 270 |
| | max | 45 | 55 | 65 | 80 | 95 | 120 | 140 | 170 | 200 | 230 | 260 | 290 | 320 | 350 |
| Clearance group C4 | min | 45 | 55 | 65 | 80 | 95 | 120 | 140 | 170 | 200 | 230 | 260 | 290 | 320 | 350 |
| | max | 60 | 75 | 85 | 100 | 120 | 150 | 180 | 220 | 260 | 300 | 340 | 370 | 410 | 450 |
| Clearance group C5 | min | 60 | 75 | 85 | 100 | 120 | 150 | 180 | 220 | 260 | 300 | 340 | 370 | 410 | 450 |
| | max | 75 | 95 | 105 | 130 | 160 | 200 | 230 | 280 | 330 | 380 | 430 | 470 | 520 | 570 |

Table n° 03

**Radial internal clearance of NBI spherical roller bearings, bore diameter > 250 mm [µm]**

Spherical roller bearings with cylindrical bore

| Bore diameter d [mm] | > / ≤ | 250 280 | 280 315 | 315 355 | 355 400 | 400 450 | 450 500 | 500 560 | 560 630 | 630 710 | 710 800 | 800 900 | 900 1.000 | 1.000 1.120 | 1.120 1.250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clearance group C2 | min | 100 | 110 | 120 | 130 | 140 | 140 | 150 | 170 | 190 | 210 | 230 | 260 | 290 | 320 |
| | max | 170 | 190 | 200 | 220 | 240 | 260 | 280 | 310 | 350 | 390 | 430 | 480 | 530 | 580 |
| Clearance group CN (normal) | **min** | **170** | **190** | **200** | **220** | **240** | **260** | **280** | **310** | **350** | **390** | **430** | **480** | **530** | **580** |
| | **max** | **260** | **280** | **310** | **340** | **370** | **410** | **440** | **480** | **530** | **580** | **650** | **710** | **780** | **860** |
| Clearance group C3 | min | 260 | 280 | 310 | 340 | 370 | 410 | 440 | 480 | 530 | 580 | 650 | 710 | 780 | 860 |
| | max | 350 | 370 | 410 | 450 | 500 | 550 | 600 | 650 | 700 | 770 | 860 | 930 | 1.020 | 1.120 |
| Clearance group C4 | min | 350 | 370 | 410 | 450 | 500 | 550 | 600 | 650 | 700 | 770 | 860 | 930 | 1.020 | 1.120 |
| | max | 460 | 500 | 550 | 600 | 660 | 720 | 780 | 850 | 920 | 1.010 | 1.120 | 1.220 | 1.330 | 1.460 |
| Clearance group C5 | min | 460 | 500 | 550 | 600 | 660 | 720 | 780 | 850 | 920 | 1.010 | 1.120 | 1.220 | 1.330 | 1.460 |
| | max | 570 | 630 | 690 | 750 | 820 | 900 | 1.000 | 1.100 | 1.190 | 1.300 | 1.440 | 1.570 | 1.720 | 1.870 |

Table n° 04

Spherical roller bearings with tapered bore

| Bore diameter d [mm] | > ≤ | 250 280 | 280 315 | 315 355 | 355 400 | 400 450 | 450 500 | 500 560 | 560 630 | 630 710 | 710 800 | 800 900 | 900 1.000 | 1.000 1.120 | 1.120 1.250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clearance group C2 | min | 150 | 170 | 190 | 210 | 230 | 260 | 290 | 320 | 350 | 390 | 440 | 490 | 540 | 600 |
| | max | 220 | 240 | 270 | 300 | 330 | 370 | 410 | 460 | 510 | 570 | 640 | 710 | 780 | 860 |
| Clearance group CN (normal) | min | **220** | **240** | **270** | **300** | **330** | **370** | **410** | **460** | **510** | **570** | **640** | **710** | **780** | **860** |
| | max | **300** | **330** | **360** | **400** | **440** | **490** | **540** | **600** | **670** | **750** | **840** | **930** | **1.020** | **1.120** |
| Clearance group C3 | min | 300 | 330 | 360 | 400 | 440 | 490 | 540 | 600 | 670 | 750 | 840 | 930 | 1.020 | 1.120 |
| | max | 390 | 430 | 470 | 520 | 570 | 630 | 680 | 760 | 850 | 960 | 1.070 | 1.190 | 1.300 | 1.420 |
| Clearance group C4 | min | 390 | 430 | 470 | 520 | 570 | 630 | 680 | 760 | 850 | 960 | 1.070 | 1.190 | 1.300 | 1.420 |
| | max | 490 | 540 | 590 | 650 | 720 | 790 | 870 | 980 | 1.090 | 1.220 | 1.370 | 1.520 | 1.650 | 1.800 |
| Clearance group C5 | min | 490 | 540 | 590 | 650 | 720 | 790 | 870 | 980 | 1.090 | 1.220 | 1.370 | 1.520 | 1.650 | 1.800 |
| | max | 620 | 680 | 740 | 820 | 910 | 1.000 | 1.100 | 1.230 | 1.360 | 1.500 | 1.690 | 1.860 | 2.030 | 2.220 |

Table n° 5

The clearance required for a given application depends on the mounting fits of bearing rings (tight fits with shaft or housing reduce the initial internal clearance due to elastic deformation of the respective bearing ring), the speed of the bearing (higher speeds facilitate heat generation, and thus a further reduction of the mounted internal clearance through thermal expansion), and the desired operating precision (precise operation typically requires reduced internal clearance values in order to minimize the runouts and deflections).

## Mounting bearings with tapered bore

Spherical roller bearings are frequently used with tapered bores for ease of mounting and dismounting. In general, the taper of the bore is (1:12) and is designated by the suffix K added to the basic NBI bearing reference, except for series 240, 241, 248, and 249, where the taper bore is (1:30) correspondingly identified by suffix K30.

The facility of mounting spherical roller bearings using adapter and extraction sleeves enables the mounting of tapered bore bearings onto cylindrical shaft seats. Tapered sleeves are also helpful in situations when the shaft seats are less precisely manufactured (i.e, not ground, but drawn or fine turned), for applications where high running accuracy is not necessary.

An alternative for the using of tapered sleeves is the mounting of tapered bore bearings directly onto a tapered shaft seat.

Spherical roller bearings with tapered bores are always mounted with an interference (press) fit on the shafts. To control the interference fit with shaft two alternative methods are typically used, including either the measurement of the axial displacement of the bearing inner ring, or the reduction of the bearing radial internal clearance due to interference fit. Based on our experience, the measurement of reduction in radial internal clearance is a more reliable method and please refer to *table n° 06* for our suggested values for radial internal clearance reduction.

Measure of RIC before installation

It is advisable to measure the bearing radial clearance before installation, to control it during the bearing drive on the mating tapered surface and to stop the pushing of bearing when the remained clearance is the difference between the clearance of unmounted bearing and the reduction values from table.

Those reduction recommendations are independent of clearance groups (C2, CN, C3...) and are established to assure a good interference fit of bearing on shaft to avoid relative movements and fretting corrosion but also to prevent the inner ring cracking due to high Hoop Stress generated in case of too much interference fit.

| Bore diameter [mm] | | Reduction of radial internal clearance [µm] | |
|---|---|---|---|
| over | incl | min | max |
| 24 | 30 | 10 | 15 |
| 30 | 40 | 15 | 20 |
| 40 | 50 | 20 | 25 |
| 50 | 65 | 25 | 35 |
| 65 | 80 | 35 | 40 |
| 80 | 100 | 40 | 50 |
| 100 | 120 | 50 | 60 |
| 120 | 140 | 60 | 75 |
| 140 | 160 | 70 | 85 |
| 160 | 180 | 80 | 95 |
| 180 | 200 | 90 | 105 |
| 200 | 225 | 100 | 120 |
| 225 | 250 | 110 | 130 |
| 250 | 280 | 120 | 150 |
| 280 | 315 | 135 | 165 |
| 315 | 355 | 150 | 180 |
| 355 | 400 | 170 | 210 |
| 400 | 450 | 195 | 235 |
| 450 | 500 | 215 | 265 |
| 500 | 560 | 245 | 300 |
| 560 | 630 | 275 | 340 |
| 630 | 710 | 310 | 380 |
| 710 | 800 | 350 | 425 |
| 800 | 900 | 395 | 480 |
| 900 | 1.000 | 440 | 535 |
| 1.000 | 1.120 | 490 | 600 |
| 1.120 | 1.250 | 550 | 670 |

Table n° 06

It is suggested to apply min reduction to bearings found with radial internal clearance toward min value from group range (C2, CN, C3...), respectively max reduction for bearings with radial internal clearance toward max value from group range. For values between, linear interpolation can be applied using the suggested min. and max. reduction values of radial internal clearance.

## Shaft and housing fits

Following chart tabulates the suggested fits for mounting spherical roller bearings onto the shaft and in the housing, particularized for various operating conditions. Please contact NBI application engineering for more information or support regarding fitting practice.

| Spherical roller bearing shaft fits | | | | |
|---|---|---|---|---|
| Working conditions | Examples | Shaft diameter (mm) | | *Tolerance symbol |
| Spherical roller bearing with cylindrical bore | | | | |
| Stationary inner ring load | | | | |
| Inner ring to be easily displaced on shaft | Wheel on stationary shaft | All dimensions | | g6 (h6) |
| Inner ring not to be easily displaced on shaft | Cable (rope) sheaves, tension rollers | | | h6 |
| Spherical roller bearing with cylindrical bore | | | | |
| Rotating inner ring load | | over | incl | |
| Light and variable loads (P < 0,07Cr) | Pumps, fans, conveyors, machine-tools | - | 100 | k6 |
| | | 100 | 200 | m6 |
| Normal or heavy loads (0,07Cr < P < 0,25Cr) | General industry applications, electrical motors, pumps, turbines, gear drives, woodworking equipment | - | 40 | k5 (k6) |
| | | 40 | 65 | m5 (m6) |
| | | 65 | 100 | m6 |
| | | 100 | 140 | n6 |
| | | 140 | 280 | p6 |
| | | 280 | 500 | r6 |
| | | 500 | and up | r7 |
| Heavy loads and shock loads (P > 0,25Cr) | Axleboxes for rail vehicles, traction motors, large gear drives | - | 50 | m6 |
| | | 50 | 100 | n6 |
| | | 100 | 200 | p6 |
| | | 200 | and up | r6 (r7) |
| Spherical roller bearing with tapered bore | | | | |
| Mounting with adapter or extraction sleeves on straight shafts | | | | |
| All cases | General industry applications | All dimensions | | h9 (h10) |

* Above fitting practice suggestions are valid for solid or heavy-sectioned ferrous shafts. For hollow shafts higher interference fits have to be considered, contact NBI engineering if technical support is needed.

| Spherical roller bearing housing fits | | | |
|---|---|---|---|
| Working conditions | Examples | * Tolerance symbol | Outer ring displacement |
| **One-piece bearing housing<br>Rotating outer ring load** | | | |
| Variable load direction | Vibrating screens, eccentric shaft mechanism with 2 supports | P6 | Outer ring is not displaced axially |
| Heavy loads and shock loads on thin-sectioned housings (P > 0,25Cr) | Crane wheels, crank shaft bearings, wheel hubs | P7 | |
| Normal or heavy loads (0,07Cr < P < 0,25Cr) | Crane wheels, crank shaft bearings | N7 | |
| Light and variable loads (P < 0,07Cr) | Conveyor rollers, cable (rope) sheaves, tension rollers | M7 | |
| **One-piece bearing housing<br>Indeterminate load** | | | |
| Heavy loads and shock loads (P > 0,25Cr) | Traction motors | M7 | Outer ring is not displaced axially |
| Normal or heavy loads (0,07Cr < P < 0,25Cr) | Electrical motors, pumps, crank shaft bearings | K7 | |
| **Split or one-piece bearing housing<br>Indeterminate load** | | | |
| Normal or light loads | Electrical motors, pumps, crank shaft bearings | J7 | Outer ring is displaced axially |
| **Split or one-piece bearing housing<br>Stationary outer ring load** | | | |
| All loads | General industry applications | H7 | Outer ring is easily displaced axially |
| Normal or light loads | Gear drives | H8 | |
| Heat transferred through the shaft | Dryer cylinders, large electrical machines | G7 | |
| **One-piece bearing housing<br>High running accuracy and low noise applications** | | | |
| High rigidity under variable loads | Spindles for machine tools | M6 (OD < 125 mm)<br>N6 (OD > 125 mm) | Outer ring is not displaced axially |
| Indeterminate low load | Compressors | K6 | Outer ring is not displaced axially |
| | | J6 | Outer ring is not necessarily displaced axially |
| Reduced noise | Small electrical machines | H6 | Outer ring is easily displaced axially |

* Above fitting practice suggestions are valid for heavy-sectioned ferrous housings. For thin-sectioned housings or non-ferrous housings contact NBI engineering if technical support is needed.

As a rule of thumb the bearing has to be tight mounted (interference fit) on the rotating component of the assembly to mitigate relative movement, additional friction and premature wear, and loose mounted (eventually light intermediary fit) on the stationary component. In assemblies with fixed and floating bearing arrangements a larger loose fit have to be considered for the floating bearing with the stationary component if easy axial displacement has to be assured for specific reasons, like increased linear thermal expansion of system.

There are also exceptions for some applications with specific working conditions. For instance, in case of vibrating screens the spherical roller bearings have to be loose mounted on the rotating shaft. The eccentric rotating shaft or counterweights generate a centrifugal force within the system during operation and therefore, the bearing is subjected to a rotating outer ring load and a rotating acceleration field and has to be well secured into the housing. Hence, for screen design with two-bearing shaft support, a P6 housing fit and a g6/f6 shaft fit is suggested. For screen design with four-bearing shaft support, same suggestion is made for the eccentric bearings, whereas for main bearings an H7 housing fit and an m6 shaft fit is advised.

## Bearing load carrying capacity and life

The dynamic load carrying capacity is described in terms of basic dynamic load rating. The basic dynamic load rating Cr is based on ISO 281 and is that load of constant magnitude and direction which a large number of apparently identical bearings (90% or more) could survive for 1 million revolutions before fatigue spall develops.

The fatigue life is dependent on load, operating speed, statistical probability of appearance of fatigue spall, and the basic rating life of a bearing in accordance with ISO 281 is:

$$L_{10} = \left(\frac{Cr}{P}\right)^{p} \text{ (rev)}$$

$$L_{10h} = \left(\frac{Cr}{P}\right)^{p} \times \frac{16.667}{n} \text{ (hours)}$$

where:
The basic rating life $L_{10}$ represents the number of revolutions that 90% of a group of apparently identical bearings will meet or exceed, under a given set of conditions, before specified fatigue damage develops.
The basic rating life $L_{10h}$ represents the number of hours that 90% of a group of apparently identical bearings will meet or exceed, under a given set of conditions, before specified fatigue damage develops.
P = equivalent dynamic bearing load (N or kN)
n = operating speed (rpm)
$_{p}$ = life calculation exponent
- for ball bearings $_{P}$ = 3
- for roller bearings $_{P}$ = 10/3

The static load capacity is the load that can be applied without altering the physical properties in a way that degrades bearing performance. The basic static load rating Cor is based on ISO 76 and is that load for which the calculated contact stress at the most heavily loaded contact between rolling elements and races is:
- 4000 MPa for roller bearings
- 4200 MPa for ball bearings
- 4600 MPa for self-aligning ball bearings

This stress produces a permanent deformation at the contact points of 0,00001 of the rolling element diameter.

The basic static load rating is useful for verification of safety factors $S_0$ for bearings used in applications with very low rotational speeds (n <10 rpm), slow oscillating movements or stationary bearings under loads for long periods of time.

## Equivalent dynamic bearing load

If spherical roller bearings are only radially loaded by an external radial force $F_r$, then the equivalent dynamic bearing load is:
$P = F_r$

For the case when spherical roller bearings are loaded by combined radial and axial loads, then the equivalent dynamic bearing load created by combining the radial and axial loads could be calculated with:

$P = F_r + Y_1 \times F_a$ when $Fa / Fr \leq e$

$P = 0{,}67 \times F_r + Y_2 \times F_a$ when $F_a / F_r > e$

where:

P = equivalent dynamic bearing load (N or kN)

$F_r$ = radial bearing load (N or kN)

$F_a$ = axial bearing load (N or kN)

$Y_1, Y_2$ = bearing axial load factors

e = bearing calculation factor

The values of $e, Y_1, Y_2$ are provided in the product tables for each individual bearing.

## Minimum load

To perform satisfactory, it is advisable to apply a certain minimum load on the spherical roller bearings in operation. The typically suggested value is:

P = 0,02Cr, where Cr is the basic dynamic load rating of the bearing – see bearing tables. However, to mitigate the natural spherical roller bearings behaviour of rollers skewing (see Heathcote slip phenomenon detailed on section Self align and sliding friction) it is advisable for bearings with inner diameter above 200 mm that a minimum load P = 0,04Cr to be considered.

In case in some applications is not possible to reach the suggested minimum load for bearings, a special attention has to be paid to lubrication conditions, to have enough lubricant film between rollers and raceways so that to avoid the risk of micro-pitting.

## Axial support capability

Due to contact angle $\alpha$, the spherical roller bearings can properly handle combined radial and axial loads, but with some limitations regarding the axial load magnitude. For right bearing selection consult the product tables, bearings with larger e factors have more axial capability. Applications with high axial loads require special attention. For high axial loads the load sharing will not be well balanced between bearings rows, at extreme situations only one row of spherical roller bearing being loaded. In this case the performance of bearing is significant reduced and there are risks of premature bearing damage (typically cage-related issues or skidding-related damages). For right technical support please contact NBI engineering. Otherwise, for a safe bearing selection we recommend:

$F_a/F_r < 1,3 \times e$

where:

$F_a$ = axial bearing load (N or kN)

$F_r$ = radial bearing load (N or kN)

e = bearing calculation factor, provided in the product tables for each individual bearing.

## Equivalent static bearing load

If spherical roller bearings are only radially loaded by an external radial force Fr, then the equivalent static bearing load is:

$P_0 = F_r$

For the case when spherical roller bearings are loaded by combined radial and axial loads, then the equivalent static bearing load could be calculated with:

$P_0 = F_r + Y_0 \times F_a$

where:

$P_0$ = equivalent static bearing load (N or kN)

$F_r$ = radial bearing load (N or kN)

$F_a$ = axial bearing load (N or kN)

$Y_0$ = bearing axial load factor, provided in the product tables for each individual bearing.

In general industry applications it is suggested to consider a safety factor $S_0 > 2$ for bearing selection. For applications with $S_0 < 2$ please contact NBI engineering for advanced bearing performance analysis

$S_0 = Cor / P_0$ ,

where:

$S_0$ = safety factor

Cor = basic static load rating (N or kN), provided in the product tables for each individual bearing

$P_0$ = equivalent static bearing load (N or kN)

## Speed ratings

The thermal reference speed values according to ISO 15312 are listed in the product tables for each individual bearing. Thermal speed rating is the bearing rotational speed at which equilibrium is reached between heat generated by the friction in the bearing and the heat flow transferred out through the bearing seating (shaft and housing). The reference conditions as defined in ISO 15312 are based on the usual operating conditions for both, oil and grease lubrication:
- Ambient temperature: 20°C
- Bearing operating temperature: 70°C
- Bearing outer ring temperature: 70°C
- Bearing load: 5% of the basic static load rating Cor
- Mineral oil without EP additives and with 12 cSt operating viscosity and the grease base oil viscosity is 22 cSt
- For oil lubrication, is a bath with the fill at the middle of the lowest roller. for grease lubrication it is filled 30 % of the bearing cavity
- Bearing rotational axis is horizontal
- Bearing outer ring is stationary and the inner ring is rotating
- Bearing radial internal clearance from normal class and standard fits are used
- Bearing does not contain seals
- Bearing does not experience misalignment or axial load.

Grease lubricated bearings may have a temperature peak at initial start-up but after the running-in they will reach the normal operating temperature.
It is possible to run the bearings at higher speeds than the ones shown in the product tables, but then running accuracy, bearings radial internal clearance, cage design, lubrication system and heat dissipation have to be considered.
NBI does not publish a limiting speed as it is not always technically relevant, being influenced heavily by application conditions like load, lubrication type, internal geometry, cage construction, radial internal clearance. NBI engineering can evaluate the safety of a speed value in given working conditions - for specific assessment of applications operating above the thermal reference speed, contact the NBI application engineering.

At low and very low rotational speed, it is difficult to generate a suitable elasto-hydrodynamic lubricant film between rollers and raceways in order to separate the surfaces in contact. In such situations, NBI recommends to use lubricants containing proven effective EP additives to get a boundary lubricant film capable of supporting the applied loads.

## NBI Engineering services

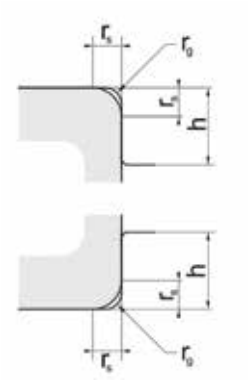
The basic information to select the bearings can be found in this catalogue. But there are applications which require accurate estimation of bearings performance or can be situations with lack or expertise and it is advisable to consult NBI engineering.
Using state-of-the-art computer analysis tools, NBI engineering is capable of running accurate computer simulations of applications and perform complex analysis of the bearing system. Team members with decades of accumulated experience in the bearing field can provide best-in-class support with the following services:

- Computers simulations and full application analysis by conside ring all conditions and influences of known environmental factors
- Selection of the best bearing solution for new applications
- Evaluation of bearing performance when changing operating parameters or system redesigning
- Bearing performance optimization
- Evaluation of lubrication system, lubricant type and improvement measures

Besides technical support for the bearing arrangement and solution other benefits of the NBI technical services are: reduction of development cost and time by simulations, improving of bearing arrangement and extending of equipment service life.

## Abutment and fillet dimensions

The shoulders on adjacent machine parts must be designed in such a way that the required thrust support of the bearing rings is guaranteed.
The bearing rings must contact adjacent parts with their side faces only.
The bearing chamfers must not contact the fillet radii of shaft or housing shoulders. Therefore, the largest fillet radius (rg) must be kept smaller than the minimum chamfer on the bearing rings (rs) given in the product tables.
Recommendations for the dimensions of adjacent parts are given in DIN 5418.




| rs min | rg max | h min Bearing series 230, 240 238, 248 239, 249 | h min Bearing series 231, 241 222, 232 213, 223 |
|---|---|---|---|
| 1 | 1 | 2,3 | 2,8 |
| 1,1 | 1 | 3 | 3,5 |
| 1,5 | 1,5 | 3,5 | 4,5 |
| 2 | 2 | 4,4 | 5,5 |
| 2,1 | 2,1 | 5,1 | 6 |
| 3 | 2,5 | 6,2 | 7 |
| 4 | 3 | 7,3 | 8,5 |
| 5 | 4 | 9 | 10 |
| 6 | 5 | 11,5 | 13 |
| 7,5 | 6 | 14 | 16 |
| 9,5 | 8 | 17 | 20 |
| 12 | 10 | 21 | 24 |
| 15 | 12 | 25 | 29 |

Table n° 07

## Conventional bearing arrangements

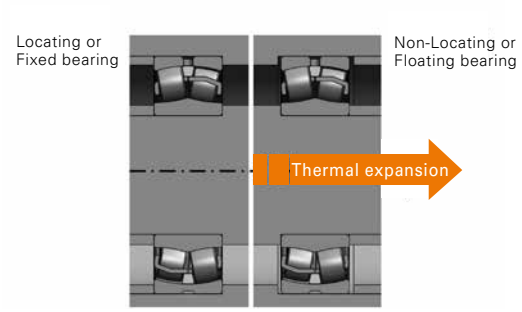
One of the advantages of spherical roller bearings is their ability to support combined loads, despite the restriction of the axial load magnitude. This ability makes them suitable to be used in locating/non-locating bearing arrangements as fixed (locating) positions. On the opposite side, they can be combined with a second spherical roller bearing, or with a cylindrical roller bearing as floating (non-locating) position.

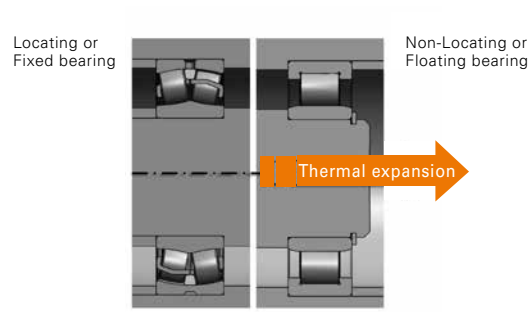
### Locating/Non-locating bearing arrangements

If the spherical roller bearing is used in locating (fixed) position, it will support part of the total radial load applied onto the bearing system (radial reaction for that support), and the entire axial load.

If the spherical roller bearing is used in non-locating (floating) position, it will support only radial load (radial reaction for that support). It will also be responsible for the accommodation of the linear thermal expansion of the shaft.

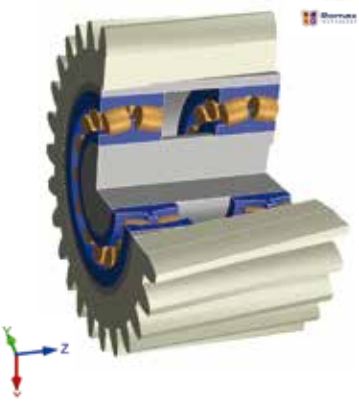
For a proper operation of the system it is compulsory to allow a sufficient axial gap. A suitable loose fit between housing cavity and bearing outside surface is also required in order to enable the correct floating of the bearing inside the housing – please refer to section Shaft and Housing Fits.




## Side-by-side arrangement

Some machine designs propose bearing arrangements composed by two spherical roller bearings mounted side-by-side, especially for fixed shaft and rotating housing applications like wheels and rollers (typical examples include planet gears in planetary gearboxes and pellet mill rolls). For such arrangements, where the two spherical roller bearings are either abbuting one another, or are separated by narrow spacers, it is advisible to run advanced performance bearings analysis. Considering only radial load and perfectly centered, theoretically the load is dispatched onto four rows closely situated to each other, which defines a hyperstatic situation. In reality due to the system components tolerances and system deflection in operating condition the load is not even between the two bearings and in between the two rows of the same bearing. The unbalanced loading situation is more amplified also in case of axial loads, either permanent or parasitic.
Good lubrication conditions, with a lubricant enriched with extreme pressure anti anti-wear additives are recommended.



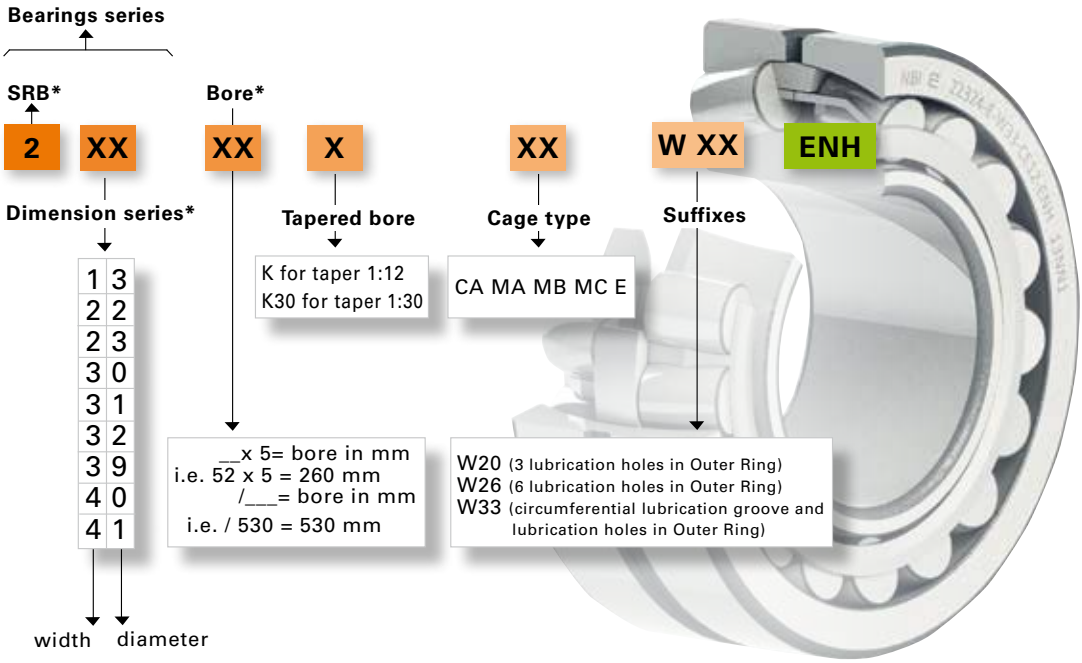
## Vertical shaft arrangement

If spherical roller bearings are used for supporting vertically positioned shafts, particular attention should be paid to supplying adequate lubrication to the bearings. Circulating oil is one of the most frequently used methods of lubrication in such cases.
Grease can also be used, but the vertical position can make the grease retainment inside the bearing difficult. Because of the combined effects of gravity and rotational movement, the grease can work its way down, flowing through the bearing and eventually leaking out of the arrangement, hence the risks of poor bearing lubrication.

A baffle plate under the bearing helps preventing the grease from flowing out of the bearing. Another typical suggestion for vertical applications is to select a grease with higher consistency grades (e.g., NLGI 3) which has better adherence to the metallic surfaces favoring the retainment of the grease in the bearing.

An alternative that can prove valuable is to use sealed bearings, although this solution may not be advantageous for higher speed applications.

## Part-numbering of NBI spherical roller bearings




*** Envelope dimensions according to standard ISO 15. This includes bore values and series of dimensions.**

## NBI ENH - ENHANCED + new product line

NBI combines experience in designing and producing bearings with the latest technology in material research and manufacturing technology to create a new spherical roller bearing line with superior benefits:

- Improved basic dynamic load rating and consequently, longer operating time
- Improved wear-resistance capability
- Reduced friction and lower operating temperature
- Downsizing possibility
- Lower overall costs

The bearings are keeping the designation of the standard bearings and have in plus the suffix ENH.
For all questions you may have regarding the NBI ENHANCED+ product line (extended information in the introduction of the catalog), please feel free to contact our engineering team.

## Supplementary designations

The product tables show the standardized bearings configurations updated on the edition of this catalogue. These standardized configurations correspond to suffix or suffixes of each bearing.
In any case, NBI can offer, under requirement, alternative designs, comprising the ones showed in the following table or many others, whose mention exceeds the purpose of the present catalogue, and can be found in specific technical publications of concrete applications or series of specific bearings.
Should you need a special design, please contact our Sales Department in NBI Bearings Europe.

| Suffix | Description |
|---|---|
| C2 | Radial internal clearance smaller than normal |
| C3 | Radial internal clearance larger than normal |
| C4 | Radial internal clearance larger than C3 |
| C5 | Radial internal clearance larger than C4 |
| MA | Two pieces solid brass cage, outer ring guided |
| MB | Two pieces solid brass cage, inner ring guided |
| MC | Solid brass cage, retaining flanges on the inner ring and guided on rollers. |
| CA | Solid brass cage, retaining flanges on the inner ring and guide rib guided on the inner ring |
| CC | Two window-type steel cages, flangeless inner ring and guide ring guided on the inner ring |
| CE | Two window-type steel cages, flangeless inner ring and guide ring guided on the inner ring with special cage inside diameter |
| CAF | As CA, but with a steel cage |
| CAFA | One-piece machined steel cage, double-pronged, guided on the outer ring raceway, retaining flanges on the inner ring and guide ring guided on the inner ring |
| CAMA | As CAFA, but with a brass cage |
| E | Two window-type steel cages, flangeless inner ring and guide ring guided on the outer ring |
| K | Tapered bore, taper 1:12 |
| K30 | Tapered bore, taper 1:30 |
| W20 | Three lubrication holes in outer ring |
| W26 | Six lubrication holes in inner ring |
| W33 | With a circumferential lubrication groove and lubrication holes in outer ring |
| L14 | Standard grease filling for sealed spherical roller bearing with extreme pressure additives |
| ORN | Sheet steel reinforced contact seal of acrylonitrile-butadiene rubber on both sides |
| ORF | Sheet steel reinforced contact seal of fluoro-rubber on both sides |
| ORH | Sheet steel reinforced contact seal of hydrogenated acrylonitrile-butadiene rubber (HNBR) on both sides on the bearing |
| CE08 | Increased running accuracy to ISO tolerance class 5 |
| CE12 | Vibrating screen bearings with reduced inner and outer diameter tolerances and radial internal clearance C4 |
| CE121 | Vibrating screen bearings with reduced inner and outer diameter tolerances, radial internal clearance C4 and coated bore surface |
| CE123 | Vibrating screen bearings with reduced inner and outer diameter tolerances, radial internal clearance C4 and hard coated bore surface |

Table nº 08

## Typical applications

- Paper /Tissue: forming/press rolls, suction rolls, dryer cylinders, Yankee cylinders, wire / felt guide rolls, calender rolls, reel cylinders

- Geardrives / Gearboxes: industrial gearboxes, planetary transmissions, wind turbine gear boxes, slewing drives, marine drives, power splitters

- Minerals processing / Aggregates: jaw crushers, hammer mills, impactors, roller sizers, vibrating screens, apron feeders, conveyor pulleys

- Cement plants: vertical roller mills grinding rolls, geardrives for vertical and horizontal mills, kiln support rollers, clincker crushers, fans and dryers

- Mining / Quarrying / Construction: bucketwheel excavators, drag/hoist/swing machineries for draglines and shovels, trenchers, continuous miners, crushers, tunnel-boring machines, drilling units, conveyor pulleys, compactors

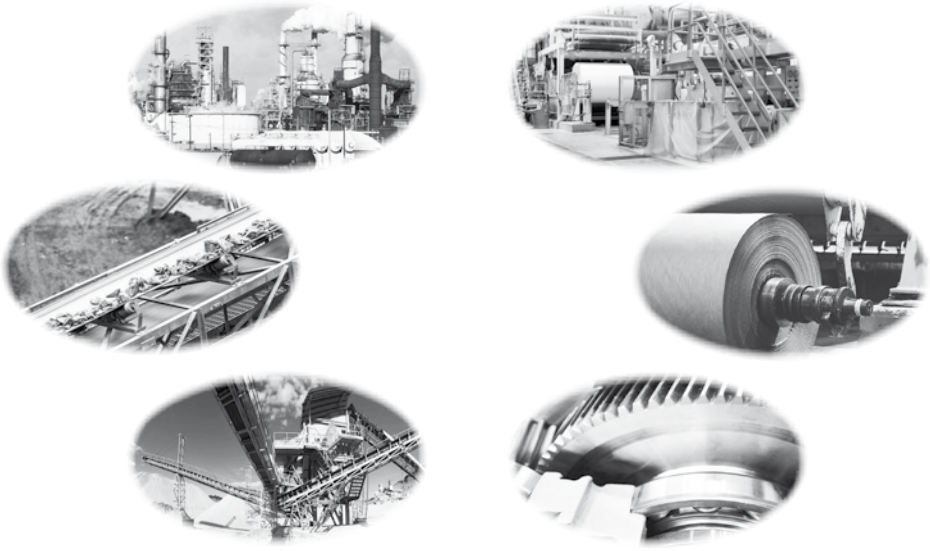
- Energy / Coal-powered plants: coal pulverisers / bowl mills, geardrives, pumps, combustion fans, exhausters, conveyor pulleys, pumps

- Metals: continuous caster rolls, heavy duty reducers and pinion stands for rolling mills, geardrives for auxiliary equipment, coilers/uncoilers, loopers, pinch rolls, runout / transfer / feed tables

- Oil & Gas: mud pumps, drawworks, jackup drives

- Pellet mills / Wood processing: pellet mill rolls, wood cutters, debarkers / chippers, saw mills, chipboard presses, geardrives

- Power transmission – miscellaneous applications: mechanical presses, pumps, compressors, mixers / agitators, textile, elevators / escalators, cranes, wheels, sheaves, winches



## Bearings for vibratory applications

Bearings in vibratory applications must be able to tolerate the misalignment created by shaft bending and frame deflections, to cope satisfactory with intense rotating acceleration fields generated by the vibrating motions, to accommodate shaft thermal expansion, and to support the dynamic loads from the eccentric movement as well as the shock loads from material processing. NBI has designed a special line of spherical roller bearings to operate under very severe operating conditions present in vibrating screen applications, available in the 223 series and identified by the suffix CE12.

This design provides:
- Reduced bore and outside diameter tolerances.
- C4 radial internal clearance (not shown in the bearing part-number)
- Optimized osculation ratios
- Quality steel with high purity and optimized microstructure, bainitic hardening
- Dimensionally stabilized to operating temperature of +200°C
- Superfinished inner raceway and roller bodies
- Independent rows. Two-piece cage, provided as stamped steel (E design) or machined brass (MA design), outer ring guided.
- Lubrication groove and three lubrication holes in the outer ring

Bearing Code
22324

NBI brass cage
propietary design
MA

Lubrication Features
W33

Suffix for vibrating
Screen Bearings
CE12

E+ Enhanced Line
ENH

Bearing Code
22324

NBI steel cage
propietary E-design
E

Lubrication Features
W33

Suffix for vibrating
Screen Bearings
CE12

E+ Enhanced Line
ENH

These bearings are available with either a cylindrical or tapered bore. Other optional features are available – please consult with your NBI sales engineer.

## Sealed spherical roller bearings

Sealed NBI spherical roller bearings are designed to strengthen the bearing protection against contamination under demanding environmental conditions. The seals, specially developed for spherical roller bearings, raise an effective barrier against outside contaminants, both solid and liquid. Sealed spherical roller bearings respond very satisfactory to the challenges of various fields of application, like continuous casters, elevators, pumps, transmissions, bulk materials handling.
Sealed NBI spherical roller bearings include contact-type seals on both sides, and a grease fill which is appropriate for a large range of operating conditions.

The seals are reinforced with sheet steel and made of a wear-resistant material:
- Acrylonitrile-butadiene rubber (NBR), designation suffix ORN
- Hydrogenated acrylonitrile butadiene rubber (HNBR), designation suffix ORH
- Fluoro-rubber (FKM), designation suffix ORF, is also available upon request

The internal design of NBI sealed spherical roller bearings corresponds to that of the open bearings. The external dimensions are also the same, except for the bearings based on the 222 and 223 series. These bearings are slightly wider and carry the series designation LB-22 and LB-23 respectively.

Facilities for relubrication are normally not required, eliminating the need to purchase and dispose of bearing grease. Sealed NBI spherical roller bearings are suitable for normal operating temperatures up to +110 °C (for other particular operating conditions please consult NBI engineering). As a general suggestion, sealed spherical roller bearings should be used at speeds which are not more than 50 % of the reference speed values listed in the product tables.

## Spherical roller bearings for paper industry

Paper manufacturing is the industrial area most often associated with the spherical roller bearing products because of the misalignment induced by the deflection of the long and heavy rolls. Paper machines also rise particular concerns to bearings.
- Bearing positions operating under low loads - typically, the bearing selection for cylinders support is not based on load-carrying requirements but on shaft dimensions
- Consistent paper thickness and low system vibrations impose high running accuracy
- Wet conditions – in wet area bearings might be subjected to intense water contamination
- Heat – in drying section bearings can experience temperatures reaching 125°C and thermal shocks at the start-up of machines

NBI offers spherical roller bearings for paper applications (CE08 suffix), including cylinders, wire/felt rolls, and spreader rolls. Specialized solutions address particular challenges, like superfinishing of the contact areas for problematic lubrication, anti-corrosion coating for bearings in wet section, P5 running accuracy for inner and outer rings for vibration minimization.

## Spherical roller bearings with wide outer ring

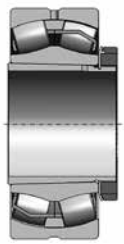
Spherical roller bearing with wide outer ring is a niche bearing product used as output shaft support of planetary gearboxes for concrete mixer trucks, designed for larger-than-normal misalignment accommodation capabilities.

Because of the installation angle and its heavy weight load, the mixing drum induces important misalignment in its support system. Hence the main bearing that supports the application is required to accommodate bigger misalignment values than normal bearings. For this reason, the bearing design is customized with the outer ring wider than standard.

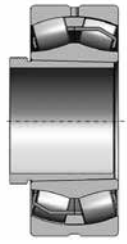
Besides heavy radial load support capability, the bearing also needs an increased ability to carry axial loads in both directions.
NBI bearings for concrete mixer truck gearboxes takes advantage of an optimized internal design and two separate cages, aiming at enhanced axial support ability, along with a redesigned wider outer ring for higher misalignment accommodation.

## Spherical Roller Bearings mounted on Adapter or Withdrawal sleeves

One of the most popular options of mounting tapered bore spherical roller bearing on cylindrical shafts, meant for ease of installation and removal, is to have them fitted onto the cylindrical shaft seats by the means of mounting sleeves. The mounting sleeves are highly practical bearing accessories, especially useful for larger size bearings, because the bearings can be mounted at room temperature in such case, without being necessary to heat them.
Adapter sleeves are standardized by ISO 2982- Part 1 / DIN 5415. Withdrawal (extraction) sleeves are standardized by ISO 2982-Part 1 / DIN 5416.
Both types are available in various dimensional series, and may be provided as standard mechanical or hydraulic versions, with tapers 1:12 or 1:30 matching the bearings' bore angularity.
Hydraulic sleeves are used with larger bearings and basically have the same geometry as the mechanical sleeves, except for the oil feed holes and oil grooves that facilitate the creation of hydraulic forces when installing and removing a bearing. During assembly, pressurized hydraulic oil is injected in between the mating surfaces, which contributes to notable reduction of the assembly forces.



Bearing with adapter sleeve



Bearing with withdrawal sleeve

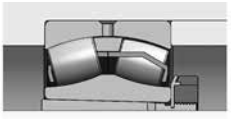
The withdrawal sleeves can only be used on stepped shafts, hence they can carry axial load in one direction. Withdrawal sleeves have non-precision seating requirements, but their main advantage resides from the fact that dismounting is highly facilitated. Dismounting is realized by using an additional removal nut, which is not normally fitted onto the sleeve during bearing operation but only tighten onto the sleeve thread for extraction purpose.
Adapter sleeves have certain advantages, including the possibility to be positioned anywhere along the shaft, non-precision seating requirements, and a cheaper construction. However, the adapter sleeves are not very easy to dismount, and have limited ability to carry axial loads.
For applications where spherical roller bearings and adapter sleeves are mounted on straight shafts without additional axial support (see figure "a"), their ability to accept axial forces is limited by the friction between the adapter sleeve and the shaft.
The permissible thrust load may be estimated using the following formula:

$$F_{amax} \leq 3 \times d \times B$$

where:

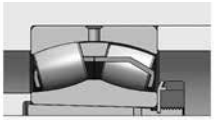
| | |
|---|---|
| $F_{amax}$: | maximum permissible thrust load for spherical roller bearings mounted on adapter sleeves (N or kN) |
| B | Bearing width (mm) |
| d | Bearing bore diameter (mm) |

With higher axial forces, the bearing must be secured additionally by supporting spacers or shoulders (see figure "b"). When designing such supports, however, specific dimensions have to be obtained:



a

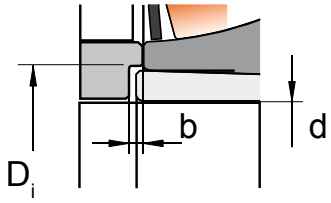
Adapter sleeve mounting without additional axial support



b

Adapter sleeve mounting with supporting spacer

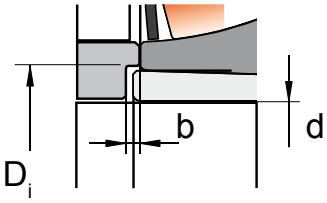
Abutment and fillet dimensions for supporting rings of Spherical Roller Bearings mounted on adapter sleeves [mm]




| Nominal shaft diameter Ød | Bore code | Bearing series | | | | | |
|---|---|---|---|---|---|---|---|
| | | 239...-K | | 230...-K | | 231...-K | |
| | | Di | b | Di | b | Di | b |
| | | min | min | min | min | min | min |
| 90 | 20 | -- | -- | -- | -- | 106 | 6 |
| 100 | 22 | -- | -- | -- | -- | 117 | 7 |
| 110 | 24 | -- | -- | 127 | 7 | 128 | 7 |
| 115 | 26 | -- | -- | 137 | 8 | 138 | 8 |
| 125 | 28 | -- | -- | 147 | 8 | 149 | 8 |
| 135 | 30 | -- | -- | 158 | 8 | 160 | 8 |
| 140 | 32 | -- | -- | 168 | 8 | 170 | 8 |
| 150 | 34 | -- | -- | 179 | 8 | 180 | 8 |
| 160 | 36 | -- | -- | 189 | 8 | 191 | 8 |
| 170 | 38 | -- | -- | 199 | 9 | 202 | 9 |
| 180 | 40 | -- | -- | 210 | 9 | 212 | 9 |
| 200 | 44 | 229 | 12 | 231 | 9 | 233 | 9 |
| 220 | 48 | 249 | 12 | 250 | 11 | 254 | 11 |
| 240 | 52 | 270 | 12 | 272 | 11 | 276 | 11 |
| 260 | 56 | 290 | 12 | 292 | 12 | 296 | 12 |
| 280 | 60 | 312 | 12 | 313 | 12 | 318 | 12 |
| 300 | 64 | 332 | 13 | 334 | 13 | 338 | 13 |
| 320 | 68 | 352 | 14 | 355 | 14 | 360 | 14 |
| 340 | 72 | 372 | 14 | 375 | 14 | 380 | 14 |
| 360 | 76 | 394 | 15 | 396 | 15 | 401 | 15 |

Table n° 09

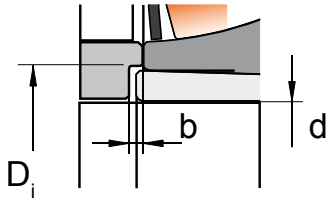
Abutment and fillet dimensions for supporting rings of Spherical Roller Bearings mounted on adapter sleeves [mm]




| Nominal shaft diameter Ød | Bore code | Bearing series | | | | | |
|---|---|---|---|---|---|---|---|
| | | 239...-K | | 230...-K | | 231...-K | |
| | | Di | b | Di | b | Di | b |
| | | min | min | min | min | min | min |
| 380 | 80 | 414 | 15 | 417 | 15 | 421 | 15 |
| 400 | 84 | 434 | 16 | 437 | 16 | 443 | 16 |
| 410 | 88 | 454 | 17 | 458 | 17 | 463 | 17 |
| 430 | 92 | 474 | 17 | 478 | 17 | 484 | 17 |
| 450 | 96 | 496 | 18 | 499 | 18 | 505 | 18 |
| 470 | /500 | 516 | 18 | 519 | 18 | 527 | 18 |
| 500 | /530 | 547 | 20 | 551 | 20 | 558 | 20 |
| 530 | /560 | 577 | 20 | 582 | 20 | 589 | 20 |
| 560 | /600 | 619 | 22 | 623 | 22 | 632 | 22 |
| 600 | /630 | 650 | 22 | 654 | 22 | 663 | 22 |
| 630 | /670 | 690 | 22 | 695 | 22 | 704 | 22 |
| 670 | /710 | 732 | 26 | 736 | 26 | 745 | 26 |
| 710 | /750 | 772 | 26 | 778 | 26 | 787 | 26 |
| 750 | /800 | 825 | 28 | 829 | 28 | 838 | 28 |
| 800 | /850 | 876 | 28 | 880 | 28 | 890 | 28 |
| 850 | /900 | 924 | 30 | 931 | 30 | 942 | 30 |
| 900 | /950 | 976 | 30 | 983 | 30 | 994 | 30 |
| 950 | /1.000 | 1.028 | 33 | 1.034 | 33 | 1.047 | 33 |
| 1.000 | /1.060 | 1.090 | 33 | 1.096 | 33 | 1.110 | 33 |

Table n° 09

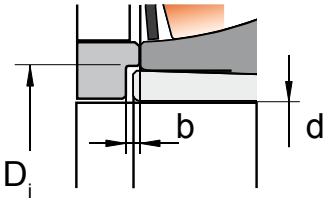
Abutment and fillet dimensions for supporting rings of Spherical Roller Bearings mounted on adapter sleeves [mm]




| Nominal shaft diameter Ød | Bore code | Bearing series | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 222...-K | | 232...-K | | 213...-K | | 223...-K | |
| | | Di | b | Di | b | Di | b | Di | b |
| | | min | min | min | min | min | min | min | min |
| 20 | 05 | 28 | 5 | -- | -- | 28 | 6 | 30 | 5 |
| 25 | 06 | 33 | 5 | -- | -- | 33 | 6 | -- | -- |
| 30 | 07 | 39 | 5 | -- | -- | 39 | 7 | 40 | 5 |
| 35 | 08 | 44 | 5 | -- | -- | 44 | 5 | 45 | 5 |
| 40 | 09 | 50 | 7 | -- | -- | 50 | 5 | 50 | 5 |
| 45 | 10 | 55 | 9 | -- | -- | 55 | 5 | 56 | 5 |
| 50 | 11 | 60 | 10 | -- | -- | 60 | 6 | 61 | 6 |
| 55 | 12 | 65 | 9 | -- | -- | 65 | 6 | 66 | 6 |
| 60 | 13 | 70 | 8 | -- | -- | 70 | 6 | 72 | 6 |
| 60 | 14 | 75 | 9 | -- | -- | 75 | 6 | 76 | 6 |
| 65 | 15 | 80 | 12 | -- | -- | 80 | 6 | 82 | 6 |
| 70 | 16 | 85 | 12 | -- | -- | 85 | 6 | 88 | 6 |
| 75 | 17 | 91 | 12 | -- | -- | 91 | 7 | 94 | 7 |
| 80 | 18 | 96 | 10 | 100 | 18 | 96 | 7 | 100 | 7 |
| 85 | 19 | 102 | 9 | 105 | 18 | 102 | 7 | 105 | 7 |
| 90 | 20 | 108 | 8 | 110 | 19 | 108 | 7 | 110 | 7 |
| 100 | 22 | 118 | 6 | 121 | 17 | 118 | 9 | 121 | 7 |
| 110 | 24 | 128 | 11 | 131 | 17 | 128 | 14 | 131 | 7 |
| 115 | 26 | 138 | 8 | 142 | 21 | 138 | 14 | 142 | 8 |
| 125 | 28 | 149 | 8 | 152 | 22 | 149 | 14 | 152 | 8 |
| 135 | 30 | 160 | 15 | 163 | 20 | -- | -- | 163 | 8 |

Table n° 10

Abutment and fillet dimensions for supporting rings of Spherical Roller Bearings mounted on adapter sleeves [mm]




| Nominal shaft diameter Ød | Bore code | Bearing series | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 222...-K | | 232...-K | | 213...-K | | 223...-K | |
| | | Di | b | Di | b | Di | b | Di | b |
| | | min | min | min | min | min | min | min | min |
| 140 | 32 | 170 | 14 | 174 | 18 | – | – | 174 | 8 |
| 150 | 34 | 180 | 10 | 185 | 18 | – | – | 185 | 8 |
| 160 | 36 | 191 | 18 | 195 | 22 | – | – | 195 | 8 |
| 170 | 38 | 202 | 21 | 206 | 21 | – | – | 206 | 9 |
| 180 | 40 | 212 | 21 | 216 | 19 | – | – | 216 | 9 |
| 200 | 44 | 233 | 21 | 236 | 10 | – | – | 236 | 9 |
| 220 | 48 | 254 | 19 | 257 | 6 | – | – | 257 | 11 |
| 240 | 52 | 276 | 25 | 278 | 2 | – | – | 278 | 11 |
| 260 | 56 | 296 | 28 | 299 | 11 | – | – | 299 | 12 |
| 280 | 60 | 318 | 32 | 321 | 12 | – | – | – | – |
| 300 | 64 | 338 | 39 | 343 | 12 | – | – | – | – |
| 320 | 68 | – | – | 364 | 14 | – | – | – | – |
| 340 | 72 | – | – | 385 | 14 | – | – | – | – |
| 360 | 76 | – | – | 405 | 15 | – | – | – | – |
| 380 | 80 | – | – | 427 | 15 | – | – | – | – |
| 400 | 84 | – | – | 449 | 15 | – | – | – | – |
| 410 | 88 | – | – | 469 | 17 | – | – | – | – |
| 430 | 92 | – | – | 490 | 17 | – | – | – | – |
| 450 | 96 | – | – | 512 | 18 | – | – | – | – |
| 470 | /500 | – | – | 534 | 18 | – | – | – | – |

Table n° 10

## NBI Adapter and Withdrawal sleeves

Adapter sleeves:

In addition to these standard sleeves which are designated H and shown in the product tables, NBI produces sleeves to other designs which differ in the number and arrangement of the oil ducts and distributor grooves. If it is needed extra information or in case of doubt, consult with the NBI engineering department.

Withdrawal sleeves:

To enable the oil injection method to be used for mounting and dismounting, NBI extraction sleeves with bore diameters of 200mm and above are produced as standard with oil supply ducts and distributor grooves, which are designated by suffix H. These sleeves have two oil supply ducts at the threaded side as well as oil distributor grooves in the circumferential and axial directions, both in the outside surface and the sleeve bore.

Basic configurations of sleeve, nut and locking device are shown on below table. Contact NBI customer service department for any other configuration that are not included in the table.

| Designation | Description | Picture |
|---|---|---|
| H .... K | Adapter Sleeve dimensions in accordance with standard normative, (ISO and DIN), basic design, with:<br>- Locknut type (KM and KML), as DIN 981.<br>- Lockwasher type (MB and MBL), as DIN 5406. |  |
| H .... W-H | Adapter Sleeve dimensions in accordance with standard normative, (ISO and DIN), hydraulic version, with:<br>- Locknut type (HM..-T), as DIN 981.<br>- Lockwasher (MB), as DIN 5404. |  |
| H .... C-H | Adapter Sleeve dimensions in accordance with standard normative, (ISO and DIN), hydraulic version, with:<br>- Locknut type (HM), as DIN 981.<br>- Locking clip assembly, as DIN 5406. |  |
| AH ....<br>AHX ....<br>AH .... G<br>AHX ..... G | Withdrawal Sleeve dimensions in accordance with standard normative, (ISO and DIN), basic design (1). |  |
| AH ....-H<br>AHX ....-H<br>AH .... G-H<br>AHX .... G-H | Withdrawal Sleeve dimensions in accordance with standard normative, (ISO and DIN), hydraulic version (1). |  |

(1) The thread can vary from normative in some cases, before ordering, please contact NBI customer service department.

## Bearing housings

Spherical roller bearings with either cylindrical or tapered bores are frequently used in conjunction with bearing housings as complete ready-to-mount assemblies.

NBI also produces bearing housings for spherical roller bearings.

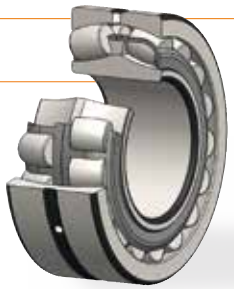
## Mounting instructions

Particularly when mounting spherical roller bearings with tapered bores special care must be taken to obtain a minimum residual internal bearing clearance after mounting.

For details, contact NBI application engineering.

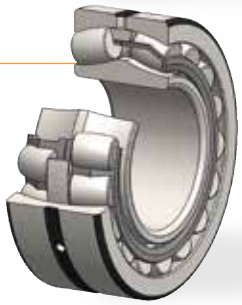
# List of references
# Spherical roller bearings

2..-CC-W33-ENH

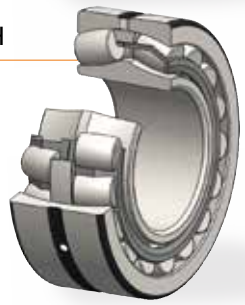


2..-K-CC-W33-ENH

2..-E-W33-ENH

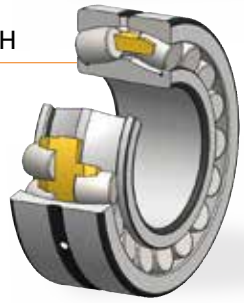


2..-K-E-W33-ENH

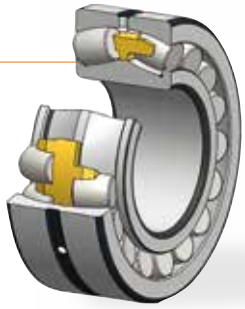


2..-MC-W33-ENH

2..-K-MC-W33-ENH

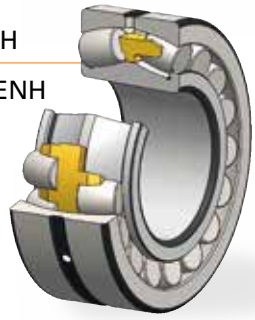


2..-CA-W33-ENH

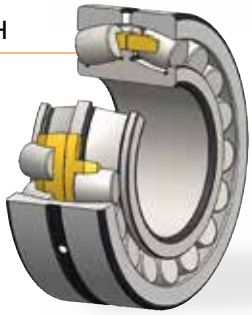


2..-K-CA-W33-ENH

2..-K30-CA-W33-ENH

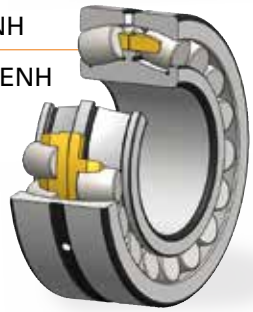


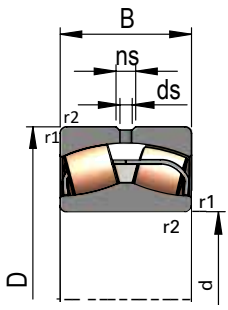
2..-MB-W33-ENH



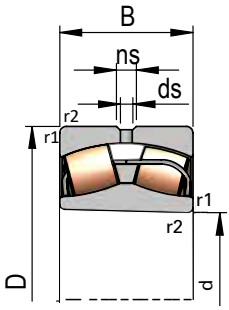
2..-K-MB-W33-ENH

2..-K30-MB-W33-ENH

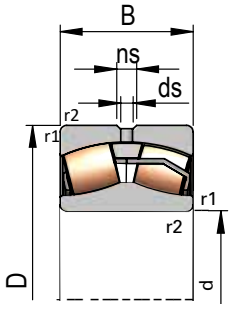




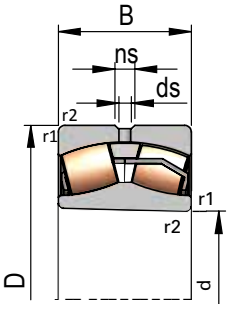

2..-CC-W33




2..-K-CC-W33



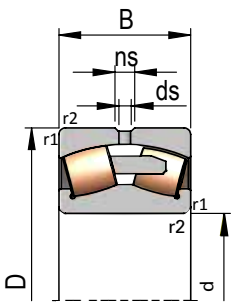

2..-E-W33



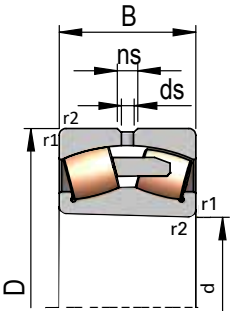

2..-K-E-W33

| BOUNDARY DIMENSIONS* d | D | B | CYLINDRICAL BORE DESIGNATION | TAPERED BORE DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu |
|---|---|---|---|---|---|---|---|
| 25 | 62 | 17 | 21305-CC-ENH | 21305-K-CC-ENH | 49,5 | 43,6 | 5,3 |
| | 52 | 18 | 22205-E-W33-ENH | 22205-K-E-W33-ENH | 48 | 42 | 5,1 |
| 30 | 72 | 19 | 21306-CC-ENH | 21306-K-CC-ENH | 66 | 61 | 7,4 |
| | 62 | 20 | 22206-E-W33-ENH | 22206-K-E-W33-ENH | 63 | 56,3 | 6,9 |
| 35 | 80 | 21 | 21307-CC-ENH | 21307-K-CC-ENH | 77 | 72 | 8,8 |
| | 72 | 23 | 22207-E-W33-ENH | 22207-K-E-W33-ENH | 86,2 | 79 | 9,6 |
| 40 | 90 | 23 | 21308-E-W33-ENH | 21308-K-E-W33-ENH | 106 | 105 | 12,8 |
| | 80 | 23 | 22208-E-W33-ENH | 22208-K-E-W33-ENH | 98,2 | 88,5 | 10,8 |
| | 90 | 33 | 22308-E-W33-ENH | 22308-K-E-W33-ENH | 153 | 145 | 17,7 |
| 45 | 100 | 25 | 21309-E-W33-ENH | 21309-K-E-W33-ENH | 126 | 127 | 15,5 |
| | 85 | 23 | 22209-E-W33-ENH | 22209-K-E-W33-ENH | 102 | 96 | 11,7 |
| | 100 | 36 | 22309-E-W33-ENH | 22309-K-E-W33-ENH | 186 | 182 | 22,2 |
| 50 | 110 | 27 | 21310-E-W33-ENH | 21310-K-E-W33-ENH | 132 | 133 | 16,2 |
| | 90 | 23 | 22210-E-W33-ENH | 22210-K-E-W33-ENH | 107 | 104 | 12,7 |
| | 110 | 40 | 22310-E-W33-ENH | 22310-K-E-W33-ENH | 225 | 220 | 26,8 |
| 55 | 120 | 29 | 21311-E-W33-ENH | 21311-K-E-W33-ENH | 157 | 156 | 19 |
| | 100 | 25 | 22211-E-W33-ENH | 22211-K-E-W33-ENH | 127 | 127 | 15,5 |
| | 120 | 43 | 22311-E-W33-ENH | 22311-K-E-W33-ENH | 265 | 260 | 31,7 |
| 60 | 130 | 31 | 21312-E-W33-ENH | 21312-K-E-W33-ENH | 210 | 225 | 27,3 |
| | 110 | 28 | 22212-E-W33-ENH | 22212-K-E-W33-ENH | 157 | 151 | 18,4 |
| | 130 | 46 | 22312-E-W33-ENH | 22312-K-E-W33-ENH | 310 | 306 | 37,3 |
| 65 | 140 | 33 | 21313-E-W33-ENH | 21313-K-E-W33-ENH | 241 | 265 | 31,4 |
| | 120 | 31 | 22213-E-W33-ENH | 22213-K-E-W33-ENH | 197 | 206 | 25,1 |
| | 140 | 48 | 22313-E-W33-ENH | 22313-K-E-W33-ENH | 348 | 361 | 43,3 |
| 70 | 150 | 35 | 21314-E-W33-ENH | 21314-K-E-W33-ENH | 279 | 310 | 36 |
| | 125 | 31 | 22214-E-W33-ENH | 22214-K-E-W33-ENH | 208 | 222 | 27 |
| | 150 | 51 | 22314-E-W33-ENH | 22314-K-E-W33-ENH | 390 | 390 | 46,1 |
| 75 | 160 | 37 | 21315-E-W33-ENH | 21315-K-E-W33-ENH | 288 | 318 | 36,4 |
| | 130 | 31 | 22215-E-W33-ENH | 22215-K-E-W33-ENH | 212 | 232 | 27,8 |
| | 160 | 55 | 22315-E-W33-ENH | 22315-K-E-W33-ENH | 445 | 450 | 52 |
| 80 | 170 | 39 | 21316-E-W33-ENH | 21316-K-E-W33-ENH | 313 | 350 | 39,5 |
| | 140 | 33 | 22216-E-W33-ENH | 22216-K-E-W33-ENH | 243 | 263 | 30,9 |

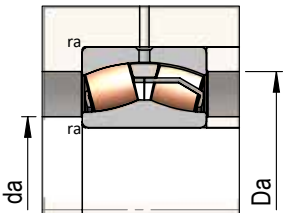
** Dimensions in mm.*
*** Mass in kg.*




2..-MC-W33



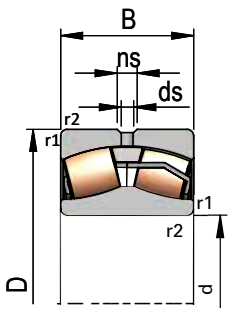

2..-K-MC-W33



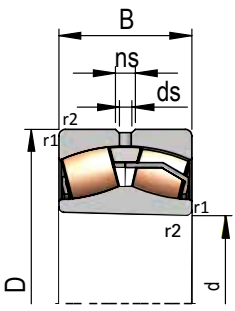

MOUNTING DIMENSIONS

| THERMAL REFERENCES SPEED RATINGS[1] (rpm) | | $r_1, r_2$ (min) | SECONDARY DIMENSIONS | | CALCULATION FACTORS | | | | CYLINDRICAL BORE MASS** | MOUNTING DIMENSIONS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ng oil | ng grease | | ds | ns | e | $Y_0$ | $Y_1$ | $Y_2$ | | da (min) | Da (max) | ra |
| 8.400 | 6.800 | 1,1 | - | - | 0,29 | 2,3 | 2,4 | 3,5 | 0,28 | 32 | 55 | 1 |
| 9.600 | 7.800 | 1 | 3,2 | 4,8 | 0,33 | 2,0 | 2,1 | 3,1 | 0,2 | 30,6 | 46,4 | 1 |
| 7.300 | 6.000 | 1,1 | - | - | 0,27 | 2,4 | 2,5 | 3,7 | 0,41 | 37 | 65 | 1 |
| 8.200 | 6.650 | 1 | 3,2 | 4,8 | 0,30 | 2,2 | 2,3 | 3,4 | 0,28 | 35,6 | 56,4 | 1 |
| 6.800 | 5.500 | 1,5 | - | - | 0,27 | 2,5 | 2,5 | 3,8 | 0,54 | 44 | 71 | 1,5 |
| 7.300 | 5.950 | 1,1 | 3,2 | 4,8 | 0,31 | 2,2 | 2,2 | 3,3 | 0,44 | 42 | 65 | 1 |
| 6.000 | 4.900 | 1,5 | 3,2 | 4,8 | 0,23 | 2,9 | 3,0 | 4,4 | 0,75 | 49 | 81 | 1,5 |
| 6.400 | 5.200 | 1,1 | 3,2 | 4,8 | 0,27 | 2,4 | 2,5 | 3,7 | 0,53 | 47 | 73 | 1 |
| 5.850 | 4.850 | 1,5 | 3,2 | 6,5 | 0,36 | 1,8 | 1,9 | 2,8 | 1,05 | 49 | 81 | 1,5 |
| 5.500 | 4.500 | 1,5 | 3,2 | 4,8 | 0,21 | 3,1 | 3,2 | 4,7 | 0,99 | 54 | 91 | 1,5 |
| 5.800 | 4.750 | 1,1 | 3,2 | 4,8 | 0,25 | 2,7 | 2,7 | 4,1 | 0,572 | 52 | 78 | 1 |
| 5.300 | 4.450 | 1,5 | 3,2 | 6,5 | 0,36 | 1,9 | 1,9 | 2,8 | 1,4 | 54 | 91 | 1,5 |
| 5.300 | 4.300 | 2 | 3,2 | 4,8 | 0,24 | 2,7 | 2,8 | 4,2 | 1,3 | 61 | 99 | 2 |
| 5.350 | 4.350 | 1,1 | 3,2 | 4,8 | 0,23 | 2,9 | 3,0 | 4,4 | 0,612 | 57 | 83 | 1 |
| 4.800 | 4.100 | 2 | 3,2 | 6,5 | 0,36 | 1,8 | 1,9 | 2,8 | 1,9 | 61 | 99 | 2 |
| 4.980 | 4.050 | 2 | 3,2 | 6,5 | 0,24 | 2,7 | 2,8 | 4,2 | 1,7 | 66 | 109 | 2 |
| 4.900 | 4.000 | 1,5 | 3,2 | 4,8 | 0,21 | 3,1 | 3,2 | 4,7 | 0,845 | 64 | 91 | 1,5 |
| 4.500 | 3.850 | 2 | 3,2 | 6,5 | 0,36 | 1,8 | 1,9 | 2,8 | 2,4 | 66 | 109 | 2 |
| 4.400 | 3.650 | 2,1 | 3,2 | 6,5 | 0,23 | 2,9 | 3,0 | 4,4 | 2 | 72 | 118 | 2,1 |
| 4.700 | 3.800 | 1,5 | 3,2 | 6,5 | 0,23 | 2,9 | 3,0 | 4,4 | 1,13 | 69 | 101 | 1,5 |
| 4.200 | 3.600 | 2,1 | 3,2 | 6,5 | 0,35 | 1,9 | 1,9 | 2,9 | 3 | 72 | 118 | 2,1 |
| 4.100 | 3.400 | 2,1 | 3,2 | 6,5 | 0,22 | 3,0 | 3,1 | 4,6 | 2,5 | 77 | 128 | 2,1 |
| 4.350 | 3.600 | 1,5 | 3,2 | 6,5 | 0,24 | 2,8 | 2,8 | 4,2 | 1,54 | 74 | 111 | 1,5 |
| 3.800 | 3.300 | 2,1 | 4,8 | 9,5 | 0,34 | 2,0 | 2,0 | 3,0 | 3,65 | 77 | 128 | 2,1 |
| 3.950 | 3.250 | 2,1 | 3,2 | 6,5 | 0,22 | 3,0 | 3,1 | 4,6 | 3,15 | 82 | 138 | 2,1 |
| 4.100 | 3.350 | 1,5 | 3,2 | 6,5 | 0,23 | 2,9 | 3,0 | 4,4 | 1,63 | 79 | 116 | 1,5 |
| 3.700 | 3.200 | 2,1 | 4,8 | 9,5 | 0,34 | 2,0 | 2,0 | 3,0 | 4,21 | 82 | 138 | 2,1 |
| 3.800 | 3.170 | 2,1 | 3,2 | 6,5 | 0,22 | 3,0 | 3,0 | 4,5 | 3,8 | 87 | 148 | 2,1 |
| 3.850 | 3.150 | 1,5 | 3,2 | 6,5 | 0,22 | 3,0 | 3,1 | 4,6 | 1,7 | 84 | 121 | 1,5 |
| 3.550 | 3.050 | 2,1 | 4,8 | 9,5 | 0,34 | 1,9 | 2,0 | 3,0 | 5,38 | 87 | 148 | 2,1 |
| 3.650 | 3.030 | 2,1 | 3,2 | 6,5 | 0,22 | 3,0 | 3,0 | 4,5 | 4,5 | 92 | 158 | 2,1 |
| 3.700 | 3.000 | 2 | 3,2 | 6,5 | 0,22 | 3,1 | 3,1 | 4,7 | 2,1 | 91 | 129 | 2 |

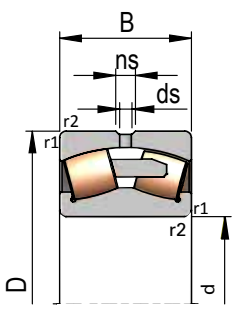
*[1]The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



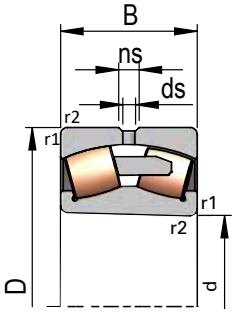

2..-E-W33




2..-K-E-W33



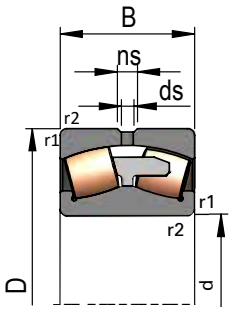

2..-MC-W33

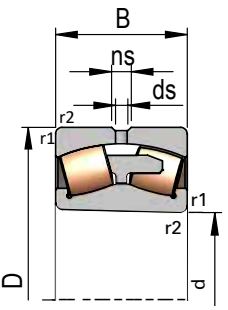


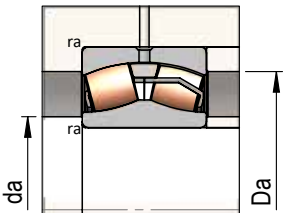

2..-K-MC-W33

| BOUNDARY DIMENSIONS* d | D | B | CYLINDRICAL BORE DESIGNATION | TAPERED BORE DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu |
|---|---|---|---|---|---|---|---|
| 80 | 170 | 58 | 22316-E-W33-ENH | 22316-K-E-W33-ENH | 495 | 510 | 57,9 |
| 85 | 180 | 41 | 21317-E-W33-ENH | 21317-K-E-W33-ENH | 335 | 370 | 41,2 |
| | 150 | 36 | 22217-E-W33-ENH | 22217-K-E-W33-ENH | 296 | 316 | 36,5 |
| | 180 | 60 | 22317-E-W33-ENH | 22317-K-E-W33-ENH | 535 | 555 | 61,8 |
| 90 | 190 | 43 | 21318-E-W33-ENH | 21318-K-E-W33-ENH | 380 | 425 | 47 |
| | 160 | 40 | 22218-E-W33-ENH | 22218-K-E-W33-ENH | 341 | 370 | 42 |
| | 190 | 64 | 22318-E-W33-ENH | 22318-K-E-W33-ENH | 605 | 627 | 68,8 |
| | 160 | 52,4 | 23218-MC-W33-ENH | 23218-K-MC-W33-ENH | 432 | 505 | 57,4 |
| 95 | 200 | 45 | 21319-E-W33-ENH | 21319-K-E-W33-ENH | 420 | 460 | 49,3 |
| | 170 | 43 | 22219-E-W33-ENH | 22219-K-E-W33-ENH | 378 | 410 | 45,7 |
| | 200 | 67 | 22319-E-W33-ENH | 22319-K-E-W33-ENH | 670 | 700 | 75,6 |
| 100 | 215 | 47 | 21320-E-W33-ENH | 21320-K-E-W33-ENH | 480 | 500 | 52,8 |
| | 180 | 46 | 22220-E-W33-ENH | 22220-K-E-W33-ENH | 430 | 475 | 52 |
| | 215 | 73 | 22320-E-W33-ENH | 22320-K-E-W33-ENH | 806 | 930 | 98,2 |
| | 165 | 52 | 23120-MC-W33-ENH | 23120-K-MC-W33-ENH | 442 | 570 | 63,6 |
| | 180 | 60,3 | 23220-MC-W33-ENH | 23220-K-MC-W33-ENH | 535 | 634 | 69,6 |
| 110 | 200 | 53 | 22222-E-W33-ENH | 22222-K-E-W33-ENH | 545 | 597 | 63,5 |
| | 240 | 80 | 22322-E-W33-ENH | 22322-K-E-W33-ENH | 945 | 1.065 | 108,7 |
| | 170 | 45 | 23022-MC-W33-ENH | 23022-K-MC-W33-ENH | 396 | 524 | 57,5 |
| | 180 | 56 | 23122-MC-W33-ENH | 23122-K-MC-W33-ENH | 520 | 670 | 72,8 |
| | 200 | 69,8 | 23222-MC-W33-ENH | 23222-K-MC-W33-ENH | 695 | 855 | 91 |
| | 170 | 60 | 24022-CA-W33-ENH | 24022-K30-CA-W33-ENH | 435 | 620 | 68,1 |
| | 180 | 69 | 24122-CA-W33-ENH | 24122-K30-CA-W33-ENH | 528 | 750 | 81,6 |
| 120 | 215 | 58 | 22224-E-W33-ENH | 22224-K-E-W33-ENH | 639 | 740 | 76,8 |
| | 260 | 86 | 22324-E-W33-ENH | 22324-K-E-W33-ENH | 1.059 | 1.160 | 116 |
| | 180 | 46 | 23024-MC-W33-ENH | 23024-K-MC-W33-ENH | 423 | 579 | 62,3 |
| | 200 | 62 | 23124-MC-W33-ENH | 23124-K-MC-W33-ENH | 618 | 785 | 82,9 |
| | 215 | 76 | 23224-MC-W33-ENH | 23224-K-MC-W33-ENH | 805 | 1016 | 105,8 |
| | 180 | 60 | 24024-CA-W33-ENH | 24024-K30-CA-W33-ENH | 448 | 688 | 74,3 |
| | 200 | 80 | 24124-CA-W33-ENH | 24124-K30-CA-W33-ENH | 670 | 950 | 100,5 |
| 130 | 230 | 64 | 22226-E-W33-ENH | 22226-K-E-W33-ENH | 750 | 890 | 90,6 |
| | 280 | 93 | 22326-E-W33-ENH | 22326-K-E-W33-ENH | 1.245 | 1.360 | 132,9 |
| | 200 | 52 | 23026-MC-W33-ENH | 23026-K-MC-W33-ENH | 535 | 728 | 76,1 |

** Dimensions in mm.*
*** Mass in kg.*



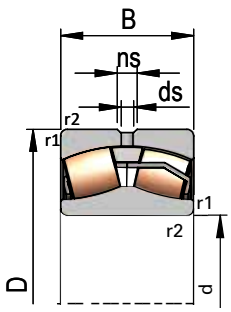

## 2..-CA-W33

## 2..-K-CA-W33
## 2..-K30-CA-W33

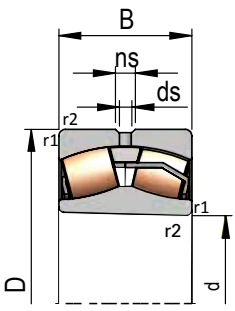
## MOUNTING DIMENSIONS

| THERMAL REFERENCE SPEED RATINGS [1] | | $r_1, r_2$ (min) | SECONDARY DIMENSIONS | | CALCULATION FACTORS | | | | CYLINDRICAL BORE MASS** | MOUNTING DIMENSIONS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ng oil | ng grease | | ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | da (min) | Da (max) | ra |
| 3.400 | 2.900 | 2,1 | 4,8 | 9,5 | 0,34 | 1,9 | 2,0 | 3,0 | 6,4 | 92 | 158 | 2,1 |
| 3.500 | 2.930 | 3 | 4,8 | 9,5 | 0,23 | 2,9 | 3,0 | 4,4 | 5,3 | 99 | 166 | 2,5 |
| 3.550 | 2.900 | 2 | 3,2 | 6,5 | 0,22 | 3,0 | 3,0 | 4,5 | 2,65 | 96 | 139 | 2 |
| 3.200 | 2.750 | 3 | 4,8 | 9,5 | 0,33 | 2,0 | 2,0 | 3,0 | 7,1 | 99 | 166 | 2,5 |
| 3.390 | 2.800 | 3 | 4,8 | 9,5 | 0,24 | 2,8 | 2,9 | 4,3 | 6,25 | 104 | 176 | 2,5 |
| 3.450 | 2.850 | 2 | 3,2 | 6,5 | 0,23 | 2,8 | 2,9 | 4,3 | 3,41 | 101 | 149 | 2 |
| 3.000 | 2.600 | 3 | 6,3 | 12,2 | 0,33 | 2,0 | 2,0 | 3,0 | 8,74 | 104 | 176 | 2,5 |
| 2.700 | 2.290 | 2 | 3,2 | 6,5 | 0,30 | 2,2 | 2,2 | 3,3 | 4,5 | 101 | 149 | 2 |
| 3.250 | 2.700 | 3 | 4,8 | 9,5 | 0,22 | 3,0 | 3,0 | 4,5 | 7 | 109 | 186 | 2,5 |
| 3.350 | 2.750 | 2,1 | 4,8 | 9,5 | 0,24 | 2,8 | 2,9 | 4,3 | 4,15 | 107 | 158 | 2,1 |
| 2.800 | 2.400 | 3 | 6,3 | 12,2 | 0,33 | 2,0 | 2,0 | 3,0 | 10,15 | 109 | 186 | 2,5 |
| 3.100 | 2.550 | 3 | 4,8 | 9,5 | 0,22 | 3,0 | 3,1 | 4,6 | 8,7 | 114 | 201 | 2,5 |
| 3.250 | 2.650 | 2,1 | 4,8 | 9,5 | 0,24 | 2,8 | 2,8 | 4,2 | 5,05 | 112 | 168 | 2,1 |
| 2.400 | 2.150 | 3 | 6,3 | 12,2 | 0,33 | 2,0 | 2,0 | 3,0 | 13,35 | 114 | 201 | 2,5 |
| 2.800 | 2.350 | 2 | 3,2 | 6,5 | 0,28 | 2,3 | 2,4 | 3,5 | 4,5 | 111 | 154 | 2 |
| 2.400 | 2.120 | 2,1 | 4,8 | 9,5 | 0,31 | 2,1 | 2,2 | 3,2 | 6,6 | 112 | 168 | 2,1 |
| 3.000 | 2.500 | 2,1 | 4,8 | 9,5 | 0,25 | 2,7 | 2,7 | 4,0 | 7,22 | 122 | 188 | 2,1 |
| 2.100 | 1.900 | 3 | 8 | 15 | 0,33 | 2,0 | 2,1 | 3,1 | 17,7 | 124 | 226 | 2,5 |
| 3.000 | 2.500 | 2 | 3,2 | 6,5 | 0,23 | 2,8 | 2,9 | 4,3 | 3,9 | 118,8 | 161,2 | 2 |
| 2.600 | 2.150 | 2 | 4,8 | 9,5 | 0,28 | 2,4 | 2,4 | 3,6 | 5,62 | 121 | 169 | 2 |
| 2.150 | 1.850 | 2,1 | 4,8 | 9,5 | 0,33 | 2,0 | 2,1 | 3,1 | 9,65 | 122 | 188 | 2,1 |
| 2.400 | 2.050 | 2 | 3 | 5,5 | 0,33 | 2,0 | 2,0 | 3,0 | 5 | 118,8 | 161,2 | 2 |
| 1.990 | 1.740 | 2 | 3,2 | 6,5 | 0,37 | 1,8 | 1,8 | 2,7 | 7,1 | 121 | 169 | 2 |
| 2.700 | 2.300 | 2,1 | 6,3 | 12,2 | 0,25 | 2,7 | 2,7 | 4,0 | 9,05 | 132 | 203 | 2,1 |
| 2.000 | 1.750 | 3 | 8 | 15 | 0,33 | 2,0 | 2,1 | 3,1 | 22,6 | 134 | 246 | 2,5 |
| 2.800 | 2.300 | 2 | 3,2 | 6,5 | 0,22 | 3,0 | 3,0 | 4,5 | 4,2 | 128,8 | 171,2 | 2 |
| 2.300 | 1.970 | 2 | 4,8 | 9,5 | 0,28 | 2,3 | 2,4 | 3,6 | 7,5 | 131 | 189 | 2 |
| 1.940 | 1.680 | 2,1 | 4,8 | 9,5 | 0,33 | 2,0 | 2,0 | 3,0 | 12 | 132 | 203 | 2 |
| 2.400 | 2.005 | 2 | 3 | 5,5 | 0,30 | 2,2 | 2,3 | 3,3 | 5,43 | 128,8 | 171,2 | 2 |
| 1.760 | 1.550 | 2 | 3,2 | 6,5 | 0,38 | 1,7 | 1,8 | 2,6 | 10,3 | 131 | 189 | 2 |
| 2.500 | 2.100 | 3 | 6,3 | 12,2 | 0,26 | 2,6 | 2,6 | 3,9 | 11,3 | 144 | 216 | 2,5 |
| 1.800 | 1.620 | 4 | 9,5 | 17,7 | 0,33 | 2,0 | 2,1 | 3,1 | 28 | 150 | 260 | 3 |
| 2.600 | 2.150 | 2 | 4,8 | 9,5 | 0,23 | 2,9 | 3,0 | 4,4 | 6 | 138,8 | 191,2 | 2 |

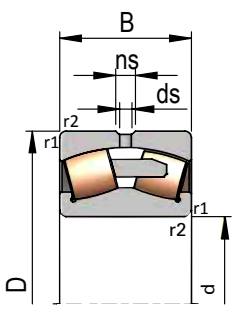
*[1] The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



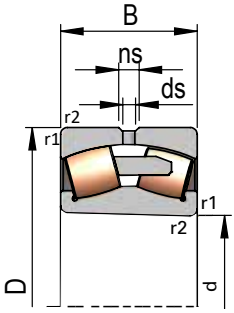

2..-E-W33




2..-K-E-W33



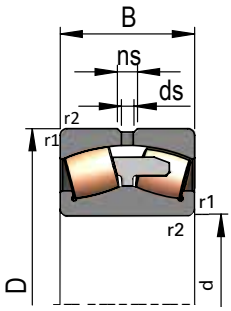

2..-MC-W33



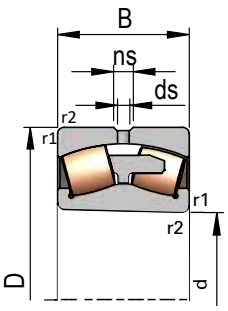

2..-K-MC-W33

| BOUNDARY DIMENSIONS* d | D | B | CYLINDRICAL BORE DESIGNATION | TAPERED BORE DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu |
|---|---|---|---|---|---|---|---|
| 130 | 210 | 64 | 23126-MC-W33-ENH | 23126-K-MC-W33-ENH | 665 | 880 | 91,3 |
| | 230 | 80 | 23226-MC-W33-ENH | 23226-K-MC-W33-ENH | 890 | 1.090 | 111 |
| | 200 | 69 | 24026-CA-W33-ENH | 24026-K30-CA-W33-ENH | 565 | 840 | 88 |
| | 210 | 80 | 24126-CA-W33-ENH | 24126-K30-CA-W33-ENH | 695 | 1.000 | 103,7 |
| 140 | 250 | 68 | 22228-E-W33-ENH | 22228-K-E-W33-ENH | 852 | 1.035 | 102,6 |
| | 300 | 102 | 22328-E-W33-ENH | 22328-K-E-W33-ENH | 1.450 | 1.620 | 155,1 |
| | 210 | 53 | 23028-MC-W33-ENH | 23028-K-MC-W33-ENH | 565 | 785 | 80,6 |
| | 225 | 68 | 23128-MC-W33-ENH | 23128-K-MC-W33-ENH | 750 | 1.000 | 101,4 |
| | 250 | 88 | 23228-MC-W33-ENH | 23228-K-MC-W33-ENH | 1.065 | 1.390 | 138,3 |
| | 210 | 69 | 24028-CA-W33-ENH | 24028-K30-CA-W33-ENH | 586 | 928 | 95,5 |
| | 225 | 85 | 24128-CA-W33-ENH | 24128-K30-CA-W33-ENH | 790 | 1.160 | 118 |
| 150 | 270 | 73 | 22230-E-W33-ENH | 22230-K-E-W33-ENH | 980 | 1.180 | 114,5 |
| | 320 | 108 | 22330-E-W33-ENH | 22330-K-E-W33-ENH | 1.625 | 1.840 | 172,8 |
| | 225 | 56 | 23030-MC-W33-ENH | 23030-K-MC-W33-ENH | 623 | 870 | 87,5 |
| | 250 | 80 | 23130-MC-W33-ENH | 23130-K-MC-W33-ENH | 975 | 1.300 | 128,3 |
| | 270 | 96 | 23230-MC-W33-ENH | 23230-K-MC-W33-ENH | 1.260 | 1.640 | 159,4 |
| | 225 | 75 | 24030-CA-W33-ENH | 24030-K30-CA-W33-ENH | 670 | 1.060 | 106,8 |
| | 250 | 100 | 24130-CA-W33-ENH | 24130-K30-CA-W33-ENH | 1.040 | 1.525 | 150,9 |
| 160 | 290 | 80 | 22232-E-W33-ENH | 22232-K-E-W33-ENH | 1.130 | 1.390 | 132,1 |
| | 340 | 114 | 22332-CA-W33-ENH | 22332-K-CA-W33-ENH | 1.660 | 1.950 | 180,1 |
| | 240 | 60 | 23032-MC-W33-ENH | 23032-K-MC-W33-ENH | 710 | 1.005 | 99,2 |
| | 270 | 86 | 23132-MC-W33-ENH | 23132-K-MC-W33-ENH | 1.125 | 1.515 | 146,3 |
| | 290 | 104 | 23232-MC-W33-ENH | 23232-K-MC-W33-ENH | 1.430 | 1.903 | 181,2 |
| | 240 | 80 | 24032-CA-W33-ENH | 24032-K30-CA-W33-ENH | 764 | 1.200 | 118,7 |
| | 270 | 109 | 24132-CA-W33-ENH | 24132-K30-CA-W33-ENH | 1.200 | 1.740 | 168,2 |
| 170 | 310 | 86 | 22234-E-W33-ENH | 22234-K-E-W33-ENH | 1..300 | 1.560 | 145,6 |
| | 360 | 120 | 22334-CA-W33-ENH | 22334-K-CA-W33-ENH | 1.865 | 2.250 | 204,1 |
| | 260 | 67 | 23034-MC-W33-ENH | 23034-K-MC-W33-ENH | 865 | 1.220 | 117,8 |
| | 260 | 67 | 23034-ORH-CE-W33-ENH | 23034-K-ORH-CE-W33-ENH | 727 | 1.065 | 103,1 |
| | 280 | 88 | 23134-MC-W33-ENH | 23134-K-MC-W33-ENH | 1.195 | 1.685 | 160,5 |
| | 310 | 110 | 23234-MC-W33-ENH | 23234-K-MC-W33-ENH | 1.600 | 2.100 | 196 |
| | 260 | 90 | 24034-CA-W33-ENH | 24034-K30-CA-W33-ENH | 938 | 1.460 | 141,5 |

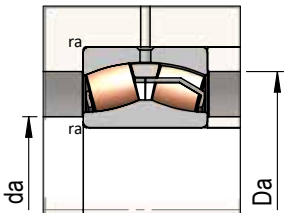
** Dimensions in mm.*
*** Mass in kg.*




## 2..-CA-W33



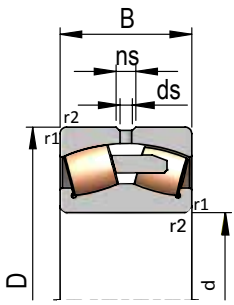

## 2..-K-CA-W33
## 2..-K30-CA-W33



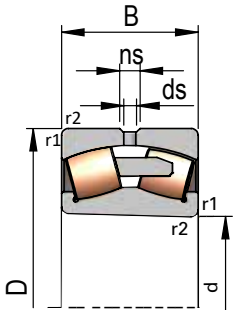

## MOUNTING DIMENSIONS

| THERMAL REFERENCES SPEED RATINGS [1] (rpm) | | $r_1, r_2$ (min) | SECONDARY DIMENSIONS | | CALCULATION FACTORS | | | | CYLINDRICAL BORE MASS** | MOUNTING DIMENSIONS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ng oil | ng grease | | ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | da (min) | Da (max) | ra |
| 2.140 | 1.810 | 2 | 4,8 | 9,5 | 0,28 | 2,4 | 2,5 | 3,6 | 8,5 | 141 | 199 | 2 |
| 1.800 | 1.560 | 3 | 4,8 | 9,5 | 0,32 | 2,1 | 2,1 | 3,2 | 14,1 | 144 | 216 | 2,5 |
| 2.170 | 1.820 | 2 | 3 | 5,5 | 0,32 | 2,0 | 2,1 | 3,1 | 8 | 138,8 | 191,2 | 2 |
| 1.720 | 1.510 | 2 | 3,2 | 6,5 | 0,36 | 1,8 | 1,9 | 2,8 | 11 | 141 | 199 | 2 |
| 2.300 | 1.900 | 3 | 6,3 | 12,2 | 0,25 | 2,6 | 2,7 | 4,0 | 14,35 | 154 | 236 | 2,5 |
| 1.680 | 1.470 | 4 | 9,5 | 17,7 | 0,34 | 2,0 | 2,0 | 3,0 | 35,1 | 157 | 283 | 3 |
| 2.400 | 2.000 | 2 | 4,8 | 9,5 | 0,22 | 3,0 | 3,1 | 4,6 | 6,45 | 148,8 | 201,2 | 2 |
| 1.950 | 1.660 | 2,1 | 4,8 | 9,5 | 0,27 | 2,4 | 2,5 | 3,7 | 10,35 | 152 | 213 | 2,1 |
| 1.570 | 1.370 | 3 | 6,3 | 12,2 | 0,33 | 2,0 | 2,0 | 3,0 | 18,7 | 154 | 236 | 2,5 |
| 1.980 | 1.660 | 2 | 3 | 5,5 | 0,31 | 2,2 | 2,2 | 3,3 | 8,6 | 148,8 | 201,2 | 2 |
| 1.470 | 1.290 | 2,1 | 4,5 | 8,3 | 0,35 | 1,9 | 1,9 | 2,9 | 13,6 | 152 | 213 | 2,1 |
| 2.100 | 1.750 | 3 | 8 | 15 | 0,25 | 2,6 | 2,7 | 4,0 | 18,06 | 164 | 256 | 2,5 |
| 1.550 | 1.350 | 4 | 9,5 | 17,7 | 0,33 | 2,0 | 2,0 | 3,0 | 42,4 | 167 | 303 | 3 |
| 2.250 | 1.850 | 2,1 | 4,8 | 9,5 | 0,22 | 3,0 | 3,1 | 4,6 | 7,8 | 160,2 | 214,8 | 2,1 |
| 1.750 | 1.500 | 2,1 | 6,3 | 12,2 | 0,29 | 2,3 | 2,3 | 3,5 | 15,9 | 162 | 238 | 2,1 |
| 1.420 | 1.250 | 3 | 6,3 | 12,2 | 0,32 | 2,0 | 2,1 | 3,1 | 24 | 164 | 256 | 2,5 |
| 1.800 | 1.540 | 2,1 | 3 | 5,5 | 0,30 | 2,2 | 2,3 | 3,3 | 10,6 | 160,2 | 214,8 | 2,1 |
| 1.280 | 1.140 | 2,1 | 4,5 | 8,3 | 0,37 | 1,8 | 1,8 | 2,7 | 20,1 | 162 | 238 | 2,1 |
| 1.900 | 1.600 | 3 | 8 | 15 | 0,26 | 2,6 | 2,6 | 3,9 | 23,2 | 174 | 276 | 2,5 |
| 1.450 | 1.280 | 4 | 9 | 16,7 | 0,34 | 1,9 | 2,0 | 2,9 | 50 | 177 | 323 | 3 |
| 2.050 | 1.720 | 2,1 | 6,3 | 12,2 | 0,22 | 3,0 | 3,1 | 4,6 | 9,5 | 170,2 | 229,8 | 2,1 |
| 1.600 | 1.370 | 2,1 | 8 | 15 | 0,29 | 2,3 | 2,3 | 3,5 | 20 | 172 | 258 | 2,1 |
| 1.300 | 1.140 | 3 | 8 | 15 | 0,34 | 2,0 | 2,0 | 3,0 | 30,3 | 174 | 276 | 2,5 |
| 1.700 | 1.430 | 2,1 | 4,5 | 8,3 | 0,30 | 2,2 | 2,2 | 3,3 | 12,8 | 170,2 | 229,8 | 2,1 |
| 1.170 | 1.050 | 2,1 | 4,5 | 8,3 | 0,39 | 1,7 | 1,7 | 2,6 | 26,016 | 172 | 258 | 2,1 |
| 1.800 | 1.500 | 4 | 9,5 | 17,7 | 0,26 | 2,5 | 2,6 | 3,9 | 27,8 | 187 | 293 | 3 |
| 1.330 | 1.170 | 4 | 9 | 16,7 | 0,34 | 1,9 | 2,0 | 3,0 | 59,5 | 187 | 343 | 3 |
| 1.900 | 1.600 | 2,1 | 6,3 | 12,2 | 0,23 | 2,9 | 3,0 | 4,4 | 12,9 | 180,2 | 249,8 | 2,1 |
| --- | --- | 2,1 | 6,3 | 12,2 | 0,22 | 3,1 | 3,1 | 4,7 | 12,7 | 182 | 248 | 2,1 |
| 1.480 | 1.270 | 2,1 | 8 | 15 | 0,28 | 2,3 | 2,4 | 3,5 | 22,1 | 182 | 268 | 2,1 |
| 1.200 | 1.060 | 4 | 8 | 15 | 0,33 | 2,0 | 2,1 | 3,1 | 36,4 | 187 | 293 | 3 |
| 1.560 | 1.325 | 2,1 | 4,5 | 8,3 | 0,33 | 2,0 | 2,0 | 3,0 | 17,7 | 180,2 | 249,8 | 2,1 |

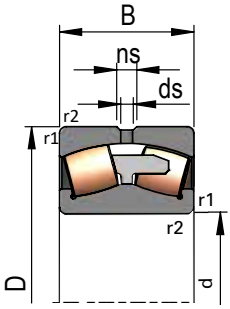
*[1] The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



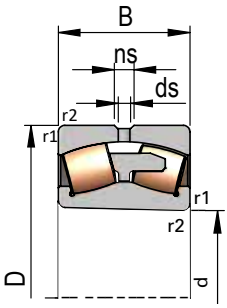

2..-MC-W33




2..-K-MC-W33



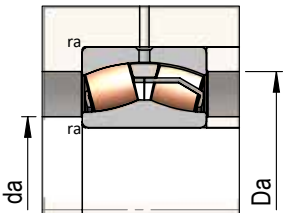

2..-CA-W33




2..-K-CA-W33
2..-K30-CA-W33

| BOUNDARY DIMENSIONS* d | D | B | CYLINDRICAL BORE DESIGNATION | TAPERED BORE DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu |
|---|---|---|---|---|---|---|---|
| 170 | 280 | 109 | 24134-CA-W33-ENH | 24134-K30-CA-W33-ENH | 1.250 | 1.860 | 177,6 |
| 180 | 320 | 86 | 22236-MC-W33-ENH | 22236-K-MC-W33-ENH | 1.330 | 1.660 | 153 |
| | 380 | 126 | 22336-CA-W33-ENH | 22336-K-CA-W33-ENH | 2.050 | 2.450 | 218,7 |
| | 280 | 74 | 23036-MC-W33-ENH | 23036-K-MC-W33-ENH | 1.020 | 1.440 | 136,3 |
| | 300 | 96 | 23136-MC-W33-ENH | 23136-K-MC-W33-ENH | 1.390 | 1.935 | 180,9 |
| | 320 | 112 | 23236-MC-W33-ENH | 23236-K-MC-W33-ENH | 1.675 | 2.265 | 208,8 |
| | 250 | 52 | 23936-CA-W33-ENH | 23936-K-CA-W33-ENH | 500 | 825 | 79,8 |
| | 280 | 100 | 24036-CA-W33-ENH | 24036-K30-CA-W33-ENH | 1.120 | 1.780 | 168,8 |
| | 300 | 118 | 24136-CA-W33-ENH | 24136-K30-CA-W33-ENH | 1.440 | 2.160 | 202,3 |
| 190 | 340 | 92 | 22238-CA-W33-ENH | 22238-K-CA-W33-ENH | 1.336 | 1.720 | 156 |
| | 400 | 132 | 22338-CA-W33-ENH | 22338-K-CA-W33-ENH | 2.175 | 2.600 | 228,4 |
| | 290 | 75 | 23038-MC-W33-ENH | 23038-K-MC-W33-ENH | 1.055 | 1.520 | 142 |
| | 320 | 104 | 23138-MC-W33-ENH | 23138-K-MC-W33-ENH | 1.575 | 2.210 | 202,6 |
| | 340 | 120 | 23238-CA-W33-ENH | 23238-K-CA-W33-ENH | 1.725 | 2.400 | 217,7 |
| | 260 | 52 | 23938-CA-W33-ENH | 23938-K-CA-W33-ENH | 520 | 870 | 83 |
| | 290 | 100 | 24038-CA-W33-ENH | 24038-K30-CA-W33-ENH | 1.144 | 1.860 | 174 |
| | 320 | 128 | 24138-CA-W33-ENH | 24138-K30-CA-W33-ENH | 1.640 | 2.520 | 231,4 |
| 200 | 360 | 98 | 22240-CA-W33-ENH | 22240-K-CA-W33-ENH | 1.520 | 1.990 | 178,1 |
| | 420 | 138 | 22340-CA-W33-ENH | 22340-K-CA-W33-ENH | 2.420 | 2.900 | 250,9 |
| | 310 | 82 | 23040-MC-W33-ENH | 23040-K-MC-W33-ENH | 1.235 | 1.790 | 164,3 |
| | 340 | 112 | 23140-CA-W33-ENH | 23140-K-CA-W33-ENH | 1.625 | 2.360 | 213,1 |
| | 360 | 128 | 23240-CA-W33-ENH | 23240-K-CA-W33-ENH | 1.910 | 2.670 | 238,4 |
| | 280 | 60 | 23940-CA-W33-ENH | 23940-K-CA-W33-ENH | 640 | 1.070 | 100 |
| | 310 | 109 | 24040-CA-W33-ENH | 24040-K30-CA-W33-ENH | 1.326 | 2.120 | 195 |
| | 340 | 140 | 24140-CA-W33-ENH | 24140-K30-CA-W33-ENH | 1.850 | 2.800 | 253,5 |
| 220 | 400 | 108 | 22244-CA-W33-ENH | 22244-K-CA-W33-ENH | 1.830 | 2.360 | 204,2 |
| | 460 | 145 | 22344-CA-W33-ENH | 22344-K-CA-W33-ENH | 2.800 | 3.450 | 289,5 |
| | 340 | 90 | 23044-CA-W33-ENH | 23044-K-CA-W33-ENH | 1.245 | 1.900 | 169,6 |
| | 370 | 120 | 23144-CA-W33-ENH | 23144-K-CA-W33-ENH | 1.850 | 2.750 | 241,6 |
| | 400 | 144 | 23244-CA-W33-ENH | 23244-K-CA-W33-ENH | 2.430 | 3.500 | 302,8 |
| | 300 | 60 | 23944-CA-W33-ENH | 23944-K-CA-W33-ENH | 655 | 1.170 | 107,1 |
| | 340 | 118 | 24044-CA-W33-ENH | 24044-K30-CA-W33-ENH | 1.595 | 2.586 | 231 |

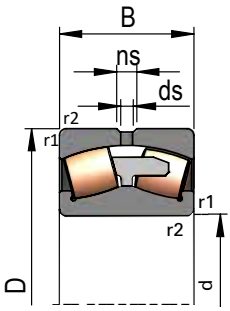
** Dimensions in mm.*
*** Mass in kg.*



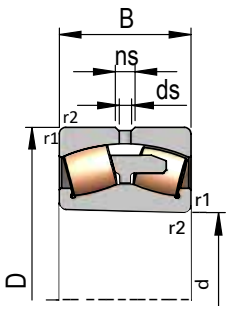

## MOUNTING DIMENSIONS

| THERMAL REFERENCES SPEED RATINGS[1] (rpm) | | $r_1, r_2$ (min) | SECONDARY DIMENSIONS | | CALCULATION FACTORS | | | | CYLINDRICAL BORE MASS** | MOUNTING DIMENSIONS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ng oil | ng grease | | ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | da (min) | Da (max) | ra |
| 1.090 | 975 | 2,1 | 4,5 | 8,3 | 0,37 | 1,8 | 1,8 | 2,7 | 26,92 | 182 | 268 | 2,1 |
| 1.700 | 1.400 | 4 | 9,5 | 17,7 | 0,25 | 2,7 | 2,7 | 4,0 | 29,2 | 197 | 303 | 3 |
| 1.250 | 1.100 | 4 | 12 | 22,3 | 0,33 | 2,0 | 2,0 | 3,0 | 69,8 | 197 | 363 | 3 |
| 1.780 | 1.480 | 2,1 | 8 | 15 | 0,23 | 2,8 | 2,9 | 4,3 | 16,9 | 190,2 | 269,8 | 2,1 |
| 1.370 | 1.180 | 3 | 8 | 15 | 0,29 | 2,3 | 2,3 | 3,5 | 26,1 | 194 | 286 | 2,5 |
| 1.120 | 990 | 4 | 8 | 15 | 0,32 | 2,1 | 2,1 | 3,1 | 38,8 | 197 | 303 | 3 |
| 1.880 | 1.540 | 2 | 3 | 6 | 0,18 | 3,7 | 3,8 | 5,6 | 8 | 188,8 | 241,2 | 2 |
| 1.420 | 1.220 | 2,1 | 4,5 | 8,3 | 0,33 | 2,0 | 2,0 | 3,0 | 23,3 | 190,2 | 269,8 | 2,1 |
| 990 | 890 | 3 | 4,5 | 8,3 | 0,37 | 1,8 | 1,8 | 2,7 | 33,92 | 194 | 286 | 2,5 |
| 1.630 | 1.380 | 4 | 9 | 16,7 | 0,26 | 2,5 | 2,6 | 3,9 | 36,5 | 207 | 323 | 3 |
| 1.190 | 1.040 | 5 | 12 | 22,3 | 0,34 | 1,9 | 2,0 | 3,0 | 80,8 | 210 | 380 | 4 |
| 1.690 | 1.410 | 2,1 | 8 | 15 | 0,22 | 2,9 | 3,0 | 4,5 | 17,7 | 200,2 | 279,8 | 2,1 |
| 1.270 | 1.100 | 3 | 8 | 15 | 0,30 | 2,2 | 2,3 | 3,4 | 34,3 | 204 | 306 | 2,5 |
| 1.080 | 950 | 4 | 9 | 16,7 | 0,35 | 1,9 | 2,0 | 2,9 | 47,6 | 207 | 323 | 3 |
| 1.760 | 1.440 | 2 | 3 | 6 | 0,18 | 3,7 | 3,8 | 5,7 | 8,4 | 198,8 | 251,2 | 2 |
| 1.340 | 1.145 | 2,1 | 4,5 | 8,3 | 0,32 | 2,1 | 2,1 | 3,2 | 24,3 | 200,2 | 279,8 | 2,1 |
| 900 | 810 | 3 | 6 | 11,1 | 0,38 | 1,7 | 1,77 | 2,6 | 42,66 | 204 | 306 | 2,5 |
| 1.510 | 1.280 | 4 | 9 | 16,7 | 0,27 | 2,4 | 2,5 | 3,7 | 44,4 | 217 | 343 | 3 |
| 1.100 | 970 | 5 | 12 | 22,3 | 0,34 | 2,0 | 2,0 | 3,0 | 94,2 | 220 | 400 | 4 |
| 1.570 | 1.320 | 2,1 | 8 | 15 | 0,23 | 2,8 | 2,9 | 4,3 | 22,9 | 210,2 | 299,8 | 2,1 |
| 1.220 | 1.050 | 3 | 9 | 16,7 | 0,31 | 2,1 | 2,2 | 3,2 | 43 | 214 | 326 | 2,5 |
| 1.010 | 890 | 4 | 9 | 16,7 | 0,35 | 1,9 | 2,0 | 2,9 | 57,5 | 217 | 343 | 3 |
| 1.660 | 1.370 | 2,1 | 4,5 | 8,3 | 0,19 | 3,5 | 3,6 | 5,4 | 11,8 | 210,2 | 269,8 | 2,1 |
| 1.250 | 1.075 | 2,1 | 6 | 11,1 | 0,33 | 2,0 | 2,1 | 3,1 | 30,8 | 210,2 | 299,8 | 2,1 |
| 850 | 770 | 3 | 6 | 11,1 | 0,40 | 1,6 | 1,7 | 2,5 | 53 | 214 | 326 | 2,5 |
| 1.350 | 1.140 | 4 | 9 | 16,7 | 0,27 | 2,5 | 2,5 | 3,7 | 60,3 | 237 | 383 | 3 |
| 950 | 840 | 5 | 12 | 22,3 | 0,31 | 2,2 | 2,2 | 3,3 | 116 | 240 | 440 | 4 |
| 1.460 | 1.220 | 3 | 7,5 | 13,9 | 0,24 | 2,7 | 2,8 | 4,1 | 30,4 | 232,4 | 327,6 | 2,5 |
| 1.080 | 940 | 4 | 9,5 | 17,7 | 0,31 | 2,2 | 2,2 | 3,3 | 53,9 | 237 | 353 | 3 |
| 850 | 760 | 4 | 9 | 16,7 | 0,35 | 1,9 | 1,9 | 2,9 | 82,1 | 237 | 383 | 3 |
| 1.490 | 1.225 | 2,1 | 4,5 | 8,3 | 0,18 | 3,8 | 3,9 | 5,7 | 12,9 | 230,2 | 289,8 | 2,1 |
| 1.100 | 945 | 3 | 6 | 11,1 | 0,32 | 2,1 | 2,1 | 3,1 | 40,2 | 232,4 | 327,6 | 2,5 |

*[1]The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



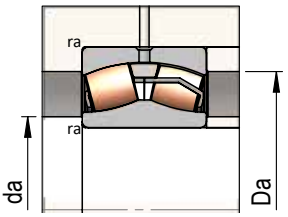

2..-CA-W33




2..-K-CA-W33
2..-K30-CA-W33

| BOUNDARY DIMENSIONS* d | D | B | CYLINDRICAL BORE DESIGNATION | TAPERED BORE DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu |
|---|---|---|---|---|---|---|---|
| 220 | 370 | 150 | 24144-CA-W33-ENH | 24144-K30-CA-W33-ENH | 2.158 | 3.300 | 290,5 |
| 240 | 440 | 120 | 22248-CA-W33-ENH | 22248-K-CA-W33-ENH | 2.230 | 3.000 | 252,6 |
| | 500 | 155 | 22348-CA-W33-ENH | 22348-K-CA-W33-ENH | 3.180 | 4.000 | 327,4 |
| | 360 | 92 | 23048-CA-W33-ENH | 23048-K-CA-W33-ENH | 1.315 | 2.140 | 187,2 |
| | 400 | 128 | 23148-CA-W33-ENH | 23148-K-CA-W33-ENH | 2.180 | 3.200 | 274,4 |
| | 440 | 160 | 23248-CA-W33-ENH | 23248-K-CA-W33-ENH | 2.980 | 4.300 | 361,8 |
| | 320 | 60 | 23948-CA-W33-ENH | 23948-K-CA-W33-ENH | 680 | 1.280 | 114,5 |
| | 360 | 118 | 24048-CA-W33-ENH | 24048-K30-CA-W33-ENH | 1.636 | 2.825 | 247,5 |
| | 400 | 160 | 24148-CA-W33-ENH | 24148-K30-CA-W33-ENH | 2.460 | 3.900 | 334,8 |
| 260 | 480 | 130 | 22252-CA-W33-ENH | 22252-K-CA-W33-ENH | 2.650 | 3.500 | 286,7 |
| | 540 | 165 | 22352-CA-W33-ENH | 22352-K-CA-W33-ENH | 3.640 | 4.600 | 368,7 |
| | 400 | 104 | 23052-CA-W33-ENH | 23052-K-CA-W33-ENH | 1.675 | 2.700 | 229,2 |
| | 440 | 144 | 23152-CA-W33-ENH | 23152-K-CA-W33-ENH | 2.597 | 3.980 | 332 |
| | 480 | 174 | 23252-CA-W33-ENH | 23252-K-CA-W33-ENH | 3.330 | 4.750 | 390,3 |
| | 360 | 75 | 23952-CA-W33-ENH | 23952-K-CA-W33-ENH | 1.040 | 1.880 | 162,8 |
| | 400 | 140 | 24052-CA-W33-ENH | 24052-K30-CA-W33-ENH | 2.145 | 3.700 | 315 |
| | 440 | 180 | 24152-CA-W33-ENH | 24152-K30-CA-W33-ENH | 3.050 | 4.800 | 401,3 |
| 280 | 500 | 130 | 22256-CA-W33-ENH | 22256-K-CA-W33-ENH | 2.770 | 3.750 | 302,8 |
| | 580 | 175 | 22356-CA-W33-ENH | 22356-K-CA-W33-ENH | 4.150 | 5.260 | 412,7 |
| | 420 | 106 | 23056-CA-W33-ENH | 23056-K-CA-W33-ENH | 1.770 | 2.900 | 242,3 |
| | 460 | 146 | 23156-CA-W33-ENH | 23156-K-CA-W33-ENH | 2.720 | 4.200 | 344,9 |
| | 500 | 176 | 23256-CA-W33-ENH | 23256-K-CA-W33-ENH | 3.475 | 5.165 | 417,2 |
| | 380 | 75 | 23956-CA-W33-ENH | 23956-K-CA-W33-ENH | 1.030 | 1.925 | 163,5 |
| | 420 | 140 | 24056-CA-W33-ENH | 24056-K30-CA-W33-ENH | 2.210 | 3.840 | 321 |
| | 460 | 180 | 24156-CA-W33-ENH | 24156-K30-CA-W33-ENH | 3.175 | 5.165 | 424,5 |
| 300 | 540 | 140 | 22260-CA-W33-ENH | 22260-K-CA-W33-ENH | 3.115 | 4.250 | 335,1 |
| | 460 | 118 | 23060-CA-W33-ENH | 23060-K-CA-W33-ENH | 2.200 | 3.450 | 280,7 |
| | 500 | 160 | 23160-CA-W33-ENH | 23160-K-CA-W33-ENH | 3.295 | 5.100 | 409,2 |
| | 540 | 192 | 23260-CA-W33-ENH | 23260-K-CA-W33-ENH | 4.050 | 6.100 | 481,7 |
| | 380 | 60 | 23860-CA-W33-ENH | 23860-K-CA-W33-ENH | 700 | 1.575 | 132,9 |
| | 420 | 90 | 23960-CA-W33-ENH | 23960-K-CA-W33-ENH | 1.390 | 2.500 | 206,9 |
| | 460 | 160 | 24060-CA-W33-ENH | 24060-K30-CA-W33-ENH | 2.780 | 4.735 | 386 |
| | 500 | 200 | 24160-CA-W33-ENH | 24160-K30-CA-W33-ENH | 3.840 | 6.335 | 508,5 |

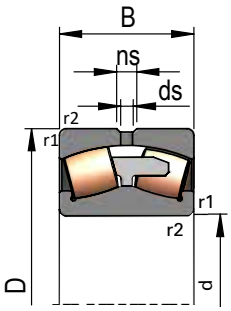
** Dimensions in mm.*
*** Mass in kg.*



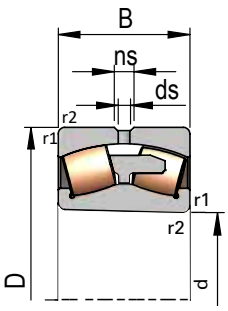

## MOUNTING DIMENSIONS

| THERMAL REFERENCES SPEED RATINGS (1) (rpm) | | $r_1, r_2$ (min) | SECONDARY DIMENSIONS | | CALCULATION FACTORS | | | | CYLINDRICAL BORE MASS** | MOUNTING DIMENSIONS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ng oil | ng grease | | ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | da (min) | Da (max) | ra |
| 745 | 680 | 4 | 6 | 11,1 | 0,38 | 1,7 | 1,8 | 2,6 | 66,1 | 237 | 353 | 3 |
| 1.180 | 1.010 | 4 | 12 | 22,3 | 0,26 | 2,5 | 2,6 | 3,8 | 81,8 | 257 | 423 | 3 |
| 850 | 750 | 5 | 12 | 22,3 | 0,31 | 2,2 | 2,2 | 3,3 | 145 | 260 | 480 | 4 |
| 1.320 | 1.100 | 3 | 7,5 | 13,9 | 0,23 | 2,9 | 3,0 | 4,4 | 32,9 | 252,4 | 347,6 | 2,5 |
| 970 | 840 | 4 | 9 | 16,7 | 0,31 | 2,2 | 2,2 | 3,3 | 66,4 | 257 | 383 | 3 |
| 740 | 670 | 4 | 12 | 22,3 | 0,36 | 1,9 | 1,9 | 2,8 | 110 | 257 | 423 | 3 |
| 1.330 | 1.100 | 2,1 | 4,5 | 8,3 | 0,16 | 4,0 | 4,1 | 6,1 | 13,7 | 250,2 | 309,8 | 2,1 |
| 990 | 850 | 3 | 6 | 11,1 | 0,30 | 2,2 | 2,3 | 3,3 | 43,6 | 252,4 | 347,6 | 2,5 |
| 650 | 600 | 4 | 6 | 11,1 | 0,38 | 1,7 | 1,8 | 2,6 | 82,24 | 257 | 383 | 3 |
| 1.070 | 910 | 5 | 12 | 22,3 | 0,27 | 2,5 | 2,5 | 3,8 | 108 | 280 | 460 | 4 |
| 760 | 680 | 6 | 12 | 22,3 | 0,31 | 2,1 | 2,2 | 3,2 | 183 | 286 | 514 | 5 |
| 1.170 | 990 | 4 | 9 | 16,7 | 0,24 | 2,8 | 2,8 | 4,2 | 48,8 | 274,6 | 385,4 | 3 |
| 860 | 750 | 4 | 9 | 16,7 | 0,31 | 2,1 | 2,2 | 3,2 | 92 | 277 | 423 | 3 |
| 685 | 615 | 5 | 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 142 | 280 | 460 | 4 |
| 1.200 | 1.000 | 2,1 | 4,5 | 8,3 | 0,18 | 3,7 | 3,8 | 5,6 | 23,5 | 270,2 | 349,8 | 2,1 |
| 875 | 765 | 4 | 6 | 11,1 | 0,33 | 2,0 | 2,1 | 3,1 | 65,6 | 274,6 | 385,4 | 3 |
| 570 | 525 | 4 | 7,5 | 13,9 | 0,40 | 1,7 | 1,7 | 2,5 | 110 | 277 | 423 | 3 |
| 980 | 840 | 5 | 12 | 22,3 | 0,26 | 2,6 | 2,6 | 3,9 | 111,5 | 300 | 480 | 4 |
| 690 | 610 | 6 | 12 | 22,3 | 0,31 | 2,1 | 2,2 | 3,2 | 228 | 306 | 554 | 5 |
| 1.090 | 910 | 4 | 9 | 16,7 | 0,23 | 2,9 | 2,9 | 4,4 | 52,3 | 294,6 | 405,4 | 3 |
| 800 | 700 | 5 | 9 | 16,7 | 0,30 | 2,2 | 2,3 | 3,4 | 97,8 | 300 | 440 | 4 |
| 630 | 570 | 5 | 12 | 22,3 | 0,34 | 1,9 | 2,0 | 2,9 | 151,5 | 300 | 480 | 4 |
| 1.110 | 925 | 2,1 | 6 | 11,1 | 0,17 | 3,9 | 4,0 | 5,9 | 25,2 | 290,2 | 369,8 | 2,1 |
| 815 | 710 | 4 | 6 | 11,1 | 0,31 | 2,1 | 2,2 | 3,2 | 69,6 | 294,6 | 405,4 | 3 |
| 525 | 485 | 5 | 8 | 15 | 0,37 | 1,8 | 1,8 | 2,7 | 120,5 | 300 | 440 | 4 |
| 900 | 770 | 5 | 12 | 22,3 | 0,25 | 2,6 | 2,7 | 4,0 | 140 | 320 | 520 | 4 |
| 990 | 840 | 4 | 9 | 16,7 | 0,23 | 2,8 | 2,9 | 4,3 | 73 | 314,6 | 445,4 | 3 |
| 710 | 630 | 5 | 9 | 16,7 | 0,30 | 2,2 | 2,2 | 3,3 | 130 | 320 | 480 | 4 |
| 560 | 510 | 5 | 12 | 22,3 | 0,35 | 1,7 | 2,0 | 2,9 | 195 | 320 | 520 | 4 |
| 1.020 | 840 | 2,1 | 4,5 | 8,3 | 0,14 | 4,9 | 5,0 | 7,4 | 16,6 | 310,2 | 369,8 | 2,1 |
| 1.020 | 850 | 3 | 6 | 11,1 | 0,19 | 3,5 | 3,6 | 5,3 | 39,9 | 312,4 | 407,6 | 2,5 |
| 730 | 645 | 4 | 7,5 | 13,9 | 0,33 | 2,0 | 2,1 | 3,1 | 98,3 | 314,6 | 445,4 | 3 |
| 460 | 425 | 5 | 7,5 | 13,9 | 0,37 | 1,8 | 1,8 | 2,7 | 160,6 | 320 | 480 | 4 |

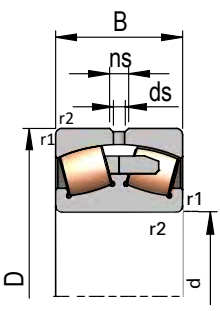
*(1) The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



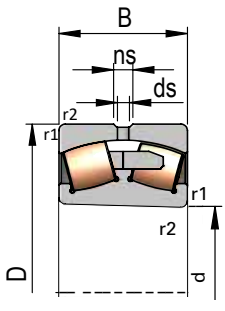

2..-CA-W33




2..-K-CA-W33
2..-K30-CA-W33



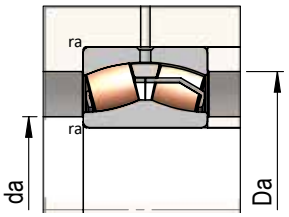

2..-MB-W33




2..-K-MB-W33
2..-K30-MB-W33

| BOUNDARY DIMENSIONS* d | D | B | CYLINDRICAL BORE DESIGNATION | TAPERED BORE DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu |
|---|---|---|---|---|---|---|---|
| 320 | 580 | 150 | 22264-CA-W33-ENH | 22264-K-CA-W33-ENH | 3.600 | 4.900 | 378,2 |
| | 480 | 121 | 23064-CA-W33-ENH | 23064-K-CA-W33-ENH | 2.310 | 3.800 | 305 |
| | 540 | 176 | 23164-CA-W33-ENH | 23164-K-CA-W33-ENH | 3.785 | 5.975 | 469 |
| | 580 | 208 | 23264-CA-W33-ENH | 23264-K-CA-W33-ENH | 4.580 | 7.000 | 540,5 |
| | 440 | 90 | 23964-CA-W33-ENH | 23964-K-CA-W33-ENH | 1.450 | 2.740 | 223,1 |
| | 480 | 160 | 24064-CA-W33-ENH | 24064-K30-CA-W33-ENH | 2.920 | 5.150 | 413 |
| | 540 | 218 | 24164-CA-W33-ENH | 24164-K30-CA-W33-ENH | 4.350 | 7.080 | 555,8 |
| 340 | 620 | 165 | 22268-CA-W33-ENH | 22268-K-CA-W33-ENH | 4.000 | 5.590 | 424,8 |
| | 520 | 133 | 23068-CA-W33-ENH | 23068-K-CA-W33-ENH | 2.755 | 4.550 | 357,2 |
| | 580 | 190 | 23168-CA-W33-ENH | 23168-K-CA-W33-ENH | 4.335 | 6.780 | 521,8 |
| | 620 | 224 | 23268-CA-W33-ENH | 23268-K-CA-W33-ENH | 5.250 | 7.850 | 595,4 |
| | 460 | 90 | 23968-CA-W33-ENH | 23968-K-CA-W33-ENH | 1.475 | 2.900 | 232,5 |
| | 520 | 180 | 24068-CA-W33-ENH | 24068-K30-CA-W33-ENH | 3.540 | 6.200 | 487 |
| | 580 | 243 | 24168-CA-W33-ENH | 24168-K30-CA-W33-ENH | 5.400 | 8.670 | 667 |
| 360 | 650 | 170 | 22272-CA-W33-ENH | 22272-K-CA-W33-ENH | 4.400 | 6.200 | 463,3 |
| | 540 | 134 | 23072-CA-W33-ENH | 23072-K-CA-W33-ENH | 2.800 | 4.800 | 372 |
| | 600 | 192 | 23172-CA-W33-ENH | 23172-K-CA-W33-ENH | 4.430 | 7.000 | 531,5 |
| | 650 | 232 | 23272-CA-W33-ENH | 23272-K-CA-W33-ENH | 5.650 | 8.650 | 646,5 |
| | 480 | 90 | 23972-CA-W33-ENH | 23972-K-CA-W33-ENH | 1.500 | 2.960 | 234,4 |
| | 540 | 180 | 24072-CA-W33-ENH | 24072-K30-CA-W33-ENH | 3.635 | 6.500 | 504 |
| | 600 | 243 | 24172-CA-W33-ENH | 24172-K30-CA-W33-ENH | 5.565 | 9.110 | 693 |
| 380 | 560 | 135 | 23076-CA-W33-ENH | 23076-K-CA-W33-ENH | 2.900 | 5.000 | 382 |
| | 620 | 194 | 23176-CA-W33-ENH | 23176-K-CA-W33-ENH | 4.550 | 7.400 | 555 |
| | 680 | 240 | 23276-CA-W33-ENH | 23276-K-CA-W33-ENH | 6.100 | 9.500 | 699,5 |
| | 520 | 106 | 23976-CA-W33-ENH | 23976-K-CA-W33-ENH | 1.990 | 3.940 | 304,8 |
| | 560 | 180 | 24076-CA-W33-ENH | 24076-K30-CA-W33-ENH | 3.710 | 6.785 | 519 |
| | 620 | 243 | 24176-CA-W33-ENH | 24176-K30-CA-W33-ENH | 5.850 | 9.800 | 735 |
| 400 | 600 | 148 | 23080-MB-W33-ENH | 23080-K-MB-W33-ENH | 3.390 | 6.100 | 457,7 |
| | 650 | 200 | 23180-CA-W33-ENH | 23180-K-CA-W33-ENH | 4.860 | 7.860 | 582 |
| | 720 | 256 | 23280-CA-W33-ENH | 23280-K-CA-W33-ENH | 6.850 | 10.700 | 775 |
| | 540 | 106 | 23980-CA-W33-ENH | 23980-K-CA-W33-ENH | 2.030 | 4.070 | 311 |
| | 600 | 200 | 24080-MB-W33-ENH | 24080-K30-MB-W33-ENH | 4.400 | 8.300 | 623 |

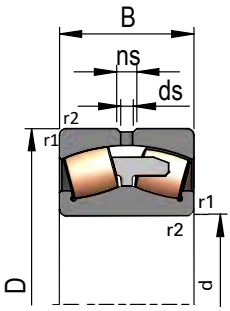
** Dimensions in mm.*
*** Mass in kg.*



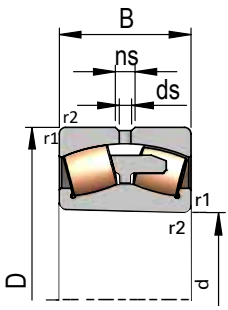

## MOUNTING DIMENSIONS

| THERMAL REFERENCES SPEED RATINGS [1] (rpm) | | $r_1, r_2$ (min) | SECONDARY DIMENSIONS | | CALCULATION FACTORS | | | | CYLINDRICAL BORE MASS** | MOUNTING DIMENSIONS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ng oil | ng grease | | ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | da (min) | Da (max) | ra |
| 820 | 710 | 5 | 12 | 22,3 | 0,25 | 2,6 | 2,7 | 4,0 | 174 | 340 | 560 | 4 |
| 920 | 780 | 4 | 9 | 16,7 | 0,23 | 2,8 | 2,9 | 4,3 | 78,4 | 334,6 | 465,4 | 3 |
| 650 | 570 | 5 | 12 | 22,3 | 0,31 | 2,1 | 2,2 | 3,2 | 167,8 | 340 | 520 | 4 |
| 510 | 470 | 5 | 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 242 | 340 | 560 | 4 |
| 940 | 780 | 3 | 6 | 11,1 | 0,18 | 3,8 | 3,9 | 5,7 | 42 | 332,4 | 427,6 | 2,5 |
| 675 | 590 | 4 | 7,5 | 13,9 | 0,31 | 2,1 | 2,2 | 3,2 | 103,8 | 334,6 | 465,4 | 3 |
| 425 | 395 | 5 | 9 | 16,7 | 0,38 | 1,7 | 1,8 | 2,6 | 206 | 340 | 520 | 4 |
| 770 | 660 | 6 | 12 | 22,3 | 0,26 | 2,6 | 2,6 | 3,9 | 220 | 366 | 594 | 5 |
| 840 | 720 | 5 | 12 | 22,3 | 0,24 | 2,8 | 2,9 | 4,3 | 104 | 358 | 502 | 4 |
| 590 | 530 | 5 | 12 | 22,3 | 0,31 | 2,1 | 2,2 | 3,2 | 210 | 360 | 560 | 4 |
| 475 | 435 | 6 | 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 295 | 366 | 594 | 5 |
| 870 | 730 | 3 | 6 | 11,1 | 0,17 | 4,0 | 4,1 | 6,0 | 46 | 352,4 | 447,6 | 2,5 |
| 615 | 540 | 5 | 9 | 16,7 | 0,31 | 2,1 | 2,2 | 3,2 | 140,6 | 358 | 502 | 4 |
| 375 | 350 | 5 | 9 | 16,7 | 0,39 | 1,7 | 1,7 | 2,6 | 264 | 360 | 560 | 4 |
| 710 | 620 | 6 | 12 | 22,3 | 0,25 | 2,6 | 2,7 | 4,0 | 250 | 386 | 624 | 5 |
| 790 | 670 | 5 | 12 | 22,3 | 0,23 | 2,9 | 2,9 | 4,4 | 110 | 378 | 522 | 4 |
| 570 | 500 | 5 | 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,3 | 222 | 380 | 580 | 4 |
| 440 | 400 | 6 | 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 340 | 386 | 624 | 5 |
| 820 | 680 | 3 | 6 | 11,1 | 0,16 | 4,1 | 4,1 | 6,2 | 47 | 372,4 | 467,6 | 2,5 |
| 575 | 510 | 5 | 9 | 16,7 | 0,31 | 2,1 | 2,2 | 3,2 | 145 | 378 | 522 | 4 |
| 350 | 330 | 5 | 9 | 16,7 | 0,37 | 1,8 | 1,8 | 2,7 | 276,7 | 380 | 580 | 4 |
| 740 | 630 | 5 | 12 | 22,3 | 0,22 | 3,1 | 3,1 | 4,7 | 115 | 398 | 542 | 4 |
| 530 | 470 | 5 | 12 | 22,3 | 0,29 | 2,3 | 2,3 | 3,5 | 233 | 400 | 600 | 4 |
| 400 | 370 | 6 | 12 | 22,3 | 0,34 | 1,9 | 2,0 | 3,0 | 380 | 406 | 654 | 5 |
| 750 | 635 | 4 | 7,5 | 13,9 | 0,18 | 3,7 | 3,8 | 5,7 | 68,5 | 394,6 | 505,4 | 3 |
| 545 | 480 | 5 | 9 | 16,7 | 0,28 | 2,3 | 2,4 | 3,5 | 154 | 398 | 542 | 4 |
| 325 | 305 | 5 | 9 | 16,7 | 0,36 | 1,8 | 1,9 | 2,8 | 289,4 | 400 | 600 | 4 |
| 680 | 580 | 5 | 12,5 | 22,5 | 0,24 | 2,8 | 2,9 | 4,3 | 152 | 418 | 582 | 4 |
| 500 | 450 | 6 | 12 | 22,3 | 0,28 | 2,3 | 2,4 | 3,5 | 268 | 426 | 624 | 5 |
| 370 | 340 | 6 | 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 457 | 426 | 694 | 5 |
| 710 | 600 | 4 | 7,5 | 13,9 | 0,17 | 3,9 | 4,0 | 5,9 | 71,2 | 414,6 | 525,4 | 3 |
| 490 | 435 | 5 | 12,5 | 22,5 | 0,33 | 2,0 | 2,1 | 3,1 | 201,6 | 418 | 582 | 4 |

*[1] The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



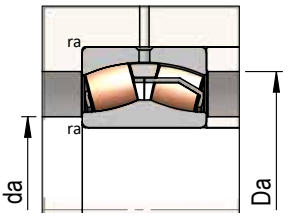

2..-CA-W33




2..-K-CA-W33
2..-K30-CA-W33

| BOUNDARY DIMENSIONS* d | D | B | CYLINDRICAL BORE DESIGNATION | TAPERED BORE DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu |
|---|---|---|---|---|---|---|---|
| 400 | 650 | 250 | 24180-CA-W33-ENH | 24180-K30-CA-W33-ENH | 6.200 | 1.0550 | 780 |
| 420 | 620 | 150 | 23084-CA-W33-ENH | 23084-K-CA-W33-ENH | 3.560 | 6.200 | 460 |
| | 700 | 224 | 23184-CA-W33-ENH | 23184-K-CA-W33-ENH | 5.900 | 9.600 | 696 |
| | 760 | 272 | 23284-CA-W33-ENH | 23284-K-CA-W33-ENH | 7.650 | 12.100 | 862 |
| | 560 | 106 | 23984-CA-W33-ENH | 23984-K-CA-W33-ENH | 2.080 | 4.300 | 325 |
| | 620 | 200 | 24084-CA-W33-ENH | 24084-K30-CA-W33-ENH | 4.525 | 8.400 | 624 |
| | 700 | 280 | 24184-CA-W33-ENH | 24184-K30-CA-W33-ENH | 7.300 | 12.450 | 905 |
| 440 | 650 | 157 | 23088-CA-W33-ENH | 23088-K-CA-W33-ENH | 3.825 | 6.740 | 492 |
| | 720 | 226 | 23188-CA-W33-ENH | 23188-K-CA-W33-ENH | 6.150 | 10.000 | 720 |
| | 790 | 280 | 23288-CA-W33-ENH | 23288-K-CA-W33-ENH | 8.100 | 12.900 | 908 |
| | 600 | 118 | 23988-CA-W33-ENH | 23988-K-CA-W33-ENH | 2.460 | 5.000 | 370 |
| | 650 | 212 | 24088-CA-W33-ENH | 24088-K30-CA-W33-ENH | 4.950 | 9.400 | 688 |
| | 720 | 280 | 24188-CA-W33-ENH | 24188-K30-CA-W33-ENH | 7.600 | 13.100 | 940 |
| 460 | 680 | 163 | 23092-CA-W33-ENH | 23092-K-CA-W33-ENH | 4.010 | 7.350 | 530 |
| | 760 | 240 | 23192-CA-W33-ENH | 23192-K-CA-W33-ENH | 6.700 | 11.250 | 794 |
| | 830 | 296 | 23292-CA-W33-ENH | 23292-K-CA-W33-ENH | 8.950 | 14.400 | 1.000 |
| | 620 | 118 | 23992-CA-W33-ENH | 23992-K-CA-W33-ENH | 2.535 | 5.290 | 388 |
| | 680 | 218 | 24092-CA-W33-ENH | 24092-K30-CA-W33-ENH | 5.350 | 10.200 | 737 |
| | 760 | 300 | 24192-CA-W33-ENH | 24192-K30-CA-W33-ENH | 8.500 | 14.600 | 1.032 |
| | 580 | 118 | 24892-CA-W33-ENH | 24892-K30-CA-W33-ENH | 2.050 | 5.000 | 371 |
| 480 | 700 | 165 | 23096-CA-W33-ENH | 23096-K-CA-W33-ENH | 4.350 | 7.900 | 564 |
| | 790 | 248 | 23196-CA-W33-ENH | 23196-K-CA-W33-ENH | 7.300 | 12.100 | 841 |
| | 870 | 310 | 23296-CA-W33-ENH | 23296-K-CA-W33-ENH | 9.800 | 15.850 | 1.086 |
| | 650 | 128 | 23996-CA-W33-ENH | 23996-K-CA-W33-ENH | 2.935 | 5.870 | 425 |
| | 700 | 218 | 24096-CA-W33-ENH | 24096-K30-CA-W33-ENH | 5.430 | 10.600 | 759 |
| | 790 | 308 | 24196-CA-W33-ENH | 24196-K30-CA-W33-ENH | 9.100 | 15.600 | 1.090 |
| 500 | 720 | 167 | 230/500-CA-W33-ENH | 230/500-K-CA-W33-ENH | 4.580 | 8.450 | 597 |
| | 830 | 264 | 231/500-CA-W33-ENH | 231/500-K-CA-W33-ENH | 8.060 | 13.500 | 928 |
| | 920 | 336 | 232/500-CA-W33-ENH | 232/500-K-CA-W33-ENH | 11.300 | 18.400 | 1.239 |
| | 670 | 128 | 239/500-CA-W33-ENH | 239/500-K-CA-W33-ENH | 2.975 | 6.230 | 446 |
| | 720 | 218 | 240/500-CA-W33-ENH | 240/500-K30-CA-W33-ENH | 5.700 | 11.000 | 778 |
| | 830 | 325 | 241/500-CA-W33-ENH | 241/500-K30-CA-W33-ENH | 9.950 | 17.000 | 1.170 |

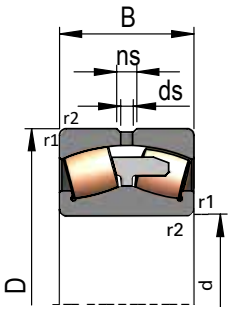
** Dimensions in mm.*
*** Mass in kg.*



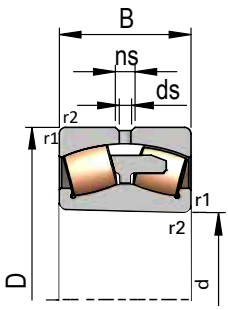

## MOUNTING DIMENSIONS

| THERMAL REFERENCES SPEED RATINGS [1] (rpm) | | $r_1, r_2$ (min) | SECONDARY DIMENSIONS | | CALCULATION FACTORS | | | | CYLINDRICAL BORE MASS** | MOUNTING DIMENSIONS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ng oil | ng grease | | ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | da (min) | Da (max) | ra |
| 300 | 285 | 6 | 12 | 22,3 | 0,37 | 1,8 | 1,8 | 2,7 | 327,5 | 426 | 624 | 5 |
| 650 | 560 | 5 | 12 | 22,3 | 0,22 | 3,1 | 3,1 | 4,7 | 157 | 438 | 602 | 4 |
| 455 | 410 | 6 | 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,3 | 352 | 446 | 674 | 5 |
| 340 | 310 | 7,5 | 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 544 | 452 | 728 | 6 |
| 670 | 565 | 4 | 9 | 16,7 | 0,16 | 4,1 | 4,2 | 6,2 | 75 | 434,6 | 545,4 | 3 |
| 470 | 420 | 5 | 12 | 22,3 | 0,29 | 2,3 | 2,3 | 3,5 | 210 | 438 | 602 | 4 |
| 275 | 260 | 6 | 12 | 22,3 | 0,38 | 1,7 | 1,8 | 2,6 | 439,5 | 446 | 674 | 5 |
| 620 | 530 | 6 | 12 | 22,3 | 0,22 | 3,0 | 3,0 | 4,5 | 182 | 463 | 627 | 5 |
| 430 | 390 | 6 | 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,3 | 360 | 466 | 694 | 5 |
| 320 | 300 | 7,5 | 12 | 22,3 | 0,34 | 1,9 | 2,0 | 2,9 | 600 | 472 | 758 | 6 |
| 630 | 535 | 4 | 9 | 16,7 | 0,17 | 3,9 | 4,0 | 5,9 | 101 | 454,6 | 585,4 | 3 |
| 440 | 390 | 6 | 12 | 22,3 | 0,29 | 2,3 | 2,3 | 3,5 | 246 | 463 | 627 | 5 |
| 255 | 245 | 6 | 12 | 22,3 | 0,37 | 1,8 | 1,8 | 2,7 | 455 | 466 | 694 | 5 |
| 580 | 500 | 6 | 12 | 22,3 | 0,22 | 3,1 | 3,1 | 4,7 | 207 | 483 | 657 | 5 |
| 400 | 360 | 7,5 | 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,4 | 440 | 492 | 728 | 6 |
| 300 | 280 | 7,5 | 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 710 | 492 | 798 | 6 |
| 590 | 505 | 4 | 9 | 16,7 | 0,16 | 4,0 | 4,1 | 6,1 | 110 | 474,6 | 605,4 | 3 |
| 410 | 365 | 6 | 12 | 22,3 | 0,28 | 2,3 | 2,4 | 3,5 | 277 | 483 | 657 | 5 |
| 241 | 228 | 7,5 | 12 | 22,3 | 0,37 | 1,8 | 1,8 | 2,7 | 560 | 492 | 728 | 6 |
| 630 | 535 | 3 | 6,3 | 12,2 | 0,17 | 3,8 | 3,9 | 5,8 | 76 | 472,4 | 567,6 | 2,5 |
| 550 | 470 | 6 | 12 | 22,3 | 0,21 | 3,1 | 3,2 | 4,7 | 217 | 503 | 677 | 5 |
| 380 | 345 | 7,5 | 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,4 | 488 | 512 | 758 | 6 |
| 280 | 260 | 7,5 | 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 813 | 512 | 838 | 6 |
| 570 | 485 | 5 | 9 | 16,7 | 0,18 | 3,7 | 3,8 | 5,7 | 126 | 498 | 632 | 4 |
| 390 | 350 | 6 | 12 | 22,3 | 0,28 | 2,4 | 2,5 | 3,6 | 285 | 503 | 677 | 5 |
| 227 | 215 | 7,5 | 12 | 22,3 | 0,37 | 1,8 | 1,8 | 2,7 | 605 | 512 | 758 | 6 |
| 520 | 450 | 6 | 12 | 22,3 | 0,21 | 3,1 | 3,2 | 4,8 | 228 | 523 | 697 | 5 |
| 350 | 320 | 7,5 | 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,3 | 587 | 532 | 798 | 6 |
| 255 | 240 | 7,5 | 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 1.016 | 532 | 888 | 6 |
| 535 | 455 | 5 | 12 | 22,3 | 0,17 | 3,9 | 4,0 | 6,0 | 129 | 518 | 652 | 4 |
| 370 | 330 | 6 | 12 | 22,3 | 0,27 | 2,5 | 2,5 | 3,8 | 295 | 526 | 694 | 5 |
| 213 | 202 | 7,5 | 12 | 22,3 | 0,37 | 1,8 | 1,8 | 2,7 | 700 | 532 | 798 | 6 |

*[1] The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



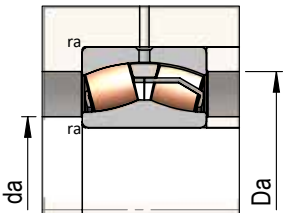

2..-CA-W33




2..-K-CA-W33
2..-K30-CA-W33

| BOUNDARY DIMENSIONS* d | D | B | CYLINDRICAL BORE DESIGNATION | TAPERED BORE DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu |
|---|---|---|---|---|---|---|---|
| 530 | 780 | 185 | 230/530-CA-W33-ENH | 230/530-K-CA-W33-ENH | 5.415 | 9.800 | 678 |
| | 870 | 272 | 231/530-CA-W33-ENH | 231/530-K-CA-W33-ENH | 8.635 | 14.485 | 981 |
| | 980 | 355 | 232/530-CA-W33-ENH | 232/530-K-CA-W33-ENH | 13100 | 20.700 | 1.369 |
| | 710 | 136 | 239/530-CA-W33-ENH | 239/530-K-CA-W33-ENH | 3.245 | 6.750 | 475 |
| | 780 | 250 | 240/530-CA-W33-ENH | 240/530-K30-CA-W33-ENH | 6.920 | 13.200 | 915 |
| | 870 | 335 | 241/530-CA-W33-ENH | 241/530-K30-CA-W33-ENH | 10.700 | 19.100 | 1.295 |
| | 650 | 118 | 248/530-CA-W33-ENH | 248/530-K30-CA-W33-ENH | 2.180 | 5.500 | 393 |
| 560 | 820 | 195 | 230/560-CA-W33-ENH | 230/560-K-CA-W33-ENH | 6.000 | 11.100 | 756 |
| | 920 | 280 | 231/560-CA-W33-ENH | 231/560-K-CA-W33-ENH | 9.640 | 16.300 | 1.086 |
| | 1.030 | 365 | 232/560-CA-W33-ENH | 232/560-K-CA-W33-ENH | 13.800 | 22.500 | 1.468 |
| | 750 | 140 | 239/560-CA-W33-ENH | 239/560-K-CA-W33-ENH | 3.500 | 7.400 | 512 |
| | 820 | 258 | 240/560-CA-W33-ENH | 240/560-K30-CA-W33-ENH | 7.490 | 14.600 | 995 |
| | 920 | 355 | 241/560-CA-W33-ENH | 241/560-K30-CA-W33-ENH | 12.000 | 21.300 | 1.419 |
| 600 | 870 | 200 | 230/600-CA-W33-ENH | 230/600-K-CA-W33-ENH | 6.400 | 12.200 | 815 |
| | 980 | 300 | 231/600-CA-W33-ENH | 231/600-K-CA-W33-ENH | 10.700 | 18.800 | 1.227 |
| | 1.090 | 388 | 232/600-CA-W33-ENH | 232/600-K-CA-W33-ENH | 15.500 | 25.440 | 1.629 |
| | 800 | 150 | 239/600-CA-W33-ENH | 239/600-K-CA-W33-ENH | 3.940 | 8.500 | 576 |
| | 870 | 272 | 240/600-CA-W33-ENH | 240/600-K30-CA-W33-ENH | 8.320 | 16.600 | 1.109 |
| | 980 | 375 | 241/600-CA-W33-ENH | 241/600-K30-CA-W33-ENH | 13.200 | 25.300 | 1.656 |
| 630 | 920 | 212 | 230/630-CA-W33-ENH | 230/630-K-CA-W33-ENH | 7.240 | 13.400 | 881 |
| | 1.030 | 315 | 231/630-CA-W33-ENH | 231/630-K-CA-W33-ENH | 12.400 | 20.800 | 1.336 |
| | 780 | 112 | 238/630-CA-W33-ENH | 238/630-K-CA-W33-ENH | 2.590 | 6.300 | 426 |
| | 850 | 165 | 239/630-CA-W33-ENH | 239/630-K-CA-W33-ENH | 4.650 | 9.900 | 661 |
| | 920 | 290 | 240/630-CA-W33-ENH | 240/630-K30-CA-W33-ENH | 9.000 | 18.025 | 1.186 |
| | 1.030 | 400 | 241/630-CA-W33-ENH | 241/630-K30-CA-W33-ENH | 14.900 | 28.700 | 1.846 |
| 670 | 980 | 230 | 230/670-CA-W33-ENH | 230/670-K-CA-W33-ENH | 7.900 | 15.000 | 969 |
| | 1.090 | 336 | 231/670-CA-W33-ENH | 231/670-K-CA-W33-ENH | 12.900 | 23.500 | 1.486 |
| | 1.220 | 438 | 232/670-CA-W33-ENH | 232/670-K-CA-W33-ENH | 18.460 | 31.900 | 1.978 |
| | 820 | 112 | 238/670-CA-W33-ENH | 238/670-K-CA-W33-ENH | 2.700 | 6.750 | 450 |
| | 900 | 170 | 239/670-CA-W33-ENH | 239/670-K-CA-W33-ENH | 5.050 | 10.600 | 695 |
| | 980 | 308 | 240/670-CA-W33-ENH | 240/670-K30-CA-W33-ENH | 10.200 | 20.600 | 1.333 |
| | 1.090 | 412 | 241/670-CA-W33-ENH | 241/670-K30-CA-W33-ENH | 16.100 | 30.700 | 1.945 |

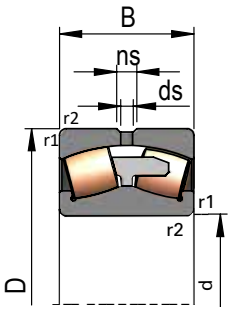
** Dimensions in mm.*
*** Mass in kg.*



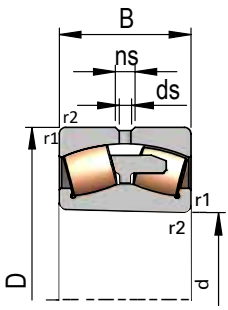

## MOUNTING DIMENSIONS

| THERMAL REFERENCES SPEED RATINGS [1] (rpm) | | $r_1, r_2$ (min) | SECONDARY DIMENSIONS | | CALCULATION FACTORS | | | | CYLINDRICAL BORE MASS** | MOUNTING DIMENSIONS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ng oil | ng grease | | ds | ns | e | $Y_0$ | $Y_1$ | $Y_2$ | | da (min) | Da (max) | ra |
| 480 | 410 | 6 | 12 | 22,3 | 0,22 | 3,1 | 3,1 | 4,7 | 311 | 553 | 757 | 5 |
| 330 | 300 | 7,5 | 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,4 | 648 | 562 | 838 | 6 |
| 230 | 220 | 9,5 | 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 1.200 | 570 | 940 | 8 |
| 500 | 430 | 5 | 12 | 22,3 | 0,17 | 3,9 | 4,0 | 5,9 | 155 | 548 | 692 | 4 |
| 340 | 305 | 6 | 12 | 22,3 | 0,28 | 2,3 | 2,4 | 3,5 | 413 | 553 | 757 | 5 |
| 192 | 183 | 7,5 | 12 | 22,3 | 0,37 | 1,8 | 1,8 | 2,7 | 795 | 562 | 838 | 6 |
| 530 | 450 | 3 | 6,3 | 12,2 | 0,15 | 4,4 | 4,5 | 6,8 | 88 | 542,4 | 637,6 | 2,5 |
| 440 | 380 | 6 | 12 | 22,3 | 0,22 | 3,0 | 3,1 | 4,6 | 360 | 583 | 797 | 5 |
| 300 | 275 | 7,5 | 12 | 22,3 | 0,29 | 2,3 | 2,3 | 3,5 | 747 | 592 | 888 | 6 |
| 215 | 200 | 9,5 | 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 1.375 | 600 | 990 | 8 |
| 460 | 400 | 5 | 12 | 22,3 | 0,16 | 4,1 | 4,2 | 6,2 | 178 | 578 | 732 | 4 |
| 315 | 280 | 6 | 12 | 22,3 | 0,28 | 2,4 | 2,4 | 3,6 | 473 | 583 | 797 | 5 |
| 177 | 169 | 7,5 | 12 | 22,3 | 0,36 | 1,9 | 1,9 | 2,8 | 930 | 592 | 888 | 6 |
| 405 | 350 | 6 | 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 409 | 623 | 847 | 5 |
| 270 | 250 | 7,5 | 12 | 22,3 | 0,29 | 2,3 | 2,4 | 3,5 | 907 | 632 | 948 | 6 |
| 197 | 185 | 9,5 | 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 1.600 | 640 | 1.050 | 8 |
| 430 | 370 | 5 | 12 | 22,3 | 0,17 | 3,9 | 4,0 | 6,0 | 225 | 618 | 782 | 4 |
| 285 | 255 | 6 | 12 | 22,3 | 0,28 | 2,4 | 2,4 | 3,6 | 546 | 623 | 847 | 5 |
| 153 | 147 | 7,5 | 12 | 22,3 | 0,36 | 1,8 | 1,9 | 2,8 | 1.175 | 626 | 954 | 6 |
| 380 | 330 | 7,5 | 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 490 | 658 | 892 | 6 |
| 255 | 230 | 7,5 | 12 | 22,3 | 0,29 | 2,3 | 2,4 | 3,5 | 1.060 | 662 | 998 | 6 |
| 410 | 350 | 4 | 8 | 15 | 0,12 | 5,6 | 5,7 | 8,5 | 121 | 644,6 | 765,4 | 3 |
| 400 | 345 | 6 | 12 | 22,3 | 0,17 | 3,9 | 4,0 | 5,9 | 285 | 653 | 827 | 5 |
| 270 | 245 | 7,5 | 12 | 22,3 | 0,28 | 2,3 | 2,4 | 3,6 | 658,5 | 658 | 892 | 6 |
| 140 | 134 | 7,5 | 12 | 22,3 | 0,36 | 1,8 | 1,9 | 2,8 | 1.380 | 662 | 998 | 6 |
| 350 | 310 | 7,5 | 12 | 22,3 | 0,21 | 3,1 | 3,2 | 4,8 | 595 | 698 | 952 | 6 |
| 230 | 215 | 7,5 | 12 | 22,3 | 0,29 | 2,3 | 2,3 | 3,5 | 1.266 | 702 | 1.058 | 6 |
| 166 | 157 | 12 | 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 2.305 | 718 | 1.172 | 10 |
| 380 | 320 | 4 | 8 | 15 | 0,11 | 5,9 | 6,1 | 9,0 | 125 | 684,6 | 805,4 | 3 |
| 375 | 320 | 6 | 12 | 22,3 | 0,17 | 3,9 | 4,0 | 6,0 | 315 | 693 | 877 | 5 |
| 245 | 220 | 7,5 | 12 | 22,3 | 0,28 | 2,3 | 2,4 | 3,5 | 790 | 698 | 952 | 6 |
| 130 | 125 | 7,5 | 12 | 22,3 | 0,36 | 1,8 | 1,9 | 2,8 | 1.540 | 702 | 1.058 | 6 |

*[1] The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



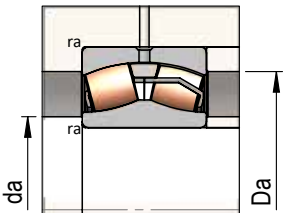

2..-CA-W33




2..-K-CA-W33
2..-K30-CA-W33

| BOUNDARY DIMENSIONS* d | D | B | CYLINDRICAL BORE DESIGNATION | TAPERED BORE DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu |
|---|---|---|---|---|---|---|---|
| 670 | 820 | 150 | 248/670-CA-W33-ENH | ---- | 3.550 | 9.500 | 633 |
| 710 | 1.030 | 236 | 230/710-CA-W33-ENH | 230/710-K-CA-W33-ENH | 8.600 | 16.600 | 1.056 |
| | 1.150 | 345 | 231/710-CA-W33-ENH | 231/710-K-CA-W33-ENH | 14.600 | 27.000 | 1.680 |
| | 1.280 | 450 | 232/710-CA-W33-ENH | 232/710-K-CA-W33-ENH | 21.000 | 35.000 | 2.136 |
| | 870 | 118 | 238/710-CA-W33-ENH | 238/710-K-CA-W33-ENH | 2.950 | 7.480 | 490 |
| | 950 | 180 | 239/710-CA-W33-ENH | 239/710-K-CA-W33-ENH | 5.560 | 12.000 | 775 |
| | 1.030 | 315 | 240/710-CA-W33-ENH | 240/710-K30-CA-W33-ENH | 11.000 | 22800 | 1.449 |
| | 1.150 | 438 | 241/710-CA-W33-ENH | 241/710-K30-CA-W33-ENH | 17.500 | 34.900 | 2.176 |
| | 950 | 243 | 249/710-CA-W33-ENH | 249/710-K30-CA-W33-ENH | 6.800 | 16.100 | 1.039 |
| 750 | 1.090 | 250 | 230/750-CA-W33-ENH | 230/750-K-CA-W33-ENH | 9.770 | 18.900 | 1.179 |
| | 1.220 | 365 | 231/750-CA-W33-ENH | 231/750-K-CA-W33-ENH | 16.400 | 30.200 | 1.845 |
| | 920 | 128 | 238/750-CA-W33-ENH | 238/750-K-CA-W33-ENH | 3.345 | 8.500 | 547 |
| | 1.000 | 185 | 239/750-CA-W33-ENH | 239/750-K-CA-W33-ENH | 6.080 | 13.100 | 831 |
| | 1.090 | 335 | 240/750-CA-W33-ENH | 240/750-K30-CA-W33-ENH | 12.000 | 25.200 | 1.575 |
| | 1.220 | 475 | 241/750-CA-W33-ENH | 241/750-K30-CA-W33-ENH | 20.300 | 40.200 | 2.458 |
| | 1.000 | 250 | 249/750-CA-W33-ENH | 249/750-K30-CA-W33-ENH | 7.600 | 18.300 | 1.163 |
| 800 | 1.150 | 258 | 230/800-CA-W33-ENH | 230/800-K-CA-W33-ENH | 10.300 | 20.500 | 1.258 |
| | 1.280 | 375 | 231/800-CA-W33-ENH | 231/800-K-CA-W33-ENH | 17.580 | 33.200 | 1.993 |
| | 1.060 | 195 | 239/800-CA-W33-ENH | 239/800-K-CA-W33-ENH | 6.490 | 14.500 | 904 |
| | 1.150 | 345 | 240/800-CA-W33-ENH | 240/800-K30-CA-W33-ENH | 13.100 | 28.400 | 1744 |
| | 1.280 | 475 | 241/800-CA-W33-ENH | 241/800-K30-CA-W33-ENH | 20.975 | 40.600 | 2.447 |
| | 980 | 180 | 248/800-CA-W33-ENH | 248/800-K30-CA-W33-ENH | 4.750 | 13.900 | 879 |
| | 1.060 | 258 | 249/800-CA-W33-ENH | 249/800-K30-CA-W33-ENH | 8.100 | 20.200 | 1.260 |
| 850 | 1.220 | 272 | 230/850-CA-W33-ENH | 230/850-K-CA-W33-ENH | 11.200 | 23.100 | 1.393 |
| | 1.030 | 136 | 238/850-CA-W33-ENH | 238/850-K-CA-W33-ENH | 3.800 | 10.400 | 646 |
| | 1.120 | 200 | 239/850-CA-W33-ENH | 239/850-K-CA-W33-ENH | 7.045 | 16.200 | 992 |
| | 1.220 | 365 | 240/850-CA-W33-ENH | 240/850-K30-CA-W33-ENH | 14.800 | 31.700 | 1.916 |
| | 1.360 | 500 | 241/850-CA-W33-ENH | 241/850-K30-CA-W33-ENH | 23.270 | 47.300 | 2.795 |
| | 1.120 | 272 | 249/850-CA-W33-ENH | 249/850-K30-CA-W33-ENH | 9.300 | 22.800 | 1.398 |
| 900 | 1280 | 280 | 230/900-CA-W33-ENH | 230/900-K-CA-W33-ENH | 12.000 | 25.700 | 1.525 |
| | 1.180 | 206 | 239/900-CA-W33-ENH | 239/900-K-CA-W33-ENH | 7.500 | 17.000 | 1.024 |
| | 1.280 | 375 | 240/900-CA-W33-ENH | 240/900-K30-CA-W33-ENH | 15.800 | 34.670 | 2.060 |

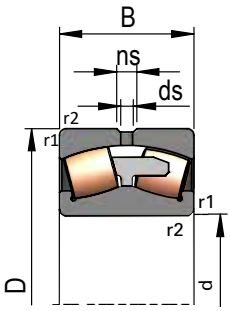
** Dimensions in mm.*
*** Mass in kg.*



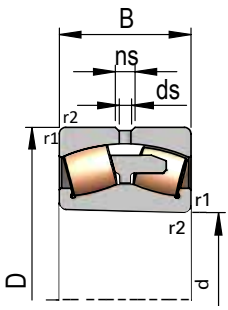

## MOUNTING DIMENSIONS

| THERMAL REFERENCES SPEED RATINGS [1] (rpm) | | $r_1, r_2$ (min) | SECONDARY DIMENSIONS | | CALCULATION FACTORS | | | | CYLINDRICAL BORE MASS** | MOUNTING DIMENSIONS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ng oil | ng grease | | ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | da (min) | Da (max) | ra |
| 385 | 330 | 4 | 8 | 15 | 0,16 | 4,3 | 4,3 | 6,5 | 175 | 684,6 | 805,4 | 3 |
| 330 | 290 | 7,5 | 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 677 | 738 | 1.002 | 6 |
| 205 | 190 | 9,5 | 12 | 22,3 | 0,28 | 2,4 | 2,4 | 3,6 | 1.465 | 750 | 1.110 | 8 |
| 150 | 144 | 12 | 12 | 22,3 | 0,34 | 1,9 | 2,0 | 3,0 | 2.610 | 758 | 1.232 | 10 |
| 355 | 300 | 4 | 8 | 15 | 0,11 | 5,9 | 6,1 | 9,0 | 155 | 724,6 | 855,4 | 3 |
| 345 | 300 | 6 | 12 | 22,3 | 0,17 | 3,9 | 4,0 | 6,0 | 365 | 733 | 927 | 5 |
| 225 | 205 | 7,5 | 12 | 22,3 | 0,27 | 2,4 | 2,5 | 3,7 | 895 | 738 | 1.002 | 6 |
| 118 | 114 | 9,5 | 12 | 22,3 | 0,36 | 1,8 | 1,9 | 2,8 | 1.810 | 750 | 1.110 | 8 |
| 160 | 150 | 6 | 12 | 22,3 | 0,22 | 3,0 | 3,1 | 4,6 | 490 | 733 | 927 | 5 |
| 300 | 265 | 7,5 | 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 801 | 778 | 1.062 | 6 |
| 190 | 175 | 9,5 | 12 | 22,3 | 0,28 | 2,4 | 2,4 | 3,6 | 1.720 | 790 | 1.180 | 8 |
| 330 | 280 | 5 | 8 | 15 | 0,11 | 5,8 | 5,9 | 8,8 | 188 | 768 | 902 | 4 |
| 320 | 280 | 6 | 12 | 22,3 | 0,16 | 4,1 | 4,2 | 6,2 | 420 | 773 | 977 | 5 |
| 209 | 190 | 7,5 | 12 | 22,3 | 0,28 | 2,4 | 2,5 | 3,6 | 1.065 | 778 | 1.062 | 6 |
| 107 | 103 | 9,5 | 12 | 22,3 | 0,36 | 1,8 | 1,9 | 2,8 | 2.199 | 790 | 1.180 | 8 |
| 145 | 135 | 6 | 12 | 22,3 | 0,22 | 3,0 | 3,1 | 4,6 | 563 | 773 | 977 | 5 |
| 280 | 245 | 7,5 | 12 | 22,3 | 0,20 | 3,3 | 3,3 | 5,0 | 900 | 828 | 1.122 | 6 |
| 175 | 160 | 9,5 | 12 | 22,3 | 0,27 | 2,4 | 2,5 | 3,7 | 1.944 | 840 | 1.240 | 8 |
| 300 | 260 | 6 | 12 | 22,3 | 0,16 | 4,1 | 4,2 | 6,3 | 490 | 823 | 1.037 | 5 |
| 189 | 172 | 7,5 | 12 | 22,3 | 0,27 | 2,5 | 2,5 | 3,8 | 1.200 | 828 | 1.122 | 6 |
| 103 | 99 | 9,5 | 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 2.384 | 840 | 1.240 | 8 |
| 300 | 260 | 5 | 12 | 22,3 | 0,15 | 4,4 | 4,5 | 6,7 | 293 | 818 | 962 | 4 |
| 133 | 125 | 6 | 12 | 22,3 | 0,21 | 3,1 | 3,2 | 4,8 | 637 | 823 | 1.037 | 5 |
| 255 | 225 | 7,5 | 12 | 22,3 | 0,20 | 3,3 | 3,3 | 5,0 | 1.070 | 878 | 1.192 | 6 |
| 280 | 240 | 5 | 8 | 15 | 0,11 | 6,0 | 6,2 | 9,2 | 242 | 868 | 1.012 | 4 |
| 275 | 235 | 6 | 12 | 22,3 | 0,16 | 4,2 | 4,3 | 6,4 | 570 | 873 | 1.097 | 5 |
| 173 | 160 | 7,5 | 12 | 22,3 | 0,27 | 2,5 | 2,5 | 3,8 | 1.405 | 878 | 1.192 | 6 |
| 90 | 87 | 12 | 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 2.855 | 898 | 1.312 | 10 |
| 122 | 115 | 6 | 12 | 22,3 | 0,22 | 3,1 | 3,1 | 4,7 | 740 | 873 | 1.097 | 5 |
| 235 | 210 | 7,5 | 12 | 22,3 | 0,20 | 3,3 | 3,4 | 5,1 | 1.225 | 928 | 1.252 | 6 |
| 255 | 225 | 6 | 12 | 22,3 | 0,15 | 4,4 | 4,5 | 6,8 | 605 | 923 | 1.157 | 5 |
| 160 | 147 | 7,5 | 12 | 22,3 | 0,25 | 2,6 | 2,7 | 4,0 | 1.580 | 928 | 1.252 | 6 |

*[1] The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



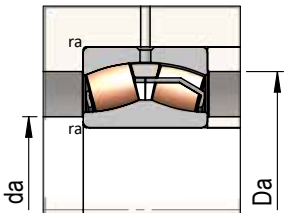

2..-CA-W33




2..-K-CA-W33
2..-K30-CA-W33

| BOUNDARY DIMENSIONS* d | D | B | CYLINDRICAL BORE DESIGNATION | TAPERED BORE DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu |
|---|---|---|---|---|---|---|---|
| 900 | 1.420 | 515 | 241/900-CA-W33-ENH | 241/900-K30-CA-W33-ENH | 24.800 | 50.000 | 2.918 |
| | 1.090 | 190 | 248/900-CA-W33-ENH | 248/900-K30-CA-W33-ENH | 5.400 | 15.600 | 953 |
| 950 | 1.360 | 300 | 230/950-CA-W33-ENH | 230/950-K-CA-W33-ENH | 14.000 | 29.000 | 1.691 |
| | 1.250 | 224 | 239/950-CA-W33-ENH | 239/950-K-CA-W33-ENH | 8.520 | 19.600 | 1.161 |
| | 1.360 | 412 | 240/950-CA-W33-ENH | 240/950-K30-CA-W33-ENH | 17.400 | 39.200 | 2.289 |
| | 1.500 | 545 | 241/950-CA-W33-ENH | 241/950-K30-CA-W33-ENH | 27.500 | 55.000 | 3.155 |
| | 1.250 | 300 | 249/950-CA-W33-ENH | 249/950-K30-CA-W33-ENH | 10.700 | 27.600 | 1.636 |
| 1.000 | 1.420 | 308 | 230/1000-CA-W33-ENH | 230/1000-K-CA-W33-ENH | 14.600 | 30.700 | 1.766 |
| | 1.580 | 462 | 231/1000-CA-W33-ENH | 231/1000-K-CA-W33-ENH | 25.400 | 50.800 | 2.865 |
| | 1.220 | 165 | 238/1000-CA-W33-ENH | 238/1000-K-CA-W33-ENH | 5.300 | 14.700 | 868 |
| | 1.420 | 412 | 240/1000-CA-W33-ENH | 240/1000-K30-CA-W33-ENH | 18.100 | 40.700 | 2.341 |
| | 1.580 | 580 | 241/1000-CA-W33-ENH | 241/1000-K30-CA-W33-ENH | 30.800 | 62.200 | 3.513 |
| | 1.320 | 315 | 249/1000-CA-W33-ENH | 249/1000-K30-CA-W33-ENH | 11.825 | 30.100 | 1.756 |
| 1.060 | 1.280 | 165 | 238/1060-CA-W33-ENH | 238/1060-K-CA-W33-ENH | 5.500 | 15.500 | 902 |
| | 1.400 | 250 | 239/1060-CA-W33-ENH | 239/1060-K-CA-W33-ENH | 11.200 | 26.000 | 1.489 |
| | 1.500 | 438 | 240/1060-CA-W33-ENH | 240/1060-K30-CA-W33-ENH | 20.200 | 45.900 | 2.598 |
| | 1.400 | 335 | 249/1060-CA-W33-ENH | 249/1060-K30-CA-W33-ENH | 13.300 | 34.700 | 1.990 |
| 1.120 | 1.580 | 462 | 240/1120-CA-W33-ENH | 240/1120-K30-CA-W33-ENH | 21.750 | 51.780 | 2.882 |
| | 1.460 | 335 | 249/1120-CA-W33-ENH | 249/1120-K30-CA-W33-ENH | 13.445 | 34.800 | 1.967 |
| 1.180 | 1.420 | 180 | 238/1180-CA-W33-ENH | 238/1180-K-CA-W33-ENH | 6.715 | 19.000 | 1.072 |
| | 1.540 | 272 | 239/1180-CA-W33-ENH | 239/1180-K-CA-W33-ENH | 12.800 | 30.800 | 1.713 |
| | 1.540 | 355 | 249/1180-CA-W33-ENH | 249/1180-K30-CA-W33-ENH | 15.500 | 40.900 | 2.276 |
| 1.250 | 1.750 | 375 | 230/1250-CA-W33-ENH | 230/1250-CA-W33-ENH | 21.000 | 45.700 | 2.465 |
| 1.320 | 1.720 | 400 | 249/1320-CA-W33-ENH | 249/1320-K30-CA-W33-ENH | 18.500 | 50.300 | 2.706 |
| 1.500 | 1.820 | 315 | 248/1500-CA-W33-ENH | 248/1500-K30-CA-W33-ENH | 14.500 | 44.800 | 2.349 |
| 1.800 | 2.180 | 375 | 248/1800-CA-W33-ENH | 248/1800-K30-CA-W33-ENH | 19.800 | 63.700 | 3.164 |

* *Dimensions in mm.*
** *Mass in kg.*




## MOUNTING DIMENSIONS

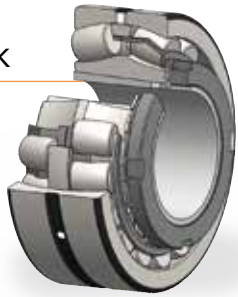
| THERMAL REFERENCES SPEED RATINGS [1] (rpm) | | $r_1, r_2$ (min) | SECONDARY DIMENSIONS | | CALCULATION FACTORS | | | | CYLINDRICAL BORE MASS** | MOUNTING DIMENSIONS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ng oil | ng grease | | ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | da (min) | Da (max) | ra |
| 86 | 83 | 12 | 12 | 22,3 | 0,34 | 1,9 | 2,0 | 2,9 | 3.350 | 948 | 1.372 | 10 |
| 190 | 160 | 5 | 8 | 15 | 0,14 | 4,6 | 4,7 | 7,0 | 379 | 918 | 1.072 | 4 |
| 220 | 195 | 7,5 | 12 | 22,3 | 0,20 | 3,3 | 3,4 | 5,1 | 1.470 | 978 | 1.332 | 6 |
| 240 | 210 | 7,5 | 12 | 22,3 | 0,15 | 4,3 | 4,4 | 6,6 | 755 | 978 | 1.222 | 6 |
| 149 | 138 | 7,5 | 12 | 22,3 | 0,26 | 2,5 | 2,6 | 3,8 | 1.991 | 978 | 1.332 | 6 |
| 80 | 77 | 12 | 12 | 22,3 | 0,34 | 1,9 | 2,0 | 3,0 | 3.707 | 998 | 1.452 | 10 |
| 104 | 98 | 7,5 | 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 1.016 | 978 | 1.222 | 6 |
| 205 | 185 | 7,5 | 12 | 22,3 | 0,20 | 3,3 | 3,4 | 5,1 | 1.600 | 1.028 | 1.392 | 6 |
| 125 | 115 | 12 | 12 | 22,3 | 0,27 | 2,5 | 2,5 | 3,7 | 3.535 | 1.048 | 1.532 | 10 |
| 230 | 195 | 6 | 9,5 | 17,7 | 0,12 | 5,7 | 5,8 | 8,7 | 413 | 1.023 | 1.197 | 5 |
| 140 | 130 | 7,5 | 12 | 22,3 | 0,26 | 2,6 | 2,6 | 3,9 | 2.130 | 1.028 | 1.392 | 6 |
| 72 | 70 | 12 | 12 | 22,3 | 0,34 | 1,9 | 2,0 | 3,0 | 4.300 | 1.048 | 1.532 | 10 |
| 95 | 90 | 7,5 | 12 | 22,3 | 0,21 | 3,2 | 3,3 | 4,9 | 1.199 | 1.028 | 1.292 | 6 |
| 210 | 185 | 6 | 9,5 | 17,7 | 0,11 | 6,2 | 6,3 | 9,4 | 435 | 1.083 | 1.257 | 5 |
| 200 | 175 | 7,5 | 12 | 22,3 | 0,16 | 4,2 | 4,3 | 6,4 | 1.090 | 1.088 | 1.372 | 6 |
| 129 | 120 | 9,5 | 12 | 22,3 | 0,25 | 2,6 | 2,7 | 4,0 | 2.502 | 1.094 | 1.466 | 8 |
| 86 | 83 | 7,5 | 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 1.425 | 1.088 | 1.372 | 6 |
| 118 | 110 | 9,5 | 12 | 22,3 | 0,26 | 2,6 | 2,6 | 3,9 | 2.925 | 1.154 | 1.546 | 8 |
| 84 | 80 | 7,5 | 12 | 22,3 | 0,20 | 3,3 | 3,4 | 5,0 | 1.490 | 1.148 | 1.432 | 6 |
| 187 | 160 | 6 | 9,5 | 17,7 | 0,10 | 6,3 | 6,4 | 9,6 | 576 | 1.203 | 1.397 | 5 |
| 177 | 156 | 7,5 | 12 | 22,3 | 0,16 | 4,3 | 4,3 | 6,5 | 1.395 | 1.208 | 1.512 | 6 |
| 75 | 71 | 7,5 | 12 | 22,3 | 0,20 | 3,3 | 3,4 | 5,0 | 1.776 | 1.208 | 1.512 | 6 |
| 155 | 140 | 9,5 | 12 | 22,3 | 0,19 | 3,5 | 3,5 | 5,3 | 2.850 | 1.284 | 1.716 | 8 |
| 64 | 61 | 7,5 | 12 | 22,3 | 0,20 | 3,3 | 3,4 | 5,0 | 2.500 | 1.348 | 1.692 | 6 |
| 90 | 80 | 7,5 | 12,5 | 23,5 | 0,15 | 4,5 | 4,6 | 6,9 | 1.720 | 1.528 | 1.792 | 6 |
| 70 | 64 | 9,5 | 12,5 | 23,5 | 0,15 | 4,5 | 4,6 | 6,9 | 2.956 | 1.834 | 2.146 | 8 |

*[1] The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*

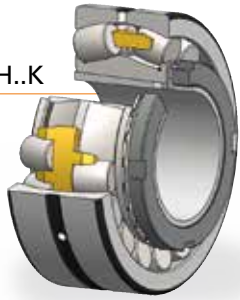
# List of references Spherical roller bearings and Adapter sleeves

2..-K-CC-W33-ENH+H..K

2..-K-E-W33-ENH+H..K



2..-K-MC-W33-ENH+H..K

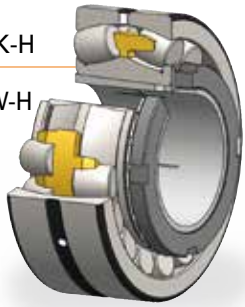


2..-K-E-W33-ENH+H..K-H

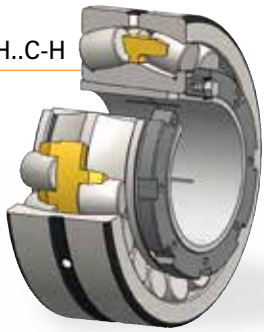
2..-K-MC-W33-ENH+H..K-H

2..-K-CA-W33-ENH+H..K-H

2..-K-CA-W33-ENH+H..W-H



2..-K-CA-W33-ENH+H..C-H



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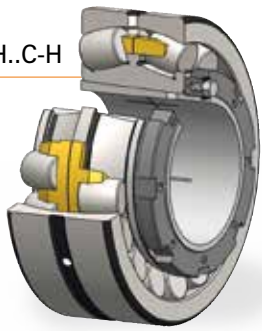
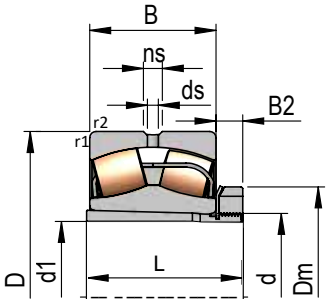
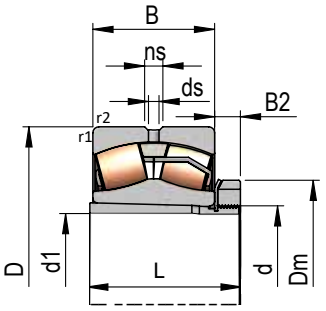





## 2..-K-CC-W33-ENH+H..K

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1$, $r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 25 | 62 | 17 | 21305-K-CC-ENH | 49,5 | 43,6 | 5,3 | 8.400 | 6.800 | 1,1 |
| | 52 | 18 | 22205-K-E-W33-ENH | 48 | 42 | 5,1 | 9.600 | 7.800 | 1 |
| 30 | 72 | 19 | 21306-K-CC-ENH | 66 | 61 | 7,4 | 7.300 | 6.000 | 1,1 |
| | 62 | 20 | 22206-K-E-W33-ENH | 63 | 56,3 | 6,9 | 8.200 | 6.650 | 1 |
| 35 | 80 | 21 | 21307-K-CC-ENH | 77 | 72 | 8,8 | 6.800 | 5.500 | 1,5 |
| | 72 | 23 | 22207-K-E-W33-ENH | 86,2 | 79 | 9,6 | 7.300 | 5.950 | 1,1 |
| 40 | 90 | 23 | 21308-K-E-W33-ENH | 106 | 105 | 12,8 | 6.000 | 4.900 | 1,5 |
| | 80 | 23 | 22208-K-E-W33-ENH | 98,2 | 88,5 | 10,8 | 6.400 | 5.200 | 1,1 |
| | 90 | 33 | 22308-K-E-W33-ENH | 153 | 145 | 17,7 | 5.850 | 4.850 | 1,5 |
| 45 | 100 | 25 | 21309-K-E-W33-ENH | 126 | 127 | 15,5 | 5.500 | 4.500 | 1,5 |
| | 85 | 23 | 22209-K-E-W33-ENH | 102 | 96 | 11,7 | 5.800 | 4.750 | 1,1 |
| | 100 | 36 | 22309-K-E-W33-ENH | 186 | 182 | 22,2 | 5.300 | 4.450 | 1,5 |
| 50 | 110 | 27 | 21310-K-E-W33-ENH | 132 | 133 | 16,2 | 5.300 | 4.300 | 2 |
| | 90 | 23 | 22210-K-E-W33-ENH | 107 | 104 | 12,7 | 5.350 | 4.350 | 1,1 |
| | 110 | 40 | 22310-K-E-W33-ENH | 225 | 220 | 26,8 | 4.800 | 4.100 | 2 |
| 55 | 120 | 29 | 21311-K-E-W33-ENH | 157 | 156 | 19 | 4.980 | 4.050 | 2 |
| | 100 | 25 | 22211-K-E-W33-ENH | 127 | 127 | 15,5 | 4.900 | 4.000 | 1,5 |
| | 120 | 43 | 22311-K-E-W33-ENH | 265 | 260 | 31,7 | 4.500 | 3.850 | 2 |
| 60 | 130 | 31 | 21312-K-E-W33-ENH | 210 | 225 | 27,3 | 4.400 | 3.650 | 2,1 |
| | 110 | 28 | 22212-K-E-W33-ENH | 157 | 151 | 18,4 | 4.700 | 3.800 | 1,5 |
| | 130 | 46 | 22312-K-E-W33-ENH | 310 | 306 | 37,3 | 4.200 | 3.600 | 2,1 |
| 65 | 140 | 33 | 21313-K-E-W33-ENH | 241 | 265 | 31,4 | 4.100 | 3.400 | 2,1 |
| | 120 | 31 | 22213-K-E-W33-ENH | 197 | 206 | 25,1 | 4.350 | 3.600 | 1,5 |
| | 140 | 48 | 22313-K-E-W33-ENH | 348 | 361 | 43,3 | 3.800 | 3.300 | 2,1 |
| 70 | 150 | 35 | 21314-K-E-W33-ENH | 279 | 310 | 36 | 3.950 | 3.250 | 2,1 |
| | 125 | 31 | 22214-K-E-W33-ENH | 208 | 222 | 27 | 4.100 | 3.350 | 1,5 |
| | 150 | 51 | 22314-K-E-W33-ENH | 390 | 390 | 46,1 | 3.700 | 3.200 | 2,1 |
| 75 | 160 | 37 | 21315-K-E-W33-ENH | 288 | 318 | 36,4 | 3.800 | 3.170 | 2,1 |
| | 130 | 31 | 22215-K-E-W33-ENH | 212 | 232 | 27,8 | 3.850 | 3.150 | 1,5 |
| | 160 | 55 | 22315-K-E-W33-ENH | 445 | 450 | 52 | 3.550 | 3.050 | 2,1 |
| 80 | 170 | 39 | 21316-K-E-W33-ENH | 313 | 350 | 39,5 | 3.650 | 3.030 | 2,1 |
| | 140 | 33 | 22216-K-E-W33-ENH | 243 | 263 | 30,9 | 3.700 | 3.000 | 2 |

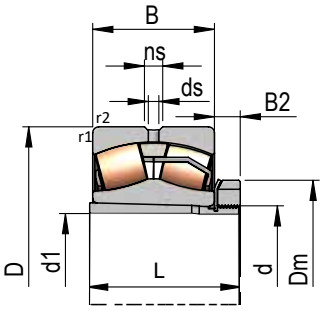
* *Dimensions in mm.*
** *Mass in kg.*




## 2..-K-E-W33-ENH+H..K

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | Thread | Dm | B2 | C1 | Mass** |
| - | - | 0,29 | 2,3 | 2,4 | 3,5 | 0,27 | H 305 K | 20 | 29 | M 25 x 1,5 | 38 | 8,25 | - | 0,074 |
| 3,2 | 4,8 | 0,33 | 2,0 | 2,1 | 3,1 | 0,19 | H 305 K | 20 | 29 | M 25 x 1,5 | 38 | 8,25 | - | 0,074 |
| - | - | 0,27 | 2,4 | 2,5 | 3,7 | 0,4 | H 306 K | 25 | 31 | M 30 x 1,5 | 45 | 8,25 | - | 0,103 |
| 3,2 | 4,8 | 0,30 | 2,2 | 2,3 | 3,4 | 0,27 | H 306 K | 25 | 31 | M 30 x 1,5 | 45 | 8,25 | - | 0,103 |
| - | - | 0,27 | 2,5 | 2,5 | 3,8 | 0,53 | H 307 K | 30 | 35 | M 35 x 1,5 | 52 | 9,25 | - | 0,144 |
| 3,2 | 4,8 | 0,31 | 2,2 | 2,2 | 3,3 | 0,43 | H 307 K | 30 | 35 | M 35 x 1,5 | 52 | 9,25 | - | 0,144 |
| 3,2 | 4,8 | 0,23 | 2,9 | 3,0 | 4,4 | 0,74 | H 308 K | 35 | 36 | M 40 x 1,5 | 58 | 10,25 | - | 0,195 |
| 3,2 | 4,8 | 0,27 | 2,4 | 2,5 | 3,7 | 0,52 | H 308 K | 35 | 36 | M 40 x 1,5 | 58 | 10,25 | - | 0,195 |
| 3,2 | 6,5 | 0,36 | 1,8 | 1,9 | 2,8 | 1,025 | H 2308 K | 35 | 46 | M 40 x 1,5 | 58 | 10,25 | - | 0,225 |
| 3,2 | 4,8 | 0,21 | 3,1 | 3,2 | 4,7 | 0,976 | H 309 K | 40 | 39 | M 45 x 1,5 | 65 | 11,25 | - | 0,250 |
| 3,2 | 4,8 | 0,25 | 2,7 | 2,7 | 4,1 | 0,56 | H 309 K | 40 | 39 | M 45 x 1,5 | 65 | 11,25 | - | 0,250 |
| 3,2 | 6,5 | 0,36 | 1,9 | 1,9 | 2,8 | 1,37 | H 2309 K | 40 | 50 | M 45 x 1,5 | 65 | 11,25 | - | 0,282 |
| 3,2 | 4,8 | 0,24 | 2,7 | 2,8 | 4,2 | 1,28 | H 310 K | 45 | 42 | M 50 x 1,5 | 70 | 12,25 | - | 0,3 |
| 3,2 | 4,8 | 0,23 | 2,9 | 3,0 | 4,4 | 0,6 | H 310 K | 45 | 42 | M 50 x 1,5 | 70 | 12,25 | - | 0,3 |
| 3,2 | 6,5 | 0,36 | 1,8 | 1,9 | 2,8 | 1,86 | H 2310 K | 45 | 55 | M 50 x 1,5 | 70 | 12,25 | - | 0,345 |
| 3,2 | 6,5 | 0,24 | 2,7 | 2,8 | 4,2 | 1,675 | H 311 K | 50 | 45 | M 55 x 2 | 75 | 12,5 | - | 0,35 |
| 3,2 | 4,8 | 0,21 | 3,1 | 3,2 | 4,7 | 0,827 | H 311 K | 50 | 45 | M 55 x 2 | 75 | 12,5 | - | 0,35 |
| 3,2 | 6,5 | 0,36 | 1,8 | 1,9 | 2,8 | 2,35 | H 2311 K | 50 | 59 | M 55 x 2 | 75 | 12,5 | - | 0,4 |
| 3,2 | 6,5 | 0,23 | 2,9 | 3,0 | 4,4 | 1,97 | H 312 K | 55 | 47 | M 60 x 2 | 80 | 12,5 | - | 0,41 |
| 3,2 | 6,5 | 0,23 | 2,9 | 3,0 | 4,4 | 1,11 | H 312 K | 55 | 47 | M 60 x 2 | 80 | 12,5 | - | 0,41 |
| 3,2 | 6,5 | 0,35 | 1,9 | 1,9 | 2,9 | 2,34 | H 2312 K | 55 | 62 | M 60 x 2 | 80 | 12,5 | - | 0,47 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,1 | 4,6 | 2,46 | H 313 K | 60 | 50 | M 65 x 2 | 85 | 13,5 | - | 0,48 |
| 3,2 | 6,5 | 0,24 | 2,8 | 2,8 | 4,2 | 1,51 | H 313 K | 60 | 50 | M 65 x 2 | 85 | 13,5 | - | 0,48 |
| 4,8 | 9,5 | 0,34 | 2,0 | 2,0 | 3,0 | 3,57 | H 2313 K | 60 | 65 | M 65 x 2 | 85 | 13,5 | - | 0,52 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,1 | 4,6 | 3,1 | H 314 K | 60 | 52 | M 70 x 2 | 92 | 13,5 | - | 0,75 |
| 3,2 | 6,5 | 0,23 | 2,9 | 3,0 | 4,4 | 1,59 | H 314 K | 60 | 52 | M 70 x 2 | 92 | 13,5 | - | 0,75 |
| 4,8 | 9,5 | 0,34 | 2,0 | 2,0 | 3,0 | 4,11 | H 2314 K | 60 | 68 | M 70 x 2 | 92 | 13,5 | - | 0,88 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,0 | 4,5 | 3,75 | H 315 K | 65 | 55 | M 75 x 2 | 98 | 14,5 | - | 0,8 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,1 | 4,6 | 1,66 | H 315 K | 65 | 55 | M 75 x 2 | 98 | 14,5 | - | 0,8 |
| 4,8 | 9,5 | 0,34 | 1,9 | 2,0 | 3,0 | 5,26 | H 2315 K | 65 | 73 | M 75 x 2 | 98 | 14,5 | - | 1,1 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,0 | 4,5 | 4,44 | H 316 K | 70 | 59 | M 80 x 2 | 105 | 16,75 | - | 1,06 |
| 3,2 | 6,5 | 0,22 | 3,1 | 3,1 | 4,7 | 2,06 | H 316 K | 70 | 59 | M 80 x 2 | 105 | 16,75 | - | 1,06 |

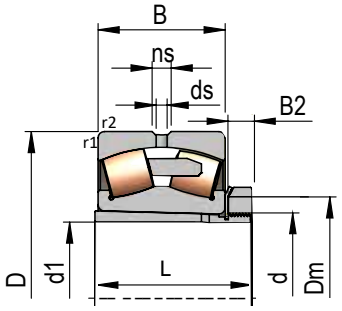
*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*




## 2..-K-E-W33-ENH+H..K

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1, r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| **80** | 170 | 58 | 22316-K-E-W33-ENH | 495 | 510 | 57,9 | 3.400 | 2.900 | 2,1 |
| **85** | 180 | 41 | 21317-K-E-W33-ENH | 335 | 370 | 41,2 | 3.500 | 2.930 | 3 |
| | 150 | 36 | 22217-K-E-W33-ENH | 296 | 316 | 36,5 | 3.550 | 2.900 | 2 |
| | 180 | 60 | 22317-K-E-W33-ENH | 535 | 555 | 61,8 | 3.200 | 2.750 | 3 |
| **90** | 190 | 43 | 21318-K-E-W33-ENH | 380 | 425 | 47 | 3.390 | 2.800 | 3 |
| | 160 | 40 | 22218-K-E-W33-ENH | 341 | 370 | 42 | 3.450 | 2.850 | 2 |
| | 190 | 64 | 22318-K-E-W33-ENH | 605 | 627 | 68,8 | 3.000 | 2.600 | 3 |
| | 160 | 52,4 | 23218-K-MC-W33-ENH | 432 | 505 | 57,4 | 2.700 | 2.290 | 2 |
| **95** | 200 | 45 | 21319-K-E-W33-ENH | 420 | 460 | 49,3 | 3.250 | 2.700 | 3 |
| | 170 | 43 | 22219-K-E-W33-ENH | 378 | 410 | 45,7 | 3.350 | 2.750 | 2,1 |
| | 200 | 67 | 22319-K-E-W33-ENH | 670 | 700 | 75,6 | 2.800 | 2.400 | 3 |
| **100** | 215 | 47 | 21320-K-E-W33-ENH | 480 | 500 | 52,8 | 3.100 | 2.550 | 3 |
| | 180 | 46 | 22220-K-E-W33-ENH | 430 | 475 | 52 | 3.250 | 2.650 | 2,1 |
| | 215 | 73 | 22320-K-E-W33-ENH | 806 | 930 | 98,2 | 2.400 | 2.150 | 3 |
| | 165 | 52 | 23120-K-MC-W33-ENH | 442 | 570 | 63,6 | 2.800 | 2.350 | 2 |
| | 180 | 60,3 | 23220-K-MC-W33-ENH | 535 | 634 | 69,6 | 2.400 | 2.120 | 2,1 |
| **110** | 200 | 53 | 22222-K-E-W33-ENH | 545 | 597 | 63,5 | 3.000 | 2.500 | 2,1 |
| | 240 | 80 | 22322-K-E-W33-ENH | 945 | 1.065 | 108,7 | 2.100 | 1.900 | 3 |
| | 170 | 45 | 23022-K-MC-W33-ENH | 396 | 524 | 57,5 | 3.000 | 2.500 | 2 |
| | 180 | 56 | 23122-K-MC-W33-ENH | 520 | 670 | 72,8 | 2.600 | 2.150 | 2 |
| | 200 | 69,8 | 23222-K-MC-W33-ENH | 695 | 855 | 91 | 2.150 | 1.850 | 2,1 |
| **120** | 215 | 58 | 22224-K-E-W33-ENH | 639 | 740 | 76,8 | 2.700 | 2.300 | 2,1 |
| | 260 | 86 | 22324-K-E-W33-ENH | 1.059 | 1.160 | 116 | 2.000 | 1.750 | 3 |
| | 180 | 46 | 23024-K-MC-W33-ENH | 423 | 579 | 62,3 | 2.800 | 2.300 | 2 |
| | 200 | 62 | 23124-K-MC-W33-ENH | 618 | 785 | 82,9 | 2.300 | 1.970 | 2 |
| | 215 | 76 | 23224-K-MC-W33-ENH | 805 | 1.016 | 105,8 | 1.940 | 1.680 | 2,1 |
| **130** | 230 | 64 | 22226-K-E-W33-ENH | 750 | 890 | 90,6 | 2.500 | 2.100 | 3 |
| | 280 | 93 | 22326-K-E-W33-ENH | 1.245 | 1.360 | 132,9 | 1.800 | 1.620 | 4 |
| | 200 | 52 | 23026-K-MC-W33-ENH | 535 | 728 | 76,1 | 2.600 | 2.150 | 2 |
| | 210 | 64 | 23126-K-MC-W33-ENH | 665 | 880 | 91,3 | 2.140 | 1.810 | 2 |
| | 230 | 80 | 23226-K-MC-W33-ENH | 890 | 1.090 | 111 | 1.800 | 1.560 | 3 |

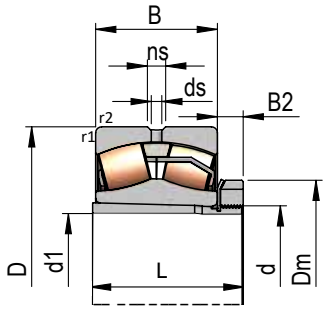
** Dimensions in mm.*
*** Mass in kg.*



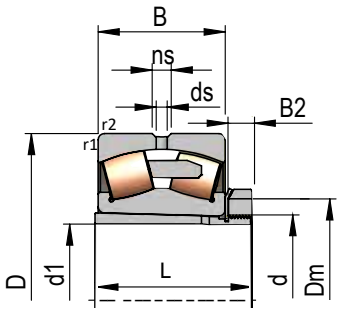

## 2..-K-MC-W33-ENH+H..K

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | Thread | Dm | B2 | C1 | Mass** |
| 4,8 | 9,5 | 0,34 | 1,9 | 2,0 | 3,0 | 6,26 | H 2316 K | 70 | 78 | M 80 x 2 | 105 | 16,75 | - | 1,22 |
| 4,8 | 9,5 | 0,23 | 2,9 | 3,0 | 4,4 | 5,23 | H 317 K | 75 | 63 | M 85 x 2 | 98 | 17,75 | - | 1,2 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,0 | 4,5 | 2,59 | H 317 K | 75 | 63 | M 85 x 2 | 98 | 17,75 | - | 1,2 |
| 4,8 | 9,5 | 0,33 | 2,0 | 2,0 | 3,0 | 6,94 | H 2317 K | 75 | 82 | M 85 x 2 | 98 | 17,75 | - | 1,4 |
| 4,8 | 9,5 | 0,24 | 2,8 | 2,9 | 4,3 | 6,16 | H 318 K | 80 | 65 | M 90 x 2 | 108 | 17,75 | - | 1,4 |
| 3,2 | 6,5 | 0,23 | 2,8 | 2,9 | 4,3 | 3,34 | H 318 K | 80 | 65 | M 90 x 2 | 108 | 17,75 | - | 1,4 |
| 6,3 | 12,2 | 0,33 | 2,0 | 2,0 | 3,0 | 8,55 | H 2318 K | 80 | 86 | M 90 x 2 | 108 | 17,75 | - | 1,61 |
| 3,2 | 6,5 | 0,30 | 2,2 | 2,2 | 3,3 | 4,37 | H 2318 K | 80 | 86 | M 90 x 2 | 108 | 17,75 | - | 1,61 |
| 4,8 | 9,5 | 0,22 | 3,0 | 3,0 | 4,5 | 6,9 | H 319 K | 85 | 68 | M 95 x 2 | 113 | 18,75 | - | 1,59 |
| 4,8 | 9,5 | 0,24 | 2,8 | 2,9 | 4,3 | 4,06 | H 319 K | 85 | 68 | M 95 x 2 | 113 | 18,75 | - | 1,59 |
| 6,3 | 12,2 | 0,33 | 2,0 | 2,0 | 3,0 | 9,94 | H 2319 K | 85 | 90 | M 95 x 2 | 113 | 18,75 | - | 1,85 |
| 4,8 | 9,5 | 0,22 | 3,0 | 3,1 | 4,6 | 8,59 | H 320 K | 90 | 71 | M 100 x 2 | 120 | 19,75 | - | 1,7 |
| 4,8 | 9,5 | 0,24 | 2,8 | 2,8 | 4,2 | 4,94 | H 320 K | 90 | 71 | M 100 x 2 | 120 | 19,75 | - | 1,7 |
| 6,3 | 12,2 | 0,33 | 2,0 | 2,0 | 3,0 | 13,07 | H 2320 K | 90 | 97 | M 100 x 2 | 120 | 19,75 | - | 2,1 |
| 3,2 | 6,5 | 0,28 | 2,3 | 2,4 | 3,5 | 4,3 | H 3120 K | 90 | 76 | M 100 x 2 | 120 | 19,75 | - | 1,9 |
| 4,8 | 9,5 | 0,31 | 2,1 | 2,2 | 3,2 | 6,4 | H 2320 K | 90 | 97 | M 100 x 2 | 120 | 19,75 | - | 2,1 |
| 4,8 | 9,5 | 0,25 | 2,7 | 2,7 | 4,0 | 7,06 | H 322 K | 100 | 77 | M 110 x 2 | 145 | 20,75 | - | 2,2 |
| 8 | 15 | 0,33 | 2,0 | 2,1 | 3,1 | 17,4 | H 2322 K | 100 | 105 | M 110 x 2 | 145 | 20,75 | - | 2,74 |
| 3,2 | 6,5 | 0,23 | 2,8 | 2,9 | 4,3 | 3,8 | H 322 K | 100 | 77 | M 110 x 2 | 145 | 20,75 | - | 2,2 |
| 4,8 | 9,5 | 0,28 | 2,4 | 2,4 | 3,6 | 5,44 | H 3122 K | 100 | 81 | M 110 x 2 | 145 | 20,75 | - | 2,29 |
| 4,8 | 9,5 | 0,33 | 2,0 | 2,1 | 3,1 | 9,37 | H 2322 K | 100 | 105 | M 110 x 2 | 145 | 20,75 | - | 2,74 |
| 6,3 | 12,2 | 0,25 | 2,7 | 2,7 | 4,0 | 8,85 | H 3124 K | 110 | 88 | M 120 x 2 | 155 | 22 | - | 2,7 |
| 8 | 15 | 0,33 | 2,0 | 2,1 | 3,1 | 22,1 | H 2324 K | 110 | 112 | M 120 x 2 | 155 | 22 | - | 3,1 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,0 | 4,5 | 4,07 | H 3024 K | 110 | 72 | M 120 x 2 | 145 | 22 | - | 1,9 |
| 4,8 | 9,5 | 0,28 | 2,3 | 2,4 | 3,6 | 7,26 | H 3124 K | 110 | 88 | M 120 x 2 | 155 | 22 | - | 2,7 |
| 4,8 | 9,5 | 0,33 | 2,0 | 2,0 | 3,0 | 11,65 | H 2324 K | 110 | 112 | M 120 x 2 | 155 | 22 | - | 3,1 |
| 6,3 | 12,2 | 0,26 | 2,6 | 2,6 | 3,9 | 11 | H 3126 K | 115 | 92 | M 130 x 2 | 165 | 23 | - | 3,8 |
| 9,5 | 17,7 | 0,33 | 2,0 | 2,1 | 3,1 | 27,4 | H 2326 K | 115 | 121 | M 130 x 2 | 165 | 23 | - | 4,4 |
| 4,8 | 9,5 | 0,23 | 2,9 | 3,0 | 4,4 | 5,8 | H 3026 K | 115 | 80 | M 130 x 2 | 155 | 23 | - | 2,8 |
| 4,8 | 9,5 | 0,28 | 2,4 | 2,5 | 3,6 | 8,22 | H 3126 K | 115 | 92 | M 130 x 2 | 165 | 23 | - | 3,8 |
| 4,8 | 9,5 | 0,32 | 2,1 | 2,1 | 3,2 | 13,7 | H 2326 K | 115 | 121 | M 130 x 2 | 165 | 23 | - | 4,4 |

*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



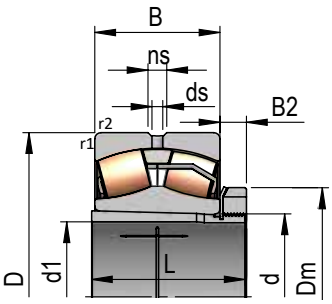

2..-K-E-W33-ENH+H..K



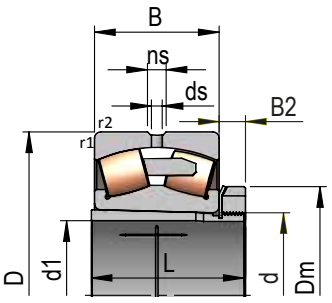

2..-K-MC-W33-ENH+H..K

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1$, $r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 140 | 250 | 68 | 22228-K-E-W33-ENH | 852 | 1.035 | 102,6 | 2.300 | 1.900 | 3 |
| | 300 | 102 | 22328-K-E-W33-ENH | 1.450 | 1.620 | 155,1 | 1.680 | 1.470 | 4 |
| | 210 | 53 | 23028-K-MC-W33-ENH | 565 | 785 | 80,6 | 2.400 | 2.000 | 2 |
| | 225 | 68 | 23128-K-MC-W33-ENH | 750 | 1.000 | 101,4 | 1.950 | 1.660 | 2,1 |
| | 250 | 88 | 23228-K-MC-W33-ENH | 1.065 | 1.390 | 138,3 | 1.570 | 1.370 | 3 |
| 150 | 270 | 73 | 22230-K-E-W33-ENH | 980 | 1.180 | 114,5 | 2.100 | 1.750 | 3 |
| | 320 | 108 | 22330-K-E-W33-ENH | 1.625 | 1.840 | 172,8 | 1.550 | 1.350 | 4 |
| | 225 | 56 | 23030-K-MC-W33-ENH | 623 | 870 | 87,5 | 2.250 | 1.850 | 2,1 |
| | 250 | 80 | 23130-K-MC-W33-ENH | 975 | 1.300 | 128,3 | 1.750 | 1.500 | 2,1 |
| | 270 | 96 | 23230-K-MC-W33-ENH | 1.260 | 1.640 | 159,4 | 1.420 | 1.250 | 3 |
| 160 | 290 | 80 | 22232-K-MC-W33-ENH | 1.130 | 1.390 | 132,1 | 1.900 | 1.600 | 3 |
| | 340 | 114 | 22332-K-CA-W33-ENH | 1.660 | 1.950 | 180,1 | 1.450 | 1.280 | 4 |
| | 240 | 60 | 23032-K-MC-W33-ENH | 710 | 1.005 | 99,2 | 2.050 | 1.720 | 2,1 |
| | 270 | 86 | 23132-K-MC-W33-ENH | 1.125 | 1.515 | 146,3 | 1.600 | 1.370 | 2,1 |
| | 290 | 104 | 23232-K-MC-W33-ENH | 1.430 | 1.903 | 181,2 | 1.300 | 1.140 | 3 |
| 170 | 310 | 86 | 22234-K-E-W33-ENH | 1.300 | 1.560 | 145,6 | 1.800 | 1.500 | 4 |
| | 360 | 120 | 22334-K-CA-W33-ENH | 1.865 | 2.250 | 204,1 | 1.330 | 1.170 | 4 |
| | 260 | 67 | 23034-K-MC-W33-ENH | 865 | 1.220 | 117,8 | 1.900 | 1.600 | 2,1 |
| | 280 | 88 | 23134-K-MC-W33-ENH | 1.195 | 1.685 | 160,5 | 1.480 | 1.270 | 2,1 |
| | 310 | 110 | 23234-K-MC-W33-ENH | 1.600 | 2.100 | 196 | 1.200 | 1.060 | 4 |
| 180 | 320 | 86 | 22236-K-MC-W33-ENH | 1.330 | 1.660 | 153 | 1.700 | 1.400 | 4 |
| | 380 | 126 | 22336-K-CA-W33-ENH | 2.050 | 2.450 | 218,7 | 1.250 | 1.100 | 4 |
| | 280 | 74 | 23036-K-MC-W33-ENH | 1.020 | 1.440 | 136,3 | 1.780 | 1.480 | 2,1 |
| | 300 | 96 | 23136-K-MC-W33-ENH | 1.390 | 1.935 | 180,9 | 1.370 | 1.180 | 3 |
| | 320 | 112 | 23236-K-MC-W33-ENH | 1.675 | 2.265 | 208,8 | 1.120 | 990 | 4 |
| | 250 | 52 | 23936-K-CA-W33-ENH | 500 | 825 | 79,8 | 1.880 | 1.540 | 2 |
| 190 | 340 | 92 | 22238-K-CA-W33-ENH | 1.336 | 1.720 | 156 | 1.630 | 1.380 | 4 |
| | 400 | 132 | 22338-K-CA-W33-ENH | 2.175 | 2600 | 228,4 | 1.190 | 1.040 | 5 |
| | 290 | 75 | 23038-K-MC-W33-ENH | 1.055 | 1.520 | 142 | 1.690 | 1.410 | 2,1 |
| | 320 | 104 | 23138-K-MC-W33-ENH | 1.575 | 2.210 | 202,6 | 1.270 | 1.100 | 3 |
| | 340 | 120 | 23238-K-CA-W33-ENH | 1.725 | 2.400 | 217,7 | 1.080 | 950 | 4 |
| | 260 | 52 | 23938-K-CA-W33-ENH | 520 | 870 | 83 | 1.760 | 1.440 | 2 |

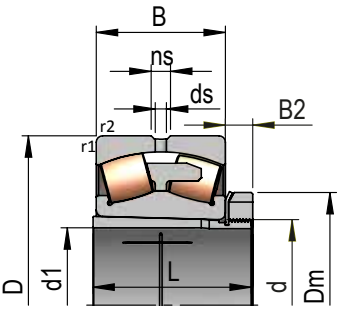
** Dimensions in mm.*
*** Mass in kg.*




2..-K-E-W33-ENH+H..K-H



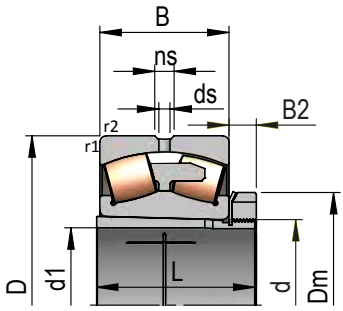

2..-K-MC-W33-ENH+H..K-H




2..-K-CA-W33-ENH+H..K-H

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | Thread | Dm | B2 | C1 | Mass** |
| 6,3 | 12,2 | 0,25 | 2,6 | 2,7 | 4,0 | 14 | H 3128 K | 125 | 97 | M 140 x 2 | 180 | 24 | - | 4,45 |
| 9,5 | 17,7 | 0,34 | 2,0 | 2,0 | 3,0 | 34,4 | H 2328 K | 125 | 131 | M 140 x 2 | 180 | 24 | - | 5,47 |
| 4,8 | 9,5 | 0,22 | 3,0 | 3,1 | 4,6 | 6,25 | H 3028 K | 125 | 82 | M 140 x 2 | 165 | 24 | - | 3,1 |
| 4,8 | 9,5 | 0,27 | 2,4 | 2,5 | 3,7 | 10 | H 3128 K | 125 | 97 | M 140 x 2 | 180 | 24 | - | 4,45 |
| 6,3 | 12,2 | 0,33 | 2,0 | 2,0 | 3,0 | 18,1 | H 2328 K | 125 | 131 | M 140 x 2 | 180 | 24 | - | 5,47 |
| 8 | 15 | 0,25 | 2,6 | 2,7 | 4,0 | 17,65 | H 3130 K | 135 | 111 | M 150 x 2 | 195 | 26 | - | 5,7 |
| 9,5 | 17,7 | 0,33 | 2,0 | 2,0 | 3,0 | 41,5 | H 2330 K | 135 | 139 | M 150 x 2 | 195 | 26 | - | 6,5 |
| 4,8 | 9,5 | 0,22 | 3,0 | 3,1 | 4,6 | 7,6 | H 3030 K | 135 | 87 | M 150 x 2 | 180 | 26 | - | 3,8 |
| 6,3 | 12,2 | 0,29 | 2,3 | 2,3 | 3,5 | 15,4 | H 3130 K | 135 | 111 | M 150 x 2 | 195 | 26 | - | 5,7 |
| 6,3 | 12,2 | 0,32 | 2,0 | 2,1 | 3,1 | 23,3 | H 2330 K | 135 | 139 | M 150 x 2 | 195 | 26 | - | 6,5 |
| 8 | 15 | 0,26 | 2,6 | 2,6 | 3,9 | 22,6 | H 3132 K-H | 140 | 119 | M 160 x 3 | 210 | 27,5 | - | 7,8 |
| 9 | 16,7 | 0,34 | 1,9 | 2,0 | 2,9 | 48,9 | H 2332 K-H | 140 | 147 | M 160 x 3 | 210 | 27,5 | - | 8,8 |
| 6,3 | 12,2 | 0,22 | 3,0 | 3,1 | 4,6 | 9,2 | H 3032 K-H | 140 | 93 | M 160 x 3 | 190 | 27,5 | - | 5,1 |
| 8 | 15 | 0,29 | 2,3 | 2,3 | 3,5 | 19,4 | H 3132 K-H | 140 | 119 | M 160 x 3 | 210 | 27,5 | - | 7,8 |
| 8 | 15 | 0,34 | 2,0 | 2,0 | 3,0 | 29,4 | H 2332 K-H | 140 | 147 | M 160 x 3 | 210 | 27,5 | - | 8,8 |
| 9,5 | 17,7 | 0,26 | 2,5 | 2,6 | 3,9 | 27,15 | H 3134 K-H | 150 | 122 | M 170 x 3 | 220 | 28,5 | - | 8,5 |
| 9 | 16,7 | 0,34 | 1,9 | 2,0 | 3,0 | 58,2 | H 2334 K-H | 150 | 154 | M 170 x 3 | 220 | 28,5 | - | 9,8 |
| 6,3 | 12,2 | 0,23 | 2,9 | 3,0 | 4,4 | 12,5 | H 3034 K-H | 150 | 101 | M 170 x 3 | 200 | 28,5 | - | 5,8 |
| 8 | 15 | 0,28 | 2,3 | 2,4 | 3,5 | 21,4 | H 3134 K-H | 150 | 122 | M 170 x 3 | 220 | 28,5 | - | 8,5 |
| 8 | 15 | 0,33 | 2,0 | 2,1 | 3,1 | 35,3 | H 2334 K-H | 150 | 154 | M 170 x 3 | 220 | 28,5 | - | 9,8 |
| 9,5 | 17,7 | 0,25 | 2,7 | 2,7 | 4,0 | 28,5 | H 3136 K-H | 160 | 131 | M 180 x 3 | 230 | 29,5 | - | 9,7 |
| 12 | 22,3 | 0,33 | 2,0 | 2,0 | 3,0 | 68,3 | H 2336 K-H | 160 | 161 | M 180 x 3 | 230 | 29,5 | - | 10,8 |
| 8 | 15 | 0,23 | 2,8 | 2,9 | 4,3 | 16,4 | H 3036 K-H | 160 | 109 | M 180 x 3 | 210 | 29,5 | - | 6,7 |
| 8 | 15 | 0,29 | 2,3 | 2,3 | 3,5 | 25,2 | H 3136 K-H | 160 | 131 | M 180 x 3 | 230 | 29,5 | - | 9,7 |
| 8 | 15 | 0,32 | 2,1 | 2,1 | 3,1 | 37,6 | H 2336 K-H | 160 | 161 | M 180 x 3 | 230 | 29,5 | - | 10,8 |
| 3 | 6 | 0,18 | 3,7 | 3,8 | 5,6 | 7,75 | H 3936 K-H | 160 | 87 | M 180 x 3 | 210 | 29,5 | - | 5,7 |
| 9 | 16,7 | 0,26 | 2,5 | 2,6 | 3,9 | 35,7 | H 3138 K-H | 170 | 141 | M 190 x 3 | 240 | 30,5 | - | 10,7 |
| 12 | 22,3 | 0,34 | 1,9 | 2,0 | 3,0 | 79,1 | H 2338 K-H | 170 | 169 | M 190 x 3 | 240 | 30,5 | - | 12,1 |
| 8 | 15 | 0,22 | 2,9 | 3,0 | 4,5 | 17,2 | H 3038 K-H | 170 | 112 | M 190 x 3 | 220 | 30,5 | - | 7,2 |
| 8 | 15 | 0,30 | 2,2 | 2,3 | 3,4 | 33,3 | H 3138 K-H | 170 | 141 | M 190 x 3 | 240 | 30,5 | - | 10,7 |
| 9 | 16,7 | 0,35 | 1,9 | 2,0 | 2,9 | 46,1 | H 2338 K-H | 170 | 169 | M 190 x 3 | 240 | 30,5 | - | 12,1 |
| 3 | 6 | 0,18 | 3,7 | 3,8 | 5,7 | 8,1 | H 3938 K-H | 170 | 89 | M 190 x 3 | 220 | 30,5 | - | 6,5 |

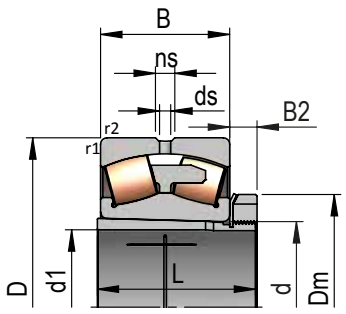
*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



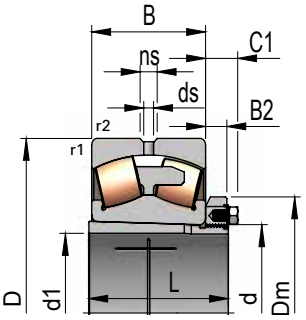

## 2..-K-CA-W33-ENH+H..K-H

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1, r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 200 | 360 | 98 | 22240-K-CA-W33-ENH | 1.520 | 1.990 | 178,1 | 1.510 | 1.280 | 4 |
| | 420 | 138 | 22340-K-CA-W33-ENH | 2.420 | 2.900 | 250,9 | 1.100 | 970 | 5 |
| | 310 | 82 | 23040-K-MC-W33-ENH | 1.235 | 1.790 | 164,3 | 1.570 | 1.320 | 2,1 |
| | 340 | 112 | 23140-K-CA-W33-ENH | 1.625 | 2.360 | 213,1 | 1.220 | 1.050 | 3 |
| | 360 | 128 | 23240-K-CA-W33-ENH | 1.910 | 2.670 | 238,4 | 1.010 | 890 | 4 |
| | 280 | 60 | 23940-K-CA-W33-ENH | 640 | 1.070 | 100 | 1.660 | 1.370 | 2,1 |
| 220 | 400 | 108 | 22244-K-CA-W33-ENH | 1.830 | 2.360 | 204,2 | 1.350 | 1.140 | 4 |
| | 460 | 145 | 22344-K-CA-W33-ENH | 2.800 | 3.450 | 289,5 | 950 | 840 | 5 |
| | 340 | 90 | 23044-K-CA-W33-ENH | 1.245 | 1.900 | 169,6 | 1.460 | 1.220 | 3 |
| | 370 | 120 | 23144-K-CA-W33-ENH | 1.850 | 2.750 | 241,6 | 1.080 | 940 | 4 |
| | 400 | 144 | 23244-K-CA-W33-ENH | 2.430 | 3.500 | 302,8 | 850 | 760 | 4 |
| | 300 | 60 | 23944-K-CA-W33-ENH | 655 | 1.170 | 107,1 | 1.490 | 1.225 | 2,1 |
| 240 | 440 | 120 | 22248-K-CA-W33-ENH | 2.230 | 3.000 | 252,6 | 1.180 | 1.010 | 4 |
| | 500 | 155 | 22348-K-CA-W33-ENH | 3.180 | 4.000 | 327,4 | 850 | 750 | 5 |
| | 360 | 92 | 23048-K-CA-W33-ENH | 1.315 | 2.140 | 187,2 | 1.320 | 1.100 | 3 |
| | 400 | 128 | 23148-K-CA-W33-ENH | 2.180 | 3.200 | 274,4 | 970 | 840 | 4 |
| | 440 | 160 | 23248-K-CA-W33-ENH | 2.980 | 4.300 | 361,8 | 740 | 670 | 4 |
| | 320 | 60 | 23948-K-CA-W33-ENH | 680 | 1.280 | 114,5 | 1.330 | 1.100 | 2,1 |
| 260 | 480 | 130 | 22252-K-CA-W33-ENH | 2.650 | 3.500 | 286,7 | 1.070 | 910 | 5 |
| | 540 | 165 | 22352-K-CA-W33-ENH | 3.640 | 4.600 | 368,7 | 760 | 680 | 6 |
| | 400 | 104 | 23052-K-CA-W33-ENH | 1.675 | 2.700 | 229,2 | 1.170 | 990 | 4 |
| | 440 | 144 | 23152-K-CA-W33-ENH | 2.597 | 3.980 | 332 | 860 | 750 | 4 |
| | 480 | 174 | 23252-K-CA-W33-ENH | 3.330 | 4.750 | 390,3 | 685 | 615 | 5 |
| | 360 | 75 | 23952-K-CA-W33-ENH | 1.040 | 1.880 | 162,8 | 1.200 | 1.000 | 2,1 |
| 280 | 500 | 130 | 22256-K-CA-W33-ENH | 2.770 | 3.750 | 302,8 | 980 | 840 | 5 |
| | 580 | 175 | 22356-K-CA-W33-ENH | 4.150 | 5.260 | 412,7 | 690 | 610 | 6 |
| | 420 | 106 | 23056-K-CA-W33-ENH | 1.770 | 2.900 | 242,3 | 1.090 | 910 | 4 |
| | 460 | 146 | 23156-K-CA-W33-ENH | 2.720 | 4.200 | 344,9 | 800 | 700 | 5 |
| | 500 | 176 | 23256-K-CA-W33-ENH | 3.475 | 5.165 | 417,2 | 630 | 570 | 5 |
| | 380 | 75 | 23956-K-CA-W33-ENH | 1.030 | 1.925 | 163,5 | 1.110 | 925 | 2,1 |
| 300 | 540 | 140 | 22260-K-CA-W33-ENH | 3.115 | 4.250 | 335,1 | 900 | 770 | 5 |
| | 460 | 118 | 23060-K-CA-W33-ENH | 2.200 | 3.450 | 280,7 | 990 | 840 | 4 |

* *Dimensions in mm.*
** *Mass in kg.*



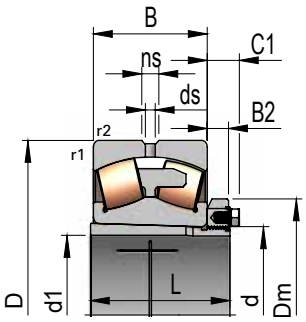

2..-K-CA-W33-ENH+H..W-H




2..-K-CA-W33-ENH+H..C-H

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | Thread | Dm | B2 | C1 | Mass** |
| 9 | 16,7 | 0,27 | 2,4 | 2,5 | 3,7 | 43,4 | H 3140 K-H | 180 | 150 | M 200 x 3 | 250 | 31,5 | - | 12,2 |
| 12 | 22,3 | 0,34 | 2,0 | 2,0 | 3,0 | 92,2 | H 2340 K-H | 180 | 176 | M 200 x 3 | 250 | 31,5 | - | 13,5 |
| 8 | 15 | 0,23 | 2,8 | 2,9 | 4,3 | 22,2 | H 3040 K-H | 180 | 120 | M 200 x 3 | 240 | 31,5 | - | 8,8 |
| 9 | 16,7 | 0,31 | 2,1 | 2,2 | 3,2 | 41,7 | H 3140 K-H | 180 | 150 | M 200 x 3 | 250 | 31,5 | - | 12,2 |
| 9 | 16,7 | 0,35 | 1,9 | 2,0 | 2,9 | 55,8 | H 2340 K-H | 180 | 176 | M 200 x 3 | 250 | 31,5 | - | 13,5 |
| 4,5 | 8,3 | 0,19 | 3,5 | 3,6 | 5,4 | 11,4 | H 3940 K-H | 180 | 98 | M 200 x 3 | 240 | 31,5 | - | 8,1 |
| 9 | 16,7 | 0,27 | 2,5 | 2,5 | 3,7 | 59 | H 3144 W-H | 200 | 161 | Tr 220 x 4 | 280 | 35 | - | 15 |
| 12 | 22,3 | 0,31 | 2,2 | 2,2 | 3,3 | 113,6 | H 2344 W-H | 200 | 186 | Tr 220 x 4 | 280 | 35 | - | 17 |
| 7,5 | 13,9 | 0,24 | 2,7 | 2,8 | 4,1 | 29,5 | H 3044 C-H | 200 | 126 | Tr 220 x 4 | 260 | 30 | 41 | 9,9 |
| 9,5 | 17,7 | 0,31 | 2,2 | 2,2 | 3,3 | 52,2 | H 3144 W-H | 200 | 161 | Tr 220 x 4 | 280 | 35 | - | 15 |
| 9 | 16,7 | 0,35 | 1,9 | 1,9 | 2,9 | 79,8 | H 2344 W-H | 200 | 186 | Tr 220 x 4 | 280 | 35 | - | 17 |
| 4,5 | 8,3 | 0,18 | 3,8 | 3,9 | 5,7 | 12,5 | H 3944 C-H | 200 | 96 | Tr 220 x 4 | 260 | 30 | 41 | 8,5 |
| 12 | 22,3 | 0,26 | 2,5 | 2,6 | 3,8 | 80 | H 3148 W-H | 220 | 172 | Tr 240 x 4 | 300 | 37 | - | 16,7 |
| 12 | 22,3 | 0,31 | 2,2 | 2,2 | 3,3 | 142 | H 2348 W-H | 220 | 199 | Tr 240 x 4 | 300 | 37 | - | 19,4 |
| 7,5 | 13,9 | 0,23 | 2,9 | 3,0 | 4,4 | 31,9 | H 3048 C-H | 220 | 133 | Tr 240 x 4 | 290 | 34 | 46 | 12,4 |
| 9 | 16,7 | 0,31 | 2,2 | 2,2 | 3,3 | 64,4 | H 3148 W-H | 220 | 172 | Tr 240 x 4 | 300 | 37 | - | 16,7 |
| 12 | 22,3 | 0,36 | 1,9 | 1,9 | 2,8 | 106,7 | H 2348 W-H | 220 | 199 | Tr 240 x 4 | 300 | 37 | - | 19,4 |
| 4,5 | 8,3 | 0,16 | 4,0 | 4,1 | 6,1 | 13,2 | H 3948 C-H | 220 | 101 | Tr 240 x 4 | 290 | 34 | 46 | 11 |
| 12 | 22,3 | 0,27 | 2,5 | 2,5 | 3,8 | 105,7 | H 3152 W-H | 240 | 190 | Tr 260 x 4 | 330 | 39 | - | 21,1 |
| 12 | 22,3 | 0,31 | 2,1 | 2,2 | 3,2 | 179 | H 2352 W-H | 240 | 211 | Tr 260 x 4 | 330 | 39 | - | 23,6 |
| 9 | 16,7 | 0,24 | 2,8 | 2,8 | 4,2 | 47,3 | H 3052 C-H | 240 | 145 | Tr 260 x 4 | 310 | 34 | 46 | 14,5 |
| 9 | 16,7 | 0,31 | 2,1 | 2,2 | 3,2 | 89,2 | H 3152 W-H | 240 | 190 | Tr 260 x 4 | 330 | 39 | - | 21,1 |
| 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 138 | H 2352 W-H | 240 | 211 | Tr 260 x 4 | 330 | 39 | - | 23,6 |
| 4,5 | 8,3 | 0,18 | 3,7 | 3,8 | 5,6 | 22,7 | H 3952 C-H | 240 | 116 | Tr 260 x 4 | 310 | 34 | 46 | 13,5 |
| 12 | 22,3 | 0,26 | 2,6 | 2,6 | 3,9 | 109 | H 3156 W-H | 260 | 195 | Tr 280 x 4 | 350 | 41 | - | 23 |
| 12 | 22,3 | 0,31 | 2,1 | 2,2 | 3,2 | 223,5 | H 2356 W-H | 260 | 224 | Tr 280 x 4 | 350 | 41 | - | 27 |
| 9 | 16,7 | 0,23 | 2,9 | 2,9 | 4,4 | 50,7 | H 3056 C-H | 260 | 152 | Tr 280 x 4 | 330 | 38 | 50 | 16,1 |
| 9 | 16,7 | 0,30 | 2,2 | 2,3 | 3,4 | 94,9 | H 3156 W-H | 260 | 195 | Tr 280 x 4 | 350 | 41 | - | 23 |
| 12 | 22,3 | 0,34 | 1,9 | 2,0 | 2,9 | 147 | H 2356 W-H | 260 | 224 | Tr 280 x 4 | 350 | 41 | - | 27 |
| 6 | 11,1 | 0,17 | 3,9 | 4,0 | 5,9 | 24,4 | H 3956 C-H | 260 | 121 | Tr 280 x 4 | 330 | 38 | 50 | 15,5 |
| 12 | 22,3 | 0,25 | 2,6 | 2,7 | 4,0 | 137 | H 3160 C-H | 280 | 208 | Tr 300 x 4 | 380 | 40 | 53 | 29 |
| 9 | 16,7 | 0,23 | 2,8 | 2,9 | 4,3 | 70,9 | H 3060 C-H | 280 | 168 | Tr 300 x 4 | 360 | 42 | 54 | 21 |

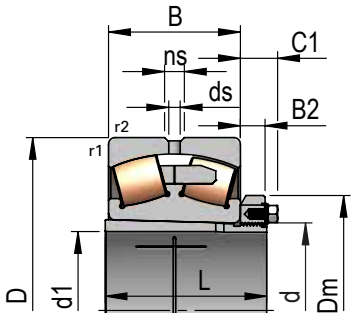
*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*




## 2..-K-CA-W33-ENH+H..C-H

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1$, $r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 300 | 500 | 160 | 23160-K-CA-W33-ENH | 3.295 | 5.100 | 409,2 | 710 | 630 | 5 |
| | 540 | 192 | 23260-K-CA-W33-ENH | 4.050 | 6.100 | 481,7 | 560 | 510 | 5 |
| | 420 | 90 | 23960-K-CA-W33-ENH | 1.390 | 2.500 | 206,9 | 1.020 | 850 | 3 |
| 320 | 580 | 150 | 22264-K-CA-W33-ENH | 3.600 | 4.900 | 378,2 | 820 | 710 | 5 |
| | 480 | 121 | 23064-K-CA-W33-ENH | 2.310 | 3.800 | 305 | 920 | 780 | 4 |
| | 540 | 176 | 23164-K-CA-W33-ENH | 3.785 | 5.975 | 469 | 650 | 570 | 5 |
| | 580 | 208 | 23264-K-CA-W33-ENH | 4.580 | 7.000 | 540,5 | 510 | 470 | 5 |
| | 440 | 90 | 23964-K-CA-W33-ENH | 1.450 | 2.740 | 223,1 | 940 | 780 | 3 |
| 340 | 620 | 165 | 22268-K-CA-W33-ENH | 4.000 | 5.590 | 424,8 | 770 | 660 | 6 |
| | 520 | 133 | 23068-K-CA-W33-ENH | 2.755 | 4.550 | 357,2 | 840 | 720 | 5 |
| | 580 | 190 | 23168-K-CA-W33-ENH | 4.335 | 6.780 | 521,8 | 590 | 530 | 5 |
| | 620 | 224 | 23268-K-CA-W33-ENH | 5.250 | 7.850 | 595,4 | 475 | 435 | 6 |
| | 460 | 90 | 23968-K-CA-W33-ENH | 1.475 | 2.900 | 232,5 | 870 | 730 | 3 |
| 360 | 650 | 170 | 22272-K-CA-W33-ENH | 4.400 | 6.200 | 463,3 | 710 | 620 | 6 |
| | 540 | 134 | 23072-K-CA-W33-ENH | 2.800 | 4.800 | 372 | 790 | 670 | 5 |
| | 600 | 192 | 23172-K-CA-W33-ENH | 4.430 | 7.000 | 531,5 | 570 | 500 | 5 |
| | 650 | 232 | 23272-K-CA-W33-ENH | 5.650 | 8.650 | 646,5 | 440 | 400 | 6 |
| | 480 | 90 | 23972-K-CA-W33-ENH | 1.500 | 2.960 | 234,4 | 820 | 680 | 3 |
| 380 | 560 | 135 | 23076-K-CA-W33-ENH | 2.900 | 5.000 | 382 | 740 | 630 | 5 |
| | 620 | 194 | 23176-K-CA-W33-ENH | 4.550 | 7.400 | 555 | 530 | 470 | 5 |
| | 680 | 240 | 23276-K-CA-W33-ENH | 6.100 | 9.500 | 699,5 | 400 | 370 | 6 |
| | 520 | 106 | 23976-K-CA-W33-ENH | 1.990 | 3.940 | 304,8 | 750 | 635 | 4 |
| 400 | 600 | 148 | 23080-K-MB-W33-ENH | 3.390 | 6.100 | 457,7 | 680 | 580 | 5 |
| | 650 | 200 | 23180-K-CA-W33-ENH | 4.860 | 7.860 | 582 | 500 | 450 | 6 |
| | 720 | 256 | 23280-K-CA-W33-ENH | 6.850 | 10.700 | 775 | 370 | 340 | 6 |
| | 540 | 106 | 23980-K-CA-W33-ENH | 2.030 | 4.070 | 311 | 710 | 600 | 4 |
| 420 | 620 | 150 | 23084-K-CA-W33-ENH | 3.560 | 6.200 | 460 | 650 | 560 | 5 |
| | 700 | 224 | 23184-K-CA-W33-ENH | 5.900 | 9.600 | 696 | 455 | 410 | 6 |
| | 760 | 272 | 23284-K-CA-W33-ENH | 7.650 | 12.100 | 862 | 340 | 310 | 7,5 |
| | 560 | 106 | 23984-K-CA-W33-ENH | 2.080 | 4.300 | 325 | 670 | 565 | 4 |
| 440 | 650 | 157 | 23088-K-CA-W33-ENH | 3.825 | 6.740 | 492 | 620 | 530 | 6 |
| | 720 | 226 | 23188-K-CA-W33-ENH | 6.150 | 10.000 | 720 | 430 | 390 | 6 |

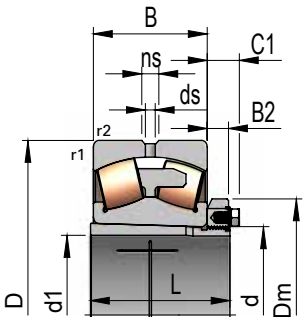
** Dimensions in mm.*
*** Mass in kg.*




## 2..-K-MB-W33-ENH+H..C-H

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | Thread | Dm | B2 | C1 | Mass** |
| 9 | 16,7 | 0,30 | 2,2 | 2,2 | 3,3 | 126 | H 3160 C-H | 280 | 208 | Tr 300 x 4 | 380 | 40 | 53 | 29 |
| 12 | 22,3 | 0,35 | 1,7 | 2,0 | 2,9 | 189 | H 3260 C-H | 280 | 240 | Tr 300 x 4 | 380 | 40 | 53 | 34,1 |
| 6 | 11,1 | 0,19 | 3,5 | 3,6 | 5,3 | 38,7 | H 3960 C-H | 280 | 140 | Tr 300 x 4 | 360 | 42 | 54 | 20,8 |
| 12 | 22,3 | 0,25 | 2,6 | 2,7 | 4,0 | 170 | H 3164 C-H | 300 | 226 | Tr 320 x 5 | 400 | 42 | 56 | 32 |
| 9 | 16,7 | 0,23 | 2,8 | 2,9 | 4,3 | 76 | H 3064 C-H | 300 | 171 | Tr 320 x 5 | 380 | 42 | 55 | 23 |
| 12 | 22,3 | 0,31 | 2,1 | 2,2 | 3,2 | 162,9 | H 3164 C-H | 300 | 226 | Tr 320 x 5 | 400 | 42 | 56 | 32 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 234,8 | H 3264 C-H | 300 | 258 | Tr 320 x 5 | 400 | 42 | 56 | 37 |
| 6 | 11,1 | 0,18 | 3,8 | 3,9 | 5,7 | 40,7 | H 3964 C-H | 300 | 140 | Tr 320 x 5 | 380 | 42 | 55 | 22,1 |
| 12 | 22,3 | 0,26 | 2,6 | 2,6 | 3,9 | 214,5 | H 3168 C-H | 320 | 254 | Tr 340 x 5 | 440 | 55 | 72 | 49,5 |
| 12 | 22,3 | 0,24 | 2,8 | 2,9 | 4,3 | 101 | H 3068 C-H | 320 | 187 | Tr 340 x 5 | 400 | 45 | 58 | 27,5 |
| 12 | 22,3 | 0,31 | 2,1 | 2,2 | 3,2 | 204 | H 3168 C-H | 320 | 254 | Tr 340 x 5 | 440 | 55 | 72 | 49,5 |
| 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 286 | H 3268 C-H | 320 | 288 | Tr 340 x 5 | 440 | 55 | 72 | 54,4 |
| 6 | 11,1 | 0,17 | 4,0 | 4,1 | 6,0 | 44,6 | H 3968 C-H | 320 | 144 | Tr 340 x 5 | 400 | 45 | 58 | 24,8 |
| 12 | 22,3 | 0,25 | 2,6 | 2,7 | 4,0 | 244,5 | H 3172 C-H | 340 | 259 | Tr 360 x 5 | 460 | 58 | 75 | 54 |
| 12 | 22,3 | 0,23 | 2,9 | 2,9 | 4,4 | 107 | H 3072 C-H | 340 | 188 | Tr 360 x 5 | 420 | 45 | 58 | 29 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,3 | 215 | H 3172 C-H | 340 | 259 | Tr 360 x 5 | 460 | 58 | 75 | 54 |
| 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 330 | H 3272 C-H | 340 | 299 | Tr 360 x 5 | 460 | 58 | 75 | 60,5 |
| 6 | 11,1 | 0,16 | 4,1 | 4,1 | 6,2 | 45,5 | H 3972 C-H | 340 | 144 | Tr 360 x 5 | 420 | 45 | 58 | 26,1 |
| 12 | 22,3 | 0,22 | 3,1 | 3,1 | 4,7 | 111 | H 3076 C-H | 360 | 193 | Tr 380 x 5 | 450 | 48 | 62 | 35,5 |
| 12 | 22,3 | 0,29 | 2,3 | 2,3 | 3,5 | 226 | H 3176 C-H | 360 | 264 | Tr 380 x 5 | 490 | 60 | 77 | 61,6 |
| 12 | 22,3 | 0,34 | 1,9 | 2,0 | 3,0 | 368,6 | H 3276 C-H | 360 | 310 | Tr 380 x 5 | 490 | 60 | 77 | 70 |
| 7,5 | 13,9 | 0,18 | 3,7 | 3,8 | 5,7 | 66,3 | H 3976 C-H | 360 | 164 | Tr 380 x 5 | 450 | 48 | 62 | 33,3 |
| 12,5 | 22,5 | 0,24 | 2,8 | 2,9 | 4,3 | 147 | H 3080 C-H | 380 | 210 | Tr 400 x 5 | 470 | 52 | 66 | 40 |
| 12 | 22,3 | 0,28 | 2,3 | 2,4 | 3,5 | 259 | H 3180 C-H | 380 | 272 | Tr 400 x 5 | 520 | 62 | 82 | 69,5 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 443 | H 3280 C-H | 380 | 328 | Tr 400 x 5 | 520 | 62 | 82 | 83,9 |
| 7,5 | 13,9 | 0,17 | 3,9 | 4,0 | 5,9 | 68,9 | H 3980 C-H | 380 | 168 | Tr 400 x 5 | 470 | 52 | 66 | 37 |
| 12 | 22,3 | 0,22 | 3,1 | 3,1 | 4,7 | 152 | H 3084 C-H | 400 | 212 | Tr 420 x 5 | 490 | 52 | 66 | 44,5 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,3 | 341 | H 3184 C-H | 400 | 304 | Tr 420 x 5 | 540 | 70 | 90 | 80 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 528 | H 3284 C-H | 400 | 352 | Tr 420 x 5 | 540 | 70 | 90 | 96 |
| 9 | 16,7 | 0,16 | 4,1 | 4,2 | 6,2 | 72,6 | H 3984 C-H | 400 | 168 | Tr 420 x 5 | 490 | 52 | 66 | 38,5 |
| 12 | 22,3 | 0,22 | 3,0 | 3,0 | 4,5 | 176,4 | H 3088 C-H | 410 | 228 | Tr 440 x 5 | 520 | 60 | 77 | 65 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,3 | 348 | H 3188 C-H | 410 | 307 | Tr 440 x 5 | 560 | 70 | 90 | 95,4 |

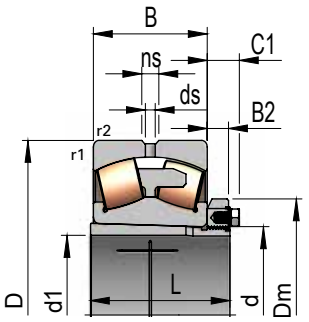
*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*




## 2..-K-CA-W33-ENH+H..C-H

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1, r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 440 | 790 | 280 | 23288-K-CA-W33-ENH | 8.100 | 12.900 | 908 | 320 | 300 | 7,5 |
| | 600 | 118 | 23988-K-CA-W33-ENH | 2.460 | 5.000 | 370 | 630 | 535 | 4 |
| 460 | 680 | 163 | 23092-K-CA-W33-ENH | 4.010 | 7.350 | 530 | 580 | 500 | 6 |
| | 760 | 240 | 23192-K-CA-W33-ENH | 6.700 | 11.250 | 794 | 400 | 360 | 7,5 |
| | 830 | 296 | 23292-K-CA-W33-ENH | 8.950 | 14.400 | 1.000 | 300 | 280 | 7,5 |
| | 620 | 118 | 23992-K-CA-W33-ENH | 2.535 | 5.290 | 388 | 590 | 505 | 4 |
| 480 | 700 | 165 | 23096-K-CA-W33-ENH | 4.350 | 7.900 | 564 | 550 | 470 | 6 |
| | 790 | 248 | 23196-K-CA-W33-ENH | 7.300 | 12.100 | 841 | 380 | 345 | 7,5 |
| | 870 | 310 | 23296-K-CA-W33-ENH | 9.800 | 15.850 | 1.086 | 280 | 260 | 7,5 |
| | 650 | 128 | 23996-K-CA-W33-ENH | 2.935 | 5.870 | 425 | 570 | 485 | 5 |
| 500 | 720 | 167 | 230/500-K-CA-W33-ENH | 4.580 | 8.450 | 597 | 520 | 450 | 6 |
| | 830 | 264 | 231/500-K-CA-W33-ENH | 8.060 | 13.500 | 928 | 350 | 320 | 7,5 |
| | 920 | 336 | 232/500-K-CA-W33-ENH | 11.300 | 18.400 | 1.239 | 255 | 240 | 7,5 |
| | 670 | 128 | 239/500-K-CA-W33-ENH | 2.975 | 6.230 | 446 | 535 | 455 | 5 |
| 530 | 780 | 185 | 230/530-K-CA-W33-ENH | 5.415 | 9.800 | 678 | 480 | 410 | 6 |
| | 870 | 272 | 231/530-K-CA-W33-ENH | 8.635 | 14.485 | 981 | 330 | 300 | 7,5 |
| | 980 | 355 | 232/530-K-CA-W33-ENH | 13.100 | 20.700 | 1.369 | 230 | 220 | 9,5 |
| | 710 | 136 | 239/530-K-CA-W33-ENH | 3.245 | 6.750 | 475 | 500 | 430 | 5 |
| 560 | 820 | 195 | 230/560-K-CA-W33-ENH | 6.000 | 11.100 | 756 | 440 | 380 | 6 |
| | 920 | 280 | 231/560-K-CA-W33-ENH | 9.640 | 16.300 | 1.086 | 300 | 275 | 7,5 |
| | 1.030 | 365 | 232/560-K-CA-W33-ENH | 13.800 | 22.500 | 1.468 | 215 | 200 | 9,5 |
| | 750 | 140 | 239/560-K-CA-W33-ENH | 3.500 | 7.400 | 512 | 460 | 400 | 5 |
| 600 | 870 | 200 | 230/600-K-CA-W33-ENH | 6.400 | 12.200 | 815 | 405 | 350 | 6 |
| | 980 | 300 | 231/600-K-CA-W33-ENH | 10.700 | 18.800 | 1.227 | 270 | 250 | 7,5 |
| | 1.090 | 388 | 232/600-K-CA-W33-ENH | 15.500 | 25.440 | 1.629 | 197 | 185 | 9,5 |
| | 800 | 150 | 239/600-K-CA-W33-ENH | 3.940 | 8.500 | 576 | 430 | 370 | 5 |
| 630 | 920 | 212 | 230/630-K-CA-W33-ENH | 7.240 | 13.400 | 881 | 380 | 330 | 7,5 |
| | 1.030 | 315 | 231/630-K-CA-W33-ENH | 12.400 | 20.800 | 1.336 | 255 | 230 | 7,5 |
| | 780 | 112 | 238/630-K-CA-W33-ENH | 2.590 | 6.300 | 426 | 410 | 350 | 4 |
| | 850 | 165 | 239/630-K-CA-W33-ENH | 4.650 | 9.900 | 661 | 400 | 345 | 6 |
| 670 | 980 | 230 | 230/670-K-CA-W33-ENH | 7.900 | 15.000 | 969 | 350 | 310 | 7,5 |
| | 1.090 | 336 | 231/670-K-CA-W33-ENH | 12.900 | 23.500 | 1.486 | 230 | 215 | 7,5 |

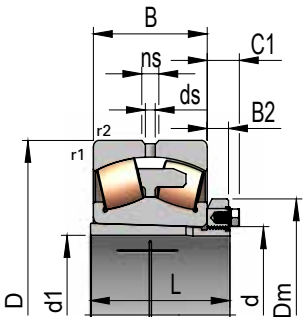
** Dimensions in mm.*
*** Mass in kg.*




## 2..-K-CA-W33-ENH+H..C-H

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | Thread | Dm | B2 | C1 | Mass** |
| 12 | 22,3 | 0,34 | 1,9 | 2,0 | 2,9 | 582 | H 3288 C-H | 410 | 361 | Tr 440 x 5 | 560 | 70 | 90 | 118 |
| 9 | 16,7 | 0,17 | 3,9 | 4,0 | 5,9 | 97,7 | H 3988 C-H | 410 | 189 | Tr 440 x 5 | 520 | 60 | 77 | 59 |
| 12 | 22,3 | 0,22 | 3,1 | 3,1 | 4,7 | 200,5 | H 3092 C-H | 430 | 234 | Tr 460 x 5 | 540 | 60 | 77 | 71 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,4 | 426 | H 3192 C-H | 430 | 326 | Tr 460 x 5 | 580 | 75 | 95 | 119,6 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 689 | H 3292 C-H | 430 | 382 | Tr 460 x 5 | 580 | 75 | 95 | 134 |
| 9 | 16,7 | 0,16 | 4,0 | 4,1 | 6,1 | 106 | H 3992 C-H | 430 | 189 | Tr 460 x 5 | 540 | 60 | 77 | 62,5 |
| 12 | 22,3 | 0,21 | 3,1 | 3,2 | 4,7 | 210 | H 3096 C-H | 450 | 237 | Tr 480 x 5 | 560 | 60 | 77 | 75 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,4 | 473 | H 3196 C-H | 450 | 335 | Tr 480 x 5 | 620 | 75 | 95 | 135 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 789 | H 3296 C-H | 450 | 397 | Tr 480 x 5 | 620 | 75 | 95 | 153 |
| 9 | 16,7 | 0,18 | 3,7 | 3,8 | 5,7 | 122 | H 3996 C-H | 450 | 200 | Tr 480 x 5 | 560 | 60 | 77 | 67,9 |
| 12 | 22,3 | 0,21 | 3,1 | 3,2 | 4,8 | 221 | H 30/500 C-H | 470 | 247 | Tr 500 x 5 | 580 | 68 | 85 | 82,1 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,3 | 569 | H 31/500 C-H | 470 | 356 | Tr 500 x 5 | 630 | 80 | 100 | 143 |
| 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 987 | H 32/500 C-H | 470 | 428 | Tr 500 x 5 | 630 | 80 | 100 | 170 |
| 12 | 22,3 | 0,17 | 3,9 | 4,0 | 6,0 | 125 | H 39/500 C-H | 470 | 208 | Tr 500 x 5 | 580 | 68 | 85 | 76 |
| 12 | 22,3 | 0,22 | 3,1 | 3,1 | 4,7 | 301 | H 30/530 C-H | 500 | 265 | Tr 530 x 6 | 630 | 68 | 90 | 103,1 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,4 | 628 | H 31/530 C-H | 500 | 364 | Tr 530 x 6 | 670 | 80 | 105 | 161 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 1.165 | H 32/530 C-H | 500 | 447 | Tr 530 x 6 | 670 | 80 | 105 | 191,5 |
| 12 | 22,3 | 0,17 | 3,9 | 4,0 | 5,9 | 150 | H 39/530 C-H | 500 | 216 | Tr 530 x 6 | 630 | 68 | 90 | 87 |
| 12 | 22,3 | 0,22 | 3,0 | 3,1 | 4,6 | 349 | H 30/560 C-H | 530 | 282 | Tr 560 x 6 | 650 | 75 | 97 | 112 |
| 12 | 22,3 | 0,29 | 2,3 | 2,3 | 3,5 | 724 | H 31/560 C-H | 530 | 377 | Tr 560 x 6 | 710 | 85 | 110 | 185 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 1.336 | H 32/560 C-H | 530 | 462 | Tr 560 x 6 | 710 | 85 | 110 | 218 |
| 12 | 22,3 | 0,16 | 4,1 | 4,2 | 6,2 | 172 | H 39/560 C-H | 530 | 227 | Tr 560 x 6 | 650 | 75 | 97 | 98,7 |
| 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 396,5 | H 30/600 C-H | 560 | 289 | Tr 600 x 6 | 700 | 75 | 97 | 147 |
| 12 | 22,3 | 0,29 | 2,3 | 2,4 | 3,5 | 879 | H 31/600 C-H | 560 | 399 | Tr 600 x 6 | 750 | 85 | 110 | 234 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 1.553 | H 32/600 C-H | 560 | 487 | Tr 600 x 6 | 750 | 85 | 110 | 278 |
| 12 | 22,3 | 0,17 | 3,9 | 4,0 | 6,0 | 218 | H 39/600 C-H | 560 | 239 | Tr 600 x 6 | 700 | 75 | 97 | 132,6 |
| 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 475 | H 30/630 C-H | 600 | 301 | Tr 630 x 6 | 730 | 75 | 97 | 138 |
| 12 | 22,3 | 0,29 | 2,3 | 2,4 | 3,5 | 1.027 | H 31/630 C-H | 600 | 424 | Tr 630 x 6 | 800 | 95 | 120 | 252 |
| 8 | 15 | 0,12 | 5,6 | 5,7 | 8,5 | 117 | H 32/630 C-H | 600 | 521 | Tr 630 x 6 | 800 | 95 | 120 | 298 |
| 12 | 22,3 | 0,17 | 3,9 | 4,0 | 5,9 | 276 | H 39/630 C-H | 600 | 254 | Tr 630 x 6 | 730 | 75 | 97 | 126,7 |
| 12 | 22,3 | 0,21 | 3,1 | 3,2 | 4,8 | 577 | H 30/670 C-H | 630 | 324 | Tr 670 x 6 | 780 | 80 | 102 | 191 |
| 12 | 22,3 | 0,29 | 2,3 | 2,3 | 3,5 | 1.227 | H 31/670 C-H | 630 | 456 | Tr 670 x 6 | 850 | 106 | 131 | 342 |

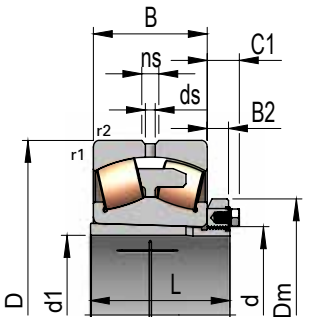
*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*




## 2..-K-CA-W33-ENH+H..C-H

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1, r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 670 | 1.220 | 438 | 232/670-K-CA-W33-ENH | 18.460 | 31.900 | 1.978 | 166 | 157 | 12 |
| | 900 | 170 | 239/670-K-CA-W33-ENH | 5.050 | 10.600 | 695 | 375 | 320 | 6 |
| 710 | 1.030 | 236 | 230/710-K-CA-W33-ENH | 8.600 | 16.600 | 1.056 | 330 | 290 | 7,5 |
| | 1.150 | 345 | 231/710-K-CA-W33-ENH | 14.600 | 27.000 | 1.680 | 205 | 190 | 9,5 |
| | 1.280 | 450 | 232/710-K-CA-W33-ENH | 21.000 | 35.000 | 2.136 | 150 | 144 | 12 |
| | 950 | 180 | 239/710-K-CA-W33-ENH | 5.560 | 12.000 | 775 | 345 | 300 | 6 |
| 750 | 1.090 | 250 | 230/750-K-CA-W33-ENH | 9.770 | 18.900 | 1.179 | 300 | 265 | 7,5 |
| | 1.220 | 365 | 231/750-K-CA-W33-ENH | 16.400 | 30.200 | 1.845 | 190 | 175 | 9,5 |
| | 1.000 | 185 | 239/750-K-CA-W33-ENH | 6.080 | 13.100 | 831 | 320 | 280 | 6 |
| 800 | 1.150 | 258 | 230/800-K-CA-W33-ENH | 10.300 | 20.500 | 1.258 | 280 | 245 | 7,5 |
| | 1.280 | 375 | 231/800-K-CA-W33-ENH | 17.580 | 33.200 | 1.993 | 175 | 160 | 9,5 |
| | 1.060 | 195 | 239/800-K-CA-W33-ENH | 6.490 | 14.500 | 904 | 300 | 260 | 6 |
| 850 | 1.220 | 272 | 230/850-K-CA-W33-ENH | 11.200 | 23.100 | 1.393 | 255 | 225 | 7,5 |
| | 1.120 | 200 | 239/850-K-CA-W33-ENH | 7.045 | 16.200 | 992 | 275 | 235 | 6 |
| 900 | 1.280 | 280 | 230/900-K-CA-W33-ENH | 12.000 | 25.700 | 1.525 | 235 | 210 | 7,5 |
| | 1.180 | 206 | 239/900-K-CA-W33-ENH | 7.500 | 17.000 | 1.024 | 255 | 225 | 6 |
| 950 | 1.360 | 300 | 230/950-K-CA-W33-ENH | 14.000 | 29.000 | 1.691 | 220 | 195 | 7,5 |
| | 1.250 | 224 | 239/950-K-CA-W33-ENH | 8.520 | 19.600 | 1.161 | 240 | 210 | 7,5 |
| 1.000 | 1.420 | 308 | 230/1000-K-CA-W33-ENH | 14.600 | 30.700 | 1.766 | 205 | 185 | 7,5 |
| | 1.580 | 462 | 231/1000-K-CA-W33-ENH | 25.400 | 50.800 | 2.865 | 125 | 115 | 12 |
| 1.060 | 1.400 | 250 | 239/1060-K-CA-W33-ENH | 11.200 | 26.000 | 1.489 | 200 | 175 | 7,5 |

** Dimensions in mm.*
*** Mass in kg.*




## 2..-K-CA-W33-ENH+H..C-H

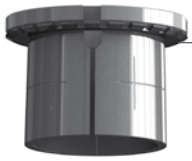
| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | Thread | Dm | B2 | C1 | Mass** |
| 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 2.238 | H 32/670 C-H | 630 | 558 | Tr 670 x 6 | 850 | 106 | 131 | 403 |
| 12 | 22,3 | 0,17 | 3,9 | 4,0 | 6,0 | 305 | H 39/670 C-H | 630 | 264 | Tr 670 x 6 | 780 | 80 | 102 | 163 |
| 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 657 | H 30/710 C-H | 670 | 342 | Tr 710 x 7 | 830 | 90 | 112 | 228 |
| 12 | 22,3 | 0,28 | 2,4 | 2,4 | 3,6 | 1.421 | H 31/710 C-H | 670 | 467 | Tr 710 x 7 | 900 | 106 | 135 | 376 |
| 12 | 22,3 | 0,34 | 1,9 | 2,0 | 3,0 | 2.535 | H 32/710 C-H | 670 | 572 | Tr 710 x 7 | 900 | 106 | 135 | 444 |
| 12 | 22,3 | 0,17 | 3,9 | 4,0 | 6,0 | 353 | H 39/710 C-H | 670 | 286 | Tr 710 x 7 | 830 | 90 | 112 | 206 |
| 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 777 | H 30/750 C-H | 710 | 356 | Tr 750 x 7 | 870 | 90 | 112 | 245 |
| 12 | 22,3 | 0,28 | 2,4 | 2,4 | 3,6 | 1.668 | H 31/750 C-H | 710 | 493 | Tr 750 x 7 | 950 | 112 | 141 | 452 |
| 12 | 22,3 | 0,16 | 4,1 | 4,2 | 6,2 | 407 | H 39/750 C-H | 710 | 291 | Tr 750 x 7 | 870 | 90 | 112 | 219,8 |
| 12 | 22,3 | 0,20 | 3,3 | 3,3 | 5,0 | 872 | H 30/800 C-H | 750 | 366 | Tr 800 x 7 | 920 | 90 | 112 | 301 |
| 12 | 22,3 | 0,27 | 2,4 | 2,5 | 3,7 | 1.886 | H 31/800 C-H | 750 | 505 | Tr 800 x 7 | 1.000 | 112 | 141 | 515 |
| 12 | 22,3 | 0,16 | 4,1 | 4,2 | 6,3 | 474 | H 39/800 C-H | 750 | 303 | Tr 800 x 7 | 920 | 90 | 112 | 269 |
| 12 | 22,3 | 0,20 | 3,3 | 3,3 | 5,0 | 1.038 | H 30/850 C-H | 800 | 380 | Tr 850 x 7 | 980 | 90 | 115 | 341 |
| 12 | 22,3 | 0,16 | 4,2 | 4,3 | 6,4 | 552 | H 39/850 C-H | 800 | 308 | Tr 850 x 7 | 980 | 90 | 115 | 299 |
| 12 | 22,3 | 0,20 | 3,3 | 3,4 | 5,1 | 1.189 | H 30/900 C-H | 850 | 400 | Tr 900 x 7 | 1.030 | 100 | 125 | 386 |
| 12 | 22,3 | 0,15 | 4,4 | 4,5 | 6,8 | 585 | H 39/900 C-H | 850 | 326 | Tr 900 x 7 | 1.030 | 100 | 125 | 337 |
| 12 | 22,3 | 0,20 | 3,3 | 3,4 | 5,1 | 1.425 | H 30/950 C-H | 900 | 420 | Tr 950 x 8 | 1.080 | 100 | 125 | 424 |
| 12 | 22,3 | 0,15 | 4,3 | 4,4 | 6,6 | 730 | H 39/950 C-H | 900 | 344 | Tr 950 x 8 | 1.080 | 100 | 125 | 369 |
| 12 | 22,3 | 0,20 | 3,3 | 3,4 | 5,1 | 1.537 | H 30/1000 C-H | 950 | 430 | Tr 1.000 x 8 | 1.140 | 100 | 125 | 472 |
| 12 | 22,3 | 0,27 | 2,5 | 2,5 | 3,7 | 3.424 | H 31/1000 C-H | 950 | 609 | Tr 1.000 x 8 | 1.240 | 125 | 154 | 841 |
| 12 | 22,3 | 0,16 | 4,2 | 4,3 | 6,4 | 1.056 | H 39/1060 C-H | 1.000 | 372 | Tr 1.060 x 8 | 1.200 | 100 | 125 | 493 |

*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*

# Sleeve device

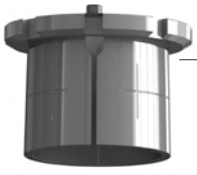
## Adapter sleeve **H** .... **K** designation

Dimensions in accordance with standard normative, (ISO and DIN), basic design, with:
- Locknut type (KM and KML), as DIN 981.
- Lockwasher type (MB and MBL), as DIN 5406.



## Adapter sleeve **H** .... **W-H** designation

Dimensions in accordance with standard normative, (ISO and DIN), hydraulic version, with:
- Locknut type (HM..-T), as DIN 981.
- Lockwasher (MB), as DIN 5406.



## Adapter sleeve **H** .... **C-H** designation

Dimensions in accordance with standard normative, (ISO and DIN), hydraulic version, with:
- Locknut type (HM), as Din 981.
- Locking clip assembly, as DIN 5406.

| SLEEVE | | | | | | | | LOCKING DEVICE | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Desig. | d1 | L | *Thread* | Dm | B2 | C1 | *Mass*** | Locknut. | Lockwasher | Locking-Clip |
| H 305 K | 20 | 29 | M 25 x 1,5 | 38 | 8,25 | - | 0,074 | KM 5 | MB 5 | - |
| H 306 K | 25 | 31 | M 30 x 1,5 | 45 | 8,25 | - | 0,103 | KM 6 | MB 6 | - |
| H 307 K | 30 | 35 | M 35 x 1,5 | 52 | 9,25 | - | 0,144 | KM 7 | MB 7 | - |
| H 308 K | 35 | 36 | M 40 x 1,5 | 58 | 10,25 | - | 0,195 | KM 8 | MB 8 | - |
| H 2308 K | 35 | 46 | M 40 x 1,5 | 58 | 10,25 | - | 0,225 | KM 8 | MB 8 | - |
| H 309 K | 40 | 39 | M 45 x 1,5 | 65 | 11,25 | - | 0,250 | KM 9 | MB 9 | - |
| H 2309 K | 40 | 50 | M 45 x 1,5 | 65 | 11,25 | - | 0,282 | KM 9 | MB 9 | - |
| H 310 K | 45 | 42 | M 50 x 1,5 | 70 | 12,25 | - | 0,3 | KM 10 | MB 10 | - |
| H 2310 K | 45 | 55 | M 50 x 1,5 | 70 | 12,25 | - | 0,345 | KM 10 | MB 10 | - |
| H 311 K | 50 | 45 | M 55 x 2 | 75 | 12,5 | - | 0,35 | KM 11 | MB 11 | - |
| H 2311 K | 50 | 59 | M 55 x 2 | 75 | 12,5 | - | 0,4 | KM 11 | MB 11 | - |
| H 312 K | 55 | 47 | M 60 x 2 | 80 | 12,5 | - | 0,41 | KM 12 | MB 12 | - |
| H 2312 K | 55 | 62 | M 60 x 2 | 80 | 12,5 | - | 0,47 | KM 12 | MB 12 | - |
| H 313 K | 60 | 50 | M 65 x 2 | 85 | 13,5 | - | 0,48 | KM 13 | MB 13 | - |
| H 2313 K | 60 | 65 | M 65 x 2 | 85 | 13,5 | - | 0,52 | KM 13 | MB 13 | - |
| H 314 K | 60 | 52 | M 70 x 2 | 92 | 13,5 | - | 0,75 | KM 14 | MB 14 | - |
| H 2314 K | 60 | 68 | M 70 x 2 | 92 | 13,5 | - | 0,88 | KM 14 | MB 14 | - |
| H 315 K | 65 | 55 | M 75 x 2 | 98 | 14,5 | - | 0,8 | KM 15 | MB 15 | - |
| H 2315 K | 65 | 73 | M 75 x 2 | 98 | 14,5 | - | 1,1 | KM 15 | MB 15 | - |
| H 316 K | 70 | 59 | M 80 x 2 | 105 | 16,75 | - | 1,06 | KM 16 | MB 16 | - |
| H 2316 K | 70 | 78 | M 80 x 2 | 105 | 16,75 | - | 1,22 | KM 16 | MB 16 | - |
| H 317 K | 75 | 63 | M 85 x 2 | 98 | 17,75 | - | 1,2 | KM 17 | MB 17 | - |
| H 2317 K | 75 | 82 | M 85 x 2 | 98 | 17,75 | - | 1,4 | KM 17 | MB 17 | - |
| H 318 K | 80 | 65 | M 90 x 2 | 108 | 17,75 | - | 1,4 | KM 18 | MB 18 | - |
| H 2318 K | 80 | 86 | M 90 x 2 | 108 | 17,75 | - | 1,61 | KM 18 | MB 18 | - |
| H 319 K | 85 | 68 | M 95 x 2 | 113 | 18,75 | - | 1,59 | KM 19 | MB 19 | - |
| H 2319 K | 85 | 90 | M 95 x 2 | 113 | 18,75 | - | 1,85 | KM 19 | MB 19 | - |
| H 320 K | 90 | 71 | M 100 x 2 | 120 | 19,75 | - | 1,7 | KM 20 | MB 20 | - |
| H 3120 K | 90 | 76 | M 100 x 2 | 120 | 19,75 | - | 1,9 | KM 20 | MB 20 | - |
| H 2320 K | 90 | 97 | M 100 x 2 | 120 | 19,75 | - | 2,1 | KM 20 | MB 20 | - |
| H 322 K | 100 | 77 | M 110 x 2 | 145 | 20,75 | - | 2,2 | KM 22 | MB 22 | - |
| H 3122 K | 100 | 81 | M 110 x 2 | 145 | 20,75 | - | 2,29 | KM 22 | MB 22 | - |
| H 2322 K | 100 | 105 | M 110 x 2 | 145 | 20,75 | - | 2,74 | KM 22 | MB 22 | - |
| H 3024 K | 110 | 72 | M 120 x 2 | 145 | 22 | - | 1,9 | KML 24 | MBL 24 | - |
| H 3124 K | 110 | 88 | M 120 x 2 | 155 | 22 | - | 2,7 | KM 24 | MB 24 | - |
| H 2324 K | 110 | 112 | M 120 x 2 | 155 | 22 | - | 3,1 | KM 24 | MB 24 | - |
| H 3026 K | 115 | 80 | M 130 x 2 | 155 | 23 | - | 2,8 | KML 26 | MBL 26 | - |
| H 3126 K | 115 | 92 | M 130 x 2 | 165 | 23 | - | 3,8 | KM 26 | MB 26 | - |
| H 2326 K | 115 | 121 | M 130 x 2 | 165 | 23 | - | 4,4 | KM 26 | MB 26 | - |
| H 3028 K | 125 | 82 | M 140 x 2 | 165 | 24 | - | 3,1 | KML 28 | MBL 28 | - |
| H 3128 K | 125 | 97 | M 140 x 2 | 180 | 24 | - | 4,45 | KM 28 | MB 28 | - |
| H 2328 K | 125 | 131 | M 140 x 2 | 180 | 24 | - | 5,47 | KM 28 | MB 28 | - |
| H 3030 K | 135 | 87 | M 150 x 2 | 180 | 26 | - | 3,8 | KML 30 | MBL 30 | - |
| H 3130 K | 135 | 111 | M 150 x 2 | 195 | 26 | - | 5,7 | KM 30 | MB 30 | - |
| H 2330 K | 135 | 139 | M 150 x 2 | 195 | 26 | - | 6,5 | KM 30 | MB 30 | - |
| H 3032 K-H | 140 | 93 | M 160 x 3 | 190 | 27,5 | - | 5,1 | KML 32 | MBL 32 | - |

** *Mass in kg.*

| | | | SLEEVE | | | | | LOCKING DEVICE | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Desig. | d1 | L | *Thread* | Dm | B2 | C1 | *Mass*** | Locknut. | Lockwasher | Locking-Clip |
| H 3132 K-H | 140 | 119 | M 160 x 3 | 210 | 27,5 | - | 7,8 | KM 32 | MB 32 | - |
| H 2332 K-H | 140 | 147 | M 160 x 3 | 210 | 27,5 | - | 8,8 | KM 32 | MB 32 | - |
| H 3034 K-H | 150 | 101 | M 170 x 3 | 200 | 28,5 | - | 5,8 | KML 34 | MBL 34 | - |
| H 3134 K-H | 150 | 122 | M 170 x 3 | 220 | 28,5 | - | 8,5 | KM 34 | MB 34 | - |
| H 2334 K-H | 150 | 154 | M 170 x 3 | 220 | 28,5 | - | 9,8 | KM 34 | MB 34 | - |
| H 3936 K-H | 160 | 87 | M 180 x 3 | 210 | 29,5 | - | 5,7 | KML 36 | MBL 36 | - |
| H 3036 K-H | 160 | 109 | M 180 x 3 | 210 | 29,5 | - | 6,7 | KML 36 | MBL 36 | - |
| H 3136 K-H | 160 | 131 | M 180 x 3 | 230 | 29,5 | - | 9,7 | KM 36 | MB 36 | - |
| H 2336 K-H | 160 | 161 | M 180 x 3 | 230 | 29,5 | - | 10,8 | KM 36 | MB 36 | - |
| H 3938 K-H | 170 | 89 | M 190 x 3 | 220 | 30,5 | - | 6,5 | KML 38 | MBL 38 | - |
| H 3038 K-H | 170 | 112 | M 190 x 3 | 220 | 30,5 | - | 7,2 | KML 38 | MBL 38 | - |
| H 3138 K-H | 170 | 141 | M 190 x 3 | 240 | 30,5 | - | 10,7 | KM 38 | MB 38 | - |
| H 2338 K-H | 170 | 169 | M 190 x 3 | 240 | 30,5 | - | 12,1 | KM 38 | MB 38 | - |
| H 3940 K-H | 180 | 98 | M 200 x 3 | 240 | 31,5 | - | 8,1 | KML 40 | MBL 40 | - |
| H 3040 K-H | 180 | 120 | M 200 x 3 | 240 | 31,5 | - | 8,8 | KML 40 | MBL 40 | - |
| H 3140 K-H | 180 | 150 | M 200 x 3 | 250 | 31,5 | - | 12,2 | KM 40 | MB 40 | - |
| H 2340 K-H | 180 | 176 | M 200 x 3 | 250 | 31,5 | - | 13,5 | KM 40 | MB 40 | - |
| H 3944 C-H | 200 | 96 | Tr 220 x 4 | 260 | 30 | 41 | 8,5 | HM 3044 | - | MS 3044 |
| H 3044 C-H | 200 | 126 | Tr 220 x 4 | 260 | 30 | 41 | 9,9 | HM 3044 | - | MS 3044 |
| H 3144 W-H | 200 | 161 | Tr 220 x 4 | 280 | 35 | - | 15 | HM 44 T | MB 44 | - |
| H 2344 W-H | 200 | 186 | Tr 220 x 4 | 280 | 35 | - | 17 | HM 44 T | MB 44 | - |
| H 3948 C-H | 220 | 101 | Tr 240 x 4 | 290 | 34 | 46 | 11 | HM 3048 | - | MS 3048 |
| H 3048 C-H | 220 | 133 | Tr 240 x 4 | 290 | 34 | 46 | 12,4 | HM 3048 | - | MS 3048 |
| H 3148 W-H | 220 | 172 | Tr 240 x 4 | 300 | 37 | - | 16,7 | HM 48 T | MB 48 | - |
| H 2348 W-H | 220 | 199 | Tr 240 x 4 | 300 | 37 | - | 19,4 | HM 48 T | MB 48 | - |
| H 3952 C-H | 240 | 116 | Tr 260 x 4 | 310 | 34 | 46 | 13,5 | HM 3052 | - | MS 3052 |
| H 3052 C-H | 240 | 145 | Tr 260 x 4 | 310 | 34 | 46 | 14,5 | HM 3052 | - | MS 3052 |
| H 3152 W-H | 240 | 190 | Tr 260 x 4 | 330 | 39 | - | 21,1 | HM 52 T | MB 52 | - |
| H 2352 W-H | 240 | 211 | Tr 260 x 4 | 330 | 39 | - | 23,6 | HM 52 T | MB 52 | - |
| H 3956 C-H | 260 | 121 | Tr 280 x 4 | 330 | 38 | 50 | 15,5 | HM 3056 | - | MS 3056 |
| H 3056 C-H | 260 | 152 | Tr 280 x 4 | 330 | 38 | 50 | 16,1 | HM 3056 | - | MS 3056 |
| H 3156 W-H | 260 | 195 | Tr 280 x 4 | 350 | 41 | - | 23 | HM 56 T | MB 56 | - |
| H 2356 W-H | 260 | 224 | Tr 280 x 4 | 350 | 41 | - | 27 | HM 56 T | MB 56 | - |
| H 3960 C-H | 280 | 140 | Tr 300 x 4 | 360 | 42 | 54 | 20,8 | HM 3060 | - | MS 3060 |
| H 3060 C-H | 280 | 168 | Tr 300 x 4 | 360 | 42 | 54 | 21 | HM 3060 | - | MS 3060 |
| H 3160 C-H | 280 | 208 | Tr 300 x 4 | 380 | 40 | 53 | 29 | HM 3160 | - | MS 3160 |
| H 3260 C-H | 280 | 240 | Tr 300 x 4 | 380 | 40 | 53 | 34,1 | HM 3160 | - | MS 3160 |
| H 3964 C-H | 300 | 140 | Tr 320 x 5 | 380 | 42 | 55 | 22,1 | HM 3064 | - | MS 3064 |
| H 3064 C-H | 300 | 171 | Tr 320 x 5 | 380 | 42 | 55 | 23 | HM 3064 | - | MS 3064 |
| H 3164 C-H | 300 | 226 | Tr 320 x 5 | 400 | 42 | 56 | 32 | HM 3164 | - | MS 3164 |
| H 3264 C-H | 300 | 258 | Tr 320 x 5 | 400 | 42 | 56 | 37 | HM 3164 | - | MS 3164 |
| H 3968 C-H | 320 | 144 | Tr 340 x 5 | 400 | 45 | 58 | 24,8 | HM 3068 | - | MS 3064 |
| H 3068 C-H | 320 | 187 | Tr 340 x 5 | 400 | 45 | 58 | 27,5 | HM 3068 | - | MS 3064 |
| H 3168 C-H | 320 | 254 | Tr 340 x 5 | 440 | 55 | 72 | 49,5 | HM 3168 | - | MS 3168 |
| H 3268 C-H | 320 | 288 | Tr 340 x 5 | 440 | 55 | 72 | 54,4 | HM 3168 | - | MS 3168 |
| H 3972 C-H | 340 | 144 | Tr 360 x 5 | 420 | 45 | 58 | 26,1 | HM 3072 | - | MS 3072 |

** *Mass in kg.*

| SLEEVE | | | | | | | | LOCKING DEVICE | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Desig. | d1 | L | Thread | Dm | B2 | C1 | Mass** | Locknut. | Lockwasher | Locking-Clip |
| H 3072 C-H | 340 | 188 | Tr 360 x 5 | 420 | 45 | 58 | 29 | HM 3072 | - | MS 3072 |
| H 3172 C-H | 340 | 259 | Tr 360 x 5 | 460 | 58 | 75 | 54 | HM 3172 | - | MS 3172 |
| H 3272 C-H | 340 | 299 | Tr 360 x 5 | 460 | 58 | 75 | 60,5 | HM 3172 | - | MS 3172 |
| H 3976 C-H | 360 | 164 | Tr 380 x 5 | 450 | 48 | 62 | 33,3 | HM 3076 | - | MS 3076 |
| H 3076 C-H | 360 | 193 | Tr 380 x 5 | 450 | 48 | 62 | 35,5 | HM 3076 | - | MS 3076 |
| H 3176 C-H | 360 | 264 | Tr 380 x 5 | 490 | 60 | 77 | 61,6 | HM 3176 | - | MS 3176 |
| H 3276 C-H | 360 | 310 | Tr 380 x 5 | 490 | 60 | 77 | 70 | HM 3176 | - | MS 3176 |
| H 3980 C-H | 380 | 168 | Tr 400 x 5 | 470 | 52 | 66 | 37 | HM 3080 | - | MS 3076 |
| H 3080 C-H | 380 | 210 | Tr 400 x 5 | 470 | 52 | 66 | 40 | HM 3080 | - | MS 3076 |
| H 3180 C-H | 380 | 272 | Tr 400 x 5 | 520 | 62 | 82 | 69,5 | HM 3180 | - | MS 3180 |
| H 3280 C-H | 380 | 328 | Tr 400 x 5 | 520 | 62 | 82 | 83,9 | HM 3180 | - | MS 3180 |
| H 3984 C-H | 400 | 168 | Tr 420 x 5 | 490 | 52 | 66 | 38,5 | HM 3084 | - | MS 3084 |
| H 3084 C-H | 400 | 212 | Tr 420 x 5 | 490 | 52 | 66 | 44,5 | HM 3084 | - | MS 3084 |
| H 3184 C-H | 400 | 304 | Tr 420 x 5 | 540 | 70 | 90 | 80 | HM 3184 | - | MS 3180 |
| H 3284 C-H | 400 | 352 | Tr 420 x 5 | 540 | 70 | 90 | 96 | HM 3184 | - | MS 3180 |
| H 3988 C-H | 410 | 189 | Tr 440 x 5 | 520 | 60 | 77 | 59 | HM 3088 | - | MS 3088 |
| H 3088 C-H | 410 | 228 | Tr 440 x 5 | 520 | 60 | 77 | 65 | HM 3088 | - | MS 3088 |
| H 3188 C-H | 410 | 307 | Tr 440 x 5 | 560 | 70 | 90 | 95,4 | HM 3188 | - | MS 3188 |
| H 3288 C-H | 410 | 361 | Tr 440 x 5 | 560 | 70 | 90 | 118 | HM 3188 | - | MS 3188 |
| H 3992 C-H | 430 | 189 | Tr 460 x 5 | 540 | 60 | 77 | 62,5 | HM 3092 | - | MS 3088 |
| H 3092 C-H | 430 | 234 | Tr 460 x 5 | 540 | 60 | 77 | 71 | HM 3092 | - | MS 3088 |
| H 3192 C-H | 430 | 326 | Tr 460 x 5 | 580 | 75 | 95 | 119,6 | HM 3192 | - | MS 3188 |
| H 3292 C-H | 430 | 382 | Tr 460 x 5 | 580 | 75 | 95 | 134 | HM 3192 | - | MS 3188 |
| H 3996 C-H | 450 | 200 | Tr 480 x 5 | 560 | 60 | 77 | 67,9 | HM 3096 | - | MS 3096 |
| H 3096 C-H | 450 | 237 | Tr 480 x 5 | 560 | 60 | 77 | 75 | HM 3096 | - | MS 3096 |
| H 3196 C-H | 450 | 335 | Tr 480 x 5 | 620 | 75 | 95 | 135 | HM 3196 | - | MS 3196 |
| H 3296 C-H | 450 | 397 | Tr 480 x 5 | 620 | 75 | 95 | 153 | HM 3196 | - | MS 3196 |
| H 39/500 C-H | 470 | 208 | Tr 500 x 5 | 580 | 68 | 85 | 76 | HM 30/500 | - | MS 3096 |
| H 30/500 C-H | 470 | 247 | Tr 500 x 5 | 580 | 68 | 85 | 82,1 | HM 30/500 | - | MS 3096 |
| H 31/500 C-H | 470 | 356 | Tr 500 x 5 | 630 | 80 | 100 | 143 | HM 31/500 | - | MS 31/500 |
| H 32/500 C-H | 470 | 428 | Tr 500 x 5 | 630 | 80 | 100 | 170 | HM 31/500 | - | MS 31/500 |
| H 39/530 C-H | 500 | 216 | Tr 530 x 6 | 630 | 68 | 90 | 87 | HM 30/530 | - | MS 30/530 |
| H 30/530 C-H | 500 | 265 | Tr 530 x 6 | 630 | 68 | 90 | 103,1 | HM 30/530 | - | MS 30/530 |
| H 31/530 C-H | 500 | 364 | Tr 530 x 6 | 670 | 80 | 105 | 161 | HM 31/530 | - | MS 31/530 |
| H 32/530 C-H | 500 | 447 | Tr 530 x 6 | 670 | 80 | 105 | 191,5 | HM 31/530 | - | MS 31/530 |
| H 39/560 C-H | 530 | 227 | Tr 560 x 6 | 650 | 75 | 97 | 98,7 | HM 30/560 | - | MS 30/560 |
| H 30/560 C-H | 530 | 282 | Tr 560 x 6 | 650 | 75 | 97 | 112 | HM 30/560 | - | MS 30/560 |
| H 31/560 C-H | 530 | 377 | Tr 560 x 6 | 710 | 85 | 110 | 185 | HM 31/560 | - | MS 31/560 |
| H 32/560 C-H | 530 | 462 | Tr 560 x 6 | 710 | 85 | 110 | 218 | HM 31/560 | - | MS 31/560 |
| H 39/600 C-H | 560 | 239 | Tr 600 x 6 | 700 | 75 | 97 | 132,6 | HM 30/600 | - | MS 30/530 |
| H 30/600 C-H | 560 | 289 | Tr 600 x 6 | 700 | 75 | 97 | 147 | HM 30/600 | - | MS 30/530 |
| H 31/600 C-H | 560 | 399 | Tr 600 x 6 | 750 | 85 | 110 | 234 | HM 31/600 | - | MS 31/560 |
| H 32/600 C-H | 560 | 487 | Tr 600 x 6 | 750 | 85 | 110 | 278 | HM 31/600 | - | MS 31/560 |
| H 39/630 C-H | 600 | 254 | Tr 630 x 6 | 730 | 75 | 97 | 126,7 | HM 30/630 | - | MS 30/630 |
| H 30/630 C-H | 600 | 301 | Tr 630 x 6 | 730 | 75 | 97 | 138 | HM 30/630 | - | MS 30/630 |
| H 31/630 C-H | 600 | 424 | Tr 630 x 6 | 800 | 95 | 120 | 252 | HM 31/630 | - | MS 31/630 |

** *Mass in kg.*

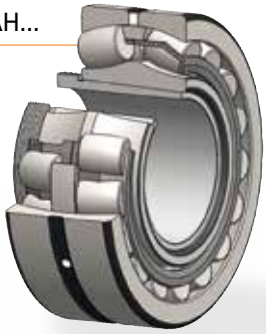
| SLEEVE | | | | | | | | LOCKING DEVICE | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Desig. | d1 | L | *Thread* | Dm | B2 | C1 | *Mass*** | Locknut. | Lockwasher | Locking-Clip |
| H 32/630 C-H | 600 | 521 | Tr 630 x 6 | 800 | 95 | 120 | 298 | HM 31/630 | - | MS 31/630 |
| H 39/670 C-H | 630 | 264 | Tr 670 x 6 | 780 | 80 | 102 | 163 | HM 30/670 | - | MS 30/670 |
| H 30/670 C-H | 630 | 324 | Tr 670 x 6 | 780 | 80 | 102 | 191 | HM 30/670 | - | MS 30/670 |
| H 31/670 C-H | 630 | 456 | Tr 670 x 6 | 850 | 106 | 131 | 342 | HM 31/670 | - | MS 31/670 |
| H 32/670 C-H | 630 | 558 | Tr 670 x 6 | 850 | 106 | 131 | 403 | HM 31/670 | - | MS 31/670 |
| H 39/710 C-H | 670 | 286 | Tr 710 x 7 | 830 | 90 | 112 | 206 | HM 30/710 | - | MS 30/710 |
| H 30/710 C-H | 670 | 342 | Tr 710 x 7 | 830 | 90 | 112 | 228 | HM 30/710 | - | MS 30/710 |
| H 31/710 C-H | 670 | 467 | Tr 710 x 7 | 900 | 106 | 135 | 376 | HM 31/710 | - | MS 31/710 |
| H 32/710 C-H | 670 | 572 | Tr 710 x 7 | 900 | 106 | 135 | 444 | HM 31/710 | - | MS 31/710 |
| H 39/750 C-H | 710 | 291 | Tr 750 x 7 | 870 | 90 | 112 | 219,8 | HM 30/750 | - | MS 30/750 |
| H 30/750 C-H | 710 | 356 | Tr 750 x 7 | 870 | 90 | 112 | 245 | HM 30/750 | - | MS 30/750 |
| H 31/750 C-H | 710 | 493 | Tr 750 x 7 | 950 | 112 | 141 | 452 | HM 31/750 | - | MS 31/750 |
| H 39/800 C-H | 750 | 303 | Tr 800 x 7 | 920 | 90 | 112 | 269 | HM 30/800 | - | MS 30/750 |
| H 30/800 C-H | 750 | 366 | Tr 800 x 7 | 920 | 90 | 112 | 301 | HM 30/800 | - | MS 30/750 |
| H 31/800 C-H | 750 | 505 | Tr 800 x 7 | 1.000 | 112 | 141 | 515 | HM 31/800 | - | MS 31/750 |
| H 39/850 C-H | 800 | 308 | Tr 850 x 7 | 980 | 90 | 115 | 299 | HM 30/850 | - | MS 30/850 |
| H 30/850 C-H | 800 | 380 | Tr 850 x 7 | 980 | 90 | 115 | 341 | HM 30/850 | - | MS 30/850 |
| H 39/900 C-H | 850 | 326 | Tr 900 x 7 | 1.030 | 100 | 125 | 337 | HM 30/900 | - | MS 30/850 |
| H 30/900 C-H | 850 | 400 | Tr 900 x 7 | 1.030 | 100 | 125 | 386 | HM 30/900 | - | MS 30/850 |
| H 39/950 C-H | 900 | 344 | Tr 950 x 8 | 1.080 | 100 | 125 | 369 | HM 30/950 | - | MS 30/950 |
| H 30/950 C-H | 900 | 420 | Tr 950 x 8 | 1.080 | 100 | 125 | 424 | HM 30/950 | - | MS 30/950 |
| H 30/1000 C-H | 950 | 430 | Tr 1.000 x 8 | 1.140 | 100 | 125 | 472 | HM 30/1000 | - | MS 30/1000 |
| H 31/1000 C-H | 950 | 609 | Tr 1.000 x 8 | 1.240 | 125 | 154 | 841 | HM 31/1000 | - | MS 31/1000 |
| H 39/1060 C-H | 1000 | 372 | Tr 1.060 x 8 | 1.200 | 100 | 125 | 493 | HM 30/1060 | - | MS 30/1000 |

** *Mass in kg.*

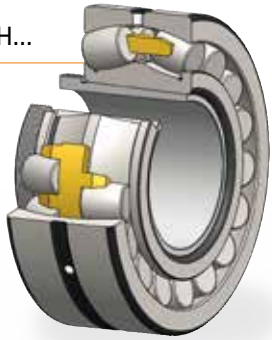
## NOTES

# List of references Spherical roller bearings and Withdrawal sleeves

2..-K-E-W33-ENH+AH...

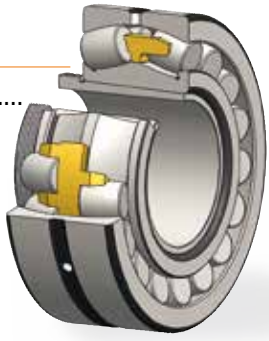


2..-K-MC-W33-ENH+AH...



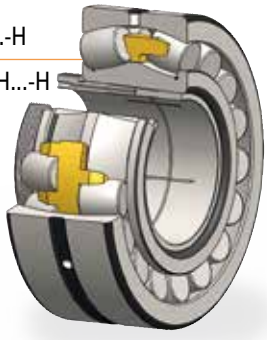
2..K-CA-W33-ENH+AH....

2..K30-CA-W33-ENH+AH....



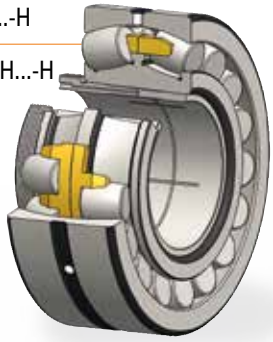
2..-K-CA-W33-ENH+AH...-H

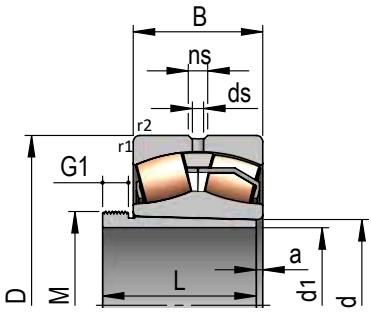
2..-K30-CA-W33-ENH+AH...-H



2..-K-MB-W33-ENH+AH...-H

2..-K30-MB-W33-ENH+AH...-H

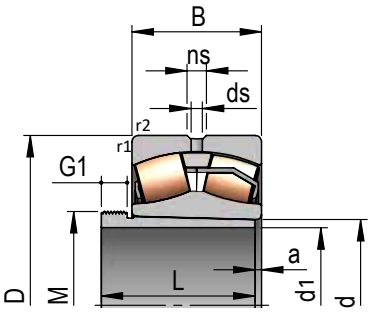





## 2..-K-E-W33-ENH+AH...

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1$, $r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 40 | 90 | 23 | 21308-K-E-W33-ENH | 106 | 105 | 12,8 | 6.000 | 4.900 | 1,5 |
| | 80 | 23 | 22208-K-E-W33-ENH | 98,2 | 88,5 | 10,8 | 6.400 | 5.200 | 1,1 |
| | 90 | 33 | 22308-K-E-W33-ENH | 153 | 145 | 17,7 | 5.850 | 4.850 | 1,5 |
| 45 | 100 | 25 | 21309-K-E-W33-ENH | 126 | 127 | 15,5 | 5.500 | 4.500 | 1,5 |
| | 85 | 23 | 22209-K-E-W33-ENH | 102 | 96 | 11,7 | 5.800 | 4.750 | 1,1 |
| | 100 | 36 | 22309-K-E-W33-ENH | 186 | 182 | 22,2 | 5.300 | 4.450 | 1,5 |
| 50 | 110 | 27 | 21310-K-E-W33-ENH | 132 | 133 | 16,2 | 5.300 | 4.300 | 2 |
| | 90 | 23 | 22210-K-E-W33-ENH | 107 | 104 | 12,7 | 5.350 | 4.350 | 1,1 |
| | 110 | 40 | 22310-K-E-W33-ENH | 225 | 220 | 26,8 | 4.800 | 4.100 | 2 |
| 55 | 120 | 29 | 21311-K-E-W33-ENH | 157 | 156 | 19 | 4.980 | 4.050 | 2 |
| | 100 | 25 | 22211-K-E-W33-ENH | 127 | 127 | 15,5 | 4.900 | 4.000 | 1,5 |
| | 120 | 43 | 22311-K-E-W33-ENH | 265 | 260 | 31,7 | 4.500 | 3.850 | 2 |
| 60 | 130 | 31 | 21312-K-E-W33-ENH | 210 | 225 | 27,3 | 4.400 | 3.650 | 2,1 |
| | 110 | 28 | 22212-K-E-W33-ENH | 157 | 151 | 18,4 | 4.700 | 3.800 | 1,5 |
| | 130 | 46 | 22312-K-E-W33-ENH | 310 | 306 | 37,3 | 4.200 | 3.600 | 2,1 |
| 65 | 140 | 33 | 21313-K-E-W33-ENH | 241 | 265 | 31,4 | 4.100 | 3.400 | 2,1 |
| | 120 | 31 | 22213-K-E-W33-ENH | 197 | 206 | 25,1 | 4.350 | 3.600 | 1,5 |
| | 140 | 48 | 22313-K-E-W33-ENH | 348 | 361 | 43,3 | 3.800 | 3.300 | 2,1 |
| 70 | 150 | 35 | 21314-K-E-W33-ENH | 279 | 310 | 36 | 3.950 | 3.250 | 2,1 |
| | 125 | 31 | 22214-K-E-W33-ENH | 208 | 222 | 27 | 4.100 | 3.350 | 1,5 |
| | 150 | 51 | 22314-K-E-W33-ENH | 390 | 390 | 46,1 | 3.700 | 3.200 | 2,1 |
| 75 | 160 | 37 | 21315-K-E-W33-ENH | 288 | 318 | 36,4 | 3.800 | 3.170 | 2,1 |
| | 130 | 31 | 22215-K-E-W33-ENH | 212 | 232 | 27,8 | 3.850 | 3.150 | 1,5 |
| | 160 | 55 | 22315-K-E-W33-ENH | 445 | 450 | 52 | 3.550 | 3.050 | 2,1 |
| 80 | 170 | 39 | 21316-K-E-W33-ENH | 313 | 350 | 39,5 | 3.650 | 3.030 | 2,1 |
| | 140 | 33 | 22216-K-E-W33-ENH | 243 | 263 | 30,9 | 3.700 | 3.000 | 2 |
| | 170 | 58 | 22316-K-E-W33-ENH | 495 | 510 | 57,9 | 3.400 | 2.900 | 2,1 |
| 85 | 180 | 41 | 21317-K-E-W33-ENH | 335 | 370 | 41,2 | 3.500 | 2.930 | 3 |
| | 150 | 36 | 22217-K-E-W33-ENH | 296 | 316 | 36,5 | 3.550 | 2.900 | 2 |
| | 180 | 60 | 22317-K-E-W33-ENH | 535 | 555 | 61,8 | 3.200 | 2.750 | 3 |
| 90 | 190 | 43 | 21318-K-E-W33-ENH | 380 | 425 | 47 | 3.390 | 2.800 | 3 |
| | 160 | 40 | 22218-K-E-W33-ENH | 341 | 370 | 42 | 3.450 | 2.850 | 2 |

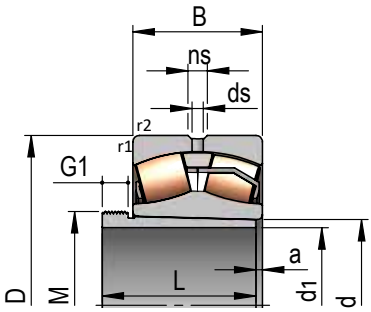
* *Dimensions in mm.*
** *Mass in kg.*



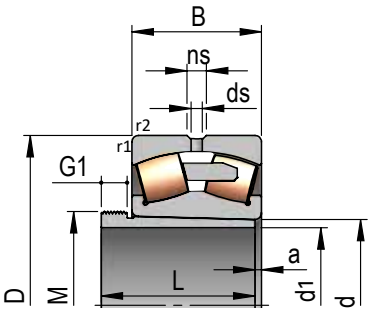

## 2..-K-E-W33-ENH+AH...

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | a | G1 | Thread(M) | Mass** |
| 3,2 | 4,8 | 0,23 | 2,9 | 3,0 | 4,4 | 0,74 | AH 308 | 35 | 29 | 3 | 6 | M 45 x 1,5 | 0,09 |
| 3,2 | 4,8 | 0,27 | 2,4 | 2,5 | 3,7 | 0,52 | AH 308 | 35 | 29 | 3 | 6 | M 45 x 1,5 | 0,09 |
| 3,2 | 6,5 | 0,36 | 1,8 | 1,9 | 2,8 | 1,025 | AH 2308 | 35 | 40 | 3 | 7 | M 45 x 1,5 | 0,13 |
| 3,2 | 4,8 | 0,21 | 3,1 | 3,2 | 4,7 | 0,976 | AH 309 | 40 | 31 | 3 | 6 | M 50 x 1,5 | 0,11 |
| 3,2 | 4,8 | 0,25 | 2,7 | 2,7 | 4,1 | 0,56 | AH 309 | 40 | 31 | 3 | 6 | M 50 x 1,5 | 0,11 |
| 3,2 | 6,5 | 0,36 | 1,9 | 1,9 | 2,8 | 1,37 | AH 2309 | 40 | 44 | 3 | 7 | M 50 x 1,5 | 0,16 |
| 3,2 | 4,8 | 0,24 | 2,7 | 2,8 | 4,2 | 1,28 | AHX 310 | 45 | 35 | 3 | 7 | M 55 x 2 | 0,14 |
| 3,2 | 4,8 | 0,23 | 2,9 | 3,0 | 4,4 | 0,6 | AHX 310 | 45 | 35 | 3 | 7 | M 55 x 2 | 0,14 |
| 3,2 | 6,5 | 0,36 | 1,8 | 1,9 | 2,8 | 1,86 | AHX 2310 | 45 | 50 | 3 | 9 | M 55 x 2 | 0,20 |
| 3,2 | 6,5 | 0,24 | 2,7 | 2,8 | 4,2 | 1,675 | AHX 311 | 50 | 37 | 3 | 7 | M 60 x 2 | 0,16 |
| 3,2 | 4,8 | 0,21 | 3,1 | 3,2 | 4,7 | 0,827 | AHX 311 | 50 | 37 | 3 | 7 | M 60 x 2 | 0,16 |
| 3,2 | 6,5 | 0,36 | 1,8 | 1,9 | 2,8 | 2,35 | AHX 2311 | 50 | 54 | 3 | 10 | M 60 x 2 | 0,25 |
| 3,2 | 6,5 | 0,23 | 2,9 | 3,0 | 4,4 | 1,97 | AHX 312 | 55 | 40 | 3 | 8 | M 65 x 2 | 0,19 |
| 3,2 | 6,5 | 0,23 | 2,9 | 3,0 | 4,4 | 1,11 | AHX 312 | 55 | 40 | 3 | 8 | M 65 x 2 | 0,19 |
| 3,2 | 6,5 | 0,35 | 1,9 | 1,9 | 2,9 | 2,34 | AHX 2312 | 55 | 58 | 3 | 11 | M 65 x 2 | 0,3 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,1 | 4,6 | 2,46 | AH 313 G | 60 | 42 | 3 | 8 | M 70 x 2 | 0,23 |
| 3,2 | 6,5 | 0,24 | 2,8 | 2,8 | 4,2 | 1,51 | AH 313 G | 60 | 42 | 3 | 8 | M 70 x 2 | 0,23 |
| 4,8 | 9,5 | 0,34 | 2,0 | 2,0 | 3,0 | 3,57 | AH 2313 G | 60 | 61 | 3 | 12 | M 70 x 2 | 0,37 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,1 | 4,6 | 3,1 | AH 314 G | 65 | 43 | 4 | 8 | M 75 x 2 | 0,25 |
| 3,2 | 6,5 | 0,23 | 2,9 | 3,0 | 4,4 | 1,59 | AH 314 G | 65 | 43 | 4 | 8 | M 75 x 2 | 0,25 |
| 4,8 | 9,5 | 0,34 | 2,0 | 2,0 | 3,0 | 4,11 | AHX 2314 G | 65 | 64 | 4 | 12 | M 75 x 2 | 0,42 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,0 | 4,5 | 3,75 | AH 315 G | 70 | 45 | 4 | 8 | M 80 x2 | 0,3 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,1 | 4,6 | 1,66 | AH 315 G | 70 | 45 | 4 | 8 | M 80 x2 | 0,3 |
| 4,8 | 9,5 | 0,34 | 1,9 | 2,0 | 3,0 | 5,26 | AHX 2315 G | 70 | 68 | 4 | 12 | M 80 x2 | 0,48 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,0 | 4,5 | 4,44 | AH 316 | 75 | 48 | 4 | 8 | M 90 x2 | 0,36 |
| 3,2 | 6,5 | 0,22 | 3,1 | 3,1 | 4,7 | 2,06 | AH 316 | 75 | 48 | 4 | 8 | M 90 x2 | 0,36 |
| 4,8 | 9,5 | 0,34 | 1,9 | 2,0 | 3,0 | 6,26 | AHX 2316 | 75 | 71 | 4 | 12 | M 90 x2 | 0,57 |
| 4,8 | 9,5 | 0,23 | 2,9 | 3,0 | 4,4 | 5,23 | AHX 317 | 80 | 52 | 4 | 9 | M 95 x 2 | 0,42 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,0 | 4,5 | 2,59 | AHX 317 | 80 | 52 | 4 | 9 | M 95 x 2 | 0,42 |
| 4,8 | 9,5 | 0,33 | 2,0 | 2,0 | 3,0 | 6,94 | AHX 2317 | 80 | 74 | 4 | 13 | M 95 x 2 | 0,64 |
| 4,8 | 9,5 | 0,24 | 2,8 | 2,9 | 4,3 | 6,16 | AHX 318 | 85 | 53 | 4 | 9 | M 100 x 2 | 0,46 |
| 3,2 | 6,5 | 0,23 | 2,8 | 2,9 | 4,3 | 3,34 | AHX 318 | 85 | 53 | 4 | 9 | M 100 x 2 | 0,46 |

*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



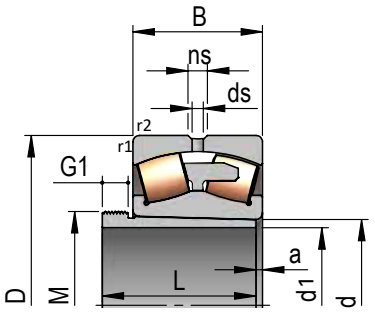

2..-K-E-W33-ENH+AH...




2..-K-MC-W33-ENH+AH...

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_{1s}$, $r_{2s}$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 90 | 190 | 64 | 22318-K-E-W33-ENH | 605 | 627 | 68,8 | 3.000 | 2.600 | 3 |
| | 160 | 52,4 | 23218-K-MC-W33-ENH | 432 | 505 | 57,4 | 2.700 | 2.290 | 2 |
| 95 | 200 | 45 | 21319-K-E-W33-ENH | 420 | 460 | 49,3 | 3.250 | 2.700 | 3 |
| | 170 | 43 | 22219-K-E-W33-ENH | 378 | 410 | 45,7 | 3.350 | 2.750 | 2,1 |
| | 200 | 67 | 22319-K-E-W33-ENH | 670 | 700 | 75,6 | 2.800 | 2.400 | 3 |
| 100 | 215 | 47 | 21320-K-E-W33-ENH | 480 | 500 | 52,8 | 3.100 | 2.550 | 3 |
| | 180 | 46 | 22220-K-E-W33-ENH | 430 | 475 | 52 | 3.250 | 2.650 | 2,1 |
| | 215 | 73 | 22320-K-E-W33-ENH | 806 | 930 | 98,2 | 2.400 | 2.150 | 3 |
| | 165 | 52 | 23120-K-MC-W33-ENH | 442 | 570 | 63,6 | 2.800 | 2.350 | 2 |
| | 180 | 60,3 | 23220-K-MC-W33-ENH | 535 | 634 | 69,6 | 2.400 | 2.120 | 2,1 |
| 110 | 200 | 53 | 22222-K-E-W33-ENH | 545 | 597 | 63,5 | 3.000 | 2.500 | 2,1 |
| | 240 | 80 | 22322-K-E-W33-ENH | 945 | 1.065 | 108,7 | 2.100 | 1.900 | 3 |
| | 170 | 45 | 23022-K-MC-W33-ENH | 396 | 524 | 57,5 | 3.000 | 2.500 | 2 |
| | 180 | 56 | 23122-K-MC-W33-ENH | 520 | 670 | 72,8 | 2.600 | 2.150 | 2 |
| | 200 | 69,8 | 23222-K-MC-W33-ENH | 695 | 855 | 91 | 2.150 | 1.850 | 2,1 |
| | 180 | 69 | 24122-K30-CA-W33-ENH | 528 | 750 | 81,6 | 1.990 | 1.740 | 2 |
| 120 | 215 | 58 | 22224-K-E-W33-ENH | 639 | 740 | 76,8 | 2.700 | 2.300 | 2,1 |
| | 260 | 86 | 22324-K-E-W33-ENH | 1.059 | 1.160 | 116 | 2.000 | 1.750 | 3 |
| | 180 | 46 | 23024-K-MC-W33-ENH | 423 | 579 | 62,3 | 2.800 | 2.300 | 2 |
| | 200 | 62 | 23124-K-MC-W33-ENH | 618 | 785 | 82,9 | 2.300 | 1.970 | 2 |
| | 215 | 76 | 23224-K-MC-W33-ENH | 805 | 1016 | 105,8 | 1.940 | 1.680 | 2,1 |
| | 180 | 60 | 24024-K30-CA-W33-ENH | 448 | 688 | 74,3 | 2.400 | 2.005 | 2 |
| | 200 | 80 | 24124-K30-CA-W33-ENH | 670 | 950 | 100,5 | 1.760 | 1.550 | 2 |
| 130 | 230 | 64 | 22226-K-E-W33-ENH | 750 | 890 | 90,6 | 2.500 | 2.100 | 3 |
| | 280 | 93 | 22326-K-E-W33-ENH | 1.245 | 1.360 | 132,9 | 1.800 | 1.620 | 4 |
| | 200 | 52 | 23026-K-MC-W33-ENH | 535 | 728 | 76,1 | 2.600 | 2.150 | 2 |
| | 210 | 64 | 23126-K-MC-W33-ENH | 665 | 880 | 91,3 | 2.140 | 1.810 | 2 |
| | 230 | 80 | 23226-K-MC-W33-ENH | 890 | 1.090 | 111 | 1.800 | 1.560 | 3 |
| | 200 | 69 | 24026-K30-CA-W33-ENH | 565 | 840 | 88 | 2.170 | 1.820 | 2 |
| | 210 | 80 | 24126-K30-CA-W33-ENH | 695 | 1.000 | 103,7 | 1.720 | 1.510 | 2 |
| 140 | 250 | 68 | 22228-K-E-W33-ENH | 852 | 1.035 | 102,6 | 2.300 | 1.900 | 3 |
| | 300 | 102 | 22328-K-E-W33-ENH | 1.450 | 1.620 | 155,1 | 1.680 | 1.470 | 4 |

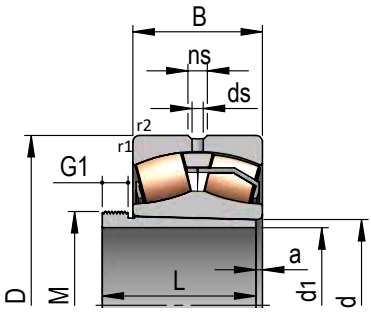
** Dimensions in mm.*
*** Mass in kg.*



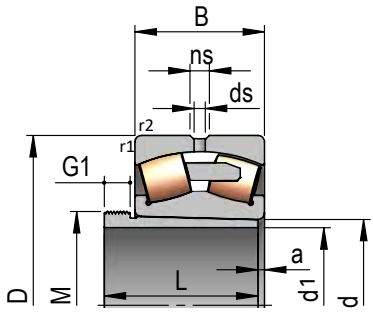

## 2..-K30-CA-W33-ENH+AH...

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | a | G1 | Thread(M) | Mass** |
| 6,3 | 12,2 | 0,33 | 2,0 | 2,0 | 3,0 | 8,55 | AHX 2318 | 85 | 79 | 4 | 14 | M 100 x 2 | 0,77 |
| 3,2 | 6,5 | 0,30 | 2,2 | 2,2 | 3,3 | 4,37 | AHX 3218 | 85 | 63 | 4 | 10 | M 100 x 2 | 0,56 |
| 4,8 | 9,5 | 0,22 | 3,0 | 3,0 | 4,5 | 6,9 | AHX 319 | 90 | 57 | 4 | 10 | M 105 x 2 | 0,54 |
| 4,8 | 9,5 | 0,24 | 2,8 | 2,9 | 4,3 | 4,06 | AHX 319 | 90 | 57 | 4 | 10 | M 105 x 2 | 0,54 |
| 6,3 | 12,2 | 0,33 | 2,0 | 2,0 | 3,0 | 9,94 | AHX 2319 | 90 | 85 | 4 | 16 | M 105 x 2 | 0,9 |
| 4,8 | 9,5 | 0,22 | 3,0 | 3,1 | 4,6 | 8,59 | AHX 320 | 95 | 59 | 4 | 10 | M 110 x 2 | 0,6 |
| 4,8 | 9,5 | 0,24 | 2,8 | 2,8 | 4,2 | 4,94 | AHX 320 | 95 | 59 | 4 | 10 | M 110 x 2 | 0,6 |
| 6,3 | 12,2 | 0,33 | 2,0 | 2,0 | 3,0 | 13,07 | AHX 2320 | 95 | 90 | 4 | 16 | M 110 x 2 | 1,0 |
| 3,2 | 6,5 | 0,28 | 2,3 | 2,4 | 3,5 | 4,3 | AHX 3120 | 95 | 64 | 4 | 11 | M 110 x 2 | 0,7 |
| 4,8 | 9,5 | 0,31 | 2,1 | 2,2 | 3,2 | 6,4 | AHX 3220 | 95 | 73 | 4 | 11 | M 110 x 2 | 0,77 |
| 4,8 | 9,5 | 0,25 | 2,7 | 2,7 | 4,0 | 7,06 | AHX 3122 | 105 | 68 | 4 | 11 | M 120 x 2 | 0,8 |
| 8 | 15 | 0,33 | 2,0 | 2,1 | 3,1 | 17,4 | AHX 2322 G | 105 | 98 | 4 | 16 | M 120 x 2 | 1,3 |
| 3,2 | 6,5 | 0,23 | 2,8 | 2,9 | 4,3 | 3,8 | AHX 322 | 105 | 63 | 4 | 12 | M 120 x 2 | 0,76 |
| 4,8 | 9,5 | 0,28 | 2,4 | 2,4 | 3,6 | 5,44 | AHX 3122 | 105 | 68 | 4 | 11 | M 120 x 2 | 0,8 |
| 4,8 | 9,5 | 0,33 | 2,0 | 2,1 | 3,1 | 9,37 | AHX 3222 G | 105 | 82 | 4 | 11 | M 120 x 2 | 1,0 |
| 3,2 | 6,5 | 0,37 | 1,8 | 1,8 | 2,7 | 7 | AH 24122 | 105 | 82 | 9 | 13 | M 115 x 2 | 0,73 |
| 6,3 | 12,2 | 0,25 | 2,7 | 2,7 | 4,0 | 8,85 | AHX 3124 | 115 | 75 | 4 | 12 | M 130 x 2 | 0,9 |
| 8 | 15 | 0,33 | 2,0 | 2,1 | 3,1 | 22,1 | AHX 2324 G | 115 | 105 | 4 | 17 | M 130 x 2 | 1,5 |
| 3,2 | 6,5 | 0,22 | 3,0 | 3,0 | 4,5 | 4,07 | AHX 3024 | 115 | 60 | 4 | 13 | M 130 x 2 | 0,8 |
| 4,8 | 9,5 | 0,28 | 2,3 | 2,4 | 3,6 | 7,26 | AHX 3124 | 115 | 75 | 4 | 12 | M 130 x 2 | 0,9 |
| 4,8 | 9,5 | 0,33 | 2,0 | 2,0 | 3,0 | 11,65 | AHX 3224 G | 115 | 90 | 4 | 13 | M 130 x 2 | 1,4 |
| 3 | 5,5 | 0,30 | 2,2 | 2,3 | 3,3 | 5,316 | AH 24024 | 115 | 73 | 9 | 13 | M 125 x 2 | 0,71 |
| 3,2 | 6,5 | 0,38 | 1,7 | 1,8 | 2,6 | 10 | AH 24124 | 115 | 93 | 9 | 13 | M 130 x 2 | 1,0 |
| 6,3 | 12,2 | 0,26 | 2,6 | 2,6 | 3,9 | 11 | AHX 3126 | 125 | 78 | 4 | 12 | M 140 x 2 | 1,1 |
| 9,5 | 17,7 | 0,33 | 2,0 | 2,1 | 3,1 | 27,4 | AHX 2326 G | 125 | 115 | 4 | 19 | M 140 x 2 | 1,84 |
| 4,8 | 9,5 | 0,23 | 2,9 | 3,0 | 4,4 | 5,8 | AHX 3026 | 125 | 67 | 4 | 14 | M 140 x 2 | 0,9 |
| 4,8 | 9,5 | 0,28 | 2,4 | 2,5 | 3,6 | 8,22 | AHX 3126 | 125 | 78 | 4 | 12 | M 140 x 2 | 1,1 |
| 4,8 | 9,5 | 0,32 | 2,1 | 2,1 | 3,2 | 13,7 | AHX 3226 G | 125 | 98 | 4 | 15 | M 140 x 2 | 1,5 |
| 3 | 5,5 | 0,32 | 2,0 | 2,1 | 3,1 | 7,85 | AH 24026 | 125 | 83 | 10 | 14 | M 135 x 2 | 0,9 |
| 3,2 | 6,5 | 0,36 | 1,8 | 1,9 | 2,8 | 10,8 | AH 24126 | 125 | 94 | 10 | 14 | M 140 x 2 | 1,1 |
| 6,3 | 12,2 | 0,25 | 2,6 | 2,7 | 4,0 | 14 | AHX 3128 | 135 | 83 | 5 | 14 | M 150 x 2 | 1,3 |
| 9,5 | 17,7 | 0,34 | 2,0 | 2,0 | 3,0 | 34,4 | AHX 2328 G | 135 | 125 | 5 | 20 | M 150 x 2 | 2,3 |

*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



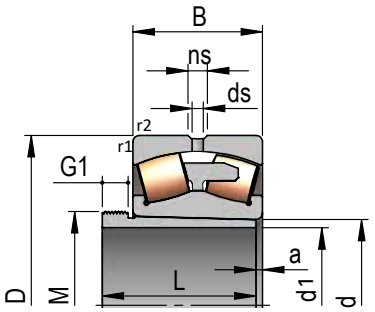

2..-K-E-W33-ENH+AH...




2..-K-MC-W33-ENH+AH...

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | r1, r2 (min) |
|---|---|---|---|---|---|---|---|---|---|
| 140 | 210 | 53 | 23028-K-MC-W33-ENH | 565 | 785 | 80,6 | 2.400 | 2.000 | 2 |
| | 225 | 68 | 23128-K-MC-W33-ENH | 750 | 1.000 | 101,4 | 1.950 | 1.660 | 2,1 |
| | 250 | 88 | 23228-K-MC-W33-ENH | 1.065 | 1.390 | 138,3 | 1.570 | 1.370 | 3 |
| | 210 | 69 | 24028-K30-CA-W33-ENH | 586 | 928 | 95,5 | 1.980 | 1.660 | 2 |
| | 225 | 85 | 24128-K30-CA-W33-ENH | 790 | 1.160 | 118 | 1.470 | 1.290 | 2,1 |
| 150 | 270 | 73 | 22230-K-E-W33-ENH | 980 | 1.180 | 114,5 | 2.100 | 1.750 | 3 |
| | 320 | 108 | 22330-K-E-W33-ENH | 1.625 | 1.840 | 172,8 | 1.550 | 1.350 | 4 |
| | 225 | 56 | 23030-K-MC-W33-ENH | 623 | 870 | 87,5 | 2.250 | 1.850 | 2,1 |
| | 250 | 80 | 23130-K-MC-W33-ENH | 975 | 1.300 | 128,3 | 1.750 | 1.500 | 2,1 |
| | 270 | 96 | 23230-K-MC-W33-ENH | 1.260 | 1.640 | 159,4 | 1.420 | 1.250 | 3 |
| | 225 | 75 | 24030-K30-CA-W33-ENH | 670 | 1.060 | 106,8 | 1.800 | 1.540 | 2,1 |
| | 250 | 100 | 24130-K30-CA-W33-ENH | 1.040 | 1.525 | 150,9 | 1.280 | 1.140 | 2,1 |
| 160 | 290 | 80 | 22232-K-MC-W33-ENH | 1.130 | 1.390 | 132,1 | 1.900 | 1.600 | 3 |
| | 340 | 114 | 22332-K-CA-W33-ENH | 1.660 | 1.950 | 180,1 | 1.450 | 1.280 | 4 |
| | 240 | 60 | 23032-K-MC-W33-ENH | 710 | 1.005 | 99,2 | 2.050 | 1.720 | 2,1 |
| | 270 | 86 | 23132-K-MC-W33-ENH | 1.125 | 1.515 | 146,3 | 1.600 | 1.370 | 2,1 |
| | 290 | 104 | 23232-K-MC-W33-ENH | 1.430 | 1.903 | 181,2 | 1.300 | 1.140 | 3 |
| | 240 | 80 | 24032-K30-CA-W33-ENH | 764 | 1.200 | 118,7 | 1.700 | 1.430 | 2,1 |
| | 270 | 109 | 24132-K30-CA-W33-ENH | 1.200 | 1.740 | 168,2 | 1.170 | 1.050 | 2,1 |
| 170 | 310 | 86 | 22234-K-E-W33-ENH | 1.300 | 1.560 | 145,6 | 1.800 | 1.500 | 4 |
| | 360 | 120 | 22334-K-CA-W33-ENH | 1.865 | 2.250 | 204,1 | 1.330 | 1.170 | 4 |
| | 260 | 67 | 23034-K-MC-W33-ENH | 865 | 1.220 | 117,8 | 1.900 | 1.600 | 2,1 |
| | 280 | 88 | 23134-K-MC-W33-ENH | 1.195 | 1.685 | 160,5 | 1.480 | 1.270 | 2,1 |
| | 310 | 110 | 23234-K-MC-W33-ENH | 1.600 | 2.100 | 196 | 1.200 | 1.060 | 4 |
| | 260 | 90 | 24034-K30-CA-W33-ENH | 938 | 1.460 | 141,5 | 1.560 | 1.325 | 2,1 |
| | 280 | 109 | 24134-K30-CA-W33-ENH | 1.250 | 1.860 | 177,6 | 1.090 | 975 | 2,1 |
| 180 | 320 | 86 | 22236-K-MC-W33-ENH | 1.330 | 1.660 | 153 | 1.700 | 1.400 | 4 |
| | 380 | 126 | 22336-K-CA-W33-ENH | 2.050 | 2.450 | 218,7 | 1.250 | 1.100 | 4 |
| | 280 | 74 | 23036-K-MC-W33-ENH | 1.020 | 1.440 | 136,3 | 1.780 | 1.480 | 2,1 |
| | 300 | 96 | 23136-K-MC-W33-ENH | 1.390 | 1.935 | 180,9 | 1.370 | 1.180 | 3 |
| | 320 | 112 | 23236-K-MC-W33-ENH | 1.675 | 2.265 | 208,8 | 1.120 | 990 | 4 |
| | 250 | 52 | 23936-K-CA-W33-ENH | 500 | 825 | 79,8 | 1.880 | 1.540 | 2 |

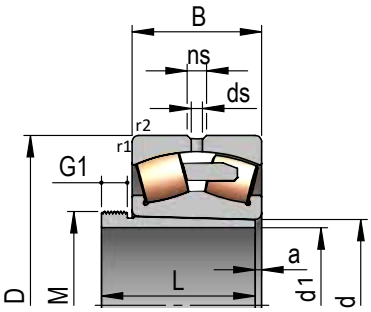
** Dimensions in mm.*
*** Mass in kg.*



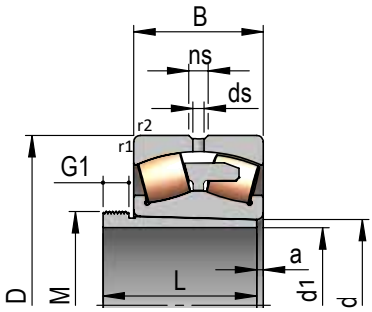

## 2..-K-CA-W33-ENH+AH...
## 2..-K30-CA-W33-ENH+AH...

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | a | G1 | Thread(M) | Mass** |
| 4,8 | 9,5 | 0,22 | 3,0 | 3,1 | 4,6 | 6,25 | AHX 3028 | 135 | 68 | 5 | 14 | M 150 x 2 | 1,0 |
| 4,8 | 9,5 | 0,27 | 2,4 | 2,5 | 3,7 | 10 | AHX 3128 | 135 | 83 | 5 | 14 | M 150 x 2 | 1,3 |
| 6,3 | 12,2 | 0,33 | 2,0 | 2,0 | 3,0 | 18,1 | AHX 3228 G | 135 | 104 | 5 | 15 | M 150 x 2 | 1,7 |
| 3 | 5,5 | 0,31 | 2,2 | 2,2 | 3,3 | 8,44 | AH 24028 | 135 | 83 | 10 | 14 | M 145 x 2 | 0,95 |
| 4,5 | 8,3 | 0,35 | 1,9 | 1,9 | 2,9 | 13,3 | AH 24128 | 135 | 99 | 10 | 14 | M 150 x 2 | 1,3 |
| 8 | 15 | 0,25 | 2,6 | 2,7 | 4,0 | 17,65 | AHX 3130 G | 145 | 96 | 5 | 15 | M 160 x 3 | 1,6 |
| 9,5 | 17,7 | 0,33 | 2,0 | 2,0 | 3,0 | 41,5 | AHX 2330 G | 145 | 135 | 5 | 24 | M 160 x 3 | 2,7 |
| 4,8 | 9,5 | 0,22 | 3,0 | 3,1 | 4,6 | 7,6 | AHX 3030 | 145 | 72 | 5 | 15 | M 160 x 3 | 1,1 |
| 6,3 | 12,2 | 0,29 | 2,3 | 2,3 | 3,5 | 15,4 | AHX 3130 G | 145 | 96 | 5 | 15 | M 160 x 3 | 1,6 |
| 6,3 | 12,2 | 0,32 | 2,0 | 2,1 | 3,1 | 23,3 | AHX 3230 G | 145 | 114 | 5 | 17 | M 160 x 3 | 2,1 |
| 3 | 5,5 | 0,30 | 2,2 | 2,3 | 3,3 | 10,4 | AH 24030 | 145 | 90 | 11 | 15 | M 155 x 3 | 1,05 |
| 4,5 | 8,3 | 0,37 | 1,8 | 1,8 | 2,7 | 19,8 | AH 24130 | 145 | 115 | 11 | 15 | M 160 x 3 | 1,6 |
| 8 | 15 | 0,26 | 2,6 | 2,6 | 3,9 | 22,6 | AH 3132 G | 150 | 103 | 5 | 16 | M 170 x 3 | 2,9 |
| 9 | 16,7 | 0,34 | 1,9 | 2,0 | 2,9 | 48,9 | AH 2332 G | 150 | 140 | 6 | 24 | M 170 x 3 | 4,3 |
| 6,3 | 12,2 | 0,22 | 3,0 | 3,1 | 4,6 | 9,2 | AH 3032 | 150 | 77 | 5 | 16 | M 170 x 3 | 2,0 |
| 8 | 15 | 0,29 | 2,3 | 2,3 | 3,5 | 19,4 | AH 3132 G | 150 | 103 | 5 | 16 | M 170 x 3 | 2,9 |
| 8 | 15 | 0,34 | 2,0 | 2,0 | 3,0 | 29,4 | AH 3232 G | 150 | 124 | 6 | 20 | M 170 x 3 | 3,7 |
| 4,5 | 8,3 | 0,30 | 2,2 | 2,2 | 3,3 | 12,56 | AH 24032 | 150 | 95 | 11 | 15 | M 170 x 3 | 2,3 |
| 4,5 | 8,3 | 0,39 | 1,7 | 1,7 | 2,6 | 25,62 | AH 24132 | 150 | 124 | 11 | 15 | M 170 x 3 | 3,0 |
| 9,5 | 17,7 | 0,26 | 2,5 | 2,6 | 3,9 | 27,15 | AH 3134 G | 160 | 104 | 5 | 16 | M 180 x 3 | 3,2 |
| 9 | 16,7 | 0,34 | 1,9 | 2,0 | 3,0 | 58,2 | AH 2334 G | 160 | 146 | 6 | 24 | M 180 x 3 | 4,5 |
| 6,3 | 12,2 | 0,23 | 2,9 | 3,0 | 4,4 | 12,5 | AH 3034 | 160 | 85 | 5 | 17 | M 180 x 3 | 2,4 |
| 8 | 15 | 0,28 | 2,3 | 2,4 | 3,5 | 21,4 | AH 3134 G | 160 | 104 | 5 | 16 | M 180 x 3 | 3,2 |
| 8 | 15 | 0,33 | 2,0 | 2,1 | 3,1 | 35,3 | AH 3234 G | 160 | 134 | 6 | 24 | M 180 x 3 | 4,3 |
| 4,5 | 8,3 | 0,33 | 2,0 | 2,0 | 3,0 | 17,4 | AH 24034 | 160 | 106 | 11 | 16 | M 180 x 3 | 2,7 |
| 4,5 | 8,3 | 0,37 | 1,8 | 1,8 | 2,7 | 26,5 | AH 24134 | 160 | 125 | 11 | 16 | M 180 x 3 | 3,25 |
| 9,5 | 17,7 | 0,25 | 2,7 | 2,7 | 4,0 | 28,5 | AH 2236 G | 170 | 105 | 5 | 17 | M 190 x 3 | 3,4 |
| 12 | 22,3 | 0,33 | 2,0 | 2,0 | 3,0 | 68,3 | AH 2336 G | 170 | 154 | 6 | 26 | M 190 x 3 | 5,5 |
| 8 | 15 | 0,23 | 2,8 | 2,9 | 4,3 | 16,4 | AH 3036 | 170 | 92 | 6 | 17 | M 190 x 3 | 2,8 |
| 8 | 15 | 0,29 | 2,3 | 2,3 | 3,5 | 25,2 | AH 3136 G | 170 | 116 | 6 | 19 | M 190 x 3 | 3,8 |
| 8 | 15 | 0,32 | 2,1 | 2,1 | 3,1 | 37,6 | AH 3236 G | 170 | 140 | 6 | 25 | M 190 x 3 | 4,8 |
| 3 | 6 | 0,18 | 3,7 | 3,8 | 5,6 | 7,75 | AH 3936 | 170 | 66 | 5 | 13 | M 190 x 3 | 1,94 |

*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*



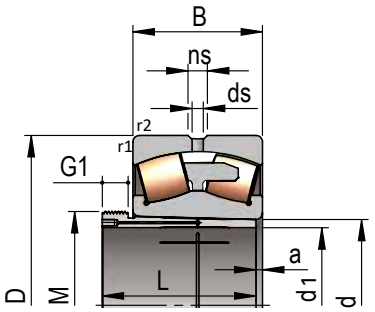

2..-K-MC-W33-ENH+AH...




2..-K-CA-W33-ENH+AH...
2..-K30-CA-W33-ENH+AH...

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1$, $r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 180 | 280 | 100 | 24036-K30-CA-W33-ENH | 1.120 | 1.780 | 168,8 | 1.420 | 1.220 | 2,1 |
| | 300 | 118 | 24136-K30-CA-W33-ENH | 1.440 | 2.160 | 202,3 | 990 | 890 | 3 |
| 190 | 340 | 92 | 22238-K-CA-W33-ENH | 1.336 | 1.720 | 156 | 1.630 | 1.380 | 4 |
| | 400 | 132 | 22338-K-CA-W33-ENH | 2.175 | 2.600 | 228,4 | 1.190 | 1.040 | 5 |
| | 290 | 75 | 23038-K-MC-W33-ENH | 1.055 | 1.520 | 142 | 1.690 | 1.410 | 2,1 |
| | 320 | 104 | 23138-K-MC-W33-ENH | 1.575 | 2.210 | 202,6 | 1.270 | 1.100 | 3 |
| | 340 | 120 | 23238-K-CA-W33-ENH | 1.725 | 2.400 | 217,7 | 1.080 | 950 | 4 |
| | 260 | 52 | 23938-K-CA-W33-ENH | 520 | 870 | 83 | 1.760 | 1.440 | 2 |
| | 290 | 100 | 24038-K30-CA-W33-ENH | 1.144 | 1.860 | 174 | 1.340 | 1.145 | 2,1 |
| | 320 | 128 | 24138-K30-CA-W33-ENH | 1.640 | 2.520 | 231,4 | 900 | 810 | 3 |
| 200 | 360 | 98 | 22240-K-CA-W33-ENH | 1.520 | 1.990 | 178,1 | 1.510 | 1.280 | 4 |
| | 420 | 138 | 22340-K-CA-W33-ENH | 2.420 | 2.900 | 250,9 | 1.100 | 970 | 5 |
| | 310 | 82 | 23040-K-MC-W33-ENH | 1.235 | 1.790 | 164,3 | 1.570 | 1.320 | 2,1 |
| | 340 | 112 | 23140-K-CA-W33-ENH | 1.625 | 2.360 | 213,1 | 1.220 | 1.050 | 3 |
| | 360 | 128 | 23240-K-CA-W33-ENH | 1.910 | 2.670 | 238,4 | 1.010 | 890 | 4 |
| | 280 | 60 | 23940-K-CA-W33-ENH | 640 | 1.070 | 100 | 1.660 | 1.370 | 2,1 |
| | 310 | 109 | 24040-K30-CA-W33-ENH | 1.326 | 2.120 | 195 | 1.250 | 1.075 | 2,1 |
| | 340 | 140 | 24140-K30-CA-W33-ENH | 1.850 | 2.800 | 253,5 | 850 | 770 | 3 |
| 220 | 400 | 108 | 22244-K-CA-W33-ENH | 1.830 | 2.360 | 204,2 | 1.350 | 1.140 | 4 |
| | 460 | 145 | 22344-K-CA-W33-ENH | 2.800 | 3.450 | 289,5 | 950 | 840 | 5 |
| | 340 | 90 | 23044-K-CA-W33-ENH | 1.245 | 1.900 | 169,6 | 1.460 | 1.220 | 3 |
| | 370 | 120 | 23144-K-CA-W33-ENH | 1.850 | 2.750 | 241,6 | 1.080 | 940 | 4 |
| | 400 | 144 | 23244-K-CA-W33-ENH | 2.430 | 3.500 | 302,8 | 850 | 760 | 4 |
| | 300 | 60 | 23944-K-CA-W33-ENH | 655 | 1.170 | 107,1 | 1.490 | 1.225 | 2,1 |
| | 340 | 118 | 24044-K30-CA-W33-ENH | 1.595 | 2.586 | 231 | 1.100 | 945 | 3 |
| | 370 | 150 | 24144-K30-CA-W33-ENH | 2.158 | 3.300 | 290,5 | 745 | 680 | 4 |
| 240 | 440 | 120 | 22248-K-CA-W33-ENH | 2.230 | 3.000 | 252,6 | 1.180 | 1.010 | 4 |
| | 500 | 155 | 22348-K-CA-W33-ENH | 3.180 | 4.000 | 327,4 | 850 | 750 | 5 |
| | 360 | 92 | 23048-K-CA-W33-ENH | 1.315 | 2.140 | 187,2 | 1.320 | 1.100 | 3 |
| | 400 | 128 | 23148-K-CA-W33-ENH | 2.180 | 3.200 | 274,4 | 970 | 840 | 4 |
| | 440 | 160 | 23248-K-CA-W33-ENH | 2.980 | 4.300 | 361,8 | 740 | 670 | 4 |
| | 320 | 60 | 23948-K-CA-W33-ENH | 680 | 1.280 | 114,5 | 1.330 | 1.100 | 2,1 |

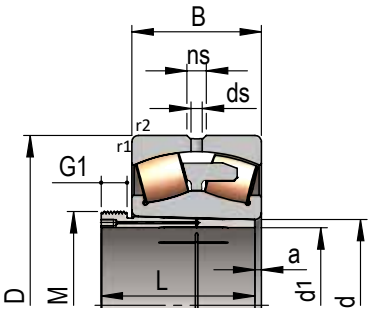
* Dimensions in mm.
** Mass in kg.




## 2..-K-CA-W33-ENH+AH...-H
## 2..-K30-CA-W33-ENH+AH...-H

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | a | G1 | Thread(M) | Mass** |
| 4,5 | 8,3 | 0,33 | 2,0 | 2,0 | 3,0 | 22,8 | AH 24036 | 170 | 116 | 11 | 16 | M 190 x 3 | 3,2 |
| 4,5 | 8,3 | 0,37 | 1,8 | 1,8 | 2,7 | 33,41 | AH 24136 | 170 | 134 | 11 | 16 | M 190 x 3 | 3,74 |
| 9 | 16,7 | 0,26 | 2,5 | 2,6 | 3,9 | 35,7 | AH 2238 G | 180 | 112 | 5 | 18 | M 200 x 3 | 3,9 |
| 12 | 22,3 | 0,34 | 1,9 | 2,0 | 3,0 | 79,1 | AH 2338 G | 180 | 160 | 7 | 26 | M 200 x 3 | 6,0 |
| 8 | 15 | 0,22 | 2,9 | 3,0 | 4,5 | 17,2 | AH 3038 G | 180 | 96 | 6 | 18 | M 200 x 3 | 3,2 |
| 8 | 15 | 0,30 | 2,2 | 2,3 | 3,4 | 33,3 | AH 3138 G | 180 | 125 | 6 | 20 | M 200 x 3 | 4,4 |
| 9 | 16,7 | 0,35 | 1,9 | 2,0 | 2,9 | 46,1 | AH 3238 G | 180 | 145 | 7 | 25 | M 200 x 3 | 5,3 |
| 3 | 6 | 0,18 | 3,7 | 3,8 | 5,7 | 8,1 | AH 3938 | 180 | 66 | 5 | 13 | M 200 x 3 | 2,05 |
| 4,5 | 8,3 | 0,32 | 2,1 | 2,1 | 3,2 | 23,9 | AH 24038 | 180 | 118 | 13 | 18 | M 200 x 3 | 3,5 |
| 6 | 11,1 | 0,38 | 1,7 | 1,77 | 2,6 | 42,02 | AH 24138 | 180 | 146 | 13 | 18 | M 200 x 3 | 4,4 |
| 9 | 16,7 | 0,27 | 2,4 | 2,5 | 3,7 | 43,4 | AH 2240 | 190 | 118 | 5 | 19 | Tr 220 x 4 | 4,6 |
| 12 | 22,3 | 0,34 | 2,0 | 2,0 | 3,0 | 92,2 | AH 2340 | 190 | 170 | 7 | 30 | Tr 220 x 4 | 7,5 |
| 8 | 15 | 0,23 | 2,8 | 2,9 | 4,3 | 22,2 | AH 3040 G | 190 | 102 | 6 | 19 | Tr 210 x 4 | 3,69 |
| 9 | 16,7 | 0,31 | 2,1 | 2,2 | 3,2 | 41,7 | AH 3140 | 190 | 134 | 6 | 21 | Tr 220 x 4 | 5,7 |
| 9 | 16,7 | 0,35 | 1,9 | 2,0 | 2,9 | 55,8 | AH 3240 | 190 | 153 | 7 | 24 | Tr 220 x 4 | 6,5 |
| 4,5 | 8,3 | 0,19 | 3,5 | 3,6 | 5,4 | 11,4 | AH 3940 | 190 | 77 | 6 | 16 | Tr 210 x 4 | 2,6 |
| 6 | 11,1 | 0,33 | 2,0 | 2,1 | 3,1 | 30,3 | AH 24040 | 190 | 127 | 13 | 18 | Tr 210 x 4 | 4 |
| 6 | 11,1 | 0,40 | 1,6 | 1,7 | 2,5 | 52 | AH 24140 | 190 | 158 | 13 | 18 | Tr 210 x 4 | 5 |
| 9 | 16,7 | 0,27 | 2,5 | 2,5 | 3,7 | 59 | AH 2244-H | 200 | 130 | 6 | 20 | Tr 240 x 4 | 9,1 |
| 12 | 22,3 | 0,31 | 2,2 | 2,2 | 3,3 | 113,6 | AH 2344-H | 200 | 181 | 8 | 30 | Tr 240 x 4 | 13,5 |
| 7,5 | 13,9 | 0,24 | 2,7 | 2,8 | 4,1 | 29,5 | AH 3044 G-H | 200 | 111 | 6 | 20 | Tr 230 x 4 | 7,3 |
| 9,5 | 17,7 | 0,31 | 2,2 | 2,2 | 3,3 | 52,2 | AH 3144-H | 200 | 145 | 6 | 23 | Tr 240 x 4 | 9,5 |
| 9 | 16,7 | 0,35 | 1,9 | 1,9 | 2,9 | 79,8 | AH 2344-H | 200 | 181 | 8 | 30 | Tr 240 x 4 | 13,5 |
| 4,5 | 8,3 | 0,18 | 3,8 | 3,9 | 5,7 | 12,5 | AH 3944-H | 200 | 77 | 6 | 16 | Tr 230 x 4 | 4,8 |
| 6 | 11,1 | 0,32 | 2,1 | 2,1 | 3,1 | 39,6 | AH 24044-H | 200 | 138 | 14 | 20 | Tr 230 x 4 | 7,5 |
| 6 | 11,1 | 0,38 | 1,7 | 1,8 | 2,6 | 65,1 | AH 24144-H | 200 | 170 | 14 | 20 | Tr 230 x 4 | 10,0 |
| 12 | 22,3 | 0,26 | 2,5 | 2,6 | 3,8 | 80 | AH 2248-H | 220 | 144 | 6 | 21 | Tr 260 x 4 | 10,6 |
| 12 | 22,3 | 0,31 | 2,2 | 2,2 | 3,3 | 142 | AH 2348-H | 220 | 189 | 8 | 30 | Tr 260 x 4 | 14,0 |
| 7,5 | 13,9 | 0,23 | 2,9 | 3,0 | 4,4 | 31,9 | AH 3048-H | 220 | 116 | 7 | 21 | Tr 260 x 4 | 8,0 |
| 9 | 16,7 | 0,31 | 2,2 | 2,2 | 3,3 | 64,4 | AH 3148-H | 220 | 154 | 7 | 25 | Tr 260 x 4 | 12,0 |
| 12 | 22,3 | 0,36 | 1,9 | 1,9 | 2,8 | 106,7 | AH 2348-H | 220 | 189 | 8 | 30 | Tr 260 x 4 | 14,1 |
| 4,5 | 8,3 | 0,16 | 4,0 | 4,1 | 6,1 | 13,2 | AH 3948-H | 220 | 77 | 6 | 16 | Tr 250 x 4 | 5,3 |

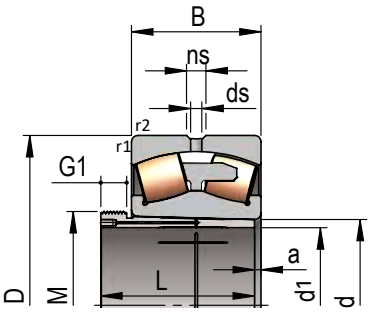
*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*




## 2..-K-CA-W33-ENH+AH...-H
## 2..-K30-CA-W33-ENH+AH...-H

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1, r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 240 | 360 | 118 | 24048-K30-CA-W33-ENH | 1.636 | 2.825 | 247,5 | 990 | 850 | 3 |
| | 400 | 160 | 24148-K30-CA-W33-ENH | 2.460 | 3.900 | 334,8 | 650 | 600 | 4 |
| 260 | 480 | 130 | 22252-K-CA-W33-ENH | 2.650 | 3.500 | 286,7 | 1.070 | 910 | 5 |
| | 540 | 165 | 22352-K-CA-W33-ENH | 3.640 | 4.600 | 368,7 | 760 | 680 | 6 |
| | 400 | 104 | 23052-K-CA-W33-ENH | 1.675 | 2.700 | 229,2 | 1.170 | 990 | 4 |
| | 440 | 144 | 23152-K-CA-W33-ENH | 2.597 | 3.980 | 332 | 860 | 750 | 4 |
| | 480 | 174 | 23252-K-CA-W33-ENH | 3.330 | 4.750 | 390,3 | 685 | 615 | 5 |
| | 360 | 75 | 23952-K-CA-W33-ENH | 1.040 | 1.880 | 162,8 | 1.200 | 1.000 | 2,1 |
| | 400 | 140 | 24052-K30-CA-W33-ENH | 2.145 | 3.700 | 315 | 875 | 765 | 4 |
| | 440 | 180 | 24152-K30-CA-W33-ENH | 3.050 | 4.800 | 401,3 | 570 | 525 | 4 |
| 280 | 500 | 130 | 22256-K-CA-W33-ENH | 2.770 | 3.750 | 302,8 | 980 | 840 | 5 |
| | 580 | 175 | 22356-K-CA-W33-ENH | 4.150 | 5.260 | 412,7 | 690 | 610 | 6 |
| | 420 | 106 | 23056-K-CA-W33-ENH | 1.770 | 2.900 | 242,3 | 1.090 | 910 | 4 |
| | 460 | 146 | 23156-K-CA-W33-ENH | 2.720 | 4.200 | 344,9 | 800 | 700 | 5 |
| | 500 | 176 | 23256-K-CA-W33-ENH | 3.475 | 5.165 | 417,2 | 630 | 570 | 5 |
| | 380 | 75 | 23956-K-CA-W33-ENH | 1.030 | 1.925 | 163,5 | 1.110 | 925 | 2,1 |
| | 420 | 140 | 24056-K30-CA-W33-ENH | 2.210 | 3.840 | 321 | 815 | 710 | 4 |
| | 460 | 180 | 24156-K30-CA-W33-ENH | 3.175 | 5.165 | 424,5 | 525 | 485 | 5 |
| 300 | 540 | 140 | 22260-K-CA-W33-ENH | 3.115 | 4.250 | 335,1 | 900 | 770 | 5 |
| | 460 | 118 | 23060-K-CA-W33-ENH | 2.200 | 3.450 | 280,7 | 990 | 840 | 4 |
| | 500 | 160 | 23160-K-CA-W33-ENH | 3.295 | 5.100 | 409,2 | 710 | 630 | 5 |
| | 540 | 192 | 23260-K-CA-W33-ENH | 4.050 | 6.100 | 481,7 | 560 | 510 | 5 |
| | 420 | 90 | 23960-K-CA-W33-ENH | 1.390 | 2.500 | 206,9 | 1.020 | 850 | 3 |
| | 460 | 160 | 24060-K30-CA-W33-ENH | 2.780 | 4.735 | 386 | 730 | 645 | 4 |
| | 500 | 200 | 24160-K30-CA-W33-ENH | 3.840 | 6.335 | 508,5 | 460 | 425 | 5 |
| 320 | 580 | 150 | 22264-K-CA-W33-ENH | 3.600 | 4.900 | 378,2 | 820 | 710 | 5 |
| | 480 | 121 | 23064-K-CA-W33-ENH | 2.310 | 3.800 | 305 | 920 | 780 | 4 |
| | 540 | 176 | 23164-K-CA-W33-ENH | 3.785 | 5.975 | 469 | 650 | 570 | 5 |
| | 580 | 208 | 23264-K-CA-W33-ENH | 4.580 | 7.000 | 540,5 | 510 | 470 | 5 |
| | 440 | 90 | 23964-K-CA-W33-ENH | 1.450 | 2.740 | 223,1 | 940 | 780 | 3 |
| | 480 | 160 | 24064-K30-CA-W33-ENH | 2.920 | 5.150 | 413 | 675 | 590 | 4 |
| | 540 | 218 | 24164-K30-CA-W33-ENH | 4.350 | 7.080 | 555,8 | 425 | 395 | 5 |

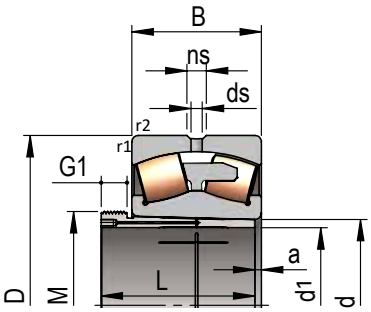
** Dimensions in mm.*
*** Mass in kg.*




## 2..-K-CA-W33-ENH+AH...-H
## 2..-K30-CA-W33-ENH+AH...-H

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | a | G1 | Thread(M) | Mass** |
| 6 | 11,1 | 0,30 | 2,2 | 2,3 | 3,3 | 42,9 | AH 24048-H | 220 | 138 | 15 | 20 | Tr 250 x 4 | 8,1 |
| 6 | 11,1 | 0,38 | 1,7 | 1,8 | 2,6 | 80,98 | AH 24148-H | 220 | 180 | 15 | 20 | Tr 260 x 4 | 11,5 |
| 12 | 22,3 | 0,27 | 2,5 | 2,5 | 3,8 | 105,7 | AH 2252 G-H | 240 | 155 | 6 | 23 | Tr 280 x 4 | 13,5 |
| 12 | 22,3 | 0,31 | 2,1 | 2,2 | 3,2 | 179 | AH 2352 G-H | 240 | 205 | 8 | 30 | Tr 280 x 4 | 18,8 |
| 9 | 16,7 | 0,24 | 2,8 | 2,8 | 4,2 | 47,3 | AH 3052-H | 240 | 128 | 7 | 23 | Tr 280 x 4 | 9,8 |
| 9 | 16,7 | 0,31 | 2,1 | 2,2 | 3,2 | 89,2 | AH 3152 G-H | 240 | 172 | 7 | 26 | Tr 280 x 4 | 15,5 |
| 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 138 | AH 2352 G-H | 240 | 205 | 8 | 30 | Tr 280 x 4 | 18,8 |
| 4,5 | 8,3 | 0,18 | 3,7 | 3,8 | 5,6 | 22,7 | AH 3952 G-H | 240 | 94 | 6 | 18 | Tr 280 x 4 | 7,7 |
| 6 | 11,1 | 0,33 | 2,0 | 2,1 | 3,1 | 64,6 | AH 24052 G-H | 240 | 162 | 16 | 22 | Tr 280 x 4 | 12,3 |
| 7,5 | 13,9 | 0,40 | 1,7 | 1,7 | 2,5 | 108 | AH 24152-H | 240 | 202 | 16 | 22 | Tr 280 x 4 | 14,0 |
| 12 | 22,3 | 0,26 | 2,6 | 2,6 | 3,9 | 109 | AH 2256 G-H | 260 | 155 | 8 | 24 | Tr 300 x 4 | 15,0 |
| 12 | 22,3 | 0,31 | 2,1 | 2,2 | 3,2 | 223,5 | AH 2356 G-H | 260 | 212 | 8 | 30 | Tr 300 x 4 | 21,1 |
| 9 | 16,7 | 0,23 | 2,9 | 2,9 | 4,4 | 50,7 | AH 3056-H | 260 | 131 | 8 | 24 | Tr 300 x 4 | 11,2 |
| 9 | 16,7 | 0,30 | 2,2 | 2,3 | 3,4 | 94,9 | AH 3156 G-H | 260 | 175 | 8 | 28 | Tr 300 x 4 | 16,7 |
| 12 | 22,3 | 0,34 | 1,9 | 2,0 | 2,9 | 147 | AH 2356 G-H | 260 | 212 | 8 | 30 | Tr 300 x 4 | 21,1 |
| 6 | 11,1 | 0,17 | 3,9 | 4,0 | 5,9 | 24,4 | AH 3956 G-H | 260 | 94 | 6 | 18 | Tr 300 x 4 | 8,3 |
| 6 | 11,1 | 0,31 | 2,1 | 2,2 | 3,2 | 68,5 | AH 24056 G-H | 260 | 162 | 17 | 22 | Tr 300 x 4 | 13,5 |
| 8 | 15 | 0,37 | 1,8 | 1,8 | 2,7 | 118,67 | AH 24156-H | 260 | 202 | 17 | 22 | Tr 300 x 4 | 15,2 |
| 12 | 22,3 | 0,25 | 2,6 | 2,7 | 4,0 | 137 | AH 2260 G-H | 280 | 170 | 8 | 26 | Tr 320 x 5 | 17,6 |
| 9 | 16,7 | 0,23 | 2,8 | 2,9 | 4,3 | 70,9 | AH 3060-H | 280 | 145 | 8 | 26 | Tr 320 x 5 | 14,4 |
| 9 | 16,7 | 0,30 | 2,2 | 2,2 | 3,3 | 126 | AH 3160 G-H | 280 | 192 | 8 | 30 | Tr 320 x 5 | 20,1 |
| 12 | 22,3 | 0,35 | 1,7 | 2,0 | 2,9 | 189 | AH 3260 G-H | 280 | 228 | 8 | 34 | Tr 320 x 5 | 23,5 |
| 6 | 11,1 | 0,19 | 3,5 | 3,6 | 5,3 | 38,7 | AH 3960 G-H | 280 | 112 | 7 | 21 | Tr 320 x 5 | 10,8 |
| 7,5 | 13,9 | 0,33 | 2,0 | 2,1 | 3,1 | 96,7 | AH 24060 G-H | 280 | 184 | 18 | 24 | Tr 320 x 5 | 16,6 |
| 7,5 | 13,9 | 0,37 | 1,8 | 1,8 | 2,7 | 158,1 | AH 24160-H | 280 | 224 | 18 | 24 | Tr 320 x 5 | 18,5 |
| 12 | 22,3 | 0,25 | 2,6 | 2,7 | 4,0 | 170 | AH 2264 G-H | 300 | 180 | 10 | 27 | Tr 340 x 5 | 19,9 |
| 9 | 16,7 | 0,23 | 2,8 | 2,9 | 4,3 | 76 | AH 3064 G-H | 300 | 149 | 8 | 27 | Tr 340 x 5 | 16,0 |
| 12 | 22,3 | 0,31 | 2,1 | 2,2 | 3,2 | 162,9 | AH 3164 G-H | 300 | 209 | 8 | 31 | Tr 340 x 5 | 23,8 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 234,8 | AH 3264 G-H | 300 | 246 | 8 | 36 | Tr 340 x 5 | 27,5 |
| 6 | 11,1 | 0,18 | 3,8 | 3,9 | 5,7 | 40,7 | AH 3964 G-H | 300 | 112 | 7 | 21 | Tr 340 x 5 | 11,9 |
| 7,5 | 13,9 | 0,31 | 2,1 | 2,2 | 3,2 | 102,1 | AH 24064 G-H | 300 | 184 | 18 | 24 | Tr 340 x 5 | 17,7 |
| 9 | 16,7 | 0,38 | 1,7 | 1,8 | 2,6 | 203 | AH 24164-H | 300 | 242 | 18 | 24 | Tr 340 x 5 | 21,8 |

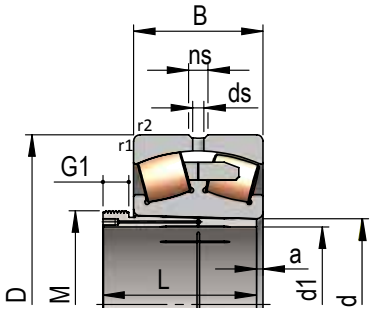
*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*




## 2..-K-CA-W33-ENH+AH...-H
## 2..-K30-CA-W33-ENH+AH...-H

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1$, $r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 340 | 520 | 133 | 23068-K-CA-W33-ENH | 2.755 | 4.550 | 357,2 | 840 | 720 | 5 |
| | 580 | 190 | 23168-K-CA-W33-ENH | 4.335 | 6.780 | 521,8 | 590 | 530 | 5 |
| | 620 | 224 | 23268-K-CA-W33-ENH | 5.250 | 7.850 | 595,4 | 475 | 435 | 6 |
| | 460 | 90 | 23968-K-CA-W33-ENH | 1.475 | 2.900 | 232,5 | 870 | 730 | 3 |
| | 520 | 180 | 24068-K30-CA-W33-ENH | 3.540 | 6.200 | 487 | 615 | 540 | 5 |
| | 580 | 243 | 24168-K30-CA-W33-ENH | 5.400 | 8.670 | 667 | 375 | 350 | 5 |
| 360 | 540 | 134 | 23072-K-CA-W33-ENH | 2.800 | 4.800 | 372 | 790 | 670 | 5 |
| | 600 | 192 | 23172-K-CA-W33-ENH | 4.430 | 7.000 | 531,5 | 570 | 500 | 5 |
| | 650 | 232 | 23272-K-CA-W33-ENH | 5.650 | 8.650 | 646,5 | 440 | 400 | 6 |
| | 480 | 90 | 23972-K-CA-W33-ENH | 1.500 | 2.960 | 234,4 | 820 | 680 | 3 |
| | 540 | 180 | 24072-K30-CA-W33-ENH | 3.635 | 6.500 | 504 | 575 | 510 | 5 |
| | 600 | 243 | 24172-K30-CA-W33-ENH | 5.565 | 9.110 | 693 | 350 | 330 | 5 |
| 380 | 560 | 135 | 23076-K-CA-W33-ENH | 2.900 | 5.000 | 382 | 740 | 630 | 5 |
| | 620 | 194 | 23176-K-CA-W33-ENH | 4.550 | 7.400 | 555 | 530 | 470 | 5 |
| | 680 | 240 | 23276-K-CA-W33-ENH | 6.100 | 9.500 | 699,5 | 400 | 370 | 6 |
| | 520 | 106 | 23976-K-CA-W33-ENH | 1.990 | 3.940 | 304,8 | 750 | 635 | 4 |
| | 560 | 180 | 24076-K30-CA-W33-ENH | 3.710 | 6.785 | 519 | 545 | 480 | 5 |
| | 620 | 243 | 24176-K30-CA-W33-ENH | 5.850 | 9.800 | 735 | 325 | 305 | 5 |
| 400 | 600 | 148 | 23080-K-MB-W33-ENH | 3.390 | 6.100 | 457,7 | 680 | 580 | 5 |
| | 650 | 200 | 23180-K-CA-W33-ENH | 4.860 | 7.860 | 582 | 500 | 450 | 6 |
| | 720 | 256 | 23280-K-CA-W33-ENH | 6.850 | 10.700 | 775 | 370 | 340 | 6 |
| | 540 | 106 | 23980-K-CA-W33-ENH | 2.030 | 4.070 | 311 | 710 | 600 | 4 |
| | 600 | 200 | 24080-K30-MB-W33-ENH | 4.400 | 8.300 | 623 | 490 | 435 | 5 |
| | 650 | 250 | 24180-K30-CA-W33-ENH | 6.200 | 10.550 | 780 | 300 | 285 | 6 |
| 420 | 620 | 150 | 23084-K-CA-W33-ENH | 3.560 | 6.200 | 460 | 650 | 560 | 5 |
| | 700 | 224 | 23184-K-CA-W33-ENH | 5.900 | 9.600 | 696 | 455 | 410 | 6 |
| | 760 | 272 | 23284-K-CA-W33-ENH | 7.650 | 12.100 | 862 | 340 | 310 | 7,5 |
| | 560 | 106 | 23984-K-CA-W33-ENH | 2.080 | 4.300 | 325 | 670 | 565 | 4 |
| | 620 | 200 | 24084-K30-CA-W33-ENH | 4.525 | 8.400 | 624 | 470 | 420 | 5 |
| | 700 | 280 | 24184-K30-CA-W33-ENH | 7.300 | 12.450 | 905 | 275 | 260 | 6 |
| 440 | 650 | 157 | 23088-K-CA-W33-ENH | 3.825 | 6.740 | 492 | 620 | 530 | 6 |
| | 720 | 226 | 23188-K-CA-W33-ENH | 6.150 | 10.000 | 720 | 430 | 390 | 6 |

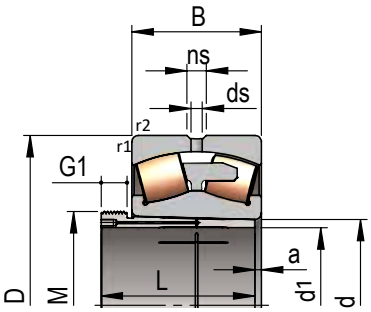
** Dimensions in mm.*
*** Mass in kg.*




## 2..-K-MB-W33-ENH+AH...-H
## 2..-K30-MB-W33-ENH+AH...-H

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | a | G1 | Thread(M) | Mass** |
| 12 | 22,3 | 0,24 | 2,8 | 2,9 | 4,3 | 101 | AH 3068 G-H | 320 | 162 | 9 | 28 | Tr 360 x 5 | 18,8 |
| 12 | 22,3 | 0,31 | 2,1 | 2,2 | 3,2 | 204 | AH 3168 G-H | 320 | 225 | 9 | 33 | Tr 360 x 5 | 27,7 |
| 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 286 | AH 3268 G-H | 320 | 264 | 9 | 38 | Tr 360 x 5 | 32,0 |
| 6 | 11,1 | 0,17 | 4,0 | 4,1 | 6,0 | 44,6 | AH 3968 G-H | 320 | 112 | 7 | 21 | Tr 360 x 5 | 12,3 |
| 9 | 16,7 | 0,31 | 2,1 | 2,2 | 3,2 | 138,4 | AH 24068-H | 320 | 206 | 19 | 26 | Tr 360 x 5 | 19,2 |
| 9 | 16,7 | 0,39 | 1,7 | 1,7 | 2,6 | 259,6 | AH 24168-H | 320 | 269 | 19 | 26 | Tr 360 x 5 | 25,5 |
| 12 | 22,3 | 0,23 | 2,9 | 2,9 | 4,4 | 107 | AH 3072 G-H | 340 | 167 | 9 | 30 | Tr 380 x 5 | 20,0 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,3 | 215 | AH 3172 G-H | 340 | 229 | 9 | 35 | Tr 380 x 5 | 30,1 |
| 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 330 | AH 3272 G-H | 340 | 274 | 9 | 40 | Tr 380 x 5 | 38,5 |
| 6 | 11,1 | 0,16 | 4,1 | 4,1 | 6,2 | 45,5 | AH 3972 G-H | 340 | 112 | 7 | 21 | Tr 380 x 5 | 13,0 |
| 9 | 16,7 | 0,31 | 2,1 | 2,2 | 3,2 | 142 | AH 24072-H | 340 | 206 | 20 | 26 | Tr 380 x 5 | 22,1 |
| 9 | 16,7 | 0,37 | 1,8 | 1,8 | 2,7 | 272,34 | AH 24172-H | 340 | 269 | 20 | 26 | Tr 380 x 5 | 27,0 |
| 12 | 22,3 | 0,22 | 3,1 | 3,1 | 4,7 | 111 | AH 3076 G-H | 360 | 170 | 10 | 31 | Tr 400 x 5 | 22,3 |
| 12 | 22,3 | 0,29 | 2,3 | 2,3 | 3,5 | 226 | AH 3176 G-H | 360 | 232 | 10 | 36 | Tr 400 x 5 | 33,0 |
| 12 | 22,3 | 0,34 | 1,9 | 2,0 | 3,0 | 368,6 | AH 3276 G-H | 360 | 284 | 10 | 42 | Tr 400 x 5 | 42,0 |
| 7,5 | 13,9 | 0,18 | 3,7 | 3,8 | 5,7 | 66,3 | AH 3976 G-H | 360 | 130 | 8 | 22 | Tr 400 x 5 | 16,1 |
| 9 | 16,7 | 0,28 | 2,3 | 2,4 | 3,5 | 151 | AH 24076-H | 360 | 208 | 20 | 28 | Tr 400 x 5 | 23,8 |
| 9 | 16,7 | 0,36 | 1,8 | 1,9 | 2,8 | 284,8 | AH 24176-H | 360 | 271 | 20 | 28 | Tr 400 x 5 | 31,0 |
| 12,5 | 22,5 | 0,24 | 2,8 | 2,9 | 4,3 | 147 | AH 3080 G-H | 380 | 183 | 10 | 33 | Tr 420 x 5 | 26,0 |
| 12 | 22,3 | 0,28 | 2,3 | 2,4 | 3,5 | 259 | AH 3180 G-H | 380 | 240 | 10 | 38 | Tr 420 x 5 | 35,4 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 443 | AH 3280 G-H | 380 | 302 | 10 | 44 | Tr 420 x 5 | 48,0 |
| 7,5 | 13,9 | 0,17 | 3,9 | 4,0 | 5,9 | 68,9 | AH 3980 G-H | 380 | 130 | 8 | 20 | Tr 420 x 5 | 17,0 |
| 12,5 | 22,5 | 0,33 | 2,0 | 2,1 | 3,1 | 198,4 | AH 24080-H | 380 | 228 | 20 | 28 | Tr 420 x 5 | 27,2 |
| 12 | 22,3 | 0,37 | 1,8 | 1,8 | 2,7 | 322,5 | AH 24180-H | 380 | 278 | 20 | 28 | Tr 420 x 5 | 34,5 |
| 12 | 22,3 | 0,22 | 3,1 | 3,1 | 4,7 | 152 | AH 3084 G-H | 400 | 186 | 10 | 34 | Tr 440 x 5 | 28,0 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,3 | 341 | AH 3184 G-H | 400 | 266 | 10 | 40 | Tr 440 x 5 | 43,0 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 528 | AH 3284 G-H | 400 | 321 | 10 | 46 | Tr 440 x 5 | 54,5 |
| 9 | 16,7 | 0,16 | 4,1 | 4,2 | 6,2 | 72,6 | AH 3984 G-H | 400 | 130 | 8 | 22 | Tr 440 x 5 | 17,8 |
| 12 | 22,3 | 0,29 | 2,3 | 2,3 | 3,5 | 205 | AH 24084-H | 400 | 230 | 22 | 30 | Tr 440 x 5 | 29,0 |
| 12 | 22,3 | 0,38 | 1,7 | 1,8 | 2,6 | 432,8 | AH 24184-H | 400 | 310 | 22 | 30 | Tr 440 x 5 | 40,3 |
| 12 | 22,3 | 0,22 | 3,0 | 3,0 | 4,5 | 176,4 | AHX 3088 G-H | 420 | 194 | 11 | 35 | Tr 460 x 5 | 30,4 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,3 | 348 | AHX 3188 G-H | 420 | 270 | 11 | 42 | Tr 460 x 5 | 46,0 |

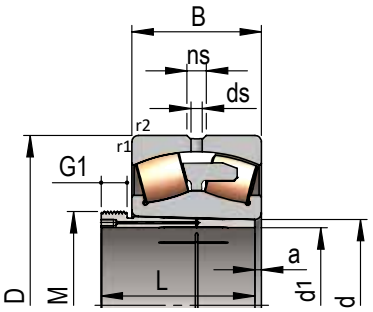
*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*




## 2..-K-CA-W33-ENH+AH...-H
## 2..-K30-CA-W33-ENH+AH...-H

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1, r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 440 | 790 | 280 | 23288-K-CA-W33-ENH | 8.100 | 12.900 | 908 | 320 | 300 | 7,5 |
| | 600 | 118 | 23988-K-CA-W33-ENH | 2.460 | 5.000 | 370 | 630 | 535 | 4 |
| | 650 | 212 | 24088-K30-CA-W33-ENH | 4.950 | 9.400 | 688 | 440 | 390 | 6 |
| | 720 | 280 | 24188-K30-CA-W33-ENH | 7.600 | 13.100 | 940 | 255 | 245 | 6 |
| 460 | 680 | 163 | 23092-K-CA-W33-ENH | 4.010 | 7.350 | 530 | 580 | 500 | 6 |
| | 760 | 240 | 23192-K-CA-W33-ENH | 6.700 | 11.250 | 794 | 400 | 360 | 7,5 |
| | 830 | 296 | 23292-K-CA-W33-ENH | 8.950 | 14.400 | 1.000 | 300 | 280 | 7,5 |
| | 620 | 118 | 23992-K-CA-W33-ENH | 2.535 | 5.290 | 388 | 590 | 505 | 4 |
| | 680 | 218 | 24092-K30-CA-W33-ENH | 5.350 | 10.200 | 737 | 410 | 365 | 6 |
| | 760 | 300 | 24192-K30-CA-W33-ENH | 8.500 | 14.600 | 1.032 | 241 | 228 | 7,5 |
| 480 | 700 | 165 | 23096-K-CA-W33-ENH | 4.350 | 7.900 | 564 | 550 | 470 | 6 |
| | 790 | 248 | 23196-K-CA-W33-ENH | 7.300 | 12.100 | 841 | 380 | 345 | 7,5 |
| | 870 | 310 | 23296-K-CA-W33-ENH | 9.800 | 15.850 | 1.086 | 280 | 260 | 7,5 |
| | 650 | 128 | 23996-K-CA-W33-ENH | 2.935 | 5.870 | 425 | 570 | 485 | 5 |
| | 700 | 218 | 24096-K30-CA-W33-ENH | 5.430 | 10.600 | 759 | 390 | 350 | 6 |
| | 790 | 308 | 24196-K30-CA-W33-ENH | 9.100 | 15.600 | 1.090 | 227 | 215 | 7,5 |
| 500 | 720 | 167 | 230/500-K-CA-W33-ENH | 4.580 | 8.450 | 597 | 520 | 450 | 6 |
| | 830 | 264 | 231/500-K-CA-W33-ENH | 8.060 | 13.500 | 928 | 350 | 320 | 7,5 |
| | 920 | 336 | 232/500-K-CA-W33-ENH | 11.300 | 18.400 | 1.239 | 255 | 240 | 7,5 |
| | 670 | 128 | 239/500-K-CA-W33-ENH | 2.975 | 6.230 | 446 | 535 | 455 | 5 |
| | 720 | 218 | 240/500-K30-CA-W33-ENH | 5.700 | 11.000 | 778 | 370 | 330 | 6 |
| | 830 | 325 | 241/500-K30-CA-W33-ENH | 9.950 | 17.000 | 1.170 | 213 | 202 | 7,5 |
| 530 | 780 | 185 | 230/530-K-CA-W33-ENH | 5.415 | 9.800 | 678 | 480 | 410 | 6 |
| | 870 | 272 | 231/530-K-CA-W33-ENH | 8.635 | 14.485 | 981 | 330 | 300 | 7,5 |
| | 980 | 355 | 232/530-K-CA-W33-ENH | 13.100 | 20.700 | 1.369 | 230 | 220 | 9,5 |
| | 710 | 136 | 239/530-K-CA-W33-ENH | 3.245 | 6.750 | 475 | 500 | 430 | 5 |
| | 780 | 250 | 240/530-K30-CA-W33-ENH | 6.920 | 13.200 | 915 | 340 | 305 | 6 |
| | 870 | 335 | 241/530-K30-CA-W33-ENH | 10.700 | 19.100 | 1.295 | 192 | 183 | 7,5 |
| 560 | 820 | 195 | 230/560-K-CA-W33-ENH | 6.000 | 11.100 | 756 | 440 | 380 | 6 |
| | 920 | 280 | 231/560-K-CA-W33-ENH | 9.640 | 16.300 | 1.086 | 300 | 275 | 7,5 |
| | 1030 | 365 | 232/560-K-CA-W33-ENH | 13.800 | 22.500 | 1.468 | 215 | 200 | 9,5 |
| | 750 | 140 | 239/560-K-CA-W33-ENH | 3.500 | 7.400 | 512 | 460 | 400 | 5 |

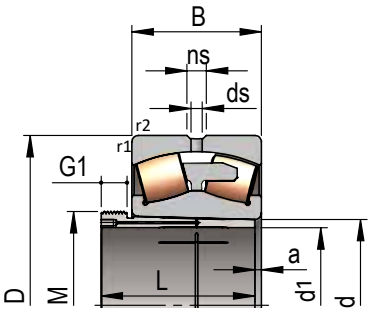
** Dimensions in mm.*
*** Mass in kg.*




## 2..-K-CA-W33-ENH+AH...-H
## 2..-K30-CA-W33-ENH+AH...-H

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | a | G1 | Thread(M) | Mass** |
| 12 | 22,3 | 0,34 | 1,9 | 2,0 | 2,9 | 582 | AHX 3288 G-H | 420 | 330 | 11 | 48 | Tr 460 x 5 | 59,1 |
| 9 | 16,7 | 0,17 | 3,9 | 4,0 | 5,9 | 97,7 | AH 3988-H | 420 | 145 | 8 | 25 | Tr 460 x 5 | 21,5 |
| 12 | 22,3 | 0,29 | 2,3 | 2,3 | 3,5 | 242 | AH 24088-H | 420 | 242 | 22 | 30 | Tr 460 x 5 | 31,9 |
| 12 | 22,3 | 0,37 | 1,8 | 1,8 | 2,7 | 448 | AH 24188-H | 420 | 310 | 22 | 30 | Tr 460 x 5 | 43,8 |
| 12 | 22,3 | 0,22 | 3,1 | 3,1 | 4,7 | 200,5 | AHX 3092 G-H | 440 | 202 | 11 | 37 | Tr 480 x 5 | 34,2 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,4 | 426 | AHX 3192 G-H | 440 | 285 | 11 | 43 | Tr 480 x 5 | 51,3 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 689 | AHX 3292 G-H | 440 | 349 | 11 | 50 | Tr 480 x 5 | 66,3 |
| 9 | 16,7 | 0,16 | 4,0 | 4,1 | 6,1 | 106 | AH 3992-H | 440 | 145 | 8 | 25 | Tr 480 x 5 | 22,4 |
| 12 | 22,3 | 0,28 | 2,3 | 2,4 | 3,5 | 272 | AH 24092-H | 440 | 250 | 23 | 32 | Tr 480 x 5 | 34,7 |
| 12 | 22,3 | 0,37 | 1,8 | 1,8 | 2,7 | 551 | AH 24192-H | 440 | 332 | 23 | 32 | Tr 480 x 5 | 48,9 |
| 12 | 22,3 | 0,21 | 3,1 | 3,2 | 4,7 | 210 | AHX 3096 G-H | 460 | 205 | 12 | 38 | Tr 500 x 5 | 35,6 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,4 | 473 | AHX 3196 G-H | 460 | 295 | 12 | 45 | Tr 500 x 5 | 55,7 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 789 | AHX 3296 G-H | 460 | 364 | 12 | 52 | Tr 500 x 5 | 73,4 |
| 9 | 16,7 | 0,18 | 3,7 | 3,8 | 5,7 | 122 | AH 3996-H | 460 | 158 | 9 | 28 | Tr 500 x 5 | 26,0 |
| 12 | 22,3 | 0,28 | 2,4 | 2,5 | 3,6 | 280 | AH 24096-H | 460 | 250 | 23 | 32 | Tr 500 x 5 | 36,5 |
| 12 | 22,3 | 0,37 | 1,8 | 1,8 | 2,7 | 596 | AH 24196 G-H | 460 | 340 | 23 | 32 | Tr 500 x 5 | 52,2 |
| 12 | 22,3 | 0,21 | 3,1 | 3,2 | 4,8 | 221 | AHX 30/500 G-H | 480 | 209 | 12 | 40 | Tr 530 x 6 | 41,3 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,3 | 569 | AHX 31/500 G-H | 480 | 313 | 12 | 47 | Tr 530 x 6 | 66,5 |
| 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 987 | AHX 32/500 G-H | 480 | 393 | 12 | 54 | Tr 530 x 6 | 89,2 |
| 12 | 22,3 | 0,17 | 3,9 | 4,0 | 6,0 | 125 | AH 39/500 G-H | 480 | 162 | 10 | 32 | Tr 530 x 6 | 29,8 |
| 12 | 22,3 | 0,27 | 2,5 | 2,5 | 3,8 | 290 | AH 240/500 G-H | 480 | 253 | 23 | 35 | Tr 530 x 6 | 39,2 |
| 12 | 22,3 | 0,37 | 1,8 | 1,8 | 2,7 | 690 | AH 241/500 G-H | 480 | 360 | 23 | 35 | Tr 530 x 6 | 61,9 |
| 12 | 22,3 | 0,22 | 3,1 | 3,1 | 4,7 | 301 | AH 30/530-H | 500 | 230 | 12 | 45 | Tr 560 x 6 | 62,6 |
| 12 | 22,3 | 0,30 | 2,2 | 2,3 | 3,4 | 628 | AH 31/530-H | 500 | 325 | 12 | 53 | Tr 560 x 6 | 93,5 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 1.165 | AH 32/530 G-H | 500 | 412 | 12 | 57 | Tr 560 x 6 | 127,0 |
| 12 | 22,3 | 0,17 | 3,9 | 4,0 | 5,9 | 150 | AH 39/530 G-H | 500 | 175 | 10 | 37 | Tr 560 x 6 | 45,8 |
| 12 | 22,3 | 0,28 | 2,3 | 2,4 | 3,5 | 408 | AH 240/530 G-H | 500 | 285 | 24 | 35 | Tr 560 x 6 | 67,2 |
| 12 | 22,3 | 0,37 | 1,8 | 1,8 | 2,7 | 784 | AH 241/530 G-H | 500 | 370 | 24 | 35 | Tr 560 x 6 | 89,8 |
| 12 | 22,3 | 0,22 | 3,0 | 3,1 | 4,6 | 349 | AHX 30/560 G-H | 530 | 240 | 12 | 45 | Tr 600 x 6 | 73,5 |
| 12 | 22,3 | 0,29 | 2,3 | 2,3 | 3,5 | 724 | AH 31/560-H | 530 | 335 | 12 | 55 | Tr 600 x 6 | 107,0 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 1.336 | AHX 32/560 G-H | 530 | 422 | 12 | 57 | Tr 600 x 6 | 141,0 |
| 12 | 22,3 | 0,16 | 4,1 | 4,2 | 6,2 | 172 | AH 39/560 G-H | 530 | 180 | 10 | 37 | Tr 600 x 6 | 52,3 |

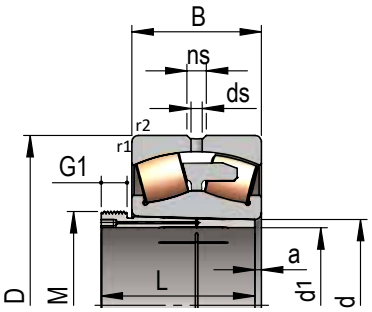
*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*




## 2..-K-CA-W33-ENH+AH...-H
## 2..-K30-CA-W33-ENH+AH...-H

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1$, $r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 560 | 820 | 258 | 240/560-K30-CA-W33-ENH | 7.490 | 14.600 | 995 | 315 | 280 | 6 |
| | 920 | 355 | 241/560-K30-CA-W33-ENH | 12.000 | 21.300 | 1.419 | 177 | 169 | 7,5 |
| 600 | 870 | 200 | 230/600-K-CA-W33-ENH | 6.400 | 12.200 | 815 | 405 | 350 | 6 |
| | 980 | 300 | 231/600-K-CA-W33-ENH | 10.700 | 18.800 | 1.227 | 270 | 250 | 7,5 |
| | 1.090 | 388 | 232/600-K-CA-W33-ENH | 15.500 | 25.440 | 1.629 | 197 | 185 | 9,5 |
| | 800 | 150 | 239/600-K-CA-W33-ENH | 3.940 | 8.500 | 576 | 430 | 370 | 5 |
| | 870 | 272 | 240/600-K30-CA-W33-ENH | 8.320 | 16.600 | 1.109 | 285 | 255 | 6 |
| | 980 | 375 | 241/600-K30-CA-W33-ENH | 13.200 | 25.300 | 1.656 | 153 | 147 | 7,5 |
| 630 | 920 | 212 | 230/630-K-CA-W33-ENH | 7.240 | 13.400 | 881 | 380 | 330 | 7,5 |
| | 1.030 | 315 | 231/630-K-CA-W33-ENH | 12.400 | 20.800 | 1.336 | 255 | 230 | 7,5 |
| | 850 | 165 | 239/630-K-CA-W33-ENH | 4.650 | 9.900 | 661 | 400 | 345 | 6 |
| | 920 | 290 | 240/630-K30-CA-W33-ENH | 9.000 | 18.025 | 1.186 | 270 | 245 | 7,5 |
| | 1.030 | 400 | 241/630-K30-CA-W33-ENH | 14.900 | 28.700 | 1.846 | 140 | 134 | 7,5 |
| 670 | 980 | 230 | 230/670-K-CA-W33-ENH | 7.900 | 15.000 | 969 | 350 | 310 | 7,5 |
| | 1090 | 336 | 231/670-K-CA-W33-ENH | 12.900 | 23.500 | 1.486 | 230 | 215 | 7,5 |
| | 1.220 | 438 | 232/670-K-CA-W33-ENH | 18.460 | 31.900 | 1.978 | 166 | 157 | 12 |
| | 900 | 170 | 239/670-K-CA-W33-ENH | 5.050 | 10.600 | 695 | 375 | 320 | 6 |
| | 980 | 308 | 240/670-K30-CA-W33-ENH | 10.200 | 20.600 | 1.333 | 245 | 220 | 7,5 |
| | 1.090 | 412 | 241/670-K30-CA-W33-ENH | 16.100 | 30.700 | 1.945 | 130 | 125 | 7,5 |
| 710 | 1.030 | 236 | 230/710-K-CA-W33-ENH | 8.600 | 16.600 | 1.056 | 330 | 290 | 7,5 |
| | 1.150 | 345 | 231/710-K-CA-W33-ENH | 14.600 | 27.000 | 1.680 | 205 | 190 | 9,5 |
| | 1.280 | 450 | 232/710-K-CA-W33-ENH | 21.000 | 35.000 | 2.136 | 150 | 144 | 12 |
| | 950 | 180 | 239/710-K-CA-W33-ENH | 5.560 | 12.000 | 775 | 345 | 300 | 6 |
| | 1.030 | 315 | 240/710-K30-CA-W33-ENH | 11.000 | 22.800 | 1.449 | 225 | 205 | 7,5 |
| | 1.150 | 438 | 241/710-K30-CA-W33-ENH | 17.500 | 34.900 | 2.176 | 118 | 114 | 9,5 |
| 750 | 1.090 | 250 | 230/750-K-CA-W33-ENH | 9.770 | 18.900 | 1.179 | 300 | 265 | 7,5 |
| | 1.220 | 365 | 231/750-K-CA-W33-ENH | 16.400 | 30.200 | 1.845 | 190 | 175 | 9,5 |
| | 1.000 | 185 | 239/750-K-CA-W33-ENH | 6.080 | 13.100 | 831 | 320 | 280 | 6 |
| | 1.090 | 335 | 240/750-K30-CA-W33-ENH | 12.000 | 25.200 | 1.575 | 209 | 190 | 7,5 |
| | 1.220 | 475 | 241/750-K30-CA-W33-ENH | 20.300 | 40.200 | 2.458 | 107 | 103 | 9,5 |
| 800 | 1.150 | 258 | 230/800-K-CA-W33-ENH | 10.300 | 20.500 | 1.258 | 280 | 245 | 7,5 |
| | 1.280 | 375 | 231/800-K-CA-W33-ENH | 17.580 | 33.200 | 1.993 | 175 | 160 | 9,5 |

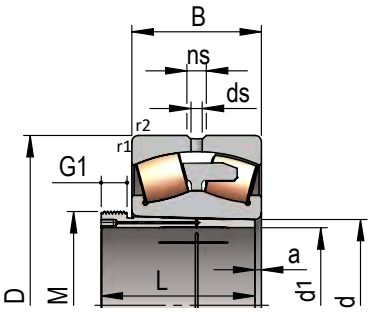
** Dimensions in mm.*
*** Mass in kg.*




## 2..-K-CA-W33-ENH+AH...-H
## 2..-K30-CA-W33-ENH+AH...-H

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | a | G1 | Thread(M) | Mass** |
| 12 | 22,3 | 0,28 | 2,4 | 2,4 | 3,6 | 464,2 | AH 240/560 G-H | 530 | 296 | 24 | 38 | Tr 600 x 6 | 78,8 |
| 12 | 22,3 | 0,36 | 1,9 | 1,9 | 2,8 | 915 | AH 241/560 G-H | 530 | 393 | 24 | 38 | Tr 600 x 6 | 105,5 |
| 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 396,5 | AHX 30/600-H | 570 | 245 | 14 | 45 | Tr 630 x 6 | 76,6 |
| 12 | 22,3 | 0,29 | 2,3 | 2,4 | 3,5 | 879 | AHX 31/600-H | 570 | 355 | 14 | 55 | Tr 630 x 6 | 119,0 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 1.553 | AHX 32/600 G-H | 570 | 445 | 14 | 57 | Tr 630 x 6 | 158,6 |
| 12 | 22,3 | 0,17 | 3,9 | 4,0 | 6,0 | 218 | AH 39/600 G-H | 570 | 192 | 10 | 38 | Tr 630 x 6 | 57,0 |
| 12 | 22,3 | 0,28 | 2,4 | 2,4 | 3,6 | 537,4 | AH 240/600 G-H | 570 | 310 | 26 | 38 | Tr 630 x 6 | 86,5 |
| 12 | 22,3 | 0,36 | 1,8 | 1,9 | 2,8 | 1.160 | AH 241/600 G-H | 570 | 413 | 26 | 38 | Tr 630 x 6 | 118,1 |
| 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 475 | AH 30/630-H | 600 | 258 | 14 | 46 | Tr 670 x 6 | 88,4 |
| 12 | 22,3 | 0,29 | 2,3 | 2,4 | 3,5 | 1.027 | AH 31/630-H | 600 | 375 | 14 | 60 | Tr 670 x 6 | 137,0 |
| 12 | 22,3 | 0,17 | 3,9 | 4,0 | 5,9 | 276 | AH 39/630 G-H | 600 | 210 | 12 | 40 | Tr 670 x 6 | 68,9 |
| 12 | 22,3 | 0,28 | 2,3 | 2,4 | 3,6 | 647 | AH 240/630 G-H | 600 | 330 | 26 | 40 | Tr 670 x 6 | 99,4 |
| 12 | 22,3 | 0,36 | 1,8 | 1,9 | 2,8 | 1.359 | AH 241/630 G-H | 600 | 440 | 26 | 40 | Tr 670 x 6 | 135,1 |
| 12 | 22,3 | 0,21 | 3,1 | 3,2 | 4,8 | 577 | AH 30/670-H | 630 | 280 | 14 | 50 | Tr 710 x 7 | 124,1 |
| 12 | 22,3 | 0,29 | 2,3 | 2,3 | 3,5 | 1.227 | AHX 31/670-H | 630 | 395 | 14 | 59 | Tr 710 x 7 | 189,0 |
| 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 2.238 | AH 32/670 G-H | 630 | 500 | 14 | 62 | Tr 710 x 7 | 251,7 |
| 12 | 22,3 | 0,17 | 3,9 | 4,0 | 6,0 | 305 | AH 39/670 G-H | 630 | 216 | 12 | 41 | Tr 710 x 7 | 92,9 |
| 12 | 22,3 | 0,28 | 2,3 | 2,4 | 3,5 | 775 | AH 240/670 G-H | 630 | 348 | 26 | 40 | Tr 710 x 7 | 138,0 |
| 12 | 22,3 | 0,36 | 1,8 | 1,9 | 2,8 | 1.517 | AH 241/670 G-H | 630 | 452 | 26 | 40 | Tr 710 x 7 | 182,0 |
| 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 657 | AHX 30/710-H | 670 | 286 | 16 | 50 | Tr 750 x 7 | 138,1 |
| 12 | 22,3 | 0,28 | 2,4 | 2,4 | 3,6 | 1.421 | AHX 31/710-H | 670 | 405 | 16 | 60 | Tr 750 x 7 | 206,6 |
| 12 | 22,3 | 0,34 | 1,9 | 2,0 | 3,0 | 2.535 | AH 32/710 G -H | 670 | 515 | 16 | 65 | Tr 750 x 7 | 278,0 |
| 12 | 22,3 | 0,17 | 3,9 | 4,0 | 6,0 | 353 | AH 39/710 G-H | 670 | 228 | 12 | 43 | Tr 750 x 7 | 105,5 |
| 12 | 22,3 | 0,27 | 2,4 | 2,5 | 3,7 | 880 | AH 240/710 G-H | 670 | 360 | 26 | 45 | Tr 750 x 7 | 154,1 |
| 12 | 22,3 | 0,36 | 1,8 | 1,9 | 2,8 | 1.782 | AH 241/710 G-H | 670 | 483 | 26 | 45 | Tr 750 x 7 | 210,3 |
| 12 | 22,3 | 0,21 | 3,2 | 3,2 | 4,8 | 777 | AH 30/750-H | 710 | 300 | 16 | 50 | Tr 800 x 7 | 145,0 |
| 12 | 22,3 | 0,28 | 2,4 | 2,4 | 3,6 | 1.668 | AH 31/750-H | 710 | 425 | 16 | 60 | Tr 800 x 7 | 236,0 |
| 12 | 22,3 | 0,16 | 4,1 | 4,2 | 6,2 | 407 | AH 39/750 G-H | 710 | 234 | 12 | 44 | Tr 800 x 7 | 118,9 |
| 12 | 22,3 | 0,28 | 2,4 | 2,5 | 3,6 | 1.050 | AH 240/750 G-H | 710 | 380 | 28 | 45 | Tr 800 x 7 | 174,0 |
| 12 | 22,3 | 0,,36 | 1,8 | 1,9 | 2,8 | 2.164 | AH 241/750 G-H | 710 | 520 | 28 | 45 | Tr 800 x 7 | 245,3 |
| 12 | 22,3 | 0,20 | 3,3 | 3,3 | 5,0 | 872 | AH 30/800-H | 750 | 308 | 18 | 50 | Tr 850 x 7 | 201,0 |
| 12 | 22,3 | 0,27 | 2,4 | 2,5 | 3,7 | 1.886 | AH 31/800-H | 750 | 438 | 18 | 63 | Tr 850 x 7 | 304,2 |

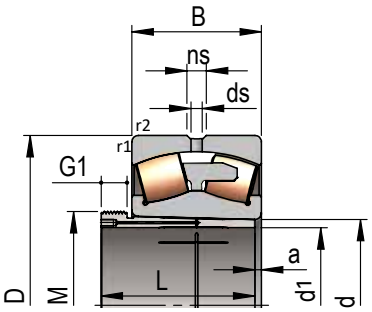
*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*




## 2..-K-CA-W33-ENH+AH...-H
## 2..-K30-CA-W33-ENH+AH...-H

| BOUNDARY DIMENSIONS* d | D | B | DESIGNATION | LOAD RATING (kN) dyn. Cr | stat. Cor | FATIGUE LIMIT LOAD (kN) Cu | THERMAL REFERENCES SPEED RATINGS (1) (rpm) ng oil | ng grease | $r_1$, $r_2$ (min) |
|---|---|---|---|---|---|---|---|---|---|
| 800 | 1.060 | 195 | 239/800-K-CA-W33-ENH | 6.490 | 14.500 | 904 | 300 | 260 | 6 |
| | 1.150 | 345 | 240/800-K30-CA-W33-ENH | 13.100 | 28.400 | 1744 | 189 | 172 | 7,5 |
| | 1.280 | 475 | 241/800-K30-CA-W33-ENH | 20.975 | 40.600 | 2.447 | 103 | 99 | 9,5 |
| 850 | 1.220 | 272 | 230/850-K-CA-W33-ENH | 11.200 | 23.100 | 1.393 | 255 | 225 | 7,5 |
| | 1.120 | 200 | 239/850-K-CA-W33-ENH | 7.045 | 16.200 | 992 | 275 | 235 | 6 |
| | 1.220 | 365 | 240/850-K30-CA-W33-ENH | 14.800 | 31.700 | 1916 | 173 | 160 | 7,5 |
| | 1.360 | 500 | 241/850-K30-CA-W33-ENH | 23.270 | 47.300 | 2.795 | 90 | 87 | 12 |
| 900 | 1.280 | 280 | 230/900-K-CA-W33-ENH | 12.000 | 25.700 | 1.525 | 235 | 210 | 7,5 |
| | 1.180 | 206 | 239/900-K-CA-W33-ENH | 7.500 | 17.000 | 1.024 | 255 | 225 | 6 |
| | 1.280 | 375 | 240/900-K30-CA-W33-ENH | 15.800 | 34.670 | 2.060 | 160 | 147 | 7,5 |
| | 1.420 | 515 | 241/900-K30-CA-W33-ENH | 24.800 | 50.000 | 2.918 | 86 | 83 | 12 |
| 950 | 1.360 | 300 | 230/950-K-CA-W33-ENH | 14.000 | 29.000 | 1.691 | 220 | 195 | 7,5 |
| | 1.250 | 224 | 239/950-K-CA-W33-ENH | 8.520 | 19.600 | 1.161 | 240 | 210 | 7,5 |
| | 1.360 | 412 | 240/950-K30-CA-W33-ENH | 17.400 | 39.200 | 2.289 | 149 | 138 | 7,5 |
| | 1.500 | 545 | 241/950-K30-CA-W33-ENH | 27.500 | 55.000 | 3.155 | 80 | 77 | 12 |
| 1.000 | 1.420 | 308 | 230/1000-K-CA-W33-ENH | 14.600 | 30.700 | 1.766 | 205 | 185 | 7,5 |
| | 1.580 | 462 | 231/1000-K-CA-W33-ENH | 25.400 | 50.800 | 2.865 | 125 | 115 | 12 |
| | 1.420 | 412 | 240/1000-K30-CA-W33-ENH | 18.100 | 40.700 | 2.341 | 140 | 130 | 7,5 |
| | 1.580 | 580 | 241/1000-K30-CA-W33-ENH | 30.800 | 62.200 | 3.513 | 72 | 70 | 12 |
| 1.060 | 1.400 | 250 | 239/1060-K-CA-W33-ENH | 11.200 | 26.000 | 1.489 | 200 | 175 | 7,5 |
| | 1.500 | 438 | 240/1060-K30-CA-W33-ENH | 20.200 | 45.900 | 2.598 | 129 | 120 | 9,5 |

* *Dimensions in mm.*
** *Mass in kg.*




## 2..-K-CA-W33-ENH+AH...-H
## 2..-K30-CA-W33-ENH+AH...-H

| SEC. DIMENSIONS | | CALCULATION FACTORS | | | | MASS** | SLEEVE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ds | ns | e | $y_0$ | $y_1$ | $y_2$ | | Desig. | d1 | L | a | G1 | Thread(M) | Mass** |
| 12 | 22,3 | 0,16 | 4,1 | 4,2 | 6,3 | 474 | AH 39/800 G-H | 750 | 245 | 12 | 45 | Tr 850 x 7 | 155,0 |
| 12 | 22,3 | 0,27 | 2,5 | 2,5 | 3,8 | 1.185 | AH 240/800 G-H | 750 | 395 | 28 | 50 | Tr 850 x 7 | 234,5 |
| 12 | 22,3 | 0,35 | 1,9 | 1,9 | 2,9 | 2.349 | AH 241/800 G-H | 750 | 525 | 28 | 50 | Tr 850 x 7 | 314,5 |
| 12 | 22,3 | 0,20 | 3,3 | 3,3 | 5,0 | 1.038 | AH 30/850-H | 800 | 325 | 18 | 53 | Tr 900 x 7 | 226,0 |
| 12 | 22,3 | 0,16 | 4,2 | 4,3 | 6,4 | 552 | AH 39/850 G-H | 800 | 258 | 12 | 50 | Tr 900 x 7 | 176,0 |
| 12 | 22,3 | 0,27 | 2,5 | 2,5 | 3,8 | 1.390 | AH 240/850 G-H | 800 | 415 | 30 | 50 | Tr 900 x 7 | 264,2 |
| 12 | 22,3 | 0,35 | 1,9 | 2,0 | 2,9 | 2.810 | AH 241/850 G-H | 800 | 560 | 40 | 60 | Tr 900 x 7 | 360,0 |
| 12 | 22,3 | 0,20 | 3,3 | 3,4 | 5,1 | 1.189 | AH 30/900-H | 850 | 335 | 20 | 55 | Tr 950 x 8 | 248,0 |
| 12 | 22,3 | 0,15 | 4,4 | 4,5 | 6,8 | 585 | AH 39/900 G-H | 850 | 265 | 12 | 51 | Tr 950 x 8 | 192,0 |
| 12 | 22,3 | 0,25 | 2,6 | 2,7 | 4,0 | 1.555 | AH 240/900 G-H | 850 | 430 | 45 | 55 | Tr 950 x 8 | 286,0 |
| 12 | 22,3 | 0,34 | 1,9 | 2,0 | 2,9 | 3.299 | AH 241/900 G-H | 850 | 575 | 45 | 60 | Tr 950 x 8 | 396,0 |
| 12 | 22,3 | 0,20 | 3,3 | 3,4 | 5,1 | 1.425 | AH 30/950-H | 900 | 355 | 20 | 55 | Tr 1.000 x 8 | 280,0 |
| 12 | 22,3 | 0,15 | 4,3 | 4,4 | 6,6 | 730 | AH 39/950 G-H | 900 | 282 | 15 | 51 | Tr 1.000 x 8 | 216,0 |
| 12 | 22,3 | 0,26 | 2,5 | 2,6 | 3,8 | 1.959 | AH 240/950 G-H | 900 | 467 | 45 | 55 | Tr 1.000 x 8 | 329,0 |
| 12 | 22,3 | 0,34 | 1,9 | 2,0 | 3,0 | 3.652 | AH 241/950 G-H | 900 | 605 | 45 | 60 | Tr 1.000 x 8 | 435,0 |
| 12 | 22,3 | 0,20 | 3,3 | 3,4 | 5,1 | 1.537 | AH 30/1000-H | 950 | 365 | 22 | 57 | Tr 1.060 x 8 | 309,0 |
| 12 | 22,3 | 0,27 | 2,5 | 2,5 | 3,7 | 3.424 | AH 31/1000-H | 950 | 525 | 22 | 63 | Tr 1.060 x 8 | 475,0 |
| 12 | 22,3 | 0,26 | 2,6 | 2,6 | 3,9 | 2.095 | AH 240/1000 G-H | 950 | 469 | 50 | 57 | Tr 1.060 x 8 | 357,0 |
| 12 | 22,3 | 0,34 | 1,9 | 2,0 | 3,0 | 4.229 | AH 241/1000-H | 950 | 645 | 50 | 65 | Tr 1.060 x 8 | 516,0 |
| 12 | 22,3 | 0,16 | 4,2 | 4,3 | 6,4 | 1.056 | AH 39/1060 G-H | 1.000 | 310 | 15 | 52 | Tr 1.120 x 8 | 314,0 |
| 12 | 22,3 | 0,25 | 2,6 | 2,7 | 4,0 | 2.462 | AH 240/1060 G-H | 1.000 | 498 | 50 | 60 | Tr 1.120 x 8 | 475,0 |

*(1)The reference thermal speeds are according to the ISO 15312.*
*Consult NBI application engineering for more information about the bearing limit speeds depending on the application.*

## NOTES

## NOTES

## NOTES

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