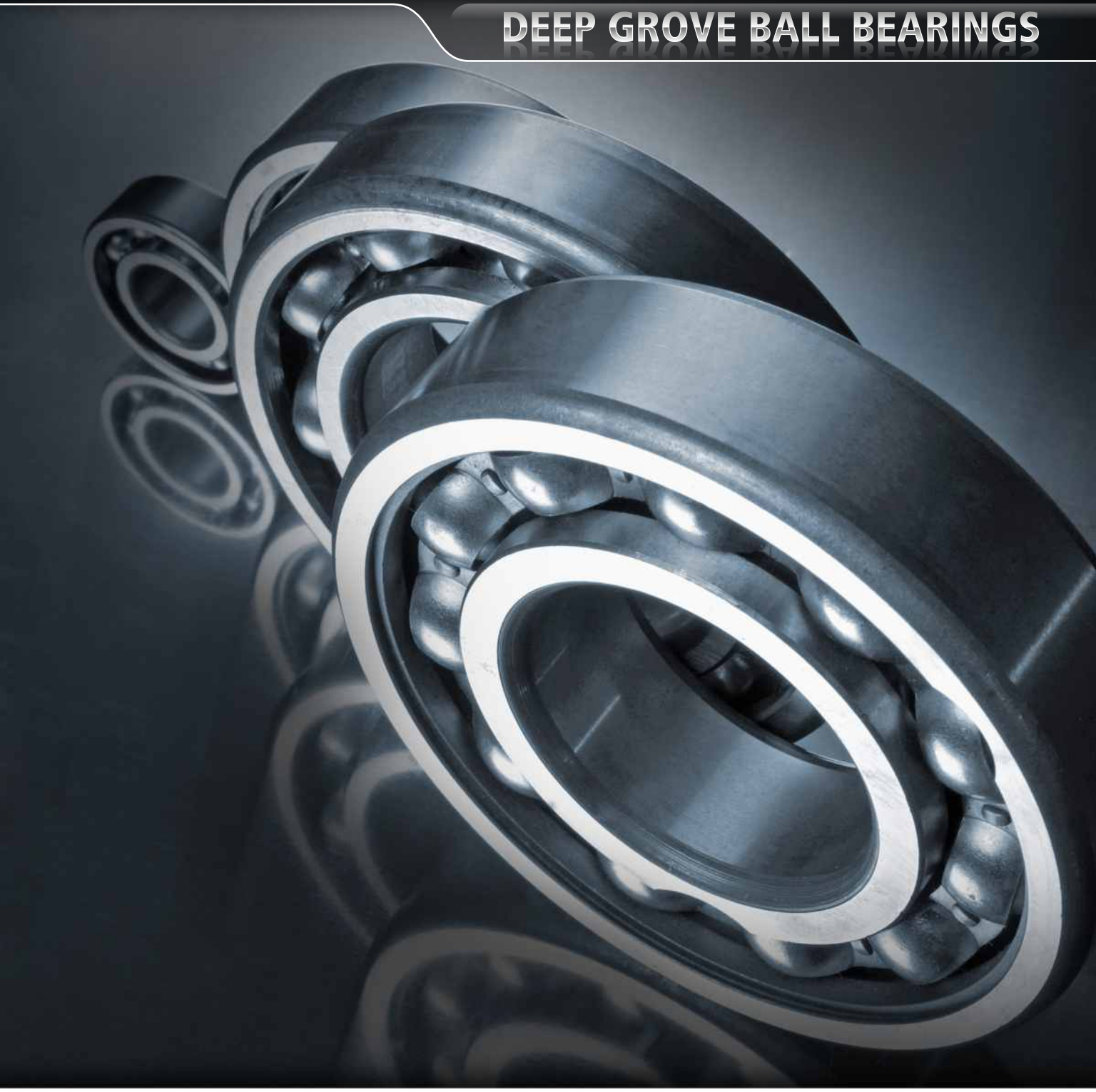
# DEEP GROVE BALL BEARINGS



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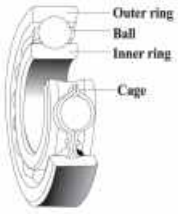
# INDEX

# DEEP GROOVE BALL BEARINGS

Deep groove ball bearings are available in a variety of sizes, and are the most popular of all rolling bearings.
This type of bearing supports radial load and a certain degree of axial load in both directions simultaneously.



Deep groove ball bearing

### Shielded / sealed type

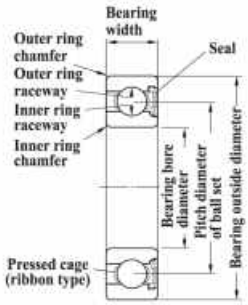
- Simplifies sealing structure of applications.
- Greasing is not necessary because bearings are pre - lubricated.
- Table 1 on the next page lists major shielded and sealed bearing types and compares their performance.

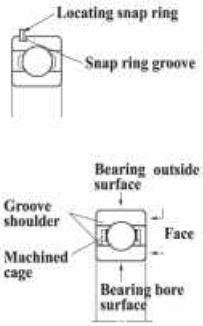
### With locating snap ring

- Bearings with a locating snap ring can be fit to the housing easily, as the locating snap ring facilitates axial positioning.

### Extra-small ball bearings and miniature ball bearings

- The open type is widely used. Also available are the shielded /
- sealed type and the flanged type; the latter is easily positioned in the axial direction.




## STRUCTURE AND CLASSIFICATION

Rolling bearing (below abbreviated as bearing)is commonly composed of inner ring, outer ring, roller and cage. According to the rolling category, it is divided into ball bearing and roller bearing. Please refer to Table2.1 to see the bearing conceptual diagram with the representative structure.

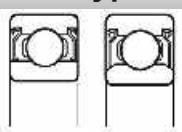
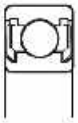
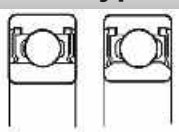
## STRUCTURE AND FEATURES

**The rolling bearing has the following characteristics:**

- It is equipped with high standard and ample specifications with fine interchangeability.
- Commonly it can simultaneously bear radial load
- It is applicable for using in high and low temperature
- It is fit for using in high speed condition.

Single-row deep groove ball bearing is the structure with the widest application in rolling bearings. The bearing can simultaneously bear radial load and axial load. It is fit for using in the occasions such as high-speed rotation, low noise etc.
Apart from open-type, it also has the bearing with steel shield ,e.g.608ZZ and the bearing with rubber seal ring,e.g.608-2RS.

## COMPARISON OF SHIELDED AND SEALED BEARING PERFORMANCE

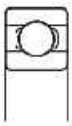
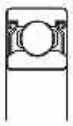
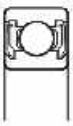
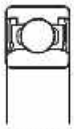
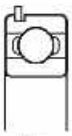
| Type / Characteristics | Shielded | | Sealed |
|---|---|---|---|
| | Non-contact type | Non-contact type | Contact type |
| | ZZ type | 2RU type | 2RS type |
| |  (a) 1) (b) |  (b) |  (d) 2) (e) |
| Friction Torque | Small | Small | Large |
| High speed performance | Good | Good | Limited because of contact |
| Grease Sealing property | Good | Better than ZZ type | Better than 2RU type for low-speed applications |
| Dirt Resistance | Good | Better than ZZ type | Better than 2RU type |
| Water Resistance | Economical | Better than zz type but inferior to 2RS, 2RK and 2RD types | Good |
| Operating temperature 3) | -30 to + 110°C | | -30 to + 110°C |

**Note**

1) Illustration (a) of ath ZZ type shows the relatively small size bearing.
2) Illustration (d) of the 2RS type shows the relatively small size bearing.
3) The operating temperature range listed is for the standard type. It can be widened by using a differant type of grease or sealing material.

- The most popular types among rolling bearings, widely used in a variety of industries.
- Radial load and axial load in both directions can be accommodated.
- Suitable for operation at high speed, with low noise and low vibration.
- Sealed bearings employing steel shields or rubber seals are filled with the appropriate volume of grease when manufactured.
- In spite of having the same boundary dimensions as standard bearings, maximum type bearings have a higher load rating because a filling slot on each of the inner and outer rings, allows a greater number of balls to be inserted than do standard bearings.
- Angular contact ball bearings are used for high accuracy and high-speed operation.

## DEEP GROOVE BALL BEARINGS

| | | Single - row | | | Double - row |
|---|---|---|---|---|---|
| Open type | Shielded type | Non - contact sealed type | Contact sealed type | With locating snap ring | |
|  |  ZZ |  2RU |  2RS |  NR |  |
| 680, 690, 600, 620, 630, (ML), (OB)<br>6800, 6900, 6000, 6200, 6300<br>Extra-small, miniature bearing | | | | | 5203<br>(Angular contact) |
| [ Recommended cages ] Pressed steel cage (ribbon type, snap type ... single - row, S type ... double - row), copper alloy or phenolic resin machined cage, syntheric resin molded cage | | | | | |
| [ Main applications ] Automobile : front and rear wheels, transmissions, electric devices<br>Electric equipment : standard motor, electric appliances for domestic use<br>Others : measuring instruments, internal combustion engines, construction equipment, railway rolling stock, cargo transport equipment, agricultural equipment, equipment for other industrial uses | | | | | hydraulic pumps, roots blowers, air-compressors, transmissions, |

# BEARING SELECTION METHODS

- The performance and other requirements on bearing turn diversified when the market is exerting increasingly strict requirements on the performance of various mechanical devices and instruments where rolling bearings is used.
- In order to choose the most applicable bearings among vast structures and sizes, it should be researched into from multiple angles.
- While choosing the bearings, firstly the customers normally will make an approximate decision to the bearing structure according to the bearing arrangement of the shafting, installation, disassembly difficulty degree, bearing allowable space & size, bearing market competitive power etc.
- Secondly, the customers can comparatively research into various mechanical design lives and all kinds of durability limits to the used bearings and decided by the bearing dimensions at the same time.
- While selecting the bearings, only put the bearing fatigue life into consideration is not correct, what is more, it should fully research into the lubricating grease life, wear-ability, noise etc, caused by the lubricating grease ageing.

- Besides, according to different uses, it is necessary to choose the specially-designed bearings out of the requirements such as accuracy, clearance, cage structure, lubricating grease and so on.

- But there is no definite sequence and rule to the bearing selection. Top priority should be given to the conditions and performances required by bearings. It is especially practical to consider the most related items to the bearings. Please contact with KHS-LG in choosing the bearings with mew machinery, special use conditions or special ambient conditions.

## BEARING MATERIALS

Bearing materials include steel for bearing rings and rolling elements, as well as steel sheet, steel, copper alloy and synthetic resins for cages.

These bearing materials should possess the following characteristics :

| | |
|---|---|
| 1) High elasticity, durable under high partial contact stress.<br>2) High strength against rolling contact fatigue due to large repetitive contact load.<br>3) Strong hardness | Bearing rings<br>Rolling elements |
| 4) High abrasion resistance<br>5) High toughness against impact load<br>6) Excellent dimensional stability | Bearing rings<br>Rolling elements<br>Cages |

## BEARING RING AND ROLLING ELEMENT MATERIALS

### High carbon chrome bearings steel

High carbon chrome bearing steel specified in **KS(Korean Standard)** or **JIS(Japanese Industrial Standard)** is used as a general material in bearing rings (inner rings, outer rings) and rolling elements (balls, rollers) Their chemical composition classified by steel type is given in Table shown below.

**Chemical composition of high carbon chrome bearing steel** unit : %

| Standard | Code | C | Si | Mn | P | S | Cr | Ni | Mo |
|---|---|---|---|---|---|---|---|---|---|
| KOREA KS D 3525 | STB 2 | 0.95~1.10 | 0.15~0.35 | ≤0.50 | ≤0.025 | ≤0.025 | 1.30~1.06 | ≤0.25 | ≤0.08 |
| | STB 3 | 0.95~1.10 | 0.40~0.70 | 0.9~1.15 | ≤0.025 | ≤0.025 | 0.90~1.20 | ≤0.25 | ≤0.08 |
| | STB 4 | 0.95~1.10 | 0.15~0.35 | <0.50 | ≤0.025 | ≤0.025 | 1.30~1.06 | ≤0.25 | 0.10~0.25 |
| JAPAN JIS G 4805 | SUJ 1 | 0.95~1.10 | 0.15~0.35 | ≤0.50 | ≤0.025 | ≤0.025 | 0.90~1.20 | ≤0.25 | ≤0.08 |
| | SUJ 2 | 0.95~1.10 | 0.15~0.35 | ≤0.50 | ≤0.025 | ≤0.025 | 1.30~1.06 | ≤0.25 | ≤0.08 |
| | SUJ 3 | 0.95~1.10 | 0.40~0.70 | 0.9~1.15 | ≤0.025 | ≤0.025 | 0.90~1.20 | ≤0.25 | ≤0.08 |
| | SUJ4 | 0.95~1.10 | 0.15~0.35 | ≤ 0.50 | ≤0.025 | ≤0.025 | 1.30~1.06 | ≤0.25 | 0.10~0.25 |
| | SUJ 5 | 0.95~1.10 | 0.40~0.70 | 0.9~1.15 | ≤0.025 | ≤0.025 | 0.90~1.20 | ≤0.25 | 0.10~0.25 |
| U.S.A.AISI SAE J405 | E51100 | 0.98~1.10 | 0.20~0.35 | 0.25~0.45 | ≤0.025 | ≤0.025 | 0.90~1.15 | ≤0.25 | ≤0.08 |
| | E52100 | 0.98~1.10 | 0.20~0.35 | 0.25~0.45 | ≤0.025 | ≤0.025 | 1.30~1.60 | ≤0.25 | ≤0.08 |
| CHINA YJZ 84 | GCr 15 | 0.95~1.05 | 0.15~0.35 | 0.25~0.45 | ≤0.027 | ≤ 0.02 | 1.40~1.65 | ≤0.23 | ≤0.1 |
| Germany VDEH (German Iron & Steel Association) | 105Cr2 | 1.00~1.10 | 0.15~0.35 | 0.25~0.40 | ≤0.030 | ≤0.025 | 0.40~0.60 | - | - |
| | 105Cr2 | 1.00~1.10 | 0.15~0.35 | 0.25~0.40 | ≤0.030 | ≤0.025 | 0.90~1.15 | - | - |
| | 100Cr2 | 0.90~1.05 | 0.15~0.35 | 0.25~0.40 | ≤0.025 | ≤0.020 | 1.40~1.65 | - | - |
| | 100CrMin6 | 0.90~1.05 | 0.50~0.70 | 1.00~1.20 | ≤0.025 | ≤0.020 | 1.40~1.65 | - | - |

## Chemical compositions of pressed cage steel

unit : %

| Standard | Code | C | Si | Mn | P | S |
|---|---|---|---|---|---|---|
| KOREA KS D 3525 | SCP 1 | ≤0.10 | ≤0.04 | 0.25~0.45 | ≤0.03 | ≤0.03 |
| | SCP 2 | 0.13~0.20 | ≤0.04 | 0.25~0.50 | ≤0.03 | ≤0.03 |
| | SCP 3 | 0.45~0.55 | 0.15~0.35 | 0.40~0.85 | ≤0.03 | ≤0.03 |
| JAPAN BAS 361 | SPB 1 | ≤0.10 | ≤0.04 | 0.25~0.45 | ≤0.03 | ≤0.03 |
| | SPB 2 | 0.13~0.20 | ≤0.04 | 0.25~0.50 | ≤0.03 | ≤0.03 |
| | SPB 3 | 0.45~0.55 | 0.15~0.35 | 0.40~0.85 | ≤0.03 | ≤0.03 |
| U.S.A.SAE J 403g \| J 118 \| J 403g | 1008 | ≤ 0.0 | ≤0.10 | 0.30~0.50 | ≤0.04 | ≤0.05 |
| | 1009 | ≤0.15 | ≤0.10 | ≤0.60 | ≤0.04 | ≤0.05 |
| | 1010 | 0.08~0.13 | ≤0.10 | 0.30~0.60 | ≤0.04 | ≤0.05 |

# LUBRICANTS

Correct lubrication is critical to bearing performance, reducing friction, dissipating heat and inhibiting corrosion onballs and raceways. The lubricant will affect maximum running speed and temperature, torque level, noise level and, ultimately, bearing life. Lubricants are available for a whole range of applications.

Bearing lubrication is classified broadly into two categories: grease lubrication and oil lubrication. Table 12-1 makesa la gener comparison between the two.

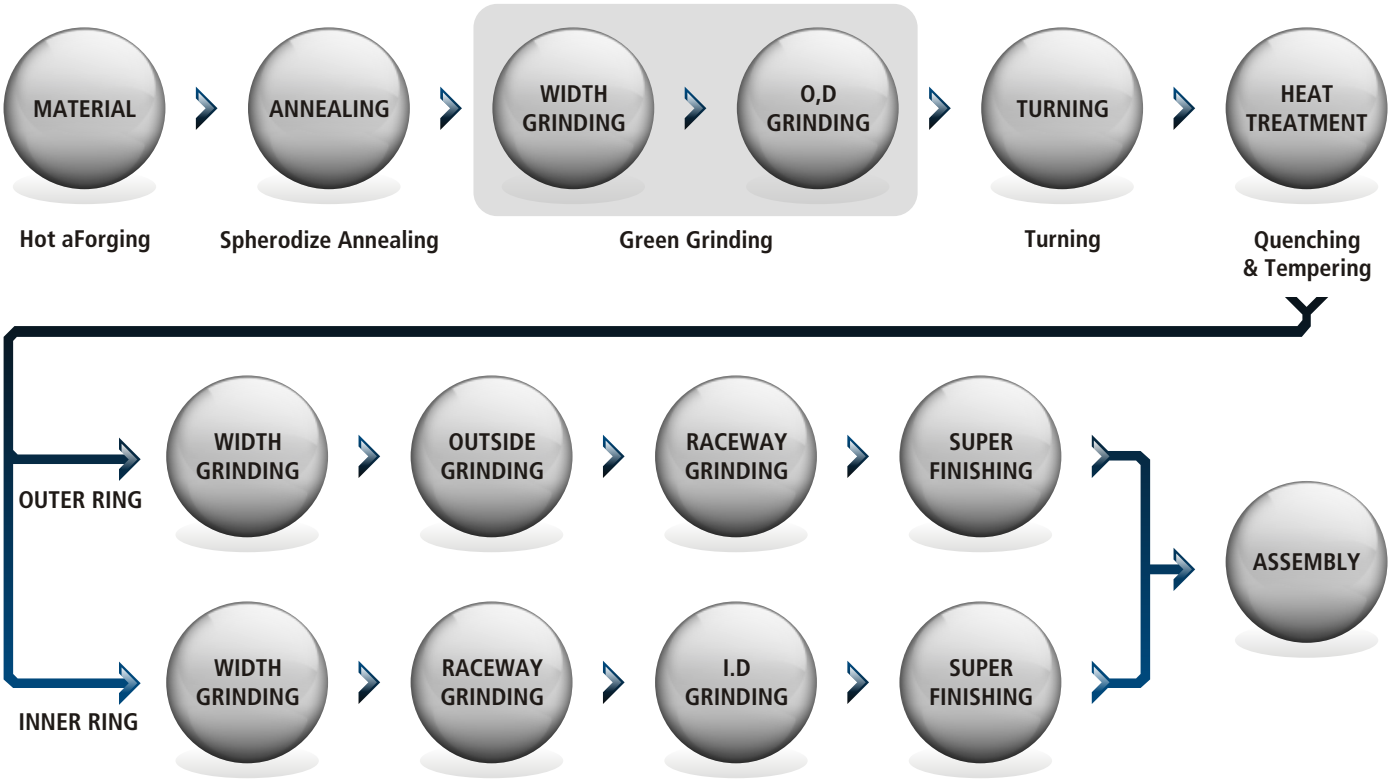
### Comparison between grease and oil lubrication

| Item | Grease | Oil |
|---|---|---|
| Sealing device | Easy | Slightly complicated & special care required for maintenance |
| Lubricating ability | Good | Excellent |
| Rotation speed | Low / medium speed | Applicable at high speed as well |
| Replacement of lubricant | Slightly troublesome | Easy |
| Life of lubricant | Relatively short | Long |
| Cooling effect | No cooling effect | Good (circulation is necessary) |
| Filtration of dirt | Difficult | Easy |

Grease is an oil to which a thickener has been added to prevent migration from the lubrication site, resulting in longer life. It is used in situations where frequent replenishment of the lubricant is undesirable or impossible. The operative properties of grease depend almost wholly on the choice of base oil.

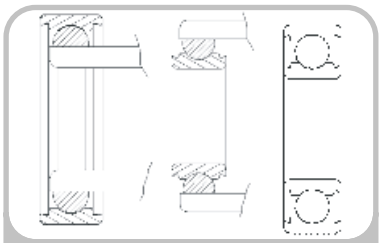
# MANUFACTURING PROCESS FLOW

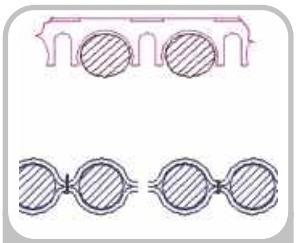
## TURNING & GRINDING

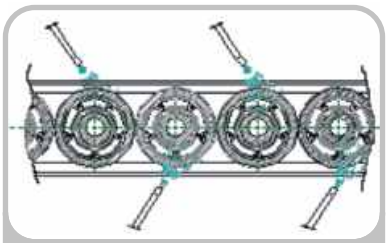


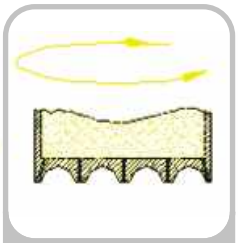

## ASSEMBLY

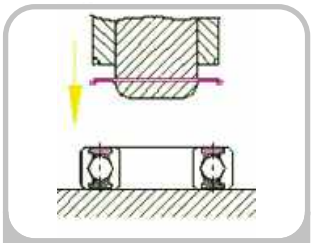

Washing

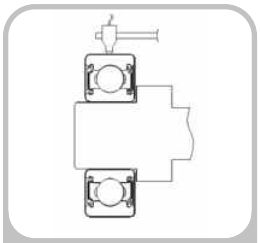

Random Matching

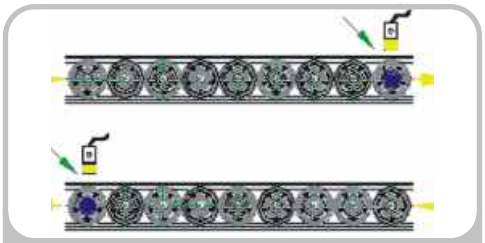

Retainer Assemble


Petroleum Washing


Grease Infusion


Seal Assemble


Noise Inspect.


Appearance Inspect

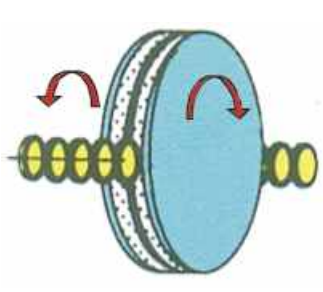
# GRINDING MACHINE

## WIDTH GRINDING

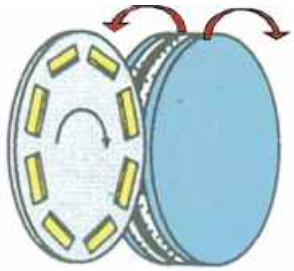
**2D-580TH**

**2 Types & 3 Equipments**

## MACHINING FEATURES



**Through-Feed Type**
Accuracy : ±0.010mm
Range : AX Φ250

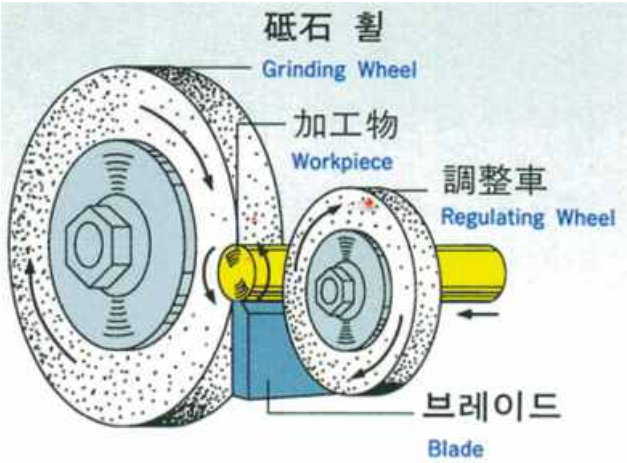


**Rotary carrier Type**
Accuracy : ±.010 mm
Range : AX Φ150

## WIDTH GRINDING

**7 Equipments**

## MACHINING FEATURES



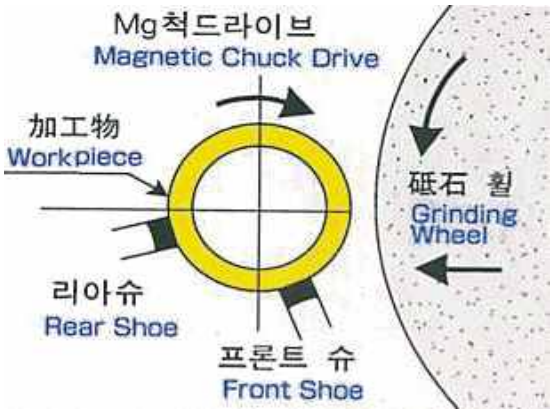

Machining Accuracy : ±0.003 mm
Machining Range : Φ10 ~ Φ180

## RACEWAY GRINDING

**CT-235**

**30 Equipments**

## MACHINING FEATURES




**Outer Ring**

**Inner Ring**

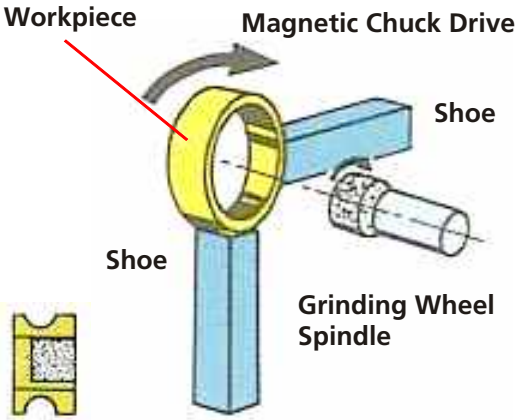
Machining Accuracy : ±0.004 mm
Machining Range : Φ10 ~ Φ130

## INSIDE GRINDING

**T-11S81**

**15 Equipments**

## MACHINING FEATURES

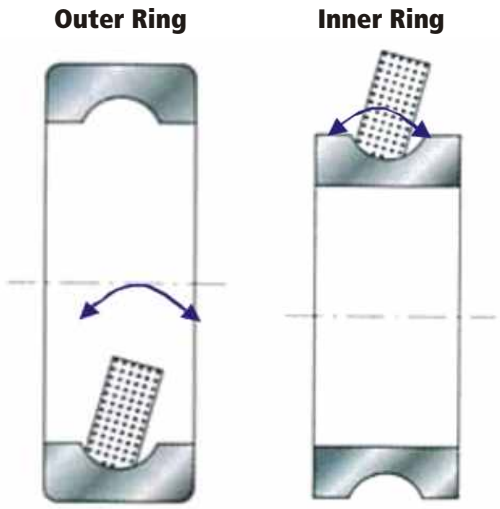



Machining Accuracy : ±0.002 mm
Machining Range : Φ10 ~ Φ130

## SUPER-FINISH GRINDING

**30 Equipments**

## MACHINING FEATURES

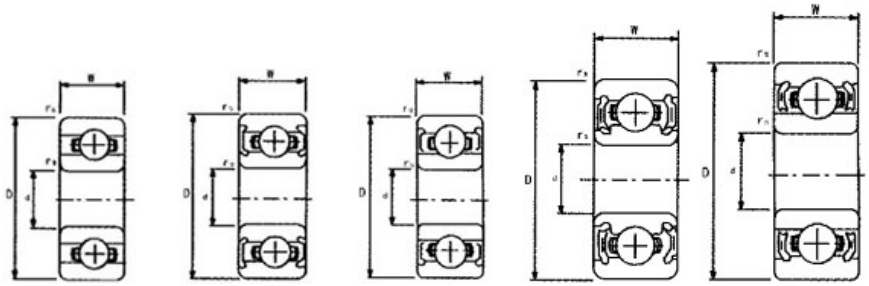



Super- Finish : max 0.006 mm
Machining Range : Φ10 ~ Φ130

## ASSEMBLY MACHINE

BEARING SPECIFICATIONS 6000 Series

BEARING SPECIFICATIONS 6200 Series



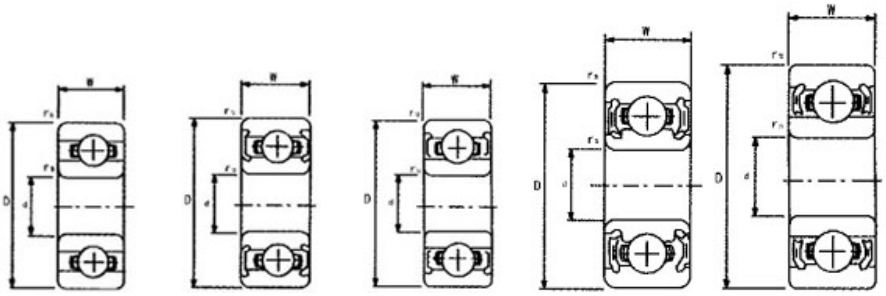
Open type | Shielded type type1 | Shielded type type2 | Sealed type type1 | Sealed type type2

| Basic Bearing No. | Bore mm | Outer Diameter mm | Width mm | Radius mm | Basic Load Rating KN | | Ball Complement | | Sealed type type1 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Dynamic C | Static $C_0$ | No. | Size mm | Grease r/min | Oil r/min |
| 605 | 5 | 14 | 5 | 0.2 | 1.05 | 0.50 | 7 | 2.381 | 40000 | 50000 |
| 606 | 6 | 17 | 6 | 0.3 | 1.95 | 0.72 | 6 | 3.969 | 38000 | 45000 |
| 607 | 7 | 19 | 6 | 0.3 | 2.88 | 1.08 | 6 | 3.969 | 36000 | 43000 |
| 608 | 8 | 22 | 7 | 0.3 | 3.32 | 1.38 | 7 | 3.969 | 34000 | 40000 |
| 609 | 9 | 24 | 7 | 0.3 | 3.35 | 1.40 | 7 | 3.969 | 32000 | 38000 |
| 6000 | 10 | 26 | 8 | 0.3 | 4.58 | 1.98 | 7 | 4.763 | 30000 | 36000 |
| 6001 | 12 | 28 | 8 | 0.3 | 5.10 | 2.38 | 8 | 4.763 | 28000 | 32000 |
| 6002 | 15 | 32 | 9 | 0.3 | 5.58 | 2.85 | 9 | 4.763 | 24000 | 28000 |
| 6003 | 17 | 35 | 10 | 0.3 | 6.00 | 3.25 | 10 | 4.763 | 22000 | 26000 |
| 6004 | 20 | 42 | 12 | 0.6 | 9.38 | 5.02 | 9 | 6.350 | 18000 | 20000 |
| 6005 | 25 | 47 | 12 | 0.6 | 10.00 | 5.85 | 10 | 6.350 | 15000 | 18000 |
| 6006 | 30 | 55 | 13 | 1.0 | 10.18 | 6.91 | 11 | 7.144 | 13000 | 15000 |
| 6007 | 35 | 62 | 14 | 1.0 | 12.47 | 8.66 | 11 | 7.938 | 11000 | 13000 |

| Basic Bearing No. | Bore mm | Outer Diameter mm | Width mm | Radius mm | Basic Load Rating KN | | Ball Complement | | Max Runout Speed | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Dynamic C | Static $C_0$ | No. | Size mm | Grease r/min | Oil r/min |
| 624 | 4 | 13 | 5 | 0.2 | 1.15 | 0.40 | 6 | 2.381 | 40000 | 48000 |
| 625 | 5 | 16 | 5 | 0.3 | 1.88 | 0.68 | 6 | 3.175 | 36000 | 43000 |
| 626 | 6 | 19 | 6 | 0.3 | 2.80 | 1.05 | 6 | 3.969 | 32000 | 40000 |
| 627 | 7 | 22 | 7 | 0.3 | 3.28 | 1.35 | 7 | 3.969 | 30000 | 36000 |
| 628 | 8 | 24 | 8 | 0.3 | 3.35 | 1.40 | 7 | 3.969 | 28000 | 34000 |
| 629 | 9 | 26 | 8 | 0.3 | 4.45 | 1.95 | 7 | 4.763 | 28000 | 34000 |
| 6200 | 10 | 30 | 9 | 0.6 | 5.10 | 2.38 | 8 | 4.763 | 24000 | 30000 |
| 6201 | 12 | 32 | 10 | 0.6 | 6.82 | 3.05 | 7 | 5.953 | 22000 | 28000 |
| 6202 | 15 | 35 | 11 | 0.6 | 7.65 | 3.72 | 7 | 6.350 | 20000 | 24000 |
| 6203 | 17 | 40 | 12 | 0.6 | 9.58 | 4.78 | 8 | 6.747 | 17000 | 20000 |
| 6204 | 20 | 47 | 14 | 1.0 | 12.80 | 6.65 | 8 | 7.938 | 15000 | 18000 |
| 6205 | 25 | 52 | 15 | 1.0 | 14.00 | 7.88 | 9 | 7.938 | 13000 | 15000 |
| 6206 | 30 | 62 | 16 | 1.0 | 19.50 | 11.20 | 9 | 9.525 | 11000 | 13000 |
| 6207 | 35 | 72 | 17 | 1.1 | 25.70 | 15.30 | 9 | 11.112 | 9800 | 11000 |

BEARING SPECIFICATIONS 6300 Series

BEARING SPECIFICATIONS 1600 Series



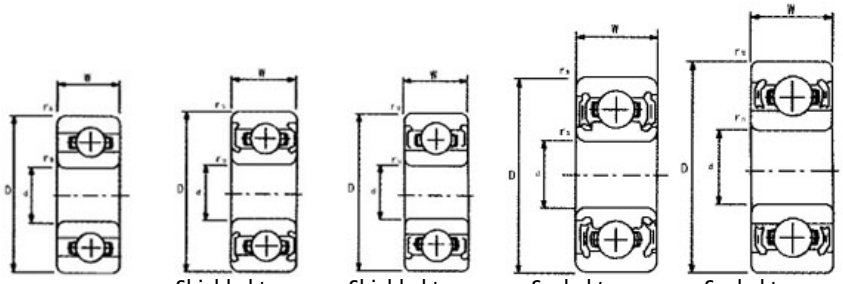
Open type | Shielded type type1 | Shielded type type2 | Sealed type type1 | Sealed type type2

| Basic Bearing No. | Bore mm | Outer Diameter mm | Width mm | Radius mm | Basic Load Rating KN | | Ball Complement | | Sealed type type1 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Dynamic C | Static $C_0$ | No. | Size mm | Grease r/min | Oil r/min |
| 634 | 4 | 16 | 5 | 0.3 | 1.88 | 0.68 | 7 | 2.381 | 36000 | 43000 |
| 635 | 5 | 19 | 6 | 0.3 | 2.80 | 1.02 | 6 | 3.500 | 32000 | 40000 |
| 636 | 6 | 22 | 7 | 0.3 | 2.54 | 1.36 | 7 | 3.969 | 30000 | 36000 |
| 637 | 7 | 26 | 9 | 0.3 | 4.30 | 1.98 | 7 | 4.762 | 28000 | 34000 |
| 638 | 8 | 28 | 9 | 0.3 | 4.30 | 1.98 | 7 | 4.762 | 28000 | 34000 |
| 639 | 9 | 30 | 10 | 0.6 | 4.65 | 2.07 | 7 | 4.762 | 24000 | 30000 |
| 6300 | 10 | 35 | 11 | 0.6 | 7.65 | 3.48 | 7 | 6.350 | 22000 | 26000 |
| 6301 | 12 | 37 | 12 | 1.0 | 9.72 | 5.08 | 6 | 7.938 | 20000 | 24000 |
| 6302 | 15 | 42 | 13 | 1.0 | 11.50 | 5.42 | 7 | 7.938 | 17000 | 20000 |
| 6303 | 17 | 47 | 14 | 1.0 | 13.50 | 6.58 | 7 | 8.731 | 15000 | 19000 |
| 6304 | 20 | 52 | 15 | 1.1 | 15.90 | 7.80 | 7 | 9.525 | 14000 | 17000 |
| 6305 | 25 | 62 | 17 | 1.1 | 22.38 | 11.49 | 8 | 10.319 | 11000 | 13000 |
| 6306 | 30 | 72 | 19 | 1.1 | 27.00 | 15.19 | 8 | 11.906 | 9500 | 12000 |
| 6307 | 35 | 80 | 21 | 1.5 | 33.36 | 19.21 | 8 | 13.494 | 8800 | 10000 |

| Basic Bearing No. | Bore mm | Outer Diameter mm | Width mm | Radius mm | Basic Load Rating KN | | Ball Complement | | Max Runout Speed | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Dynamic C | Static $C_0$ | No. | Size mm | Grease r/min | Oil r/min |
| 16001 | 12 | 28 | 7 | 0.3 | 5.08 | 2.38 | 8 | 4.763 | 28000 | 32000 |
| 16002 | 15 | 32 | 8 | 0.3 | 5.60 | 2.55 | 9 | 4.763 | 24000 | 28000 |
| 16003 | 17 | 35 | 8 | 0.3 | 6.82 | 3.38 | 10 | 4.763 | 22000 | 26000 |
| 16004 | 20 | 42 | 8 | 0.3 | 7.90 | 4.45 | 10 | 5.556 | 18000 | 20000 |
| 16005 | 25 | 47 | 8 | 0.3 | 8.42 | 5.15 | 11 | 5.556 | 15000 | 18000 |
| 16006 | 30 | 55 | 9 | 0.3 | 11.20 | 6.25 | 11 | 7.144 | 13000 | 15000 |
| 16007 | 35 | 62 | 14 | 0.3 | 11.50 | 8.80 | 11 | 7.938 | 11000 | 13000 |

BEARING SPECIFICATIONS 6900 Series

BEARING SPECIFICATIONS W Series



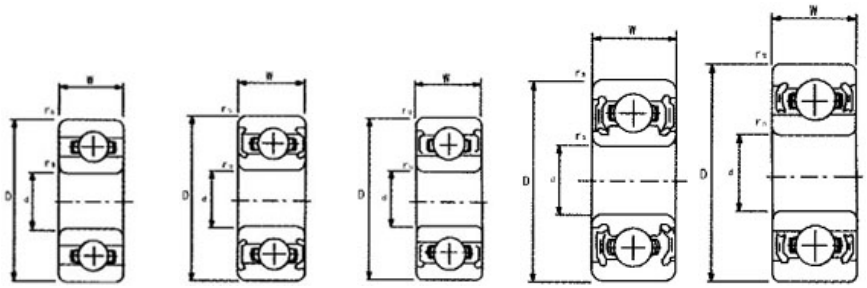
Open type | Shielded type type1 | Shielded type type2 | Sealed type type1 | Sealed type type2

| Basic Bearing No. | Bore mm | Outer Diameter mm | Width mm | Radius mm | Basic Load Rating KN | | Ball Complement | | Sealed type type1 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Dynamic C | Static $C_0$ | No. | Size mm | Grease r/min | Oil r/min |
| 695 | 5 | 13 | 4 | 0.2 | 1.08 | 0.42 | 8 | 2.0 | 43000 | 50000 |
| 696 | 6 | 15 | 5 | 0.2 | 1.48 | 0.60 | 8 | 2.381 | 40000 | 45000 |
| 697 | 7 | 17 | 5 | 0.2 | 1.312 | 0.530 | 9 | 2.381 | 36000 | 43000 |
| 698 | 8 | 19 | 6 | 0.3 | 1.315 | 0.544 | 7 | 3.175 | 36000 | 43000 |
| 699 | 9 | 20 | 6 | 0.3 | 1.405 | 0.624 | 8 | 3.175 | 34000 | 40000 |
| 6900 | 10 | 22 | 6 | 0.3 | 2.700 | 1.100 | 9 | 3.175 | 32000 | 38000 |
| 6901 | 12 | 24 | 6 | 0.3 | 2.900 | 1.260 | 10 | 3.175 | 30000 | 36000 |
| 6902 | 15 | 28 | 7 | 0.3 | 4.00 | 2.02 | 10 | 3.969 | 26000 | 30000 |
| 6903 | 17 | 30 | 7 | 0.3 | 4.30 | 2.32 | 11 | 3.969 | 24000 | 28000 |
| 6904 | 20 | 37 | 9 | 0.3 | 6.000 | 2.900 | 11 | 4.763 | 19000 | 22000 |
| 6905 | 25 | 42 | 9 | 0.3 | 6.700 | 3.600 | 13 | 4.763 | 16000 | 19000 |
| 6906 | 30 | 47 | 9 | 0.3 | 7.25 | 5.00 | 14 | 4.763 | 14000 | 17000 |
| 6907 | 35 | 55 | 10 | 0.6 | 9.60 | 5.90 | 14 | 5.953 | 12000 | 15000 |

| Basic Bearing No. | Bore mm | Outer Diameter mm | Width mm | Radius mm | Basic Load Rating KN | | Ball Complement | | Max Runout Speed | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Dynamic C | Static $C_0$ | No. | Size mm | Grease r/min | Oil r/min |
| 60000 | 10 | 26 | 10 | 0.3 | 4.58 | 1.98 | 7 | 4.763 | 30000 | 36000 |
| 62200 | 10 | 30 | 14 | 0.6 | 5.10 | 2.38 | 8 | 4.763 | 24000 | 30000 |
| 62201 | 12 | 32 | 14 | 0.6 | 6.82 | 2.05 | 7 | 5.953 | 22000 | 28000 |
| 62202 | 15 | 35 | 14 | 0.6 | 7.65 | 3.60 | 8 | 5.953 | 20000 | 24000 |
| 62203 | 17 | 40 | 16 | 0.6 | 9.58 | 4.78 | 8 | 6.747 | 17000 | 20000 |
| 62204 | 20 | 47 | 18 | 1.0 | 12.80 | 6.65 | 8 | 7.938 | 15000 | 18000 |
| 99502H | 15.875 | 34.925 | 11 | 0.8 | 4.60 | 2.77 | 8 | 5.593 | 20000 | 24000 |

BEARING SPECIFICATIONS 6800 Series

BEARING SPECIFICATIONS R Series



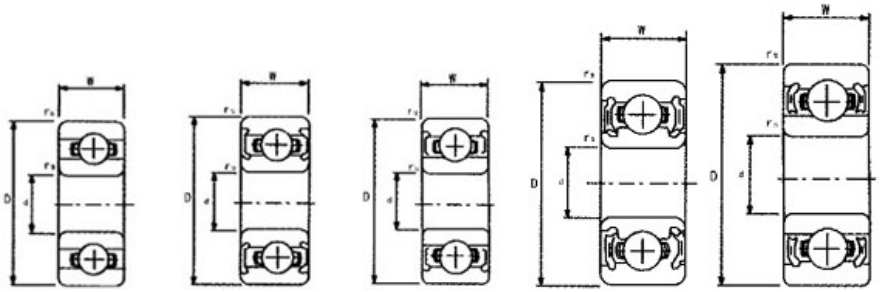
Open type | Shielded type type1 | Shielded type type2 | Sealed type type1 | Sealed type type2

| Basic Bearing No. | Bore mm | Outer Diameter mm | Width mm | | Radius mm | Basic Load Rating KN | | Ball Complement | | Sealed type type1 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Open Type mm | Close Type mm | | Dynamic C | Static $C_0$ | No. | Size mm | Grease r/min | Oil r/min |
| 685 | 5 | 11 | 3 | 4 | 0.2 | 0.547 | 0.253 | 9 | 1.588 | 45000 | 53000 |
| 686 | 6 | 13 | 3.5 | 5 | 0.2 | 0.331 | 0.400 | 8 | 2.000 | 40000 | 50000 |
| 687 | 7 | 14 | 3.5 | 5 | 0.2 | 0.898 | 0.458 | 9 | 2.000 | 40000 | 45000 |
| 688 | 8 | 16 | 4 | 5 | 0.3 | 1.312 | 0.530 | 10 | 2.000 | 36000 | 43000 |
| 689 | 9 | 17 | 4 | 5 | 0.3 | 1.378 | 0.711 | 9 | 2.381 | 36000 | 43000 |
| 6800 | 10 | 19 | 5 | 5 | 0.3 | 1.40 | 0.75 | 10 | 2.381 | 4000 | 40000 |
| 6801 | 12 | 21 | 5 | 5 | 0.3 | 1.40 | 0.90 | 12 | 2.381 | 32000 | 38000 |
| 6802 | 15 | 24 | 5 | 5 | 0.3 | 1.92 | 1.18 | 14 | 2.381 | 28000 | 34000 |
| 6803 | 17 | 26 | 5 | 5 | 0.3 | 2.18 | 1.28 | 15 | 2.381 | 26000 | 30000 |
| 6804 | 20 | 32 | 7 | 7 | 0.3 | 3.45 | 2.25 | 14 | 3.175 | 22000 | 26000 |
| 6805 | 25 | 37 | 7 | 7 | 0.3 | 3.70 | 2.65 | 13 | 3.969 | 18000 | 22000 |
| 6806 | 30 | 42 | 7 | 7 | 0.3 | 4.15 | 2.90 | 17 | 3.500 | 15000 | 18000 |
| 6807 | 35 | 47 | 7 | 7 | 0.3 | 4.30 | 3.25 | 19 | 3.500 | 13000 | 16000 |

| Basic Bearing No. | Bore mm | Outer Diameter mm | Width mm | | Radius mm | Basic Load Rating KN | | Ball Complement | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Open Type mm | Close Type mm | | Dynamic C | Static $C_0$ | No. | Size mm |
| R3 | 4.763 .1875 | 12.700 .500 | 3.97 .1562 | 4.98 .1960 | 0.3.012 | 0.653 | 0.284 | 6 | 2.381 |
| R4 | 6.350 .2500 | 15.875 .625 | 4.98 .1960 | 4.98 .1960 | 0.3.012 | 0.742 | 0.342 | 8 | 2.381 |
| R4A | 6.350 .2500 | 19.050 .750 | 5.56 .2188 | 7.14 .2812 | 0.4.016 | 1.791 | 0.880 | 6 | 3.969 |
| R6 | 9.525 .3750 | 22.225 .875 | 5.56 .2188 | 7.14 .2812 | 0.4.016 | 2.556 | 1.351 | 7 | 3.969 |
| R8 | 12.700 .5000 | 28.575 1.125 | 6.35 .2500 | 7.94 .3125 | 0.4.016 | 3.912 | 2.245 | 8 | 4.763 |
| R10 | 15.875 .6250 | 34.925 1.375 | 7.14 .2812 | 8.73 .3438 | 0.6.024 | 4.605 | 2.774 | 8 | 5.953 |
| R12 | 19.050 .7500 | 41.275 1.625 | 7.94 .3125 | 11.11 .4275 | 0.6.024 | 7.246 | 4.445 | 9 | 6.350 |
| R14 | 22.225 .8750 | 47.625 1.875 | 9.525 .3750 | 12.70 .5000 | 0.6.024 | 8.905 | 5.601 | 9 | 7.114 |
| R16 | 25.400 1.000 | 50.800 2.000 | 9.525 .3750 | 12.70 .5000 | 0.6.024 | 8.905 | 5.60 | 9 | 7.114 |
| R18 | 28.575 1.120 | 53.975 2.125 | 9.525 .3750 | 12.70 .5000 | 0.6.024 | 9.570 | 6.240 | 10 | 7.114 |

BEARING SPECIFICATIONS 6900 Series

BEARING SPECIFICATIONS W Series



Open type | Shielded type type1 | Shielded type type2 | Sealed type type1 | Sealed type type2

| Basic Bearing No. | Bore mm | | Outer Diameter mm | | Width mm | | | | Radius mm | | Basic Load Rating KN | | Ball Complement | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Open Type mm | | Shielded Type mm | | | | Dynamic C | Static $C_0$ | No. | Size mm |
| 1601 | 4.762 | .1875 | 17.462 | .6875 | 6.350 | .2500 | 7.938 | .3125 | 0.3 | .012 | 1.715 | 0.868 | 7 | 3.175 |
| 1602 | 6.350 | .2500 | 17.462 | .6875 | 6.350 | .2500 | 7.938 | .3125 | 0.3 | .012 | 1.715 | 0.868 | 7 | 3.175 |
| 1603 | 7.938 | .3125 | 22.225 | .8750 | 7.142 | .2812 | 8.737 | .3439 | 0.3 | .012 | 2.546 | 1.356 | 7 | 3.969 |
| 1604 | 9.525 | .3750 | 22.225 | .8750 | 7.142 | .2812 | 8.737 | .3439 | 0.3 | .012 | 2.772 | 1.356 | 7 | 3.969 |
| 1605 | 7.938 | .3125 | 23.019 | .9062 | 7.938 | .3125 | 7.938 | .3125 | 0.3 | .012 | 2.074 | 11.116 | 9 | 3.175 |
| 1606 | 9.525 | .3750 | 23.019 | .9062 | 7.938 | .3125 | 7.938 | .3125 | 0.3 | .012 | 2.074 | 11.116 | 9 | 3.175 |
| 1607 | 11.112 | .4375 | 23.019 | .9062 | 7.938 | .3125 | 7.938 | .3125 | 0.3 | .012 | 2.074 | 11.116 | 9 | 3.175 |
| 1614 | 9.525 | .3750 | 28.575 | 1.125 | 9.525 | .3750 | 9.525 | .3750 | 0.3 | .012 | 5.11 | 2.39 | 8 | 4.762 |
| 1615 | 11.112 | .4375 | 28.575 | 1.125 | 9.525 | .3750 | 9.525 | .3750 | 0.3 | .012 | 5.11 | 2.39 | 8 | 4.762 |
| 1616 | 12.700 | .5000 | 28.575 | 1.125 | 9.525 | .3750 | 9.525 | .3750 | 0.3 | .012 | 5.11 | 2.39 | 8 | 4.762 |
| 1620 | 11.112 | .4375 | 34.925 | 1.350 | 11.112 | .4375 | 11.112 | .4375 | 0.3 | .012 | 5.20 | 2.39 | 8 | 5.556 |
| 1621 | 12.700 | .5000 | 34.925 | 1.375 | 11.112 | .4375 | 11.112 | .4375 | 0.3 | .012 | 5.20 | 3.04 | 8 | 5.556 |
| 1622 | 14.288 | .5625 | 34.925 | 1.375 | 11.112 | .4375 | 11.112 | .4375 | 0.3 | .012 | 5.20 | 3.04 | 8 | 5.556 |
| 1623 | 15.875 | .6250 | 34.925 | 1.375 | 11.112 | .4375 | 11.112 | .4375 | 0.3 | .012 | 5.86 | 3.16 | 8 | 5.953 |
| 1628 | 15.875 | .6250 | 41.275 | 1.625 | 12.700 | .5000 | 12.700 | .5000 | 0.6 | .024 | 6.65 | 3.50 | 8 | 6.350 |
| 1630 | 19.050 | .7500 | 41.275 | 1.625 | 12.700 | .5000 | 12.700 | .5000 | 0.6 | .024 | 6.65 | 3.96 | 8 | 6.350 |
| 1633 | 15.875 | .6250 | 44.450 | 1.750 | 12.700 | .5000 | 12.700 | .5000 | 0.6 | .024 | 7.50 | 3.96 | 8 | 6.747 |
| 1635 | 19.050 | .7500 | 44.450 | 1.750 | 12.700 | .5000 | 12.700 | .5000 | 0.6 | .024 | 7.50 | 2.30 | 8 | 6.747 |
| 1638 | 19.050 | .7500 | 50.800 | 2.000 | 14.288 | .5625 | 14.288 | .5625 | 0.6 | .024 | 9.93 | 6.20 | 8 | 7.938 |
| 1639 | 20.638 | .8125 | 50.800 | 2.000 | 14.288 | .5625 | 14.288 | .5625 | 0.6 | .024 | 9.93 | 6.20 | 8 | 7.938 |
| 1640 | 22.225 | .8750 | 50.800 | 2.000 | 14.288 | .5625 | 14.288 | .5625 | 0.6 | .024 | 11.20 | 7.20 | 8 | 8.500 |
| 1641 | 25.400 | 1.0000 | 50.800 | 2.000 | 14.288 | .5625 | 14.288 | .5625 | 0.6 | .024 | 11.20 | 7.20 | 8 | 8.500 |

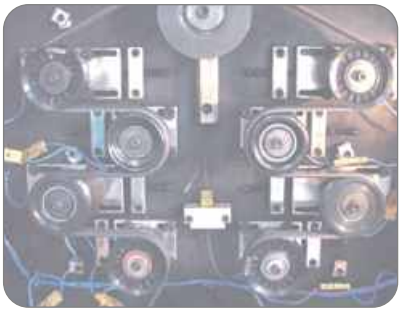
## E.S TESTER

### Bearing Life Tester

**Machine Capability**
RPM : MAX. 4000 RPM
LOAD : DYNAMIC LOAD RATING X 40% ~60%
TEST SPECIMENS : 4 EA

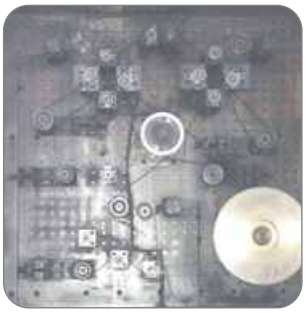
### Pulley Ass'y Durability Tester

**Machine Capacity**
MOTOR : MAX. 2000RPM (Variable)
Hub load @PULLEY : MAX.150kg
Temperature : MAX. 150



### Tensioner/Idler Durability Tester

**Machine Capacity**
MOTOR : MAX. 2000RPM(Variable)
Hub Load @PULLEY : MAX.150kg
Temperature : MAX. 150



### High Speed & High Temp. Durability Tester

**Machine Capacity**
MOTOR : MAX. 2000RPM (Variable)
Hub Load @PULLEY : MAX.150kg
Temperature : MIN. –40 ~ MAX 150

1. **High Tension Durability Test (50Hr)**
   Belt Tension: 200kgf.
   RPM: 5,000rpm.
   Temperature: Room Temp.

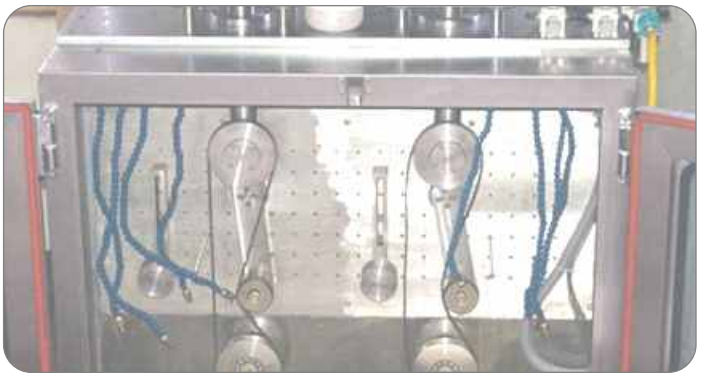
2. **High Speed Durability Test (1,000Hr)**
   Belt Tension: 85kgf.
   RPM: 12,000rpm.
   Temperature: 120

3. **Low Speed Durability test (1500cycle)**
   Belt Tension: 80kgf.(1min)130kgf.(10min)
   RPM: 1,200rpm.
   Temperature: 110±10

4. **Up & Down Durability Test (5cycle)**
   Belt Tension: 85kgf.
   RPM: 1,500~10,000rpm.
   Temperature: Room Temp.

## Environment Tester

**Machine Capability**
RPM : MAX. 4000 RPM
LOAD : DYNAMIC LOAD RATING X 40% ~60%
TEST SPECIMENS : 4 EA



**1. Water Spray Test(100cycle)**
Belt Tension: 40kgf.
RPM: 0rpm. (3min) /1,000rpm.3mim)
Temperature : Room Temp.
Spray: 8.5L/min

**2. Mud Test(50Hr)**
Belt Tensioner: 0kgf.
RPM: 1,000rpm.
Temperature : Room Temp.
Spray: 1L/min (MUD 5% Included)

## Thermal shock tester

**Machine Capability**
Temp. : -40↔200
Humidity. : variable

**1. Heat-resistant Test (40Hr)**
150 x 3hr → R.T x 3hr → -30 ℃ x 3hr → R.T x 1hr

## MEASURING EQUIPMENT

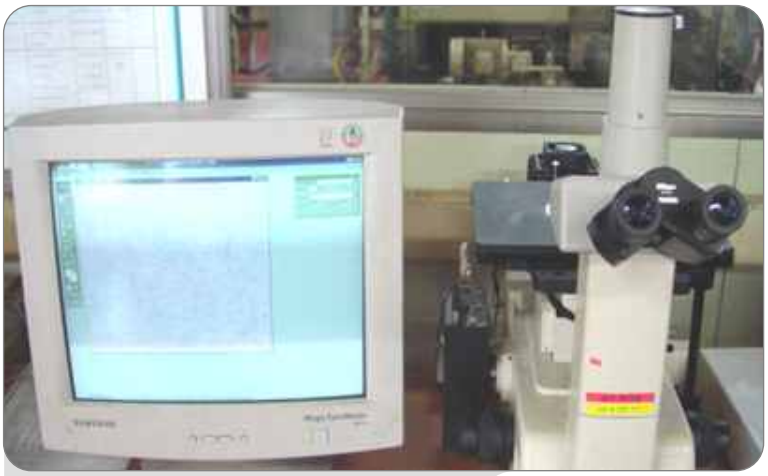
**ROUNDNESS**
MODEL : TALYROND 265
RESOLUTION : 0.05 ㎛

**ROUGHNESS MEASURING**
MODEL : FORM TALYSURF
RESOLUTION : 0.8 ㎛

**THREE DIMENSIONAL MEASURING**
MODEL : IMPACT 500 DCC
RESOLUTION : 500 X 600 X 450

**UNIVERSAL MEASURING MACHINE**
MODEL : UNVERSAL
RESOLUTION : 0.05 µm

## MEASURING EQUIPMENT

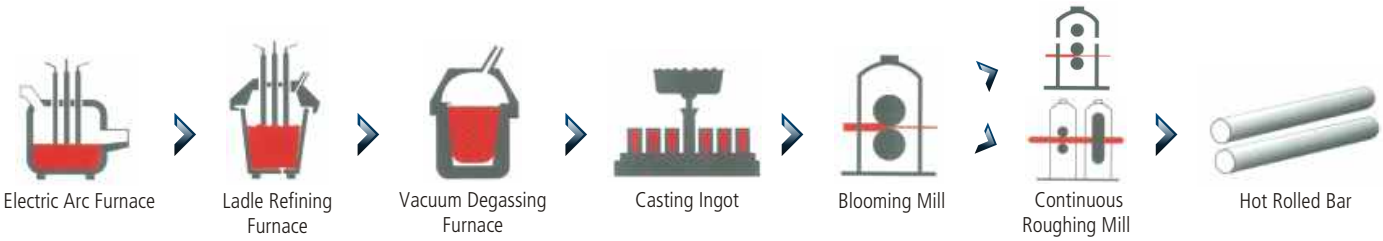


**METAL MICROSCOPE**
MODEL : EPIPHOT 200
RESOLUTION : X1,000

**UNIVERSAL TEST MACHINE**

# Material Control

| Material Spec. (JIS) | Supplier (Maker) | Remark |
|---|---|---|
| SUJ-2 (SAE 52100) | POSCO , SHANGHAI #5 | KOREA |



## Notes


Luna

**Bearings, Automation & Power Transmission**

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Email : luna@vsnl.com / sales@lunabearings.com
Web : www.lunabearings.com / www.luna.co.in


**KHS-LG**

KHS-LG INDUSTRIES CO., LTD.