Roll The Industry Better

LNT BEARINGS

The Infinity Series of LNT Bearings

TECHNICAL CATALOGUE

A New Legacy Begins

LNT Bearings is a trusted and leading manufacturer and supplier of high-quality bearings, serving diverse industries worldwide. We are dedicated to delivering exceptional bearing solutions that meet the needs of our customers and exceed their expectations.

At LNT Bearings, we specialize in the production and supply of a comprehensive range of bearings for various applications. Our product portfolio includes deep groove ball bearings, angular contact ball bearings, self-aligning ball bearings, cylindrical roller bearings, spherical roller bearings, tapered roller bearings, needle roller bearings, thrust ball bearings, and more. We cater to industries such as automotive, aerospace, construction, manufacturing, mining, oil and gas, agriculture, and power transmission.

There are several reasons to choose LNT Bearings

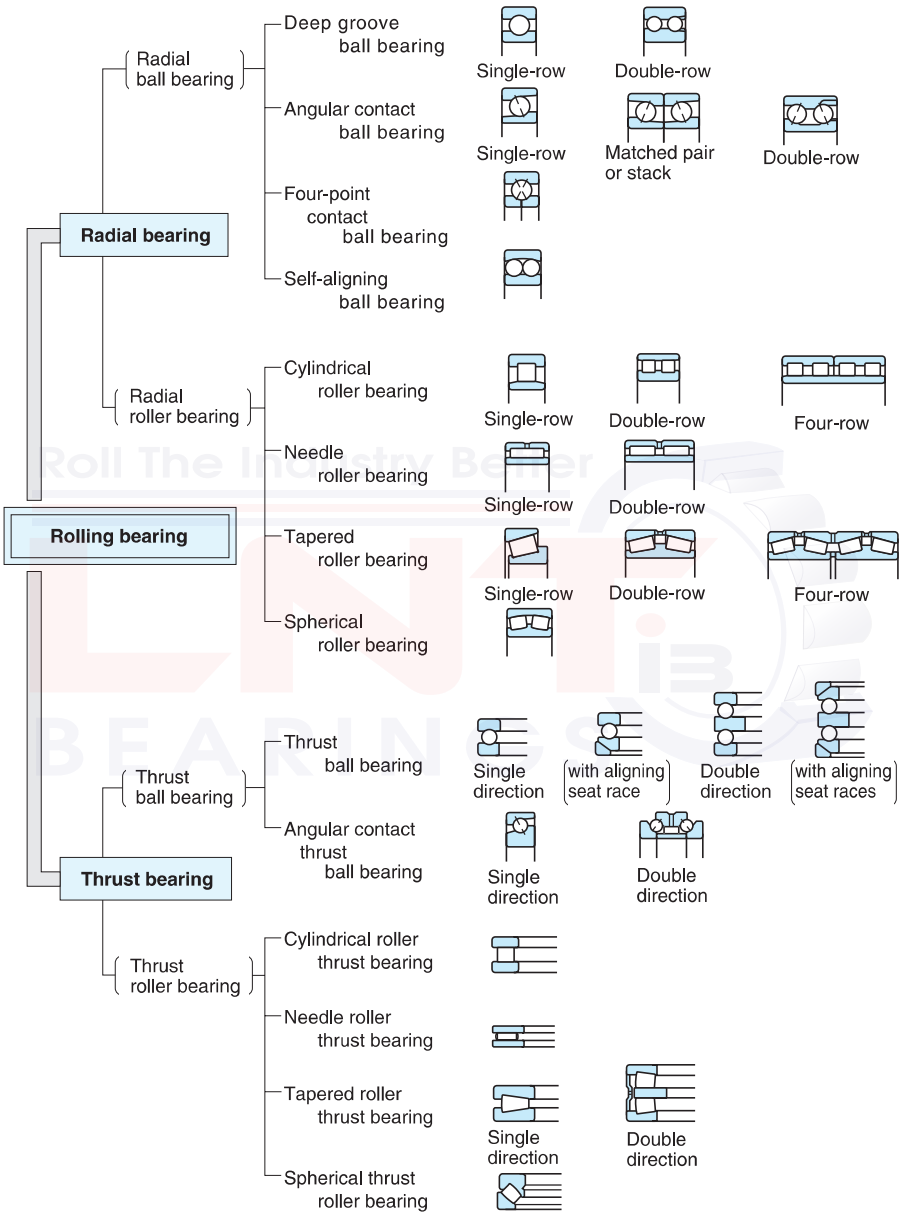
- **Quality and Reliability:** LNT Bearings is known for its commitment to exceptional quality and reliability. Our bearings are manufactured to the highest industry standards, ensuring superior performance, durability, and longevity.
- **Wide Range of Bearing Solutions:** We offer a comprehensive range of bearing solutions to cater to various industries and applications.
- **Customization Capability:** At LNT Bearings, we understand that each application may have unique demands. We have the expertise and flexibility to provide customized bearing solutions tailored to your specific needs.
- **Technical Expertise:** With years of experience and a highly skilled team of engineers and technicians, we possess in-depth technical expertise in the field of bearings. We stay updated with the latest advancements and industry trends, enabling us to provide valuable guidance and support to our customers in selecting the right bearings for their applications.
- **Customer-Centric Approach:** Customer satisfaction is our top priority. We strive to build long-lasting relationships with our customers by delivering excellent products and exceptional service.
- **Commitment to Sustainability:** We are committed to sustainable practices and environmental stewardship. We continuously seek ways to reduce our environmental impact and promote responsible manufacturing processes.

When you choose LNT Bearings, you can expect exceptional quality, reliable performance, technical expertise, customization options, and dedicated customer service. Experience the LNT Bearings difference and trust us to be your preferred partner for all your bearing needs.

The Manufacturing Process would involve the Following Steps:

- **Material Procurement:** LNT Bearings procures high-quality raw materials required for bearing production, such as steel, stainless steel, ceramic, or other suitable materials.
- **Material Preparation:** The raw materials are inspected, tested, and prepared for further processing. This may involve cutting or shaping the materials into appropriate sizes or forms.
- **Forming the Outer and Inner Rings:** LNT Bearings uses advanced machining techniques such as turning, milling, or grinding to form the outer and inner rings of the bearings. These processes ensure precise dimensions and smooth surface finishes.
- **Manufacturing the Rolling Elements:** The rolling elements, such as balls or rollers, are manufactured in-house using specialized machinery and processes. These elements are carefully designed and produced to meet specific application requirements.
- **Heat Treatment:** The rings and rolling elements undergo heat treatment to enhance their mechanical properties. This typically involves processes such as quenching, tempering, or induction hardening to improve hardness, strength, and durability.
- **Precision Grinding:** LNT Bearings employs precision grinding machines to achieve tight tolerances and excellent surface finishes on the rings, rolling elements, and other critical components. This step ensures optimal fit, smooth operation, and reduced friction.
- **Assembly:** The bearings are meticulously assembled by skilled technicians, ensuring proper alignment of the rings, rolling elements, and cage. Specialized tools and equipment are used to maintain accuracy and consistency during assembly.
- **Lubrication and Sealing:** LNT Bearings applies suitable lubricants and seals to the bearings, ensuring proper lubrication and protection against contaminants. This step helps to reduce friction, extend bearing life, and enhance performance.
- **Quality Control:** Throughout the manufacturing process, rigorous quality control measures are implemented. LNT Bearings conducts inspections, measurements, and tests to ensure that each bearing meets the highest standards of quality, performance, and reliability.
- **Packaging and Distribution:** Once the bearings have passed quality control checks, they are carefully packaged to safeguard them during transportation. LNT Bearings employs appropriate packaging materials and labeling to ensure proper identification and traceability. The packaged bearings are then distributed to customers or stored in warehouses for timely delivery.
- By controlling the entire manufacturing process, LNT Bearings maintains strict quality standards, fosters innovation, and ensures that each bearing produced meets the precise specifications and requirements of customers in various industries.

Rolling Bearing Structure and types

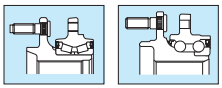


Rolling Bearing Structure and types

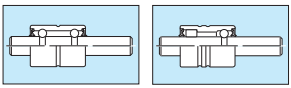
Bearings classified by use

[Automobile]

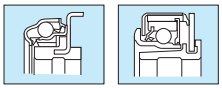
Wheel hub unit



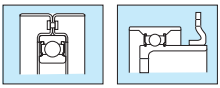
Water pump bearing



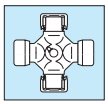
Clutch release bearing



Tensioner bearing unit



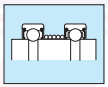
Universal joint cross bearing



Electric equipment

Business equipment

Integral bearing unit

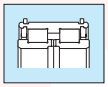


Plastic pulley unit

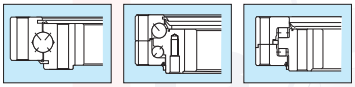
Construction equipment

Industrial equipment

Crane sheave bearing



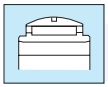
Slewing rim bearing



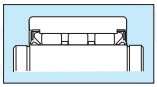
Steel industry equipment

Paper manufacturing equipment

Split bearing for continuous casting



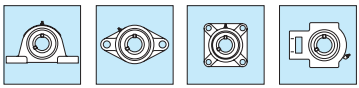
Back-up roll unit for hot leveler



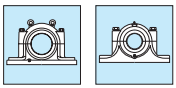
Swimming roll triple ring bearing

Others

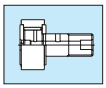
Ball bearing unit



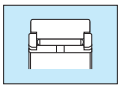
Plummer block



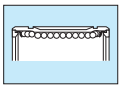
Stud type track roller (cam follower)



Yoke type track roller (roller follower)



Linear ball bearing (linear motion bearing)



Bearing type and tolerance class

Bearing type			Applied standards	Applied tolerance class						Tolerance table
Deep groove ball bearing			JIS B 1514-1	Class 0	–	Class 6	Class 5	Class 4	Class 2	Table 7-3
Angular contact ball bearing				Class 0	–	Class 6	Class 5	Class 4	Class 2	
Self-aligning ball bearing				Class 0	–	–	–	–	–	
Cylindrical roller bearing				Class 0	–	Class 6	Class 5	Class 4	Class 2	
Needle roller bearing (machined ring type)			JIS B 1536-1	Class 0	–	–	–	–	–	
Tapered roller bearing	Metric series (single-row)		JIS B 1514-1	Class 0	Class 6X	(Class 6)	Class 5	Class 4	Class 2	Table 7-5
	Metric series (double or four-row)		BAS 1002	Class 0	–	–	–	–	–	Table 7-6
	Inch series		ANSI/ABMA	Class 4	–	Class 2	Class 3	Class 0	Class 00	Table 7-7
	Metric series (J-series)			Class PK	–	Class PN	Class PC	Class PB	–	Table 7-8
Spherical roller bearing			JIS B 1514-1	Class 0	–	–	–	–	–	Table 7-3
Thrust ball bearing			JIS B 1514-2	Class 0	–	Class 6	Class 5	Class 4	–	Table 7-9
Spherical thrust roller bearing				Class 0	–	–	–	–	–	Table 7-10
Precision ball screw support bearing				–	–	–	Class P5Z	Class P4Z	–	–
Double direction angular contact thrust ball bearing				–	–	–	Equivalent to class 5	Equivalent to class 4	–	–
(Reference) Class comparison	ISO	Radial bearing	ISO 492	Normal Class	Class 6X	Class 6	Class 5	Class 4	Class 2	–
		Thrust bearing	ISO 199	Normal Class	–	Class 6	Class 5	Class 4	–	–
	DIN BS NF	Radial and thrust bearings	DIN 620 BS 6107 NF E 22-335	Normal Class	Class 6X	Class 6	Class 5	Class 4	Class 2	–
	ANSI ABMA	Radial bearing	ABMA std. 20	ABEC 1 RBEC 1	– –	ABEC 3 RBEC 3	ABEC 5 RBEC 5	ABEC 7 –	ABEC 9 –	–
		Instrument ball bearing	ABMA std. 12	–	–	Class 3P	Class 5P Class 5T	Class 7P Class 7T	Class 9P	Table 7-4
		Tapered roller bearing	ABMA std. 19	Class 4 Class K	– –	Class 2 Class N	Class 3 Class C	Class 0 Class B	Class 00 Class A	Table 7-7

(Reference) Standards and organizations concerned with bearings

JIS : Japanese Industrial Standard
BAS : The Japan Bearing Industrial Association Standard
ISO : International Organization for Standardization
ANSI : American National Standards Institute, Inc.
ABMA : American Bearing Manufactures Association
DIN : Deutsches Institut für Normung
BS : British Standards Institution
NF : Association Francaise de Normalisation

Outline of bearing selection

Currently, as bearing design has become diversified, their application range is being increasingly extended. In order to select the most suitable bearings for an application, it is necessary to conduct a comprehensive study on both bearings and the equipment in which the bearings will be installed, including operating conditions, the performance required of the bearings, specifications of the other components to be installed along with the bearings, marketability, and cost performance, etc.

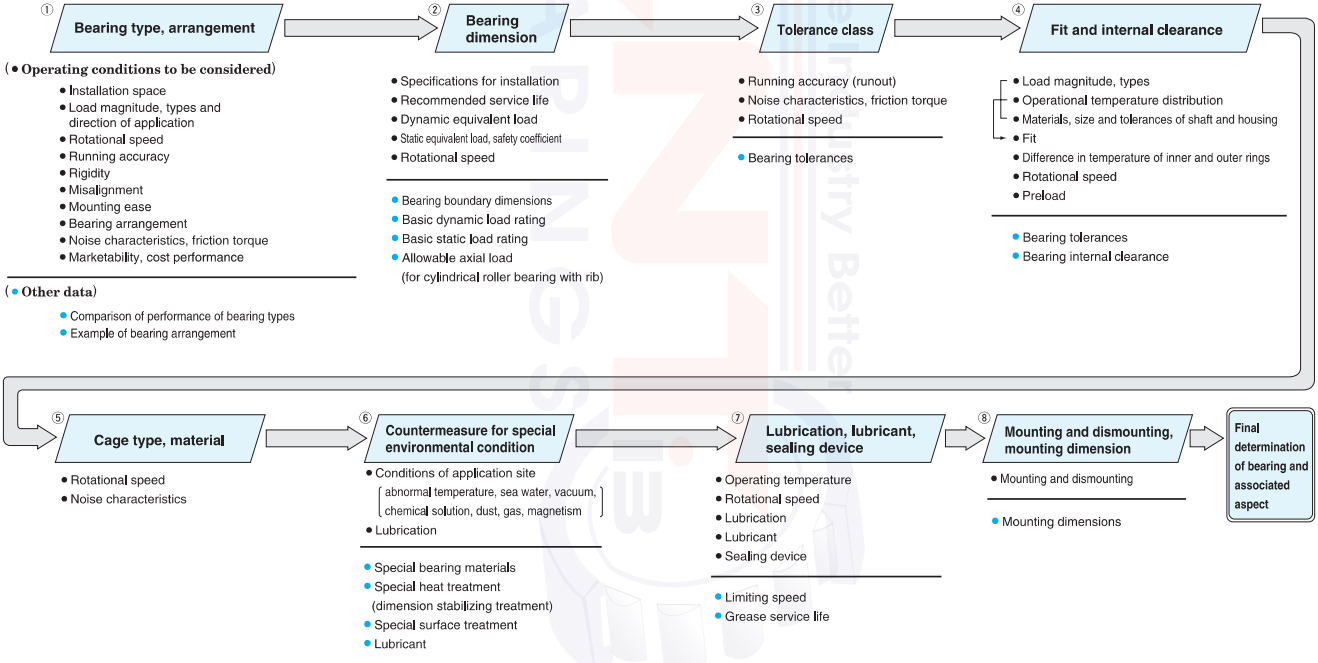
In selecting bearings, since the shaft diameter is usually determined beforehand, the prospective bearing type is chosen based upon installation space, intended arrangement, and according to the bore diameter required.

Next, from the bearing specifications are determined the service life required when compared to that of the equipment in which it is used, along with a calculation of the actual service life from operational loads.

Internal specifications including bearing accuracy, internal clearance, cage, and lubricant are also selected, depending on the application.

For reference, general selection procedure and operating conditions are described in

There is no need to follow a specific order, since the goal is to select the right bearing to achieve optimum performance.



Maintenance

Proper maintenance is crucial for ensuring the longevity, performance, and reliability of bearings. Here is a detailed guide on the maintenance of bearings:

1. **Lubrication:** Adequate lubrication is essential to reduce friction and prevent premature wear of bearing components. Regularly lubricate the bearings according to the manufacturer's guidelines, using the recommended lubricant type and quantity. Lubrication intervals may vary depending on the application, operating conditions, and bearing type. Monitor lubrication levels and replenish as needed.

2. **Contamination Control:** Preventing contamination is vital for bearing performance. Keep the bearing environment clean and free from dust, dirt, debris, and moisture. Use appropriate sealing or shielding mechanisms to protect the bearings from external contaminants. Regularly inspect and clean the surrounding area to minimize the risk of contamination.

3. **Temperature Monitoring:** Monitor the operating temperature of the bearings using temperature measuring devices. Excessive heat can lead to premature wear or failure. If the temperature exceeds the recommended limits, investigate and address the underlying causes, such as inadequate lubrication, misalignment, or excessive loads.

4. **Regular Inspections:** Conduct routine inspections to detect any signs of wear, damage, or abnormal operating conditions. Check for unusual noise, vibration, or temperature changes. Inspect the bearing surfaces, cages, and seals for signs of wear, corrosion, or pitting. Address any identified issues promptly to prevent further damage or failure.

5. **Proper Handling and Mounting:** Handle and mount bearings with care to avoid damage. Follow proper installation techniques, ensuring correct alignment and fit. Use appropriate tools and equipment to avoid introducing stress or force that may impact the bearing's performance. Refer to manufacturer guidelines or seek professional assistance if needed.

6. **Alignment and Load Distribution:** Ensure proper alignment of the bearing components to distribute loads evenly. Misalignment or excessive loads can lead to premature wear and failure. Align shafts, housings, and bearing components according to specifications and use shims or spacers if necessary.

7. **Periodic Re-greasing or Re-lubrication:** Over time, lubricants may degrade or become contaminated. Plan for periodic re-greasing or re-lubrication based on the bearing type, application, and operating conditions. Clean the bearing surfaces before re-lubrication to prevent the introduction of contaminants.

8. **Training and Expertise:** Develop a maintenance plan and provide training to personnel responsible for bearing maintenance. Ensure they have the knowledge and skills to perform inspections, lubrication, and other maintenance tasks correctly. Seek guidance from bearing manufacturers or industry experts for specific application requirements.

9. **Record-Keeping:** Maintain records of bearing maintenance activities, including lubrication schedules, inspections, and any repairs or replacements performed. Keep track of the bearing's operating conditions, such as temperature, load, and speed. This information helps in identifying trends, evaluating performance, and planning future maintenance tasks.

10. **Timely Replacement:** Bearings have a finite lifespan, and it is important to replace them when they reach the end of their service life or show signs of severe wear or damage. Regularly monitor the condition of bearings and plan for timely replacements to prevent unexpected failures.

Remember, proper maintenance practices can significantly extend the life of bearings, improve machinery performance, and minimize downtime. Consult the bearing manufacturer's guidelines and seek professional advice when necessary to ensure the best maintenance practices for your specific application.

Order of arrengement	Basic number: Bearing series code	Basic number: Bore diameter No.	Basic number: Contact angle code	Supplementary code: Internal design code, cage guide code	Supplementary code: Shield/seal code	Supplementary code: Ring shape code, lubrication hole/groove code	Supplementary code: Material code, special treatment code	Supplementary code: Matched pair or stack code	Supplementary code: Internal clearance code, preload code	Supplementary code: Spacer code	Supplementary code: Cage material/ shape code	Supplementary code: Tolerance code	Supplementary code: Grease code

(Codes and descriptions)

Bearing series code

68	Deep groove ball bearing
69	⋮
60	⋮
⋮	

(For standard bearing code, refer to Table 6-1)

Bore diameter No.

/0.6	0.6 mm (Bore diameter)
1	1
/1.5	1.5
⋮	⋮
9	9
00	10
01	12
02	15
03	17
04	20
/22	22
05	25
⋮	⋮
96	480
/500	500
/2500	2500

· Bore diameters (mm) of bearing in the bore diameter range 04 to 96 can be obtained by multiplying their bore diameter number by five.

Contact angle code

A	(omitted) 30°	Angular contact ball bearing
AC	25°	
B	40°	
C	15°	
CA	20°	
E	35°	
B	(omitted) Less than 17°	Tapered roller bearing
C	20°	
D	28° 30′	
DJ	28° 48′ 39″	

Internal design code

R Reinforced capacity
(Deep groove ball bearing, cylindrical roller bearing, tapered roller bearing)

G Equal stand-out is provided on both sides of the ring of angular contact ball bearing (In general, C2 clearance is used)

GST Angular contact ball bearing described above with standard internal clearance provided

J Tapered roller bearing, whose outer ring width, contact angle and outer ring small inside diameter conform to ISO standards

Spherical roller bearings:
- With convex asymmetric rollers and machined cage
- With convex symmetric rollers and pressed cage
- With convex symmetric rollers and one-piece machined cage

V Full complement type ball or roller bearing (with no cage)

Shield/seal code

one side	both sides	
Z	**ZZ**	Fixed shield
ZX	**ZZX**	Removable shield
ZU	**2ZU**	Non-contact seal
RU	**2RU**	
RS	**2RS**	Contact seal
RK	**2RK**	
U	**UU**	
RD	**2RD**	Extremely light contact seal

Ring shape code, lubrication hole/groove code

K	Inner ring tapered bore provided (1 : 12)
K30	Inner ring tapered bore provided (1 : 30)
N	Snap ring groove on outer ring outside surface provided
NR	Snap ring groove and locating snap ring on outer ring outside surface provided

(Codes and descriptions)

NY	Creep prevention synthetic resin ring on outer ring outside surface provided
SG	Spiral groove on inner ring bore surface provided
W	Lubrication hole and lubrication groove on cylindrical roller bearing outer ring outside surface provided
W33	Lubrication hole and lubrication groove on spherical roller bearing outer ring outside surface provided

Material code, special treatment code

Code not given	High carbon chrome bearing steel	
E	Case carburizing steel	
F		
H		
Y		
ST	Stainless steel	
SH	Special heat treatment	
S0	Up to 150 °C	Dimension stabilizing treatment
S1	Up to 200 °C	
S2	Up to 250 °C	

Matched pair or stack code, cage guide code

DB	Back-to-back arrangement	Angular contact ball bearing
DF	Face-to-face arrangement	
DT	Tandem arrangement	
PA	With outer ring guide cage (Ball bearing)	
Q3	With roller guide cage (Roller bearing)	

Internal clearance code, preload code

C1	Smaller than C2	Radial internal clearance for radial bearing
C2	Smaller than standard clearance	
CN	Standard clearance	
C3	Greater than standard clearance	
C4	Greater than C3	
C5	Greater than C4	
M1 to M6	Radial internal clearance for extra-small/ miniature ball bearing	
CD2	Smaller than standard clearance	Radial internal clearance for double-row angular contact ball bearing
CDN	Standard clearance	
CD3	Greater than standard clearance	
CM	Radial internal clearance for electric motor bearing	Deep groove ball bearing
CT		Cylindrical roller bearing
NA	Non-interchangeable cylindrical roller bearing radial internal clearance (C1NA to C5NA)	
S	Slight preload	Preload for angular contact ball bearing
L	Light preload	
M	Medium preload	
H	Heavy preload	

Spacer code

Spacer width (mm) is affixed to the end of each code.

+	Inner and outer ring spacers provided	Deep groove ball bearing
/	Inner and outer ring spacers provided	Angular contact ball bearing
/P	Outer ring spacer provided	
/S	Inner ring spacer provided	
+DP	Inner and outer ring spacers provided	Cylindrical roller bearing, spherical roller bearing
+IDP	Inner ring spacer provided	
+ODP	Outer ring spacer provided	

Cage material/type code

/	Steel sheet	Pressed cage
YS	Stainless steel sheet	
FT	Phenol resin	Machined cage
FY	High-tensile brass casting	
FW	High-tensile brass casting (separable type)	
MG	Polyamide	(Molded cage)
FG		
FP	Carbon steel	(Pin type cage)

Tolerance code (JIS)

Omitted	Class 0
P6	Class 6
P6X	Class 6X
P5	Class 5
P4	Class 4
P2	Class 2

Grease code

A2	Alvania 2
B5	Beacon 325
SR	SR grease

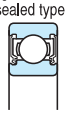
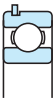
Bearing Series Code

Bearing type	Bearing series code	Type code	Dimension series code	
			Width series[1]	Diameter series
Single-row deep groove ball bearing	67	6	(1)	7
	68	6	(1)	8
	69	6	(1)	9
	160 [2]	6	(0)	0
	60	6	(1)	0
	62	6	(0)	2
	63	6	(0)	3
	64	6	(0)	4
Double-row deep groove ball bearing (with filling slot)	42	4	(2)	2
	43	4	(2)	3
Single-row angular contact ball bearing	79	7	(1)	9
	70	7	(1)	0
	72	7	(0)	2
	73	7	(0)	3
	74	7	(0)	4
Double-row angular contact ball bearing (with filling slot)	32	(0)	3	2
	33	(0)	3	3
Double-row angular contact ball bearing	52	5	(3)	2
	53	5	(3)	3
Self-aligning ball bearing	12	1	(0)	2
	22	2	(2)	2
	13	1	(0)	3
	23	2	(2)	3
	112 [2]	1	(0) [3]	2
	113 [2]	1	(0) [3]	3
Single-row cylindrical roller bearing	NU 10	NU [4]	1	0
	NU 2	NU [4]	(0)	2
	NU 22	NU [4]	2	2
	NU 32	NU [4]	3	2
	NU 3	NU [4]	(0)	3
	NU 23	NU [4]	2	3
	NU 4	NU [4]	(0)	4
Double-row cylindrical roller bearing	NNU 49	NNU	4	9
	NN 30	NN	3	0
Single-row needle roller bearing	NA 48	NA	4	8
	NA 49	NA	4	9
	NA 59	NA	5	9
Double-row needle roller bearing	NA 69	NA	6	9

Bearing type	Bearing series code	Type code	Dimension series code	
			Width series	Diameter series
Tapered roller bearing	329	3	2	9
	320	3	2	0
	330	3	3	0
	331	3	3	1
	302	3	0	2
	322	3	2	2
	332	3	3	2
	303	3	0	3
	313	3	1	3
	323	3	2	3
Spherical roller bearing	239	2	3	9
	230	2	3	0
	240	2	4	0
	231	2	3	1
	241	2	4	1
	222	2	2	2
	232	2	3	2
	213 [2]	2	0	3
	223	2	2	3
Single direction thrust ball bearing	511	5	1	1
	512	5	1	2
	513	5	1	3
	514	5	1	4
Single direction thrust ball bearing with spherical back face	532	5	3	2
	533	5	3	3
	534	5	3	4
Double direction thrust ball bearing	522	5	2	2
	523	5	2	3
	524	5	2	4
Double direction thrust ball bearing with spherical back faces	542	5	4	2
	543	5	4	3
	544	5	4	4
Spherical thrust roller bearing	292	2	9	2
	293	2	9	3
	294	2	9	4

[Notes]
1) Width series codes in parentheses are omitted in bearing series codes.
2) These are bearing series codes customarily used.
3) Nominal outer ring width series (inner rings only are wide).
4) Besides NU type, NJ, NUP, N, NF, and NH are provided.

Deep groove ball bearings

Single-row								Double-row
Open type	Shielded type	Non-contact sealed type	Contact sealed type		Extremely light contact sealed type	With locating snap ring	Flanged type	
								
	ZZ	2RU	2RS	2RK	2RD	NR	(Suitable for extra-small or miniature bearing)	
680, 690, 600, 620, 630, (ML) ···Extra-small, miniature bearing								4200
6700, 6800, 6900, 16000, 6000, 6200, 6300, 6400								4300

- 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.
- Bearings with a flange or locating snap ring attached on the outer ring are easily mounted in housings for simple positioning of housing location.

Tolerances: "P0" (normal), "P6" (higher precision), "P5" (very high precision)
Clearances: "C0" (standard), "C2" (reduced), "C3" (greater)

[Recommended cages] Pressed cage (ribbon type, snap type ··· single-row, S type ··· double-row), copper alloy or phenolic resin machined cage, synthetic resin molded cage

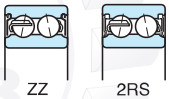
[Main applications]
Automobile : front and rear wheels, transmissions, electric devices
Electric equipment : standard motors, electric appliances for domestic use
Others : measuring instruments, internal combustion engines, construction equipment, railway rolling stock, cargo transport equipment, agricultural equipment, equipment for other industrial uses

Angular contact ball bearings

Single-row			Matched pair			Double-row	
		For high-speed use	Back-to-back arrangement	Face-to-face arrangement	Tandem arrangement		
 (With pressed cage)	 (With machined cage)	 HAR	 DB	 DF	 DT	 (With filling slot)	
7000, 7200, 7300, 7400 ..... Contact angle 30°						3200	5200
7000B, 7200B, 7300B, 7400B ..... 40°						3300	5300
7900C, HAR900C, HAR000C	7000C, 7200C, 7300C		..... 15°			Contact angle 32°	Contact angle 24°

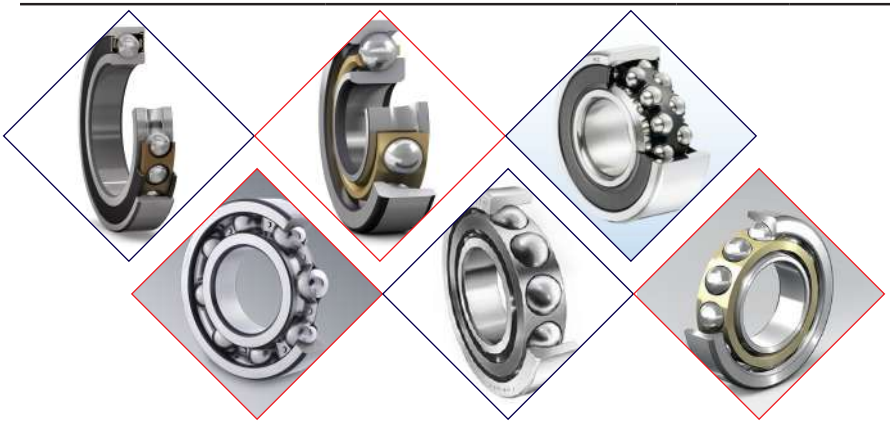
- Bearing rings and balls possess their own contact angle which is normally 15°, 30° or 40°.
  - Larger contact angle ····· higher resistance against axial load
  - Smaller contact angle ··· more advantageous for high-speed rotation
- Single-row bearings can accommodate radial load and axial load in one direction.
- DB and DF matched pair bearings and double-row bearings can accommodate radial load and axial load in both directions.
  DT matched pair bearings are used for applications where axial load in one direction is too large for one bearing to accept.
- HAR type high speed bearings were designed to contain more balls than standard bearings by minimizing the ball diameter, to offer improved performance in machine tools.
- Angular contact ball bearings are used for high accuracy and high-speed operation.

- Axial load in both directions and radial load can be accommodated by adapting a structure pairing two single-row angular contact ball bearings back to back.
- For bearings with no filling slot, the sealed type is available.


ZZ (Shielded) 2RS (Sealed)

[Recommended cages] Pressed cage (conical type ··· single-row : S type, snap type ··· double-row), copper alloy or phenolic resin machined cage, synthetic resin molded cage

[Main applications] Single-row : machine tool spindles, high frequency motors, gas turbines, centrifugal separators, front wheels of small size automobiles, differential pinion shafts
Double-row : hydraulic pumps, roots blowers, air-compressors, transmissions, fuel injection pumps, printing equipment



Rolling Bearing Structures and Types

Self-aligning ball bearings

Cylindrical bore	Tapered bore	Sealed
		
	K (Taper 1 : 12)	2RS
120, 130 1200, 1300 2200, 2300	11200, 11300··· extended inner ring type	2200 2RS 2300 2RS

- Spherical outer ring raceway allows self-alignment, accommodating shaft or housing deflection and misaligned mounting conditions.
- Tapered bore design can be mounted readily using an adapter.

Pressed cage	staggered type···12, 13, 22...2RS, 23...2RS snap type ·····22, 23
Power transmission shaft of wood working and spinning machines, plummer blocks	

Cylindrical roller bearings

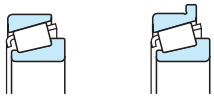
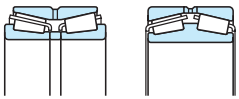
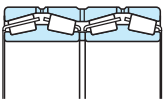
Single-row						Double-row		Four-row
								
NU	NJ	NUP	N	NF	NH	NN	NNU	Mainly use on rolling mill roll neck
NU1000, NU200 (R), NU2200 (R), NU3200,		NU300 (R), NU2300 (R), NU3300			NU400	Cylindrical bore NNU4900 NN3000	Tapered bore NNU4900K NN3000K	(FC) , (4CR)

- Since the design allowing linear contact of cylindrical rollers with the raceway provides strong resistance to radial load, this type is suitable for use under heavy radial load and impact load, as well as at high speed.
- N and NU types are ideal for use on the free side: they are movable in the shaft direction in response to changes in bearing position relative to the shaft or housing, which are caused by heat expansion of the shaft or improper mounting.
- NJ and NF types can accommodate axial load in one direction; and NH and NUP types can accommodate partial axial load in both directions.
- With separable inner and outer ring, this type ensures easy mounting.
- Due to their high rigidity, NNU and NN types are widely used in machine tool spindles.

[Recommended cages] Pressed cage (Z type), copper alloy machined cage, pin type cage, synthetic resin molded cage

[Main applications] Large and medium size motors, traction motors, generators, internal combustion engines, gas turbines, machine tool spindles, speed reducers, cargo transport equipment, and other industrial equipment

Tapered roller bearings

Single-row	Double-row	Four-row
 Flanged type	 TDO type TDI type	 Mainly used on rolling mill roll necks
(Standard contact angle) 32900JR 32000JR 33000JR 33100JR 30200JR 32200JR 33200JR 30300JR 32300JR (Inter mediate contact angle) 30200CR 32200CR 30300CR 32300CR (Steep contact angle) 30300DJ 30300DJR 31300JR		

- Tapered rollers assembled in the bearings are guided by the inner ring back face rib.
- The raceway surfaces of inner ring and outer ring and the rolling contact surface of rollers are designed so that the respective apexes converge at a point on the bearing center line.
- Single-row bearings can accommodate radial load and axial load in one direction, and double-row bearings can accommodate radial load and axial load in both directions.
- This type of bearing is suitable for use under heavy load or impact load.
- Bearings are classified into standard, intermediate and steep types, in accordance with their contact angle (α).
  The larger the contact angle is, the greater the bearing resistance to axial load.
- Since outer ring and inner ring assembly can be separated from each other, mounting is easy.
- Bearings designated by the suffix "J" and "JR" are interchangeable internationally.
- Items sized in inches are still widely used.

[Recommended cages] Pressed cage, synthetic resin molded cage, pin type cage

[Main applications] Automobile : front and rear wheels, transmissions, differential pinion
Others : machine tool spindles, construction equipment, large size agricultural equipment, railway rolling stock speed reduction gears, rolling mill roll necks and speed reducers, etc

Spherical roller bearings

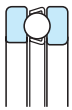
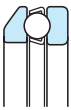
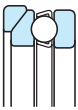
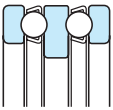
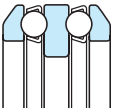
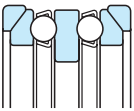
Cylindrical bore				Tapered bore
Convex asymmetrical roller type	Convex symmetrical roller type			
				
23900 , 23000 24000	23100 24100	22200 23200	21300 22300	K or K30

- Spherical roller bearings comprising barrel-shaped convex rollers, double-row inner ring and outer ring are classified into CC, CA, MB, E, E1 according to their internal structure.
- With the bearing designed such that the circular arc center of the outer ring raceway matches with the bearing center, the bearing is self-aligning, insensitive to errors of alignment of the shaft relative to the housing, and to shaft deflection.
- This type can accommodate radial load and axial load in both directions, which makes it especially suitable for applications in which heavy load or impact load is applied.
- The tapered bore type can be easily mounted/dismounted by using an adapter or withdrawal sleeve.
  There are two types of tapered bores (tapered ratio) :
  - 1 : 30 (supplementary code K30) ··· Suitable for series 240 and 241.
  - 1 : 12 (supplementary code K) ··· Suitable for series other than 240 and 241.
- Lubrication holes, a lubrication groove and anti-rotation pin hole can be provided on the outer ring. Lubrication holes and a lubrication groove can be provided on the inner ring, too.

[Recommended cages] Copper alloy machined cage, pressed cage

[Main applications] Paper manufacturing equipment, speed reducers, railway rolling stock axle journals, rolling mill pinion stands, table rollers, crushers, shaker screens, printing equipment, wood working equipment, speed reducers for various industrial uses, plummer blocks

Thrust ball bearings

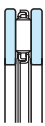
Single direction			Double direction		
With flat back faces	With spherical back face	With aligning seat race	With flat back faces	With spherical back faces	With aligning seat races
					
51100	–	–	–	–	–
51200	53200	53200U	52200	54200	54200U
51300	53300	53300U	52300	54300	54300U
51400	53400	53400U	52400	54400	54400U

- This type of bearing comprises washer-shaped rings with raceway groove and ball and cage assembly.
- Races to be mounted on shafts are called shaft races (or inner rings); and, races to be mounted into housings are housing races (or outer rings).
  Central races of double direction bearings are mounted on the shafts.
- Single direction bearings accommodate axial load in one direction, and double direction bearings accommodate axial load in both directions. (Both of these bearings cannot accommodate radial loads.)
- Since bearings with a spherical back face are self- aligning, it helps to compensate for mounting errors.

[Recommended cages] Pressed cage, copper alloy or phenolic resin machined cage, synthetic resin molded cage

[Main applications] Automobile king pins, machine tool spindles

Needle roller thrust bearings

Separable	Non-separable
	
(AXK, FNT, NTA)	(FNTKF)

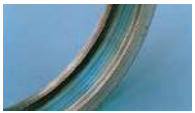
- The separable type, comprising needle roller and cage thrust assembly and a race, can be matched with a pressed thin race (AS) or machined thick race (LS, WS.811, GS.811).
- The non-separable type comprises needle roller and cage thrust assembly and a precision pressed race.
- Axial load can be accommodated in one direction.
- Due to the very small installation space required, this type contributes greatly to size reduction of application equipment.

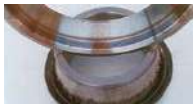
- In many cases, needle roller and cage thrust assembly function by using the mounting surface of the application equipment, including shafts and housings, as its raceway surface.

Pressed cage, synthetic resin molded cage

Transmissions for automobiles, cultivators and machine tools

Failures	Characteristics	Damages	Causes	Countermeasures
1 Flaking	  Flaking is a phenomenon when material is removed in flakes from a surface layer of the bearing raceways or rolling elements due to rolling fatigue. This phenomenon is generally attributed to the approaching end of bearing service life. However, if flaking occurs at early stages of bearing service life, it is necessary to determine causes and adopt countermeasures. [Reference] Pitting Pitting is another type of failure caused by rolling fatigue, in which minute holes of approx. 0.1 mm in depth are generated on the raceway surface.	Flaking occurring at an incipient stage	· Too small internal clearance · Improper or insufficient lubricant · Too much load · Rust	· Provide proper internal clearance. · Select proper lubricating method or lubricant.
		Flaking on one side of radial bearing raceway	· Extraordinarily large axial load	· Fitting between outer ring on the free side and housing should be changed to clearance fit.
		Symmetrical flaking along circumference of raceway	· Inaccurate housing roundness	· Correct processing accuracy of housing bore. (Especially for split housings, care should be taken to ensure processing accuracy.)
		Slanted flaking on the radial ball bearing raceway	· Improper mounting · Shaft deflection · Inaccuracy of the shaft and housing	· Correct centering. · Widen bearing internal clearance. · Correct squareness of shaft or housing shoulder.
		Flaking occurring near the edge of the raceway or rolling contact surface of roller bearings		
		Flaking on the raceway surface at the same interval as rolling element spacing	· Heavy impact load during mounting · A flaw of cylindrical roller bearings or tapered roller bearings caused when they are mounted. · Rust gathered while out of operation	· Improve mounting procedure. · Provide rust preventive treatment before long cessation of operation.
2 Cracking, chipping		Cracking in outer ring or inner ring	· Excessive interference · Excessive fillet on shaft or housing · Heavy impact load · Advanced flaking or seizure	· Select proper fit. · Adjust fillet on the shaft or in the housing to smaller than that of the bearing chamfer dimension. · Re-examine load conditions.
		Cracking on rolling elements	· Heavy impact load · Advanced flaking	· Improve mounting and handling procedure. · Re-examine load conditions.
		Cracking on the rib	· Impact on rib during mounting · Excessive axial impact load	· Improve mounting procedure. · Re-examine load conditions.
3 Brinelling, nicks	 (Brinelling) · Brinelling is a small surface indentation generated either on the raceway through plastic deformation at the contact point between the raceway and rolling elements, or on the rolling surfaces from entry of foreign matter, when heavy load is applied while the bearing is stationary or rotating at a low rotation speed. · Nicks are those indentations produced directly by rough handling such as hammering.	Brinelling on the raceway or rolling contact surface	· Entry of foreign matter	· Clean bearing and its peripheral parts. · Improve sealing devices.
		Brinelling on the raceway surface at the same interval as the rolling element spacing	· Impact load during mounting · Excessive load applied while bearing is stationary	· Improve mounting procedure. · Improve machine handling.
		Nicks on the raceway or rolling contact surface	· Careless handling	· Improve mounting and handling procedure.

Failures	Characteristics	Damages	Causes	Countermeasures
4 Pear skin, discoloration	 (Discoloration) · Pear skin is a phenomenon in which minute brinell marks cover the entire rolling surface, caused by the entry of foreign matter. This is characterized by loss of luster and a rolling surface that is rough in appearance. In extreme cases, this is accompanied by discoloration due to heat generation. · Discoloration is a phenomenon in which the surface color changes because of staining or heat generation during rotation. Color change caused by rust and corrosion is generally separate from this phenomenon.	Indentation similar to pear skin on the raceway and rolling contact surface.	· Entry of minute foreign matter	· Clean the bearing and its peripheral parts. · Improve sealing device.
		Discoloration of the raceway, surface rolling contact surface, rib face, and cage riding land.	· Too small bearing internal clearance · Improper or insufficient lubricant · Quality deterioration of lubricant due to aging, etc.	· Provide proper internal clearance. · Select proper lubricating method or lubricant.
5 Scratches, scuffing	 (Scuffing) · Scratches are relatively shallow marks generated by sliding contact, in the same direction as the sliding. This is not accompanied by apparent melting of material. · Scuffing refers to marks, the surface of which are partially melted due to higher contact pressure and therefore a greater heat effect. · Generally, scuffing may be regarded as a serious case of scratches.	Scratches on raceway or rolling contact surface	· Insufficient lubricant at initial operation · Careless handling	· Apply lubricant to the raceway and rolling contact surface when mounting. · Improve mounting procedure.
		Scuffing on rib face and roller end face	· Improper or insufficient lubricant · Improper mounting · Excessive axial load	· Select proper lubricating method or lubricant. · Correct centering of axial direction.
6 Smearing	 Smearing is a phenomenon in which a cluster of minute seizures cover the rolling contact surface. Since smearing is caused by high temperature due to friction, the surface of the material usually melts partially ; and, the smeared surfaces appear very rough in many cases.	Smearing on raceway or rolling contact surface	· Improper or insufficient lubricant · Slipping of the rolling elements (This occurs due to the break down of lubricant film when an abnormal self rotation causes slip of the rolling elements on the raceway.)	· Select proper lubricating method or lubricant. · Provide proper preload.
7 Rust, corrosion	 · Rust is a film of oxides, or hydroxides, or carbonates formed on a metal surface due to chemical reaction. · Corrosion is a phenomenon in which a metal surface is eroded by acid or alkali solutions through chemical reaction (electrochemical reaction such as chemical combination and battery formation) ; resulting in oxidation or dissolution. (It often occurs when sulfur or chloride contained in the lubricant additives is dissolved at high temperature.)	Rust partially or completely covering the bearing surface.	· Improper storage condition · Dew formation in atmosphere	· Improve bearing storage conditions. · Improve sealing devices. · Provide rust preventive treatment before long cessation of operation.
		Rust and corrosion at the same interval as rolling element spacing	· Contamination by water or corrosive matter	· Improve sealing devices.
8 Electric pitting	 When an electric current passes through a bearing while in operation, it can generate sparks between the raceway and rolling elements through a very thin oil film, resulting in melting of the surface metal in this area. This phenomenon appears to be pitting at first sight. (The resultant flaw is referred to as a pit.) When the pit is magnified, it appears as a hole like a crater, indicating that the material melted when it was sparking. In some cases, the rolling surface becomes corrugated by pitting.	Pitting or a corrugated surface failure on raceway and rolling contact surface (The bearings must be replaced, if the corrugated texture is found by scratching the surface with a fingernail or if pitting can be observed by visual inspection.)	· Sparks generated when electric current passes through bearings	· Providing a bypass which prevents current from passing through bearings. · Insulation of bearings.

Failures	Characteristics		Damages	Causes	Countermeasures
9 Wear		Normally, wear of bearing is observed on sliding contact surfaces such as roller end faces and rib faces, cage pockets, the guide surface of cages and cage riding lands. Wear is not directly related to material fatigue. Wear caused by foreign matter and corrosion can affect not only sliding surfaces but rolling surfaces.	Wear on the contact surfaces (roller end faces, rib faces, cage pockets)	Improper or insufficient lubricant	· Select proper lubricating method or lubricant. · Improve sealing device. · Clean the bearing and its peripheral parts.
			Wear on raceways and rolling contact surfaces	· Entry of foreign matter · Improper or insufficient lubricant	
10 Fretting		Fretting occurs to bearings which are subject to vibration while in stationary condition or which are exposed to minute vibration. It is characterized by rust-colored wear particles. Since fretting on the raceways often appears similar to brinelling, it is sometimes called "falsebrinelling".	Rust-colored wear particles generated on the fitting surface (fretting corrosion)	· Insufficient interference	· Provide greater interference · Apply lubricant to the fitting surface
			Brinelling on the raceway surface at the same interval as rolling element spacing (false brinelling)	· Vibration and oscillation when bearings are stationary.	· Improve fixing method of the shaft and housing. · Provide preload to bearing.
11 Creep		Creeping is a phenomenon in which bearing rings move relative to the shaft or housing during operation.	Wear, discoloration and scuffing, caused by slipping on the fitting surfaces	· Insufficient interference · Insufficient tightening of sleeve	· Provide greater interference. · Proper tightening of sleeve.
12 Damage to cages		Since cages are made of low hardness materials, external pressure and contact with other parts can easily produce flaws and distortion. In some cases, these are aggravated and become chipping and cracks. Large chipping and cracks are often accompanied by deformation, which may reduce the accuracy of the cage itself and may hinder the smooth movement of rolling elements.	Flaws, distortion, chipping, cracking and excessive wear in cages. Loose or damaged rivets.	· Extraordinary vibration, impact, moment · Improper or insufficient lubricant · Improper mounting (misalignment) · Dents made during mounting	· Re-examine load conditions. · Select proper lubricating method or lubricant. · Minimize mounting deviation. · Re-examine cage types. · Improve mounting.
13 Seizure		A phenomenon caused by abnormal heating in bearings.	Discoloration, distortion and melting together	· Too small internal clearance · Improper or insufficient lubricant · Excessive load · Aggravated by other bearing flaws	· Provide proper internal clearance. · Select proper lubricating method or lubricant. · Re-examine bearing type. · Earlier discovery of bearing flaws.

Standard Bearing Product Range

Bearing No	Bearing No	Bearing No	Bearing No	Bearing No
DGBB	DGBB	DGBB	DGBB	SELF ALIGNING BEARING
12205	628 ZZ	6015 ZZ	6230 ZZ	1200
12206	629 2RS	6016	62304 2RS	1201
12207	629 ZZ	6016 2RS	62305 2RS	1202
12208	6000	6016 ZZ	6300	1203
12209	6000 ZZ	6017	6300 2RS	1204
12210	6000 2RS	6017 2RS	6300 ZZ	1205
16003	6001	6017 ZZ	6301	1206
16003 ZZ/2RS	6001 ZZ	6018	6301 2RS	1207
16004	6001 2RS	6018 2RS	6301 ZZ	1208
16004 ZZ/2RS	6002	6018 ZZ	6302	1209
16005	6002 ZZ	6019	6302 2RS	1210
16005 ZZ/2RS	6002 2RS	6019 ZZ	6302 ZZ	1211
16006	6003	6020	6303	1212
16006 ZZ/2RS	6003 ZZ	6020 ZZ	6303 2RS	1213
16007	6003 2RS	6022	6303 ZZ	1214
16007 ZZ/2RS	6004	6022 ZZ	6304	1215
16008	6004 ZZ	6024	6304 2RS	1216
16008 ZZ/2RS	6004 2RS	6024 ZZ	6304 ZZ	1217
16009	6005	6026	6305	1218
16009 ZZ/2RS	6005 ZZ	6026 ZZ	6305 2RS	1302
16010	6005 2RS	6028	6305 ZZ	1303
16010 ZZ/2RS	6006	6028 ZZ	6306	1304
16011	6006 ZZ	6030	6306 2RS	1305
16011 ZZ/2RS	6006 2RS	6030 ZZ	6306 ZZ	1306
16012	6007	6032	6307	1307
16012 ZZ/2RS	6007 ZZ	6032 ZZ	6307 2RS	1308
16013	6007 2RS	613963	6307 ZZ	1309
16013 ZZ/2RS	6008	6200	6308	1310
16014	6008 ZZ	6200 2RS	6308 2RS	1311
16014 ZZ/2RS	6008 2RS	6200 ZZ	6308 ZZ	1312
16015	6009	6201	6309	2201
16015 ZZ/2RS	6009 2RS	6201 2RS	6309 2RS	2202
16020	6009 ZZ	6201 ZZ	6309 ZZ	2203
16020 ZZ/2RS	6010	6202	6310	2209
420204	6010 2RS	6202 2RS	6310 2RS	2210
420205	6010 ZZ	6202 ZZ	6310 ZZ	2214
420206	6011	6203	6311	2308
607 2RS	6011 2RS	6203 2RS	6311 2RS	2309
607 ZZ	6011 ZZ	6203 ZZ	6311 ZZ	2310
608 2RS	6012	6204	6312	2311
608 ZZ	6012 2RS	6204 2RS	6312 2RS	3205
609 2RS	6012 ZZ	6204 ZZ	6312 ZZ	3206
609 ZZ	6013	6205	6313	3207
625 2RS	6013 2RS	6205 2RS	6313 2RS	3208
625 ZZ	6013 ZZ	6205 ZZ	6313 ZZ	3209
626 2RS	6014	6206	6314	3210
626 ZZ	6014 ZZ	6206 2RS	6314 2RS	3211
627 2RS	6014 2RS	6206 ZZ	6314 ZZ	3212
627 ZZ	6015	6207	6315	3213
628 2RS	6015 2RS	6207 2RS	6315 2RS	3214

Bearing No
SELF ALIGNING BEARING
3215
3216
3217
3304
3305
3306
3307
3308
3309
3310
3311
3312
3313
3314
5205 2RS
5206 2RS
5208 2RS
5210 2RS
5304 2RS
Bearing No
SPHERICAL ROLLER BEARING
21304 CCW33C3
21305 CCW33C3
21306 CCW33C3
21307 CCW33C3
21308 CCW33C3
21308 MBW33C3
21309 CCW33C3
21309 MBW33C3
21310 CCW33C3
21310 MBW33C3
21311 CCW33C3
21311 MBW33C3
21312 CCW33C3
21312 MBW33C3
21313 CCW33C3
21313 MBW33C3
21314 CCW33C3
21314 MBW33C3
21315 CCW33C3
21315 MBW33C3
21316 CCW33C3
21316 MBW33C3
21317 CCW33C3
21318 CCW33C3
21319 CCW33C3
21320 CCW33C3
22205 CCW33C3
22206 CCW33C3
22207 CCW33C3

Bearing No
SPHERICAL ROLLER BEARING
22208 CCW33C3
22208 MBW33C3
22209 CCW33C3
22209 MBW33C3
22210 CCW33C3
22210 MBW33C3
22211 CCW33C3
22211 MBW33C3
22212 CCW33C3
22212 MBW33C3
22213 CCW33C3
22213 MBW33C3
22214 CCW33C3
22214 MBW33C3
22215 CCW33C3
22215 MBW33C3
22216 CCW33C3
22216 MBW33C3
22217 CCW33C3
22217 MBW33C3
22218 CCW33C3
22218 MBW33C3
22219 CCW33C3
22219 MBW33C3
22220 CCW33C3
22220 MBW33C3
22222 CCW33C3
22222 MBW33C3
22224 CCW33C3
22224 MBW33C3
22226 CCW33C3
22226 MBW33C3
22228 CCW33C3
22228 MBW33C3
22230 CCW33C3
22230 MBW33C3
22232 CCW33C3
22232 MBW33C3
22234 MBW33C3
22236 MBW33C3
22238 MBW33C3
22240 MBW33C3
22244 MBW33C3
22248 MBW33C3
22252 MBW33C3
22256 MBW33C3
22260 MBW33C3
22264 MBW33C3
22308 CCW33C3
22308 MBW33C3

Bearing No
SPHERICAL ROLLER BEARING
22309 CCW33C3
22309 MBW33C3
22310 CCW33C3
22310 MBW33C3
22311 CCW33C3
22311 MBW33C3
22312 CCW33C3
22312 MBW33C3
22313 CCW33C3
22313 MBW33C3
22314 CCW33C3
22314 MBW33C3
22315 CCW33C3
22315 MBW33C3
22316 CCW33C3
22316 MBW33C3
22317 CCW33C3
22317 MBW33C3
22318 CCW33C3
22318 MBW33C3
22319 CCW33C3
22319 MBW33C3
22320 CCW33C3
22320 MBW33C3
22322 CCW33C3
22322 MBW33C3
22324 CCW33C3
22324 MBW33C3
22326 CCW33C3
22326 MBW33C3
22328 CCW33C3
22328 MBW33C3
22330 CCW33C3
22330 MBW33C3
22334 MBW33C3
22332 MBW33C3
22336 MBW33C3
22338 MBW33C3
22340 MBW33C3
22344 MBW33C3
22348 MBW33C3
22352 MBW33C3
22356 MBW33C3
22360 MBW33C3
23022 MBW33C3
23024 MBW33C3
23026 MBW33C3
23028 MBW33C3
23030 MBW33C3
23032 MBW33C3

Bearing No
SPHERICAL ROLLER BEARING
23034 CCW33C3
23034 MBW33C3
23036 MBW33C3
23038 MBW33C3
23040 MBW33C3
23044 MBW33C3
23048 MBW33C3
23052 MBW33C3
23056 MBW33C3
23060 MBW33C3
23064 MBW33C3
23068 MBW33C3
23072 MBW33C3
23076 MBW33C3
23080 MBW33C3
23084 MBW33C3
23088 MBW33C3
23092 MBW33C3
23096 MBW33C3
23120 MBW33C3
23122 MBW33C3
23124 CCW33C3
23124 MBW33C3
23126 MBW33C3
23128 CCW33C3
23128 MBW33C3
23130 CCW33C3
23130 MBW33C3
23132 CCW33C3
23132 MBW33C3
23134 CCW33C3
23134 MBW33C3
23136 MBW33C3
23138 MBW33C3
23140 CCW33C3
23140 MBW33C3
23144 MBW33C3
23148 MBW33C3
23152 MBW33C3
23156 MBW33C3
23164 MBW33C3
23168 MBW33C3
23172 MBW33C3
23176 MBW33C3
23180 MBW33C3
23184 MBW33C3
23218 MBW33C3
23220 MBW33C3
23222 MBW33C3
23224 MBW33C3

Bearing No
SPHERICAL ROLLER BEARING
22309 CCW33C3
22309 MBW33C3
22310 CCW33C3
22310 MBW33C3
22311 CCW33C3
22311 MBW33C3
22312 CCW33C3
22312 MBW33C3
22313 CCW33C3
22313 MBW33C3
22314 CCW33C3
22314 MBW33C3
22315 CCW33C3
22315 MBW33C3
22316 CCW33C3
22316 MBW33C3
22317 CCW33C3
22317 MBW33C3
22318 CCW33C3
22318 MBW33C3
22319 CCW33C3
22319 MBW33C3
22320 CCW33C3
22320 MBW33C3
22322 CCW33C3
22322 MBW33C3
22324 CCW33C3
22324 MBW33C3
22326 CCW33C3
22326 MBW33C3
22328 CCW33C3
22328 MBW33C3
22330 CCW33C3
22330 MBW33C3
22334 MBW33C3
22332 MBW33C3
22336 MBW33C3
22338 MBW33C3
22340 MBW33C3
22344 MBW33C3
22348 MBW33C3
22352 MBW33C3
22356 MBW33C3
22360 MBW33C3
23022 MBW33C3
23024 MBW33C3
23026 MBW33C3
23028 MBW33C3
23030 MBW33C3
23032 MBW33C3

Bearing No
SPHERICAL ROLLER BEARING
23034 CCW33C3
23034 MBW33C3
23036 MBW33C3
23038 MBW33C3
23040 MBW33C3
23044 MBW33C3
23048 MBW33C3
23052 MBW33C3
23056 MBW33C3
23060 MBW33C3
23064 MBW33C3
23068 MBW33C3
23072 MBW33C3
23076 MBW33C3
23080 MBW33C3
23084 MBW33C3
23088 MBW33C3
23092 MBW33C3
23096 MBW33C3
23120 MBW33C3
23122 MBW33C3
23124 CCW33C3
23124 MBW33C3
23126 MBW33C3
23128 CCW33C3
23128 MBW33C3
23130 CCW33C3
23130 MBW33C3
23132 CCW33C3
23132 MBW33C3
23134 CCW33C3
23134 MBW33C3
23136 MBW33C3
23138 MBW33C3
23140 CCW33C3
23140 MBW33C3
23144 MBW33C3
23148 MBW33C3
23152 MBW33C3
23156 MBW33C3
23164 MBW33C3
23168 MBW33C3
23172 MBW33C3
23176 MBW33C3
23180 MBW33C3
23184 MBW33C3
23218 MBW33C3
23220 MBW33C3
23222 MBW33C3
23224 MBW33C3

Bearing No
SPHERICAL ROLLER BEARING
23226 MBW33C3
23228 MBW33C3
23230 MBW33C3
23232 MBW33C3
23234 MBW33C3
23236 MBW33C3
23238 MBW33C3
23240 MBW33C3
23244 MBW33C3
23248 MBW33C3
23252 MBW33C3
23256 MBW33C3
23260 MBW33C3
23264 MBW33C3
23268 MBW33C3
23272 MBW33C3
23276 MBW33C3
23280 MBW33C3
23284 MBW33C3
24024 MBW33C3
24026 MBW33C3
24028 MBW33C3
24030 CCW33C3
24030 MBW33C3
24032 CCW33C3
24032 MBW33C3
24034 CCW33C3
24034 MBW33C3
24036 MBW33C3
24038 MBW33C3
24040 MBW33C3
24044 MBW33C3
24048 MBW33C3
24052 MBW33C3
24056 MBW33C3
24060 MBW33C3
24064 MBW33C3
24068 MBW33C3
24122 CAW33C3
24124 MBW33C3
24126 MBW33C3
24128 MBW33C3
24130 MBW33C3
24132 MBW33C3
24134 MBW33C3
24136 MBW33C3
24138 MBW33C3
24140 MBW33C3
24144 MBW33C3
24148 MBW33C3

Bearing No
SPHERICAL ROLLER BEARING
24152 MBW33C3
24156 MBW33C3
24160 MBW33C3
24164 MBW33C3
24168 MBW33C3
24172 MBW33C3
24176 MBW33C3
24184 MBW33C3
24192 MBW33C3
29232 M
29234 M
29236 M
29238 M
29240 M
29244 M
29248 M
29252 M
29256 M
29260 M
29264 M
29268 M

Bearing No
TAPERED ROLLER BEARING
30202
30203
30204
30205
30206
30207
30208
30209
30210
30211
30212
30213
30214
30215
30216
30217
30218
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30220
30221
30222
30224
30226
30228
30230
30232
30234

Bearing No
TAPERED ROLLER BEARING
30236
30238
30240
30244
30248
30252
30302
30304
30305
30306
30307
30308
30308D
30309
30309D
30310
30310D
30311
30312
30312D
30313
30313D
30314
30315
30316
30317
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30320
30322
30324
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30332
30334
30336
30338
30340
30344
30348
3130525 MM
31305 / PLC 64 21 MM
31306
31307
31308
31309/30309D
31310
31311 / 30311D
31312L

Bearing No
TAPERED ROLLER BEARING
31313 / 30313D
31314
31315
31316
31317
32004
32005
32006
32007
32008
32009
32010
32011
32012
32013
32014
32015
32016
32017
32018
32019
32020
32020X
32021
32018
32019
32020
32020X
32021
32022
32024
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32036
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32044
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32052
32056
32204
32205
32206
32207
32208
32209
32210

Bearing No
TAPERED ROLLER BEARING
32211
32212
32212X
32213
32214
32215
32216
32217
32218
32219
32220
32221
32222
32224
32226
32228
32230
32232
32234
32236
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32252
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32311
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32320
32321
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32324
32326
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32330
32332
32334

Bearing No
TAPERED ROLLER BEARING
32336
32338
32340
33205
33206
33207
33208
33209
33210
33211
33212
33213
33214
33215
33216
33217
33218
33220
09067 / 09195
11590 / 11520
12649 / 12610
15100 / 15250
CK-1988 / K-1922
320 / 332X
3490 / 3420
3585 / 3525
368A/362A
369S/362A
37425 / 37625
37431A / 37625A
378A / 382A
3780 / 3720
3782 / 3720
387A / 382A
394A / 395A
39580 / 39520
395 A/ 394 A
3982 / 3920
CK3984 / K3920
U-399 / 394
CK-414 / K418
42687 / 42620
L-44649 / L-44610
462 / 453X
469 / 453
K-47487 / K-47420
K-47679 / K-47620
LM-48548 / LM-48510
U-497 / U-492
LM-501349/LM-501310

Bearing No
TAPERED ROLLER BEARING
LM-501349/LM-501314
JHM-506849 / 10
641 / 632
6580 / 6520
LM-67048 / LM-67010
683 / 672
685 / 672
716649 / 716610
718149 / 718110
72212 / 72487
740 / 742
748S / 742
749 / 742
749A / 742
HM-801346/HM-801310
HM-803146/HM-803110
HM-803149/HM-803110
HM-804846/HM-804810
M-84548 / M-84510
M-86649 / M-86610
M-88048 / M-88010
HM-903249/HM-903210
Bearing No
CYLINDRICAL ROLLER BEARING
N 205
N 206
N 208
N 210
N 213
N 215
N 217
N 218
N 224
N 226
N 305
N 307
N 308
N 309
N 310
N 311
N 312
N 313
N 314
N 317
N 318
N 319
N 320
NJ 204
NJ 205
NJ 207

Bearing No
CYLINDRICAL ROLLER BEARING
NJ 208
NJ 209
NJ 209
NJ 211
NJ 212
NJ 213
NJ 214
NJ 215
NJ 216
NJ 217
NJ 220
NJ 222
NJ 224
NJ 226
NJ 228
NJ 230
NJ 2205
NJ 2206
NJ 2207
NJ 2208
NJ 2209
NJ 2210
NJ 2211
NJ 2212
NJ 2213
NJ 2214
NJ 2317
NJ 2319
NJ 304
NJ 305
NJ 306
NJ 307
NJ 308
NJ 309
NJ 310
NJ 311
NJ 312
NJ 313
NJ 314
NJ 315
NJ 316
NJ 317
NJ 318
NJ 319
NJ 320
NJ 322
NJ 324
NU 205
NU 206
NU 207

Bearing No
CYLINDRICAL ROLLER BEARING
NU 208
NU 209
NU 210
NU 211
NU 212
NU 213
NU 214
NU 215
NU 216
NU 218
NU221
NU 222
NU 224
NU 226
NU 228
NU 230
NU 2207
NU 2208
NU 2209
NU 2210
NU 2211
NU 2212
NU 2213
NU 2216
NU 2217
NU 2218
NU 2220
NU 2222
NU 2224
NU 2226
NU 2228
NU 2230
NU 2314
NU 2317
NU 2318
NU 2320
NU 305
NU 306
NU 307
NU 308
NU 309
NU 310
NU 311
NU 312
NU 313
NU 314
NU 315

Bearing No
THRUST ROLLER BEARING
06
07
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13
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15
16
17
18
19
20
51100
51101
51102
51103
51104
51105
51106
51107
51108
51109
51110
51111
51112
51113
51114
51115
51116
51117
51118
51120
51122
51124
51126
51128
51130
51132

Bearing No
NEEDLE ROLLER BEARING
BB 80005
BB 80006
DL 3520 + IR
NA 4911
253120 (31*40)
NA 6912
JL 2416
JL 2420
SL 3520
Bearing No
PILLOW BLOCK BEARING
UC 201
UC 202
UC 203
UC 204
UC 205
UC 205-16
UC 206
UC 207
UC 207-20
UC 208
UC 208-24
UC 209
UC 210
UC 211
UC 211-32
UC 212
UC 213
UC 213-40
UC 214
UC 215
UC 216
UC 217
UC 218
UC 219
UC 220
UCF 204
UCF 204-12
UCF 205
UCF 205-16
UCF 206
UCF 207
UCF 207-20
UCF 208
UCF 208-24
UCF 209
UCF 210
UCF 211
UCF 211-32
UCF 212

Bearing No
PILLOW BLOCK BEARING
UCF 213
UCF 213-40
UCF 214
UCF 215
UCF 216
UCF 217
UCFL 204
UCFL 205
UCFL 205-16
UCFL 206
UCFL 207
UCFL 207-20
UCFL 208
UCFL 208-24
UCFL 209
UCFL 210
UCFL 211
UCP 204
UCP 204-12
UCP 205
UCP 205-16
UCP 206
UCP 207
UCP 207-20
UCP 208
UCP 208-24
UCP 209
UCP 209-28
UCP 210
UCP 210-32
UCP 211
UCP 211-32
UCP 212
UCP 213
UCP 213-40
UCP 214
UCP 215
UCP 215-48
UCP 216
UCP 217
UCP 218
UCP 219
UCP 220
UCT204
UCT205
UCT206
UCT207
UCT207-20
UCT208
UCT209

Bearing No
NON STANDARD BEARING
301580(503288)
305183(507511)
305256D (517458A)
305262D (509059A)
305263DA (50950A)
305264D (508732A)
305269D
305270D(508731A)
305272DA (511045A)
305275D
305283D (506963)
305288
305338DA (508658A)
305428 (508733)
305455B (508893)
305980
306840 (507540)
306841 (502283)
306842 (508729)
306891 (506964)
309515 (538854)
309733
313427B (518214)
313427B IR
313811 (512580)
313811 IR
313812 (507536)
313812 IR
313822 (507339)
313822 IR
313823 (507336)
313823 IR
313824 (508727)
313824 IR
313891A (506962)
313891A IR
313893 (508726)
313893 IR
314049A (510199)
314190 (502894B)
314190 IR
314385 (507344)
314385 IR
314553 (522742)
314553 IR
314625 (511605)
314625 IR
615189A (510150B)
315189A IR
316977

Bearing No
NON STANDARD BEARING
322292BC4
330540AG
350980 (528974)
350981
351019C (528876)
352220
352226
353162 (508876)
382920
382930
503739
529086 (351182)
538852
540049
635122 (510440)
510440 IR
FC-202870
FC-202870 IR
FCD-4872220
FCD-4872220 IR
Bearing No
RADIAL SPHERICAL BEARING
GE 30 ES 2RS
GE 40 ES 2RS
GE 50 ES 2RS
GE 60 ES 2RS
GE 70 ES 2RS
GE 80 ES 2RS
GE 100 ES 2RS
GE 120 ES 2RS
GE 220 ES 2RS
GE 240 ES 2RS
GE 260 ES 2RS
Bearing No
KING PIN BEARING
T-101
T-119
T-122
T-126
T-128
T-138
T-144
T-151
T-1511
T-1512

Bearing No
STEERING BEARING
1503/FORD RANE
502365/ M1
509043 A/ M2
E-59
F-7/W-19
INT-53
J-51
JB-1003/M-18
ZFM-23 (SONALIKA)
Bearing No
PILLOW BLOCK BEARING
UCT210
UCT211
UCT212
UCT213
UCT213-40
UCT214
UCT215
UCT216
Bearing No
CLUTCH BEARING
1888180
1888180+HUB
1888451
1888451+HUB
24-TK/ JB-1014/ M41
(6010-T)306445C
(6011-T) 306497
35TMK+ HUB
9 W 2(1/2)/CT-1310
CB-10MB
CB-34SC
CB 44
CB-71MC
CB-71PMC
CB-2145
CB-1054/J2/2013
CB-1087/2256/ D1
CB-3527N
CB-38
CB-39
CB-2819
D-12/1252
J-12 (JEEP)
LA-27 (2W 2 3/4)
LA-27 + HUB
TC-GB-50
TC-GB-60
TC-GB-75 LONG HUB EURO-4
TC-GB-75 N/M (4576 TML-SC)

Bearing No
CLUTCH BEARING
50 TKB 3505 BR
RCTS-371 SA1-EICHER
RCTS-28 SA-ZEN
SPHERICAL THRUST
Bearing No
29232 M
29234 M
29236 M
29238 M
29240 M
29244 M
29248 M
29252 M
29256 M
29260 M
29264 M
29268 M
29317 M
29318 M
29320 M
29322 M
29324 M
29326 M
29328 M
29330 M
29332 M
29334 M
29336 M
29338 M
29340 M
29344 M
29348 M
29352 M
29356 M
29360 M
29412 M
29413 M
29414 M
29415 M
29416 M
29417 M
29418 M
29420 M
29422 M
29424 M
29426 M
29428 M
29430 M
29432 M

SPHERICAL THRUST
Bearing No
29434 M
29436 M
29438 M
29440 M
29444 M
29448 M
29452 M
29456 M
29460 M
THRUST BEARING
Bearing No
51204
51205
51206
51207
51208
51209
51210
51211
51212
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51214
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51252
51256
51260
51305
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51307
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51311

THRUST BEARING
Bearing No
51312
51313
51314
51315
51316
51317
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51320
51322
51324
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51338
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51415
51416
51417
51418
51420
NON STANDARD
Bearing No
FCD-4872220
FCD-78110400
FCD-78110400 IR
6076 F
QJF 1084
6084
FCD 88124450/P6
FCD 88124450 IR
FCD-4872220 IR
352028
352128
352930

NON STANDARD
Bearing No
352932
352132
352934
352034
352134
352936
352136
350636
352938
352138
352940
352240
35064 D1
352944
352044
352144
350645 D1
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352152
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352960 X2/P6
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380641
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77752
382060
382972 HC
381184
3819/630 HC

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