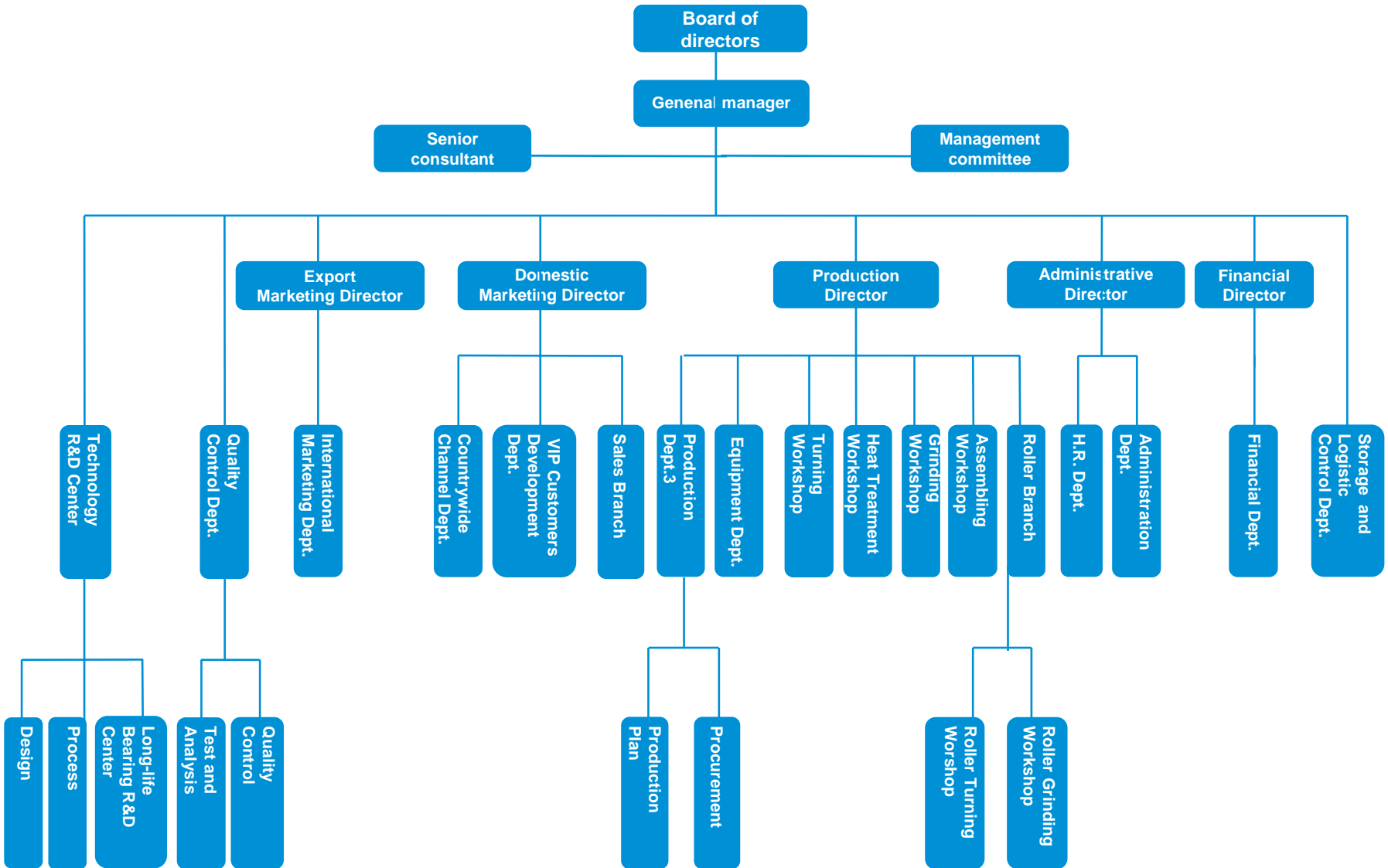
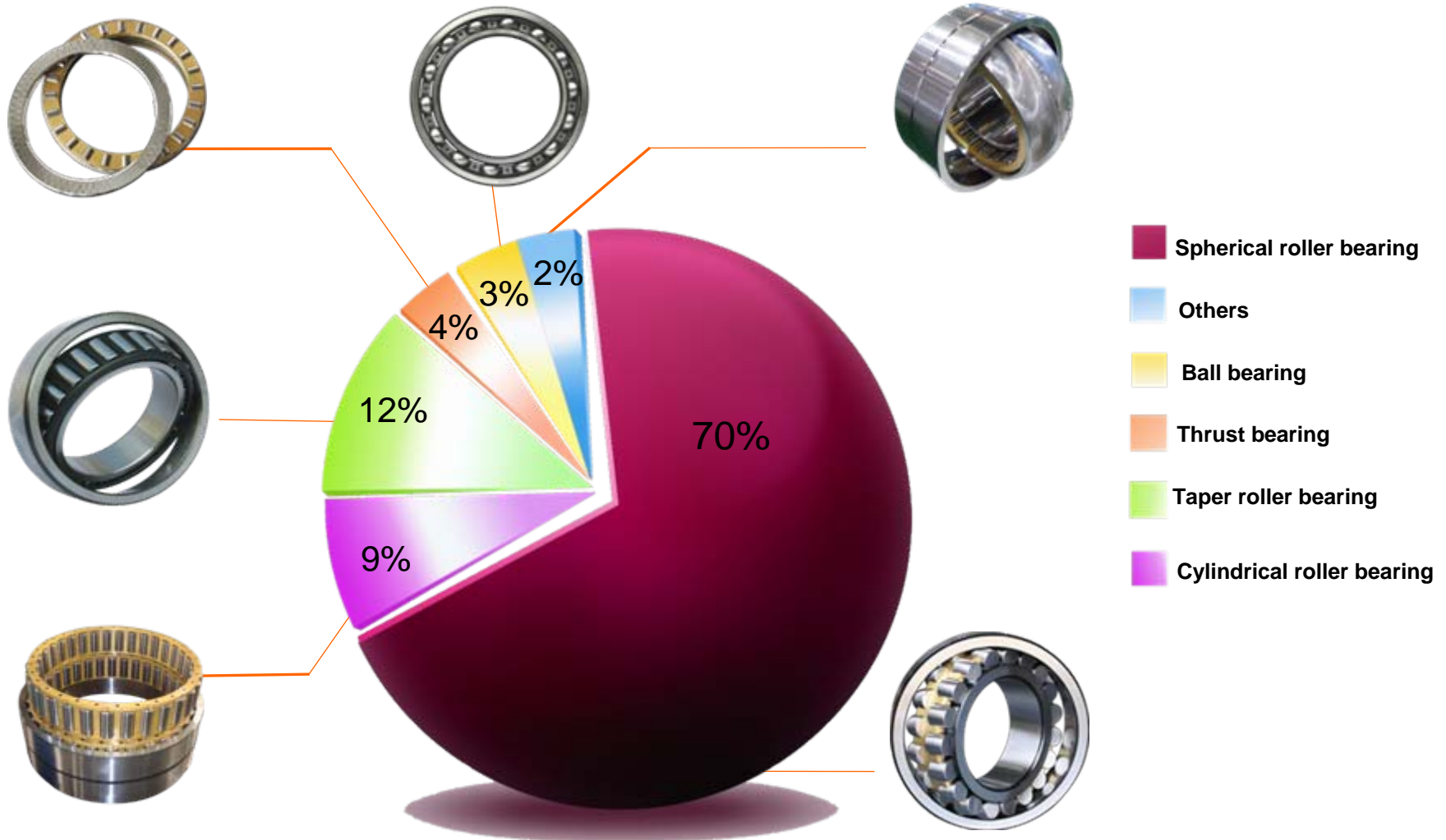


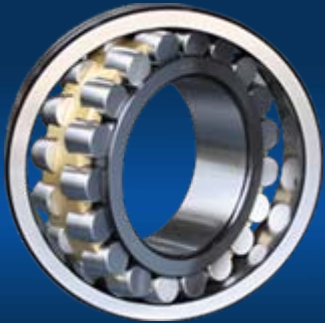
GRB BEARING CO LTO





◆ Proportion of bearing:





CA



MB



CC

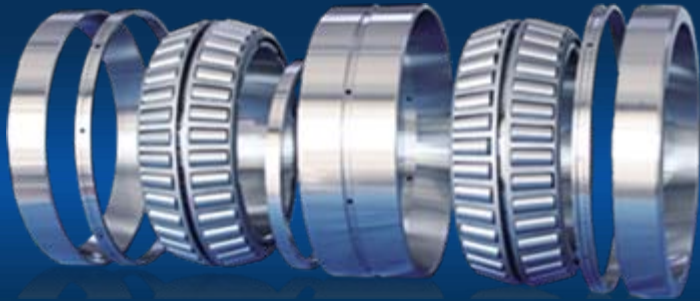


F3

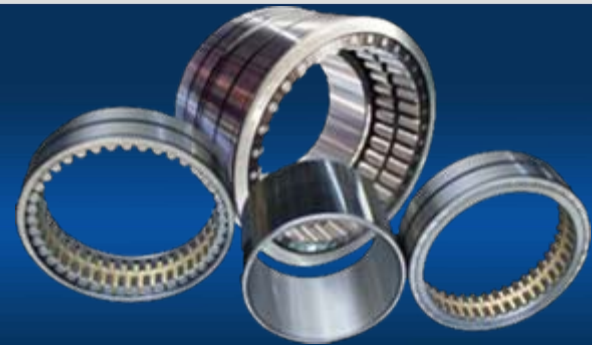
➤ Spherical roller bearing (CA, MB, CC, F3)

Precision level :P0

Range of size: inner diameter Φ 100~ outer diameter Φ 2000



Four-row taper roller bearing



Four-row cylindrical roller bearing

➤ Taper roller bearing (singel-row, double-row, four-row)

Precision level: P0 ~ P6

Range of size: inner diameter Φ 100~ outer diameter Φ 2000

➤ Cylindrical roller bearing (singel-row, double-row, four-row)

Precision level: P0 ~ P6

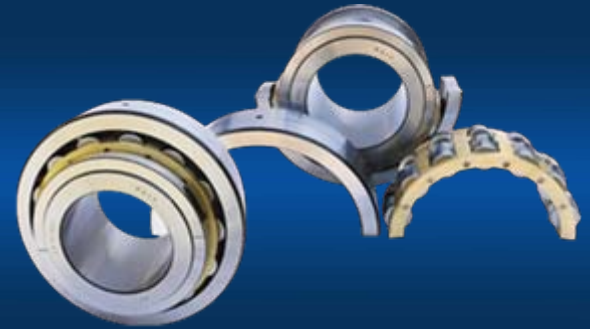
Ranfe of size:inner diameter Φ 100~outer diameter Φ 2000



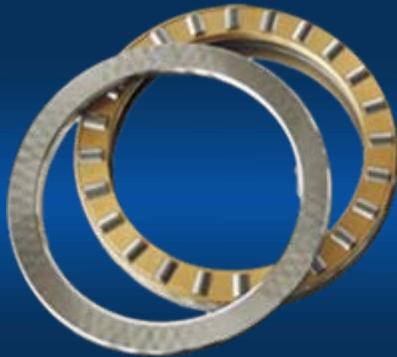
➤ **Deep groove ball bearing**
Precision level: P0、P6



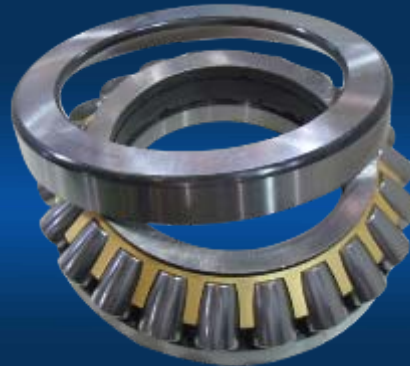
➤ **Angular contact ball bearing**
Precision level: P0、P6



➤ **Split bearing**
Precision level: P0



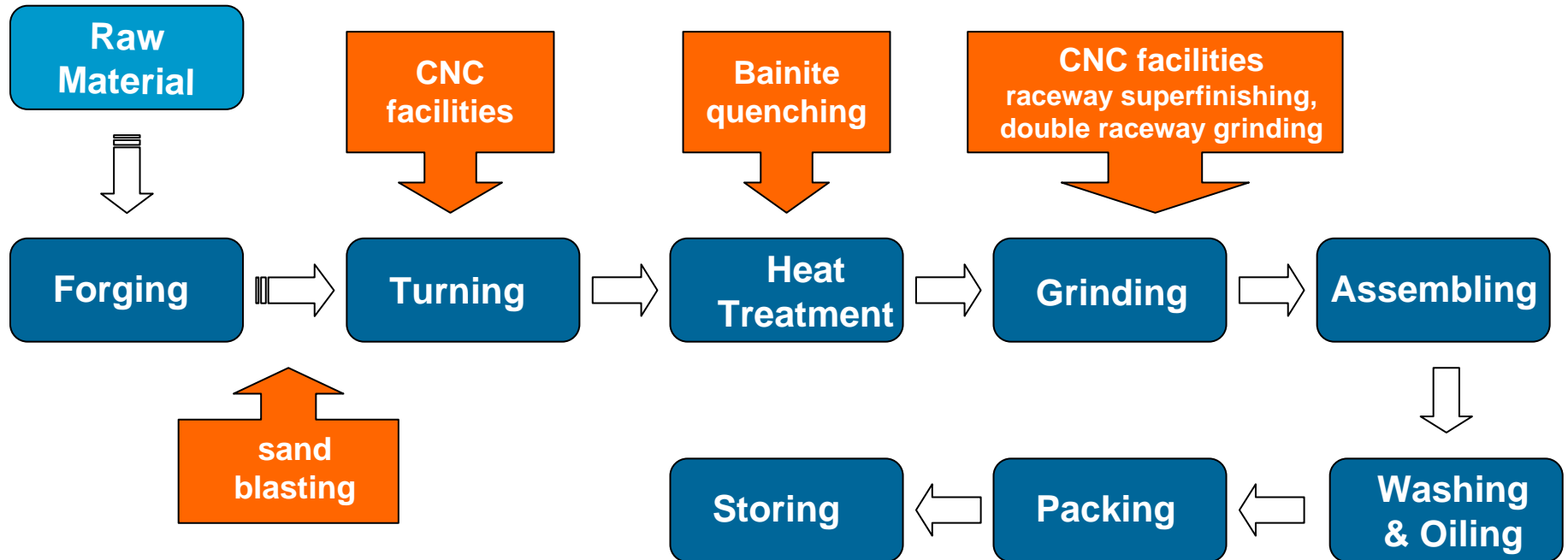
➤ **Cylindrical thrust roller bearing**
Precision level: P0、P6



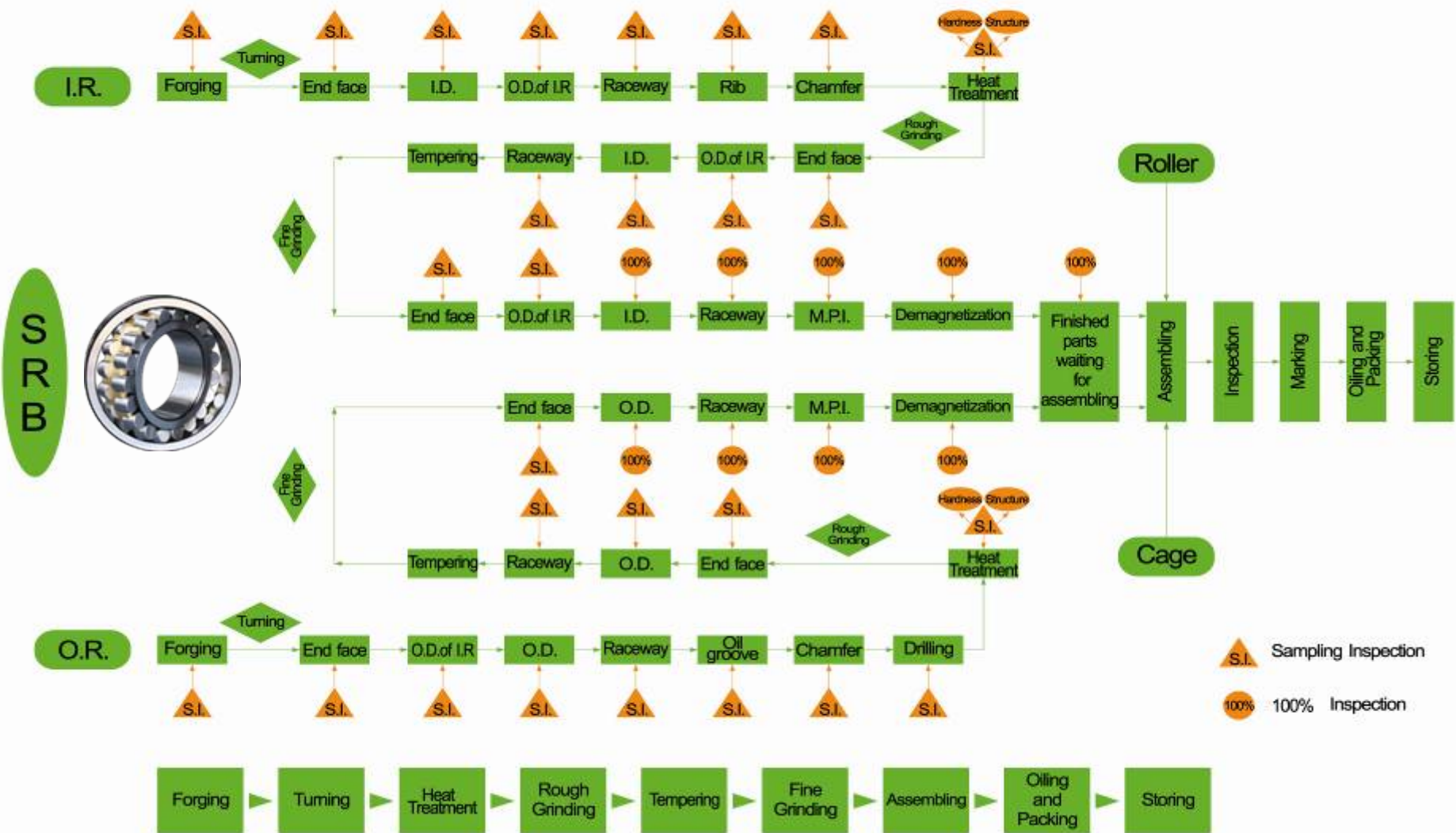
➤ **Spherical thrust roller bearing**
Precision level: P0、P6



➤ **Tri-ring bearing**
Precision level: P0



The flow of Processing & Quality Control





Bar Material



Rolling



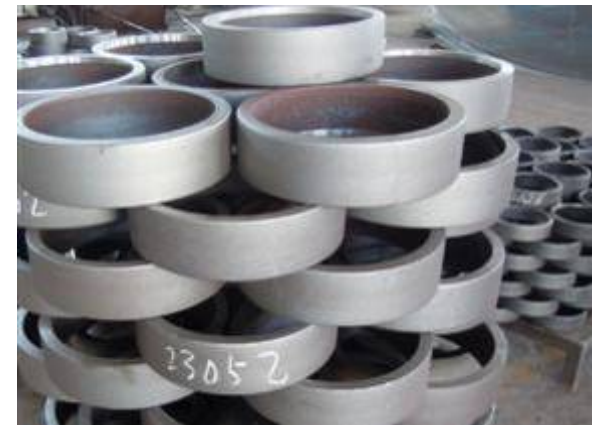
Spheroidizing annealing



Forging parts



Sand- blasting



Sand- blasting Parts



Turning Workshop

- More than 50 CNC turning machines, turning processing can be finished in two times setting; for raceway processing, hard turning can be adopted to replace rough grinding.
- More than 30 ordinary turning machines, used for turning the billets, also for small batch turning.



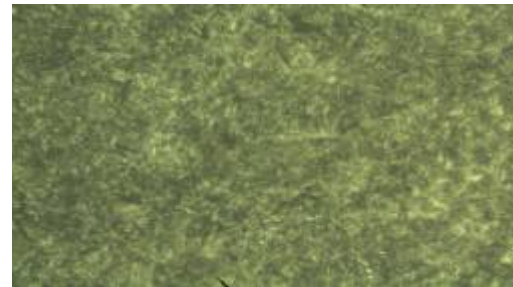
4 Heat Treatment Production Line

- Two automatic bainite quenching production line
- One martensitic quenching production line
- One carburizing heat treatment production line (installing)

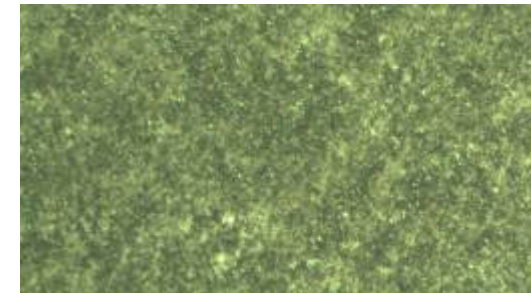


Advantages of Bainite Quenching:

- Impact resistance increases by 2 times;
- Fracture resistance increases by 50-70%;



Bainite Quenching



Martensite Quenching

Comparison	Bainite	Martensite
Surface Stress	Compressive Stress	Tensile Stress
Hardness (from surface to centre)	Gradient distribution	Uniform distribution
Metallurgical Structure	Feathery shape	Lath shape





More than 40 grinding machines



CNC Double Surface Grinder



Double Surface Grinding Line

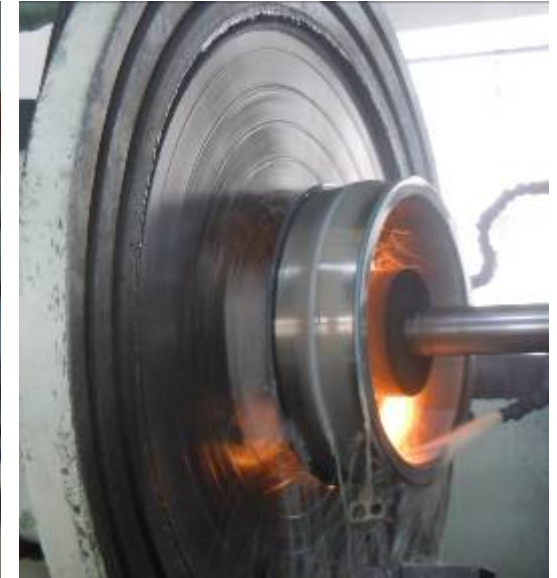
Item	General grinding	Double Surface grinding
Parallel error (VBs/VBc)	0.01mm	0.005mm
Flatness (Api/Ape)	0.01mm	0.004mm
Roughness (Ra)	0.8 μ m	0.63 μ m
Variation of end face height	0.07mm	0.04mm





O.D. recycle grinding

suitable for batch processing

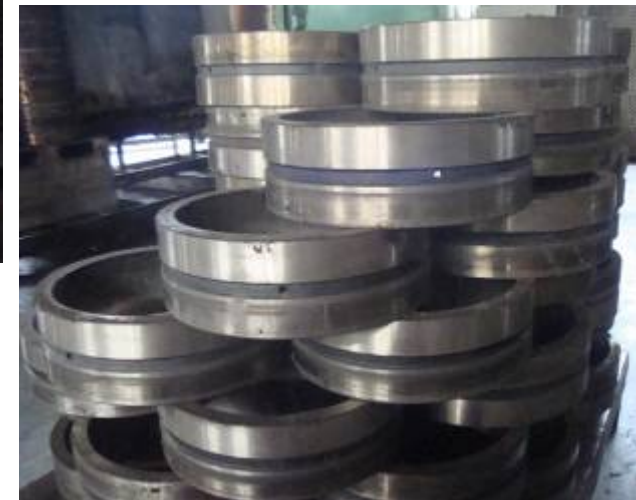


I.D. rough grinding



Additional Tempering

to eliminate the surface grinding stress





More than 70 various grinding machines



Double raceway grinding



Sample for 22330CAW33 :

Items	Standard	General Grinding	Double raceway Grinding
Difference of double raceway (dimp1-dimp2)	15 μ m	\leq 15 μ m	\leq 8 μ m
Roughness (Ra)	0.32 μ m	\leq 0.32 μ m	\leq 0.2 μ m



Raceway Super finishing apply to TRB and CRB



Sample for 32240:

Item	Standard	Before Super finishing	After Super finishing
Roughness (Ra)	0.32 μ m	\leq 0.32 μ m	\leq 0.16 μ m (equal to P5)





Maximum size is 2000mm; Precision reaches to P5





Largesize Vertical Grinder

- Effectively ensure the dimensional precision;
- Precision level classify with: P0, P6, P5



Horizontal grinder

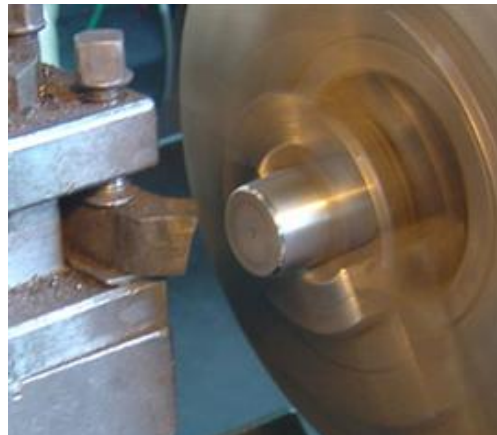
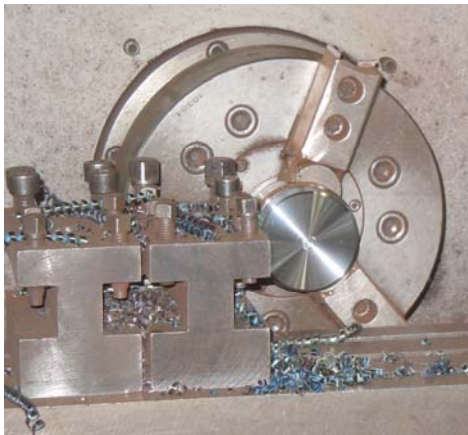
The O.D size can reach to 2000mm



Automatic Cutting bar material







All turning procedures are done by CNC machines, the dimension precision can be guaranteed absolutely.



Grinding process wholly adopting CNC machines







Double end-face grinding



Sample for 22334CA rollers:

Items	Standard	in CNC
Variation of grouping (VDwL)	6 μ m	3 μ m
Roughness (Ra)	0.32 μ m	0.20 μ m



Vibrate Polishing



Polished Rollers



Surface Inspection

Magnetic Particle Inspection



Assembling





Testing Center : include Measuring, Physical & Chemical Testing



Carbon and Sulfur Analyzer →



← Testing specimen
Quenching Furnace



Digital Ultrasonic Detector



Sample Name	Type Standard	Correction Mode									
	GCR15SMn	Type Corrected	C	Sr	Mn	P	S	Cr	Mu	W	Al
1	0.95	0.56	0.90	0.020	0.005	1.46	0.021	0.047	0.011		
2	0.95	0.57	0.99	0.021	0.006	1.47	0.022	0.050	0.010		
<>	0.95	0.57	0.98	0.020	0.005	1.47	0.022	0.048	0.010		
	Ca	Co	Nb	Ti	V	W	Pb	Sr	As		
1	0.006	0.14	0.007	<0.0010	<0.002	0.047	<0.010	0.014	0.005		
2	0.007	0.14	0.008	<0.0010	<0.002	0.050	<0.010	0.014	0.005		
<>	0.007	0.14	0.008	<0.0010	<0.002	0.048	<0.010	0.014	<0.005		
	Zr	Cu	Ce	B	Zn	La	Fe				
1	<0.003	0.001	0.023	0.0010	0.015	0.004	95.7				
2	<0.003	0.001	0.023	0.001	0.014	0.004	95.6				
<>	<0.003	0.001	0.023	0.001	0.015	0.004	95.6				

Spectroscopic Data Display

Direct-reading Spectrometer



**Measuring Instrument
of
Ring angle**



**Measuring Instrument of
diameter, angle and linearity
for taper Rollers**



Roughness measuring instrument



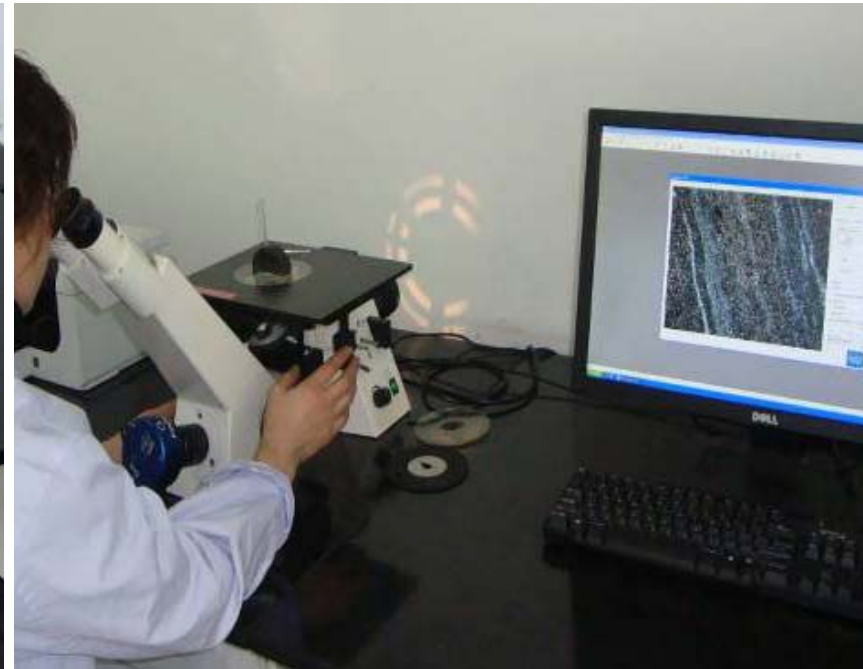
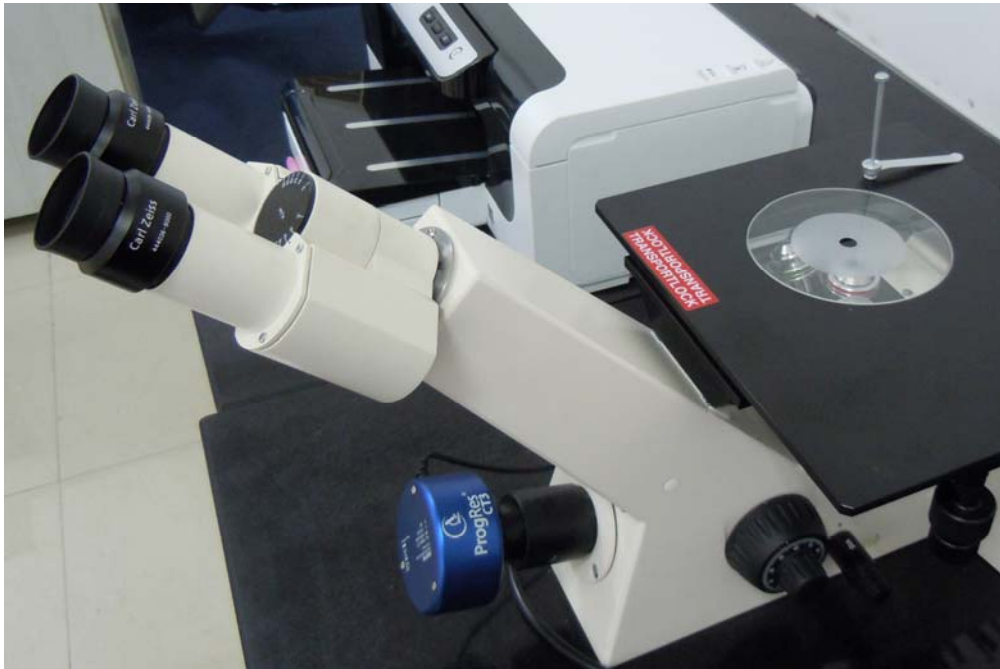
Profilometer



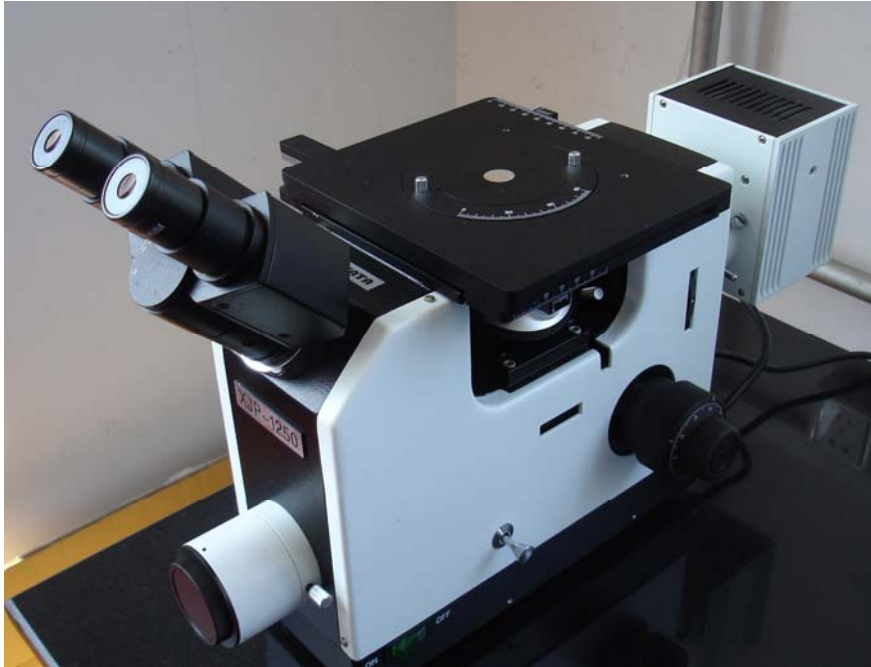
**Length measuring instrument
(500,1000, 2000mm)**



Automatic analytical balance



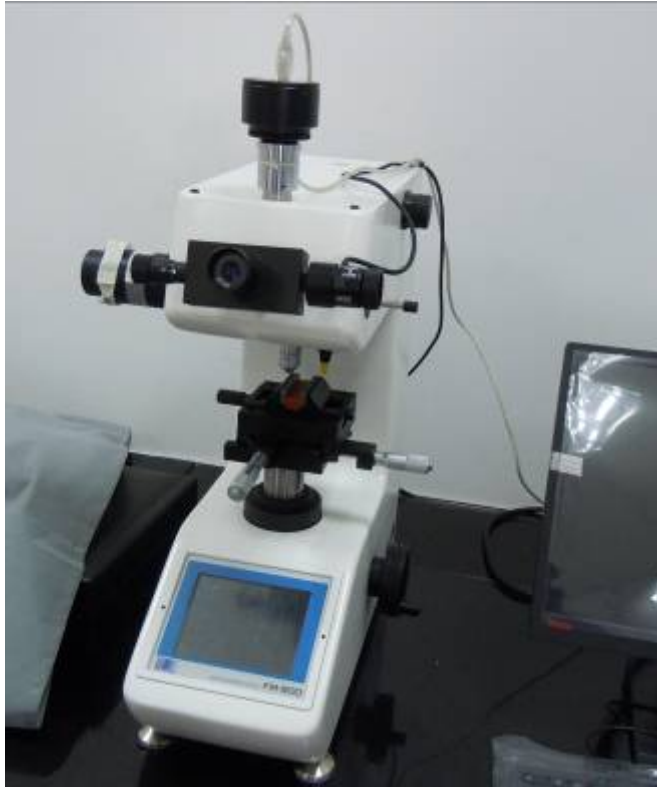
**Chua's metallurgical microscope
(Germany Made)**



**Inverted metallurgical microscope
XJP-1250**



Roundness measuring instrument



Vicker's hardness tester



Brinell hardness tester



Rockwell hardness tester



Prismatic plane



Ovality of O.R. raceway



thickness



clearance



O.R. raceway size



End face height

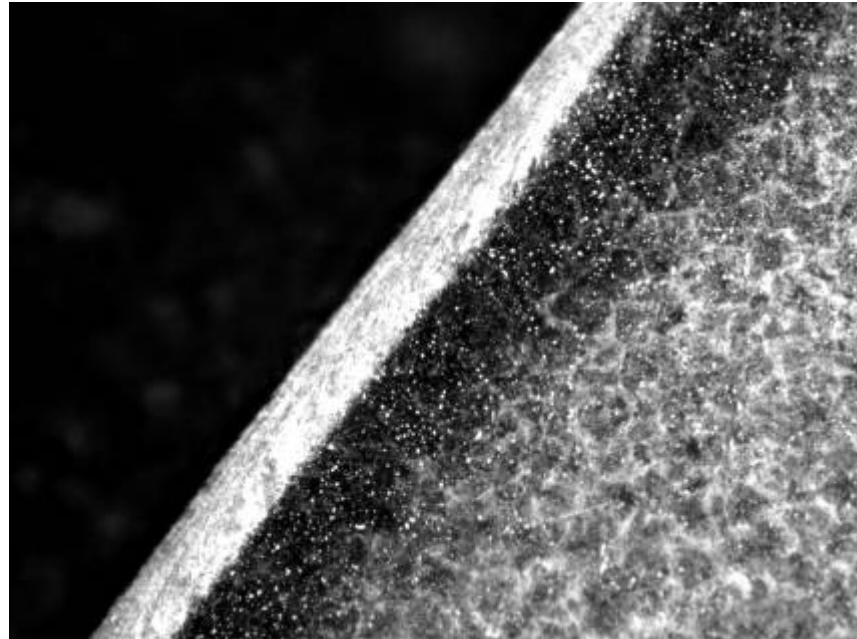
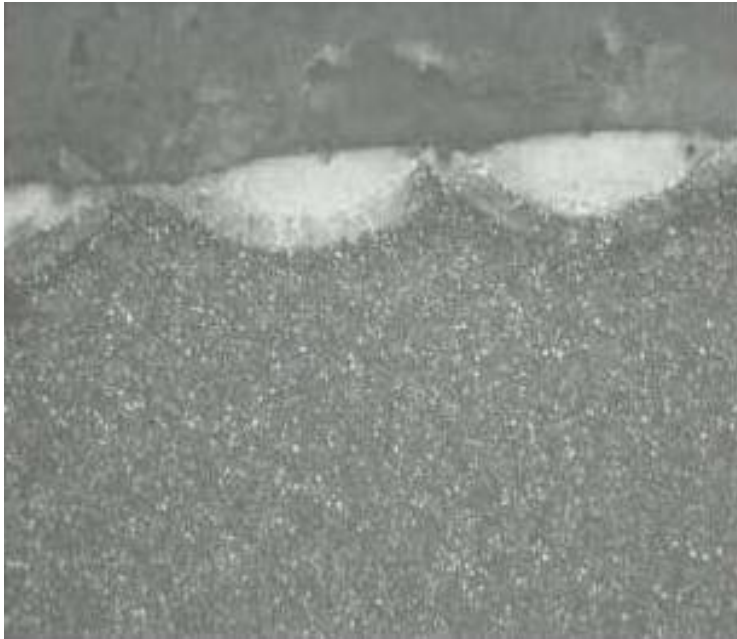


I.D. and O.D. size



ART technology --- Self-repair when Metal Wearing

- Generate a wear-resistant ceramic protective layer in the metal friction surface;
- Repair to normal wearing terrain;
- Automatically compensating , adjusting the repairing function;
- The friction coefficient dropped by an order of magnitude than the oil film lubrication;
- Excellent wear resistance characteristics; Coefficient of friction: μ 0.003~0.007 (conventional sliding friction: μ 0.01~0.02); Microhardness: HRC59-70, Bearing HRC58-62
- Reduce the mechanical vibration and noise.



GRB bearing

*Hold hands with you
to
Win-Win together*

