PHOSPHATE TREATMENT (PT)

**RKB BEARING INDUSTRIES**

The Alternative Power

RKB: the Swiss Premium-Class Bearing Manufacturer

The **RKB** Bearing Industries Group is the Swiss manufacturing organization operating in the bearing industry for over 70 years, with a monthly production capacity exceeding 350 tons of machined steel. The experience gained over the years provides **RKB** with the know-how and expertise necessary for the development and manufacture of technological industrial bearings up to 1925 mm outer diameter. **RKB** offers reliable cost-effective solutions, with extreme operational flexibility, leading-edge service, huge stock availability, short delivery time and the quality typical of a consistent premium-class bearing source. With a worldwide distribution network and exports to more than 50 countries, **RKB** is globally recognized as *"The AlternativePower"* in the bearing industry.

What is RKB Phosphate Treatment (PT)?

The RKB Phosphate Treatment (PT) is a chemical conversion coating treatment in which the bearing components made of hardening steels are immersed in a dilute solution of phosphoric acid and **zinc phosphate**. Loss of hydrogen at the metal-solution interface results in a localized rise of pH and subsequent precipitation of the **coating**. During the resulting chemical reaction (acid-base reaction), the surfaces of bearing components are chemically converted to an integral oil **absorptive layer** of insoluble zinc phosphate crystals of about 8.0 to 16 g/m² weight or 4 μm to 8 μm thickness. The intrinsic **lubricating properties** of the zinc phosphate coating and its capacity to absorb a remarkable amount of lubricant favor an easier running-in by creating a **non-metallic barrier** between the bearing components. This way, the RKB Phosphate Treatment (PT) provides a **superior resistance to friction, corrosion and wear**.
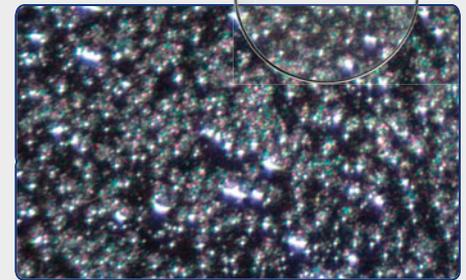

Grown zinc phosphate coating crystals of different sizes

PT
PHOSPHATE

Engineering and Manufacturing Solutions at Your Service!

- Technical consultancy
- Application analysis and feasibility study
- Bearing engineering and design
- Advanced calculations
- FEM and semi-analytical simulations
- Project co-engineering
- Product customization and optimization
- Advanced and flexible manufacturing technology
- Qualified on-field assistance
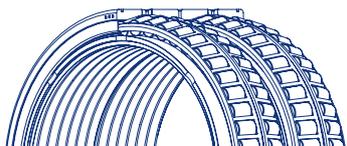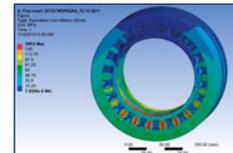
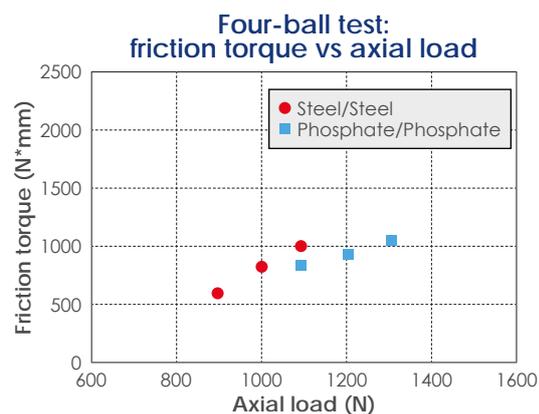ENGINEERED IN SWITZERLAND
TECHNOLOGICAL BEARINGS

PHOSPHATE TREATMENT (PT)

RKB
BEARING INDUSTRIES
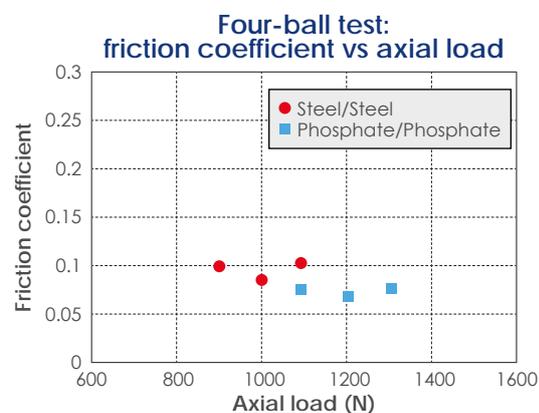*The Alternative Power*

RKB Phosphate Treatment - PT4

- Rolling bearings with surface treated rings and rollers (**PT4**) are devised for arrangements subjected to extreme operating conditions, in case of high demands on correct performance and when bearings are in contact with alkalescent-acidescent coolants.

Four-ball test: friction torque vs axial load

Legend: ● Steel/Steel ■ Phosphate/Phosphate
X-axis: Axial load (N), 600–1600
Y-axis: Friction torque (N*mm), 0–2500

PT
PHOSPHATE

RKB Phosphate Treatment - PT5

- Rolling bearings with surface treated balls or rollers (**PT5**) are mainly suitable for applications where high speeds, light loads, unfavorable lubrication ($\kappa < 1.5$) and high radial or peripheral accelerations occur.
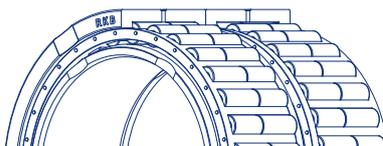
Four-ball test: friction coefficient vs axial load

Legend: ● Steel/Steel ■ Phosphate/Phosphate
X-axis: Axial load (N), 600–1600
Y-axis: Friction coefficient, 0–0.3

INCREASED RELIABILITY

ENHANCED SMEARING RESISTANCE

MORE OPERATIONAL STABILITY

LONGER SERVICE LIFE

EXTENDED MAINTENANCE INTERVALS

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TECHNOLOGICAL BEARINGS