



HIGH PERFORMANCE BEARINGS

## King XP Series Product Guide



### The New XP Racing Series

Unique metal structure and advanced geometric design for superior load capacity

King's new XP racing series is designed with improved materials and geometric features to meet the ongoing demand for higher bearing load capacity.

King Racing's XP series of rod and main bearings was developed to meet the challenges of racing through technologically advanced geometric features and a unique metal structure. Together, they drive bearing technology to a new level of durability and performance.

### TechLab

Leadership in design

The XP series was developed by King TechLab. The concept and design of all new products originate in the King TechLab. It's where new features are tested and validated to ensure product quality and reliability.

During the product development phase, advanced simulation techniques are used to uncover potential design problems. In-house designed software -ENSIM™

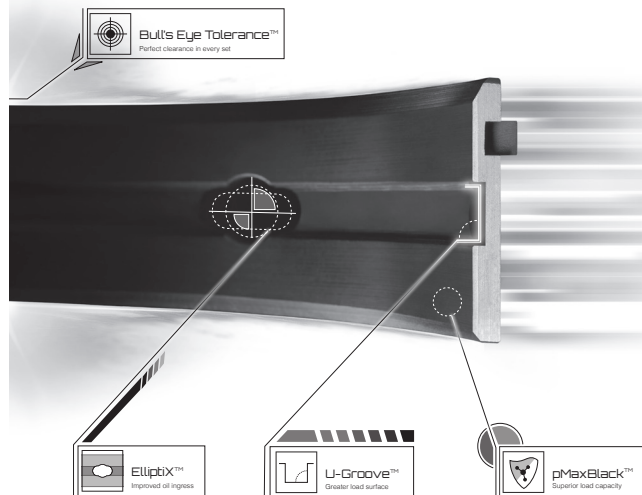
is used to test the functions of each feature under variable conditions.

From innovative materials, to unique geometric designs, the standards set by King's TechLab enable our race bearings to excel in every category and exceed current performance limits.

King is committed to providing you with the best quality products to suit your race needs.

For more information visit: [www.kingracebearings.com](http://www.kingracebearings.com)

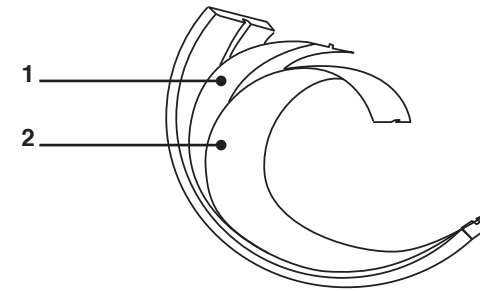
### The science of speed



**pMAX Black™**  
Superior load capacity

King's XP series incorporates a strengthened tri-metal structure called **pMax Black™**. This unique metal composition was developed to meet the ongoing demand for increased engine bearing load capacity.

- 24% greater load capacity
- 17% more fatigue resistance
- SecureBond™ – A micro-etch process that improves multi-layer adhesion and structural integrity
- Compatible with all crankshafts



#### 1. Intermediate layer:

- Copper-based alloy strengthened by 4.5% tin
- Industry's highest hardness level - 115HV
- Load capacity – 17,000 PSI

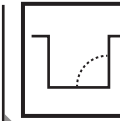
#### 2. pMax-Black™ Overlay:

- Strengthened by 5% copper
- Industry's highest hardness level - 18.1 HV
- Fatigue resistance -10,200 PSI

#### Breakthrough hardening technology

King Racing's new hardening technology modifies the overlay's molecular structure and creates a fatigue-resisting shield capable of carrying 24% more load.

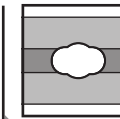
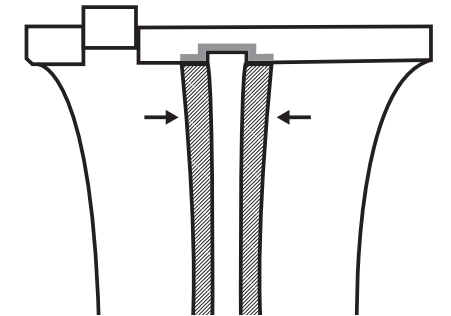
*Note: overlay black appearance is a non-functional element. Color variations do not affect bearing performance.*



**U-Groove™**  
Greater load surface

A unique oil groove design with a 90° groove shape, **U-Groove™** increases bearing load capacity by expanding the effective surface area, while keeping oil flow capacity intact.

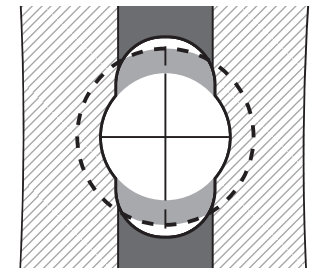
- Better load distribution across the bearing surface
- More stable hydrodynamic lubrication system
- Greater bearing durability at high RPM's



**ElliptiX™**  
Improved oil ingress

**ElliptiX™** is a newly designed hybrid combination of oil slot and oil hole. It improves oil ingress without affecting the bearing's surface or compromising the load capacity.

- Increased oil passage capacity
- Improved oil supply reliability
- Eliminates need for custom-made oil hole enlargement



*Note: ElliptiX™ feature is only included in applications where it is possible to improve oil ingress.*



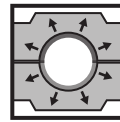
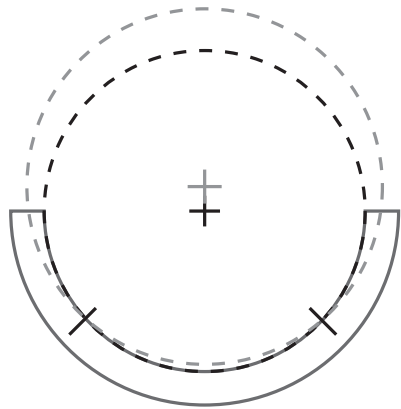
## EccentriX™

A superior hydrodynamic system

**EccentriX™** is an optimized eccentricity value determined by elasto-hydrodynamic analysis and dynamic calculations.

During this process, a range of eccentricity values are analyzed, taking into account oil wedge formation, oil pressure, oil temperature, oval deformation and other criteria. Each bearing's eccentricity value is designed to meet specific performance requirements and to ensure a perfect hydro-dynamic system.

- Better oil wedge formation
- More stable hydrodynamic lubrication system
- Reduces vibration and wear
- Prevents oil film "wiping" under high RPM conditions
- Optimizes load distribution across the bearing surface

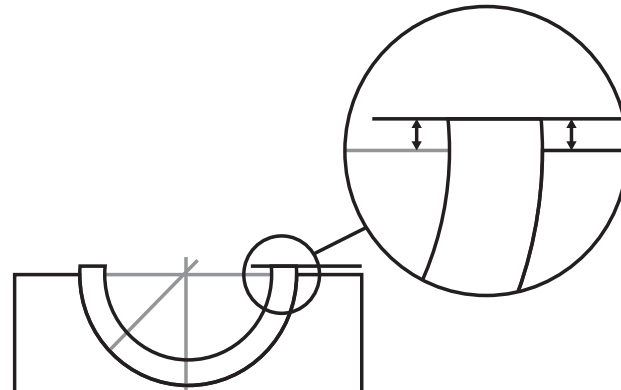


## RadiaLock™

Optimal crush height and heat transfer

**RadiaLock™** is an optimal crush height value determined by a thorough R&D process that customizes each bearing crush height to its specific performance demands. During this process, King's ENSIM™ system analyzes optimal height crush values, taking into account engine block or connecting rod material, coefficient of thermal expansion, torque and other criteria. Following these calculations, the perfect **RadiaLock™** crush value is set for each bearing, in each application.

- Optimal press fit
- Prevents bearing spin and fretting
- Better heat transfer
- Reduces bearing and housing distortion



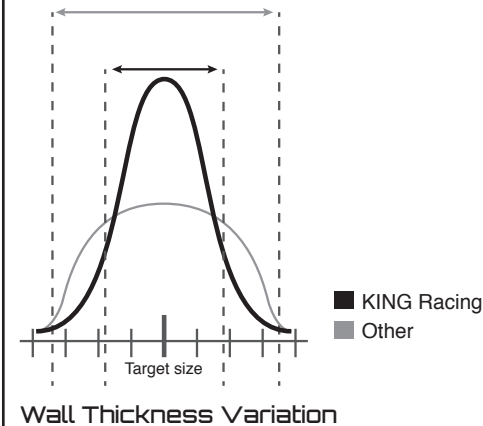
## Bull's Eye Tolerance™

Perfect clearance in every set

**Bull's Eye Tolerance™** sets new standards in bearing thickness consistency. It is a King-designed production technology which combines highly accurate machining, overplating, and computerized wall thickness monitoring that adjusts the process on-the-spot, ensuring minimal thickness variation.

- No more purchasing multiple sets or "fishing" for bearings to reach the right clearance
- No need to grind cranks "fat" or "thin"
- No need to adjust housing diameter
- Less taper across the bearing face

### The most accurate clearance in the industry



### Measurement Chart

We have provided this chart to assist you in organizing upper and lower shells according to wall thickness. You can use this in conjunction with the slot numbers on the bearing tray to keep all of your measurements in one place.

Engine \_\_\_\_\_

Date \_\_\_\_\_

Main bearings / rod bearings

Position	Housing Diameter	Crankshaft Diameter	Wall Thickness		Calc. Clearance	Measured Clearance
			(upper) Slot#	(lower) Slot#		

King Engine Bearings, a leading manufacturer of cutting edge engine bearings since 1960, developed the King Racing line to improve engine bearing performance under extreme conditions. King Racing combines innovative research and development processes and rigorous lab tests with "on-track" testing conducted in conjunction with leading racers. King's racing line offers sport-compact and domestic race engine bearings with ground-breaking geometric and metallurgical features.

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