

TechLab  
Excel and Exceed

TechLab is our starting point for exploring new technologies. It's where our new products and features are designed, tested and validated.

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

King Racing features



pMaxBlack™  
Superior load capacity



Bull's Eye Tolerance™  
Perfect clearance in every set



U-Groove™  
Greater load surface



EccentriX™  
Superior hydrodynamic lubrication



Radialock™  
Optimal crush height and heat transfer



ElliptiX™  
Improved oil ingress

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" trials conducted by selected racers.

The King Racing line combines sport compact and domestic race engine bearings with ground-breaking geometrical and metallurgical features.

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MRK-RC001 REV-02

The science of speed

Continuously pushing the limits

Today's race engines make more power than ever before. Yesterday's engine bearing load capacity no longer works today... and tomorrow's race engines will be even more powerful. There's a need to meet these demands with higher bearing design standards and improved materials.

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

**Andy Costello**  
Vermont SportsCar  
Subaru Rally Team USA  
Subaru PUMA RallyCross Team  
*"We use King XP bearings in every rally event we run with our Subaru teams."*



Vermont SportsCar / Subaru PUMA RallyCross Team USA





## PMAX Black™

Superior load capacity

A unique tri-metal structure developed to meet the ongoing demand for increased engine bearing load capacity.

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

Intermediate layer:

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

Overlay:

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

### Breakthrough hardening technology



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

**Mike Tesar**  
Tesar Engineering  
Late Model Circle Track

"We use King XP bearings in all of our circle track and drag race engines. When we take the motors apart to freshen them, the bearings come out looking just as good as when they went in."



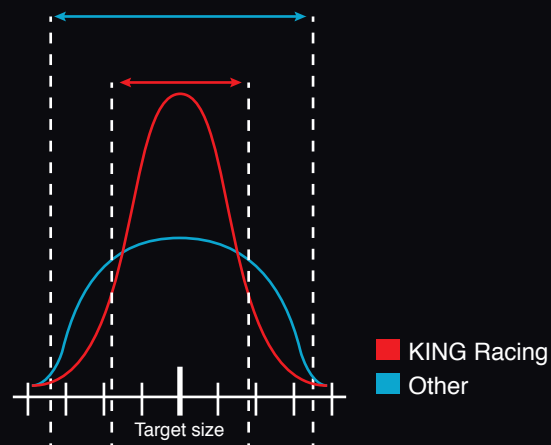
## Bull's Eye Tolerance™

Perfect clearance in every set

**Bull's Eye Tolerance™** sets new standards in bearing thickness consistency. It outperforms the industry's wall thickness tolerance, ensuring the least 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 Wall Thickness Variation



**Ron Shaver**  
Sprint Car Engine Builder  
Shaver Specialty Racing Engines

"The King XP bearing wall thickness is consistently the right size every time, so I can achieve my desired oil clearances without spending time and money on multiple sets and having to mix and match bearings."

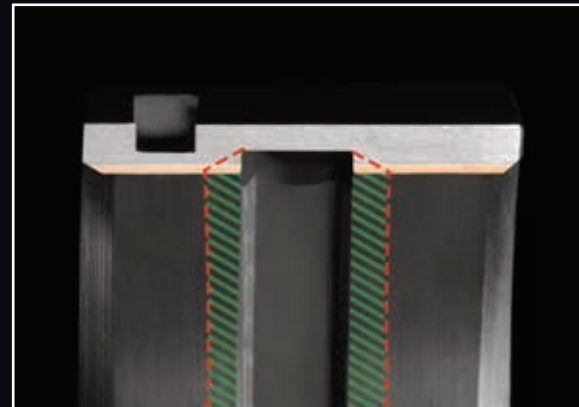


## U-Groove™

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 regime
- Greater bearing durability at high RPM's

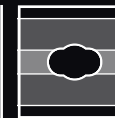


## RadiaLock™

Optimal crush height and heat transfer

**RadiaLock™** is an optimal crush height value determined by a robust R&D process that customizes each bearing crush height to its specific performance demands.

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

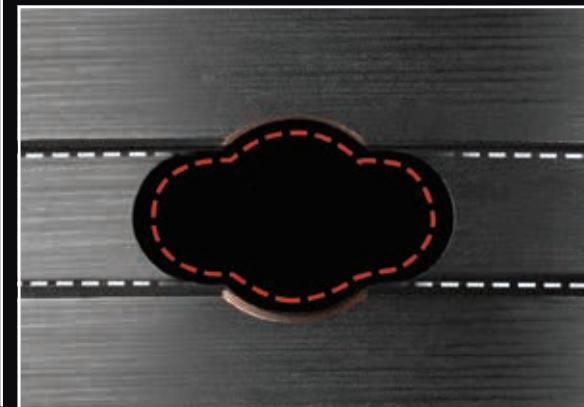


## ElliptiX™

Improved oil ingress

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

- Increases oil passage capacity
- Higher oil supply reliability
- Eliminates need for custom-made oil hole enlargement



## EccentriX™

A superior hydrodynamic regime

**EccentriX™** is an optimized eccentricity value reached through elasto hydrodynamic analysis and dynamic calculations. Each bearing's eccentricity value is custom designed to meet specific performance requirements.

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