

# Benefits of the Herringbone Roller Bearing

The HRB offers outstanding performances compared to existing bearings in the same space envelope.

- Reduced or no backlash at all
- Ability to preload by use of a spring ring
- Silent operation
- High load density
- Larger capacities compared to the GRB and the (FLR)BU
- Very low mass
- Extended lifetime
- High speeds and accelerations
- High axial, radial and bending stiffnesses
- Options for sealing
- Excellent stability
- No skidding, no smearing
- Elimination of sliding
- Reduced friction and heat generation
- Reduced TCM (Total Cost and Maintenance)
- Flexible design or availability of standard and customized sizes, materials and features.

The HRB can be delivered with zero backlash, with preload or with backlash according to customer specifications. The HRB is optimised for size without compromise on performance.

The HRB is a truly innovative design that will enable greater flexibility in applications than ever before. It will also help our customers innovate and be more successful.

The HRB is perfectly suited for applications with high axial or/and thrust loads, high radial loads, moment loads and/or long-life requirements.

ALT BEARINGS solutions can, for example, be applied in:

- roller screw support bearings;
- ball screw support bearings;
- custom bearings;
- thrust bearings;
- large size bearings;
- compact bearings.

ALT BEARINGS can design and supply customized HRB solutions according to customer requirements. The HRB can also be directly integrated on any high efficiency screw. Referred to as the HRA, it is an ideal solution for these applications.

Some of the HRB benefits with respect to existing bearings are shown in Tab.1.

	HRB	GRB	Stack of ACBBs
Compactness	+++	++	-
Capacity ratings	+++	++	+
Lifetime	++++	++	+
Flexibility on design	++	+	-
Standard or stainless	++	-	-
Noise	+	+	+
Stiffness	+++	++	+
Friction	++	-	+
No skidding	++++	-	-
Preload	+++	+	++
Reliability	++	-	+

Tab.1: performance comparison

Fig. 1 depicts the differences between a HRB and current bearing designs. Similar comparisons can be made to other types of existing bearings such as roller bearings, tapered bearings, ball bearings, thrust bearings, spherical roller thrust bearings, etc.

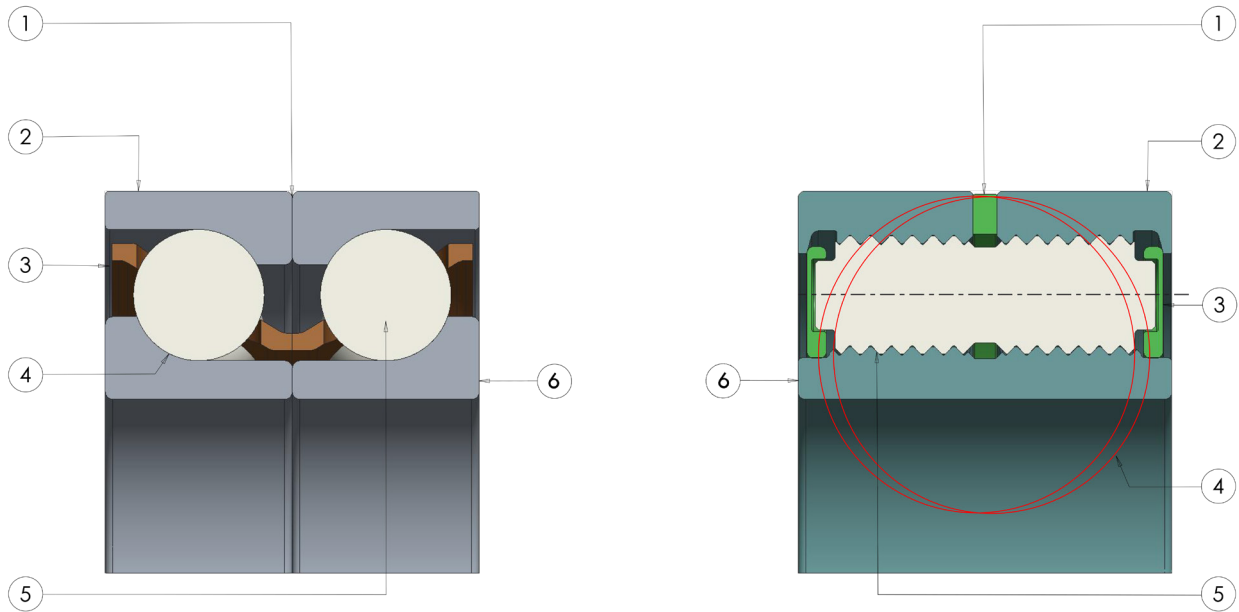


Fig. 1: benefits of HRB against ACBBs

- Preload difficult** to adjust from external tightening —①— **Standard preload** set in factory to make your assembly easy
- Outer diameter **cannot be customized** on ACBBs —②— Outer diameter can be **fully customized** on the HRB
- Cage generates **friction** at contact with balls  
**No seal** available on ACBBs —③— **No cage** in the HRB  
**Optional** ends covers  
Could be used with **shields or seals**
- Ball diameter is **limited** to fit in bearing track —④— **Higher** equivalent ball diameter on the roller profile  
Gives much **higher load capacity**
- One set** of balls in one bearing width  
**Limited** load capacities  
**Skidding** —⑤— **Multiple contacts** on the same width of one ACBB  
Much **higher capacity** and **higher stiffnesses**  
**No skidding** thanks to herringbone threads arrangement
- Limited material options** (100C6, AISI 52100) —⑥— **Many material options** (conventional and advances bearing steels, carburizing steels, stainless steels, etc.) as function of the application and operating conditions