

# Benefits of the Herringbone Roller Bearing

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

- Possibility to get no backlash at all
- Possibility to preload by use of a spring ring
- Very quiet
- Higher load density compared to any of the equivalent competitor's solutions
- 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
- Possibility of sealing
- Good stability
- No skidding, no smearing
- No sliding unlike the traditional bearings
- Reduced friction and heat generation
- Reduced TCM (Total Cost and Maintenance)
- Flexible design or availability of standard and customized sizes

The HRB can be delivered with zero backlash, with preload or with backlash like most of the current conventional bearings. This solution gathers in the smallest envelope, the highest capacity rating without compromising any of the key features of the bearing.

The HRB achieves much longer life and much higher load ratings than any other existing bearing. This outstanding performance will revolutionize application options to open doors that were closed until now.

The HRB is perfectly suited for applications with high axial or/and thrust loads, with high radial loads, moment loads and/or long-life requirements. The products can be used as:

- 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 on request. The HRB can also be directly integrated on any high efficiency screw: the shaft or the nut of a planetary roller screw, or a ball screw. This type of product is referred to as the HRA and is not a standard product. Please contact ALT BEARINGS for such mechanism.

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: some HRB benefits over other solutions

Particularly, Fig. 1 depicts the benefits of using a HRB against a stack of ACBBs, in general. This comparison can be extended to other types of existing bearings like roller bearings, tapered bearings, ball bearings, thrust bearings, spherical roller thrust bearings, etc.

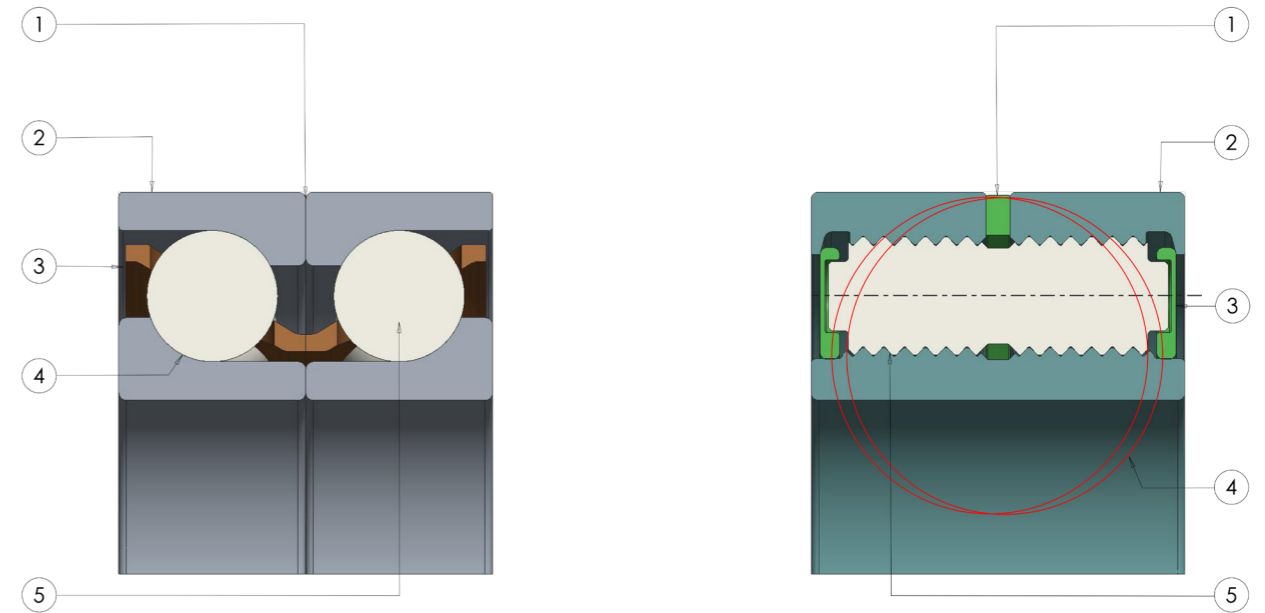


Fig. 1: benefits of HRB against ACBBs

- ① **Preload difficult** to adjust from external tightening → **Standard preload** set in factory to make your assembly easy
- ② Outer diameter **cannot be customized** on ACBBs → Outer diameter can be **fully customized** on the HRB
- ③ Cage generates **friction** at contact with balls  
**No seal** available on ACBBs → **No cage** in the HRB  
**Optional ends covers**  
Could be used as **shields or seals**
- ④ Ball diameter is **limited** to fit in bearing track → **Higher equivalent ball diameter** on the roller profile  
Gives much **higher load capacity**
- ⑤ **One set** of balls in one bearing width  
**Limited load capacities**  
**Skidding** → **Multiple contacts** on the same width of one ACBB  
Much **higher capacity** and **higher stiffnesses**  
**No skidding** thanks to herringbone threads arrangement

