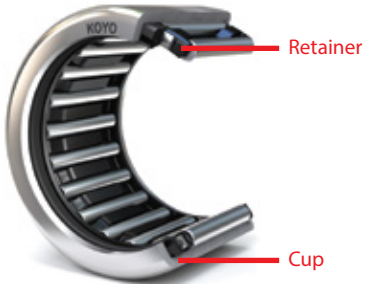
Koyo® Solution Stories

Rapid Prototype Drawn Cup Sample Process

The Challenge:

Koyo customers often require production-quality prototype bearings to be produced in small quantities within very short lead times. Conventional prototyping of radial drawn cup bearings typically requires complex, costly and time-consuming tooling.



Analysis:

We have found that many Koyo customers are open to alternative, reduced cost processes, with the requirement that the finished bearing raceway still be in the drawn condition to minimize any surface finish differences that could affect bearing performance during full production.

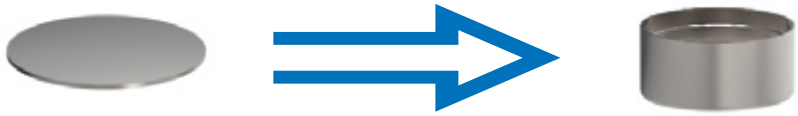
Koyo's Solution:

Koyo engineers created a new prototyping process for the drawn cup component of the bearing that is well suited for low volume sample making. Compared to traditional forming operations, the new process eliminates many of the required stamping steps to create a finished shape made with lower tooling costs and shorter lead times.

With no up-front tooling cost, retainers were specially designed and 3D printed out of reinforced resin or steel instead of traditional processes with extensive tooling cost and lead time for injection-molded polymer or wrapped and welded steel.

Multiple Forming Operations

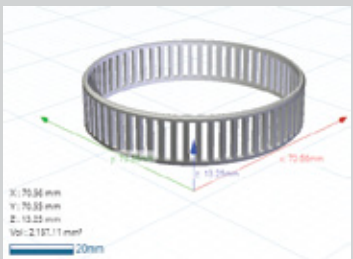
Koyo Combined Forming Operation



Result:

For standard bearing sizes and materials, the new prototyping process cuts sample lead-times and costs nearly in half compared to the traditional sample making process.

Key performance characteristics are within design specifications and the bearing can meet life requirements at standard conditions.



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