

# Z-LOC Design

## The Challenge:

Develop a technology for precise alignment of machined components without the added cost of expensive machined locking features or separate components.

## The Solution:

Z-Loc, a unique design concept that joins two components with unmatched precision

- Superior alignment
- Ease of separation and precise re-join
- Significant cost savings
- Improved NVH
- Increased joint strength
- Eliminates fretting wear

## Cost Savings:

GKN Sinter Metals' patented "Z-Loc" designs reduce customer costs in terms of equipment installation as well as the level of capital equipment actually required for manufacturing.

- Costly additional alignment components, such as dowels and pins, are eliminated with the built-in precision alignment system.
- Additional machining requirements to accommodate pins and dowels are eliminated, saving capital expense for our customers.

## Higher performance:

Built-in alignment provided by Z-Loc performs near-perfect relocation of the joint during re-assembly.

- By regaining the precision-honed roundness and location after separation, shaft fitting and reassembly, NVH quality of the bearings is improved.

- Increased joint strength proves stronger than the traditional thin-wall, press-fit dowels that deform under high shear loads.
- Perfect nesting of Z-Loc in the mating counterbore eliminates fretting wear, and prevents the relative micro-scale vibrations of bolted joint surfaces under cyclical stresses.
- Z-Loc with a Tri-Lobe feature is a further enhancement in the technology of re-assembly precision, creating an even better part-to-part precision re-fit.



Sensor ring with Z-Loc

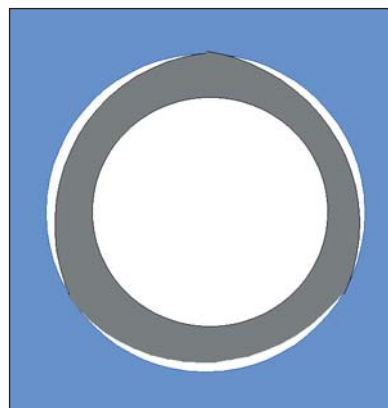
## Dimensional Quality:

Z-Loc features are integral to the component tooling, and facilitate excellent dimensional stability.

- Z-Loc features, formed by a common punch during the powder compaction process, ensure precise and consistent form and location.
- Z-Loc eliminates tolerance stack-up of fitted-dowels, thereby ensuring superior alignment.



15° angle Z-Loc profile



Tri-Lobe design

