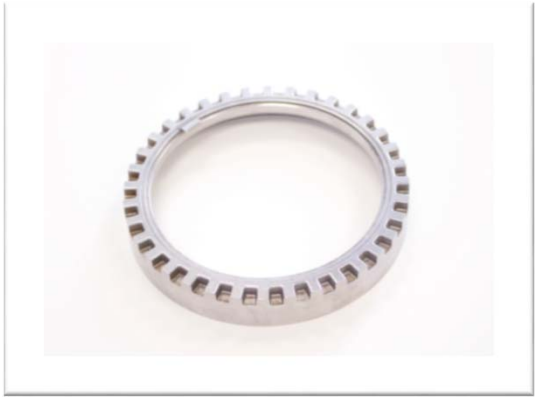
CHICAGO POWDERED METAL PRODUCTS CO.

Case Study

Tone Wheel



Material: Ferrophosphorus material for magnetic properties
Process: Warm Compaction
UTS: 380 MPa

Previous Process:

Mold to 6.8g/cc
Sinter
Machine
Resin impregnate
Oil Leak Test

New Process:

Mold to 7.1g/cc minimum with Warm Compaction
Sinter
Machine

Benefit:

Warm Compaction with increased density eliminates the possibility of interconnected porosity and therefore, it also eliminates the need for resin impregnation or leak check.

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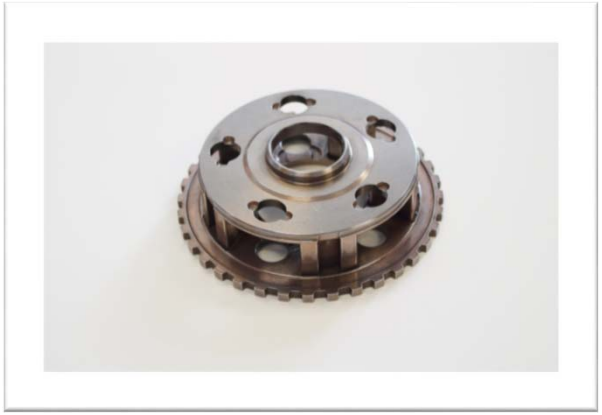
Case Study

Carrier Assembly



Material: Iron Copper Mix
Process: Warm Compaction with Sinterbrazing
UTS: 600 MPa

Previous Process:

Mold Grey Iron Casting
Machine top and bottom surfaces, inside top and bottom, outer spline, and mill holes.

New Process:

Mold Spider with Warm Compaction
Mold Flange
Sinterbraze with copper infiltration
Machine top face, bearing surface, and mill holes

Benefit:

Warm Compaction provides high strength and the brazing of two components molded from powdered metal eliminates the need for much of the machining for a cost savings.

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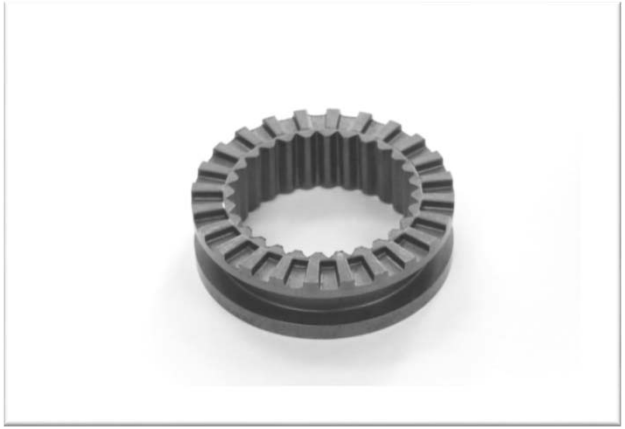
Case Study

Sleeve



Material: High Alloy Mix
Process: Warm Compaction, Elevated Temperature Sinter
UTS: 1560 MPa

Previous Process:

Mold Forging
Machine OD, Length, Groove.
Machine ID Spline
Machine Top Spline

New Process:

Mold Part with Warm Compaction for High Density on Top Spline.
Sinter with Elevated Temperature
Machine Groove

Benefit:

Molding by Warm Compaction to an extremely high density of 7.4 minimum provides high strength and meets the very high tensile strength requirements at the top of the teeth in the top spline. Elevated temperature sintering produces a pore rounding in the microstructure that provides added strength to the part and the teeth. The only machining required is the OD groove, resulting in an overall cost savings.