

ABSTRACT

FORMING COMPLEX-SHAPED ALUMINUM COMPONENTS

Although MIM (metal injection molding) has received widespread application, aluminum has not been widely used for MIM in the prior art because of the tough oxide layer that grows on aluminum particles, thus preventing metal-metal bonding between the particles. The present invention solves this problem by adding a small amount of material that forms a eutectic mixture with aluminum oxide, and therefore aids sintering, to reduce the oxide, thereby allowing intimate contact between aluminum surfaces. The process includes the ability to mold and then sinter the feedstock into the form of compacted items of intricate shapes, small sizes (if needed), and densities of about 95% of bulk.



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