Sprocket, Camshaft Timing

Company: AMES

Application Sector: Automotive

Requirements: The part is a sprocket of a VVT pump (Variable Valve Timing system). The part is connected to the crankshaft gear by a chain. When engine is working, the crankshaft gear moves the VVT sprocket, so the VVT pump acts and adjusts the movement of the engine valves depending on the engine regime (rpm’s), optimizing then the fuel consumption of the vehicle.

Benefits: The part also belongs to a system, the VVT pump, that substantially reduces the fuel consumption of the vehicle. The PM technology allows to integrate the plate of the VVT pump and the pulley in one single part, by the integration of the teeth, neck, and inner profile, in a single part, at the lowest cost, and reducing the energy needed to produce the full system.

Final weight: 235g
Product tensile strength: 520 MPa
Product hardness: 85 HRB (70 HRA in teeth)
Product yield strength: 420 MPa
Process steps: Compacting – Sintering – Sizing – Turning – Induction hardening - Threading