

Core Plate

Company: AMES



Application Sector: Automotive

Requirements: The core plate is the part that activates the movement of an electromagnetic actuator, which is inside a dynamic engine mount that works with a magnetorheological fluid. Depending on the engine regime, vehicle speed and centrifugal force, the electronic box sends a variable electrical signal to the actuator, so the iron particles in the fluid are variably aligned, the fluid viscosity changes, and the mount rigidity changes. As consequence, the vehicle grip is optimized and increased. The mount also absorbs the engine vibrations and improves the driving comfort and the vehicle grip, as all engine mounts. The application is really novel, as most of the mounts assembled in car engines are based on traditional rubber silent-blocks. This new technology is just applied on sport cars, but it will be extended in time by time to passenger cars.

Benefits:

The part is made of a composite soft-magnetic iron powder, at very high density. PM contributes to the achievement of a soft-magnetic part that works at high frequency, with optimized shape in order to reduce weight and volume, and impossible to reach in shape and properties from typical laminated stack technology. The PM technology allows to integrate two parts in just one part, giving higher design freedom than laminated stack, and then superior performance, and consuming much less material and energy.

Final weight: 330g

Product tensile strength: 100 MPa

Saturation induction; 2,0 T

Maximum permeability: 500

Coercive force: 310 A/m

Resistivity: 8.000 $\mu\Omega$.cm

