# HEAT INSULATING BEARING

## Background

- This bearing is used in various hand tools such as "power tools".
- The ball bearing was developed specifically for extreme use during many hours at high speed in a harsh environment.
- The customer was faced with problems of heating of the entire system, which considerably reduced the lifetime and performance of the bearing.
- The seal friction and lubrication of the bearing was not suitable to reduce heat and solve the problem.

## Innovation

- JESA proposal was for a thermal insulation concept by means of a plastic coating whilst maintaining the mechanical properties of the ball bearing and its external dimensions.
- The thermal conductivity of the selected polymer coating offers 106 times more insulation than steel.
- The system and its bearing component will therefore be insulated from the overheating caused by the bearing, as the heat is removed through the system shaft.

## Solution

- Polymer overmolding is unusually very thin (one millimeter) applied through a JESA's experience and with a special injection technology, which prevents any split on the molding weld line.
- The polymer adhesion to the bearing is a unique design developed by the JESA engineering team.
- JESA also proposed to this customer an assembly with ceramic balls to further reduce friction and limit the heat transfer to within the bearing, extending grease and bearing life.

## Customer benefits

- An innovative solution that eliminates the problem of overheating and reduced lifetime.

- A significant improvement in the final product so that the customer is able to differentiate themselves in their market.
- The customer was able to maintain all other parts of the system with no design repercussions on related components already in the field.
- Increased the customer ease of use.

## Technologies