



**AME5: Evaluation of various methods to pre-heat of forging dies**

**Sponsor:** Forging Industry Association

**Project Description:** Forging dies are typically preheated prior to a production run. There are several methods currently used to preheat forging dies including: open flame, gas fired ovens, electric resistance ovens, infrared and induction, but the control and uniformity is either lacking or not well documented. Induction heating of forging dies at the press or hammer can result in fast and uniform heating, but the process needs to be refined and verified for various die designs and application in an industrial setting. A key challenge is the low conductivity of the tool steel dies. Induction heating of forging dies is expected to provide economic benefits to forging companies by allowing faster and more uniform die heating. Improved control and uniformity of die heating is expected to improve die life (less over-heating) and provide a more consistent forging process leading to improved part quality and lower scrap rates.

