

MODELLING, MANUFACTURING OF MOLD TOOL AND PLASTIC FLOW ANALYSIS OF AN AIR COOLER TANK

VISWA MOHAN PEDAGOPU

Assistant Professor, Department of Mechanical Engineering, School of Engineering and Technology, Shoolini University,
Solan, Himachal Pradesh, India

ABSTRACT

The component 'Air Cooler Tank' has been remodelled from the previous model in Pro-e WF2 software providing the additional features like stiffeners, decreasing the thickness and changing the material from ABS to polypropylene in order to reduce the component cost. The mold tools like core, cavity, core back plate, cavity back plate, ejector pin, etc., were also modelled. Core and cavity of the prototype components with aluminium material were manufactured at reduced scale. The component was analysed and simulated by using Plastic Advisor 6.0 software. By comparing the results at different injection pressures and melt temperatures, the optimum injection pressure and melt temperature were found at 300 Mpa and 210°C for the given component without mold defects and the same was considered to the prototype component at reduced scale. This analysis provided sufficient information results such as fill time, Confidence fill, Pressure drop, and Quality prediction without mold defects like weld lines, air traps etc. Finally, the component was approved by the customer.

KEYWORDS: ABS, Polypropylene, Plastic Flow Analysis, Injection Moulding and Milling Machines