Abstract

With the advancement of technology it demands the use of parts with complex features. Finishing of such parts possesses a challenge to the manufacturing industries. To meet such challenges, in recent past many advanced finishing processes are developed. Abrasive flow finishing (AFF) is one such processes developed for the finishing of components from simple to complex geometries made of difficult to finish materials. In present paper abrasive flow finishing setup is designed and developed for finishing inner pathways of stainless steel tubes. In order to check the reliability of the designed setup the finite element simulation is done in Ansys workbench. Simulation results showed that the designed setup is safe from the strength point of view. Also experimental study of the effect of AFF process input parameters (extrusion pressure and number of cycles) on output response (surface roughness of the stainless steel tubes) is carried out. Surface topographical characteristics of the initial intermediate and final workpiece surface are also studied to explain the finishing physics of AFF process at various levels.