

Online Measurement and Analysis of Parison Dimensions in Plastics Extrusion Blow Molding

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Abstract

It is critical to be able to determine the parison dimensions in plastics extrusion blow molding. In this work, ink marks were put on the outer surface of the parison just below the die exit at the same time interval during extrusion and the parison images were captured using the visualization technique developed by the authors. A new method different from conventional digital image processing ones was developed to locate each mark on the parison. The two conventional methods, “sobel” and “canny”, were adopted to find the borders of the parison. Therefore, the distance between adjacent two marks and the outer diameter corresponding to each mark were determined online. A tapered cylinder geometry was adopted to approximate the parison segment between adjacent two marks. The inner radius corresponding to each ink mark was calculated on the basis of mass conservation.