

On Hot Embossing Forming of Optical Glass Spherical Lens

Student: Chien Yi Huang

Advisor: Prof Chinghua Hung

Institute of Mechanical Engineering
National Chiao Tung University

ABSTRACT

The spherical Lens made of optical glass is a key component in electronic-optical digital products. Traditional glass forming technology consists of grinding and polishing, while the new technology switches to molding. This new technology uses glass preforms to form final products. These glass preforms rely mostly on import, therefore, the development and usages of glass forming technology are slow domestically.

This research designed and manufactured mold inserts used in glass forming, and discussed the surface roughness of products made by different coating materials on the insert surfaces. FCD1 optical glass was used in the forming experiments, it was first fabricated into plane lens through traditional glass forming processes and then hot embossed to form spherical lens. Verified by measurements, the spherical lens products meet the JIS B 7433 standard on curvature radius, and show no residual stress in the center of lens.