

CV-Joint 냉간단조품의 유한요소 해석

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Finite Element Analysis of Cold Forged CV-Joint Out Race

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Key Words: FEM(유한요소해석), CV-Joint(등속조인트), Outer Race(외륜), Ball Groove(내면골
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Abstract : The outer race of CV(constant velocity) joint is an important load-supporting automotive part, which transmits torque between the transmission gear box and driving wheel. The outer race is difficult to forge because its shape is very complicated and the required dimensional tolerances are very small. The forged CV-joint investigated in this study has six inner ball grooves requiring high operational accuracy. Therefore, the precise production of cold forged CV-joint is very important to guarantee the sound operation without noise and abnormal wear.

In this study, the material flows in cold forging a CV-joint are investigated by FEM. to optimize the process parameters. In order to define and improve the process conditions, two and three dimensional FEM process simulations were performed.

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Vaper-Phase Self-Assembled Monolayer for Anti-Stiction in Nanoimprint Lithography

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Key Words: Vapor-Phase Deposition(기상증착), SAM(자기조립단분자막), NIL(나노임프린트)

Abstract : Due to their high surface area that contacts the resist to the mold, the strong adhesion of the imprinted resist to the mold is one of the key reliability issues for the further progress in Nanoimprint Lithography(NIL). We have studied on the improved vapor-phase ultrathin coating method for the mold release. The anti-stiction monolayer films deposited from Trichloro- (1H,1H,2H,2H-perfluorooctyl)silane and methyltrichlorosilane were characterized using contact angle analysis, atomic force microscopy(AFM) and x-ray photoelectron spectroscopy(XPS). The vapor- phase deposited monolayer was more effective than liquid-phase deposition in penetration into the nanoscale gaps of the mold and in film quality.