

## Hill's 1990 식을 적용한 알루미늄 Heat Protector 성형해석

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### Forming Analysis of Aluminum Heat Protector applied for Hill's 1990

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#### Abstract

Currently, Aluminum alloy sheets are frequently applied to auto-body parts due to weight reduction of auto-body. Aluminum alloy sheets are very important material for weight reduction of auto-body compare with same thickness of normal cold steel, tensile strength and yield strength is 90% though, specific gravity is only 1/3. However low formability cause many problems in real field, lot of time is needed to solve these problems. Mostly, normal cold steel has well established forming analysis data base, Aluminum alloy sheets has not any data base and has low level of reliability on forming analysis. To build well established data base for material properties of aluminum alloy sheets and FLD (Forming Limit Diagram), we used biaxial tensile test and PSST (Plane Strain Stretching Test). The forming analysis for aluminum sheets is carried out based on Hill's 1990 Non-quadratic yield theory. By this study, we could verify and improve aluminum parts and compare forming analysis results and real panels.

**Key Words** Biaxial Tensile Test, PSST (Plane Strain Stretching Test), Forming Limit Diagram, Aluminum Alloy Sheet, Sheet Metal Forming

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