

EXPLORATION OF MESHING STRATEGIES FOR HIGHLY COMPLEX PARTS

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ABSTRACT

BETA has already dealt with the challenge of meshing sheet metal parts with constant thickness, through sophisticated, highly automated processes that deliver premium quality mesh. Traditional BiW scope of work for BMW is handled through DCM (KOMVOS), which benefits from robust and efficient tools including Catia conversion, Mid.Surfaceing, and Batch Mesh. Parts at such scopes are meshed fully automatically by an estimated percentage more than 98%.

Rapid technological progress leads to new challenges, like tackling with different scopes of work which include plastic or aluminum casting parts, tailor rolled and tailor welded blanks, elongated parts, composites, parts with pre-stressed elements, complex composed parts and 3D printed parts.

BMW Closures department introduces such a different scope of work, consisting mostly by casting parts, whereas sheet metal parts of uniform thickness are met only by 20%. As a result, automated processes lead to a productivity increase that is not as high as found in BiW-domain, due to the parts' nature.

This presentation deals with the results of a thorough exploration of the mesh strategies identified in the closures domain and the automation level that can be achieved as of today for meshing complex geometry parts of different types. Nevertheless though, the outcome of this work goes beyond a simple reporting of what can be achieved, but serves as a signpost to where mesh automation can or should be levelled in the ANSA versions to come