**Advanced Micro Tube Forming Technology**

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**Abstract**

Tube forming technology has been applied and advanced to manufacture the lightweight components in automotive and other industries. Nowadays, this technology expands to micro-scale components manufacture in biomedical, electronics, and measurement instrument and communication fields. When scaling down into micro-scale, it becomes very difficult to apply the technology into micro-scale tube forming. In general, higher precise accuracy of tools is required. Also manufacturing the micro fine tools is very difficult due to very tiny dimensions. Furthermore, since microtube becomes geometrically thick material and its formability decreases due to size effect, it is difficult to form the micro-scale components. To improve the formability for micro tubes, application of high pressure technology and incremental process is expected. In this presentation, as one of the forming processes, high pressure hydroforming of microtubes is focused on and its possibility and challenges are explained. For the purpose, a comparative research on the microforming characteristics of microtube between cross-shape and T-shape tube hydroforming processes is introduced and reviewed. Microtube hydroforming characterization of phosphorous-deoxidized copper and SUS304 tubes with diameter of 500 µm and thickness of 100 µm is introduced. Finally the latest micro tube forming processes utilizing local heating and rotational forming technologies are introduced in the presentation.