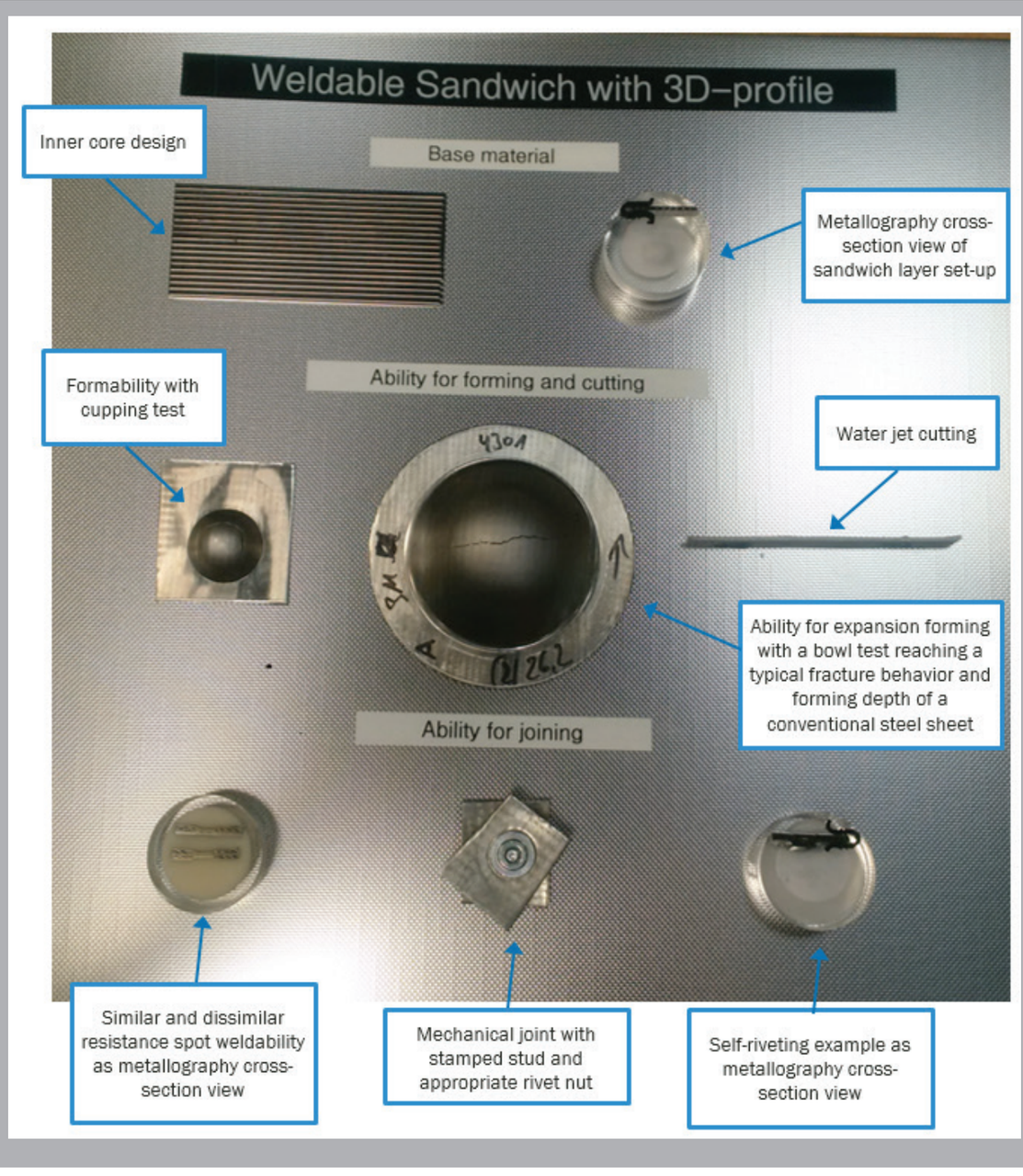
ENLIGHTEN®
AWARD 2018
PRESENTED BY ALTAIR

Altair

Future of Lightweighting Entry



Outokumpu Nirosta GmbH

corrugated sheet to sandwich structure

The Weldable Sandwich with an unidirectional 3D-profiled core is the first direct resistance weldable steel-polymeric composite structure (often called “sandwich”) for the automotive car body, transport and construction engineering industry. Former sandwich solutions had not been successful in spite of their enormous lightweight potential because of their insufficient weldability. State-of-the-art the polymeric core as well as the bonding layers to connect the core with both metallic outer-layers work like isolating materials. Therefore no ability for resistance spot welding with such sandwich structures is possible. Further, the polymeric core enables significant lightweight designs, but with a decrease of stiffness at the same time. Moreover, problems during manufacturing like forming or cutting can occur. The Weldable Sandwich is now able to combine the automotive challenges consisting of lightweighting (-30%) while at the same time increasing stiffness (+80%), a better acoustic behavior, energy absorption, crash safety and deep-draw-ability with a weldable solution. Thereby no changes during manufacturing are necessary: the Weldable Sandwich can be handled like a conventional steel sheet during component manufacturing. The Weldable Sandwich will accomplish a key contribution for the lightweight and CO2-emission targets with high safety at the same time.