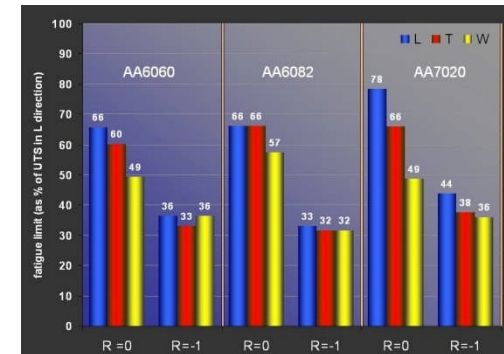


Objective

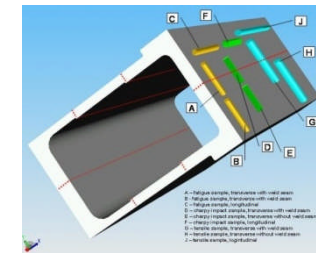
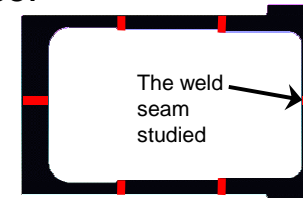
Complex hollow extrusions contain weld seams where the aluminium streams rejoin in the die. For structural applications the mechanical performance of these weld seams is required to be comparable to the longitudinal bulk material properties.

For different alloys the combination of die shape and process settings needs to be optimised to ensure good performance of the weld seams, especially regarding dynamic mechanical (fatigue) performance.



Research topics

- Conduction of full scale extrusion test runs.
- Determination of the weld seam properties of industrially relevant alloys: AA6060, AA6082 and AA7020.
- Correlation of these results with the processing data and microstructure to investigate the failure mode of the material.



Industrial benefits

- Insight into the particular (fatigue) behaviour of different alloys and in different orientations, thereby providing guidelines to limit operational risks by applying the most suitable alloy for a given product application.
- Increasing production reliability by avoiding high-risk combinations of alloy type / profile geometry.

