Supporting Information

Investigating a novel approach to reduce transverse weld scrap in aluminum extrusion using profiled dummy blocks and billets

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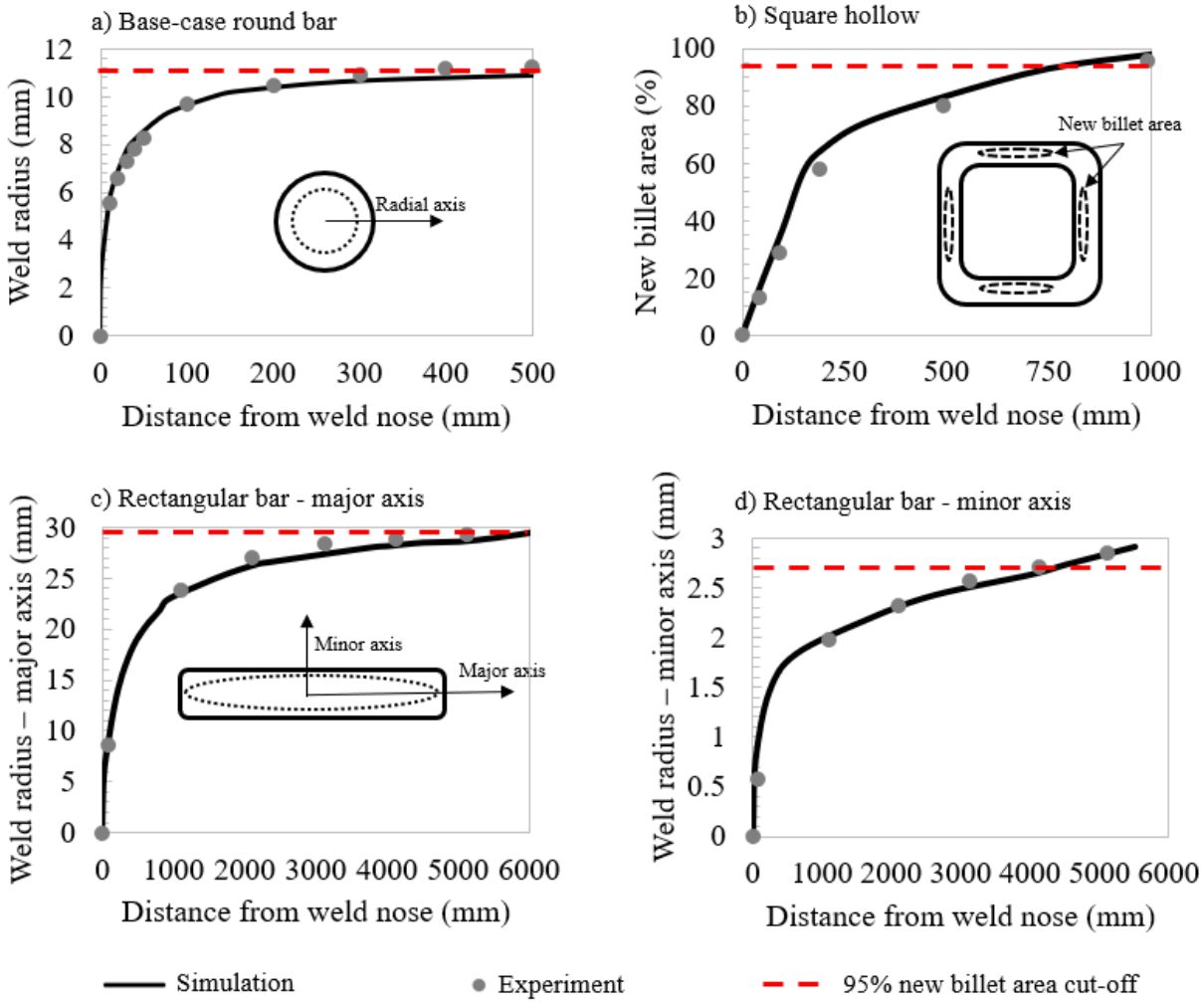
The supporting information file contains useful details for understanding the main manuscript, including a comparison between the experimental and simulated transverse weld lengths, as well as photographs of the experimental trials.

S1: Comparison of experimental and simulated transverse weld lengths (using conventional billets)



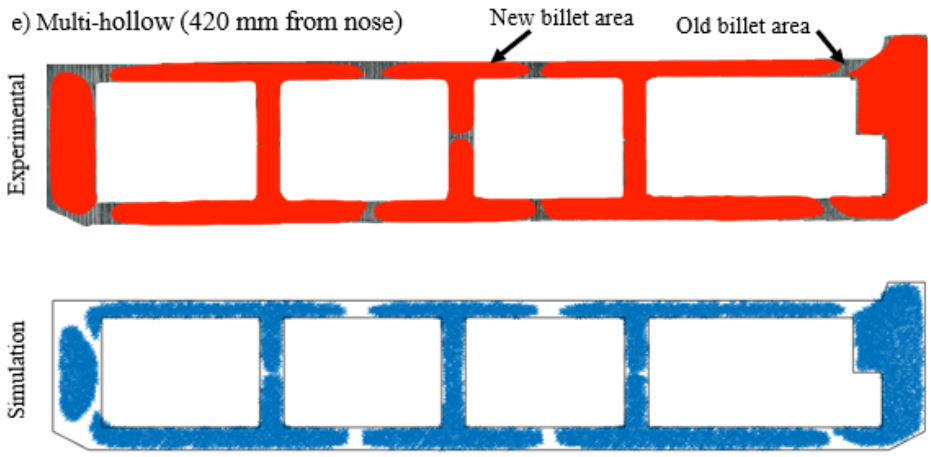


Figure S1: Comparison of experimental and simulated weld geometries on the (a) base-case round bar, (b) square hollow, (c and d) rectangular bar, and (e) multi-hollow profiles.

S2: Photographs of the experimental trial

Figure S2: Experimental trial details for extrusion and forging (a) experimental setup, (b) profile-specific dummy block placement on the ram for extrusion, (c) pre-machined profiled billets, (d) die carriage with round bar extrusion die, (e) profile-specific dummy block with air vent for forging, (f) dummy block placement on the ram, (g) die carriage with Boron Nitride sprayed forging die, (h) oven for billet/tooling heating, (i) forging die with air vents and profile specific convex shape, (j) convex geometry of profile-specific forged billet, and (k) concave geometry of profile-specific forged billet.