

Report from Commission II: Arc Welding and Filler Metals

The IIW Annual Assembly in Salzburg (July 12–17, 2026) once again demonstrated the vital role that Commission II (Arc Welding and Filler Metals) plays in shaping the future of welding technology and standards. This year's assembly highlighted significant industry trends, emerging technologies, and the ongoing evolution of filler metal applications in an increasingly competitive global market.

One of the most striking developments presented at Commission II was the continued industrialization of Wire Arc Additive Manufacturing (WAAM). While WAAM has been a research focus for many years, this assembly made clear that the technology is rapidly moving from academic experimentation toward solving real industrial challenges. Steel and aluminum wires remain the dominant materials, reflecting growing confidence in WAAM's potential for producing functional components at scale, rather than purely experimental prototypes. The competitive landscape is intensifying, with major suppliers aggressively positioning themselves through dedicated product development for AM applications.

High Strength Low Alloys (HSLA) steel welding continues to be a central focus within the commission, reflecting decades of research and practical industry experience. The complexity of welding these materials stems from the wide spectrum of microstructures that develop during thermal cycling, each presenting different mechanical properties. Current research efforts emphasize the formation of acicular ferrite, which offers the optimal balance of strength and toughness, and the development of advanced analytical techniques to isolate and characterize individual phases such as different ferrite morphologies, bainite, and martensite. This phase-level understanding is crucial for predicting and controlling final weld properties, a priority for quality assurance across the industry.

Commission II remains at the forefront of international collaboration on arc welding standards and filler metal innovation. The assembly reinforced the importance of coordinated research efforts, knowledge sharing among member nations, and the alignment of filler metal development with emerging industrial applications. As welding technology continues to evolve, driven by additive manufacturing, automation, and advanced materials, the work of Commission II ensures that standardization and technical excellence keep pace with industry demands.

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