Evaluating the Influence of Environmental Factors and Parameters on Advancements in Welding and Joining Processes: A Review

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Abstract	This review article presents a comprehensive overview of welding, including its environmental influence, common welding failures, welding parameters, and predictions of development regarding welding and corrosion. The quality and integrity of welds can be significantly affected by environmental factors such as temperature, humidity, and atmospheric contaminants. Moreover, welding failures can occur due to various reasons, such as improper welding techniques, inadequate preparation, corrosion, or material defects, leading to structural weaknesses and compromised joint integrity. Furthermore, notable progress has been achieved in welding system technology, encompassing automation, robotics, and real-time monitoring. These advancements underscore the vital role of welding parameters in transforming control, precision, and productivity within the welding process. The integration of innovative welding systems has led to improved welding efficiency, reduced human error, and increased overall process reliability. This review consolidates knowledge from diverse sources, making it a valuable resource for researchers, practitioners, and industries involved in welding.
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