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Mario Gustavo Chong Chong *Editors*

# Best Practices in Manufacturing Processes


Experiences from Latin America

 Springer

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Editors

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## Chapter 16

# Additive Manufacturing: Fused Deposition Modeling Advances



**Julián Israel Aguilar-Duque, Juan Luis Hernández-Arellano,  
Liliana Avelar-Sosa, Guillermo Amaya-Parra  
and Ulises Jesús Tamayo-Pérez**

**Abstract** The paradigm of the manufacturing systems was broken in 1980 with the beginning of the Additive Manufacturing (AM). This technology has been considered as the complement of the classic manufacturing technology, where the material is removed from a raw material until getting the final product. The addition of material in layers have been considered the new alternative to face the impact in the environment, the economy of materials and process, and the opportunity to generate new complex shapes limited by the classic manufacturing technology. The present chapter exposes the advances of the Fused Deposition Modeling (FDM), one of the seven technologies of AM which is mostly used during the past three decades. In this field, different adaptations and investigations of the technology have been focused on the increment of the capacity of the production system and improve the quality generated by this technique. The methodology used to determine the advance of AM was to employ a Systematic Literature Review using databases. The search was developed considering the keywords of AM for the construction of specific search syntax of documents associated with this technology. The documents obtained were analyzed to identify the progress in this technology. The results present the advancements of the FDM as a technology that change the industrial processing to customize the process, where the globalization makes possible to have this technology available at each desk.

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