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Author: X. Liang J. Ma X.Y. Wu B. Xu F. Gong J.G. Lei T.J.
Peng R. Cheng

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Micro Injection of Metallic Glasses Parts under Ultrasonic Vibration

X. Liang ^{1,2}, J. Ma ^{1,*}, X.Y. Wu ^{1,*}, B. Xu ¹, F. Gong ¹, J.G. Lei ¹, T.J. Peng ¹, R. Cheng ¹

¹*Guangdong Provincial Key Laboratory of Micro/Nano Optomechatronics Engineering,
College of Mechatronics and Control and Engineering, Shenzhen University, Shenzhen 518060, China*

²*Shenzhen ESUN Exhibition Company Limited, Shenzhen 518048, China*

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*Corresponding authors. Ph. D; Tel.: +86 755 26531066; Fax: +86 755 26557471.

E-mail addresses: majiang@szu.edu.cn (J. Ma); wuxy@szu.edu.cn (X.Y. Wu).

This work investigates the evolution of structure and mechanical performance of metallic glasses (MGs) under a proposed rapid forming approach. Through the unique ultrasonic-assisted micro injection method, micro MGs parts with fine dimensional accuracy were successfully fabricated. The temperature during the micro injection is higher than the glass transition temperature and lower than the crystallization temperature. Differential scanning calorimeter curve and X-ray diffraction pattern show that the MGs micro parts keep the amorphous nature after the ultrasonic-assisted micro injection. Our results propose a novel route for the fast forming of MGs and have promising applications in the rapid fabrication of micro scale products and devices.

Keywords: Metallic glasses; Micro injection; Ultrasonic vibration

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