

Openmold for CFRTP Pipe by braiding and heating process

Takumi Iwata¹, Ryutaro Hori¹, Syuhei Yasuda², Tadashi Uozumi³

[Takumi Iwata]:v3122005@edu.gifu-u.ac.jp

[Ryutaro Hori]: s3031112@edu.gifu-u.ac.jp

[Syuhei Yasuda]: s.yasuda312@gmail.com

[Tadashi Uozumi]: tadashi.uozumi@drw.muratec.co.jp

¹Mechanical and Systems Engineering, Faculty of Engineering, Gifu University

²Department of Advanced Fibro-science, Kyoto Institute of Technology

³Murata Machinery, Ltd. Research & Development

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In general, a press molding machine and a mold of closed molding system are necessary to produce carbon fiber reinforced thermoplastics (CFRTP). These initial equipment costs cause the increase in the production cost. An open molding method without using a mold is expected to reduce the production costs. Therefore, in this study, a new open molding method without molding die has been developed. In the molding method, an intermediate material, partial-impregnated commingled yarn with carbon fiber and PA66 (PCY) was used. CFRTP pipe was fabricated by simultaneous heating in braiding process. The reinforcements were braided structure with 45 degree fiber orientation angle to the longitudinal direction. CFRTP pipes were molded by changing the heating position in order to investigate the relationship between impregnation states and the heating position. The impregnation process were clarified by measuring un-impregnation area from the cross-sectional observation after molding.