

35-46 Metal Pipe Forming Using Underwater Shock Wave

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In recently, many metal pipes have manufactured and used as various mechanical parts. Cross section of these parts has circular and oval shape. And then, a lot of kinds but a small quantity production of these metal pipe increases. However, commonly, very expensive metal die have used in that case. Therefore, we considered the metal pipe forming method that we can obtain the appointed deformation shape of metal pipes using the underwater shock wave generated by underwater explosion of explosive. We did some experiments of the metal pipe forming by that method. We used detonating cord as the explosive. The metal pipe and explosive submerged into water and detonated the detonating cord by electric detonator. We made some experiments in change the explosive set-up position and inside the metal pipe filled with water, soil, air, and so on. In this paper, we discussed about these experimental results. And then, we have done the numerical simulation to this method and those results are discussed.

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