

35-44 On study of free metal forming using underwater shock wave

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Explosive forming is one of the metal forming methods using underwater shock wave generated by underwater detonation of explosives. This technique is superior to static forming techniques on the duplication of the shape of the die, because the metal plate can obtain a greater work hardening. The upper die used for static forming techniques such as the press forming is, thus, unnecessary. Moreover, this technique can use not only metals but also resins, plaster and paper as the material of die. As a result, this technique is suitable for production of many kinds and quality products. We have developed the equipment for lower costs of metal forming of various appointed shapes using underwater explosive forming technique. As a new method, we have considered the free forming. Therefore, in this paper, we discuss some models for free forming of under water explosive forming. We have made numerical simulation on these models. The results of numerical simulation are reported.

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