

33-40 NUMERICAL SIMULATION OF UNDERWATER EXPLOSIVE FORMING USING SOFT MATERIAL DIE

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Explosive forming has a good advantage on the replication form the die. We use this method to manufacture the art objects. Metal is not the sole material for the die. Resin, plaster, sand, rubber and paper all can be used as the die material. We have succeeded in producing excellent relieves of art objects using the comparatively soft material die. However, in order to accurately obtain replication of die shape using this method, it is necessary to understand the pressure acting on the metal plate and the deforming process of metal plate on the die. Therefore, we made numerical simulation on this forming method ranging from the detonation of explosive, propagation of underwater shock wave, the deformation processed of metal plate and soft material die. The results of simulation were discussed.

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