

## عنوان مقاله:

Metal Spinning: an Effective Manufacturing Process to Fabricate Underwater Parabolic Reflector

## محل انتشار:

دوازدهمین کنفرانس ملی مهندسی ساخت و تولید ایران (سال: 1390)

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## خلاصه مقاله:

Using an underwater reflector is a proper technique for concentrated (narrow) acoustic beams, where an acoustic transducer placed at the focal point of the reflector. The above mentioned assembly (transducer & reflector) is called acoustic antenna. The acoustic antenna has several usages in some sonar (SOund NAVigation and Ranging) systems. Shape of the reflector plays an important role in the proposed technique. Thus, in this work, the parabolic reflector that has various advantages is selected and the different manufacturing processes for producing the reflector are investigated. Among these, metal spinning shows itself as an effective and inexpensive process to make a parabolic reflector. A typical parabolic reflector is also made by spin forming and the advantages/disadvantages of the process are examined. The considered theoretical curve and the spin-formed curve are compared and the effects of deviations on the reflector focal point and depth of the reflector are also studied. It is worth to mention that the spin-formed curve is estimated by an accurate coordinate-measuring machine. Based on the present results, one can find that the metal spinning process is a quick and economical way to produce complex forms that are symmetrical about a central axis. Moreover, this technique can be applied to the various metals, even on the exotic ones such as stainless steel 316 and titanium that are very hard to form.

## کلمات کلیدی:

(Metal spinning; Parabolic reflector; Beam shaping; Coordinate-measuring machine (CMM)

## لینک ثابت مقاله در پایگاه سیویلیکا:

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