

A STUDY ON THE APPLICATION CHARACTERISTICS OF PIEZOELECTRIC ULTRASONIC TRANSDUCER

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ABSTRACT: This paper describes the experiment of an ultrasonic transducer excited in liquid medium, and try to find the influence factors for the power transmission by observing resonance frequency and resonance current.

In general, the ultrasonic is produced by piezoelectric transducer, which also called Langevin Vibrator. However, the problem is that the characteristics of applying ultrasonic transducer in different environment was less discussed, especially, when the ultrasonic transducer works in the liquid medium. Those influences of resonance frequency, resonance current, equivalent impedance, and the power transmitted into the liquid medium with different height of liquid medium in the container and different insertion depth of the ultrasonic transducer into the liquid medium will be studied in this paper..

It can be concluded that not only the resonant frequency need to be modulated for different application environment, but also the height of water in the container should be modulated to significantly improve the power transmission.

Keywords: Ultrasonic Transducer, Resonance Frequency, Resonance Current, Equivalent Impedance