

# The Development of a Miniature Optical Directional Positioner

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## ABSTRACT

During an ultrasonic testing, the key factors affecting the accuracy of flaw locating are the probe position and its direction, the refraction angle of probe and echo sound path length. In this article, we introduce the development of a new optical device for probe locating and determination of its pointing direction. Conventional probe locators use a design with arms and encoders. Usually, these devices are relatively big, heavy, and not easy to handle. The new optical probe locator measures the travel distance by comparing several consecutive images captured by the integrated camera. The device doesn't have the drawbacks of conventional probe locators, besides it is much cheaper. Theoretically, the accuracy can be up to 400cpi and our test result is very close to this figure, so the proposed device is quite useful for many similar applications in different industries.

Keywords : Ultrasonic testing, Probe position, Flaw locating

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