

A LIQUID LEVEL SENSOR USING THE A0 LAMB WAVE MODE

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Abstract : The object of this work consists to study the feasibility of a liquid level sensor using the A0 Lamb wave mode. This sensor is made of a vertically one meter and thirty plate of stainless steel in which one, an A0 Lamb wave mode is generated. To perfect the sensor, we have to choose the good material, the thickness of the plate and the vibration mode of the wave. To do that, we have plot the phase and group velocity curves, the transversal and longitudinal displacements versus the product frequency x thickness. The curves interpretation enables to visualize the best target point for the excitation energy on a suitable guided wave mode at a suitable frequency; this point is called the operating point. When the chosen mode is generated, the echo from the reflexion at the guide-water interface is easily detected by the transmitter-receiver transducer and can be worked efficiently.

Keywords : : Lamb waves modes; Guided waves; sensor; level