

EXPLOITATION DU PHENOMENE D'ATTENUATION, DANS LE CAS D'ONDES ULTRASONORES GUIDEES, EN PRESENCE D'UN LIQUIDE

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Abstract : Our work consists to study the propagation of guided waves in an isotropic solid plate, put in contact with a liquid.. To study the sensitivity of the guide when it is in the presence of a liquid, we plotted the dispersion curves of phase and group velocity, of transverse and longitudinal displacement, and the attenuation according to the product frequency-thickness. The attentive study of these curves let us to locate two particular points, P1 and P2 on the dispersion curves for the S0 and A0 modes respectively. When the guided wave is excited under the point P1, it undergoes a maximum attenuation, and when the wave is excited under the point P2, it undergoes a less attenuation. A range of experiments was carried out to justify the theoretical forecasts. The results obtained are very satisfactory and show clearly, the sensitivity of the wave for well defined products frequency-thickness.

Keywords : Lamb waves; generation; attenuation; dispersion curves