ABSTRACT

The performance of different multilayer inductive probes is evaluated by developing a directly interfaced system to measure the thickness of ferrous materials. The four inductors used for thickness measuring have inductance ranging from 3.68 mH to 36 mH, and coil diameter ranges from 5 mm to 20 mm. From the experiment, it has been concluded that by increasing the diameter of the coil of the inductor the penetration depth increases but the linearity is affected inversely. To improve the linearity size of the coil should be reduced. In this experimental evaluation, the thickness of aluminum sheet has been found ranging from 0.5 mm to 4.5 mm with a non-linearity error of 5.5% of Full-scale span. In this thesis, the performance of these various probes is investigated and compared through a series of experiments.