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ELECTROMAGNETIC ACOUSTIC TRANSDUCER FOR ULTRASONIC THICKNESS GAUGING OF FERROMAGNETIC METAL ITEMS WITHOUT REMOVING DIELECTRIC COATING

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A combined high-performance electromagnetic acoustic gauge for transforming electrical power into acoustic power and vice versa has been developed. It is designed to excite and accept ultrasonic high-frequency pulses in metallic items by using magnetic and electromagnetic fields in the presence of dielectric coatings with thickness up to 10 mm. Without changing the design this transducer can be used for checking items with flat or curved surfaces. At this only thickness of metal is measured. The new transducer allows significantly reduce cost of ultrasonic check by means of excluding operations for removal of protecting coating and its further renewal. The solution can be used for diagnostic operations in field of power engineering, metallurgy, transportation and other areas in which metal items with/without coatings are used. References 7, figures 5.

Key words: ultrasonic diagnosis, electromagnetic acoustic transducer, dielectric coating, thickness gauging.

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