

# TUBULAR PARTIAL SATURATION EDDY CURRENT TESTING



FOR ALL YOUR INSPECTION NEEDS



Full saturation Eddy Current is a technique that can be used on thin ferro-magnetic materials like Duplex or on materials that are only slightly magnetic like Monel Nickel Copper alloys.

Local defects as well as overall wall-loss can be detected and quantified. EC can detect both internal and external defects and can distinguish between them. Cracks can be detected depending on their size and orientation. Defects under support plates can be detected and to some extent quantified. Theory

On permeable materials it is not possible to use conventional Eddy Current because the permeability prevents eddy currents from penetrating the material and permeability variations can cause false indications. The probe used in FSEC is similar to an Eddy Current probe but will also contain a magnet, which is utilized to saturate the material.

Magnetic saturation of a magnetizable material will result in the material to behaving like a non-ferromagnetic material. Now the same laws of physics as for conventional eddy current will be in force again. Main concern is to assure that the material is completely saturated.

This can only be assured by using a calibration tube with exactly the same properties as the tubes to be inspected. FSEC can normally not be used on (thick wall) carbon steel tubes because magnets can not provide sufficient force to completely saturate the material.

