

Title (en)  
SCANNING SYSTEM

Title (de)  
ABTASTVORRICHTUNG

Title (fr)  
SYSTEME DE BALAYAGE

Publication  
**EP 1133671 A2 20010919 (EN)**

Application  
**EP 99967061 A 19990831**

Priority  
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Abstract (en)  
[origin: WO0017601A2] A method and apparatus for remote and automatic detection of surface flaws in tubes, pipes and other cylindrical or enclosed cavities that have been treated with a photoluminescent medium. The device, or so-called scanning probe, has a non-rotating ultraviolet radiation source, an offset rotary drive means, a passive rotary scanning means that includes a plurality of lenses, reflectors and an optical filter, a non-rotating solid-state photodiode and support electronic circuitry. The ultraviolet illumination source and photodiode are mounted on-axis and do not rotate. A passive optical scanning means is caused to rotate by an offset rotary drive means. Ultraviolet radiation from the illumination source is projected onto the test-part surface and causes dye penetrant that has been previously deposited onto the test-part surface to fluoresce at a different wavelength, thus revealing the presence of surface cracks and flaws. The receiving lenses, also contained in the passive rotary scanning mechanism, capture the fluorescent light and project it onto the photodiode. The photodiode generates a series of electrical pulses that correspond to the presence of surface flaws. The pulses are then converted to voltage signals, amplified and ported out of the scanning probe to signal-processing means via electrical wires. By encoding the linear and angular position of the scanning means, an accurate and quantitative map of the flaw pattern can be constructed.

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