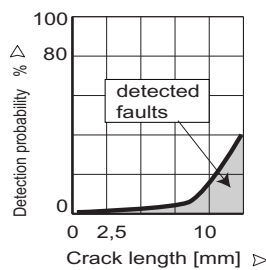
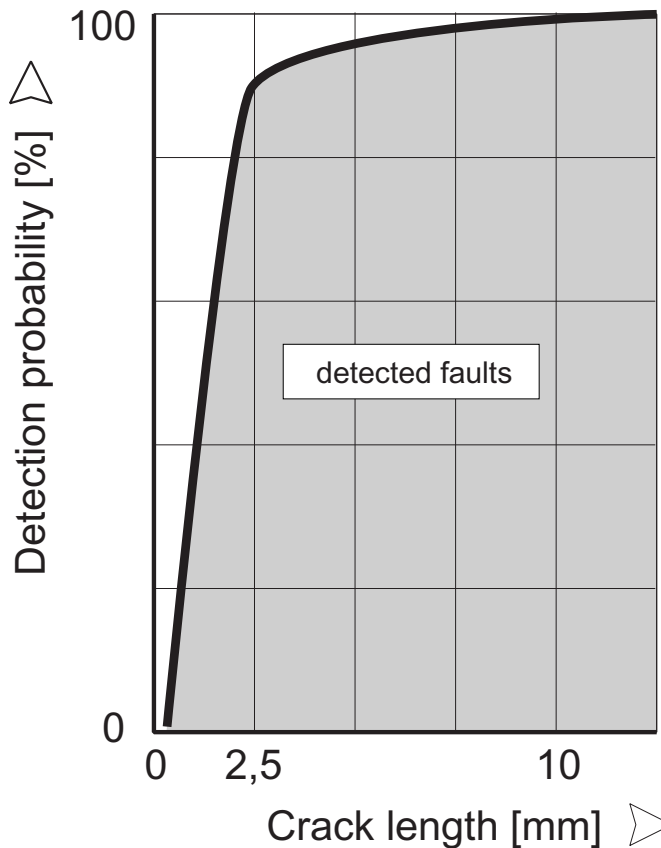
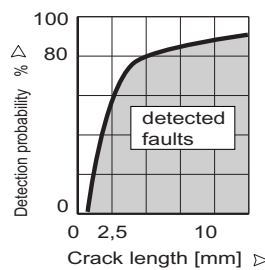


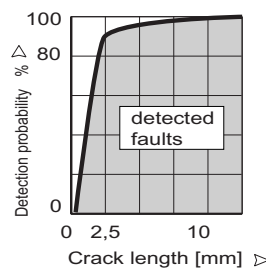
A single non destructive testing is no guarantee for freedom of defects!



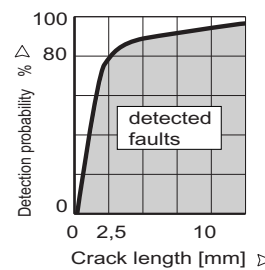
X-ray



Penetrant



Ultrasonic



Eddy current

III. 5.3-3

(Tests of components with machined surface)

III. 5.3-3 (Lit. 5.3-3 and Lit. 5.3-4): The diagrams show the trends of the detecting likelihood (**POD = probability of detection**) of surface cracks. This allows the first classification of the reliability of the most frequent **non destructive testing (NDT)** in series application. This concerns test results

on aluminium samples with small artificial fatigue cracks. Generally counts that the crack size respectively crack length and crack depth affect the behavior different. Obvious a POD of 100% can only be expected in very fortunate cases. That means that for very high loaded

components dangerous failures in the millimeter region can no more absolutely certain suspended by non destructive testing (upper diagram). Only by a combination of measures like some different non destructive testings the claimed high safety can be expected.

*In this particular case was most unreliable the POD of **X-ray** for small surface cracks (diagram below left). The best POD for small surface cracks showed the **ultrasonic inspection**. Because the presented literature informations are a little anterior we can assume that ultrasonic testing and **eddy current testing** meanwhile experienced improvements in technique and interpretation. Especially the application of computers for the interpretation may have improved in some cases the POD markedly (ultrasonic testing, eddy current testing).*

Anyway, also here we can not act on the assumption that parts without findings are free from failures.