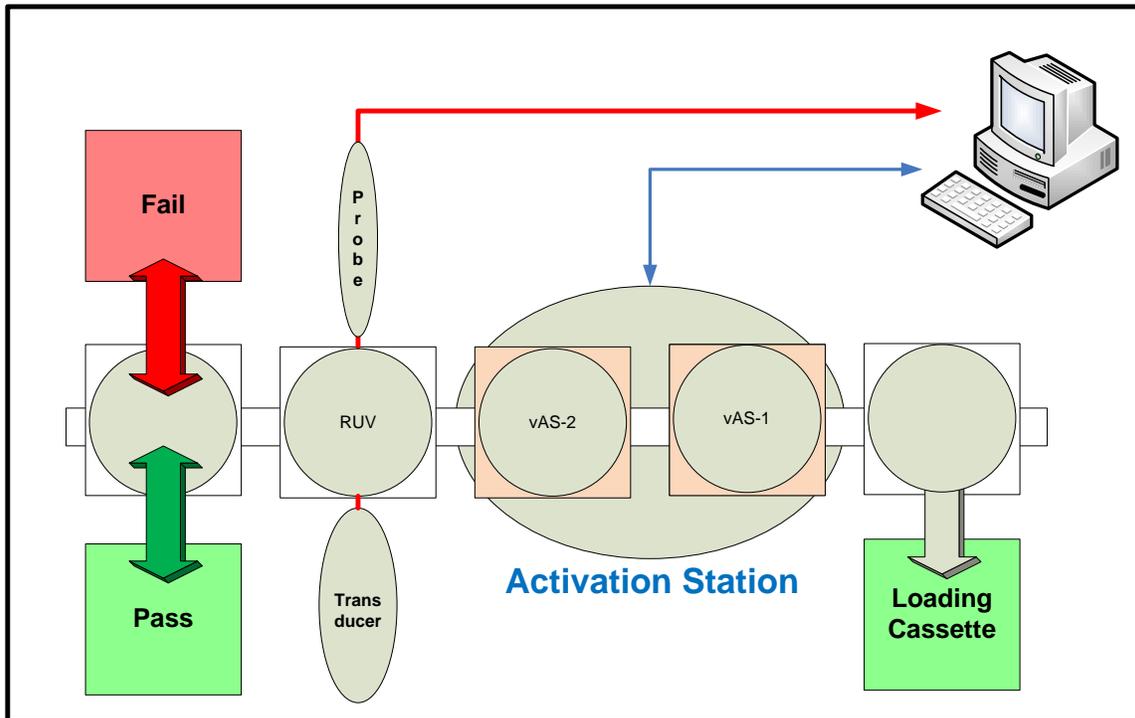


Crack Inspection using Activation Station

Ultrasonic Technologies, Inc.

Small, sub-millimeter length cracks represent seed point defects which dramatically reduce mechanical strength of thin wafers or ceramic plates and ultimately lead to breakage and yield loss in production. In-line and off-line inspection of seed cracks can be successfully performed by **Activation Station (AS)**, which is manufactured by Ultrasonic as a stand-alone automated tool or integrated in processing. Typical example of AS application is front-end crack inspection in PV module production prior to individual cells being loaded to a stringer or inspection of wafers after mechanical processing (e.g. grinding). High volume test of the Activation Station in factory statistically documented a reduction of yield loss by as much as 8-10%. The Activation Station can be integrated with proprietary Resonance Ultrasonic Vibration (RUV) system produced and supported by Ultrasonic Technologies as illustrated in the picture. Activation Station can be used as a stand-alone QC tool.



AS concept is based on delivery of a controlled mechanical stress to bare or processed wafer. Each wafer passes through the AS with settings saved in the tool software as a recipe. After activation, the wafers with cracks are revealed using pressure and optical sensors and sorted out in "Pass" or "Fail" bins (picture). Seed cracks are found in a square size substrate with >99% accuracy. Additionally, AS allows measuring elastic properties of the substrate serving as automatic in-line quality and process control unit. Activation Station is cost effective crack inspection tool available for electronic wafer production.

For more details visit Ultrasonic Technologies web-site www.ultrasonictech.com or e-mail at support@ultrasonictech.com