

## Non-contact fracture analysis

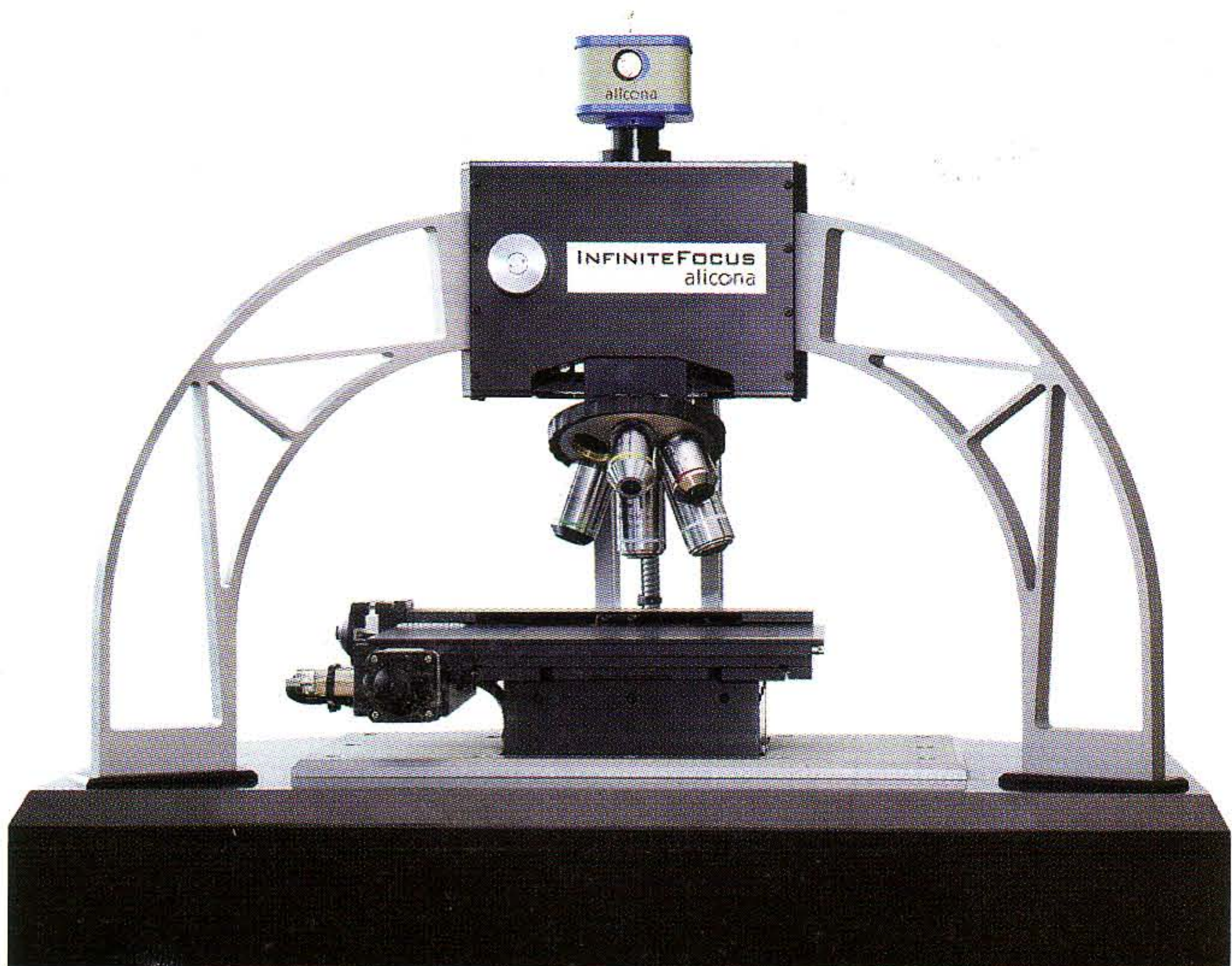
In the (automotive) industry fracture analysis is one of the most important raw material testing methods. Defective aluminium produces low grade castings which will be classified as scrap in downstream quality checks. Checking the aluminium beforehand would have saved time and money.

3D specialist and leading supplier of optical measurement and testing systems, Alicona Imaging from Graz (Austria), has launched a new non-contact 3D measurement instrument, which provides a wide range of innovative surface control measurements. Traded under the name InfiniteFocus, the system measures the height, area, volume and roughness of specimen surfaces. Despite the prevailing difficult conditions, such as heavy reflections, massive roughness and steep flanks of the fractured surface, the system provides sharp 2D visualization over the complete image area and a 3D reconstruction of the fractured surface in real-colour display mode. The non-contact system fulfils all requirements of an exact numerical analysis, providing highly useful analytical information about fracture strength properties of the specimen.

The technology of the surface measurement system is based on the focus variation principle. The instrument generates both the topographic and the registered colour information of a specimen surface. The user receives an individual set of 3D data which provides exact topographic information computed by innovative algorithms.

A first visual inspection of the aluminium surface can be performed by the ultra-sharp 2D visualization in real-colour display mode and the absolute depth of definition of the complete surface area. In a next step the system creates a 3D surface model with a coloured texture. Based on several shots of the surface, the software module "Imagefield" uses special image algorithms to produce a mosaic-type image of the surface. This provides a sharp 3D reconstruction of the surface within the complete image area. The display in real colour enables conclusions to be drawn about the existence of possible inclusions and contaminations contained in the aluminium. Depending on the measurement module, online measurements are taken of the profile, area, volume and/or roughness of the aluminium. In the vertical resolution the user can create between 50 µm and 20 nm.

[www.aliconadom](http://www.aliconadom)



Measurement of specimen surfaces