

Automated Batch Shell Characterization^{*}

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We have installed an automated measuring microscope (Nikon VMR-3020) for batch measurements of plastic shells. Its accuracy is good enough to replace the existing tools for PAMS shell measurement. Its particular value is in making unattended batch measurements. In that case, the shells are mounted onto a rectangular array of drilled holes on a flat substrate. It takes about 15 minutes to fully characterize 20 Omega-sized shells (once) using a **Detailed** measurement routine, which can be programmed to conduct repeated measurements overnight. For production screening of OD and circularity, 20 shells can be characterized (once) in less than one minute using a **Quick** measurement routine. The microscope reduces the focusing error due to manual operation and allows direct visualization of the shell wall. So far we have successfully characterized shells made of PAMS, GDP, glass, and foam materials, as well as the fast ignition shells mounted on gold cone. The instrument requires pristine shell surface for good repeatability and is limited to the overall wall thickness if a multilayered shell is measured.

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