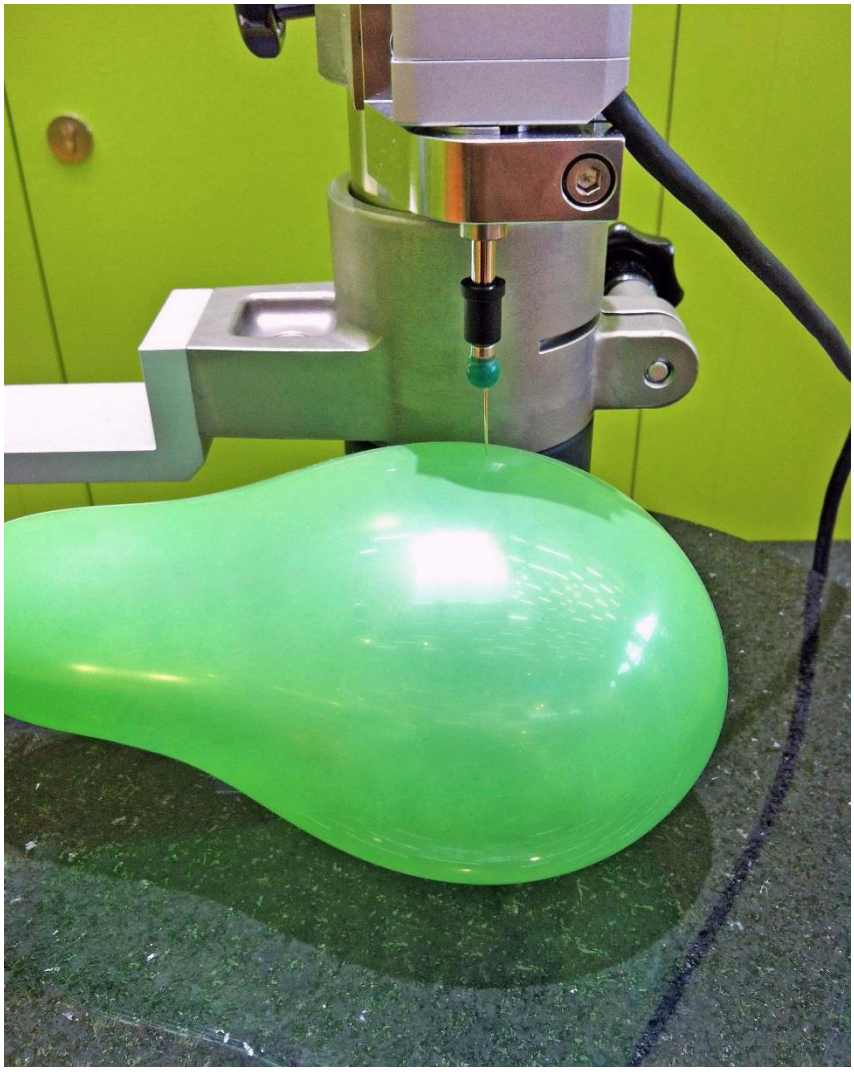
LOW-PRESSURE LENGTH GAUGE AVOIDS MARKING OR DEFORMING DELICATE SURFACES

Non-contact inspection by laser scanning or other optical systems ensures that delicate components are not damaged while they are being measured; and soft or compressible materials are not deformed. The disadvantage is that non-tactile measuring cannot match the precision of touch probes and photoelectric scanning of linear encoder graduations.

To address the problem of how to measure sensitive components accurately, HEIDENHAIN has introduced a new length gauge that ensures the tactile probe it carries imparts negligible force to the surface being inspected. It is a result of an extremely low measuring force curve between 0.01N and 0.07N over the 12 mm measuring range. If a pin were to replace the standard probe contact, the pressure would not be sufficient to burst a balloon.



Called METRO 1281 MW, the length gauge can, for example, safely inspect small plastic gears, glass objects, semiconductor wafers or polished medical components without scratching the surface. Transparent or reflective materials that can present difficulties when scanning optically can likewise be measured simply and exactly.

High precision ball bearing guides are a core component of the METRO 1281 MW. The combination of these guides and high-precision photoelectric scanning achieves repeatability of less than 0.03 µm

over the full measuring range. The length gauge system accuracy lies within ±0.2 µm.

In addition to having a low measuring force, the unit features a Zerodur precision graduation with a 2 µm signal period. Zerodur has a thermal coefficient of expansion of almost 0 ppm/K in the 0°C to 50°C range, so ambient temperature effectively has no influence on expansion of the scale during normal operating conditions.