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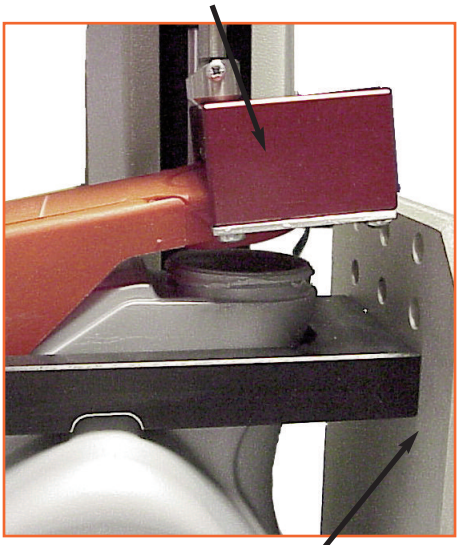
Cap Application & Removal Force

Specification

A system was required to measure the push-on force and removal force of an injection-moulded cap from a new design of oil can.

The innovative design of the the cap was opened by applying a downward pressure to the back, so flipping up the front portion allowing the oil to be poured. Both the push-on and pull-off tests needed to be completed without removing the oil can from the fixture.

Cap removal fixture



Retention fixture

Solution

Although the application was relatively straight forward, there was a risk of damaging the force gauge if not positioned effectively. The bespoke fixturing and stand reverse feature on the force gauge meant that the application could be carried out without the need to use a more complex computer-controlled system.

The test was set-up by sliding a can, into the lower fixture, while locating a cap, resting on the can's neck, into the self-centering swivel fixture attached to the gauge. This upper fixture was driven down onto the cap until a 10% load drop was detected. Then, with the push-on force captured in the gauge memory as the compressive maximum, the 'reverse on break' feature of the gauge automatically drove the stand up. Subsequent engagement of the upper fixture extension bars with the cap, enabled, cap removal, pull-off force capture into gauge tensile memory, and test completion.

System

- UltraTest (now superseded by the MultiTest 1-*d*)
- AFG 1000N Force Gauge
- Stand reverse cable
- Location fixture
- Cap Load/Unload fixture

Supplied to

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