



Denting Test for Interior Parts with Metal Appliqués

Application

This procedure is used to determine the effects of point load impact on metal appliqué

Apparatus Required

Steel Ball

Steel ball bearing ball approximately 16.5 grams with a diameter of 16 +/- 1 mm.

Tube Apparatus with Ball Release Mechanism

The apparatus consists of a rigid tube with an inner diameter large enough to let the ball travel freely. The ball release mechanism can be a flat plate or a cylinder that holds the ball in the tube 10 cm above the test surface. The mechanism is then removed, releasing the ball. A V notch should be cut into the lower end to let air escape during the ball drop and light in for positioning. Edges should be free of burs. (See Figure 1)

Lengths of 3/4 inch copper plumbing pipe may be suitable.

Millimeter scale with at least 0.5 increments

Magnifying glass, 6 to 10 X

Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5 % relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

Chemicals, materials, parts, and equipment referenced in this document must be used and handled properly. Each party is responsible for determining proper use and handling in its facilities.

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Documents

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Procedure

1. Test sample should be held securely with the impact surface horizontal so the area to be tested is normal to the direction of impact.
2. Position tube apparatus directly over the selected impact location so the released steel ball drops vertically on the test sample.
3. Insert the ball release into the tube and place the steel ball on to the ball release. The ball release should hold the bottom of the steel ball 10 +/- 0.1 cm above the test sample.
4. Remove the ball release and allow the ball to impact the test sample.
5. Perform a visual evaluation for cracking, delamination, surface impression, and denting.

Cracking – Any cracking of the top coat, middle layer, substrate, or edges

Delamination – Any blistering or peeling between any layers on surface or edges

Surface impression – is caused by direct contact with the ball. It will be circular and have a defined edge that can be measured.

Denting – is the bending of the metal sheet around the outside of the surface impression.

(See Figure 2)

6. If a surface impression exists, lay the scale next to the surface impression and measure using the magnifying glass. Measurements should be recorded to the nearest 0.5 mm.

Figure 1

