

EDS

Engineering,
GM DAEWOO Auto & Technology
Standards

METHOD FOR SHOT PEENING EVALUATION

EDS-T-7149

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VERSION: 3

1. PURPOSE

This standard aims at helping test personnel perform the test in an appropriate way by describing intensity, coverage and residual stress measurement method to evaluate shot peening processed parts.

2. SCOPE

This standard applies to the shot peening processed parts for the improvement of durability.

3. DEFINITIONS

3.1. Intensity

Intensity is measured by the arc height of ALMEN strip in case of shot peening with 100% min. of coverage. This is the one of measurement methods of shot peening and generally indicates degree of shot peening strength.

3.2. Coverage

Coverage indicates the degree of the area where a blast of shot made a dent on the product and generally indicates the uniformity of shot peening.

3.3. Residual stress

Residual stress means the remaining stress on the product even after the removal of external force and in here indicates compressed stress remaining on the product surface due to the effects of shot peening.

4. TEST PIECES

4.1. Test pieces shall be the ones specified in the standard.

4.2. The number of test pieces shall be 3 min. of initial approval and at least 1 min. for routine quality control.

5. INTENSITY MEASUREMENT METHOD

5.1. Apparatus

5.1.1. Test piece

(1) Material: ALMEN strip (SAE 1070 steels for cold spring)

(2) Shape

UNIT : INCH

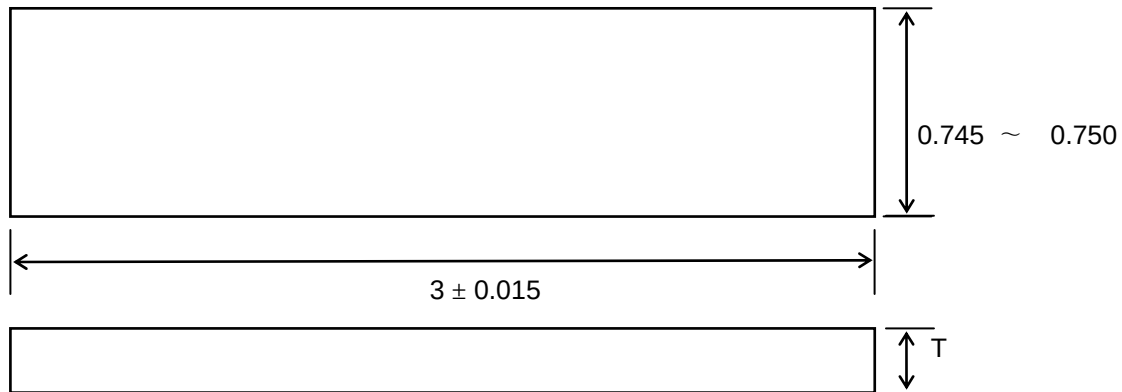


Fig. 1. Size of Test Piece

N test piece : $T = 0.031 \pm 0.001$

A test piece : $T = 0.051 \pm 0.001$

C test piece : $T = 0.094 \pm 0.0015$

(3) Division of test piece

- a) A test piece : In case intensity is within $0.0006'' \sim 0.0024''$
- b) C test piece : In case intensity is $0.024''$ min.
- c) N test piece : In case intensity is $0.006''$ max.

5.1.2. Holding fixture

Unit: inch

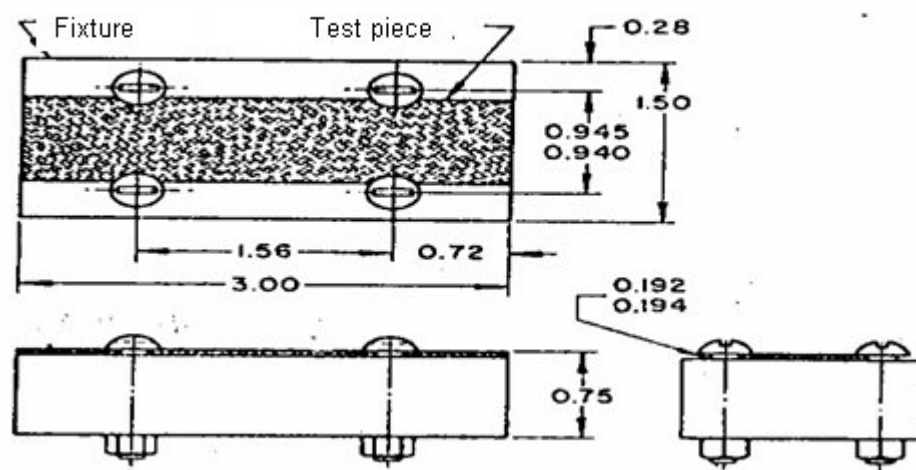


Fig. 2. Holding fixture