

EDS

Engineering,
GM DAEWOO Auto & Technology
Standards

METHODS OF DECARBURIZED DEPTH MEASUREMENT FOR STEEL

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1. PURPOSE

This standard aims at evaluating the product quality by measuring decarburized depth which affects severely mechanical properties of steels, especially fatigue strength.

2. SCOPE

This standard specifies the method of decarburized depth measurement for steel.

3. DEFINITIONS

3.1. Decarburized layer

The surface layer of steel where the carbon content is reduced by hot working or heat treating.

3.2. Total decarburized depth

Distance from the surface of the decarburized layer to the position where the difference in chemical or physical properties between the decarburized layer and the core material is no longer determinable.

Remark: Chemical properties shall be determined by the microscopic structure and physical properties from the hardness.

3.3. Ferrite decarburized depth

Distance from the surface of steel to the position where is exclusively made of ferrite formed by decarburization.

3.4. Decarburized depth specified by residual carbon ratio

Distance from the surface to the position where the residual carbon ratio, i.e. the residual carbon content per carbon content of the core material, has a specified value.

3.5. Practical decarburized depth

Distance from the surface to the position where practically permissible hardness has been obtained.

4. CLASSIFICATION OF MEASURING METHODS

4.1. Measuring method by microscope

Method of measuring decarburized depth by microscope on the section of the test piece after etched. This method shall, in general, be applicable mainly for as cast, as forged, or as rolled, normalized or annealed state.

4.2. Measuring method by hardness test

This method shall be applicable mainly for as quenched and quenched-tempered state. Method of measuring the decarburized depth by the hardness test along the cross sectional plane of the test piece.