

EDS

Engineering,
GM DAEWOO Auto & Technology
Standards

METHOD OF ERICHSEN CUPPING TEST

EDS-T-7125

ISSUED DATE: 1990. 12. 29

REVISED DATE: 2006. 06. 19

VERSION: 2

1. PURPOSE

The standard aims at evaluating the formability of steel sheets, or how much the sheets can be formed to the required shape without generating crack, by measuring ERICHSEN number of steel sheets used for outside and inside plates of automobiles manufactured by **GMDAT**.

2. SCOPE

This standard specifies the measuring method of ERICHSEN numbers of sheet metals of 0.1 to 2.0mm in thickness and 70mm and over in width.

3. DEFINITIONS

3.1. ERICHSEN test method: The ERICHSEN test method to be performed by the use of the die and the stretching ring with a constant fastening load of approximately 1000kg applied to the test piece.

3.2. ERICHSEN number: The value indicated in millimeters for the distance which the top of the punch have moved from the surface clamped by the stretching ring by the time when the crack is produced at least at a part in the ERICHSEN test.

4. TEST PIECES

The test piece shall be classified into three kinds of No. 1 to No. 3 by shape, and the dimensions shall be as given in Table 1. However, where the dimensions of materials are less than 90mm, the dimension 90mm given in Table shall be changed to 70mm. In this case, the above shall be clearly stated in the test result.

Table 1. Dimensions of Test Pieces

Unit : mm

Test pieces	Dimensions
No. 1 test piece	Strip of 90 ± 2 in width
No. 2 test piece	Square of 90 ± 2 in side
No. 3 test piece	Circle of 90 ± 2 in diameter

5. TESTING MACHINE

5.1.1. The testing machine shall be so constructed that the clamping pressure of more than 1000 kgf(9.8066 kN) shall be constantly applied and in this state the test piece shall be uniformly pressed to the surface of the die by the stretching ring.

5.1.2. In the range of clamping pressure of more than 1000 kgf, the error of the load indicator shall be within $\pm 5\%$.