

# **TYPE A Packaging Evaluation Certificate**

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**Note:** This document must be kept on file after receipt of your gauge, in order to comply with the following US DOT Regulations. 49 CFR 173.415 Authorized TYPE A Packages.

*49 CFR 173.415 (a) ... Each offeror (shipper) of a Specification 7A package must maintain on file for at least one year after the latest shipment, and shall provide to DOT on request, a complete documentation of tests and an engineering evaluation or comparative data showing that the construction methods, packaging design, and materials of construction comply with that specification.*

The following cases were tested:

<u>Ref.</u>	<u>SNC Part #</u>	<u>Ext. Dimensions [in]</u>	<u>Used to ship gauge model</u>
#1	800-1616	18 x 17 x 19	C-75, R-75, R-50
#2	800-2020	20 x 23 x 23	C-100, C-200
#3	800-2216	19 x 19 x 25	C-200, C-300

49 CFR 173.465 - TYPE A Packaging Test Procedures

## **(1) Water Spray Test**

The shipping cases are airtight and watertight as long as they are intact and properly latched closed. The case is rotationally molded from polyethylene and equipped with a tongue-in-groove gasketed parting line. Water spray will not adversely affect the strength or protection provided by the case. In addition, none of the subsequent tests adversely affect the case, therefore the cases are exempt from the water spray test.

## **(2) Free Drop Test**

Two cases were tested, case #1 and case #2. Each loaded package was dropped, on corner, from a height of 1.2 meters (4 feet), onto a flat, horizontal concrete surface. The plastic cases deformed slightly, but each remained intact and did not split.

Case #3 is of the same construction, only smaller (by volume), as case #2, therefore it is at least as strong than the case previously tested. The gauge and accessories shipped in both cases are identical, or substantially similar in weight and size. Testing of case #3 is not required as "... a previous, satisfactory demonstration of compliance of a sufficiently similar nature"<sup>1</sup> has been conducted.

## **(3) Stacking Test**

The greater of the two load specifications for the packages is given by the formula:

$$(\text{Vertically Projected Area [in}^2\text{]}) \times (1.9 \text{ [psi]}) = \text{Load [lbs]}$$

The loads used for case #1, 2, and 3, was 630, 975, and 958 pounds, respectively.

The loaded packages were placed on a flat, horizontal, non-yielding surface, and subjected to the corresponding compressive load for 24 continuous hours. Little to no deformation of the packages was noted.

## **(4) Penetration Test**

For all cases, it was determined that the top was the weakest part of the case. With the packages on a non-yielding, flat, horizontal surface, the equivalent of a steel rod, 1.25" in diameter, with a hemispherical end, weighing 13.2 pounds, was dropped from the height of one meter, onto the center of the lid of each case.

No penetration or significant deformation of the packages was observed.

## **Engineering Evaluation**

These packages meet all the requirements of 49 CFR 173.415. Detailed engineering evaluations and reports were done for each individual package.

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<sup>1</sup> 49 CFR 173.461 (2), Rev 10/1/99, Pg 714