



SURFACE VEHICLE STANDARD	J3350™	MAY2024
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Recommended Method for the Testing of Impact Resistant Products on Cables		

RATIONALE

This standard is being issued to create a standardized method of testing and evaluating severe mechanical impact on high-voltage cables and flexible protective coverings.

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1. SCOPE

This SAE Standard describes the methods for testing flexible harness coverings for use on ground vehicle electrical distribution systems, specifically protection from severe mechanical impact. This SAE Standard shall apply to all tapes, extruded tubes, and textile sleeves used for this purpose.

1.1 Safety

This standard may involve hazardous materials, operations, and equipment. This SAE Standard does not address the safety problems associated with its use. It is the responsibility of the user of this document to identify and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. Due to the nature of the procedure, special precautions against pinching/crushing of hands and feet should be taken.

1.2 Limitations

Data obtained by this method are applicable only to the material under conditions of this test and are not necessarily the same as those obtained in end-use applications. The information permits comparison, selection, or qualification of commercially available products designed to mitigate severe impact.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J2192 Recommended Testing Methods for Physical Protection of Wiring Harnesses

3. DEFINITIONS

3.1 SAMPLE

The flexible covering being tested using the methods in this SAE Standard.

3.2 SPECIMEN

The combination of one or more samples applied to a shielded cable.

3.3 DROP TOWER

The entire testing unit containing the hammer, drop tool, impact plate, sensors, and all associated parts needed for guarding and safe operation.

3.4 HAMMER

The mounting plate and bearings that carry the drop tool to the impact plate.

3.5 DROP TOOL

The component used to make contact with the specimen.

3.6 IMPACT PLATE

The base plate that supports the specimen.

3.7 PHOTOELECTRIC SENSORS

Light-based sensors used to measure the speed of the drop tool at the moment of impact.

3.8 SHIELDED CABLE

An automotive grade high-voltage cable consisting of an outer insulator, braided steel shielding, inner insulator, and copper conductor.

4. QUALITY REQUIREMENTS

Sample quality must follow the requirements and be in compliance with applicable quality standards.

5. EQUIPMENT

Specific components of the test equipment are defined below. Additional equipment used in the construction, guarding, or operation of the drop tower is at the user's discretion.

5.1 Drop Tower

The drop tower shall be constructed in such a way that the hammer carrying the drop tool is able to move freely and directly to the impact plate. A sufficient distance shall be built into the drop tower to achieve the energy class listed in Table 2. The impact plate is to be rigidly mounted to a steel base plate and perpendicular to the hammer. The drop tower is to be installed on a solid concrete slab.

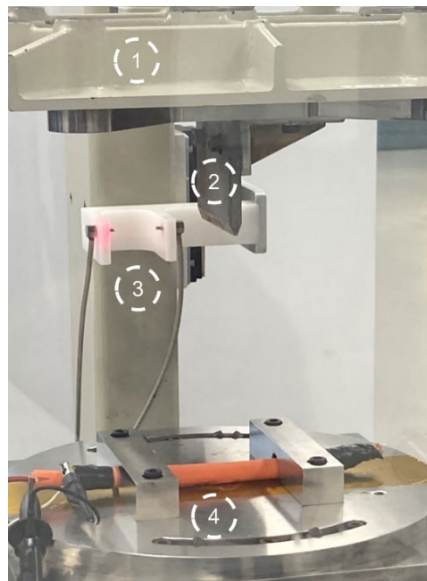


Figure 1 - Example drop tower assembly
(1) Hammer (2) Drop tool (3) Photoelectric sensor (4) Impact plate

5.2 Hammer

The hammer is the carrier for the drop tool and must move freely along guide rails to minimize energy loss during free fall. The combined weight of the hammer, drop tool, and fasteners shall be $10\text{ kg} \pm 50\text{ g}$.