This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: F1932/F1932M – 98 (Reapproved 2018)

An American National Standard

Standard Test Method for Measuring Sleeping Bag Loft[1]

This standard is issued under the fixed designation F1932/F1932M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

The loft (that is, thickness) of a sleeping bag refers to the total thickness of a closed sleeping bag. It is a physical dimension/measurement used for specifications, design, and quality control. Loft, in and of itself, is not to be used to predict the thermal properties of a sleeping bag.

1. Scope

1.1 This test method covers the determination of the loft of a sleeping bag under a standardized load.

1.2 The test method uses a physical height measurement applicable in the laboratory.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. Within the text, the inch-pound units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the test method.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Terminology

2.1 *Definitions:*

2.1.1 *loft, n*—the total thickness of a closed sleeping bag as measured while the bag is lying flat on a surface.

2.1.2 *sleeping bag, n*—a structure made of down, synthetic fiberfill, shell fabrics, or other materials, or a combination thereof, that is designed for people to use for thermal protection when sleeping (for example, outdoors, tent, cabin).

3. Significance and Use

3.1 In this context, this test method can be used for specifications, design, and quality control. Loft, in and of itself, is not to be used to predict the thermal properties of a sleeping bag.

4. Apparatus

4.1 *Gantry,* a rigid structure of sufficient height and width to span all sleeping bags to be measured is required. A purpose-built device of the sort shown in Fig. 1 may be used, or a structure as simple as an office desk or workbench can suffice.

4.2 *Rule,* having 1-mm [1⁄16-in.] graduations, and long enough to measure the zero height position.

4.3 *Disk,* having diameter of 30 cm [12 in.]. The weight of the disk plus the rule must equal 50 g [1.8 oz] for a pressure of 6.9 Pa [0.001 psi]. Commercially available foam core dry-mount board is suitable. A range of ±1 % in diameter and ±5 % in weight is tolerable. Mark the center of the disk for positioning the rule during the test procedure.

5. Conditioning

5.1 Remove the sleeping bag from the stuff sack, zip the bag closed, and shake it for approximately 1 min, (for example, a person shall hold the bag and shake it, turning it periodically during the shaking). Lay it flat in an uncompressed state for at least 24 h prior to testing. A bag that has not been compressed in the 24 h prior to testing shall be considered to be conditioned (for example, bags drawn directly from production, bags shipped uncompressed, replicate tests).

6. Procedure

6.1 Perform conditioning and testing at ambient temperatures between 10°C and 25°C [55°F and 80°F], and at a relative humidity not exceeding 70 %.

[1] This test method is under the jurisdiction of ASTM Committee F08 on Sports Equipment, Playing Surfaces, and Facilities and is the direct responsibility of Subcommittee F08.22 on Camping Softgoods.

Current edition approved Oct. 1, 2018. Published November 2018. Originally approved in 1998. Last previous edition approved in 2011 as F1932/F1932M – 98 (2011)ε1. DOI: 10.1520/F1932_F1932M-98R18.

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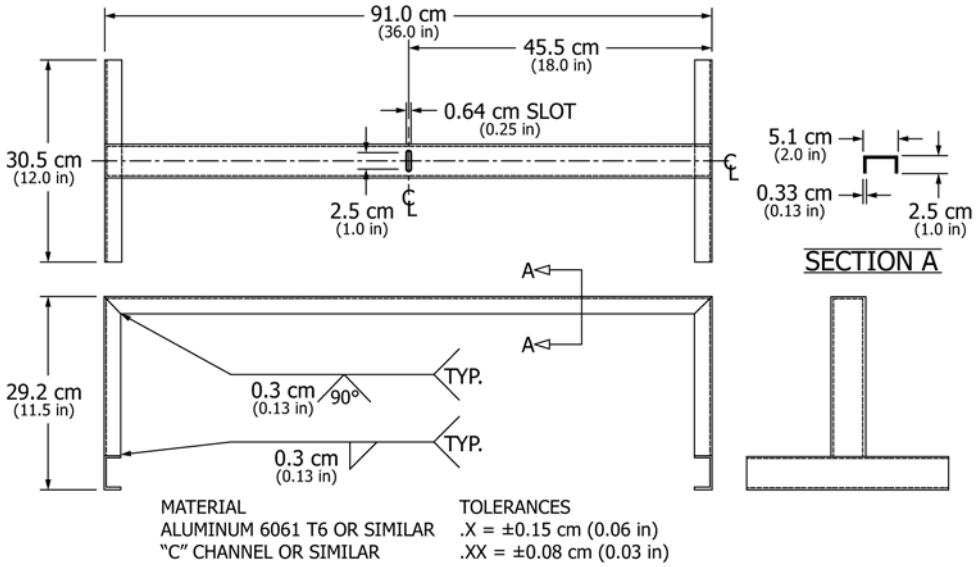

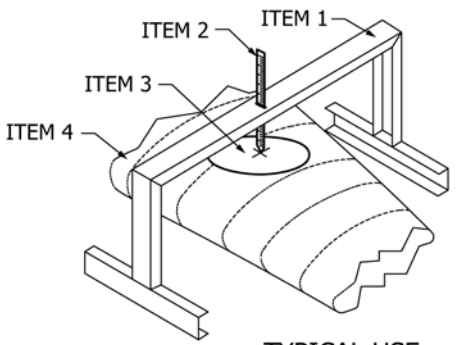

ITEM 1 GANTRY WELDMENT
ITEM 2 RULE
ITEM 3 DISK
ITEM 4 SLEEPING BAG

FIG. 1 Typical Gantry Weldment

6.2 Place the conditioned sleeping bag on a large flat surface and place the gantry on the same surface, spanning the bag. Do not excessively shake or refluff the sleeping bag during placement. Allow the bag to settle for 5 min.

6.3 Place the disk on the center line of the sleeping bag, half of the distance from the outer bottom (foot) end to the outer top (head) end of the bag.

6.4 Position the sleeping bag or gantry, or both, so that the rule is directly over the center of the disk (see Fig. 1).

6.5 Insert the rule vertically through the slot in the gantry. The gantry or sleeping bag, or both, may need to be moved to ensure that the rule contacts the exact center of the disk, while remaining vertical. Allow the rule to rest upon the center of the disk (see Fig. 1).

6.6 *Measurement Alternatives:*

6.6.1 *Difference Method for Loft Derivation*—Read the rule at the top of the gantry (see Fig. 1). Remove the sleeping bag and take a second rule reading of the disk alone on the test surface upon which the sleeping bag had lain. The difference between the two readings is the loft of the sleeping bag.

6.6.2 *Direct Reading Method for Loft Measurement*—Modify the rule or the gantry, or both, to allow for vertical adjustment. Adjust so that the rule reads zero loft (that is, with the disk alone lying on the surface upon which the sleeping bag is to be laid). Read loft directly from the rule.

7. Report

7.1 Report the following information:

7.1.1 State that the sleeping bag was tested as directed in Test Method F1932 and explain any departures from the specified apparatus or procedure,

7.1.2 Describe the sleeping bag that was tested (for example, manufacturer's style and length description; whether prototype, preproduction, or production; type and amount of fill; construction details as applicable: shell and lining materials, baffle construction, differential cut, differential fill, multiple fills, etc.), and

7.1.3 Report the loft to the nearest 1 cm [0.5 in.].

8. Precision and Bias

8.1 *Precision*—The repeatability of the standard deviation has been determined to be ±7 %. The reproducibility of this loft measurement test method is being determined, and will be available by June 1999.

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