



Standard Practice for Measurement of Body Armor Wearers¹

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1. Scope

1.1 The document provides measurement guidance to assist in fitting ballistic-resistant body armor and stab-resistant body armor covering the torso. Proper measurement is necessary to obtain sufficient coverage of the torso and vital organs while allowing the range of motion required for officer operations.

1.2 This document addresses measurements for concealable (normal duty) and tactical (special duty) armor for both male and female wearers.

1.3 This standard does not address area of coverage (that is, how much of the torso is covered by the vest).

1.4 The values stated in inch-pound units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 *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 and health practices and determine the applicability of regulatory limitations prior to use. Some specific hazards statements are given in Section 7 on Hazards.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D5219 Terminology Relating to Body Dimensions for Apparel Sizing

2.2 *National Institute of Justice Standards:*

NIJ Standard-0116.00 CBRN Protective Ensemble Standard for Law Enforcement

3. Terminology

3.1 *Definitions:*

3.1.1 *acromion, n*—that part of the shoulder blade located at the end of the spine, which articulates with the collarbone (that is, clavicle). (Terminology **D5219**.) See **Fig. 1**.

3.1.2 *apex, n*—the greatest protrusion of the breast as seen from the side (Terminology **D5219**). See **Fig. 2**.

3.1.3 *back break-point, n*—the location on the back of the torso where the arm separates from the body. (Terminology **D5219**). See **Fig. 1**.

3.1.4 *bust point to bust point, n*—the horizontal distance from bust apex to bust apex, taken with the arms down. (Terminology **D5219**). See **Figs. 3 and 4**.

3.1.5 *center front length to belt, n*—the vertical distance from bottom of the suprasternal notch to the top of the wearer's duty belt. If the officer has a large abdomen or the duty belt angles down in the front, or both, the measurement should extend to a horizontal plane set at the top of the duty belt in the back; otherwise, when the front panel is made, it may extend too low on the wearer. See **Fig. 4** showing the suprasternal notch, and refer to **Fig. 5** showing the center front length to belt measurement.

3.1.6 *cervicale, n*—the prominent point of the seventh or lowest neck vertebra at the back of the torso (Terminology **D5219**). Refer to **Fig. 1**.

3.1.7 *chest/bust girth, n*—the horizontal circumference around the torso, taken under the arms and across the fullest part of the chest/bust apex including the lower portion of the shoulder blades (Terminology **D5219**). See **Fig. 6** showing the chest/bust girth measurement location.

3.1.8 *clavicle, n*—the long curved bone that connects the upper part of the breastbone with the shoulder blade at the top of each shoulder. The clavicle may also be referred to as the collarbone. See **Fig. 4** showing the location of the clavicle.

3.1.9 *duty belt, n*—a belt worn around the waist by law enforcement personnel to which essential equipment is attached (NIJ Standard-0116.00).

3.1.10 *front break-point, n*—the location on the front of the torso where the arm separates from the torso (Terminology **D5219**). Refer to **Fig. 3**.

3.1.11 *front chest depth, n*—the horizontal distance between the right bust apex and a frontal plane through a point halfway between the front break-point and the back break-point on the right side. See **Fig. 7**.

3.1.12 *height, n*—the vertical distance from the crown of the head to the floor, taken with subject standing and without shoes (Terminology **D5219**). See **Fig. 8**.

¹ This practice is under the jurisdiction of ASTM Committee **E54** on Homeland Security Applications and is the direct responsibility of Subcommittee **E54.04** on Personal Protective Equipment (PPE).

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.