

American National Standard

for Wheelchairs –

**Volume 1:
Requirements and Test Methods for
Wheelchairs (including Scooters)**

**Section 11
Test Dummies**



RESNA

Rehabilitation Engineering and Assistive Technology Society of North America

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Section 11

Test Dummies

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Section 11 Introduction

This section of the RESNA WC-1 standard was developed based on a working draft of ISO 7176-11, dated 2007-02-21. This section stands by itself and is not an amended version of an ISO document. If ISO completes the development of a new 7176-11 standard, this section of RESNA WC-1 shall supercede the ISO version.

This section of RESNA WC-1 describes test dummies to be used in the evaluation of wheelchairs and scooters. Test dummies are used in several wheelchair test methods and are an important component of a laboratory's wheelchair testing equipment.

This section of RESNA WC-1 provides formulas that specify the overall location of the center of mass of wheelchair test dummies, and the mass and location of center of mass of each of their three segments: torso segment, thighs segment, and lower legs segment. This section also specifies locations of hip, knee and ankle pivots. This section also provides specifications for the construction of loading plates for each test dummy segment for the testing of different sizes of wheelchair seating. This section includes formulas for creating a test dummy whose mass is greater than 100 kg by adding mass to a 100 kg test dummy.

Section 11: Test Dummies

1 Scope

This section of RESNA WC-1 provides specifications for a 25 kg test dummy and formulas intended for setting up a test dummy of any mass that is greater than or equal to 50 kg. This section also includes tables of mass and locations of center of mass, which are derived from the formulas, corresponding to nominal test dummy masses of 50 kg, 75 kg, 100 kg, 125 kg, 150 kg, 175 kg, 200 kg, 250 kg and 300 kg. The center of mass of the test dummy is located at approximately the same position as that of a human being of the corresponding mass seated in the wheelchair. This specification does not attempt to represent the mass distribution of a person with limb atrophy or amputation. This section intends to guide the construction of a test dummy that will produce comparable results for stability, performance and durability testing of manual and powered wheelchairs.

2 References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

2.1 Normative references

RESNA WC-1:2009, Section 26: Vocabulary

2.2 Informative references

ASTM C578 - 08 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation

ISO 2439:1997 Flexible cellular polymeric materials – Determination of hardness (indentation technique)

3 Terms and definitions

For the purposes of this document, the terms and definitions given in RESNA WC-1 Sec. 26 and the following apply.