International Standard

ISO 7176/5

Wheelchairs —
Part 5: Determination of overall dimensions, mass and turning space

Fauteuils roulants — Partie 5: Détermination des dimensions hors tout, de la masse et de l'espace de giration

First edition — 1986-03-01

ISO 7176/5-1986 (E)

Price based on 3 pages

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of
national standards bodies (ISO member bodies). The work of preparing International
Standards is normally carried out through ISO technical committees. Each member
body interested in a subject for which a technical committee has been established has
the right to be represented on that committee. International organizations, govern-
mental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to
the member bodies for approval before their acceptance as International Standards by
the ISO Council. They are approved in accordance with ISO procedures requiring at
least 75 % approval by the member bodies voting.

International Standard ISO 7176/5 was prepared by Technical Committee
ISO/TC 173, *Technical systems and aids for disabled or handicapped persons.*

Users should note that all International Standards undergo revision from time to time
and that any reference made herein to any other International Standard implies its
latest edition, unless otherwise stated.

Wheelchairs —
Part 5: Determination of overall dimensions, mass and turning space

0 Introduction

ISO 7176 at present consists of the following parts:

Part 1: Determination of static stability.

Part 2: Determination of dynamic stability of electric wheelchairs.

Part 3: Determination of the efficiency of brakes.

Part 4: Determination of energy consumption of electric wheelchairs.

Part 5: Determination of overall dimensions, mass and turning space.

Part 6: Determination of maximum speed, acceleration and retardation for electric wheelchairs.

Part 7: Determination of seating dimensions — Definitions and measuring methods.

Part 8: Static, impact and fatigue strength for manual wheelchairs.

Part 9: Climatic tests for electric wheelchairs.

Part 10: Determination of the obstacle climbing ability of electric wheelchairs.

Part 11: Test dummies.

Part 12: Determination of tracking characteristics of manual wheelchairs.

Part 13: Determination of the coefficient of friction of test surfaces.

1 Scope and field of application

This part of ISO 7176 specifies methods for determining overall dimensions (both ready for occupation and folded), mass and minimum turning space of wheelchairs (manual and electric).

2 References

ISO 6440, *Wheelchairs — Nomenclature, terms and definitions.*

ISO 7193, *Wheelchairs — Maximum overall dimensions.*

ISO 7930, *Wheelchairs — Type classification based on appearance characteristics.* [1]

3 Definitions

For the purposes of this part of ISO 7176, the definitions given in ISO 6440 and ISO 7193 apply.

4 Test wheelchair

4.1 The wheelchair shall be fitted with all the accessories (e.g. headrest, backrest extension) supplied by the manufacturer and shall be ready for occupation, but unoccupied.

4.2 Wheelchairs for special purposes shall be measured according to the purposes specified.

4.3 If a wheelchair has a variable wheelbase design, the measurements shall be taken at both extremes.

5 Overall dimensions

5.1 Dimensions of wheelchair ready for occupation

5.1.1 Overall length including leg support and footrest

Adjust the leg support/footrest so that the lowest point is 50 mm above the underlay and that the leg support is at an angle of 90° to the seat or the closest possible smaller angle.

---

[1] At present at the stage of draft.

Set the castor wheels for forward running, and the backrest in its upright position.

Measure the horizontal distance between the forwardmost and rearmost part of the wheelchair.

5.1.2 Overall length without leg support and footrest

Set the castor wheels for forward running and the backrest in its upright position.

Measure the horizontal distance between the forwardmost and rearmost part of the wheelchair.

5.1.3 Overall width

Set the castor wheels for forward running.

Measure the maximum width across the wheelchair when it is fully extended with the seat fully stretched out.

5.1.4 Overall height with backrest in the upright position

Set the backrest in the vertical position or the position that is as close to the vertical as possible.

Measure the vertical distance from the underlay to the upper-most point on the wheelchair.

5.2 Dimensions of folded wheelchair

5.2.1 Minimum folded length, $l_{f min}$

Measure the distance between the forwardmost and rearmost part of the wheelchair when it is fully folded.

5.2.2 Minimum folded width, $b_{f min}$

Measure the overall width of the wheelchair when it is fully folded.

5.2.3 Minimum folded height, $h_{f min}$

Measure the distance from the underlay to the uppermost point on the wheelchair when it is fully folded.

5.2.4 Minimum folded volume, $V_{f min}$

Remove all components not requiring the use of a tool and stow them within the wheelchair in such a way that the product of

$$l_{f min} \, b_{f min} \, h_{f min},$$

when these dimensions are redetermined, has its minimum value.

Report this value as the minimum folded volume, $V_{f min}$.

6 Mass

Determine, to the nearest kilogram, the mass of the wheelchair and accessories.

7 Turning space

Before these measurements are taken, adjust the leg support/footrest so that the lowest point is 50 mm above the underlay and that the leg support is at an angle of 90° to the seat or to the closest possible smaller angle. Set the backrest in its upright position.

7.1 Minimum turning radius, $r_{t min}$

Measure the radius of the smallest cylinder inside which the wheelchair can be turned 360° (see figure 1).

7.2 Turn-around width between limiting walls, $b_{t min}$

Measure the minimum width of a "corridor" in which the wheelchair can be turned through 180° by using only one backing operation.

Construct the corridor so that its width is variable.

Turn the wheelchair around in the corridor in the most suitable manner for the particular wheelchair involved. However, only one backing operation is permitted (see figure 2).

Gradually reduce the width of the corridor and determine the minimum corridor width in which the wheelchair can be turned around without touching the walls.

8 Test report

The test report shall contain the following information:

    a)   a reference to this part of ISO 7176;

    b)   the product type and type designation (see ISO 7930);

    c)   the name and address of the manufacturer;

    d)   a photograph of the wheelchair equipped as during test;

    e)   the name and address of the testing institution;

    f)   the overall dimensions, determined to the nearest 10 mm;

    g)   the mass, determined to the nearest kilogram;

    h)   the turning radius and turn-around width, determined to the nearest 10 mm.
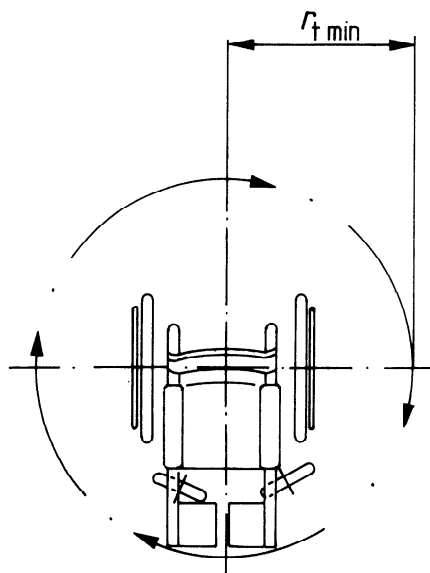
Figure 1 — Minimum turning radius
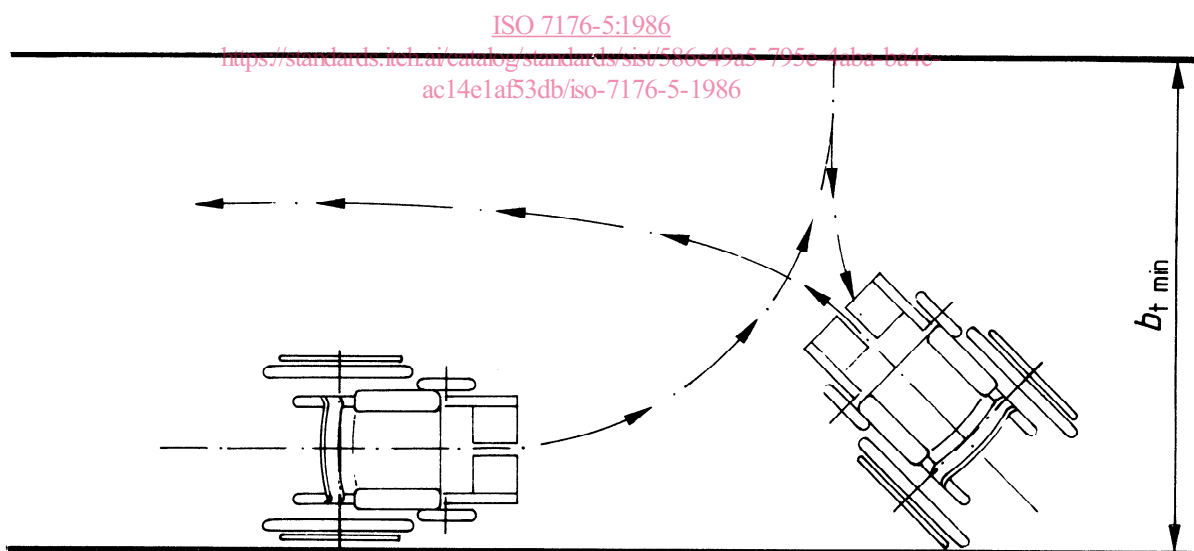
Figure 2 — Minimum turn-around width

This page intentionally left blank