SRI LANKA STANDARD 1255 : PART 5 : 2003
ISO 7176 – 5 : 1986

METHODS OF TEST FOR
NON - FOLDING WHEELCHAIRS
PART 5: DETERMINATION OF OVERALL DIMENSIONS, MASS AND TURNING SPACE
[WHEELCHAIRS-DETERMINATION OF OVERALL DIMENSIONS, MASS AND TURNING SPACE]

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METHODS OF TEST FOR NON - FOLDING WHEELCHAIRS PART 5: DETERMINATION OF OVERALL DIMENSIONS, MASS AND TURNING SPACE [WHEELCHAIRS-DETERMINATION OF OVERALL DIMENSIONS, MASS AND TURNING SPACE]

SLS 1255 : Part 5 : 2003
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Sri Lanak

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

NATIONAL FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 2003-12-19 after it had been approved by the Sectoral Committee on Materials, Mechanical Systems and Manufacturing Engineering.

This Sri Lanka Standards is identical with ISO 7176–5:1986 "Wheelchairs-Determination of overall dimensions, mass and turning space" published by the International Organization for Standardization (ISO).

This standard is published in eight parts as follows:
SLS 1255 Methods of test for non-folding wheelchairs

Part 1 - Determination of static stability
Part 3 - Determination of effectiveness of breaks
Part 5 - Determination of overall dimensions, mass and turning space
Part 7 - Measurement of seating and wheel dimensions
Part 8 - Requirements and test methods for static, impact and fatigue strengths
Part 11 - Test dummies
Part 13 - Determination of coefficient of friction of test surfaces
Part 22 - Set up procedures

Terminology and Convention

The text of this International Standards has been accepted as suitable for publication without deviation, as a Sri Lanka Standard. However, certain terminology and conventions are not identical with those used in Sri Lanka Standards, and hence the attention is drawn to the following:

i) Wherever the words 'International Standard' appear, referring to this standards they should be read as ' Sri Lanka Standard'.
ii) The comma has been used throughout as a decimal marker. In Sri Lanka Standards, the current practice is that a full point on the base line is used as the decimal marker.

In reporting the result of a test or an analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with **CS 102**.

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International Standard 7176/5

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

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

UDC 615.478.32 : 629.013 **Ref. No. ISO 7176/5-1986 (E)**

Descriptors : wheel chairs, tests, determination, dimensions, weight (mass), turning radius.

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, governmental 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.

Printed in Switzerland

INTERNATIONAL STANDARD ISO 7176/5-1986 (E)

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 uppermost 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.

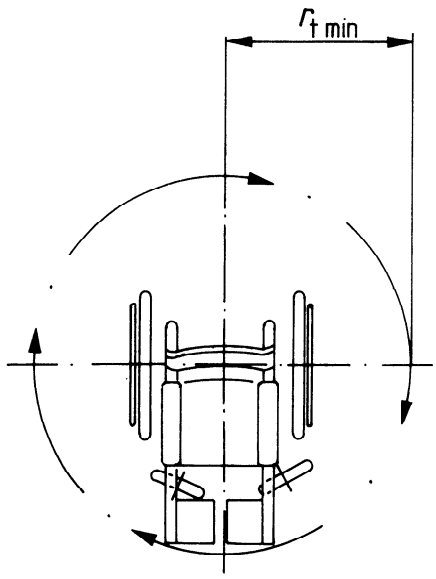

Figure 1 — Minimum turning radius

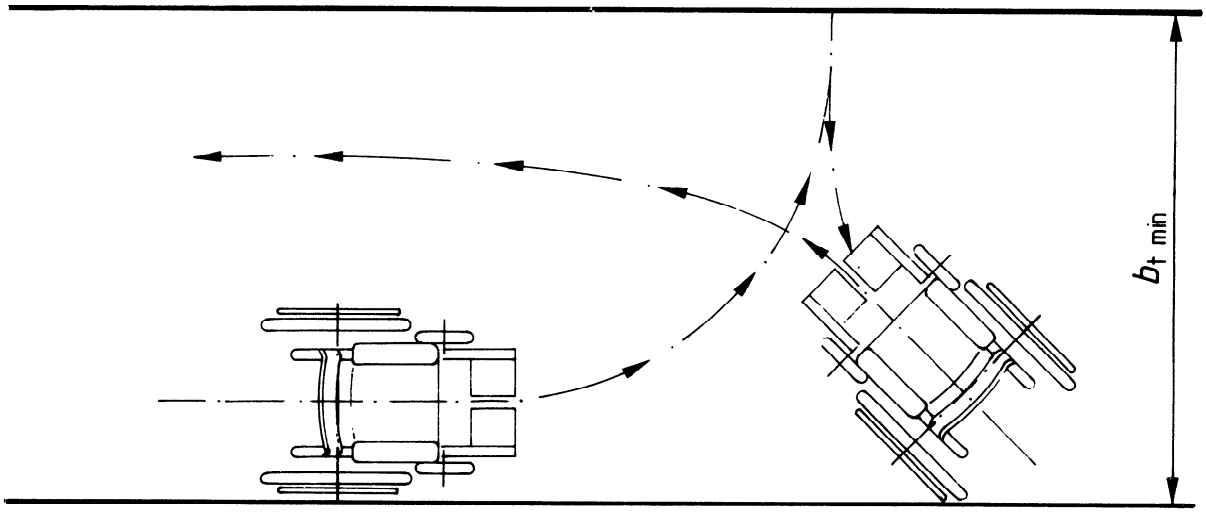

Figure 2 — Minimum turn-around width

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SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science & Technology.

The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of standardization as are of special interest to Sri Lanka.

Printed at the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.

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The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

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