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Walking trolleys — Requirements and test methods

Trolleys de marche — Exigences et méthodes d'essai

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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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee 173, *Assistive products for persons with disability*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Some elderly or disabled persons need assistive products for walking. A rollator as defined in ISO 11199-2 can be used effectively to assist such population, but rollators are unnecessary large for many such people because rollators are designed to host the user inside the frame and to possibly carry the full weight of the user. Walking trolleys are designed to improve stability and balance while the user is located outside the frame. The walking trolley does not carry the full body weight of the user while walking. A walking trolley is substantially lighter and more compact than a rollator while providing necessary support to maintain the stability and balance of the user. Walking trolleys can be equipped with accessories such as seats and shopping bags. Walking trolleys are not intended to be moved with the user on the seat like wheelchairs, rather the seat is provided as a resting seat with brakes engaged. In addition to the requirements in this document, Annex B gives general recommendations.

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Walking trolleys — Requirements and test methods

1 Scope

This document specifies the requirements and test methods for the testing strength, torque, and durability of parts, and stability and running durability as a whole for walking trolleys.

This document also provides requirements relating to general safety, folding and adjusting mechanisms, lifting and carrying means, ergonomics and information supplied by the manufacturer including marking and labelling.

The requirements and tests are based upon every-day usage of walking trolleys as assistive products for walking, for a maximum user mass as specified by the manufacturer. This document includes walking trolleys specified for a user mass of no less than 35kg.

Excluded are rollators specified in ISO 11199-2.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 3746, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane*

ISO 8191-1, *Furniture — Assessment of the ignitability of upholstered furniture — Part 1: Ignition source: smouldering cigarette*

ISO 8191-2, *Furniture — Assessment of ignitability of upholstered furniture — Part 2: Ignition source: match-flame equivalent*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO 10993-1, *Biological evaluation of medical devices — Part 1: Evaluation and testing within a risk management process*

ISO 12100, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

ISO 14155, *Clinical investigation of medical devices for human subjects — Good clinical practice*

ISO 14971, *Medical devices — Application of risk management to medical devices*

ISO 22442-1, *Medical devices utilizing animal tissues and their derivatives — Part 1: Application of risk management*

IEC 60601-1:2005, *Medical electrical equipment — Part 1: General requirements for basic safety and essential performance*

IEC 60695-1-10, *Fire hazard testing — Part 1-10: Guidance for assessing the fire hazard of electrotechnical products — General guidelines*

EN 614-1, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

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3 Terms and definitions

For the purposes of this document, the terms and definitions provided with the following sites apply in addition to the ones described in this clause.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

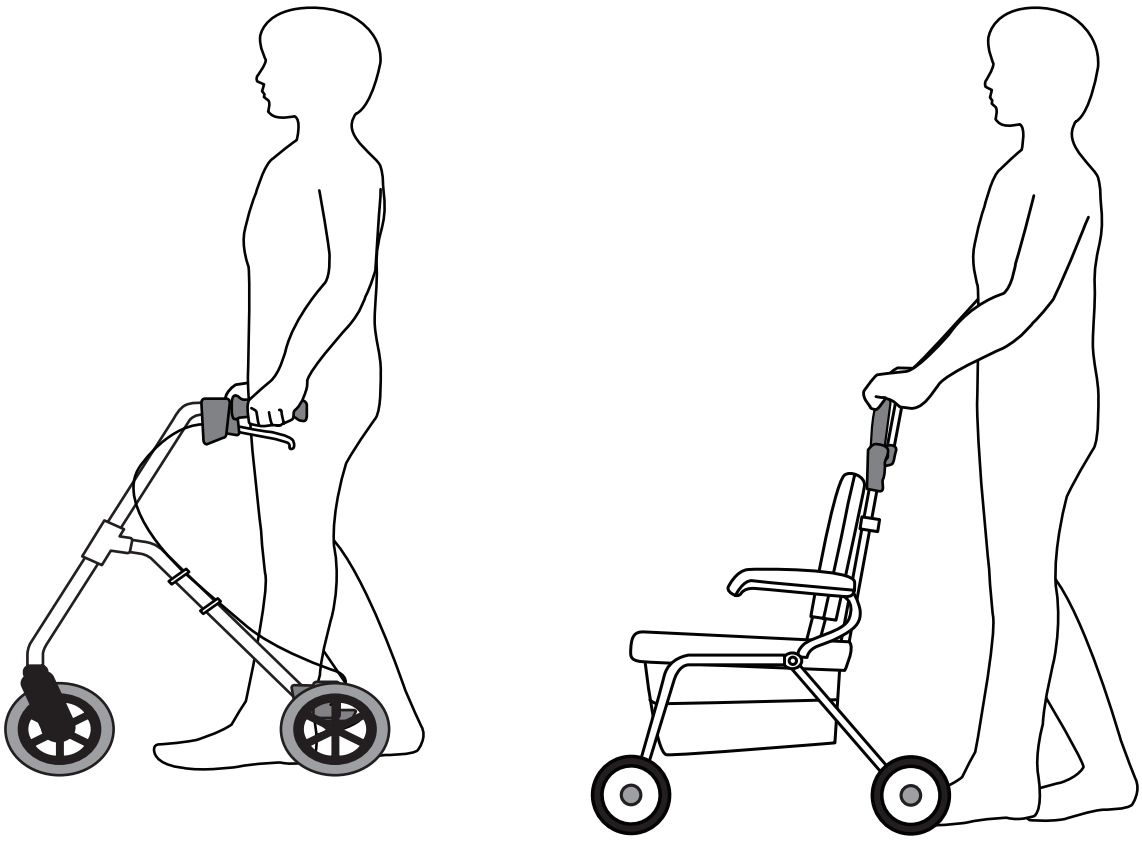
— IEC Electropedia: available at http://www.electropedia.org/

3.1
walking trolley
frames which can be moved by pushing and/or lifting that enable a person to improve stability and balance while walking and standing, with hand grips, without forearm supports and with four or more wheels

Note 1 to entry: All parts are placed in front of the user to guide his/her gait effectively (see Figure 1).

EXAMPLE Walking trolleys with a seat for resting, and/or a bag for carrying goods.

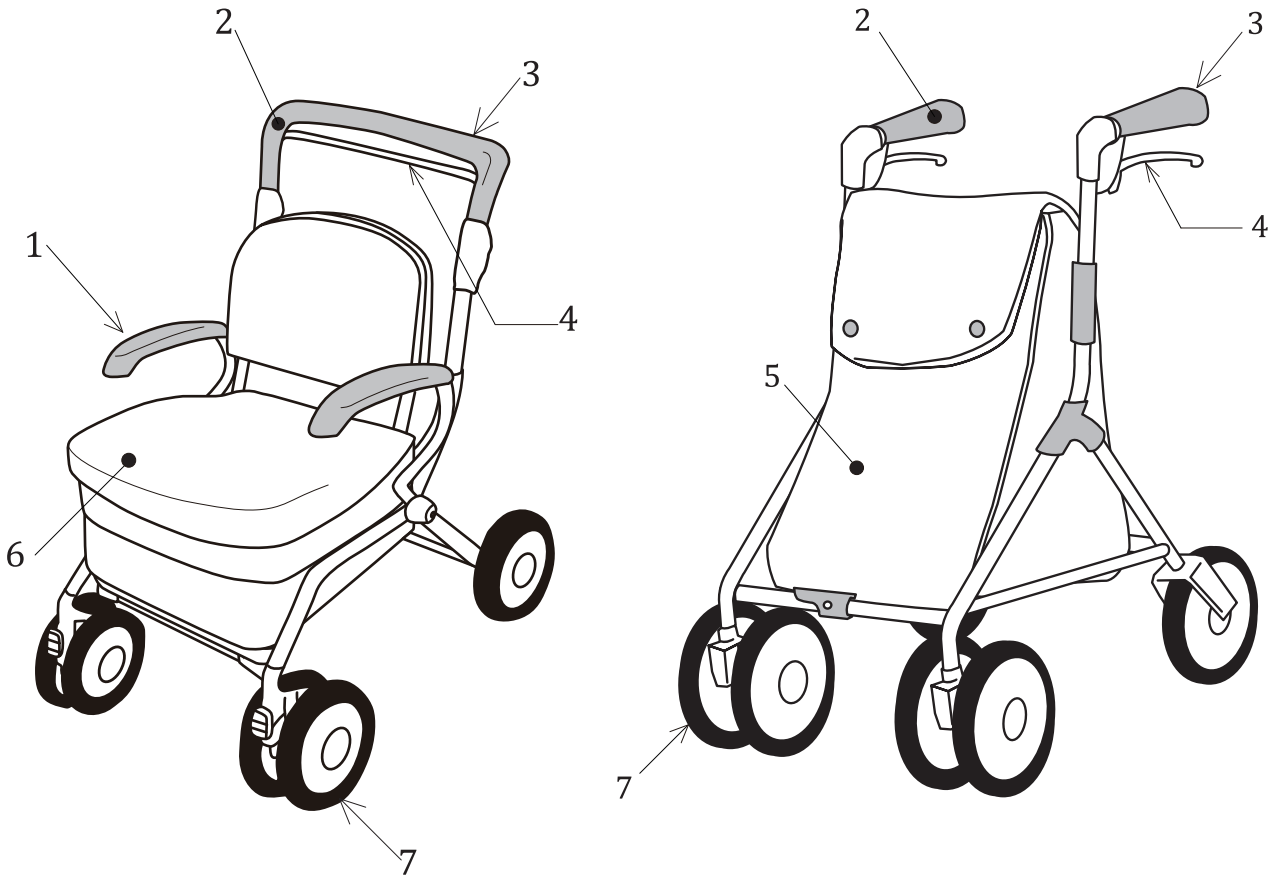
Note 2 to entry: The difference between a walking trolley and a rollator is described in Figure 1.



a) An example of rollators **b) An example of walking trolleys**

Figure 1 — Rollators and walking trolleys

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a) Example of unified-handle type **b) Example of separated-handle type**

Key

1 arm support
2 handle
3 hand grip
4 brake lever
5 bag
6 resting seat
7 caster

Figure 2 — Types and names of each part

3.2
user mass
body mass of the person using walking trolleys

3.3
maximum width
maximum outside dimension of a walking trolley when the width is adjusted at its maximum, measured horizontally at right angles to the direction of movement when the walking trolley is in normal use

3.4
handle height
vertical distance from the highest point of the handle to the ground surface

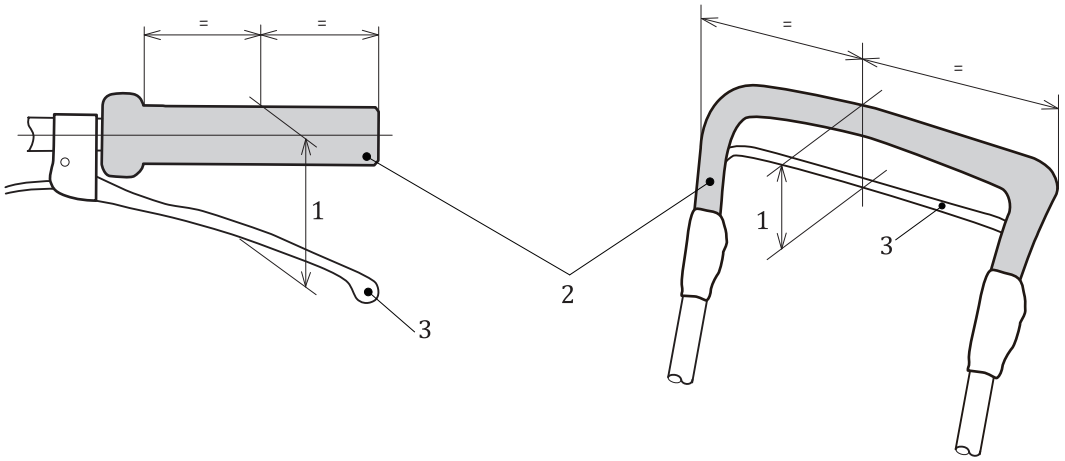
3.5
handgrip
part of the walking trolley which is specified by the manufacturer as normally held by the hand when the walking trolley is in use

Note 1 to entry: See Figure 2 and 3.

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3.6
grip distance
distance between the upper surface of the handgrip and the lower surface of the brake lever measured vertically at the centre of the hand grip

Note 1 to entry: See Figure 3.



a) Example of separated-handle type **b) Example of unified-handle type**

Key
1 grip distance
2 handgrip
3 brake lever

Figure 3 — Details of handle and handgrip

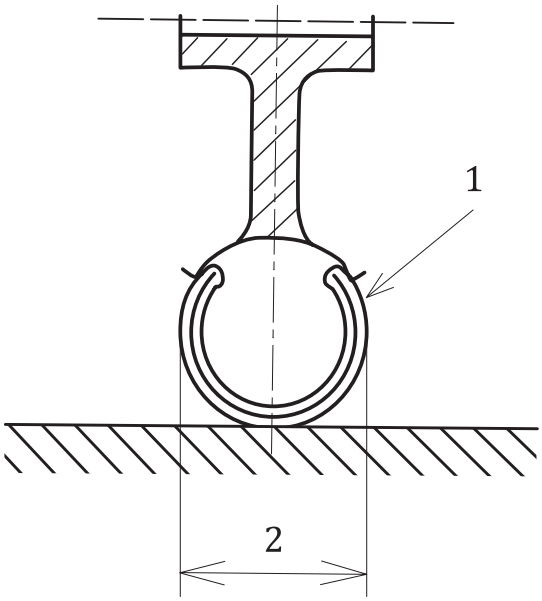
3.7
parking brake
brake to hold the halt condition

3.8
running brake
brake to control the speed while walking

3.9
wheel width
maximum dimension of the tyre of the wheel when the walking trolley is unloaded

Note 1 to entry: See Figure 4.

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Key

1 tyre

2 wheel width

Figure 4 — Wheel width

3.10
resting seat
seat for the user to take a rest when necessary while walking

3.11
shopping bag
bag attached on the walking trolley to carry goods bought

3.12
test plane
flat and stiff floor to place the test product on it

4 General requirements and test methods

4.1 Risk analysis

The safety of a walking trolley shall be assessed by identifying hazards and estimating the risks associated with them using the procedures specified in ISO 14971 and, if relevant, ISO 12100.

When a walking trolley is intended by the manufacturer to be used in combination with a device that is not a medical device the device shall behave in a safe way, as a system.

NOTE 1 In the case of certain disabilities, there is a possible need for higher levels of safety for equipment used to offset the effects of that disability.

NOTE 2 For precise information on the hazard causes a risk, refer to Annex A.

4.2 Intended performance

A walking trolley shall have sufficient strength and durability to sustain all loads expected during intended use. This shall be confirmed by using, as appropriate, references to relevant clinical and

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