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**Walking aids manipulated by both  
arms — Requirements and test  
methods —**

Part 3:  
**Walking tables**

*Aides à la marche manipulées avec les deux bras — Exigences et  
méthodes d'essai —*

*Partie 3: Tables de marche*



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Published in Switzerland

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 11199-3 was prepared by Technical Committee ISO/TC 173, *Assistive products for persons with disability*.

ISO 11199 consists of the following parts, under the general title *Walking aids manipulated by both arms — Requirements and test methods*:

- *Part 1: Walking frames*
- *Part 2: Rollators*
- *Part 3: Walking tables*

# Walking aids manipulated by both arms — Requirements and test methods —

## Part 3: Walking tables

### 1 Scope

This part of ISO 11199 specifies requirements and methods of testing the static stability, braking capabilities, static strength and fatigue of walking tables without accessory equipment, unless specified in the particular test procedure. This part of ISO 11199 also gives requirements relating to safety, ergonomics and performance, marking, labelling and information supplied by the manufacturer.

This part of ISO 11199 includes all walking tables with three or more wheels or tips against the walking surface and having arm supports in the shape of a horizontal supporting table or two horizontal forearm supports.

The requirements and tests are based on everyday usage of walking tables as walking aids, for a maximum user mass as specified by the manufacturer. This part of ISO 11199 includes walking tables specified for a user mass of not less than 35 kg.

NOTE Recommendations further to the requirements given in this part of ISO 11199 are given in Annex A.

### 2 Normative 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.

ISO 9999:1998, *Technical aids for disabled persons — Classification*

ISO 10993-1, *Biological evaluation of medical devices — Part 1: Evaluation and testing*

EN 1041, *Information supplied by the manufacturer with medical devices*

EN 12182:1999, *Technical aids for disabled persons — General requirements and test methods*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1

##### **user**

person for which the walking table is designed to aid mobility

**3.2**

**user mass**

body mass of the user

**3.3**

**walking table**

walking aid with three or more legs with wheels and/or tips and supporting table or horizontal forearm supports, pushed forward by the upper arms, possibly in combination with the upper body

NOTE Classification No.: 12 06 12 in accordance with ISO 9999:2002 (see Figures 1 and 2).

**3.4**

**supporting table**

horizontal part of the walking table, shaped around the upper body, where the arms rest when the walking table is in use

NOTE The supporting table may be in one piece or divided to give the possibility of individual adjustment to suit the user's needs (see Figure 1).

**3.5**

**forearm support**

horizontal, gutter-shaped part of the walking table (one for each arm) where the forearms rest when the walking table is in use

NOTE The forearm supports may be combined with a handle with handgrip to keep the arm in position and may be individually adjustable to suit the user's needs (see Figures 2 and 3).

**3.6**

**folded dimensions**

height, width and length of the walking table measured with the walking table folded into its minimum size without the use of tools

**3.7**

**handgrip**

part of the walking table that is intended by the manufacturer to be held by the hand when the walking table is in use

See Figures 1, 2, 3 and 5.

**3.8**

**handgrip length**

dimension of the handgrip measured along its longitudinal axis where the hand grips

See Figure 5.

**3.9**

**handgrip width**

outside dimension of the handgrip measured perpendicularly to its longitudinal axis, at the thickest point where the hand grips

See Figure 5.

**3.10**

**handle**

part of the walking table to which the handgrip is attached

See Figures 1, 2 and 3.

**3.11****maximum length**

maximum outside dimension of a walking table when the adjustments are at their maximum, measured horizontally and parallel to the direction of movement when the walking table is in use

See Figure 7.

**3.12****maximum width**

maximum outside dimension of a walking table when the adjustments are at their maximum measured horizontally at right angles to the direction of movement when the walking table is in use

See Figure 7.

**3.13****supporting height**

vertical distance from the point where the arm rests on the supporting table or forearm support to the ground

See Figure 7.

**3.14****maximum height**

dimension of a walking table when the adjustments are at their maximum, measured vertically from the highest point down to the walking surface

See Figure 7.

**3.15****turning width**

minimum distance between two parallel limiting walls in between which a walking table can be turned through 180°

NOTE The adjustments shall be set so that the walking table occupies the most space.

**3.16****datum line**

horizontal line on the top surface of the supporting table, positioned at 90° to the direction of travel and situated as follows:

- for supporting tables with handles, 300 mm behind the rear face of the lower part of the handgrips with the handles in the foremost position if adjustable;
- for supporting tables without handles, 300 mm behind the front edge of the supporting table;
- for forearm supports, through the midpoint of the gutter-shaped part even if the distance to the rear face of the lower part of the handgrips is not 300 mm.

See Figure 7.

**3.17****datum point**

midpoint of the datum line

See Figure 7.

**3.18****wheel width**

maximum outside dimension of the tyre of the wheel measured 5 mm up from the walking surface when the walking table is unloaded

See Figure 6.

**3.19**  
**running brakes**

system that may be operated by the user during walking and where the braking depends on the operating force applied

**3.20**  
**parking brakes**

system that keeps the brake engaged after being activated

**3.21**  
**pressure brakes**

running brake that engages when a load is applied on the supporting table or on the forearm supports

See Figure 4.

**3.22**  
**brake grip distance**

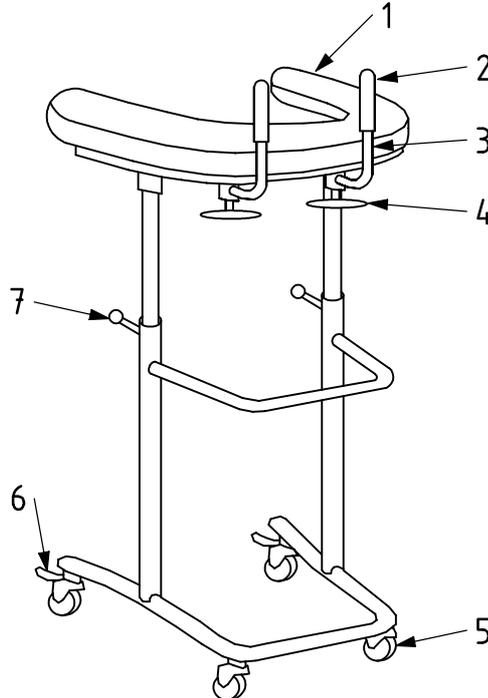
distance measured, with the brake handle in the neutral position, at the midpoint of the handgrip length and normal to the centreline of the handle tubing, from the rear surface of the handgrip to the front surface of the brake handle

See Figure 8.

**3.23**  
**tips**

non-wheeled load-bearing parts of a walking table, which are in contact with the ground during use

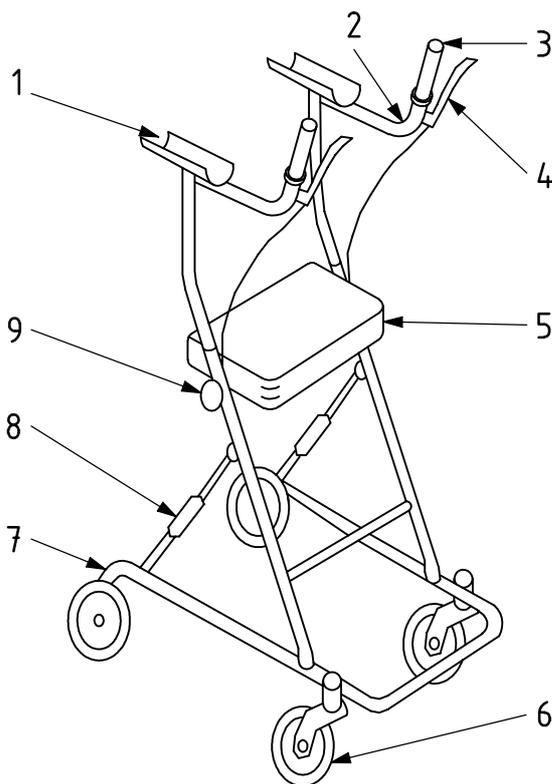
NOTE Tips are also used as pressure brakes on some four-wheeled walking tables in addition to the wheels.



**Key**

- |                     |                     |
|---------------------|---------------------|
| 1 supporting table  | 5 wheel             |
| 2 handgrip          | 6 parking brake     |
| 3 handle            | 7 height adjustment |
| 4 handle adjustment |                     |

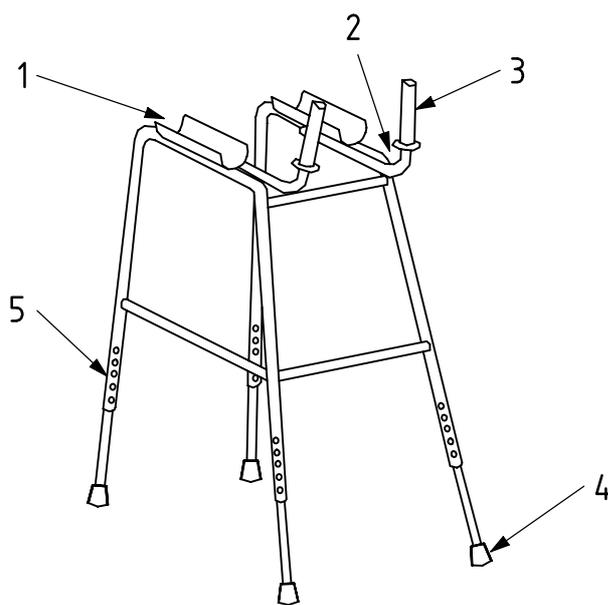
**Figure 1 — Example of a walking table with supporting table and wheels**



**Key**

- |                   |                     |
|-------------------|---------------------|
| 1 forearm support | 6 wheel             |
| 2 handle          | 7 brake             |
| 3 handgrip        | 8 folding mechanism |
| 4 brake handle    | 9 height adjustment |
| 5 resting seat    |                     |

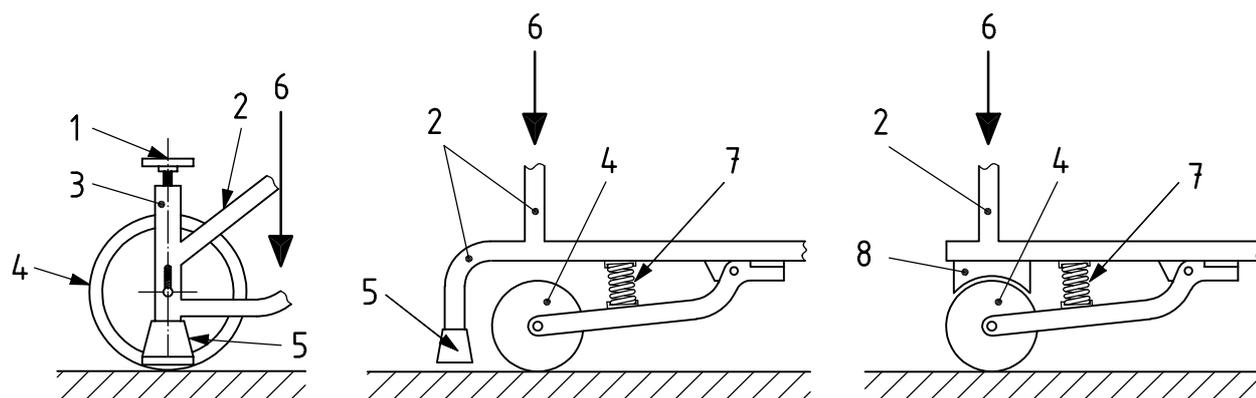
**Figure 2 — Example of a walking table with forearm supports and wheels**



**Key**

- |                     |
|---------------------|
| 1 forearm support   |
| 2 handle            |
| 3 handgrip          |
| 4 rubber tip        |
| 5 height adjustment |

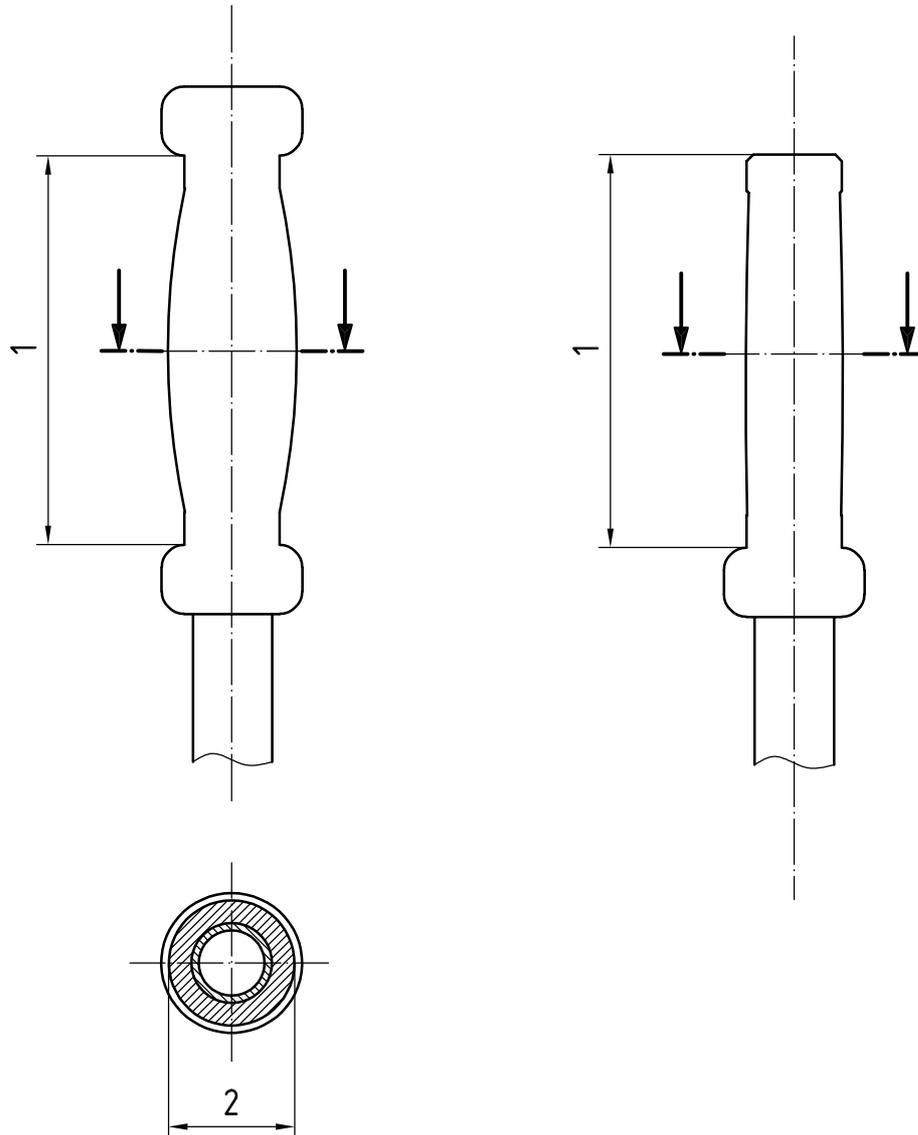
**Figure 3 — Example of a walking table with forearm supports and rubber tips**



**Key**

- 1 spring adjustment handwheel
- 2 walking table frame
- 3 spring and wheel axle housing
- 4 rear wheel
- 5 rubber tip (brake)
- 6 force by user applied via supporting points
- 7 spring
- 8 brake pad

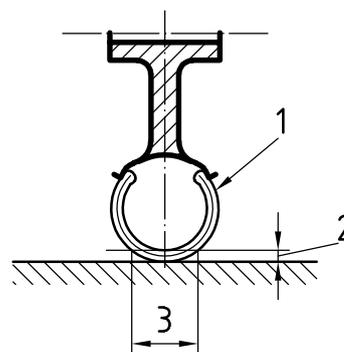
**Figure 4 — Examples of alternative types of pressure brakes with technical details**



**Key**

- 1 handgrip length
- 2 handgrip width

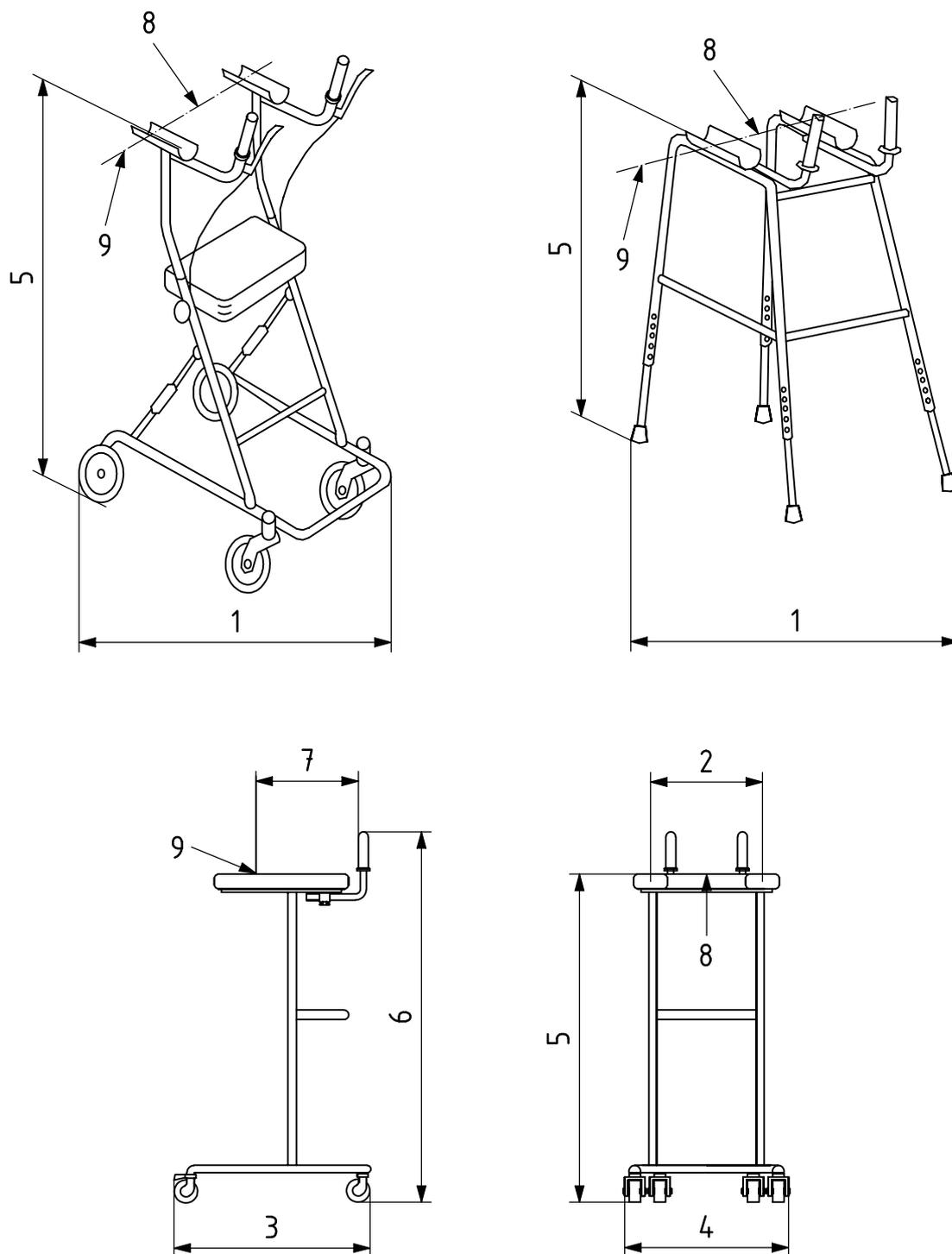
**Figure 5 — Details of a handgrip**



**Key**

- 1 tyre
- 2 0 mm to 5 mm up from the walking surface
- 3 wheel width

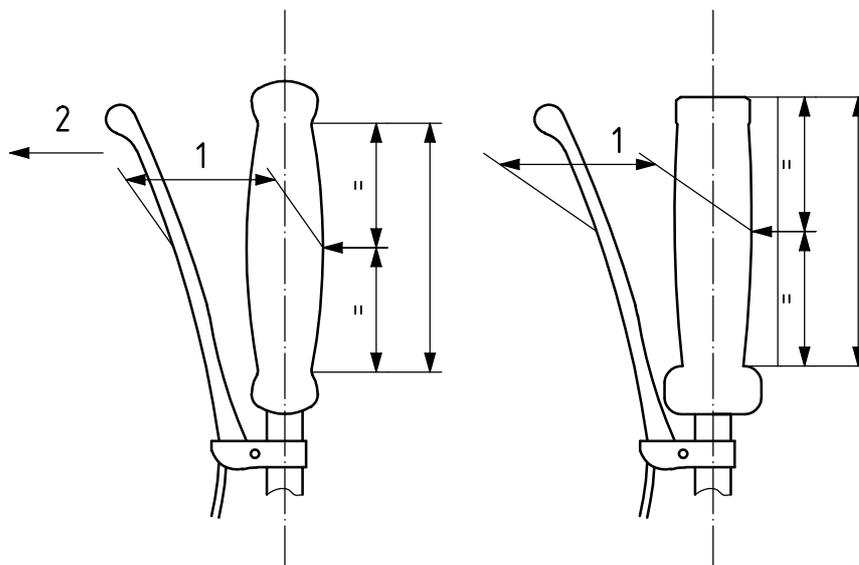
**Figure 6 — Wheel width measurement**



**Key**

- |   |                                 |   |                                       |
|---|---------------------------------|---|---------------------------------------|
| 1 | turning width                   | 6 | maximum height                        |
| 2 | width between supporting points | 7 | distance from handgrips to datum line |
| 3 | maximum length                  | 8 | datum point                           |
| 4 | maximum width                   | 9 | datum line                            |
| 5 | supporting height               |   |                                       |

**Figure 7 — Dimensions of a walking table**



#### Key

- 1 brake grip distance
- 2 front

Figure 8 — Brake grip distance

## 4 Requirements

### 4.1 Stability

When tested according to the forward stability test (see 5.4), the angle of the plane at the point of walking table tilting shall be not less than  $10,0^\circ$  from the horizontal for walking tables intended by the manufacturer for indoor use and  $15,0^\circ$  for those intended for outdoor use.

When tested according to the backward stability test (see 5.5), the angle of the plane at the point of walking table tilting shall be not less than  $4,0^\circ$  from the horizontal for walking tables intended by the manufacturer for indoor use and  $7,0^\circ$  for those intended for outdoor use.

When tested according to the sideways stability test (see 5.6), the angle of the plane at the point of walking table tilting shall be not less than  $3,5^\circ$  from the horizontal for walking tables intended by the manufacturer for indoor use and  $4,5^\circ$  for those intended for outdoor use.

### 4.2 Brakes

All walking tables with more than two wheels and intended by the manufacturer for outdoor use shall have running brakes which are easy to operate by the user when the walking table is in motion.

NOTE 1 Hand-operated brakes and pressure brakes are examples of running brakes.

All walking tables shall have parking brakes, which are easy to operate by the user. They may be integrated with the running brakes.

NOTE 2 Rubber tips are accepted as parking brakes.

If the efficiency of the brakes deteriorates by wear, in order to remain effective they shall have means of adjustment.

Maximum grip distance for operating running brakes shall be not greater than 75 mm measured according to 5.8.2.2 (see Figure 8).

When tested according to the running brake test (see 5.8.2) the walking table shall not move more than 10 mm in 1 min.

Maximum force to apply and release parking brakes shall not exceed 60 N pushing force or 40 N pulling force.

When tested according to the parking brake test (see 5.8.3) the walking table shall not move more than 10 mm in 1 min.

Brake performance shall not be adversely affected by folding, unfolding or adjusting actions. If re-adjustment of the brakes is necessary following an adjusting action of the walking table (e.g. height adjustment), tools shall not be required.

### **4.3 Mechanical durability**

When tested according to the static strength test (see 5.10) no part of the walking table shall crack or break and the permanent set of the walking table height shall not exceed 1 %.

When tested according to the fatigue test (see 5.11) no part of the walking table shall crack or break.

### **4.4 Manoeuvrability**

The wheel diameter shall be not less than 75 mm.

The wheel diameter of walking tables manufactured for outdoor use shall be not less than 180 mm.

The wheel width of walking tables manufactured for outdoor use shall be not less than 22 mm as defined in 3.18.

### **4.5 Handgrip**

The handgrip width shall be not less than 20 mm and not more than 50 mm.

NOTE This requirement does not apply to anatomic handgrips.

The handgrip shall be securely fixed to the handle of the walking table as judged by the inspector.

The handgrip shall be replaceable or easy to clean.

### **4.6 Leg section and tip**

Where there is no wheel, the leg section shall end in a tip of a design that will prevent the leg section from piercing it when the walking table is used as intended by the manufacturer.

Where there is no wheel, the tip shall be replaceable.

Where there is no wheel, the tip shall not cause discolouring of the walking surface, as verified by visual inspection.

That part of the tip that is in contact with the walking surface shall have a minimum area at least covering a circle of diameter 35 mm. Compliance shall be verified by measurement.

When inspected, the rubber tip shall be securely fixed to the leg of the walking table as judged by the inspector.

#### 4.7 Adjusting devices

The handles may be adjustable but shall be securely fixed when in use, as verified by inspection.

Each of the height adjustment devices shall be clearly marked with its maximum permissible elongation.

After the fatigue test (see 5.11), the adjustment/folding mechanisms shall operate as intended by the manufacturer.

Folding walking tables shall lock into working position when unfolded.

#### 4.8 Resting seat

When tested according to 5.9, no part of the walking table shall crack or break.

#### 4.9 Materials and finish

Walking table materials, which come into contact with the human body during intended use, handling, transportation and storage, shall be assessed for bio-compatibility using the guidance given in ISO 10993-1.

The walking table materials shall not cause discolouring of skin or clothing when the walking table is used as intended by the manufacturer.

All parts of the walking table shall be free from burrs, sharp edges or projections that could cause damage to clothing or discomfort to the user and attendant.

#### 4.10 Marking and labelling

User information shall be provided according to Clause 6.

### 5 Test methods

#### 5.1 General

All tests, if not otherwise specified, shall be performed at an ambient temperature of  $21\text{ °C} \pm 5\text{ °C}$ .

If not otherwise specified, all tests shall be performed with the height adjustments at their maximum and swivelling wheels in the least stable position. The handles shall be positioned as far forward as the fastening mechanism is intended. Width-adjustable supporting tables shall be set at maximum width. If adjustable, each forearm support shall be adjusted to the position giving minimum stability, as judged by the testing personnel and at the same time angled inwards at the front as close as possible to  $10^\circ$  in relation to the centreline of the aid in the direction of walking. The angle shall always be recorded.

Parking or running brakes shall not be activated unless specified in the test procedure.

During the stability tests, the wheels shall be in the most unstable position for the test being performed, and the walking table shall be prevented from sliding or rolling before tilting occurs. The results of the tests shall not be influenced by the means used.

If the manufacturer offers alternate fittings as accessory equipment, all alternatives shall be supplied with the walking table when tested so that the walking table may be tested in the least favourable configuration (e.g. with extended handles).

## 5.2 Sampling, sequence of tests and inspection

One (1) walking table shall be tested. The sequence of tests shall be as follows:

- determination of dimensions and mass;
- stability;
- brakes;
- static strength;
- fatigue.

Immediately before being tested, the walking table shall be inspected to check compliance with this part of ISO 11199. Any apparent defects shall be recorded in the test report, so that they shall not later be recorded as having been caused by the tests.

## 5.3 Determination of dimensions and mass

Measurements shall be made in order to classify the manoeuvrability of the product for indoor and outdoor use. All measurements are outside dimensions except for the wheel width.

## 5.4 Forward stability test

### 5.4.1 Loading geometry

Position height adjustment, handgrip adjustment, swivelling wheels and supporting table or forearm supports as specified in 5.1.

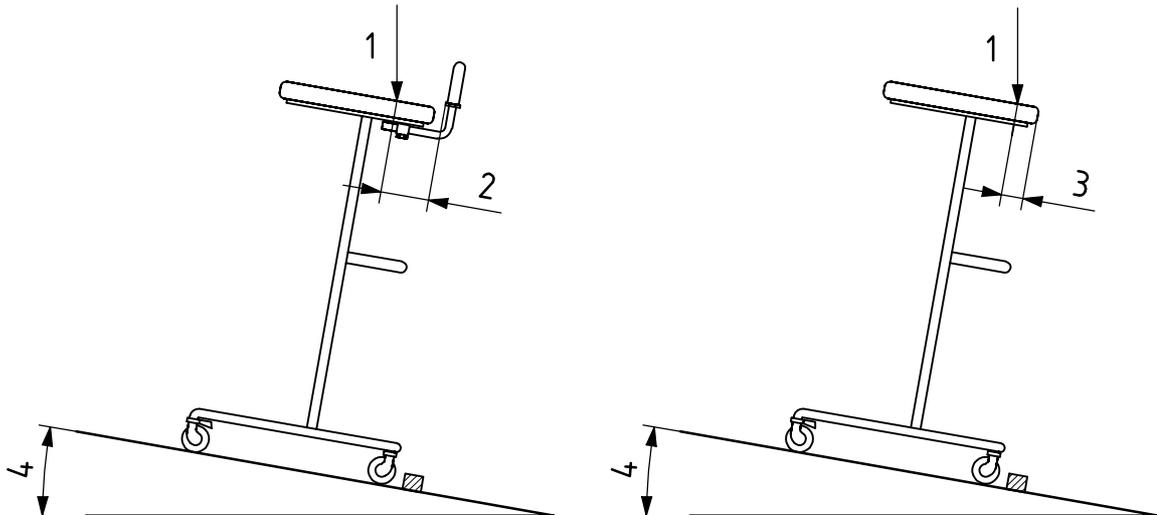
Place the walking table with its wheels and/or tips on a plane that can be tilted from the horizontal so that the walking table is facing downwards when the plane is tilted. The centreline of the hinges shall be parallel to the line through the front tips or to the axis of the front wheels. Front swivelling wheels shall be positioned with the ground contact point to the rear of their castor axis. Rear swivelling wheels shall be positioned with the ground contact point in front of their castor axis.

Apply the loading force vertically to the walking table. The load line shall remain vertical and pass through the midpoint of a line across the supporting table or forearm supports  $135 \text{ mm} \pm 5 \text{ mm}$  behind the lower rear face of the handgrips for walking tables with handles and  $60 \text{ mm} \pm 5 \text{ mm}$  behind the front edge of the supporting table for walking tables without handles (see Figure 9).

If there are no handgrips, position the load  $60 \text{ mm} \pm 5 \text{ mm}$  behind the front end of the supporting table.

### 5.4.2 Procedure

Apply a static force of  $250 \pm 2 \%$ . Tilt the plane and record the maximum angle of the plane rounded down to the nearest  $0,1^\circ$  at the point of walking table tilting. Uncertainty of angle measurement shall be better than or equal to  $\pm 0,5^\circ$ .

**Key**

- 1 load
- 2 135 mm ± 5 mm (with handles)
- 3 60 mm ± 5 mm (without handles)
- 4 tilting angle

**Figure 9 — Loading geometry for forward stability test**

## 5.5 Backward stability test

### 5.5.1 Loading geometry

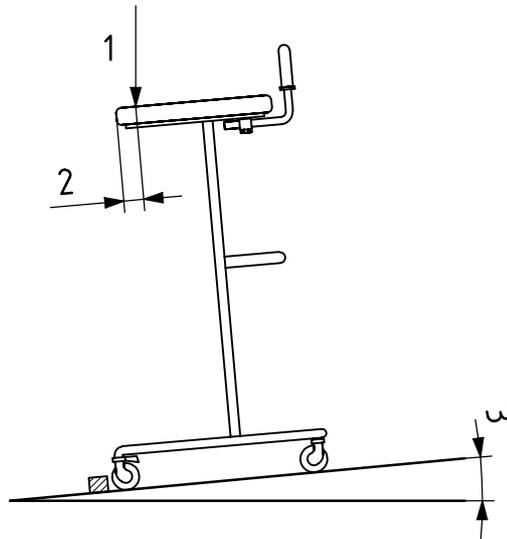
Position height adjustment, swivelling wheels and supporting table or forearm supports as specified in 5.1.

Place the walking table with its wheels and/or tips on a plane that can be tilted from the horizontal so that the walking table is facing upwards when the plane is tilted. The centreline of the hinges shall be parallel to the line through the axis of the rear wheels or tips. Front swivelling wheels shall be positioned with the ground contact point to the rear of their castor axis. Rear swivelling wheels shall be positioned with the ground contact point in front of their castor axis.

Apply the loading force vertically to the walking table. The load line shall remain vertical and pass through the midpoint of a line joining the points 30 mm ± 5 mm in from the rear end of the supporting table or forearm supports (see Figure 10).

### 5.5.2 Procedure

Apply a static force of 250 N ± 2 %. Tilt the plane and record the maximum angle of the plane rounded down to the nearest 0,1° at the point of walking table tilting. Uncertainty of measurement shall be better than or equal to ± 0,5°.



**Key**

- 1 load
- 2 30 mm ± 5 mm
- 3 tilting angle

**Figure 10 — Loading geometry for backwards stability test**

**5.6 Sideways stability test**

**5.6.1 Loading geometry**

Position height adjustment, handgrip adjustment, swivelling wheels and supporting table or forearm supports as specified in 5.1.

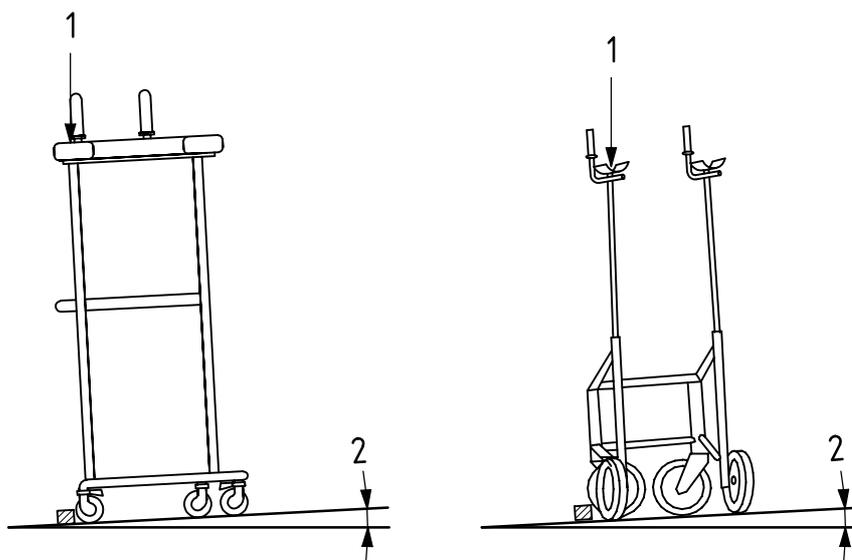
Place the walking table with its wheels and/or tips on a plane that can be tilted from the horizontal so that the walking table faces across the plane. The centreline of the hinges shall be parallel to the line through the centres of the areas of contact between the surface of the plane and the wheels and/or tips on that side of the walking table which is closer to the hinges.

Apply the loading force vertically to the walking table. The load line shall remain vertical and:

- for walking tables with supporting tables, the load line shall go through the point where the datum line intersects the half width of that part of the supporting surface that is closer to the hinges (see Figure 11);
- for walking tables with forearm supports, the load line shall pass through the centre of that forearm support that is closer to the hinges.

**5.6.2 Procedure**

Apply a static force of 250 N ± 2 %. Tilt the plane and record the maximum angle of the plane at the point of walking table tilting to ± 0,1°. Test sideways stability on both sides in this manner and round down the lower value found to the nearest 0,1° and record it as the sideways stability of the walking table. Uncertainty of measurements shall be better than or equal to ± 0,5°.

**Key**

- 1 load
- 2 tilting angle

**Figure 11 — Loading geometry for sideways stability tests**

## 5.7 Accessory equipment

Walking tables being supplied with a drip holder, basket, shopping bag and/or oxygen cylinder holder shall be tested for stability according to 5.4, 5.5 and 5.6 depending on where on the walking table the basket, shopping bag and/or oxygen cylinder holder is affixed. Tests shall be performed with each of the accessories and in combination, affixed to the walking table as recommended by the manufacturer under the worst case conditions for each test. The results of the tests shall be within the limits given in 4.1.

During the tests the drip holder shall be loaded to maximum capacity, the basket or shopping bag shall be loaded to the capacity specified by the manufacturer and the oxygen cylinder shall be full. In the event that no specification has been given for the basket or shopping bag, a bag of sand exerting a force of  $50 \text{ N} \pm 2 \%$  shall be placed, with the sand evenly distributed, in the bottom of the basket or shopping bag.

## 5.8 Brake test

### 5.8.1 Loading geometry

Set height adjustments at their minimum. Set handles, supporting table width and forearm supports as specified in 5.1.

Pressure brakes shall be tested as running brakes only.

Place the walking table with its wheels on a plane that can be tilted from the horizontal with the centreline of the hinges parallel to the line through the axis of the wheels nearest to the hinges of the plane, and at right angles to the normal direction of travel as shown in Figure 9. Apply the loading force vertically to the supporting table or forearm supports with the force application vector being vertical and passing through the datum, as shown in Figure 12.

The loading force shall be  $500 \text{ N} \pm 2 \%$  for a user mass of 100 kg. If the maximum user mass specified for the walking table deviates from a user mass of 100 kg, the loading force shall be  $5,0 \text{ N/kg}$  of the maximum user mass  $\pm 2 \%$ . The loading force shall be not less than  $175 \text{ N} \pm 2 \%$ .

## 5.8.2 Running brakes

### 5.8.2.1 General

If each brake operating device acts on one wheel only, both shall be tested simultaneously. If either brake operating device acts on both wheels (central brakes) each of the brake operating devices shall be tested separately.

### 5.8.2.2 Grip distance measurement

Measure the maximum grip distance and note the figure to the nearest mm (see Figure 8).

For walking tables with pressure brakes there is no grip distance.

### 5.8.2.3 Procedure

Place the walking table facing downwards on the plane with the wheels against the stops (see Figure 9). Position swivelling wheels with their ground contact point to the rear of their castor axes. Apply the load. Activate the brakes by applying to one or each of the running brake operating devices, depending on whether there are central brakes or not, a pulling force of  $40 \text{ N} \pm 2 \%$  or a pushing force of  $60 \text{ N} \pm 2 \%$  along the grip distance, whichever is the motion to activate the brakes. Tilt the plane to an angle of  $6,0^\circ$  from the horizontal. The friction between the braking wheels and the top surface of the plane shall be such that the wheels do not slide. Remove the stops. Leave the walking table for 1 min. If the wheels turn, note the time for the walking table to move over 10 mm.

## 5.8.3 Parking brakes

### 5.8.3.1 General

If each brake operating device acts on one wheel only, both shall be tested simultaneously. If either brake operating device acts on both wheels (central brakes) each of the brake operating devices shall be tested separately.

### 5.8.3.2 Set and release force

Measure the forces necessary to set and to release the parking brakes, to an uncertainty of measurement better than  $\pm 2 \%$ , by applying the force along the grip distance line of each brake operating device and note the figures to the nearest 1 N.

If the brake operating device is a lever that is not operated by squeezing a bar against the handgrip with the fingers, apply the force at a point 20 mm inwards from the end of the lever and in a direction perpendicular to the line connecting the point of force application with the pivot of the lever.

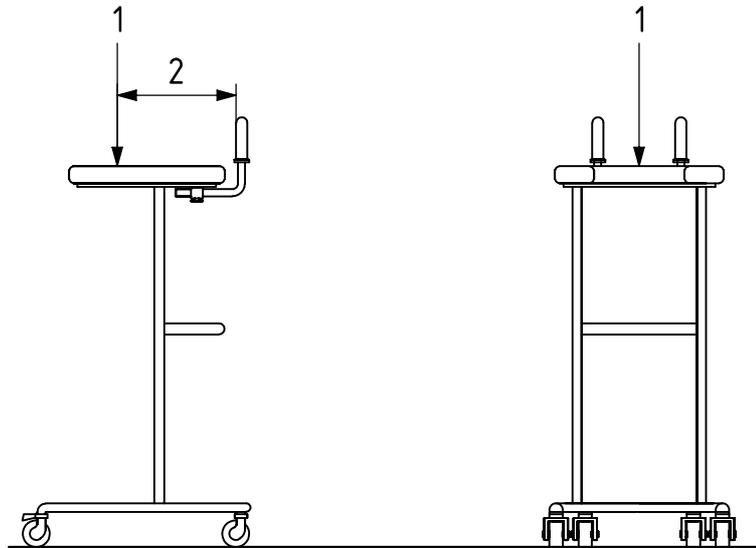
### 5.8.3.3 Forward test

Place the walking table facing downwards relative to the plane tilting, with its wheels against the stops (see Figure 9). Position the swivelling wheels with their ground contact point to the rear of their castor axis. Apply the load.

Engage the parking brakes according to the manufacturer's instructions. Tilt the plane to an angle of  $6,0^\circ \pm 0,5^\circ$  from the horizontal. The friction between the braking wheels and the top surface of the plane shall be such that the wheels do not slide. Remove the stops. Leave the walking table in this position for 1 min. If the wheels turn, note the time for the walking table to move over 10 mm.

### 5.8.3.4 Rearward test

Repeat the test with the walking table facing upwards relative to the plane tilting.



### Key

- 1 load applied through datum
- 2 300 mm

**Figure 12 — Loading geometry for fatigue and static strength tests**

## 5.9 Resting seat test

### 5.9.1 Test dummy

The test dummy shall be of a rectangular construction  $340 \text{ mm} \pm 3 \text{ mm}$  wide, minimum 200 mm deep and high enough to take the test load without deforming significantly. The base of the test dummy shall be lined with cellular foam of density  $75 \text{ kg/m}^3 \pm 15 \text{ kg/m}^3$ . The lining shall be  $15 \text{ mm} \pm 3 \text{ mm}$  thick and be chamfered at approximately  $45^\circ$  at a depth of approximately 10 mm to 15 mm along the side edges.

### 5.9.2 Loading geometry and force

Place the dummy on the seat so that the midpoint of the base of the dummy is vertically aligned with the centre of the resting seat.

Gradually apply a vertical loading force of  $1\,200 \text{ N} \pm 2\%$ , including the force exerted by the mass of the test dummy, to the centre of the resting seat. If the maximum user mass specified for the walking table deviates from a user mass of 100 kg, a force of  $12,0 \text{ N/kg}$  of maximum user mass  $\pm 2\%$  shall be applied. The load shall be not less than  $420 \text{ N} \pm 2\%$ .

Leave the resting seat loaded for a minimum of 1 min.

## 5.10 Static strength test

### 5.10.1 Loading geometry

Position height adjustment, handgrips, width-adjustable supporting table and forearm supports as specified in 5.1. Swivelling wheels shall be positioned with the ground contact point to the rear of their castor axis.

Apply the loading mechanism vertically to the supporting table or forearm supports with the force application vector being vertical and pass through the datum point, as shown in Figure 12.

### **5.10.2 Testing surface**

Place the walking table with its wheels and/or tips on a horizontal stationary surface.

### **5.10.3 Loading force**

Apply a loading force of  $1\,500\text{ N} \pm 2\%$  for a user mass of 100 kg. If the maximum user mass specified for the walking table deviates from a user mass of 100 kg, apply a force of  $15,0\text{ N/kg}$  of user mass  $\pm 2\%$ . The load shall be not less than  $525\text{ N} \pm 2\%$ .

### **5.10.4 Loading time**

Apply the loading force gradually over a minimum of 2 s up to maximum force. Apply this maximum force for a minimum of 5 s.

### **5.10.5 Inspection for damages and permanent set**

Examine for any cracks or fractures and report their presence, location and potential hazard.

Measure the walking table height within an uncertainty of measurement of  $\pm 2\text{ mm}$  before and after performing the strength test. Note the walking table height reduction.

## **5.11 Fatigue test**

### **5.11.1 Loading geometry**

Position height adjustment, handgrips, width-adjustable supporting table and forearm supports as specified in 5.1.

Apply the loading mechanism vertically to the supporting table or forearm supports with the force application vector being vertical and pass through the datum, as shown in Figure 12 with the walking surface moving relative to the walking table.

### **5.11.2 Testing surface**

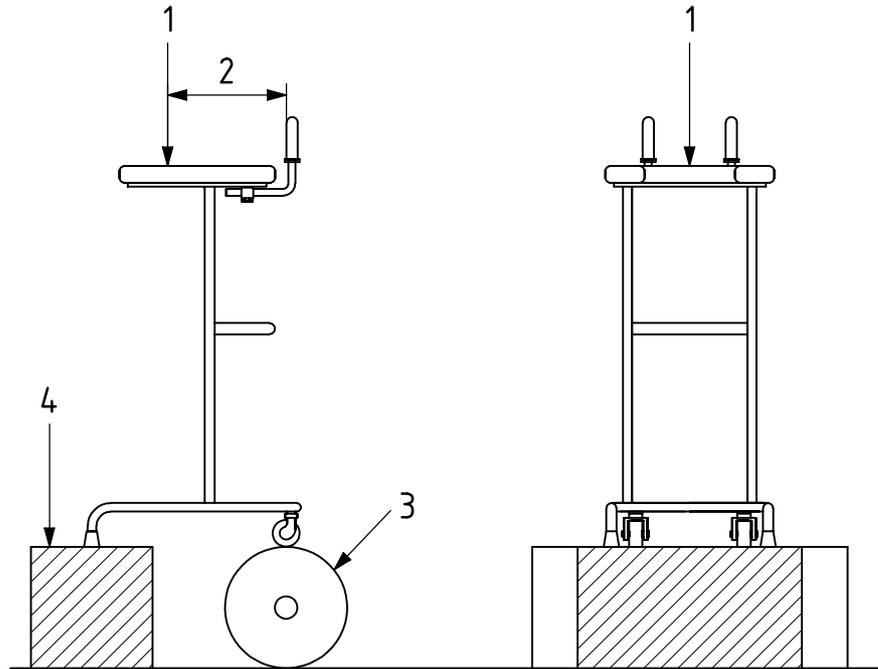
Place the walking table with its wheels on a surface travelling at a speed not less than  $0,4\text{ m/loading cycle}$ , and with its tips or wheels with push-down brakes, if applicable, on a level, horizontal stationary surface. The surface on which the wheels and/or tips are placed shall be at  $90^\circ \pm 2,0^\circ$  relative to the force application vector.

An example of set up of fatigue test for a walking table with two wheels and two rubber tips is shown in Figure 13.

If the travelling surface is a cylinder, the diameter shall be equal to or greater than  $250\text{ mm} \pm 25\text{ mm}$  and the positioning of any of the walking table wheels shall at all times during the test be such that the vertical line through the wheel centre does not deviate from the vertical plane through the centre of the cylinder by more than  $\pm 5\text{ mm}$ .

### **5.11.3 Loading force**

Apply a cyclic force of  $800\text{ N} \pm 2\%$  for a user mass of 100 kg. If the maximum user mass specified for the walking table deviates from a user mass of 100 kg, apply a force of  $8,0\text{ N/kg}$  of user mass  $\pm 2\%$ . The loading force shall be not less than  $280\text{ N} \pm 2\%$ . The waveform of the cyclic loading force shall be of a sinusoidal or smooth kind without exaggerating pulses.



#### Key

- 1 load applied through datum point
- 2 300 mm
- 3 travelling surface
- 4 stationary surface

**Figure 13 — Example of fatigue strength test for a walking table with two wheels and two tips**

#### 5.11.4 Loading frequency

The frequency of the cyclic loading shall not exceed 1 Hz.

#### 5.11.5 Loading cycles

The number of cycles shall be 200 000.

#### 5.11.6 Inspection for damages

Examine for any cracks or fractures and report their presence, location and potential hazard. If failure occurs, record this and the number of load cycles to failure.

#### 5.12 Final inspection

When all tests have been completed, inspect the walking table and its mechanisms and functions for satisfactory operation as specified by the manufacturer.

## 6 Information supplied by the manufacturer

### 6.1 General

The information applied to, and supplied with walking tables shall conform to the relevant parts of EN 1041 together with, but not limited to, the following requirements.

The information shall include advice on which other devices and/or types of device can be used in combination with the walking table in question, and any precautions or limitations needed to ensure user safety, as listed in 6.2 and 6.3.

## **6.2 Information marked on the product and/or accessories**

Each walking table shall be clearly and indelibly marked with the following:

- a) maximum permissible user mass;
- b) maximum safe working load (swl) to be marked on accessories;
- c) manufacturer's name or trade name and address;
- d) manufacturer's model identification name and/or number;
- e) month and year of manufacture;
- f) maximum extension of the height adjustment, marked on the adjusting member;
- g) maximum limits of its adjustment ranges marked on the adjusting members or mechanism;
- h) maximum width of the walking table;
- i) whether or not the walking table is designed for indoor or outdoor use, according to 4.1 and 4.4.

## **6.3 Documentation**

The following information shall be contained in the instructions for use and/or assembly, or clearly and indelibly marked on the product:

- a) maximum supporting height;
- b) minimum supporting height;
- c) maximum walking table turning width;
- d) maintenance instructions including adjustments of brakes for wear and required inspection intervals;
- e) cleaning instructions, including a description of the method and suitable cleaning agents and any precautions needed to avoid corrosion and/or ageing of the materials used in the construction of the walking table;
- f) instructions for assembly, adjustment of all kinds, folding and unfolding;
- g) warnings and advice about precautions relating to safe distances between moving and stationary parts if applicable (see 12 and 13 in EN 12182:1999 for guidance).

NOTE 1 Most countries require that information be in one or more of their official languages.

NOTE 2 The guidance document ISO/IEC Guide 37 will be of help when preparing this information.

NOTE 3 Manufacturers are recommended to present their information in separate parts that cover use, prescription, technical and/or paramedical aspects and medical aspects.

## 7 Test report

The test report shall contain, but not be limited to, the following information:

- a) name and address of the manufacturer;
- b) name and address of the supplier of the product for test;
- c) name and address of the testing institution;
- d) classification code and name in accordance with ISO 9999;
- e) maximum permissible user mass;
- f) manufacturer's type and model identification name and/or number;
- g) supplier's type and model identification name and/or number;
- h) photograph of the walking table;
- i) maximum supporting height;
- j) minimum supporting height;
- k) month and year when the test was performed;
- l) inspection record, as specified in 5.2;
- m) whether or not the product complies with the requirements of this part of ISO 11199;
- n) information on how to get access to the supplementary test report (see A.4) if available.

## **Annex A** (informative)

### **Supplementary information**

#### **A.1 General**

This annex gives supplementary information and guidance on details, which should also be taken into account in the design, manufacture and testing of walking tables.

#### **A.2 Recommendations**

##### **A.2.1 Mechanical durability**

When tested according to the tests specified in 5.8 or 5.9, the walking table should not show any damage such as to impair the use of the walking table or the adjusting mechanism(s).

##### **A.2.2 Handle and handgrip**

The handle may be adjustable but should be securely fixed when in use.

The shape and/or the material of the handgrip should prevent the hand from sliding when gripped.

The material of the handgrip should be non-absorbent.

##### **A.2.3 Leg section and tip**

The tip, if fitted, should be pliable, hard wearing and have a high coefficient of friction against the walking surface.

The tip should be secure when fitted.

##### **A.2.4 Adjusting and folding devices**

It should be possible to operate adjustment and folding devices without the use of tools.

When folded into its position for transport or storage, the walking table should stay folded when lifted. This should be verified by inspection.

##### **A.2.5 Materials and finish**

The walking table should not rattle when in use.

For cleaning purposes, the materials and surface treatments used should withstand ordinary alkaline domestic cleaning detergents or spirits, and be easy to dry. After such cleaning agents have been used, corrosion or ageing of the walking table materials should not accelerate.

### **A.2.6 Light-reflecting material**

Light-reflecting material should be mounted as close as possible to the vertical, as close as possible to right angles to the light intended to be reflected and as low as possible on the walking table (less than 800 mm above the walking surface).

### **A.3 Supplementary information supplied by the manufacturer**

Each walking table should, in addition to the requirements given in Clause 6, be marked with the following:

- a) the supplier's name;
- b) the supplier's model identification name and/or number.

### **A.4 Supplementary Test Report**

The test report should, in addition to the requirements given in 7, contain part of or all the following information:

- a) results of tests described in 5.4;
- b) results of tests described in 5.5;
- c) results of tests described in 5.6;
- d) results of tests described in 5.7;
- e) results of tests described in 5.8;
- f) results of tests described in 5.9;
- g) results of tests described in 5.10;
- h) any findings of interest during the inspection described in 5.11;
- i) maximum walking table height;
- j) maximum walking table width;
- k) maximum walking table length;
- l) maximum walking table turning width;
- m) width between the centrelines of the supporting points;
- n) handgrip width;
- o) folded dimensions;
- p) mass of the walking table without accessories;
- q) whether or not tools are necessary to operate the adjustment and folding devices;
- r) any other relevant information.

## Bibliography

- [1] ISO/IEC Guide 37, *Instructions for use of products of consumer interest*



