ISO 11199-1:2021-05 (E)

Assistive products for walking manipulated by both arms - Requirements and test methods - Part 1: Walking frames

Contents

Page

Foreword ..... **v**

Introduction ..... **vi**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 Apparatus **6**

5 Test conditions **6**

6 General requirements and test methods **7**
6.1 Risk analysis 7
6.2 Walking frames that can be dismantled 8
6.3 Fasteners 8
6.4 User mass/Load limits 8
6.5 Structure requirements 8
6.6 Brakes 8
6.6.1 Requirements 8
6.6.2 Test method 9
6.7 Handgrip 9
6.8 Leg section and tip 9

7 Materials **9**
7.1 General 9
7.2 Flammability 10
7.3 Biocompatibility and toxicity 10
7.4 Infection and microbiological contamination 10
7.4.1 General 10
7.4.2 Cleaning and disinfection 10
7.5 Resistance to corrosion 10

8 Ingress of liquids **10**

9 Temperatures of parts that come in contact with human skin **11**

10 Safety of moving parts **11**
10.1 Squeezing 11
10.2 Mechanical wear 12

11 Prevention of traps for parts of the human body **12**
11.1 Holes and clearances 12
11.2 V-shape openings 12

12 Folding, adjusting and locking mechanisms **12**
12.1 General 12
12.2 Folding mechanisms 13
12.3 Locking mechanisms 13

13 Lifting and carrying handles **13**
13.1 General 13
13.2 Requirement 13
13.3 Test method 14

14 Surfaces, corners and edges **14**

15 Static stability **14**
15.1 Requirements for static stability 14
15.2 Test method for static stability 15
15.2.1 General requirement 15
15.2.2 Forward-direction static stability test 15
15.2.3 Rearward-direction static stability test 16
15.2.4 Sideway-direction static stability test 17

16 Static strength **18**
16.1 Static strength of walking frame 18
16.1.1 General requirement 18
16.1.2 Requirements for static strength of walking frame 18
16.1.3 Test method for static strength of walking frame 18
16.2 Static strength for the legs with tip 19
16.2.1 General requirement 19
16.2.2 Requirements for static strength of the legs with tip 19
16.2.3 Test method for static strength of the legs with tip 19

17 Durability test **20**
17.1 General requirement 20
17.2 Requirement for durability 20
17.3 Test method for durability 20

18 Ergonomic principles **21**

19 Packaging **21**

20 Information supplied by the manufacturer **21**
20.1 General 21
20.2 Information marked on the product 22
20.3 Instruction manual 22
20.4 Test report 23

Annex A (informative) **Consideration items for hazards when designing the products** **25**

Annex B (informative) **General recommendations** **27**

Bibliography **29**