



SLOVENSKI STANDARD SIST EN 13451-2:2002

01-september-2002

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Swimming pool equipment - Part 2: Additional specific safety requirements and test methods for ladders, stepladders and handle bends

Schwimmbadgeräte - Teil 2: Zusätzliche besondere sicherheitstechnische Anforderungen und Prüfverfahren für Leitern, Treppenleitern und Griffbögen

Equipement de piscine - Partie 2: Exigences de sécurité et méthodes d'essai complémentaires spécifiques aux échelles, marches et mains courantes

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13451-2

February 2001

ICS 97.220.10

English version

Swimming pool equipment - Part 2: Additional specific safety requirements and test methods for ladders, stepladders and handle bends

Équipement de piscine - Partie 2: Exigences de sécurité et méthodes d'essai complémentaires spécifiques aux échelles, marches et mains courantes

Schwimmbadgeräte - Teil 2: Zusätzliche besondere sicherheitstechnische Anforderungen und Prüfverfahren für Leitern, Treppenleitern und Griffbögen

This European Standard was approved by CEN on 13 January 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 136 "Sports, playground and other recreational equipment", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2001, and conflicting national standards shall be withdrawn at the latest by August 2001.

SIST EN 13451-2:2002

The European Standard EN 13451 "Swimming pool equipment" consists of

- Part 1: General safety requirements and test methods
- Part 2: Additional specific safety requirements and test methods for ladders, stepladders and handle bends
- Part 3: Additional specific safety requirements and test methods for equipment for water treatment purposes
- Part 4: Additional specific safety requirements and test methods for starting platforms
- Part 5: Additional specific safety requirements and test methods for lane lines
- Part 6: Additional specific safety requirements and test methods for turning boards
- Part 7: Additional specific safety requirements and test methods for water polo goals
- Part 8: Additional specific safety requirements and test methods for leisure water features
- Part 9: Safety signs
- Part 10: Additional specific safety requirements and test methods for diving platforms, diving springboards and associated equipment
- Part 11: Additional specific safety requirements and test methods for moveable pool floors and moveable bulkheads

In Germany, recessed ladders are compulsory, conforming to national regulation (GUV 18.14, clause 4.2.3.1).

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This part of EN 13451 specifies safety requirements for ladders, stepladders and handle bends in addition to the general safety requirements of EN 13451-1:2001.

The requirements of this specific standard take priority over those in EN 13451-1:2001.

This part of EN 13451:2001 is applicable to manufactured ladders, stepladders and handle bends used for pool access and egress.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).

EN 13451-1:2001

Swimming pool equipment – Part 1: General safety requirements and test methods

3 Terms and definitions

For the purposes of this standard the terms and definitions of EN 13451-1:2001 and the following apply:

3.1 ladder: A vertical structure with horizontal treads used for access and egress from the water to the surrounding area.

3.2 stepladder: An inclined structure used for access and egress from the water to the surrounding area.

3.3 tread: The area of the step which comes into contact with the foot of the user while ascending or descending.

3.4 step: Horizontal component intended to bear the load of the user.

3.5 handle bends: Structures designed to assist access and egress from the water to the surrounding area.

4 Safety requirements

4.1 Dimensions

4.1.1 General

The dimensions indicated in the figures 1 to 3 shall be complied with. The design of the equipment doesn't need to comply with the examples given.

4.1.2 Ladders

The cross section of parts designed to be gripped can be round, oval, a rounded rectangular or elliptical and shall be between 25 mm and 50 mm.

NOTE: Recessed ladders not protruding into the pool and asymmetric handle bends splaying to the pool surround are preferred (see foreword).

The height (h) of the ladder handrails from the pool surround shall be between 750 mm and 950 mm.

Hand rails shall lead back to the pool surround.

The handle bends of ladders not completely recessed shall not protrude beyond the vertical plane of the ladders. The handle bends of completely recessed ladders shall not protrude beyond the vertical plane of the pool wall (see figure 4 a).

The rise between each tread (l_1) shall be equal and shall be between 230 mm and 300 mm (see figure 1).

The maximum tolerance shall be $\pm 2,0$ mm.

There shall be a gap of at least 100 mm between the lowest step and the pool bottom.

Dimensions in millimetres

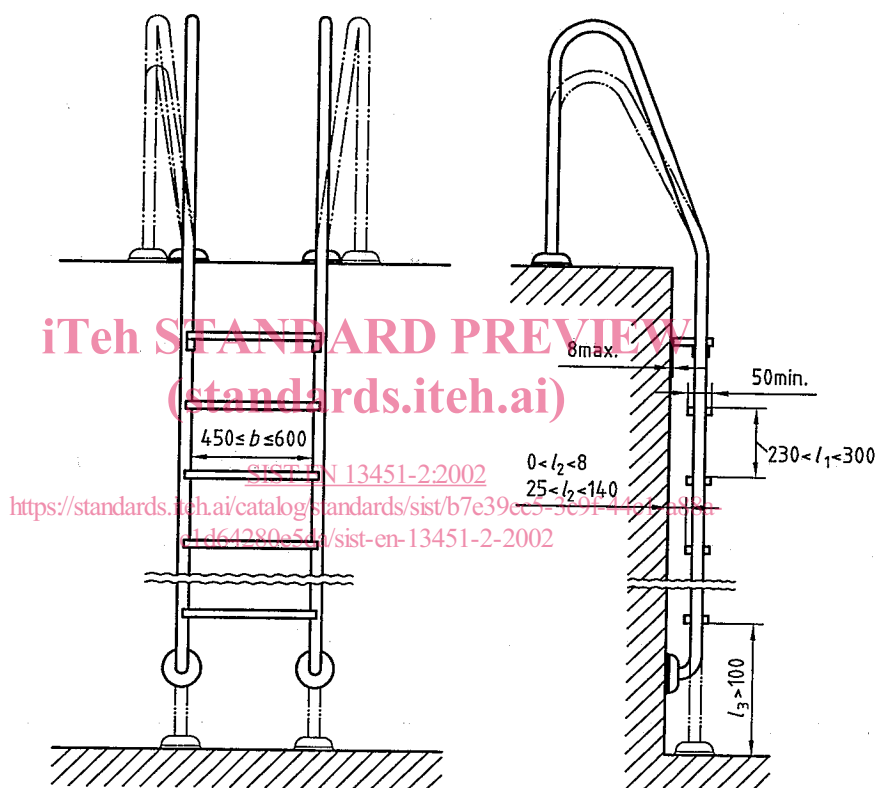


Figure 1: Example of a ladder

4.1.3 Fixed stepladders

Cross section of parts designed to be gripped can be round, oval, a rounded rectangular or elliptical and shall be between 25 mm and 50 mm.

The stepladders shall have handrails at least at the two sides. The ladder handrails shall have a vertical height (h) between 750 mm and 950 mm and shall lead back to the pool surround. The ends of the handrails shall be bent downwards to a radius of at least 50 mm up to the horizontal line or in a curve of not less than 100° . The handrails have the same inclination as the stepladder itself.

The maximum vertical distance between the top surface of two adjacent treads shall be 250 mm. The clear height between two adjacent treads shall be minimum 200 mm for fixed stepladders. The upper tread shall be flush with the edge of the pool border.

The maximum angle of inclination with the horizontal shall be 45°.

The front edge of the upper step and the back edge of the lower step shall be on the same vertical plane or the treads shall be overlapping.

Dimensions in millimetres

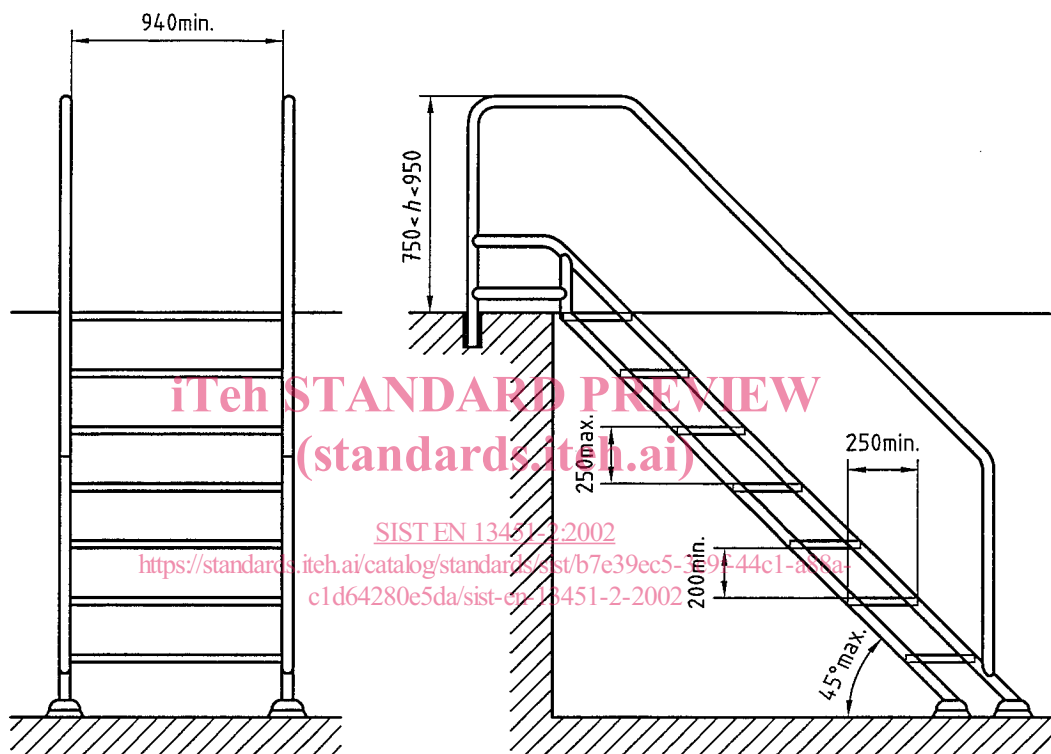
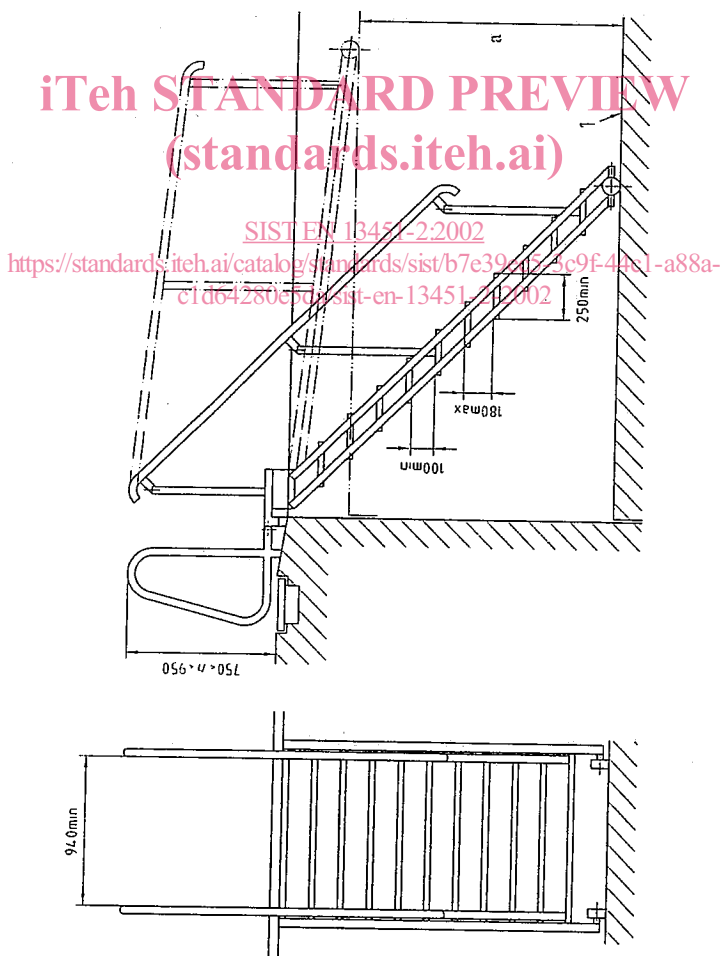


Figure 2: Fixed stepladder

4.1.4 Variable stepladders

Variable stepladders are designed to be used in conjunction with movable floors. The handrails have the same inclination as the stepladder itself. The clear height between two adjacent treads shall be minimum 100 mm for variable stepladders.

Dimensions in millimetres



Key
 a Range of adjustment
 1 Movable floor

Figure 3: Variable stepladder

4.1.5 Treads

The treads of ladders shall have a minimum width (b) of 450 mm, a maximum width (b) of 600 mm and a minimum depth of 50 mm. The treads of both fixed and variable stepladders shall have a minimum width of 940 mm and a minimum depth of 250 mm. Circular tubular rungs are not allowed.

4.1.6 Handle bends

They can be an integral part of a ladder, a separate component of a ladder or can be used in association with built in structures.

The cross sections of parts designed to be gripped can be round, oval, a rounded rectangular or elliptical and shall be between 25 mm and 50 mm.

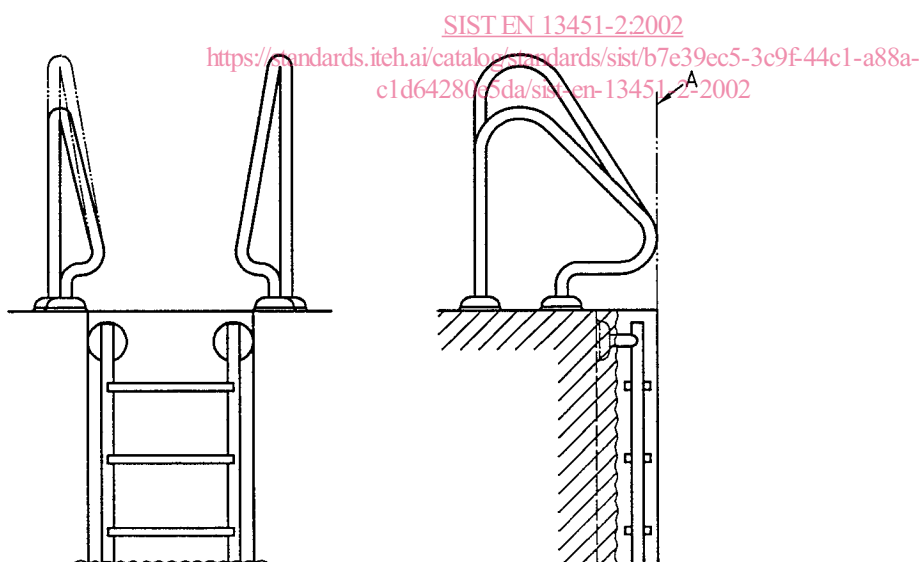
NOTE: Recessed ladders not protruding into the pool and asymmetric handle bends splaying to the pool surround are preferred (see foreword).

The height (h) of the handrails shall be between 750 mm and 950 mm from the pool surround.

The handle bends of ladders not completely recessed shall not protrude beyond the vertical plane of the ladders, see figures 4 b).

The handle bends of completely recessed ladders shall not protrude beyond the vertical plane of the pool wall, see figure 4 a).

The handrails shall have a height from the pool surround between 750 mm and 950 mm, and shall lead the user onto the pool surround.



a) Recessed ladder