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**Stavbno okovje, pritrjevalni sistemi za okna in zastekljena vrata – Zahteve in preskusne metode – 11. del: Obrnjeno okovje za izbočena okna s sklopnimi krili**

**(istoveten CEN/TS 13126-11:2004)**

Building hardware, fittings for windows and door height windows - Requirements and test methods - Part 11: Top hung projecting reversible hardware

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English version

**Building hardware, fittings for windows and door height windows  
- Requirements and test methods - Part 11: Top hung projecting  
reversible hardware**

Quincaillerie pour le bâtiment, ferrures de fenêtres et  
portes-fenêtres - Prescription et méthodes d'essais - Partie  
11 : Ferrures pour ouvrants à l'italienne réversibles à axe  
horizontal supérieur

Baueschläge - Beschläge für Fenster und Fenstertüren -  
Anforderungen und Prüfverfahren - Teil 11:  
Umkehbeschläge für auskragende Schwing-  
Klappflügel Fenster

This Technical Specification (CEN/TS) was approved by CEN on 18 August 2003 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
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## Contents

	Page
Foreword.....	3
1 Scope .....	4
2 Normative references .....	4
3 Terms and definitions.....	4
4 Classification.....	4
5 Requirements .....	5
6 Test apparatus.....	5
7 Test methods.....	5
Annex A (informative) Typical apparatus showing specimens .....	8
Annex B (normative) Flow chart of test sequence.....	9

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## Foreword

This document (CEN/TS 13126-11:2004) has been prepared by Technical Committee CEN/TC 33 "Doors, windows, shutters, building hardware and curtain walling", the secretariat of which is held by AFNOR.

A full contribution to the preparation of this Technical Specification has been made by the European manufacturers organisation 'ARGE' and National Standards institutions.

This Technical Specification is one of a series of Technical Specifications dedicated to building hardware products. It is divided into seventeen parts to incorporate all types of windows and door height windows.

Informative annex A of CEN/TS 13126-1 gives detailed schedules of the elements of components of the seventeen parts of this Technical Specification.

Normative annex B of CEN/TS 13126-1 gives schedules of the elements of components used on the 21 types of window opening functions.

Normative and informative annex to all parts of this Technical Specification are indicated in the content of the seventeen parts.

The performance tests incorporated in this standard are considered to be reproducible and as such will provide a consistent and objective assessment of the performance of these products throughout CEN Member States.

Annex A is informative while annex B is normative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## 1 Scope

This part of CEN/TS 13126 gives requirements and test methods for durability, strength, security and function of top hung projecting reversible hardware for windows and door height windows.

## 2 Normative references

This Technical Specification 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 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 1670, *Building hardware – Corrosion resistance – Requirements and test methods.*

EN 12519:2004, *Windows and doors - Terminology*

CEN/TS 13126-1:2004, *Building hardware – Fittings for windows and door height windows – Requirements and test methods - Part 1: Requirements common to all types of fittings.*

## 3 Terms and definitions

For the purposes of this Technical Specification, the terms and definitions given in EN 12519:2004 for windows and doors, and the following apply:

### 3.1

#### **top-hung projecting reversible hardware**

complete hinge mechanism consisting sliding rails fitted into the jambs of the window, together with arms and gliders connecting leaf and frame, which allows the window to open outward without projecting into the room and enables the leaf to be fully reversed for cleaning from inside

## 4 Classification

### 4.1 General

The classification for top-hung projecting reversible hardware shall be in accordance with the requirements of clause 4 in CEN/TS 13126-1:2004.

### 4.2 Category of use (first digit)

No requirement.

### 4.3 Durability (second digit)

Grades shall be in accordance with 4.3 of CEN/TS 13126-1:2004.

### 4.4 Mass (third digit)

Grades shall be in accordance with 4.4 of CEN/TS 13126-1:2004.

### 4.5 Fire resistance (fourth digit)

Grades shall be in accordance with 4.5 of CEN/TS 13126-1:2004.

#### 4.6 Safety in use (fifth digit)

Grades shall be in accordance with 4.6 of CEN/TS 13126-1:2004.

#### 4.7 Corrosion resistance (sixth digit)

Grades shall be in accordance with 4.7 of CEN/TS 13126-1:2004.

#### 4.8 Security (seventh digit)

Grades shall be in accordance with 4.8 of CEN/TS 13126-1:2004.

#### 4.9 Application (eighth digit)

Only one grade is identified :

- grade 1 : for use on all top-hung projecting reversible casements.

#### 4.10 Size limitations (ninth digit)

The designated window/door height window size in which the component has been tested shall be stated in accordance with the designated number listed in Table 3 of CEN/TS 13126-1:2004.

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### 5 Requirements

#### 5.1 General

The requirements of top-hung projecting reversible fittings shall be met in accordance with clause 5 of CEN/TS 13126-1:2004.

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#### 5.2 Additional requirement

On completion of the static load test specified in clause 7 the top-hung projecting reversible fitting shall continue to operate normally. The maximum distance between the bottom rail and the sill shall not increase by more than 1 mm.

### 6 Test apparatus

The top-hung projecting reversible hardware shall be mounted in a test apparatus as specified in clause 6 of CEN/TS 13126-1:2004 in accordance with the manufacturer's fixing instructions.

### 7 Test methods

#### 7.1 Samples

Three samples shall be used for testing to this Technical Specification:

- sample A – performance tests ;
- sample B – corrosion tests ;
- sample C – retained for reference control.

If a specimen fails to meet the appropriate acceptance requirements, two further specimens shall be tested. A pass of the second test shall be accepted but failure shall be recorded accordingly.

There shall be no breakage of any part.

## 7.2 Test procedure

Measure and record the distance between the bottom rail of the casement and the sill when closed.

NOTE Any fastening device should not be engaged when measuring the distance between the bottom rail and the sill

The specimen shall be tested for durability before it is tested for mechanical strength.

Cycling in test 7.3 shall be at the rate of 250 cycles/h  $^{+25}_0$  cycles/h, for the number of cycles according to the grade selected.

— grade 3 : 10 000 cycles  $^{+500}_0$  cycles ;

— grade 4 : 15 000 cycles  $^{+750}_0$  cycles ;

— grade 5 : 20 000 cycles  $^{+1000}_0$  cycles.

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## 7.3 Durability test

Cycle the test leaf from the fully closed to the fully open position of between 30° and 90° ± 2° of opening angle, whichever is the less.

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Cycle the leaf in accordance with 8.3 of CEN/TS 13126-1:2004.

After completion of the test, measure and record the distance between the bottom rail of the casement and sill.

The fitting may be lubricated at intervals during the test in accordance with the manufacturer's published fixing instructions.

On completion of each 5 000 cycles, all moving parts requiring lubrication, shall be lubricated unless the hardware is claimed to be maintenance free.

## 7.4 Static load test

Measure and record the distance between the top rail of the casement and the head of the frame.

Measure and record the distance between the bottom rail of the casement and sill.

Open the casement to 90° ± 2° . Secure the bottom rail of the casement in this position (see Figure A.1).

— Apply a load  $F = 500 \text{ N } ^{+25}_0$  N without shock, in intervals of  $100 \text{ N } ^{+5}_0$  N, for  $60 \text{ s } ^{+10}_0$  s to the centre of the top rail.

Return the casement to the closed position.

Measure and record the distance between the top rail of the casement and the head of the frame.

Measure and record the distance between the bottom rail of the casement and sill.



The distance shall not increase by more than 1 mm.

Greater increases indicate a failure of the test.

## **7.5 Corrosion resistance**

### **7.5.1 Neutral salt spray test**

The fitting shall be mounted in a fixture similar to a window or door height window application and subjected to a neutral salt spray test in accordance with EN 1670 to determine the ability to operate after environmental exposure.

Lubrication is permitted at the commencement of the test, as recommended by the manufacturer in the installation instructions.

The fitting shall be operated once every 24 h during the test.

### **7.5.2 Repeat durability test**

Immediately following the neutral salt spray test the fitting shall be subjected to the durability test specified in 7.3. The fitting shall be operated 20 times and the operating forces shall be measured and recorded during the final three cycles.

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