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**Varovalna oprema za borilne športe – 6. del: Dodatne zahteve in preskusne metode za ščitnike za ženske prsi**

Protective equipment for martial arts - Part 6: Additional requirements and test methods for breast protectors for females

Schutzausrüstung für den Kampfsport - Teil 6: Zusätzliche Anforderungen und Prüfverfahren für Brustschützer für Frauen

Équipement de protection pour les arts martiaux - Partie 6 : Exigences et méthodes d'essai complémentaires pour protecteurs de poitrine pour femme

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**Ta slovenski standard je istoveten z: EN 13277-6:2003**

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| 13.340.10 | Varovalna obleka           | Protective clothing     |
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**SIST EN 13277-6:2003****en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 13277-6**

April 2003

ICS 13.340.10

English version

**Protective equipment for martial arts - Part 6: Additional  
requirements and test methods for breast protectors for females**

Équipement de protection pour les arts martiaux - Partie 6:  
Exigences et méthodes d'essai complémentaires pour  
protecteurs de poitrine pour femme

Schutzausrüstung für den Kampfsport - Teil 6: Zusätzliche  
Anforderungen und Prüfverfahren für Brustschützer für  
Frauen

This European Standard was approved by CEN on 28 February 2003.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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## Foreword

This document (EN 13277-6:2003) has been prepared by Technical Committee CEN/TC 162 "Protective clothing including hand and arm protection and lifejackets", the secretariat of which is held by DIN.

This document 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 October 2003, and conflicting national standards shall be withdrawn at the latest by October 2003.

This standard is the sixth part of a series covering requirements for protective equipment used in martial arts. Part 1 deals with general requirements and test methods and the other parts deal with specific areas of the body.

Part 1: General requirements and test methods.

Part 2: Additional requirements and test methods for instep protectors, shin protectors and forearm protectors.

Part 3: Additional requirements and test methods for trunk protectors.

Part 4: Additional requirements and test methods for head protectors.

Part 5: Additional requirements and test methods for genital protectors and abdominal protectors.

Part 6: Additional requirements and test methods for breast protectors for females.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative annex ZA, which is an integral part of this document.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

**EN 13277-6:2003 (E)****1 Scope**

This European Standard specifies additional requirements and test methods for breast protectors for females used in unarmed martial arts such as Taekwondo, Karate, Kick-Boxing and similar disciplines.

**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 13277-1:2000, *Protective equipment for martial arts — Part 1: General requirements and test methods*.

**3 Terms and definitions**

For the purposes of this European Standard the terms and definitions given in EN 13277-1:2000 and the following apply.

**3.1****under bust girth**

horizontal girth of the body immediately below the breasts measured as for the bust girth

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**4 Requirements**

[SIST EN 13277-6:2003](https://standards.iteh.ai/catalog/standards/sist/9d7d44cd-c514-4170-8b1b-c9eb037d997a/sist-en-13277-6-2003)

**4.1 General**

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The general requirements for breast protectors for females shall be the same as those given in EN 13277-1.

Edges of hard material shall be

- a) covered with soft padding material, or
- b) so designed that they end parallel to the body surface.

Breast protectors for females shall be so designed that they adapt to the breast of the wearer.

**4.2 Sizing**

Breast protectors shall be sized against the wearer's under bust girth and the brassière cup size which is normally worn.

The size shall be marked on the protector. It shall be explained in the information supplied by the manufacturer.

**4.3 Combinations**

Breast protectors can be used in combination with other protectors used in martial arts.

If combined use is allowed, the requirements specified for the individual protector shall also apply. Possible combinations shall be indicated in the information supplied by the manufacturer. If combined use is not allowed by the manufacturer, this restriction shall be clearly indicated in the information supplied by the manufacturer.

#### 4.4 Restraint

A restraint system shall be supplied by the manufacturer which enables the user to attach the breast protector without any assistance.

The restraint system shall meet the requirements defined in EN 13277-1:2000, 4.4.

#### 4.5 Zone of protection

Location and dimensions of the zone of protection shall be as given in Figure 1 and Table 1.

In case of domed breast protector Figure 1 and Table 1 define the dimensions of a plane projection of the zone of protection.

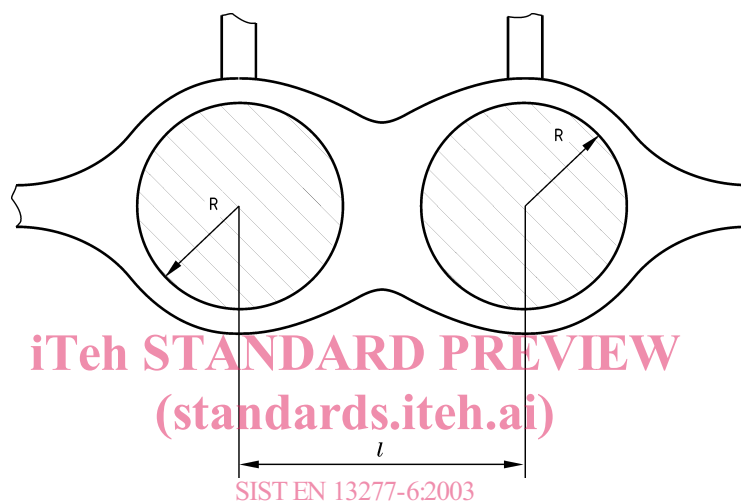


Figure 1 — Location and dimensions of the zone of protection of breast protectors

Table 1 — Zone of protection of breast protectors for females

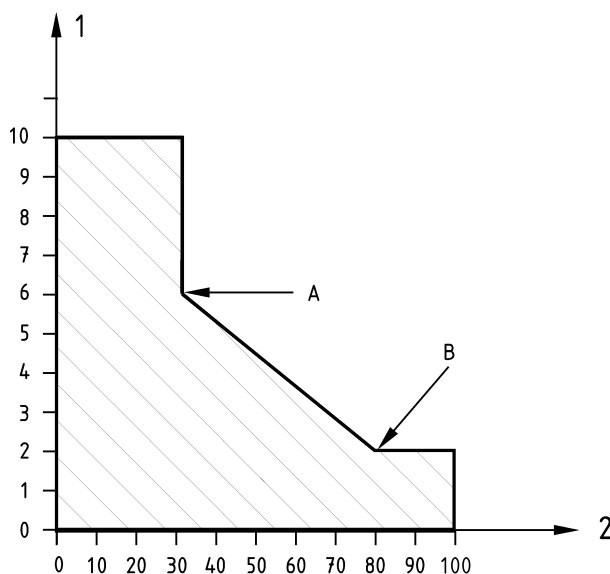
Dimensions in centimetres

| Wearer's under bust girth | Brassière cup | $l$        | $R$<br>min. |
|---------------------------|---------------|------------|-------------|
| < 70                      | AA, A, B      | $14 \pm 2$ | 4,5         |
|                           | C, D          | $15 \pm 2$ | 5,5         |
| 70 to 80                  | A, B          | $15 \pm 2$ | 5,0         |
|                           | C, D          | $16 \pm 2$ | 6,0         |
| > 80 to 90                | A, B          | $16 \pm 2$ | 5,5         |
|                           | C, D          | $17 \pm 2$ | 6,5         |
| > 90 to 100               | A, B          | $17 \pm 2$ | 6,0         |
|                           | C, D          | $18 \pm 2$ | 7,0         |
|                           | E to G        | $19 \pm 2$ | 8,0         |
| > 100                     | A, B          | $19 \pm 2$ | 7,0         |
|                           | C, D          | $20 \pm 2$ | 8,0         |
|                           | E to H        | $21 \pm 2$ | 9,0         |

## EN 13277-6:2003 (E)

## 4.6 Impact performance

Breast protectors for females conform to this European Standard if the highest peak force recorded according to 5.6.1 and the highest relative deformation of all individual tests calculated according to 5.6.2 are within the hatched area shown in Figure 2.



## Key

- 1 Force measured according to 5.6.1, in kN  
 2 Relative deformation according to 5.6.2, in %

- A 6 kN and 30 % relative deformation  
 B 2 kN and 80 % relative deformation

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Figure 2 — Diagram for evaluating the conformance with the impact performance requirements

## 5 Testing

## 5.1 General

If no specific test is specified, the requirements of this standard shall be tested by measurement, visual inspection, tactile examination etc.

For the tests new, unused protectors shall be used.

## 5.2 Sampling

Sampling shall be carried out in accordance with EN 13277-1:2000, 5.1.

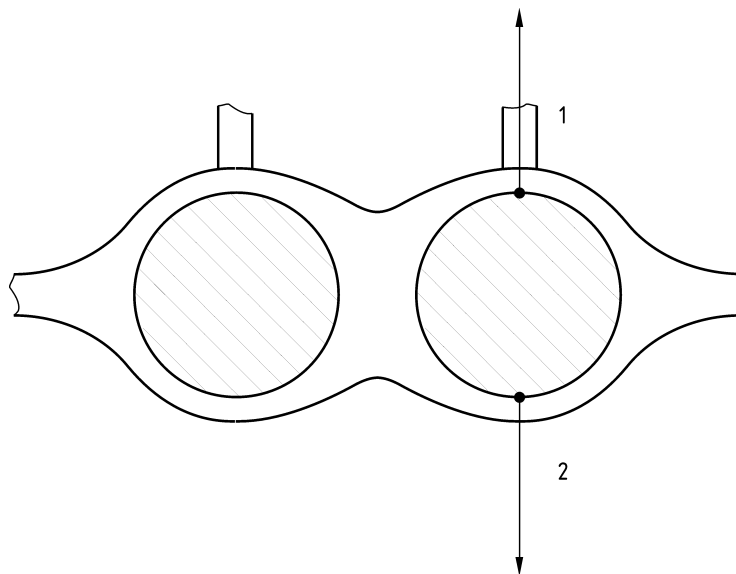
## 5.3 Conditioning

Conditioning is carried out in accordance with EN 13277-1:2000, 5.2.

## 5.4 Restraint

Restraint testing shall be carried out as defined in EN 13277-1:2000, 5.4. When testing the restraint, the protector shall be attached to a dummy or to a model body part, or shall be put on by a subject. The dummy, the model body part or subject shall have dimensions within those specified by the manufacturer for users of the product.

A test force of  $(20 \pm 1)$  N shall be applied as close as possible on the limits of the zone of protection as shown in Figure 3 vertically up and down.



#### Key

1 and 2 Order of the test directions

**Figure 3 — Test directions at breast protectors**  
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## 5.5 Zone of protection

When tested in accordance with EN 13277-1:2000, 5.5, the protector shall be placed in its natural unloaded shape on a flat surface. The gauge shall be placed flat onto the surface of the zone of protection. In case of an anatomically shaped protector, the gauge shall be positioned onto the back side or a gauge frame can be used.

When the position of best coverage of the gauge is found, the outline of the gauge shall be marked on the protector. This outline shall be projected to the front surface of the protector.

## 5.6 Impact performance

### 5.6.1 Force attenuation test

#### 5.6.1.1 Apparatus

The principle of the test is shown in Figure 4.