



**FEDERATION INTERNATIONALE DE SKI  
INTERNATIONAL SKI FEDERATION  
INTERNATIONALER SKI VERBAND**

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**SPECIFICATIONS FOR  
COMPETITION EQUIPMENT AND  
COMMERCIAL MARKINGS**

**Edition 2009/10  
(valid as from the season 2009/10)**

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**INTERNATIONAL SKI FEDERATION**  
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## **Specifications for Competition Ski Equipment**

### **A. Definition**

#### **1. Competition equipment**

The term „competition equipment“ implies all items of equipment used by athletes in competitive skiing, including clothing and implements that serve a technical function. The entire competition equipment forms a functional unit. In this connection the following points must be observed:

- a) the principle of safety
- b) the principle of fairness

#### **1.1 Competition implements**

Competition implements refer to equipment which fulfil essential functions during the competition but which can be separated from the actual competition.

Examples: skis, bindings, boots, poles, clothing, helmets, ski goggles.

#### **1.2 Additional equipment (accessories)**

Additional competition equipment (accessories) are those components or implements which exert an influence on the technical function of the competition equipment and which are attached directly to the equipment by means of recognised fastenings. Such accessories do not perform essential functions during the competition.

Example: parablacks, plastic tip covers, additional weights, back protectors.

#### **1.3 Auxiliary equipment**

Auxiliary equipment refers to those components of the competition equipment which do not fulfil an essential function, and which do not fall under the heading of additional equipment

Example: measuring instruments.

### **2. Commercial Marking on Equipment**

Specifications on pages 38 to 41

### **B. Alpine Competition Equipment**

#### **Downhill, Slalom, Giant Slalom, Super G**

Measurements are valid only if they have been carried out by appointed FIS equipment measurement experts using official FIS measurement tools.

Measurements are valid at the time of measurement, irrespective of previous measurements.

#### **1. Alpine racing skis**

##### **1.1 Definition**

Skis, predominantly for use in Downhill, Slalom, Giant Slalom and Super-G, racing on suitable terrain and utilising the force of gravity. In order to

allow transmission of lateral forces, the edges of the running surface of the ski are made mainly of a hard material resistant to wear and tear.

## 1.2 Restrictions

### 1.2.1 Geometric features

For MAS racers the following specifications in regard to ski length and radius (except Super-G) are recommendations only. However specifications for Super-G skis are compulsory also for MAS racers.

#### 1.2.1.1 Ski length

Minimum length "developed" length (unwound length) in accordance with ISO Norm including a measurement tolerance of +/- 1 cm. The ski length must be marked on the ski.

##### Downhill

|                 |                          |
|-----------------|--------------------------|
| Ladies:         | 210 cm                   |
| Ladies FIS/ENL: | 210 cm / -5 cm tolerance |
| Men:            | 215 cm                   |
| Men FIS/ENL:    | 215 cm / -5 cm tolerance |

##### Super-G

|  |                            |
|--|----------------------------|
| Ladies:                                  | 200 cm                     |
| Ladies FIS/ENL:                          | 200 cm / -5 cm tolerance   |
| Ladies MAS (Giant Slalom Skis permitted) | 180 cm / without tolerance |
| Men:                                     | 205 cm                     |
| Men FIS/ENL:                             | 205 cm / -5 cm tolerance   |
| Men MAS (Giant Slalom Skis permitted)    | 185 cm / without tolerance |
| Children II:                             | 175 cm                     |

##### Giant Slalom

|                 |                          |
|-----------------|--------------------------|
| Ladies:         | 180 cm                   |
| Ladies FIS/ENL: | 180 cm / -5 cm tolerance |
| Ladies MAS:     | 180 cm / -5 cm tolerance |
| Men:            | 185 cm                   |
| Men FIS/ENL:    | 185 cm / -5 cm tolerance |
| Men MAS:        | 185 cm / -5 cm tolerance |

##### Slalom

|                                    |                           |
|------------------------------------|---------------------------|
| Ladies:                            | 155 cm                    |
| Men:                               | 165 cm                    |
| Men Junior I at FIS and ENL races: | 165 cm / -10 cm tolerance |
| Children I & II:                   | 130 cm                    |

##### MAS:

No length restriction for Ladies over the age of 60 and Men over the age of 70.

##### Precision for the length of Slalom Skis:

When a ski tip different from the main body of the ski is used, the measurement will only be taken into account to the extent it covers a surface corresponding to the natural shape of the ski.

The manufacturer must mark the tip showing the limit of the natural shape and thereby allow an easy measurement.

To prevent doubt, specific designs of ski tips as part of the main body of the ski are allowed.

Recommendation for children younger than 11 years

For children younger than 11 years: Use only one pair of skis in all events if the ski length is shorter than 130 cm.

#### 1.2.1.2 *Profile width*

Minimum width of the running surface at binding without any tolerance.

|                   |               |
|-------------------|---------------|
| DH Ladies' & Men: | minimum 67 mm |
| SG Ladies' & Men: | minimum 65 mm |
| GS Ladies' & Men: | minimum 65 mm |
| SL Ladies' & Men: | minimum 63 mm |

#### 1.2.1.3 *Radius*

The radius must be marked on the ski.

Downhill

|               |              |
|---------------|--------------|
| Ladies & Men: | minimum 45 m |
|---------------|--------------|

Radius measurement for DH skis with a preparation tolerance of -1 m.

Super-G

|               |              |
|---------------|--------------|
| Ladies & Men: | minimum 33 m |
| Children II:  | minimum 27 m |

Giant Slalom

|              |              |
|--------------|--------------|
| Ladies:      | minimum 23 m |
| Men:         | minimum 27 m |
| Children II: | minimum 17 m |
| Children I:  | minimum 14 m |

#### 1.2.1.4 *Overall height of sectional view*

No limitations.

#### 1.2.1.5 *Camber*

No limitations.

#### 1.2.1.6 *Contour, length and height of shovel*

|                          |                               |
|--------------------------|-------------------------------|
| Slalom and Giant Slalom: | minimum height per ski: 50 mm |
| Downhill and Super G:    | minimum height per ski: 30 mm |

#### 1.2.1.7 *Contour of tail*

Maximum height: 10 mm.

#### 1.2.1.8 *Running surface*

No limitations

#### 1.2.1.9 *Running Groove*

No limitations

**1.2.2      *Flexibility***

No limitations with regard to the rigidity in all grades of flex.

**1.2.3      *Mass***

No limitation with regard to weight and distribution of mass.

**1.2.4      *Construction***

**1.2.4.1    *Type***

No limitation with regard to composite structure.

**1.2.4.2    *Ski components***

Running surface: no limitations with regard to material and dimensions.

Torsion box: no limitations with regard to material and dimensions.

Edges: no limitations with regard to material and dimensions.

Top surface: no limitations with regard to material and dimensions.

Core: no limitations with regard to material and dimensions.

**1.2.5      *Durability***

With regard to the mounting of bindings, national norms and at least the „Ö-Norm 4030“, i.e. the equivalent of DIN- and ISO-norms, must be observed.

**1.2.6      *Additional equipment***

**1.2.6.1    *No additional equipment is permitted which***

- a) makes use of foreign energy (e.g. heaters, chemical energy accumulators, electric batteries, mechanical aids, etc.)
- b) causes or intends to cause changes in the outer conditions of the competition to the disadvantage of fellow competitors (e.g. changes to piste or snow)
- c) increases the risk to the users or other persons, when used for the purpose for which it was intended.

**2.          *Safety bindings***

Safety bindings function as strain limiters. That is, these devices transfer specific demands occurring during skiing to an acceptable limit, and when this limit is overstepped, they release their firm hold on the ski.

**2.1        *Anti-vibration plates***

Anti-vibration plates can be mounted if the following conditions are taken into consideration:

**2.1.1      *Width of ski surface***

The width of the plates must not exceed the width of the ski surface.

**2.1.2      *Maximum height***

Maximum height (distance between the bottom of the running surface of the ski and the ski boot sole) for all categories is 50 mm (Ladies, Men and Children's).

## **2.2 Ski stoppers**

The ski stopper is a braking apparatus for skis, the function of which following the release of the safety binding, is to stop or bring to a standstill the loose ski within the immediate vicinity of the skier's fall. The use of skis without ski stoppers during competitions or official training runs is prohibited. The functioning of the release mechanism must not be compromised by the method of its mounting. It is the manufacturers' responsibility to ensure that the ski stopper functions correctly.

## **3. Ski boots**

**3.1** Ski boots are robust footwear developed specifically for skiing, offering protection against jolts and bumps as well as injury from ski edges and other external influences. The ski boot encloses the foot firmly, while at the same time allowing the movement necessary for skiing techniques, in that the ankle has the room it needs to flex, but at the same time facilitating the transfer of every steering movement completely to the ski. The relevant national and international guidelines and norms establish the requirements.

### **3.2 Thickness of ski boot soles**

Distance between the ski boot sole and the base of the heel including all hard and soft parts:

|                                |               |
|--------------------------------|---------------|
| Ladies, Men, Children I and II | maximum 43 mm |
| Ladies & Men MAS               | maximum 45 mm |

Recommendation for children younger than 11 years

The height of the skis and the boots should be the same as in the categories CHI I and CHI II

## **4. Ski poles**

The ski pole is an item of equipment, the function of which is to aid the skier and facilitate balance. National and international rules establish the minimum requirements for ski pole tips, grips, shafts, baskets, straps, length, etc. Owing to risk of injury, metal baskets are not permitted.

## **5. Racing suits**

Competition suits and any clothing worn, such as underwear, etc., may not be plasticised or treated by any chemical means (gaseous, liquid or solid) and must have a minimum permeability of 30 litres per m<sup>2</sup>/sec. Seams must be for the purpose of joining together different sections of the suit. Outer tucks and darts are not allowed. The suits must be equally porous throughout, both from the outside in and from the inside out.

Minimum air permeability is established as follows: the un-stretched fabric must show a medium air permeability of a minimum of 30 litres per m<sup>2</sup>/sec under 10 mm of water pressure.

Competitors are allowed to protect all parts of the body with so-called protectors in all events:

- for Slalom, Giant Slalom and Super G suits' the shoulder, scapular region, arms and legs may be specially protected.

- In Downhill, protectors may not be integrated into the competition suit itself.
- In all events these protectors must be worn underneath the plumbed racing suit.

Protectors must fulfil the 30 litre permeability rule with the exception in Downhill of the shoulder and arm sections as well as the knee and shins, and in Super G, Giant Slalom and Slalom, the shoulder, scapular region arms and legs. The anatomical body shape may not be changed. No plasticised surfaces.

## **5.1 Examination of materials, suits**

The guidelines for minimum air permeability established by the Control Procedures/Equipment Working Groups in collaboration with the Federal Institute for Materials Control are valid. Multi-layered materials are accordingly permitted for alpine racing suits, as long as they conform to the air permeability requirements in question.

## **6. Crash helmets**

The use of crash helmets is compulsory for all events.

Only helmets are permitted whose shell and padding cover the head and ears. The National Ski Associations are advised to provide their teams only with crash helmets which satisfy the minimum requirements for the respective event and which have been certified by recognised institutes.

Helmets with spoilers or edges that protrude are not permitted.

Certain helmets must show a smooth top surface for safety reasons.

Helmets used in FIS Snowsports shall be specifically designed and manufactured for the respective discipline and shall bear a CE mark and conform to recognized and appropriate standards such as CEE 1077 or US 2040, ASTM F2040, SNELL S98 or RS 98, etc.

Soft ear protections are only allowed for SL events.

## **7. Ski goggles**

Ski goggles are devices protecting the eyes against weather and rays with optically correct lenses. Their aim is to guarantee good, contrast-free visibility in all weather conditions. The use of ski goggles is recommended. It is prohibited to reshape the ski goggles in order to obtain aerodynamic advantages.

## **8. Ski gloves**

Gloves offer protective covering against weather and external forces. The wearing of gloves is urgently recommended. Reshaping the glove, the application of a plastic coating on the outer surface, or the use of skai (imitation leather) with the aim of attaining more aerodynamic features, are not allowed. The glove must not reach beyond the elbow. Protective padding along the entire length of the glove is permitted. The use of protective guards in the form of shields, which are pulled over the glove, is permitted.



## **9. Back protectors**

### **9.1 Definition**

The back protector is an additional item of equipment, which protects the athlete's back against weather and external forces.

### **9.2 Specifications**

The back protector must adapt to the anatomical bend of the athlete's spine and lie flat against the body. The top edge of the back protector must be situated in the area of the spinal column and may not go above the 7th cervical vertebrae (C7). Fastening of the back protector may only take place with a stomach belt. The maximum thickness must be in the middle part and may not exceed 45 mm; the thickness reduces at the edges of the back protector. Designs with the view to improve aerodynamic properties are forbidden. The back protector must be worn underneath the competition suit.

### **9.3 Recommendation for specifications for children**

Children under 11 years should use back protectors (also for CHI I and CHI II)

## **C. Nordic Competition Equipment**

### **Cross-Country Skiing**

## **1. Cross-Country racing skis**

### **1.1 Definition**

The cross-country racing ski is a type of ski, whose features guarantee the best possible application of the gliding techniques to master cross-country pistes (uphills, bumpy terrain, downhills). The basic features of this type of ski are defined in these rules.

### **1.2 Restrictions**

#### *1.2.1 Geometric features*

##### *1.2.1.1 Ski length*

Minimum: height of skier minus 100 mm

##### *1.2.1.2 Ski width*

In the binding fixation area of the ski defined by ISO 9119 or Ö-Norm S4072

Minimum 40 mm

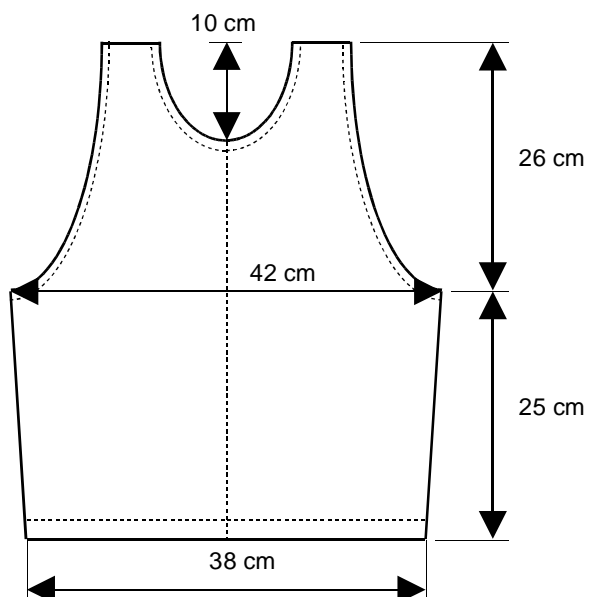
##### *1.2.1.3 Tip*

The minimal shovel curvature is 30 mm.

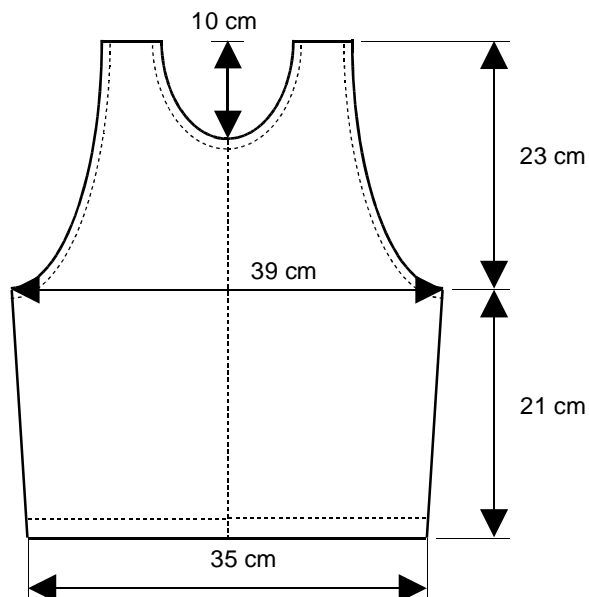
##### *1.2.1.4 Tail*

The tail must not rise more than 30 mm on the unweighted ski when laying on a flat surface.

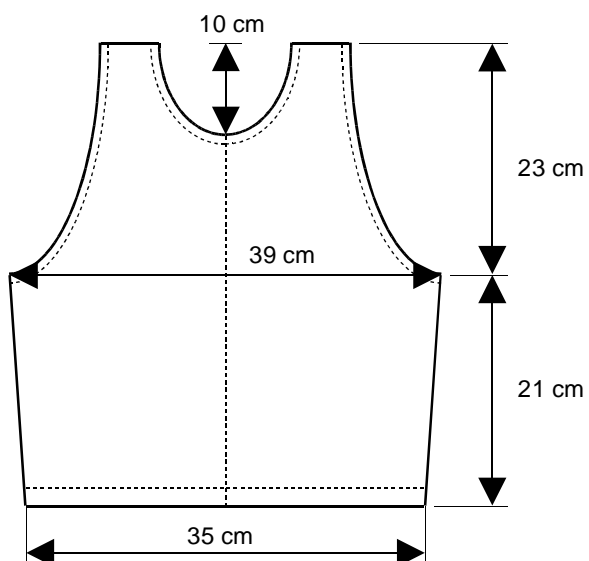
Ski Jumping - Men:  
without elastic band



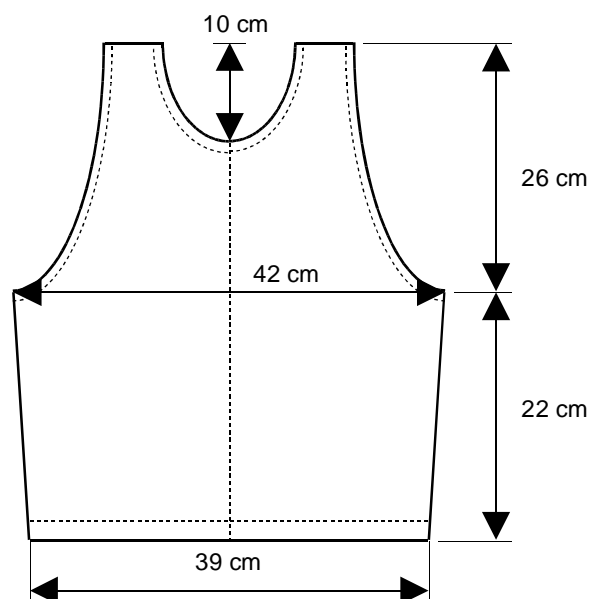
Ski Jumping - Ladies:  
Without elastic band



Alpine, Ladies: with elastic

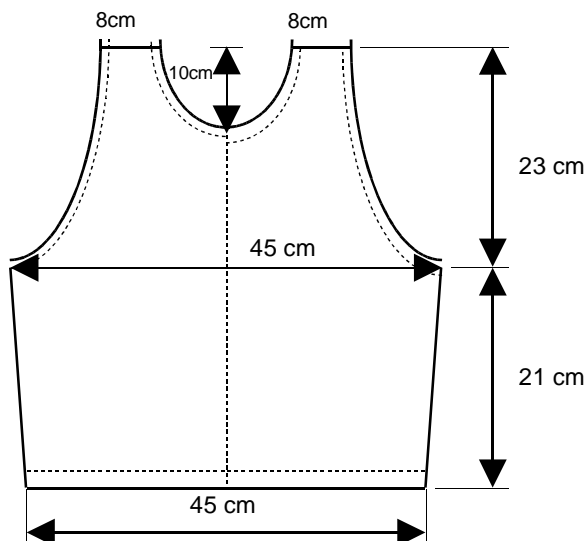


Alpine, men: with elastic

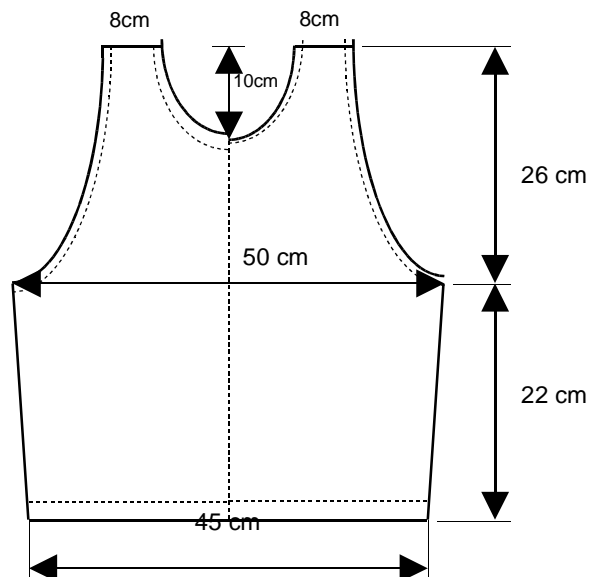


## Freestyle Bibs

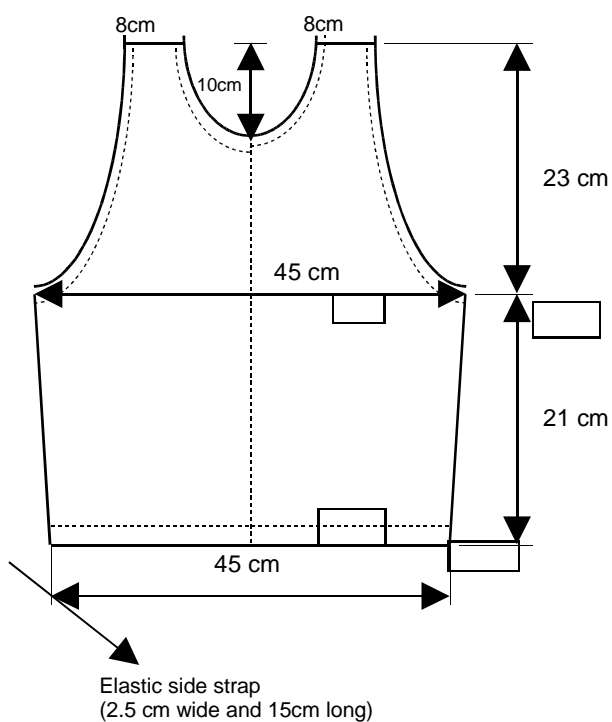
Aerials – Ladies  
with elastic band



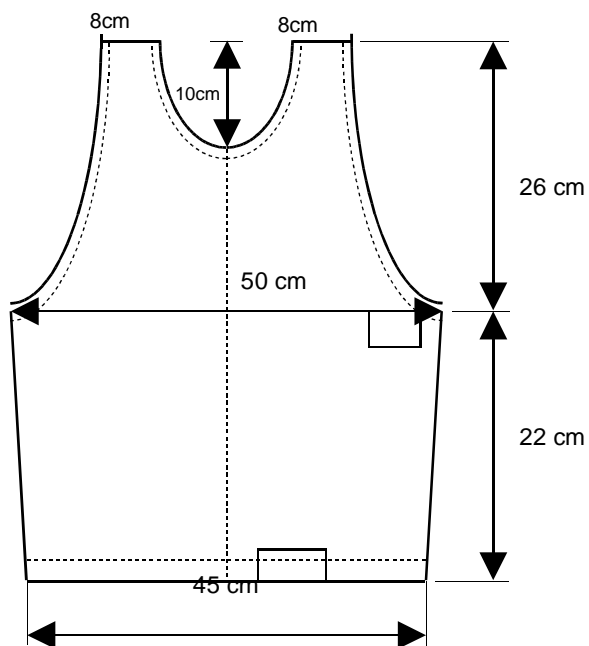
Aerials – Men  
with elastic band



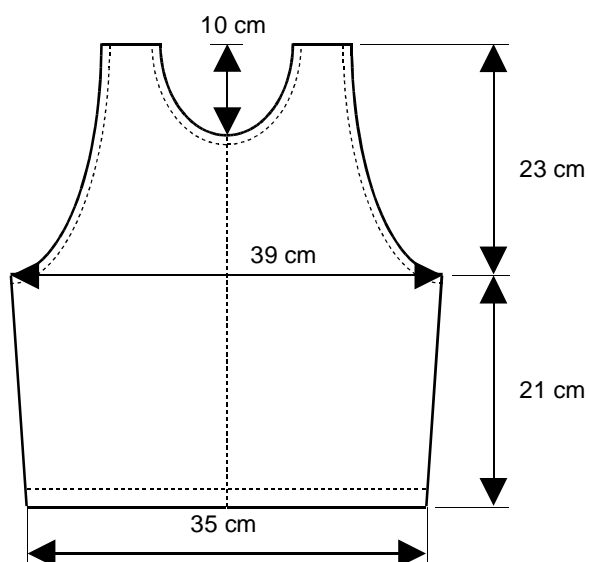
Moguls, Halfpipe, Ski Cross – Ladies  
open sides and 4 elastic straps



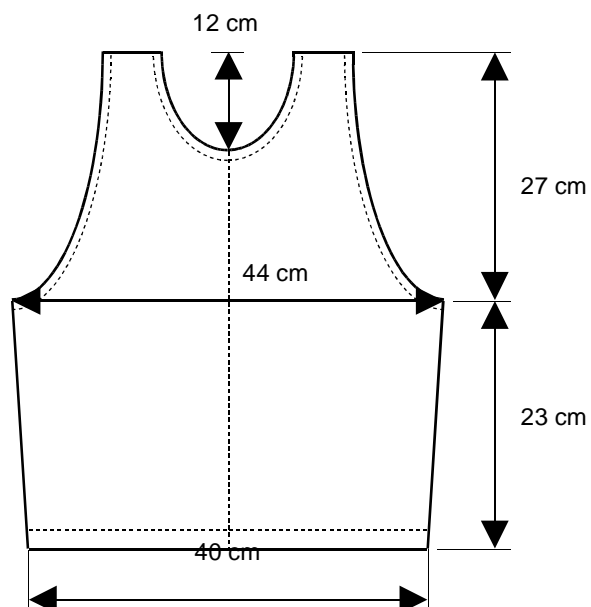
Moguls, Halfpipe, Ski Cross – Men  
open sides and 4 elastic straps



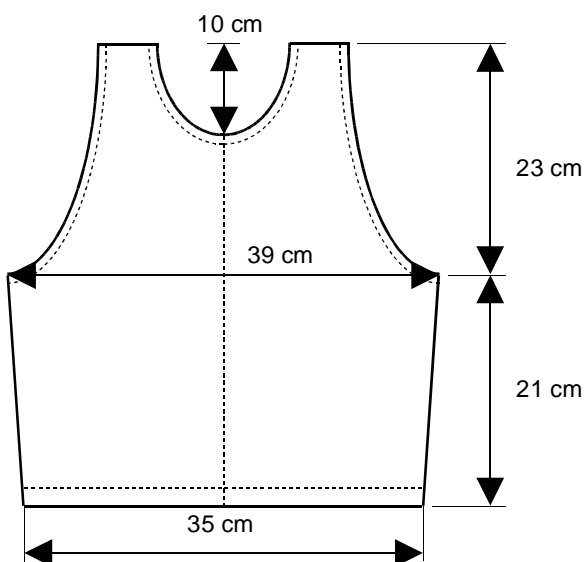
Cross-Country Ladies:  
Meshed without elastic



Cross-Country, men:  
Meshed without elastic



Cross-Country,  
Ladies: without elastic



Cross-Country,  
Men: without elastic

