

# Measurement Rules

RG-65 CLASS



2014

## **MEASUREMENT RULES RG-65 CLASS**

The "RG-65" is a Radio Controlled monohull development class, where all isn't prohibited in these rules of measurement is allowed.

### **MEASUREMENT RULES**

#### **1 GENERAL**

##### **1.1 Purpose of the measurement**

1.1.1 It is intention of these Rules to give ample freedom to design and build R/C sailing racing models whose length will be of 65 +/- 0,5 cm, with an rig height of up to 110 cm and a maximum sail area of 2250 cm<sup>2</sup>.

1.1.2 The Class "RG-65" is a Development Class, therefore everything that isn't prohibited in these Rules is permitted.

##### **1.2 Measuring Units**

1.2.1 All dimensions will be measured in centimeters, with an accuracy of 1 (one) decimal (that is equivalent measuring in millimeters), and the final result of calculations of surface will be rounded to the nearest cm<sup>2</sup>.

1.2.2 Maximums and minimums are absolute values, without tolerance.

##### **1.3 Graphic description**

Appendices 1, 2, 3, 4, 5 and 6 are an inseparable part of these Rules and describe them graphically.

#### **2 ADMINISTRATION**

In accordance with the Standards of the RG65- ICA.

#### **3 HULL**

##### **3.1 General**

The "RG-65" will be a monohull.

##### **3.2 Hull**

3.2.1 In each section of the hull, there will be no point of underwater body below 0.3 cm another point of the same section located closer to the centre line of the hull.

3.2.2 On the bow and from the deck, there will be a fender protecting, with a length of 0.5 +/- 0.1 cm by 0.3 cm of width at least, of elastomeric material (flexible gum, elastic foam, etc) (see appendice 5)

#### **4 KEEL, BALLAST and RUDDER**

##### **4.1 Keel**

The keel will have to be located on the centre line of the hull, and should not be mobile. However it can be removable to facilitate the transport of the model.

##### **4.2 Rudder**

The rudder will be located on the centre line of the hull, and will move only on one axis installed on the centre line of the hull, and it shall not extend outside the overall length of the hull.

#### **5 RIG**

##### **5.1 Definition**

The rig is formed by the spars with their fittings, standing rigging and sails. A Vane or wind direction indicator does not form part of the rig.

##### **5.2 General**

5.2.1 No part of rig will extend beyond the bow nor beyond the stern of the boat nor to more than 110 cm over the sheerline at the point of coincident with the mast position.

5.2.2 The boat shall race while carrying no more than 2250 cm<sup>2</sup> of sails in its rigs.

5.2.3 The boat could be equipped with up to 3 (three) set of sails **A, B and/or C indivisible**, which each do not exceed 2250 cm<sup>2</sup> of total surface.

5.2.4 The dimensions and surfaces of each sail will be declared in writing before beginning the Races of the whole event, accompanied by a silhouette of each sail drawn out of paper. (APPENDICE 6)

##### **5.3 Spars**

5.3.1 All the spars must have a section smaller than a circle 1.2 cm in diameter.

5.3.2 Fittings constituting a definitely local extension (goosenecks, downhauls, rigging of the stays, etc.) do not form part of the section of the spars.

## 6 SAILS

### 6.1 Measurement

For the calculation of sail area, each sail will be divided into trapezoids and/or triangles, whose surfaces must be added or be cut off. The Trapezoids or Triangles shall include sail fabric. When the corners of the sail are rounded with abrupt curves, the corner of the enveloping figure is considered with the intersection of the natural prolongations on the sides of the figure used. If the edge of the sail forms an arc of more than 0.2 cm on the side of the trapezoid or triangle used to measure it, the segment of the resulting arc will be included in the surface calculation. The partial surfaces corresponding to divisions will be calculated as follows:

- a. Simple trapezoids:  $(B_0 + B_1) * h / 2$
- b. Contiguous trapezoids, all the same height:  $(B_0/2 + B_1 + \dots + B_n/2) * h$
- c. Triangles:  $B_t * H_t / 2$
- d. Segments of Arc:  $C * f / 1.5$

Where:  $B_0, B_1, \dots, B_n$  = Width of the trapezoids

$h$  = Height of the trapezoids

$B_t$  = Base of the triangle

$C$  = Cord of the segment of arc

$f$  = Arrow of the segment of arc

### 6.2 Checking the dimensions

Each sail will have permanent marks indicating the extremes and special points of the divisions used for its surface calculation. Dimensions are measured and /or verified edge to edge on the cloth. The minimum tension will be applied to the sails as necessary to eliminate wrinkles along the dimension verified. When checking declared dimensions, a tolerance of 0.5 cm will be accepted in total measurement (clew point to tack point to head point), and 0.2 cm in partial measurements (bases, heights, arrows of subdivisions). In case of finding any differences, and within the tolerances described above, the surface should be recalculated using the actual values obtained. The total area of the rig shall not exceed 2250 cm<sup>2</sup>.

### 6.3 Identifications marks. (see appendice 4)

#### Emblem of the class:

The class emblem will be located in the upper third of the mainsail, starboard above, port side below, and measure not less than 3 cm. by 3.5 cm. (See appendix 3)

#### Sail Number:

Consist of the last two digits of either the allocated boat number or owner's personal number. There should be space allowed in front of the sail numbers to add the prefix 'I' when required.

*The Mainsail:* The sail number is located in the middle third of the mainsail, starboard above, port side below, with numbers clearly visible in contrasting colour, in Arial font, height not less than 8 cm., Made with a stroke not less than 0.8 cm. wide.

*The Foresail:* The sail number is located in the lower half of the sail, starboard above, port below, with numbers clearly visible in contrasting colour, in Arial font, height not less than 8 cm., made with a stroke not less than 0.8 cm. wide.

#### Nationality letters: (only for international events)

The nationality letters will be located in the lower third of the mainsail, starboard above, port side below, with letters clearly visible in contrasting colour, in Arial font, height not less than 4 cm., made with a stroke of not less than 0.4 cm. wide.

#### Identification of the rig:

The identification of the rig should be written with water-proof ink and be clear and visibly in the head corner on all the sails that form the rig. Eg "A", "B", "X", etc..

#### Sail area:

The measured area of each sail will be indelibly written in the tack of the sail.

## **7 REMOTE CONTROL EQUIPMENT**

### **7.1 General**

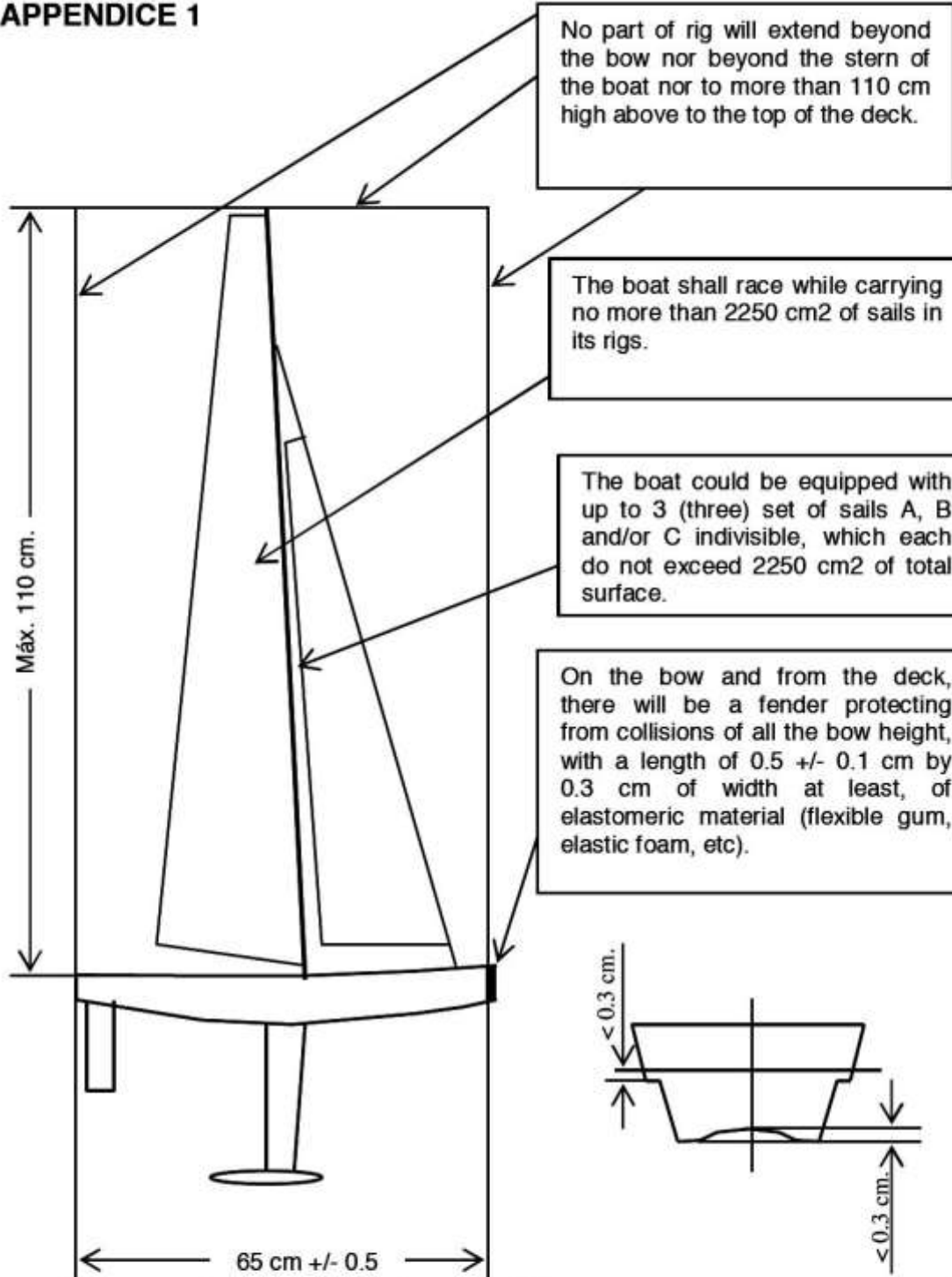
Radio systems with 2 (two) control functions shall be used. One function will act only on the rudder, and the other will act only on the sheets.

During the races of the whole event one will use only the three declared rigs, one keel (with its ballast) and one rudder.

### **7.2 Replacements**

No component of the boat nor its equipment, except the batteries of the equipment of radio, shall be replaced during the races of the day, except if the element to be replaced is broken or lost during the event and that the RACE OFFICER considers that this breakage or loss is really fortuitous and accidental. There is no restriction about replacement of RC equipment batteries during the races of the day.

## APPENDICE 1



It is intention of these Rules to give ample freedom to design and build R/C sailing racing models whose length will be of 65/- 0,5 cm, with an rig height of up to 110 cm and a maximum sail area of 2250 cm<sup>2</sup>.

In each section of hull, there will be no point of underwater body below 0.3 cm another point of the same section located closer to the centreline axis of the hull.

## APPENDICE 2

If the edge of the sail forms an arc of more than 0.2 cm on the side of the trapezoid or triangle used to measure it, the segment of the resulting arc will be included in the surface calculation.

Segments of Arc:  
 $C * f / 1.5$

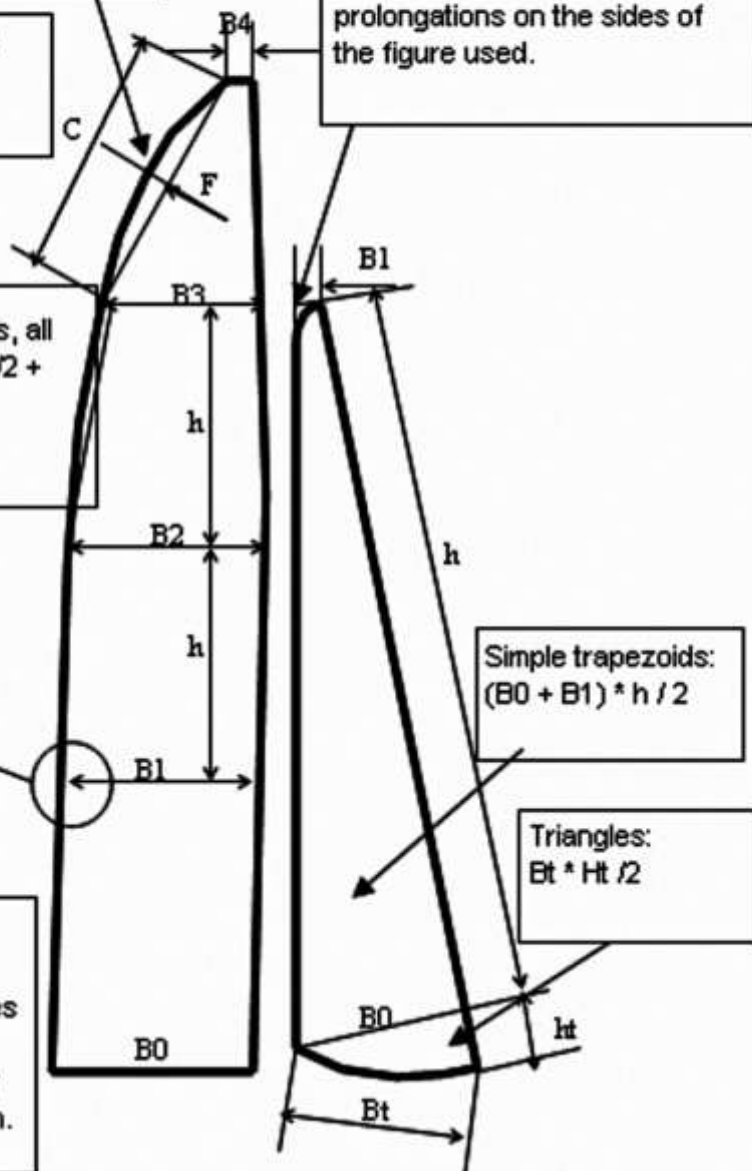
The Trapezoids or Triangles shall include sail fabric. When the corners of the sail are rounded with abrupt curves, the corner of the enveloping figure is considered with the intersection of the natural prolongations on the sides of the figure used.

Contiguous trapezoids, all the same height::  
 $(B_0/2 + B_1 + \dots + B_n/2) * h$

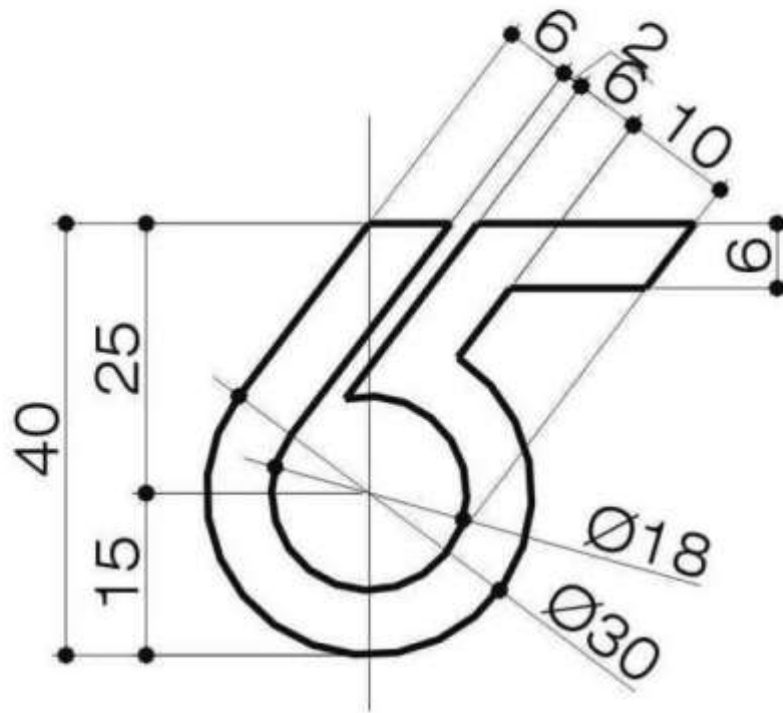
**MARK**



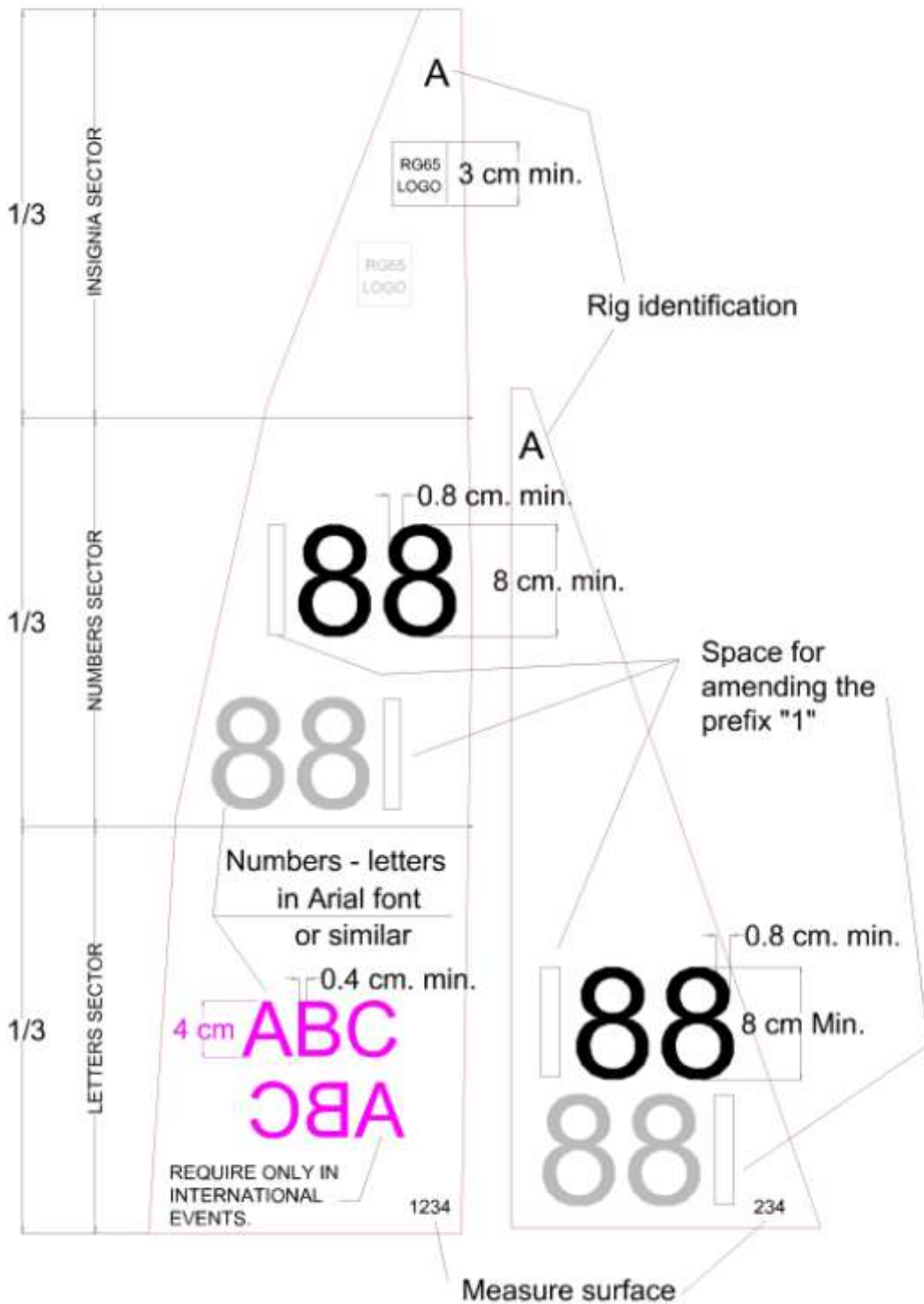
Each sail will have permanent marks indicating the extremes and special points of the divisions used for its surface calculation.



APPENDICE 3



APPENDICE 4



ONLY IN CASE THAT THE IDENTIFICATION DOES NOT FIT  
 USE THE APPENDIX E6 OF THE INTERNATIONAL RACING RULES

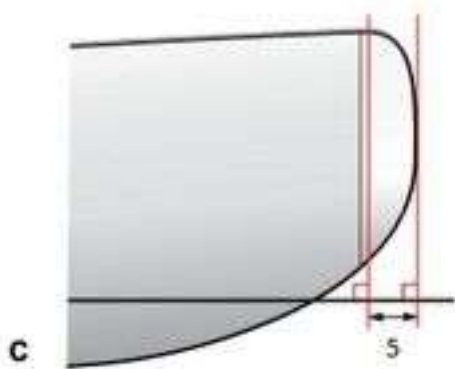
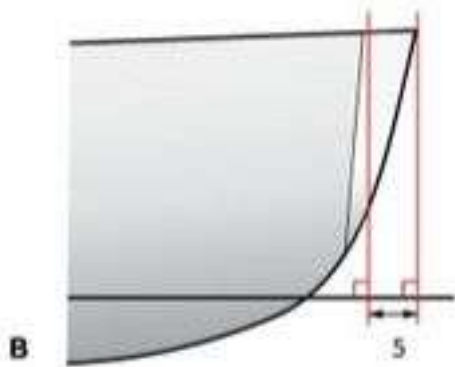
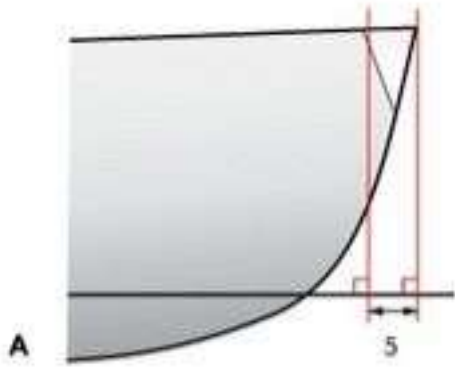


Appendice 5

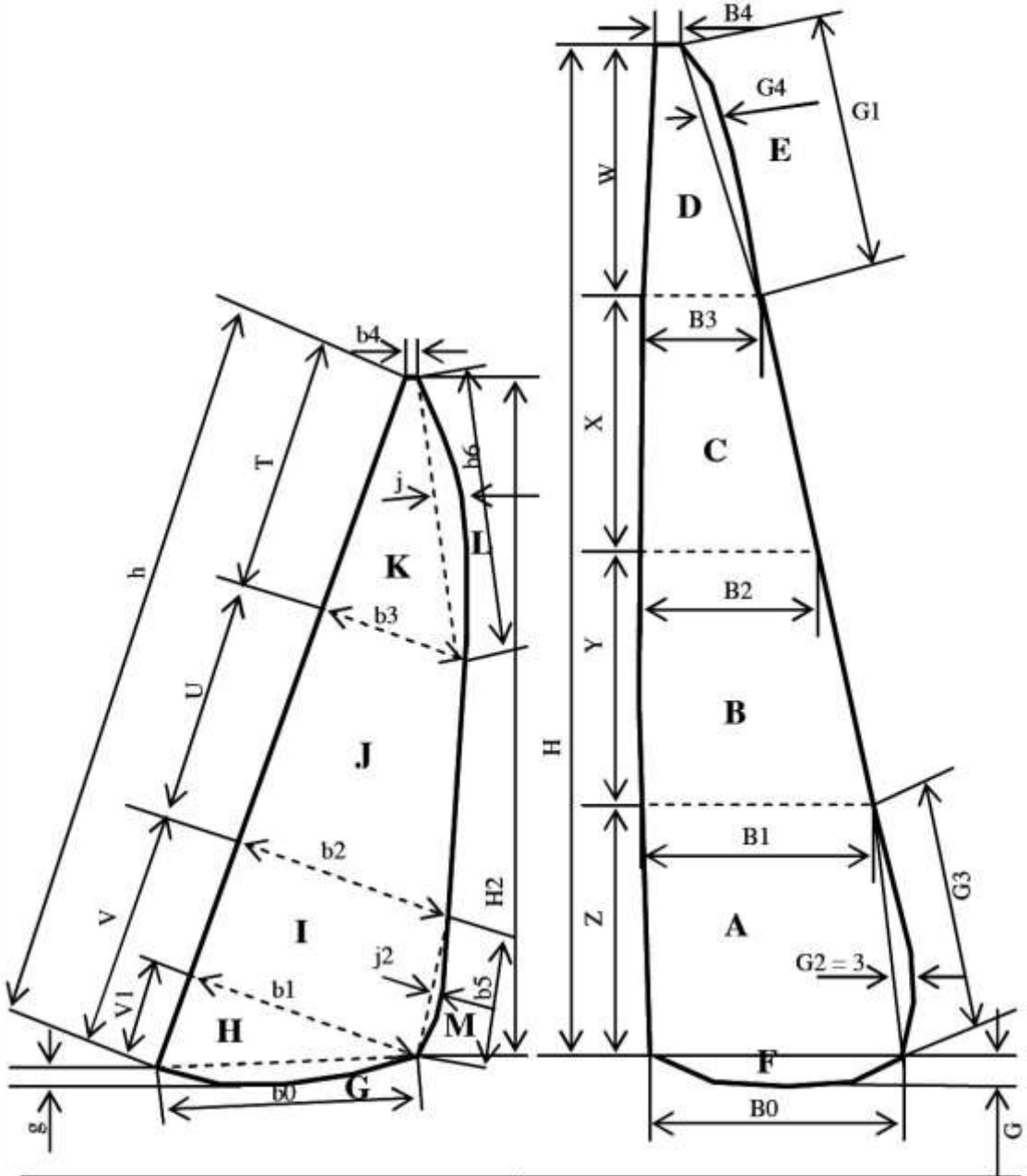
A not allowed

B&C allowed

Unity in mm



**EXAMPLE FOR MEASUREMENT OF RG-65 SAILS**



$G = g \times b_0 / 1.5$	$A = [(B_0 + B_1) \times Z] / 2$
$H = V_1 \times b_1 / 2$	$B = [(B_1 + B_2) \times Y] / 2$
$I = [(b_1 + b_2) \times (V - V_1)] / 2$	$C = [(B_2 + B_3) \times X] / 2$
$J = [(b_2 + b_3) \times U] / 2$	$D = [(B_3 + B_4) \times W] / 2$
$K = [(b_2 + b_4) \times T] / 2$	$E = (G_4 \times G_1) / 1.5$
$L = (j \times b_6) / 1.5$	$F = (B_0 \times G) / 1.5$
$M = (j_2 \times b_5) / 1.5$	
<b>JIB SAIL = G + H + I + J + K + L + M</b>	<b>MAIN SAIL = A + B + C + D + E + F</b>
<b>TOTAL SURFACE = JIB SAIL + MAIN SAIL</b>	