

 **watersportverbond**

T: 030 7513700

E: info@watersportverbond.nl

W: www.watersportverbond.nl

Texel Rating Rule For Open Multihulls 2020



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INTRODUCTION

When 40 years ago in the Netherlands the first Ronde om Texel Race was sailed there were so many different beach catamarans competing that a speed comparison method was needed to determine the overall winner.

The existing I.O.M.R. could not bring a solution. But Nico Boon's statistical method did very well. At this time a lot of experimenting was done, both by amateurs and professional builders. Over the years this system, called the Texel Rating Rule, was refined, checked and checked again against race results. Soon it was used all over the world and still is. But time goes on and refinements had to be made to stay ahead of developments.

Measurers were used to establish true catamaran one design classes and one off's. To rate the one off's fairer over the years slowly formulas were introduced, again by Nico Boon, to determine the real efficiency of sails and centre boards, the influence of weight etc. based on measurement.

Some 30 years ago the Texel Rating Rule was recognized by the Royal Netherlands Yachting Union. Besides Texel Rating there is the International Small Catamaran Handicap Rating (SCHRS). To overcome measurement problems when racing in a different country the members of both systems join together every year for a meeting during the Round of Texel Race to iron out differences in measuring and calculating efficiency. The future will bring both Rules closer together in measuring, not in the actual formula's.

The spirit of the rule. In case of doubt about any part of the text of the rules the meaning, that is to say, the spirit of the rule counts, not the letter.

Validity. These rating regulations are applicable at all races where various classes partake together, but one racing result is desired.

PART I - ADMINISTRATION

Section A - General

A.1. LANGUAGE

- A.1.1. The official language of the class is English and in case of dispute over translation the English text shall prevail.
- A.1.2. The word "shall" is mandatory and the word "may" is permissive.
- A.1.3. Except where used in headings, when a term is printed in "**bold**" the definition in the ERS applies and when a term is printed in "*italics*" the definition in the RRS applies.

A.2. ABBREVIATIONS

- A.2.1. WS World Sailing
 - RNYU Royal Netherlands Yachting Union
 - MNA ISAF Member National Authority
 - ERS Equipment Rules of Sailing
 - RRS Racing Rules of Sailing

A.3. AUTHORITIES

- A.3.1. The **Rules Authority** of the rule is the Royal Netherlands Yachting Union which shall co-operate with their Technical Committee in all matters concerning these **rules**.

A.4. ADMINISTRATION OF THE RULES

- A.4.1. The Royal Netherlands Yachting Union (RNYU) has the administrative functions of the **rules**.
- A.4.2. The columns TR no spi and TR incl. spi are purely informative. If class rules demand the use of a spi then the value "TR no spi" does not apply. If the class rules forbid the use of a spi, then the value "TR incl. spi" does not apply. For all other classes or designs the use of a spi is optional. That means the crew may decide, unless the race organization in its own rules excludes this choice for some or any races.

A.5. RULE CHANGES

- A.5.1. The tables with ratings issued by the MNA will be valid from the first of March of the year in which they are brought out.
- A.5.2. Modifications of ratings during the sailing season
 - Based on reports of the measurer and after further advice from the rating committee the MNA can change (that means in most cases lower) the rating of any type of multihull, when the dimensions of the design deviate substantially from the original measurements. The results of the re-measurements will be published on the website. Deviations from the maximum and minimum dimensions in one direction or another from the values given on the official lists never will lead to a reduction of the rating. (a higher number).
- A.5.3. New classes
 - For new classes, appearing during a season for the first time, ratings will be published on the website: www.watersportverbond.nl as soon as a rating has been determined.
 - If less than 3 **boats** of a class have been measured, or one boat only, of a new or modified design, the catamaran is marked in a column with **, signifying a one-off.

A.6. RULES AMENDMENTS

- A.6.1. The Royal Netherlands Yachting Union (RNYU) has the right to amend the **rules** if necessary.
- A.6.2. The latest version of the **rules** applies which is approved and published by the Royal Netherlands Yachting Union RNYU.
- A.6.3. All **boats** have to comply with the latest version of the **class rules**, also the **boats** manufactured before the effective date of the applicable **class rules**.

A.7. CLASS RULES INTERPRETATION

- A.7.1. At Events the measurer has the right to give an interpretation of any part of the text or on any innovation. When he does he shall contact the Royal Netherlands Yachting Union (RNYU).

A.8. Attribution

A.8.1. Competence

The rating numbers for small open multihulls used to determine racing results will be issued by The MNA.

Responsibility of classes/builders. For each new class and after any substantial modification of existing classes, the class organizations and/or the builders, or importers are responsible for offering facilities to the MNA to make it possible for them to let a measurer check and verify boats and equipment, to aid in determining a rating.

A.8.2. Modified types

A modified one design boat can only get a valid rating when: a (written) agreement of the owner of the plans, designer, class organization or builder, can be produced.

A boat is considered "modified" if at least the hulls are complete or partly from an existing one design boat.

Section B - Boat Eligibility

For a **boat** to be eligible for racing, it shall comply with the rules in this section.

B.1 CLASS RULES AND CERTIFICATION

B.1.1 The **boat shall:**

(a) be in compliance with the **class rules** , if available.

Ratings will be determined for all types of multihulls on measurable data, guaranteed by the class organization, the builder, using formulas, verifiable by anyone.

B.1.2 Sails shall carry a valid **certification mark.**

B.2.1 Safety

With one or both hulls flooded the **boat** shall lengthwise float evenly while supporting a dead weight of 70 kg. on the trampoline. A measurer or race organizer may demand a floatation test to be carried out.

PART II - REQUIREMENTS AND LIMITATIONS

The **crew** and the **boat** shall comply with the rules in Part II when racing. In case of conflict Section C shall prevail. **Certification control** and **equipment inspection** shall be carried out in accordance with the ERS except where varied in this Part.

Section C – Conditions for Racing

C.1. GENERAL

C.1.1. RULES

- (a) A trapeze System may be used (change of RRS 49.1)
- (b) The ERS Part I – Use of Equipment shall apply.

C.2. CREW

C.2.1. LIMITATIONS

- (a) The crew shall consist of 1, 2 or 3 persons.
- (b) Crew members may be substituted during an event excluding the person in charge (RRS 47). Sailing instructions may change this rule.

C.3 INSPECTION DURING RACES

C.3.1. During the season the rating committee of the MNA may inspect boats on the measurements and weights used in the formulas.

C.4 RESPONSIBILITY OF THE OWNERS

C.4.1. Conformity. It is the owners responsibility to keep the **boat** in agreement with the specifications (maxima and minima) given on the published lists.

D.1. TEXEL Rating

D.1.1. Texel Rating (TR) is calculated, with the following formula:

$$TR = 100 / (1.15 * RL ^ 0.3 * RSA ^ 0.4 / RW ^ 0.325).$$

D.1.2.. In wind speeds above 14/15 knots (7.60 m/s), slightly above the middle of BF 4, some designs pass the limits of their full sail stability. A power factor then is introduced in the calculation of the TR value. This is based on the results of the division of the righting moment by the heeling moment. If the value of that ratio (r/h) is less than 1, the TR value is multiplied by the stability correction resulting in higher TR values.. The stability correction factor is calculated as follows: $((1 / (r/h)) ^ 0.11$. This factor can be found in the final column in the complete list with all data..

D.1.3 If the **boat** is sailed single handed, with a spinnaker, then 1% will be added to the calculated rating, before rounding.

D.1.4 The rating number is rounded to an integer of two or three digits, using the normal rules for rounding

D.2. Abbreviations, formulas and calculations used :

D2.1. Hulls AOC = aft overhang component
FOC = forward overhang component
LOA = length overall
RB = rated beam, maximum beam or total width.
RL = rated length LOA - AOC - FOC
LB = Length Centerboards

D.2.2 Weight

RW = rated weight WC + WS
WC = weight crew
WE = weight declared equipment
WM = weight boat without equipment
WS = weight complete boat WE + WM

D.2.3 Sails

EG = efficiency percentage genoa (jib)
EM = efficiency percentage mainsail
MSAG = measured area jib (genoa)
MSAM = measured area mainsail including mast when swiveling
MSAS = area spinnaker or reacher
RSA = rated sail area RSAM + RSAG + RSAS

$RSAG = EG * MSAG * 0.01$
 $RSAM = EM * MSAM * 0.01$
 VLM = vertical projection of luff of main
 VLG = vertical projection of the luff or leech of the jib/genoa.
 SMG = distance between middle of luff and leech of the spinnaker.
 SF = length foot of the spinnaker
 SL1 = length luff of the spinnaker.
 SL2 = length leech of the spinnaker

D.3. Determination of WC, Weight Crew

For calculation purposes: weight each crew

LOA boat <= 4.00 m:	65kg
LOA boat <= 4.80 m:	70 kg
LOA boat > 4.80 m:	75 kg

If the total sail area >= 11 m², then for crew one-man boats always take 75 kg.

D.4. Center boards

The rating for **boats** not having an efficient centerboard is calculated by raising the unrounded rating number with 4 %. Afterwards the rating number will be rounded described in appendix 5.

D.5. Weights

D.5.1. WS = weight of the **boat**

The measured weight has to be equal or higher than the weight used in the calculations for the rating. The weight of the boat including all sailing equipment, sails, spars, rudders, centerboards if present, normal fittings, hulls.

D.5.2. The **boat** need to be dry and clean when being weighed. How the weight will be determined is described in appendix. 2

D.5.3. Correction weight can be necessary to bring WS in agreement with the WS used in the formula. It has to be dry and to be fixed to the boat, but must be demountable, to admit checking. It may not exceed 4 % of WS.

If extra weight is permitted than the character and weight of the additional weight(s) must be recorded in the certificate.

D.5.4. WC = weight of the crew

D.5.5. RW = WS + WC

D.5.6. Minimum weight of **boat** and **crew** must be in agreement with the **class rules**.

D.6. Definitions and ways of measuring

D.6.1. All dimensions will be given in mm., m., m², and kg.

D.6.2 Length :

How the length overall (LOA) and the rated length (RL) will be determined is described in appendix 3.

D.6.3 Sail area :

How the sail area (main, jib and mast) will be determined is described in appendix 1.

D.6.4. VLM = Vertical projection luff mainsail. That is the distance measured along the mast in a straight line between the highest point of the sail normally hoisted and the lowest point reached when the downhaul is used.

D.6.5 VLG = Projection luff genoa or jib. That is the vertical projection of the luff or leech of the jib/genoa. That is the distance between the horizontals on the mast, taken from the highest point of the jib/genoa towards the lowest point of luff or leech whatever. It will be measured alongside the mast. In practice: $VLG = \text{luff} * 0.94$

D.7. Spinnaker

D.7.1. Each triangle sail not being a mainsail or genoa (Jib) is a spinnaker. The condition is that SMG, at half height >= 75 % of footlength SF.

D.7.2. The regulations including how to measure and calculate the spinnaker area will be described in appendix 1.

D.7.3 Ratingnumber applied when using a spinnaker. The lowering of the rating when a spinnaker is used will be described in appendix 1.

PART III - APPENDICES

The rules in Part III are closed class rules. Measurement shall be carried out in accordance with the ERS except where varied in this Part.

Section E – Measurement Diagrams

E.1. GENERAL

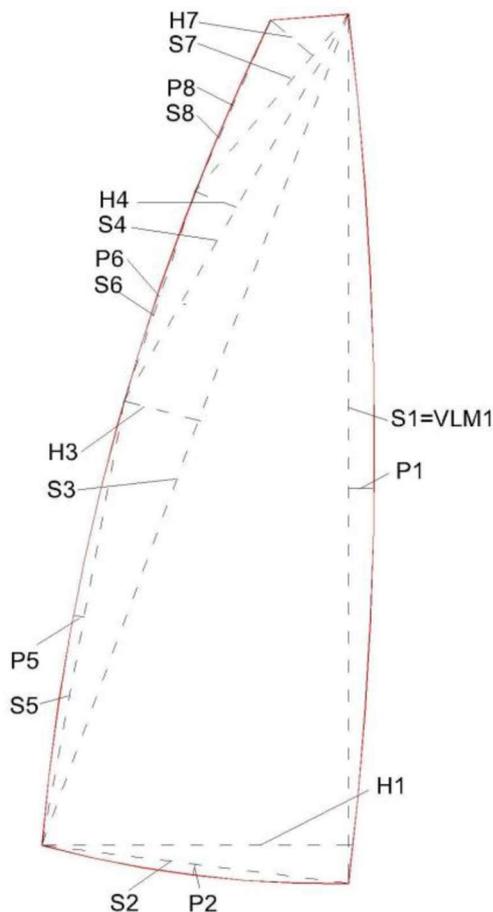
E.1.1 In case of measurement of a Multihull, the boat -on the trailer- must be level.

Texel Regulations, appendix 1

Determination of the sail area

The real sail area is determined by one of the usual methods.

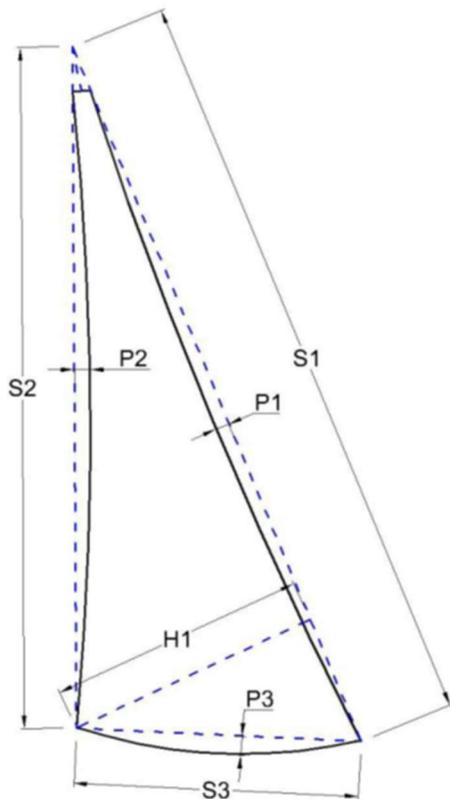
Calculation of MSAM and MSAG, area mainsail, area jib respectively. From both data RSA, the effective area, will be calculated by using an efficiency percentage.



The new formula to calculate the efficiency for the mainsail is a combination of two values. One is the measure of rectangularity of the main. That is sail area main divided by the rectangle p times e. (p is the height of the sail (vlm), the length of the luff, e is the dimension e, the length of the foot of the main). The other value is the ratio (p/e). A higher and narrower mainsail is more efficient. The product of both values gives: $msam_ex_mast / (p * e) * (p / e) = msam_ex_mast / e^2$.

The formula for efficiency factor is:

Efficiency factor main = $0.67 * (msam_ex_mast / e^2)^{0.3}$.



The efficiency of jibs is based on the ratio: $msag / lpg^2$. Lpg is the perpendicular from tack to luff. The formula being used is:

$$\text{Efficiency factor jib} = 0.72 * (msag / lpg^2) . ^ 0.3$$

For cabin multihulls the formulas are the same as the one for the beach multihulls., The rated areas will be:

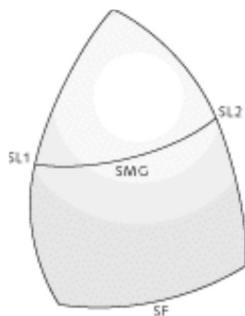
$rsam = \text{eff. factor main} * msam_ex_mast + \text{area mast (if a swivelling mast)}$. For open cats msam always includes the area of a swivelling mast (if that is the case). No separate adding of the mast area.

$$rsag = \text{eff. factor jib} * msag. \text{RSA} = \text{real sail area} * \text{eff. \%} * 0.01$$

Translation of some of the texts given in the drawings.

Dimensions P1, P2 and P3 can be positive as well as negative.

With OM is meant the complete circumference of the mast at the point with the maximum circumference.



Determination of the spinnaker area

If no spinnaker area is available then the list given below will be used.

Maximum spinnaker area:

	One man crew	Two man crew
up to 16 ft <4.87 m.:	14 m2	17 m2
from 16 up to 19 ft. >4.87 m. <= 5.80 m.:	17 m2	21 m2
from 19 up to 22 ft. >5.80 m. <= 6.71 m.:	20 m2	25 m2

For all **boats** a rated area RSAS will be calculated. Spinnakers have to be measured and calculated as described in the articles 3,4,5 and 6 of the ISAF publication Measurement and Calculation of sail area.

Measuring and calculating the spinnaker area.

The following dimensions have to be measured along the sides, these sides stretched normally.

SL 1 = luff

SL 2 = leech

SF = foot

SMG = straight line connecting the middle of luff and leech.

The area is calculated as follows:

$$MSAS = SF * (SL1 + SL2)/4 + (SMG - SF/2) * (SL1 + SL2)/3$$

SMG >= 75 % of SF

RSAS = 0.15 * MSAS, when RSAS has to be used.

If there is a jib, RSAG will be reduced a bit, so actually the difference will be less.

A measured spinnaker has to be stamped by the measurer with the following information :

date of measuring

spinnaker area

name and/or nr. of the measurer

paraph of the measurer

Determination of the screacher area

The rated area is:

$$Sas * (12/(smg/sf)^{1,1}) * 0,01$$

If smg/sf < 0.5 then 0.5 is used.

Sail area of the screacher has to be more than 75% of the mainsail area. Otherwise it will be considered a jib.

smg is size mid girth

sf = size foot

sascr = sail area screacher

Texel Regulations , appendix 2

Determination of the boat weight

Standard equipment

Boats have to be weighed with the complete standard equipment on board.

standard equipment means a.o. centerboards, rudders and rudder equipment jib, jibsheet and barberhaulers, main, mainsheet and tack downhaul spinnaker and spinnaker equipment, helm and joystick

No part of the equipment is:

Anchor towing line

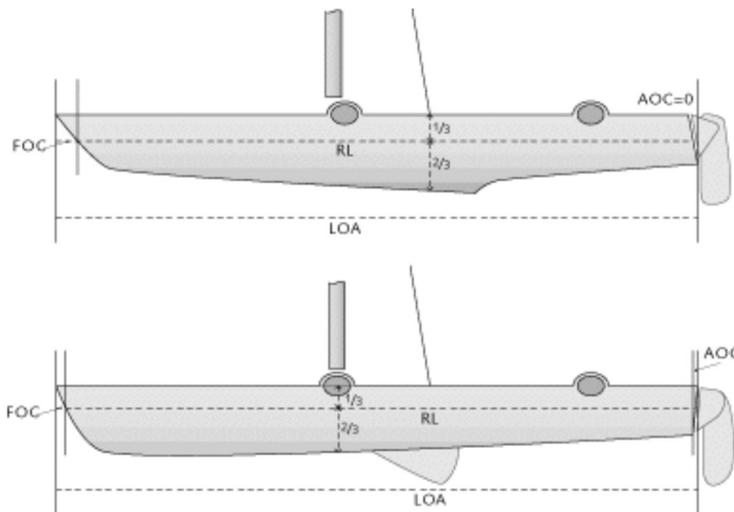
paddles

Method of weighing

Boats have to be weighed in dry condition. Hulls have to be dry inside and out and free from sand.

Weighing can be done in the following ways: 1. Hoist them on a weight beam. In that case it is important to have the boat hoisted horizontal and the windage as small as possible. It is recommended to have the mast lowered. 2. Place the boat on three (3) weighing scales. The boat weight is the sum of what the scales measure. The process has to be done 3 times, changing the position of the scales each time. The average weight of the 3 measurements is the correct weight. It is important to keep the boat horizontal, have the scales on a hard stand and the windage influence as small as possible. Like in case 1, it is recommended to have the mast lowered.

Texel regulations, appendix 3
Determination of the rated length and rated beam



LOA, Length Over All

The length over-all is the horizontal distance from the most forward point to the farthest point at the stern of the hull. Lines through these points have to be measured both from vertical positions. Rudders and rudder equipment not to be included in LOA.

FOC, Forward Overhang Component That is the difference at the bow between the most forward point and the forward end of the rated length. If the bow is vertical or hanging backward than $FOC = 0$

AOC, After Overhang Component That is the difference at the stern between the most afterword point of the stern and the aft end of the rated length. If the stern is vertical or leaning forward than $AOC = 0$

RL, Rated Length The rated length is the horizontal distance measured as a straight line at two-third ($2/3$) of the height of the hull at the location of the sidestay (shroud) or the mastbeam, whatever gives the highest value. Horizontal here means parallel to the deckline.

$$RL = LOA - AOC - FOC$$

RB = maximum beam or width

Texel Regulations , appendix 4

Determination of the centerboard correction

The correction factor for a design not using efficient centerboards will be 1.04

The correction factor for straight center/daggerboards will be 1

The correction for curved foils:

$$\text{factor} = 0,891 / (\text{length board} / \text{length hull}) ^{0,06}$$

If factor $< 0,95$, than correction factor will be 0,95