

# **SWAN 45 CLASS RULES 2009**

**VERSION 09-04, JUNE2009**

This version, 09-04 supersedes version 09-03, May2009.

Changes of substance in this version from version 09-03 are marked by a left marginal bar.

- To widen the options for charter teams to compete in Swan45 events.

This version of the class rules will be effect from 10th July 2009 for the duration of 2009. However, Nautor and the Swan 45 Class organisation reserve the right to propose any changes that become urgently necessary. The current version may be found at [www.sailing.org/swan45](http://www.sailing.org/swan45)

# SWAN 45



## CLASS RULES 2009

VERSION 09-04, JUNE 2009



The Swan 45 was designed in 2001 by German Frers and was adopted as a recognised class in 2005.

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# INTRODUCTION

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*Swan 45 hulls, hull appendages, and rigs are manufacturing controlled to an ISAF approved manufacturing control system.*

*Swan 45 rigs in part and sails are measurement controlled.*

*Swan 45 hulls, hull appendages mast and boom shall only be manufactured by Oy Nautor AB, or its licensees, – in the class rules referred to as licensed manufacturers. Equipment is required to comply with the Swan 45 Building Specification.*

*Swan 45 hulls, hull appendages, and rigs may, after having left the manufacturer, only be altered to the extent permitted in Section C of the class rules.*

*Owners and crews should be aware that compliance with rules in Section C is NOT checked as part of the certification process.*

*Rules regulating the use of equipment during a race are contained in Section C of these class rules, in ERS Part I and in the Racing Rules of Sailing except where amended within.*

*These are closed Class Rules. Anything not specifically permitted by these Class Rules is prohibited. These rules and the official plans are intended to ensure that Swan 45s are as similar as possible as regards shape and weight of hull, deck, keel and rudder, and rig and sail plan and performance. All boats of the Class shall be built in accordance with these rules and the official plans except where variations are specifically permitted.*

*This introduction only provides an informal background and the Swan 45 Class Rules proper begin on the next page.*

# PART I – ADMINISTRATION

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## 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.2 ABBREVIATIONS

- A.2.1 ISAF International Sailing Federation
- MNA ISAF Member National Authority
- NCA National Class Association
- ERS Equipment Rules of Sailing
- RRS Racing Rules of Sailing
- RORC Royal Ocean Racing Club
- RO Royal Ocean Racing Club Rating Office
- ICA International Swan 45 Class Association
- EC Executive Committee of the Swan 45 Class Association
- OSR ISAF Offshore Special Regulations ([www.sailing.org/specialregs](http://www.sailing.org/specialregs))

### A.3 AUTHORITIES

- A.3.1 The international authority of the class is ISAF which shall cooperate with the ICA in all matters concerning these **class rules**.
- A.3.2 No legal responsibility with respect to these Class Rules, or accuracy of measurement, rests with any certification authority, any official measurer, any MNA, or any NCA. No claim arising from these Class Rules can be entertained.

### A.4 ADMINISTRATION OF THE CLASS

- A.4.1 The EC has delegated its administrative functions of the class to the class manager.

### A.5 ISAF RULES

- A.5.1 These **class rules** shall be read in conjunction with the ERS.
- A.5.2 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.6 CLASS RULES VARIATIONS

- A.6.1 These Class Rules shall not be varied by notice of race and/or sailing instructions except as provided by A.7.2.
- A.6.2 For events other than Swan 45 Class events, notices of race and/or sailing instructions may vary these Class Rules in respect of rules C.1.1 (i), C.2.2, and C.7.1 (a) (i) only. Additionally, for Swan 45 Class events, other than International events, Notices of race may vary Rules C.2.1, C.11.2 (a) and E.1.6 (b) (and consequentially Rule C.12.2).

### A.7 CLASS RULES AMENDMENTS

- A.7.1 Amendments to these **class rules** shall be approved by the EC and ISAF.
- A.7.2 An NCA shall not amend these Rules other than Rules C.2.1, C.2.2, C.11.2 (a), C.12.2, and E.1.6 (b), for racing within its jurisdiction other than Area Championships. Any such changes shall be approved by 70% of ICA members.
- A.7.3 An NCA may prescribe that standard items of equipment need not be carried aboard for racing within its jurisdiction other than Area Championships

## **A.8 CLASS RULES INTERPRETATION**

A.8.1 Interpretation of **class rules** shall be made in accordance with the ISAF Regulations.

## **A.9 INTERNATIONAL CLASS FEE AND ISAF BUILDING PLAQUE**

A.9.1 The licensed hull builder shall pay the International Class Fee.

A.9.2 ISAF shall, after having received the International Class Fee for the hull, send the ISAF Building Plaque to the licensed hull builder.

## **A.10 SAIL NUMBERS**

A.10.1 Sail numbers shall be issued by a boat's MNA.

## **A.11 CERTIFICATION CONTROL AND EQUIPMENT INSPECTION**

A.11.1 ERS Part III shall apply shall apply for equipment inspection.

A.11.2 **Certification control** is conducted by the ICA.

## **A.12 HULL CERTIFICATION**

A.12.1 A **certificate** issued by the RO shall record the following information:

- (a) Sail number
- (b) Owner
- (c) Hull identification
- (d) Date of issue of initial **certificate**
- (e) Date of issue of **certificate**
- (f) **Corrector weight** mass
- (g) Factory fitted options

## **A.13 INITIAL CERTIFICATION**

A.13.1 For a hull not previously certified the builder shall enter all required details onto the certification control form.

A.13.2 The certification control form, together with any certification fee, shall be sent to the RO.

A.13.3 Upon receipt of a satisfactorily completed certification control form and the fee the RO may issue a **certificate**. The RO shall retain the original certification control form.

## **A.14 VALIDITY OF CERTIFICATES**

A.14.1 A **certificate** becomes invalid upon:

- (a) The date of expiry.
- (b) Change of ownership.
- (c) Other than permitted routine maintenance, any alteration or repair to items required by the certification control form to be measured controlled.
- (d) Any alteration to official **corrector weights**.
- (e) Withdrawal by the **certification authority**.

## **A.15 RE-CERTIFICATION**

A.15.1 A hull shall not be re-certified on basis of its initial certificate until it has been weighed by an official measurer.

A.15.2 Upon expiry the owner shall apply to the **certification authority** for a new **certificate** together with any re-certification fee that may be required. A new **certificate** shall then be issued to the owner.

A.15.3 Upon change of ownership the new owner shall apply to the **certification authority** for a new **certificate** together with any re-certification fee that may be required. A new **certificate** shall then be issued to the new owner provided that a hull has been weighed by an official measurer 6 months prior to the change of ownership or thereafter.

- A.15.4 Upon alteration or repair to an item required by the certification control form, the relevant item shall be re-checked by an official measurer and the details and any re-certification fee that may be required shall be sent to the **certification authority**. A new **certificate**, showing the dates of initial and new **certification control**, may then be issued to the owner.
- A.15.5 Upon alteration to **corrector weights** the parts shall be re-weighed by an official measurer and the details and any re-certification fee that may be required shall be sent to the **certification authority**. A new **certificate** may then be issued to the owner.

## **A.16 RETENTION OF CERTIFICATION DOCUMENTATION**

- A.16.1 The **certification authority** shall retain the original documentation upon which the current **certificate** is based.

Section B – Not in Use

# PART II – REQUIREMENTS AND LIMITATIONS

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The **crew** and the **boat** shall comply with the rules in Part II when *racing*. In case of conflict Section C shall prevail.

The rules in Part II are **closed class rules**. **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) RRS 50.4 shall not apply.  
A spinnaker is defined as a sail set forward of the foremost mast with **half width** greater than 75% of **foot length**. Any other sail tacked down forward of the foremost mast is a headsail.
- (b) ERS Part I – Use of Equipment shall apply except where deleted or amended by these class rules.
- (c) ERS Part II, Definitions, Section G, Sail Definitions, shall apply except as stated by Swan 45 Rules.
- (d) The Offshore Special Regulations Category 4.

### C.2 CREW AND HELMSMAN

#### C.2.1 LIMITATIONS

ISAF Regulation 22, ISAF Sailor Classification Code, shall apply. The **crew** shall consist of no more than 5 persons either unclassified or classified as Group 3 under ISAF Regulation 22, Sailor Classification. All other **crew** shall hold a valid Group 1 or Group 2 classification.

#### C.2.2 WEIGHT

The total weight of the **crew** dressed in shorts and shirt shall not exceed 950 kg. The Race Committee may weigh a **crew** before and/or during an event.

#### C.2.3 HELMSMAN

- (a) The Swan 45 Class is an 'Owner Driver' Class. The provisions below for helmsmen other than bone fide owners are included solely:
  - (i) to provide for relief helmsmen during a race.
  - (ii) to accommodate charterers.
  - (iii) to provide for an owner or charter helmsman unavoidably absent for part of an event.
- (b) Boats shall be helmed by their bone fide owners, except as provided below.
- (c) Exceptionally, in emergency boats may be helmed by any **crew** member.

#### C.2.4 RELIEF HELMSMEN.

- (a) An owner or charterer may request permission for relief helmsmen in writing to the Class Manager a minimum of 14 days before a race. In approving relief helmsmen, the Class Manager will consult with the owners panel defined by C.2.7 below.
- (b) A relief helmsman is defined as: A member of the crew, currently classified as ISAF Group 1 and who in the last 5 years has only been classified as Group 1, or would have been so classified had he held a classification, nominated by the owner or charterer to helm the boat as permitted by Rules C.2.4 (c) and (d).

- (c) Except as provided by Rules C.2.3 (c), C.2.4 (e), and C.2.6, in a race with a time limit up to 4 hours a relief helmsman shall not helm the boat:
  - (i) at the start or finish of a race.
  - (ii) at any mark rounding.
  - (iii) for more than a total of 20 minutes.
- (d) Except as provided by Rules C.2.3 (c), C.2.4 (e), and C.2.6, in a race with a time limit of more than 4 hours, the boat shall be helmed by her bona fide owner or charter helmsman for the first hour of the race. Thereafter the boat may alternatively be helmed by any previously approved relief helmsmen.
- (e) Notices of race may modify Rules C.2.4 (c) and (d).

#### C.2.5 CHARTERS

- (a) Charter helmsmen shall request permission to helm in writing to the Class Manager a minimum of 14 days before a race. In approving charter helmsmen, the Class Manager will consult with the owners panel defined by Rule C.2.7.
- (b) A charter helmsman shall:
  - (i) be Classified Group 1 under the ISAF Sailor Classification Code.
  - (ii) in the last 5 years have only been classified as Group 1, or would have been so classified had he held a classification.
- (c) At the Swan 45 World Championships, Gold Cup or at a Swan 45 Area Championship event a boat which has been chartered shall not take the boat owner on board while racing.

#### C.2.6 OWNER OR CHARTER HELMSMAN ABSENT

In the unavoidable absence of an owner or previously approved charter helmsman:

- a) at the Swan 45 World Championships, Gold Cup or at a Swan 45 Area Championship event, a previously approved relief helmsman may helm the boat for races on not more than one day.
- b) at other events, an owner or charterer may request permission from the protest committee for a previously approved relief helmsman to helm the boat as necessary.
- c) at all events, if no relief helmsman has been previously approved, then approval for a relief helmsman shall first be sought from the Class Representative (who shall be a member of the Executive Committee) using the criteria defined by rule C.2.4 (b).

#### C.2.7 OWNERS PANEL

- (a) At events other than the Swan 45 World Championships, Gold Cup or a Swan 45 Area Championship event, any dispute concerning a helmsman shall be referred to a panel of a minimum of three owners appointed by the NCA. At the Swan 45 World Championships, Gold Cup or at a Swan 45 Area Championship event, the panel shall be appointed by the EC and may additionally include members of the EC in an advisory but non voting capacity.
- (b) In considering applications for permission as a relief or charter helmsman, the panel:
  - (i) Shall confirm eligibility under Rules C.2.4 (b) or C.2.5 (b).
  - (ii) May consider and use any other facts that it considers relevant.
- (c) Any owner or charterer may request a review of the eligibility of any helmsman. In considering such reviews, the panel:
  - (i) Shall if relevant confirm eligibility under Rules C.2.4 (b), C.2.5 (c), and C.2.6.
  - (ii) Shall if relevant consider and confirm bone fide ownership or charter.
  - (iii) May consider and use any other facts that it considers relevant.
  - (iv) Shall in accordance with ISAF Regulation 22 consult with the ISAF Sailor Classification Commission before rejecting any helmsman on the grounds that his current classification is incorrect.

- (d) Panel findings shall be final and shall not be subject to review by any other body.
- (e) Race results prior to any panel finding shall be unaffected, except that when the panel finds that there may have been a gross breach of good manners or sportsmanship, it shall report its findings to the protest committee. All panel findings shall be reported to the RO.
- (f) The Race Committee shall post the names and ISAF Registration Numbers of all helmsmen on the Official Noticeboard at an event.

### **C.3 PERSONAL EQUIPMENT**

- C.3.1 There are no restrictions on personal equipment

### **C.4 ADVERTISING**

#### **C.4.1 LIMITATIONS**

Advertising may be displayed in accordance with ISAF Regulation 20, Advertising Code, limited to the extent that competitor advertising on the hull is only permitted within 2.5m of the aft end of the hull.

### **C.5 CLASS ASSOCIATION MEMBERSHIP**

- C.5.1 The owner (or charterer) shall be a current member of the Swan 45 Class Association.

### **C.6 PORTABLE EQUIPMENT**

#### **C.6.1 MANDATORY**

##### **(a) FOR USE**

- (i) A second anchor. The minimum combined weight of anchor and chain for the main anchor shall be 32 kg and for the second anchor 12 kg.

#### **C.6.2 OPTIONAL**

##### **(a) FOR USE**

- (i) There are no restrictions on portable equipment except where stated in these **class rules**.
- (ii) Any item of internal equipment listed by Rule D.3.1 (b) Optional Equipment, may be carried. Boats wishing to fit equipment of similar function and weight may apply to the class manager for dispensation. No other fixed items of internal equipment may be carried. Boats wishing to fit additional equipment may apply to the class manager for dispensation.

#### **C.6.3 PROHIBITED**

- (a) The mast jack shall not be carried aboard while racing.

### **C.7 BOAT EMPTY WEIGHT**

- C.7.1 The "empty" condition is defined as fully rigged with **mast**, **boom**, one **spinnaker pole**, standing rigging, halyards, main sheet and vang. All other loose equipment including but not limited to **sails**, sheets and loose deck gear, safety equipment, anchors, fuel, water, food, catering utensils, personal effects, and tools shall be removed. Fixed extras such as generators, watermakers, electronic equipment etc. may be left aboard and shall be recorded on the certification control form.

- C.7.2 Minimum weight in empty condition shall be 9850 kg.

- C.7.3 Following weighing in empty weight condition by an official measurer, removal of any corrector weights shall invalidate the certificate. A new certificate shall be issued in accordance with Rule A.14.1 (d).

### **C.8 HULL**

#### **C.8.1 MODIFICATIONS, MAINTENANCE AND REPAIR**

- (a) With the exception of normal maintenance, which includes painting and minor repairs, no modifications are permitted to the hull external surface. The gelcoat surface shall not be removed except by light sanding prior to painting.
- (b) Routine maintenance such as painting and polishing to the hull and deck is permitted without new **certification control** and **re-certification**.

- (c) The minimum specification of internal equipment and fitout, engine, strut drive and propeller is defined by D.4.1(a). No item shown shall be moved or removed. Modifications to required internal equipment are permitted provided that the weight of the item is not reduced, except that with the exception of fairing, no modifications shall be made to the strut drive or propeller.

## C.8.2 FITTINGS

- (a) The minimum specification of deck equipment and fitout is defined by Nautor drawing 1-20-0849, revision G, 17.01.2003, '45 DECK ASSEMBLY'. No item shown shall be moved unless specifically listed. Modifications to or replacement of required deck equipment is permitted provided that the weight of the item is not reduced, except as permitted by C.8.2 (c) and (d). With the exception of linked or pedestal winch systems, any other item of deck equipment may be fitted. The location of the following items is optional:
  - (i) Bulls eye fairleads (Item No. 4)
  - (ii) Aft guy blocks (Item No. 11)
  - (iii) Pad eyes (Item No. 13)
  - (iv) Tweaker blocks and cleats (Item No. 14)
  - (v) Deleted
  - (vi) Foot rest (Item No. 53)
  - (vii) Deleted
  - (viii) Swivel bases, blocks and cleats for foreguy and vang (Item No. 56)
  - (ix) Vang turning blocks (Item No. 57)
  - (x) Furling line clutch (Item No. 67)
  - (xi) Headsail inhaul padeye (Item No. 71)
  - xii) Winch handle holder (Item No. 73)
- (c) The location and specification of the following items is optional and they may be not fitted:
  - (i) Stand up spring for foreguy block (Item No. 8)
  - (ii) Low lead block (Item No. 10)
  - (iii) Aft guy block (Item No. 11)
  - (iv) Pole foreguy block (Item No. 12)
  - (v) Padeye (Item No. 13)
  - (vi) Mooring cleat (Item No. 40)
  - (vii) Furling line block (Item No. 49)
  - (viii) Dorade box (Item No. 52)
  - (ix) Wichard padeye for outboard sheeting (Item No. 55)
  - (x) Clutch for furling line (Item No. 67)
  - (xi) Deck fitting for bathing ladder (Item No. 68)
- (d) The following items shall be carried but may be modified as specified:
  - (i) The pulpit (Item 38) may be modified to the extent that the upper rail forward of the headstay may be reduced in length
  - (ii) The grabrail on coachroof (Item 41) may be shortened as far aft as the first vertical support aft of the mast.
  - (iii) Fwd and stern navigation lights (Items Nos. 65 and 66) provided that navigation lights shall be mounted not lower than immediately below the pulpit/pushpit top rail and shall comply with Offshore Special Regulations
  - (iv) Deck fitting for flagpole (Item 79) may be replaced by an equivalent fitting on the pushpit

## C.9 HULL APPENDAGES

### C.9.1 MODIFICATIONS, MAINTENANCE AND REPAIR

- (a) **Keel** and **Rudder** fairing and painting is permitted without new **certification control** and **re-certification** provided that the minimum dimensions detailed by Appendices 2 and 3 are met.

## C.10 RIG

### C.10.1 MODIFICATIONS, MAINTENANCE AND REPAIR

- (a) No component may be moved or modified. Replacement components may be from any source provided that the weight of the component is not reduced.
- (b) Materials for running rigging are optional.

### C.10.2 MAST

#### (a) DIMENSIONS

- (i) **twolimit marks** of minimum width 25 mm shall be indelibly marked around the mast.
- (ii) With the mast jacked up, the upper edge of the **lower limit mark** shall not be more than 1860 mm above the **mast datum point** (see F.1.4 (a)).
- (iii) The lower edge of the **upper limit mark** shall not be more than 18660 mm above the upper edge of the **lower limit mark**.

### C.10.3 BOOM

#### (a) DIMENSIONS

- (i) An **outerlimit mark** of minimum width 25 mm shall be indelibly marked around the boom.
- (ii) The fore edge of the **outerlimit mark** shall not be more than 6660 mm from the aft face of the mast **spar**.

### C.10.4 STANDING RIGGING AND RIG POSITION

#### (a) DIMENSIONS

- (i) Headstay length measured between the pin centres of the headstay tangs on the bow and the mast shall not be more than 19500 mm.
- (ii) The horizontal distance measured from the front face of the mast **spar** at deck level to the centre of the headstay projected as necessary shall not be more than 5400 mm.

#### (b) USE

- (i) shrouds and headstay shall not be adjusted.
- (ii) the mast **spar** position at deck level shall not be adjusted.
- (iii) The mast heel shall be securely fixed and shall not be adjusted in any plane.

### C.10.5 RUNNING RIGGING

#### (a) USE

- (i) The masthead spinnaker halyard shall not be used and may be removed.

### C.10.6 SPINNAKER POLE

#### (a) MANUFACTURER

- (i) Manufacturer is optional.

#### (b) MATERIALS & CONSTRUCTION

- (i) The **spar** may be of any material.

#### (c) FITTINGS

- (i) Fittings are optional.

#### (d) DIMENSIONS

- (i) The length of the **spinnaker pole** measured on or near the centreplane of the boat from the forward face of the mast **spar** to the extremity of the **spinnaker pole** shall not exceed 5440 mm.

#### (e) WEIGHT

- (i) The weight of a **spinnaker pole** shall not be less than 7 kg.

### C.10.7 JOCKEY POLE

#### (a) MANUFACTURER

- (i) Manufacturer is optional.

- (b) MATERIALS & CONSTRUCTION
  - (i) The **spar** may be of any material.
- (c) FITTINGS
  - (i) Fittings are optional.
- (d) DIMENSIONS
  - (i) The length of the jockey pole measured between the extremities of the pole shall not be greater than 5440 mm.

## C.11 SAILS

### C.11.1 MODIFICATIONS, MAINTENANCE AND REPAIR

- (a) Routine maintenance such as small repairs, addition of **secondary reinforcement**, additions of tell tails and camber stripes is permitted without new **certification control** and re-certifying.
- (b) In case of repairs or modifications other than routine maintenance, provided not more than 20% in case of mainsails and headsails and 30% in case of spinnakers of the original **body of the sails** is replaced, the original class royalty label remains valid. However new **certification control** is required.
- (c) To repair sails during an event requires permission by the race committee (the Notice of Race or Sailing Instructions may allocate this function with a nominated class representative approved by the ec)

### C.11.2 LIMITATIONS

- (a) Not more than 1 mainsail, 5 headsails, and 5 spinnakers shall be carried aboard. Additionally, unlimited OSR Heavy Weather jibs, OSR Storm Jibs, and OSR Storm Trysails may be carried aboard.
- (b) Unless otherwise prescribed by a Notice of Race, not more than one set of sails may be presented for equipment inspection in for an event plus one additional mainsail, headsail and spinnaker.

### C.11.3 MAINSAIL

- (a) IDENTIFICATION
 

The sail numbers and national letters shall comply with the RRS.

### C.11.4 SPINNAKERS

- (a) IDENTIFICATION
 

The sail numbers and national letters shall comply with the RRS.

### C.11.5 SAIL ROYALTY LABELS

- (a) All sails shall carry a numbered sail royalty label adjacent to the tack of the sail.
- (b) A boat shall be entitled to royalty labels for use only on sails **certified** before 8<sup>th</sup> September 2008.
- (c) A boat shall be entitled to 1 mainsail royalty label, 2 headsail royalty labels, and 2 spinnaker royalty labels for calendar year 2009.
- (d) The EC shall decide and announce by 1<sup>st</sup> September of each year the number of royalty labels permitted for the following year. If no announcement is made, then a boat shall be entitled to 1 mainsail royalty label, 2 headsail royalty labels, and 2 spinnaker royalty labels for the following calendar year.
- (e) With the exception of (b) above, sail royalty labels shall only be used on sails **certified** during the current year.
- (f) Boats shall apply and pay for sail royalty labels to the Swan 45 Class Association which will keep a record of the royalty label numbers supplied to boats.
- (g) A boat may apply in writing to the Swan 45 Class Association for additional royalty labels to facilitate replacing sails requiring repairs over the limits of C.11.1 (b). A replacement royalty label may be issued at the discretion of the class manager provided all royalty labels for the calendar year have been used.
- (h) Sail royalty labels are not transferable between boats. A sail transferred between boats shall have a new royalty label attached from the annual allocation of the boat to which the sail is transferred. Exceptionally, boats under charter may use

sails with royalty labels allocated to either the charterer's boat or the chartered boat, but may not use sails from both boats.

- (i) A boat under charter to a person who is not (and has not been for the preceding 12 months) an owner of a Swan 45 shall be entitled to an additional set of royalty labels as defined by (c) above. Sails with royalty labels supplied under this paragraph shall not become part of the boat's sail inventory at the conclusion of the charter.
- (j) A new boat, or a boat which has not competed in a Swan 45 Class event for a minimum of 2 years, shall be entitled to 2 mainsail royalty labels, 7 headsail royalty labels, and 7 spinnaker royalty labels in the calendar year in which she first applies to the Swan 45 Class Association for a class certificate.

## Section D – Hull

### D.1 GENERAL

#### D.1.1 RULES

- (a) The **hull** shall comply with the **class rules** in force at the time of initial **certification**.

#### D.1.2 CERTIFICATION

- (a) See A.13

#### D.1.3 IDENTIFICATION

- (a) The hull shall carry the ISAF Plaque permanently displayed.

#### D.1.4 BUILDERS

- (a) The sole builder of Swan 45s is Oy Nautor AB.

### D.2 HULL, DECK, BULKHEADS, INTERIOR FITOUT

#### D.2.1 MATERIALS & CONSTRUCTION

- (a) Swan 45s shall only be built from approved Class moulds in accordance with these **class rules** including the official plans and specifications as detailed by Appendices 1 to 5.
- (b) The hull shape shall comply with Appendix 1.

#### D.2.2 CONSTRUCTION

- (a) The hull deck and bulkheads shall be built in accordance with the construction drawings.

### D.3 ASSEMBLED HULL

#### D.3.1 INTERIOR FITTINGS

##### (a) MANDATORY

- (i) The minimum specification for internal equipment is as shown by Nautor drawings 3-51-1257D, 'Installations 2-Cabins', 26.04.2002, and 3-51-1258D, 'Installations 3-Cabins', 26.04.2002.
- (ii) The strut drive is Volvo Penta MS25S.
- (iii) The propeller is Flex-o-fold 2-blade 17"x13" LH Racing.

##### (b) OPTIONAL

The following items of equipment are optional:

		Drawing No.	Drawing No.
		3-51-1257D	3-51-1258D
	Item	Item No.	Item No.
(i)	Seawater foot pump	36	22
(ii)	Fridge compressor	19	20
(iii)	Accumulator tank	15	16
(iv)	Pre filter	14	15
(v)	Feed pump	13	14
(vi)	Spectra membrane	11	12
(vii)	Spectra clark pump	10	11
(viii)	Fuel/water tank	34	8
(ix)	Fuel/water deck fill	33	7
(x)	Cabin heater	1	1
(xi)	Adapter for Borescope	45	47
(xii)	3-way valve Jabsco	43	42
(xiii)	Drinking water purifier	35	36

- |                   |    |    |
|-------------------|----|----|
| (xiv) Deck shower | 30 | 34 |
|-------------------|----|----|
- (xv) The approved list of optional equipment is as defined by Nautor document 'List of Optional Equipment. Swan 45', January 2002, updated November 2003.
  - (xvi) Weed cutters/deflectors may be fixed to the hull surface immediately forward of the rudder and keel. No dimension of a weed cutter/deflector may exceed 0.075 m. Weed cutters/deflectors shall have no moving parts.
  - (xvii) The door separating the saloon from the fore cabin may be removed and need not be carried aboard.

#### D.3.2 DECK FITTINGS

##### (a) MANDATORY

The minimum specification of deck equipment is as shown by Nautor drawing 1-20-0849, revision G, 17.01.2003, '45 DECK ASSEMBLY', with the exception of those items listed as optional

#### D.3.3 FACTORY WEIGHT

- (a) The completed hull and deck, including all internal equipment, engine, strut drive and propeller, deck equipment, keel, and rudder shall be weighed as Factory Weight. Minimum factory weight shall be 9490 kg.

#### D.3.4 HULL CORRECTOR WEIGHTS

- (a) The weight of the boat shall be brought up to minimum Factory Weight by the installation of forward and aft lead **corrector weights** in the positions shown by Appendix 4. Forward and aft corrector weights shall be approximately equal in weight.
- (b) The builder shall record Factory Weight and the weight of **corrector weights** fitted.

## Section E – Hull Appendages

### E.1 KEEL AND RUDDER

#### E.1.1 RULES

- (a) The **keel** and **rudder** shall comply with the **class rules** in force at the time of the **certification**.

#### E.1.2 CERTIFICATION

- (a) The **keel** weight shall be recorded on the **certificate**.

#### E.1.3 MANUFACTURERS

- (a) Manufacturers of hull appendages shall be licensed by Oy Nautor AB.

#### E.1.4 MATERIAL & CONSTRUCTION

- (a) The keel shall be built in accordance with the manufacturing specification

#### E.1.5 DIMENSIONS

- (a) Keel and rudder shapes may be checked at any time by an official measurer. No dimension shall be less than shown by Appendices 2 and 3.
- (b) The keel and rudder shall be located as shown by Appendices 2 and 3. The builder shall record the keel position on the certification control form.
- (c) Maximum keel draft, as shown by Appendix 2 shall be recorded on the certification control form by the builder.

#### E.1.6 WEIGHTS

- (a) The keel, excluding removable bulb ballast, keel nuts and washers, shall weigh minimum 3870 kg and maximum 3950 kg. The builder shall weigh the keel and record the weight on the certification control form.
- (c) The rudder shall weigh not less than 33 kg. The builder shall weigh the rudder, and record the weight on the certification control form.

## Section F – Rig

### F.1 GENERAL

#### F.1.1 RULES

- (a) The **spars** and their fittings shall comply with the **class rules** in force at the time of **certification** of the **spar**.
- (b) The standing and running **rigging** shall comply with the **class rules**.

#### F.1.2 MODIFICATIONS, MAINTENANCE AND REPAIR

- (a) The **mast** and **boom** shall comply with the Oy Nautor AB approved specifications and construction drawings. No component may be moved or modified.

#### F.1.3 CERTIFICATION

- (a) Builders shall certify that the mast and boom and ancillary components comply with the approved Swan 45 mast and boom construction and material specifications and drawings held by Oy Nautor AB.

#### F.1.4 DEFINITIONS

##### (a) MAST DATUM POINT

The **mast datum point** is the forward face of the mast at sheerline height measured at 45° to the horizontal abreast the mast **spar**.

#### F.1.5 MANUFACTURER

- (a) Builders of Swan 45 **masts** and **booms** shall be licensed by Oy Nautor AB.
- (b) The **mast**, standing rigging and **boom** shall comply with Nautor drawing 1-81-3218 revision C 20-11.2003, 'SAILPLAN'.

### F.2 MAST

#### F.2.1 MATERIALS & CONSTRUCTION

- (a) The **spar** shall be constructed in accordance with the construction drawings.
- (b) A steaming light complying with local regulations shall be fitted to the spar in the position of the original supplied light. A protective cage is optional.

#### F.2.2 DIMENSIONS

	Minimum (mm)	Maximum (mm)
Mast athwartships dimension at <b>lower limit mark</b>	133	136
Mast fore and aft dimension at <b>lower limit mark</b>	272	275
Mast athwartships dimension at <b>upper limit mark</b>	103	106
Mast fore and aft dimension at <b>upper limit mark</b>	142	145
Butt below <b>mast datum point</b>	1465	1475
Spreader 1 above <b>lower limit mark</b>	5150	5160
Spreader 2 above <b>lower limit mark</b>	11300	11315
D3 above <b>lower limit mark</b>	17090	17105
Headstay pin above <b>lower limit mark</b>	16860	16875
Upper spinnaker halyard above <b>lower limit mark</b>	18890	18905
Masthead above <b>lower limit mark</b>	18975	18990

### F.2.3 WEIGHT

- (a) The builder shall weigh the mast in the following condition:
  - (i) Fully rigged with all shrouds, headstay, backstay, spreaders, lights, antennae, instrument sensors, displays and brackets, wiring and all permanently attached fittings.
  - (ii) All halyards, running rigging and associated loose blocks and tackle shall be removed. Messengers of not more than 4mm diameter and long enough to replace the internal portions of running rigging may be used.
  - (iii) All fittings and standing rigging shall be in their normal positions with standing rigging pulled taut down the rig. Moveable items, such as spinnaker pole heel cars shall be at their lower limit of travel.
- (b) The centre of gravity of the **mast** in the condition as in (a) shall not be less than 6800 mm above the upper edge of the **lower limit mark**.
- (c) The weight of the **mast** in the condition as in (a) shall not be less than 285 kg.

## F.3 BOOM

### F.3.1 FITTINGS

- (a) MANDATORY  
As per the manufacturing specification.

### F.3.2 DIMENSIONS

As per the manufacturing specification

### F.3.3 WEIGHT

- (a) The builder shall weigh the **boom** in the following condition:
  - (i) Fully rigged including outhaul.
  - (ii) All reef lines shall be removed. Messengers of not more than 4mm diameter and long enough to replace the internal portions of reef lines may be used.
- (b) The weight of the **boom** in the condition as in (a) shall not be less than 43 kg.

# Section G – Sails

## G.1 GENERAL

### G.1.1 RULES

- (a) **Sails** shall comply with the **class rules** in force at the time of **certification** except that all headsails shall comply with Rule G.3.2.

### G.1.2 CERTIFICATION

- (a) The official measurer shall **certify** mainsails and headsails in the **tack** and spinnakers in the **head** and shall sign and date the **certification mark**.
- (b) An **In-House Official Measurer** may **certify sails** produced by that manufacturer

### G.1.3 SAILMAKER

- (a) **Sails** may be manufactured by any sailmaker.

### G.1.3 CONSTRUCTION

- (c) **Sail** construction is free provided it does not involve
  - (i) Artificially thickened areas (eg foamed sails)
  - (ii) Multiple surfaces whether inflated by the action of the wind or otherwise.

## G.2 MAINSAIL

### G.2.1 IDENTIFICATION

- (a) The class insignia shall conform with the dimensions and requirements as detailed in the diagram available from the class manager and be placed in accordance with the diagram shown in Appendix 5.

### G.2.2 CONSTRUCTION

- (a) The construction shall be: **soft sail**.
- (b) Any number and length of battens may be used.
- (c) The following are permitted: Stitching, glues, tapes, bolt ropes, corner eyes, headboard with fixings, Cunningham eye or pulley, **batten pocket patches**, batten pocket elastic, batten pocket end caps, mast and boom slides, leech line with cleat, windows, tell tales, sail shape indicator stripes.

### G.2.3 DIMENSIONS

Mainsail **upper leech point** is defined as the point on the leech equidistant from the **head point** and the **three quarter leech point**. Mainsail seven eighth width (MUW) is defined as the shortest distance between the upper leech point and the luff.

- (a) **Top Width** (HB) 266 mm
- (b) **Upper width**(seven eighths)(MUW) 1670 mm
- (c) **Three quarter width** (MTW) 2800 mm
- (d) **Half width** (MHW) 4530 mm

## G.3 HEADSAILS

### G.3.1 CONSTRUCTION

- (a) The construction shall be: **soft sail**.
- (b) The following are permitted: Stitching, glues, tapes, bolt ropes, corner eyes, headboard with fixings, Cunningham eye or pulley, **batten pocket patches**, batten pocket elastic, batten pocket end caps, leech line with cleat, windows, tell tales, sail shape indicator stripes.

### G.3.2 DIMENSIONS

Headsail dimensions shall not exceed:

- (a) **Luff length** (LL) 19000 mm
- (b) **Luff Perpendicular** (LP) 5760 mm
- (c) **Half width** (HHW) 2970 mm
- (d) **Threequarter Width** (HTW) 1620 mm
- (e) **Top Width** (HHB) 150 mm
- (f) Spare

## G.4 SPINNAKER

### G.4.1 CONSTRUCTION

- (a) The construction shall be: **soft sail**.
- (c) The following are permitted: Stitching, glues, tapes, corner eyes, tell tales, sail shape indicator lines.

### G.4.2 DIMENSIONS

- (a) The maximum spinnaker area shall not exceed 153 m<sup>2</sup>.
- (b) Spinnaker area shall be calculated as follows:  
Spinnaker Area = ((SLU + SLE)/2) \* ((SF + (4 \* SHW))/5) \* 0.83

SLU = **Spinnaker Luff Length**  
SLE = **Spinnaker Leech Length**  
SHW = **Spinnaker Half Width**

Effective Date: 29<sup>th</sup> May 2009

Published Date: 29<sup>th</sup> May 2009

Previous issues: Version 09-03,

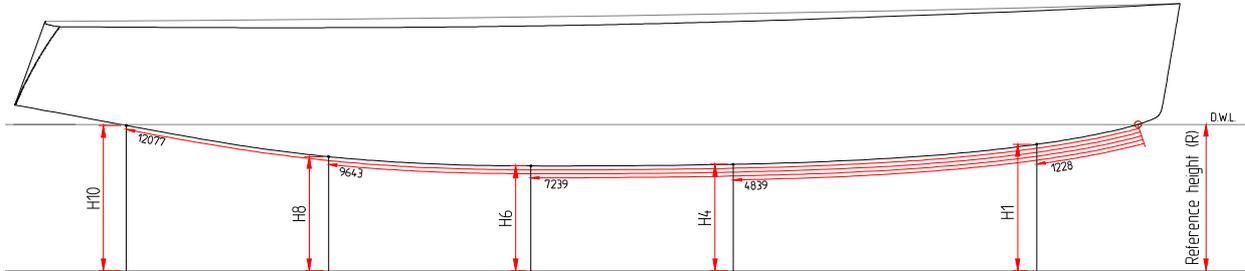
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# PART III – APPENDICES

## Dimensions, Weights and Equipment

### Appendix 1 Hull Rocker

The builder shall record the height of 5 points on the hull centreline as H1, H4, H6, H8, H10 at stations 1, 4, 6, 8 and 10 as shown below. The heights shall fall within the tolerances in Table A1.1.

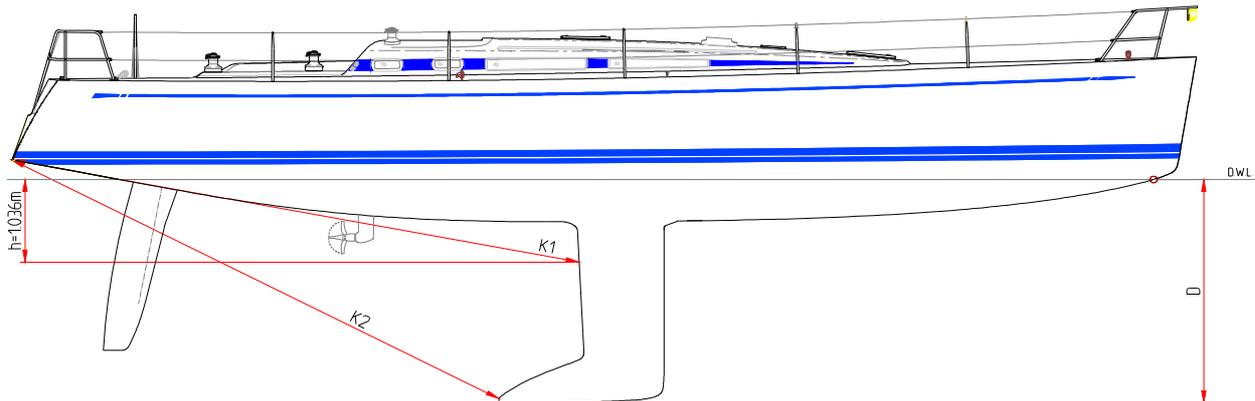


**Table A1.1**

Station	Min. [mm]	Rocker (R-H) [mm]	Max. [mm]
1	243		263
4	499		519
6	515		535
8	398		418
10	004		024

### Appendix 2 Keel

The keel shall be located and shall have draft within the tolerances defined by Table A2.1.



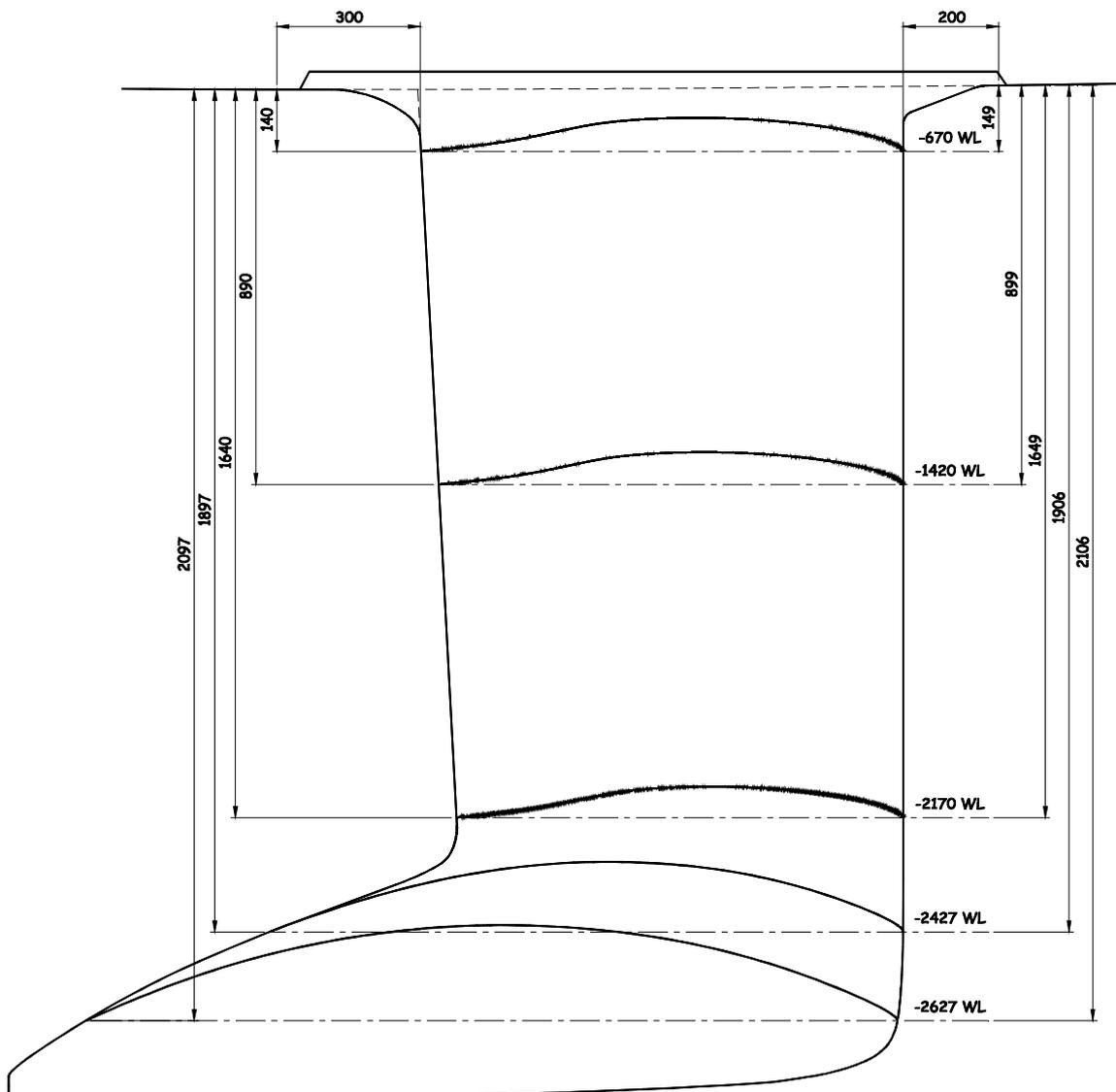
**Table A2.1**

	Min. [mm]	Measurement [mm]	Max. [mm]
K1	6670		6730
K2	6350		6415
D	2790		2820

## Table Of Keel Offsets

Chords and half breadths in millimetres.  
Chord lengths and chord sections are minima.

Section	Chord Length	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%
-670 WL	1010	001	011	027	049	067	074	076	071	061	044
-1420 WL	973	001	011	026	047	064	072	073	069	059	042
-2170 WL	935	001	010	025	045	062	069	070	066	057	041
-2427 WL	1327	000	051	093	126	147	157	155	142	115	073
-2627 WL	1700	000	077	137	179	205	215	209	189	151	092

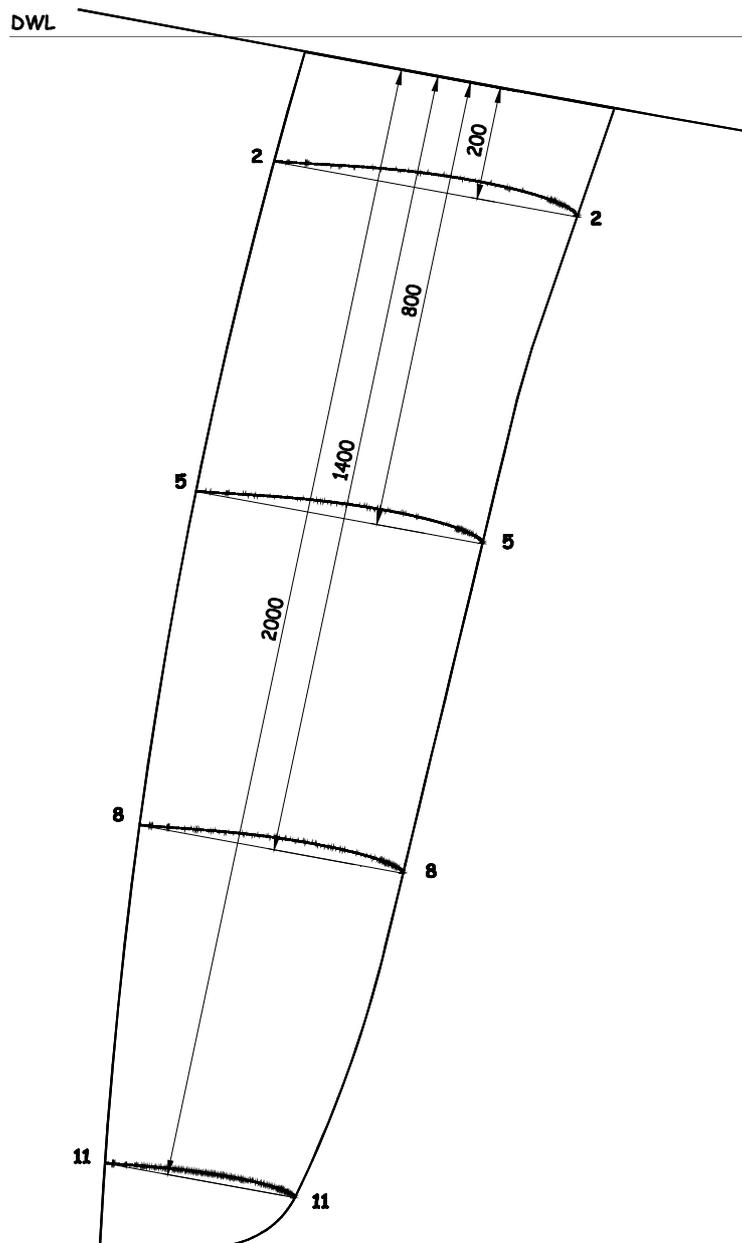


## Appendix 3. Rudder

### Table Of Rudder Offsets

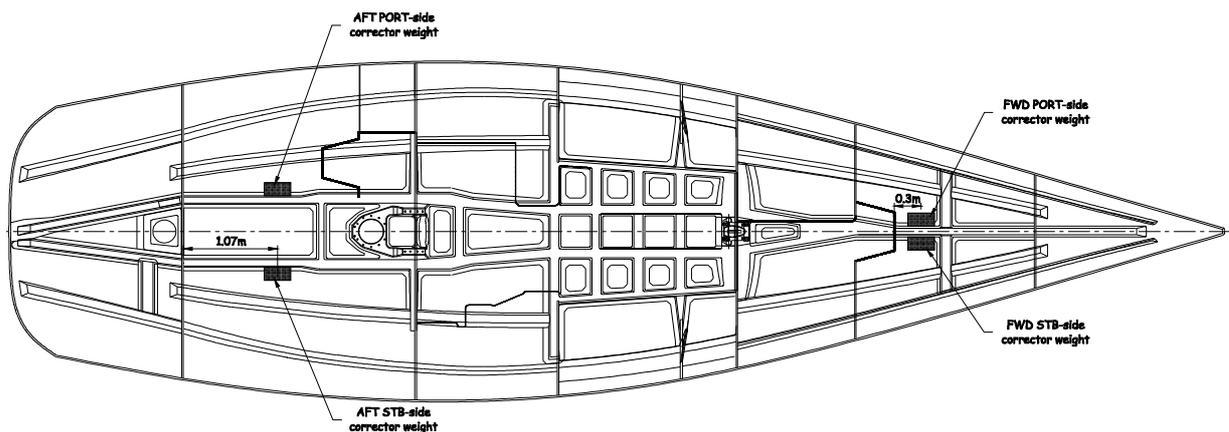
Chords and half breadths in millimetres.  
Chord lengths and chord sections are minima.

Section	Chord Length	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%
2-2	510	001	007	014	020	025	029	030	030	028	022
5-5	482	001	006	012	018	023	026	027	028	025	020
8-8	443	001	005	010	015	019	022	023	023	021	017
11-11	319	001	004	007	010	013	015	016	016	015	011



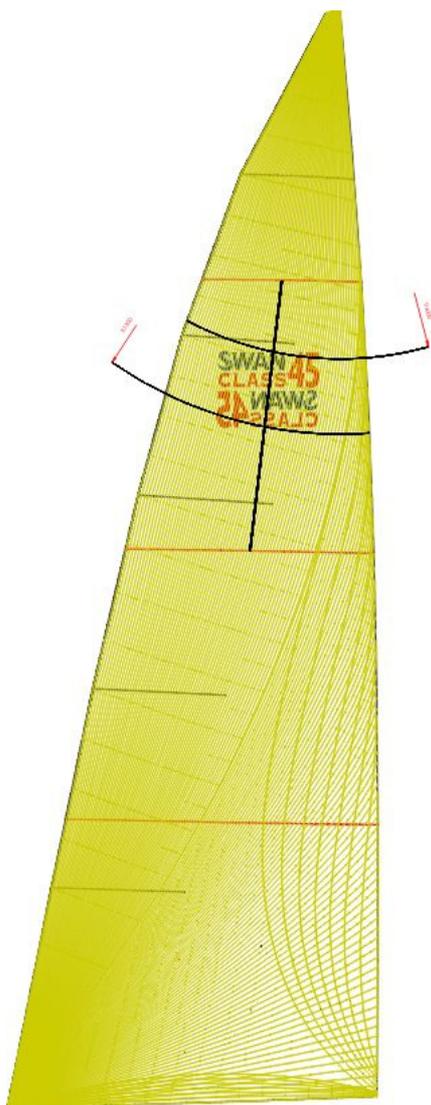
## Appendix 4. Corrector Weight Positions

Forward and aft corrector weights shall be located as shown by Nautor drawing 3-11-0545



## Appendix 5. Class Insignia

The Class insignia shall be placed on both sides of the mainsail between arcs of radius 6.00m and 7.30m measured from the head of the sail with the centres of the insignias on the centre line of the sail. The top of the starboard logo shall be on the 6.00m arc and the bottom of the port logo on the 7.30m arc as shown below.



## Appendix 6. SUPPORT BOATS

- A6.1 Except in emergency, while racing under these Class Rules:
- (a) Individual support or coach boats shall not have contact of any nature either by radio, telephone, vocal signal, visual signalling of any kind i.e. tactical placement, flags and/or different colours of clothing, or the transfer of equipment, persons or victuals, with a boat from the time the boat leaves the dock each day until the boat has finished racing for the day.
  - (b) Individual support or coach boats shall not approach closer than 100 metres to any boat that is racing, except at a mark rounding or the finish where they shall not approach closer than 30 metres to the mark or finish line.
  - (c) At the Warning Signal individual support or coach boats shall leave the area being used by the boats and may station themselves outside of either the committee boat or the start line outer distance mark, but no closer to either end than 30 metres.
  - (d) Infringements of this rule will result in a penalty to the boat associated with the support boat and may be either place penalties or disqualification at the discretion of the protest committee.