SWAN 45
CLASS RULES
2008

VERSION 08-02, MAY 2008

This version, 08-02 supersedes version 08-01, February 2008.

The only change from version 08-01 is as follows and is marked by side baring in the rule text:

- In Class Rule C.10.2 (a) (ii) the maximum distance from the mast datum point to the lower limit mark is increased from 1800 to 1860 mm

It is intended that this version of the class rules will be substantive with effect from 22nd May 2008 for the duration of 2008. However, Nautor and the Swan 45 Class organisation reserve the right to propose any changes that become urgently necessary.
The Swan 45 was designed in 2001 by German Frers and was adopted as a recognised class in 2005.
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Swan 45 Class Rules v08-01 (ISAF) MJU 080130
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 were 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

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)

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 The Class Chief Measurer shall be the RORC RO Technical Manager.
A.3.3 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 RO.
A.4.2 The Class Chief Measurer shall be the RORC RO Technical 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 proposed by the RO and 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 NCA members and the RO who may impose limitations on their application.
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 for equipment inspection.
A.11.2 Certification control is conducted by the ICA.

A.12 HULL CERTIFICATION
A.12.1 A certificate be issued by the RO and 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 certification authority.
A.13.3 Upon receipt of a satisfactorily completed certification control form and the fee the certification authority may issue a certificate. The certification authority 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 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.15.2 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.
A.15.3 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.15.4 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

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 G.2.2, Leech, shall not apply. MAINSAIL, HEADSAIL and SPINNAKER Leech is defined as: The aft edge.
(d) ERS G.2.3, Luff, shall not apply. MAINSAIL, HEADSAIL and SPINNAKER Luff is defined as: The fore edge.
(e) ERS G.4.2 (c) Head Point, SPINNAKER shall not apply. SPINNAKER Head Point is defined as:
SPINNAKER: The intersection of the leech and the luff, extended as necessary.
(f) SPINNAKER Half Luff Point is defined as: The point on the luff equidistant from the tack and head points.
(g) ERS G.7.1(b), Spinnaker Foot Length, shall not apply. SPINNAKER Foot Length is defined as: The distance between the clew point and the tack point.
(h) ERS G.7.5(b), Spinnaker Half Width, shall not apply. SPINNAKER Half Width is defined as: The distance between the half leech point and the half luff point.
(i) 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.
(d) A charter helmsman, other than one who is the bone fide owner of a Swan 45, shall not helm a boat at the Swan 45 World Championships, Gold Cup or at more than two Swan 45 Area Championship events in any one calendar year.

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
Racing under these Class Rules is ISAF Regulation 20, Advertising Code, Category C, 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 RO for dispensation. No other fixed items of internal equipment may be carried. Boats wishing to fit additional equipment may apply to the RO 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.7.4 All boats competing in the Swan 45 World Championships shall have been officially weighed in the 6 months before the first race of the event.

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) Tweeker 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) two limit 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)).

(ii) 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 outer limit mark of minimum width 25 mm shall be indelibly marked around the boom.

(ii) The fore edge of the outer limit 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 is permitted without new certification control and re-certiﬁcation.

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, no more than one set of sails may be measured in for an event.

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.
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
   (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:

<table>
<thead>
<tr>
<th>Item</th>
<th>Drawing No. 3-51-1257D</th>
<th>Item No.</th>
<th>Drawing No. 3-51-1258D</th>
<th>Item No.</th>
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<tbody>
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<td>(i) Seawater foot pump</td>
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<td>(ii) Fridge compressor</td>
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<td>(iii) Accumulator tank</td>
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<td>(v) Feed pump</td>
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<td>(vi) Spectra membrane</td>
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<td>(vii) Spectra clark pump</td>
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<td>(viii) Fuel/water tank</td>
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<td>(ix) Fuel/water deck fill</td>
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<td>(x) Cabin heater</td>
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<td>(xi) Adapter for Borescope</td>
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<td>(xii) 3-way valve Jabsco</td>
<td>43</td>
<td>42</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(xiii) Drinking water purifier 35 36
(xiv) Deck shower 30 34
(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 Appendix 5. 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’, and the dimensions in Appendix 5.

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Minimum (mm)</th>
<th>Maximum (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mast athwartships dimension at lower limit mark</td>
<td>133</td>
<td>136</td>
</tr>
<tr>
<td>Mast fore and aft dimension at lower limit mark</td>
<td>272</td>
<td>275</td>
</tr>
<tr>
<td>Mast athwartships dimension at upper limit mark</td>
<td>103</td>
<td>106</td>
</tr>
<tr>
<td>Mast fore and aft dimension at upper limit mark</td>
<td>142</td>
<td>145</td>
</tr>
<tr>
<td>Butt below mast datum point</td>
<td>1465</td>
<td>1475</td>
</tr>
<tr>
<td>Spreader 1 above mast datum point</td>
<td>6950</td>
<td>6960</td>
</tr>
<tr>
<td>Spreader 2 above mast datum point</td>
<td>13100</td>
<td>13115</td>
</tr>
<tr>
<td>D3 above mast datum point</td>
<td>18890</td>
<td>18905</td>
</tr>
<tr>
<td>Headstay pin above mast datum point</td>
<td>18660</td>
<td>18675</td>
</tr>
<tr>
<td>Upper spinnaker halyard above mast datum point</td>
<td>20690</td>
<td>20705</td>
</tr>
<tr>
<td>Masthead above mast datum point</td>
<td>20775</td>
<td>20990</td>
</tr>
</tbody>
</table>
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.

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) The RO may appoint one or more persons at a sailmaker to measure and 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 6.

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 (seven eighths) width (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
Headseal dimensions shall not exceed:
(a) Luff length (LL) 19000 mm
(b) Luff Perpendicular (LP) 5760 mm
(c) **Half width** (HHW) 3080 mm
(d) For sails certified after 1 December 2007:
   - **Threequarter Width** (HTW) 1650 mm
(e) **Top Width** (HHB) 150 mm
(f) For sails certified after 1 December 2007, no hollow in the **leech** of the sail between adjacent batten pockets shall exceed 1.5% of the distance between the batten pocket **leech** points. For the purpose of this rule a batten pocket **leech** point is defined as the point on the **leech** where the **leech** intersects the centreline of the **batten pocket** extended as necessary.

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$^2$.
(b) Spinnaker area shall be calculated as follows:

\[
\text{Spinnaker Area} = \left(\frac{\text{SLU} + \text{SLE}}{2}\right) \times \left(\frac{\text{SF} + (4 \times \text{SHW})}{5}\right) \times 0.83
\]

- **SLU** = Spinnaker Luff Length
- **SLE** = Spinnaker Leech Length
- **SHW** = Spinnaker Half Width
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>
<thead>
<tr>
<th>Station</th>
<th>Min. [mm]</th>
<th>Rocker (R-H) [mm]</th>
<th>Max. [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>243</td>
<td></td>
<td>263</td>
</tr>
<tr>
<td>4</td>
<td>499</td>
<td></td>
<td>519</td>
</tr>
<tr>
<td>6</td>
<td>515</td>
<td></td>
<td>535</td>
</tr>
<tr>
<td>8</td>
<td>398</td>
<td></td>
<td>418</td>
</tr>
<tr>
<td>10</td>
<td>004</td>
<td></td>
<td>024</td>
</tr>
</tbody>
</table>

Appendix 2   Keel

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

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Min. [mm]</th>
<th>Max. [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>K1</td>
<td>6670</td>
<td>6730</td>
</tr>
<tr>
<td>K2</td>
<td>6350</td>
<td>6415</td>
</tr>
<tr>
<td>D</td>
<td>2790</td>
<td>2820</td>
</tr>
</tbody>
</table>
## Table Of Keel Offsets

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

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

![Diagram of keel offsets](image-url)
Appendix 3. Rudder

Table of Rudder Offsets

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

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