

Sigma 33 OOD Class Measurement Rules

1 Object

These Rules, Specifications and the Approved Plans are intended to ensure that Sigma 33 One Design Class yachts are as nearly alike as possible as regards:-

- i) Hull and deck shape and weight
- ii) Shape and weight of keel and rudder
- iii) Shape and area of sail plan
- iv) Size and weight of spars and rigging
- v) Weight and distribution of accommodation layout
- vi) Specification and weight of engine, stern-gear, batteries and other machinery and any other matter which may influence the speed or reduce the weight of the yacht
- vii) The yacht and her equipment shall comply with the current Class Rules as interpreted by the Class Association. No Class Rule or Interpretation may contravene the provisions of the current rating system. No alternatives are allowed except as specified in these Rules.

2 Protection of One Design

- 2.1 The administering authority for the Class shall be the Sigma 33 OOD Class Association, which may co-operate with such National or International Authority as will best promote the management and popularity of the Class.
- 2.2 Copyrights of the Sigma 33 design shall remain the property of David Thomas unless otherwise specifically assigned.
- 2.3 Sole rights to build the Sigma 33 shall be assigned by the committee when the circumstances require this.
- 2.4 Hull, deck and rudder construction shall be of reinforced plastics in accordance with the lines, construction and general arrangement plans and specifications.
- 2.5 Production moulds for hull, deck and rudder shall be made from GRP plugs only obtainable from the master moulds. The casting pattern for the fin keel shall be taken from the master plug.
- 2.6 Hull and deck lay up and stiffening shall be strictly to the specification designed to ensure similarity in shape, strength and weight distribution.
- 2.7 Hull and deck shall be permanently joined, with the hull in its mould, so that the sheerline, profile and all girths, depths and dimensions that affect the hull shape shall be as shown on the lines plan.
- 2.8 In order to qualify for one design status, the yachts shall be put in measurement trim as defined below which shall be equivalent to the FFM (Freeboard Forward Measurement) of not more than 1094mm and FAM (Freeboard Aft Measurement) of not less than 924mm and not more than 945mm. These measurements are taken from points where a 45 degree tangent touches the sheerline to the surface of the water. Measurements shall be taken on both sides of the yacht and averaged to produce the freeboard measurements. FFM measured 634mm aft from the stem. FAM measured aft where the transom meets the sheerline.
Measurement trim is achieved as follows:-
 - a) The yacht shall float upright and free of mooring or anchor effects. No person shall be on board during measurement.
 - b) The yacht must be rigged ready for sailing with sheets and guys stowed aft of the mast. The mainsail shall be furled on the boom and all remaining sails stowed on the cabin sole aft of the mast.
 - c) All mattresses, cushions and bedding shall be stowed on their normal bunks and all navigational and cooking appliances shall be in their normal stowage. Batteries, anchors and chain shall be secured in position as described in 15.
 - d) No clothing food or stores shall be on board.
 - e) Fresh water tanks shall be empty.
 - f) Liferaft shall not be on board during measurement.
 - g) Sufficient fuel shall be on board to allow the yacht to proceed under power.
- 2.9 The current Approved Class Sailmakers shall be Elvstrom Sailmakers UK Ltd, North Sails UK and UK Sailmakers. Only sails made by these or previous Class Sailmakers are permitted. The approved Sailmakers shall only supply standard sails as approved by the Class Committee. Changes in the Approved Class Sailmakers shall be authorised only by the Sigma 33 OOD Class Association which may delegate this responsibility to the Committee.
- 2.10 Masts, booms and spinnaker booms produced by Kemp and then Selden are standard. For booms and spinnaker booms, the nearest equivalent to the originally-produced section is acceptable. For masts, where Selden no longer offer the original section, extrusions produced for the Association to the same design (and which can be purchased from the Association) are acceptable. On an on-going basis the Committee may make such alternative arrangements as it deems necessary.

- 2.11 If it is considered that there has been any attempt to depart from the One Design or these Rules in any particular, or from the spirit of these Rules, in order to gain performance advantage, the Committee of the Class Association has the right to declare the yacht out-of-class from the time the attempt was made until such time as any deviations have been rectified.

3. Measurement, Certificates and One-Design Racing

- 3.1 For new boats, built after the end of the production run in 1993, owners should consult the Class Association for details regarding the procedure to be followed in order to gain certification.
- 3.2 For boats built as part of the main production run, which ended in 1993, the following options are available:
- (a) IRC One Design Certificate: this can be obtained by application to the IRC Rating Office for the country in which the boat is domiciled. The certificate will be issued annually, on payment of the fee set by the Rating Office, on the basis of self-certification by the owner that the yacht meets the Class Measurement Rules of the Sigma 33 Class Association.
 - (b) Individual IRC Certificate: a more favourable IRC Rating may be available if, for example, a yacht races under IRC using undersize sails. Owners must apply to their Rating Office and pay the appropriate additional fees for the necessary measurements to be taken. Owners should note that only one IRC Certificate can be valid at any point in time, and so it is only possible to switch between “Individual” and “One Design” certificates and ratings on payment, each time, of the appropriate fee. An individual certificate is only valid when the yacht is raced in the “measured” condition – for example, new sails might invalidate any advantage gained from sails which were undersize at the time of measurement.
 - (c) Class-Administered One Design Certificate: this will be issued by the Class Association on payment of a one-off fee to be determined from time to time by the Committee. The owner must have a current IRC One Design Certificate in his/her name; OR, alternatively, the owner must arrange to have a One Design Compliance Check performed by a member of the Committee, such that a signed copy of the current Standard Inspection Form can be submitted with the application to the Class Secretary. Such a certificate will be valid only for the duration of the current ownership of the yacht, will only be available to members of the Class Association, and may be withdrawn at the discretion of the Committee in the event of any blatant or continuing non-compliance with rules.
 - (d) The Class Association may require individual yachts to be checked for any local, regional or national event.
- 3.3 Where a handicap racing event offers an extracted Sigma 33 one-design class result for a race or series of races, (or in those instances where a handicap event forms part of a Class programme and from which the Class will extract results), the only yachts eligible for such a class result will be those competing on handicap using valid IRC One Design rating certificates.
- 3.4 When racing in IRC, the Class crew limit is seven persons. When racing One Design, unless otherwise specified in the sailing instructions, one additional crew member under the age of fourteen may be carried.

4 Hull and Deck (Including Cockpit)

- 4.1 The hull and deck construction shall be in accordance with the Approved Plan and Specification.
- 4.2 The minimum empty weight of the yacht shall be 4200kg in measurement trim as defined by current IRC rules for weighting purposes for IRC Rating. Any yacht measured below this weight shall be required to carry corrector weights to bring it up to the minimum.
- 4.3 Spare number.
- 4.4 The cockpit grating must not be removed and must be kept in place while racing.
- 4.5 The removal of moulding marks and blemishes from the hull is permitted provided that the hull is not in any way altered so as to depart from the original shape. Repairs to the hull shall be made so as to return the affected areas to the original shape. Extensive repairs to a yacht must be reported to the Class Association which may require the yacht to be re-measured. The hull below the waterline including keel and rudder may be covered in protective coatings which must not affect the original shape of these areas.
- 4.6 All surfaces of the hull below the waterline including keel and rudder must be coated in antifouling paint at all times whilst racing. The antifouling paint shall be kept in good repair so that bare patches are not allowed to develop.

5 Keel Casting

- 5.1 The fin keel shall be of cast iron, manufactured according to the Master Plug and Mould, bolted in position as shown in the Lines Plan
- 5.2 The weight of the fin keel casting shall be 1505/1575kg.
- 5.3 The removal of foundry blemishes is permitted but the keel shall not be ground, built up or in any way altered so that it departs from standard shape. The keel may be covered with preservative coatings and antifouling. Measurement templates may be applied to the keel to ensure compliance with standards.

6 Rudder

- 6.1 The rudder blade shall be of GRP made from moulds taken from the Master Plug.
- 6.2 The rudder stock shall be made from solid stainless steel rod not less than 45mm diameter.
- 6.3 The design and construction of tiller and tiller extension is optional. Wheel steering is not permitted.
- 6.4 The removal of moulding marks and blemishes from the rudder is permitted provided that the rudder profile or section is not in any way altered so as to depart from the standard shape. Measurement templates may be applied to ensure compliance with this Rule.
- 6.5 The minimum weight of the rudder and stock shall not be less than 40 kg.

7 Mast

- 7.1 The mast shall be of 90% aluminium alloy extrusion with integral full groove. The mast shall be made from constant section extrusion with no tapering allowed.
- 7.2 The sectional weight of the mast shall be not less than 4.71 kg/metre.
- 7.3 Sectional dimensions of the mast shall be 107mm/117mm athwartships and 136mm/156mm fore and aft including the luff groove.
- 7.4 The forestay will attach to the forestay plate moulded into the hull in such a way that the horizontal distance between the forestay pin and the forward face of the hull moulding is 237mm/257mm.
- 7.5 The straight line distance between the forestay pin and the forward surface of the mast extrusion at its lowest point shall be 3624mm/3644mm.
- 7.6 Bands of contrasting colour shall be painted on the mast as follows:-
- i) with its upper edge 985mm/1005mm above the mast plinth in the deck moulding on which the mast step is fastened.
 - ii) with its lower edge 11570mm/11590mm above the upper edge of the band defined in (i).
- 7.7 No alterations to the mast are permitted except for approved electronic devices, navigation lights, wind vanes, pre-feeders and like additions. No alterations to the main halyard exits are permitted, nor any alteration which may change the moment of inertia of the spar. The spinnaker halyard may exit from the port or starboard side of the mast. One genoa halyard may exit from the opposite side of the mast. On the port side of the mast a slot may be cut with its centre point 2380mm/2420mm above the bottom of the mast extrusion and its forward edge 25mm/35mm forward of the jiggling groove on the side of the mast. On the starboard side of the mast a slot may be cut with its centre point 2580mm/2865mm above the lower edge of the mast extrusion and its forward edge 25mm/35mm forward of the jiggling groove on the side of the mast. If these slots are cut a standard Selden Masts slot plate shall be fitted to each but no other jamming or cleating devices shall be fitted to the mast.

Note: before making changes professional advice should be sought because of possible variations in the exact position of mast slots and mast base/deck arrangements.

- 7.8 A steaming light, as originally supplied or similar, shall be fitted to the forward face of the mast in accordance with IRPCS.

8 Mast Rigging

- 8.1 A combined chainplate fitting shall be attached port and starboard. The upper shrouds shall be attached by a rigging screw to the aft pin and the lower shrouds by a rigging screw to the forward pin. The forestay shall be attached by a rigging screw to the forestay chainplate.
- 8.2 The forestay and shrouds shall be of 1 x 19 stainless steel wire rope of not less than 7mm diameter. The wire strands shall be of round section, each strand being of the same diameter. Alternatively Dyform material of the same dimensions may be used.
- 8.3 The forestay shall be attached to the mast so that the centreline of the wire would intersect the foreside of the mast at a point not more than 9914mm above the band as defined in 7.6 (i).
- 8.4 Any forestay luff foil is permitted which the Committee authorises under these Rules and which will not affect the Standard Rating. In particular, any forestay luff foil is permitted which measures not more than 35mm at right angles to its longitudinal axis. The forestay, Rule 8.2, must bear the forestay loads.
- 8.5 The upper shrouds shall be attached to the mast so that the centreline of the wire would intersect the side of the mast 9487mm/9511mm above the band defined in 7.6 (i).
- 8.6 The lower shrouds shall be attached to the mast so that the centreline of the wire would intersect the side of the mast at a point 4157mm/4181mm above the band defined in 7.6 (i).
- 8.7 One topmast backstay of not less than 5mm 1 x 19 stainless steel wire rope shall be attached to the masthead and to a lever tensioning system at the transom.
- 8.8 The spreaders shall be of fixed type angled aft 22.5 degrees to the athwartships plane of the mast and attached at a point 4427mm/4451mm above the band as defined in 7.6(i). The distance between shrouds at the spreader ends shall be 1985mm/2015mm.

- 8.9 The spinnaker shall not be hoisted higher than the forestay intersection point as defined in 8.3. Only one synthetic rope spinnaker halyard shall be fitted.
- 8.10 Two jib halyards are permitted, which may be of wire or synthetic rope, and each shall intersect the mast below the forestay intersection point as defined in 8.3.
- 8.11 Tension in the rigging may only be adjusted by means of the rigging screws on shrouds and forestay. Running backstays are prohibited.
- 8.12 In order to vary the basic mast rake and/or pre-bend, the backstay lower strop attached to the shorter arm of the lever system may be replaced by an alternative strop of equivalent strength and construction (5mm 1 x 19). The maximum length of this strop shall not exceed 780mm. The backstay upper span shall not be altered from the specified 3300mm in length. Pre-race tuning may be achieved by using the rigging screw provided at the base of the main backstay wire. Whilst racing, top mast backstay adjustment shall only be achieved by manual adjustment of a rope purchase or tackle driving the long arm of the standard Kemp/Selden Masts backstay lever as originally supplied. The lower strop and purchase system shall be secured separately to an eye bolt on each side of the upper face of the transom.
- Purchase systems may be of any power ratio and may be double ended. Maximum straight line shortening distance of the topmast backstay system shall not exceed 110mm measured between the lower terminals of the single part upper stay and the centre of the upper face of the rudder post.

9 Main Boom

- 9.1 The main boom shall be of 90% aluminium alloy constant section extrusion incorporating an integral mainsail foot groove.
- 9.2 Sectional dimensions shall be a minimum of 135mm in depth including foot groove, 71mm in width, and with a sectional weight of not less than 2.66 kg/metre.
- 9.3 A band of contrasting colour shall be painted on the boom with its forward edge not more than 3935mm from the after face of the mast extrusion.
- 9.4 Tapered booms and lightening holes are prohibited.
- 9.5 The main boom shall be equipped with two reefing lines and flattening reef outhaul.
- 9.6 Roller reefing systems are not permitted.

10 Spinnaker Boom

- 10.1 No part of the spinnaker boom including fittings shall be capable of extending more than 3580mm at right angles from the centreline of the mast when the spinnaker boom is attached to the mast.
- 10.2 The point of attachment for the spinnaker pole to the mast shall be not more than 1369mm above the band defined in 7.6 (i).
- 10.3 Only one aluminium alloy spinnaker boom shall be used. Reaching struts are prohibited.
- 10.4 The forward end of the spinnaker pole, when stowed, shall not be abaft the after end of the anchor well.
- 10.5 The spinnaker pole shall be the standard extrusion supplied by the Approved Class Sparmaker with end fittings as originally or currently supplied. Upward opening trigger latch type fittings are not permitted.

11 Sails

- 11.1 The sails shall be measured in accordance with the current rating rule.
- 11.2 The number of sails that shall be carried is one of each of the following: mainsail, No 1 genoa, No 2 genoa, working jib, storm jib, light spinnaker and heavy spinnaker. The No 3 jib is an optional sail. If an owner wishes to cruise after the finish of a race he may carry old fore and aft sails for this purpose provided they are not used during the race.
- 11.3 Where applicable these sails shall have dimensions and shall be set in a manner which does not incur penalties under the current Class rating rule.
- 11.4 All sails shall be of woven material except the mainsail, the No1 genoa, No 2 Genoa and No 3 jib, which may be of laminate construction.
- The mainsail and headsail materials shall be made from Polyester and/or monofilament glass and/or Pentex. Reinforcement shall be made from materials permitted in the body of the sail. Spinnakers shall be made from nylon. Spinnaker reinforcement shall be made from Nylon and/or woven Polyester.
- Dimensions in the table below are in metres and are the same regardless of form of construction:

| Sail | Luff | | Leech | | Foot | | Min cloth weight (U.S. oz) (Dacron sails only) |
|----------|-------|-----|-------|-----|-------|-----|---|
| | Max | Min | Max | Min | Max | Min | |
| Mainsail | 11.59 | - | 12.35 | - | 3.935 | - | 8.0 |

(Three reefs shall be fitted parallel to the foot at 1.12m, 2.52m and 4.80m from the centre of tack cringle + or – 100mm tolerance)

| | | | | | | | |
|-----------------|--|------------|-------------|------------|------------|------------|-----|
| No 1 genoa | 11.20 | 11.10 | 10.80 | 10.70 | 5.60 | 5.50 | 5.5 |
| | (longest perpendicular luff to clew max 5.31 min 5.21) | | | | | | |
| No 2 genoa | 10.52 | 10.42 | 9.76 | 9.66 | 4.88 | 4.78 | 6.5 |
| No 3 jib | 10.90 | 10.80 | 9.80 | 9.70 | 3.88 | 3.78 | |
| Working jib | 9.60 | 9.50 | 8.08 | 7.98 | 3.66 | 3.56 | 6.5 |
| | Half-width (SHW) | | (SF) | | | | |
| | Max | Min | Max | Min | Max | Min | |
| Light spinnaker | 11.20 | 11.10 | 6.44 | 6.35 | 6.35 | 6.25 | 0.8 |
| Heavy spinnaker | 11.10 | 10.90 | 5.90 | 5.80 | - | - | 1.5 |

- 11.5 The mainsail mid-girth (MHW) shall not exceed 2590mm, the three quarters girth measurement (MTW) shall not exceed 1540mm and the seven eighths girth measurement (MUW) shall not exceed 870mm.
- 11.6 The mainsail shall have 4 battens. The upper batten may be full length, the second from top may not exceed 1300mm and the lower two battens shall not exceed 1500mm in length.
- 11.7 The mainsail headboard width shall not exceed 152mm.
- 11.8 The mainsail may be fitted with luff and leech Cunningham holes and may have a 'soft foot' with cloth lighter than 8.0 oz on the shelf.
- 11.9 The mainsail may only be set within the dimensions governed by the bands specified in 7.6 (i), 7.6 (ii) and 9.3.
- 11.10 Loose footed mainsails are permitted.
- 11.11 The No1 genoa and/or the main may have a window or windows not exceeding a combined total area of 1.5 sqm.
- 11.12 The No2 genoa may have one reef with the luff cringle 765mm/665mm from the tack cringle and the leech cringle 1140mm/1040mm from the clew cringle.
- 11.13 The only sails permitted shall have been made by the Approved Class Sailmakers and must carry the measurement stamp or stamps required by the rating rule when constructed. Sails may not be re-cut or altered in any particular except by the Approved Class Sailmakers. Repairs may be undertaken by anyone provided that they do not affect the shape or size of any sail in any way.
- 11.14 The Sigma symbol in red shall be affixed to both sides of the mainsail above the sail numbers and shall be of a height of 600mm/620mm.
- 11.15 Changes to sail wardrobe: Any proposed change to the number of sails as defined in 11.2 or the design of sails as defined in 11.4 shall not be implemented until 21 calendar months have elapsed following notification that the Committee is investigating the proposal. Small changes in the construction of the sails may be introduced as the Committee sees fit but with not less than one month's notice.

12 Deck Gear

- 12.1 Yachts shall carry two halyard winches (two speed); two primary sheet winches (two speed) on the cockpit winch turrets; two secondary sheet winches (two speed); and one reefing winch on the mast and sited below the main boom. All winches can be replaced with suitable alternatives whose power ratio does not exceed +10% of the original Lewmar 16 and 43. Self-tailing devices are permitted. Increasing the size of the cockpit turrets is not permitted.
- 12.2 Single genoa sheeting tracks shall be permanently fixed to the side decks, port and starboard, adjacent to the coachroof, and in their original positions. Four genoa sheet fairleads may be fitted (two per side). Ball or roller-bearings are not permitted for the cars, but are permitted for the sheaves mounted on the cars. Headsails and spinnakers may be sheeted to the aluminium toe rails.
- 12.3 Yachts shall be fitted with bow and stern pulpits of stainless steel, and eight stanchions with double lifelines in compliance with ISAF special regulations currently in force, except only stainless steel lifelines are allowed.
- 12.4 A mainsheet track shall be fitted to the inset plinth in the cockpit seats. The track shall be straight and shall fit between the cockpit walls. Packing is permitted under the track and its mountings. The packing shall not exceed 30mm in thickness.
- 12.5 The removable bridge deck moulding shall always be secured in place during races which necessitate the carrying of a liferaft. In all other races, the removable bridge deck must be on board but not necessarily secured in place.
- 12.6 Mainsheet, traveller, kicking strap or vang are optional. Hydraulic, electric or pneumatic actuators are prohibited.
- 12.7 The arrangements of halyards, sheets, guys and control lines, their turning blocks and cleats are optional within the provisions of these Rules.

13 Interior Accommodation

- 13.1 The builder shall at all times maintain close tolerances on position, size and weight of materials used in interior bulkheads, joinery work, cabin sole and lining in an endeavour to produce yachts of the closest weight and strength tolerances within these Rules. The Class Association shall be kept informed of any proposed change in the specification that might affect the weight or weight distribution of the yacht.

- 13.2 All yachts shall have complete interior structure in way of forecabin, saloon, galley, cooker as originally fitted or of equivalent weight having two hob burners, grill and oven, gas bottle or bottles of total weight not less than 5kg, chart table, WC toilet compartment and saloon table in the original fixed position. No lightening holes shall be cut or drilled.
- 13.3 All yachts shall carry a full set of berth mattresses of minimum thickness 100mm on their appropriate berths. The half berth mattress to complete the double berth must always be on board, but it does not have to be on the double berth. Between October 1 and April 30, Area fleets when racing in One Design only may request that the Sailing Instructions for the Winter and Spring Series should specify that this rule is suspended.
- 13.4 All yachts shall have completed head, topside and coachroof linings as fitted by the builders.
- 13.5 Two fresh water storage tanks of minimum capacity 180 litres (approx. 40 galls) shall be installed beneath the after ends of the main saloon berths.

14 Engine and Stern Gear

- 14.1 Details of replacement engines fitted shall be notified to the Class Association. The engine and gearbox weight and weight distribution (whether by using corrector weights or not) shall not change from those of the Volvo Penta MD7A marine diesel engine of minimum weight 166 kg originally fitted. Owners must be familiar with the weight and location of corrector weights installed.
- 14.2 A propeller and stern gear shall be fitted as in the Approved Plan. The minimum propeller diameter shall be 380mm, minimum blade width 90mm and projected propeller hub diameter shall not be less than 60mm.
- 14.3 The Class Association shall be kept informed of any proposed change in engine specification that might affect weight, position or stern gear dimensions.
- 14.4 A rigid fuel tank of minimum capacity 68 litres (approx. 15 galls) shall be fitted.
- 14.5 A minimum of 20 litres of fuel shall be held at all times whilst racing in the permanent installed tank.

15 Other Equipment

- 15.1 Two anchors shall be carried, and a minimum length of chain, in a stowage not more than 2750mm from the stem. The larger anchor shall be not less than 10kg and the smaller not less than 7kg, and the total weight of both anchors and the chain shall be not less than 24.7 kg. The suggested minimum chain size is 8mm.
- 15.2 When racing in One Design Class events, a minimum of ISAF Offshore Special Regulations Category 4 will be complied with, or the category that is specified by race organisers if higher. ISAF Offshore Special Regulations can be found on the ISAF website.
- 15.3 Two batteries each weighing a minimum of 29 kg shall be carried in the battery compartment aft of the main saloon bulkhead.
- 15.4 There is no restriction on radio or electronic aids but automatic, mechanical and wind vane devices for steering must not be used within racing unless specifically permitted in the Notice of Race or Sailing Instructions.
- 15.5 Minor modifications to enhance the safety and comfort of the yacht are permitted, subject to approval of the Class Association.
- 15.6 A Marine radio transceiver with masthead antenna and emergency antenna must be on board and in working order.
- 15.7 Each crew member shall have a safety harness and safety line not more than 2m long with a snaphook at each end and conforming with current ISAF regulations.