



## STAR 45 CLASS

### CLASS RULES

Rev 1.1 10/2/2014

#### 1.0 Hull

**1.1** The Star 45 Class establishes as their approved plans a set of lines and drawings as the approved reference and construction plans for the class. These plans are scaled and appropriately modified for the use of modelers building a 45 inch model of the Star Boat. Existing plans supplied by kit manufacturers etc are grandfathered. New molds, plugs and scratch built models shall conform to the approved plans and specifications.

**1.2** Hull length will be 45 inches (plus or minus one half (1/2) inch overall. (NOTE: this does not include any chainplate for backstay attachment, or bow bumper). Hull length includes the jib boom if it extends beyond the bow (bumper is ignored). No part of any chain plate, strut, boomkin, or other means, which forms a part of the backstay assembly used to attach the backstay to the hull, shall extend farther aft than 3/8" aft of an imaginary plane aligned with the top aft edge of the transom and projecting upward, perpendicular to the deck surface near the transom. Hulls may not be less than 11 inches nor exceed 12 inches in beam when measured at the widest point on the deck. (Rubrails are not included in measuring but will not exceed 1/4 inch of thickness/width.)

**1.3** In the event a builder chooses to scratch or hand build a Star 45 yacht, the builder must adhere to these class rules and the approved reference and construction drawings as obtained from the AMYA Ships Store. The hull shall be within +/- 1/16" from the nominal shape at each section. The rocker shall be within +/- 1/8" from nominal shape. Datum locations for section templates will be the sheer/rail and keel. Datum location for the rocker template is the plan minimum weight waterline location and the transom. A second consideration in scratch building is to ensure that safe and sound building practice be maintained.

**1.4** All hulls will be constructed of wood or fiberglass or a combination of wood and fiberglass or a combination of fiberglass and polyurethane foam, and be a minimum of 16 ounces when weighed before attachment of the deck and keel. This weight must be verified by another member of the Star 45 Class using the Class Measurement Form. If it is not reasonably convenient for an AMYA star class member to witness the weighing, a photo will be acceptable for Class registration purposes, provided that the photo clearly illustrates the hull on a scale indicating a weight of more than the minimum weight. For minimum weight of a fiberglass hull the following shall be included: The hull shell, as withdrawn from the mold, plus the rail installed along the gunwales and stern for deck attachment, plus any reinforcement applied to the hull to strengthen the bottom of the hull at the keel/hull joint

and at the mast post/hull joint. For minimum weight of a wood and wood/fiberglass hulls the following shall be included: The hull shell, as constructed, including frames, stringers, glue, waterproofing (not decorative paint) and any other internal structure that will not be removed prior to completing the construction of the boat and that is needed to strengthen and/or form the shape of the hull shell. The following are not included in the minimum hull weight: the radio receiver/servo supports, keel box/tubes, mast post, rudder tube, rudder attachments, chain plate mounting, cosmetic paint, the deck, or anything else not specified as included.

**1.5** Decks shall be constructed of wood, fiberglass or plastic laminate material.

**1.6** All hulls shall be the standard hard-chine hull. That is that the sides are flat (1/16") between the rails and chine. The bottom is a single continuous radius between the two chines. Hulls may be built with a sheer at scale height or with a sheer no more than one inch higher than scale (when measured at the point of maximum depth of sheer.) Deck is to be flat or curved from rail to rail as shown on the plans with the centerline a straight line from the bow to the transom.

**1.7** All fiberglass and wood hulls will have a name plate permanently attached to the inside of the hull so as to be seen when the hatch cover is removed. At a minimum the following information is to be included: Star 45 Class, AMYA Registration number \_\_\_\_, hull weight \_\_\_\_, date \_\_\_\_, builder \_\_\_\_. The registration number should be the hull number provided by the class secretary when the boat is registered. More information can be included, but is not required.

**1.8** At or before its first sanctioned regatta, the newly built model must be measured, using as a reference, the approved measurement form and signed by not less than the owner of the model yacht and one other member of the class. This measurement form shall become, with the registration card, a permanent record of this model yacht.

**1.9** The AMYA Star 45 Class recognizes and approves the molds and manufacturer and/or kit packagers of Star 45 molded hulls and kits in existence at the time of approval of these specifications. These sources will be approved sources for the class. New manufacturers will be directed to submit the first of their product to the Class Secretary for approval.

**1.10** No maximum weight is specified, however, no yacht shall weigh less than 12lbs when fully rigged ready to sail. This means with all gear, rigging, sails, radio components, batteries and ballast placed and secured on board.

**1.11** Bow bumpers are mandatory for all class registered Star 45 yachts. Bow bumpers are to be a minimum of three sixteenths of an inch (3/16") and a maximum of three eighths of an inch (3/8") thickness. Bow bumpers shall be excluded in the overall length measurement, whether recessed in or otherwise attached to the bow stem. Bow bumpers must be of resilient fabrication to minimize damage to another yacht in the event of a collision.

## 2.0 Sails

2.1 Sails may be of single or multi-paneled construction. Sail material shall be unrestricted.

2.2 All sails are to be cut to comply with the following maximum dimensions when measured by the procedure as outlined in the "AMYA Regulations". Dimensions shown are measured 'Edge of Cloth" to "Edge of Cloth" and are in inches.

2.3	MAIN	JIB
Luff	62.75	42.50
Foot	25.50	15.75
Leech	65.50	37.00
Roach	2.00	0.50
Head	0.75	0.75
Foot Round	0.50	0.50

2.4 All sails, main and jib, will be cut with either a straight head to clew leech with no roach, or a fair curved head to clew leech with the maximum roach point occurring approximately one half the distance from the clew to the head. Divide a straight line from the aft corners of the clew and head into four (4) equal sections. Then, for the main sail, maximum offset from edge of cloth for the roach at the quarter points to be 1.75" and the offset at the mid-point to be 2.0". For the jib sail, the offset at the quarter points shall be .0375" and at the mid-point shall be .50". Sails cut with a straight leech at the maximum roach allowances are prohibited from use on the Star 45 Class yacht.

2.5 The mainsail gooseneck or attachment shall be attached to the mast between 0.50" minimum to a 4.0" maximum measured from the deck.

2.6 Battens are allowed on the mainsail but are restricted to 4 in number, equally spaced along the leech and may not exceed 8.50" in length. Battens are not permitted on the jib sail.

2.7 Sailmakers must conform to the above measurements.

2.8 Standing rigging is not specified except for the height of the jib stay attachment point on the mast which will not exceed 54" above the deck when measured from the deck at the mast step point, and mast head fittings are limited to a projection of 3.0" behind the mast. Control of standing rigging by other than manual manipulation (hand tuning) is prohibited.

2.9 The Class Secretary maintains a master sail measurement template. Sail measurement templates shall be kept current with the class specifications as well as new motions passed by the rank and file. Templates shall be made of a material consistent with a lasting shape.

Templates shall be made available for AMYA sanctioned regattas upon request from the hosting AMYA sanctioned club. Other non-sanctioned regattas may request templates subject to availability and discretion of the Class Secretary.

### **3.0 Mast**

**3.1** Masts shall be made of wood or aluminum. Swing rigs, rotating and permanently bent masts are prohibited. A mast is considered permanently bent if there is more than one inch (1") deviation from a straight line from end to end in any direction when in its free state.

**3.2** Masts shall not exceed  $\frac{3}{4}$  inches square when measured at the thickest point of the mast. Maximum height shall be 70" when measured from the deck, inclusive of the crane. Rotating wind indicators and burgee staffs are not included providing the backstay is not attached to them in order to circumvent the 70" maximum height specification.

### **4.0 Booms**

**4.1** The main boom and jib club shall not exceed  $\frac{5}{8}$ " when measured at the thickest point. Booms and jib clubs shall be constructed of wood, aluminum and/or fiberglass.

### **5.0 Radio Control Systems**

**5.1** Radio systems of any number of channels may be used but the functions are limited to the rudder, sail control (jib sheet and main sheet) using no more than three servos. Control of the jib may be separate or may be combined in one function.

### **6.0 Rudder**

**6.1** Rudders may be constructed of wood, fiberglass, plastic, plastic laminates or metal. The exact shape is not specified, but the top of the rudder shall be no more than  $4\frac{1}{2}$ " wide, measured fore and aft along an imaginary line located  $\frac{1}{8}$ " below the bottom of the boat at the rudder post and parallel to the hull. The bottom of the rudder shall be no more than with 3" wide, measured as follows: for a straight bottom the bottom of the rudder shall be measured parallel to the waterline; for a curved bottom, the bottom shall be measured along an imaginary line located  $\frac{1}{4}$ " above the lowest point of the rudder and parallel to the waterline. The shape of the rudder between its top and bottom is not regulated by this rule, and any shape may be employed. The thickness of the rudder is not regulated. The height of the rudder shall not exceed 7', measured between the lower most point of the rudder and the top of the rudder at the rudder post.

### **7.0 Keels and Ballast Bulbs**

**7.1** Keel will be of the style shown as drop and will be of the FIN and BULB type.

**7.2** Keel fins may be solid or hollow and constructed of reinforced plastic, plastic laminates, fiberglass, wood or metal. (Note: Strength and integrity of the keel fins must be maintained whether built solid or hollow.) Keel fin shape is not specified but must follow the general shapes outlined on the reference drawing. The keel shall be a single foil with no openings or holes to reduce surface area. The keel fin's forward and aft edges shall be

straight lines between any fillets if present, from the keel/hull junction and/or, to the keel/ballast bulb junction. The fin may be faired to the hull and/or the bulb with a fillet. The radius of the fillet is not limited, but all measurements are to be taken as if the fillet is not present by extending the straight portion of the fin leading or trailing edge until it meets the hull or bulb. With the boat oriented so that the plan waterline is horizontal, the forward edge of the keel fin shall be angled aft, in such a manner that the forward edge of the keel fin at its junction with the hull shall be located forward of the forward edge of the keel fin at its junction with the ballast bulb. The aft edge of the keel fin shall be vertical or angled aft. The fore-and-aft dimensions of the keel fin shall be: at the junction with the hull - between 6 inches and 8 inches; at the junction with the ballast bulb - between 4 inches and 6 inches.

**7.3** Keels, keel fins and ballast bulbs may be removable, however, they may not be changed, interchanged, substituted or otherwise manipulated once any heat or series of heats in which scores will be complied, has started. Mechanically movable keels or ballast bulbs are specifically prohibited from use in Star 45 Class Yachts.

**7.4** Ballast bulbs may be constructed of any material not prohibited by the AMYA. The actual shape is left to the builders discretion but will not exceed 9.75" (9 ¾") from the front of the keel bulb to the rearmost point of the keel or bulb.

**7.5** Total drop (length) of the keel fin/ballast bulb combination shall not exceed 11.5" (11 ½") when measured from the keel/hull junction before any fillers or streamlining is added.

**7.6** Ballast may be made from any readily available material such as poured lead, lead shot etc. (Note: When using material such as lead shot, the mass must be solidified through the use of a bonding agent such as fiberglass or epoxy resin, plaster of Paris, etc poured over and through in order to create a solid mass.)

**7.7** Race directors may elect to use a template based on the construction plans to determine the keel length (depth).

**7.8** Keel depth shall be measured from the center of the keel fin at the hull to the bottom of the ballast bulb. This measurement is from the edge of the bottom of the hull as it meets the side of the keel and should be determined during construction before any fillet or fairing is added.

**7.9** The Star 45 Class Secretary specifically excludes radio equipment, sail controls and batteries (power cells) from being considered "ballast". This specification defines ballast as anything carried aboard the model from the main purpose of changing the weight distribution of the model and/or weight of the model. "Ballast" shall be fixed in place by gluing, fiberglassing or bolting (bolts or screws).

**7.9.1** Ballast may not be removed or relocated during any one regatta. The use of Velcro or similar quick release fasteners shall be prohibited as methods of mounting ballast.

## **8.0 Deck**

**8.1** The Deck is to be a solid deck (construction shall be limited to wood, plywood, fiberglass or plastic laminate) except as required to access components inside the hull. The deck may be covered with any material provided the material is not a structural part of the deck. Thin plastic films, such as MonoKote, are not allowed for decks except as coverings

**8.2** Hatches are not restricted in style, as long as deck strength and integrity are maintained. A hatch is defined as the opening in the deck and subsequent cover of the opening in the deck. A hatch is further defined to be an opening and cover of the opening required for access to internal components. The hatch shall be a design which can be removed and replaced quickly. The size, location and number of hatches are limited to the location and size reasonably required to access internal components. The use of "hatches" to reduce the weight of the deck is prohibited. This includes excessive hatches with no purpose and hatches larger than required to allow for access.

## **9.0 Distinguishing Marks**

**9.1** Each yacht shall carry on her main sail the class 5 point "STAR EMBLEM" and an assigned AMYA registration number. The star shall be at least 2 inches in size (measured from point to point across the flat of the star) and positioned above the registration number. Registration numbers shall be at least 3 inches in height and at least 3/8 inch thick. Both star and registration numbers will be placed on the upper half of the mainsail and shall be positioned so as to be easily read from either side. Registration numbers will be placed on the upper two thirds (2/3) of jib on both port and starboard sides of the sail and shall be positioned so as to be easily read from either side. Numbers displayed on the jib shall be of the same size as the main and starboard over port. If a country designation is displayed it should be in the bottom half of the main and starboard over port.

## **10.0 Manufacturers' Procedures**

**10.1** The following are procedures that must be followed by manufacturers, Class Secretaries and scratch builders who are going to make more than one hull for sale.

**10.1.1** The builder shall send to the Class Secretary proof of craftsmanship, a hull by means of transportation of the builders choice.

**10.1.2** The Class Secretary will, upon receiving the hull for measurement, notify the builder of the condition of the hull.

**10.1.3** The Class Secretary will measure the hull.

**10.1.4** When measuring the hull, the Class Secretary will request a Star 45 owner to assist with measuring.

**10.1.5** The Class Secretary will measure the hull with the templates of the hull pictured in the approved plans.

**10.1.6** The templates will be made from plexiglass or wood (not balsa).

**10.1.7** The membership can request a copy of these templates by sending a request to the Class Secretary. These templates have been taken from the approved plans and are true and accurate.

**10.1.8** The Class Secretary, upon completion of the measuring, will return the hull to the builder. The Class Secretary will also assign a number for the hull if approved. Each hull will be measured regardless of condition. The manufacturer will keep, in his possession, a record of as to whom he sold hulls.

## **11.0 Authorization for Class Secretary**

**11.1** The Class Secretary shall be authorized to conduct class business such as granting interim approval to molds, manufacturers and similar approvals provided those actions are reported to class members.

## **12.0 Specifications**

**12.1** These specifications shall take precedent over any other document.

*(Measurement Form follows on next page)*



# STAR 45 CLASS

## MEASUREMENT FORM

Owner's AMYA number: \_\_\_\_\_

Boat registration number: \_\_\_\_\_

### HULL:

Hull material:  Fiberglass  Wood

Length: 45" +/- 1/2" (Rule 1.2): \_\_\_\_\_

Width: 11" to 12" (Rule 1.2): \_\_\_\_\_

Hull weight (Rule 1.4): \_\_\_\_\_

Deck material (Rule 1.5): \_\_\_\_\_

Name plate attached (Rule 1.7): \_\_\_\_\_

Bow bumper installed (Rule 1.11): \_\_\_\_\_

Any attachment or fitting that extends beyond the hull when measured vertically from the edge of the hull (and perpendicular to the waterline) is to be considered part of the overall length of the hull and rule 1.2 applies

### SAILS:

Measured "edge of cloth to edge of cloth" (Rule 2.2) Maximum roach is 2.0" on mainsail and 0.5" on jib (Rule 2.3)

	Luff	Foot	Leech	Roach	Head	Foot Round
Main:	62.75 _____	25.50 _____	65.50 _____	2:00 _____	0.75 _____	0.50 _____
Jib:	42.50 _____	15.75 _____	37.00 _____	0.50 _____	0.75 _____	0.50 _____

### MAST & RIGGING:

Mast construction:  Aluminum  Wood (Rule 3.1)

Mast crane length - not to exceed 3" behind mast (Rule 2.8): \_\_\_\_\_

Jib stay attachment - not to exceed 54" above deck (Rule 2.8): \_\_\_\_\_

Mast length - not to exceed 70" above deck (Rule 3.2) \_\_\_\_\_

Mast width - not to exceed 3/4" square (Rule 3.2) \_\_\_\_\_



Boom and jib club construction:  Aluminum  Wood  Fiberglass

Boom and jib club width - not to exceed 5/8" square (Rule 4.1): \_\_\_\_\_

If any part of the jib club, any jib club attachment, or any counterweight extends beyond the bow of the boat when measured vertically from the leading edge of the bow, it needs to be included in the total length of the hull and may not then exceed 45.5 inches as per rule 1.2

Rear chainplate: \_\_\_\_\_ May not extend beyond transom more than 3/8" from a vertical line perpendicular to the deck (Rule 1.2)

**RUDDER:**

Width at hull: \_\_\_\_\_ Width at bottom: \_\_\_\_\_ Depth: \_\_\_\_\_

May not exceed 4.1/2" at hull, 3.0" at bottom and shall not project more than 7.0" below the hull at post (Rule 6.1)

Rudder post position from stern: \_\_\_\_\_

Must be 6" +/- 1/16" as per drawing (2003 revision 1)

**KEEL & BULB:**

Bulb length: \_\_\_\_\_

To be of a length not greater than 9.3/4" (Rule 7.4)

Keel width at hull: \_\_\_\_\_

Not to exceed 8.0" or less than 6.0" when measured at the hull junction (Rule 7.2)

Keel width at the keel/ballast bulb: \_\_\_\_\_

Not to exceed 6.0" or less than 4.0" measured at the keel/ballast bulb junction (Rule 7.2)

Maximum depth of keel and bulb: \_\_\_\_\_

May not exceed 11.1/2" total drop (Rule 7.5)

**WEIGHT:**

Total weight (cannot be less than 12 lb. including all gear): \_\_\_\_\_

rigging, sails, radio components, batteries and ballasting (Rule 1.10)

**HULL MANUFACTURER:**

Self Built  Manufacturer: \_\_\_\_\_

**SAIL MANUFACTURER:**

Self Built  Manufacturer: \_\_\_\_\_

REMARKS:

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Owner Measurer

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Date

Non-owner Measurer

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Date

Note:

This minimum list of required measurements is subject to change and other rules may be verified or measured. It is the builder's responsibility to ensure that their yacht complies with all class rules in place at the time of construction.