# Shaw 650 One Design Class Rules

**Version 1.03**

**Date: 13 July, 2010**

## 1 Introduction

The Shaw 650 was designed in 2001 by Rob Shaw as a high performance moderate cost sportboat. It is currently available as a home built boat or purchased from the website www.shaw650.com in composite construction.

The purpose of these Rules is to ensure fair competition, ongoing development of the class with the agreement of owners and to maintain and encourage further participation in the class with the eventual aim of creating multiple one design fleets.

In the event of any translation, the English text of the Rules shall prevail.

The administration of all Shaw 650 rules is, as of July 2010, jointly administrated by Shaw650.com, the organisation and website currently responsible for building fibreglass Shaws; and Rob Shaw, designer of the Shaw 650. All owners shall have the right to vote for additional administrators of all rules and all decisions regarding the Shaw 650 class shall be made by the majority of administrators comprising of the individuals above.

Administrators of the class will endeavour to increase the number of participants, minimise cost and effort for owners and may change rules or amend the class regulations as required to ensure fair competition.

## 2 Fundamental Rules

### 2.1 Equipment

The Shaw 650 shall be raced only with hull & decks, rig, sails, foils, fittings, equipment, standing rigging and running rigging conforming to these rules.

All boats shall require a measurement certificate issued by the class administrators prior to racing as a Shaw 650 one design.

In the event that an individual boat does not comply with all aspects of the rules, where no discernable performance advantage appears to be achieved as a result of that lack of compliance, then the administrators of the class have the right to grant an exemption with specific reasons why and the coverage of said exemption on a case by case basis and may choose to attach a validity period or other terms and conditions at their discretion for the well being of the remainder of the fleet.

### 2.2 Replacements, Additions, Alterations and Repairs

No changes, alterations or repairs may be made to any part of the boat if as a result the boat ceases to comply with the spirit and express details of these rules. Replacement parts shall be equivalent to the piece being replaced in a manner than gives no weight or other advantage.

## 3 Definition of Shaw 650 One Design

### 3.1 Definition of Builders

The builders of the Shaw 650 shall be limited to fibreglass boats coming from www.Shaw650.com hereafter referred to as the class builder, or from home builders, defined as a builder of 2 Shaw 650 boats or less per year.

For home built boats, construction shall be in cedar core, using the scantlings and design provided by Rob Shaw and the layup schedule and construction shall be as set out in the original design. Any modification to construction method, internal or exterior dimensions or structure that has a measurable effect on weight and/or strength and/or performance of the boat is strictly prohibited.

For fibreglass boats coming from the class builder, they shall be constructed in a uniform and consistent manner using vinylester or epoxy composite using the design and specifications approved by Rob Shaw.

### 3.2 Identification

Each Shaw 650 both homebuilt and from the class builder shall be given a boat identification number running in series and managed by the class administrators in order to be eligible to race in Shaw650 one design regattas or in order to qualify as a Shaw 650.

### 3.3 Class Membership and Fees

Each compliant Shaw 650 boat owner shall be a class member and may also be a member of the class association or equivalent overall body that is set up to represent the interests of all Shaw 650 owners. In the event of multiple national organisations, then the class membership shall be for all boat owners. Any class fees shall be paid by each individual boat owner on an annual basis for each calendar year. Any boat wishing to participate in class events must be paid up at the time of the event. Class fees shall be set and agreed upon by the class administrators. (Currently there is no class fee set, July 2010)

### 3.4 Class Eligibility

Each boat wishing to race as a Shaw 650 shall possess the following:

- Pay or possess the design license for a Shaw 650 purchased from Rob Shaw (or in the case of boats from Shaw 650, already paid for by the builder)
- A current measurement certificate issued by the class administrators showing that the Shaw 650 is class compliant and carrying corrector weights if necessary which shall be freely available for all competitors to see at any time and stored with the boat or as close as is practical and available for viewing at any regatta
- An exemption certificate granted by the class administrators stating specific nature of the exemption while still allowing the boat to be raced within the Shaw 650 class which shall be available for all competitors to see at any time and stored with the boat or as close as is practical and available for viewing at any regatta
- Be paid up for class fees required by the class administration (if any)
- Comply with all rules and regulations not only included in the measurement certificate but set out in the class rules here

### 3.5 Measurement Certificates

Each Shaw 650 upon completion shall be issued with a Measurement Certificate by the class Administrators after proof that the boat complies with all Rules and measurements. This Certificate shall be valid for the life of the boat notwithstanding any repairs, alterations, replacements or additions, after which the boat shall be submitted to the class Administrators for a new measurement certificate if there is any possibility that the repairs, alterations, replacements or additions provide any weight or performance advantage.

In the event of a change in owner, the Measurement Certificate shall remain valid. The new owner shall immediately advise the class administrator to update contact details.

There will be two types of measurement certificate:

- Endorsed: meaning that an independent measurer or approved party has checked all aspects of measurement and the boat complies with all aspects

- Non endorsed: meaning that the owner or builder has checked all aspects of measurement and believes the boat complies with all aspects

An owner or builder may convert a non endorsed certificate to endorsed by allowing a member of the administrators or nominated party to inspect and confirm measurements of the boat.

For major handicap events based on ratings for the Shaw as a one design, or Shaw one design events, it is recommended that Endorsed certificates are required and written into the notice of race.

## 4 Measurements

### 4.1 Conformity

The Shaw 650 shall comply with these Rules and the measurements of Appendix 1.

### 4.2 Disputes

In the event of a dispute alleging non-compliance with these Rules, the matter, together with any relevant information shall be referred to the class administrators whose decision shall be final and binding on all parties, currently shaw650.com and/or Rob Shaw.

### 4.3 Amendments

Any changes to class rules will be updated by the class administrators and supported by a majority of voting class members within the owners.

### 4.4 Measurers

The class measurer for all boats coming from Shaw650.com shall be Lee Beck on behalf of the licensed builder.

The measurer for any homebuilt boats shall be nominated by the local class sailors in that area including the owner, and the measurer should not be the owner, an interested party nor have a vested interest and must be approved by the administrators of the class.

The measurer shall have sufficient equipment to check all aspects of the Shaw 650 and ensure compliance with measurements set out in these Rules and Appendix 1.

**5 Sailing Requirements**

**5.1 Crew Numbers and Weights - General**

- The Shaw 650 shall be raced with a minimum of 2 people and maximum of 5 people on board.
- The total weight of those on board whilst racing shall not be less than 200kg nor more than 350kg unless local racing rules are set that remove any weight restriction.
- For the purposes of establishing the weight of those on board whilst racing, each person shall be weighed wearing only lightweight shirts and underclothes.

**5.2 Crew Numbers and Weights – Regattas & Events**

If specifically designated, a regatta or event may require controlled weight measurement in the following manner:

- Each boat shall weigh all crew members to ensure compliance with total weight prior to racing and at the start of each subsequent day of racing if set out in the Notice of Race
- There shall be no crew substitution except:
    - Upon injury or inability of crew members to continue
    - With written notice provided to the race committee prior to the start of the first race of a series
    - Authorised by the Race Committee as being necessary due to wholly unavoidable circumstances

In the event of crew substitution, the total crew weight shall be required to stay within +/- 20kg of the previous total crew weight and not exceed general crew weight guidelines.

It shall be the Helmsman's entire responsibility to weigh all members of the crew for which a substitution is made. The crew may be required to establish the new total crew and ballast weight

**5.3 Measurement**

All boats shall have a valid measurement certificate. Any repairs, replacements, alterations or additions that will provide a weight or performance advantage shall be tabled with the class administrator prior to the regatta if not already included in the measurement certificate.

**5.4 Standard Equipment, Safety Equipment and Personal Buoyancy**

**Required Items:**

While racing in one design, Shaw 650s shall be required to carry the following items; these may also be subject to Notice of Race, Racing Instructions or further local/regional guidelines, which shall take precedence:

- Anchor and warp and/or chain to anchor the Shaw 650 in 10m of water
- Rope suitable to tow the Shaw 650
- First Aid Kit in a waterproof bag or container
- Adequate Personal Buoyancy for all crew
- Functioning VHF Radio or cell phone if entire course area is within coverage zone
- Throwable personal floatation device onboard in case of man overboard
- Bucket minimum volume 9 litres
- Either:
    - Outboard Engine minimum 2 HP or equivalent with Outboard Bracket and a seaworthy quantity of fuel. When not in use the outboard shall be stowed securely below decks

OR

    - 2 paddles capable of propelling the boat against a 2 knot current

**Optional Items:**

- Electronic timing devices
- GPS and/or navigation aids
- Wind instrumentation
- Lights
- Additional sails complying with class maximums as per Appendix 1
- Keel crane

**Limitations:**

- Not more than 1 mainsail, 2 headsails or 2 spinnakers will be carried on board

**5.5 Keel Position**

Whilst racing the keel must be securely fixed down in the fully down position, and may only be released for the purposes of re-floating when aground after which it shall be secured fully down at the earliest opportunity.

**5.6 Hatches**

Whilst racing the main and any other hatches shall be securely closed but may be opened to gain access to stored equipment after which they shall immediately be securely closed.

**5.7 Rigging & Deckgear**

Whilst racing the Shaw 650 it shall be rigged to ensure it complies with the measurements in Appendix 1.

No alternations to rigging will be allowed during the course of a regatta except in the case of damage and or when authorised by the Race Committee.

Hiking straps shall be positioned outboard not less than 150mm from the edge of the cockpit floor prior to rising to the sidewalls of the wing of the boat, and there shall be 1 hiking strap per side which may be discontinuous (i.e. 1 strap running from the middle of the cockpit aft, and another running from the middle of the cockpit forward; on each side of the boat). No other hiking aids are allowed including but not limited to sagging lifelines, trapezes, sliding planks or attachments to belts etc.

The boat shall be set up with the following control lines:

**Required items:**

- Mainsheet system, jib sheeting system, spinnaker sheeting system
- Boom vang or GNAV push down vang type
- Main outhaul, downhaul
- Spinnaker prod line, tack line
- Separate main, jib and spinnaker halyards

**Optional items:**

- Mainsheet bridle or main traveller and traveller control systems including off boom, off floor or other mainsheet system options
- Reefing lines
- Barberhauler jib systems
- Linked systems for spinnaker hoist/drop

- Kite retrieval system tube
- Continuous kite and/or jib sheets

**Limitations:**

- Shrouds shall not be adjusted during racing
- Additional control systems beyond those set out above

### 5.8 Identification

Sail numbers and optional international letters shall be in accordance with ISAF Rules and shall be displayed on the mainsail with those on the port side below those on the starboard side of the sail, including the Shaw 650 class insignia on the Mainsail as per Appendix 1.

### 5.9 Crew Positioning

No member of the crew may sit facing outward for any substantial period of time, and no device or method or sheet may be used to implement or assist hiking or sitting out board other than the foot hiking straps.

## 6 Racing Rules of Sailing.

The Class Association may prescribe rules and restriction to the ISAF Rule 18 “Advertising and Event Categories”

## 7 Amendment of Rules

These rules may be amended at the discretion of the class administrators who shall propose the changes to current class owners, who may reject the proposed changes by majority vote of the total owners.

Any rule change shall be for the overall long term prosperity of the class.

## Appendix 1: Measurements:

### Section 1 - Weight

### Hull weight

- The complete hull and decks including any paint, nonslip materials, hatches and mastfoot and rudder gudgeons but excluding foils, all deckgear, equipment, prod, boom, engine, engine bracket and all rig elements in dry and racing condition shall not be less than **140kg** nor more than **180kg**. Excluded from this weight shall be engine, sails, fuel, anchor, deckgear, sheets, bucket, floatation devices or any other bags or components not permanently attached to the boat

- In the event of weighing less than 140kg, the weight of the boat shall be noted on the measurement certificate, and a corrector weight weighing the same as the difference between 140kg - actual weight shall be permanently attached to the keelbox inside the boat and available for inspection at any time upon request by any other competitor, measurer or relevant party; any correction weight carried for this aspect shall be independent of corrector weights for other aspects; i.e. each kilo of correction weight cannot be used for more than one purpose

- In the event of weighing more than 180kg, the owner shall apply directly to the Class Administrator for special dispensation to race as a Shaw 650, and agreement to allow to race or not shall be at the sole discretion of the class Administrator.

### Rig weight - mast

- The complete mast complete with standing and running rigging including spreaders, halyards, mainsheet track, verticals, diagonals and check stays shall be not less than **18kg** nor more than 35kg

- In the event of weighing less than 18kg, the weight of the rig shall be noted on the measurement certificate, and a corrector weight the same as 3 times the difference between 18kg – actual weight shall be permanently attached o the keelbox inside the boat and available for inspection at any time upon request by any other competitor, measurer or relevant party; any correction weight carried for this aspect shall be independent of corrector weights for other aspects; i.e. each kilo of correction weight cannot be used for more than one purpose

- In the event of weighing more than 35kg, the owner shall apply directly to the Class Administrator for special dispensation to race as a Shaw 650, and agreement to allow to race or not shall be at the sole discretion of the class Administrator.

### Rig weight – boom

- The complete boom complete with outhaul, gooseneck, mainsheet fittings, vang fittings, mainsheet blocks excluding mainsheet shall be not less than 5kg

- In the event of weighing less than 5kg, the weight of the rig shall be noted on the measurement certificate, and a corrector weight the same as 3 times the difference between 5kg – actual weight shall be permanently attached o the keelbox inside the boat and available for inspection at any time upon request by any other competitor, measurer or relevant party; any correction weight carried for this aspect shall be independent of corrector weights for other aspects; i.e. each kilo of correction weight cannot be used for more than one purpose

**Rig weight – prod**

- The complete prod including tack line pulley shall be not less than 6kg
- In the event of weighing less than 6kg, the weight of the rig shall be noted on the measurement certificate, and a corrector weight the same as 3 times the difference between 6kg – actual weight shall be permanently attached to the keelbox inside the boat and available for inspection at any time upon request by any other competitor, measurer or relevant party; any correction weight carried for this aspect shall be independent of corrector weights for other aspects; i.e. each kilo of correction weight cannot be used for more than one purpose

**Keel and bulb weight**

- The keel including bulb shall weigh not less than 110kg and shall not exceed 150kg total weight excluding:
    - Any boat built prior to 2008 which may apply to be 'grandfathered' into the Shaw 650 class rules at the discretion of the class administrators
    - Notwithstanding the above, the keel including bulb shall not be less than 95kg on any boat
- For any boat, the weight of the keel and bulb shall not be less than 0.35 of the total displacement of the boat empty (i.e. without sails, deckgear, equipment, etc as per SBR regulations)
- The total weight of the keel and bulb shall be noted on the measurement certificate and may not be changed without prior notice

**Rudder weight**

- The rudder including tiller tube and any mounting hardware but excluding tiller shall weigh not less than 4kg
- In the event of weighing less than 4kg, the weight of the rudder shall be noted on the measurement certificate, and a corrector weight the same as 3 times the difference between 4kg – actual weight shall be permanently attached to the keelbox inside the boat and available for inspection at any time upon request by any other competitor, measurer or relevant party; any correction weight carried for this aspect shall be independent of corrector weights for other aspects; i.e. each kilo of correction weight cannot be used for more than one purpose

**Total weight**

- The weight above excludes tiller, tiller extensions, sheets, control lines, deckgear, fixed bags, hiking straps, bridle, blocks, and any other items fixed permanently to the boat which shall be included in the total weight and are calculated to weigh approximately 12kg
- Therefore the total weight of each Shaw 650 shall be a minimum of 295kg excluding safety equipment, sails, any non fixed gear, engine, fuel and crew

## Section 2: Materials

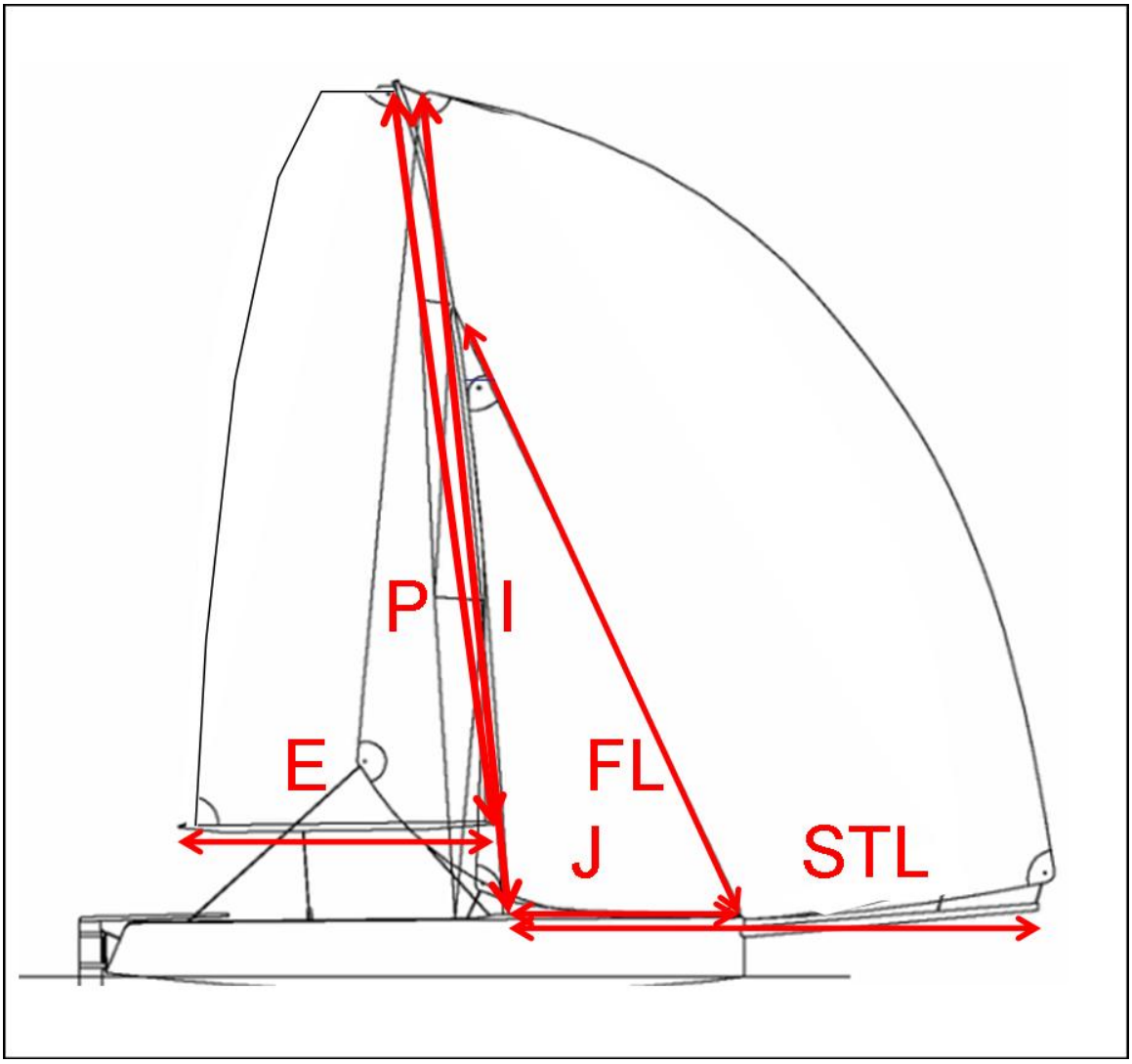
### Hull Dimensions and Materials

- The hull, deck and bulkheads shall be constructed from foam or cedar core or balsa core with glass reinforced materials such as fibreglass boat cloth or similar only. Use of exotic materials for general structure including but not limited to nomex or honeycomb cores and carbon skin is not permitted
- Carbon may be used for reinforcement of deck fittings, chainplates, rudder gudgeons, keelbox, mastfoot, selected bulkheads and wings only
- Coring, drilling out, rebuilding, grinding or sanding to improve moments of inertia or change standard shape is prohibited
- The hull shall be 6.5m long, 2.45m wide and either constructed from Shaw650.com moulds by the class builder or homebuilt and complying with the scantlings and dimensions set out in the Shaw 650 Design plans from Rob Shaw
- Placement of fittings on the deck are not restricted except as follows:
    - Forestay shall not be attached to the deck level further forward the bow taking a measurement point at deck level and the bow defined as the vertical line of the stem
    - The maststep shall be placed on the centreline of the hull and position of the mast shall be not adjustable during racing; placement and method of placement is not restricted
    - The turning blocks for the spinnaker shall be placed on the wings and position is not adjustable during racing; placement and method of placement is not restricted
    - The jib sheeting point shall be on the cockpit floor; placement and method of placement is not restricted
- The following are not controlled:
    - Brand, number and size of blocks or sheets for control lines or sheeting
- The hull may be sanded or prepared or painted if in compliance with RRS 53; any preparation of gelcoat shall not include fairing of any sort

### Rig Dimensions and Materials

- The mast, prod and boom may be constructed of Carbon or Aluminium or some combination e.g. aluminium spreaders with carbon mast tube
- The length of the mast shall be as per the rig design and set up with twin spreaders as per the diagram included in the rig plan of the Shaw 650; the maximum height of the rig may vary slightly based on the mast step, and therefore the sail dimensions and mast dimensions shall both be used to determine compliance of the rig dimensions with class rules

- The diameter of the mast may be oval or round, and can be tapered or straight
- The total length of the prod shall be as per the plans and the maximum extension of the prod shall be a distance of XXm from the leading edge of the mast to the forward most radius of the prod turning block of for the tack
- The length of the boom shall be between as per plans. The maximum distance from the trailing edge of the mast to the aft most point of the outhaul block shall be XXm. The boom can be oval or round diameter but cannot be tapered
- The mast shall be rigged with 1 forestay, 1 set of verticals each side, 2 set of diagonals each side (lower and upper) and 1 set of checkstays which are optional. Any additional runners, backstays or other shroud configurations are prohibited
- The mast shall include 1 main halyard running internally, which can use a 2:1 purchase if preferred; 1 internal jib halyard and 1 masthead spinnaker halyard which may be internal or external
- Standing rigging shall be stainless steel cable only with major stays being at least 4mm diameter and upper cap shrouds being at least 3mm. Dyform is allowed. Rod, Diamond, Aramid, PBO or any other exotics may be allowed subject to approval by the class administrators. Check stays may be either stainless or rope e.g. dyneema. Rigging shall use turnbuckles for all verticals, diagonals and the forestay
- Rotating masts are prohibited
- Halyards shall be a minimum of 4mm in diameter
- Shrouds may be adjustable using turnbuckles, but not adjusted during racing
- Stay and shroud positions shall be as specified in the Shaw 650 design




P = 7.95m +/- 0.02m

E = Max 3.18m (point of most outhaul on main)

J = Max 2.4m

FL = Max 3.25m

STL = Max 5.3m

I = Max 8.5m

**Keel Dimensions and Materials**

- The keel may be constructed from a combination of a core, carbon skin and fibreglass with a bulb of lead

- The bulb may be attached to the keel either by secure bolts or by using a construction which encloses the bulb inside the keel skin
- The keel must include a lifting point which can raise the keel vertically through the keel box with a crane operatable by a person of average strength
- The length, shape and profile of the keel shall be as per the Shaw 650 plans and conform to official templates
- The bulb shall be of a cylindrical shape. Wings or modifications to the general shape are prohibited
- Coring, drilling out, rebuilding or reshaping or fairing the keel or bulb is prohibited
- The keel shall be fixed in position and gybing or adjustable foils, flaps, tabs or otherwise are prohibited

**Rudder Dimensions and Materials**

- The rudder may be constructed from any materials and the rudder shall attach to the boat using 2 gudgeons, with no restrictions on the pins or method for which it attaches
- The gudgeons shall be placed directly on the stern and there shall be no packing or alterations to the position of the rudder
- The tiller and tiller extension length and materials are not restricted. The tiller shall be attached to the rudder in such a way that it cannot release under pressure
- The measurement, length, profile and dimensions of the rudder shall be as per Shaw 650 design

**Sails Dimensions and Materials**

- Main and jib shall be manufactured from woven ply and /or laminated ply such as Kevlar, Pentex, carbon, Dacron or similar. The spinnaker shall be made of woven ply non polyester only of a weight not less than 0.4 ounce and not more than 0.8 ounce

- The number of battens shall not be no more than 5 full length battens in the main and 7 battens (including flutter battens) in total, and 4 battens in the jib. Fully battened sails are allowed. A jib is defined as a sail using the jib halyard, the forestay and multiple attachment points from which to attach the jib to the forestay

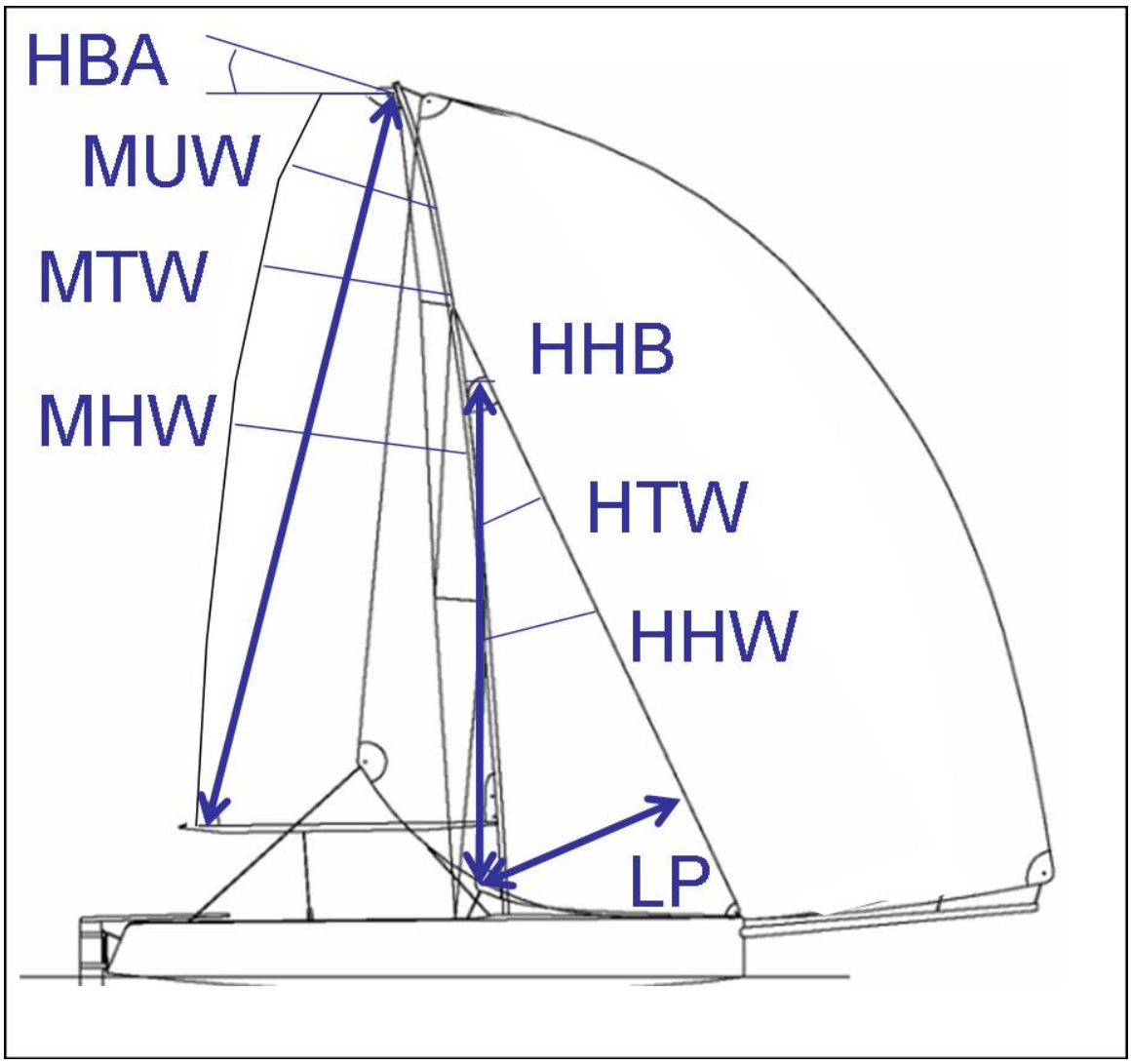
- Spinnakers are asymmetric and are not allowed to carry battens. The Spinnaker is defined as a sail attached to the point at three points; the masthead with the spinnaker halyard; the tack at the tip of the prod and the clew controlled by the spinnaker sheets

- Windows are permitted in all sails

- All Shaw 650s must have the class insignia marked onto the mainsail

- A Shaw 650 may sail with a total of maximum 1 main, 2 jibs 2 spinnakers at any time

- The maximum dimensions for each sail are as shown below; the Shaw 650 sail designs are not restricted and sails may be manufactured in a manner so long as dimensions set out below are not exceeded:




MHW = max 2.33m

MTW = max 1.87m

MUW= max 1.13m

(measured at halfway , 3/4 and 7/8 point between clew and head from leech to the shortest point to luff)

HBA = max 110 degrees

(angle of luff in last 1m of main to the upper batten highest most point in square top main)

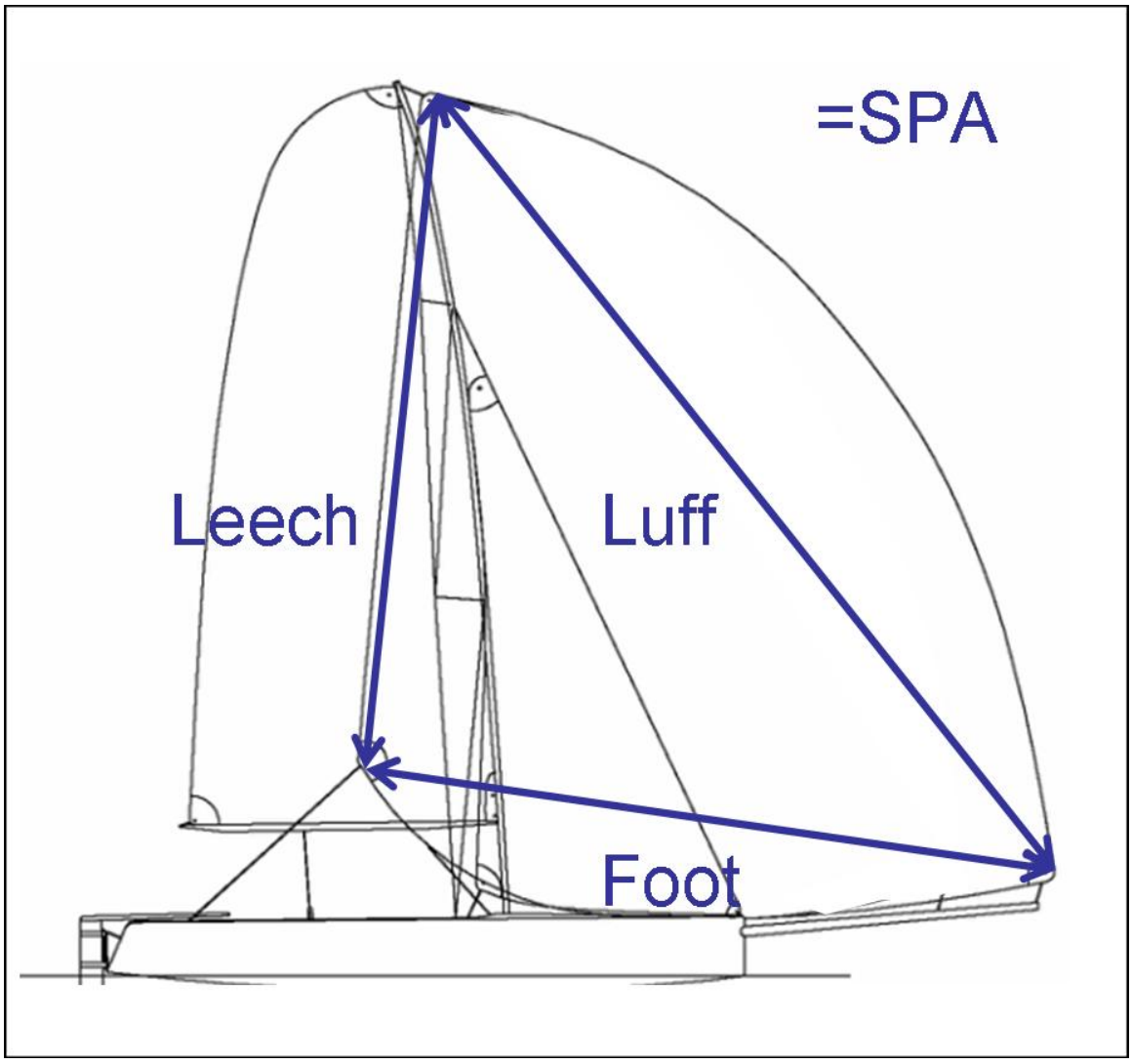
HHW = max 1.41m

HTW = max 0.61m

HHB= max 0.09m

LL = 6.14m

LP = 2.39m




Leech = max 8.5m

Luff = 11.1m

Foot = max 7.5m

While Leech + Luff + Foot <= 26.95

(sail area measurement: SPA=((SLU+SLE)/2)*((SF+(4*SHW))/5)*0.83)

**Sail Units**

- A boat shall register a maximum of 1 main, 2 jibs, 2 spinnakers for any regatta series and the measurements shall be based on the individual dimensions of the larger of the sails when two are presented for each individual measurement; all sails shall comply with measurement requirements and be signed by the measurer and dated
- After major alterations or repairs, the sail shall be remeasured if it has changed in shape, size or dimensions
- In order to prevent excessive costs of sails, each Shaw shall register not more than a maximum of 2 mains, 3 jibs, 3 spinnakers in a single calendar year, except with specific dispensation from the class administrators provided in the instance of theft, unforeseen damage or some other valid reason

**Sail Insignia**

The class insignia shall be affixed to the mainsail on boat sides of the sail, with size to scale as shown below, with minimum dimensions width 1m X height 0.36m; the class administrators will supply sail insignia to class boats. The placement shall be approximately in line with the upper spreaders