NSW EC 12 ONE DESIGN CLASS

CLASS RULES

2014

INTRODUCTION

The class began as a towing tank testing model for a proposed design to defend the America Cup. The designer was Charles Morgan and the nick-name for the proposed design was Eagle. Buddy Black used the 9/10 inch = 1 foot model as a plug for making the first mould. Yachts were first produced in the late 1960's. The first Championship was sailed (in the USA) in 1971.

A full history of the Class may be found in the Manual for EC12s.

1 GENERAL

(a) The intention of the Class Rules is to provide a one design specification for moulding of identical hulls from NSWRYA Inc. approved moulds, hulls from the AMYA and NZEC12OA while at the same time allowing all registered hulls and hulls that could have been registered (had they been presented for checking by a recognised measurer) to maintain their eligibility to compete as an EC12.
(b) The NSW EC12 class is a one-design radio controlled racing class.
(c) The class rules ensure all yachts, irrespective of age, are reasonably alike in all aspects affecting sailing performance.
(d) Anything not specifically permitted in these rules shall be referred to the NSW Class Co-ordinator for a ruling. When considering anything in connection with the yacht that is not established practice within the Class or is not clearly covered by the Class rules, you should not use any such departure in a recognised competition.
(e) When interpreting any rule, the Class Co-ordinator shall consider the intended meaning and shall bear in mind at all times, the basic principle of the Class Rules, which is to maintain the NSW EC12 as a one design class.
(f) The class insignia shall be the number 12 underlined. A line, a maximum length as the total width of the class insignia shall be placed under the class insignia, the line to have a minimum thickness of 2 mm.
(g) The class insignia and national letters (if used) shall not be less than the following dimensions: height 35 mm width 23 mm (except number 1) and thickness 5 mm. The minimum space between adjoining numerals or letters shall be 3 mm. The overall height of the class insignia to be 50 mm (minimum).
(h) The class insignia, national letters and sail number shall be placed as prescribed in Appendix E- Radio-controlled Boat Racing Rules of the RRS.
(i) These rules to remain unaltered until 31 December 2016 except for corrections, or unless, to reflect the wishes of a two-thirds majority of owners.

1.1 CONDITIONS FOR RACING

1.1.1 ELIGIBILITY

Before a yacht is eligible to race in competition:

(a) It shall have been registered prior to 1st Jan 2014

or (b) Its hull shall have been moulded in an NSWRYA inc. approved mould, from AMYA Licensed builder (With hull registration certificate) or from the NZEC12OA Licensed mould

or (c) The yacht conforms to the measurements of these class rules or any of the previously issued class rules, but because of the passing of time, the provenance of the hull has been lost

and (d) The yacht shall have a measurement certificate issued by an official measurer and approved by the NSW EC12 Class Co-ordinator acting as registrar.

1.2.2 RULES

The following ERS rules shall not apply; B.7.1 Mainsail, Foresail and Mizzen Booms set on a mast and B.7.2 Headsail booms.

1.2.3 CREW

The crew shall consist of one person.

1.2.4 ADVERTISING

The boat shall only display such advertising as permitted by the ISAF advertising code Category C.

1.2.5 WEIGHT

WEIGHT TO REPLACE WATERLINE LENGTH

As from the 1st Jan, 2008 only a yacht that has been weighed by an official measurer and had its "official" weight entered on the yacht's measurement certificate will be eligible to race. Each yacht is to be weighed in dry condition with an" A" rig of sails, all hatch covers, batteries etc. Every EC12 yacht, irrespective of when first registered, must weigh between the limits of 11.000kg. and 11.300kg. in dry condition.

1.2.6 MAINTENANCE

The hull shall not have been altered since fundamental measurement except for:

(a) Permitted routine maintenance such as painting, polishing and smoothing

(b) Replacement of the following with similar items, fittings, sign writing, remote control equipment.

1.2.7 HULL APPENDAGES

The rudder may be altered without a requirement to remeasure providing it still meets the requirement of these rules.

1.2.8 RIG

(a) The rig shall not project beyond the fore and aft ends of the hull and the maximum beam.

(b) Chainplates shall not project beyond the beam of the hull at their fixing points.

1.2.9 ADDITIONAL RULES TO APPLY WHEN RACING

(a) Only one hull and one rudder shall be used during a race or series of races, except in cases of authentic damage or loss. All replacements shall be authorised by the race committee.

(b) A race committee cannot vary these class rules.

1.2.10 BUMPERS

All yachts to be fitted with a functional bow bumper.

2 MEASUREMENT AND MEASURERS

2.1 Measurements shall be taken in accordance with the Equipment Rules of Sailing unless otherwise specified in these rules.

2.2 Only a measurer officially recognised by the NSWRYA shall measure a yacht, her spars, sails and equipment and sign measurement forms.

2.3 A measurer shall not measure a yacht, her spars, sails or equipment which is owned, designed, built or raced by him/her or in which he/she is an interested party or has a vested interest.

2.4 If a measurer is in any doubt as to the legality of any part of a yacht, spars, sails, or equipment, he shall report accordingly on the measurement form.

2.5 Alterations, replacements or repairs to any yacht shall be made in accordance with these rules and shall be checked by an official measurer.

2.6 New or substantially altered sails shall be checked by an official measurer and be dated and stamped and signed near the tack of the sail.

2.7 All yachts, spars, sails and equipment shall be liable to check measurement by an official measurer, an appointed race committee or, within a club, a club official. Such a check may include weighing the yacht.

2.8 If a competitor other than the owner is racing the yacht, then the owner's responsibilities are transferred to the competitor.

3 ADMINISTRATION

3.1 LANGUAGE

3.1.1 The official language of the class is English and the English text shall prevail in the event of a dispute in translation.

3.1.2 In interpreting these rules, it shall be understood that the word "shall" is mandatory and the words "can" and "may" are permissive.

3.2 ADMINISTRATION OF CLASS

3.2.1 The administrative authority for the class is the NSWRYA Inc.

3.3 BUILDERS

3.3.1 The NSW EC12 Class is a limited construction class and only builders approved by the NSWRYA Inc. shall produce hulls in Australia

3.3.2 Application for approval of a builder shall be made to the Secretary of the NSWRYA Inc.

3.4 REGISTRATION AND MEASUREMENT CERTIFICATE

3.4.1 A valid measurement certificate is an original measurement form, or a true copy of the measurement form that has been stamped and signed by the NSWRYA registrar.

3.4.2 REGISTRATION PROCEDURES

(a) The registration procedure shall be in accordance with NSWRYA requirements.

(b) A change of ownership invalidates a certificate of compliance and a new owner shall apply to the registrar for a transfer of the certificate

4 CONSTRUCTION AND MEASUREMENT RULES

4.1 IDENTIFICATION MARKS

4.1.1 The hull shall carry a manufacturer's serial number, the name of the manufacturer and the yacht class label (EC12). Such information must be moulded-in or denoted by a permanent marker inside the hull and be visible through the hatch.

4.1.2 The hull shall carry the NSWRYA registration number in numerals at least 20mm high. This number is to be located on the aft portion of the deck or on the transom and be visible from outside the yacht. This number to have the prefix AUS.

5 HULL SHELL

5.1.1 the hull shall be obtained from an official NSWRYA Inc. recognised builder , from AMYA Licensed builder (With hull registration certificate) or from the NZEC12OA Licensed mould.

5.1.2 The hull shell shall be constructed only of glass fibre reinforced plastic (GRP) with the interior surface unpainted and consisting of unpigmented resin to allow visual inspection of the hull laminate and its materials. Resin type is unrestricted.

5.1.3 The minimum weight of a hull, measured with inwales but without deck or rudder shall be 1000 grams. The hull builder must certify this weight.

5.1.4 The hull shell shall only be modified by piercing for the fitting of rudder tube and stock and/or by the provision of rigid fairing to the aft of the keel to accommodate the rudder.

5.1.5 The length overall (L.O.A.) shall be 1470mm minimum, 1500mm maximum exclusive of bow bumper

5.1.6 The beam at the deck shall comply with the measurements below for at least eight of the stated stations +/- 6mm and no more than two (2) consecutive stations shall be out of tolerance. Distances from the bow shall be taken along the deck.

All measurements in millimetres

Distance from bow	Beam
0	0
127	63
254	116
381	164
508	207
635	245
762	273
889	283
1016	273
1143	244
1270	196
1397	133

5.1.7 The deck shall be of fibre glass, plywood, timber or of melamine. It shall have a thickness not less than the hull shell. The deck may be cored with any suitable material. The centreline of the deck shall be either a straight line from the bow to the stern or a fair continuous curve upward. The maximum deviation from a straight line shall be 15 mm.

5.1.8 One main hatch is allowed abaft the mast with a maximum opening area of 386 square centimetres. The maximum opening dimension measured in fore to aft direction shall not exceed 300 mm.

5.1.9 Two additional access hatches for servicing below deck equipment are permitted. They shall be covered by material of the same thickness (or greater) than the deck. The covering material shall be fixed in position with screws.

5.1.10 Any colour, finishing paints, varnishes or lacquers may be used for the exterior finish of hull, deck, and rudder.

5.1.11 The chainplates shall be fixed to the deck. Screw eyes, etc. may be used instead of chainplates and if used, shall be placed in a similar position.

5.1.12 A jib swivel, of any design, shall be attached to the deck approximately on the centreline of the yacht and may allow for manual adjustment.

5.1.13 The keel section of all hulls moulded after 1st Jan. 2014 shall be of such thickness and profile as to pass the NSWRYA Inc approved keel gauge. The gauge limits the thickness of the keel to 53mm (To Align with AMYA & NZEC12 OA)

5.1.14 The Hull Datum Point shall be the centreline of the rudder tube at the surface of the hull.

5.1.15 Trim marks, length 25mm. minimum, width 2mm. minimum, 10mm. maximum shall be placed across the centreline of the hull.

5.1.16 Trim marks are to be located:
(a) The aft edge of the forward trim mark to be located 933mm forward of the Hull Datum Point.
(b) The forward edge of the aft trim mark to be located 159mm aft of the Hull Datum Point.

5.1.17 When racing, no part of either mark shall be below the LWL when the yacht is at rest.

5.1.18 Following any procedure (maintenance, repair, ballast adjustment etc.) the hull must be returned to its original shape or form.

6 RUDDER

6.1 The rudder shall neither extend beyond the bottom of the keel nor extend above the bottom of the keel by more than 125 mm. No portion of the rudder shall extend more than 89 mm aft of the keel. The rudder shall have a thickness no greater than the keel section immediately forward of it.

6.2 The rudder shall be made of GRP and/or timber.

6.3 The rudder shall be turned by remote control.

7 BALLAST

7.1 The ballast material shall have a density no greater than lead (11.35 kg/dm3). All ballast shall be located within the interior of the hull, shall be fixed in place and shall not be moveable.

8 RIGS

8.1 MANDATORY PARTS

(a) Mast
(b) Mainsail boom
(c) Headsail boom
(d) Standing rigging
(e) Running rigging
(f) Fittings

8.2 GENERAL

8.2.1 RULES

Rigs shall comply with the current class rules.

8.2.2 MANUFACTURERS

No licence is required.

8.2.3 LIMITATIONS

The function of items shall be limited to what is normally provided by items of their type.

8.2.4 CONSTRUCTION

(a) Fittings or attachments may be combined, provided their function is not extended beyond what is permitted
(b) The position of parts, and the length and tension of rigging, may be adjustable unless otherwise restricted.
(c) Ball and/or roller bearings may be used for: Kicking strap attachment and gooseneck; mainsail boom sheet blocks; headsail boom sheet blocks; headsail boom swivel.

8.2.5 It is permissible to use only one mast providing that mast has the necessary bands for the size of sails attached.

8.3 MAST

8.3.1 MATERIALS

(a) The spar shall be aluminium or aluminium alloy or wood and may be solid or laminated. The spar may be a combination of these materials.
(b) Other permitted materials in the spar are: adhesive, paint, powder coat, varnish. A spar may be completely or partially anodized.

8.3.2 CONSTRUCTION

(a) A mast stub arrangement is permitted and, if used, shall be taken to be part of the mast.
(b) A mast may be parallel sided, tapered, curved or stepped.
(c) A mast may have:
    (1) An internal sail track.
    (2) Local cutaways for the insertion of a bolt rope or sliders.
    (3) Holes for fittings and attachments.
    (4) Internal or external spar joiners.

8.3.3 FITTINGS

(a) Fittings may include:

(1) Mainsail head attachment.
(2) Side stay attachment(s).
(3) Lower shroud attachment(s).
(4) Kicking strap attachment.
(5) Gooseneck and/or its attachment.
(6) Wind indicator and/or its attachment(s).
(7) Backstay crane and its attachment.
(8) Headsail stay attachment(s).
(9) Headsail halyard attachment(s).
(10) Pair of spreaders and their attachments.
(11) Mast rings and/or loops for mainsail luff attachment.
(12) Mainsail luff and jackstay attachments.
(13) Mainsail tack attachment(s).
(14) Mast strut and its attachment(s).
(15) Checkstay attachment(s).
(16) Deck fitting.
(17) Heel fitting with or without mast jack.
(18) Jumper struts and their attachment(s).

(b) CONSTRUCTION

(1) The mainsail head attachment may, with or without any cord or line, include one part that rotates with the sail about an axis located inside or outside the spar section.
(2) A kicking strap attachment and gooseneck shall have pivot points aft of the mast spar in the region adjacent to these points.
(3) Spreaders shall be aligned in approximately the same plane as the mast and side stays. They may be fixed or removeable.
(4) Jumper struts shall be approximately horizontal.
(5) Masts may be stepped on the deck or keel.
(6) The mast shall be non-rotating and may employ fittings below the lower limit mark to restrain any bend or rotation.

8.3.4 DIMENSIONS (All dimensions in millimetres)

	Minimum	Maximum
Lower Point to Deck	100	106

Lower Point to Upper Point		Maximum
Mast A		1702
Mast B		1372
Mast C		1026

Lower Point to Headsail Rigging Point	Minimum	Maximum
Mast A	1388	1400
Mast B	1168	1180
Mast C	853	863

Limit mark width	Minimum	Maximum
	3	10

Mast spar fore and aft and transverse cross section		Maximum
		20

	Minimum	Maximum
Mast forward edge to the foremost point of the hull (exclusive of bow bumper)	623	723

8.4 BOOMS

8.4.1 MATERIALS

(a) The booms shall be aluminium or aluminium alloy, wood or G.R.P. or any combination of these materials.
(b) Other permitted materials in the booms are: adhesive, paint, powder coat, varnish. A boom may be completely or partially anodized.

8.4.2 CONSTRUCTION

(a) A boom may be tapered at one or both ends and may be curved or stepped.
(b) Holes for fittings and attachments are permitted.

8.4.3 MAINSAIL BOOM FITTINGS

Permitted fittings:
(a) Mainsail clew attachment(s).
(b) Mainsail boom sheet attachment(s).
(c) Kicking strap attachment(s).
(d) Mainsail tack attachment(s).
(e) Gooseneck attachment.

8.4.4 HEADSAIL BOOM FITTINGS

Permitted fittings
(a) Headsail tack and clew attachments.
(b) Headsail boom sheet attachment(s).
(c) Headsail swivel and/or its attachment(s).
(d) Jib stay attachment.
(e) Headsail stay attachment(s).
(f) Topping lift attachment(s).
(g) Counterweight and/or its attachment(s).

8.4.5 DIMENSIONS

The largest boom vertical or transverse dimension: 20mm

9 RIGGING

9.1 STANDING RIGGING

9.1.1 MATERIALS

Materials of standing rigging are unrestricted.

9.1.2 CONSTRUCTION

Permitted

(a) Side stays and spreaders
(b) Lower shrouds
(c) Backstay
(d) Jibstay
(e) Headsail boom swivel
(f) Check stays
(g) Mast strut
(h) Mast jackstay
(i) Jumper struts

9.1.3 POSITION OF STANDING RIGGING

(a) Side stays shall terminate at the chainplates.
(b) The lower shrouds shall terminate at the chainplates either with the side stays or abaft the side stays.
(c) The backstay shall be affixed to the mast head or to the mast head crane and terminate in the vicinity of the transom and on the centreline of the hull.
(d) The jib stay shall be attached to the mast in such a manner that a line through the jib tack and jib head point, if extended, would meet the mast below the headsail limit mark at the front of the mast when the boom spar is on the centreplane of the hull.

9.1.4 STANDING RIGGING ADJUSTMENT

All standing rigging shall be adjustable only by manual means.

9.2 RUNNING RIGGING

9.2.1 MATERIALS

Materials of running rigging are unrestricted

9.2.2 CONSTRUCTION

Permitted

(a) Mainsail boom sheet
(b) Mainsail boom kicking strap
(c) Headsail boom sheet
(d) Terminations
(e) Length and tension adjusting devices
(f) Mainsail boom sheeting blocks
(g) Headsail boom sheeting blocks

9.2.3 CONTROL

The position of the mainsail boom and the headsail boom may be adjusted by remote radio control and/or manual means. No more than two radio channels shall be employed for the control of booms. No other adjustments to rigging shall be made by remote control.

10 SAILS

10.1 MANDATORY

(a) Mainsail
(b) Headsail

10.2 GENERAL

10.2.1 RULES

Sails shall comply with the class rules in force at the time of their fundamental measurement.

10.2.2 CERTIFICATION

An official measurer shall certify sails in the tack and shall date each sail with the date of fundamental measurement

10.2.3 SAILMAKERS

No licence is required

10.2.4 MEASUREMENT

(a) During measurement
(1) Battens need not be removed.
(2) Sails with the luff not set in the mast spar track may be attached to spars.
(3) Headsail stays and jackstays need not be removed.

(b) Where the mainsail has a luff bolt rope, the luff shall be taken as the aft edge of the bolt rope

(c) Discontinuous attachments on the luff shall be disregarded provided that their total length measured along the luff, does not exceed 10% of the luff length and that the longest attachment is no more than twice the shortest.

10.2.5 USE

The sails of A, B, C rigs shall be used as distinct, unmixed sets and be marked for identification. They may be attached to any mast.

10.3 MAINSAIL

10.3.1 CONSTRUCTION

(a) The construction shall be soft sail, single ply sail.
(b) The sail may have a maximum of four battens in the leech.
(c) The luff tabling may have openings for jackstay fittings.
(d) Foot and leech edges shall be equal to or less than the smooth curve produced by a constant section batten connecting the corners of the sail and the intervening measurement points, with no bending induced beyond the corners.
(e) The following are also permitted:
Stitching, seam glues and tapes, one or two cringles at the head, one cringle at each of the clew and the tack, bolt rope, eyes, jackstay attachments or track slides at the luff, tell tales, sail identification, sail maker labels. Cringle and eyelet diameter not to exceed 15mm and they shall be located within 15mm of the sail corner measurement points.
(g) The mainsail may be single or multi-panel construction.

10.3.2 DIMENSIONS (All dimensions in millimetres)

Leech length	Minimum	Maximum
Mainsail A	1758	1768
Mainsail B	1447	1457
Mainsail C	1138	1148

Foot length	Minimum	Maximum
Mainsail A	549	559
Mainsail B	549	559
Mainsail C	549	559

Quarter width	Minimum	Maximum
Mainsail A	455	465
Mainsail B	436	446
Mainsail C	418	428

Half width	Minimum	Maximum
Mainsail A	337	347
Mainsail B	305	315
Mainsail C	282	292

Three-quarter width	Minimum	Maximum
Mainsail A	188	198
Mainsail B	163	173
Mainsail C	146	156

Top width		Maximum
		19

Foot median length	Minimum	Maximum
Mainsail A	1702	1727
Mainsail B	1372	1394
Mainsail C	1026	1051

Primary reinforcement from the nearest sail corner measurement point		Maximum 203

Secondary reinforcement from the nearest sail corner measurement point		Maximum 203

Flutter patches		Maximum 50

Batten length		Maximum 127

Batten width		Maximum 10

10.4 HEADSAIL

10.4.1 CONSTUCTION

(a) The construction shall be soft sail, single ply sail.
(b) The headsail may be single or multi-panel construction.
(c) The sail may have two battens in the leech.
(d) Luff tabling may enclose or partially enclose headsail stay

(e) The following are also permitted: Eyelets, stitching, seam glue and tapes, one or two cringles at the head, one cringle at each of the tack and clew. Cringle and eyelet diameter not to exceed 15mm and they shall be located within 15mm of the sail corner measurement points.

10.4.2 DIMENSIONS (All dimensions in millimetres)

Leech length	Minimum	Maximum
Headsail A	1274	1284
Headsail B	1025	1035
Headsail C	758	768

Luff length	Minimum	Maximum
Headsail A	1359	1369
Headsail B	1126	1136
Headsail C	890	900

Foot length	Minimum	Maximum
Headsail A	473	483
Headsail B	473	483
Headsail C	473	483

Quarter width	Minimum	Maximum
Headsail A	354	364
Headsail B	334	344
Headsail C	303	313

Half width	Minimum	Maximum
Headsail A	249	259
Headsail B	233	243
Headsail C	208	218

Three- quarter width	Minimum	Maximum
Headsail A	136	146
Headsail B	126	136
Headsail C	108	118

Top width		Maximum
		19
Foot median length	Minimum	Maximum
Headsail A	1318	1328
Headsail B	1060	1070
Headsail C	791	801

Primary reinforcement	Maximum
From the nearest corner measuring point	152

Secondary reinforcement	Maximum
From the nearest corner measuring point	152

Flutter patches	Maximum
	5
Batten length	Maximum
	51
Batten width	Maximum
	10