INTERNATIONAL
2.4 ONE DESIGN
CLASS RULES
2009 DRAFT 2008-06-10

The Norlin mark III design for the 2.4mR Class, which was adopted as an international class in 1993, was designed in 1987 by Peter Norlin.

The 2.4 One Design was developed from this design in 2008 and it was adopted as an international one design class in 2009

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INTRODUCTION

The 2.4 One Design hulls, rudders and sails are manufacturing controlled. Rigs are measurement controlled

The 2.4 One Design hulls and rudders shall only be manufactured by Licensed Builders – in the class rules referred to as licensed hull builder. Equipment is required to comply with the International 2.4 One Design Building Specification and is subject to an ISAF approved manufacturing control system.

2.4 One Design hulls and rudders may, after having left the manufacturer, only be altered to the extent permitted in Section C of these Class Rules.

Owners and crews should be aware that compliance with rules in Section C is NOT totally checked as part of the certification process.

Rules regulating the use of equipment during a race are contained in Section C of these Class Rules, in ERS Part I and in the Racing Rules of Sailing.

This introduction only provides an informal background and the International 2.4 One Design Class Rules proper begin on the next page.

In House Certification, IHC, will be applied in this class for hulls, rudders and sails.

PART I – ADMINISTRATION

Section A – General

A.1 LANGUAGE

A.1.1 The official language of the class is English and in case of dispute over translation the English text shall prevail.

A.1.2 The word "shall" is mandatory and the word "may" is permissive.

A.2 ABBREVIATIONS

A.2.1

ISAF	International Sailing Federation
MNA	ISAF Member National Authority
ICA	International 2.4mR Class Association
NCA	National Class Association
ERS	Equipment Rules of Sailing
RRS	Racing Rules of Sailing
OSR	Offshore Special Regulations

A.3 AUTHORITIES

A.3.1 The international authority of the class is the ISAF which shall co-operate with the ICA in all matters concerning these **class rules**.

A.3.2 Notwithstanding anything contained herein, the **certification authority** has the authority to withdraw a **certificate** and shall do so on the request of the ISAF.

A.4 ADMINISTRATION OF THE CLASS

A.4.1 ISAF has delegated its administrative functions of the class to MNAs. The MNA may delegate part or all of its functions, as stated in these **class rules**, to an NCA.

A.4.2 In countries where there is no MNA, or the MNA does not wish to administrate the class, its administrative functions as stated in these **class rules** shall be carried out by the ICA which may delegate the administration to an NCA.

A.5 ISAF RULES

A.5.1 These **class rules** shall be read in conjunction with the ERS.

A.5.2 Except where used in headings, when a term is printed in "**bold**" the definition in the ERS applies and when a term is printed in "*italics*" the definition in the RRS applies.

A.6 CLASS RULES VARIATIONS

A.6.1 At Class Events – see RRS 88.1.d) – ISAF Regulation 26.5(f) applies. At all other events RRS 86 applies.

A.6.2 At World, Continental or Regional Championships the sailing instructions may vary these **class rules** only with the agreement of the ICA.

A.7 CLASS RULES AMENDMENTS

A.7.1 Amendments to these **class rules** are subject to the approval of the ISAF in accordance with the ISAF Regulations.

A.8 CLASS RULES INTERPRETATION

A.8.1 Interpretation of **class rules** shall be made in accordance with the ISAF Regulations.

A.9 INTERNATIONAL CLASS FEE AND ISAF BUILDING PLAQUE

A.9.1 The licensed hull builder shall pay the International Class Fees.

A.9.2 ISAF shall, after having received the International Class Fee for the hull, send the ISAF Building Plaque and a measurement form to the licensed hull Builder.

A.10 INTERNATIONAL CLASS ASSOCIATION LICENSE FEE AND INTERNATIONAL CLASS ASSOCIATION STICKER

A.10.1 The licensed hull builder shall pay the License Fee to the ICA as stated in the License Agreement between the hull Builder and the ICA.

A.10.2 The ICA shall, after having received the License Fee for the hull, send the International Class Association sticker to the licensed hull Builder.

A.10.3 An owner of a hull built before 2009-01-01 which has been approved to comply with these rules shall send this documentation to the ICA together with the registration fee.

A10.4 The ICA shall, after having received the registration fee and documentation according to A.10.3, send the International Class Association sticker to the owner.

A.11 SAIL NUMBERS

A.11.1 Sail numbers shall be issued by the MNA.

A.11.2 Sail numbers shall be issued complying with the current 2.4mR Class (The same series of numbers).

A.12 HULL CERTIFICATION

A.12.1 A **certificate** shall record the following information:

(a) Class

(b) **Certification authority**

(c) Sail number issued by the **certification authority**

(d) ISAF Building Plaque Number

(e) Builders details and hull number (hull number not needed for boats built before 2009-01-01)

(f) Class Association Sticker Number

(g) Date of issue of initial **certificate**

(h) Date of issue of **certificate**

(i) Date of flotation check according to B.2.

(k) Required declaration by the builder (see A.13.1 (a)) (only for boats built before 2009-01-01)

(l) Type of rudder (only for boats built before 2009-01-01)

A.13 INITIAL HULL CERTIFICATION

A.13.1 For a **certificate** to be issued to a hull built after 2009-01-01 not previously **certified**:

(a) **Certification control** shall be carried out by the builder as "in house certification" If the builder has not been approved for that, the **certification control** shall be carried out by the **official measurer** who shall complete the appropriate documentation, and the builder shall sign a declaration on the certificate, that the boat was built according to rules D.3.2 (a) and (b).

(b) The documentation and **certification** fee, if required, shall be sent to the **certification authority**.

(c) Upon receipt of a satisfactorily completed documentation and **certification** fee, if required, the **certification authority** may issue a **certificate**.

A.13.2 For a certificate to be issued to a hull built before 2009-01-01 not previously certified:

(a) **Certification control** shall be carried out by the **official measurer** who shall complete the appropriate documentation.

(b) The documentation and **certification** fee, if required, shall be sent to the **certification authority**.

(c) Upon receipt of a satisfactorily completed documentation and **certification** fee, if required, the **certification authority** may issue a **certificate**.

A.14 VALIDITY OF CERTIFICATE

A.14.1 A hull **certificate** becomes invalid upon:

(a) the change to any items recorded on the hull **certificate** as required under A.12 (a) – (l).

(b) withdrawal by the **certification authority**,

(c) the issue of a new **certificate**,

(d) the boat is given a new sail number (e.g in case of export of an old boat).

A.15 HULL RE-CERTIFICATION

A.15.1 The **certification authority** may issue a **certificate** to a previously certified **hull**:

(a) when it is invalidated under A.14.1(a), after receipt of the old **certificate and if needed appropriate documentation given by an official measurer**, and **certification** fee if required.

(b) when it is invalidated under A.14.1 (b), at its discretion.

(c) when it is invalidated under A.14.1 (d)

(d) in other cases, by application of the procedure in A.13.

A.16 RETENTION OF CERTIFICATION DOCUMENTATION

A.16.1 The **certification authority** shall:

(a) retain the original documentation upon which the current **certificate** is based.

(b) upon request, transfer this documentation to the new **certification authority** if the hull is exported.

Section B – Boat Eligibility

For a **boat** to be eligible for *racing*, it shall comply with the rules in this section.

B.1 CLASS RULES AND CERTIFICATION

B.1.1 The boat shall:

(a) be in compliance with the **class rules**.

(b) have a valid hull **certificate**.

(c) have valid **certification marks** as required

B.2 FLOTATION CHECKS

B.2.1 The hull **certificate** shall carry a satisfactorily flotation check confirmation.

B.2.2 The confirmation shall be done by an official measurer or a person authorised by the NCA or MNA stating date of the check.

B.2.3 A flotation check is valid maximum five (5) years from the date of the previous check. The check shall be accomplished according to Section M.

B.3 CLASS ASSOCIATION MARKINGS

B.3.1 A Class Association Sticker according to A.10.2 shall be affixed to the hull near the front of the cockpit on the port side.

B.3.2 An ISAF Plaque shall be fixed to the inside of the hull near the front of the cockpit on the port side.

B.3.3 Boats measured and certified before 1st July 1994 according to the International 2.4mR Class Rules and provided with a plaque issued by the Scandinavian Sailing Federation may have that plaque instead of the ISAF Plaque.

PART II – REQUIREMENTS AND LIMITATIONS

The **crew** and the **boat** shall comply with the rules in Part II when *racing*. In case of conflict Section C shall prevail.

The rules in Part II are **closed class rules**. **Certification control** and **equipment inspection** shall be carried out in accordance with the ERS except where varied in this Part.

(The text "The rules in Part II are closed class rules" to be used if all Sections in Part II are closed class rules. Otherwise it should be stated under "Rules" in each section whether the rules in that section are "closed class rules" or "open class rules".)

Section C – Conditions for Racing

C.1 GENERAL

C.1.1 RULES

(a) RRS 50.4 and 52 shall not apply.

(b) The ERS Part I – Use of Equipment shall apply.

C.2 CREW

C.2.1 LIMITATIONS

(a) The **crew** shall consist of one person.

(b) In normal positions of the crew both the legs and the main part of the torso shall be below deck and inside the sheer line.

C.3 PERSONAL EQUIPMENT

C.3.1 MANDATORY

(a) The boat shall be equipped with **personal buoyancy** for the crew member to the minimum standard EN 393: 1995 (CE 50 Newtons), or USCG Type III, or AUS PFD 1.

C.4 ADVERTISING

C.4.1 LIMITATIONS

Advertising shall only be displayed in accordance with Category C of the ISAF Advertising Code. (See ISAF Regulation 20)

C.5 PORTABLE EQUIPMENT

C.5.1 MANDATORY

(a) NOT FOR USE

(1) Towing rope minimum 9m long of not less than 5mm in diameter and of material that floats.

C.5.2 OPTIONAL

(a) One electrical pump with battery placed in the keel

(b) Any portable equipment may be carried on board above the floor level. (See D.2.4.(d)) The total weight of this optional portable equipment shall not exceed 2,0kg. In addition an extra jib may be carried on board.

C.6 BOAT

C.6.1 WEIGHT

	minimum	maximum
The weight of the **boat** in dry condition	253 kg	254 kg

The weight shall be taken including **sails** and portable equipment as listed in C.5.1 (a) and C.5.2 (a) but excluding portable equipment in C.5.2 (b).

The seat may be excluded if it fulfils the requirement according to D.6.2 (b).

C.6.2 FLOTATION

(a) The **hull** shall have flotation elements.

(b) The **boat** shall float in an approximate horizontal position when flooded and loaded with an extra 35kg lead ballast (when tested in salt water) placed 1340mm $\pm$ 500 mm from the hull datum point defined in D.2.4(a). In fresh water the extra lead ballast may be 28 kg.

(c) Flotation elements shall comply with ISO 12217-3 Annex C.

(d) **Hulls** with air tank(s) shall contain flotation element(s) and the flotation shall be checked according to (b) with the tank(s) filled with water. See also Section K.

(e) For flotation check confirmation see B.2.

C.7 HULL

C.7.1 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) Application of fillers to the hull for fairing is not allowed in order to change the shape of the original hull.

(b) Routine maintenance such as painting and polishing is permitted without re-measurement and re-**certification**.

(c) Repair of hull damages is permitted, see D.2.3 (d).

C.7.2 BALLAST

(a) Ballast pigs according to D.8 shall have their primary dimension in horizontal direction.

(b) The maximum weight of the ballast, including any equipment placed below the floor level, but excluding electrical pump and adherent hoses and cables, is 184kg.

C.8 RUDDER

C.8.1 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) Routine maintenance such as painting and polishing is permitted without re-measurement and re-**certification**.

(b) Repair of rudder damages will be permitted.

C.8.2 LIMITATIONS

(a) Only one **rudder** shall be used during an event of less than 8 consecutive days, except when a **rudder** has been lost or damaged beyond repair.

C.8.3 USE

(a) Boats shall have the deep standard rudder. Dimensions of the rudder shall comply with templates and specifications given in Section J.

(b) Boats built before 2009-01-01, which are not equiped with the deep standard rudder, may have the small standard rudder. This shall be stated on the certificate. Dimensions of the small rudder shall comply with templates and specifications given in Section J.

C.9 RIG

C.9.1 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) Routine maintenance such as painting and polishing is permitted.

C.9.2 LIMITATIONS

(a) Only one set of **spars** and standing **rigging** shall be used during an event of less than 8 consecutive days, except when an item has been lost or damaged beyond repair.

C.9.3 MAST

(a) DIMENSIONS

	minimum	maximum
Limit mark width	10 mm	
Mast spar curvature at a distance of 2700 mm from the **mast datum point** (See F.2.4)		30 mm

(b) USE

(1) The **spar** shall be stepped in the mast step in such a way that the heel is not capable of moving more than 2mm athwart ships.

(2) The **mast datum point** shall not be above the measurement point of the deck. (See D.2.4 (b)).

(3) Rotating masts are not permitted.

C.9.4 BOOM

(a) DIMENSIONS

	minimum	maximum
Limit mark width	10mm	-
Outer point distance		1960mm

(b) USE

(1) The intersection of the aft edge of the mast **spar** and the top of the boom **spar**, each extended as necessary, shall not be below the upper edge of the mast **lower limit mark** when the boom **spar** is at 90° to the mast **spar**.

C.9.5 STANDING RIGGING

(a) DIMENSIONS

	minimum	maximum
Foretriangle base (see F.2.4 (b))	mm	1560mm
Forestay height (see F.2.4 (c))	mm	3750mm

(b) USE

(1) Whilst racing the mast is not permitted to be adjusted in an athwart ships plane to windward of a plane perpendicular to the deck. The shrouds of boats with adjustable shrouds must be able to be tightened to their upward limit on both sides at the same time.

C.9.6 RUNNING RIGGING

(a) USE

The use of running rigging is optional, except for that only one mainsail sheet may be used.

C.10 SAILS

C.10.1 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) **Sails** shall not be altered in any way except as permitted by these **class rules**.

(b) Routine maintenance such as repair of damage is permitted without re-measurement and re-**certification**.

C.10.2 LIMITATIONS

(a) Not more than 2 main sails and 3 jibs shall be used during an event of the status National Championship or higher and of less than 8 consecutive days, except when a **sail** has been lost or damaged beyond repair.

C.10.3 MAINSAIL

(a) USE

(1) The **sail** shall be hoisted on a halyard. The arrangement shall permit hoisting and lowering of the **sail** whilst afloat.

(2) The highest visible point of the **sail**, projected at 90° to the mast **spar**, shall not be set above the lower edge of the mast **upper limit mark**. The intersection of the **leech** and the top of the boom **spar**, each extended as necessary, shall not be behind the fore side of the boom **outer limit mark**.

(3) The **luff** bolt rope shall be in the **spar** groove or track.

C.10.4 JIB

(a) USE

(1) The **sail** shall be hoisted on a halyard. The arrangement shall permit hoisting and lowering of the **sail** whilst afloat.

(2) Peter boom headsail shall only be used together with a peter boom.

Section D – Hull

D.1 PARTS

D.1.1 MANDATORY

(a) Hull shell including keel and internal structure

(b) Deck

D.1.2 OPTIONAL

(a) Seat

D.2 GENERAL

D.2.1 RULES

(a) The **hull** shall comply with the **class rules** in force at the time of initial **certification.**

(b) For approving Norlin mk III boats built before 2009-01-01 the hull shall comply with the class rules dated 2009-01-01 with the exceptions stated in these Class Rules Section D.

D.2.2 CERTIFICATION

In House Certification, IHC in accordance with the ISAF In-house Certification Guidelines will be applied for approved Licensed Builders. For Licensed Builders, not approved for IHC, measurement control will be applied. (See also A.13.1 (a))

D.2.3 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) The hull shell and deck shall not be altered in any way except as permitted by these **class rules**.

(b) Bulkheads and reinforcements except those specified as mandatory on plans specified in Section J may be modified.

(c) Holes not bigger than necessary for the installation of fittings and passage of lines may be made in the deck and reinforcing parts. Slits longer than 60mm in the deck for shrouds are not permitted.

(d) Routine maintenance such as painting and polishing is permitted without re-measurement and re-**certification**.

(e) If any hull moulding is repaired in any other way than described in D.2.3(d), an **official measurer** shall verify on the **certificate** that the external shape is the same as before the repair and that no substantial stiffness, or other, advantage has been gained as a result of the repair. The **official measurer** shall also describe the details of the repair on the **certificate**.

D.2.4 DEFINITIONS

(a) HULL DATUM POINT

The **hull datum point** is a point on the centreline of the hull placed at the intersection of the out side of the hull and the centre line of the rudder stock. The vertical plane transverse to the centre line through the datum point shall be permanently market on the sheer line on both sides.

(b) The measurement point of the deck is a point, at the section through the aft point of the fore triangle base, 36mm above the deck level, measured 15mm from the outmost part of the hull shell in this section.

(c) The floor level is a horizontal plane 200mm above the hull datum point.

D.2.5 IDENTIFICATION

(a) The hull shall carry the ISAF Plaque permanently placed, see B.3.2.

(b) The hull shall carry the International Class Association sticker, see B.3.1

(c) The hull shall carry information of: builder, date built and the boat's sequential identification number and any country specific requirements permanently embossed or debossed into the hull, see B.3.3

(d) Boats built before 2009-01-01 are excluded from (c).

D.2.6 BUILDERS

(a) The hull shall be built by a builder licensed by the ICA.

(b) All moulds shall be approved by the ICA.

(c) Boats built before 2009-01-01 are excluded from (a) and (b)

D.3 HULL

D.3.1 MATERIALS

(a) The **hull** excluding fittings ("off the shelf products") shall be built from Glass Reinforced Plastic. Aluminium or stainless steel reinforcements above the floor level are permitted where needed.

(b) The **hull** excluding fittings ("off the shelf products") of boats built before 2009-01-01 shall be built from wood and/or Glass Reinforced Plastic. Aluminium or stainless steel reinforcements above the floor level are permitted where needed.

D.3.2 CONSTRUCTION

(a) The exterior hull mouldings shall weigh not less than 3.6kg/m^2.

(b) Where sandwich construction is used, the core material shall be of balsa, PVC or polyester or combinations thereof and shall be of density before lamination not less than 60kg/m^3 in average over a square with the sides 25mm.

(c) The lay up of the hull shell lamination shall be approved by the ICA.

(d) The construction should comply with the specifications given in Section J. Alternative constructions may be permitted after approval by the ICA according to the License Agreement.

(e) The hull shall be fabricated in moulds approved by the ICA. Moulds shall be constructed according to plans specified in Section J.

(f) The assembling of hull and deck shall be made when the hull is placed in a jig to certify the correct beam at the covering board and using a guiding template to locate the deck in correct position. For more details see Section J.

(g) Boats built before 2009-01-01 is excepted from D.3.2 (c), (d), (e) and (f). However any additional filler on the external hull extension of the hull in the stern or the stem or the keel shall be removed to the original shape of the hull. See Section L.

D.3.3 REQUIREMENTS OF THE CONSTRUCTION

(a) The hull and keel shall have such stiffness that when the hull is placed upside down and fastened on a rigid base the keel will not deflect from the centre plane of the boat more than 3mm when the keel is loaded by a horizontal load of 40kg perpendicular to the centre plane at a point in measurement section 3 placed 585mm from the baseline (See D.7.2 (c).

(b) The chain plate construction shall have such a rigidity that the mast step displacement in vertical direction will not exceed 1,5mm when it is subjected to a vertical force of 250kg by a jack placed between the mast step fitting and a bar fastened to the shroud fittings in each end.(The deflection of the bar must be known if the dispacement is measuserd from it).

(c) Boats built before 2009-01-01 are excluded from D.3.3 (a) and (b).

D.4 DECK

D.4.1 MATERIALS

(a) The **deck** excluding fittings (“off the shelf products”) and breakwater shall be built from Glass Reinforced Plastic. Aluminium or stainless steel reinforcements will be permitted where needed.

(b) The **deck** excluding fittings (“off the shelf products”) and breakwater built before 2009-01-01 shall be built from wood and/or Glass Reinforced Plastic. Aluminium or stainless steel reinforcements will be permitted where needed.

D.4.2 CONSTRUCTION

(a) The exterior deck mouldings shall weigh not less than 3.6kg/m^2.

(b) Where sandwich construction is used, the core material shall be of balsa, PVC or polyester or combinations thereof and shall be of density not less than 60kg/m^3 in average over a square with the sides 25mm before lamination.

(c) The lay up of the deck lamination shall be approved by the ICA according to the License Agreement.

(d) The deck shall be fabricated in moulds approved by the ICA. Moulds shall be constructed according to plans specified in Section J.

(e) Decks built before 2009-01-01 are excluded from (c) and (d).

D.5 BUOYANCY/BUOYANCY TANKS

D.5.1 CONSTRUCTION

(a) Buoyancy equipment shall comprise of rigid non-communicating air cell foam plastic incorporated into the boat inside the bulkheads. (See also C.6.2).

(b) Flotation elements shall comply with ISO 12217-3 Annex C.

(c) The bulkheads may be made water tight forming a buoyancy tank.

(d) Compartments containing flotation elements shall be inspectable by a hole of minimum diameter 150mm placed not more than 100mm below the underside of the deck.

D.6 SEAT

D.6.1 MATERIALS

(a) Materials are optional

D.6.2 CONSTRUCTION

(a) Seat included in **boat** weight

(1) Construction is optional.

(b) Seat excluded from the **boat** weight

(1) Construction is optional except for what is given in (2)

(2) The centre of gravity of the seat, which is intended to be excluded from the **boat** weight, see C.6.1, shall be located not less than 300mm above the floor level, when the seat is placed in its position for sailing.

(3) The approval of the seat shall be marked on it and verified on the certificate by an **official measurer**.

D.7 ASSEMBLED HULL

D.7.1 FITTINGS

(a) MANDATORY

The following fittings shall be positioned in accordance with the measurement diagram (see Section J):

(1) Stemhead fitting

(2) Forestay fitting

(3) Shroud plates

(4) Mast step

(5) One manual bilge pump permanently installed which may discharge through hull shell or deck

(6) A suitable fitting or device shall be installed in the deck level, in order to prevent the mast to move astern of that position, which corresponds to the Foretriangle base**,** J, according to C.9.5 (a). The position in horizontal length from the hull datum point can differ 10mm depending on type of mast spar and/or the position of the forestay at the deck level.

(b) OPTIONAL

Other fittings are optional

(c) CONSTRUCTION

The layout and positions of fittings in (b) are optional

No fittings may be attached to the outside of the hull (This means that e.g. plastic flaps between hull and rudder are not allowed)

D.7.2 DIMENSIONS

(a) The keel line shall be taken as the intersection line from transom to stem of the hull shell and the **hull** centreplane.

(b) The measurement sections shall be taken as vertical, transverse planes at the following positions:

Section 1: 2978mm from **hull datum point** as defined in D.2.4

Section 2: 2100mm from **hull datum point** as defined in D.2.4

Section 3: 1340mm from **hull datum point** as defined in D.2.4

Section 4: 700mm from **hull datum point** as defined in D.2.4

Section 5: the **hull datum point** as defined in D.2.4

Section 6: 400 mm aft of **hull datum point** as defined in D.2.4

(c) The baseline shall be on the centre plane of the **hull** at the at following vertical distances:

at the **hull datum point** as defined in D.2.4: 400mm from the **hull** shell;

at section 1: 364mm from the **hull** shell

(d) Dimensions

	Built after 2009-01-01		Built before 2009-01-01	
	Minimum	Maximum	Minimum	Maximum
Hull length	4180mm	4182mm	4180mm	4182mm
Vertical distance from baseline to keel line				
at section 2				
at section 3				
at section 4				

at section 5				
at section 6				
Vertical distance from baseline to under-side of keel at section 3	600mm	611mm	600mm	611mm
at section 4	600mm	611mm	600mm	611mm
Beam of hull at sheer line				
at section 1	305	307	305	307
at section 3	800	804	800	808
at section 5	536	540	535	541
Horizontal distance from the aft end of the hull to hull datum point	654mm	656mm	651mm	659mm
Horizontal distance from vertical section through hull datum point				
to fore end of mast spar hole at deck				
to aft end of shroud holes at deck				
Transverse distance between centres of shroud holes at deck				
Horizontal distance from the intersection of the forestay and the deck to forward end of **hull**	5mm	15mm	5mm	25mm

(e) Templates

The leading and trailing edges of the keel shall comply with templates specified in Section J.

The hull shall comply with templates at sections 1, 3, 5 and 6 specified in Section J.

D.8 BALLAST

D.8.1 RULES

(a) The ballast shall comply with the current class rules.

D.8.2 MATERIALS

(a) The density of the **ballast** materials shall not be greater than the density of lead.

D.8.3 CONSTRUCTION

(a) The **ballast** shall be internal in the **boat** and shall be removable from the inside of the **boat**.

(b) The ballast shall be divided in lead pigs consisting of minimum 8 pieces and maximum 16 pieces. The maximum weight of one pig is 30kg.

(c) Ballast pigs shall have their primary dimension in horizontal direction.

Section E – Rudder

E.1 PARTS

E.1.1 MANDATORY

(a) **Rudder blade**

(b) **Rudder stock**

E.2 GENERAL

E.2.1 RULES

(a) **The rudder** shall comply with the current **class rules.**

E.2.2 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) The rudder shall not be altered in any way except as permitted by these class rules. See also C.7.1

(b) Routine maintenance such as polishing and painting is permitted without re-measurement and re-certification. See also C.7.1

E.2.3 MANUFACTURERS

(a) Manufacturers of the deep rudder shall be a licensed builder. See D.2.6.

E.2.4 MATERIALS

(a) **Rudder blade** of a standard deep rudder shall be made of one or a combination of the following materials: Glass Reinforced Plastic and polyurethane foam.

(b) **Rudder blade** of a standard small rudder shall be made of one or a combination of the following materials: Glass Reinforced Plastic, wood and polyurethane foam

(c) The **rudder** stock shall be of stainless steel.

E.2.5 CONSTRUCTION

(a) The standard deep **rudder** shall be manufactured in a mould approved by the ICA.

(b) The standard small rudder may be manufactured in an optional way, and it shall be manufactured before 2009-01-01.

E.2.6 DIMENSIONS

(a) Any part of the **rudder,** measured athwart ships shall not exceed 38mm when the **rudder** extends beyond the aft end of the water line.

(b) The deep and the small rudder shall comply to the relevant templates according to plans given in Section J.

(c) The leading and trailing edges of the rudder shall comply with the relevant templates specified in Section J.

(d) The rudder stock shall be a pipe of stainless steel with outer diameter of 25mm $\pm$ 1mm and an inner diameter of not more than 20mm.

E.2.7 WEIGHTS

	minimum	maximum
Standard deep rudder including rudder stock	1.1kg	1.3kg
Standard small rudder including rudder stock	1.0kg	1.5kg

Section F – Rig

F.1 PARTS

F.1.1 MANDATORY

(a) **Mast**

(b) **Boom**

(c) Standing **rigging**

(d) Running **rigging**

F.1.2 OPTIONAL

(a) **Whisker pole**

(b) Peter boom

F.2 GENERAL

F.2.1 RULES

(a) The **spars** and their fittings shall comply with the **class rules** in force at the time of **certification** of the **spar**.

(b) The standing and running **rigging** shall comply with the **class rules**.

F.2.2 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) **Spars** shall not be altered in any way except as permitted by these **class rules**.

(b) Routine maintenance such as polishing and replacement of fittings is permitted without re-measurement and re-**certification**.

F.2.3 CERTIFICATION

(a) The **official measurer** shall **certify spars except peter boom** and shall sign and date the **certification mark.**

(b) An MNA may appoint one or more persons at a manufacturer to measure and **certify spars** produced by that manufacturer in accordance with the ISAF In-house Certification Guidelines.

(c) No **certification** of standing and running **rigging** is required.

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F.2.4 DEFINITIONS

(a) MAST DATUM POINT

The **mast datum point** is a point on the fore side of the mast given by the measurement point of the deck, see D.2.4 (b). The **mast datum point** shall be marked by a punch.

(b) FORETRIANGLE BASE J

The horizontal distance between the **mast datum point** and the intersection of the forestay and the deck.

(c) FORETRIANGLE HEIGHT I

The distance between the **mast datum point** and the forestay **rigging point.**

F.2.5 MANUFACTURER

(a) No licence is required.

F.3 MAST

F.3.1 MATERIALS

(a) The **spar** shall be of aluminium alloy.

F.3.2 CONSTRUCTION

(a) The **spar** extrusion shall include a fixed sail groove or track which may or may not be integral with the **spar** but shall be of aluminium alloy.

F.3.3 FITTINGS

(a) MANDATORY

(1) Boom attachment fitting
(2) Shroud attachments
(3) A set of spreaders
(4) Mainsail halyard sheave
(5) Headsail halyard sheave

(b) OPTIONAL

Other fittings are optional

F.3.5 DIMENSIONS

	minimum	**maximum**
Mast spar cross section at **upper point**		

	minimum	maximum
fore-and-aft	28mm	66mm
transverse	24mm	
Mast spar cross section between the **mast datum point** and a point 3500mm above		
fore-and-aft	56mm	66mm
transverse	38mm	
Mast spar cross section between upper point and the point 3500mm above the datum point may have a fair rounding taper		
Mast limit mark width	10mm	12mm
Lower point height		350mm
Upper point height	mm	5000mm
Lower point to **upper point**	mm	4650mm
Forestay height	mm	3750mm
Shroud height	3500mm	4000mm
Spreader;		
length	250mm	400mm
height	1800mm	2200mm

F.3.16 WEIGHTS

	minimum	maximum
Mast Mass	6.5kg	7.5 kg
Mast tip	2.0kg	

F.4 BOOM

F.4.1 MATERIALS

(a) The **spar** shall be of aluminium alloy .

F.4.2 CONSTRUCTION

(a) The **spar** extrusion may or may not include a fixed sail groove or track which may or may not be integral with the **spar** but shall be of the same material.

F.4.3 FITTINGS

(a) Fittings of the boom are optional

F.4.5 DIMENSIONS

	minimum	maximum
Boom spar cross section between the mast and the **outer point**… ;		

	minimum	maximum
vertical		75mm
transverse	27mm	55mm

F.5 WHISKER POLE

F.5.1 MANUFACTURER

(a) Manufacturer is optional.

F.5.2 MATERIALS

(a) The **spar** shall be of aluminium alloy.

F.5.3 FITTINGS

(a) Fittings are optional.

F.5.4 DIMENSIONS

	minimum	maximum
Whisker pole length		2106mm

F.6 PETER BOOM

F.6.1 MANUFACTURER

(a) Manufacturer is optional.

F.6.2 MATERIALS

(a) Materials are optional .

F.6.3 CONSTRUCTION

(a) Construction is optional

F.6.4 FITTINGS

(a) Fittings are optional.

F.6.6 DIMENSIONS

(a) Dimensions are optional

F.7 STANDING RIGGING

F.7.1 MATERIALS

(a) The standing **rigging** excluding backstay and excluding the part of the forestay 400mm above deck shall be of stainless steel.

(b) Material of backstay and part of forestay 400mm above deck are optional.

F.7.2 CONSTRUCTION

(a) MANDATORY

(1) A forestay

(2) Upper shrouds which shall be attached under deck

(3) A backstay

(b) OPTIONAL

(1) Lower shrouds. In case of lower shrouds, these shall be attached under deck

F.7.3 FITTINGS

(a) Fittings are optional

F.7.4 DIMENSIONS

(a) Dimensions are optional

F.8 RUNNING RIGGING

F.8.1 MATERIALS

(a) Materials are optional.

F.8.2 CONSTRUCTION

(a) MANDATORY

(1) Mainsail halyard

(2) One mainsail sheet

(3) Kicking strap

(4) Headsail halyard

(5) Headsail sheet(s)

(b) OPTIONAL

Other running rigging is optional

F.8.3 FITTINGS

(a) Fittings are optional

F.8.4 DIMENSIONS

(a) Dimensions are optional

Section G – Sails

G.1 PARTS

G.1.1 MANDATORY

(a) Mainsail

(b) Headsail

G.2 GENERAL

G.2.1 RULES

(a) **Sails** shall comply with the **class rules** in force at the time of **certification**.

G.2.2 CERTIFICATION

(a) The **official measurer** shall **certify** mainsails and headsails in the **tack** and shall sign and date the **certification mark**.

(b) An MNA may appoint one or more persons at a sailmaker to measure and **certify sails** produced by that manufacturer in accordance with the ISAF In-house Certification Guidelines.

G.2.3 SAILMAKER

(a) No licence is required.

G.3 MAINSAIL

G.3.1 IDENTIFICATION

(a) The class insignia shall conform with the dimensions and requirements as detailed in the diagram contained in Section H.

(b) As an alteration to RRS APPENDIX G 1.3, the Insignia may be placed on the starboard side only.

(c) The national letters and sail numbers shall comply with the RRS, but as an alteration to RRS APPENDIX G1.2 b), the national letters and sail numbers shall be of the following minimum dimensions:

Height	250mm
Thickness	30mm
Space between adjoining letters and numbers	45mm

G.3.2 MATERIALS

(a) The **ply** fibres material are optional

(b) Materials of **stiffenings**, cornerboards, reinforcements and battens are optional

G.3.3 CONSTRUCTION

(a) The construction shall be: **soft sail**, **single ply sail**.

(b) The **body of the sail** shall consist of **single ply**.

(c) The **sail** shall have 4 equally spaced batten **pockets** in the **leech**. These equal parts shall be within the tolerances $\pm$ 50mm

(d) The following are permitted: Stitching, glues, tapes, bolt ropes, corner eyes, headboard with fixings, Cunningham eye or pulley, **batten pocket patches**, batten pocket elastic, batten pocket end caps, mast and boom slides, leech line with cleat, one **window**, tell tales, sail shape indicator stripes and items as permitted or prescribed by other applicable *rules*.

(f) The **leech** shall not extend aft of straight lines between:

(1) the **aft head point** and the intersection of the **leech** and the upper edge of the nearest **batten pocket,**

(2) the intersection of the **leech** and the lower edge of a **batten pocket** and the intersection of the **leech** and the upper edge of an adjacent **batten pocket** below,

(3) the **clew point** and the intersection of the **leech** and the lower edge of the nearest **batten pocket**.

G.3.4 DIMENSIONS

	minimum	maximum
Leech length	4950mm	5150mm
Half width		1333mm
Three-quarter width		804mm
Upper width at **upper leech point** 500mm from **head point**		372mm
Top width		72mm
Batten pocket length:		
uppermost pockets: outside		480mm
intermediate and lowermost pockets: outside		680mm
Batten pocket width: outside		60mm
Primary reinforcements		800mm
Secondary reinforcements		800mm

G.4 HEADSAIL

G.4.1 MATERIALS

(a) The **ply** fibres material is optional.

(b) **Stiffening** materials are optional.

(1) Cornerboard materials are optional

(2) Battens material are optional….

(c) **Sail reinforcement** material is optional

G.4.2 CONSTRUCTION

(a) The construction shall be: **soft sail**, **single ply sail**.

(b) The **body of the sail** shall consist of single **ply.**

(c) The following are permitted: Stitching, glues, tapes, corner eyes, hanks, batten pocket elastic, **batten pocket patches**, batten pocket end caps, leech line with cleat, **windows**, tell tales, sail shape indicator stripes and items as permitted or prescribed by other applicable *rules*.

G.4.3 TYPES OF HEADSAILS

(a) Standard headsail. No limitations of use.

(b) Peter boom headsail. Use is limited to together with a peter boom.

G.4.4 DIMENSIONS STANDARD HEADSAIL

	minimum	maximum

	minimum	maximum
Foot length	mm	1716mm
Three-quarter width	mm	437mm
Half width	mm	827mm
Top width	-	40mm
Primary reinforcement		600mm
Secondary reinforcement:		600mm

G.4.4 DIMENSIONS PETER BOOM HEADSAIL

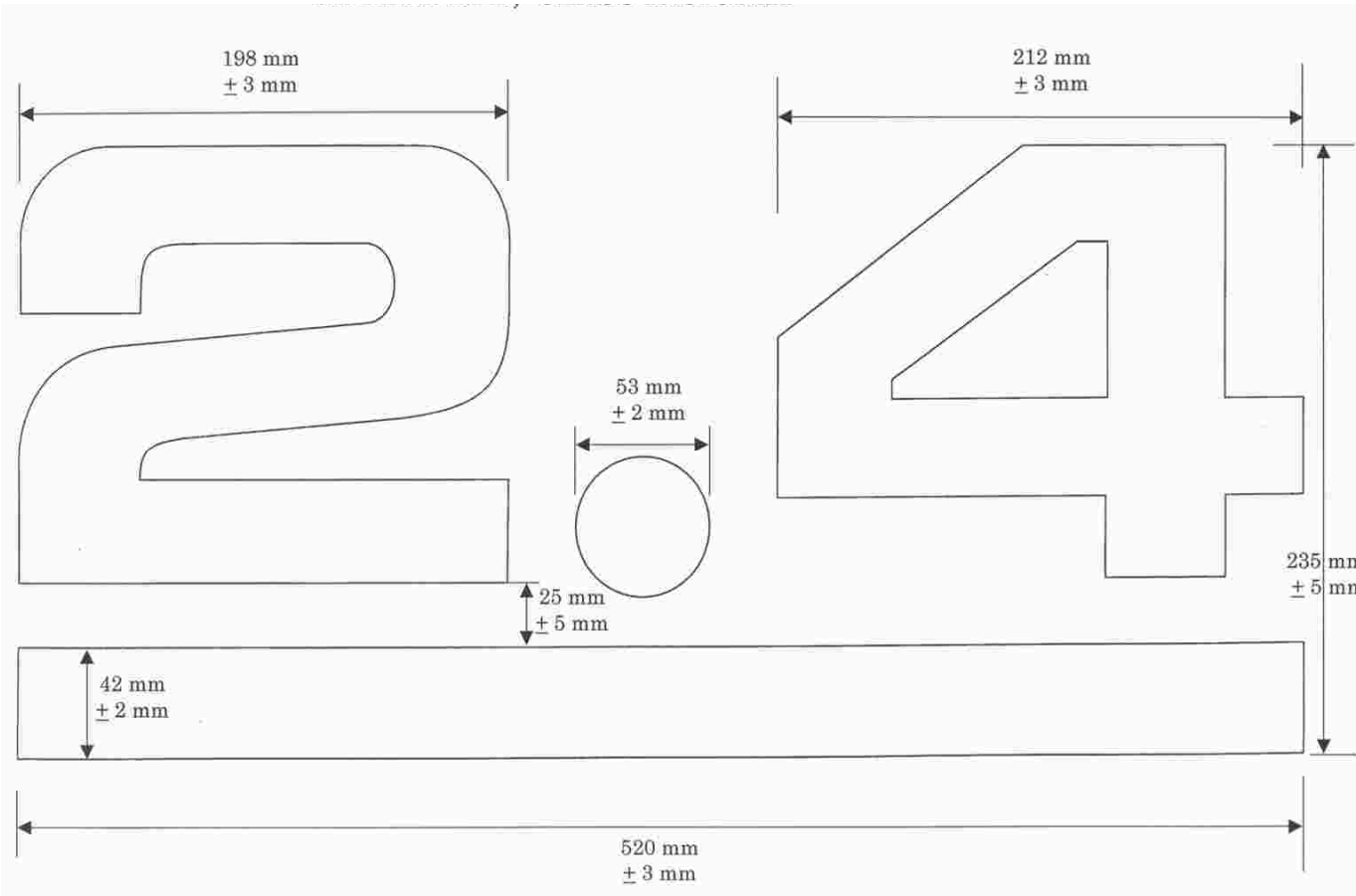
	minimum	maximum
Foot length	mm	1482mm
Three-quarter width	mm	468mm
Half width	mm	850mm
Top width	-	40mm
Number of battens		3
Batten pocket or batten length:		
outside	-	400mm
Batten pocket width:		
outside	-	60mm
Head point to intersection of **leech** and centreline of uppermost **batten pocket**	700mm	mm
Clew point to intersection of **leech** and centreline of lowermost **batten pocket**	700mm	mm
Primary reinforcement		600mm
Secondary reinforcement		600mm

PART III – APPENDICES

The rules in Part III are **closed class rules**. Measurement shall be carried out in accordance with the ERS except where varied in this Part.

Section H - Class Insignia

J. 1 CLASS INSIGNIA DIAGRAM



J.3 INSIGNIA COLOURS

The class insignia shall be in blue colour. Current and former champions may have the horizontal line in the insignia in a different colour:

World Champion -	Gold
Continental Champion -	Orange
National Champion -	Green

Section J – Hull, deck and rudder specifications

J.1 HULL

(1)	Line drawing	Drawing number	10
(2)	Sections		11
(3)	Profile drawing		12
(4)	Keel sections		13
(5)	Lay out of fittings		14
(6)	Templates in measurement sections 1-6		15
(7)	Templates of skeg, leading and trailing edges of the keel		16

J.2 DECK

(1)	Deck plan	Drawing number	21

Section K – FLOTATION CHECK

M.1 DEFINITION OF BOAT

The boat shall be in racing condition according to Rule C.6.1 and with an additional weight of 35kg when the check is done in salt water. The weight may be altered to 28kg when the check is done in fresh water.

Openings to the water tight tanks, if any, shall be opened in order to let them be filled with water.

M.2 EXECUTION OF THE CHECK

The boat shall be filled with water and tilted over to starboard, to port, to the bow and to the stern in order to let the air enclosed under deck and other parts of the hull to come out.

M.3 REQUIREMENTS

The boat shall float in an approximately horizontal position. Neither the stern nor the bow shall have tendencies to sink under the water level.

Section L – Approving old Norlin Mark III boats

L.1 SCOPE

This Section applies to Norlin mark III boats built before 2009-01-01.
Boats built according to the 2.4mR Class Rules after 2009-01-01 will not be able to be approved according to these rules.

L.2 RULES IN PART II

Before approving a Norlin mark III boat built before 2009-01-01 the following shall be checked:
Compliance with the following rules in Section C: C.6.2, C.7, C.8.1, C.8.3, C.94, C.9.5 and C.9.6.
Compliance with the following rules in Section D: D.2.1.(b), D.2.3 (c) and (e), D.3.1 (b), D.3.2 (a) and (b), D.4.1 (a) and (b), D.5, D.6 D.7 and D.8 The draught shall be checked by taking the chain girth measure at section 3 from the sheerline on one side round the keel to the sheer line on the other side $\underline{<}$ 2752mm.
Compliance with Section E
Compliance with Section F excluding rule F.2.2 (a)

L.3 ADDITIONAL CHECKS OF THE HULL BY TEMPLATES.

Clearance to templates at:	minimum	maximum
Stem at a section 430mm from the stem head		
Template placed perpendicular to the stem line	0	2mm
Underside of keel at a section 2185mm from stem head		
Template placed vertically	0	2mm
Fore side of keel between 100mm and 500mm above underside		
Template placed horizontally	0	2mm
Stern centreline 100mm in front of the hull datum point		
Template placed perpendicular to the keel line	0	2mm
Aftmost part of stern foil template	0	2mm
Leading and trailing foils of keel and rudder	0	1mm

Effective Date:

Published Date:

Previous issues: