

Executive Summary - Audit report of the RS:X Manufacturing facilities – 2018

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Conducted by Bas Edmonds, RS:X Chief Measurer, on behalf of the RS:X Class Association with the support of World Sailing. Attending on the audit was Bill Lee from Neil Pryde.

Background

The RS:X has been the selected equipment for the Olympic Windsurfing events (men and women) for the 2008, 2012, 2016 and 2020 Olympic Games, having been first selected by ISAF (now World Sailing) in 2005 following a series of evaluation trials.

The IP for the RS:X is owned by Neil Pryde whilst manufacturing of components is outsourced to a number of different third parties. All components are quality checked against manufacturing criteria that is owned by Neil Pryde and submitted to World Sailing.

The RS:X Class since 2010, have initiated a series of independent audits to ensure that the manufacturing processes produce consistent products of high quality and durability. The RS:X Class would also acknowledge the level of quality control that is already self-imposed by each of the manufacturers as well as by Neil Pryde representatives who audit Cobra and PMC on a monthly basis.

Cobra

Cobra is based on Chon Buri, Thailand and has specialised in the production of windsurf boards for 40 years. It produces in confidence for nearly every major brand with strict admission regulations such that brand representatives are not necessarily permitted to visit the factory floor. Thanks goes to Cobra management for permitting access to the RS:X manufacturing areas of the factory

Cobra produces the RS:X board, fin and centreboard.

The focus of the audit was to review the internal quality controls put in place by Cobra and to ensure that equipment is being produced to the correct specifications and within tolerance. Special focus was given to flex testing fins as well as assessing structural limits due to some layup changes to the Mk3 fin.

In all of the fins measured and tested, the consistency (ie measured tolerance) of the fins had become better and more accurate. This was in both profile and flex/twist testing. In the destructive testing between Mk2 and Mk3 fins, the Mk3 fins are less flexible but have a higher structural limit, especially with regards to minor cracking at the base/fin join which has been a key problem for the Mk2 fins.

Boards and centreboards were measured against specification and were found to be within the quality control limits and to a high consistency. Small issues with mast track screw alignment had been resolved since the last audit.

Italica

Italica is based in Weihai in north east China and is an Italian company that specialises in carbon mast/pole manufacturing – making a range of products from windsurfing masts, RS 100 masts to SUP paddle hands and fishing rods.

Italica manufacturer the EVO mast and boom for the RS:X.

Production is well controlled in a stable factory environment. An Italian representative is always on site during manufacturing to ensure that the build quality is consistent. The factory processes are well developed and Italice have an experienced yet small work force that produces a high quality product.

Material control and build specification are mechanically controlled and audited and there are clear traceability areas with regards to product specification and defect control. Masts are mechanically tested and measured which are electronically recorded via the product barcode. Measurements of IMCS and $\frac{1}{4}$ and $\frac{3}{4}$ bend specifications are noted and recorded as well as mast weight. Length is controlled by the test machine.

When reviewing EVO data vs NP data, the masts are 40% more consistent in bend data and weight.

PMC

PMC factory is Shenzhen, China, and is where the RS:X sails and battens are built as well as sails, kites, wetsuits and other components for a variety of different classes and brands.

In previous audits, a common rig setup was used to measure the camber at battens 5 and 6 as well as measure the basic dimensions of the sail. As the EVO mast was used in the rig up which had a different bend setup, test data could not be used as comparison for consistency with previous audits.

Sails were dimensionally very similar with a high degree of consistency and accuracy, including widths and luff curve dimensions. When rigged, sails were consistent in shape but were not able to be compared to different audits. It was noted that the twist profile was very different from this audit to previous audits which would indicate that the mast top section was stiffer.

Areas of delamination were noted at the 2017 Worlds and this was investigated. It was noted that some areas of x-ply has an additional piece of film for structural reinforcement

OVERALL

Each of the factories are producing equipment to within the quality control requirements. There was not anything observed within the production process that would jeopardise the equipment quality or consistency.

There remains the unknown factor of “sailor feeling” with regards to equipment but the components as measured are consistent and repeatable over a wide sample of equipment – but this may not necessarily be measurable within even a factory environment.

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