

Innovation

Abigail Butcher · BDA Magazine 2012 Mid Season, pp. 1-3

Summary. Journalist Abigail Butcher asked Europe's leading Dragon builders how they have developed the boat within tightly enforced one-design rules. Petticrows (around 30 new boats a year) sealed the cockpit floor for buoyancy after the 2008 safety rules, adopted vacuum-assisted resin infusion in 2005 and added a wider, angled coaming for 2012; Vejle Yacht Service redesigned the hull from a 3D-milled mould, raised the cockpit floor around 20 cm and offers a tear-drop mast. Doomernik stresses quality and wooden decks (two and a half months for a GRP boat, five and a half with a wooden deck), and Markus Glas moved production to Poland with new moulds giving about 2,650 litres of buoyancy. All agree improvements are now a matter of "nibbling away", so old boats can still race new.

Since the first Dragon was built in 1928, the one-design class has undergone subtle but major modernisation. Boat builders have adapted their production to incorporate rule changes that range from the introduction of bulkheads and lateral and horizontal stiffening to, more recently, improvements to overall buoyancy and the use of resin infusion in hull construction.

So how have the major boat builders in Europe managed these changes? And what have they done to give their Dragons the edge in a class where rules are tightly enforced by the International Dragon Association and the International Sailing Federation to ensure old boats remain competitive against new?

Petticrows, in Burnham-on-Crouch, is the most dominant builder in Europe, producing around 30 new Dragons each year.

Co-owner Tim Tavinor says: "We do our best to update Dragons but the rules are very well thought through and although there are tolerances on building, nobody has yet made a huge breakthrough in performance."

The biggest development Petticrows has made in recent years is, according to Tim, "reducing sinkability" to comply with safety rule changes made in 2008.

"Apart from a small area around the keel sump, the whole cockpit floor is sealed to the hull which creates a large buoyancy area," he explains. "They're not unsinkable, but it would take a major problem to cause a sinking."

Three years before, in 2005, Petticrows started making hulls using vacuum-assisted resin infusion – lying the glass fibres dry into the mould and using a vacuum bag to draw the resins through and the laminate to dry.

“It’s very consistent on weight and we can make the directions of the fibres very accurate, so it’s a much stronger laminate,” explains Tim.

Other changes in design include raising the cockpit floor, channelling control lines under the cockpit floor for a cleaner finish and, for 2012, the introduction of a wider, outward angled cockpit coaming for more comfort when crew are hiking out.

“The technology on the ropes for the standing and running rigging has been improved over the past couple of years, as have the blocks and cleats, so they are easier to operate and require less physical effort to do the same job,” says Tim.

Simplicity was the overriding objective when Denmark’s Vejle Yacht Service took design completely back to basics in 2005 when the company incorporated with Royal Dragon and BB-Dragon.

Borreson (BB-Dragon) was renowned for managing the transition from wood to GRP, but it went bankrupt in 2005 and the newly formed company recognised it needed to develop something new, as Vejle’s director of sales and marketing Thomas Schmidt says: “If we were to win any share of the market”.

An advisory team of sailors, engineers and naval architects redesigned the hull and interior layout, building a new hull mould using a huge 3D milling machine using optimised drawings to make a hull that Schmidt says is “100 per cent accurate”.

“That was the first thing we did, but it was important to us that sailing a Dragon should be simple, allowing you to focus only on the start and sailing, not making advantages with the boat,” he says.

“The class has developed in the past years so everyone was trying to find solutions to improve speed, but we wanted a more simple layout that was easier to race.”

The cockpit floor was raised around 20 cm, and the Danish shipyard switched to using vacuum-assisted resin infusion – the first builder to do so, according to Thomas – making the boat much stiffer.

Vejle Yacht Services also have the rights to build a tear-drop shaped tubular mast, which Thomas claims is the “more ergonomic and competitive” to the other, more square-shaped masts on the market and to which tailor-made adjustments can be made to the spreaders and rigging.

Doomernik Dragons in The Netherlands prides itself on tailor making boats for a client’s specific requirements. In 1996, the boatyard was the first to make an exactly symmetrical male model of a boat cut out by robot, a mould still used today.

Boatyard owner Joop Doomernik says his Dragons have not developed much in the past two or three years, after changes in response to buoyancy rules, but that Doomernik placed most emphasis on

quality.

“The hulls sit in the mould for three to four weeks instead of a few days, we take much more time laminating it – if the hull shrinks, it’s not a Dragon,” he explains, adding: “We specialise in wooden decks, our woodwork in Holland is in a different league.”

Like the other boat builders in Europe, Joop says there have been very few requests for fully wooden boats since the introduction of GRP which is more easily serviced and nowadays equals the stiffness of wood. Doornik Dragons take two and a half months to manufacture a GRP boat and five and a half months for a Dragon with a wooden deck.

“We’re working on a higher floor over the coming year, and hope for 2013 we will have a new inner section,” he says, “and last year we came up with a new version of the Barney Post (main sheet traveller) which is easier to use.”

And in Germany, Bootswerft Markus Glas GmbH has shifted production of its Dragons from Austria to Poland, a move owner Markus Glas hopes will make them competitive on price and more appealing to the UK market.

“Our Dragons used to be around 15 per cent more expensive than Petticrows’ but now, with cheaper production and the change in the value of the Euro, we hope to be the same price.”

With the move to build in Poland, at a yard that has not before produced a Dragon, Markus took the opportunity to make subtle changes in design.

With added buoyancy, the deck layout has been made roomier, particularly in the aft section for the helmsman.

“There is also a new spinnaker shoot, with a new runner system – using the same tackle but different lines with fine adjustments,” he explains.

The new moulds will give around 2,650 litres of buoyancy (moulds used in Austria gave 2,580 litres) and the aft part of the inner section is sealed to increase buoyancy.

“We’re aiming to produce two boats by the end of this year to exhibit next spring.”

All the builders said the majority of their work was producing GRP boats, followed by fibreglass hulls with wooden decks. Refurbishments are still key too, proving that carefully planned rules achieve what they have set out to do – to allow old to race against new.

With no drastic changes allowed, Tim Tavinor of Petticrows says making improvements to the Dragon is more a case of “nibbling away” at the design.

Originally published as "Innovation – plus ça change, plus c'est la même chose" in Dragon News, the BDA's October 2012 mid-season newsletter (Volume 1, Issue 1). © Abigail Butcher and the British Dragon Association. Reproduced with permission. Transcribed for the Peticrows Dragon Archive (peticrows.com).