Rolatube Boat Hook

Industry: Commercial and Marine technology

Service: Design for manufacture, mould tool design & manufacture and plastic injection moulding.

Our client: Rolatube Technology are innovative manufacturers; designing and creating products used in commercial and marine environments. After producing a unique lightweight tube used for both civilian and military deployment, the team created a smaller sized tube using the same technology for use as a boat hook.

Our mission: To affix to the smaller tube, Rolatube came to BEC Group for help in manufacturing a boat hook tube attachment. The hook needed to connect and disconnect from the tube with ease, be lightweight, durable, and tough enough to withstand marine applications. The hook also needed to be easily stored within the tube.

BEC solution: With a set of drawings and a 3D printed model of the initial design provided by Rolatube, our team began work on an in-depth Design for Manufacture. This process involved collaboration between the two teams to adjust the boat hook design, making it more efficient to create a tool and mould for. For instance, the initial boat hook was solid all the way through, this was cored out to reduce sinkage and produce stronger mouldings.

During this process a storage mechanism on the back of the hook that attaches inside the rolled-up tube was added. This was a great addition to the product in terms of usability but required some work from our toolmakers due to the depth and position of the groove in relation to the ejector pins in the mould.

Two separate tools needed to be made for the inner and outer parts of the boat hook to allow for easy attachment to the tubes. Different properties were needed for the two sections and therefore different materials.

A variety of options for materials were tested out by Rolatube for their durability. To increase tensile strength and toughness of the hook itself glass filled nylon was used, allowing for thicker sections of plastic on the hook in comparison to other materials such as ABS.

For the inner locking mechanism which connects the tube to the hook, nylon was used- due to the live hinge button which needs to move without fatiguing. The differing shrinkage rated of the nylon and glass filled nylon had to be taken into consideration during the tool making process as the two pieces had to fit within each other.

Result:

After several iterations and tweaks, two mould tools were made for the inner and outer parts of the boat hook, and first off samples were produced. Rolatube carried out testing with theses samples when attached to their tube to ensure it held up well under strenuous use in tough conditions.

Once these samples were okayed by Rolatube, we began production and managed to produce 200 mouldings just in time for their appearance at Southampton Boat Show. We have since made over 2,000 sets of the two moulds which having proved commercially successful, we hope to make many more of.

If you're looking for a UK manufacturer to help you from design to manufacturing in plastic injection moulding, please get in touch on 01425 613131 or email hello@becgroup.com.