

**DREHER**  
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**Construction:** All shafts are autoclave cured at high temperature and pressure for maximum strength and durability. The modular system allows for customisation of length, handle size, blade type and blade pitch. Only the best construction materials are used. All the major components are made from prepreg carbon or, in the case of the spoons, sandwich core construction of prepreg carbon and syntactic foam.

Some manufacturers use glass/foam composite for their blades and glass composite handles. Not only are the materials and design used in Dreher Oars high quality, but the components are also modular. If a Dreher shaft breaks it can easily be replaced. The spoon can also be changed as well as the handle. The major advantage of the modular design is easy replacement of parts and protection against product obsolescence.

**The adjustable system:** The Dreher Oar system is designed for adjustable length. The key is the adjustable handle comprising an all-carbon handle end that fits into the straight (non-tapered) end of the shaft. This "carbon on carbon" design eliminates movement because the handle is precisely constructed to fit tightly into the straight part of the shaft. All adjustable Dreher Sweeps and Sculls have an extra long handle to accommodate 10 cm of continuous adjustment. All oars have measurement decals that show the total oar length and outboard setting so as to easily derive the inboard setting without the need of a tape measure.

The Dreher design is modular and so if part of the blade is damaged a replacement can be fitted without having to buy a complete new oar.

**The advantage of the Dreher design:** Dreher designs are based on hydrodynamic theory and intensive testing by skilled athletes.

Improved water "grip" to the spoon is achieved by hydrodynamic lift when the back face of the blade is smooth. It is the back of the blade with its longer curved surface that accelerates the water flow and provides a lifting force as the blade traverses out to the 90° position and back again during each stroke. By making the back surface "smooth" with the shaft attachment ridge parallel to the water flow, the blade is more efficient and easier to handle than other designs.

The transition point between the spoon stem and shaft is almost seamless. The diameter of the Dreher spoon stem is not as large as on other brands, nor is the shaft-to-blade stem transition as abrupt. As a result, the overall performance of Dreher's is superior, especially as the stroke rate goes higher. Less effort goes into releasing the oar from the water, while less friction occurs on the drive as well. The result is smoother entry and extraction and faster boat speeds.

# OARS & SCULLS



Maximum Efficiency: Maximum Speed

# Dreher Oars and Sculls

Durham Boat Company has a track record of innovation in rowing and sculling oar shapes. They were the first manufacturer in the world to introduce adjustable handles in 1991. This was for the World Championships in Tasmania; because it was a long way from home, the US team wanted to economise on shipping costs and Jim Dreher decided that adjustable length sculls would minimize the equipment needed. Before then if you wanted sculls of different lengths you had separate pairs made up!

Since 1998, five new scull and four new sweep oar blade designs have been introduced as well as introducing high modulus aircraft-grade carbon construction for the top range model.

The Dreher Scull and Oar system is designed for optimum performance; they are lightweight, rigid and built to last.

## Sweep Oar Designs:



- Big Blade – ridged face spoon



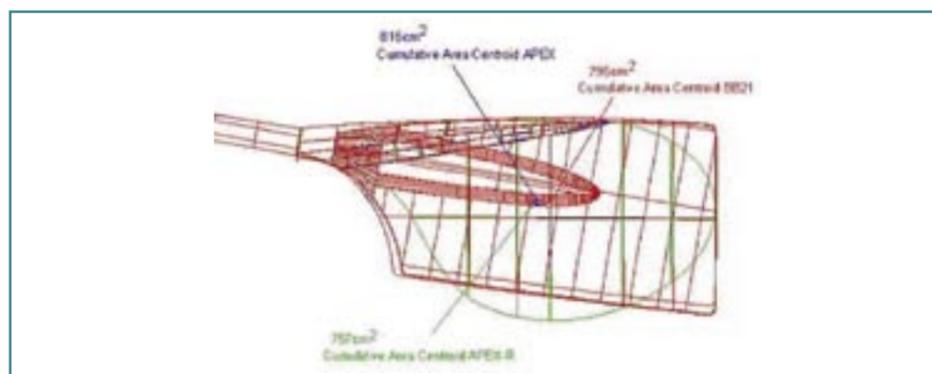
- Apex – smooth faced spoon



- Apex RG – a rounded and smooth faced spoon

The **Sweep oars** are adjustable length and have a choice of 2 handle sizes, 2 grip types, 3 spoon shapes, 2 shaft stiffnesses and customisable average length/inboard. They come with either white or black sleeves and include measurement decals for easy adjustment on the sleeve and the handle. Standard specification is 374:114, medium stiffness, medium half grip-wrap handle and your choice of spoon shape.

### Diagram of Apex, Big Blade and Apex-R spoons overlaid



## Scull Designs:



- Maçon spoon – available with either 17 cm or 19 cm tip length



- Little Big Blade – a cut-down version of the Big Blade design for children, beginners and recreational rowers



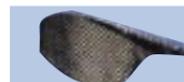
- Big Blade – ridged faced spoon also available as high modulus



- Apex – smooth faced spoon also available as high modulus



- Apex-R – rounded and smooth faced spoon also available as high modulus



- Apex REX – rounded and smooth faced with tip squared off. Only available as high modulus

**Carbon Adjustable sculls** have a choice of 3 handle sizes, 2 grip types, 5 spoon shapes, 3 shaft stiffnesses and customisable average length/inboard. They come with either white or black sleeves and include measurement decals for easy adjustment on the sleeve and the handle. Standard specification is 288:88, medium stiffness, medium handle, stämpfli grip and your choice of spoon shape.

**High Modulus sculls** are the top specification; made with high modulus carbon and are very light. The same choice of specification as Carbon Adjustable sculls is available.

**Fixed Length sculls** come with either big blade, maçon or little big blade spoons. Standard specification is 289:88, soft stiffness, black nylon sleeve with green and red buttons, medium handle, black STS grip and your choice of spoon shape. A small fee is charged for other length : inboard specifications, made to order.



Scull Sleeves



Sweep handle half grip wrap



Scull handle grip wrap

### A comparison of scull spoon designs

Blade Type	Blade Area	Blade tip width	Blade Top Length
Maçon	747 cm <sup>2</sup>	19.3 cm (or 17 cm)	45.8 cm
Little Big Blade	748 cm <sup>2</sup>	20.1 cm	43.3 cm
Big Blade	796 cm <sup>2</sup>	21.6 cm	43.3 cm
Apex	816 cm <sup>2</sup>	21.6 cm	43.3 cm
Apex-R	757 cm <sup>2</sup>	11 cm	n/a
Apex-REX	743.5 cm <sup>2</sup>	11 cm	n/a