



# Celtic 2020 onwards

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Innovative Paddle technology

Sea Kayak and Paddle manufacturers

**SKUK Ltd**





# SEA KAYAKS AND PADDLES

We manufacture paddles in carbon, nylon and plastic.

1pc and 2pc paddles but specialize in 4pc paddlok paddles



Tel +44 (0)1407765550

e-mail [celtic@seakayakinguk.com](mailto:celtic@seakayakinguk.com)

All trade enquiries need to contact Nigel Dennis on the above e-mail address



#### **SEA**

Kinetic Touring – Norddkap –  
Archipeligo – Mania – etc .....

#### **WHITE WATER**

Your old Lendal blades will fit our  
shafts and our shafts will fit your  
old blades.

If you have been paddling the original Scottish Lendal paddles over the last 20 years or so, then you have been paddling “Celtic” we still manufacture most of the original range of Lendal paddles

# Flexibility



Fiberglass shaft and SF blades

**A 1pc paddle has the blades glued straight into the shaft. This paddle will be the lightest paddle in our range and the most flexible. We manufacture paddles with both fiberglass and carbon shafts. The Carbon is the strongest and lightest but the fiberglass shaft will be the more flexible of the two.**

For example a standard glass shaft @120cm long  
weighs 252gr and 211gr for a carbon shaft

**For those who want a more flexible paddle, we build the 1pc with the fiberglass shaft and the SF blades.**

# 2pc, 3pc and 4pc paddles



3pc, a shaft with detachable blades. A good option if you want a more flexible paddle.

A 2pc paddle. This paddle is ever so slightly lighter than a 4pc. The blades are glued in place.



The 4pc is our chosen standard paddle. Can break down into approx. 500mm lengths. Replace one blade if needed. Use alternative blade designs and shapes on the same shaft. This is the same price as a 2pc paddle.





We specialise in Sea Kayak paddles, Surf, White Water and Pack Rafting. Our patented system allows us to manufacture paddles that break down so blades can be replaced or changed as required.

We make 1pc, 2pc, 3pc and 4pc paddles.

A 1pc paddle will be lighter and more flexible

A 2pc paddle gives you the option of using it left handed, right handed and storing a spare paddle on the kayak. It also gives the option to have a paddle that you can vary the length.

A 3pc gives you the option of interchanging paddle blades, it keeps the flexibility but reduces the overall length for storage and transportation.

A 4pc gives you the added option over the 2pc of being able to take the blades off. Different blade sizes or designs can then be fitted to your shaft. Most 4pc paddles will fit into hand luggage on a plain for instance.

For shipping the only option we don't recommend is the 1pc. This will cost more than twice the amount of money to ship than the other options.

The standard paddle blades come in four blade areas 575, 600, 650 and 700 square cm

There are four decisions to make when ordering a paddle. Please read the following, we hope this will help. Any questions please e-mail [sales@seekayakinguk.com](mailto:sales@seekayakinguk.com)





Everyone loves a Celtic

## STEP 1 Choose your paddle length, straight or cranked shaft.

When measuring the overall length of our paddles you measure down the spine of the paddle.

# PADDLE LENGTHS & BLADE AREAS (Sea)



**NOTE:** The paddle sizing guide below only gives you a suggested length of paddle and blade size. We would also recommend that some time is spent on the water looking at technique and trying straight or Modified Crank shafts. Straight shafts are easier to use and far more popular than cranked.

These recommended paddle lengths are for use with kayaks that average 21inch to 22inch beam.

Your paddling style will also dictate the design of paddle. A long paddle will mean you have a lower angle stroke.



## PADDLE CHOICE FOR THE EXPEDITION SEA KAYAKER.

Much attention has been given to equipment and kayak design. In my opinion little thought has been given to the suitability of customising the paddle to suite paddling style, injury prevention and optimising efficiency over a prolonged distance taking into consideration different weather conditions and variable loads being carried. The following is not aimed at competing athletes but recreation kayakers who need an efficient technique and a suitable paddle.

It is also concluded that the paddle sport industry is not providing an adequate paddle range for the smaller kayaker. There is currently a considerable increase in the number of females coming into sea kayaking and many of these are purchasing inappropriate paddles. This research was initiated by the need to identify suitable paddles for small framed people who undertake expedition sea kayaking.

The table below has been put together by collating information over a four teen month period. This table should be used as a guide, for paddle choice by the average person.

NOTE:- None of the research related to Inuit style blades. FINDINGS:-

The table was collated by observing paddle technique, linking it to an increase in performance together with an energy efficient stroke.

All participants were initially videoed paddling forwards using their own paddle. Details of their paddle were recorded in order to make a comparison once the specification of the customised paddle had been finalised. The participants were then videoed paddling with the new recommended blade.

One of the more surprising findings was that forward paddling technique improved considerably without any coaching once an appropriate paddle was used. I would now recommend that an in depth coaching session should not take place until a suitable paddle has been identified. Once technique and strength has been improved, sometimes the paddler can increase the blade area without compromising technique.

When deciding on paddle length and blade area, you have two options:-

A longer paddle with a smaller blade area.

A shorter paddle with a larger blade area.

If after using the table to determine paddle length, you feel that the blade area is still too large then an alternative to a smaller blade is to reduce the shaft length.

If a paddle designed for efficient use in calm conditions was shortened by 2/3 cm. It would make a considerable difference in the amount of energy required to maintain an efficient forward paddling technique. You would effectively be changing down a gear. The table shows a suggested length of shaft to blade size. If you prefer a larger blade area then shorten the shaft.

The average advanced paddler has a strike rate of approx 60 per minute when the paddle lengths correspond to the enclosed table. (a strike is every time a blade hits the water)

People with differing frame sizes require different shaft thicknesses. As a way of standardising I have taken the standard diameter of shaft as being suitable for a medium sized frame. I would recommend that a shaft measuring in diameter for small framed people. (See table) Large framed people sometimes get tendonitis in their control hand. This is often due to the shaft being too small a diameter. This can easily be rectified by padding out the shaft.

Most small framed paddlers would do well to use a smaller blade area than they would normally use when working on developing an efficient forward paddle technique. Move up a size when the technique is good.

INJURIES:-

Inappropriate paddles were found to caused the following injuries:-

Rotational cuff tendonitis.

Tendinitis of the hand.

Tendinitis of the forearm – wrist.

Shoulder Bursitis (calcific Tendinitis)

Incorrectly sized paddles are also a contributing factor to causing partial or dislocated

shoulders. Large blade areas combined with poor technique are the main cause.

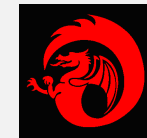
The paddle is a lever that is used by the kayaker to drive the kayak forwards. The longer the lever the greater a force will be placed on joints, muscles and tendons. This together with incorrectly sized paddle blades (area) will increase the chances of developing any of the above conditions.

**Rotational cuff tendonitis:** can be caused by using a paddle that is either too long or and with blades that are too large in area for the kayaker. For people who suffer from this condition I recommend reducing both the blade area and paddle length. The blade area needs to be considerably smaller than the kayaker would normally paddle with. Only after a period of time, provided the tendonitis improves should you increase the blade size. Rotational cuff tendonitis is caused by damage to three small muscles and their tendons. These three tightly hold the ball and socket joint of the shoulder joint together. These run from the top of the shoulder blade to the top of the arm bone.

**Tendonitis of the hand:** This is sometimes helped by using a larger diameter shaft. )

**Tendonitis of the wrist or forearm:** customising your paddle can help this condition. (as described for rotational cuff tendonitis) or try a modified cranked shaft with a 65 deg feather. It is then possible to paddle without flexing your wrist, but you may have to adapt your forward paddling technique, paddling with straighter arms.

The hand is controlled by muscles, tendons and nerves. Forearm muscles are connected to the hand by tendons that run across the wrist and into the hand. The tendons that control your thumb unlike others run through sheaths. The tendons are



enclosed in these sheaths and when they become irritated extra synovial fluid is produced which lubricates and feeds the tendons. The sheath cannot expand to accept this extra fluid, this results in the fluid pushing hard on the tendon which in turn becomes inflamed. Over time this causes the sheath to thicken resulting in even less room for the tendon the condition now becomes chronic causing further swelling and pain. Immobilization and rest is needed. Again oversized paddles, overuse and in some cases compressed sheaths caused by tight latex rubber cuffs will cause this condition.

**Shoulder Bursitis:** this is primarily caused by overuse of the shoulder, but also by oversized paddles. The bursa sac lies between the underside of the shoulder blade and the rotator cuff tendons. The sac comprises of specialized cells that produce joint fluid, called synovia fluid. The fluid also lubricates the sac and tendons. When aggravated it promotes fluid production. This in turn makes the condition worse causing swelling that becomes painful to the touch.

THE CORRECT CHOICE OF PADDLE TOGETHER WITH GOOD TECHNIQUE WILL GO A LONG WAY TO MINIMISE THE ABOVE CONDITIONS.

RECOMMENDATIONS:-

The sea kayaker adopts either of the following options:-

Purchase a set of two paddles. Both the same length but one having smaller blades. The paddler can then change down a gear by dropping to a smaller blade when weather conditions deteriorate.

Purchase a one piece paddle with interchangeable blades.

POSSIBLE OPTIONS:-

A paddle blade that is adjustable. ie telescopic.

For Coaches a split paddle with the option of assembling it with the following options:- Left handed, right handed and unfeatherd.

OTHER CONSIDERATIONS:- A shorter paddle will generally mean an increase in stroke rate. A longer paddle will enable the kayaker to have a slower paddle rate. Both will result in the same kayak speed but the shorter paddle will promote acceleration. The padlock system provides kayakers and coaches with the opportunity of experimenting and using split paddles as the main paddle with no wear on the joint.

OTHER RECOMMENDATIONS:-

Although a customised paddle will make a huge difference we should also pay attention to customising the seat, in particular the angle of the seat. The seat may have to be raised at the rear in order to help assist the paddler lean forwards.

Attention needs to be given to correct foot and back rest adjustment.

Forward paddling technique will vary in differing weather conditions but I believe it is essential to optimise efficiency and this is only possible with the correct choice of paddle.

Written by Nigel Dennis

# PADDLE SIZING GUIDE



Height of paddler	Length of paddle.	Blade design	Large blade	Small blade	Size of paddler
		Shaft diameter			
6ft 2in+ <b>185cm</b>	218-222	Nordkapp/Kinetik  Standard shaft with padding	<b>215-220</b>  750	217-222  700	Large
6ft 0in <b>180cm</b>	214-220	Nordkapp/Kinetik  Standard shaft	<b>212-217</b>  750	215-220  700	Medium / Large
5ft 10in <b>175cm</b>	210-216	Kinetik / Kinetic small  Standard shaft	<b>210-215</b>  750	212-217  700	Medium / Large
5ft 8in <b>170cm</b>	208-215	Kinetik / Kinetic small  Standard shaft	<b>208-213</b>  700	210-215  650	Medium
5ft 6in <b>165cm</b>	207-214	Kinetik Small  Standard shaft	<b>208-213</b>  700	209-214  650	Med / Small
5ft 4in <b>160cm</b>	203-212	Kinetik Small  Narrow shaft	<b>207-212</b>  650	209-214  600	Med / Small
5ft 2in <b>155cm</b>	190-210	Kinetik Small  Narrow shaft	<b>203-208</b>  650	205-210  600	Small



Some need shafts stronger than others!

## STEP 2 choose type of shaft. 1pc, 2pc, 3pc or 4pc.

**Three options:** Standard straight / Standard straight narrow / Standard cranked.



## SHAFTS

We have the options of straight and modified cranked shafts. The straight shafts are offered in fibreglass or carbon. The fibreglass shafts are heavier but cheaper. The Carbon shafts are lighter, stronger but more expensive. We recommend the carbon shafts for intermediate to advanced paddlers. All shafts are reinforced as necessary.

The standard straight shafts come in two diameters. The narrow diameter shaft is specifically for the smaller paddler with small hands.

The standard carbon shaft is advised for Surf and White Water

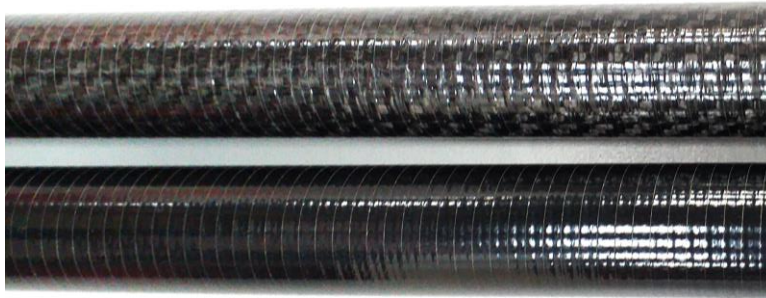
It is important to purchase the right specification of paddle. This will depend on your body size, the width of the kayak and intended use. ie Surf, White Water or Sea. In order to help you decide on the size of paddle that you need please see the articles on paddle sizing and forward paddling:

For 2pc and 4pc paddles we offer the choice of three joints.

The Paddlok – A joint with no length adjustment.

The Leverlok - A nylon joint that offers 10cm of length adjustment

The Vari-Paddlok - A joint that incorporates a button that locks with a Paddlok key and offers 6cm of adjustment in length. The Paddlok joints are slightly lighter than the Leverlok. All these joints can be set for the left or right handed paddler and the feather can be adjusted.



The fiberglass shaft is plain black with what appears to be a wrap on the outside of the shaft,

**Heavier – More flexible - Cheaper**

For example a standard glass shaft @120cm long weighs 252gr and 211gr for a carbon shaft

**HOW CAN I  
TELL IF IT'S A  
CARBON  
OR A  
FIBERGLASS  
SHAFT**



To identify a Carbon shaft look at the weave. You can see a light grey and a black weave in the cloth

**Lighter – Stiffer – More expensive**

# Shaft Options

## Standard shaft diameters

Outside diameter of a standard shaft is 29.3 mm

Outside diameter of a narrow shaft is 27mmeter



## Pro Sea Touring Carbon Crank Carbon only

(New) Ultra strong modified crank shaft made with +95% Carbon available with Leverlok or Vari Paddlok centre joints.



## Carbon Straight

### Standard

### Narrow

(New) Carbon straight shaft with increased wall thickness for increased durability

Suitable for all conditions

- ✓ Sea Touring
- ✓ Tide Races
- ✓ Surf
- ✓ Pack Rafting
- ✓ Whitewater Grade 3 to 4

## Classic glass straight

### Standard diameter only

(New) Glass straight shaft, with increased wall thickness for increased durability

Suitable for most conditions

- ✓ Sea Touring
- ✓ Tide Races
- ✓ Pack Rafting
- ✓ Whitewater Grade 3



# Additional shaft hand grips

A retro fit grip kit. This can be easily fitted to any 2pc, 3pc and 4pc paddles. This is an optional extra



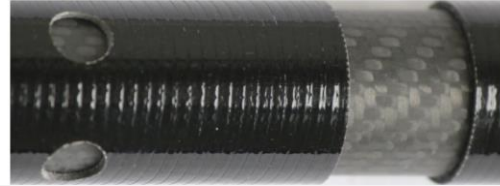
# Step 3 Choice of centre joints

NOTE: For 2021 the spigots on the centre joints will be carbon in the Carbon shaft but we will use the New Kayjak sport spigot in the fiberglass shaft.



**Leverlok**

The Leverlok gives you 10cm of adjustment. This is the most popular joint. It allows you to adjust the length of the paddle, the feather and make the 4pc left or right handed. This joint is 13gr heavier than the Vari Paddlok



**Paddlok**

The Paddlok joint is the simplest and cheapest joint. Offering a fixed length paddle, left or right handed.



**Vari Paddlok**

The Vari Paddlok joint offers 6cm of adjustment in length, you can also vari the feather and set it for Left or right handed paddlers. Easier to stow as a split.

**If you are ordering the Leverlok or the Vari Paddlok then you should allow the paddle to be made shorter than you usually paddle with. If you shorten the paddle length, then you make it easier to paddle. This helps when tired or paddling into strong wind. So for example if you choose the leverLok and you use a 210 paddle order a 206 – 216 or 208 – 218. Both the Leverlok and the Paddlok cost the same.**

# Centre joint LeverLok spigots



Spigot used for the Carbon shaft centre joint



Spigot used for the Fiberglass shaft centre joint



At an extra cost we offer custom blade shapes including all the original Lendal range of blades.

## **Step 4 choose your blade design, material and blade area**

Our standard sea touring blade is the Kinetic Touring.

White Water we offer a choice of blade design.

Pack Rafting we offer a choice of blade design.

# Paddle Blade Options

The standard range or Custom paddle shapes.



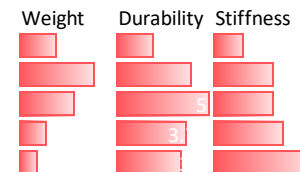
# Blade Information



	Paddle blade design	Primary Usage	Weight - Blade set in grammes +/- 3%					Area	Width cm	Length cm
			SF	LF	N12	CC Standard	CC Light			
Ribbed Blades	Cybi Bach	Sea Touring - Children	620		730			560	16.5	50
	Kinetik touring 600	Sea Touring	650		770	560	490	600	17	50
	Kinetik touring 650	Sea Touring	690		830	570	500	650	18	50
	Kinetik touring 700	Sea Touring	750		850	590	510	700	19	50
	Archipelago	Sea Touring - recreation	660		780	570	500	650	17	50
	Nordkapp	Sea Touring	760		860	600	520	725	19.5	50
	Reef	Surf			850	600	520	715	19	50
	Power	Whitewater			820	590	510	625	19.75	48.5
Dihedral	Xti	Whitewater		870	860			675	21.5	48.5
	Fusion - Polymer	Whitewater - Surf		860	850			700	20.5	47.5
	Mania	Whitewater/Packrafting		870	860			650	19.75	48.5

## Blade Materials

- SF - Short fibre Polymer
- LF - Long fibre Polymer
- N12 - Nylon 12 - Glass filled
- CC Standard - Carbon - Glass Composite
- CC Light - Carbon - Carbon Kevlar



# Choose your blades



## Design

The standard blade for the sea. THE KINETIK TOURING

Or

A custom blade shape. An extra fee of £10 is charged for a custom design. See custom blade design.

## Blade Material

- Carbon
- Carbon Light
- N12 (Nylon)
- SF (Plastic)

## Blade area square mm

- 600
- 650
- 700
- Custom blade areas  
575cm and 750cm

# Sea Touring Blades – Material Options



## Pro Carbon

Light, stiff and powerful the Pro Paddlers choice



## Classic Nylon

Strong, super tough and the ultimate durability. Great for clubs and Kayak Schools



## Classic Polymer

Polymer blades, light blades for recreational paddling, lakes and rivers. These are also more flexible than Nylon and Carbon



# Pro range Carbon

Paddles that take you places 2pc 3pc & 4pc



## Standard Carbon blades

Touring / Surf / Tide Races

## Carbon Light Blades

Touring





# New sticker color for Carbon Light paddles



# Our blade stickers are reflective



# Technical information



## Carbon standard blade weights

600	851gr
650	905gr
700	921gr

## Carbon light blade weights

600	782gr
650	817gr
700	831gr

## STANDARD PADDLE LENGTHS FOR 4pc

### Straight

Standard diameter PaddLok centre joint

208-210-212

212-214-216

LeverLok centre joint

208-218

Narrow diameter Paddlok centre joint

204 – 206 – 208

LeverLok centre joint

200 – 210

### weights

### Standard shaft diameters

Outside diameter of a standard shaft is 29.3 mm

Outside diameter of a narrow shaft is 27mm



# Junior, youth Paddles

## SHAFTS

Standard fiberglass narrow shaft with a Leverlok  
Carbon

Length                    165-175  
                                 185-195

## Blades

Gremlin  
Kinetic Touring 575  
Logic



Look at our Echo, an excellent youth sea kayak.

All paddles come with drip rings and paddlok key as needed.

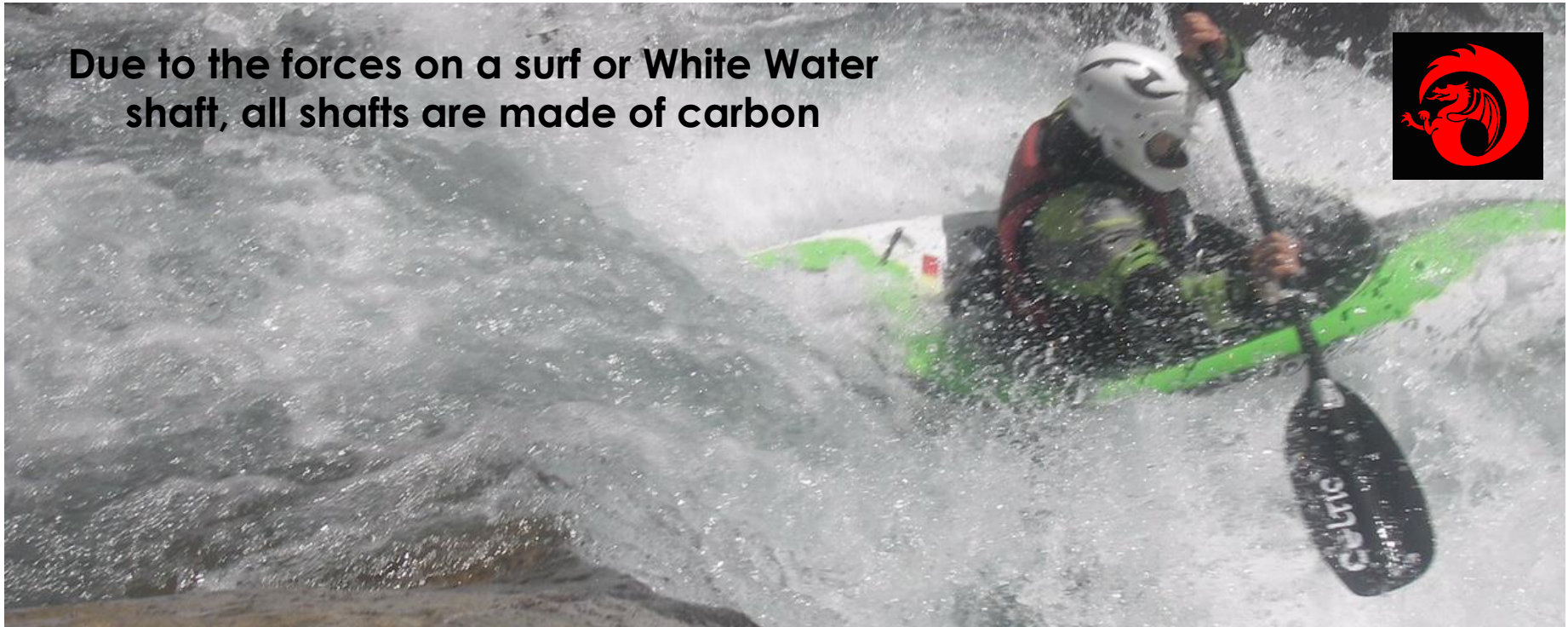


Paddle blades are secured to the shaft with our Paddlok system

- Change your blade size
- Replace just one blade



**Due to the forces on a surf or White Water shaft, all shafts are made of carbon**



# White Water, surf and Pack Rafting

**1pc or 3pc White Water. 4pc Emergency White Water paddle.**

**4pc,5pc or 6pc Pack rafting paddles**



# Celtic Packrafting Paddles



The combination of our Paddlok system coupled with the length adjusting Leverlok centre joint enables the entire range of our Paddle blades to be utilised for Packrafting. Coupled with a suitable length adjustable shaft you have one paddle with many uses

**Mania 4 & 5 Piece**

**Multi Paddle 6 Piece**

**Pro Power Carbon**





## 6pc Pack Rafting paddle

A fixed length paddle with detachable hand grips so you can turn your paddle into two one sided paddles for use as a canoe paddle



## 5pc Pack Rafting paddle

This paddle is 208-218 Leverlok with a detachable centre spigot so the paddle can be packed into a 510cm bag



# Whitewater, surf & Packrafting Blade Options



## Pro Carbon

Carbon White Water Blades



## Classic Nylon

Strong, super tough and the ultimate durability. Nylon blades unlike glass blades do not suffer from edge wear or fractures These blades will give a lifetime of use. Ideal for rock hopping and rivers.



## Classic Polymer LF

Polymer blades, injected with long glass fibres. Durable, tough, our entry level Whitewater and Packrafting blade.



# White Water, surf and Pack Rafting standard blade shapes



Fusion



Mania & Reef



Kinetic Touring



Power



XTI



Custom Blades (£12 Extra charge)



**An emergency White Water  
paddle. This paddle comes in a  
dry bag. This will fit under the rear  
deck of most white water kayaks.**

**4pc Glass shaft Mania blades, 45  
degree feather, left or right hand  
Paddlok key  
Dry Bag**

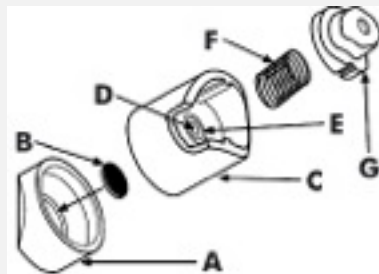


Celtic Paddles uses our patented Paddlok system. This allows us to manufacture 2,3 and 4pc paddles. The 4pc paddles when assembled provides a ridged paddle that can be broken down and carried as hand luggage when flying.



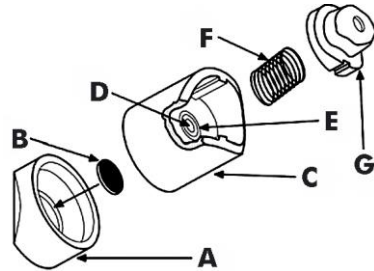
Other advantages.

- Change your blade size
- Replace just one blade
- All paddles are adjustable in both length and feather



**CELTIC PADDLES MANUFACTURES PADDLES FOR THE REST OF THE WORLD USING THE PADDLOK SYSTEM**

# MAINTANANCE



All joints need to be taken apart from time to time. The PaddLok button needs to be flushed out with fresh water. As all joints involve pushing a spigot into a shaft. You inevitably get a grey carbon past made from the dust created by the assembling the paddle. The dust then gets wet and over time forms a past that sets and it becomes very difficult to separte the blades and shaft. You need to take the paddle apart and flush out with fresh water if being stored for a long time.

PaddLok buttons can be easily replaced



<https://www.flickr.com/photos/celticpaddles/albums>

# Get in touch

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