

**For Further information on cordwinding see:**

**An Introduction to Ply-Split Braiding** by Julie Hedges.

Notes on cord making, cord length calculations, and a glossary of terms.

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ISBN 13: 978-0-9554187-5-4 2nd edition

**Maintenance and Use:**

- Make sure the Kipu is tethered to your work table or bench with its safety cord so it cannot be pulled off while drawing out the elements.
- Do not drop or subject the Kipu to shocks or impacts.
- Do not apply any lubricant. The winders are lubricated when they are made and no further lubrication is required. Any excess lubricant that weeps out initially can just be wiped off.
- There are no user serviceable parts inside. Opening the Kipu will void the Warranty.
- Clean with a soft cloth periodically.
- Use and store in a dry place. Do not get damp, wet or immerse.
- The Kipu and Watu Cord Winders are not suitable for making ropes or for twisting heavy or stiff materials. Using unsuitable materials can bend the hooks and damage the internal components.

**Warranty and Repairs:** Kipu Cord Winders have a 12 month warranty from the date shipped. This does not cover wear and tear, accidental damage or any use other than we intended. Within the warranty period, we will repair any manufacturing defect at no charge. The customer is responsible for postage to us and we will cover the return postage.

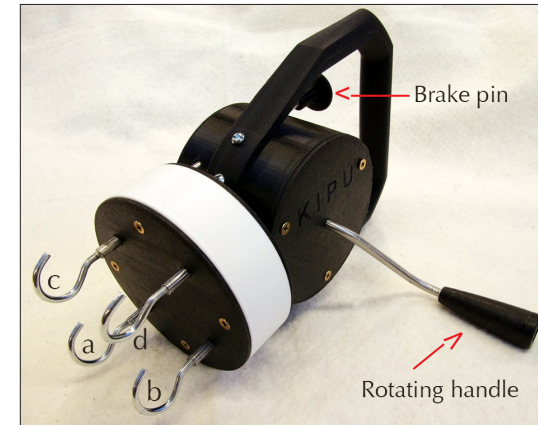
Available from

[www.creativehandicraft.co.uk](http://www.creativehandicraft.co.uk)

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**The Kipu Cord Winder**  
(with Appendix for Watu)



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The following instructions are intended to help you make good 2, 3 or 4 ply cords and to take care of the Kipu Cord Winder.

The Kipu Cord Winder is designed so that for each revolution of the rotating handle, the 4 hooks or the whole drum head will turn 8 times. (A ratio of 8 -1)

When the rotating handle is turned with the brake inserted into the drum, each of the 4 hooks turns independently in the same direction. When the brake pin is withdrawn, the whole drum head turns in the opposite direction.

**To make cords you will need:**

- 1 Kipu Cord Winder
- Hook for Near End on a table, or preferably a weighted trolley
- Out End block with 4 hooks & G clamps
- Scissors
- Short lengths of thread for tying through eye of cord, approx 7cm (3")

### Set up of cord winder:

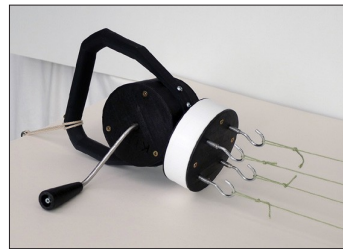
- Place the Kipu on a table, or preferably a weighted kitchen or tea trolley, attaching the safety cord to a hook.
- Check that the rotating handle is on the right for a right-hander, or left for a left-hander.
- Insert the brake pin.
- Clamp a 4 hook 'Out End' onto a static solid table at about waist height. The distance from the winder is determined by the length of the required cord + approx 25% or the length of your room.

### To make a 4 ply cord:

Having set up the winder and Out End as above and with the brake pin inserted into the drum,

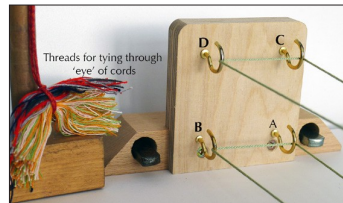
- Take a length of yarn or multiple ends and tie, using an overhand knot, onto hook 'a' on the winder.

Draw out the element under tension and loop around hooks 'a' and 'b' on the Out End and return to tie the element onto hook 'b' on the winder.



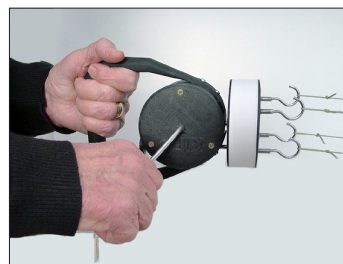
Two parallel elements are in place.

- Repeat this from hook 'c' on the winder, around 'c' & 'd' on the Out End and back to 'd' on the winder.
- Make sure that each of the 4 elements is parallel & evenly tensioned.
- Cut any loose ends after tying to avoid tangling.



### Initial Over Twist: IOT

- Check the twist of the elements. Is the yarn S or Z twist? See note below.
- Remove the winder from the Near End hook.
- With the brake pin inserted in the drum head, hold the winder under tension & turn the rotating handle in the appropriate direction, while walking slowly forward towards the Out End.



See notes on Right Handed or Left Handed use of the rotating handle.

### Putting in the IOT:

To achieve an even tension:

- Lean against the cord slightly while walking. Roll the trolley forward as you walk. Count the number of turns made, for consistent cords.
- When the required IOT is achieved, i.e. when the elements start to 'snarl' if the tension is relaxed, return the winder's safety cord to its near end hook.
- Go to the Out End, place the loops from a, b & c, d onto a single hook & tie a short thread through the 'eye' formed by the loops to prevent unravelling.

### Controlled Counter-twist: CCT

- Return to the winder & holding it as before, while keeping it under tension, withdraw the brake pin & let the handle rotate in the same direction as before, slowly at first, increasing speed gradually to ensure the correct order of the plies. It is helpful to guide the turn of the drum initially.

It is not necessary to count the turns of the CCT, but note that the cord will increase in length slightly as twist is taken out of each element, before decreasing in length again as the counter twist causes the elements to twist against each other into a single 4 ply cord.

Make sure that all excess twist is taken out & that the elements are well embedded by giving the cord extra counter twist. This will result in a cord with a balanced twist opposite to that of the IOT.

- Insert the brake pin. Slip the cord off the hooks at the winder & tie with an overhand knot.
- The eye end can then be slipped off the Out End.

To make a 2 element cord: set up the winder and Out End using diagonal hooks. i.e. A on winder and D on Out End.

To make a 3 element cord: set up the winder and Out End using the 2 lower hooks and a single upper hook on both winder and out end.

### 'S' & 'Z'

The internationally accepted way of describing the direction of twist in a spun or plied thread in relation to its length, which is thought of as the central part of one or other letter **S** = \ **Z** = /

## Use of the Kipu cord winder

**Right-handed use:** With rotating handle in the right hand

For **S** Initial Over-Twist to make **Z** Counter-Twist cords:

- Insert the brake pin.
- Hold the curved handle in your left hand and the rotating handle in your right hand.
- **Turn the rotating handle towards you (anticlockwise)**
- Put in the Initial Over-Twist, as required.
- Withdraw the brake pin
- Turn the rotating handle towards you, anticlockwise, as before

This will result in **Z** Counter-Twist cords

For **Z** Initial Over-Twist to make **S** Counter-Twist cords

- Insert the brake pin
- Hold the curved handle in your left hand and the rotating handle in your right hand.
- **Turn the rotating handle away from you (clockwise)**
- Put in the Initial Over-Twist, as required.
- Withdraw the brake pin
- Turn the rotating handle away from you, clockwise, as before.

This will result in **S** counter-twist cords

**To achieve an even tension** when applying Initial Over-Twist, lean against the elements slightly while walking towards the Out End. Count the number of turns made. When the required IOT is achieved, (when the element starts to snarl if the tension is relaxed) withdraw the brake pin and keeping the elements under tension turn the rotating handle **in the same direction as before** (Controlled Counter-Twist) to complete the cord.

When the rotating handle is turned with the brake engaged each of the 4 cup hooks turns independently in the same direction. When the brake pin is withdrawn, the whole drum head turns in the opposite direction.

## Use of the Kipu cord winder

**Left-handed use:** With rotating handle in the Left Hand

For **S** Initial Over-Twist to make **Z** Counter-Twist cords:

- Insert the brake pin.
- Hold the curved handle in your right hand and the rotating handle in your left hand.
- **Turn the rotating handle away from you (anticlockwise)**
- Put in the Initial Over-Twist, as required.
- Withdraw the brake pin
- Turn the rotating handle away from you, anticlockwise, as before

This will result in **Z** Counter-Twist cords

For **Z** Initial Over-Twist to make **S** Counter-Twist cords

- Insert the brake pin
- Hold the curved handle in your right hand and the rotating handle in your left hand.
- **Turn the rotating handle towards you (clockwise)**
- Put in the Initial Over-Twist, as required.
- Withdraw the brake pin
- Turn the rotating handle towards you, clockwise, as before

This will result in **S** Counter-Twist cords

**To achieve an even tension** when applying Initial Over Twist, lean against the elements slightly while walking towards the Out End. Count the number of turns made. When the required IOT is achieved, (when the element starts to snarl if the tension is relaxed) withdraw the brake pin and keeping the elements under tension, turn the rotating handle in the same direction as before (Controlled Counter-Twist) to complete the cord.

When the rotating handle is turned with the brake engaged each of the 4 cup hooks turns independently in the same direction. When the brake pin is withdrawn, the whole drum head turns in the opposite direction.

## **Appendix**

### **Additional information for using a Watu Cord Winder**

The Watu is used in a very similar way to the Kipu and the instructions above apply. The key differences in operation are detailed below.

- The Watu is a 7 hook cord winder.
- 5 and 6 ply cords are wound round a central core.
- 2, 3 and 4 ply cords can be wound with or without a core.
- The hooks spin at 12 times the speed of the rotating handle.
- A seven hook Out End is required for 5 and 6 ply cords.

#### **Central core element**

The Watu has a central hook which does not twist the material tied to it.

It is designed so that a core can be created.

A core is necessary in the construction of a 5 or 6 ply cord to prevent one of the main elements randomly slipping into and out of the void in the centre of the cord.

A core is not necessary in the construction of 2, 3 or 4 ply cords. It may be desirable depending on the purpose of the finished cords e.g. in Passementerie.

A core can add thickness to a cord, it can be made visible or left completely concealed.

A core can also be used as an additional element to work into a design e.g. in ply-split braiding.

#### **Creating a core**

The core element can be of the same or of different material to the main elements.

It can be thicker than the other elements but not less than half the thickness of any of them.

The core does not twist with the main elements as the cord is made, it hangs freely and is weighted for tension.

#### **Setting the tension on the core**

The Watu Out End has a hook and a hole in the centre for the core. Depending on how the Out End is clamped, the core should go:  
Either - over the central hook so it hangs in front of the Out End.  
Or - through the hole so it hangs at the back of the Out End.

Hang a weight on the core as high as possible. The weight will drop as the main cord elements are twisted and shorten. Make sure the weight hangs freely and does not eventually reach the floor. The optimum weight needed for tensioning the core will vary and you may need to experiment. It depends on the number of cord elements, how stretchy they are and how long the cord is. A recommended weight to start with is 300g for a 4m cord with six twisted elements and expect to adjust from there. Inadequate weight will allow the main elements to tangle with the core.

#### **General information**

It isn't more difficult to wind 5 and 6 ply cords than winding 2, 3 or 4. But as always, you must pay attention to balancing the tension in all the elements. This becomes more sensitive the more elements you wind.

The core can also be a cord and can be used as a seventh element. This opens up some creative possibilities. You need to make a separate cord first, to the tension you require, then use that as your core.