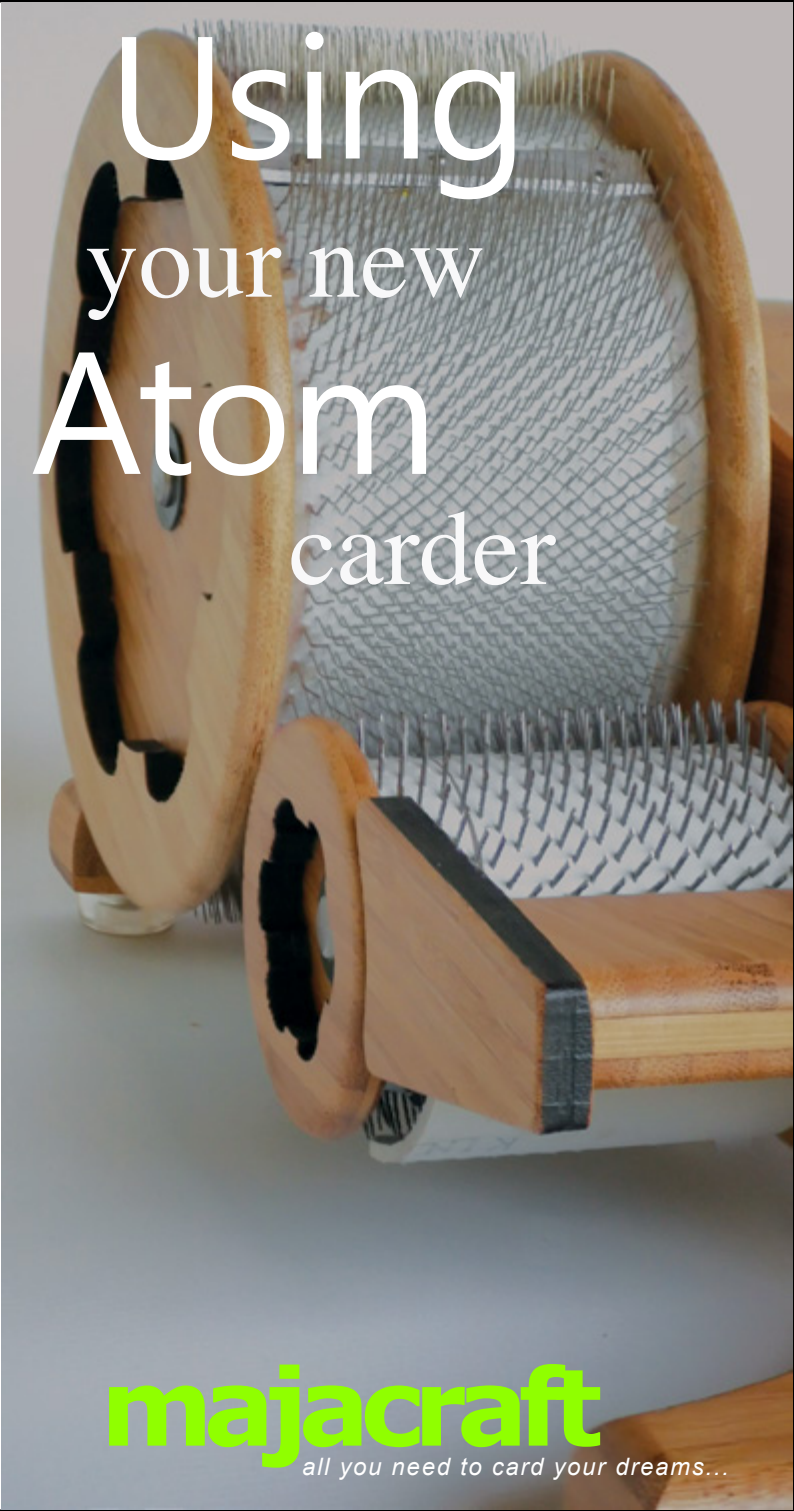




Using your new Atom carder

majacraft

all you need to card your dreams...

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Welcome to the Majacraft family

Congratulations on purchasing your new Majacraft Atom carder.

The Atom was born with ideas from Suzy Brown, and Mum (Glynis Poad). I was intrigued with the idea of trying to build a picardy style carder (the drum being only supported on one side) and use what we had learned with the gearbox on the Fusion Engine to make a little machine that was very portable, and great for sample batts and fine fibres. We built quite a few variants before arriving at the current form. I also must thank the participants in the 2024 Majacraft camp who added hundreds of hours of valuable testing to the carder to help identify any issues. Thank you very much to those who helped and encouraged along the way!

Majacraft creativity has been applied to the design of this carder to make it as versatile, effective and simple to use as possible. Ideas like the specially shaped drums that actually draw the fibre on the drum and integrated gearbox that is always positive and never slips, allow you to card your fibre in new ways.

Thank you for choosing Majacraft, it is your belief in us that motivates the innovation and creativity to building captivating tools for you.

Andrew Poad

And from the team at Majacraft, good carding!



Atom features

The Atom has many new, subtle and not so subtle, innovations. By outlining these features, we hope you will be able to expand your experience of this tool.

Gearbox

The Atom has a gearbox - with real gears! This was chosen to offer multiple benefits. Firstly it makes the mechanism that controls the ratios between the main drum and lick-in much more compact, small enough to be embedded into the side of the carder.

The Atom has a ratio of 4:1.

Lickers and trays

The feed tray position is different to most other carders. Our experiments demonstrated that the more time the fibre spent on the lick-in, the more effectively the carding process worked. This is why the feed tray is positioned so high.

Clampable

The carder has a hole in one end so you can clamp the Atom to a table or bench if desired. When the machine is clamped, the combination of rubber feet and the clamping means your carder will not move while you work.

Magic drums

The Atom drums have a unique Majacraft construction that offers several benefits. The special shaping of the edges draws the fibre onto the drum, and prevents it clogging around the axles. This significantly reduces the maintenance and cleaning required for your carder.

Foldy handle

The Atom has a strong folding handle. The main benefit of this, is that it allows the carder to fit in a more compact space, and makes it easier to transport.

The handle is positioned so that it can be turned while also clearing the surface the carder is sitting on. It is not essential to use the carder on the edge of a table.

Carding Cloth

The Atom has quality carding cloth with 96tpi (tines per inch) which works well for a wide range of fibre types and microns.

Size

The Atom is an ideal size and weight for portability. The compact size measures L 32cm, W 20cm (including folded handle), and H 18cm. It weighs 2.5kg on our scales, sturdy enough to be stable in use, but still light enough to take anywhere.



The Majacraft Atom offers portability as well as quality carding on a built-to-last carder!

Let's get started carding

Without a doubt, you are simply bursting to get started. This is the place to start reading!

If you are unfamiliar with any of the components or terms, skip to the appropriate pages listed below.

Atom Description - page 6

The Jargon - page 6

To card some fibre or other materials, you will need to go through several steps, carder placement, fibre preparation, loading and carding, and batt removal.

This is not going to be the last time you read this but it is really important...

DON'T CARD A GREASY FLEECE!
IT WILL RUIN YOUR CARDING CLOTH

Fibre preparation

Be sure to use only washed, clean fibre on your drum carder. There are plenty of tutorials on YouTube if you search for "washing fleece".

Washed fibre from a raw fleece may have some knotty staples still in it. You can use the cleaning brush or a flick carder to loosen these up a little before you start carding. You will find that the carding process is easier if you have already pre-opened your locks or fibre so you can spread it out evenly to feed onto the carder in thin layers.

Carder placement

- 1** You can place the carder in any position on your table that you find comfortable and convenient. Depending on what you are carding and your carding technique you may want to clamp it to prevent movement during use. You can use the Majacraft clamp to secure it to the edge of your desk or table.

Carding the fibre

- 2** The feed tray is quite short on the Atom carder, so it is not possible to lay a lot of fibre out as you would on a Fusion Engine. However similar principles apply, just on a smaller scale.

Spread the prepared fibre across the width of the feed tray, touching (or very close) to the lick-in. You should be able to see the feedtray through your fibre. Too much fibre at once will be hard to card, creating lumps and thick areas in your batt.

There are different trains of thought as to how to lay the fibre down, you can lay it in line with the direction it will be drawn in, or alternatively, across the line of the lick-in, each with compelling reasons. For now it is simplest to lay the fibre in the direction it will be drawn in - with the tips pointing directly towards the lick-in axle. This will give you the smoothest preparation and is especially good, when using fine and luxury fibres, to keep them organized and parallel to create more of a semi-worsted style preparation.

- 2 Turn the handle in the clockwise direction. This will draw the fibre on to the licker-in where it will then be transferred on to the main drum.

Carders work by opening up fibres and spreading them out into a lofty carded preparation. They do this by attaching the fibre first to the slow moving licker drum. The fibres on the licker drum are then picked up at speed by the tines on the main drum, with the effect of spreading them around the drum in an even layer. This difference in speed between the small and large drum is what does the work for you to open and smooth the locks and fibres you feed into the carder.

Do not hold the fibres back as you turn the handle as they will bind tightly on to the licker-in and not transfer cleanly. You can, however, guide them as needed.

It is not possible to crank too slowly - apart from taking a long time - but it is possible to crank too fast. Turn the handle at a steady, comfortable pace.

- 3 Add your fibre via the feed tray and card it onto the main drum until the drum is full. This is when there are fibres near the top of the tines. You will also know your drum is full when there is no more fibre transferring from the small drum to the large one. You can use a burnishing brush to press down the fibres on the large drum to help you pick up the last of the fibres from the licker drum. This will also smooth the surface of your batt, however it is not a necessary step, and you will find your batts will spin and draft best when slightly smaller, rather than too thickly packed.
- 4 Once your drum is full, turn the crank handle to the bottom of the stroke; the join in the cloth on the main drum will now be at the highest point. Take the picker tool and use it to hook under the fibre along the aluminum strip, lifting and separating in 'bites'. Do this across the main drum until there is a free edge of carded fibre in the air. It is always easier to lift apart smaller chunks than to try and break apart larger sections, so just work your way across the width.
- 5 Now, carefully roll the batt from the drum towards the back of the carder, peeling it downward from the top and away from the cloth. You may need to turn the handle a little counter-clockwise to keep exposing the carded fibre on the drum ready to peel it away more. Do this until you have the batt free of the drum.

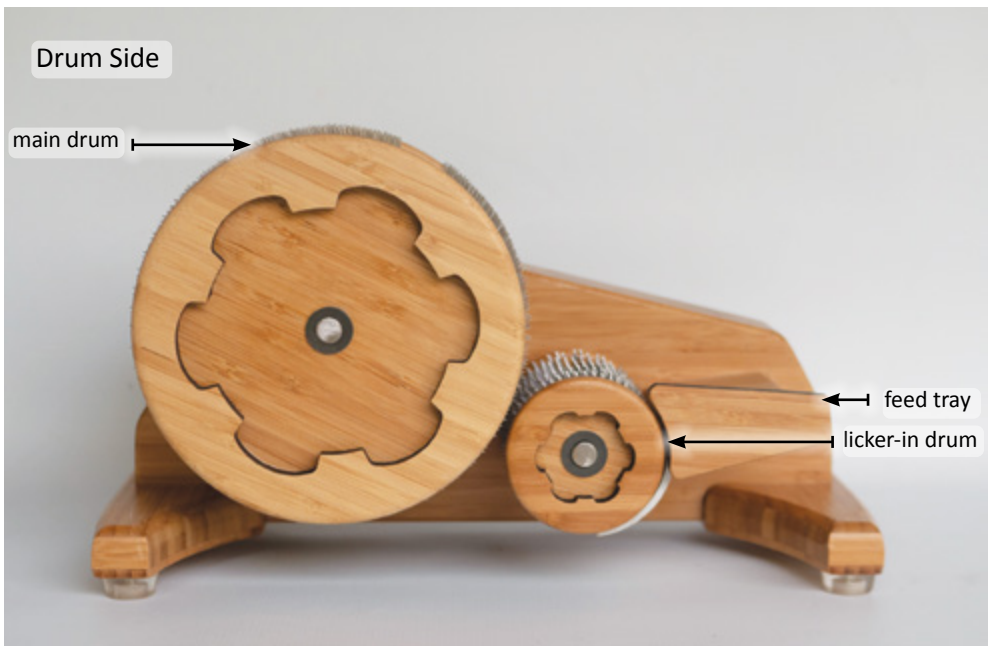
Finally

Take a look at your batt and make sure you have achieved the preparation you are needing for your yarn. If you have a batt with multiple colours or fibre types, you may want to blend it several times to achieve a homogenous mix evenly throughout the batt. This is easy to achieve: simply separate the batt length-wise in strips and run each of the new lengths through the carder again to get a more even blend of your fibres. Splitting it into four strips is usually adequate, then stretch them out so they are not too thick to feed back through the carder. Keep in mind that the thinner you add your layers onto the carder, the quicker your blending will be.

Once they are all re-loaded onto the main drum, remove as before. Repeat this process up to three or four times until you have achieved the amount of blending you need. Look out for any lumps and nepps that may form, this may mean you have carded enough passes and there is damage occurring to the fibre, more passes at this stage will not be useful.

If there is fibre left on the drum and you have a new project, you may need to use the cleaner brush to clear the fibre from the main drum and the licker-in. Gently draw the cleaner brush through the tines in the same direction the tines are pointing. Sometimes a rolling action can be more gentle on the carding cloth. Repeat with the licker-in.

Atom description



The jargon



The **main drum** or 'swift' is the large drum at the rear of the carder. It is involved in the transfer of the fibre from the Licker-in and does the final aligning and blending of fibres in the carding process. The drum has specially designed edges that draw fibre onto the drum and keep it there while reducing the build up of debris around the axles.



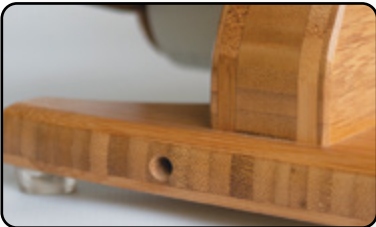
The **licker-in** is the small drum closest to the feed tray at the front of the carder. This does the initial opening up and aligning of the fibre in the carding process. The licker-in drum also has specially designed edges that draw fibre onto the drum from the feed tray and keep it there while reducing the build up of debris around the axles.



The **feed tray** is at the front of the carder and is one of the important Atom features. It is positioned close to the top of the Licker-in so the fibre has as much opportunity as possible to align on the licker-in drum. It also has a special scoop tray to make sure the fibre stays on the licker-in rather than dropping off or doing a straight transfer from the feed tray to the main drum.



The integrated **gearbox** is another major feature of the Atom carder. It is contained in the side of the carder with a special frame around it. The gears will NOT slip unlike belt driven carders. The configuration of the gearbox has allowed the carder to have a ratio of 4:1 between the main drum and licker-in and yet is very compact. The gears are made of an incredibly strong material that works extremely well for years without any wear or damage.



A **clamp hole** is present at the front of the Atom to allow you to use the Majacraft clamps to secure the carder to a table. It also has rubber feet to prevent the carder from slipping during use.



A 3mm allen T wrench is used for removing the main drum for cleaning or changing



The Majacraft Atom doffer has a hook shape with a flat rounded end. To use this for removing your batt, you can use the bent end to hook under the fibre, starting at the closest side of the drum, then pulling and lifting towards you to break apart the batt across the top of the drum. It is best to use this tool by making small 'bites' in the fibre, smaller amounts are much easier to break apart than larger.



The main drum has a metal strip that secures the ends of the carding cloth and provides a location for the doffer to hook under the fibre and slide along the metal strip to remove the batt without damaging the carding cloth.



One Majacraft bench clamp is included with the Atom Carder. Use this clamp on the end of the carder when clamping it to a table.



The lightweight and ergonomic Majacraft cleaning brush is used to remove fibres stuck to the drums. It is also an excellent flicker tool for opening up locks before carding.

The brush has special plastic caps on the cloth ends to provide nice clean lines.

How to card fibre on Atom

This is a more thorough explanation of the carding process, expanded from the brief description on page 6

What is Atom best at?

It is especially good for carding luxury fibres into beautiful mini-batts. With Atom, it is easy to feed in small quantities of fibre in thin layers to most efficiently produce a perfect batt while minimising any risk of overcarding damage. It is also fantastic for organising colours to create fractal spins or gradients in a series of 20 gram mini batts: five batts are the equivalent of a 100gm (4oz) fibre 'braid'. By creating your batts in a sequence you have total control over the amounts of each colour you blend; much easier than dyeing an entire braid, or guessing at placements on a large drum.

Stunning batts of luxury fibres such as this kid mohair, tussah silk, and Mulberry silk blend are easy to achieve in very useful quantities on the Atom.



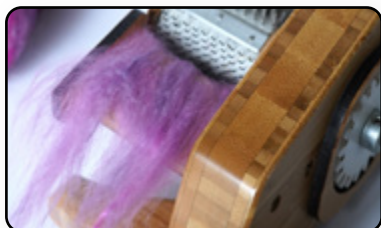
Preparation

Carders are very effective at opening up your fibres and organizing them into a spinnable, easy-to-draft form. They are not, however, capable of working miracles, Atom will not be able to resurrect felted fibre, nor make silk from 35 micron fleece, but it will give you a wonderful tool for carding a wide variety of blends from a range of fibre types.

When starting with washed and/or dyed fleece (remember, do not card unwashed fleece!), you may wish to line all the fibres up the same way on your table with cut ends together and the tips of fibres at the other. If the fleece is still quite clumpy then it is recommended to use a flick carder or the little cleaning brush to tease the locks open at both ends. It is not necessary to do this excessively but it will help you produce a nicer batt, even with your first pass.

You may also just want to add your locks more randomly in terms of direction and this is also fine, just make sure they are opened out enough that they will not jam up in your carder or end up as a thick lump on the main drum.

Flick card (sold separately) to open up locks ready for feeding onto the carder.



A suitable amount on the carder tray as it is taken up onto the lick-in drum.

Fixing to a table

If you want to clamp your carder, the standard clamp will go in the hole located in the foot at the front of the carder.

Position Atom at the edge of the table, facing away from you.

The standard clamp will go in the hole which is located in the front of the foot. Tighten it up.

The Atom is now secured and ready for the carding to begin.

With the first of your fibre ready, place it on the tray and start turning the handle in a clockwise direction when viewing from the active side, using a nice even pace. The fibre will start drawing on to the licker-in and you will see it transferring on to the main drum. Continue with this, adding on in thin layers until your main drum is full – the fibres will now be up to the top of the tines on the large drum.



If your goal is to blend colours together to create a new colour, you can remove your batt, split it up into thin strips and feed this back onto the carder again in thin layers. Each 'pass' you make will blend your colours more each time, eventually creating a whole new 'optically' blended colour.



Luxury fibres

If you are carding very fine luxury fibres with a micron count below 18, be sure to load very thin layers onto your carder, because the thinner the layer, the better it will blend, and the goal with the fine fibres is to do the minimum needed to blend. With these kinds of batts we often use a mix of pre-prepared commercial fibres and our own washed locks that need to be opened up and smoothed. Depending on your locks you may wish to pre-card these ready to mix with the commercially prepared fibres, to encourage more efficient blending.

Pre-weigh your mix, for example, you may choose that each 20 gram batt will have 5 grams of silk, 5 grams of Tussah Silk and 10 grams of Mohair. Split these quantities up so you can alternate layering them into the batt, this way you should be able to get a nice, even blend in two or three passes.

Place your fibre on the carder feed tray, laid out evenly so the fibre is touching the lick-in drum. The general rule is you should be able to see the feed tray through the fibre. If you cannot see the feed tray through the fibre then you likely have too much.

Place your prepared luxury fibres on the carder feed tray, use a little of each fibre in an approximate proportion of each, this will also help your mix to blend well, as each layer has some of every fibre included.

One of the benefits of using Atom to card your extra fine and luxury fibres is that you have a great deal of control over the blending; it is easy to add smaller amounts at a time, and because the drum will fill reasonably quickly compared to that of a full-size carder, there is less chance of over-carding and damaging your precious fibres.



Extra Carding Tips



DON'T HOLD THE FIBRE BACK!

There is often a temptation to hold on to the fibre. This is not necessary and not advised as it can end up winding the fibre tightly around the licker-in and preventing it transferring to the main drum.

This being said, it is sometimes desirable to try to spread the fibre by drawing it out a little as you card so a huge mass is not drawn on to the licker-in in one go. Awareness of the issue with wrapping the fibre tightly around the licker-in should help you judge if you are holding it back too tightly.

If you are familiar with other carding machines, you may have been warned about keeping the fibre away from the edge of the feed tray so it does not spill over the sides of the drums and tangle around the axles. The special drums on Atom prevent this so you are free to use all of the feed tray area.



Continue carding until the drum is filled to your satisfaction but do not fill it beyond the height of the drum sides. If you go beyond this, the fibre could spill over and cause unnecessary tangles. Another sign of overfilling is if the fibre no longer transfers to the main drum and starts building up on the licker-in.

Removing the batt

Now that your batt has been carded, it is ready to be removed from the main drum. You will need the picker tool (doffer).

You need to separate the fibres in the batt by 'lifting' it in half across the 'grain' or fibre direction of the batt.

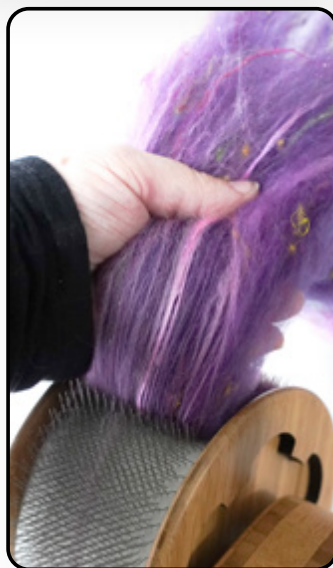
Start by turning the handle to the bottom of its stroke. This will position the doffer groove that is located in the join of the carding cloth on the main drum in the topmost position. Using the tip of the doffer to slide under the fibre, catch a small amount of fibre in the 'hook' - you may find about 2cm or an inch width across the batt width is a good amount to start with. Lift the doffer towards you to pull apart the chunk of fibre it is holding, then move the doffer closer to you to hook the next section of fibre. Repeat this until you have the full width of the batt split. Make sure to keep the doffer point on the metal strip as you can damage the carding cloth if you dig directly into the cloth.

Work your way across the drum separating the fibres, effectively splitting the batt into half.

Now you need to tease up the back edge (the edge closest to the rear of the carder) of the partially separated batt to prepare it for peeling from the drum. You can use your hands to gently lift the fibre away from the drum. It is also possible to use the drum cleaning brush (with the tines pointing toward your body) to tease the fibres up.



You can either: gently lift your entire batt away from the carder, pulling it towards the back of the carder and away from the tines and working your way around the drum (in the same direction as the tines), giving you one long strip, or you can gently roll your fibre away from the drum to create a rolled batt. The key is to keep some tension on the fibres in the correct direction, which will help to lift all the fibres cleanly away from the drum.





Above: gently textured art batt with a mix of fine merino, silks, silk noil, angelina, and polwarth locks.



Collection of luxury fibre batts, a blend of 16 micron merino, baby camel, mulberry, and tussah silk



A collection of mini batts in ready-to-spin lengths to create a colourful gradient, along with mini 'punis' also created on Atom by wrapping the fibre from the width of the drum around a stick and drafting off short pieces.

Cleaning the drums

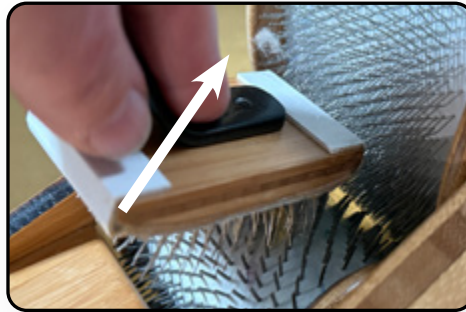
The drum cleaning brush is essentially a little flick carder and can be used to clear fibre easily from the drums. This is particularly important if you are creating a variety of batts and do not want the fibre from one contaminating the other.

The licker-in cloth has been carefully selected for its abilities to clear very well. Even so, there may be some fibre still wrapped around the licker-in drum after use - particularly if you have been holding the fibre back. When cleaning the drums is required, start with the licker-in drum.

Start off with holding the brush as shown (right).



Cleaning the licker-in is a little trickier on Atom as the feed tray is higher than most other carders and space is limited. If you tilt the cleaning brush well forward and use just the first few rows of pins, you can carefully pull the left over fibres from the drum.



Crank the handle anti-clockwise as you clean to expose a new area. Working from the front toward the back of the carder, use a gentle rocking and flicking action to carefully pull the trapped fibre from the drum. You can only get quite short strokes in. You can also work across the drum, perpendicular to the direction of the pins to remove any other resistant fibres. The short rigid licker-in tines make this quite easy.

Once you have completed any necessary cleaning of the licker-in, you can commence with the main drum.

Start at the doffer groove on the main drum. With the drum cleaning brush, use the same gentle rocking and flicking action to pull the trapped fibre from the drum.



When the working area is clear, turn the drum anticlockwise a little more to expose more of the uncleaned cloth.

You may need to clear the fibre from the drum cleaning brush as it fills. It is simple to pull it off with your fingers.

Continue cleaning and rotating the main drum until it has been entirely cleared.



Helpful hints

Gentle with the doffer

We have created a special doffer that is designed to minimise the possibility of damaging the carding cloth on your drums. Even with this, it is still recommended to be gentle on the carding cloth and not poke at it or the tines roughly.

Clean the fibre

Don't use greasy fleece! It coats the pins and cloth and taints any further work you do on the carder. Make sure you use washed fibre.

In case you missed that, DON'T USE GREASY FLEECE!



Folding the handle

If you wish to store your Atom or plan on travelling with it, it is much easier with the handle folded out of the way. Grip the rotating 'handle' part of the handle and pull it outward. It can then be turned in toward the axle for the main drum and laid over parallel with the main arm.



Maintenance of your carder

Cleaning

The 'magic' drums and integrated gearbox keep the Majacraft Atom cleaner than most other carders, there is much less build up of fibre around the drums and none in the gear area.



We suggest you could use a small brush (perhaps a discarded tooth brush) and a small pair of scissors to clean around the axles and boss area.

Oiling



The polymer bearings in the carder that the axles rotate on are the only components where oiling is needed to be considered. Only do this if you feel like resistance to turning the handle has been increasing over time. Use a very fine oil like sewing machine oil and very sparingly - only a couple of drops - and infrequently. Wipe away any excess oil that may be running down the side of the carder.

Carders can tend to get pretty dusty and dirty so if there is excess oil on your machine, again it is going to turn into an abrasive sludge that will actually end up blocking up your machine. Hence, please remember SPARINGLY and INFREQUENTLY, no oil is far better than an excess.

Safety Information

Please take a great deal of care when handling Atom, the tines are sharp and can cause injury. Be especially careful with the sharp tines on the lick-in drum.

Always keep this carder away from children.

Do not use while wearing loose clothing, scarves, shawls, or jewelry that could potentially get caught in the drums or among the gears on the side of the carder.

Always keep fingers away from the gears when in use.

Do not overload the carder, because jams may cause injury when attempting to clear them.

Credits

Many people both inside and outside of Majacraft have been instrumental in the creation of the Majacraft Atom. The following people require a special mention and I am particularly grateful for their valuable input.

Sincerely

Andrew Poad

Photography

Maddie Knibbs

Suzy Brown

Spinners, weavers, carders and crafty people

Suzy Brown - www.fiberygoodness.com

Pat Old

Janet Day - www.myspinonthings.com.au

Majacraft Magic camp participants - 2024

Recommended Resources

Majacraft - www.majacraft.co.nz

FiberyGoodness - www.fiberygoodness.com

YouTube: <https://www.youtube.com/majacraft1>

Facebook - search for Majacraft on www.facebook.com or find us at the super intuitive <https://www.facebook.com/pages/Majacraft/120699558115947>

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For further information and for a complete range of accessories and products, contact your Majacraft dealer or:

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DEALER

Thank you for choosing and supporting Majacraft, we do what we do for you!

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