

merlin400

Userguide



2021 vers. B03

 **drizzle**

Package contents



1 Merlin400 extractor (1)



1 Herb tube (2)



1 Glass beads (7)



1 Tube holder (3)



1 Oil glass (8)



1 Funnel (4)



1 Package filters (9)



1 Piston (5)



1 Filter holder (10)
and Valve Ball



1 Power cord (6)



1 Syringe (11)



Pipette bottles



Pipette



Tea for first extraction

Welcome to the world of home extraction

Thank you, and congratulations on your new Merlin400 Cannabis extraction unit!

The Merlin400 is built and designed to give you the highest possible quality extraction and yield. It works as an easy 1-click operation extractor out of the box, but you can also control a wide array of parameters by using the Merlin400 App that gives you complete control of your extraction.

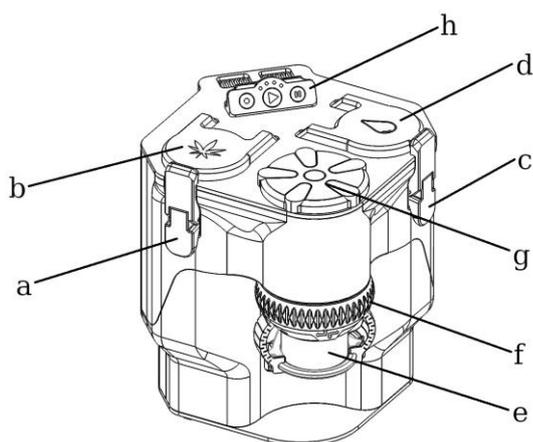
Please use some time to carefully read through this user guide as this will help you get the best possible experience from the machine and prevent potential dangers and avoid damaging the device.

We hope you will enjoy this machine every bit as much as we did create it for you!

Content of your box

| | |
|----------------------|---|
| <i>Merlin400</i> | The extraction unit |
| <i>Herb tube</i> | This is where the herbs you want to extract goes |
| <i>Tube holder</i> | Support stand for the herb tube during the tube filling |
| <i>Funnel</i> | For filling the herb tube, and adding solvent to the solvent tank |
| <i>Piston</i> | For packing the herbs in the herb tube |
| <i>Oil glass</i> | This is where the end product is collected |
| <i>Glass beads</i> | For preventing steam boiling during distillation |
| <i>Filters</i> | Added to the herb tube to remove plant material |
| <i>Filter holder</i> | Goes in the herb tube first to hold the lower filter |
| <i>Valve ball</i> | Goes in the herb tube to prevent dripping from herb tube |
| <i>Power cord</i> | Plug it into the wall for powering the machine |

Merlin400 details



- a Extractor latch
- b Extractor lid
- c Tank latch
- d Tank for alcohol
- e Oil glass
- f Elevator ring
- g Distiller lid
- h User interface

Technical terms used in this userguide

| | |
|--------------------|---|
| Extraction process | The process where Merlin400 dissolves the cannabinoids in alcohol |
| Distillation | The process where Merlin400 removes the alcohol from the extract |
| Decarboxylation | A process that converts CBDA and THCA to CBD and THC |
| IPA | Isopropanol, Isopropylalcohol, 2-propanol |
| Alcohol | Either $\geq 99\%$ IPA or 96% ethanol. |

Symbols used in this userguide



Danger!

Failure to observe the warning could result in life threatening injury by electric shock.



Important!

Failure to observe the warning could result in injury or damage to the appliance.



Danger of burns!

Failure to observe the warning could result in scalds or burns.



Please note:

This symbol identifies important advice or information for the user.

Safety!

Merlin400 is intended for indoor use in, e.g., kitchens and non-professional use only. Any other use is considered improper and may result in personal injury or property damage. Drizzle is not responsible for damage caused by improper use.

Always observe the following guidelines to avoid injury due to improper use:



- The extractor may only be operated by persons who are at least 18 years old
- The extractor must not be placed in a cabinet during operation
- There must always be air circulation around the extractor
- The extractor must be disconnected from the power supply when it is unattended
- Never open any of the lids while the extractor is in operation
- The heating plate under the Distiller will be hot during operation, and touching it may cause burns
- Do not use the extractor if the power cord or other parts are damaged
- Never immerse the extractor in water

Installation



Place your Merlin400 on a level, clean surface. Plug the **power cord (6)** into the machine socket and the wall outlet. Be sure that the outlet voltage is correct. Merlin400 has a label that states the correct and nominal voltage.

Your Merlin400 will turn on, perform a self-test, and enter ready-state where the play symbol (green triangle) goes from flashing light to a constant green light. Then the machine is ready to be used. If the play symbol does not go to ready state after five minutes, restart the Merlin400 by turning the power off, wait 10 sec. Then turn power back on again.

Merlin400 can connect to your home WiFi giving possibilities for registering and updates. Please go to the webpage for more information on this: www.drizzle.life

Connecting to WiFi also gives access to advanced features in your Merlin400 via the Merlin400 App

Overview of Merlin400

Extractor

The extractor is where Merlin400 separates the cannabinoids and terpenes from the plant material. The extractor is provided with a **latch (a)** and a **lid (b)**.

The extractor consists of 2 serviceable parts:

- the **Herb tube (2)**, that holds the herbs for extraction
 - the **filter holder (10)** together with a valve ball and filter
- see 'loading the herb tube' for more details on filling the extractor

Distiller

The distiller is where the solvent is boiled off, and the final cannabis extract is obtained.

The distiller consists of:

- the distillation chamber (can be accessed from the top for cleaning by removing the **Distiller lid (g)**)
- the elevator/heater (tightening the **oil glass (e)** to the bottom of the distiller using the **elevator ring (f)**, and applying heat for the distillation process)
- the **oil glass (e)**, where the end product is collected
- the navigation lights (illuminating the oil glass, giving visibility and navigation info)

Tank

The tank holds the alcohol for extraction and collects the alcohol again after distillation.

The tank is provided with a **latch (c)** and a **lid (d)**.

The tank can be accessed from the top through the **lid (d)** and for alcohol refill.

Preparing for extraction

Preparing the alcohol

Prepare your unit by filling approximately 600 ml IPA in the tank or just top it up if used before.



To fill the tank, open the **lid (d)** with the liquid-drop mark and add solvent up to 3 cm from the upper edge. Use the **funnel (4)** for this purpose. Close the lid, and you are ready to go.

An extraction will require 500 ml alcohol present in the tank. The first approximately 185 ml alcohol will soak the herbs - this part will not be recycled automatically. There must always be min 500 ml alcohol available for Merlin400 to work – so you must always refill the tank before extraction.

Compatible solvents

The Merlin400 is designed and optimized for using IPA.



Even though the machine will work with 96% ethanol, it is recommended that you only use 99% IPA or better in the Merlin400. Using any other solvents apart from IPA and 96% ethanol is not recommended and will void the guarantee. Please note that any other alcohols such as methanol can be highly toxic and may never be used.



Alcohols, including IPA, are highly flammable. Although the Merlin400 is a closed-loop system recycling most of the solvent, it is equipped with an alcohol sensor for added safety. However, you should always avoid smoking and open fire near the machine when it is active and generally pay attention when handling highly flammable liquids.

Preparation of herbs

The herb tube holds approx. 20 to 40 grams of herbs for extraction.

The actual weight will vary, depending on the contents of oils and seeds in the herbs. Oil-rich cannabis will pack more densely than oil-scarce industrial hemp and lower quality cannabis (trim etc).



Seeds are heavy, compared to buds. Seed-rich herbs will have a higher weight compared to volume. Hemp seeds take up space but will not influence the extraction in other ways (hemp seed oil is made by pressure extraction, as seeds do not react to alcohol extraction).

Before loading the herb tube, the herbs must be blended/grinded to a 2-5 mm grain size. Bigger stalks (over 1-2 cm) should be removed. All buds should be blended to granules and bigger.

Optionally weigh your herbs to select a proper amount for your extraction:

20 - 35 grams for oil-rich cannabis without seeds, 30 - 40 grams for oil-scarce hemp/trim.

Loading the herb tube

Open the **lid (b)** with the hemp-leaf mark, remove the **herb tube (2)** from the extractor and place it in the **tube holder (3)**.

Place the valve ball, **filter holder (10)** and a **filter (9)** in the **herb tube (2)**. Place the **funnel (4)** on top.

Fill the tube with herbs.



Use the **piston (5)** to compress the herbs, using moderate force.

Continue filling and compressing, using gradually increasing force, until the herbs reach the upper inner edge of the tube. You can apply rather much pressure, especially when packing hemp / trim.



You want the herbs in the tube to be packed tightly, without air- pockets (which can reduce the extraction efficiency), but not so tight that the alcohol will have difficulties soaking the material. You should be able to compress the herbs a bit with a finger, but the herbs should bounce back up when you release the pressure, with a tight but flexible feel.

When the tube is full, remove the **funnel (4)**, place a **filter (9)** on top of the herbs, and use the **piston (5)** to squeeze the filter under the top edge of the tube. Avoid free space between the herbs and the top edge. Blow the surface of the filter clean for herb dust.

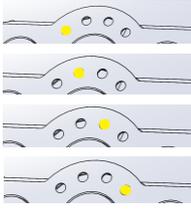
User interface

The machine has a user interface (h) at the top consisting of 3 buttons and 4 lights. With the onboard buttons, you can choose and execute all basic functions.



When the Merlin400 is turned on by connecting the power cord, the green triangle will flash for approximately 1 min while the machine performs a series of self-checks. When the green triangle stops flashing, the Merlin400 is ready to use.

There are three buttons. The left button is used to select one of the four built-in programs. Each time you press the button, the lights will toggle from left to right.



Default program 1: used for fully automated extraction (approx. 130 min)

Program 2: used for decarboxylating your oil (approx. 60 min)

Program 3: used for heating your mix with a food oil (approx. 10 min)

Program 4: used for distilling own extraction or used alcohol for reuse

After choosing the desired program press the green triangle to execute the program. Merlin will perform some initial calibration and then run the program.

If you wish to cancel your extraction for any reason, you can do so by pressing the left and right buttons at the same time for approximately 3 seconds. The green triangle will flash red, and the machine will be reset. Merlin400 will stop where it is in its progress, and you need to clean up everything manually.



Be careful as warm liquid can be present and be spilled if you remove the oil glass. Also be aware that your plant material might be destroyed if the machine is stopped during extraction.

The right button is used to pause the process when the distillation has started. You can restart the distillation later, by running program 4.

Program 1 can also be used to clean the tubing in the machine. This should be done after approximately 20 extractions. Don't put any filter or plant material in the **herb tube (2)**, just run program 1. After the program has finished, open the **lid (b)** from the **extractor (b)** and transfer the excess IPA from the **extractor (b)** by use of the 60 ml **syringe (11)** to the **distiller (g)** by removing **lid (g)**. Then start program 4.

After extraction options

Removing the oil glass with the extracted cannabis oil



During the distillation there is a risk of getting burned if you touch the **oil glass (6)** or the heating plate below. Be extra cautious when unscrewing the **elevator ring (f)** and removing the oil glass after extraction.

Merlin400 uses a patented technique to do the extraction and distillation at a low temperature. This means that the pure extracted oil will mostly contain the acid forms of the cannabinoids, e.g. CBD-A etc. This is done to preserve most of the terpenes in the oil, giving the oil a delicious smell and taste. However, you might want to have the non-acid form of your extracted cannabinoids, e.g. CBD, THC-A etc. This can be done by decarboxylating your oil using the build-in Program 2 (decarboxylation).

To mix your extract with a carrier oil or when filling your vaporizer you can heat the extract using Program 3 (heating) to make it more fluid.

When the herb tube is removed after an extraction, there will be some used alcohol left in the tube. It can either be discarded or you can reuse it by collecting it and it to the Distiller through the **lid (g)**. Program 4 (distillation) will recycle the alcohol for later use.



Remember to check that there is free space in the tank before running Program 4. Also remember to place an oil glass under the Distiller before use.

Maintenance



Empty the **herb tube (2)** in a dish and remove the **valve ball** and the **filter holder (10)** from the wet herbs. Be careful if it still contains any liquid. Rinse it under running water and dry it. Never use a dishwasher!

To avoid any risk of fire, discard the used alcohol-soaked herbs in the toilet. Be careful that the **filter holder (9)** and the **valve ball** does not end up in the toilet.



The **Distiller chamber** and the **Distiller lid (g)** must be cleaned after each extraction performed. Remove the **lid (g)** from **Distiller** and wipe the inside surface with an alcohol-soaked dish cloth and clean the inside of the **lid (g)**. Never use any other chemicals.

Never leave water inside the machine as even a small amount will reduce the quality of the next extraction.



The **rubber tightening ring** under the distiller lid (g) can easily be removed for cleaning. Remember to also clean the tightening ring between the distiller and the oil glass.

Disposal

Rules for the proper disposal of the product in accordance with the European Directive 2002/96/EC. At the end of its life, the product should not be disposed of with normal household waste.



It can be delivered to the designated centers for separate collection provided by the municipality's administration, or at dealers who provide this service.

Disposing of a household appliance separately allows for the prevention of negative consequences for the environment and health, which comes from inappropriate disposal and enables the recycling of materials, in order to achieve significant energy and resource savings.

In order to mark the obligation to dispose of the household appliances separately, the mark has been affixed to the product with the crossed-out wheeled bin.

Technical Specification

| | |
|------------------------------|-------------------------------------|
| Voltage | 100-240VAC – 50/60 Hz |
| Power use (max) | 100 W |
| Air pressure (height) | up to 4000 m above sea level |
| Extractor capacity | 20-40 grams of herb |
| Container capacity | 600 ml IPA |
| Size D x W x H | 210 x 210 x 235 mm |
| Weight | 2,5 kg |

The appliance complies with the following Community directives:



“Low Voltage Directive” 2014/35/EC and subsequent amendments

“EMC Directive” 2014/30/EC and subsequent amendments

“RoHS Directive” 2011/65/EC

“Power Management” 1275/2008/EC

“WEEE” 2002/96/EC

The materials and items intended to come into contact with food are in accordance with the requirements of European legislation 1935/2004/EC and 10/2011/EC