

# INSTRUCTIONS

## Derminator® 2

Revision of January 12, 2025



Don't let the device needle without needle cartridge mounted or a magnet will fly out! Just put it back in if that happens.

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## PRIOR READING



How to use the buttons (1 ½ min watch and start needling!)

<https://www.youtube.com/watch?v=l4SdrL6-XPY>



Important general dermaneedling guidelines

<https://owndoc.com/dermaneedling-guidelines.pdf>



Smartphone-optimized Quick-Start guide

<https://derminator.com/Derminator-quick-start-guide.html>



Derminator® 2 info page with videos

<https://derminator.com/>



How to properly attach the rubber feet to the machine

<https://derminator.com/Mounting-the-rubber-feet.pdf>



The latest version of this user manual

<https://derminator.com/Derminator2-instructions.pdf>



Dermaneedling articles and our old forum with 3000 questions answered

<https://owndoc.com>



The dermaneedling (and Derminator) part of our store

<https://owndoc.shop/Dermaneedling>

## ADDITIONAL ITEMS IN THE BOX



Protective cap that prevents the reciprocating magnet from getting attracted out of the hand unit by a metal object when you put it somewhere after use. The motor of the machine can never break because its sole moving part is a magnet that actuates the needle cartridge and causes sensor feedback to the machine to tell it how deep the needles are needling. It will fly high into the air when you run the machine without cartridge! Just put it back in - it's being retained by a tiny magnet inside. You can buy a spare magnet for \$3.



Ear plugs for when you're needling the face. The machine is loud because its motor is so strong that it can be used to needle over hair and also so that it can move so swiftly in & back out of the skin that it does not cause microtearing. And quick jabs hurt less than slow ones!



Rubber feet to prevent the device from sliding. They fit perfectly flush with the base but only when you rotate them into their proper orientation! Push and rotate them into the bottom case holes until they have no uneven gaps.



1-needle cartridge. All our cartridges arrive sterilized and do not expire. This is the single needle cartridge. Used on wrinkles, elongated scars, stretch marks and acne scars and other places where you want fine control. The single needle also can, with a "trick", reach 3.5 mm depth. See the full PDF user manual.



9-needle cartridge. 9 needles go 33% slower than 12 needles but, at least in theory, also hurt 33% less. We recommend using 9 needles only for people who want to promote hair growth and needle over hair. The risk of the hair getting entangled and stalling or loosening the cartridge is 33% less than with 12 needles.



12-needle cartridge. The workhorse for general skin treatment. We sell four times more of this cartridge than of the 9-needle one.

## INTRODUCING THE DERMINATOR 2

### Cartridges, speed and depth

Cartridges are available with 1, 9 or 12 needles. They have a silicone spring/sleeve to prevent blood or skin treatment serums from entering the device.

The needling speed can be slow (3 Hz), medium (5 Hz) or fast (25 Hz). The slower speeds are rarely used, mainly to emulate a dermastamp or single needle, when very precise treatment of very small areas are required. How to estimate the treatment time for an area of skin is explained further in this manual.

The needling depth is set with a push button and can be set to 0.25, 0.5, 0.75, 1, 1.25, 1.5, 1.75, 2, 2.25 or 2.5 mm.

Using a “trick” (falsely claiming to the machine that a 9- or 12-needle cartridge is mounted when a 1-needle cartridge is mounted), the 1-needle cartridge will then needle 1 mm deeper than the needling depth setting on the machine, achieving an actual depth range between 1.25 and 3.5 mm. **This depth can cause nerve injury and is only to be used on the rare type of scar tissue that needs such a depth, and should only be used by a dermatologist or plastic surgeon.**

[This 90-second video](#) shows how the buttons are used and not get stuck in Timer mode).

### Smart Timer

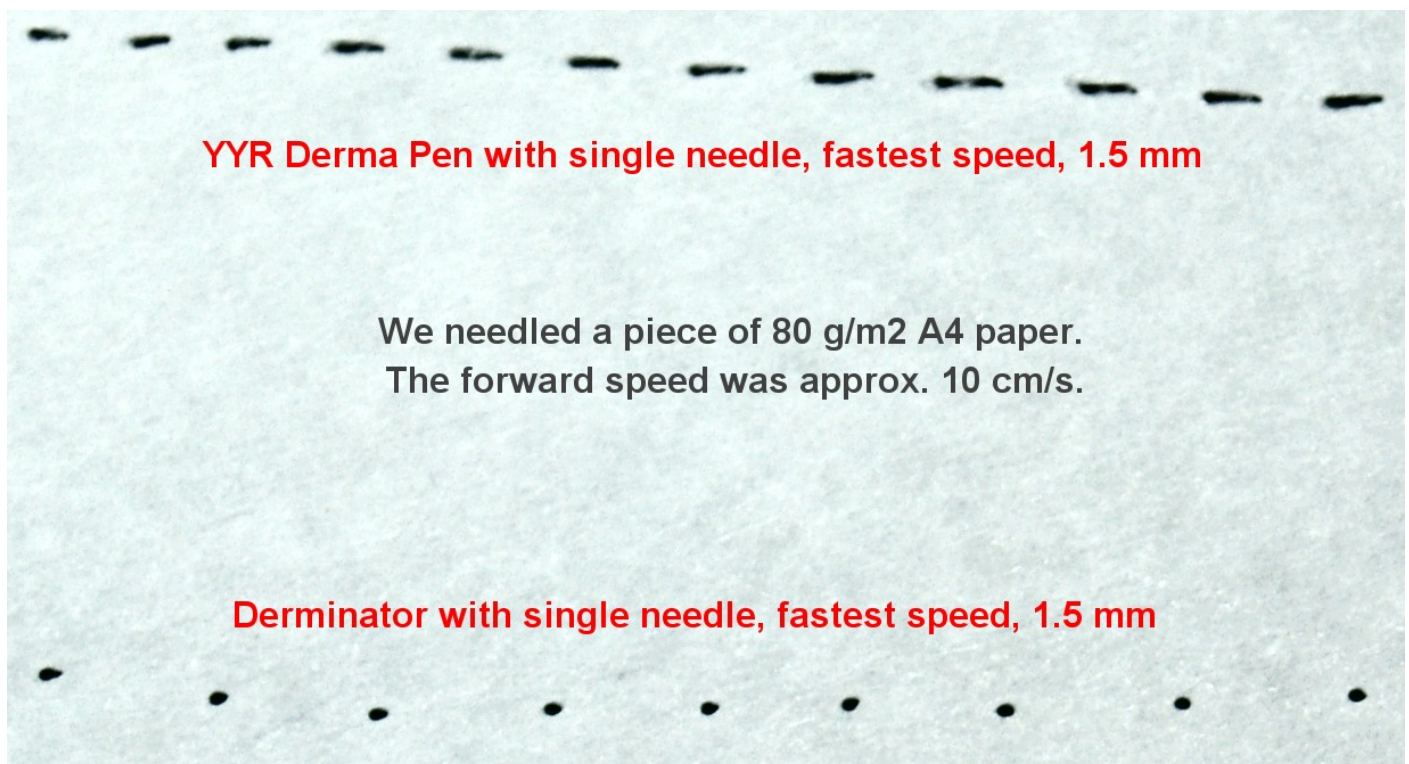
The Derminator® 2 is able to count down the time required to optimally treat a skin patch of a certain area by calculating the treatment time required based on the needling frequency used to automatically result in the optimal prick density. All you do is select inches or cm and provide the skin area as length and width. Then you can start needling at any punching speed and even vary that speed. The machine will stop automatically when the skin has been treated optimally. All the user needs to do is move the machine smoothly at least once over the entire area during the allotted, calculated total treatment time. The remaining time is displayed as it counts down. Exactly how to use the timer is explained further in this manual.

**Don't use the timer for regular needling sessions – it's intended for inexperienced users and needs quite a lot of button pushes. If you find yourself often unintentionally “ending up” with the timer function asking for input, watch the above video on how to avoid that.**



## No pore tearing with the Derminator

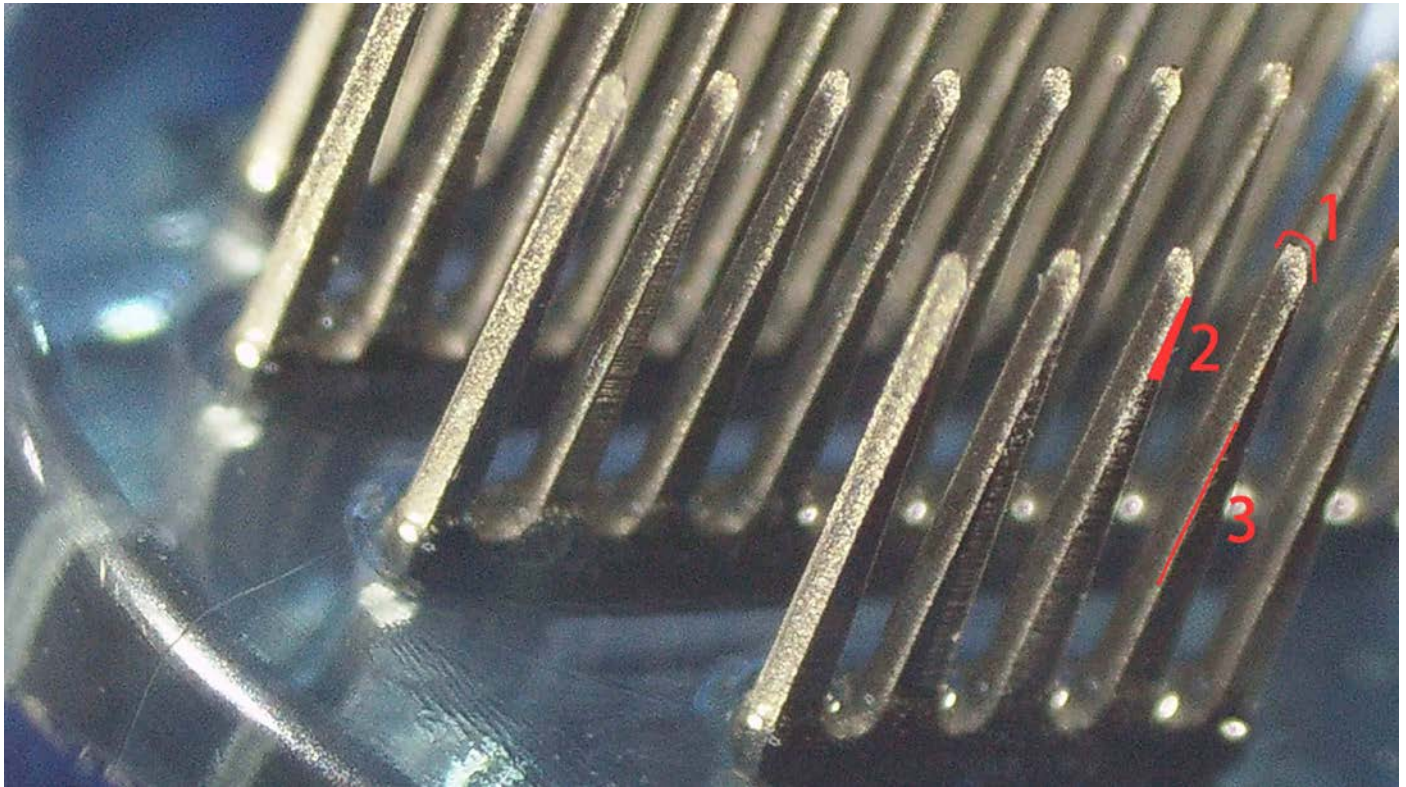
This is what “micro”-tearing looks like at its most extreme. Note that skin is very flexible and paper is not. Therefore, when needling paper, things look much worse. We made this photo by using one of the worst quality competing machines on the market at the time. It is caused by a pen-type device having a sewing-machine-like motor which spends much time with the needles down instead of pushing and pulling the needles in and out very rapidly like the Derminator does. It looks totally fake but we most assuredly were utterly horrified.



[Here we have a video](#) where we use a microscope and needle paper with our device and another device. It's filmed in a single take without any editing. The demonstrated tearing is less severe as in the above photo but still very substantial. Microtearing rips the edges of pores, which can cause permanent pore (boundary) enlargement. Only a very powerful motor can move the needles in and out in a few milliseconds. Engineers call this a “short duty-cycle”. That is why the Derminator® 2 is much louder than Chinese “pen” devices – which all are repurposed, feeble permanent makeup pens. Because the Derminator has a much larger, more powerful motor, designed specifically for the requirements of Dermaneedling. Our motor still weighs a mere 90 grams (3 oz) and is very ergonomic to use.

## No skin damage with the Derminator

This is how all needle cartridges look like with more than 18 or so needles. Here is the 42-“needle” Dr. Pen cartridge under magnification. Their 36-needle one looks the same.



(See red "1") Dr. Pen's fake "needles" do not have a sharp conical tip as we expect needles to have. Instead, Dr. Pen's "needle" tips are ragged, roughly semi-circle-shaped "slicers". It's should be clear that we don't want any of those slicing edges to move **horizontally** though our skin, which always happens to a certain extent due to the horizontal movement of your hand while the needles are inside the skin or in the process of piercing it.

(See red "2") The tip-end of Dr. Pen's "needles" are also shaped like slicing knives, being much thinner than the round diameter of real needles, as well as having sharp edges. Dr. Pen simply can't avoid that, with so many needles in a cartridge. Their 36-needle cartridges also have fake needles. These final "needle" ends can therefore also act like knives, traveling horizontally through the skin. When we use the needle orientation in the photo as an example, this happens when the direction of movement is SE or NW. And the faster you move the pen, the worse the slicing effect will be.

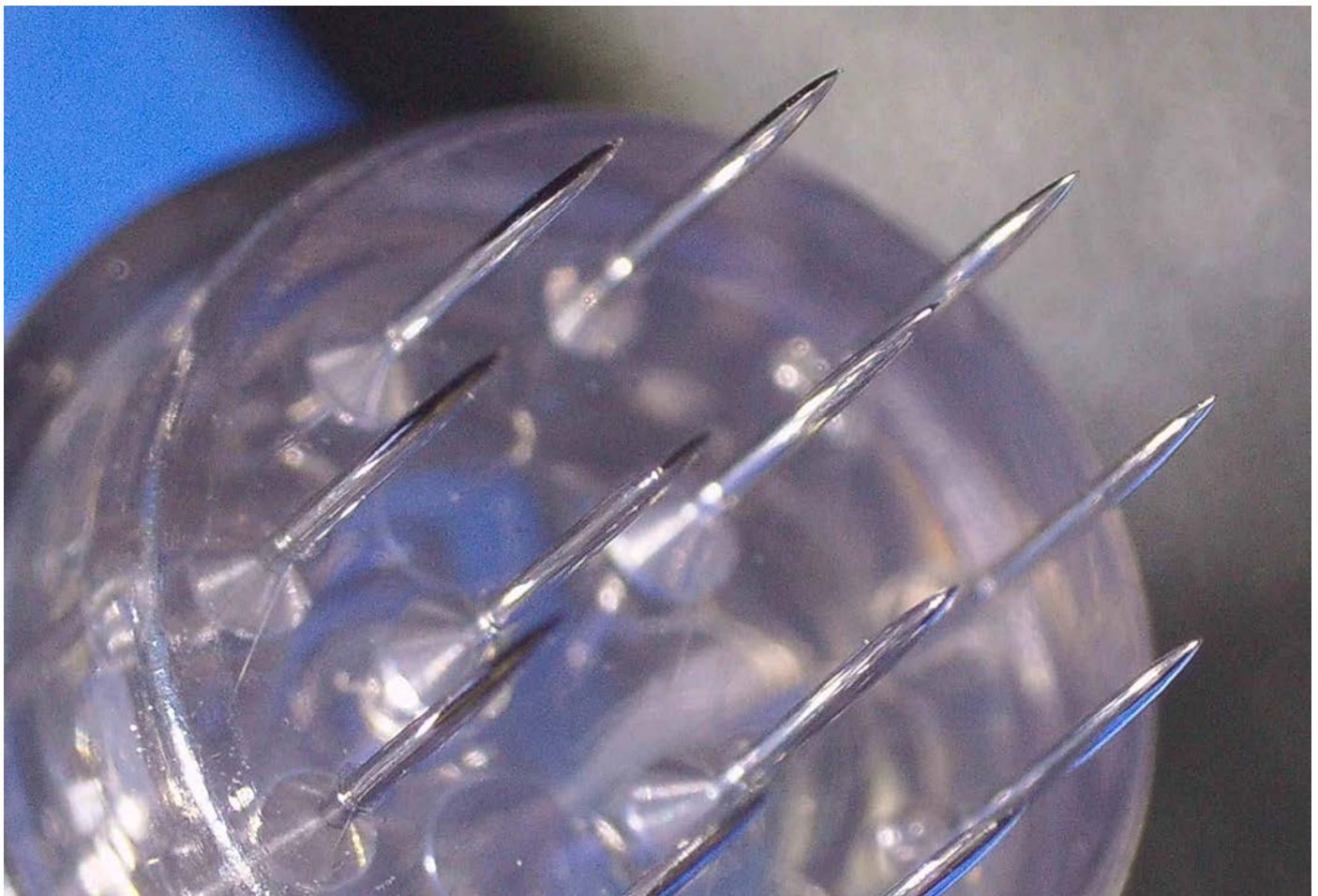
(See red "3") Normal needles aren't flat or quadratic but round. A round needle, when pushed a little horizontally through the skin, either when inside the skin or in the process of penetrating it, has the most possible achievable difficulty, slicing it. Whereas in this case a



quadratic shape presents a 90 degree angle, in this case the angle itself is not dramatically sharp but due to the perfection in its manufacture, it has no bluntness at all on its leading edge - which is not **that** many molecules wide in this case - we have no electron microscope to prove this but we offer a \$1000 award if you can arrange that for us), meaning that it, in certain horizontal movement directions, also will be able to slice through the skin. In our photo's case that would be the directions NE, SE, SW and NW.

As a result of the above issues 1, 2 and 3 with Dr. Pen's and other manufacturers' needle cartridges, any resulting scarring depends on random factors such as the orientation of the "needles" in the cartridge, semi-random factors such as how fast you move the cartridge over the skin and factors that depend on how often you treat and how prone that skin area is to scarring, which again depends on more-or-less random factors such as age, genetics etc. Initially, scarring will be very thin and not prominent.

Our needle cartridges have at most 12 needles, and they look like this:



The next page shows the cheek of one of our customers, who wanted to show us what these “stamped knives” fake needles did to his face. He hoped that our products were able to help him.



## IMPORTANT PRECAUTIONS

- Don't let the device needle without needle cartridge mounted or a magnet will fly out! Just put it back in if that happens. Orient it such that it remains attracted inside.
- When using the 1-needle cartridge, do not tell the machine that a 9- or 12-needle cartridge is mounted, or the machine will needle 1 mm deeper than indicated!
- Don't use the machine near the side of the head where a Cochlear implant is worn.
- Do not reuse needle cartridges on different people. It is always best to discard needle cartridges after use, but they can be re-used, as long as you only use them on the same person and always clean and disinfect the cartridge directly after use.
- Do not pour water or other liquids into the hand unit's opening. You can use a cotton swab, moistened with alcohol at the most. Water will corrode the sensor electronics inside the machine, which will result in it refusing to operate.
- Do not pour water onto the outside of the hand unit, since it is not water proof, and water may corrode the sensor electronics.
- Do not use a disinfecting chemical spray on the hand unit, because certain popular disinfectant mixtures weaken the plastic cover, causing it to crack, when gripped firmly.
- Especially initially, **use one or more size shorter needle length and one week longer interval than used with manual needling**, when using the Derminator® 2. Pushing less hard will make the needles penetrate less. Do not use the timer function initially, since it uses an algorithm for a very thorough (medically optimal for regeneration) treatment.
- Only use the highest repetition rate and/or longer needle lengths when you have experience with the lower repetition rates/shorter needle lengths already, and only **after you have done a test patch with the higher repetition rate/needle length. Even the 0.25 mm setting can cause pain and redness and even pinpoint bleeding because the Derminator's needles penetrate deeper than those of a dermaroller or dermastamp of equivalent needle length** and it makes many more stamps per minute than you can make with a dermastamp. Do not needle too long over the same skin patch if you have not seen how the skin reacts to intensive needling yet. **Always do a very conservative test patch first and then wait!**

## NEEDLING TECHNIQUES (GENERAL)

### 9 and 12-needle cartridge

- Keep the device moving constantly and evenly **in small circling motions** over the skin when using the device, except when needling the scalp. [This video](#) demonstrates the proper technique.
- Keep the cartridge moving over the skin, without lifting it.
- Do not push the cartridge too hard onto the skin.
- Do not hold the cartridge under an angle but flat onto the skin.
- When needling with the 9/12-needle cartridges, the hand unit should be held at a 90 degree angle with the skin, otherwise not all needles will penetrate to their full length. Make sure that the entirety of the cartridge rim touches the skin.
- Do not hover or brush slightly over the skin but apply moderate, constant pressure at all times. This way, you can be assured that the needles penetrate the full length and that the machine is able to regulate needling depth correctly. Do not push too hard, or the skin is squeezed inside the cartridge rim and the result is deeper needling than intended.
- Always keep the device moving in a moderate circular motion, do overlapping spirals with a few cm (1 inch) diameter, with a circling speed depending on the prick density you want to achieve. Always keep the device moving at least slightly, such as not to prick the exact same channels multiple times. Do not move the device in straight lines, otherwise needling density will not be uniform but “stripy”.
- As long as you keep moving in circles, it’s not so important how large those circles are or how fast you’re circling or how quickly you’re navigating around the skin. The only really important thing is to cover all of the to-be-treated skin more or less equally. But you could and perhaps should put increased focus on skin that needs extra treatment.
- Never use needle cartridges not made by us! Even though they may fit, they all have a very different needle length, causing incorrect needling depth.



## 1-needle cartridge

The single needle is used on tiny areas such as acne scars or on elongated scars such as stretch marks. To achieve excellent fine control over the needling process, rest the palm of your hand on the body so that you have an “anchor” to slowly but accurately move along elongated scars or over the perimeter of small scars.

## NEEDLING TECHNIQUES FOR THE SCALP

Hair consists of the very tough Keratin – the same substance nails are made of.

Our recommendation of making circling motions and not lifting the cartridge from the skin does not apply, when needling hair because the longer and thicker the hair cover, the greater the likelihood that the machine will get its needles entangled in the hair.

Entanglement combined with circling (esp. into the direction of untwisting the bayonet fitting of the cartridge) can cause the cartridge to detach and the magnet to fly out.

Even when the above does not happen, when the machine notices it's having difficulties achieving the set needling depth through the hair strands, a warning will appear “Needling hair? Read manual!” and the machine will stop depth-monitoring so that it will not warn about it not being able to consistently needle at the set depth in the future, until you do a factory reset (See “Technician’s menu”).

At the expense of time, any relatively rare stalling issues can be avoided by **making “stamping” motions**, pushing the hand unit down onto the scalp for a fraction of a second (just enough to touch the scalp, lift it up as quickly as you can again), wait half a second and repeat this rapid “touching” motion adjacent to the spot where you just landed the cartridge. If you cover the scalp area like this multiple times, you'll ensure even coverage.

**You can also try making linear motions in the direction of the hair strands, which is much faster.** Move the hairs out of the way of the cartridge with one hand, flattening it away from the direction you move the cartridge towards.

Even faster would be **circling in the opposite direction as used when the cartridge detaches**, since the bayonet fitting tightens in one direction and opens in the other.

## CARTRIDGE MOUNTING

Bayonet fitting. As shown in [this video](#), align the slots in the cartridge with the protrusions on the tip of the hand unit, push the cartridge on and while pushing, rotate the cartridge right a quarter turn until you start to feel resistance, then stop turning at the point of maximum resistance.

## MAGNET REMOVAL

If you want to verify the magnet is inside or want to remove a possible ingress of liquid from the hand unit, you should follow our instructions in how to remove the magnet and **not slam the hand unit's tip onto a hard surface because it will crack its tip and make the entire machine unusable**. This video demonstrates how to remove the magnet safely by slamming the hand unit into the palm of your hand: <https://youtu.be/aTLGUPS-czk?t=53>  
You can also slam the tip flatly onto a surface that's not too hard and not too soft, such as a mouse- or desk mat. If you do not manage to do it that way, an alternative is to "fish" it out magnetically with preferably the long, flattened end of a not-too-thin Allen/Hex/Inbus key.

## CARTRIDGE LIFETIME

The question "how long do the needle cartridges last" is unanswerable, since this depends on how many times its needles have been plunged into the skin, which depends on your treatment schedule and how large the skin areas are you've been treating. Cartridges can be reused but they have become blunt when treatment starts to be more painful than it was when the cartridge was new. It depends on your pain tolerance as to when you should replace them, as long as you keep sterilizing right after use and store them away from sources of contamination.

Note that these cartridges cost less than \$3 and a clinic will charge you approx. \$300 for a single treatment. And disinfection products cost money also and the disinfection procedure can be a bit tricky when a skin serum has entered the cartridge. And your time is also worth something.

The cartridge can be damaged when you push the needles too far past the rim.

## CARE & MAINTENANCE

- The outside of the hand unit should only be cleaned with a damp cloth. Alcohol-based disinfecting products or any other products that contain organic solvents or dissolved chemicals could damage the hand unit enclosure. Organic solvents such as Acetone could abrade the small prongs on the hand unit's tip, making the machine inoperable.
- Never spray any liquids into the hand unit and never spray any liquids onto it. Neither submerge it into liquids, nor keep it in contact with any liquid while performing a treatment.
- Never poke into the back of the hand unit with a sharp object.

Always put the red protective cap back onto the motor after needling because even a small magnetic metal object could attract the motor magnet out, otherwise.

## HAND UNIT CLEANING

If it looks like blood or gliding serum or any other liquid that isn't water may have penetrated past the cartridge's protective silicone spring/shroud and entered the motor unit, there is a risk that if you don't clean the inside of the hand unit immediately, that this residue dries up and ends up "gluing" the reciprocating magnet shut into its tube.

Watch this video <https://youtu.be/aTLGUPS-czk> on how to prevent this by cleaning the hand unit with cotton swabs ("Q-tips") and wiping the magnet after a "messy" needling session.

In extremely rare cases, if skin serum ended up past the cartridge's Silicone sleeve-spring and you did not clean the motor after needling, the magnet can end up get "glued" to a little rubber plug inside the motor unit and the result is an error, as the machine notices it can't needle anymore. When you then remove the magnet, it may pull that little plug with it and if you don't notice that or if the magnet flies out due to you forgetting you should never needle without a needle cartridge mounted, that little black plug may disappear, never to be found again. And when you put the magnet back into the motor, the machine will still not needle anymore and will come with yet another error. We'll then be able to solve that for you if you contact us.

## CARTRIDGE DISINFECTION

Cartridges must be immediately cleaned and disinfected after use, if you want to reuse them. For this there are two options: **CHLORAMINE-T** or **ISOPROPANOL**.

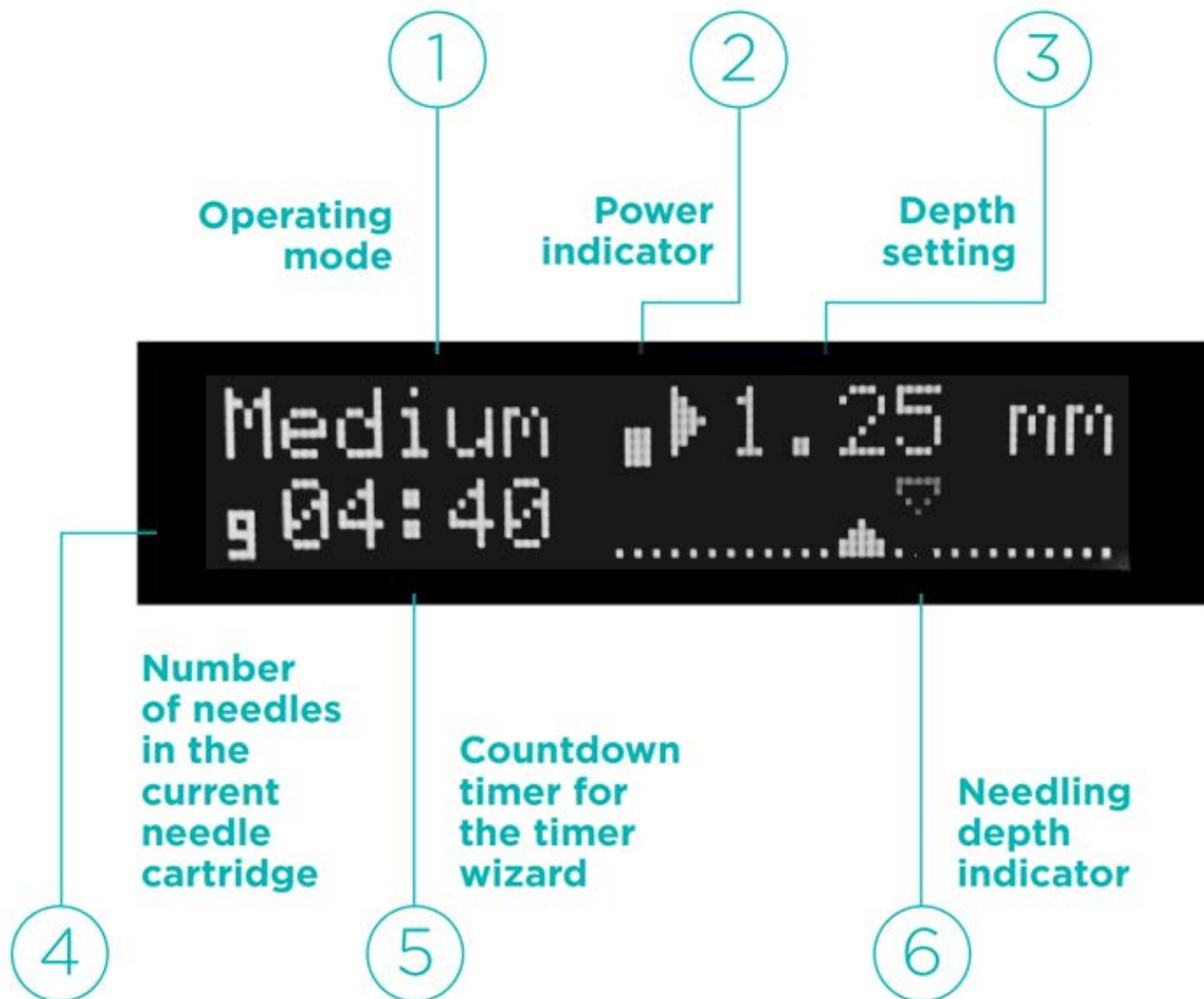
**If you want to use Chloramine-T:** Mix the contents (20 g) of our Chloramine-T product into a litre / quarter gallon of lukewarm water. Use a plastic bottle and shake until it's dissolved. This liquid is more than a mere disinfectant – it actually *sterilizes* things.

After-use disinfection procedure for cartridges:

- Within 5 minutes after use, drip some dishwashing detergent onto the needle(s) and, while holding it under a strong stream of lukewarm tap water, move the plunger **GENTLY and the NEEDLE TIPS NO FURTHER THAN 3 MM BEYOND THE CARTRIDGE RIM OR THE SILICONE SPRING IS PERMANENTLY MADE UNUSABLE** until the soapy solution has enveloped the needles. Keep moving and rinsing until the detergent has been flushed away, also from inside the cartridge.
- Then pour some Chloramine-T solution or Isopropanol 70 to 100% into a cup and add the cartridges to it. Make circling motions with the cup, so that the solution swirls around the cartridges. Stick your fingers into the cup and operate the cartridges' plungers plunger **with the NEEDLE TIPS NO FURTHER THAN 3 MM BEYOND THE CARTRIDGE RIM** while they're submerged. Leave the cartridges for one hour.
- When using Chloramine-T: Rinse the Chloramine-T out of the cartridges, one by one, under a strong stream of lukewarm water, while operating the plunger **with the NEEDLE TIPS NO FURTHER THAN 3 MM BEYOND THE CARTRIDGE RIM**. Tap water does not contain harmful pathogens and even the rare occasional intestinal water-borne parasite is completely unable to infect (via the) skin.
- Leave the cartridges to completely dry in a dust-free spot (and not near a toilet bowl or place where pets have access!) before reuse.



## THE DISPLAY EXPLAINED



## 1. Operating mode

Can be “Slow”, “Medium”, “Fast” or “Timer”, where you can specify a skin area size and the machine calculates how much time should that area be needled with the speed setting(s) used. When you change the needling speed, the remaining time changes as well. The most common mode of operation is the “Fast” setting. **The left, gray button is used to select the operating mode.** If you don’t want to use the rather cumbersome timer function, don’t press [OK] on it but keep pressing the left button until for example “Fast” shows again.

## 2. Power indicator

Shows how hard the machine needs to push the needles to reach the set needling depth. It’s not an important indicator but it shows that the machine works correctly. It’s mostly provided for troubleshooting purposes for our Support.

## 3. Depth setting

From 0 to 2.5 mm in steps of 0.25 mm. **The right, blue button is used to cycle through the needling depth.** Selecting a needling depth of zero functions as the “off button”.

## 4. Shows the number of needles in the currently used needle cartridge

This is a small number in the bottom-left corner. It shows 1, 9 or 12. **VERY important** to ensure that the Timer mode’s calculations use the correct needle cartridge or the timer function will create up to 12 times more pricks than it should, when the user has told the machine that a single-needle cartridge has been mounted, but in fact a 12-needle cartridge is mounted.

**This setting is also important** to inform the sensor of the needle length of the cartridge used, otherwise the machine will needle 1 mm too deep when the user has told the machine that a 9- or 12-needle cartridge has been mounted, while in fact a single-needle

cartridge is mounted. When the user then selects 2.5 mm needling depth, an actual needling depth of 3.5 mm is achieved.

### **IT IS IMPORTANT THAT THE MACHINE ALWAYS SHOWS THE NEEDLE CARTRIDGE TYPE THAT IS ACTUALLY MOUNTED**

When the machine is turned on with the power switch, it asks what cartridge is going to be used: **Single needle?** [Yes] [No]. The left gray button chooses “Yes” and the right blue button chooses “No”. Other options are **9 needles?** [Yes] [No] and **12 needles?** [Yes] [No]

### **VERIFY YOUR SELECTION ON THE DISPLAY**

To remind the user to pay great attention to answering correctly and verify his/her selection, and to remind the user that the only way to switch cartridge type is to turn the power off and on to the machine with the mains switch and then choosing the correct cartridge type, the following warning is flashed after cartridge type selection:

**Always answer                      turn off before  
correctly and...                      cartridge swap!**

## **5. Countdown (remaining seconds) for the Smart Timer**

The smart timer is a useful feature for if you want to perfectly treat a specific scar and you know the skin area's dimensions. The device allows you to specify the area in inch<sup>2</sup> or cm<sup>2</sup> of a skin patch by specifying width and length, and it then calculates, using 250 pricks/cm<sup>2</sup> (the same as 1500 pricks/in<sup>2</sup>), how long you should needle that patch in order to achieve that prick density. The device will stop when the timer has reached zero. All the user has to do is move the device with circular motions equally over the entire patch at least once during that time period. **Do not use the timer when you “just want to needle” because it is too much hassle to press so many buttons. Simply press the left gray “Speed” button to make the timer go away and the device is ready to needle.**

## 6. Needling depth indicator

The bottom triangle indicates the set depth in increments of 0.25 mm. The deepest needling setting, 2.5 mm, shares its position with depth setting 2.25 mm.

The top triangle shows the actual needling depth, or, more accurately phrased, how far the needles are penetrating past the cartridge rim. This indicator serves as a verification that the device is working properly and that the correct needle depth is indeed attained. **It also reminds the user to maintain proper skin contact**, because when you keep lifting the device up and down from the skin, the depth indicator will flutter around too much. With proper needling technique, the actual-depth indicator remains in close proximity to the set-depth indicator, helping to attain a smooth, uniform needling depth, something harder to attain with manual instruments.



## SMART TIMER – HOW TO USE IN DETAIL

One of the main problems with manual dermaneedling is to figure out how many times to roll over the skin for optimum treatment. This involves complex maths because it depends on how wide the roller head is, how many needles are in the roller, the circumference of the roller head and of course the size of the skin area.

With the Derminator® 2, you only need to tell it the size of the skin area and the machine will simply switch off when you've treated the skin optimally. As long as you keep moving the device over the to-be treated skin patch, the device will take care of the rest. You can even change pulsing frequency meanwhile. We programmed the timer of the Derminator® 2 from the medical literature how many pricks need to be made on the skin, per unit of surface area and when that skin area has that number of pricks, it stops. That's all there is to it. And when you want to be conservative, you just stop sooner.

This "automatic mode" is done via the "Timer" function.

**Do not use the timer when you "just want to needle" because it is too much hassle to press so many buttons. Simply press the left gray "Speed" button instead of the blue right [OK] button to make the word "Timer" cycle back to "Slow", "Medium" or "Fast" and then press the right button to start using that function instead.**

Timer mode is entered by pressing the right, blue "Depth" button marked [OK] when the display shows "Timer". The device then asks whether to use inches or cm:

Use in<sup>2</sup> or cm<sup>2</sup>?

[in<sup>2</sup>] [cm<sup>2</sup>]

After having selected the appropriate metric (by pressing the corresponding button below the text), the skin width and length is entered by pressing the corresponding buttons as many times as necessary. The left button increases the Length or Width.

**Length skin area**

[1] [OK]

Pressing the left button increases the value. Pressing the right button accepts the entered value, and the next screen appears:

**Width skin area?**

[1] [OK]

When inches are selected, the max. size that can be entered is 16 inches. When cm are selected, this value is 40. When the maximum value is exceeded, the value cycles back to 1. **Be careful to select the proper metric because if you select inches when you mean cm and enter values in cm, treatment time will be too long!**

Then you can cancel the timer function or turn it on:

**Turn on timer?**

[Cancel] [OK]

When you turn it on, a time in minutes and seconds appears in the lower left corner like this:

**Slow 0.00 mm**

**9 05:02 . . . . .**

This means that when you needle the skin area on the “Slow” setting with the selected 9-needle cartridge, needling will take 5 minutes and 2 seconds. Needling time will shorten very considerably on faster settings, and the device automatically knows that and will turn itself off as soon as the optimal number of pricks have been made.

The device will stop needling and show “**ENDED**”.

When the timer has been set by selecting OK to the final value, you can start needling.

The machine will stop automatically when the needle density has been achieved. Of course you'll have to actually needle the skin all that time and not take relatively long breaks, otherwise you'll get a lesser prick density.

It is not necessary that the actual patch of skin to be treated has a rectangular shape.

## MANUALLY CALCULATING TREATMENT TIME

The device does approx. 25 punches/second on the “Fast” setting. 1500 pricks/in<sup>2</sup>, which is 250 pricks/cm<sup>2</sup> is what dermatologists with dermaneedling experience consider to be the optimum.

### Formula for square inches, using fast speed:

*Treatment (in seconds) = (Area in in<sup>2</sup> x 60) / the nr. of needles in the cartridge*

### Formula for square cm, using fast speed:

*Treatment (in seconds) = (Area in cm<sup>2</sup> x 10) / the nr. of needles in the cartridge*

How exactly you move the device over the skin during that time and how many times the skin is covered by the device is up to you, but it is of course important that the entire area is more or less equally covered, resulting in a uniform redness. Circular motions are the best needling technique with this device.

When in doubt, use the “Timer” function and enter length and width of the skin area., or, when the treated area is not rectangular, estimate its surface area and enter a width and length, resulting in that surface area. Select inches or cm first! The machine will then turn off automatically when you should stop needling that skin area.

All that's required is to know the approximate area. Let's say you're going to treat a circular patch of skin with a diameter of 10 cm. How to set the timer? The area of skin according to the formula  $\pi(\frac{1}{2}d)^2$  equals  $3.14 * 5 * 5 = 78.5 \text{ cm}^2$ . Just use a width of 8 and a length of 10, or vice versa. Or you can just estimate the area. Say you guess that an area is about 60 square inches. Then you enter timer mode, select inches and enter 6 for length and 10 for width.

## ERROR MESSAGES

### Magnet stuck or missing or magnet bad/stuck or bad cartridge

**What to do when you see one of the above messages:**

**Step 1: Is the magnet gone?** The first thing to verify is whether there is a magnet inside the hand unit. Do this by removing the mounted needle cartridge and turn the machine to *Medium* speed and *2.00 mm* deep, while covering the opening with the hand. **If do not feel the magnet pushing**, trying to get out, you have an older-firmware machine and it most likely flew out when you forgot to mount a needle cartridge. **Buy a replacement magnet in that case.**

**Case 2: The cartridge sleeve was disrupted.** If you ever pushed the cartridge plunger too far to slide the needles out, during cleaning for example, then the silicone sleeve/spring will permanently shove over the plunger and the machine gets confused and assumes the magnet has a problem. Try again with a new cartridge and select the CORRECT nr. of needles used.

**Case 3: The magnet is “glued” stuck by blood or gliding serum.** Clean the hand unit and magnet as shown in <https://youtu.be/aTLGUPS-czk> and try again. **Do NOT slam the hand unit’s tip onto a hard surface because it will crack and destroy the machine.**

**Case 4: The magnet is present but is the machine being used on hair?** If you did feel the magnet pushing, then you can see these error messages in case the machine is being *pushed past its limits*, which can happen by needling the scalp, for example. Hair is made of Keratin, the same hard substance nails are made of.

**Case 5: The magnet is present and the machine is used on hairless skin.**

Has the machine been used commercially? **With very intensive use, our older magnets (machines sold before 2020) could lose some strength and would need replacing.** Buy a new magnet in that case. The old magnet can be removed by using the new magnet to pull both of them back out and breaking off the old one before reinserting the new one. If you mistakenly have TWO magnets in the hand unit then that is invisible to the naked eye but



cartridges will be unable to be secured onto the hand unit's tip. If a replacement magnet does not solve the issue, we'll replace your machine.

**Case 6: The magnet is present, and the machine is for moderate personal use.** The most likely reason for a magnet error in this case is a bad cartridge, especially when it has been re-disinfected by the user and its Silicone sleeve been dislodged or degraded by a chemical substance. Try an unused 9/12 needle cartridge. If the problem is solved, ask our support to send you some cartridges to replace the bad one with.

**Case 7: The magnet is present, the machine is used for personal use on non-hairy skin and a new cartridge does not solve the problem.** Contact our support and we'll send you a replacement magnet. The old magnet can be removed by using the new magnet to pull both of them back out and breaking off the old one before reinserting the new one. If you mistakenly have TWO magnets in the hand unit then that is invisible to the naked eye but cartridges will be unable to be secured onto the hand unit's tip. If a replacement magnet does not solve the issue, we'll replace your machine.

## Magnet removed or attracted out

Cause: The reciprocating magnet in the hand unit was there when we shipped the machine to you, but for some reason, the magnet has been removed from the hand unit while the machine was turned off. The most common cause for this is that the hand unit dropped on the floor and the magnet shook out, or that the hand unit has been placed close to a metal object, such as its own bottom case screw. In that case you can't even reach inside to pull the magnet back out so the only solution is to send you a new magnet, with which you can pull the missing one out. Then you'll have two working magnets again - of which one spare. Verify the magnet really is missing by trying to remove it as shown in this video:

<https://youtu.be/aTLGUPS-czk>. Some people are unable to remove the magnet in that way, in that case use the long end of a medium-size hex key to attract the magnet out. You can also measure how far you can push an unbent paper clip etc. into the hole. With magnet present, that would be 35 mm (about 1.5") and without magnet, 55 mm (about 2").

## Magnet flew out! find it/buy new

The machine detected that the magnet flew out of the hand unit because the machine was operated without needle cartridge attached.

## Sensor failure

-The usual cause is that the **reciprocating magnet inside the hand unit is damaged** or that you've added a second magnet into the machine instead of one. You can verify the latter by the fact that the cartridges do not attach properly anymore and that the magnets are very easily able to be shaken out. The length of one magnet is 20 mm (a bit shorter than an inch).

You can verify magnet damage as per <https://youtu.be/aTLGUPS-czk> . Even when a small chip is loose or missing, the device becomes inoperable. These magnets can't damage from their needling "hammering". They can handle orders of magnitude greater g-forces, but when you take it out and drop it, or it flies out and they hit an object (esp. a metal object, a tile or another magnet), the decelerating g-forces are astronomically high and they often shatter, since Neodymium magnet alloys are extremely brittle. Never play around with the magnet, never let it attach to another magnet or a metal object.

- Another possible cause for this error is that a fluid has entered the hand unit and it has penetrated so deeply and so much has entered, that it managed to slowly corrode and short-circuit the magnetic needling depth sensor (called a Hall sensor).

- It is also possible that the error appears that the hand unit cable has been damaged in some way. Examples are it getting stuck in a sharp edge of a door, a pet chewed on it or the cable got pulled so hard that it broke off inside the main unit.

## TROUBLESHOOTING

### Buttons do not work

Many customers leave the protective foil on the console. However, that foil is only intended as a smudge guard during assembly and should be **peeled off and discarded**. It may otherwise prevent the buttons from moving freely upwards so they are permanently kept down, causing problems with the operation of the machine. In extremely rare cases, a button can get stuck. If you're handy with a Philips-head screwdriver you can try carefully adjusting the mainboard and also bending the display board a little (usually inward) to align the buttons better but we'll of course replace the unit if that proves unsuccessful. When successful, we'll give you a \$50 store credit.

### Dead display

Is the unit turned on with the white mains switch? Is the switch broken perhaps (it will rattle or move very freely). Try another outlet, preferably on a different fuse group (likely in a different room - preferably the kitchen). If the switch is broken and you can replace it yourself, we'll issue you a \$50 store credit. Otherwise we'll replace the unit.

In very rare cases, the display's backlight is broken, In that case the machine still works but the display does not. We'll give you a new unit in that case.

### Machine does not needle at all but display works

**Blood or gliding serum may have entered the hand unit and dried up**, "gluing" the reciprocating magnet shut into its tube. Watch this video <https://youtu.be/aTLGUPS-czk> on how to prevent this by cleaning the hand unit and magnet after a "messy" needling session.

To get a "glued" magnet out: Slam the hand unit with the tip down hard onto a wooden surface. This will dislodge the magnet but it may still remain attracted into the hand unit. You'll hear it dislodge though, and when it's loosened you can use the hand slam technique shown in the video to remove the magnet the normal way. Not that this slam needs to

come to an abrupt halt – it's a large decelerating G-force we're after. Alternatively, "fish" it out magnetically with the long end of a not-too-thin Allen/Hex/Inbus key. This problem is rare because the silicone shroud in the cartridge normally prevents liquids from entering.

**It is also theoretically possible that the magnet has rusted** (Neodymium is extremely susceptible to rust) but our magnets have a protective nickel-layer and over that layer a black Teflon (PTFE) coating so that should in principle never happen.

## Needle cartridge and magnet fly off the hand unit

When this happens with a new machine and there is no oily substance between the hand unit's bayonet tip and the needle cartridge, and you have mounted the cartridge such that you stopped exactly at the point of greatest resistance and not any further, then the cause might be a badly injection-molded coil body.

However if a detaching needle cartridge is a new problem, it most likely is caused by lubrication present between hand unit tip and cartridge and the vibration as well as friction from the circling motions slowly loosen the cartridge. Solve this by thoroughly removing any gliding serum or ointment residue from the hand unit tip with a damp cloth with dishwashing liquid, drying it and then using an alcohol wipe on it. Also circle the other way round, since then your motions tighten, instead of loosen the cartridge. Use a new cartridge or clean an old one in soapy water bec. A re-used one may have gliding serum residue on it.

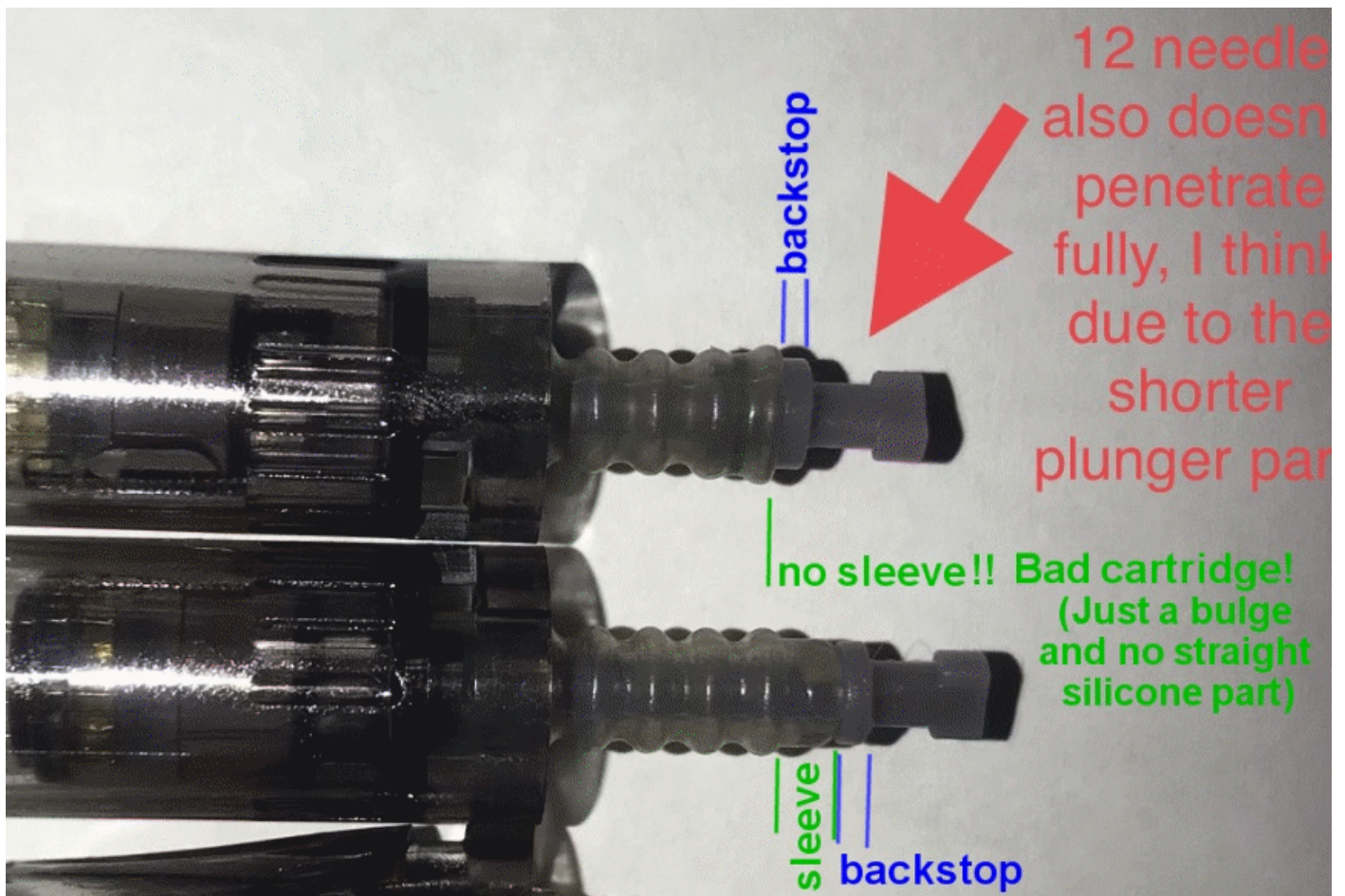
## Needles do not come out at all, or insufficiently so, or scratch, or needle irregularly, or needling stops

- The device's motor is designed to be impossible to fail, meaning all needling problems are caused by damage to the cartridge (the vast majority of cases), or reciprocating magnet in the motor, or some very rare things such as dried-up skin serum inside the motor. A cartridge can damage by pushing its plunger with a finger during disinfection or inspection, making the needles come too far out, which causes the plunger to be shoved into the Silicone spring-sleeve or the sleeve to be shoved further onto the cartridge's stem.
- It can also (extremely rarely) happen that the magnet has a fragment broken off or has rusted. Inspect the magnet as per <https://youtu.be/aTLGUPS-czk>. These magnets can't damage from their needling "hammering". They can handle orders of magnitude greater g-forces, but when you take it out and drop it, or it flies out and they hit an object (esp. a metal object, a tile or another magnet), the decelerating g-forces are astronomically high and they often shatter, since Neodymium magnet alloys are very brittle. Never play around with the magnet, never let it attach to another magnet or a metal object.
- Irregular needling or even a complete stopping of the needling is nearly always caused by mishandling the cartridge by pushing with your finger the needles out during cleaning or inspection. Verify that the Silicone spring-sleeve looks OK:

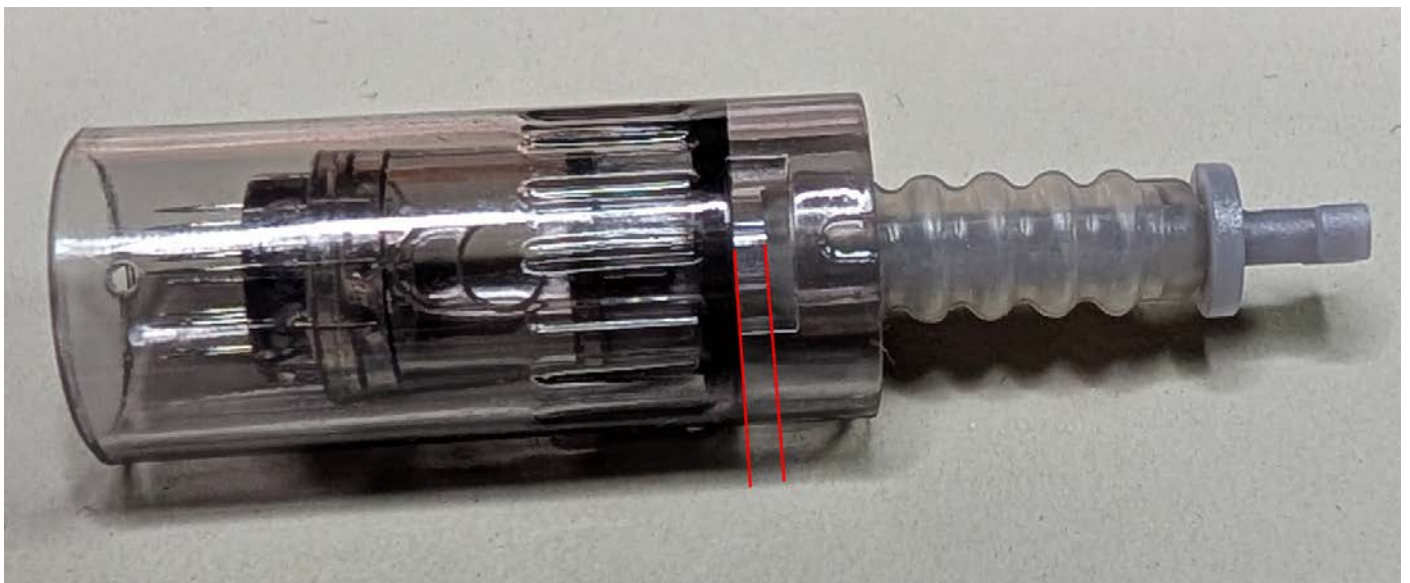
**(1) The top cartridge has a problem: The end of the silicone spring is "crumpled up" and missing a few mm of straightness.** This is caused by pushing the plunger to make the needles come out and you push a too far/hard. This is unfixable – the cartridge has become bad and has to be discarded. We warn several times in this manual not to push the plunger too far or too forcefully. Only gentle force should be used.

An example of how such a damaged cartridge looks is the top cartridge in the next photo. The bottom cartridge is OK.





(2) If there is nothing visible as in the photo, then the silicone sleeve has been shoved a couple mm too far over the cartridge stem. This is solvable by gently pulling the sleeve towards the backstop until is a gap, approximately as wide or a little wider as visible below:



If you are absolutely certain that the problem also occurs with a new cartridge that you never operated with your finger, then please first consider the following “imaginary” causes:

(1) **The number of needles in the cartridge has been incorrectly set to "1" instead of 9 or 12 or vice versa.** Verify that that question was answered correctly, to the machine. That question must be re-answered whenever the cartridge type is changed, so you must turn the machine off so it will ask you that question again.

(2) Due to its superfast in-and-out motion and 0.15 mm diameter needles (2.7 times smaller cross-sectional area than the needles on all competing devices), **our machine is MUCH less painful than others** and when using the single needle, most people feel nothing at all entering the skin and thus think the machine doesn't work.

(4) Due to the flickering of modern lighting, combined with the oscillating of the needles, the stroboscopic effect makes the needles come out irregularly and not deep enough or even not at all. This effect becomes even worse when a camera-shutter-effect is added. **So neither the human eye, nor a smartphone can demonstrate irregular needling. However the sound the device makes on FAST speed is a reliable way to diagnose irregular needling.**

(5) A similar phenomenon in (4) applies to video. It's therefore not useful to send us a video to demonstrate that needles do not sufficiently come out of the cartridge. Actual test needling on paper is required, as detailed further.

(6) It takes at least six seconds on the SLOW needling setting for the needles to appear past the cartridge rim. So when you feel nothing, the first few seconds on SLOW or MEDIUM, that's normal and by design. The correct needling depth force is still being ramped up. On FAST this takes less than a second, however.

(7) It is completely normal and by design that needling is irregular when you move the orientation of the hand unit, especially from pointing the tip down to up and vice versa. This because the force, needed to move the reciprocating motor magnet inside is significantly less when gravity is pulling the magnet down. The motor can needle faster, when it has to struggle less against gravity, and it always needles as fast as it can, on the FAST setting.

## What to do in case of all needling & magnet problems if you need our support

(1) Please attach a picture of the display, when needling 1.0 mm deep in the air on FAST speed. This will allow us to see whether the machine thinks it's needling correctly deep and without expending too much effort. Use the 9 or 12-needle cartridge.

(2) Please attach sharp close-up pictures (taken from the side) of the cartridge used, when the problem occurred. One mounted onto the machine, one extreme close-up of the cartridge unmounted, lying on the table. We need to be able to inspect the Silicone sleeve-spring.

(3) Needle a stretched-taut piece of paper, with one hand over a glass or cup, while needling with the other hand with a 9 or 12-needle cartridge at 1 mm depth and hold it against the light and report whether you see holes.

(4) Tell us exactly the depth of the “motor hole”:

- First remove the magnet as per <https://youtu.be/aTLGUPS-czk> this also will ensure that it hasn't been “glued” shut by dried-up blood or skin serum. If you can't remove the magnet via the method shown in the video, use the long end of a medium-size Allen/Hex/Inbus key to extract it. If you still can't do that, never mind.
- Then, insert something such as a thin stick into the motor hole until you reach the bottom. You can use an unbent paper clip if you make sure not to poke it into the closed-cell rubber plug at the bottom of the hole.
- Mark off whatever you stuck into the hole with a thin permanent marker or pen/pencil exactly where it emerges from the tip of the bayonet fitting. Then measure how deep the hole is with a ruler:

35 mm or 1  $\frac{3}{8}$ ” means both the magnet as well as the damper plug are present.

40 mm or 1  $\frac{9}{16}$ ” means the magnet is present but the damper plug is missing.

55 mm or 2  $\frac{3}{16}$ ” means the damper plug is present but the magnet is missing.

60 mm or 2  $\frac{3}{8}$ ” means both the magnet as well as the damper plug are missing.

## WARRANTY POLICY

### Lifetime warranty

As long as it pertains a production flaw, defective machines are replaced by brand new, never-used machines at our cost, without the need to return the old machine, or we pay for return postage in rare cases when we want to diagnose an issue.

Examples of production flaws are stuck buttons, a broken mains switch, a defective display, "SENSOR ERROR" in most cases, a damaged bayonet tip in most cases and in nearly all cases anything else that makes the machine stop working properly with a new, undamaged needle cartridge. Exceptions are rare but the following cases we encounter did not qualify: Poking a sharp object deep and hard into the motor and a dog chewing the hand unit cord into a frayed mess.

### How to get support



You can reach our support via <https://owndoc.support>



## CONFIGURATIONS SETTINGS

The configurations settings are something we mainly provided to be able to allow existing customers to re-calibrate their machine to cartridges we may sell in the future. They also provides some diagnostic information as well as the ability to turn some device options on or off. The menu is entered by turning the mains switch on while holding the left console button down. Firmware versions of 3.3 and below only show the firmware version and have no further options. The right console button changes the displayed setting or executes it. Settings are saved immediately. This mode can only be left by turning off the mains switch. Options not listed below should never be modified by the user unless we indicate that.

### Firmware version

Shows the firmware version. We may ask for it, in order to troubleshoot your device.

### Magnet monitor

When turned OFF, the machine will not check whether the magnet is present, flew out, is stuck or otherwise has a problem.

### Swap warning

When turned OFF, the machine will not warn about the importance of setting the correct number of cartridge needles. A convenient speedup for clinicians.

### Show Hall value

Shows the magnetic sensor's measured value. Usually, when it is closest to 500, the magnet is present. When it is closest to 510, there is no magnet in the hand unit.

### Recalibrate

If we're ever start selling different cartridges, the user can recalibrate the machine by mounting a sacrificial 9- or 12-needle cartridge and following the machine's instructions.

### Factory Reset

Restores the machine to its original settings, EXCEPT any recalibrations that were done.



## COMPLIANCE STATEMENTS

### FCC

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 and part 18 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. Consult the dealer or an experienced radio/TV technician for help.

IMPORTANT: Any changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the device. Where shielded interface cables have been provided with the product or specified additional components or accessories elsewhere defined to be used with the installation of the product, they must be used in order to ensure compliance with FCC regulations.

### Canada

This Class A digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations. Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

### EU

Products with the CE marking comply with the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community and if this product has telecommunication functionality, the R&TTE Directive (1999/5/EC).

Compliance with these directives implies conformity to the following European Norms (in parentheses are the equivalent international standards and regulations):

EN55022 (CISPR 22) – Electromagnetic Interference

EN55024 (IEC61000-4-2, 3, 4, 5, 6, 8, 11) – Electromagnetic Immunity

EN61000-3-2 (IEC61000-3-2) – Power Line Harmonics

EN61000-3-3 (IEC61000-3-3) – Power Line Flicker

EN60950 (IEC60950) – Product Safety

## TECHNICAL SPECIFICATIONS

Needle diameter (all cartridges):	0.15 mm. (38 SWG, 34½ AWG)
Needling depth range:	0.25 to 2.5 mm in increments of 0.25 mm, digitally set. The single needle can be made to penetrate to 3.5 mm.
Available needle cartridges:	<p>1, 9 and 12 needles. Silicone sleeve/spring against blood entering the device.</p> <p>Only our brand cartridges can be used.</p> <p><b>Cartridges for the older model Derminator can't be used and vice versa.</b></p>
Needling frequencies:	3, 5 and 25 Hz.
Max. nr. skin pricks per minute:	18000
Speed of treatment with optimum prick density (250 / cm² or 1500 / in²) for best Eollagen and Eelastin regeneration results:	<p>72 cm² per minute or 12 in² per minute with the 12-needle cartridge.</p> <p>A cheek takes about 45 seconds to treat with the 12-needle cartridge.</p> <p>A typical stomach area takes approximately 7.5 minutes with the 12-needle cartridge.</p>
Noise level:	<p>Slow: 45 dBA. Medium: 50 dBA. Fast: 55 dBA.</p> <p>Louder than Chinese "buzzers" but still very tolerable.</p> <p>A device that does not cause microtearing and fully inserts the needles as quick (= painlessly) as possible is louder than a device without much accelerating/penetrating power.</p> <p>Currently available Chinese-made consumer devices are faking it - they are based on permanent makeup technology.</p> <p>They tear and scrape and do not go as deep as they claim.</p> <p>They grossly overstate their needling frequency as well.</p> <p>Microtearing is standard with all those pen-shaped devices.</p>
Motor design/maintenance:	<p>Zero-maintenance, extremely durable design.</p> <p><b>The company that makes the Nickel+Teflon-coated magnets in our machine also produces the magnets used in the motors of Tesla EV's.</b> We only work with the best materials and vendors.</p>
Special features:	Smart Timer. The user can specify skin area, the device calculates and counts down the time to move over that skin area with the selected needling frequency, even when that changes while needling.
Safety features:	"Safe return" needles. A back magnet pulls the reciprocating magnet up as soon as the electromagnet is powered down.

[The power supply unit has a medical safety certification.](#)

The entire machine, including the coil in the hand unit operates on 5 Volt only.

The mains power is triple-insulated from the user, which is one level above the safety requirement for medical equipment.

The machine can easily be disinfected inside because the entire inside of the motor is made of plastic - it's a simple plastic tube.

Voltage range (machine can be used worldwide, with \$5 travel adapter, regardless of plug type)

100 to 240 VAC.

Microcontroller:

Norwegian Atmel AVR technology. 20 million operations per second.

Needle depth sensor accuracy:

Top-range Honeywell magnetic field (Hall) sensor. +/- 0.0065 mm accuracy. Verifies and controls the correct needling depth, 9000 times per second.

FCC/CE approval documents:

Test approval: [160466-AU01+E01 FCC report.pdf](#)

Annex A: [160466-AU01+E01 FCC Annex A.pdf](#)

Annex B: [160466-AU01+E01 FCC Annex B.pdf](#)

Annex C: [160466-AU01+E01 FCC Annex C.pdf](#)

## IMPORTANT WARNINGS AND DISCLAIMER

The Derminator® 2 is a medical device, used to administer an invasive medical treatment procedure to the skin. Improper use or over-use may result in permanent disfigurement.

The use of Corticosteroids or plant sterols that impair healing, such as those found in herbs like Sarsaparilla could also result in permanent disfigurement, when combined with dermaneedling.

The patient should not use any supplements, medications or skin products with medicinally active chemicals that interfere with skin healing.

Skin products used during or shortly after dermaneedling should be critically examined for potentially troublesome ingredients.

Needle cartridges should be inspected before use on the presence of bent needle tips (as in sharply bent ends, not as in slightly slanted entire needles).

The same needle cartridge should never be used on different people and cartridges should always be sterilized directly after use or they should be discarded.

**THE DERMINATOR® 2 DEVICE IS SOLD UNDER THE ASSUMPTION THAT ITS USER, BEFORE USING THE DEVICE, FULLY READ AND UNDERSTOOD THIS MANUAL AS WELL OUR GENERAL DERMANEEDLING INSTRUCTIONS LISTED IN THE CHAPTER TITLED "PRIOR READING".**

**OUR ACT OF PROVIDING INSTRUCTIONS, GENERAL GUIDELINES AND GENERAL ADVICE DOES NOT IMPLY THAT WE ASSUME A DOCTOR-PATIENT RELATIONSHIP RESPONSIBILITY FOR A NEGATIVE TREATMENT OUTCOME, REAL OR PERCEIVED BECAUSE OUR GUIDELINES ARE OUR INFORMED OPINION AND NOT MEDICAL ADVICE BY A DOCTOR. SELF-EDUCATE AND WHEN IN DOUBT, ASK A MEDICAL SPECIALIST.**

**IT IS AGAINST OUR TERMS TO USE THIS MACHINE UNLESS ITS OPERATOR AND PATIENT ASSUME FULL LEGAL LIABILITY FOR THE TREATMENT OUTCOME AND WILL INDEMNIFY US AGAINST DAMAGES, REAL OR PERCEIVED.**