



Needle Theory



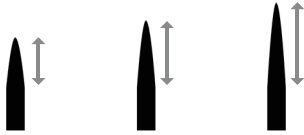
Introduction

Needles are defined by diameter, taper, the number of needles, and needle configuration.

Diameter

The diameter is the width of the needle at its widest point (the shaft, not the tip of the needle). The diameter has an effect on the flow of pigment; the narrower the diameter, the finer and more controlled the flow of pigment will be. Thus, a needle with a narrower diameter would be ideal for precision work i.e. hair strokes and outline work.

The density/saturation of colour increases with a larger diameter sized needle.



Taper

The taper is the length of the needle tip.

Typically, the diameter is seen as the most important feature of a needle, but the taper plays a large part in the overall result.

The taper contributes greatly to the dot (also known as the pixel) size in the skin:

- A shorter taper creates a larger pixel size as the widest point of the needle is closer to the tip, and therefore enters the skin at this point. A shorter taper causes more trauma and more colour saturation. The pigment reaches the skin more quickly, making a shorter tapered needle more ideal for shading and blending techniques such as pendula and whip shading.
- A longer taper creates a smaller pixel size as the widest point of the needle is further away from the tip, making the tip of the needle more pointed and thinner in width. A longer taper causes less trauma and therefore the colour saturation is less. It takes longer for the pigment to reach the skin, making a longer taper more ideal for precision work such as hair strokes and lining work.

Medium and long tapered needles are best when performing Semi Permanent Makeup.

Note

Although a shorter tapered needle (a medium tapered needle in the case of PMU) can technically cause more trauma to the skin, when used correctly they are more appropriate for more sensitive and delicate skin type as they don't tend to be as sharp as longer tapered needles; you will also have better control over the depth.

Needle Length

We must also take needle length into consideration i.e. how long the needle is.

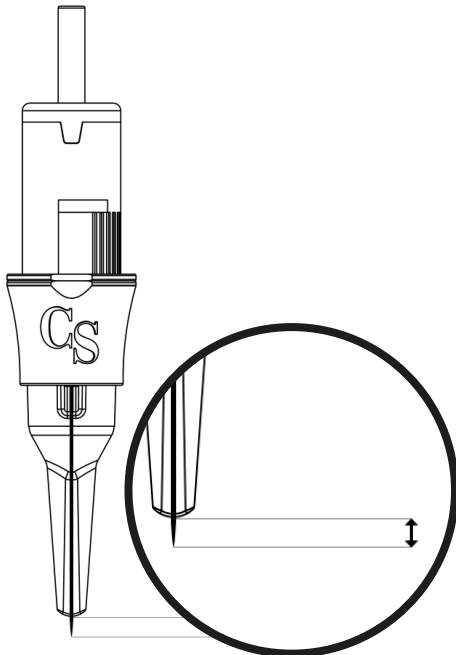
When the needle is too long:

- Pigment isn't implanting well
- The skin looks irritated, warm and sore with little colour
- Pigment is spraying onto the skin
- You are having to apply too much pressure to implant pigment

When the needle is too short:

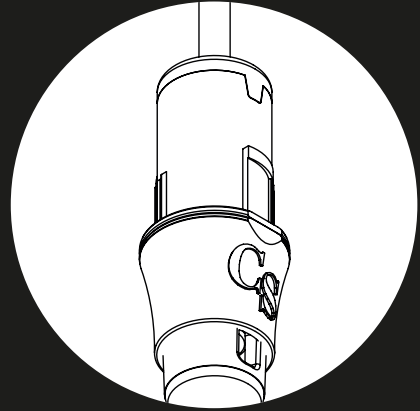
- Pigment is spilling over the area you are working on
- Pigment is turning out very saturated as the whole taper is entering the skin

The longer the needle is, the longer it takes for the **



Top Tip

Don't cover the whole/vent as it's there to release the air pressure.



We must consider all characteristics of the needle when it comes to deciding what result we want to achieve and how appropriate it is to use on the client's skin type.

Other characteristics:

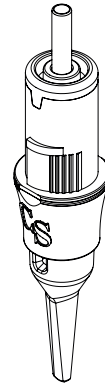
The number of needles = how many are present in the cartridge.



The more needles that are present within the configuration, the more pigment that will be implanted; the amount of pigment embedded multiplies the higher the more needles that are present. This means we can saturate the skin more quickly with less passes, therefore less trauma. Although this can be ideal when we are faced with challenging skin types, we must be aware that the area will saturate quickly, so we need to constantly assess our results before we continue working in order to control the amount of pigment implanted.

Needle configuration = how the needles are grouped together inside the cartridge

There are a number of ways needles can be configured. The way the needles are configured can affect our control and accuracy. It affects the way that pigment is delivered and how the needles hit and penetrate the skin.



Round Liner Needles

RL (Round Liner) needles are either multiple needles that are grouped tightly together, or they are single needles. If there are multiple needles present, they will have very little space between them and therefore pack in more colour more densely, and potentially quicker than a single RL needle. Multiple RL needles should be used with more caution than we realise as they can be invasive and over work and saturate the skin very quickly.

Single RL needles should be used by experienced artists only as they are very sharp and could penetrate too deep into the skin. They are not appropriate for all clientele as they can be quite traumatic to the skin.

Benefits:

Single RL needles are good for: hair strokes, pointillism, pendula, whip shading

Grouped RL needles are good for: pendula, whip shading

When performing pendula and whip shading techniques, work with caution if you are working on sensitive, delicate and cool undertone skin types. It may be best to consider using a Round Shader needle and building up the saturation with more passes.

It will take longer, more passes and therefore more trauma to build the saturation up in the area when using a single round liner needles as opposed to a grouped round liner needle, as of course the more needles that are in the configuration will multiply the colour that's implanted in the same amount of time.

1 Round Liner Needle:



1 Round Liner (single) needles will provide you with a lot of control with accuracy when working, but lack of control with depth. The skins epidermis thickness varies from client to client and 1RL needles have little resistance and can pull and snag the skin which can cause significant trauma if used on the wrong skin type, or used incorrectly. They are ideal for precision work, but should be used with caution and by experienced artists when being used to shade the skin.

Appropriate usages include:

- Hair strokes
- Outline work
- Pendular
- Whip Shading
- Pointillism

Appropriate areas include:

- Eyebrows
- Lips
- Eyeliner

Skin Type:

- Normal, thick and healthy skin types

3 Round Liner Needle:

A 3RL needle can pack in pigment very quickly and create a more saturated result rather than pixelated. When used correctly and on the right skin type, they can be used to shade an area quickly and, in less passes, than a 1RL needle.

Appropriate usages include:

- Pendular
- Whip Shading

Appropriate areas include:

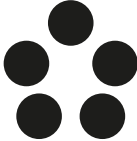
- Eyebrows
- Lips
- Eyeliner

Skin Type:

- Normal, thick and healthy skin types



5 Round Liner Needle:



A 5RL needle is similar to a 3RL needle. A 5RL needle holds two additional needles within the cartridge and will deliver more pigment more quickly.

Appropriate usages include:

- Pendular
- Whip Shading

Appropriate areas include:

- Eyebrows
- Lips
- Eyeliner

Skin Type:

- Normal, thick and healthy skin types

Round Shader Needles:

RS (Round Shader) needles are multiple needles that are loosely grouped together, meaning there is more space between the needles and therefore they don't pack in as much pigment as quickly, making them ideal for shading and blending. They are a good choice of needle when wanting to create a more subtle result or when working with sensitive and delicate skin types.

Appropriate usages include:

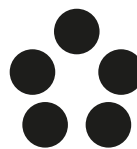
- Pendular
- Whip Shading

Appropriate areas include:

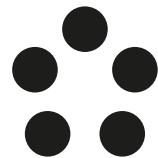
- Eyebrows
- Lips
- Eyeliner

Skin Type:

- Normal, thick and healthy skin types



RL



RS

Benefits:

Round Shader Needles are good for: pendula and whip shading techniques

They are great for packing in colour without causing as much trauma as a RL needle. They can be used to increase colour saturation, blend an area, as well as create sheer and subtle result. The needles are spaced further apart from each other and therefore don't pack in pigment as tight or compact as RL needles.

They can be used on more sensitive skin types when wanting to increase colour saturation as they aren't as sharp as RL needles and you will therefore have more control over the depth. Also, the risk of migration is lower with round shader needles than other needles due to not being so sharp.

You won't have a lot of control over accuracy, but they are an excellent choice for soft blending and shading on delicate skin types in particular.

3 Round Shader Needle:

3 Round Shader Needles are a great option for minimal trauma and packing in a decent amount of colour in less passes. They achieve soft results. You won't have a lot of control over accuracy, but they are an excellent choice for soft blending and shading on delicate skin types in particular.

Appropriate techniques include:

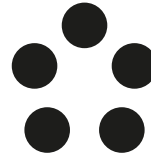
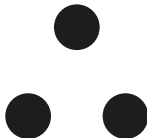
- Pendular
- Whip Shading

Appropriate areas include:

- Eyebrows
- Lips
- Eyeliner

Skin Type:

- Normal, thick and healthy skin types
- Sensitive, delicate and thin skin types



5 Round Shader Needle:

5 Round Shader needles deliver a similar principle to 3 Round Shader needles, however they hold two additional needles within the cartridge will therefore deliver more pigment more quickly.

Appropriate techniques include:

- Pendular
- Whip Shading

Appropriate areas include:

- Eyebrows
- Lips
- Eyeliner

Skin Type:

- Normal, thick and healthy skin types
- Sensitive, delicate and thin skin types

Magnum Needles

Magnum Needles are two stacked and straight rows of needles. They are great for blending and shading and also ideal for delivering a lot of colour very, very quickly. They usually have a longer taper. They come in both a curved and stacked structure.

Curved Magnum needles allow for softer entry to the skin and therefore risk less trauma. This means that the end needles in the configuration are shorter and they create a curved shape.

Stacked Magnum needles are configured more tightly and deliver more intense results, again very quickly. Use these needles with caution as they can be traumatic to use.

Due to the speed that a Magnum needle can deliver pigment in, minimal passes are required. Therefore, less trauma is caused to the skin. If you are using a Magnum needle, look to create a sheer and transparent result as if the finish is too saturated, the results will last far too long for the use of SPMU; you risk packing in too much colour for the skin to retain. The skin only has a certain amount of space within its layers to retain pigment and therefore there is a risk of pigment migration.

Appropriate techniques include:

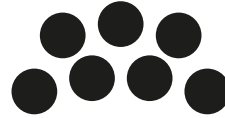
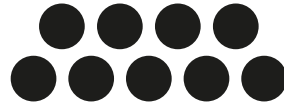
- Pendular
- Whip Shading

Appropriate areas include:

- Eyebrows
- Lips

Skin Type:

- Normal, thick and healthy skin types
- Sensitive, delicate and thin skin types



Acupuncture Needles

The tip of an Acupuncture needle is a bullet shape, not a cone shape. They are far less traumatic as they have a much rounder tip and therefore easily, and more softly enter the skin. Pigment is delivered more quickly with less trauma. Acupuncture needles cause less pain as well as less bruising and swelling.



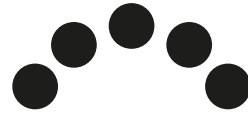
**Acupuncture
Needle**



**Normal
Needle**

Flat Needles

Flat Needles are made up of a straight row of needles. They are an ideal choice of needle when blending and shading, and when you want to deliver a lot of colour quickly. They usually have a longer taper. Flat Needles have a very similar configuration and purpose as Magnum Needles; however, they are of course a single row of needles, rather than a double row of needles and therefore cause less trauma and deliver less colour.



U Shaped Needle

A 'U' shaped needle is similar to a flat needle, however the outer needles become shorter and create the unique 'U' shape. This creates a softer entry to the skin than a flat needle and can be great for creating the same desired effect as a flat needle, but without causing as much trauma.

Needle Depth

There are **3 main layers of skin**: the epidermis, the dermis and the subcutaneous layer.

The epidermis is responsible for protection, skin renewal and shedding.

The dermis is a stable layer of skin cells and houses an abundance of blood vessels.

The subcutaneous layer is composed of fatty tissue and houses veins and arteries

If we were to tattoo within the epidermis only, the results would be weak and patchy

and just generally visibly poor to look at. Pigment would be implanted far too superficially and it's likely that we would see scarring in the skin as opposed to implanted pigment as the skin would retain very little colour.

If we were to tattoo within the dermis, we would be tattooing far too deep and would cause the skin to bleed which can result in a "blow out".

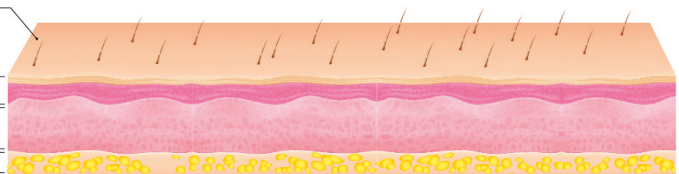
We want to tattoo within the **"sweet spot"** which is right in between the epidermis and the dermis.

Outer layer of skin

The epidermis

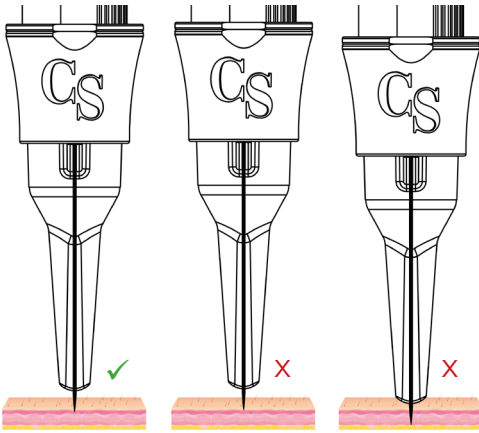
The dermis

The subcutaneous layer



What is the “Sweet Spot”?

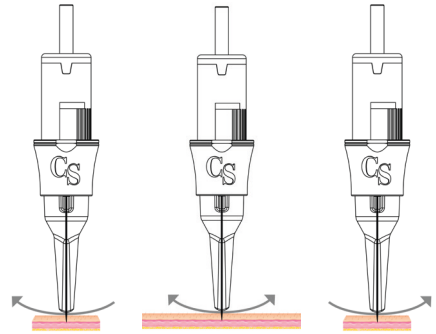
The “sweet spot” is the layer of skin that holds pigment perfectly upon implantation. But how do we know when we are working within the “sweet spot”? We need to tune into our senses and listen and feel for the correct sensations. We are listening for a scratch; it’s nothing substantial but it’s about hearing a sound that’s in between hearing nothing and something when we are working in the skin. We also want to feel for a change in sensation in the handpiece and our stretching fingers that are in contact with the skin close by the penetrating needle. Again, it’s nothing substantial but we want to feel that we are penetrating and working through the skin.



What is a “Blow Out”?

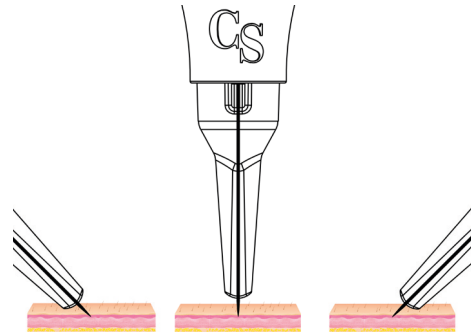
We want to tattoo between the epidermis and the dermis in the “sweet spot”. If we work deeper than this, we will cause a “blow out”, which is when we see pigment migration and major trauma. There will be a lot of blood present and the pigment will look very dark and blurry in the skin and will only continue to get darker and blurrier. A “blow out” is usually the result of working too deep into the subcutaneous fatty layer where the pigment cannot sit still and it therefore migrates.

Needle Movement



The typical needle movements are pendula and whip shading techniques. There are many more but these are your typical motions and it’s important that we are working at the correct angle.

Needle Angle



The correct angle to work in SPMU is at 90 degrees. The incorrect angles are below or above 90 degrees. When assessing your angle, please ensure that you are working at 90 degrees to the curvature of the area that you are tattooing.

Working below 90 degrees in particular can cause the needle to resist penetration and work underneath the skin rather than directly and gently into the skin.

The incorrect angle will cause trauma, scarring, pigment migration, colour saturation and “blow outs”.

Hand speed vs machine speed

A low machine speed means that the needle penetrates in and out less times per second i.e. the needle pierces the skin less times per second. This results in less pigment implanted into the skin and also less trauma. The slower the machine speed, the further apart the pixels are and you will achieve a more sheer result.

A high machine speed means that the needle penetration increases and enters the skin several more times per second. This results in more pigment implanted into the skin as well as also more trauma. The faster the machine speed, the closer together the pixels are and you will achieve a more dense and saturated result.

It's important to match the correct hand speed with the correct machine speed. We need the two aspects to work in unison.

We want to match a low machine speed with a slow hand speed. If the hand speed is too fast, the needle will not have enough opportunity to penetrate the skin and implant pigment; the pixels will be very far apart and more work and passes will be required resulting in more trauma. A slow hand speed and a low machine speed will space pixels apart, rather than overlapped and the results will be clearly visible individual pixels and sheer results.

We would therefore match a high machine speed with a fast hand speed. If the hand speed was too slow, the needle would over penetrate the skin and implant too much pigment into one area. The pixels would be too close together and overlap each other, resulting in over saturated results and traumatised skin. A fast hand speed and a high machine speed are great to use together when creating a dense result such as hair strokes.



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