

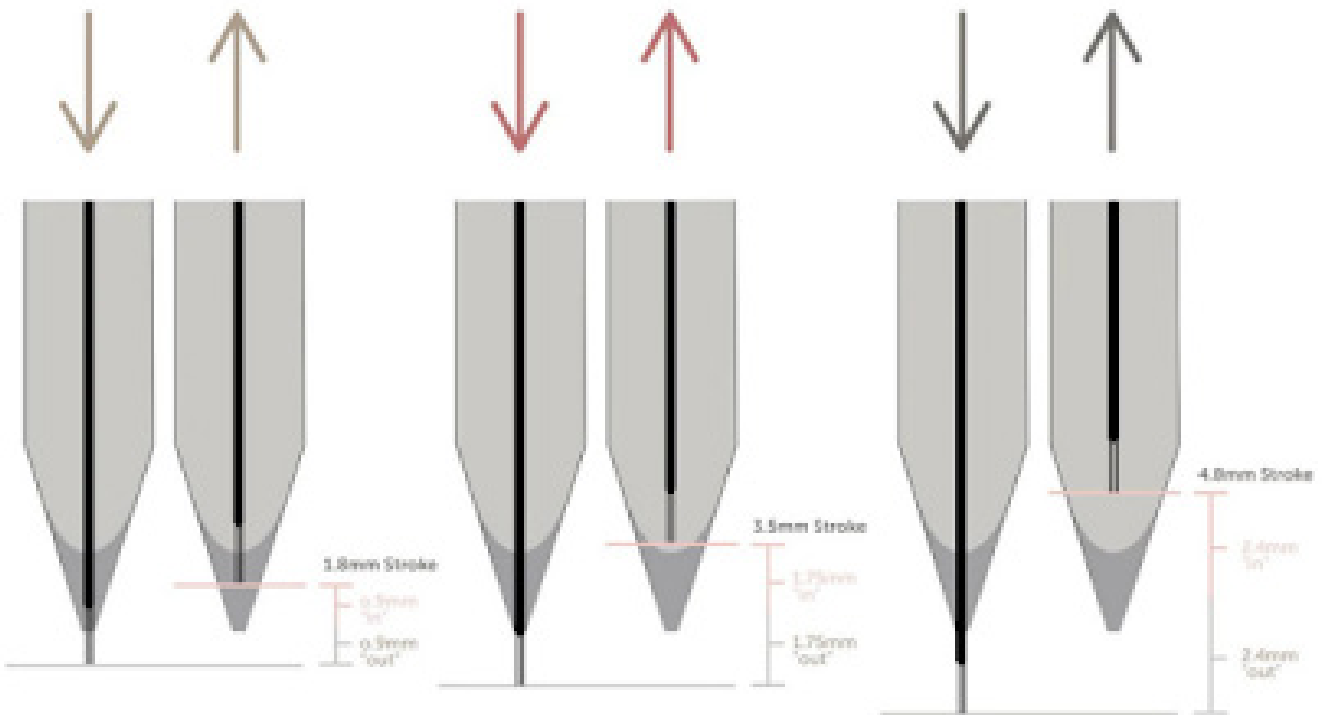
**HD** **BEAUTY**  
ACADEMY

**WHICH MACHINES  
AND NEEDLES TO  
WORK WITH IN PMU?**



# PMU MACHINES

- Short Stroke
- Medium Stroke
- Long Stroke



# WHAT IS A STROKE?

In rotary machines, stroke refers to the amount of travel required for one rotation. The further the bearing is away from the center of the cam, the longer the stroke.

**The stroke affects 3 key factors as:**

- How hard the machine hits the skin
- How fast the needle moves up and down
- The maximum amount of needle throw out of the cartridge tip

**The strength of the hits.** The longer stroke the machine has, the more power it gives. That allows you to use larger needle groupings more easily. But, keep it in mind that you must have a more precision-controlled machine manipulate the strong strength because it may cause more trauma to your customers' skin.

**The speed of needle movement.** Influenced by the output power of the motor and as well as taking into account the effective conversion of energy, the output power increases when the hit force is strong, which leads to a decrease in speed

**Your max needle depth.** A short stroke limits how far your needles can stick out. The needle's depth must be short enough so that it is able to reach the ink inside the tube's tip in each up and down motion.

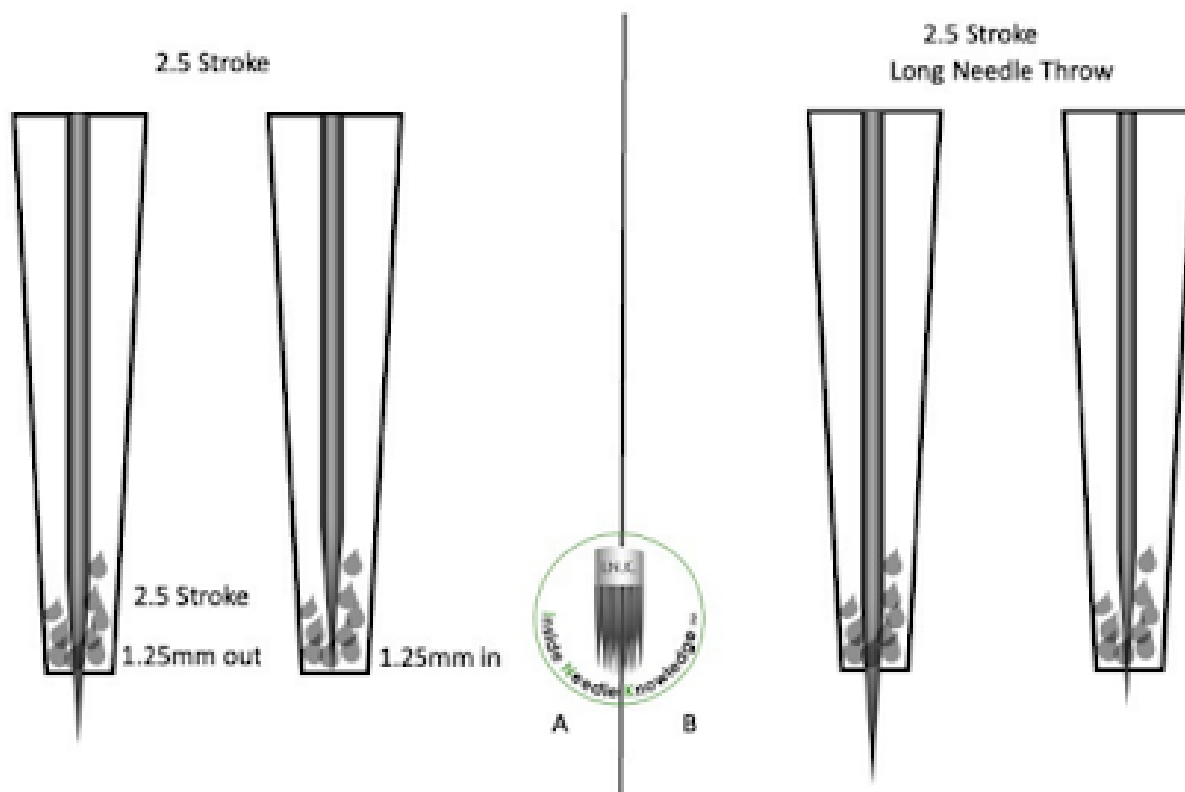
# SHORT STROKE

- Length 1.8-2.5mm
- Soft hit on the skin
- Needles move slowly, retract less, and hit the skin softly
- Less trauma is created, and multiple passes are possible to build up shading effects
- Softer hitting 2.5 machine stroke can be ideal for the thin delicate eye area

## What is the maximum amount you can “throw or hang” your needle out with different machine strokes?

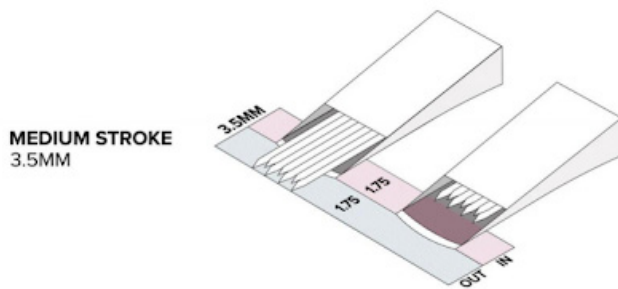
This depends on your stroke length! The down and up motion of a complete 2.5 stroke cycle is 1.25 mm down and 1.25mm up

If the needle throw is longer than the needle stroke, the needle won't retract into the cartridge tip and pick up more ink. In turn, you will be tattooing without ink.

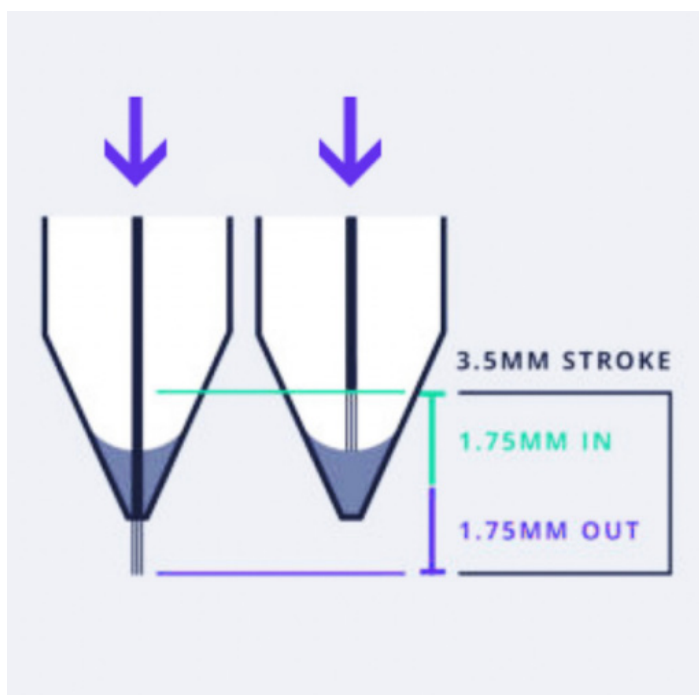


# MEDIUM STROKE

3.5mm. This is widely used by tattoo artists. If a tattoo machine is not adjustable, it most likely will come with this stroke length, or one very close.

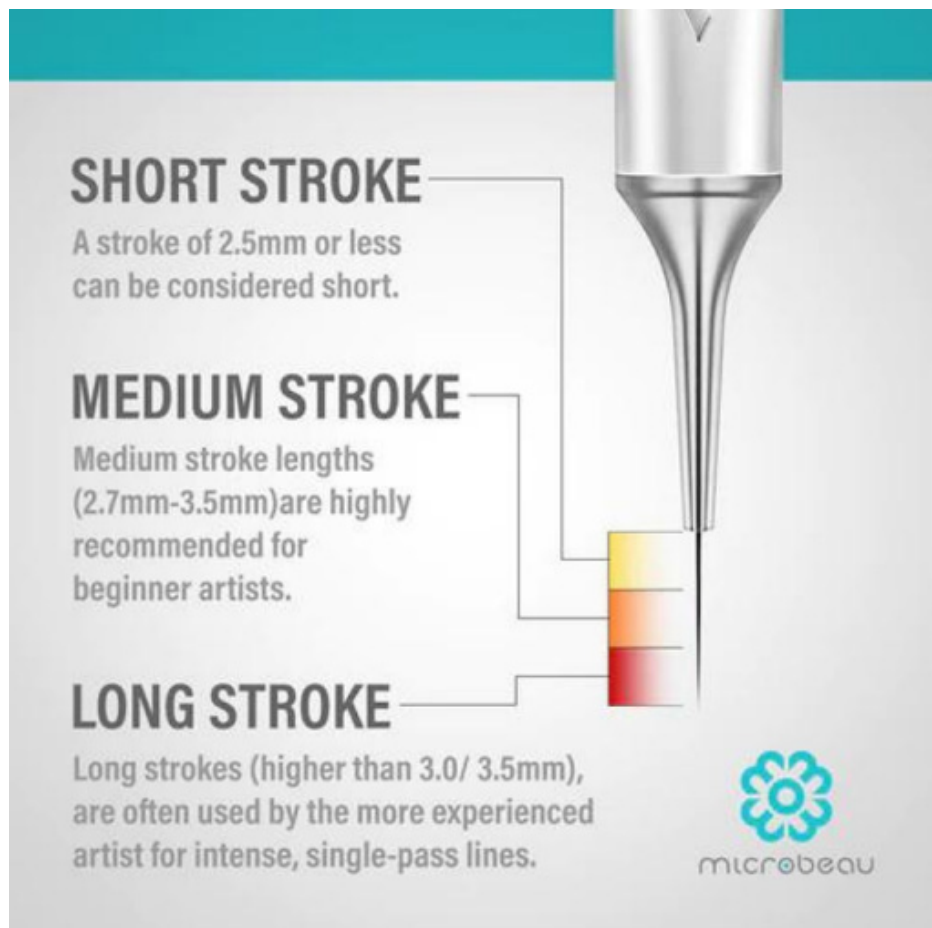


Medium stroke lengths (2.7mm-3.5mm) are highly recommended for beginner artists, as they are the most versatile, safe, and inclusive needle lengths to use for a variety of procedures. If you would like to perform shading and packing techniques, this is the stroke for you! However, this stroke length is not recommended for precise, fine line-work procedures. And although it is compatible with small needle cartridges, your final product may not be as clean and concise as that of a small stroke.



# LONG STROKE

Long strokes (higher than 3.0/ 3.5mm), are often used by the more experienced artist for intense, single-pass lines. These strokes are also a great fit for gray shading and color packing. Longer strokes will feel like a heavy hit on the skin and permeate lots of ink. These strokes must be handled by experienced artist since they should only be used for single passes and anything more can be traumatic to the skin.



# MACHINE SPEED

Machine speed determines the frequency of how many times the needle penetrates the skin in order to implant ink, creating pixels.

If you prefer to work fast, you should set your machine speed to a faster level and practice moving faster until you find the desired pixelation. If you prefer to work at an average speed, you should set your machine speed to middle and test out your hand motion speed until you see the desired pixelation.

# BRANDS OF PMU MACHINES

Product Comparison			
MACHINE SPECS	BELLAR AIR	FLUX MINI	MAST TOUR Y22
PRICE	From \$1,049.95	From \$799.99	From \$150
CONNECTIVITY	Wireless or wired	Wireless only	Wireless or wired
BATTERY	Detachable Li-ion	Detachable Li-ion	Detachable Li-ion
BATTERY LIFE	Up to 5 hours	Up to 5 hours	More than 4 hours
CHARGING PORT	USB-C	USB-C	USB-C
STROKE LENGTH	2.1 mm or 3.0 mm	2.5 mm	3.0 mm
VOLTAGE RANGE	4V - 10V	5V - 10V	5V - 12V
GRIP SIZE	16 mm tapered	19 mm tapered	23.5 mm
MOTOR	2.12-watt	6-watt	8V/10,000RPM
WEIGHT	3.88 oz (110 g)	3.74 oz (106 g)	4.87 oz (138 g)
COMPATIBLE ACCESSORIES	Killswitch Footswitch		External Power Supply
INCLUDED	USB-C cable DC power adapter Luxury travel case	USB-C cable	USB-C cable RCA cord 2 rubber washers

# BRANDS OF PMU MACHINES

## THINGS TO LOOK FOR WHEN CHOOSING A BRAND

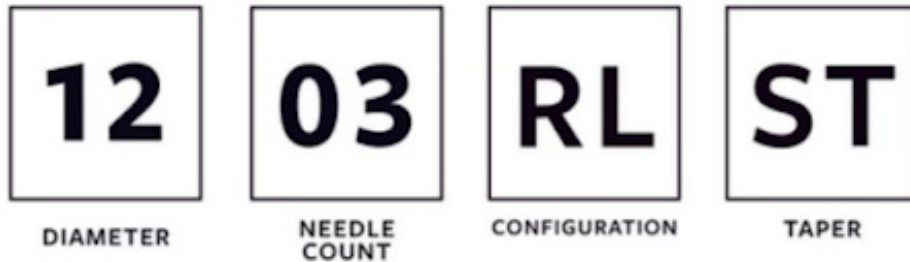
1. Are the designers from the company you are buying from specifically from the field of tattooing or are they just an electronics manufacturer?
2. “Made In” Is the country of origin known for attention to detail and producing quality products?
3. Customer service
4. Community: Do you have a group of professionals that know the machine and you can turn to for advice?
5. Other artists’ reviews: What is your colleagues’ experience with the machines and the company?
6. Compatibility with standard needle cartridges:  
Some machines only accept proprietary needles that are sold by the same company that sells you the machine. This is limiting and could cause a financial burden.
7. Services you offer: What services do you offer the most? Find a machine whose technical specifications enhance you



# PMU MACHINES

Most micropigmentation artists keep stock of different needle configurations for different procedures, skin types and challenging cases. Sound advice is to test a variety of needles on practice skin and see which work best for you.

## READING NEEDLE BOX



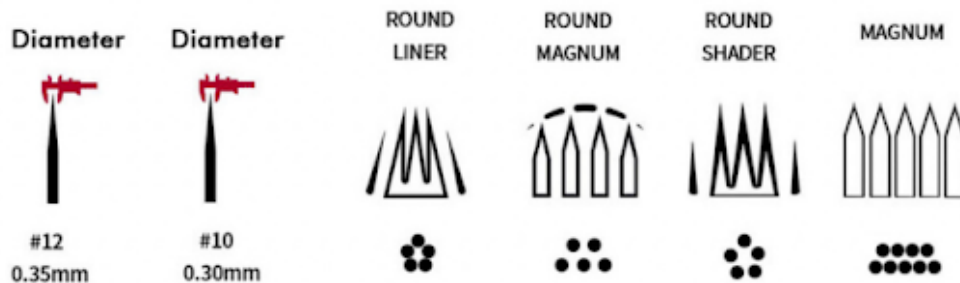
## DIAMETER READING

- SIZE #06 – 0.20 mm**
- SIZE #08 – 0.25 mm**
- SIZE #10 – 0.30 mm**
- SIZE #12 – 0.35 mm**
- SIZE #14 – 0.40 mm**

# PMU MACHINES

## 1. CONFIGURATION

Permanent makeup cartridge needles come in various types or configurations. The configuration simply means how the needles are grouped together in the cartridge.



## 2. DIAMATER

This refers to the width of the needle, the body of the needle before it starts to taper to the point. Thinner needles are great for more delicate layers and fewer layers of the skin, such as the face.

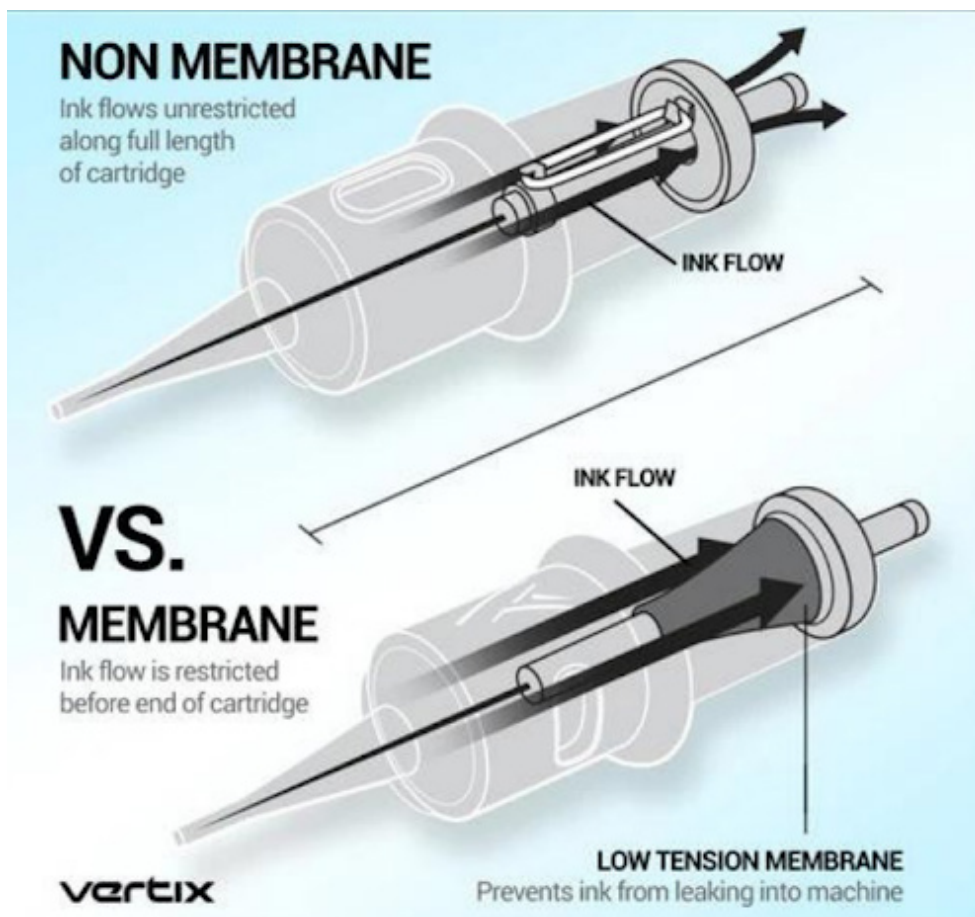
- .20 mm (smallest)
- .25 mm (medium)
- .33 mm (wider)
- .38 mm (widest)



# PMU MACHINES

## 3. MEMBRANE

Generally-speaking, a membrane is usually a thin barrier that serves the purpose of regulating the exchange of fluids. In needle cartridges, membranes have become an absolute necessity to avoid cross-contamination and keeping our clients safe and healthy. In graphic terms: the membrane helps keep any bodily fluids and pigment from getting sucked up into the grip, body or motor of your machine, where it is nearly impossible to clean.



# PMU NEEDLES

## 4. TAPER

Taper largely effects your pigment flow. Moreover, taper affects how much trauma you're causing to your clients' skin. So, when you're selecting your taper length, you'll want to consider what technique you're trying to accomplish and the sensitivity of your client's skin.

### **Shorter Taper Lengths Offer:**

- More colour more quickly
- A large hole in the skin
- More trauma to your clients' skin

### **Medium Taper Lengths Offer:**

- A moderate amount of colour
- An average-sized hole in the skin
- Moderate trauma to your clients' skin

### **Long Taper Lengths Offer:**

- Less colour (slow colour building)
- A smaller hole in the skin
- Less trauma to your clients' skin

# PMU NEEDLES

## 4. TAPER | TAPER LENGTH APPLICATION

- You might choose a shorter taper needle for faster work that doesn't require a lot of layering or shading, since your pigment will deliver so quickly.
- Shorter tapers are also excellent for thicker, more durable skin types.
- You might reach for a longer taper needle for more detailed, concentrated work that requires more layering and slow building.
- Longer tapers are more forgiving on fragile, sensitive skin types.
- You might choose a medium-sized taper for moderate pigment delivery on a variety of skin types

Choosing your needle taper is also dependent on what diameter you're using. For instance, you may not want to select a short taper when using a large-diameter needle, since a larger-diameter needle will already give you a faster pigment flow.

Your taper length also greatly influences the flow of your pigment. For example, PMU needles that have longer tapers will be a little less free flowing. Consequently, less pigment will come out of your needles overall. On the flip side, PMU needles that have shorter tapers will insert more pigment into your client's skin at a faster rate. Therefore, you'll probably want to grab your shorter taper needles when doing bolder, more colorful work. Longer taper PMU needles are your typical gotos for more delicate, controlled procedures.

# PMU NEEDLES

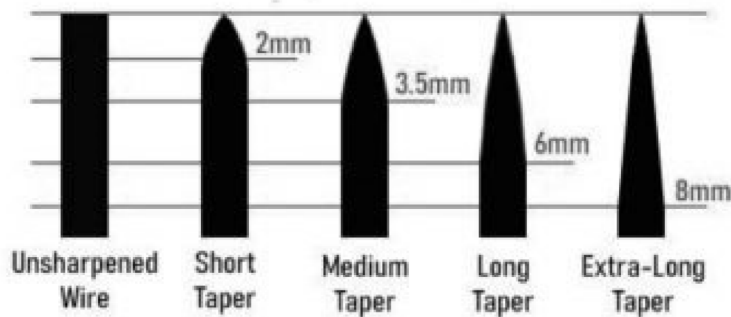
## 4. TAPER

SHORT (ST)	3MM<	
MEDIUM (MT)	3.5MM - 5MM	
LONG (LT)	5.5MM - 7MM	
EXTRA LONG (ELT)	7.5MM+	

### Diameter



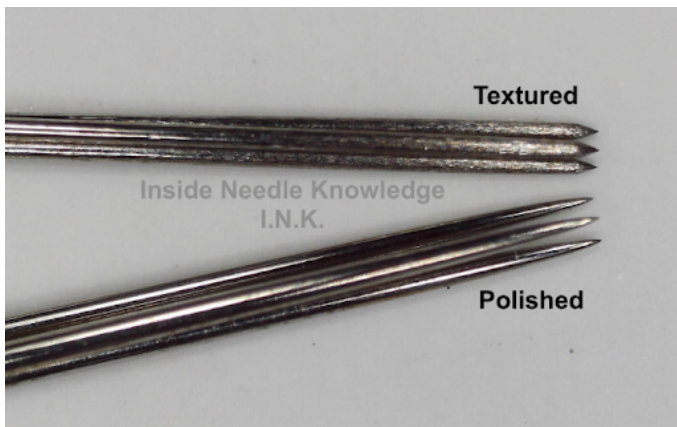
### PMU Taper Variations



# PMU NEEDLES

## 5. TEXTURED VS. SMOOTH

Smooth needles are the standard needle type of needle. They create clean, crisp lines and can be used with any kind of ink. Textured needles are less commonly used, but remain popular. This type of tattoo needle doesn't have polished tapers, which creates a dimpling effect of small grooves along the needle the taper. This means that textured tattoo needles hold more ink, and Artists will find themselves dipping less into their ink cups. They are also ideal for shading and creating soft, blended edges.



## NEEDLE VS SKIN TYPE – SKIN TYPES

Thin and Dry Skin  
0.25 mm

25-01-RLMT-H

Normal Skin  
0.30mm

30-01-RLMT-H

City and Porous Skin  
0.35mm

35-01-RLMT-H

# PMU NEEDLES

## FAVOURITE BRANDS

**MAST PRO \$25+**



**KWADRON \$40+**



**VERTIX \$60+**





# PMU NEEDLES

## WHAT IS UNVERISAL NEEDLE?

You'll find many PMU machines on the market that only work with specific cartridge needles. Those cartridges that are brand-specific are called proprietary cartridge needles.

Universal cartridge needles, on the other hand, are designed to work with a wide variety of PMU machines from different manufacturers.

