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LASER CUTTING TEXTILES VERSUS TRADITIONAL SYSTEMS

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When asked what would be better, cutting by hand or cutting by machine, most people will agree that the future is cutting by machine. The question, however, is which machine is the better choice for textile cutting, traditional or laser cutting.

Of course, you can cut textiles by hand with scissors or an up and down professional cutter, with a drag knife cutting table. You can even cut textiles on a flatbed with a rotating cutting blade option. However, the disadvantages outweigh the benefits in comparison with laser cutting devices.

INCREASED SPEED AND ACCURACY

If you look at the current traditional textile markets, most suppliers are still cutting by hand with professional up and down cutters. Not only are these devices very dangerous, but they also need the expertise to operate them well. Unfortunately, they are only really good for mass production and not for bespoke one-off garments. Now, the world is changing from a traditional textile world to bespoke garment industry. One-off garments are the new hot thing, changing the production demands. Cutting by hand becomes less and less an option to consider for your current work process demands. Manual cutting is just not as reliable.

Laser cutters, on the contrary, are incredibly fast when you compare them with other cutting solutions currently around. With speeds up to 150 cm per second, there is no human hand that can cut this fast. What's even more, laser cutting also enhances accuracy substantially. Even flatbed cutting tables will have a hard time following the laser system when it comes to **speed** and **accuracy**.

ADVANTAGES AND DISADVANTAGES OF KNIFE AND LASER CUTTING

When talking about flatbed knife cutters, they will first pull (drag) the knife through the substrate/fabric. This will work in thick substrates, such as banners and other thick soft signage.

However, for flexible sportswear garments, this working method would be a disaster. Just think of the stretchability of Spandex, Lycra and Elastin. The drag knife would pull and distort this type of material instantly, resulting in plies and other deformations. A flatbed knife cutter would, therefore, not be the correct solution for sportswear and other fine material.

The flatbed knife cutter can, however, perfectly cut pieces of cotton, denim, and other thicker natural fibres. The manual cutting method is, as explained before, very cumbersome, but it can cut any fabric you can think off.

The laser system, on the other hand, is the perfect solution for cutting polyester sportswear and soft signage. For natural fibres, however, laser cutting is not your best option as it will leave a small burn mark from the laser on the edge of the fabric. If the fabric needs to be seamed there is no issue, but if it needs to be a clean-cut, you will see the burn mark.

Fortunately, you will only see this mark in white natural fabrics and not in colourized fabrics or polyesters.

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SPEED BREAKS THE BARRIER

That leaves the cutting speed and accuracy of the laser. If we can work automatically from the roll of fabric, the cutting process would be much better suited for our production needs. Otherwise, it would be too labour-intensive and the benefit would be lost.

This is where Summa comes in with their new laser cutting product line. The **Summa L Series** are specifically designed and developed for the textile cutting industry and not just adjusted from a present design by implementing some modifications.

The Summa L Series was built from the ground up with the textile industry in mind.

Thanks to the 250 watts powered Summa laser cutter, cutting from the roll and contactless cutting on a conveyer belt will be exceptionally accurate. Additionally, Summa engineered a tensionless roll-off winding system that eliminates any tension in the textile before cutting.

This gives the Summa laser cutter a great advantage compared to all the other options that are available today.

LASER CUTTING TO THE PERFECT SIZE

Another advantage for the soft signing markets is the amazing speed increase when cutting banners, **Silicone Edge Graphic (SEG)** textile frames. At all times, the banners are cut most accurately and with as long a length as you want (as the roll can carry). As the system cuts from the roll, the roll length is your only limitation.

Cutting on the go is something that I have not seen anywhere else except at the Summa machine. The cutting system uses a position camera to see the object. The laser can then cut along the edge or it can use registration marks and cut to size.

This technology is simply amazing. It even enables the laser to cut while the conveyer belt is moving forward, giving extra optimization of time and speed.

The cut-to-size feature is ideal for the processing of large amounts of retail banners. Thanks to these features all banners will be meticulously cut to size from the roll at very high cutting speeds. So, done with guessing if the banner has the correct size.

LET'S COMPARE KNIVES WITH LASERS

When comparing cutting with a knife system against cutting with a laser system you will notice that the laser melts the cut, whereas the knife system pulls the knife through the threads. This will result in threads, hanging from the cut material. With the laser cutting system, this will be avoided because the threads are melted together at the edge. This is a great benefit as it gives you a clean cut from the start.

Clean cut with strong vacuum extraction

With conventional laser cutters, you would notice burned edges due to the heat and the fumes left behind, resulting in little melt bubbles at the edge. The Summa cutting systems have dealt with this issue very well and came up with a solution. The proprietary development of the special vacuum suction system at the Summa laser cutting head and the very strong vacuum extraction system, contribute to minimalizing if not making the issue obsolete.

For soft signage customers, this would not even be an issue. For sportswear customers, however, they would not appreciate the melted bubbles at all. Therefore, Summa worked on the system to assure a perfect cut but no melting residue at the cut. This is done by removing all fumes, released during cutting, as fast as possible. This way the fumes can't colourize the polyester fabric. At the same time, the floating ashes from the burn can't get back into the fabric, which would leave a yellowish tint behind. The Summa fume extraction system makes sure that there is no colouration and no melt residue at the fabric edge.

This is again an enormous advantage on the Summa system, that I have not seen at any other laser or cutting system.

Last but not least, the Summa laser cutting system does all the cutting **contactless** and does not touch any part of the fabric in the process. This entails multiple advantages. Such as not wasting precious time in cutting alignments or adjust the thicknesses of the fabrics. Once the thickness is known to the system, you can recall it with the touch of a button in the Summa cutting suite.

PRODUCTION SIZE MATTERS

Many people don't look at their factory and the space they have until it is too late. When you are in textiles almost 50% of the available space is not for your printers but for the cutting and sewing areas. Talking about a traditional layup table, it could easily be 2 meters wide and 8-10 meters long. This would result in over 70 sqm of hardware space and another 20 sqm for walking around. So, in total, you would need almost 90 sqm of workspace.

As the Summa laser cutters can do the same in much less space, there is instant economic growth potential in the same available space. You will be able to produce more on the same square meters.

The currently largest 3.3 meters wide cutting area of the Summa laser is designed for soft signage and interior decoration. This Summa laser cutter only uses 15 sqm of floor space. Whereas the smaller 1.8 meters Summa laser cutter is specifically designed for sportswear and only uses 6 sqm floorspace. Summarized, this would mean you could put almost 12 laser cutters in the same floor space. And this includes workspace and walking areas.

In a time where we need to look for every economic benefit, the footprint is certainly one of them.

NESTING OR LAYUP METHODS

When we talk about a garment, we always think of precut pieces, placed on a calendar via transfer paper. This is called the layup method, which is a very labour-intensive and accident-prone way to work. Nevertheless, it is currently the most common way to work in the sportswear world. Honestly, you really don't want to do this all your life. But getting the right pieces at the correct location and combine them with the right garment is not an easy job to do. The many mistakes that are made in this area and the amount of waste here is larger than most people would like to admit, let alone reckon with. There are some workflow software solutions available but mostly these are very expensive and hard to implement in a current work environment.

The solution, however, is not that hard to find. Simply, don't use the layup way of working but print the imposition nesting job directly on the sublimation paper. Print and calendar roll to roll with the Summa laser cutter. Then the Summa laser system will cut it in the correct way fast and efficiently. No waste of time and a lot fewer errors in the production. That saves you a considerable percentage of margin from the start. The savings can be made without changing much of your current workflow and it will ease off the workload of your staff.

A win-win situation in my opinion.

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MORE POSSIBILITIES THAN YOU CAN IMAGINE

Laser cutters can perform more than other conventional technologies. Just think about cutting bonding materials for coat pockets, bondable zippers and other bondable media. Or cutting pre-treated logos and more. Also, acrylics and other plastics can be cut on the Summa laser cutters. However, do bear in mind the **Summa L Series** are specially developed for the textile market.

ONE MORE CUTTING SOLUTION

Cutting a large amount of logos for later placement on the garments with heat presses are also possible with the Summa L Series. However, if you really have lots of work in this area, it would be recommended to look at a Galvo laser system. These Galvo systems are available via Summa's UK-based laser division, CadCam Technology. A Galvo system would be a better solution for this type of production. These systems differ from a laser cutting system as it has no moving XY system but works with a compact mirror system above the objects. They give excellent results for cutting or manipulation of many small objects, embroidery, and many more.

CONCLUSION

In conclusion, with the cutting technologies offered today, it makes one wonder why this has not happened before. Then technology is not only technology but is a benefit to the entire workflow process. We sometimes forget that we need to change to make change happen. Waste reduction, more efficient operator handling and fewer errors to be able to deliver faster and better are things we all want to do and have. With this innovative laser cutting solution, offered by Summa, we can start making the change we have been thinking of in the last few years. The Summa laser cutters truly represent the next step in the textile evolution, making production **easier, better and faster.**