

Trotec eBook
The added value
of laser finishing in
signage markets



For sign shops, signage & display companies, acrylic fabricators and shop fitters, the laser cutter serves as a productive, clean, reliable and universal solution for all geometries and material thicknesses. Unlike routers, flame-polished cutting edges on acrylics can be achieved with laser finishing without additional post-processing. In addition, the laser cutter enables wear free processing to achieve reproducible results. As a consequence a competitive advantage is guaranteed to offer new products at reduced costs to achieve more profit.

Unusual shapes for signs or displays make end products more interesting and unique. Print service providers and sign and display companies, who offer contour cutting of printed materials as a service, are able to expand their business. The creative finishing gives a competitive advantage and leads to higher margins and additional sales. A printed acrylic sheet only becomes a polished and saleable product with proper finishing.

Conventional cutting systems and milling machines have been established for a long time in the manufacturing environment. In recent years, more and more laser devices are used for finishing.

With the universal “tool”, highly filigree designs can be realized and printed materials can be cut precisely. Signage and display manufacturers using laser cutters stand out from the masses with creative display ideas or new branding approaches. When it comes to producing soft signage applications such as flags and banners, the laser cut leads to a sealed edge of the fabric eliminating labor intensive manual seaming and allows to utilize the full potential of woven and knitted fabrics.

More products – more value



The laser cut is unbeatable on acrylic, as no material post processing is necessary. To achieve brilliant edges with conventional milling technology, they must be polished with a machine or manually in a second processing step. The laser achieves a crystal clear finishing in half the time in only one processing step. Even the most intricate contours show perfect finishing, which is hardly possible with conventional polishing techniques.

Laser finishing enables higher productivity and thus more profit. Not only with PMMA, but also with wood, paper, cardboard, MDF, polystyrene, textiles or foam the following applies: All geometries can be implemented.

With laser technology, there are no costs for new tools, as the laser beam is not worn out by the material processing. Furthermore, the material does not have to be fixed. Highly filigree cuts with an accuracy in the range of tenth of millimeters are implemented without problems.

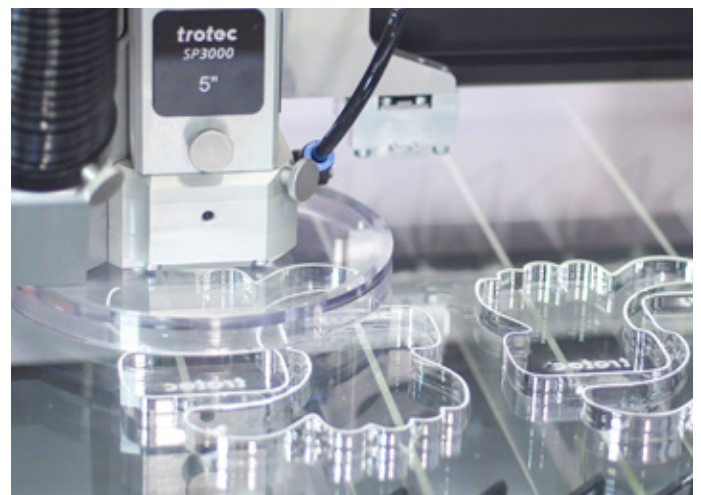
Trotec lasers support a simple and powerful print & cut workflow. An easy-to-use interface to prepress or RIP systems allows full integration into a digital workflow from order to finished product. Printed letters, displays, or signs can be cut individually thanks to laser technology and an optical recognition system. With other methods, small deviations in print lead to unsatisfactory results. A camera system recognizes all distortions in print, regardless of whether they are linear, non-linear distortions, or rotation and offset – the cutting path is adapted automatically and dynamically. The cutting lines always fit perfectly to the printed material.



More products – more value

Everything is possible from simple rectangular signs to complex contours, displays and illuminated signs:

- UV-printed, contour-cut signs made of high quality acrylic
- Printed advertising materials of acrylic, illuminated letters and logos
- Contour cut of illuminated acrylic signs
- Acrylic letters, with and without backlight
- Large-format engraving and marking of acrylic plates for LED panels and backlit applications
- Printed displays in exceptional shapes
- Printed and cut card displays
- Flags, appliqués and banners



Product Examples



Acrylic display with unusual shape



Illuminated sign made of printed acrylic



Printed acrylic letters



Acrylic letters



Soft signage banner



Illuminated letters



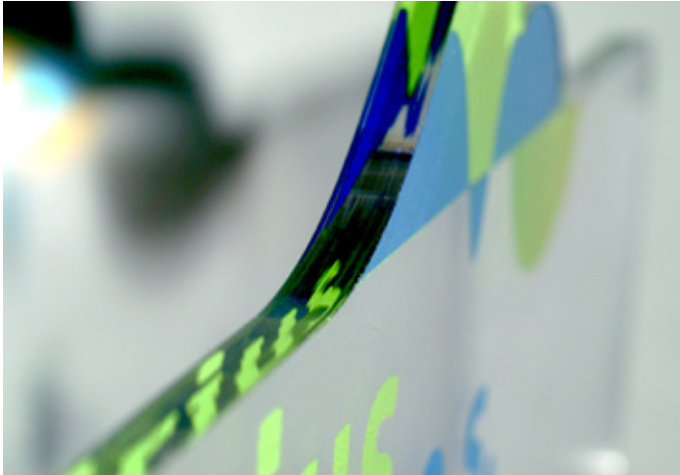
Company Sign: Print & Cut



Door Sign: Print & Cut

How can you generate profit for your business with laser cutting?

Key figures interior sign:



Dimension 700 x 500 mm, material 10 mm thick PMMA, 10 pieces. Production costs per sign consist of 5 Euro for the material, 2,50 Euro for printing, 10 Euro handling costs and 5 Euro for laser cutting, resulting in a total estimate of 22,50 Euro.

Let's do two calculations. First we will take a closer look at an interior sign, second we will discuss the possible profit margin for acrylic letters.

Key Figures

Dimension	700 x 500 mm
Material	10 mm thick PMMA
Quantity	10

Production Costs per Sign

Material	5 €
Handling	2,5 €
Data preparation	10 €
Laser Cut	5 €
Total	22,50 €
Market Sales Price	75 €
Profit Margin	70%

A sign with a crystal clear finishing like shown in the picture has a sales price of 75 Euro. This means you can expect a profit margin of 70%.

Key figures acrylic letters:



Dimension 1000 x 700 mm, material 20 mm thick PMMA, one piece. Production costs consist of 150 Euro for the material, 10 Euro handling costs and 75 Euro for the laser cut. Additionally we take into account 50 Euro for the data preparation, resulting in an estimated total of 285 Euro.

Key Figures

Dimension	1000 x 700 mm
Material	20 mm thick PMMA
Quantity	1

Production Costs per Sign

Material	150 €
Handling	10 €
Data preparation	50 €
Laser Cut	75 €
Total	285 €
Market Sales Price	980 €
Profit Margin	70%

The market sales price is 980 Euro. This means you can expect a profit margin of 70%.

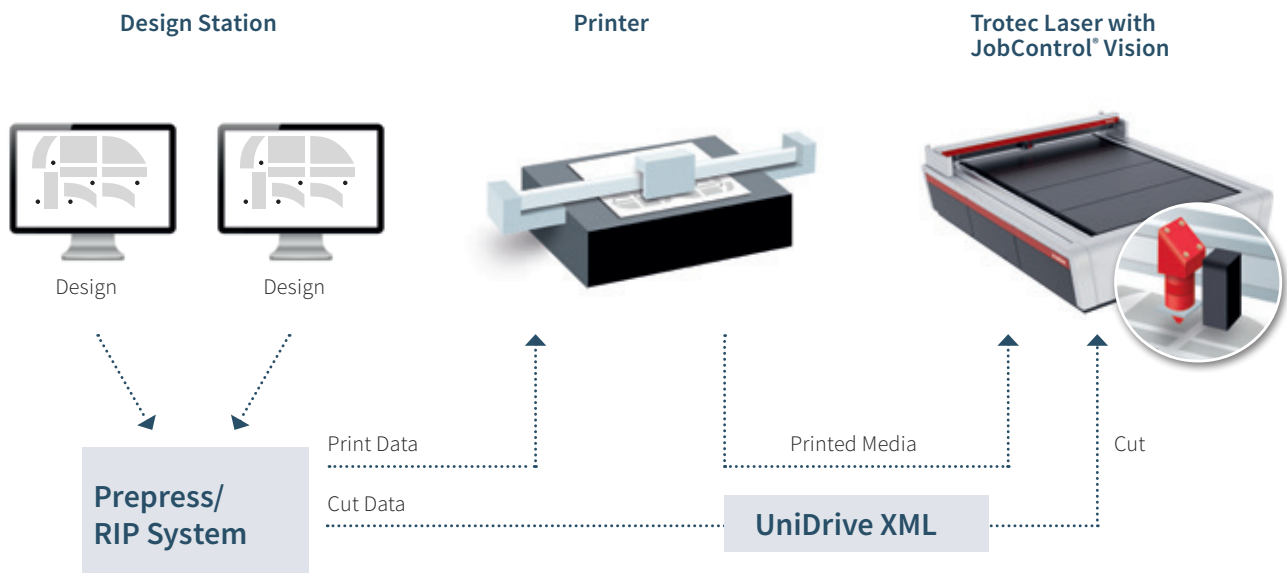
Buzzword productivity

The more power the laser cutter brings along, the more productive the signage and display manufacturer will be due to higher cutting speeds. Trotec's Laser cutters of the SP Series are highly efficient flatbed laser plotters and ideal for demanding cutting applications in plastics, wood, textiles and many more. Trotec CO₂ laser cutters are designed for fast and precise processing of large-format materials with easy integration into the shop floor. Highest laser cutting speed, the four-side access and Tandem Assist ensure maximum productivity. Use the entire work area, with no downtime. A system of the laser class 2 creates an optimal and safe environment for the operator. The icing on the cake is a multi-functional table concept – the wide range of requirements when engraving and cutting acrylic, wood or also cardboard of different sizes and thicknesses can be fulfilled therewith. Unlike machine-only solutions, the Trotec SP laser systems offer a safe and productive solution including hard- and software, a suitable exhaust system, and system support throughout the entire life cycle from a single partner.“

Productive workflow for Print & Cut applications

As an add-on, a camera system is recommended when finishing printed materials. Trotec laser systems can be equipped with the laser software JobControl® Vision – thus, the perfect contour cut of printed materials can be achieved quickly, reliably and easily for operators.

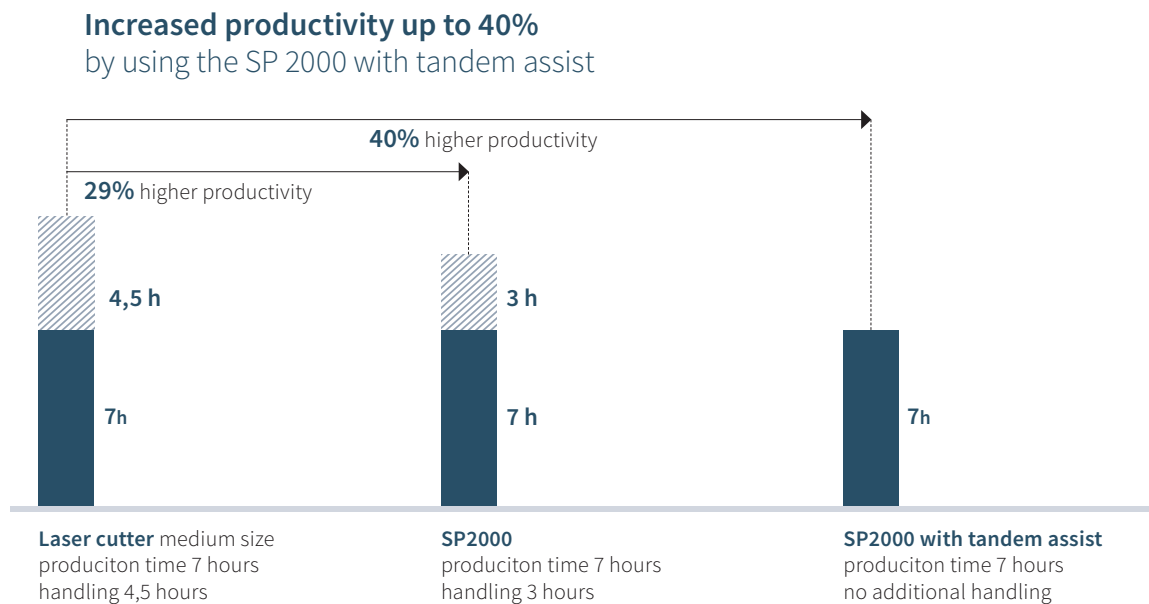
Multiple Jobs are consolidated by a Prepress or RIP System to optimize material usage and print quality. It generates a print file for digital printing of the designs as well as a corresponding cut file for laser cutting. The cut file meets the printed material at the laser cutter, which aligns the cut contours to the printed patterns on the material using vision based registration and cuts out the printed parts.



Maximum productivity in numbers

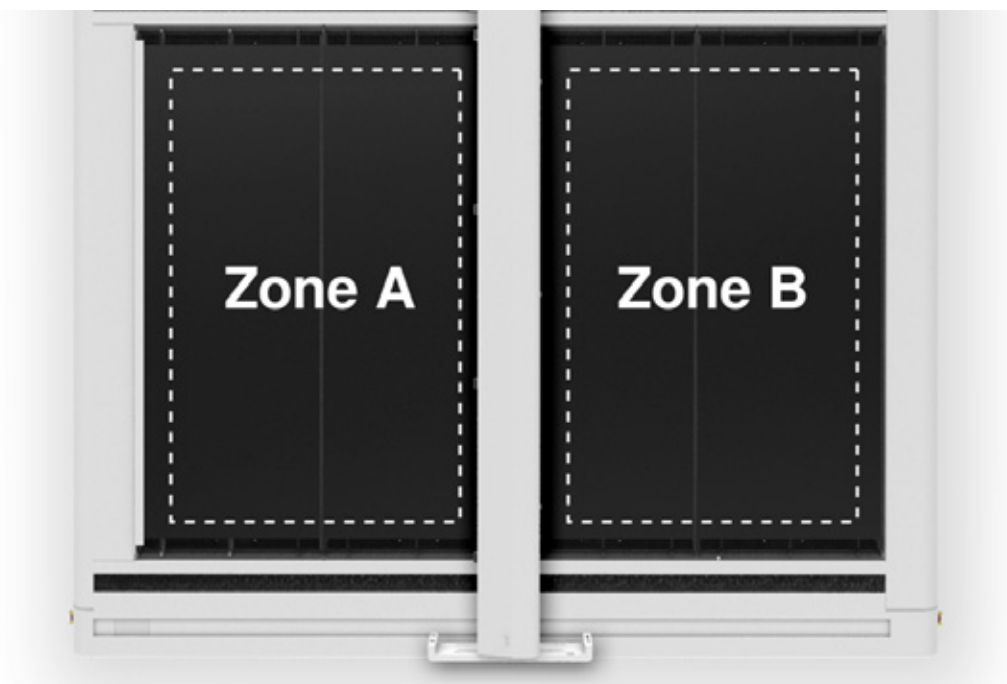
Let's take a look at a last example.

Laser cut temporary displays, here wall tattoos out of cardboard.
Key figures: temporary display, 6mm cardboard, quantity 500.



Comparing the production time of 500 temporary signs when using a midsize flatbed laser (work area 1000 x 700 mm) and Trotec's SP2000 (work area 1680 x 2510 mm) shows a time saving of 10%. The real productivity advantage can be achieved when working with the Tandem Assist.

With this JobControl® laser software function, the work area can be virtually split into two zones. While the laser cutter in zone A is processing the material, the finished parts can be removed in zone B and the work area can be reloaded. This minimizes idle times and significantly increases productivity.



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