



markSolid

How to use markSolid for metal marking

Spray 114 and Paste 015



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1. What is explained?

Using markSolid on polished metal (stainless steel)

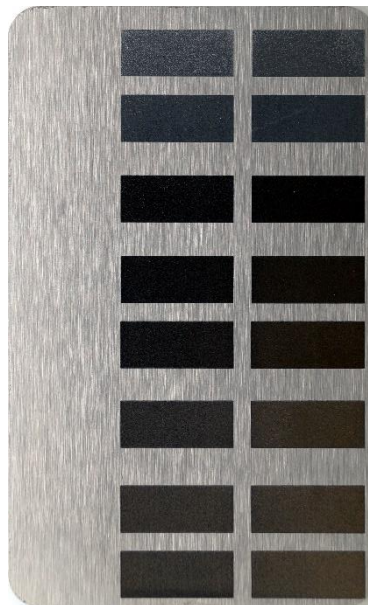
Important things to know

Finding laser parameters

2. What is required?

- Polished metal (stainless steel)
- markSolid spray or paste
- Optionally: Airbrush
- 1.5" – 2" lens

3. Illustration of the design and the finished work piece





4. Generating a test matrix for finding the optimal parameters

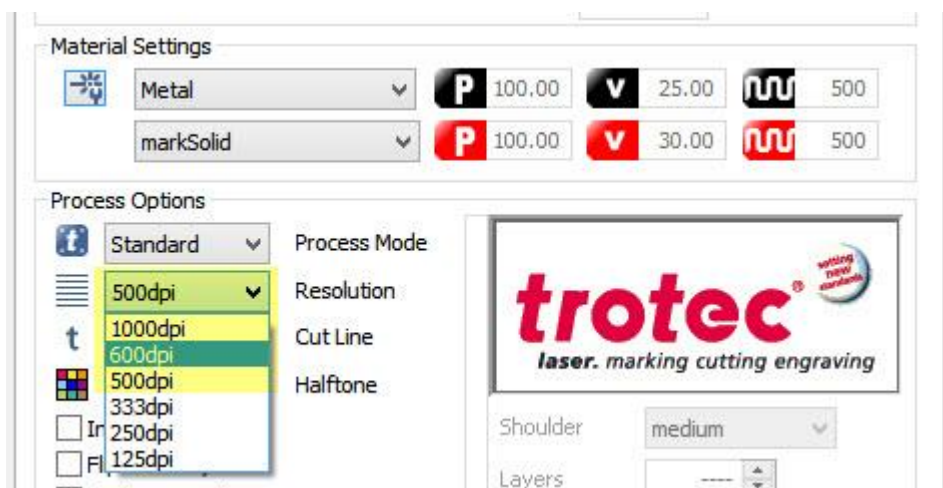
If you do not know the parameters for your work, it is helpful to generate a matrix to find the optimal parameters. This tutorial describes how to use all 16 colors available in the Trotec laser software JobControl®. You can assign a different parameter set to each color and send all 16 colors to the laser at the same time. In the engraved matrix you can compare the results and easily choose the best parameter set. This is done in just a few simple steps:

To find the correct parameter, it is necessary to use the correct dpi value. To find the correct dpi value, you have to send the job with varying dpi settings.

- Draw 16 rectangles e.g. of 12 mm × 5 mm each and fill them with the individual JobControl® colors. As shown below:

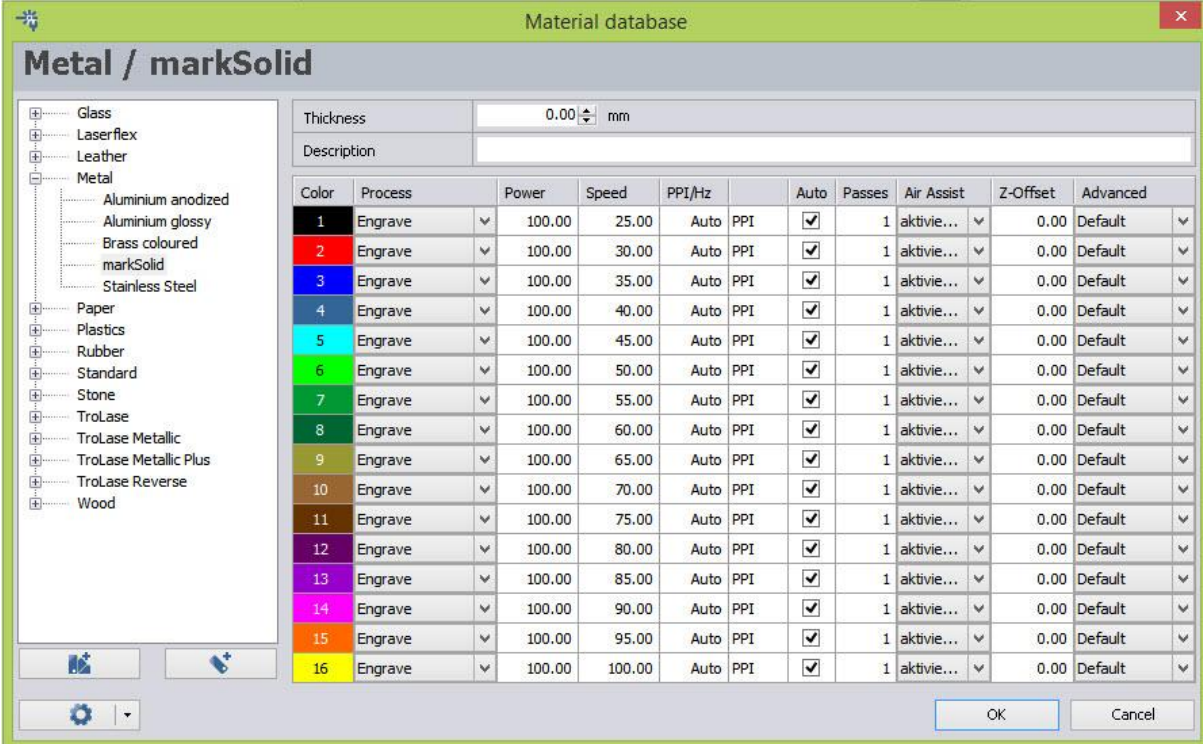


- Send the job first with a resolution of 500 dpi, then with 600 dpi and finally with 1000 dpi.





- Assign individual parameters to each of the 16 colors in the material database.
 - Set the power for each color to 100 % and vary the speed in steps of 5 % from 25 % to 100 % speed.
 - For the correct PPI setting in each job, click on “Auto”.
 - If your material database looks like this screenshot, you can continue with the following steps:



The screenshot shows the 'Material database' window with the 'Metal / markSolid' category selected. The table below lists 16 color-coded entries, each with a process of 'Engrave', a power of 100.00, and a speed increasing from 25.00 to 100.00 in 5% increments. All 'Auto' checkboxes are checked, and 'PPI' is selected for each entry.

Color	Process	Power	Speed	PPI/Hz	Auto	Passes	Air Assist	Z-Offset	Advanced
1	Engrave	100.00	25.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
2	Engrave	100.00	30.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
3	Engrave	100.00	35.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
4	Engrave	100.00	40.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
5	Engrave	100.00	45.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
6	Engrave	100.00	50.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
7	Engrave	100.00	55.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
8	Engrave	100.00	60.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
9	Engrave	100.00	65.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
10	Engrave	100.00	70.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
11	Engrave	100.00	75.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
12	Engrave	100.00	80.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
13	Engrave	100.00	85.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
14	Engrave	100.00	90.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
15	Engrave	100.00	95.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default
16	Engrave	100.00	100.00	Auto PPI	<input checked="" type="checkbox"/>	1	aktivie...	0.00	Default



5. Cleaning before marking

- Make sure that the metal is free of dust, grease, silicone and any other contamination.
 - Clean with alcohol, acetone or similar cleaners.

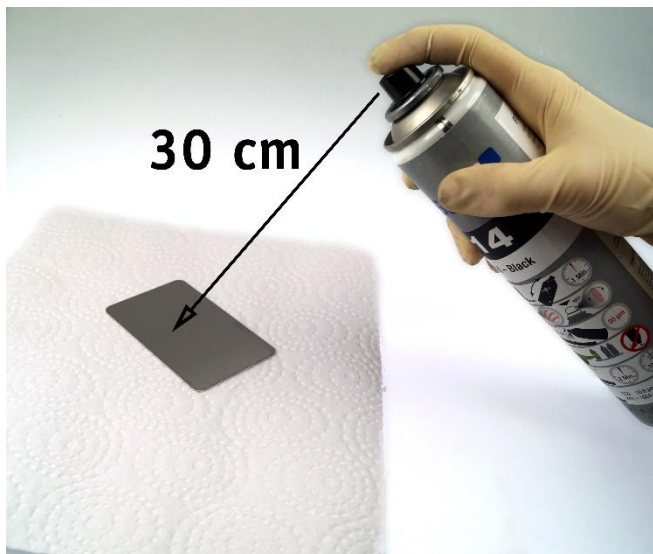




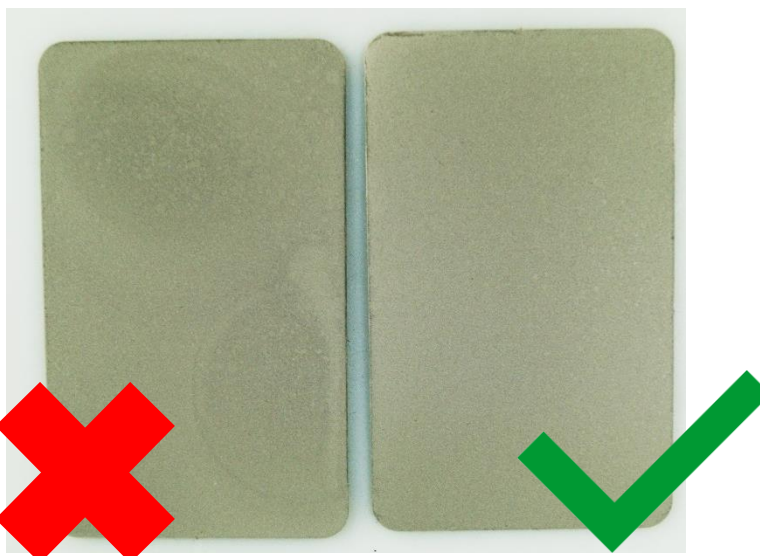
6. Step-by-step instructions for using markSolid spray

→ Applying markSolid Spray 114:

- Shake the can well.
- Start spraying from a distance of 10 cm – 30 cm.



- The principle of “less is better” often applies to layer thickness.
- It is also important that layer thickness is the same across the entire area.





7. Step-by-step instructions for using markSolid Paste with or without airbrush

→ Applying markSolid Paste:

- Shake the container well.
- Dilute the paste according to the description (with alcohol or water).
- Apply it as a foam; the result should be a smooth film over the whole engraving area.

→ Applying markSolid Paste by airbrush:

- For using markSolid by airbrush, follow the dilution steps according to the description.
- Clean and dry the container from the airbrush well before filling the markSolid diluted paste.
- Use a nozzle of 0.5 – 0.8 mm for the airbrush.
- Start spraying from a distance of 30 cm.

8. Safety instructions

- Apply the markSolid products in a well-ventilated area.
- Wear respiratory protection when using the spray or airbrush.
- Wear safety gloves.

→ **Tip: If the layer applied is too thick or uneven, you can easily wash it off with water. When it has dried, you can resume the application process.**





9. Drying

- The material needs about 3 minutes for drying.

→ **Tip: Put it into the laser device and turn on the exhaust; this reduces the drying time**





10. Laser marking

- Start with the 1st job (500 dpi).
- Use the same settings and continue with the 600-dpi job and then with the 1000-dpi job.
- After laser marking, clean the piece of metal with water and a cloth.



- Compare the results of the three jobs; the one with the best results is the one with the optimal resolution. Next, compare the 16 different parameters from the plate and chose your favorite parameters.

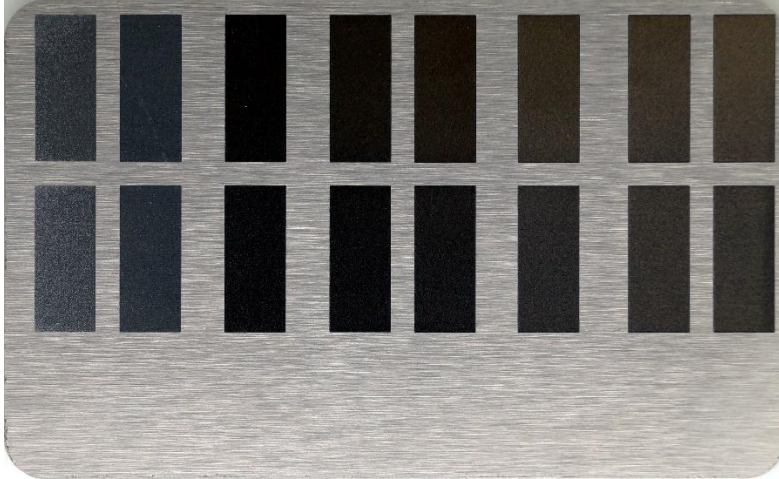




11. Results not as expected ?

If the result is grey, the material may not be waterproof.

If the result is brown, it is charred.



If the marking is too light/ grey:

Or: $P_{(Power)}$ ↑
 $V_{(Speed)}$ ↓



correct parameter(s)



If the marking is burned/ brown :

Or: $P_{(Power)}$ ↓
 $V_{(Speed)}$ ↑

