

## Laser data sheet

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- Steel specification:** Laser machinable materials include
- pre hardened: 1.2738EST, 1.2311EST, 1.2738TS HH
  - full hardened: 1.2343ESU
  - Special grades: ES Aktuell 1200, ES Primus SL, ES Atlas 42
- Further information at [www.eschmannstahl.de](http://www.eschmannstahl.de)
- Please specify material specifications and hardness when ordering.
- Info:** select similar materials for complete assembly groups.
- Polishing:** At least 320 line polish free of scores or finer (e.g. for fine textures)
- Info:** coordination recommended depending on requirements.
- Data provision:** Data provision of the final tool data for each relevant cavity at least 3 weeks before the tool is relocated to create the texture mapping. A written order must be received for the provision of the mapping file.
- The data **must** correspond to the actual status of the tool on delivery.
- Grain areas:** Identification of the shape contour (area) to be grained for each cavity in CAD data required (red colour)
- CAD-file formats:** Step, STL, Catia and other common CAD formats
- Info:** Please send the original file format. Conversion by Eschmann Textures is possible. Please do only provide data for the tool parts to be processed, such as cavity, inserts, sliders (without mounting plate, hot runner etc.).
- Plastic pattern:** For complex tools or in case of changes, please send marked plastic samples in advance.

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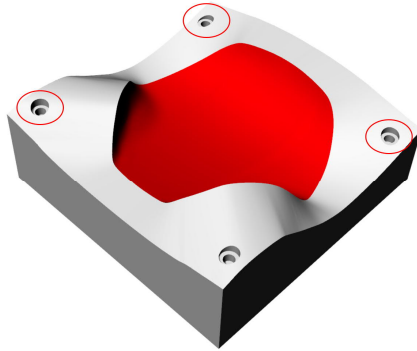
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### Accessibility:

If, due to undercuts and lack of accessibility, sliders do not have to be installed but lasered separately, coordination with the toolmaker is necessary for a reference point system. The same applies to component groups with an overlapping texture.

In the tool as well as in the slider and the cavity side, we recommend keeping at least 3 holes as reference points in order to be able to guarantee a clear position in X / Y / Z for the laser process. Minimum size of the hole 4mm – 5mm

The holes must be integrated in the tool data.



If this is not possible, the tool and attachments should have at least 2 reference surfaces that are 90 degrees to each other.

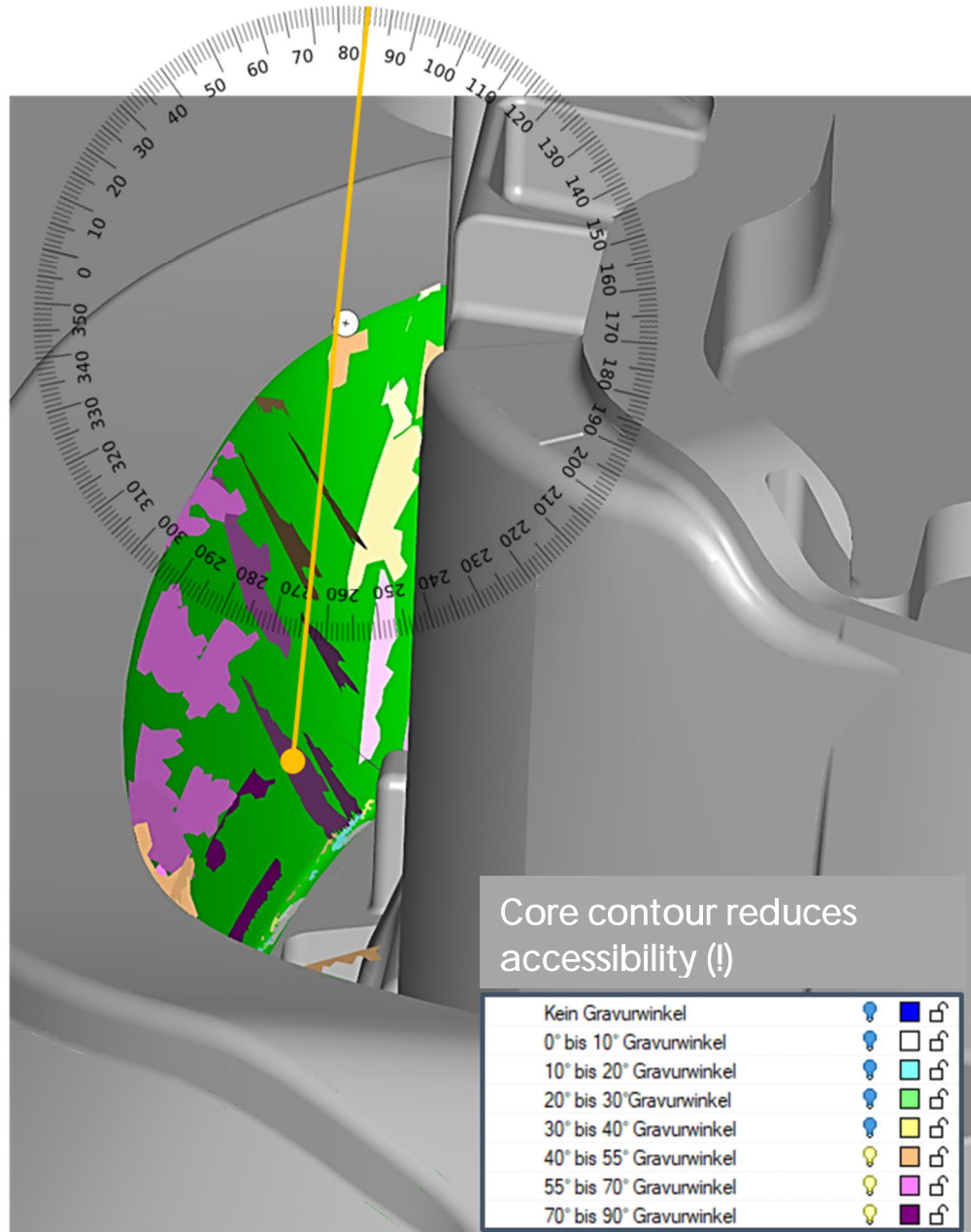
### Processing angle:

The angle at which the laser beam can reach the surface to be processed, e.g. due to the tool geometry, has an effect on the appearance of the grain. From a processing angle of  $\geq 40^\circ$ , processing-related deviations in depth and degree of gloss and - at very extreme angles - significant deviations in the case of grain cannot be ruled out. Feasibility assessments based on tool CAD data can identify the areas before machining.

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### Example of an accessibility



**Mapping approval:** at least 1 week before the start of tool machining

**Visualization:** If desired, visualizations (preview) of the textured tool can be made available (e.g. 3D animation, realistic images).

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Locations	Wiehl/Marienhagen, Germany				Viry, France
Number of machines	1x	1x	2x	1x	1x
Manufacturer	GF Machining Solutions GmbH				
Laser type	Laser S 1200 U	Laser 600 U	Laser 1200 U	Laser P 4000 U	Laser 1200 U
Laser power	50 W Flexipuls, 100 W Fixpuls	50 W	50 W	100 W	100 W
Laser source	Flexipuls und →	IPG Ytterbium phase laser (pulsed), pulse duration 150 ns (fix), wave length $\lambda = 1064$ nm			
Traverse path [mm]	1200 x 900 x 1200	600 x 460 x 830	1200 x 900 x 1200	4000 x 3000 x 1500	1200 x 900 x 1200
Max. work piece-dimension [mm]	Ø 920 x 790	Ø 420 x 530	Ø 920 x 790	4000 x 3000 x 1170	Ø 920 x 790
Max. Texturing area [mm]	Ø 865 x 790	Ø 370 x 530	Ø 865 x 790	2800 x 1800 x 1170	Ø 865 x 790
Max. Weight	1.700 kg	75 kg	1.700 kg	max. 20 t	1.700 kg
Lens(es)	Type: LINOS F-Theta-Ronar				
* = Standard	f = 255 mm* (Spot-Ø: ~70 µm)	f = 160 mm (Spot-Ø: ~50 µm) f = 254 mm (Spot-Ø: ~70 µm)*	f = 330 mm f = 420 mm*	f = 160 mm (Spot-Ø: ~50 µm) f = 254 mm (Spot-Ø: ~70 µm)*	
Delivery address	Eschmann Textures International GmbH Dieringhauser Str. 159 D-51645 Gummersbach				GMV Eschmann International Zone artisanale sous le Vernois F-39360 Viry

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