Tenibac-Graphion, Inc.
TEXTURING PROFESSIONALS

Information Sheet and Requirement Check List

Processing Location:	Tenibac-Graphion, Inc. 35155 Automation Drive Clinton Township, MI 48035
Engraving Area for 5-axis: (W x L x H)	The maximum mold capacity is approximately 9'+ x 13'+ x 5' (3000mm x 4000 mm x 1500mm The maximum weight capacity for laser texture is 25 tons
Steel Specifications:	Aluminum (*highest LASER ETCH rate*), steel (*medium LASER ETCH rate*), titanium (*medium LASER ETCH rate*), stainless steels (*medium LASER ETCH rate*), pre-hardened steels (*medium LASER ETCH rate*), tungsten Carbide (*medium LASER ETCH rate*), platinum (*medium LASER ETCH rate*), nickel (*medium LASER ETCH rate*), copper (*low LASER ETCH rate*), brass (*low LASER ETCH rate*), Special grades on request.
Surface preparation:	At least 320 grit polish, free of scores depending on the fineness of the design that is later required.
Tool Data delivery:	All files need to be converted to metric for laser process! *.CATPart, *.prt, *.par,*.step 214, Parasolid *.x_t or *.3dm We ask only for the tool data of the cavity to grain. Include inserts data as well (without clamping plate, hot runner , vacuum holes, vent holes, ...). Our FTP site is http://www.laseretch.us/upload-laser.html
Accessibility:	Engraving needs to be in "Line-of-sight" to engrave. Texture may distort or have less depth if angle exceeds 50°. Surface tolerance need to be .005"/127µm to data file when line-of-sight angle exceeds 20° from surface. If slides cannot be laser etched in assembled situation due to undercut or lack of accessibility, they will be laser etched separately. A consultation with the tool maker for a reference point system will be necessary. In general, for slides 3 holes are required for the unique position in X / Y / Z to adjust for the laser process.
Setup:	Some tools may require a fixture or mounting plate for location. Multiple cavities may require a fixture with multiple locations where applicable
Time leading:	We ask for data delivery of the final (audited) tool data at least 3 weeks before tool arrival to create the mapping. All changes /optimization must be included in the data.
Grain direction:	A grain direction must be stored in the data. The end of grain on the cavity should be colored in the layer. Tool files for mating parts, need to be send together.
Reference point:	Outside of the grain area a fitting bore with identification of the X / Y coordinate should be defined for fine adjustment of the laser.

5-AXIS LASER FAQ

ABLATION: THE REMOVAL OF MATERIAL FROM THE SURFACE OF AN OBJECT BY VAPORIZATION

CAN YOU LASER ABLATE TEXTURE ON EMBOSSING ROLLS?

- Yes. However, the maximum 4-axis ablation area for embossing rolls is determined by combining the overall roll length, roll body diameter. Please contact our Tenibac representative to determine if laser ablation is the right application for your roll texturing project.

DOES TENIBAC HAVE PATTERNS I CAN USE?

- Yes. Tenibac has a large library of industry standard textures and unique patterns from which to choose.

MY PRINT SPECIFIES A PATTERN NUMBER FROM ANOTHER TEXTURE HOUSE. CAN TENIBAC MATCH IT?

- Yes. Tenibac can cross reference any pattern number in the industry.

WHAT IS REQUIRED TO PRODUCE A NEW, CUSTOM PATTERN?

- Patterns can be developed utilizing virtually any natural material, such as leather, wood, and stone.
- Please contact your Tenibac representative to discuss your particular project and all the options available to you.

WHICH MOLD MATERIALS WORK BEST WITH LASER ABLATION?

- aluminum (highest ablation rate), steel (medium ablation rate), titanium (medium ablation rate), stainless steels (medium ablation rate), pre-hardened steels (medium ablation rate), tungsten Carbide (medium ablation rate), platinum (medium ablation rate), nickel (medium ablation rate), copper (low ablation rate), brass (low ablation rate)

  It is strongly recommended that molds producing mating parts be constructed from the same material, to ensure the best possible texture match.

IF A MOLD IS GOING TO CONTAIN A COMBINATION OF TWO OR MORE MATERIALS (E.G., P-20 & 420 STAINLESS), CAN I BE ASSURED THAT THE TEXTURE WILL NOT BE VISIBLY DIFFERENT?

- Yes. Utilizing the accuracy of 3D software, and the precise level of detail achievable by the ytterbium fiber laser, different materials can be isolated for specific ablation cycles.

WHAT PROCEDURE SHOULD BE FOLLOWED BEFORE WELDING A TEXTURE AREA?

- Matching the welding rod or wire to the mold material is the first step to ensuring a good, texture ready weld.
- Heating the repair area and surrounding material prior to welding will help ensure a good bond.
- Color matching (normalizing) the weld area with the surrounding material is critical to ensure even etch rates.
- Always consult your material supplier for welding specifications particular to your material type.