RECOMMENDATIONS REGARDING TECHNICAL DOCUMENTATION

1. GENERAL *(General recommendations contain information relevant to each operation)*

1.1. Documentation prepared in PL, EN, DE, according to the principles of technical drawing (ISO 128).

1.2. Use your personal file naming system (maximum number of characters - 21, no repeating names).

1.3. Editable form of transferred files, preferred * .dwg, * .dxf, * .STEP

1.4. Information on the material (grade, thickness, quantity, type of surface finish, etc.)

1.5. In case of coatings (painting, galvanizing, nickeling, etc.) specify the standard and requirements of the process.

1.6. Standards and tolerances adequate to the processes::

- laser cutting: **PN-EN ISO 9013**;
- mechanically and plastically treated parts: **PN-EN ISO 2768**;
- welded parts: **PN-EN ISO 13920**.

1.7. Every change in the drawing should involve a change in the revision in the file name, and in the drawing table (new revision - new drawing).

1.8. Do not provide drawings of several parts in one file.

1.9. Possible rounding of the corners should be included for laser cut elements. Radius of rounding ~10% of material thickness.

2. RECOMMENDATIONS FOR LASER CUTTING.

2.1. Drawing scale 1:1

2.2. Drawing in * .dxf format - for laser cut items it should contain only outer and inner contours of the item (without dimensions, tables, etc.)

2.3. No splines, open contours/outlines, blocks, overlapping lines, etc.

2.4. In relevant cases - indication of micro-joints, engravers (yellow lines), direction of grinding, etc.

2.5. Stick to the rule: one item - one * .dxf file.

2.6. Possible rounding of the corners should be included for laser cut elements. Radius of rounding ~10% of material thickness.

3. RECOMMENDATIONS FOR BENDING.

3.1. Provide a *.STEP model, or a *.dwg drawing containing expansion of the sheet, dimensioned and described bending lines (directions, degrees and radii), and projections of bended item.

3.2. The bending radius should not be less than the thickness of the sheet (preferred radius equals the thickness of material).

3.3. It should be remembered that depending on the thickness of the material, there are minimal bending distances, and holes below this distance will be distorted. You can use force selection tables from external studiem, e.g. http://www.plasmet.net/technology.

3.4. Bending lines on blanks and processed parts – Continuous narrow line (ISO 128-20)

4. RECOMMENDATIONS FOR MECHANICAL TREATMENT.

4.1. If possible, provide the * .STEP model

4.2. In the drawing, indicate the surface quality requirements (roughness).

4.3. Mark edge roundings/chamfers, and external and internal rays.

5. RECOMMENDATIONS FOR WELDING.

5.1. In the drawing, mark the welds (type and dimensions).

5.2. In case of complex elements keep the multilevel structure of the product (BOM)