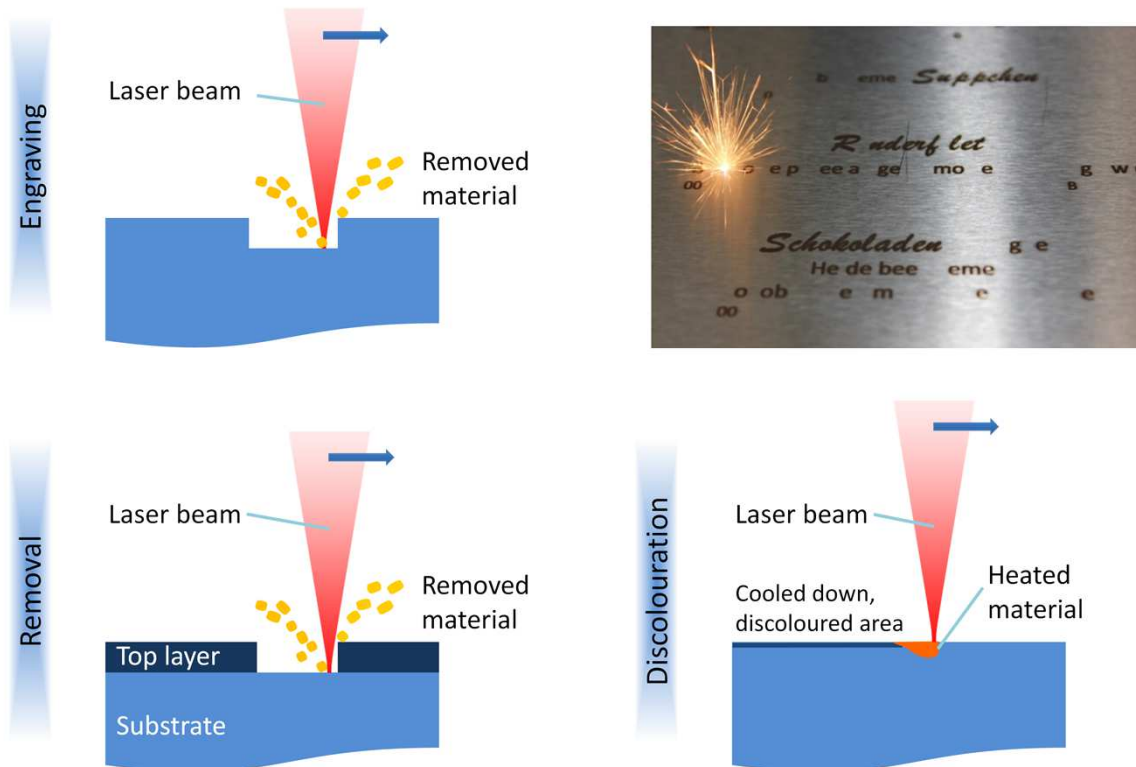


Procedural Principle Laser Beam Marking



Dependant on the material laser marking is performed with different process technologies.

For **metals** there exist two procedural principles: engraving or annealing. Engraving asks for high pulse energy. Emerging metal vapor supports ablation by impulse impact on molten areas. Deepness of engraving increases with number of runs. Another variant of engraving is the controlled ablation of a discoloured top layer, a process technology especially used for marking of anodized aluminium. Whereas annealing does neither ablate nor melt the material. The procedural principle is based on chemical reactions of the heated metal with the surrounding atmosphere. The resulting color depends on the annealing temperature. The variety of colors ranges from white-yellow (200 °C) to purple-red (270 °) and grey (360 °C).

Marking of **plastics** works either by thermal induced discoloring or by melting. Dark colors in light plastic parts are created by soot particles, light colors in dark plastics result from encapsulated gas bubbles scattering the ambient light.