

ABSTRACT

A method of laser processing of a metallic material with optical axis position control of the laser relative to an assist gas flow, and a machine and computer program for the implementation of said method

A method of laser processing of a metallic material is described, by means of a focused laser beam having a predetermined transverse power distribution on at least one working plane of the metallic material, comprising the steps of:

- 10 - providing a laser beam emitting source;
- leading the laser beam along a beam transport optical path to a working head arranged in proximity to the material;
- collimating the laser beam along an optical axis of propagation incident on the material;
- 15 - focusing the collimated laser beam in an area of a working plane of the material; and
- conducting said focused laser beam along a working path on the metallic material comprising a succession of working areas, wherein the laser beam is shaped:
- 20 - by reflecting the collimated beam by means of a deformable, controlled surface reflecting element having a plurality of independently movable reflection areas, and
- by controlling the arrangement of the reflection areas to establish a predetermined transverse power distribution of the beam on at least one working plane of the metallic material as a function of the area of the current working plane and/or of the current
- 25 direction of the working path on the metallic material.

(Fig. 8)