

LASER NET SHAPE MANUFACTURING USING AN ADAPTIVE TOOLPATH DEPOSITION METHOD

ABSTRACT

A method is disclosed for laser cladding a substrate, comprising providing the substrate; depositing a first determined variable bead width of a material along a toolpath upon the substrate; depositing a second adjacent determined variable bead width of a material along the toolpath which overlaps the first determined variable bead width of deposited material; continuing to deposit a plurality of overlapping predetermined adjacent variable bead widths of a material until a first material layer is complete; forming a second material layer by depositing a plurality of overlapping predetermined variable bead widths of a material on top of the first material layer; and continuing to deposit material layers on top of deposited material layers until the cladding is complete; wherein the variable bead width of the deposited material is controlled by a computer having a plurality of input parameters to maintain an approximately constant percent of bead width overlap.

Figure 1