

Abstract

Device and method for producing metal powder using an induction coil and an intermediate coil

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The invention relates to a device (10, 100) for producing metal powder. This comprises a melting chamber (12), a downstream atomization tower (14), and a nozzle assembly (16) for atomizing a melt jet (24). The device further comprises an induction coil (20) disposed within the melting chamber (12) and operated at a melting frequency f_{melt} , the induction coil (20) is adapted to locally melt a material rod (22) at least section-wise received therein, to produce the melt jet (24) to be atomized, and a separate intermediate coil (30, 130) disposed within the melting chamber (12) and operated at a base frequency f_{base} , wherein said intermediate coil (30, 130) is disposed downstream of the induction coil (20) and aligned coaxially with the induction coil (20). The intermediate coil (30, 130) is configured to superheat the melt jet (24) in a region between the induction coil (20) and the nozzle assembly (16). The following applies to a frequency ratio F_{BS} of the base frequency f_{base} to the melting frequency f_{melt} , $1 \leq F_{\text{BS}} = f_{\text{base}}/f_{\text{melt}} \leq 500$.

20 (Fig. 1)