

Abstract

Provided herein is a method of hot gas forming and heat treatment for a Ti_2AlNb -based alloy hollow thin-walled component, which pertains to the technical field of plastic forming manufacture of thin-walled components made from difficult-to-deformation materials, more particularly, a forming method of Ti_2AlNb -based alloy hollow thin-walled components is involved. The purpose of this invention is to solve the existing problems that Ti_2AlNb -based alloy hollow thin-walled components are difficult to form, process steps are complex, and the shape and dimension precision is in contradiction with the control of the microstructure and properties. The method comprises the following steps: (1) hot gas forming to obtain hot gas formed tube components, and (2) controlled cooling heat treatment to obtain Ti_2AlNb -based alloy hollow thin-walled components. The advantages of this invention are as following: improving production efficiency, high dimensional accuracy, reducing energy consumption, achieving the integration of shape and performance control, and excellent mechanical properties. The invention also relates to Ti_2AlNb -based alloy hollow thin-walled components manufactured by a hot gas forming and heat treatment method.

Fig. 3