

ABSTRACT

THERMOMECHANICAL PROCESSING OF HIGH STRENGTH NON-MAGNETIC CORROSION RESISTANT MATERIAL

A method of processing a non-magnetic alloy workpiece comprises heating the workpiece to a warm working temperature, open die press forging the workpiece to impart a desired strain in a central region of the workpiece, and radial forging the workpiece to impart a desired strain in a surface region of the workpiece. In a non-limiting embodiment, after the steps of open die press forging and radial forging, the strain imparted in the surface region is substantially equivalent to the strain imparted in the central region. In another non-limiting embodiment, the strain imparted in the central and surface regions are in a range from 0.3 inch/inch to 1 inch/inch, and there exists no more than a 0.5 inch/inch difference in strain of the central region compared with the strain of the surface region of the workpiece. An alloy forging processed according to methods described herein also is disclosed.

(Figure 6)