



162162

DIMENSIONALLY CONTROLLED PACK ALUMINIDING OF INTERNAL SURFACES OF A HOLLOW ARTICLE

ABSTRACT

An article (20) such as a hollow gas turbine blade (22) has an internal cavity (38) therein with an inlet (44) and outlet (46). The outlet (46) has an outlet minimum transverse dimension of from about 0.009 inch to about 0.012 inch. An aluminiding source powder (70) has a minimum particle size of greater than about 0.0015 inch (40 μm) and not greater than about 0.005 inch (130 μm). The aluminiding source powder (70) is a mixture of from about 5 to about 15 percent by weight of a metallic aluminum-containing powder (72) and from about 85 to about 95 percent by weight of a ceramic powder (74). The aluminiding source powder (70) is flowed into the internal cavity (38) through the inlet (44), and the article (20) is heated with the aluminiding source powder (70) in the internal cavity (38) to a temperature of from about 1750°F to about 2000°F (950 - 1090°C), and for a time of from about 2 hours to about 12 hours, to deposit an aluminum-containing coating (76) on the internal surface (40) of the internal cavity (38). The aluminiding source powder (70) is thereafter removed from the internal cavity (38) through the inlet (44).

Fig. 3



G00002