

ABSTRACT

THERMOMECHANICAL PROCESSING OF ALPHA-BETA TITANIUM ALLOYS

One embodiment of a method of refining alpha-phase grain size in an alpha-beta titanium alloy comprises working an alpha-beta titanium alloy at a first working temperature within a first temperature range in the alpha-beta phase field of the alpha-beta titanium alloy. The alloy is slow cooled from the first working temperature. On completion of working at and slow cooling from the first working temperature, the alloy comprises a primary globularized alpha-phase particle microstructure. The alloy is worked at a second working temperature within a second temperature range in the alpha-beta phase field. The second working temperature is lower than the first working temperature. The alloy is worked at a third working temperature in a third temperature range in the alpha-beta phase field. The third working temperature is lower than the second working temperature. After working at the third working temperature, the titanium alloy comprises a desired refined alpha-phase grain size.

[Figure 1]