

Title (en)
NITRIDING PROCESS FOR MARAGING STEEL

Title (de)
NITRIERUNGSVERFAHREN ZUR STAHLMARTENSITAUSHÄRTUNG

Title (fr)
PROCÉDÉ DE NITRURATION POUR ACIER MARAGING

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Application
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Abstract (en)
A nitriding process for a maraging steel is provided in order to increase the compressive residual stress of the maraging steel. A workpiece is made of maraging steel in which titanium is solid solved, and a partial amount of the titanium is oxidized at the surface of the workpiece so that titanium oxide (TiO₂) is positively generated and concentrated at the surface (a solution heat treating step). Then, since titanium in an oxide state does not combine with nitrogen in a nitriding step, a reducing treatment is sufficiently performed as a pretreatment of the nitriding step, thereby removing oxygen. As a result, surface concentration of the titanium in an activated state is increased. Next, by performing the nitriding treatment, the reduced titanium and the solid solved titanium combine with nitrogen as titanium nitride (TiN). The titanium is in the activated state and is thereby easily nitrided. Moreover, the surface concentration of the titanium in the activated state is high, whereby a large amount of nitrogen infiltrates into the workpiece.

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