

Title (en)
AN ULTRA-HIGH STRENGTH THERMO-MECHANICALLY PROCESSED STEEL

Title (de)
ULTRAHOCHFESTER THERMOMECHANISCH BEHANDELTER STAHL

Title (fr)
ACIER TRAITÉ THERMOMÉCANIQUEMENT À TRÈS HAUTE RÉSISTANCE

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Application
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Abstract (en)
[origin: WO2016063224A1] The present invention disclosed an ultra-high strength steel for structural components, a process of making such steel that has a desirable microstructure in the thermo-mechanically processed and differently cooled conditions that delivers high fatigue performance in service, and a process of making forged components using such steel. The steel and the process of its manufacturing enables manufacture of components that exhibit bainitic microstructure that impart ultra- high strength ranges with very high fatigue performance. The invention enables saving in alloying additives compared to hardened and tempered alloy steels and in addition avoid expensive heat treatment operations to achieve the desired range of mechanical properties. The steel of the invention is a suitable replacement for micro alloyed steel or heat treated steel bars used for structural component development. The steel can be used for applied as the hot rolled and air cooled long products that can be directly used for applications or it can be directly hot forged in open or closed die forging followed by controlled cooling to achieve the desired microstructure and range of mechanical properties.

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