Claims

1. A composite antiseismic fireproof building steel, the composite antiseismic fireproof building steel, wherein it comprises the following chemical components by weight percentage: C: 0.12%, Si: 0.55%, Mn: 0.50%, Mo: 0.45%, Nb: 0.13%, V: 0.001% and Ti: 0.015%, and the rest are Fe and unavoidable impurities.

2. A method for manufacturing the composite antiseismic fireproof building steel according to any of claims 1 to 3, wherein it specifically comprises the following steps:

S1: smelting molten steel: smelting molten steel according to the target chemical components of the steel plate, adding silicomanganese to the ladle for alloying at the time of tapping, precisely controlling the order of adding alloy during LF refining process, adding Ti, Mo, Nb and V in sequence, and adjusting the components of the molten steel to the target components;

S2: continuous casting: casting the molten steel into a continuous cast blank, wherein the thickness of the continuous cast blank is ≥100mm, and the compression ratio is not less than 3 times;

S3: reheating a casting blank: heating the continuous cast blank to 1,100-1,250℃, and the time in furnace is 8-12min/cm;

S4: hot rolling: A two-stage rolling process is adopted, and it is specifically as follows:

(1) rough rolling: performing 3-5 passes of rough rolling, wherein the final rough rolling temperature is 1,020-1,150°C so that the austenite can be refined by repeated recrystallization in the steel;

(2) finish rolling: performing 5-10 passes of finish rolling, wherein the initial finish rolling temperature is 880-980℃, the final finish rolling temperature is 830-920℃,

and a pancake-like austenite structure is obtained after rolling; and then performing laminar cooling at a cooling rate of 5-15℃/s so that the precipitation of Nb is inhibited, wherein the final cooling self-tempering temperature is 500-700℃, and the unprecipitated Nb precipitates separately out of ferrite and bainite during self-tempering or precipitates in combination with V and Mo to form a nanoscale second phase and obtain a fine-grained ferrite and granular bainite structure, and then cooling in the air to room temperature.