Contribution to the Mechanical Properties of Sintered Steels Obtained after Quenching and Annealing Treatments

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Abstract

The mechanical property values of sintered steels obtained by powder metallurgy are presented in this work. This properties result by annealing after quenching thermal treatment. The sintered steels are based on iron powder type Distaloy AE (Hoganas - Sweden) with different carbon concentrations adding (< 1 % C). The quenching and annealing treatments were realized in a thermal and thermochemical treatment furnace - Patent No. 101496 O.S.I.M. (Bucharest - Romanian Patent Office). The experimental session consist in quenching treatment of powders by heating at 850-900 Celsius degrees, followed by annealing treatments (heating at 300-500 Celsius degrees) and cooling with or without mechanical stirring by rotary charge in furnace atmosphere.

Contributions to the Mechanical Properties Study of Steel Sheets Obtained by Powder Metallurgy and Thermal and Thermochemical Treated

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Abstract

The research results of steel sheets based iron on obtained by powder metallurgy, with max. 3 mm. thickness (Patent No. 119183 O.S.I.M., Bucharest - Romanian Patent Office) are presented in this work. The sintering step was followed by thermal and thermochemical treatments for mechanical properties improvements. The raw material used for steel sheets fabrication by metallic powder lamination was iron powder type Distaloy NC.100.24 (Hoganas - Sweden) with < 0.01 % C and < 0.21 % H2. The experiments consist in carburising by heating at 930-950 Celsius degrees, followed by annealing treatments. By carburising treatment the carbon percentage in sintered steel sheets with max. 3 mm. Thickness was accurately controlled.