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Effect of the PEN/C surface layer modification onthe microstructure, mechanical and tribologicalproperties of the 30CrMnSiA mild-carbon steel

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Просмотр дополнительных организаций

Краткое описание

As result of plasma-electrolytic nitrocarburizing 30CrMnSiA carbon steel (ferrite-perlitegrade), there was a change in the elemental and phase composition, as well as the sur-face layer microstructure (40 ÷ 45 microns thick from the surface). A formation of Me23(CN)6 carbonitrides, FeN nitrides, Fe3C - (Fe,Cr)3C carbides and an increase in dislocation densitywithin α-phase (tempered martensite crystallites), high-temperature lamellar martensitewere observed. As a result of PEN / C exposure for 7 min. at 750°C there is a reduction offriction coefficient and wear rate, what is connected with finely dispersed secondary phasesFeN, (Fe, Cr)3C, Me23(C, N)6 formation. Thus there is an 2,5 ÷ 3,3 times increase in hardnessof 30CrMnSiA carbon steel samples. 