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Surface thermohardening by the fast-moving electric arch

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Abstract

© Published under licence by IOP Publishing Ltd. This paper describes the technology of modern engineering-plasma hardening steels and prospects of its application. It gives the opportunity to manage the process without using of cooling media, vacuum, special coatings to improve the absorptive capacity of hardened surfaces; the simplicity, the low cost, the maneuverability, a small size of the process equipment; a possibility of the automation and the robotization of technological process.

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References

- [1] Berdnikov A.A., Alisova G.V., Filippov M.A. and Zapariy Vas. V. 2013 Materials XI All-Russian scientific conference "Bakuninskaya reading." 2 (Yekaterinburg: UMC-UPI) Plasma hardening steels - XXI engineering technology 21-25
- [2] Kashapov N.F. and Sharifullin S.N. 2015 IOP Conference Series: Materials Science and Engineering 86 012021
- [3] Khisamutdinov R.M., Zvezdin V.V., Saubanov Ruz.R., Israfilov I.H., Rakhimov R.R. and Spirin A.A. 2016 Study of processes of steels surfaces modification with highly concentrated energy flows IOP Conf. Ser.: Mater. Sci. Eng.
- [4] Saubanov Ruz.R., Zvezdin V.V., Israfilov I.H., Haybullin I.I. and Rakhimov R.R. 2014 Synthesis of oxidic powder in nonequilibrium low-temperature plasma with increase of indicators of quality of process IOP Conf. Ser.: Mater. Sci. Eng. 567 012034
- [5] Gabdrakhmanov Az.T., Israphilov I.H., Galiakbarov A.T., Samigullin A.D. and Gabdrakhmanov Al.T. 2016 Improving the efficiency of plasma heat treatment of metals Journal of Physics: Conference Series 669 012014
- [6] Gabdrakhmanov Az.T., Israphilov I.H., Galiakbarov A.T., Bashmakov D.A. and Samigullin A.D. 2014 Pulse plasma surface thermostrengthening of machine parts IOP Conf. Ser.: Mater. Sci. Eng. 69 012037
- [7] Gabdrakhmanov Az.T., Israfilov I.H., Galiakbarov A.T. and Samigullin A.D. 2013 News of the Tula State University 6 The thermal characteristics of the process of pulsed plasma processing of steel 253-260 Part 1
- [8] Denisov D G, Kashapov N F and Kashapov R N 2015 IOP Conference Series: Materials Science and Engineering 86 012005
- [9] Kashapov N.F. and Luchkin A.G. 2014 The use of low-temperature plasma deposition of hardening coatings on plastics Proceedings of the higher educational institutions. Physics. 57 160-163
- [10] Zaripov R G, Kashapov N F, Tkachenko L A and Shaydullin L R 2016 J. Phys.: Conf. Ser. 669 012053
- [11] Kashapov L N, Kashapov N F and Kashapov R N 2014 J. Phys.: Conf. Ser. 567 012025
- [12] Kashapov N.F. and Kashapov R.N. 2014 A study of plasma-electrolytic process for different ratios of the anode space to the cathode Proceedings of the higher educational institutions. Physics. 57 168-170