

# Technology of overlay laser welding of durable powdery into blade edge of miller

Zvezdin V., Hisamutdinov R., Rakhimov R., Israfilov I., Saubanov R.

*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

---

## Abstract

© Published under licence by IOP Publishing Ltd. In this paper the laser welding technology features of wear-resistant powders on the hob's cutting edge with laser radiation (LR) focus positioning control are described. It is shown that the quality of the welding process depends on the processing regimes, the energy characteristics of the laser technological complex (LTC), the positioning accuracy of the LR focus and its perpendicularity relative to the plane of a router bit. In this paper we deal with the questions of stabilization of LTC parameters and LR positioning as well.

<http://dx.doi.org/10.1088/1757-899X/412/1/012083>

---

## References

- [1] Chernova M A, Hisamutdinov P M, Zvezdin V V, Simonov L A and Spirin A A 2015 Metallographic examination of overlay laser welding of durable powdery into tool Basic researches 11-4 753-758
- [2] 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 Conference Series: Materials Science and Engineering 669 012024
- [3] Grigoryants A G, Perestoronin A V, Portnov S M, Zvezdin V V and Israfilov I H 2015 A system for automatic control of precision laser welding in engineering Welding International 29 801-804
- [4] Rakhimov R R, Zvezdin V V, Israfilov I H and Nabiullina G I Saubanov R R 2014 Modeling of the laser heat treatment News of the Tula State University Technical science 476-84
- [5] Zvezdin V V, Israfilov D I, Portnov S M, Saubanov R R, Rakhimov R R and Zvezdina N M 2015 Automatic control system of high-precision welding of preparations by the laser radiation at influence of the plasma torch Proceedings of the higher educational institutions (Physics) No 9-3 58 51-54
- [6] Zvezdin V V, Samorskiy V V, Pesoshin V A, Aleev R M and Saubanov R R 2015 Improvement of combined laser-plasma welding Proceedings of the higher educational institutions (Physics) 58 36-39
- [7] 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
- [8] Rakhimov R R, Saubanov R R and Israfilov I H 2017 Analysis of the impact of informative heat treatment parameters on the properties of hardening of the surface layers Journal of Physics: Conference Series 789 012040
- [9] Saubanov R 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 Conference Series: Materials Science and Engineering 567 012034