

# The influence of iron microstructure on tool capacity during cutting process

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## Abstract

© Published under licence by IOP Publishing Ltd. An overview of machinability by cutting cast irons is given. The effect of the microstructure of cast iron on the tool's working capacity during cutting has been studied. The reasons for the tool failure during drilling are revealed.

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## References

- [1] Lyubimov V E 1991 Guide to metal cutting processing (K.:Technics) 239 and others
- [2] Baranchikov V I 1990 Progressive cutting tools and conditions (M.: Engineering) 285 and others
- [3] Kas'yanov S V, Kondrashov A G and Safarov D T 2017 Rapid Assessment of Wear-Resistant Tool Coatings Russian Engineering Research 37 969-73
- [4] Safarov D T, Kondrashov A G, Safarova L R and Glinina G F 2017 Energy planning in production shops with numerically controlled machine tools Russian Engineering Research 37 827-34
- [5] Golovko A.N. I.V. Kinematic calculation of the error in gear shaving Russian Engineering Research 31 1034-35
- [6] Golovko A. Determination of the profile of the worm-type tool MATEC Web of Conferences 129 01043
- [7] Batygin Yu V, Lalazarova N A and Plotnikov I V 2011 Research of high-strength cast iron machinability with spherical graphite Vestnik KhNADU
- [8] Trenev D V 2007 Processing of cast iron by cutting Tool, technology, equipment 56-57
- [9] Grechishnikov V A, Petukhov Y E, Pivkin P M, Romanov V B, Ryabov E A, Yurasov O I and Yurasova S Y 2017 Trochoidal slot milling Russian Engineering Research 37 821-23
- [10] Machining of Cast Irons 1989 Metals Handbook 16 9 648-65
- [11] Petrov S M, Davletshina G K, Zairov B F and Zairov L F 2017 Cutter profile of a mill for machining screw channels Russian Engineering Research 37 728-29
- [12] Davletshina G K, Zairov B F and Petrov S M 2014 The use of carbide inserts in the processing of high-strength cast iron Collection of articles based on the XVIII-XIX International scientific-practical conference 11-12 120
- [13] Davletshina G K, Astashchenko V I and Zamarayeva T A 2010 Properties and prospects of products' application from high-strength cast iron in mechanical engineering Education and science-production: International scientific-technical and educational conference Part 1 book 3 273