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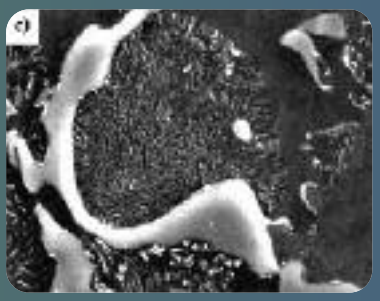

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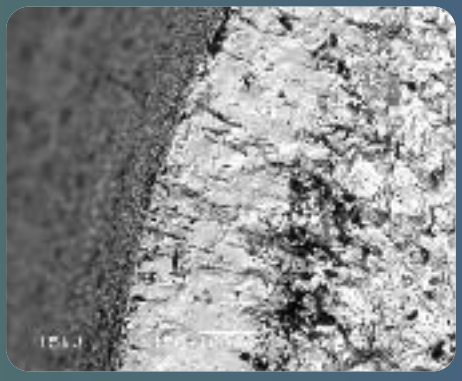
The paper entitled "Microstructure analysis of the modified casting magnesium alloys after heat and laser treatment" by L.A. Dobrzański, T. Tański, J. Domagała, M. Bonek and A. Klimpel on a **page 7** demonstrates the structure of the modelling cast magnesium alloy EN-MCMgAl6Zn1 as cast state, after heat treatment and laser treatment. The results of the metallographic examinations confirm the fact that the magnesium cast alloy MCMgAl6Zn1 is characterised by a microstructure of the α solid solution constituting the alloy matrix as well as the ß – $Mg1_7Al_{12}$ discontinuous intermetallic phase in the forms of plates located mostly at grain boundaries. The results indicate that laser-melted layer contains the fine dendrites. The substrate grains are significantly coarse than in the laser surface remelting zone. According to the alloys characteristic, the applied cooling rate and alloy additions seems to be a good compromise for mechanical properties and microstructures, nevertheless further tests should be carried out in order to examine different cooling rates and parameters of solution treatment process and aging process. This work helps to use the new developed laser treatment technique for alloying and remelting of magnesium cast alloys for a new application.



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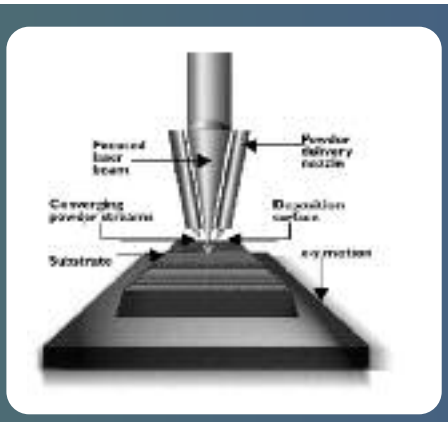
The Properties section represented by O.N. Celik, H. Gasan, M. Ulutan and M. Saygin on "An investigation on fatigue life of borided AISI 1010 steel" on a **page 13** presents the fatigue life of box borided AISI 1010 steel materials. As a result it has been seen that boriding has no positive effect on fatigue life of AISI 1010 steel materials. And also it has been determined that fatigue life of the materials on which boriding heat treatment applied, decreases in between 14%-55%. Fatigue tests have been made in a rotating-bend test device. A separate S-N diagram has been formed for each boriding condition and then their results were compared with the results of the specimens on which any heat treatment has not been made. It can be noted that the reasons of short fatigue life determination are the boride layer's much higher hardness than the substrate material's, and the micro cracks existed between boride phases formed onto the surface.



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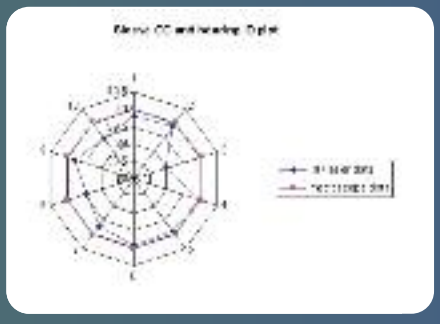
In the research paper entitled "Development process and manufacturing of modern medical implants with LENS technology" by M. Balažic, D. Recek, D. Kramar, M. Milfelner and J. Kopač on a **page 46** the LENS technology applied to manufacture modern medical implants is presented. A particular focus of the paper is on material quality and quality benefits obtained in current and future medical application. LENS technology enables rapid and agile manufacturing, improved design flexibility, repair and re-manufacture. Material built with LENS technology has equal or even better mechanical and material properties. In medical application LENS technology enables development and rapid prototyping of special surgical instruments, trauma and orthopaedic high-performance implants which are hollow and thin walled. Three different designs of bone fixation nail prototype made of titanium alloy had been manufactured with conventional machining techniques where some disadvantages due to the technology had been identified. To solve those problems LENS technology had been applied. As fourth design hollow thin walled fixation bone nail prototype made of titanium alloy powder (grain size 45μm) had been manufactured and tested.



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Authors: S. Sharma, D. Hargreaves and W. Scott in the paper entitled "Journal bearing performance and metrology issues" on a **page 98** presents a radial clearance of a journal bearings and the metrology of the radial clearance measurement. In this experimental study out-of-roundness and radial clearance of journal bearings were measured with high precision and the impact of their metrology was examined on the specific oil film thickness of the bearing. Some metrological issues were emerged and these should be taken into account when bearings are designed. The radial clearance of a journal bearing is a key design parameter and bearing performance mainly depends upon this parameter. In this paper it was showed that the metrology of the radial clearance measurement plays a significant role and not only that the bearing manufacturer or the user of the bearing is aware of this fact but the bearing designer must also take this fact into account while designing bearings. This paper showed that the radial clearance is a sensitive micro-geometry parameter and hence metrology plays a vital role in making decisions.

Industrial management and organisation

Technical paper

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