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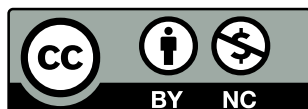
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BIMONTHLY

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Summaries of the articles

Marek St. Węglowski, Robert Jachym, Krzysztof Krasnowski, Krzysztof Kwieciński, Janusz Pikuła – Induction and Electric Arc-Based Melting of Thermally Sprayed Layers – Overview

DOI: [10.17729/ebis.2021.1/1](https://doi.org/10.17729/ebis.2021.1/1)

In many cases, the technology enabling the melting of thermally sprayed layers has no alternative. High-performance thermal spraying processes make it possible to obtain densely sprayed layers. However, previous research revealed that sprayed layers are characterised by porosity and numerous material imperfections. The above-named situation results from the specific manner of layer application. The article overviews induction and arc-based technologies enabling the melting of sprayed layers as well as discusses possible post-spray imperfections.

Radosław Ciokan, Michał Urbańczyk, Aleksander Lisiecki – The Development of a Technology of the Laser-Based Welding of Butt Joints in Composite Tubes

DOI: [10.17729/ebis.2021.1/2](https://doi.org/10.17729/ebis.2021.1/2)

The article presents the results concerning the development of a technology combining laser welding and hybrid surfacing enabling the making of butt joints in composite tube grades Sanicro 38/4L7 and 3R12/4L7. The tests involved the determination of the parameters of the laser welding of tube grade 4L7 and the hybrid surfacing of the external layer of tube grade Sanicro 38 and 3R12. The article also presents the results of the macro and microscopic tests of the joints.

Rafał Jurkiewicz, Jacek Słania – Application of Heads with the Water Coupling for Measuring Thicknesses of Tubes Used in Coal-Fuelled

Power Engineering Systems. Part 1 – Primary Issues

DOI: [10.17729/ebis.2021.1/3](https://doi.org/10.17729/ebis.2021.1/3)

The first part of the article presents basic information concerning measurements of corrosion thickness measurements (mapping) in respect of issues accompanying the combustion of biomass in currently operated power boilers. The article emphasises issues related to the degradation of the surface of waterwall tubes and stresses the necessity of applying a technique enabling the performance of reliable measurements through the destroyed surface of the boiler tube. The article also presents issues possibilities of using Spot weld types of transducers and the water column as a method enabling the non-contact of the tube surface.

Łukasz Rawicki – Unconventional Method of Non-Destructive Tests, Part 1

DOI: [10.17729/ebis.2021.1/4](https://doi.org/10.17729/ebis.2021.1/4)

The article presents methods which can be used when conventional non-destructive tests are unable to detect discontinuities. Non-destructive testing methods are based on physical phenomena enabling the obtainment of diagnostic information. Diagnostic information can be obtained using commonly applied methods as well as less popular techniques of specific nature.

Antoni Sawicki – The Mayr-Pentegov Model of Electric Arc Involving the Use of the Exponential Function and Enabling the Approximation of Static Characteristics

DOI: [10.17729/ebis.2021.1/5](https://doi.org/10.17729/ebis.2021.1/5)

The article presents the justified use of functions containing the exponential component for the approximation of the static current-voltage characteristics of electric arc. The Author

proposed a new function approximating the above-named characteristics which were next used in the mathematical Mayr-Pentegov model, expressed in two, i.e. differential and integral, forms. The two forms constituted the basis enabling the development of macromodels using controlled voltage and current sources. The article also presents families of dynamic current-voltage characteristics obtained through the simulation of processes in a circuit containing macromodels of arc powered by the source of current characterised by sinusoidal and trapezoidal waveforms and various frequency. The article demonstrates the usability of the proposed variants of the Mayr-Pentegov model.

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