

A word from our Editor-in-Chief

NONCONVENTIONAL TECHNOLOGIES - A GREAT BOOK

Dimensional processing technologies known as "Concentrated Energy Processing Technologies", "Nonconventional Technologies" or "Alternative Technologies" can be characterized by exceptional dynamics of use, perhaps the highest of all technologies applied in machine building. Practically, these new technologies have gone through all the phases from their "invention" to their wide industrial use in only about 65 years, currently becoming alternative technologies, complementary to classical technologies. These new technologies are based on elementary mechanisms with interconnections - sometimes surprising - and which have a completely different "legislation" compared to technologies considered classical. Knowledge, mastery and effective management of these elementary mechanisms constitute the premise of a rational and rapid development of technological systems and application technologies. Practically, knowledge of the phenomenology, of the physical mechanisms underlying the various unconventional machining processes, is the necessary condition for them to obtain the widest possible applicability and thus to leave the unconventional field and become, for both researchers and users, something ordinary, conventional. It is also the reason why, for the first time in the world and Romanian literature, the exclusive presentation of the elementary physical mechanisms with the connections and interdependencies specific to machining by erosion is systematically and completely approached. Of course, in these phenomenological syntheses, the application aspect, of the use of each process in particular, was constantly taken into account, highlighting how one or another of the elementary phenomena influences the final technological characteristics. It should be noted that the phenomenological presentation involved both the presentation of recognized and accepted theories and the presentation of new theoretical variants that still require studies and research in order to validate them, but which fill in the "gaps" in the already accepted theories. Since, of all nonconventional machining processes, Electrical Discharge Machining is the most developed from all points of view, both through the almost complete knowledge of the intimate processes, which with their specific interconnections lead to the removal of material, and through the special development of the necessary technological systems, respectively of the execution technology, the main attention of the authors was directed towards this process.

This book presents in detail the physical mechanisms that contribute to the formation of the impulse electrical discharge, the ways of influencing it, and the effects that this discharge has on its impact with its surrounding environment. These mechanisms are analyzed for both types of Electrical Discharge Machining initiation – by piercing and by breaking contacts, as well as for Electrical Discharge Machining with a filiform electrode. The book presents the elementary mechanisms for electrical discharge machining in all its forms, as well as complex technological problems, starting from the place and role of unconventional technologies, the issues of unconventional technology management, but also the related equipment used – all at the highest level, using accurate and complete knowledge carefully updated. The book is intended to be a landmark work, a book written by university teachers, all with a doctorate in Nonconventional Technologies and Equipment, university professors who have also worked in production in industrial organizations worthy of consideration.

The authors are university professors at the Lucian Blaga University of Sibiu, Faculty of Engineering, Department of Industrial Engineering and Management.

More details about authors you can be found here:

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The book is addressed to all those who wish to enrich their knowledge with substantive elements, treated in detail, updated with the latest information in the field regarding nonconventional technologies.



Engineers and not only can find in this book a broad and concentrated presentation of fundamental information that can generate systemic and qualitative approaches to everything that unconventional technologies mean, in this case Electrical Discharge Machining.

The book represents an essential bibliographic material for all students from technical specializations within engineering faculties and can certainly represent a real help for doctoral students who are eager for current, specific, but also general, current documentation.

This book represents – in our opinion – an extremely important contribution to raising the scientific level of knowledge in the field of dimensional processing technologies with concentrated energies.

The book represents neither a beginning nor an end, but a loop, a spiral of quality in the field of unconventional technologies and, in particular, in the field of Electrical Discharge Machining, as the authors are personalities in the field who have published in established journals, at prestigious international conferences, at prestigious publishing houses a number of scientific works and books that – together – are approaching the figure of 1000. The authors hold a significant number of patents that, in the year of publication of the book, exceed the figure of 100.

Our thanks go first and foremost to our teachers who guided our steps, in this world where it is sometimes difficult to hope and create a world of knowledge, in order to acquire the knowledge that we later used together to create, in our turn, knowledge. Last but not least, we thank our families, our parents and our loved ones who supported us in this endeavor and beyond.

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