

**DUMITRU POP, SIMION HARAGĂȘ, ORGANE DE MAȘINI, VOL. 1,
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Various type of assemblies in this volume are studied. For their easier and more precise understanding, the first part of the volume contains specific aspects for the design issue in the mechanical engineering field. Among them: mechanical design – as an integrative activity (which contains four essential sequences); the preferred numbers series with examples and applications in various fields; centering types: for parts machining, for ensuring proper operation, for mechanical transmission housings centering, selecting the right fits to obtain the correct level of centering; design methods, with many concrete applications; rational sections regarding: the functionality, volume of material involved, strength aspects; shape design taking into account specific constraints and interdependencies.

In threaded fasteners, an important development to strained bolted joints to which an external static or cyclic load is applied after tightening is given. In here the difficult problem of the tight parts package elasticity both for cylindrical and prismatic parts is solved. Calculation methodologies are presented. The stress ratio for this type of bolted joints, subjected to cyclic stresses, is considered.

The domain of linear motion devices contains both power screws and ball screws, which are thoroughly approached from the point of view of materials, of axial clearances including their adjustments, of the stresses they are subjected and of their calculations.

The shaft-hub assemblies are presented in all necessary aspects for their design, with methodological updates. A special emphasis is assigned to involute splines, including in here the modern machining operation. Regarding the pressed assemblies, explanatory algorithms are developed (direct algorithm, reverse algorithm respectively) which facilitate their design are developed.

Important attention to tapered fits (Trantorque, B-LOC or KBS) is given. Calculation methodologies with necessary design data are developed.

In pin assemblies, the large domain of their applications is considered, such as: centering of the housings (designed from two parts), torque - limiting coupling with shear pins, torque transmission, axial positioning (with threaded pins). There are also knuckle pins in an application to the safety valves.

The topicality of the content, the presentation manner, as well as the high level graphics contribute to a more complete understanding of the information in this volume.

The book (352 pages) is targeted towards engineers, but it may as well be useful to students.

Furthermore, “Organe de mașini” vol. 1 received the Traian Vuia Award of the Romanian Academy, in December 2016.

The authors, prof. em. dr. eng. Dumitru Pop and prof. dr. eng. Simion Haragâș, work at the Technical University of Cluj-Napoca.

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The present book develops a theme that follows that of “Organe de mașini”, vol. 1, which was dedicated to the Assemblies. “Organe de mașini”, vol. 2, contains five chapters. The first one is assigned to springs. The other chapters refer to machine parts that are functionally interdependent, in the transmissions domain such as: shafts, bearings, sealings, friction pairs including even the lubricants.

The structure and content of the chapters have been designed so that the reader could find answers to the questions he asks himself, become aware that he recognizes in this volume situations from up-to-date technique, that he has information and solving methods at its disposal, to guide him in its technical activities. They allow the reader to go through and understand in detail the "evolution" of a machine part (presented in the volume) from its operation, to the relationships with the conjugated parts, to the generation of the forces or the moments with which it is loaded, to its dimensioning and checking, always taking into account the triad form-material-technology of execution.

The structure of the chapters and their content allow those interested to be able to develop computer programs for specific or particular applications, in full understanding of the issues involved.

The following are included, for the first time, in a Machine elements book: a) helical compression springs with variable wire diameter, including a numerical application; b) complete computing, an application included, of the bending deformations at a shaft (deflections, angles of inclination) by the Maxwell-Mohr method; c. optimal design with evolutionary algorithms of the input shaft of a power transmission; d. brush seals; e. impulse mechanical face seals (with a concrete application); f. emulsion lubrication (design methodology included).

As for rolling bearings chapter, its structure and content are targeted towards users. A particular importance to typical assemblies, bearings precision, their internal clearance, misalignment, preload, mounting tolerances and fits, lubrication and sealing is given. A general methodology in 11 steps for the selection and calculation of bearings is proposed. This approach is practical, efficient, because it allows the selection and calculation of any type of bearing, through the appropriate

customizations to some of the steps of the general method. Regarding hybrid bearings, their properties, applications, advantages, including the behavior of these bearings under starvation conditions are also considered.

Lubricants received a particular attention: mineral or synthetic oils and greases, solid lubricants of different types, lubricants for motor vehicles, with their specificity. Representative examples for all types are given.

The book has an engineering level. Therefore, the authors sought, and hope they succeeded, in proposing a presentation that would provide the necessary accessibility.

The graphics play a key role in understanding the chapters' content. We appreciate it as being of a very high level, of great clarity, very suggestive, with nuances that enhance its quality. The authors hope that those to whom the volume is addressed will also give this rating. A large number of color figures contribute to the clarity of the presentation.

The end part of this volume is dedicated to tribological research with very diverse topics, metaphorically speaking, a "tribological kaleidoscope". It highlights, once again, the importance of tribology in technology, in the most diverse fields.

"Organe de mașini", vol. 2, has 895 pages and 599 figures.

The authors, prof. em. dr. eng. Dumitru Pop, prof. dr. eng. Simion Haragâș and assoc. prof. dr. ing. Ovidiu Buiga, work at the Technical University of Cluj-Napoca.