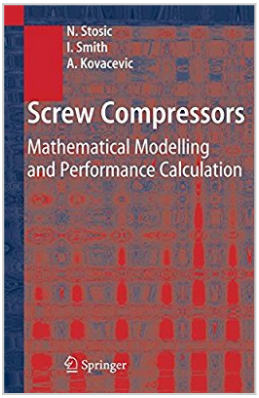

Screw Compressors: Mathematical Modelling and Performance Calculation

By Nikola Stosic, Ian Smith, Ahmed Kovacevic

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Althoughtheprinciplesofoperationofhelicalscrewmachines,ascompressors or expanders, have been well known for more than 100 years, it is only during the past 30 years that these machines have become widely used. The main reasons for the long period before they were adopted were their relatively poor e?ciency and the high cost of manufacturing their rotors. Two main developments led to a solution to these di?culties. The ?rst of these was the introduction of the asymmetric rotor pro?le in 1973. This reduced the bl- hole area, which was the main source of internal leakage by approximately 90%, and thereby raised the thermodynamic e?ciency of these machines, to roughly the same level as that of traditional reciprocating compressors. The second was the introduction of precise thread milling machine tools at - proximately the same time. This made it possible to manufacture items of complex shape, such as the rotors, both accurately and cheaply. From then on, as a result of their ever improving e?ciencies, high rel- bility and compact form, screw compressors have taken an increasing share of the compressor market, especially in the ?elds of compressed air production, and refrigeration and air conditioning, and today, a substantial proportion of compressors manufactured for industry are of this type. Despite, the now wide usage of screw compressors and the publication of many scienti?c papers on their development, only a handful of textbooks have been published to date, which give a rigorous exposition of the principles of their operation and none of these are in English.

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Screw Compressors: Mathematical Modelling and Performance Calculation By Nikola Stosic, Ian Smith, Ahmed Kovacevic Bibliography

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Editorial Review

From the Back Cover

The first part of "Screw Compressors" gives a review of recent developments in screw compressor design.

The second part presents a generalized mathematical definition of screw machine rotors and describes some well known lobe shapes in detail.

The third part treats the mathematical modelling of the thermodynamics and fluid mechanics of compression and expansion processes. This includes discussion of the issues addressed in order to be able to predict the optimum rotor size and speed and built-in volume ratio and, in the case of oil flooded machines, the injection position and jet diameter.

The fourth and fifth parts discuss the principles used and describe the application of the analytical procedures and rotor profiling techniques, presented in the earlier chapters, to the design of a number of twin screw compressors, currently manufactured including the examples of combining expansion and compression in the same machine.

Users Review

From reader reviews:

Cleveland Wheeler:

The event that you get from Screw Compressors: Mathematical Modelling and Performance Calculation may be the more deep you excavating the information that hide inside the words the more you get serious about reading it. It doesn't mean that this book is hard to comprehend but Screw Compressors: Mathematical Modelling and Performance Calculation giving you joy feeling of reading. The copy writer conveys their point in particular way that can be understood by means of anyone who read the idea because the author of this reserve is well-known enough. This kind of book also makes your personal vocabulary increase well. It is therefore easy to understand then can go along, both in printed or e-book style are available. We highly recommend you for having this specific Screw Compressors: Mathematical Modelling and Performance Calculation instantly.

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