



Modelling of Powder Die Compaction [

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Monografía

Manufacture of components from powders frequently requires a compaction step. This is widely used in powder metallurgy, ceramic, hardmetal, magnet, pharmaceutical, refractory and other sectors to make anything from complex gears for cars to pills to dishwasher tablets. Development of the tooling to manufacture a component can be a long process with several iterations. A complementary approach is to use a model of the compaction process to predict the way that powder behaves during compaction and hence the loads that need to be applied to achieve compaction and the quality of the compacted part. Modelling of the process of die compaction has been the subject of recent collaborative research from leading experts in Europe and Modelling of Powder Die Compaction presents a summary of this state-of-the-art work, taking examples from recent world-class research. In particular, the book presents a number of case studies that have been developed to test compaction models. Full details of the data required for input to compaction models of these case studies is given, together with a survey of the techniques used to generate the data. Details are also given of methods to produce and assess components for validation of die compaction models. The inclusion of information on case studies then provides a reference for the testing and validation of compaction models. Readers of Modelling of Powder Die Compaction will gain an appreciation of: The requirements in industry for models of die compaction; The techniques available to generate the material data required for input to compaction models; The production and assessment of compacts for comparison with model predictions; A range of compaction models and the results from exercises comparing results from these models with real powder compacts; and A range of potential uses and modes of use of compaction models in industry

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