1. Record Nr. UNINA9910136599303321

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Titolo	Hot Stamping Advanced Manufacturing Technology of Lightweight Car Body / / by Ping Hu, Liang Ying, Bin He
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2017
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (327 p.)
Disciplina	620
Soggetti	Manufactures Materials science Automotive engineering Metals Manufacturing, Machines, Tools, Processes Characterization and Evaluation of Materials Automotive Engineering Metallic Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Introduction of sheet metal forming technique -- Basic knowledge of sheet metal forming -- Manufacturing technology process and equipment of hot stamping -- Basic mechanical property and forming experiments of hot stamping material -- Theoretical and experimental research of heat transfer in high strength steel hot stamping -- Theory of mechanics and constitutive equations in high strength steel hot stamping -- Finite element simulation algorithm in high strength steel hot stamping -- Characteristics, theoretical and experimental research of hardness gradient composite material in hot stamping -- Optimization design and manufacturing of water-cooling tool -- Virtual prototype project and simulating optimization method of hot stamping.
Sommario/riassunto	This book summarizes the advanced manufacturing technology of original innovations in hot stamping of lightweight car body. A detailed description of the technical system and basic knowledge of sheet metal forming is given, which helps readers quickly understand the relevant knowledge in the field. Emphasis has been placed on the independently

developed hot stamping process and equipment, which help describe the theoretical and experimental research on key problems involving stress field, thermal field and phase transformation field in hot stamping process. Also, a description of the formability at elevated temperature and the numerical simulation algorithms for high strength steel hot stamping is given in combination with the experiments. Finally, the book presents some application cases of hot stamping technology such as the lightweight car body design using hot stamping components and gradient hardness components, and the cooling design of the stamping tool. This book is intended for researchers, engineers and graduate students in vehicle engineering, mechanical engineering, especially in the field of advanced manufacturing technology. The book also provides a useful reference for other new technology related temperature and phase transformation, such as aluminum-magnesium alloy hot stamping.