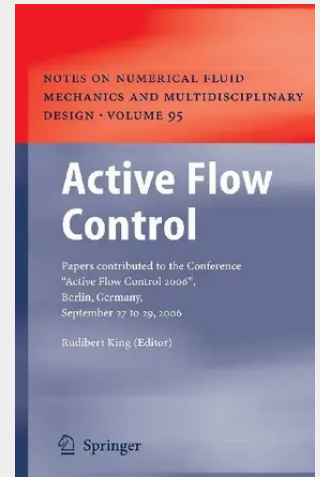


Active Flow Control

The dramatically increasing requirements of mobility through road-, rail- and airborne transport systems in the future necessitate non-evolutionary improvements of transportation systems. Without severe implications concerning the environment or restrictions concerning the performance, these requirements will only be met by a concerted action of many disciplines. It is believed that with ACTIVE FLOW CONTROL a key technology exists to supply an important block in the mosaic to be laid in the pursuit of best and sustainable solutions. Manipulation of fluid flows is highly advantageous in many cases. Aerodynamic or fluid flows around or inside bodies imposed drag, lift and moments on the body, remove or supply energy by convection. Flow-induced noise may be produced by the interaction of a body with the surrounding air. Moreover, the interaction with the body changes the state of the flow drastically. A neatly aligned laminar flow around a wing of an aircraft giving enough lift, can become highly irregular and separated from the surface, with the result of a loss of lift. For cooling of - gines of transport and other systems highly irregular turbulent fluid flows across the components are needed to guarantee a large heat transfer. In future engines of airplanes complying for example with the EU Vision 2020 an increased heat transfer, on the other hand, has to be avoided by all means in some parts of the engine. Turbine stages may be exposed here to extremely hot gases, needed for high efficiency, which would destroy the blades. In this application, more laminar flow regimes would be advantageous yielding a poorer heat transfer. Their regular flow in a combustor. g.

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213,99 €
199,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783540714385
Medium: Buch
ISBN: 978-3-540-71438-5
Verlag: Springer
Erscheinungstermin: 31.05.2007
Sprache(n): Englisch
Auflage: 2007
Serie: Notes on Numerical Fluid Mechanics and Multidisciplinary Design
Produktform: Gebunden
Gewicht: 1053 g
Seiten: 442
Format (B x H): 160 x 241 mm

