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## Single- and Two-Phase Flow in Stirred Vessels

By Ahmed F. Nassar

LAP Lambert Acad. Publ. Aug 2011, 2011. Taschenbuch. Book Condition: Neu. 220x150x7 mm. This item is printed on demand - Print on Demand Neuware - Stirred vessels were studied from several different points of view, providing answers to some open questions in mixing and stirring. First question concerns the study of the effect of various parameters on the impeller efficiency (mixing time and power consumption) of stirred vessels operated by traditional impellers. Measurements were done to determine the critical Reynolds number at which the flow is full turbulent. For the first time, the trailing vortices were captured at a Reynolds number of 29,000 using Laser Doppler Anemometer (LDA). Secondly, a novel grid disc impeller was designed to achieve efficient mixing in stirred vessels. The mixing times and power consumptions of the novel impeller were measured to evaluate the performance against conventionally used impellers. Detailed numerical simulations of the flow generated by the new impeller were carried out and validated by LDA measurements at some chosen critical locations in the vessel. The third part studies gas dispersion into liquids with Rushton turbine. Phase Doppler anemometer (PDA) measurements were performed to measure the diameter and velocity of air bubbles under several different operating conditions. 112 pp....



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