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Optimization of Turning Process Parameters for Surface Roughness and Material Removing Rate by Using Taguchi Method

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ABSTRACT: In recent times, turning operation is one of the most essential machining operations performed in innumerable manufacturing industries. Selecting cutting parameters for ensuring high cutting performance is really a significant task to achieve. Everything has its own function, like for example; the machining process enhances the surface finish and deals with material removal rate. We need affordable and effective machining for maximum material removal rate. One of the best is the Taguchi method for optimization of various machining parameters and it has a great benefit of reducing the number of experiments. Therefore, Taguchi method is found to be super useful for designing the experiments and optimization of turning parameters.

KEYWORDS: Optimization, MRR, Surface Roughness.

Recent Advancement in Savonius Wind Turbine - A Review

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***ABSTRACT*:** In the steps to save our earth from global warming every nation focused on their own way to promote green energy among which the Savonius vertical axis wind turbine is one of the excellent viable solutions for scavenging wind energy in a downtown background, due to distinctive characteristics such as compactness, self-starting ability at light wind, minimum noise level, with relatively reasonable price and simple assembly. However, the traditional Savonius Wind Turbines with semicircular blades has a proportionately low power coefficient together with a high negative torque produced by the returning blade is a crucial disadvantage of this rotor. This work focuses on reviewing and giving an overview on the form of the wings of Savonius Vertical Axis Wind. This paper also aims to give a run through of the several augmentation approaches used in Savonius rotor over the last four decades. In this paper, a brief on all possible segments and parts of the machine is given after a brief analysis and research on each topic.

KEYWORDS: Green Energy; Savonius VAWT; Geometric Parameters; Performance Improvement.

Computational Fluid Dynamics in Lid-Driven Cavity Filled With Non-Newtonian Fluids

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***ABSTRACT*:** Lid-driven cavity flow has been used for benchmarking systems. It is widely used to validate numerical methods. Lid-driven cavity flow is famous since 1960s, because it is simple to use with three boundary conditions. It has been widely experimented along various ranges of Reynolds' number. Though, the concept of using lid driven cavity to validate non-Newtonian fluid flows is new. This paper is attempting to make an exclusive review on studies of lid driven cavity flows working with both shear thickening (n>1) and shear thinning fluids (n<1). Several schemes are available to solve Navier-Stokes equation in Computational Fluid Dynamics (CFD) with different models to predict the flow of rheological fluids like power law viscosity model, Casson model, Carreau model etc. Studies made with modified geometries, variable Reynolds' number and wide ranges of flow behaviour index (n) has been reported exclusively in this paper.

KEYWORDS: Non-Newtonian Fluids; Internal Flow; Lid-Driven Cavity Flow; Numerical Method; CFD.