

## **Influence of Inertial Forces of Large Bearings Utilized in Wind Energy Assemblies**

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**Abstract :** Main objective of this paper is to establish a link between inertial forces of the bearings used in construction of wind power plant and its behavior. Using bearings with lower inertial forces has the immediate effect of decreasing inertia rotor system, with significant results in increased energy efficiency, due to decreased friction forces between rollers and raceways. The FEM analysis shows the appearance of uniform contact stress at the ends of the rollers, demonstrated the necessity of production of low mass bearings. Favorable results are expected in the economic field, by reducing material consumption and by increasing the durability of bearings. Using low mass bearings with hollow rollers instead of solid rollers has an impact on working temperature, on vibrations and noise which decrease. Implementation of types of hollow rollers of cylindrical tubular type, instead of expensive rollers with logarithmic profile, will bring significant inertial forces decrease with large benefits in behavior of wind power plant.

**Keywords :** inertial forces, Von Mises stress, hollow rollers, wind turbine

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