VIBRATION ISOLATION OF WASTEWATER PUMP STATION

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ABSTRACT

Vibration and noise generated from the operation of wastewater pumps in residential areas can be bothersome and harmful to nearby persons. This project will aim to reduce these vibrations. The project will analyze the vibrational response of the wastewater pump station and based on this redesign a critical component in the assembly, namely the "guide claw". The guide claw connects the wastewater pump to the auto coupling and is therefore the primary interface, from which vibrational energy is transmitted from the pump to the rest of the pump station assembly.

The new design of the guide claw must function for a range of different pump sizes. The guide claw must also be able to mitigate vibrations in a range of different frequencies, as GRUNDFOS wastewater pumps are operated at varying frequencies to reduce energy consumption in various loading situations.



Figure 1: Grundfos wastewater pump station. Detailed view of auto coupling and guide claw. References: Left: https://www.privatgrossisten.dk/images/391385063.pdf Right: <u>https://product-selec-tion.grundfos.com//products/accessories-waste-water/pump-accessories/auto-coupling-set-96782145?tab=variant-specifications</u>

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