UNIVERSITY OF TWENTE.

Internship Plan

Weir Minerals

Weir Minerals Netherlands (Venlo), established in 1916, is part of the Weir Minerals division, spread over 20 production companies and several service centers across the globe.

Weir Minerals designs, produces, and sells technologically high-quality capital goods, like High Pressure Grinding Rolls (HPGR) and Pumps. These products are used around the world in major industry sectors including mining industries. As a global market leader, we are at the forefront of making the mining industry more sustainable.

The VTG (Venlo Technology Group) hosts all innovation projects and provides support for all other departments within the organization where cost reduction, product improvement and increased service to customers are highly valued. We remain accountable from request through delivery to aftercare and support within service trajectories. Weir Minerals Netherlands functions as knowledge hub for displacement pump technology and high-pressure grinding rollers within the Weir Group. Continuously pushing the boundaries of our knowledge is of paramount importance to our department.

Background/challenge : The self-actuating Geho valve has four legs to provide guidance to the valve during the valve movement process. Slurry passing through the valve creates local wear at four locations after the legs. These local wear can further grow and cause wash-out of the valve leading to ultimate failure of the valve. To address this issue, it is necessary to understand the flow behavior occurring in the valve housing and find solution to minimize/eradicate the issue.

Internship Topic : CFD modelling of flow through a valve

Period : 3 months

Prerequisite : The intern student must be currently enrolled in a Master study in Mechanical Engineering and must be pursuing his/her study in the direction of Fluid Dynamics.

Internship Goal:

Perform 3D CFD simulation of flow through a valve housing using commercial software “Cradle CFD ” and do shape optimization of the valve to minimize local turbulence of the flow after the valve legs.

- Determine the flow coefficient (Kv) value at various valve openings and compare it with test results to validate the CFD model
- Study the influence of valve leg shape/position on the flow behavior though the valve and recommend changes to improve the valve performance

Information?

For more information about this internship please contact Frank Schuurmans via frank.schuurmans@mail.weir or approach Stefan Luding via s.luding@utwente.nl