MAGNETIC DRIVE PUMPS POWERING THE HYDROGEN REVOLUTION

TOWARDS A GREENER. HYDROGEN-POWERED WORLD

As the world seeks sustainable energy solutions, hydrogen is emerging as a key player in the transition to a greener future. At Klaus Union, we're proud to be at the forefront of this revolutionary journey by manufacturing state-of-theart magnetic drive pumps for hydrogen production applications.

Magnetic drive pumps play a crucial role in the production of hydrogen. They ensure the safe and efficient pumping of fluids in processes like alkaline water (for KOH or NaOH) and PEM electrolysis, where hydrogen is generated from ultra pure water.

So, what makes Klaus Union magnetic drive pumps essential for hydrogen production?

FULL CONTAINMENT

By using a hermetically tight magnetic coupling, the pumped liquid is safely contained within the pump. This prevents loss of the liquid and at the same time eliminates any contamination from the outside.

► A magnetic drive pump utilizes a magnetic field to transfer torgue from the drive to the pump shaft without any physical connection. The containment shell plays a crucial role in maintaining the hermetic integrity as it seperates the pumped liquid from its environment. There are no dynamic seals from which leaks can escape to the environment, but even more important, from which abrasives over time could pollute the pumped liquid.

Learn more about our magnetic drive:



IDEAL FOR ULTRA PURE WATER

By electropolishing the wetted parts of the pump and using journal bearings made of silicon carbide, pollution with ions or abrasives is prevented.

Electrochemical polishing (electropolishing) removes surface defects and local stresses contained in the thin layer of material on the surface, providing optimum properties of the base material.

The risk of pollution is eliminated as the process reduces the micro-roughness of the material.

Futher the parts are supplied in an oil- and grease-free execution. In this case, the assembly is meticulously performed within our dedicated, state-of-the-art clean room facility. The degree of purity achieved is equivalent to some of our valves which are used in air separation applications (pumping of oxygen).

Close-coupled centrifugal pump with magnetic drive and electropolished pump casing

TOWARDS A GREENER, HYDROGEN-POWERED WORLD

CLOSE-COUPLED DESIGN

Especially for large pumps and motors, the compact close-coupled design is indispensable for installation in tight spaces like containerized modules.

Close-coupled design means, that the driver is connected to the pump's intermediate lantern by an adapter flange, eliminating the need of a coupling or guard. Thus the risk of misaligning is eliminated plus there are no limited lifetime ball bearings in the pump.

MAINTENANCE FREE

Due to the contactless transmission of torgue and highly durable journal bearing materials, in close-coupled design no scheduled maintenance is required.

Scheduled maintenance of a magnetic drive pump depends only on the type of bearings installed making it obsolete in a close-coupled pump. The magnetic coupling itself is maintenance free and wear free, provided it is operated within agreed limits.

ENERGY EFFICIENCY Magnetic drive pumps, especially with non-metallic containment shell, are highly efficient, contributing to energy savings and reducing the carbon footprint of hydrogen production. Non-metallic containment shells made of zirconium oxide are not electrically conductive. Due to this characteristic there are no eddy current losses impacting the pump performance. The energy consumption can thus be reduced by 10 to 15 %, compared to metallic Heavy duty containment shells containment shells. made from industrial ceramics Learn more about our shells: for up to 63 bar





01





JOIN US

By manufacturing these cutting-edge pumps, Klaus Union is committed to advancing the hydrogen economy. We are sure that hydrogen holds the potential to reshape industries, reduce greenhouse gas emissions, and provide sustainable energy solutions for generations to come.

Depending on the application, these essentials are available for all Klaus Union pump types.

Join us on this exciting journey towards a greener, hydrogen-powered world.

Feel free to contact us if you have any further questions: info@klaus-union.com

