

11 March 2022

*Product portfolio H<sub>2</sub> applications:*

## Rheinmetall supplying fuel cell manufacturers with over 300,000 cathode flaps

Hydrogen is seen as a key element in the transition to climate-neutral forms of energy and mobility. The technology enterprise Rheinmetall was quick to spot this trend and began developing products for fuel systems over twenty years ago. The Düsseldorf-based Group continues to pursue its development efforts in this domain and is currently working on a series of innovative balance-of-plant components. Besides components for regulating the flow of hydrogen, Rheinmetall's portfolio also includes various cathode-side valve solutions.

Through its subsidiary Pierburg, Rheinmetall has recently received two orders for supplying cathode flaps to well-known fuel cell makers. The orders, from customers in Europe and North America, encompass a lifetime volume of over 300,000 components. Together they are worth a figure in the double-digit million-euro range. Based on previously delivered, successfully verified samples, the production lines at the Rheinmetall plant in Berlin will be adapted for full-scale production runs starting in 2023.

The valve systems ordered from Rheinmetall regulate the flow of fresh and exhaust air mass streams and insulate the fuel cell stacks on the cathode side at the inlet and outlet points from the ambient atmosphere. Achieved through a special design, the system's very low leakage has been successfully proven.

Specially selected and combined, the materials guarantee the necessary resistance to hydrogen and ultra-pure water. The cathode flaps feature an electric drive with high reserve capacity. Enriched with water, the exhaust side of the cathodes assures the necessary degree of safety, meaning that they function reliably even under freezing conditions.

Operating times of up to 12,000 hours are already attainable, while a new generation currently in development will result in a service life of at least 30,000 hours in commercial vehicles, maritime and stationary applications.

To meet various customer requirements regarding utilization, installation space and interfaces in the best possible way, the production valves are based on a modular principle. For instance, this means that the valves can be used in fuel cells with an electrical output of up to 200 kilowatts.

In addition, Rheinmetall offers numerous variations of the basic design, covering the complete range of available of electric actuators and interfaces. This way, practically every customer requirement can be met.

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## ► Key facts

- Rheinmetall wins major orders for cathode flaps
- Aggregate lifetime volume in the double-digit million-euro range
- Full-scale production to begin in Berlin starting in 2023
- Regulation of air mass flow and insulation of stack
- Low leakage and long operating life

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