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The hygienic solution

WANGEN VarioTwin NG

Precise and repeatable flow control with Iris® Process Control Valves

In wastewater treatment plants with activated sludge processes, up to 60 % of the total required energy is consumed for the input of atmospheric oxygen into the aeration basins. This offers huge potential for energy savings and process optimization in many plants.

Over the past few decades, the Iris® Process Control Valve, which constitutes the benchmark for precise and repeatable flow control for over 60 years, has proven its worth in hundreds of wastewater treatment plants. In 1958, the Iris® process valve was developed by the company's founder, Emile Egger, and launched on the market, where it was used primarily for paper pulp control in paper factories. At the beginning of the 1980s, Egger introduced an updated version. Iris® Process Control Valves have been used mainly in aeration basins in wastewater treatment plants since then. Thanks to its unique design, air quantity can be regulated precisely and repeatedly. This enables the operation of stable biological processes and the implementation of, and precise adherence to, extremely low oxygen input values. This in turn results in high-energy efficiency and the high stability of the entire activated sludge process.

We are driven by a desire to make the tried-and-tested increasingly better. Thanks to systematic further development, Egger is proud to launch a completely redesigned and technically revised Iris® Process Control Valve onto the market; we name the new model generation "IBS".



Fig. 1: Iris® Process Control Valve IBS-series

The IBS series

The modern industrial design and the compact structure with shorter installation lengths are immediately visible. It is advantageous for a plant operator to know the position in which a control valve is located. As a result of this, the visual position indicator has been completely revised and is clearly visible from three sides even from a long distance; this is in addition to the electronic feedback of the variable speed drive position to the SCADA system.



Fig. 2: IBS spindle drive with mechanical position indicator

As an all-rounder, the new IBS can be used in a number of industrial applications; its gas-tight design without spindle feedthrough opens up many new possible applications for regulating chemicals and industrial gases. The Iris® valve is also prepared for monitoring systems and can be pressurised and equipped with gas or liquid flushing.

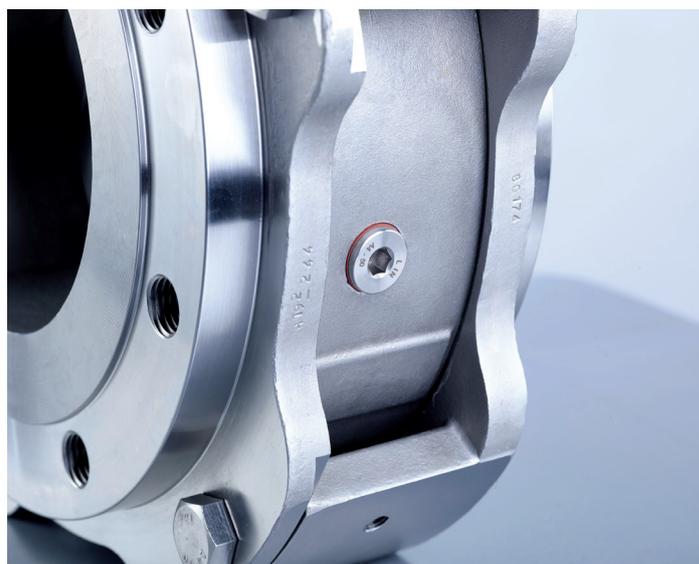


Fig. 3: IBS flushing/buffer liquid connections

Leak monitoring and flushing systems can be connected without changing the design. Its robust design and self-cleaning segments also make the valve a reliable regulator for raw sewage or sludge. Iris® Process Control Valves are therefore used to control raw sewage, process water, primary and activated sludge as well as digested sludge for centrifuge feeding.

The three buffer liquid and flushing connections of the new IBS are offset by 90° and can be used for drainage and emptying condensate, which is a major advantage for plants that are shut down periodically. The self-locking spindle nut design of the IBS enables maintenance-free and cost-extensive operation, thus simplifying the use of the control valve in inaccessible locations. An additional advantage for the operator is the ability to replace the drive support or parts thereof without having to remove the Iris® valve from the pipeline.

Positioning accuracy under real conditions

Iris® valves are designed for economical and low-noise control of liquids and gaseous media. Segments that retract into the valve body allow free passage when the valve is completely open, guaranteeing low-pressure losses and high energy saving potential. The high-precision energy-saving valve for industry and wastewater engineering.

At the Brightwater wastewater treatment plant in King County, Washington State, northeast of Seattle, 12 Iris® Process Control Valves are used for the airflow control of the aeration tanks. Nine 8" Iris® valves control maximum air flows of up to 4000 SCFM (6500 Nm³/h), while the three smaller Egger 6" valves control flows of up to 1500 SCFM (2400 Nm³/h). All Iris® control valves were supplied as a Process Control Kit with inlet and outlet sections and feature a precise mass flow measuring system located upstream of the valve, centered in the flow axis.

In a large-scale field test, the repeatability of the aeration airflow control system with the process control valve was tested by the plant operator in the presence of the design engineering company Brown & Caldwell based in Seattle. In each case, the air volumes to be controlled were measured at three different opening degrees of the valve in different basin zones. After a short period, the valve was returned into the same position. The results were convincing: the measured flow showed only a minimal deviation of less than one percent.

At the Richmond and Fishers wastewater treatment plants, positional accuracy tests were also performed to very high precision levels.

Richmond, Indiana – Donohue & Associates

Repeatability test at 63.2 % Open

- Open to 63.2 % - measure 164 scfm
- Close to 40 % for 30 seconds
- Open to 63.2 % for 30 seconds
- Measure 163.4 scfm



Fishers, Indiana – Bowen Engineering

Repeatability test at 94.4 % Open

- Open to 94.4 % - measure 982 scfm
- Close to 70 % for 30 seconds
- Open to 94.4 % for 30 seconds
- Measure 988 scfm



High control accuracy and repeatability

The robust drive mechanism, spindle-mounted and supported at both ends enables a very precise positioning of the control segments. The drive spindle is dimensioned for process control operation at high cycle frequencies. Due to the high number of threads with low thread angle, the maintenance-free spindle enables particularly high positioning accuracy and repeatability. A result of 99.3 % accuracy that we can be proud of!

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Mehrer Compression achieves ASME clarification

Mehrer Compression introduces its TVx-Compressor Series to the North American markets. With this move, the company has made its series ready for the ASME world market.

Mehrer achieved clarification for the US market and for six Canadian Provinces for their TVX-900 Series V-type compressors. This type represents the currently large compressor blocks of the firm and is used in many applications for a broad range of gases. As all compressors of the company, the new series is a dry gas compressor, meaning the compression compartment is sealed by dry seals so that the gas does not get contaminated by any presence of oil or other lubricants. This enables applications in the growing international hydrogen market or all applications where toxic, explosive or expensive gases need to be transported or compressed, states the firm.

The new series comes as a belt driven version but can also be equipped with a direct coupled electrical motor. By default, the new compressor is a two stage double acting compressor. Building blocks exists for various pressure ranges from ambient pressure up to 65 bar (i.e. 940 PSI) absolute pressure and different flow ranges up to 2000 m³/h. This makes the new series a versatile product for different applications. So far, for the ISO-driven markets, only, mentions the company.