New impulse in wastewater aeration

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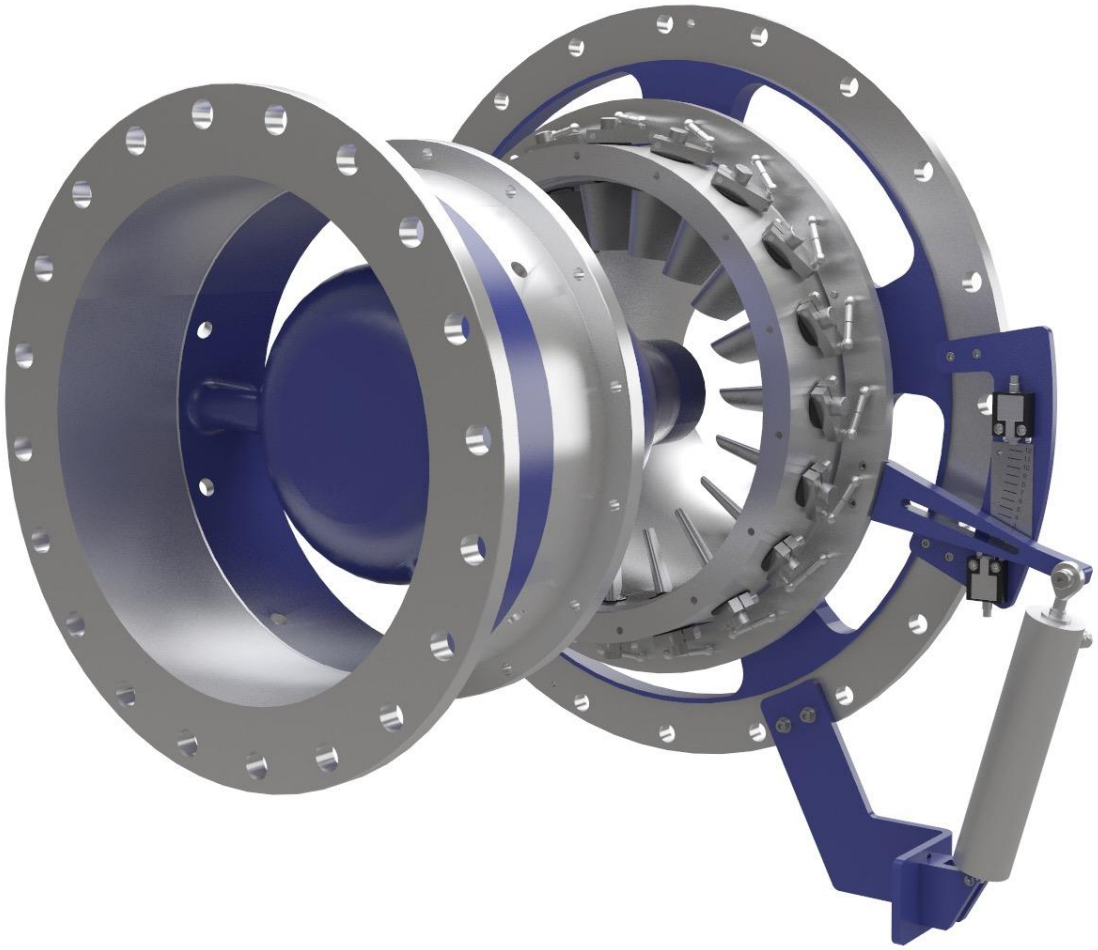
Continental Industrie, a manufacturer of air handling equipment from Lyon, France, recently launched its first turbo compressor series. The manufacturer of multistage blowers and exhausters, which has been operating worldwide for more than 25 years, is thus setting an impulse for pressurized aeration in municipal facilities that rely on energy-efficient technologies.

The technology used for diffused aeration in wastewater treatment plants and sewage treatment plants in Germany has a long tradition: Positive displacement blowers, rotary lobe compressors and turbo compressors have been used there for decades to provide the necessary pressure aeration in biological clarification systems and in the sand trap area. Different countries - different habits: In the American market, contrary to European practice, multi-stage blowers are favored for waste water treatment.

Continental Industrie has always been active in the field of wastewater aeration and has so far carried out oxygen enrichment of sewage water - for example in flotation tanks - using multistage centrifugal blowers. In several wastewater treatment systems, the pulsation and oil-free operation of this blower technology is highly appreciated because it operates below a sound pressure level of 85 dB (A). In Dubai in particular, Continental Industrie has installed nine blowers in the wastewater treatment plant of the famous Palm Island artificial island group. Numerous wastewater aeration projects have been carried out throughout Europe with the environmental corporation SUEZ.

Under the model names TCH15, TCH25 and TCH35, Continental recently introduced a range of three integrally geared single-stage turbo compressors manufactured at its French headquarters in Lyon. The manufacturer has brought all its aerodynamic experience into the development process and ensured that all major components are manufactured in Central Europe.

The following illustration shows the inlet guide vanes for pressure regulation and compensation of atmospheric ambient conditions.



The new turbo-compressors from Continental Industrie provide an efficiency of over 80 % from 10,000 Nm3/h upwards. While they require an average of 200 - 1,100 kW of power for this purpose, centrifugal blowers generally require at least 10 % more. This is of particular relevance when several such units are operating in parallel. Generally speaking, the supply of large quantities of air at low pressure requires more than 60% of the energy consumed in a sewage treatment plant. This point should be of great interest to plant managers.

The energy efficiency of turbo blowers is beneficial for waste water aeration: at the operating point it is greater than 82% efficiency, and at 50% reduced flow it is still 79%. In comparison, the efficiency of multistage blowers is just 65% at reduced flow. In general, the efficiency curve of centrifugal blowers decreases faster during turndown than for turbo compressors.

Continental's turbo compressors operate in the wastewater sector at around 20,000 rpm and feature the required material and temperature durability. Sewage treatment plant operators and waste water treatment companies are familiar with this principle of operation throughout

the country. The more they appreciate the advantages of integrated components such as forced oil lubrication, oil coolers, duplex oil filters and the various options of a flexible control system. In the waste water sector, the regulation range of an aeration system is of great importance - fluctuations from low water consumption to a significant increase in volume (sometimes caused by heavy rainfall) have to be taken into account as a rule.

The new turbo compressors developed by Continental Industrie were designed for ease of maintenance: regular intervals can be carried out conveniently from the front without having to remove the impeller via the oil-lubricated shaft. The gearbox in particular does not need to be dismantled or disassembled. Special maintenance openings are available for easy access to the gearbox, which can be used comfortably.

In particular, Continental Industrie intends to design the new turbo compressors specifically to meet the requirements of plant managers. Since some components such as the impellers are already manufactured in-house, flexible adaptations such as the design of the base frames for a specific type of motor do not present a major problem.

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