Partial load operation means reduced efficiency, impaired energy efficiency and thus an increase in operational costs. This scenario applies across all industries and has a serious effect in wastewater treatment plants - mainly in respect of the biology. The electrical energy for the drive of the blowers causes about 80 per cent of the costs in this field of sewage water cleaning. Consequently, efficiency increases and a really tailor-made design of the blowers to the daily requirement pay off accordingly fast. The question remains how the changing air requirement in the aeration basins can be covered optimally and not at the expense of overdimensionings and inefficient partial load.

Every blower only reaches its optimal operating point in a clearly defined performance range and works then with maximum efficiency. Beyond cascading The air consumption in the biology is subject to considerable variations. The performance cascading with packaged units in a row as well as the variable speed control of the blower drives are important approaches to supply the aeration basins needs-oriented with oxygen. With the new AERsmart control system AERZEN takes another step. By co-ordinating in partial load operation different blower types with each other on the basis of the required air volume, the new AERsmart solution avoids partial load of individual packaged units to a large extent. Comparable with an autopilot, AERsmart takes over the complete control- and regulating management of a compressor group of up to twelve machines. The new solution goes beyond a simple cascaded connecting or shutdown. The sense of this technology rather is grouping blower units with different operating principles. Messrs. "Gemeindliche Einrichtungen und Abwasser Holzkirchen - GEA" (Municipal facilities and wastewater Holzkirchen), for example, covers the base load requirements with an AERZEN turbo blower. With a motor rating of 60 kW, type TB75-0.8S supplies an oil-free volume flow of 3800 m³/h. The co-operative is one of the first users of AERsmart. The blower is controlled by a new, intelligent control system. The new AERsmart solution goes beyond a simple cascaded connecting or shutdown. The Bavarian utility company now relies on AERZEN for the control of the compressor group to achieve a new milestone in energy efficiency with AERsmart.

The Holzkirchen wastewater treatment plant has a clearly stated objective: "We purify our wastewater optimally." For the municipal wastewater treatment plant, located 40 kilometres south of Munich, there is a requirement to operate in a way that is as resource-efficient as possible. Therefore, for blower technology, the Bavarians rely on AERZEN.

To increase the energy efficiency is one of the sustainable objectives in Holzkirchen.

Frank Glöckner, Sales and Marketing After Sales
Aerzen (Schweiz) AG
The trade world meets at the ILMAC

Dear Readers,
We’re already into the third quarter of the year and we don’t want to miss this opportunity to keep you well-informed. In this edition of the customer journal, which gives you an update on the performance and recent events at AERZEN, we report on numerous activities. The special focus of this edition is on the Holzkirchen wastewater treatment plant, where the concept of Performance³ has been implemented. This concept describes the use of the three AERZEN standard machines Delta Blower, Delta Hybrid and Turbo in conjunction with AERsmart, the new overriding control system, which was unveiled at the IFAT fair in Munich. Thanks to the intelligent control system of the machines, the entire process always runs in the optimal performance range, and higher energy efficiency values than ever before can be achieved. Furthermore, this edition provides an overview of important dates, new projects and other products of the AERZEN group. I don’t want to say too much more about this edition of AERZEN COM PRESS - I’ll leave you now to read it for yourself. Hope you enjoy it.

Cordially yours,
Worldwide rollout of AERZEN websites

First of all, the German and English-language websites will be implemented. After the successful relaunch of the corporate website www.aerzen.com, the rollout of the 36 international websites of AERZEN’s subsidiaries will be next. This will be realised in three stages: The first stage includes the country websites with German or English as the main language. The second stage includes the websites which use Chinese, Spanish, Portuguese or French, and the third stage will cover the remaining websites. Stages 1 and 2 will be realised by the end of 2016, stage 3 will start next year.

Major order from Leibniz University Hanover

In May 2016, AERZEN received one of the biggest domestic orders in the company’s history. For its new research building on the Campus Maschinenbau (mechanical engineering), Garbsen (CMG), Leibniz University Hanover ordered a “compressor station for the dynamic drive of turbo machines and power plant components” and a compressed-air station from AERZEN Systems, for a total of about 13.2 million euro. The unit consists of two GM 20.20 and two VRa 736S, all the pipings and coolers, and the measuring and regulating technology.

In future, thanks to the new research opportunities afforded by the unit, the University of Hanover will count among the world’s leading institutions in the field of energy efficiency research.

Exhibition dates

In the next three months, AERZEN will participate in the following fairs and trade exhibitions:

- Wasma, Moscow/Russia
  18th until 20th October 2016

- Solids, Antwerp/Belgium
  19th/20th October 2016

- Maintain, Munich/Germany
  19th/20th October 2016

- K, Düsseldorf/Germany
  19th until 26th October 2016

- PVKepko, Moscow/Russia
  25th until 27th October 2016

- Vietwater, Ho-Chi-Minh City/Vietnam
  9th until 11th November 2016

- Biogas Conf, Hanover/Germany
  15th until 17th November 2016

- Pollutec, Lyon/France
  29th November until 2nd December 2016

2,900 cubic metres per hour with a differential pressure of 0.8 bar. As the term base load says the turbo blower serves for covering the medium requirement. In case of peak loads, the machine is not sufficient, and with low loads the unit loses considerable efficiency.

In Holzkirchen, this context leads to the fact that Messrs. GEA combines the turbo blower with an AERZEN rotary lobe compressor series Delta Hybrid as well as two Delta Blowers with older manufacture dates. These were already available before the modification and now mainly serve as redundancy for operational reliability. AERSmart ensures that the Delta Hybrid starts with the air supply of the aeration basins, when the oxygen consumption at low load reaches a level where a turbo would be under-challenged and outside its optimal operational range. In reverse direction Delta Hybrid and Delta Blower help out in case of peak loads. This can occur “particularly on hot summer days, when the oxygen consumption is high,” explains plant manager Markus Spallek.

AERSmart acts as an autopilot

In normal operation, the turbo blower runs at “optimal operating point.” Looking on the visualisation of AERSmart you can see a conveying volume of 34 cubic metres per minute. If the requirement is between 28 and 16 cubic metres the Delta Hybrid is used. “Starting from 24 cubic metres AERSmart switches the Turbo off,” reports Spallek. According to the plant manager’s experiences the required air volumes are only a part of the design features, as also the necessary blow-in pressures are important for the decision which technology is the most effective one. “If the basins are flatter and consequently the pressure is lower, a positive displacement blower can be an efficient solution.”

With all the technical innovations and a general “We have always paid attention to energy efficiency”, in Holzkirchen first of all the focus is on the water quality. “Our premise is to purify wastewater optimally. And this at a price which is as cost-effective as possible. This approach deviates from the industry. But plants want to purify their wastewater as cost-effectively and as well as necessary,” notes Spallek. The point that in the southern suburbs efficiency is so important results from the fact that the economical use of resources is one of Spallek’s hobbies. The plant counts “on reasonable solutions, which increase the efficiency and not on technical gadgets.” It is clear to the expert that water can only be purified reliably by means of a certain energy input. “With a good machinery pool we can reach our goal of generating the required air volume economically,” Consequently, the plants are optimised permanently and the use of energy is improved.

Savings of 10,000 Euro – every year

In Holzkirchen, AERSmart has been running excellently from the beginning – which reflects in perceptible energy savings of about ten per cent. What the final rate of the saving potential will be mainly depends on how good the plant worked before. “We had already optimised our processes. Therefore, for us, ten per cent is much.” Expressed in figures: in Holzkirchen, every year about 500,000 kWh of electrical energy are spent for the aeration basins. So, the savings of 50,000 kW protect the city’s purse noticeably – by reduced expenditure of EUR 10,000.--. With this, the solution installed consisting of turbo blower and AERSmart will have paid off after about three years.

Wastewater treatment plants as energy centres of tomorrow?

This trend will come, to combine different blower types so, that the overall interaction finally generates the required air volumes with an optimal efficiency and maximum energy efficiency.” Spallek is convinced. In his opinion, wastewater plants only have two chances for improving their sustainability: To reduce the energy consumption by using intelligent technology and to increase the self-energy production. Therefore, Holzkirchen also utilises a block-type thermal power station to convert the sewage gas generated in the digestion tower into electricity and to utilise the heat for heating the bioreactor. Another possible solution for Spallek: Decentralised sewage sludge incineration within a local heat network. “Dry sewage sludge has a similar calorific value to lignite.” As in the disposal industry the task in future will increasingly be to recover phosphate from the residues such solutions would be predestined. Wastewater treatment plants as decentral energy centres of tomorrow – and suitable for meeting baseline requirements also when generating

Aerzen (Schweiz) AG at the ILMAC fair 2016

Meeting point for specialists from the pharmaceutical, chemical and biotech industries

Basel is located in Europe’s most important Life Sciences area. This region offers an ideal environment for the ILMAC fair, the Swiss trade show for process and laboratory technology. This year’s fair took place from 20 – 23 September, with AERZEN participating as an exhibitor.

Since it started, in 1959, ILMAC has developed into the leading supplier fair in Switzerland for the pharmaceutical, chemical and biotech industries, as well as for foodstuff, beverages and cosmetics.

As processes within companies continually change, innovative concepts are needed, such as “Industry 4.0.” This year, the ILMAC fair celebrated its 20th anniversary, and around 430 exhibitors showed their global approaches, new products, innovations and solutions in the range of process and laboratory technology.

Aerzen (Schweiz) AG impressed visitors with a rotary lobe compressor Delta Hybrid, which is among the most innovative solutions in compressor technology. In the field of process gas and wastewater treatment, the VMV compressors and the turbo blowers, made by AERZEN, attracted considerable interest. Thanks to their mode of operation, which is free of oil and absorption material, these machines are particularly suitable for use in the pharmaceutical, foodstuff and cosmetics industries. All in all, this year’s ILMAC fair fulfilled all expectations as a networking platform, and offered visitors and exhibitors a representative industry overview.

This year’s ILMAC focussed on Industry 4.0.
Research in the Indian market revealed a significant requirement for biogas blower packages in the country, especially types from CM35 to CM50L (volume flows from 168 to 252 m³/h). This research was the starting signal for local production. Thanks to the production of local components on site, and machines adjusted to the needs of the market, AERZEN is able to quote for attractively priced packaged units within a short timeframe.

The set-up of the production facilities started in September 2015. Aerzen Machines India Private Limited has manufactured biogas blower packages in Vadodara, India. Since the beginning of 2016, Aerzen Machines India Private Limited has manufactured biogas blower packages in Vadodara, India.

Since the beginning of 2016, Aerzen Machines India Private Limited has manufactured biogas blower packages in Vadodara, India. The production line at the cement plant was in a disastrous condition. It was soon apparent that the blowers, made by an unknown Chinese manufacturer, could not cope with the high requirements for cement production. Hume Cement struggled with continuous breakdowns, which caused damage to the coupled motors. Suitable spare parts could not be procured on the Malaysian market in good time. All this caused high costs and led to significant production losses. Coincidentally, colleagues from Aerzen Asia visited this location. They recognised the problem immediately and submitted a proposal for its solution. Thanks to our good references, Hume Cement were convinced by AERZEN products and services. All of the existing blowers on the production line needed to be replaced by AERZEN blowers, i.e. seven machines from type GM 255 to GM 130L. This order had a value of 150,000 Euro.

The big premiere came on 25th March 2016: For the first time, a packaged unit of this performance class, completely manufactured in Asia, had been successfully taken into operation.

Adjudged seaworthy

AERZEN has developed a new planning folder for its waste water range. This is available in both German and English versions and in digital as well as in print form.

The IFAT fair has shown that there is an increasing level of interest in heat recovery systems. Therefore, AERZEN now offers corresponding leaflets. A unique selling point of AERZEN products is that they are free of absorption material.

Accordingly, this topic is also included in the leaflet portfolio. The new brochures “ISO-Standards” and “Safety Standards” provide information on, amongst other things, discharge silencers free of absorption material and oil according to class 0.

AERZEN biogas packages made in India

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AERZEN receives seal of approval from Donors’ Association

The Stifterverband für die Deutsche Wissenschaft (Donors’ Association for German Science) has honoured AERZEN’s research activities with the seal of approval “Innovativ durch Forschung” (innovative by research). The Donors’ Association is the only joint initiative for companies and foundations to advise, interconnect, and promote holistically in the fields of education, science and innovation in Germany.

AERZEN Sales Offices North/East

Celebration on the occasion of the 25th anniversary

In 2016, AERZEN Sales Office North looks back on 25 successful years. Together with Sales Office East, the eleven colleagues of manager Torsten Lehmann are an experienced and powerful team, supporting about half of Germany in terms of geographical coverage.