

■ Application report

Compact and powerful

Industry:	Food & Beverage
Trade partner/year:	Wecker Drucklufttechnik GmbH, 2020
Application of compressed air:	Conveying air, process air
Installed Products:	EVERDRY FRA 6000 with Sorbead Air Adsorbent

Individual compressed air treatment, adapted to difficult local conditions. Effective engineering and good cooperation between all parties involved made it possible.

The operator is active in the Food & Beverage sector and specializes among other things in coffee refinement. The compressed air is often used in the production process and comes into direct contact with the product (including coffee granulate) at several points.

In this project, the certifications important in the food industry and the specifications resulting from an audit required the operator to have a stable pressure dew point (pdp) of below -40°C in order to maintain the desired compressed air class with a pdp of class 2 according to ISO 8573-1. In addition, a 100% availability of compressed air in 24/7 operation was required.

The compressed air station consisted of several decentralized, oil-lubricated screw compressors, which are led to a collector pipe. Up to now, the compressed air has been treated dry and oil-free, with a drying degree of $<3^{\circ}\text{C}$ pdp and by means of activated carbon adsorbers. The operator took an upcoming refrigerant dryer repair as an opportunity to talk with his specialist trade partner Wecker Druckluft GmbH from Münster about an exchange and to work out a concept. Due to the requirements of the audit, the latest guidelines in the food industry, as well as the desire for a trouble-free pdp, the processing has been reconsidered. But there was still a special challenge: The preferred installation location for the compressed air treatment was a cellar with a low ceiling. Standard dryers were too high for the required performance class for the installation site. The operator, however, wanted to keep the existing compressed air treatment system in the same position.

Two partners, one individual solution

A meeting was arranged to convince the operator of an individual solution. Here BEKO TECHNOLOGIES, longtime partner of the retailer, presented current references in the food & beverage sector, results of customer audits and detailed information about optimization and target achievement.



■ Application report

As a suitable optimization in comparison with a new refrigeration dryer, the operator was suggested the design of a special construction of the adsorption dryer EVERDRY FRA 6000 Eco, which especially took into account the given ceiling height due to lower adsorbent tanks. There were two decisive success factors for the performance of a smaller adsorption dryer compared to a standard size.

Sorbead® Air Inside
the energy efficient
solution by

BASF
We create chemistry

The first success factor was the adsorbent Sorbead Air from BASF that was selected for this case. The high-performance adsorbent is approx. 20% more efficient than conventional activated alumina. This efficiency made it possible to reduce the overall height of the EVERDRY FRA6000 Eco by approx. 30 cm while maintaining the same dryer performance.

The low desorption temperature of Sorbead Air reduces the amount of energy required for regeneration and offers a long service life due to its abrasion resistance and mechanical and thermal stability - important for the requirement of a problem-free, 100% availability of compressed air.

The second success factor was of an energetic nature and a real added value of the EVERDRY FRA6000 Eco dryer. It is generated by the use of steam, which is abundantly available at the operator. Heated ambient air is used to desorb the adsorbent, which is normally realized in standard dryers by means of radial fans and electric heaters. In the present case the steam was used: it heats the blown air via a steam heat exchanger. In this way, an already existing energy is used instead of generating heat energy for desorption via expensive electric current. A positive energy balance, eco.



The joint concept is convincing

The operator was impressed by the joint consulting services, the implementation of a special construction height and the high energy savings compared to the offers of other suppliers and placed the order. The oil-lubricated screw compressors now go to a collection line and from there through an EVERDRY FRA6000C Eco adsorption dryer and the activated carbon adsorber, including appropriate filtration. Instead of the compressed air class 1-4-1 of the old system, the compressed air is now provided with class 1-2-1 and thus 50 times drier. This not only improves the degree of drying, but also the absorption capacity of the oil vapor in the activated carbon adsorber. The quality is much more stable and thus the production reliability.

The joint concept of Wecker Druckluft GmbH and BEKO TECHNOLOGIES exceeded the requirements of the operator by special size, adapted to the local conditions, BASF Sor-

bead Air adsorbent as well as the efficient use of existing steam for regeneration. Throughout the entire project phase, Wecker Druckluft and BEKO TECHNOLOGIES maintained permanent, personal contact with the operator.



■ Application report

The operator accepted the dryer during a preliminary factory acceptance test at the BEKO TECHNOLOGIES plant in Netphen, Germany. At the same time Wecker Druckluft GmbH trained its service technicians on the device. The new dryer was delivered disassembled, because the entrance gate of the operator was smaller than the installation site. Subsequently, the partial components were assembled on site. The commissioning was carried out in the presence of Wecker Druckluft, BEKO TECHNOLOGIES and the operator. Here, the last individual optimizations were made to the dryer program, thus implementing further customer requirements

The dryer has been running efficiently and reliably since June 2019, the operator is satisfied with the technical performance, and the pressure dew point is far better than required. The compressed air requirements are therefore perfectly matched to the current state of the art and will remain so for years to come. Further projects will follow.

© 2020 BEKO TECHNOLOGIES. Duplication and reproduction, even in part, is not permitted.

Our partner in this project:



www.wecker.net

www.airsummit.de

www.beko-technologies.com
beko@beko-technologies.de

BEKO TECHNOLOGIES – Better through responsibility