



Press Release

Innovation: HydronPlus - a compact wet separator for recirculating air operation

Keller Lufttechnik GmbH + Co. KG, specializing in dust extraction processes, presents the new HydronPlus compact wet separator which was awarded the Baden-Wuerttemberg Environmental Technology Award 2017 at the EMO trade fair in Hanover in September 2017.

The separator is geared toward manufacturing processes that create combustible, explosive or adhesive dust. It combines the advantages of a wet separator with the high separation efficiencies of a dry operating process and thereby enables the recirculation of clean air. A fan with a frequency converter automatically adjusts its performance to the available conditions. Both factors contribute to the outstanding energy efficiency of the system.

Kirchheim unter Teck, July 14th, 2017 – Wet separators are utilized mainly during processes creating flying sparks, or explosive or adhesive dust. They capture the contaminated air which passes through a fine water spray, and then separate the droplets saturated with foreign matter, by using a centrifugal force filter (cyclone). The principal advantage of this technology is that any potential explosion of flammable dust is prevented with the addition of water.

Conventional technology not very energy efficient

Standard wet separators have been in popular use for many decades. “Unfortunately, these universal systems do not always meet the current requirements with regard to energy efficiency, separation efficiency and ergonomics”, explains Ulrich Stolz, head of the Technical Department at Keller Lufttechnik. “We cannot achieve the required ecologically feasible separation efficiencies for clean air recirculation by using conventional wet separators. Contaminants in the air remain too high, which is why the systems cannot be operated with direct recirculating air operation.” Consequently, the heated or cooled plant air – depending on the season – is vented outdoors via exhaust air operation, resulting in high energy usage.



Hybrid technology combines wet and dry separation

Aging technology is replaced with the new HydronPlus which Keller Lufttechnik proudly introduces to the public for the very first time at the EMO metalworking trade fair held September 18 – 23, 2017 in Hanover. “HydronPlus combines the explosion protection advantages of a wet separator with the excellent separation efficiency of a dry separator”, announces Leopold Rang, head of Systems Engineering. “A secondary filter stage is installed into the wet separator to ensure that the cleaned air falls considerably below the set limit values for particles as defined in workplace regulations, as well as in the VDI 222 sheet 3 Directive. We are able to recirculate the air back into the production plant.”

Calculations have indicated that approx. 2,000 Euro in annual energy savings can be achieved, assuming two-shift operation.

Fan includes frequency converter

The defined separation efficiency of the HydronPlus can also be attributed to the fan with an integrated frequency converter. It automatically controls its output to the filter element's resistance which increases with the load of foreign matter on the filter. “The fan operates precisely according to the required output. This is an essential contribution to the system's energy efficiency”, explains Ulrich Stolz.

Baden-Wuerttemberg Environmental Technology Award for HydronPlus

The innovative product has already made headlines: Keller's engineering experts were granted the Environmental Technology Award of Baden-Wuerttemberg in the category of “Reduction of Emissions, Processing and Separation” by Franz Untersteller, Minister for the Environment.

Greater emphasis placed on flexibility

Proven energy-efficient separation technology as well as versatility and ease of handling characterize the HydronPlus. “We've seen at our customers that flexibility in production is increasing. During separation processes a greater number of smaller separators for one or two systems are requested in addition to large centralized systems”, advises Leopold Rang. HydronPlus is such a system with an air flow of 1.500 cubic meters air per hour. It can be easily moved with changes in the workplace.”



„Plug-and-Play“

Ulrich Stolz reports that a complex commissioning such as is normally required for wet separators lacks the following new capability: „The operator specifies an air flow which the system automatically maintains using the frequency converter – even if the pressure differential inside the ductwork fluctuates, e. g., by opening a door. The system automatically adjusts to preset parameters. This new feature labelled “Plug-and-Play” boosts process safety, lowers costs and increases flexibility.”

Compact and ergonomic design

Keller’s engineers focused on a compact design for limited space requirements. “Simultaneously, ergonomics played an important role. All important components are easily accessible, such as for cleaning”, mentions Rang. „HydronPlus has set a new standard in this regard.”

Industry 4.0: Remote Status Monitoring

HydronPlus is the perfect system for customers wanting to recall and control system parameters in a centralized manner. Connection with additional machines in the production process can be installed upon request. “Focusing on Industry 4.0, we equipped our new wet separator with suitable sensor technology and the corresponding interfaces”, states Leopold Rang.

Water treatment by UV treatment

With sustainability in mind, Keller’s experts addressed the treatment of process water that is re-used until the build-up of solid matter requires an exchange: We forego the prerequisite application of Biozides by utilizing UV treatment instead”, explains Ulrich Stolz. UV-C-light is also used to destroy micro-organisms occurring in small water droplets, such as Legionella, which can present a health hazard when inhaled.

Adherence to Regulations Governing Evaporative Cooling Systems

Very strict regulations currently apply in Germany for Legionella control concerning evaporative cooling systems. Wet separation systems which operate in recirculated air mode, are explicitly not included. This omits complex testing requirements for operators such as health inspections every two weeks and sample testing by a testing laboratory every three months, says Ulrich Stolz. “Nevertheless, Keller provides additional safety with UV treatment of the circulating water and by measurements of the secondary filter stage. No further optimization of the exhaust air quality is necessary.” This is confirmed by tests performed by an independent laboratory, in

accordance with VDI 4257.

The specialist concludes: „We successfully combined the advantages of wet and dry separation, and developed a progressive technology which completely redefines the standards for wet separation processes, the result of our long-term industry expertise and the application of far-sighted scientific criteria and innovation.”

About Keller Lufttechnik:

Clean air during production processes: Keller air pollution control systems have ensured the filtration of foreign matter from the air for close to a century. Keller has contributed to workplace well-being and environmental safety in industry. The family-owned company, now operated by its fourth generation, employs 380 people at its parent company in Kirchheim, as well as in Switzerland, the USA, and China. Keller also maintains representative offices in 16 other countries. As a developer and manufacturer of high quality air pollution control systems for most aspects of industry, Keller offers a comprehensive range of services from plant design to assembly and maintenance. Keller specialists are well-known for their practical solutions when managing innovative or especially challenging tasks.

Link: www.keller-lufttechnik.de

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You may request the following photographs that accompany this press release:



Image 1: The HydronPlus Compact Wet Separator is designed for manufacturing processes involving combustible, explosive or adhesive dust. The innovative product was recently awarded the Baden-Wuerttemberg Environmental Technology Award 2017.

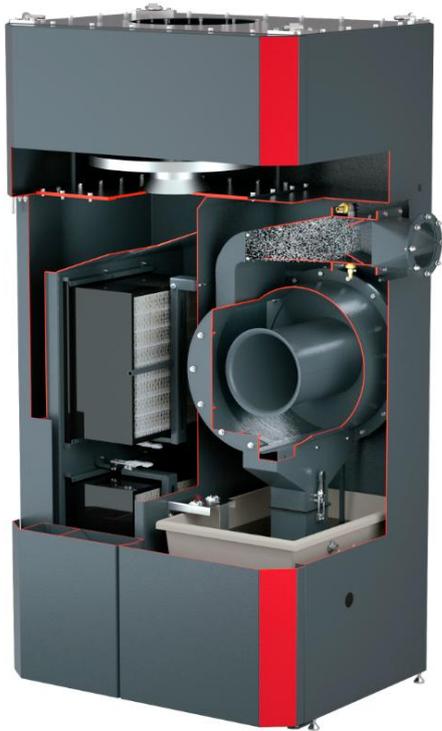


Image 2: HydronPlus combines the advantages of a wet separator with the high separation efficiency of a dry operating process, enabling clean air recirculation.

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