

PRESS RELEASE

LEYBOLD SIMPLIFIES REPAIRS AND MAINTENANCE THROUGH AUGMENTED REALITY

SEE LEYBOLD'S EXTENDED VIEW INTO THE FUTURE OF INDUSTRIAL AR PROCESSES AT **COMVAC** (HANNOVER MESSE - HALL 26, STAND E10)

Leybold GmbH, a German company of the Atlas Copco Group, is the first vacuum pump manufacturer to test the diverse application possibilities of Augmented Reality (AR). While executing tasks, service technicians obtain useful additional information and graphical documentation, partly in 3D. Leybold plans to extend the scalable AR apps to other product areas such as training, repair and maintenance purposes.

The real-time visualizations and context-related information concepts are not new to the renowned pump manufacturer. Since the year 2016, Leybold has been using the advantages of Augmented Reality for the dry pumping system DRYVAC. It quickly became apparent that the data provided to customers and service technicians dealing with Leybold products offer additional benefits. These positive experiences have prompted Leybold to extend Augmented Reality to other areas.

Leybold sees the greatest potential for optimization in the core areas of training and service. The technology can be used anywhere in the world where specific, interactive user support is useful in service processes. However, it also offers advantages in facilitating learning and educational training - by allowing insights into the pump interior.

Augmented Reality therefore offers its customers and technicians a wide range of possibilities to perform their service tasks - even without the specialists. Step-by-step instructions fed into the eyesight range of technicians enable a lower error rate. Moreover, the training effort for the technicians is minimized through this visual support and the insertion of interactive content with understandable instructions and checklists.

For the purpose of illustration, high resolution 3D graphics are projected onto the pumps exactly where the tasks have to be carried out. The relevant photo and audio functions can easily be embedded in the respective application. If necessary, different evaluations can be generated.

By using the pilot applications, the realistic presentation possibilities of AR applications on smartphones and tablets are evident. Also, the Microsoft HoloLens glasses can be used. With these Augmented Reality glasses, technicians can work and train without having to hold a device in their hands.

"We see a great potential for applications in the field of Augmented Reality, especially in industrial processes, and this digital strategy is not only a strong market trend, but also meets the challenges of our customers and technicians in the field," said Eckart Roettger, President of Industrial Vacuum Service, elaborating on the value of AR processes. "Instead of taking the instructions from a manual, apprentices have the whole procedure on the object visualized within the display. This will generate a great impact on the value and use of information," explains Eckart Roettger.

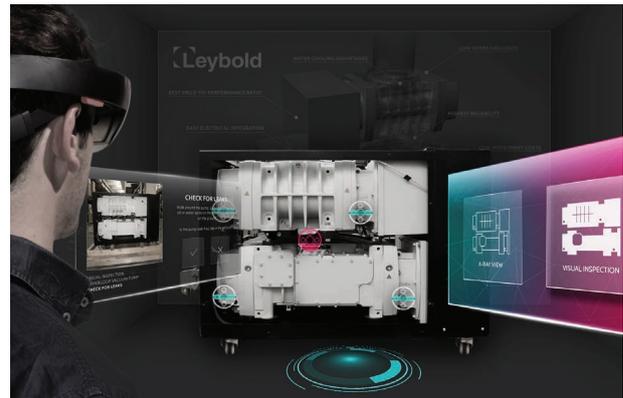
Leybold is working on this project with REFLEKT ONE, a software for industrial applications from the Munich-based specialist for Augmented and Virtual Reality RE'FLEKT. "Many customers know the benefits of Augmented Reality. The problem, however, is to create tailor-made applications for a variety of products. The scalability of our platform makes it easy for the customer to do it

themselves,” explains RE'FLEKT CEO Wolfgang Stelzle, on the main motivation to rely on REFLEKT ONE.

One of the main advantages is sustainability: once the software is fully installed, any number of AR applications can be created for training and service scenarios of all products. This results in significant advantages for the customer in terms of downtime, response times and operating costs.



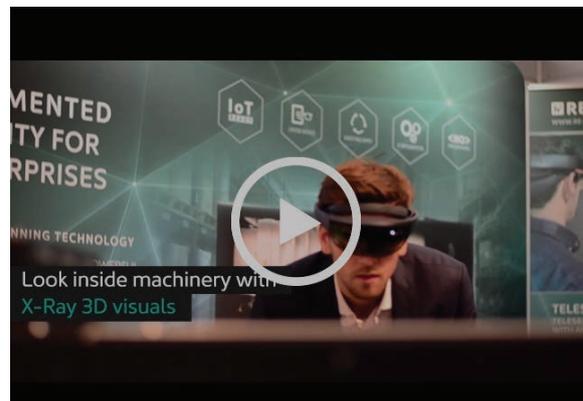
Leybold's line of TURBOVAC i/ix pumps



Leybold HoloLens integration for its DRYVAC Pumps



Leybold HoloLens integration for TURBOVAC pumps



Watch video on <https://www.youtube.com/watch?v=hSEboxEKxiY>

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ABOUT LEYBOLD

Leybold is a part of the Vacuum Solution Division within the Atlas Copco's Compressor Technique business area and offers a broad range of advanced vacuum solutions for use in manufacturing and analytical processes, as well as for research purposes. The core capabilities center on the development of application- and customer-specific systems for the creation of vacuums and extraction of processing gases. Fields of application are secondary metallurgy, heat treatment, automotive industry, coating technologies, solar and thin films such as displays, research & development, analytical instruments, as well as classic industrial processes.

ABOUT ATLAS COPCO

Atlas Copco is a world-leading provider of sustainable productivity solutions. The Group serves customers with innovative compressors, vacuum solutions and air treatment systems, construction and mining equipment, power tools and assembly systems. Atlas Copco develops products and services focused on productivity, energy efficiency, safety and ergonomics. The company was founded in 1873, is based in Stockholm, Sweden, and has a global reach spanning more than 180 countries. In 2016, Atlas Copco had revenues of 11 Billion Euros and more than 45 000 employees.

Since 1952, Atlas Copco is present in Germany. Under the roof of two holdings located in Essen, more than 20 production and sales companies are gathered (February 2017). By end of 2016, the group employed about 3800 people, including about 100 trainees.

Website: www.atlascopco.de

ABOUT RE'FLEKT

RE'FLEKT is a Munich based technology company that enables any business or industry to create their own in-house Augmented and Mixed Reality applications. By making AR and MR affordable and scalable for business, RE'FLEKT's ground-breaking human-centred platforms empower anyone to simply infuse their industry knowledge into customized AR and MR solutions. With clients including Audi, BASF, BMW, Bosch, Eon, Hyperloop, Hyundai, Leybold, Porsche, Seepex and Thyssen Krupp, the international team delivers technology solutions to a variety of leading global markets. Since its founding in 2012, RE'FLEKT has grown to a team of over 60 employees in Munich, Dusseldorf and Los Angeles and is a "Gartner Cool Vendor".

Website: www.re-flekt.com

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