

Atlas Copco first to offer certified "net zero energy consumption"™ compressors

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Antwerp, Belgium " Atlas Copco's Oil-free Air division has announced that the company's ZR series of water-cooled air compressors with built-in energy recovery systems is the first in the world to be TÜV certified for "net zero energy consumption"™ at specific design conditions. It has been proven that 100 percent of the electrical power input could be recovered in the form of hot water. With these "Carbon Zero"™ compressors, industries using a great deal of hot water and steam such as food & beverage, dairies, pulp & paper, pharmaceuticals, chemicals and petrochemicals, power plants, clean rooms and textiles can dramatically cut down on their energy bill.

Energy savings in compressed air systems are very important as energy consumption typically represents over 80 percent of a compressor's lifecycle cost. While compressed air systems on average account for about 10% of industrial electricity consumption, it can be as high as 40 percent of a plant's electricity bill. For this reason, Atlas Copco has been innovating for energy-efficient compressed air solutions for many years. The new certification is yet another milestone in Atlas Copco's history of innovation.

"We are very pleased to offer our customers a compressed air solution which can recover 100 percent of the input energy," says Stephan Kuhn, President of Atlas Copco's Compressor Technique business area. "Today our customers face stringent targets to reduce carbon dioxide emissions. With the Carbon Zero compressor, customers can get compressed air virtually for free, which has significant impact towards preserving the environment and also on their bottom line."

The independent Technische Überwachungs-Verein (German Technical Monitoring Association, or "TÜV") earlier this year supervised the type-testing of Atlas Copco's ZR 55-750 water-cooled oil-free screw compressors, equipped with built-in energy recovery systems. The testing process involved real-time measurement of the electrical power input and the output power as hot water. The two measurements were then compared. It was proven that under the specific design conditions of 40°C and 70% relative humidity, 100% of the input electrical power could be recovered.

While the Carbon Zero compressor compresses air, all the input electrical energy is converted into heat. This heat appears at different compressor components. The challenge is really to pick up this heat from all the components which are the compression elements, the oil cooler, intercooler and aftercooler. The built-in energy recovery system circulates cooling water through all these components and as a result of the heat transfer, yields hot water at up to 90°C. This hot water can find several applications in the industry.

Most industries can make use of hot water for space heating, showers and other such applications. However the industries that will benefit the most are those that have a continuous need for hot water and steam in their processes. Typical process hot water and steam users include food & milk processing plants (scalding, cleaning, sterilization, melting), pulp & paper industry (in the digester & evaporators, and in bleaching, pulping), textile industry (dyeing, stabilization of manmade fibers), pharmaceutical industry (fermentation and sterilization), refineries, chemical and petrochemical plants (steam distillation, enhanced recovery, stripping, heat tracing), power plants (electricity generation), clean rooms (humidification).

The hot water or steam is normally generated using industrial boilers which consume electricity or fuels like heating oil or natural gas. When using hot water from the compressor, either directly or as pre-heated boiler feed water, the consumption of fuel can be either dramatically reduced or be eliminated. This results in significant energy savings.

Chris Lybaert, President of Atlas Copco's Oil-free Air Division says "In summary, the Carbon Zero compressor offers our customers a double-win with enormous environmental benefits along with increased profitability."

For more information visit www.carbonzerocompressors.com.