Atlas Copco Compressor Technique Milestones for Stationary Compressors

Innovation is one of Atlas Copco's key values. Throughout the years, the company has been at the forefront of compressor technology with a number of important innovations. Over 1000 patents on machines, parts, and working principles of both compressors and dryers have contributed to Atlas Copco's becoming and remaining First in Mind – First in Choice™ with their customers.

1904: Atlas Copco produces its first oil-free piston compressor.

1952: Atlas Copco introduces the first oil-free screw compressor worldwide to reach the market: "UR4". Oil was left out of the entire compression process.

1954: Launch of the first oil-injected screw compressor. Oil was injected into the compression chamber for lubrication, cooling and sealing.

1964: Launch of "ER", the first water cooled two-stage piston compressor in the world. Higher pressures at reasonable temperatures were possible; two-stage machines also proved to be 10-15 % more energy efficient.

1966: Worldwide introduction of the first "Z" compressor. The big difference with the earlier "UR4" was the asymmetric design of the screw elements. The design of the elements (Mark I) resulted in a very low SER (Specific Energy Requirement). Compared to the earlier "UR4", the "Z" was smaller in footprint, easier to install and weighed a lot less.

1973: Silencing canopies first introduced by Atlas Copco, resulting in lower noise for big machines.

1986: Introduction of the Elektronikon™ controller. Atlas Copco is the first company worldwide to introduce an electronic compressor monitoring system, optimizing the unload losses. The result was improved energy efficiency.

1993: Atlas Copco is the first company worldwide to launch the Full Feature concept for compressors. Compressors with integrated dryers resulted in a reduction of the footprint of the compressor and exclusion of piping from a dryer to the process. Furthermore, the installation process was shortened. There are shorter paths for air flows, and reduced pressure drops (consequently lowering energy requirements).

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1994: Atlas Copco is the first company to introduce a patented MD adsorption dryer. Up to today still a huge success, due to energy savings.

1994: Quantum improvement in energy efficiency. Atlas Copco is the first company to launch the revolutionary VSD (Variable Speed Drive) on the compressor market, allowing energy savings of up to 35 %.

1995: The world's first packaged and ready-to-run centrifugal compressors arrive on the market. Atlas Copco introduces the "ZH" centrifugal turbo compressors. Atlas Copco introduces standard machines with a different technology for bigger flows. Screw compressors went to 750 kW, centrifugal compressors up to 2 mW.

1995: New integrated design for "Z" range, resulting in improved reliability (less risk of leakages of oil, water and air), improved energy efficiency (fewer pressure drops), and reduced noise emissions (in most models noise was cut by 50%).

1996: Unique ZR coolers are introduced. The star insert improves inter- and aftercooling, resulting in a 2% reduction in energy consumption. The stainless steel (R429) used to produce the cooler is particularly corrosion resistant, making it extremely reliable. The tubes are welded in an inert atmosphere to prevent oxidation of the materials during the process, increasing both strength and cooler lifetime.

1996: New "Mark II"-elements improve cooling and result in improved energy efficiency (less internal leakage).

2002: "Z" series Full Feature compressors include an integrated MD dryer (for ease of installation), and improved energy efficiency (MD dryer providing dry air "for free"). Energy savings go up to 20 %.

2003: Introduction of AirScan™, allowing customers to easily measure their need for compressed air and adapt their compressor installation. This separate product shows the best solution and the corresponding ideal compressor installation, for energy savings.

2005: AirOptimizer™ brought to market, allowing the customer to ensure air around the clock at the lowest energy cost. The separate product is used to keep multiple compressors in a combined installation, running in their ideal zone.

2005: New air-cooled design integrated into "Z" series, resulting in 5 dB(A) less noise and 3-6% less energy consumption.

2006: The "Z" screw compressors are the first and only compressors worldwide to receive an ISO 8573-1 Class 0 certificate (no traces of oil could be determined in the compressed air stream) as measured by the independent agency TÜV.