

Danfoss Turbocor Compressors Solutions for Office Buildings

Building Owners and Managers Association (BOMA) studies have consistently shown that more than half of all tenants complain about discomfort. This is a serious challenge because the studies also show that if tenants complain about comfort three times in a year, the chances of losing the tenant at the end of the lease is over 50% carrying huge economic ramifications. Comfort also has a very significant impact on the productivity of workers. A one percent increase in productivity equates to over \$2.50/sq. ft./year, which is more than the cost to run the entire HVAC system. Finally, tenants are increasingly sensitive not only to comfort, but also to excessive noise.

These are some of the critical issues for office building HVAC applications that have a solution through Turbocor:

1. Reliability
2. Efficiency
3. Ease of maintenance
4. Sound levels
5. Remote monitoring
6. Environmental responsibility

Reliability:

Problem – Nothing will generate tenant complaints faster than a failure in the building's comfort system. One traditionally vulnerable point is the HVAC system's compressors. When the compressor goes down, the facility manager's phone starts to ring.

Solution – The Turbocor compressor is a centrifugal machine with only one moving part. This simplicity translates to enhanced reliability and longer service intervals. Danfoss Turbocor retrofit applications using multiple compressors in place of a single compressor provides building owners and operators with "built-in" redundancy within the same equipment space. Your staff can focus on other tasks while the comfort system keeps rolling along.

Efficiency:

Problem – Every dollar spent unnecessarily on energy is one less dollar that drops to the bottom line. When the building is sold, this value is magnified by the capitalization rate, making energy savings worth a great deal of money. Yesterday's compressor technology is no longer adequate in today's high-priced energy market.

Solution – Turbocor compressors offer up to 50% operating savings compared to many traditional compressor technologies. The simplicity of Turbocor's centrifugal design drives savings at all load levels. This is especially true at part load conditions, where office buildings tend to operate the vast majority of time. Be it a triple net or an inclusive lease, a more efficient Turbocor retrofitted system can make both building owners **and** their tenants happy.

Ease of Maintenance:

Problem – Rental office buildings lack adequate staff to deal with constant maintenance work on the cooling system. Staffs are being trimmed while increasing demands are being placed on everything from adjusting space temperatures to maintaining lobby floors. Owners and managers are looking for ways to increase and leverage productivity.

Solution – When a cooling system is equipped with Turbocor compressors, experience has shown that compressor maintenance is significantly reduced, and frequently cut in half. A compressor system with a single moving part creates system simplicity, and the oil-free design means no oil inspections, no sampling, no scheduled

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oil or filter replacements, and no major tear-downs or expensive repairs with extended downtime. The only maintenance required is to change four capacitors once every five years, tighten the electrical connections once a quarter, and annually dust off and clean the electronic cards. These minimal maintenance requirements save your limited staff for other projects.

Sound Levels:

Problem – Quiet operation is essential. Tenants expect the HVAC system to be invisible and silent. When tenants complain, they are signaling an intention to leave if the problem isn't solved. When the complaint is building noise, the problems can be the result of noisy, vibrating HVAC compressors. Solutions to these noise problems can be expensive, to say the least.

Solution – Turbocor compressors are the quietest in the industry because of their unique rotary centrifugal design patented magnetic bearings system. We've actually seen situations where space next to or above the chiller plant couldn't be rented. This situation is solved with the use of advanced, ultra-quiet, vibration-free Turbocor compressor technology. Because the Turbocor compressor is the quietest compressor in the industry, given typical equipment background noise, one can not hear the compressor operate. Complaints dwindle, and rentable space increases, making Turbocor a cost effective solution never before available.

Remote Monitoring:

Problem – Office buildings are getting larger while facility staffs are getting smaller. In many cases, entire building campuses are maintained by a very small staff. It's no longer possible to have personnel assigned to each mechanical room. Yet it's essential to verify equipment operational status and operating parameters.

Solution – For cooling system compressors, the answer is the Turbocor design, a compressor that has advanced capabilities for remote monitoring. The Turbocor compressor is a "computer that thinks it's a compressor" — a computer that can talk to you, either centrally or remotely. This feature allows for cost effective remote monitoring and unit diagnostics at a level that couldn't be imagined yesterday. Through highly adaptable interface technology, your BMS can monitor the operation of the compressor from your building, or from any remote location to which your system is linked.

Environmental Responsibility:

Problem - Building owners are asked to show leadership in environmental issues, a real challenge when maintenance budgets are shrinking, and tenants have more stringent demands for world-class comfort. While tenants demand ever higher comfort levels, they also ask for environmentally responsible systems.

Solution – The Turbocor compressor can meet this challenge. The oil-free, high-efficiency nature of the Turbocor compressor is environmentally attractive. A Turbocor application can help a building owner earn the highest point value possible in one of the most important environmental rating systems, the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program or secure recognition under the EPA's Energy Star Buildings Program. This provides the opportunity for owners not only to talk about environmental leadership to tenants, but to demonstrate it in a way such that it can be turned into a marketing advantage for the building and building owner.

The Turbocor compressor is a new and exciting technology that offers solutions in today's office environment. To learn more about Danfoss Turbocor, visit the Web site www.turbocor.com.



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