

# Danfoss Turbocor Compressors Solutions for Schools

Education facility managers continue to face challenges. The school-age population again shows ripples from the Baby Boom. Today more than ever, school facilities are being challenged. These challenges include the HVAC system with issues such as:

1. Acoustic environment
2. Reliability
3. Efficiency
4. Maintenance cost and staffing
5. Remote monitoring capability
6. Environmental responsibility



The Turbocor compressor offers solutions to each of these issues and more.

## Acoustic Environment:

**Problem** – HVAC system noise is a serious concern in many schools. If the HVAC plant equipment is installed indoors, noise levels can be so high that classrooms located right next to the equipment room cannot be used. Clearly, if students can't hear, they can't learn. When equipment is located outside, the challenge may even be more pronounced. Because primary and secondary schools are located in residential neighborhoods, ambient sound levels at the property line frequently become a problem.

**Solution** – The Turbocor compressor is the quietest compressor in the industry with less than 70 dBA at five feet. The compressor is so quiet that school maintenance staff, standing right next to an HVAC unit with Turbocor compressors, will frequently ask if the compressor is running— when it is!

## Reliability:

**Problem** – Schools typically have limited budgets and maintenance staff. They look for comfort systems that will run reliably while unattended.

**Solution** – The Turbocor compressor is a centrifugal compressor with only one moving part. This simplicity translates to enhanced reliability, longer service intervals and a substantially increased service life. Maintenance personnel are the first to acknowledge that simpler is better, and that allows them to focus on other tasks.

## Efficiency:

**Problem** – Every dollar spent on energy is one less dollar available for other things that are truly important to the educational process, such as instructional materials, teachers and facilities.

**Solution** – Turbocor compressors offer up to nearly 50% operating savings compared to traditional compressors. This is especially true at part load conditions, where schools operate most of the time.

## Maintenance Cost and Staffing:

**Problem** – With tight educational budgets, administrators are being pushed to reduce cost and staffing, yet facilities continue to expand. Few districts can have a full complement of highly-trained maintenance personnel.

**Solution** – Turbocor compressors have half the maintenance cost of traditional “oiled” systems. This is because approximately half of the cost of maintaining many traditional compressors is related to oil, including annual oil inspections, periodic oil changes, and oil filter replacements. The Turbocor compressor is the first compressor to be totally oil-free. Additionally, required, expensive teardowns are now a thing of the past. The only maintenance required is to change out four capacitors once every five years, tighten the electrical connections once a quarter and annually dust off and clean the electronic cards. That's it —no oil, no periodic teardowns, and no major overhauls. Limited staff can be saved for other projects.

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### Remote Monitoring and Diagnostics:

**Problem** – Schools frequently find they can no longer afford to have technically trained staff at each building. There needs to be some way to check system operation remotely.

**Solution** – One approach is to let computers and remote monitoring do more. The Turbocor compressor provides a more cost-effective method of remote monitoring and diagnostics. Every Turbocor compressor is essentially a computer (used to control the magnetic bearings, resulting in an oil-free design). This computer allows cost-effective remote monitoring and diagnostics that could only be dreamed of until now. Advanced monitoring and diagnostics, tied into the schools building automation system, allow the school to centralize their best technical experts to provide remote facility management for the entire school district. With monitoring available at various levels with the Turbocor compressor, the technician can know more today from a hundred miles away than a worker of yesterday standing next to the unit.

### Environmental Responsibility:

**Problem** – School districts are frequently asked to show leadership in both environment and economical performance.

**Solution** – The Turbocor compressor offers the opportunity to meet this challenge. The energy and maintenance cost savings offer outstanding economic advantages. Importantly, the “oil-free,” high-efficiency nature of the Turbocor compressor is also environmentally sound. For example, a Turbocor retrofit has the potential to help earn some of the highest point values possible in one of the most important environmental rating programs, 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 schools to not only talk about environmental leadership to students and parents, but to demonstrate it.

The Turbocor compressor is a new and exciting technology that offers solutions for a number of applications. Schools, colleges, and universities certainly stand to benefit by considering the upgrade potential of the Turbocor compressor system. To learn more about Danfoss Turbocor, visit the Web site [www.turbocor.com](http://www.turbocor.com).



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