

# Danfoss Turbocor Compressors Solutions for Industrial Applications

In the fast-paced world of manufacturing, change is the watchword. Demand Flow®, Six Sigma, Just-in-Time, outsourcing, global strategic production positioning, are all parts of ever changing manufacturing processes. While many things can affect the plant, few are as important as throughput. For applications that require cooling, this means that the process or environmental cooling system is absolutely critical. Here are some of the most important issues for both process and environmental cooling:

1. Reliability
2. Efficiency
3. Reduced maintenance cost
4. Need for Emergency generation
5. Remote monitoring
6. Environmental responsibility



## Reliability:

**Problem** – For manufacturers, an unplanned equipment shutdown can cause the greatest problem. Equipment used for comfort or process cooling can certainly be included in this scenario. Manufacturers need equipment that stays online, day after day, year in and year out.

**Solution** – If you have Turbocor compressors at the heart of your cooling systems, you can depend on their simple design with just one moving part, to increase the reliability of the equipment and help avoid unscheduled system outages. Your process or comfort cooling will be there when you need it. When surveyed most plant engineers say they would rather have a centrifugal compressor, especially a direct drive, hermetic, multistage centrifugal. Why? Because the experience is they are more reliable.

That's why the Turbocor compressor incorporates all of these characteristics.

## Efficiency:

**Problem** – In today's economic climate, equipment energy efficiency is mandatory, especially in applications that frequently operate 24/7. Wasted energy can make a major difference in product profitability. Yet many facilities are still using outmoded chiller technology for process or environmental cooling applications.

**Solution** – The solution to inefficient cooling compressors is the Turbocor compressor, which is up to 50% more efficient than similarly sized compressors, especially at part load conditions. Find out how Turbocor retrofit can start saving money for you today.

## Reduced Maintenance Cost:

**Problem** – Industrials, like many in the HVAC industry, are consistently looking for ways to reduce maintenance cost. This is a major budgeted line item and saving here can be readily used for other needs of the plant or facility.

**Solution** – Experience has proven that Turbocor compressors have one-half the maintenance cost of traditional "oiled" systems. Approximately half of the cost of maintaining many conventional compressors is related to oil, including annual oil inspections, periodic oil changes, oil filter replacements, etc. The Turbocor compressor is oil

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free. For this compressor, the only maintenance required is to change out four capacitors once every five years, tighten the electrical connections once quarterly, and annually dust off and clean the electronic cards. That's it, no oil, no periodic teardowns, no major overhauls. This not only reduces maintenance, but makes maintenance simpler and much less complex. It also reduces downtime and enhances reliability, a critical need for industrial applications.

#### **The Need for Emergency Generation:**

**Problem** – Critical areas in process applications may require emergency generation power backup systems. A significant factor in sizing emergency generators is the startup amperage required by the compressor(s) motors.

**Solution** – The Turbocor compressor totally redefines “softstart,” requiring less than 2 amps verses a typical 75 ton, 460 volt screw compressor that can pull 500 to 600 amps on startup. The Turbocor compressor never exceeds full load amps whereas a screw compressor will pull locked rotor amps almost immediately, a value 5 to 6 times that of the full load amps. This can have a significant impact on the sizing of an emergency generator or allow the generator to serve additional loads.

#### **Remote Monitoring:**

**Problem** – Manufacturing plants are getting larger, and facility staffs are getting smaller. It's simply no longer possible to have staff watching each piece of equipment. Yet it's valuable to be able to log equipment operational status and operating parameters with the intent of solving problems thereby minimizing the impact on throughput.

**Solution** – For cooling system compressors, the answer is the Turbocor design - a compressor that has advanced capabilities for remote monitoring. Some have said that the Turbocor is a computer that thinks it's a compressor, and it's a computer that can talk to you via the Web. This feature allows for cost-effective centralized or remote monitoring and unit diagnostics at a level that couldn't be imagined yesterday. Engineering staff can monitor operation of the compressor from another building or from halfway around the world.

#### **Environmental Responsibility**

**Problem** – Corporations are being asked to show leadership in environmental issues, a real challenge with shrinking maintenance budgets and demands for growing production.

**Solution** – The Turbocor compressor offers the opportunity to meet this challenge. The oil-free, high efficiency nature of the Turbocor compressor is environmentally sound. For example, the Turbocor application has the potential to help earn the highest point value 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. This provides the opportunity for industry to not only talk about environmental leadership to shareholders and the public, but to demonstrate it.

The Turbocor compressor is a new and exciting technology that offers solutions in a wide range of industrial applications. To learn more about Danfoss Turbocor, visit our Web site [www.turbocor.com](http://www.turbocor.com).



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