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SEPTEMBER 2000
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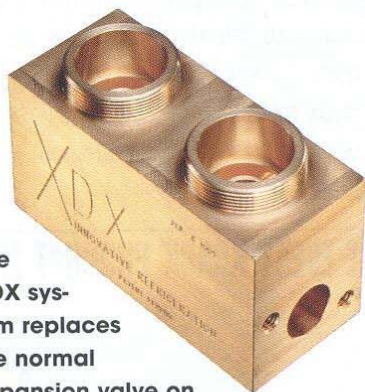
XDX Innovative Refrigeration's new cooling system helps control costs, enhance quality

S By BRYAN SALVAGE,
Editorial VP

ome things in industry are v-e-r-y slow to change. Take Freon-based systems used to refrigerate supermarket freezers, coolers and processing plant applications. Insiders say they haven't changed in more than 50 years—that is, until recently.

Arlington Heights, Ill.-based XDX Innovative Refrigeration has developed a new system it claims will revolutionize Freon-based refrigeration. In short, it allows Freon refrigeration evaporator coils to operate far more efficiently. This, in turn, results in the following benefits that Northbrook, Ill.-based Underwriters Laboratories Inc. has verified:

- ◆ XDX saves 18 to 24 percent in power consumption.
- ◆ Use of the XDX system decreases defrost cycles by 89 percent. UL observed one defrost cycle in 35 days for a minus 18-degree F freezer application and no defrost cycles for 35 days in a 31 degree-F cooler application.



The XDX system replaces the normal expansion valve on the evaporator coil for any Freon-based refrigeration system.

◆ As a result of fewer defrost cycles, XDX maintains a more constant product temperature, which also helps contain bacteria growth. Fewer defrost cycles also results in less shrinkage, since the product moisture is retained through the XDX system.

◆ Less condensation is produced when the new XDX system is used.

South Holland, Ill.-based Silliker Laboratories further verifies that use of the XDX Innovative Refrigeration System increases shelf life by 66 percent and reduces the growth rate for spoilage bacteria versus conventional refrigeration systems (with defrost cycles) by 35 percent.

The Vienna Sausage connection

Chicago-based Vienna Sausage Manufacturing Co., an XDX customer, partnered with XDX in January 1999 to further develop this new system. James Eisenberg, Vienna's co-CEO and co-chairman, tells *MM&T* Vienna began using the patented XDX process more than a year ago for the company's cafeteria freezer and service counter. He adds that prior to installing the XDX system, the freezer used to defrost three times a day for 30 minutes per defrost cycle.

"You used to walk into this freezer and every box was covered with snow," he says. "You had to rub the snow off to see what was in the box. Now there is no snow."

Under the old system, the temperature of the room also increased significantly during the multiple defrosts so there were potentially dangerous spikes in temperature.

"With the XDX system, we defrost

each night for only 10 minutes in the middle of the night," he adds. "We no longer have a temperature swing."

How the XDX system works

The XDX system changes the way the Freon refrigeration coil operates. Here's how it works.

In a conventional system, the change of the state of the refrigerant Freon gas—which is what creates cooling—only takes place in the center of the cooling coil. In the XDX system, cooling takes place throughout the entire coil. This greater surface area creates a larger cooling surface. The XDX system doesn't take humidity from the atmosphere or product and drop it on the coil, forming frost like conventional refrigeration using Freon gas refrigeration can do, executives say. Plus, it cools spaces much faster than conventional systems.

The XDX system operates using conventional equipment, allowing existing Freon refrigeration systems to be easily retrofitted.

"Basically, you take a conventional refrigeration system and remove the expansion valve from its normal location and install our assembly," says Roger Wightman, XDX operations manager. "This includes our valve installed with a solenoid assembly and an expansion valve, and we put that ahead of the evaporator instead of the expansion valve. This system can be installed on any evaporator coil that is Freon-based as a retrofit or at the condenser of a system-wide unit."

The XDX system is designed to accommodate both small and large refrigeration systems.

"If you have a big production facility with eight refrigeration coils in the room, the XDX system could be placed at each of the coils," Roger Wightman says. "We're even involved in a process-

ing operation where we're [retrofitting] on a 60-ton blast freezer. So tonnage isn't a [restricting] issue," he adds.

System is affordable

Eisenberg tells *MM&T* that the majority of large processing plants in the United States use ammonia-based refrigeration systems, which the XDX system currently can not accommodate. Most smaller plants use Freon-based refrigeration units.

When asked if the XDX system would be too expensive for smaller companies, Eisenberg answers: "No. It will cost in the neighborhood of \$800 to \$1,000 for a two-ton refrigeration system. But costs really depend on how many evaporators they have to put it on and how big the evaporators are, because the system

XDX's innovative system offers these benefits:

- ◆ Helps maintain consistent temperature in any freon-based application
- ◆ Reduces electricity needed for refrigeration systems.
- ◆ Retains consistent humidity in food processing.
- ◆ Enhances product quality.
- ◆ Reduces number of defrost cycles and time need for each cycle.
- ◆ Helps boost shelf life.

works between the compressor and the evaporator."

The system has other advantages. Less Freon is used through the XDX system than through conventional systems, and the XDX System costs the same to operate as an ammonia-based system.

"But you don't have the EPA problems with a Freon system that you have with an ammonia system," he adds. "Your maintenance people don't have to wear gas masks. It's a much simpler system. In the event of a leak in the new system, less damage occurs.

"If you get a leak with an ammonia system and it goes into the product, you're going to have to throw the product away," he adds. "You don't have that

problem with a Freon system like XDX." Recognizing the huge potential such a system could have if it also worked on existing ammonia-based refrigeration systems, plans are being made to create such a system.

"We're gearing up for a test facility," Wightman says.

Eisenberg adds that the XDX system holds great promise internationally.

"Electricity costs are greater in the international marketplace," he notes. "We have companies in Hong Kong, Japan and Germany looking at our system."

Overall, Eisenberg says the XDX system represents valuable technology.

"The valve is simple, the cost of installation is low and the benefits are great," he says. "Sooner or later, every new [freon-based] refrigeration system in this industry will have this valve in it."

☎ XDX Innovative Refrigeration, 800/XDX-0250.

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