MAKING MODERN LIVING POSSIBLE

Danfoss Case Story:
ICF Flexline™ valve station application in ice cream factory

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During a recent refitting of an ice cream manufacturing plant, the application of ICF Flexline™ valve stations from Danfoss led to a significant reduction in production down-time. It was estimated that approximately 80% improvement was realized when compared to traditional valve assemblies. Also, due to the small footprint of ICF Flexline™ valve stations and their ready-built feature, installation was made much easier and faster. This led to substantial savings in installation costs, component costs, and loss of valuable production time.

The ice cream factory in Vladivostok, Russia, was founded in 1986. Over the years, increased requirements for product quality and changing technical standards, as well as changes in market demand, mandated that they carry out a full technical re-equipment of their manufacturing plant.

The main goals of the re-equipment were to reduce energy consumption, to install modern and efficient equipment, to optimize temperature levels and to add the possibility of producing more varieties of deep-frozen products.

The ammonia refrigeration plant with compound and single-stage compressor units is supplied by circulation pumps. It supports three different temperature levels: -45° C, -40° C and -30° C. Ice-water is cooled by a liquid separator. The total cooling capacity of the unit is 2.5 MW.

Fig 1: Principle of the evaporation system based on ICF Flexline™ valve stations.

The new refrigeration unit had to be installed within the existing rooms in the plant. However, since the ICF Flexline™ valve stations are very compact in size, this could easily be accommodated. This was one of the benefits the system engineer sited as a reason for developing a solution based on the Danfoss ICF Flexline™ valve stations.
Due to the lack of space and the limited time available for installation work, the combined ICF Flexline™ valve station was applied on the distribution lines of the storage chambers. The ICF Flexline™ valve stations were installed on the liquid ammonia lines for the evaporators (fig. 1 and 2) and the hot ammonia gas lines used for defrosting the evaporators (fig. 1 and 4).

A similar solution is used in the deep freeze packing shop in the ice cream factory. ICF Flexline™ valve stations are installed in the distribution sections of fast-freezers. The compact design of the valve stations meant that the installation took up six times less space than traditional valve assemblies. Also, ICF Flexline™ valve stations require up to 80 % less time in installation, which meant that interruption of the production process for the installation was significantly reduced.

The installation of ICF Flexline™ valve stations was made fast and convenient due to the unification of parts, the compactness and the small amount of ammonia used in the running of the stations.

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For further information on the ICF Flexline™ valve stations please visit our website www.danfoss.com/ICF or contact your Danfoss representative.