



AISBERG

LIQUID DEFROST SYSTEM



Liquid defrost system: energy saving and product's quality conservation

Liquid defrost system was elaborated and patented by engineers of Aisberg company. Principle of operation is underlying in energy recovery of condensation emission of compressors, which is accumulated during few hours of work of the system between defrosting cycles.

Considering to application in big format stores and including it in working scheme of air coolers of low-temperature freezers, we had made step by step modernization and improvement during the time of antifreeze defrost system's exploitation.





Moisture sublimation of the products

in the refrigerated cabinets without liquid defrost system



Liquid defrost system

greatly reduce sublimation and save quality of the products

- 1** The main advantage of this system is underlie in potential capacity because of energy's accumulation during the long period between defrosts and application of that energy during the short period of the defrosting. It gives the **possibility to make clearance of evaporator in 10-15 minutes during defrost.**
- 2** Defrost holding 1 time per day allows **to have correct temperature in the cooling volume and to reduce losses for moisture sublimation from the products** and emission in the form of snow in the packages of goods.
- 3** Defrost holding 1 time per day allows to make adjusting of defrost periods, especially at night time, what **prevents heating of the products and worsening layouts visibility** in the case of glass doors fogging in vertical refrigerated cabinets during the defrost period.
- 4** This technical solution allows to make defrosting without any additional electric devices, to enfold all areas, including drain condensate area, in the case of right hosted pipelines inside of cabinet's body and in the evaporator pocket. Thus, reduce settled and consumed electric power of the refrigerated equipment, reduce cable cross section and supply voltage from 380 V to 220 V. **A store will cut off costs for electricity and installing materials in the result.**

Energy saving

Product quality

Air cooler defrosting of the low temperature chamber, which is connected to the centralized liquid defrost system and passes in 15 minutes. Brovary city, Ukraine



5 *Lack of additional hydraulic communications in the cooling system*, where are using automatic devices and stop armature and could be danger of water hammer (as on scheme of hot gas thawing) – makes antifreeze defrost system much more reliable in operation.

6 The high coefficient of antifreeze heat transfer inside of pipe (unlike of gas), heat transfer in evaporator pocket through the aluminum ribs and natural convection in ***the air provides high quality heat transfer from antifreeze to the thawing ice.***

7 Reducing of refrigerant contour, ***reducing the probability of refrigerant's losses.***

8 ***The system is independent*** from the point of view of balance between energy emission from LOW temperature multisystem and energy consumption for defrosting even for the winter season, in the case of condensate temperature +20°C and work with electric expansion valve.

9 Accumulator is cooling down to the temperature below condensing pressure after defrosting, ***what provides to remove EXTREME points of the loads from multicompressor's installation, to reduce the costs of fans work air capacitor and to avoid automatic disconnections*** by high pressure with high temperature of environment, what will allows higher reliability of the system's exploitation at all.

Reliable system

Product quality

Energy quantity provided by compressor is always proportionally of energy quantity, which provides by the work of refrigerated cabinets, freezers and snow coat formation as well. According to this fact, if the freezers are connected to general system, they can be served by the general antifreeze defrost system





10 Pipelines with lower working pressure are required for antifreeze defrost system, unlike for heat gas defrosting.

11 Energy supply to the lower part of the evaporator ensures the system's work with switched-off fans, thus **provides the high quality of products storage.**

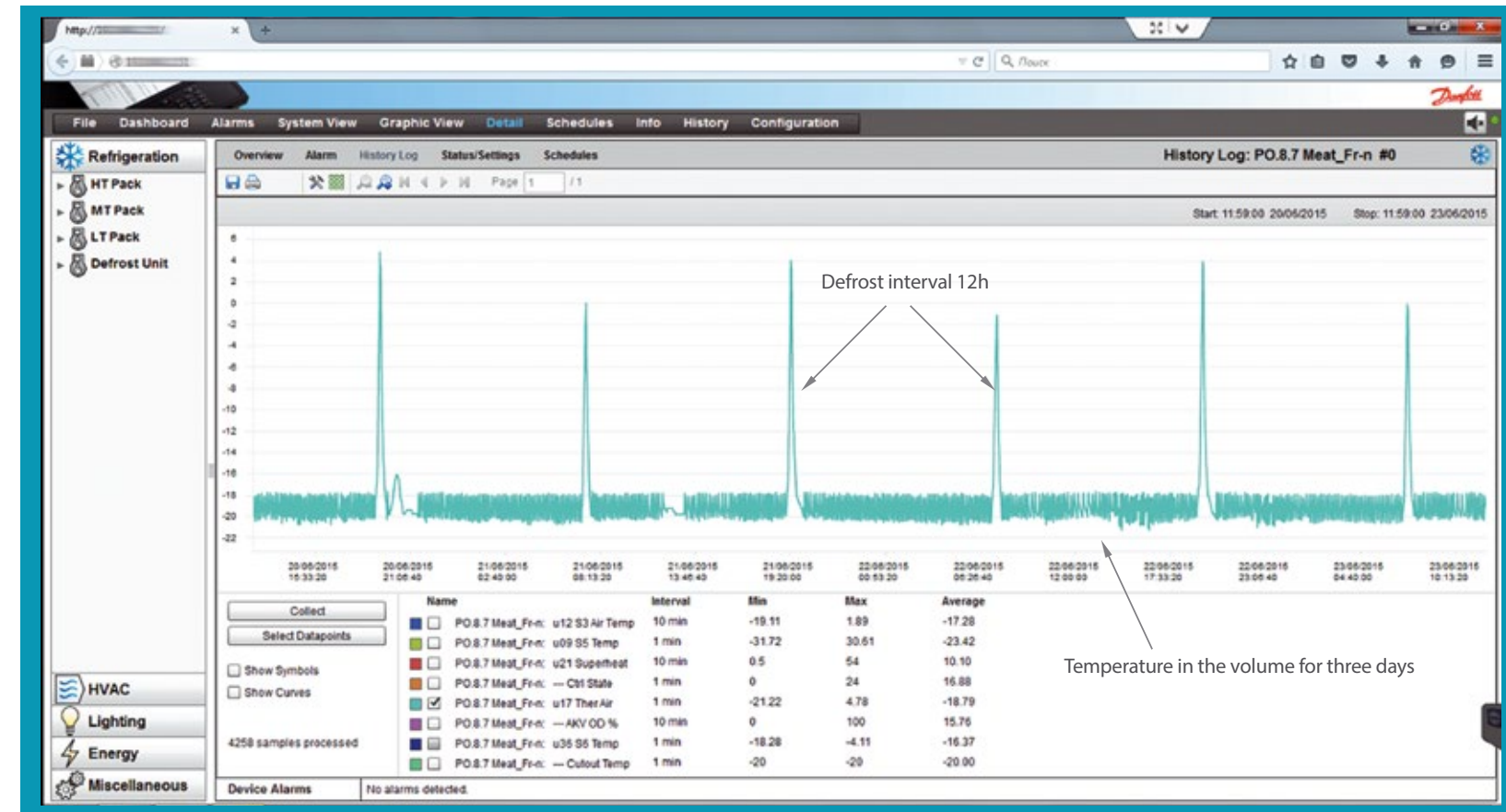
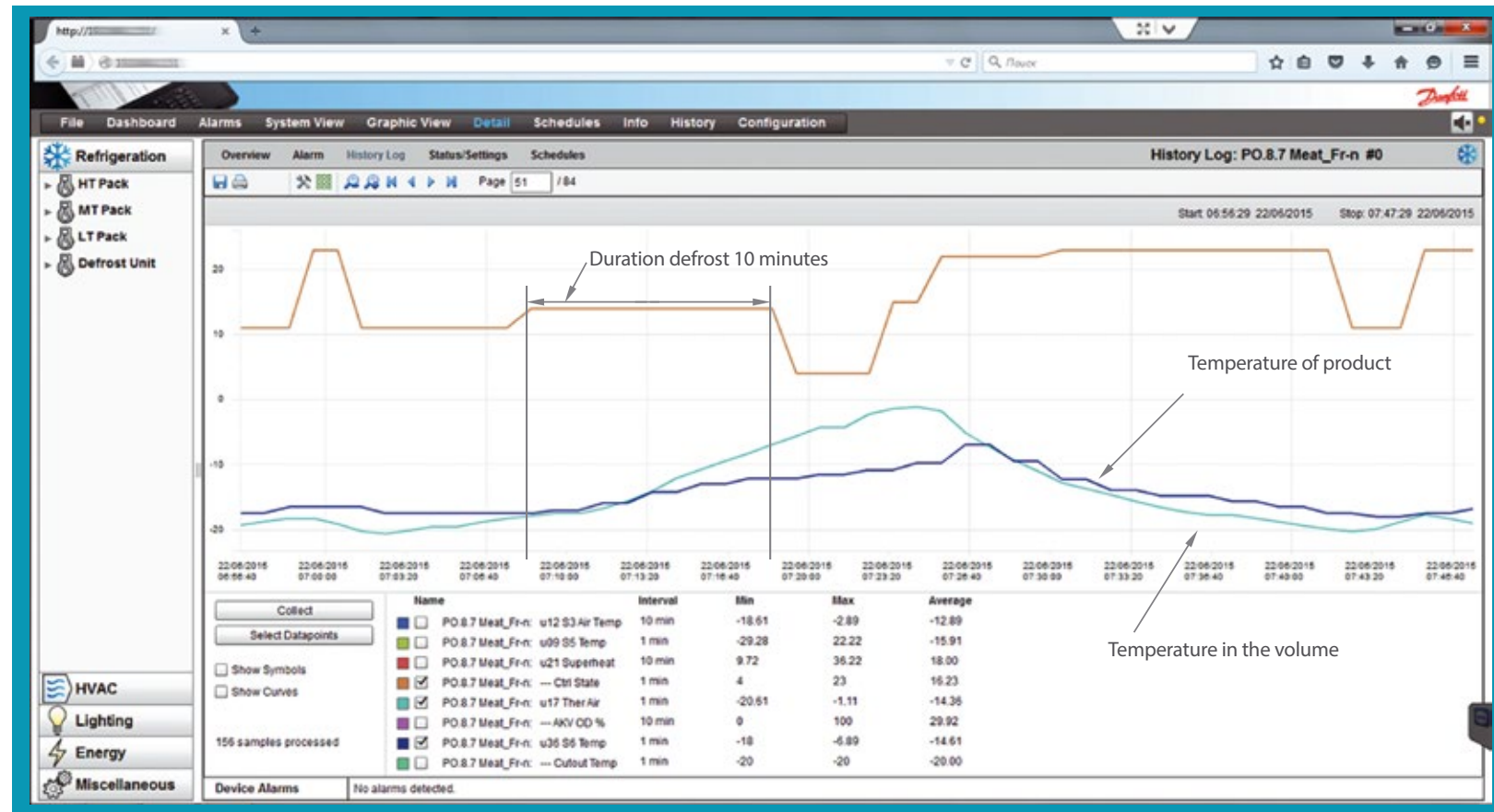
12 Economic expediency of antifreeze defrost system determined by calculation. Payback period of the extra costs, including install and materials of the equipment – 2 - 3 years. Payback period of this system , in the case of start reducing settled capacity and **saving costs of operating – 1 - 1.5 year of exploitation, if to compare with electric defrosting.**

Save costs

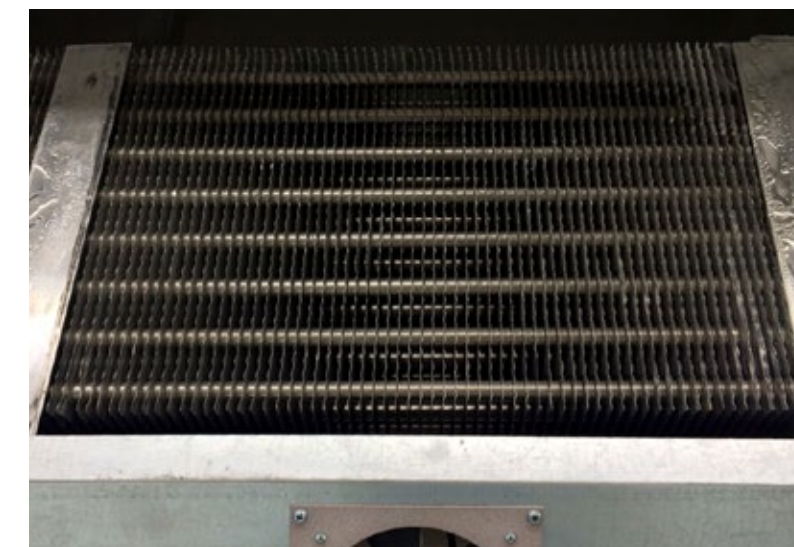
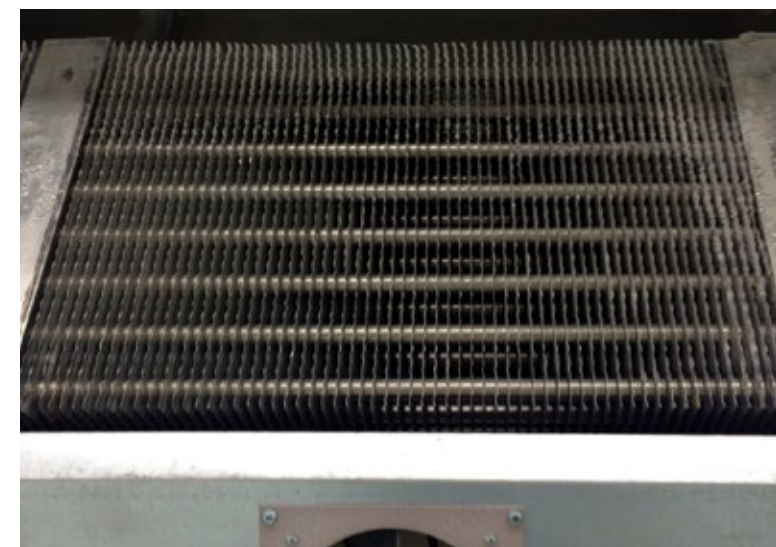
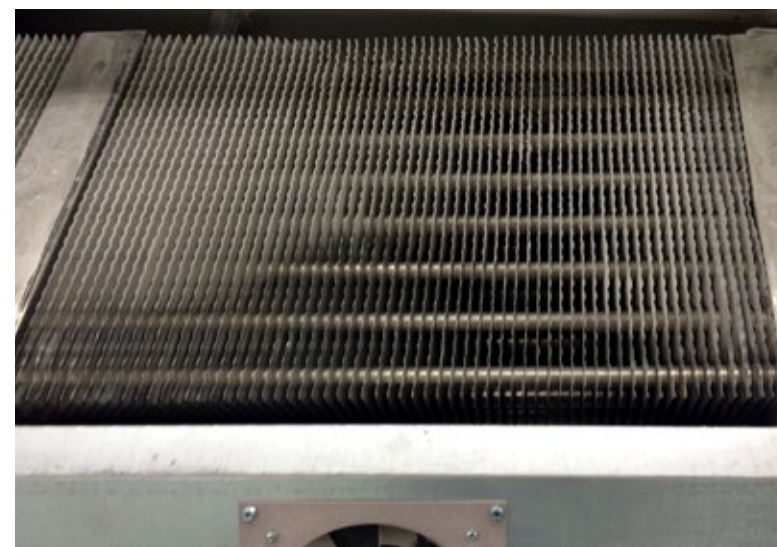
Product quality



Data from ADAP-KOOL® system of operation of low-temperature open cabinet Nautilus without glass covers and with liquid-defrost system



Complete defrost of low temperature open cabinet Nautilus without glass lids and with liquid-defrost system takes 10 minutes without additional electric devices. Armenia, Yerevan city





AISBERG LTD
3, OVIDIOPOLSKA DOROGA,
ODESA, 65036, UKRAINE
+38 (0482) 32-35-27
aisberg@aisberg.od.ua

WWW.AISBERG.COM