

Industrial Cooling in the Indian Ocean

ICS was asked by a large tinned seafood manufacturer to send an engineer to their **Mauritius** plant to evaluate their food process cooling infrastructure and see what could be done to assist in getting their process floor air conditioning system up and running.



and a MOP style cap selected as the compressor had a maximum operating condition of -5°C . Protection devices were also added so that the low temperature compressor could be run on a medium temperature application. The compressor was floor mounted with modified pipework to suit.

All the wiring to connect the salvageable unit was modified to enable the system to run using a collection of thermostats that were available from the local suppliers so the water temperature, liquid injection and condenser fans could be controlled giving the customer around 120kW of cooling.

Investigating the Problem

An initial visit found two existing chillers. The units had dual circuit screw compressor type with electronic expansion valves capable of approx 480 kW each.



Both of the existing units were out of action with leaking evaporators, dead compressors and faulty fans.

As it had been nearly four years since they had a fully operational plant they were desperate to get some cooling as soon as possible particularly as temperatures in the factory were up around 30°C .

The ICS engineers arrived at site on the Friday morning and so the pressure was on to get any form of cooling by Monday morning when the factory would be in full swing again.

After inspecting the installation and working the weekend ICS managed to get one of the circuits running.

An Immediate Quick Fix

Of the faulty units, only one circuit on one of the chillers could be brought back to life with a quick fix solution this required a replacement compressor. The only spare compressor available was for a cold store operating at -20°C .

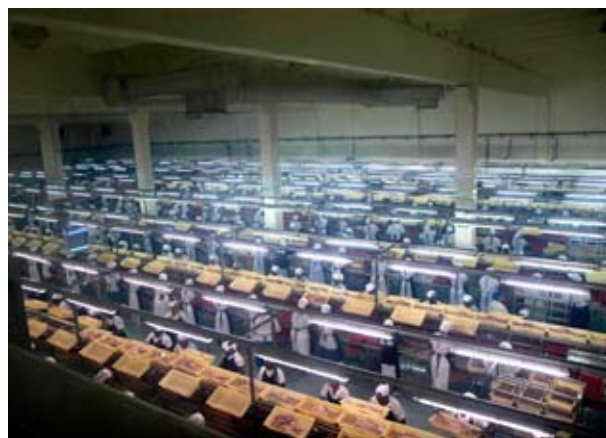
Modifications to allow connections were therefore required, the expansion valve was resized to match

This was the best that could be achieved from their existing equipment without substantial repairs and replacements. This was able to supply cooling until investment for a complete solution was available.

A Long Term Solution

Following the initial visit, ICS was asked to quote to replace the 2 existing air handling units with 2 new **WZ T 7500** air handling units and 2 new air cooled chillers to replace the existing redundant units.

The capacity of the system was increased to cover updates in the factory over the years so the new system would provide **1072kW** of cooling to keep the space conditioned and ensure the 800 staff on the shop floor could be kept cool in the high ambient temperatures Mauritius experiences.



The Factory Floor

To keep the customer's cost low the equipment was installed by local contractors and ICS re-attended site to commission the whole system which involved the more complex actions like setting the correct air flows and balancing the duct work associated with the new air handling units, balancing the water flows to all equipment and recalibrating the reconditioned balancing valves.

Finally the ICS engineers also set up the new automatic control system and trained the local staff on basic refrigeration principles, fault finding and good practices for improving plant efficiency, (this would help them look after the plant before our next maintenance visit).

Unique Challenges

The project was carried out in the lead up to summer in temperatures of 35°C. When carrying out the duct work balance temperatures of 59°C were measured on the surface of the insulation of the duct work. This created very uncomfortable working conditions.



The new Air Handlers on the roof

A Very Happy Customer

72 hours after delivery of the new units, the ICS engineers had given the client a fully operation system for the first time in many years. In fact, before the week was out the system was so efficient -they had their first complaints that the air was too cold!

Longer Term Benefits

The new system offers heat recovery options to allow greater cost and energy efficiencies on site, as well as considering environmental concerns. They will now look at saving the water the chillers generate (previously it was just put down the drain) with heat recovery water can be preheated to 55°C instead rejecting the heat from the factory to atmosphere - this will save on boiler fuel costs as well help with environmental concerns.

Nationwide Support

ICS offer a nationwide service for all of your process cooling and heating requirements.

To find out more about how we can help call us free on **0800 169 3861**, or contact us on one of our local office numbers below:

