

## Upgrading to Turbocor Compressor Technology

When a Midlands based customers looked to replace their ageing cooling system, they turned to ICS Industrial Cooling to deliver a replacement set up featuring the latest state of the art Turbocor Compressor Technology.

The customer, a PVC Window Extruder had kit on site in need of replacing and upgrading. Following a site visit to ascertain the sites requirements ICS Industrial Cooling were able to design an effective cooling package that would dramatically improve the efficiency of the process and save the customer money on their energy spend.

### Equipment supplied

The state of the art chilled water system supplied by ICS incorporated, **3 x TECS 3AN Water Cooled Chillers** manufactured by chiller experts Climaveneta. These units were selected as they feature 3 highly efficient centrifugal turbocor compressors in each unit.

The chillers provided a combined cooling duty of **2.4MW** exceeding that of the previous on site cooling.



### The Project

The project ran to schedule with the new cooling system fully operational in 20 weeks as forecasted. This included a 12 week delivery for the chillers. The delivery of the units created a temporary need for additional cooling, this was met with a **Cool Energy 850kW rental chiller**.

The chiller install included a full turnkey installation to include a **3MW cooling tower** providing water cooling to the condensers on the chillers, associated run/standby pumps for both the chillers and the condenser water circuits, electrical control panel and pipework installation in ABS plastic.



The Cooling System on site

### Energy Saving

The system replacement was a major investment by the customer, but due to the efficient unit selection the cooling system has an eventual payback period of **less than 2 years** based on the energy consumption of the plant.

On a plant requiring 2.4MW at full load and a turning down ratio of 500kW or lower at part load, multiple chillers like in this scenario run more efficiently than one large chiller, as it puts less strain on the compressors to achieve the required duty.

Supplying the cooling in any alternative set up could have proved expensive to run, which is why this customer opted for multiple chillers with a management system to optimise the plant using the new turbocor compressors.

## EER Ratios

If we were to have used a conventional screw type compressor for this application, we would typically have expected an **EER ratio of 4.0**.

If we were to equate this to the **3 TECS 3AN** chillers running at part load, but being managed to run efficiently, the same capacity could have been achieved, but the efficiency ratio now averages out across the 3 units giving a typical **EER of 11.0**, this results in the power input being significantly reduced on the whole system by about a 2/3 as the chillers will be running at part load for a significant part of their life.

## Nationwide Support

To find out more about ICS' range of energy efficient units and the latest technology available contact us today. **Call us free on 0800 169 3861.**