Aqua

The Temperature Control People.

Case Study | **Manufacturing**

Adiabatic Cooling Helps Sustainability for Plastics Manufacturer

Client

Bolton based plastics manufacturer
Norlin Polymers (UK) Limited

Challenge

Replacement cooling system

Solution

Sustainable adiabatic cooling system

Temperature control is key to the plastic manufacturing process. It is used in numerous ways, from melting the raw material, through to extrusion, injection moulding and polymerisation. Aqua were asked to design a cooling system for a client operating with the sector, who was using mains to drain cooling. Their legacy set up was proving unsustainable, both from a cost perspective as well as environmentally due to the volume of wastewater and utility costs.

Situation

As a leading manufacturer of technical & specialised polymer compounds, Norlin Polymers supplies the medical & pharmaceutical sector across Europe. They extrude a specialist plastic material which is then used for applications within the industry.

The extrusion process is akin to that used widely within plastics processing. The raw plastic material is melted, blended, and forced through a dye which results in polymer strands. Their process differs when it comes to the cooling of the strands and maintaining the cooling water to set temperature.

The mains to drain system used cold towns water to fill the extrusion baths. The water kept the bath cold, and it was regularly replenished for hygiene reasons. The client controlled the fill/overflow from the mains tap.

Having recently acquired a new design of water bath, one which could be equipped with a pump and heat exchanger, they were able to consider adding cooling equipment to the process and moving away from the manual system.

Solution

After establishing that the heat exchanger on the bath could provide sufficient cooling with water temperatures of 25°C and 35°C, we suggested using a system incorporating adiabatic cooling.

Adiabatic coolers are an excellent choice because they are low maintenance, cost-effective and a highly sustainable option if you are working with water temperatures of 25°C+. Aqua's adiabatic units achieve a great balance between water usage, fan speed and load. They reduce energy, significantly save water, and minimise environmental impact.

"The adiabatic system we designed, is able to run several extrusion lines, with the ability to operate different machines at different temperatures, to suit our clients' manufacturing requirements" explains Aqua Regional Sales Manager, Mark Whittaker.

Any fluctuation in cooling will impact on product quality, so system control is important. Aqua's design incorporates a central control panel, which monitors both the adiabatic cooler and the pump. There is also a temperature controller with an external probe on the tank return pipe and a 3-way valve. This ensures the temperature is easily controlled and kept consistent. The addition of a tank ensures easy filling and dosing of the system.

Results

"With this upgrade our client has future proofed their business" continues Mark.

"Without the changes they were faced with rising costs which would either have limited profitability or caused them to have to increase their sale price and pass the pain onto their buyers."

"Aqua were the perfect partner for Norlin. They provided design support where we needed it, expert installation, and after-sales care. The adiabatic system simultaneously helps us achieve both production requirements and our sustainability objectives" explains Norlin's Commercial Director, Jonathan Holland.

To discover how adiabatic cooling could help your business, chat with the team on 0333 004 4433.