

Temperature Control for Overseas Tyre Production

Tricool Thermal, were contacted by a global processing rubber manufacturer, to provide a packaged multi zone temperature control solution for the manufacture of tyres. Located overseas, the project required essential temperature control of a Banbury type mixer for the production and extrusion of rubber. Varied yet accurate temperatures were needed at each stage of the manufacturing process in order to produce the exact rubber compound.

Rubber Processing

The customer had previously worked with Tricool for their temperature control requirements and chose Tricool again due to the quality and reliability of the units they received.

Essential Temperature Control Requirement



The organisation uses the well known Banbury type high shear mixer for the mastication and extrusion processes of a particular mix of raw materials to produce the rubber. Every tyre manufacturer uses their own particular variety of components for this, but the common ingredients include carbon black, silicon, sulphur, plasticisers and steel. Normally over 200 materials are mixed together until the mixture becomes homogeneous; giving the tyre elasticity, resistance to wear and determining its service life. Once the rubber is produced, it is formed into slabs using a mechanical extruder.

The mixing process is carried out in zones with each zone requiring individual temperature control. The mixing chamber in particular, produces extremely high temperatures which must be managed. Within the chamber, heat and pressure is applied simultaneously with the rotors shearing in an intense motion. This process requires acute precision to ensure the production of consistent compounds and high productivity. Cooling is compulsory within

the mixing process, ensuring homogeneous batch temperature control whilst ensuring heat build-up situations are avoided.

A Multi-zone temperature Control Solution

Having worked with the customer previously and understanding their current process requirements, Tricool Thermal manufactured and supplied 8 off 3-zone TCU's (temperature control units) and 4 off 4-zone TCU's. These compact, bespoke built multi-zone T90's with capacities of **9-96kW** carry out the temperature control of 3 zones in one. They provide a more cost effective and practical solution whilst interfacing with the customer's main control panel using profibus. With non ferrous internal parts and self cleaning solenoid valves, maintenance and cleaning needs are reduced. The 4-zone TCU has been adapted for temperature control of a larger extrusion machine, meeting all the particular design specifications.



A Satisfied Customer

The foreign location of the project was not an issue for Tricool who completed the shipment on time with an early installation. Dave Palmer, Manufacturing Director commented on the project:

"Tricool have worked to produce high quality temperature controlled equipment, meeting all technical specifications, temperature control requirements and continual customer support whilst working within the customer's particular timescales."

The customer continues to return to Tricool for their temperature control equipment, due to fast turnaround along with technical and after sales support.

Nationwide Support

Tricool Thermal have 30 years experience of manufacturing temperature controlled equipment within the UK.

They remain at the forefront of the industry, producing bespoke, cost effective heating and cooling solutions for any industry application.

For further information on Tricool's products call free on **0800 977 5709** or email **info@icstemp.com**