MAZIAK CASE STUDY

Waste not want not—a hidden heat source!

The Challenge

A large construction materials company, opened its Bristol plant in 1990 to manufacture drywall products and systems for partitions, ceilings, wall linings and external sheathing purposes.

Their production process uses 315kW of energy—a lot! Water needs to be pre-heated for the plaster and needs to remain at a constant 28°C. Gas burners are used to heat the tank and the process needs up to 240 litres of water per minute. About 80% of the power used to generate the required compressed air is wasted as heat (252kW of energy), escaping to the atmosphere from the top of the compressors.

Having previously trusted Maziak to deliver a sizeable compressor house installation and relying on Maziak, via a comprehensive SLA, to keep them running at maximum efficiency and minimum cost, they were all ears when Maziak proposed a project to reuse the wasted heat.

Maziaks' Solution

The project was to utilise the waste heat from the air compressors to pre-heat the hot water tank and reduce the amount of natural gas used. This would also help remove the heat from the compressor during hot periods of the year that can cause tripping issues. Ingeniously simply, Maziak fitted heat exchangers to the compressors to capture the escaping heat, and via a newly installed closed loop water system, this heat warms the water, thus reducing the need to run the gas boiler.

The installation consisted of:

- Heat exchangers within all 3 of the existing air compressors, allowing 100% uptime.
- Hot water flow and return stainless steel pipework—this involved 240m of stainless mapress pipework.
- Water pump within the compressor house for water circulation.
- An external single heat exchanger in the compressor to remove the chance of cross contamination.
- Hot water lagging to ensure minimal heat loss during transfer.

Results

The cost of the project was recouped within a year and they are now saving a considerable annual sum on their energy bills. This was already a fantastic result but with the rise in energy prices in early 2022 it is an even more valuable saving now. They are also capturing more heat than they can use and are looking into utilising this heat to run underfloor heating in a new building. A huge benefit to them but also a positive impact on the environment.