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Pressurisation & Water Quality > Balancing & Control > Thermostatic Control

ENGINEERING ADVANTAGE



Improved temperature control saves energy and boosts productivity



FACTS

Project Type: Industrial cooling system renovation

Customer: Hammarplast Consumer AB

Installer/ Contractor: KREOL of Sweden AB

Location: Tingsryd, Sweden

Customer Investment: Approx. €70,000

Payback Time: Less than 2 years

Products: Balancing and Control: STAD, DA 50 and TA LINK

Helping to provide the right degree of temperature control at a Hammarplast Consumer factory enables huge energy savings and optimises production.

Hammarplast Consumer AB is a Swedish manufacturer of plastic consumer goods for storage, household and garden use. Producing these goods requires a carefully controlled chilled-water system, as the moulds have to be cooled at very precise temperatures, and the machines themselves also require cooling. When Hammarplast Consumer was experiencing shortages of cooling power at some machines and moulds, they contacted plastic and industrial consultant KREOL of Sweden AB. KREOL quickly became aware that the key to solving the problem was hydronic balancing and control. Familiar with TA Hydraulics' reputation for hydronic balancing know-how, KREOL knew just who to contact.

The challenge

The challenge at Hammarplast Consumer was to improve the efficiency and reliability of the factory's moulding machines, while also achieving more consistent product quality via improved control of mould cooling. As both these objectives were linked to more precisely controlled cooling power, the objective was to achieve better regulation of the flow of chilled water to the machines and moulds.

The solution

TA Hydraulics started by closely reviewing the system, which had no balancing devices installed at that point. After measurements

were taken onsite, detailed recommendations were handed to KREOL.

The solution involved several balancing valves at each machine to reliably cool down both the plastic mould and the machine's hydraulic motor and gearbox.

KREOL then performed the hydronic calculations for each machine and balanced them with TA Hydraulics on hand to assist, while also using a heat camera to secure the moulding process.

Finally, to ensure the full optimisation envisioned in the design phase, system performance was checked and validated, and the pump head and total flow were reduced to meet actual system needs.

The outcome

The controlled flow of chilled water is now helping to keep Hammarplast Consumer's production process smoother, more efficient and stable.

The solution has resulted in substantial savings for 4 key reasons. First, after the system was balanced, the total system flow was reduced by 75%, and the system pressure by over 60% to 1.7 bar. This created the industry's first "low-pressure cooling system" and

also reduced pumping energy consumption by over 60%.

Second, it has increased the differential temperature by over 35%, generating additional savings and suggesting the idea of working with even higher flow temperatures to utilise still more free-cooling.

Third, in addition to the directly measurable savings, Hammarplast Consumer now also has a much more stable and measurable cooling system, making it easier to track performance and plan for future improvements.

Finally, in addition to yielding energy savings, the optimised system also enables a more rapid cooling of the mould. This creates opportunities for more stable cycle times and higher productivity – which impacts directly on the company's bottom line.

Having already delivered both energy savings and higher productivity, TA Hydraulics is now serving as a reliable partner at Hammarplast Consumer, employing know-how in pressure management and water quality control to optimise the company's system even further.