



Success story

Gatwick Data Centre: taking off with CAREL efficiency

High performance and reliability with the c.pCO family

After acquiring a data centre in Gatwick, 4D Data Centres Ltd contacted Aqua to upgrade the site's cooling system. The CAREL solution adopted allows system integration and management, increasing energy efficiency.



DCS AWARDS

Where

4D Data Centres - Gatwick
Crawley, United Kingdom

What

Replacement of the old cooling system with a “chiller-less” system managed by the Carel controller:

- c.pCO controller;
- pGDTouch display.

Why

Upgrade and optimisation of the old data centre

4D is an established cloud, connectivity and colocation provider. Since it was founded in 1999, 4D has helped its customers to reduce costs and improve efficiency through its government-approved data centres and extensive base network, while also facilitating the transition from in-house servers to off-site location or the cloud. Located in Crawley, their “Gatwick Data Centre” is ideally placed for commercial and business use given its proximity to Gatwick Airport.

The Aqua Group, based in Fareham, Hampshire, is the UK’s leading specialist in process chillers, related products and services. Its three business divisions - Sales, Rental and Service - allow the company to assist customers every step of the way. The acquisition of Stadco Cooling in 2010 has enabled it to gain further insights from what was a pioneer in completely-sealed air cooling systems and a leading global supplier. Over the years, Aqua has established strategic commercial partnerships with other market leaders, creating a complete product portfolio that allows it to offer its customers the best solutions.

The solution: system integration

After acquiring a “low density” data centre in Gatwick, 4D contacted Aqua to upgrade the site’s cooling system, which had previously been based on the use of chillers. The project started in 2017, with installation and start-up completed while the data centre was still operating.

Following field analysis, Aqua opted for a “chiller-less” solution: CRAC with a specific design to ensure the necessary cooling while working with a temperature difference of just 2°C between the air and water, allowing operation at high temperatures and eliminating the need for mechanical cooling.

The water can thus be cooled by exploiting an evaporative cooling tower together with a packaged plant room and a water treatment system. By removing numerous components with moving parts (including the compressor), the design of the structure is more streamlined and more reliable, among other things.

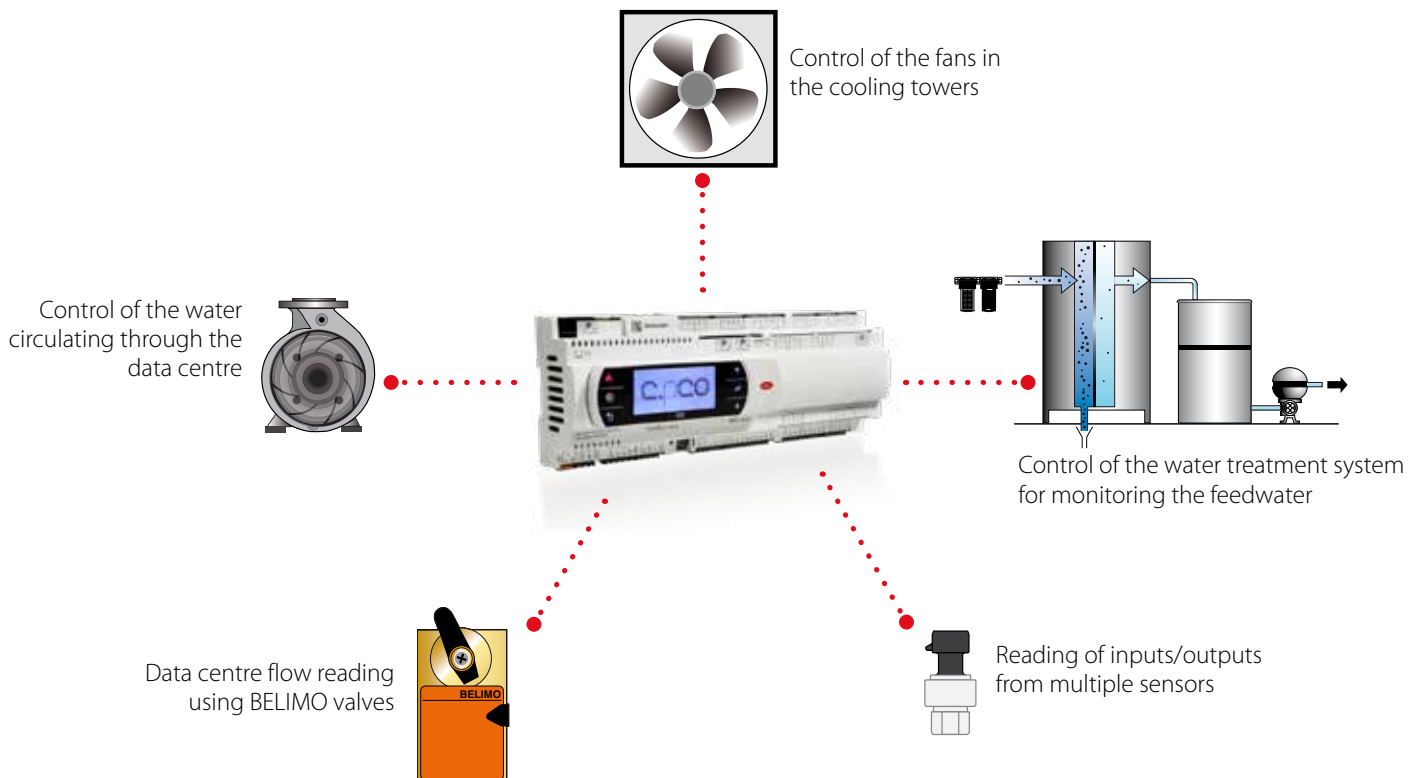


Fig. 1.a - Systems managed by the c.pCO controller

The CAREL proposal: maximum efficiency

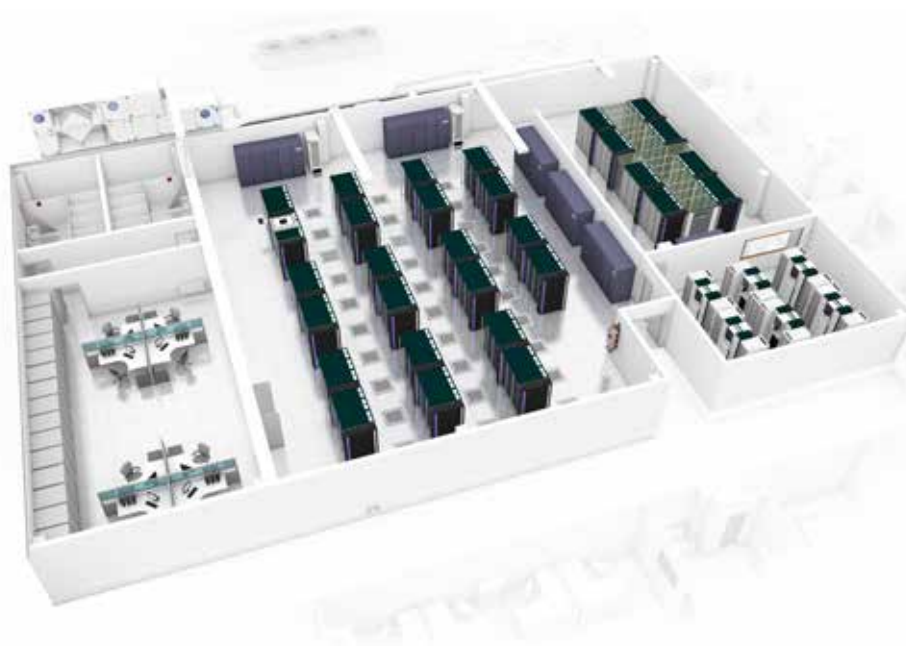
Aqua contacted CAREL Industries S.p.A. for the management and control of its units, with the aim of obtaining a solution that would maximise efficiency.

The Carel proposal revolves around three key points:

- **Connectivity and integration:** the use of standard protocols means Carel controllers can interface with many components by different manufacturers.
- **Intuitive user interface:** the total customisation allowed by the pGD Touch display means user interfaces can be created to highlight the essential information.
- **High programmability:** the subsidiary's proximity to the customer, combined with complete programmability of the controller, mean the product supplied can completely fulfil the customer's requirements



Fig. 1.b - Detail of the electrical panel with system managed by the c.pCO controller



High/Low density data centres

A "high density data centre" is the name generally used when each cabinet consumes more than 10 kW. Another widely-used definition categorises "high density data centres" as those that consume more than 1600 W per square metre.

Conclusions

After a few years, the energy efficiency and cost savings are evident. In the winter, the PUE is 1.03, while in the summer it exceeds 1.12. The annual energy saving exceeds 90% compared to the previous solution, making the installation also excellent from an environmental point of view.

The outstanding work by CAREL Industries S.p.A. together with Aqua Group was recognised by the "DCS Award" in 2019. This award is given annually to the best designers, manufacturers and providers operating in the data centre business. The award recognises the achievements of vendors and **their business partners**.



Fig. 1.c - Detail of inside the heating/cooling equipment room

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