



Success story

New Paideia Clinic - Rome

Economic sustainability, energy benefits and extended reliability

In the current historical context, modern and reliable medical facilities are the topic of public debate. The installation of CAREL adiabatic and isothermal humidification systems, configured to perfectly match the air handling units through adaptation of CAREL's technologies, has made humidity management especially efficient. As a result, the highest standards in terms of hygiene, energy saving and service continuity required of these systems has been met, regardless of the different needs of the environments where the air handling units are installed.



Where

New Paideia clinic

Via G. Fabbroni, 14, 00191 Rome
60 beds including 3 suites, 28 outpatient clinics and 4 operating theatres.

What

Installation of humidifiers on the 21 (13+9) air handling units (AHUs) to ensure the right humidity conditions, in accordance with the needs of the various environments served.

Why

To meet energy efficiency and hygiene requirements and at the same time guarantee the right air humidity conditions.

The CAREL proposal

Once the specifications and environmental conditions of the various areas of the hospital and the design requirements had been examined, CAREL proposed and installed specific humidifiers with adiabatic technology (certified for hospital environments and with a very low energy impact) and isothermal humidifiers with sterile steam.

In detail, CAREL proposed the following technologies:

Adiabatic technology

"humiFog" (9 units)

Technology: humifog exploit the high water pressure produced by a volumetric pump to obtain very fine atomisation through special spray nozzles. Water pressure is kept constant (70 bars), while capacity is modulated in steps over a range varying between 3 and 100% of pump capacity.

VID certification: Management of washing cycles, the materials used and the layout of the atomised water distribution system are the main characteristics that guarantee compliance of these humidifiers with the strictest hygiene regulations in force, such as VDI6022 certification, issued by TUV.

Hygiene: HumiFog technology makes it possible to avoid the use of chemical biocides: The water circulating in the lines is produced by reverse osmosis and is managed by an intelligent electronic controller, which starts filling the lines only when humidification is required.

At the end of the cycle, all the lines are emptied in order to avoid stagnation in the system and, to ensure the highest system hygiene, when there is no humidification request for an extended time, the control software automatically activates periodic washing cycles on the lines. Finally, the materials that comprising the distribution system and all the components in contact with water are made from in AISI316 stainless steel.



Isothermal technology

"humiSteam" (13 units)

Technology: Immersed electrode humidifier. As common drinking water contains a certain quantity of dissolved mineral salts, and is consequently slightly conductive, applying a voltage to metal electrodes immersed in a special cylinder containing the water creates an electric current that heats the water until boiling (Joule effect). The quantity of steam required varies in proportion to the electric current, which is in turn proportional to the water level.

Operating principle: This electric current is measured by a current transformer: by varying the level of water using a drain solenoid valve and due to the evaporation process, the current, and consequently steam production, can be modulated. As the steam produced does not carry mineral salts, the salt concentration in the water and therefore the conductivity gradually increases; consequently, it is periodically and automatically diluted by draining part of the water using the drain pump and replacing it with new feedwater. Over time, scale builds up on the cylinder, which thus needs to be periodically replaced or cleaned.

Specific features:

- patented AFS system (Anti Foaming System) that detects and manages foam to prevent droplets of water being carried by the steam;
- cylinders with plug-in power connectors for easy, quick and risk-free maintenance;
- quick start-up and a wide range of feedwater conductivity, for higher performance;
- built-in conductivity sensor and control software to optimise energy efficiency and operating life, with constant performance over the life of the cylinder;
- modulating limit probe for maximum safety in AHUs/ducts.



Our partner

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CAREL's simplified maintenance proposal

To maximise the benefits in terms of energy efficiency, hygiene and air humidity, Clinica Paideia also opted for the services that CAREL offers for its entire range of humidifiers. Inspection and maintenance carried out on the system combined with digital services for remote support have allowed the Clinic to optimise running costs and extend the life of the units, while maintaining their performance over time.

Activities involved

By entering into a CAREL maintenance contract, the organisation and/or company that manages building maintenance can benefit from a support and inspection service provided by qualified CAREL technical personnel (certified and continuously updated), as well as the supply of original spare parts.

During each maintenance visit, all CAREL humidifiers are cleaned, any consumable components are replaced where necessary, and a general check is carried out on operating conditions and the configuration. Furthermore, the correct configuration ensured by the commissioning service and the guarantee of suitable operation under the maintenance contract bring reductions in energy consumption.

These advantages, combined with connection of the humidifier to a digital services Cloud platform for remote access to operating data, real-time alarm notifications and preventive fault analysis, allow immediate adoption of any corrective actions, reducing running costs and optimising humidifier performance and operating life.

One-off service and repairs

In the event of poor maintenance or retrofits, analysis of any operational anomalies by expert CAREL personnel allows the units to be restored to correct operating conditions. CAREL offers a complete service that supports customers in analysing the anomalies, organising the service and supplying any required spare parts.

If a routine maintenance contract is in place, any one-service and repairs required will be more effective, thanks to higher priority and regular supervision by the delegated service centre.



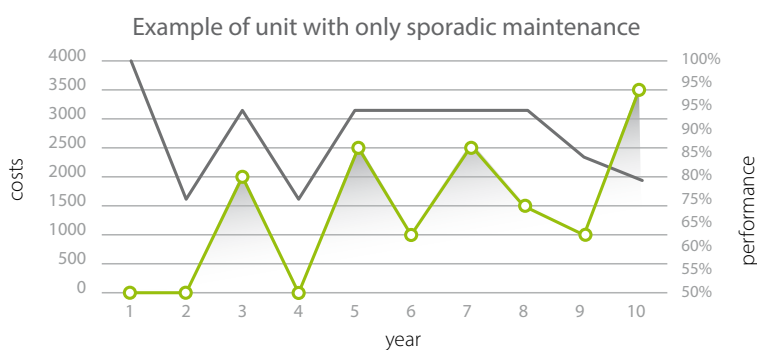
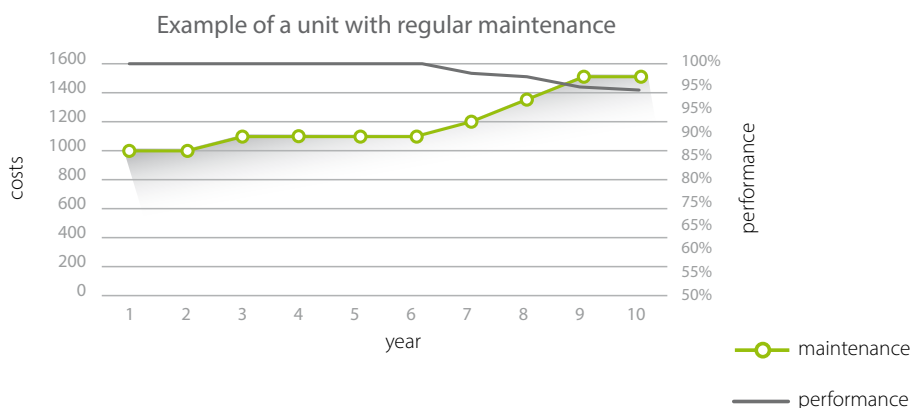
Certified and constantly updated personnel analyse the general conditions of units and components and implement corrective or preventive actions to keep them working efficiently and protect the customer's investment.



Conclusions

At the end of the project, the customer achieved the following results:

- Guaranteed correct operation over time;
- Protected performance;
- Extended product life;
- Faster resumption of operation;
- Reduced management costs for unexpected events;
- Remote unit control, alarm notifications (where optional digital service is requested)
- Guaranteed service times;
- CAREL original spare parts



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