

# Dry Cooler Upgrade Forum Coimbra Portugal

Retrofit with AxiBlade axial fans (Digital Solution)

**ebm**papst

engineering a better life



Reduction in power consumption: 40% at full speed, estimated 56% in total  
Annual energy savings: € 35.000

## Technical data:

Type	AxiBlade	
ebm-papst products	W3G910KV1203 + CN1116 + Intelligate	
Air flow	m³/h	36070
Max. back pressure	Pa	260
Static efficiency	%	50.2
Nominal speed	rpm	1050
Publication date	2023-09	

## Project description



Forum Coimbra is a Shopping Mall with more than 50.000sqm located in the third biggest city in Portugal.

They have 8 Dry Coolers on the top of the building responsible for cooling the water supplied to all of the shopping mall common areas and shops inside air conditioning units. Each of the Dry Cooler had 3 axial fans with 22kW motors. These fans were expensive to operate, maintain and with reduced reliability, which was a problem in warmer days.

Shopping Mall management needed help quickly and started a partnership between consultants, ebm-papst and their maintenance company.

Instead of replacing the Dry Coolers, which would have been a very expensive enterprise, they implemented a complete Upgrade to the Dry Coolers, both in capacity, control, and cost saving.

## Application

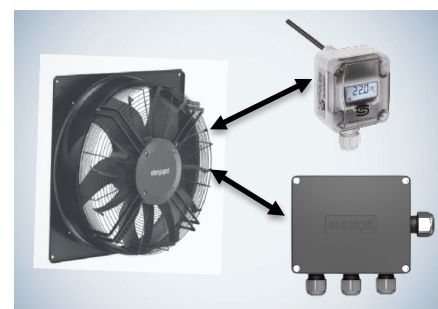


The solution allowed the use of the full capacity of our AxiBlade fans in terms of air flow, control, and electronics to achieve the required set points and 24/7 monitoring.

The Dry Coolers were stripped of the old fans and motor supports. Each Dry Cooler got a new mechanical frame designed to receive the new fan system and cabling network for new control logic. All of this while allowing Forum Coimbra to keep 100% of their operations.

Due to the fan aerodynamics, ebm-papst could increase the airflow and reduce the noise even when using four EC fans to replace one old axial. The electronics at each fan allowed them to recognize sensor output and necessary set points to adjust themselves without any modification to the existing building management system. On every Dry Cooler an ebm-papst "CN1116" MODBUS Display & Control (MDC) device is installed to communicate to the fans via MODBUS and an epNeo device (intelligate) to monitor the actual operation of the entire system in the field.

## Benefits of ebm-papst product



The Upgrade allowed Forum Coimbra to take advantage of eight new Dry Coolers, by a fraction of the cost and with full benefits of the ebm-papst EC fans.

### Benefits:

- Increase in available airflow, estimated in 20%.
- Reduced noise levels.
- 220 kW reduction in power consumption (at full speed).
- Maintenance free, no more impeller balancing or motor replacement costs.
- Increased control and monitoring options.
- Increased system resilience.
- Predictive maintenance.
- Monitoring 24/7.



**FORUM COIMBRA®**