

Case Story | VLT® HVAC Drive FC 102

The fans of the Doha Metro achieve – **maximum energy efficiency and reliability**

Tailored for HVAC, flexible, modular and adaptable applications, the frequency control has played a key role in the ventilation system. It was the perfect fit, both in terms of EMC requirements, safety, harmonics, long cable lengths and dimensions, as well as its ability to function in temperatures of up to 50°C without loss of power.

50 °Cwithout loss of
power



Metro Network

The Doha Metro project, which will facilitate transport in both the capital and its surrounding suburbs, will be built in two phases: the initial construction of 37 stations on three lines (red, gold and green) by 2020, and a blue line to be added a later date, along with the expansion of existing lines with more than 60 additional stations. Most of the lines will be underground, so the construction of

tunnels, as well as their ventilation, will play a vital role in both the tunnels and the stations.

Spanish company Zitron, a specialist manufacturer of ventilation systems with 50 years of expertise, will be responsible for the design, manufacture and reliability of the ventilation systems.



Axial fan

Axial fans with considerable power

More than 46 axial fans will be needed to ventilate the initial 11 stations, with a power range of between 132 kW and 450 kW, the drive control being essential to their operation as well as their performance in the event of emergency. Other priority needs will include silent operation and system reliability.

The axial fans - more than 80 power units of between 132 and 450 kW - placed throughout the tunnel sections will need reliable control over long distances between the inverter and the

fan. The VLT® HVAC Drive is designed in such a way that it needs no additional components, making it possible to use motor cables of up to 150 meters shielded and 300 meters unshielded, allowing the inverter to be installed in a central control room some distance from the fans without affecting the motor performance.



Electric control panel -FC102

Functions: VLT® HVAC Drive FC 102

In order to provide the required energy efficiency and maintain the optimal performance of the axial fans, the fan's drive control is supplied by a VLT®HVAC Drive FC 102.

Being able to control the reverse rotation of the axial fans as quickly as possible ensures rapid acceleration and dissipates the energy generated during deceleration to the external resistors.

The axial fan system in stations must also be in strict compliance with the EMC and harmonics regulations.

Fire Mode prevents the frequency converter from running in self-protection mode, helping to keep escape routes free of smoke and ensuring safe and continuous operation.

Zitron

Integrator of ventilation systems for mining, public works and the naval sector; equipment for transport, drilling and lifting. Autovía AS-II, 2386, 33211 Gijón, Asturias

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