Critical Protection: Data Centre

Case History
KBC Bank

Where:
Törökbálint and Baracska in Hungary

What:
4 x Cummins C3000 D5 generator sets with QSK78 engines and PCC 3.3 controls, located at two sites

Purpose:
Standby power systems for mirrored data centres

Primary Choice Factors:
- Tailor made solution
- Restricted footprint and sound level
- Allows for future expansion

KBC Bank and its Hungarian subsidiary K&H selected Cummins for standby power at two of the bank’s data centre sites in Hungary. The 500 m² sites – one of them at Törökbálint in the Pest part of the country, around 15 km from the capital Budapest, the other at Baracska, 37 km south west of the capital in the Buda part of the country – operate as a mirrored pair. Utility grid supply is not unreliable, but a data centre in the financial sector must never be at risk of downtime.

Cummins became the supplier of choice thanks principally to the competitiveness of the overall package. Main contractor CFE Hungary consulted closely with Cummins’ Hungarian distributor CAD-Server and with project architect Arcadis, to put together a proposal that came ahead of rival bids.
CAD-Server’s experienced team worked side-by-side with Arcadis to understand the overall project requirements and limitations. With the further support of Cummins technical staff, and regular meetings with the bank’s data centre management, the Cummins distributor was in the position to offer a tailor made solution.

Each of the mirrored sites is equipped with two C3000 D5 generator sets per site, both with QSK78 engines and PCC 3.3 controls. The Cummins solution features a simple direct-cooling approach without heat exchangers or secondary circulating pumps. Because only a small footprint was allowed for mounting coolers on the rooftops, meeting the sound level requirement of the project was a particular challenge. At each site there is a night-time noise level limit of 50 dB (A) at 2m distance from the next building. CAD-Server’s acoustic engineer provided a fully compliant sound attenuation design. In total, the Cummins package meets every requirement at a lower EUR/kW for the complete installation, including the price of the generator sets.

The installed fuel system consists of a double-layer construction daily fuel tank, placed close to the diesel engine, with a capacity of 2300 L. Double skinned sub-base fuel tanks of 40,000 L capacity at each side of each data centre building supply fuel to the engines via the daily tanks, allowing for a minimum of 72 hours of operation at 100% of rated load. Redundant fuel pipe systems have been installed, complying with Tier IV regulations. Each site has a continuous rating (base load) of at least 2000 kW by cos phi = 0.8 during at least 250 hours continuous operation, and 100% of that load continuous without time restriction.

Automatic transmission and remote control plus floor-standing control panels complete the picture, allowing the bank’s Data Centre Facility Operation Department to operate the two sites seamlessly. Monthly load tests ensure all parts of the system are operating correctly. The Cummins solution has met the bank’s present needs, and those needs may increase in the future. Forward-looking planning has ensured both data centre buildings have enough free area on each side to increase capacity by 50%.

For more information about integrated standby power systems, contact your local Cummins distributor or visit power.cummins.com.