

Vauxhall chooses DTC drives for Vectra plant

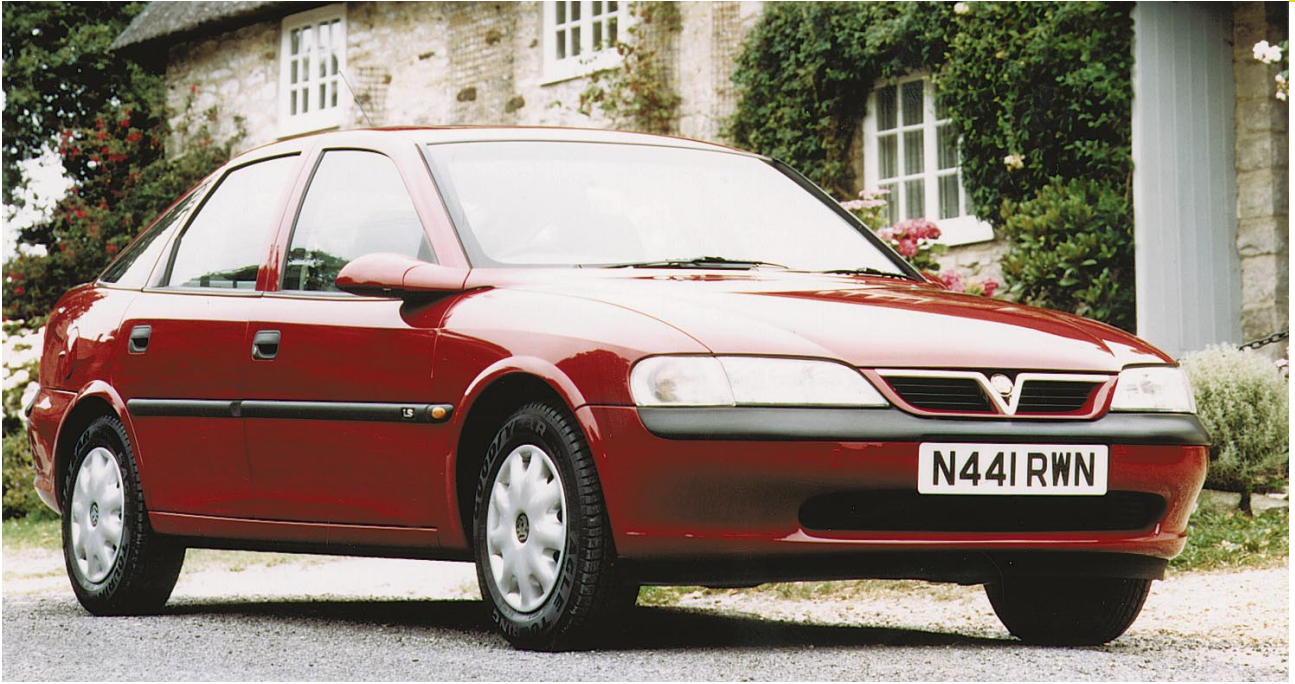


ABB Industrial Systems are to supply 55 a.c. drives for Vauxhall Motors' Vectra assembly plant in Luton.

The Direct Torque Control (DTC) based ACS 600 drives are for the Vectra line spray booths. They will control a range of humidifier pumps, supply, exhaust and recirculation fans, from 15 to 200 kW, to meet Vauxhall's production rates.

Vauxhall were anxious to place the drives in existing cubicles, which had previously housed Current Source Inverter (CSI) a.c. drive technology, installed over 10 years ago. The compact standard size of ACS 600 allowed a direct replacement, minimising installation costs as all the power ratings required are covered by a single range of drives, thereby providing a common control system for all ratings.

ABB Industrial Systems' ACS 600 proved well able to cope in the harsh environment of motor vehicle production. Vauxhall have bought 55 for their Vectra assembly plant.

An advantage of ACS 600 over CSI drives is the power factor, which is close to unity. Furthermore, the ACS 600 range comes fitted with built-in RFI filters and when installed to ABB's installation guidelines, it complies with the EMC Directive. This ensures there is no RF interference with surrounding equipment within the assembly plant.

The drive proved itself by providing accurate speed control on both a 160kW fan and a 15kW humidifier pump, continuously over a one month trial period before the final order was placed.

Because of the nature of motor vehicle production, equipment used in assembly lines, such as a.c. drives, needs to be capable of continuous operation. Rapid control of the

ACS 600's d.c. link voltage ensures the drive will ride through system power transients without tripping. This tripless feature ensures less down time and avoids process interruptions.

Vauxhall needed the drive to be capable of starting a 'windmilling' fan to run in the desired direction, irrespective of the direction and speed the fan was rotating at.

DTC instantaneously identifies the electromagnetic state of the motor and immediately takes control, generating the optimum output torque for the required speed and direction. Even if the fan is rotating in the opposite direction at high speed, the ACS 600 will smoothly bring it to a halt and drive in the required direction.

Again, this avoids process interruptions; ensures smooth control of machinery and allows control to be resumed under all situations.

Vauxhall also needed an a.c. drive capable of operating in harsh environments with extreme temperatures and high levels of humidity. The ACS 600 is designed to work in such conditions.

The ACS 600 control panel met the need for a straightforward, push button operation and a clear display for fault monitoring and programming. The drive's control panel can display three separate actual values simultaneously from a list which includes: motor speed, torque, current, power, operating hours and kilowatt hours.

In addition, a built-in fault memory, which stores the latest five faults, each with a time stamp, helped to fulfil the requirement to



ACS 600 – designed to operate in harsh environments.

display a range of diagnostics, such as external power supply fault, overload fault and supply phase loss.

The ACS 600's motor flux optimisation means the efficiency of the drive is greatly improved in fan and pump applications. For example, with a 25% load there is up to a 10% total energy efficiency improvement. At 50% load there can be a 2% total efficiency improvement. This has a direct impact on operating costs.

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