

Case note

ABB component drive customized to meet automatic gate OEM demands



Automatic Systems is using some 4,000 ABB component drives throughout its automatic gate range.

During the design of a new automatic gate suitable for toll roads and major car parks, Original Equipment Manufacturer (OEM), Automatic Systems of Belgium, faced a challenge in controlling the speed of the gate's barrier. The universal rising automatic gate – named BL229 - can be between two to six meters long. By using a new optimal gear mechanism and integrated logic commands, the opening and closing speed of the gate varies from 0.6 to 4 seconds. This makes it one of the fastest electric gates available.

A variable speed drive was needed that could increase the speed of the electric gate, upon start-up, in a controlled way while bringing it to halt without vibrating. The drive had to be adaptable to the 750 W, three-phase asynchronous geared motor and motion rod coupled crankshaft.

A further challenge was presented by the small space within the gate's control panel.

ABB drive proves its adaptability

The answer was an ABB component drive, rated at 0.37 kW. The continuous and smooth speed regulation offered by the drive eliminates shock vibrations, thereby contributing to increased lifetime of the gear mechanism. The drive, along with the spring mechanisms, manages the barrier movements in a quick, controlled and silent manner and conforms to the company's high safety and reliability standards.

"Due to the limited available space in the command mechanism", explains Jean-Marie Delcambe, manager automation engineering at Automatic Systems, "we had to look for the smallest variable speed drive on the market: an ergonomically designed drive with easy and quick installation so as to avoid losing valuable time."

Easy installation of the ABB component drive is attributed to a series of features including its descriptive control panel that allows fast set up and configuration of the main parameters using DIP-switches and potentiometers; a narrow and compact size; a removable mounting clip that allows DIN-rail installation or on panels both from the back or the side; and a new option, the DriveConfig kit, that allows users to set parameters and update the software without the need of a mains connection.

DriveConfig kit allows high volume manufacturers, such as Automatic Systems, to repeat the configurations of their machines, thereby saving hundreds of hours of set-up time.



ABB component drives, from 0.18 to 2.2 kW, are designed for simple or complex machinery applications.

Unexpected safety bonus

One of the biggest and unexpected features is the use of the capacitors within the drive to control the barrier if the power supply fails.

Jean-Marie Delcambe explains: "The capacitors remain active so that there is always enough energy to open the barrier when there is no mains power. This ingenious adaptation has allowed us to avoid having to install a mechanical system."

A compact drive for all needs

Automatic Systems is one of the world leaders in automatic gate manufacturing, having supplied over 60,000 units to more than 60 countries. Sébastien Dassy, development engineer at Automatic Systems comments: "Our R&D teams continuously adapt our products to the customer's needs. We test new materials and components and pay a lot of attention to optimizing the electromechanical drives as well as reducing the installation and maintenance costs. We want to provide our customers with products with long term reliability and improve continuously the operational safety."

Jean-Marie Delcambe adds: "We build large numbers of units and we want standard drives for all models. We looked for a solution from several suppliers and have eventually decided to select ABB's drive. The ABB component drive is now used in all our portfolio of automatic gates."

Marc Wasteels, application engineer at ABB in Belgium says: "The ABB component drive answers all the needs for Automatic Systems. So far, some 6,000 units are installed in the company's electric gates. This most compact drive is available in powers ranging from 0.18 to 2.2 kW and is designed for simple or complex machinery applications, mostly for mid-size OEMs building machines in high volumes.

"We have found specific applications in the area of fitness and leisure, door control, pumps, fans, conveyors and materials treatments. The ABB component drive is characterized by an exceptional price/capabilities ratio and a high simplicity."

Challenge

- Need to control the raising and lowering speed of an automatic gate without incurring vibrations
- A variable speed drive was needed that could integrate to the 750 W, three-phase asynchronous geared motor and motion rod coupled crankshaft
- Limited space within the gate's control panel

Solution

- ABB component drive provides continuous and smooth speed regulation
- Drive modified to decrease its physical size without losing any of its functionality
- Capacitors within drive used to control the barrier if the power supply fails

Benefits

- Drive eliminates shock vibrations, thereby contributing to increased lifetime of the gear mechanism
- Drive manages barrier movements in a quick, controlled and silent manner
- Capacitors within the drive control the barrier if the power supply fails
- Easy installation of ABB component drive attributed to descriptive control panel; narrow and compact size; a removable mounting clip; and the DriveConfig kit

For more information please contact:

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