

CAE at Bonfiglioli: an engineering service for special needs

Bonfiglioli South Africa's Customer Applications Engineering Department (CAE) has been introduced to offer special services to local customers for the development of engineered gearboxes, drives and motion control solutions.



Bonfiglioli South Africa's Customer Applications Engineering Department offers custom-engineered solutions from simple to complex.

Bonfiglioli South Africa is a prominent player in the Southern African power transmission market. Its industrial drives set industry standards ranging from the smallest materials handling conveyors through to multi drive conveyor belts operating in arctic conditions. Covering industries such as food & beverage, materials handling, mining, wastewater treatment, recycling and more. Bonfiglioli products have proven to be adaptable to just about any application or condition.

The CAE Department

In order to ensure that each special request is engineered to withstand operating conditions, Bonfiglioli South Africa's Customer Applications Engineering (CAE) Department was established to translate customer requirements into design deliverables.

Customisations can be simple, such as a particular paint requirement; but more complex solutions often include special baseplates, braking systems, couplings, additional cooling, hydraulic motors, specialised seals or electronic sensors for integration into customer plant control systems.

In all these special cases, Bonfiglioli SA can rely on skilled engineers within the CAE department to solve customer challenges.

Whenever required, though, the Italian R&D department can be consulted, ensuring that global best practices and the latest technology are included in designs. With access to the most sophisticated CAD and FEA software available in the industry, along with additional computational software, Bonfiglioli can produce customised solutions that best fit business, application and industrial needs in terms of costs, efficiency, performance and reliability.

These software tools allow Bonfiglioli to generate substantial modifications to their standard solutions, where stress and modal analyses are used to ensure that the design meets the required specifications.

As an example of a recent, the Bonfiglioli South Africa CAE team successfully completed a large project where significant alteration had to be made to the gearboxes to accommodate the extreme environment. The site was in an isolated part of the world where the temperature range was over 100 °C between the arctic winter and blazing summer conditions.

For the expansion of this site, Bonfiglioli South Africa supplied multiple drives, which included an innovative electrically driven cooling solution that can be activated when required, while allowing heaters to work

optimally during the colder months. This approach enabled a compact and competitive solution to be supplied without having to oversize the drive.

Motion and Robotics Department

The structure and approach of the CAE Department is mirrored by Bonfiglioli's local Motion and Robotics Department, which takes a hands on approach to solving the control issues of customer drive applications. Within this department, Bonfiglioli personnel have access to various proprietary tools that help them to integrate electric motors with VSDs and PLC controllers to deliver customised drive and motion control solutions. This can be achieved through the use of hardwired control or one of the many industrial communication protocols such as Modbus TCP, Profinet, EtherCAT and other common standards.

Examples include balancing the speed of drives through a master and slave arrangement, using the available analogue inputs and outputs to transfer data between the drives. The Motion and Robotics division also has extensive experience in adapting drives for dynamic braking, which is typically used in applications such as industrial doors where the integrated solutions approach can be used to maximum effect.

The After-sales and Repairs Department

However hardy and long lasting an installed drive system is, there comes a time where servicing will be required. Bonfiglioli South Africa has a well-established team that is capable of refurbishing a gearbox to its as-new condition. Refurbishments and repairs are a cost effective way to ensure uptime and availability of customers' plant.

Using current company best practices and investment in industry inspection norms, each component can be verified for its fitness for service, which enables Bonfiglioli to deliver cost effective refurbished or repaired equipment with generous warranties.

Bonfiglioli has a relentless commitment to excellence, innovation and sustainability. The company creates, distributes and services the world-class power transmission and drive solutions that keep the world in motion.

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