

SEEK ADVICE FROM AN EXPERT

Operational intelligence in the metals industry: **PowerFlex® drives with TotalFORCE® technology**



To succeed in competitive international markets, companies must adopt innovative production technologies. Inefficient labor and processes can eliminate your competitive advantage. One solution is to leverage smart motor control devices that provide real-time operating data to anticipate, quickly solve or eliminate production problems.

PowerFlex drives with TotalFORCE technology are part of the digital transformation that the metals industry needs. This smart technology delivers operational intelligence to help avoid unplanned downtime that can cost thousands of dollars per hour.

Functionality for the metals industry

Whether you are managing legacy equipment or designing a new plant – smart motor control solutions from Rockwell Automation can help achieve your production goals. TotalFORCE technology helps metallurgical processes operate at higher speeds. The **family of PowerFlex drives** is characterized by its extended power range up to 6000 Hp in low and medium voltage.

PowerFlex drives with TotalFORCE technology provide:

- Real-time operational intelligence
- Adaptive control
- Predictive maintenance
- Automated commissioning and optimization

The results can include:

- Increasing uptime and production throughput
- Extending drive and machinery life
- Reducing maintenance and operating costs
- Delivering better energy efficiency

Anti-Pendulum / Anti-Sway

With drive firmware, you can minimize the pendulum swing at the end of the horizontal movements of an overhead crane or bridge crane. This functionality reduces the mechanical stress and minimizes maneuvering time – increasing productivity.

TorqProve™ Control

TorqProve control is used in any application where coordination between the drive and the mechanical brake is required. With the drive controlling braking, it can reduce wear on the mechanical brake. Convenient set-up only requires a few parameters and allows smooth operation.

Predictive Maintenance

PowerFlex drives take a proactive approach to minimize downtime. They provide diagnostic data and perform continuous monitoring of the health of the drive and components. Real-time alerts are sent when components must be replaced, reducing maintenance and spare inventory cost and downtime. Plus, PowerFlex drives with XT corrosive gas resistant drive components help increase uptime.

Load Observer and Adaptive Tuning

Adaptive control combines Adaptive Tuning, Load Observer and Bus Observer, working together to reduce commissioning time and monitor machine characteristics. As machine operating characteristics change, drives automatically adjust to compensate and maintain productivity. This action helps reduce mechanical wear and keeps operations running at optimal production.



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Active Front End

With Active Front End Technology (AFE), the excess energy is no longer lost; it recovers. The braking capacity of regenerative PowerFlex drives minimizes the use of braking resistors and cooling equipment. Plus, drives with AFE technology feed energy back to the network, reducing energy consumption.

Common Bus System

In a common DC bus system, a common bus rectifier can supply power to the DC bus lineup. Power sharing makes it possible for monitoring inverters to consume power from generating inverters. This offers less wiring, fewer components and fewer spare parts.

Functional Maintenance

The modular design of PowerFlex drives uses common spare parts. It has less need for specialized tools and does not require labor from specialized technicians. With this functional design, it can take as little as 15 minutes to replace machinery components.

Improved Motor Control

The bandwidth of the differentiated engine helps increase the speed regulators and current. Likewise, it facilitates rapid rejection of disturbances. This action translates into higher speeds of production lines with torque accuracy and great dynamic response.

Customer results with PowerFlex drives and TotalFORCE technology

NEW HEAVY GAUGE CUTTER

A well-known North American aluminum supplier wanted to increase production capacity with a new high-thickness cutter for automotive aluminum. This new installation had an interesting challenge due to the available space.

Both the client and the manufacturer of the cutter had a tendency towards other VFD brands. However, the finishing department specified a common bus system powered by a PowerFlex 755TM drive supply that is fully regenerative and with low harmonic contribution. In turn, this source would feed 53 inverters to have full control of the machine.

As a result, the customer was satisfied with the space usage of the entire system, booting and trouble-free operation of this cutter. With this regenerative source and low harmonic content, they achieved an energy efficiency that helped amortize the PowerFlex technology vs. the traditional drive in less than 6 months. Plus, they had an energy saving of nearly 40% by returning regenerated energy to the electrical grid supply to be used by other loads or equipment.

The PowerFlex drive solution also reduced downtime, compared to other stations in the finishing department.



Applications where PowerFlex drives with TotalFORCE technology make a difference

CRANES

The TorqProve feature is tailored for applications needing coordinated and sustained control of a load and brake. It helps verify control of the load in lifting applications. Control capability helps confirm the mechanical brake has control of the load when stopping the drive, and the drive has control of the load when releasing the brake during any move command. This helps maintain smooth operation with minor mechanical stress. The drive reduces pendulum swing, thanks to adaptive tuning and anti-sway technology.

VESSELS & LADLES

PowerFlex drives with TorqProve control help verify control of a load in lifting applications. Anti-sway capability improves safety and efficiency by reducing the swinging of a moving load. Regeneration enables a drive to put energy back on the incoming line, providing a braking solution that is far more energy efficient than resistive braking.

BRIDLES

Bridles are critical for the operation of a production line. One way to reduce your downtime is through predictive maintenance. The TotalFORCE drive technology enables a better torque accuracy over the entire range of speed. And adaptive tuning rejects harmful vibrations.

COILERS AND UNCOILERS

The coilers and uncoilers require high-performance control to operate larger motor velocity. PowerFlex drives with TotalFORCE technology enable better torque control throughout the entire velocity range. Plus, predictive maintenance reduces the time of repair. Adaptive tuning can also track and automatically remove resonant frequencies. The load observer helps keep the roll or coil in control, both when winding and unwinding, compensating for the changing inertia of a roll or coil.

HOT STRIP MILLS

Drives that incorporate TotalFORCE technology can deliver energy regeneration and a better performance in the motor shaft. Plus, they do not produce harmful vibrations on the rollers, because adaptive tuning detects resonance in the system. In addition, constant analysis of predictive maintenance significantly reduces downtime costs.

Turn manufacturing into a strategic advantage

Leverage PowerFlex drives to help reach your energy savings and sustainability goals. These solutions are designed to maximize motor efficiency, reduce energy use and improve application performance.

For information about PowerFlex 755TS, 755TL, 755TR, 755TM and 6000T drives with TotalFORCE technology, speak with your local Rockwell Automation sales representative or click to [connect](#) or [learn more](#).

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