

PowerFlex 7000 Drive System with ArcShield Technology



Advances in Medium Voltage Drive Technology Help Reduce
Arc Flash Hazards and Minimize Personnel and Equipment Safety Risks

Rockwell Automation pioneered the first arc resistant Allen-Bradley medium voltage starters in the industry, more than 10 years ago. Our engineers leveraged this wealth of experience and knowledge to develop the Allen-Bradley PowerFlex® 7000 drive system with ArcShield™ technology.

- This is the first 50 kA rated arc resistant medium voltage drive featuring full regeneration capabilities.
- Certified to meet the most comprehensive set of global arc resistant standards.
- Designed to meet a broad variety of heavy industry needs and configurations from 2.4 kV to 4.16 kV, rated up to 430 A for synchronous or induction motors.
- ArcShield provides Type 2B accessibility to help improve protection for your personnel against internal arcing faults.
- The drive system with ArcShield is a fully integrated Allen-Bradley CENTERLINE® starter and PowerFlex 7000 drive combination.
- The enclosure has been designed with added reinforcements to contain and redirect arc flash energy.
- More efficient slowing or stopping of motors can be accomplished with regenerative drive technology.
- EtherNet/IP™ communications provides full integration with a Logix control platform.
- Premier Integration with the Logix control platform reduces application development time, eases use and speeds maintenance.



Around the world, Allen-Bradley® PowerFlex® medium voltage AC drives from Rockwell Automation have built a reputation for providing efficient and reliable motor control for heavy industry's most demanding applications.

Measures to increase protection of personnel and equipment in manufacturing are reflected in new approaches and technologies that are designed to help minimize the risk of workplace dangers. One rapidly growing area of focus is reducing the potentially serious hazards that are associated with arc flash events.

To help reduce the risks that are associated with the operation and maintenance of electrical equipment, and to meet customers' needs, Rockwell Automation is introducing its first arc resistant medium voltage drive system. Based on over a decade of successful design and implementation of arc resistant medium voltage and low voltage motor controllers, the PowerFlex 7000 drive system with ArcShield technology is designed to help protect employees and minimize unplanned outages and downtime.

ArcShield, an arc resistant design trademarked and designed by Rockwell Automation, combines an arc resistant enclosure with our intelligent control systems, offering improved safety features along with remote operation and monitoring capabilities.

LISTEN.
THINK.
SOLVE.™

Meeting Safety Standards with an Effective Design

The PowerFlex 7000 drive system with ArcShield is a fully integrated Allen-Bradley CENTERLINE starter and PowerFlex 7000 drive combination. Stand-alone, fully integrated systems and systems designed to work with existing Allen-Bradley medium voltage starter lineups are available – providing either a 40 kA or 50 kA arc fault rating.

Designed to redirect the energy that is created from an arc flash event, out the top of the enclosure and away from personnel, Type 2B protection helps protect personnel while in front, at the side, or behind the enclosure in the event of an arcing fault. Additionally, Type 2B protection is maintained when the low voltage control door is open for maintenance purposes.

This system provides you a fully integrated starter and drive combination providing an arc fault rating up to 50 kA and compliant with the following global standards:

- IEEE C37.20.7
- IEC 62271-200
- CSA C22.2 No. 22-11
- IEC 62447-2
- EEMAC G14-1



- 1 Pressure relief vents direct arc gases and material away from the front, rear and sides of the enclosure during an arc flash.
- 2 Gases and materials are vented up and out of the top of the enclosure through the plenum exhaust system.
- 3 Patented self-closing vent plates prevent arc flash gases from escaping through the fan exhaust vents.
- 4 Cabinet doors are reinforced with welded channels designed to maintain structural integrity during an arc flash.
- 5 Robust cabinet construction, including reinforced side sheets, doors, roof, and back plates are designed to increase rigidity to contain the arc fault energy.
- 6 High strength hinges, latches and bolts securely attach doors to cabinets for added protection.
- 7 Patented self-closing vent plates prevent arc flash gases from escaping out through front air intake vents.

The PowerFlex 7000 drive system with ArcShield technology is the first 50 kA rated arc resistant medium voltage drive featuring full regeneration capabilities, certified to meet the most comprehensive set of global arc resistant standards with Type 2B protection.

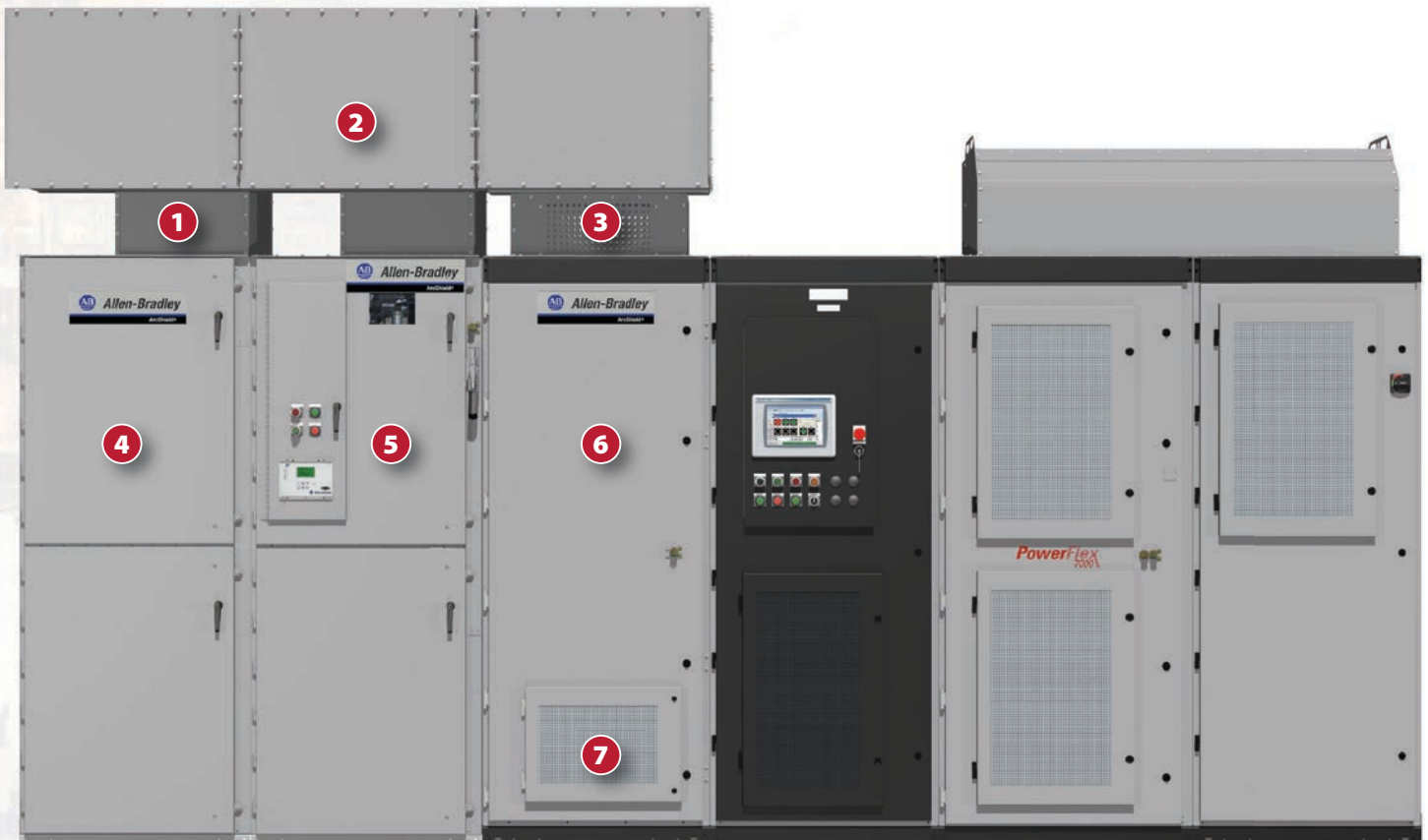




ArcShield Arc Resistant Enclosures

Designed to create a safer working environment with added protection for arc flash events

The PowerFlex 7000 drive system with ArcShield enclosures have been strengthened to contain the pressure created from an arc flash event. It is reinforced with additional support members, plates and uses 12-gauge steel for all doors, sides, roof and back sheets. Extra strength, multi-point latches or bolts and robust door hinges add to the security of the enclosure's main doors. To redirect the arc exhaust gases, an aluminum pressure relief vent on the enclosure's roof opens to release the pressure. A plenum exhaust system, above the pressure relief vent, channels the superheated gas and vaporized copper and steel, to a safe and controlled location.



Fully integrated 50 kA rated PowerFlex 7000 Drive System with ArcShield Technology

Product Specifications

Arc Fault Rating (IEEE C37.20.7)	50 kA rms symm/0.5 s, (Type 2B, front, lateral, rear, low voltage panel)
Drive Configuration	Active Front End (AFE) Rectifier with Direct-to-Drive™ Technology
Rated Input Voltage	2.4 kV, 3.3 kV, 4.16 kV
Rated Input Frequency	50/60 Hz
Maximum Rated Input Current	430 A
Input THD	Meets IEEE 519-1992
Input Power Factor	>.95
Typical Efficiency	> 97.5%
Output Power Range	2.4 kV...1500 kW (2000 Hp) 3.3 kV...2050 kW (2750 Hp) 4.16 kV...2600 kW (3500 Hp)
Overload Rating	110% overload for 1 min. every 10 min. (normal duty/variable torque load) 150% overload for 1 min. every 10 min. (heavy duty/constant torque load) – derating applies
Output THD	< 5% – (near-sinusoidal voltage and current waveforms)
Output Frequency Range	0.2...75 Hz (standard) 0.2...85 Hz (optional)
Full Regeneration Capability (Four Quadrant)	Yes. Rated for continuous operation for overhauling loads and regenerative motor braking
Maximum Motor Cable Length	15 km (9.3 mi)
Enclosure Rating	IP42
Cooling Method	Air-cooled
Temperature Range	0...40 °C (standard) 0...50 °C (optional) – derating applies
Altitude Range	0...1000 m (0...3280 ft) (standard) 1001...5000 m (3284...16,404 ft) (optional) – derating applies
Maximum Humidity	95% non-condensing
Rectifier and Inverter Devices	Symmetrical Gate Commutated Thyristors (SGCTs) – feature non-rupture/non-arc failure mode
Operator Interface	10" WinCE color touchscreen (local/remote)

Certifications

Standard	Rating	Duration
IEEE C37.20.7	50 kA	0.5 s
EEMAC G14.1	50 kA	1 s
C22.2 No. 22-11	50 kA	0.5 s
IEC 62271-200	50 kA	0.5 s
IEC 62477-2	50 kA	1 s



Fully integrated 40 kA rated PowerFlex 7000 Drive System with ArcShield Technology

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www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846