



Power Plant Electrical Technologies (Pty) Ltd



DRIVE-FLEX RANGE

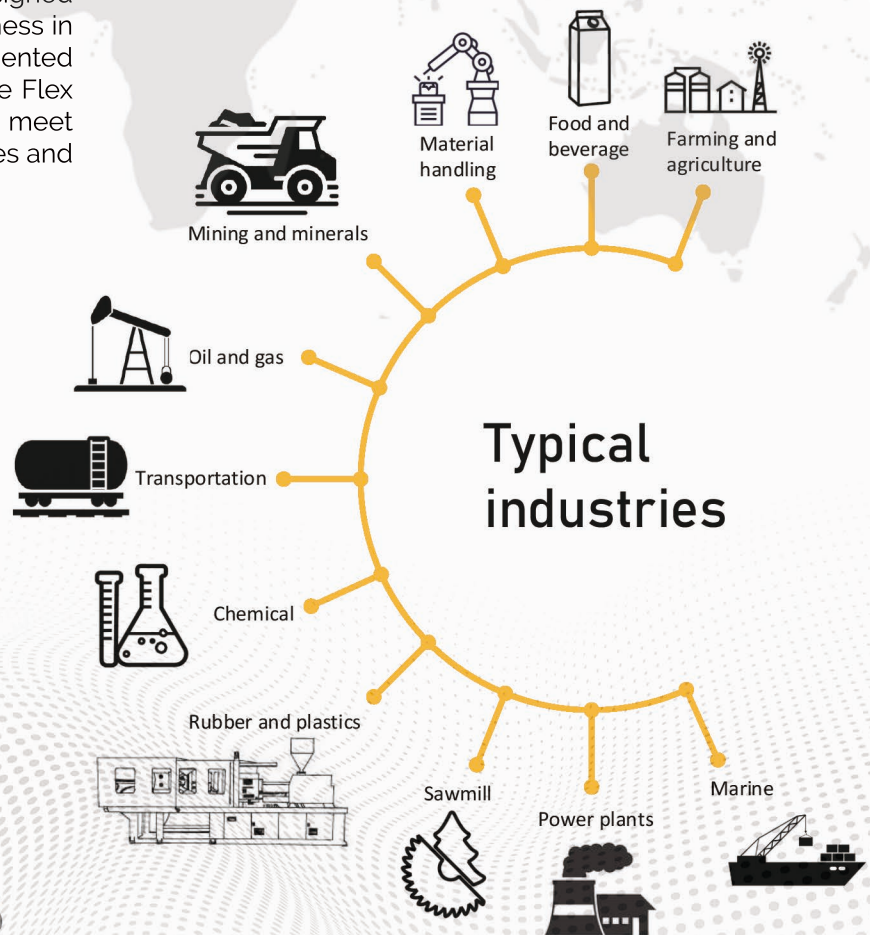
Low Voltage Industrial Drive Solutions

www.ppetech.co.za | 013 752 3570 | sales@ppetech.co.za

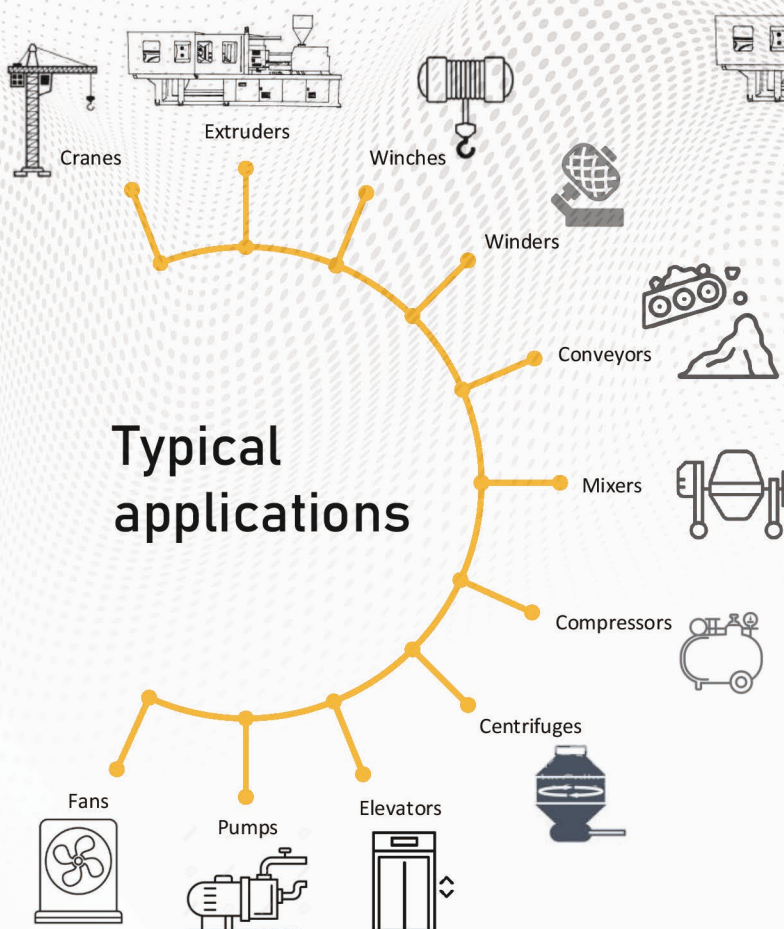
DRIVE-FLEX INTRODUCTION

Drive-Flex is a cabinet-built industrial drive solution from Power Plant Electrical Technologies, designed for clients who value high quality and robustness in their operations, while providing unprecedented levels of compatibility and flexibility. All Drive Flex solutions are customized and engineered to meet the particular needs of client specific industries and can control a wide range of applications.

Each solution is manufactured using majority quality ABB components, of which the ABB stand-alone ACS880 drive range offers the highest level of performance. The drives are equipped with ABB's signature direct torque control (DTC), which provides precise speed and torque control for all applications and supports virtually any type of motor.



Typical industries



Typical applications

The Drive-Flex has all the essential features built-in reducing the time required for engineering, installation and commissioning. A wide range of options are also available to optimize the solution for different requirements, including certified, integrated safety features.

SIMPLIFY YOUR WORLD

The Drive-Flex industrial drive solutions are equipped with built-in features that simplify ordering and delivery, and reduce commissioning costs, since everything is provided in a single, compact and ready-to-use package.



Easy to use

- All-compatible ACS880 drives share the same easy-to-use user interface



Up to IP54

Simple to select and install

- All the essential features built-in for simple drive selection, installation and use
- Flexible product configurations
- Enclosure classes for different environments
- Possibility for flange mounting



Extended connectivity

- Communication with all major automation networks
- Remote monitoring
- Mobile connectivity
- Integration tools for PLCs from ABB and various other manufacturers



9-year maintenance interval

Reliability

- Robust, long lifetime design for maximum reliability
- Removable memory unit
- Each drive factory tested at full load
- Nine-year service interval



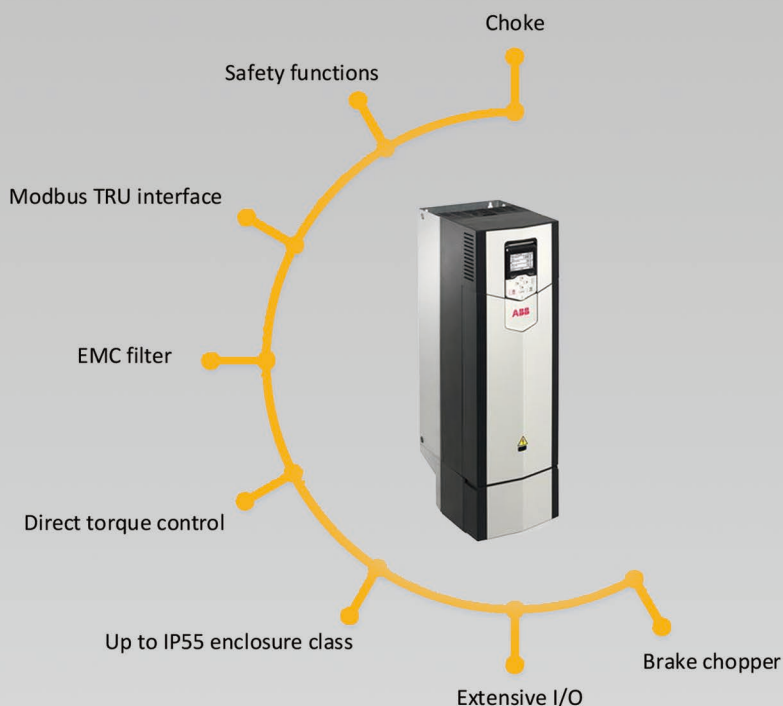
Ease of Use

- Drive Flex makes use of ABB's all compatible drives portfolio, be it the ACS380, ACS480, ACS580 or the new ACS880 range.
- These drives share the same PC tools and multilingual control panels.
- They share the same communication options, simplifying the use of drives and spare parts handling.
- The control panel's assistants and pre-programmed application macros help you set up the drive quickly and effectively.



Loads of Extras

- All ACS880 drives have a choke for harmonic filtering, a Modbus RTU fieldbus interface, and safe torque off functionality as standard.
- Value-added extras include:
 - EMC filters
 - Brake choppers
 - Low harmonic or regenerative functionality and various I/O extensions
 - Fieldbus communications
 - Functional safety modules
- All added functionality is compactly built into the same sized electrical enclosures, ensuring no need for additional electrical enclosures.



Extended Connectivity

- Comes with Modbus RTU fieldbus interface and drive-to-drive communication link as standard.
- Plug-in connectivity adapters enable communication with all major industrial automation networks.
- Supports advanced fieldbus communication features:
 - Redundant fieldbus connection
 - Functional safety over fieldbus
 - Multiple fieldbus communication
 - Shared Ethernet communication
- To minimize connectivity-related risks, cybersecurity is a built-in, integral part of Drive Flex.
- With a built-in web server and standalone data logger, the NETA-21 remote monitoring tool enables secure worldwide access.
- The drive has a Bluetooth panel enabling easy connection to mobile devices.





- Durable design for the harshest of conditions.
- Includes a nine-year service interval and good tolerance for vibrations and contamination.
- Design Features:
 - o Coated drive circuit boards
 - o Airflow through the control board is minimized to prevent ingress of moisture.
 - o High IP class variants
 - o Designed for ambient temperatures up to 55°C.
 - o Advanced IGBT and earth fault protections.
- Each solution is tested in the factory at full load to ensure maximum reliability.

Interchangeability

The memory unit stores the drive software, which includes parameter settings and motor data. This unit can be switched from one drive to another, allowing simple drive replacement without any special equipment, software loading, parameter settings, or other adjustments in the drive or automation system. It also eliminates the risk of software incompatibility.



Operational Safety

The safety functionality can be scaled to your needs. From STO wired to an E-stop, to a complete safety system with PROFIsafe and a safety PLC.



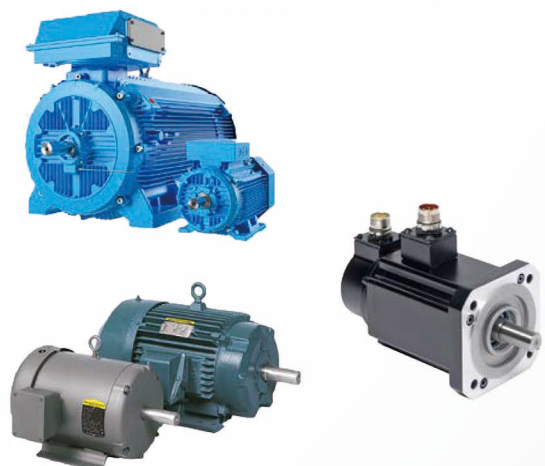
The following safety functions are supported:

- Safe torque off (STO)
- Safe stop 1 (SS1)
- Safe stop emergency (SSE)
- Safe brake control (SBC)
- Safely-limited speed (SLS)
- Safe maximum speed (SMS)
- Prevention of unexpected start-up (POUS)
- Safe direction (SDI)
- Safe speed monitor (SSM)
- Safe temperature monitoring (SMT)

Compatibility

The Drive Flex solution provides reliable control for various motors, such as squirrel cage, high-torque or servo-type permanent magnets, synchronous reluctance (SynRM), submersible and high-speed motors.

Regardless of the motor type, drive commissioning is easy, with no need for laborious manual tuning.



INDUSTRY SPECIFIC APPLICATIONS

Cranes (EOT)

- Mechanical brake control
- Slow down and end limit logic
- Antisway
- Hoist speed optimization
- Shaft synchro

Tower cranes

- Slew control
- Mechanical brake control
- Mobile access

Winches

- Mooring
- Anchor control
- Open loop speed & torque control
- Winch interface for multiple control stands

Winders

- Roll diameter calculation
- Tension control
- Dancer and load cell control
- Inertia and friction compensation

Artificial oil lifting, ESP

- Submersible motor control
- Motor temperature minimize
- Backspin speed observer
- Rocking start
- Flow calculation

Artificial oil lifting, PCP

- Backspin control
- Automatic pump speed control
- Induction and PM motor control
- Pump mechanics protection

Artificial oil lifting, rod pump

- Pump speed optimization
- Pump mechanics protection
- Pump identification run

Tunnel ventilation (override control)

- Protection override
- Built-in PID control
- Energy optimizer

Marine

- Type approval
- Product verification process
- 440V variant
- IP54 / IP65 options

Textile (spinning)

- Wobulation function
- Manual / auto off function
- Production history

Test bench

- Fast communication
- High torque accuracy and linearity
- Acceleration damping
- Minimized motor noise

Centrifuge, decanter

- Speed and torque control, even without encoder
- Speed difference control of scroll drives for decanter

Cooling tower

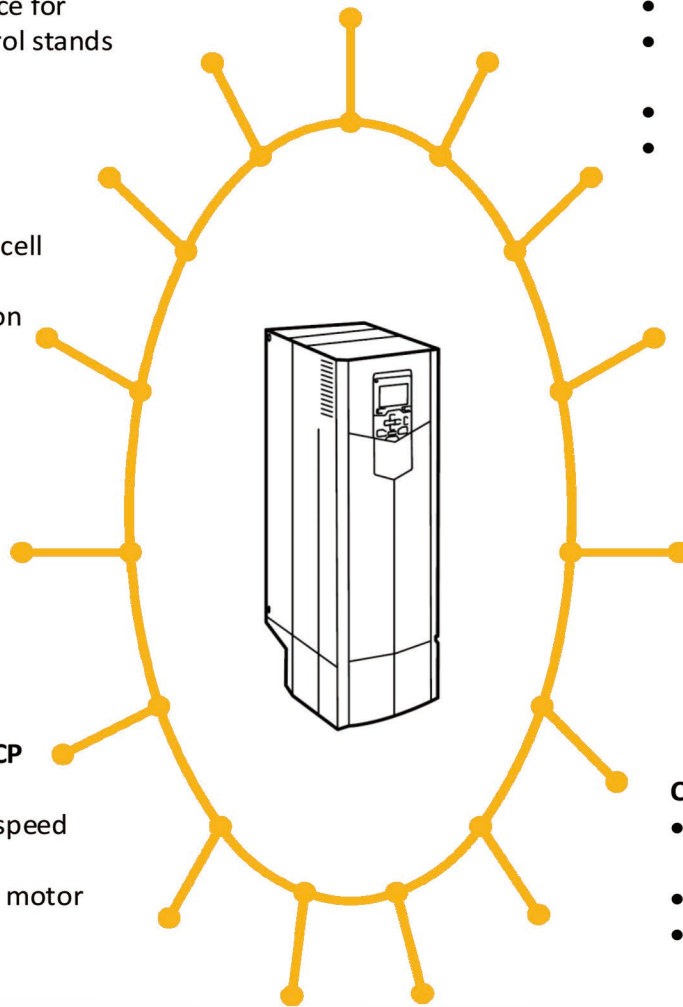
- Slow, high-torque application support
- Trickle current to keep motor warm and dry
- Anti-windmill function

Chemical industry

- Direct torque control with sine filters
- Nine-year service interval
- NAMUR requirement approved

Explosive Environments

- Type approval
- ATEX-approved safe torque off, STO and thermistor protection module



DRIVE-FLEX RANGE

R10 – R11 Range

Nominal Voltage: 380V – 690V

Power Rating: 250kW – 710kW

R6 – R9 Range

Nominal Voltage: 380V – 690V

Power Rating: 55kW – 250kW

R1 – R5 Range

Nominal Voltage: 380V – 690V

Power Rating: 0.55kW – 45kW



TECHNICAL SPECIFICATIONS

Mains connection	
Nominal Voltage	3-phase, 205 to 690 V, +10%/-15%
Power Range	0.55 to 710kW
Frequency	50/60 Hz $\pm 5\%$
Power Factor	$\cos\Theta = 0.98$ (fundamental) $\cos\Theta = 0.93$ to 0.95 (total)
Efficiency	98%
Environmental limits	
Operation Temperature	Transport and Storage: -40 to $+70$ °C Operation (forced air cooled): -15 to $+50$ °C
Cooling Method	Forced air-cooled
Altitude	0 to 1000m: Without derating 1000 to 4000m: With derating of 1%/100m
Relative Humidity	5 to 95%, no condensation allowed
Degree of Protection	Up to IP55
Execution	Indoor
Paint Colour (Default)	RAL 9017/7035 Light Grey

* Technical specifications have been simplified. Refer to the Drive Flex Technical Specifications document for the complete list of details.



GENERAL ARRANGEMENTS



Dimensions

Drive Flex Range	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
R1 – R5	2130	610	630	200
R6 – R9	2180	910	630	375
R10 – R11	2180	910	630	580
R11 Ext	2180	1110	630	630
R11 Ext ⁽¹⁾	2180	1510	630	660



CONTACT US



www.ppetech.co.za 

sales@ppetech.co.za 

Gauteng: +27 (0)12 940 3971
Mpumalanga: +27 (0)13 752 3570
Western Cape: +27 (0)87 057 4001
KwaZulu-Natal: +27 (0)79 354 2105



Mpumalanga: 3 Christie Crescent Vintonia Ext.2, Nelspruit, 1200
Cape Town: Unit 1 Oro Three 5 Junction Rd, Killarney Junction, 7441
Gauteng: 477 Jasmyn Street, Silverton, 0184
KwaZulu-Natal: 7 Moreland Drive, La Lucia, 4159

