

LISTEN.
THINK.
SOLVE.SM

SELECTION GUIDE



POWERFUL PERFORMANCE
FLEXIBLE CONTROL

POWERFLEX[®] AC DRIVES

THE INTELLIGENT MOTOR CONTROL SOLUTION
FOR YOUR APPLICATION REQUIREMENTS



AUTOMOTIVE
BREWING
BEVERAGE
FOOD
PACKAGING
PHARMACEUTICAL



PETROCHEMICAL
WATER WASTEWATER
MINING
AGGREGATE
CEMENT
OIL & GAS
PRINTING & PUBLISHING
MARINE
FIBRE & TEXTILE
METAL
PULP & PAPER
GLASS
SEMICONDUCTOR





POWERFLEX

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Rockwell Automation®, Allen-Bradley®, PowerFlex®, DeviceLogix™, DriveLogix™, FORCE™ Technology, SynchLink™, TorqProve™, DriveTools™ SP, DriveExplorer™, DriveExecutive™, DriveObserver™, StepLogic™, Compact I/O™, Zero Stacking™, DriveGuard®, GuardMotion™ are registered trademarks of Rockwell Automation.

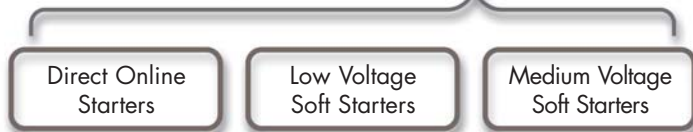
INTELLIGENT MOTOR CONTROL



Motor Performance | Motor Protection

FIXED SPEED CONTROL

VARIABLE SPEED CONTROL



PERFORMANCE

- Modular motor starter combinations for optimal configuration
- Full power range of soft starters with extended features

PROTECTION

- From basic devices to advanced electronic motor protection solutions
- Soft starters with embedded overload protection and advanced diagnostics

COMMUNICATION

- Utilisation of Rockwell Automation NetLinx open network architectures
- Distributed I/O devices for network communication
- Wide choice of communication modules for soft starters

PERFORMANCE

- Complete power range and flexible control for a broad range of AC motor applications
- Single point programming, assisted startup and maintenance
- Application specific features as standard

PROTECTION

- Integral motor protection and DriveGuard Safe-off functionality
- Multiple alarms for preventative maintenance
- Intelligent fault handling

COMMUNICATION

- Utilisation of Rockwell Automation NetLinx open network architectures
- Single software tool for seamless network integration and product configuration
- Support for 3rd party networks



NetLinX

(EtherNet/IP™, ControlNet™, DeviceNet™)



| System Wide Communication

MOTION
CONTROL

ENGINEERED
SOLUTIONS

Servo
Drives

Servo
Motors

Packaged
Solutions

Engineered
Drive Systems

Motor Control
Centres



PERFORMANCE

- Integrated motor and drive matched solutions
- High-precision servo technology delivers ultimate machine performance
- Single point programming with pre-defined application parameters

PROTECTION

- Advanced diagnostic capabilities for preventive maintenance
- GuardMotion Safety functionality enhances machine productivity
- Smart Motor Technology utilised for intelligent fault handling and motor protection

COMMUNICATION

- Utilisation of Rockwell Automation NetLinX open network architecture
- Logix control architecture tightly coordinates an almost unlimited number of axes
- Single software tool for seamless network integration and product configuration
- Single SERCOS fibre-optic ring between control and drives greatly reduces wiring

PERFORMANCE

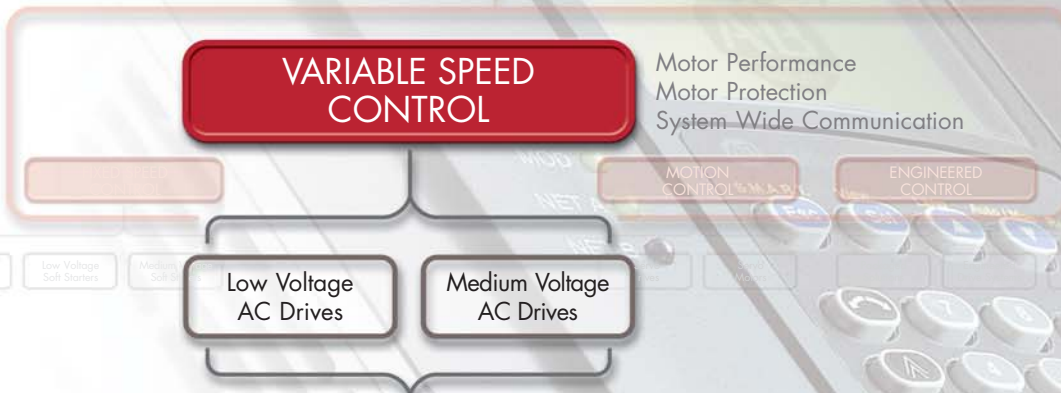
- Integrated and approved motor control solutions to specified application needs

PROTECTION

- Tested system functionality for the protection of equipment and processes

COMMUNICATION

- Utilisation of Rockwell Automation NetLinX open network architecture
- Implementation of proven architectures with guaranteed network performance



POWERFLEX AC DRIVES



POWERFLEX 4

0.25...2.2 kW @ 240V
single phase

0.25...4 kW @ 400V
3-phase

240V and 480V
3-phase also available

V/Hz Control

POWERFLEX 40

0.37...2.2 kW @ 240V
single phase

0.37...11 kW @ 400V
3-phase

240V, 480V and 600V
3-phase also available

V/Hz and Sensorless
Vector Control

POWERFLEX 40P

0.37...11 kW @ 400V
3-phase

240V, 480V and 600V
3-phase also available

V/Hz and Sensorless
Vector Control

Safe-off functionality to
EN 954-1 Cat. 3

POWERFLEX 400

0.37...110 kW @ 400V
3-phase

240V and 480V
3-phase also available

V/Hz Control

For industrial fan and
pump applications

POWERFLEX 70

0.37...37 kW @ 400V
3-phase

240V, 480V and 600V
3-phase also available

V/Hz, Sensorless Vector
and Flux Vector Control -
utilising FORCE
Technology

IP 66 versions also
available

Safe-off functionality to
EN 954-1 Cat. 3

POWERFUL PERFORMANCE FLEXIBLE CONTROL

A complete range of PowerFlex frequency drives

There are two classes of Allen-Bradley drives for you to choose from, PowerFlex® Component Class Drives (PowerFlex 4 Class) offer you cost-effective motor control for machine-level and stand-alone applications, while PowerFlex® Architecture Class Drives (PowerFlex 7 Class) are designed for advanced application flexibility and control system integration. With power ratings from 0.25 kW single phase to 25 MW at medium voltage, standard control interface across the range and common setup for programming, monitoring and troubleshooting, PowerFlex drives offer you seamless integration into your control system however demanding your application.

Seamless integration to maximise your uptime

To help you gain the most from your automation investment, PowerFlex drives utilise an open network architecture to integrate your manufacturing process allowing single point programming, advanced fault handling and visibility across your enterprise.

PowerFlex AC drives provide common features and services for EtherNet/IP™, ControlNet™ and DeviceNet™, as well as supporting universal remote I/O, RS485, PROFIBUS™ DP, Interbus™, LonWorks® and Bluetooth® technology.

Specific features for demanding applications

To meet your control needs the PowerFlex family offers a variety of motor control technologies, ranging from volts/hertz control for simple applications to vector control with FORCE™ technology for more demanding applications. With specific features as standard offered within the family; TorqProve™ for guaranteed control of a load in lifting and hoisting applications, Safe-off functionality for safety related applications certified to EN 954-1 Cat. 3, component class multi-drive connectivity for low cost networking and hi-end positioning control; the PowerFlex family can help you achieve the control you need. With additional features such as Zero-stacking, IP66 rated drives, liquid-cooled drives and drives with active front-end (AFE), the family can also help you reduce premium space and lower energy costs.



POWERFLEX 700

0.75...132 kW @ 400V
3-phase

45...132 kW @ 690V
3-phase

240V, 480V and 600V
3-phase also available

V/Hz, Sensorless Vector and Flux Vector Control - utilising FORCE Technology

TorqProve functionality with automated brake control

Liquid-cooled option with PowerFlex 700L

POWERFLEX 700H

160...560 kW @ 400V
3-phase

160...800 kW @ 690V
3-phase

480V and 600V
3-phase also available

V/Hz and Sensorless Vector Control

POWERFLEX 700S

0.75...800 kW @ 400V
3-phase

45...1100 kW @ 690V
3-phase

240V, 480V and 600V
3-phase also available

V/Hz, Sensorless Vector and Field Orientated Control - utilising FORCE Technology

Safe-off functionality to EN 954-1 Cat. 3

Liquid-cooled option with PowerFlex 700L

POWERFLEX 7000

MEDIUM VOLTAGE AC DRIVES

150...930 kW @ 2400...6600V
Air cooled, Frame A

150...4100 kW @ 2400...6600V
Air cooled, Frame B

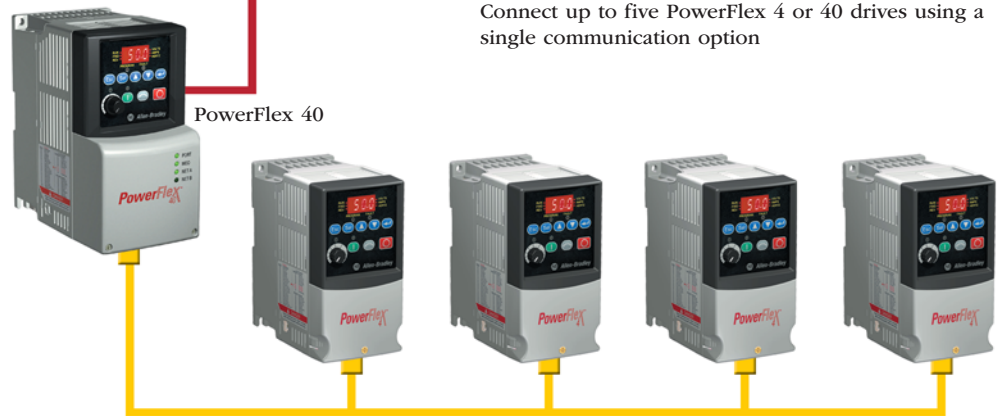
1300...6770 kW @ 2400...6600V
Liquid cooled, Frame C

Synchronised drives option up to 25 MW with Frame C

POWERFLEX 4 CLASS MULTI-DRIVE SOLUTION

EtherNet/IP, ControlNet, DeviceNet (NetLinx)
plus 3rd party networks

Economical network solution on all networks
Connect up to five PowerFlex 4 or 40 drives using a
single communication option



RS-485 connection to four or less PowerFlex 4 or 40 AC drives

POWERFLEX 700 TORQPROVE



PowerFlex 700 with TorqProve™ allows motor torque and brake control and is ideal for lifting or hoisting applications. It guarantees load control even if the mechanical brake to the motor fails. This is achieved by maintaining torque to the motor while testing if the mechanical brake has engaged. If the brake has not engaged the PowerFlex 700 lowers the load in stages, monitoring at each stage engagement of the brake until the load comes to rest at a safe position.

- Automated torque and brake proving
 - Encoder-based
 - Encoderless (series B only)
- Float capability
 - Holds zero speed while holding brake open
- Micro position (creep speed)
- Fast Stop
 - Stops as fast as possible then sets brake (reduces wear)
- Digital input selections
 - Decel-Limit switches (normally closed)
 - End-of-Travel limit switches (normally closed)
- Assisted startup for lifting applications
- Optional torque pre-loads
- Protection capability including:
 - Load-based speed limits (allows fast speeds unloaded)
 - Brake slip detection
 - Speed deviation fault
 - Output phase loss detection
 - Encoder loss fault

POWERFLEX 70 IP66 PROTECTION



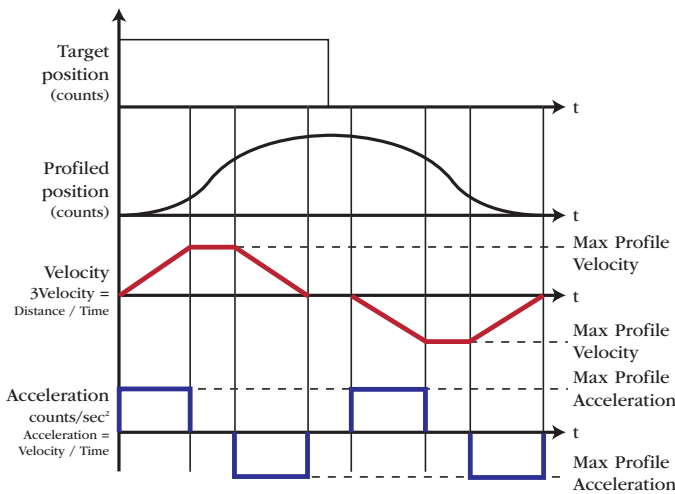
Suitable for use in harsh environments or hygiene sensitive environments such as food and beverage industry
Resistant to corrosive chemicals, oils, dust...
NSF (National Sanitation Foundation) certification insures conformity with international food equipment standard

POWERFLEX SAFE-OFF



PowerFlex 40P, 70, 700H and 700S AC drives are available with optional DriveGuard functionality offering Safe-off control. Ideal for safety related applications requiring removal of rotational power to the motor without shutting down the drive. DriveGuard with Safe-off functionality offers the benefit of quick start-up after a demand on the safety system, reduces drive wear from repetitive start-up and conforms to EN 954-1 Cat. 3.

POWERFLEX POSITIONING



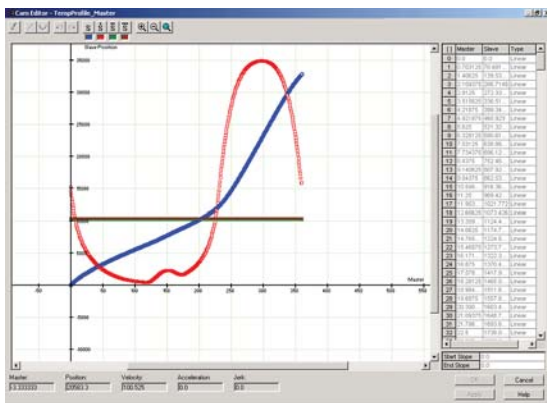
Point-to-point move

One of the most commonly used profiles is the simple single-axis point-to-point move, which requires the position to which the axes needs to move. Often, it also requires the velocity and acceleration at which you want the motion move.

The position reference will be profiled within the limits of the profile generator (accel/decel and max. profile speed), for the given position setpoint.

Applications:

- Conveyor and belt (**PowerFlex 40P**)
- Material handling (**PowerFlex 700**)
- Lift and hoist (**PowerFlex 700**)



Electronic Cam (PowerFlex 700S)

In various industrial applications, mechanical cams are used to create motion according to particular profiles, depending on a master position. The 'Electronic Cam Profile' function allows creating any type of non-linear motion profile between drive axes. One drive serves as the 'Master', the other the 'Slave' following the profile defined in the Cam relative to the motion of the 'Master'. The Cam reference is calculated with respect to reference or master position movements forcing a Cam profile table

Applications:

- Packaging machines
- Paper processing machines
- Printing machines
- Wood processing machines
- Material forming



- 0.25 kW...2.2 kW @ 240V single phase
0.25...4 kW @ 400V 3-phase (240V and 480V 3-phase also available)
- V/Hz control
- Versions with and without integral dynamic brake chopper
- Integral RS 485 communication: allows multi-drop configurations (up to 4 additional PowerFlex 4 Class drives on one network node)
- Integral programming keypad and local LED status indication
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)
- Zero-Stacking (no spacing required between drives)

POWERFLEX 4 220...480V

Typical motor rating		Catalogue number	Input voltage	Output Amps (HD)			Dimensions HxWxD (mm)	Weight kg	Frame
kW	A			Cont.	1 min.	3 s			
0.25	1.3	22A-A1P4N113	200...240V, 50/60 Hz, single phase, EMC Filter, no Brake Chopper	1.4	2.1	2.8	152x80x136	1.4	A
0.37	1.9	22A-A2P1N113		2.1	3.2	4.2	152x80x136	1.4	A
0.75	3.3	22A-A3P6N113		3.6	5.4	7.2	152x80x136	1.4	A
1.5	6.1	22A-A6P8N113		6.8	10.2	13.6	180x100x136	2.2	B
2.2	8.9	22A-A9P6N113		9.6	14.4	19.2	180x100x136	2.2	B
0.25	1.3	22A-A1P4N103	200...240V, 50/60 Hz, single phase, no EMC Filter, no Brake Chopper	1.4	2.1	2.8	152x80x136	1.4	A
0.37	1.9	22A-A2P1N103		2.1	3.2	4.2	152x80x136	1.4	A
0.75	3.3	22A-A3P6N103		3.6	5.4	7.2	152x80x136	1.4	A
1.5	6.1	22A-A6P8N103		6.8	10.2	13.6	180x100x136	2.2	B
2.2	8.9	22A-A9P6N103		9.6	14.4	19.2	180x100x136	2.2	B
0.25	1.3	22A-A1P5N114	200...240V, 50/60 Hz, single phase, EMC Filter, Brake Chopper	1.5	2.3	3	152x80x136	1.4	A
0.37	1.9	22A-A2P3N114		2.3	3.5	4.6	152x80x136	1.4	A
0.75	3.3	22A-A4P5N114		4.5	6.8	9	152x80x136	1.4	A
1.5	6.1	22A-A8P0N114		8	12	16	180x100x136	2.2	B
0.25	1.3	22A-A1P5N104	200...240V, 50/60 Hz, single phase, no EMC Filter, Brake Chopper	1.5	2.3	3	152x80x136	1.4	A
0.37	1.9	22A-A2P3N104		1.5	2.3	3	152x80x136	1.4	A
0.75	3.3	22A-A4P5N104		4.5	6.8	9	152x80x136	1.4	A
1.5	6.1	22A-A8P0N104		8	12	16	152x80x136	1.4	B
0.25	1.3	22A-B1P5N104	200...240V, 50/60 Hz, 3-phase, no EMC Filter, Brake Chopper	1.5	2.3	3	180x100x136	1.4	A
0.37	1.9	22A-B2P3N104		2.3	3.5	4.6	180x100x136	1.4	A
0.75	3.3	22A-B4P5N104		4.5	6.8	9	152x80x136	1.4	A
1.5	6.1	22A-B8P0N104		8	12	16	152x80x136	1.4	A
2.2	8.9	22A-B012N104		12	18	24	180x100x136	2.2	B
4	15.3	22A-B017N104	17	25.5	34	180x100x136	2.2	B	
0.37	1.1	22A-D1P4N104	400...480V, 50/60 Hz, 3-phase, no EMC Filter, Brake Chopper	1.4	2.1	2.8	152x80x136	1.4	A
0.75	1.9	22A-D2P3N104		2.3	3.5	4.6	152x80x136	1.4	A
1.5	3.5	22A-D4P0N104		4	6	8	152x80x136	1.4	A
2.2	5	22A-D6P0N104		6	9	12	180x100x136	2.2	B
4	8.4	22A-D8P7N104		8.7	13.1	17.4	180x100x136	2.2	B

POWERFLEX 4 OPTIONS

Catalogue No.	Description
External EMC filter for up to 10 m motor cable length	
22-RF9P5-AS	Short cable distance external filter, 9.5 A, used with 240V, 3-phase, Frame A
22-RF021-BS	Short cable distance external filter, 21 A, used with 240V, 3-phase, Frame B
22-RF5P7-AS	Short cable distance external filter, 5.7 A, used with 480V, Frame A
22-RF012-BS	Short cable distance external filter, 12 A, used with 480V, Frame B
External EMC filter for up to 100 m motor cable length	
22-RF010-AL	Long cable distance external filter, 10 A, used with 240V, single phase, Frame A
22-RF018-BL	Long cable distance external filter, 18 A, used with 240V, single phase, Frame B
22-RF9P5-AL	Long cable distance external filter, 9.5 A, used with 240V, 3-phase, Frame A
22-RF021-BL	Long cable distance external filter, 21 A, used with 240V, 3-phase, Frame B
22-RF5P7-AL	Long cable distance external filter, 5.7 A, used with 480V, 3-phase, Frame A
22-RF012-BL	Long cable distance external filter, 12 A, used with 480V, 3-phase, Frame B
Human interface modules (HIM) & accessories	
22-HIM-C2S	LCD display, remote panel mount, CopyCat, IP66 HIM, includes 2.9 m cable
22-HIM-A3	LCD display, remote hand held, CopyCat, IP30 HIM, includes 1 m cable
22-HIM-B1	Bezel kit for 22-HIM-A3 panel mounting, includes 2 m cable
22-HIM-H10	DSI HIM to RJ45 Port cable 1 m
22-HIM-H30	DSI HIM to RJ45 Port cable 2.9 m
Dynamic brake resistors - 5% duty cycle	
AK-R2-091P500	Dynamic brake resistor, 200...480V, 91 Ω , 86 W
AK-R2-047P500	Dynamic brake resistor, 200...480V, 47 Ω , 166 W
AK-R2-360P500	Dynamic brake resistor, 200...480V, 360 Ω , 86 W
AK-R2-030P1K2	Dynamic brake resistor, 200...480V, 30 Ω , 260 W
AK-R2-120P1K2	Dynamic brake resistor, 200...480V, 120 Ω , 260 W

For detailed information on dynamic braking refer to publication: PFLEX-AT001...

For line reactors, circuit breakers and contactors please refer to page 28.



- 0.37...2.2 kW @ 240V single phase
0.37...11 kW @ 400V 3-phase (240V and 480V also available)
- V/Hz and Sensorless Vector control
- Integral dynamic brake chopper
- Communication modules for industrial automation networks
- Integral RS 485 communication: allows multi-drop configurations (up to 4 additional PowerFlex 4 Class drives on one network node)
- Integral programming keypad and local LED status indication
- StepLogic with AND/OR and timer/counter functions
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)
- Zero-Stacking (no spacing required between drives)

POWERFLEX 40 220...480V

Typical motor rating		Catalogue number	Input voltage	Output Amps (HD)			Dimensions HxWxD (mm)	Weight kg	Frame
kW	A			Cont.	1 min.	3 s			
0.37	1.9	22B-A2P1N114	200...240V, 50/60 Hz, single phase, EMC Filter, Brake Chopper	2.3	3.5	4.6	180x100x136	2.2	B
0.75	3.3	22B-A5P0N114		5	7.5	10	180x100x136	2.2	B
1.5	6.1	22B-A8P0N114		8	12	16	180x100x136	2.2	B
2.2	8.9	22B-A012N114		12	18	24	260x130x180	4.3	C
0.37	1.9	22B-A2P3N104	200...240V, 50/60 Hz, single phase, no EMC Filter, Brake Chopper	2.3	3.5	4.6	180x100x136	2.2	B
0.75	3.3	22B-A5P0N104		5	7.5	10	180x100x136	2.2	B
1.5	6.1	22B-A8P0N104		8	12	16	180x100x136	2.2	B
2.2	8.9	22B-A012N104		12	18	24	260x130x180	4.3	C
0.37	1.9	22B-B2P3N104	200...240V, 50/60 Hz, 3-phase, no EMC Filter, Brake Chopper	2.3	3.5	4.6	180x100x136	2.2	B
0.75	3.3	22B-B5P0N104		5	7.5	10	180x100x136	2.2	B
1.5	6.1	22B-B8P0N104		8	12	16	180x100x136	2.2	B
2.2	8.9	22B-B012N104		12	18	24	180x100x136	2.2	B
4	15.3	22B-B017N104		17	25.5	34	180x100x136	2.2	B
5.5	21	22B-B024N104		24	36	48	260x130x180	4.3	C
7.5	28	22B-B033N104		33	49.5	66	260x130x180	4.3	C
0.37	1.1	22B-D1P4N104	400...480V, 50/60 Hz, 3-phase, no EMC Filter, Brake Chopper	1.4	2.1	2.8	180x100x136	2.2	B
0.75	1.9	22B-D2P3N104		2.3	3.5	4.6	180x100x136	2.2	B
1.5	3.5	22B-D4P0N104		4	6	8	180x100x136	2.2	B
2.2	5	22B-D6P0N104		6	9	12	180x100x136	2.2	B
4	8.4	22B-D010N104		10	15	20	180x100x136	2.2	B
5.5	11.4	22B-D012N104		12	18	24	260x130x180	4.3	C
7.5	15	22B-D017N104		17	25.5	34	260x130x180	4.3	C
11	22	22B-D024N104		24	36	48	260x130x180	4.3	C

POWERFLEX 40 OPTIONS

Catalogue No.	Description
External EMC filter for up to 10 m motor cable length	
22-RF021-BS	Short cable distance external filter, 21 A, used with 240V, 3-phase, Frame B
22-RF034-CS	Short cable distance external filter, 34 A, used with 240V, 3-phase, Frame C
22-RF012-BS	Short cable distance external filter, 12 A, used with 480V, Frame B
22-RF018-CS	Short cable distance external filter, 18 A, used with 480V, Frame C
22-RF026-CS	Short cable distance external filter, 26 A, used with 480V, Frame C
External EMC filter for up to 100 m motor cable length	
22-RF018-BL	Long cable distance external filter, 18 A, used with 240V, single phase, Frame B
22-RF025-CL	Long cable distance external filter, 25 A, used with 240V, single phase, Frame C
22-RF021-BL	Long cable distance external filter, 21 A, used with 240V, 3-phase, Frame B
22-RF034-CL	Long cable distance external filter, 34 A, used with 240V, 3-phase, Frame C
22-RF012-BL	Long cable distance external filter, 12 A, used with 480V, 3-phase, Frame B
22-RF018-CL	Long cable distance external filter, 18 A, used with 480V, 3-phase, Frame C
22-RF026-CL	Long cable distance external filter, 26 A, used with 480V, 3-phase, Frame C
Human interface modules (HIM) & accessories	
22-HIM-C2S	LCD display, remote panel mount, CopyCat, IP66 HIM, includes 2.9 m cable
22-HIM-A3	LCD display, remote hand held, CopyCat, IP30 HIM, includes 1 m cable
22-HIM-B1	Bezel kit for 22-HIM-A3 panel mounting, includes 2 m cable
22-HIM-H10	DSI HIM to RJ45 Port cable 1 m
22-HIM-H30	DSI HIM to RJ45 Port cable 2.9 m
22-WIM-N1	Wireless interface module Bluetooth DSI, IP20
22-WIM-N4S	Wireless interface module Bluetooth DSI, IP66
Dynamic brake resistors - 5% duty cycle	
AK-R2-091P500	Dynamic brake resistor, 200...480V, 91 Ω , 86 W
AK-R2-047P500	Dynamic brake resistor, 200...480V, 47 Ω , 166 W
AK-R2-360P500	Dynamic brake resistor, 200...480V, 360 Ω , 86 W
AK-R2-030P1K2	Dynamic brake resistor, 200...480V, 30 Ω , 260 W
AK-R2-120P1K2	Dynamic brake resistor, 200...480V, 120 Ω , 260 W

For detailed information on dynamic braking refer to publication: PFLEX-AT001...

For line reactors, circuit breakers and contactors please refer to page 28.

Available communication modules are shown on page 26.



- 0.37...11 kW @ 400V 3-phase (240V and 480V also available)
- V/Hz and Sensorless Vector control
- Integral dynamic brake chopper
- Communication modules for industrial automation networks
- Integral RS 485 communication: allows multi-drop configurations (up to 4 additional PowerFlex 4 Class drives on one network node)
- Speed control with and without encoder feedback
- StepLogic with AND/OR and timer/counter functions
- Safe-off option conforming to EN 954-1 Cat. 3
- Specific features for fibre applications
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)
- Zero-Stacking (no spacing required between drives)

POWERFLEX 40P 240...480V

Typical motor rating		Catalogue number	Input voltage	Output Amps (HD)			Dimensions HxWxD (mm)	Weight kg	Frame
kW	A			Cont.	1 min.	3 s			
0.37	1.9	22D-B2P3N104	200...240V, 50/60 Hz, 3-phase, no EMC Filter, Brake Chopper	2.3	3.5	4.6	180x100x136	2.2	B
0.75	3.3	22D-B5P0N104		5	7.5	10	180x100x136	2.2	B
1.5	6.1	22D-B8P0N104		8	12	16	180x100x136	2.2	B
2.2	8.9	22D-B012N104		12	18	24	180x100x136	2.2	B
4	15.3	22D-B017N104		17.5	25.5	34	180x100x136	2.2	B
5.5	21	22D-B024N104		24	36	48	260x130x180	4.3	C
7.5	28	22D-B033N104		33	49.5	66	260x130x180	4.3	C
0.37	1.1	22D-D1P4N104		400...480V, 50/60 Hz, 3-phase, no EMC Filter, Brake Chopper	1.4	2.1	2.8	180x100x136	2.2
0.75	1.9	22D-D2P3N104	2.3		3.5	4.6	180x100x136	2.2	B
1.5	3.5	22D-D4P0N104	4		6	8	180x100x136	2.2	B
2.2	5	22D-D6P0N104	6		9	12	180x100x136	2.2	B
4	8.4	22D-D010N104	10.5		15	20	180x100x136	2.2	B
5.5	11.4	22D-D012N104	12		18	24	260x130x180	4.3	C
7.5	15	22D-D017N104	17		25.5	34	260x130x180	4.3	C
11	22	22D-D024N104	24		36	48	260x130x180	4.3	C

POWERFLEX 40P OPTIONS

Catalogue No.	Description
External EMC filter for up to 10 m motor cable length	
22-RF021-BS	Short cable distance external filter, 21 A, used with 240V, 3-phase, Frame B
22-RF034-CS	Short cable distance external filter, 34 A, used with 240V, 3-phase, Frame C
22-RF012-BS	Short cable distance external filter, 12 A, used with 480V, Frame B
22-RF018-CS	Short cable distance external filter, 18 A, used with 480V, Frame C
22-RF026-CS	Short cable distance external filter, 26 A, used with 480V, Frame C
External EMC filter for up to 100 m motor cable length	
22-RF018-BL	Long cable distance external filter, 18 A, used with 240V, single phase, Frame B
22-RF025-CL	Long cable distance external filter, 25 A, used with 240V, single phase, Frame C
22-RF021-BL	Long cable distance external filter, 21 A, used with 240V, 3-phase, Frame B
22-RF034-CL	Long cable distance external filter, 34 A, used with 240V, 3-phase, Frame C
22-RF012-BL	Long cable distance external filter, 12 A, used with 480V, 3-phase, Frame B
22-RF018-CL	Long cable distance external filter, 18 A, used with 480V, 3-phase, Frame C
22-RF026-CL	Long cable distance external filter, 26 A, used with 480V, 3-phase, Frame C
Human interface modules (HIM) & accessories	
22-HIM-C2S	LCD display, remote panel mount, CopyCat, IP66 HIM, includes 2.9 m cable
22-HIM-A3	LCD display, remote hand held, CopyCat, IP30 HIM, includes 1 m cable
22-HIM-B1	Bezel kit for 22-HIM-A3 panel mounting, includes 2 m cable
22-HIM-H10	DSI HIM to RJ45 Port cable 1 m
22-HIM-H30	DSI HIM to RJ45 Port cable 2.9 m
22-WIM-N1	Wireless interface module Bluetooth DSI, IP20
22-WIM-N4S	Wireless interface module Bluetooth DSI, IP66
Dynamic brake resistors - 5% duty cycle	
AK-R2-091P500	Dynamic brake resistor, 200...480V, 91 Ω , 86 W
AK-R2-047P500	Dynamic brake resistor, 200...480V, 47 Ω , 166 W
AK-R2-360P500	Dynamic brake resistor, 200...480V, 360 Ω , 86 W
AK-R2-030P1K2	Dynamic brake resistor, 200...480V, 30 Ω , 260 W
AK-R2-120P1K2	Dynamic brake resistor, 200...480V, 120 Ω , 260 W
Other options	
20A-DG01	DriveGuard Safe-off board (Series B required)

For detailed information on dynamic braking refer to publication: PFLEX-AT001...

For line reactors, circuit breakers and contactors please refer to page 28.

Available communication modules are shown on page 26.



- 0.37...110 kW @ 400V 3-phase (240V and 480V 3-phase also available)
- V/Hz control
- For industrial pump and fan applications
- Integral dynamic brake chopper
- Communication modules for industrial automation networks
- Integral RS 485 communication: allows multi-drop configurations (up to 4 additional PowerFlex 4 Class drives on one network node)
- Integral programming keypad and local LED status indication
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)
- Zero-Stacking (no spacing required between drives)

POWERFLEX 400 200...480V

Typical motor rating		Catalogue number	Input voltage	Output Amps (ND)		Dimensions HxWxD (mm)	Weight kg	Frame
kW	A			Cont.	1 min.			
2.2	9	22C-B012N103	200...240V, 50/60 Hz, 3-phase, no EMC Filter, Brake Chopper	12	13.2	260x130x180	3.41	C
3.7	16	22C-B017N103		17.5	19.2	260x130x180	3.49	C
5.5	21	22C-B024N103		24	26.4	260x130x180	4.27	C
7.5	28	22C-B033N103		33	36.3	260x130x180	4.33	C
11	40	22C-B049A103		49	53.9	384x250x205.4	13.4	D
15	52	22C-B065A103		65	71.5	384x250x205.4	14	D
18.5	61	22C-B075A103		75	82.5	384x250x205.4	14	D
22	72	22C-B090A103		90	99	384x250x205.4	14	D
30	95	22C-B120A103		120	132	589x370x260	48.2	E
37	117	22C-B145A103		145	159.5	589x370x260	48.2	E
2.2	5	22C-D06P0N103	400...480V, 50/60 Hz, 3-phase, no EMC Filter, Brake Chopper	6	6.6	260x130x180	3.39	C
4	8.4	22C-D010N103		10.5	11.5	260x130x180	3.55	C
5.5	11.4	22C-D012N103		12	13.2	260x130x180	4.2	C
7.5	15	22C-D017N103		17	18.7	260x130x180	4.3	C
11	22	22C-D022N103		22	24.2	260x130x180	7.41	C
15	29	22C-D030N103		30	33	260x130x180	7.49	C
18.5	34	22C-D038A103		38	41.8	384x250x205.4	14	D
22	40	22C-D045A103		45.5	50.1	384x250x205.4	14	D
30	53	22C-D060A103		60	66	384x250x205.4	15.6	D
37	65	22C-D072A103		72	79.2	589x370x260	46.2	E
45	78	22C-D088A103		88	96.8	589x370x260	46.2	E
55	98	22C-D105A103		105	115.5	589x370x260	51.2	E
75	132	22C-D142A103		142	156.2	589x370x260	51.2	E
90	158	22C-D170A103		170	187	850x425x280	88	F
110	194	22C-D208A103	208	228.8	850x425x280	88	F	

POWERFLEX 400 OPTIONS

Catalogue No.	Description
External EMC filters	
22-RF018-CS	Short cable distance external filter, 18 A, used with 480V, 3-phase, Frame C
22-RF026-CS	Short cable distance external filter, 26 A, used with 480V, 3-phase, Frame C
22-RFD036	Long cable distance external filter, 36 A, used with 180...500V, 3-phase
22-RFD050	Long cable distance external filter, 50 A, used with 180...500V, 3-phase
22-RFD070	Long cable distance external filter, 70 A, used with 180...500V, 3-phase
22-RFD100	Long cable distance external filter, 100 A, used with 180...500V, 3-phase
22-RFD150	Long cable distance external filter, 150 A, used with 180...500V, 3-phase
22-RFD180	Long cable distance external filter, 180 A, used with 180...500V, 3-phase
22-RFD330	Long cable distance external filter, 330 A, used with 180...500V, 3-phase
Human interface modules (HIM) & accessories	
22-HIM-C2S	Panel mount, IP66, full numeric LCD, cable 2.9 m
22-HIM-A3	Hand held, IP30, full numeric LCD, cable 1 m
22-HIM-B1	Bezel kit, IP20 for use with 22-HIM-A3
22-HIM-H10	DSI HIM cable, 1 m
22-HIM-H30	DSI HIM cable, 2.9 m
22-WIM-N1	Wireless interface module Bluetooth DSI, IP20
22-WIM-N4S	Wireless interface module Bluetooth DSI, IP66
Other options	
AK-U9-RLB1	Auxiliary relay board
22-JBAC	Conversion kit IP30 / NEMA 1 / UL Type 1 kit
22-JBCC	Conversion kit IP30 / NEMA 1 / UL Type 1 kit with communication option

For detailed information on dynamic braking refer to publication: PFLEX-AT001...

For line reactors, circuit breakers and contactors please refer to page 28.

Available communication modules are shown on page 26.



- 0.37...37 kW @ 400V 3-phase (240V, 480V and 600V, 3-phase also available)
- V/Hz, Sensorless Vector and Flux Vector control
- Speed and torque control with and without encoder feedback
- Communication modules for a wide range of industrial automation networks
- Small physical size, with in-built EMC filter and dynamic brake chopper
- IP66 stand alone and flange mount versions also available
- Optional multi-lingual LCD HIM with start-up assistance
- Safe-off option conforming to EN954-1 Cat. 3
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)
- Zero-Stacking (no spacing required between drives)

POWERFLEX 70 400V, IP20, WITH EMC FILTER

Typical motor rating		Catalogue number	Output Amps (ND)			Dimensions HxWxD (mm)	Weight kg	Frame
kW	A		Cont.	1 min.	3 s			
0.37	1.1	20AC1P3A0AYNANCO	1.3	1.4	1.9	235x171x180	4.5	B
0.75	1.9	20AC2P1A0AYNANCO	2.1	2.4	3.2	235x171x180	4.5	B
1.5	3.5	20AC3P5A0AYNANCO	3.5	4.5	6	235x171x180	4.5	B
2.2	5	20AC5P0A0AYNANCO	5	5.5	7.5	235x171x180	4.5	B
4	8.4	20AC8P7A0AYNANCO	8.7	9.9	13.2	235x171x180	4.5	B
5.5	11.4	20AC011A0AYNANCO	11.5	13	17.4	300x186x180	7.6	C
7.5	15	20AC015A0AYNANCO	15.4	17.2	23.1	300x186x180	7.6	C
11	22	20AC022A0AYNANCO	22	24.2	33	350x220x180	9.8	D
15	29	20AC030A0AYNANCO	30	33	45	350x220x180	9.8	D
18.5	34	20AC037A0AYNANCO	37	45	60	350x220x180	9.8	D
22	40	20AC043A0AYNANCO	43	55	74	350x220x180	9.8	D
30	53	20AC060A0AYNANCO	60	66	99	556x350x207	18.6	E
37	65	20AC072A0AYNANCO	72	90	120	556x350x207	18.6	E

0.37...4 kW are also available without EMC filter as Frame A and B.
 Optional external EMC filter for Frame A available. Catalogue Number: 20A-RF-05-A-3

POWERFLEX 70 400V, IP66 (NEMA4x), WITH EMC FILTER

Typical motor rating		Catalogue number	Output Amps (ND)			Dimensions HxWxD (mm)	Weight kg	Frame
kW	A		Cont.	1 min.	3 s			
0.37	1.1	20AC1P3C3AYNANCO	1.3	1.4	1.9	240x171x203	4.5	B
0.75	1.9	20AC2P1C3AYNANCO	2.1	2.4	3.2	240x171x203	4.5	B
1.5	3.5	20AC3P5C3AYNANCO	3.5	4.5	6	240x171x203	4.5	B
2.2	5	20AC5P0C3AYNANCO	5	5.5	7.5	240x171x203	4.5	B
4	8.4	20AC8P7C3AYNANCO	8.7	9.9	13.2	240x171x203	4.5	B
5.5	11	20AC011C3AYNANCO	11.5	13	17.4	350x220x211	9.8	D
7.5	15	20AC015C3AYNANCO	15.4	17.2	23.1	350x220x211	9.8	D
11	21	20AC022C3AYNANCO	22	24.2	33	350x220x211	9.8	D
15	29	20AC030C3AYNANCO	30	33	45	350x220x211	9.8	D
18.5	34	20AC037C3AYNANCO	37	45	60	350x220x211	9.8	D
22	40	20AC043C3AYNANCO	43	55	74	350x220x211	9.8	D
30	53	20AC060C3AYNANCO	60	66	99	556x350x207	18.6	E
37	65	20AC072C3AYNANCO	72	90	120	556x350x207	18.6	E

POWERFLEX 70 OPTIONS

Catalogue No.	Description
Human interface modules (HIM) & accessories	
20-HIM-A2	Human interface module, digital LCD
20-HIM-A3	Human interface module, full numeric LCD
20-HIM-A5	Human interface module, programming only LCD
20-HIM-B1	Human interface module, door mount bezel kit, IP20
20-HIM-C3S	Human interface module, full numeric LCD, IP66
20-HIM-C5S	Human interface module, programming only LCD, IP66
20-HIM-H10	Cable to allow remote use of HIM module 1 m
20-WIM-N1	Wireless interface module Bluetooth DPI, IP20
20-WIM-N4S	Wireless interface module Bluetooth DPI, IP66
Internal dynamic brake resistors - 5% duty cycle	
20AD-DB1-A	Brake resistor kit, PowerFlex 70 Frame A, 380...600V, 115 Ω
20AD-DB1-B	Brake resistor kit, PowerFlex 70 Frame B, 380...600V, 115 Ω
20AD-DB1-C	Brake resistor kit, PowerFlex 70 Frame C, 380...600V, 115 Ω
20AD-DB1-D	Brake resistor kit, PowerFlex 70 Frame D, 380...480V, 62 Ω
Other options	
20A-ENC-1	PowerFlex 70 encoder feedback interface 12/5V
20A-DG01	DriveGuard Safe-off board

For detailed information on dynamic braking refer to publication: PFLEX-AT001... and external brake resistors on page 32.

For line reactors, circuit breakers and contactors please refer to page 28.

Available communication modules are shown on page 26.



- 0.75...132 kW, 400V 3-phase, 45...132 kW, 690V 3-phase (240V, 480V and 600V 3-phase also available)
- V/Hz, Sensorless Vector and Flux Vector control
- Speed and torque control with and without encoder feedback
- Communication modules for a wide range of industrial automation networks
- Optional multi-lingual LCD HIM with start-up assistance
- Book-shelf housing with in-built EMC filter and dynamic brake chopper
- TorqProve for automated torque and brake control, ideal for lifting applications
- Parameter linking functionality
- Position regulator and 16 step indexing table (with encoder feedback)
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)
- Zero-Stacking (no spacing required between drives)

POWERFLEX 700 400V, IP20, WITH EMC FILTER

Typical motor rating		Catalogue number	Output Amps (ND)			Dimensions HxWxD (mm)	Weight kg	Frame
kW	A		Cont.	1 min.	3 s			
0.75	1.9	20BC2P1A0AYNANCO	2.1	2.4	3.2	336x110x200	5.2	0
1.5	3.5	20BC3P5A0AYNANCO	3.5	4.5	6	336x110x200	5.2	0
2.2	5	20BC5P0A0AYNANCO	5	5.5	7.5	336x110x200	5.2	0
4	8.4	20BC8P7A0AYNANCO	8.7	9.9	13.2	336x110x200	5.2	0
5.5	11	20BC011A0AYNANCO	11.5	13	17.4	336x110x200	5.2	0
7.5	15	20BC015A0AYNANCO	15.4	17.2	23.1	336x135x200	7.1	1
11	22	20BC022A0AYNANCO	22	24.2	33	336x135x200	7.1	1
15	29	20BC030A0AYNANCO	30	33	45	343x220x200	12.5	2
18.5	34	20BC037A0AYNANCO	37	45	60	343x220x200	12.5	2
22	40	20BC043A0AYNANCO	43	55.5	74	518x220x200	18.6	3
30	53	20BC056A0AYNANCO	56	64.5	86	518x220x200	18.6	3
37	65	20BC072A0AYNANCO	72	84	112	518x220x200	18.6	3
45	78	20BC085A0AYNANCO ①	85	94	128	759x220x200	24.5	4
55	98	20BC105A0AYNANCO ①②	105	116	158	645x309x276	38	5
75	132	20BC140A0AYNANCO ①②	140	154	190	645x309x276	38	5
90	158	20BC170A0AYNANCO ①②	170	187	255	850x404x276	72	6
110	194	20BC205A0AYNANCO ①②	205	220	300	850x404x276	72	6
132	235	20BC260A0AYNANCO ①②	260	286	390	850x404x276	72	6

① Also available without brake chopper (Catalogue No. 20BCxxxxxNxxxxx)

② Also available in IP54 versions (Catalogue No. 20BCxxxGxxxxxxx)

POWERFLEX 700 690V, IP20, WITH EMC FILTER

Typical motor rating		Catalogue number	Output Amps (ND)			Dimensions HxWxD (mm)	Weight kg	Frame
kW	A		Cont.	1 min.	3 s			
45	47.0	20BF052A0AYNANCO ①	52	57	78	645x309x276	38	5
55	57.0	20BF060A0AYNANCO ①	60	66	90	645x309x276	38	5
75	77.0	20BF082A0AYNANCO ①	82	90	123	645x309x276	38	5
90	93.0	20BF098A0AYNANCO ①	98	108	127	645x309x276	38	5
110	113.0	20BF119A0AYNANCO ①	119	131	179	850x404x276	72	6
132	133.0	20BF142A0AYNANCO ①	142	156	213	850x404x276	72	6

① Also available without brake chopper (Catalogue No. 20BFxxxxxNxxxxx)

POWERFLEX 700 OPTIONS

Catalogue No.	Description
Human interface modules (HIM) & accessories	
20-HIM-A2	Human interface module, digital LCD
20-HIM-A3	Human interface module, full numeric LCD
20-HIM-A5	Human interface module, programming only LCD
20-HIM-B1	Human interface module, door mount bezel kit, IP20
20-HIM-C3S	Human interface module, full numeric LCD, IP66
20-HIM-C5S	Human interface module, programming only LCD, IP66
20-HIM-H10	Cable to allow remote use of HIM module 1 m
20-WIM-N1	Wireless interface module Bluetooth DPI, IP20
20-WIM-N4S	Wireless interface module Bluetooth DPI, IP66
Internal dynamic brake resistors - 5% duty cycle	
20BD-DB1-0	Brake resistor kit, PowerFlex 700 Frame 0, 380...600V, 115 Ω
20BD-DB1-1	Brake resistor kit, PowerFlex 700 Frame 1, 380...600V, 115 Ω
20BD-DB1-2	Brake resistor kit, PowerFlex 700 Frame 2, 380...480V, 68 Ω
Other options	
20B-ENC-1	PowerFlex 700 encoder feedback interface 12/5V (Series B required)
20B-VECTB-C0	Upgrade kit, vector control, 24V I/O (Series A to B)

For detailed information on dynamic braking refer to publication: PFLEX-AT001... and external brake resistors on page 32.

For line reactors, circuit breakers and contactors please refer to page 28.

Available communication modules are shown on page 26.



- 160...560 kW @ 400V 3-phase, 160...800 kW @ 690V 3-phase (480V and 600V 3-phase also available)
- V/Hz and Sensorless Vector control
- Communication modules for a wide range of industrial automation networks
- Optional multi-lingual LCD HIM with start-up assistance
- Rittal TS-8 floor standing cabinet
- Integrated line reactor
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)

POWERFLEX 700H 400V, IP20, WITH EMC FILTER

Typical motor rating		Catalogue number	Output Amps (ND)			Dimensions HxWxD (mm)	Weight kg	Frame
kW	A		Cont.	1 min.	2 s			
160	276	20CC300A0ANNBNAO ①	300	330	500	1150x480x362	151	9
200	345	20CC385A0ANNBNAO ②	385	424	600	2275x600x600	432	10
250	440	20CC460A0ANNBNAO ②	460	506	770	2275x600x600	432	10
280	495	20CC500A0ANNBNAO ②	500	550	750	2275x600x600	432	10
315	550	20CC590A0ANNBNAO ②	590	649	885	2275x800x600	614	11
355	620	20CC650A0ANNBNAO ②	650	715	976	2275x800x600	614	11
400	700	20CC730A0ANNBNAO ②	730	803	1095	2275x800x600	614	11
450	780	20CC820A0ANNBNAO ②	820	902	1230	2275x1200x600	864	12
500	860	20CC920A0ANNBNAO ②	920	1012	1380	2275x1200x600	864	12
560	960	20CC1K0A0ANNBNAO ②	1030	1133	1555	2275x1200x600	864	12

① Also available with brake chopper (Catalogue No. 20CC300A0AYNBNAO)

② Also available in IP54 and IP00 versions (IP54 Catalogue No. 20CCxxxHxxxxxxx / IP00 Catalogue No. 20CCxxxNxxxxxxx)

POWERFLEX 700H 690V, IP20, WITH EMC FILTER

Typical motor rating		Catalogue number	Output Amps (ND)			Dimensions HxWxD (mm)	Weight kg	Frame
kW	A		Cont.	1 min.	2 s			
160	158	20CF170A0ANNBNAO	170	187	245	1150x480x362	143	9
200	198	20CF208A0ANNBNAO	208	230	289	1150x480x362	143	9
250	250	20CF261A0ANNBNAO ②	261	287	375	2275x600x600	370	10
315	315	20CF325A0ANNBNAO ②	325	358	470	2275x600x600	401	10
355	355	20CF385A0ANNBNAO ②	385	424	585	2275x600x600	401	10
400	400	20CF416A0ANNBNAO ②	416	458	585	2275x600x600	401	10
450	450	20CF460A0ANNBNAO ②	460	506	693	2275x800x600	561	11
500	500	20CF505A0ANNBNAO ②	502	552	828	2275x800x600	561	11
560	560	20CF590A0ANNBNAO ②	590	649	904	2275x800x600	590	11
630	630	20CF650A0ANNBNAO ②	650	715	1062	2275x1200x600	802	12
710	710	20CF750A0ANNBNAO ②	750	825	1170	2275x1200x600	802	12
800	800	20CF820A0ANNBNAO ②	820	902	1170	2275x1200x600	802	12

② Also available in IP54 and IP00 versions (IP54 Catalogue No. 20CFxxxHxxxxxxx / IP00 Catalogue No. 20CFxxxNxxxxxxx)

POWERFLEX 700H OPTIONS

Catalogue No.	Description
Human interface modules (HIM) & accessories	
20-HIM-A2	Human interface module, digital LCD
20-HIM-A3	Human interface module, full numeric LCD
20-HIM-A5	Human interface module, programming only LCD
20-HIM-B1	Human interface module, door mount bezel kit, IP20
20-HIM-C3S	Human interface module, full numeric LCD, IP66
20-HIM-C5S	Human interface module, programming only LCD, IP66
20-HIM-H10	Cable to allow remote use of HIM module 1 m
20-WIM-N1	Wireless interface module Bluetooth DPI, IP20
20-WIM-N4S	Wireless interface module Bluetooth DPI, IP66

In-built AC line reactors.

Available communication modules are shown on page 26.



- 0.75...800 kW @ 400V 3-phase, 45...1100 kW @ 690V 3-phase (400V, 480V and 600V 3-phase also available)
- V/Hz, Sensorless Vector and Field Orientated Control - utilising FORCE Technology for both induction and permanent magnet motor control
- Communication modules for a wide range of industrial automation networks
- Integrated position loop for simple indexing to electronic line shaft applications
- SynchLink for high speed data transfer and synchronisation
- Multiple motor feedback options
- Embedded DriveLogix controller option providing programmability with RSLogix 5000
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)
- Zero-Stacking (no spacing required between drives)

POWERFLEX 700S 400V, 3-PHASE, IP20, WITH EMC FILTER

Typical motor rating		Catalogue number	Output Amps (ND)			Dimensions HxWxD (mm)	Weight kg	Frame
kW	A		Cont.	1 min.	3 s			
0.75	2.1	20DC2P1A0EYNANANE ①	2.1	2.4	3.2	336x167x200	7.03	1
1.5	3.5	20DC3P5A0EYNANANE ①	3.5	4.5	6	336x167x200	7.03	1
2.2	5.0	20DC5P0A0EYNANANE ①	5	5.5	7.5	336x167x200	7.03	1
4	8.7	20DC8P7A0EYNANANE ①	8.7	9.9	13.2	336x167x200	7.03	1
5.5	11.5	20DC011A0EYNANANE ①	11.5	13	17.4	336x167x200	7.03	1
7.5	15.4	20DC015A0EYNANANE ①	15.4	17.2	23.1	336x167x200	7.03	1
11	22	20DC022A0EYNANANE ①	22	24.2	33	336x167x200	7.03	1
15	29	20DC030A0EYNANANE ①	30	33	45	343x254x200	12.5	2
18.5	34	20DC037A0EYNANANE ①	37	45	60	343x254x200	12.5	2
22	40	20DC043A0EYNANANE ①	43	55.5	74	518x254x200	18.6	3
30	53	20DC056A0EYNANANE ①	56	64.5	86	518x254x200	18.6	3
37	65	20DC072A0EYNANANE ①	72	84	112	518x254x200	18.6	3
45	78	20DC085A0EYNANANE ①②	85	94	128	759x252x202	24.5	4
55	98	20DC105A0EYNANANE ①②	105	116	158	645x340x276	37.2	5
75	132	20DC140A0EYNANANE ①②	140	154	190	645x340x276	37.2	5
90	158	20DC170A0EYNANANE ①②	170	187	255	976x436x276	71.4	6
110	184	20DC205A0EYNANANE ①②	205	220	300	976x436x276	71.4	6
132	235	20DC260A0EYNANANE ①②	260	286	390	976x436x276	71.4	6
160	276	20DC300A0EYBNBANE ①②	300	330	500	1150x480x362	151	9
200	345	20DC385A0ENBNBANE ①③	385	424	600	2275x600x600	432	10
250	440	20DC460A0ENBNBANE ①③	460	506	770	2275x600x600	432	10
280	493	20DC500A0ENBNBANE ①③	500	550	750	2275x600x600	432	10
315	550	20DC590A0ENBNBANE ①③	590	649	1040	2275x800x600	614	11
355	620	20DC650A0ENBNBANE ①③	650	715	1180	2275x800x600	614	11
400	700	20DC730A0ENBNBANE ①③	730	803	1095	2275x800x600	614	11
450	785	20DC820A0ENBNBANE ①③	820	902	1230	2275x1200x600	870	12
500	875	20DC920A0ENBNBANE ①③	920	1012	1380	2275x1200x600	870	12
560	990	20DC1K0A0ENBNBANE ①③	1030	1133	1555	2275x1200x600	870	12
630	1085	20DC1K1A0ENBNBANE ①③	1150	1265	1620	2275x1400x600	1348	13
710	1240	20DC1K3A0ENBNBANE ①③	1300	1430	2079	2275x1600x600	1400	13
800	1385	20DC1K4A0ENBNBANE ①③	1450	1595	2175	2275x1600x600	1400	13

POWERFLEX 700S 690V, 3-PHASE, IP20, WITH EMC FILTER

Typical motor rating		Catalogue number	Output Amps (ND)			Dimensions HxWxD (mm)	Weight kg	Frame
kW	A		Cont.	1 min.	3 s			
45	47	20DF052A0EYNANANE ①②	52	57	78	645x340x276	37.2	5
55	57	20DF060A0EYNANANE ①②	60	66	90	645x340x276	37.2	5
75	77	20DF082A0EYNANANE ①②	82	90	120	645x340x276	37.2	5
90	93	20DF098A0EYNANANE ①②	98	108	127	645x340x276	37.2	5
110	113	20DF119A0EYNANANE ①②	119	131	179	976x436x276	71.4	6
132	133	20DF142A0EYNANANE ①②	142	156	213	976x436x276	71.4	6
160	159	20DF170A0ENNBANANE ①	170	187	245	1150x480x362	151	9
200	200	20DF208A0ENNBANANE ①	208	230	289	1150x480x362	151	9
250	246	20DF261A0ENNBANANE ①③	261	287	375	2275x600x600	432	10
315	320	20DF325A0ENNBANANE ①③	325	358	470	2275x600x600	432	10
355	360	20DF385A0ENNBANANE ①③	385	424	585	2275x600x600	432	10
400	400	20DF416A0ENNBANANE ①③	416	258	585	2275x600x600	432	10
450	450	20DF460A0ENNBANANE ①③	460	506	693	2275x800x600	614	11
500	500	20DF502A0ENNBANANE ①③	502	552	828	2275x800x600	614	11
560	550	20DF590A0ENNBANANE ①③	590	649	904	2275x800x600	614	11
630	620	20DF650A0ENNBANANE ①③	650	715	1062	2275x1200x600	870	12
710	690	20DF750A0ENNBANANE ①③	750	825	1170	2275x1200x600	870	12
800	780	20DF820A0ENNBANANE ①③	820	902	1170	2275x1200x600	870	12
900	870	20DF920A0ENNBANANE ①③	920	1012	1476	2275x1400x600	1250	13
1000	970	20DF1K0A0ENNBANANE ①③	1030	1133	1656	2275x1600x600	1400	13
1100	1070	20DF1K1A0ENNBANANE ①③	1180	1298	1755	2275x1600x600	1400	13

- ① Also available with DriveLogix5730 (400V Catalogue No. 20DCxxxxxxxCNK / 690V Catalogue No. 20DFxxxxxxxCNK)
- ② Also available without brake chopper (Catalogue No. 20DCxxxxNxxxxx / Catalogue No. 20DFxxxxNxxxxx)
- ③ Also available in IP00 (400V Catalogue No. 20DCxxxNxxxxxxx / 690V Catalogue No. 20DFxxxNxxxxxxx)

POWERFLEX 700S OPTIONS

Catalogue No.	Description
Human interface modules (HIM) & accessories	
20-HIM-A2	Human interface module, digital LCD
20-HIM-A3	Human interface module, full numeric LCD
20-HIM-A5	Human interface module, programming only LCD
20-HIM-B1	Human interface module, door mount bezel kit, IP20
20-HIM-C3S	Human interface module, full numeric LCD, IP66
20-HIM-C5S	Human interface module, programming only LCD, IP66
20-HIM-H10	Cable to allow remote use of HIM module
20-WIM-N1	Wireless interface module Bluetooth DPI, IP20
20-WIM-N4S	Wireless interface module Bluetooth DPI, IP66
Internal dynamic brake resistors - 5% duty cycle	
20BD-DB1-0	Brake resistors kit, PowerFlex 700 Frame 0, 380-600V, 115 Ω
20BD-DB1-1	Brake resistors kit, PowerFlex 700 Frame 1, 380-600V, 115 Ω
20BD-DB1-2	Brake resistors kit, PowerFlex 700 Frame 2, 380-480V, 68 Ω
Other options	
20D-RES-A1	Feedback option card for resolver, 10-26V, 10kHz, 10-16 bit
20D-STEG-B1	Feedback option card for Stegmann, High Resol. Encoder, Hiperface, 8.5V DC, 20 bit, 100 k/r
20D-MDI-C1	Feedback option card Multi-device interface for Stegmann encoder or Temposonics linear sensor
20D-P2-ENCO	Feedback option card for 2nd incremental encoder, 5V or 12V configurable by the drive
20D-P2-DG01	DriveGuard Safe-off board with 2nd incremental encoder
20D-P2-SLBO	SynchLink option interface
20-24V-AUX1	Auxiliary power supply - 24V/300V DC (only for use with Frame 1...6)
20D-P2-CKE1	Upgrade kit: PowerFlex 700S phase II control
1403-CF001	2x1 m fibre link for power monitor/SynchLink
1403-CF003	2x3 m fibre link for power monitor/SynchLink
1403-CF005	2x51 m fibre link for power monitor/SynchLink
1403-CF010	10 m fibre link for power monitor/SynchLink
1403-CF020	20 m fibre link for power monitor/SynchLink
1403-CF050	50 m fibre link for power monitor/SynchLink
1403-CF100	100 m fibre link for power monitor/SynchLink
140-3CF250	250 m fibre link for power monitor/SynchLink
DriveLogix5730 accessories	
20D-DL2-CKE1	Upgrade kit: PowerFlex 700S DriveLogix 5730 phase II control
20D-DL2-ENETO	DriveLogix5730 embedded EtherNet/IP option
20D-DL2-LEBO	DriveLogix5730 expansion board for Compact Flash, Compact I/O, Daughter card (included when ordering Drive with catalogue number xxx(CNK))
20D-DL2-CL3 *	Compact I/O left bus cable (1 m)
20D-DL2-CR3 *	Compact I/O right bus cable (1 m)
1788-CNC *	Daughter card ControlNet, single coax media connector
1788-CNCR *	Daughter card DriveLogix ControlNet, redundant coax media connector
1788-CNF *	Daughter card DriveLogix ControlNet, single fibre optic connector
1788-CNFR *	Daughter card DriveLogix ControlNet, redundant fibre optic connector
1788-DNBO *	Daughter card DriveLogix DeviceNet
1788-ENBT *	Daughter card DriveLogix EtherNet/IP
HL-1788-DPS *	Daughter card DriveLogix ProfiBus slave
HL-1788-DPM *	Daughter card DriveLogix ProfiBus master
1784-CF64 *	Compact flash card

For detailed information on dynamic braking refer to publication: PFLEX-AT001... and external brake resistors on page 32.

For line reactors, circuit breakers and contactors please refer to page 28. Available communication modules are shown on page 26.

* Requires Logix expansion board (20D-DL2-LEBO)



- 370...715 kW @ 400V 3-phase, 355...657 kW @ 690V 3-phase (480V and 600V 3-phase also available)
- Control modes and functionality as PowerFlex 700 or 700S
- Typical configuration includes: Circuit breaker, L-C-L line filter, main contactor, active Front End (AFE) and inverter unit
- Cooling units such as heat exchangers and chillers are available as options
- Communication modules for a wide range of industrial automation networks
- SynchLink™ and DriveLogix functionality as PowerFlex 700S
- Active front end provides boosted DC-bus voltage for controlled motor voltage and power regeneration with harmonic mitigation
- Liquid-cooled power-stack allows compact drive size
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)

POWERFLEX 700L 400, 3-PHASE, WITH EMC FILTER

Typical motor rating		Catalogue number	Functionality	Output Amps (ND)			Dimensions HxWxD (mm)	Weight kg	Frame
kW	A			Cont.	1 min.	3 s			
370	650	Contact local representative for details	Available in PowerFlex 700 and PowerFlex 700S variants	650	715	975	1200x2200x600	950	3A
715	1250			1250	1375	1875	2400x2200x600	1420	3B

POWERFLEX 700L 690V, 3-PHASE, WITH EMC FILTER

Typical motor rating		Catalogue number	Functionality	Output Amps (ND)			Dimensions HxWxD (mm)	Weight kg	Frame
kW	A			Cont.	1 min.	3 s			
355	380	Contact local representative for details	Available in PowerFlex 700 and PowerFlex 700S variants	380	420	570	1200x2200x600	950	3A
657	705			705	780	1060	2400x2200x600	1420	3B

Note: Tables above are for REFERENCE ONLY. Please contact your local Global Drive Systems representative to discuss your requirements



Contact your local Medium Voltage specialist to discuss your requirements

PowerFlex 7000 medium voltage drives can use Direct-to-Drive technology to eliminate the need for transformers while still mitigating harmonics and common-mode voltage. Transformerless drives save 30-50% of a drive system's size and 50-70% of the system's weight. They also save as capital, installation and maintenance costs – all using standard motor and cable insulation.

POWERFLEX 7000 FRAME A



- Low end power range, 150-930 kW
- 2400 to 6600V nominal supply voltage ratings
- Air cooling
- Compact packaging for smallest footprint requirements
- Three input configurations for optimum installation flexibility:
 - 1) Base drive with provision for connecting to indoor or outdoor transformer
 - 2) Base drive with integral isolation transformer
 - 3) Base drive with integral line reactor and input starter
- Normal duty service rating
(for variable torque loads, 110% overload for 1 minute every 10 minutes)
- Heavy duty service rating
(for constant torque loads, 150% overload for 1 minute every 10 minutes)
- Two rectifier types:
 - 1) PWM rectifier (active front end) for low line harmonics, high power factor and commonality of parts
 - 2) Basic 6 pulse rectifier for the lowest cost solution
- Three cables in / three cables out for lower installation costs

POWERFLEX 7000 FRAME B



- Low and Medium power range, 150-4100 kW
- 2400 to 6600V nominal supply voltage ratings
- Air cooling
- Small footprint for medium power range
- Normal duty service rating
(for variable torque loads, 110% overload for 1 minute every 10 minutes)
- Heavy duty service rating
(for constant torque loads, 150% overload for 1 minute every 10 minutes)
- Three rectifier types:
 - 1) PWM rectifier (active front end) for low line harmonics, high power factor and commonality of parts
 - 2) 18 Pulse rectifier for low line harmonics and connection to a high voltage distribution system
 - 3) Basic 6 pulse rectifier for the lowest cost solution
- Three cables in / three cables out (6 pulse and PWM rectifier)
- Nine cables in / three cables out (18 pulse rectifier)

POWERFLEX 7000 FRAME C



- High end power range, 1300-6770 kW
(Parallel drive option with up to 4 drives for 25 MW)
- 2400 to 6600V nominal supply voltage ratings
- Closed loop liquid cooling system with liquid to air or liquid to liquid style heat exchangers
- Small integrated package for high end power range
- Normal duty service rating
(for variable torque loads, 110% overload for 1 minute every 10 minutes)
- Heavy duty service rating
(for constant torque loads, 150% overload for 1 minute every 10 minutes)
- Two rectifier types:
 - 1) PWM rectifier (active front end) for low line harmonics, high power factor and commonality of parts
 - 2) 18 Pulse rectifier for low line harmonics and connection to a high voltage distribution system
- Three cables in / three cables out (6 pulse and PWM rectifier)
- Nine cables in / three cables out (18 pulse rectifier)



- Human Interface Modules (HIM) for local drive configuration and/or operation, incorporate start-up procedures and parameter backup (copycat)
- DriveExplorer – entry level software with wizards for online parameter editing and backup
- DriveTools SP – Software suite for demanding user requirements, on-line or off-line operation via RSLinx. Comprises:
 - DriveExecutive – for parameter configuration, up/download and diagnostics.
 - DriveObserver – scope tool for charting multiple drive parameters over time.
- Extensive range of communication modules

POWERFLEX HUMAN INTERFACE MODULES (HIM)

Catalogue No.	Description
PowerFlex 4, 40, 40P, 400 HIM's	
22-HIM-A3	LCD display with full keypad
22-HIM-C2	Remote panel mount HIM with full keypad and IP66 protection
22-WIM-N1	Wireless Interface Module Bluetooth DSI, IP20
22-WIM-N4S	Wireless Interface Module Bluetooth DSI, IP66
PowerFlex 70, 700, 700H, 700S, 700L, 7000 HIM's	
20-HIM-A2	LCD display with digital keypad
20-HIM-A3	LCD with full keypad
20-HIM-A5	LCD programmer
20-HIM-C3S	Remote panel mount HIM with full keypad and IP66 protection
20-HIM-C5S	Remote panel mount programmer only with IP66 protection
20-HIM-B1	Door mount bezel for LCD displays
20-WIM-N1	Wireless Interface Module Bluetooth DPI, IP20
20-WIM-N4S	Wireless Interface Module Bluetooth DPI, IP66

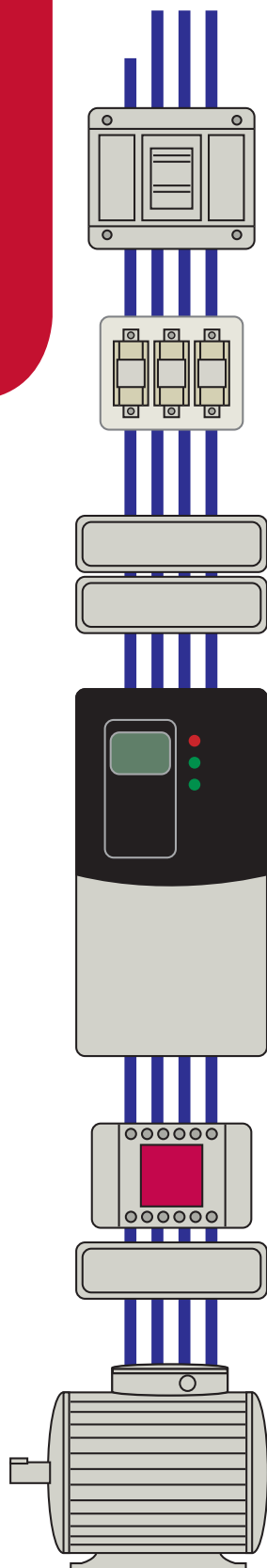
POWERFLEX PROGRAMMING SOFTWARE

Catalogue No.	Description
PowerFlex programming software	
9306-4EXP02ENE	DriveExplorer version 5.x
9306-4PXP01ENE	PocketDrive Explorer
9303-4DTE01ENE	DriveExecutive version 4.x
9303-4DTS01ENE	DriveTools SP suite - includes DriveExecutive and DriveObserver

POWERFLEX COMMUNICATION MODULES

Catalogue No.	Description
PowerFlex 40, 40P, 400	
22-COMM-E	EtherNet/IP communication module
22-COMM-C	ControlNet Coax communications module
22-COMM-D	DeviceNet communications module
22-COMM-P	Profibus DP communication module
22-COMM-L	LonWorks communication module
22-COMM-B	BacNet communication module
22B-CCB	Communications cover (required when adding communication modules to PowerFlex 40/40P Frame B)
22B-CCC	Communications cover (required when adding communication modules to PowerFlex 40/40P Frame C)
22-XCOMM-DC-BASE	External communications power bases
1203-USB	USB to DPI/DSI converter kit (PC to Drive communication, including cables and DriveExplorer Lite)
AK-U0-RJ45-SC1	RJ45 one to two port splitter cable
AK-U0-RJ45-TR1	RJ45 120 OHM terminator resistors (2 pieces)
AK-U0-RJ45-TB2P	RJ45 two positions terminal block
1769-SM 2	Compact Logix to DSI interface
PowerFlex 70, 700, 700H, 700S, 700L, 7000	
20-COMM-E	EtherNet/IP communication module
20-COMM-C	ControlNet Coax communications module
20-COMM-Q	ControlNet Fibre communications module
20-COMM-D	DeviceNet communications module
20-COMM-P	Profibus DP communication module
20-COMM-H	HVAC communication module with 3 selectable protocols for Modbus RTU, Johnson Controls Metasys N2, Siemens Building Technologies P1
20-COMM-I	InterBus communication module
20-COMM-L	LonWorks communication module
20-COMM-R	Remote I/O communications module
20-COMM-S	Serial communication module RS485 DF1
20-COMM-K	CANopen communications module
20-COMM-B	BacNet communication module
20-XCOMM-DC-BASE	External communications power bases
20-XCOMM-AC-PS1	AC to DC power converter plug for XCOMM-DC
20-XCOMM-IO-OPT1	I/O option for 20-XCOMM
1203-USB	USB to DPI/DSI converter kit (PC to Drive communication, including cables and DriveExplorer Lite)
1769-SM 1	Compact Logix to DPI interface

Typical drive application



AC supply source

Input line reactor recommended when line voltage imbalances are greater than 2%

Input fusing and circuit breakers

See listings in appendix A of the product user manuals. Recommended circuit breakers are listed on page 29.

Line reactor

Needs to be applied if:
 a) Installation site has switched power factor correction capacitors.
 b) Installation site has power interruptions or voltage dips.
 c) The transformer is too large in comparison to the drive (refer to publication: DRIVES-IN001...).

Input filter

PowerFlex 4 Class drives: External EMC filter required for guaranteed EMC compliance (refer to product sections in this document).
 PowerFlex 7 Class drives: External EMC filter only required with long motor cables and/or domestic installations (refer to External EMC filters on page 30).

AC drive

Normal duty (ND) rating: 110% overload for 1 minute and 150% overload for 3 seconds. No excessive starting overload, transient overload or high duty cycle. The majority of typical AC drive applications are ND.

Heavy duty (HD) rating: 150% overload for 1 minute and 200% overload for 3 seconds. Required for high starting torque (eg: heavily loaded conveyors), high brake-away torque (eg: extruders and mixers) and high running torque (eg: reciprocating compressors).







Output device or cable termination

Required if motor cable lengths exceed stated values (refer to publication: DRIVES-IN001...).

AC motor

Needs to be designed for PWM control.

POWERFLEX APPLICATION EXAMPLES

Application	Typical requirements	Primary offering
	<ul style="list-style-type: none"> • Single motor 37 kW • Building installation • Local operator station • Remote diagnostics 	PowerFlex 70 (ND) IP66 Remote HIM Ethernet/IP adaptor
	<ul style="list-style-type: none"> • Single motor 7.5 kW • Simple network • Space restrictions 	PowerFlex 40 (ND) Integral Modbus RTU Small footprint Alternative: PowerFlex 700
	<ul style="list-style-type: none"> • Existing motors 132 kW • Inclination • Start under heavy load 	Primary offering: PowerFlex 700H 300 A (ND) / 245 A (HD) Ask for motor cable length!
	<ul style="list-style-type: none"> • Multiple motors 2.2 kW • Safe stand-still • Existing DeviceNet 	PowerFlex 40P DriveGuard™ option DeviceNet interface Alternative: PowerFlex 70
	<ul style="list-style-type: none"> • Single motor 15 kW • Existing Profibus network • On-machine solution 	PowerFlex 70 IP66 version 37 A (ND) / 30 A (HD) Profibus adaptor
	<ul style="list-style-type: none"> • Single gear motor 4 kW • Position indexing • Rugged feedback device 	PowerFlex 700 (HD) Encoder feedback card Integral dynamic brake Brake resistor required
	<ul style="list-style-type: none"> • Multiple motors 0.75..4 kW • Braking capability 	PowerFlex 4 Brake version! Simple, economic product Brake resistors required



- Line reactor (typically 3%) needs to be applied if:
 - a) Installation site has switched power factor correction capacitors.
 - b) Installation site has power interruptions or voltage dips.
 - c) The transformer is too large in comparison to the drive (refer to publication: DRIVES-IN001...).
 - Circuit breakers and input contactors.
- Further information on ratings can be found in PowerFlex User Manuals.

Note: Recommended Circuit Breakers and Contactors in the following tables are based on IEC standards and therefore may differ to user manuals where UL standards may be referenced.

POWERFLEX INPUT & OUTPUT LINE REACTORS

Typical motor rating		PowerFlex 4	PowerFlex 40 & 40P	PowerFlex 400	PowerFlex 70	PowerFlex 700	PowerFlex 700S	Line choke 3% impedance
kW	A							
240V 3-phase								
0.25	1.3	22A-B1P5...						1321-3R2-A
0.37	1.9	22A-B2P3...	22B-B2P3...					1321-3R4-D
0.75	3.3	22A-B4P5...	22B-B5P0...					1321-3R8-B
1.5	6.1	22A-B8P0...	22B-B8P0...					1321-3R8-A
2.2	8.9	22A-B012...	22B-B012...	22C-B012...				1321-3R12-A
4	15.3	22A-B017...	22B-B017...	22C-B017...				1321-3R18-A
5.5	21.0		22B-B024...	22C-B024...				1321-3R25-A
7.5	28.0		22B-B033...	22C-B033...				1321-3R35-A
400V 3-phase								
0.37	1.1	22A-D1P7...	22B-D1P4...		20AC1P3...			1321-3R2-B
0.75	1.9	22A-D2P3...	22B-D2P3...		20AC2P1...	20BC2P1...	20DC2P1...	1321-3R2-B
1.5	3.5	22A-D4P0...	22B-D4P0...		20AC3P5...	20BC3P5...	20DC3P5...	1321-3R4-B
2.2	5.0	22A-D6P0...	22B-D6P0...	22C-D6P0...	20AC5P0...	20BC5P0...	20DC5P0...	1321-3R4-B
4	8.4	22A-D8P7...	22B-D010...	22C-D010...	20AC8P7...	20BC8P7...	20DC8P7...	1321-3R8-B
5.5	11.4		22B-D012...	22C-D012...	20AC011...	20BC011...	20DC011...	1321-3R12-B
7.5	15.0		22B-D017...	22C-D017...	20AC015...	20BC015...	20DC015...	1321-3R18-B
11	22.0		22B-D024...	22C-D022...	20AC022...	20BC022...	20DC022...	1321-3R25-B
15	29.0			22C-D030...	20AC030...	20BC030...	20DC030...	1321-3R35-B
18.5	34.0			22C-D038...	20AC037...	20BC037...	20DC037...	1321-3R45-B
22	40.0			22C-D045...	20AC043...	20BC040...	20DC040...	1321-3R45-B
30	53.0			22C-D060...	20AC060...	20BC056...	20DC056...	1321-3R80-B
37	65.0			22C-D072...	20AC072...	20BC072...	20DC072...	1321-3R80-B
45	75.0			22C-D088...		20BC085...	20DC085...	1321-3R100-B
55	98.0			22C-D105...		20BC105...	20DC105...	1321-3R130-B
75	132.0			22C-D142...		20BC140...	20DC140...	1321-3R160-B
90	158.0			22C-D170...		20BC170...	20DC170...	1321-3R160-B
110	184.0			22C-D208...		20BC205...	20DC205...	1321-3R200-B
132	235.0					20BC260...	20DC260...	1321-3RB320-B

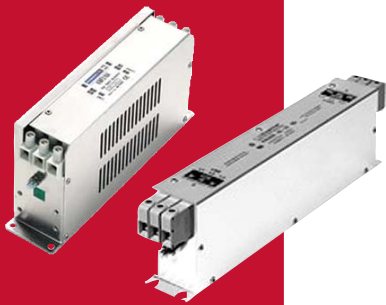
POWERFLEX CIRCUIT BREAKERS & INPUT CONTACTORS

Typical motor rating		PowerFlex 4		PowerFlex 40/40P			
kW	A	Circuit breaker	Contactora	Circuit breaker	Contactora		
230V single phase							
0.25	1.3	140M-C2E-B40	100-C09	140M-C2E-B40	100-C09		
0.37	1.9	140M-C2E-B63	100-C09	140M-C2E-B63	100-C09		
0.75	3.3	140M-C2E-C16	100-C12	140M-C2E-C16	100-C12		
1.5	6.1	140M-D8E-C20	100-C23	140M-D8E-C20	100-C23		
400V 3-phase							
0.37	1.1	140M-C2E-B25	100-C09	140M-C2E-B25	100-C09		
0.75	1.9	140M-C2E-B40	100-C09	140M-C2E-B40	100-C09		
1.5	3.5	140M-C2E-B63	100-C09	140M-C2E-B63	100-C09		
2.2	5.0	140M-C2E-C10	100-C09	140M-C2E-C10	100-C09		
4.0	8.4	140M-C2E-C16	100-C16	140M-C2E-C16	100-C23		
5.5	11.4			140M-D8E-C20	100-C23		
7.5	15.0			140M-D8E-C20	100-C23		
11	22.0			140M-F8E-C32	100-C30		

Typical motor rating		PowerFlex 400		PowerFlex 70		PowerFlex 700/700S	
kW	A	Circuit breaker	Contactora	Circuit breaker	Contactora	Circuit breaker	Contactora
400V 3-phase							
0.37	1.1			140M-C2E-B25	100-C09		
0.75	1.9			140M-C2E-B40	100-C09	140M-C2E-B40	100-C09
1.5	3.5			140M-C2E-B63	100-C09	140M-C2E-B40	100-C09
2.2	5.0	140M-C2E-C10	100-C09	140M-C2E-C10	100-C09	140M-C2E-B63	100-C09
4	8.4	140M-C2E-C16	100-C16	140M-C2E-C16	100-C16	140M-C2E-C10	100-C10
5.5	11.4	140M-C2E-C16	100-C23	140M-C2E-C16	100-C16	140M-C2E-C16	100-C16
7.5	15.0	140M-D8E-C20	100-C23	140M-D8E-C20	100-C23	140M-D8E-C20	100-C23
11	22.0	140M-F8E-C32	100-C30	140M-F8E-C32	100-C30	140M-F8E-C32	100-C30
15	29.0	140M-F8E-C32	100-C37	140M-F8E-C45	100-C37	140M-F8E-C45	100-C37
18.5	34.0	140M-F8E-C45	100-C60	140M-F8E-C45	100-C43	140M-F8E-C45	100-C43
22	40.0	140-CMN-6300	100-C60	140M-F8E-C45	100-C43	140M-F8E-C45	100-C43
30	53.0	140-CMN-9000	100-C85	140M-CMN-6300	100-C60	140-CMN-6300	100-C60
37	65.0	140M-CMN-9000	100-C85	140-CMN-9000	100-C72	140M-CMN-9000	100-C72
45	78.0		100-D110			140-CMN-9000	100-C85
55	98.0		100-D140			140M-K5F-D12	100-D110
75	132.0		100-D180			140M-K5F-D16	100-D140
90	158.0		100-D250			140M-M5F-D20	100-D180
110	194.0		100-D250			140M-M5F-D25	100-D250
132	235.0					140M-P5F-D32	100-D250

- The 140M provides Type 2 coordination between the circuit breaker and contactor at 50 kA
- 100 – C coil connections can be top or bottom position on contactor
- 140M circuit breaker has a «trip position» incorporated within the handle
- For higher kW ratings please refer to the user manuals.

EXTERNAL EMC FILTERS



- PowerFlex 7 Class AC drives meet the requirements of EN 61800-3 for industrial installations up to 30 m screened motor cable (PowerFlex 70 EC up to 40 m).
- For longer motor cables or installations on public distribution networks, external EMC filters need to be installed according to the following tables.
- The drives must be installed and grounded as outlined in the Installation Manual (publication: DRIVES-IN001...).

MAXIMUM MOTOR CABLE LENGTH EN61800-3

	Frame	Comment	Schaffner filter FN3258		Deliron filter KMF-A	
			Restricted distrib.	Unrestricted distrib.	Restricted distrib.	Unrestricted distrib.
PowerFlex 70	A		50 m	50 m	25 m	25 m
	B	Without filter	100 m	50 m	50 m	25 m
	B	With filter	100 m	100 m	100 m	50 m
	C		150 m	150 m	150 m	150 m
	D				150 m	5 m
	D	W/o (JP3A-B)*	150 m	150 m	50 m	50 m
PowerFlex 700/700S	0		150 m	150 m	100 m	100 m
	1		150 m	150 m	150 m	150 m
	2		50 m	50 m	150 m	150 m
	2	W/o (JP PEA)*	150 m	150 m	150 m	150 m
	3		100 m	100 m	150 m	100 m
	3	W/o (JP PEA)*	150 m	150 m	150 m	100 m
	4		150 m	150 m	N/A	N/A
	5		150 m	150 m	N/A	N/A
	6		150 m	50 m	N/A	N/A

* Jumper for disconnecting the common mode capacitor (open jumper).
Use of these filters assumes that the drive is mounted in an EMC enclosure.

IEC 61800-3 defines sale or distribution to two levels of customer competence:

"Unrestricted distribution is a mode of sales distribution in which the supply of equipment is not dependent on the EMC competence of the customer or user for the application of drives."

"Restricted distribution is a mode of sales distribution in which the manufacturer restricts the supply of equipment to suppliers, customers or users who separately or jointly have technical competence in the EMC requirements of the application of drives."

EMC FILTERS SCHAFFNER & DELTRON

PowerFlex 70				Schaffner filters FN 3258			Deltron filters KMF-A		
Frame	Power kW	Current A	Catalogue number	Article	Current @ 50°C	Dimensions HxWxD (mm)	Article	Current @ 50°C	Dimensions HxWxD (mm)
A/B	0.37	1.3	20AC1P3...	FN3258-7/45	7	190x40x70	KMF306A	5.4	179x45x79
A/B	0.75	2.1	20AC2P1...	FN3258-7/45	7	190x40x70	KMF306A	5.4	179x45x79
A/B	1.5	3.5	20AC3P5...	FN3258-7/45	7	190x40x70	KMF306A	5.4	179x45x79
B	2.2	5	20AC5P0...	FN3258-7/45	7	190x40x70	KMF306A	5.4	179x45x79
B	4	8.7	20AC8P7...	FN3258-16/45	16	250x45x70	KMF310A	9	179x45x79
C	5.5	11	20AC011...	FN3258-16/45	16	250x45x70	KMF318A	16.1	229x88x114
C	7.5	15	20AC015...	FN3258-16/45	16	250x45x70	KMF318A	16.1	229x88x114
D	11	22	20AC022...	FN3258-30/47	30	270x50x85	KMF325A	22.4	229x88x114
D	15	30	20AC030...	FN3258-30/47	30	270x50x85	KMF336A	32.2	272x74x161
D	18.5	37	20AC037...	FN3258-42/47	42	310x50x85	KMF350A	44.8	312x93x190
D	22	43	20AC043...	FN3258-55/52	55	250x85x90	KMF350A	44.5	312x93x190

PowerFlex 700				Schaffner filters FN 3258			Deltron filters KMF-A		
Frame	Power kW	Current A	Catalogue number	Article	Current @ 50°C	Dimensions HxWxD (mm)	Article	Current @ 50°C	Dimensions HxWxD (mm)
0	0.75	2.1	20BC2P1...	FN3258-7/45	7	190x40x70	KMF306A	5.4	179x45x79
0	1.5	3.5	20BC3P5...	FN3258-7/45	7	190x40x70	KMF306A	5.4	179x45x79
0	2.2	5	20BC5P0...	FN3258-7/45	7	190x40x70	KMF306A	5.4	179x45x79
0	4	8.7	20BC8P7...	FN3258-16/45	16	250x45x70	KMF310A	9	179x45x79
0	5.5	11	20BC011...	FN3258-16/45	16	250x45x70	KMF318A	16.1	229x55x114
1	7.5	15	20BC015...	FN3258-16/45	16	250x45x70	KMF318A	16.1	229x55x114
1	11	22	20BC022...	FN3258-30/47	30	270x50x85	KMF325A	22.4	229x55x114
2	15	30	20BC030...	FN3258-30/47	30	270x50x85	KMF336A	32.2	272x74x161
2	18.5	37	20BC037...	FN3258-42/47	42	310x50x85	KMF350A	44.8	312x93x190
3	22	43	20BC043...	FN3258-55/52	55	250x85x90	KMF350A	44.8	312x93x190
3	30	56	20BC056...	FN3258-75/52	75	270x80x135	KMF370A	62.7	312x93x190
3	37	72	20BC072...	FN3258-75/52	75	270x80x135	KMF3100A	84.1	312x126x224
4	45	85	20BC085...	FN3258-100/35	100	270x90x150	KMF3100A	84.1	312x126x224
5	55	105	20BC105...	FN3258-130/35	130	270x90x150	KMF3150A	126	312x126x224
5	75	140	20BC140...	FN3258-180/40	180	380x120x170			
6	90	170	20BC170...	FN3258-180/40	180	380x120x170			
6	110	205	20BC205...	FN258-250/40	250	478x440x240			
6	132	260	20BC260...	FN258-250/40	280 ①	478x440x240			

- ① At 40°C ambient temperature
- The filters also have a 40°C rating. In some cases it will be possible to select a smaller filter.
- All filters are cUL listed
- For Frame 9 and above for PowerFlex 700H and 700S filters please use recommended Schaffner FN 3359 with relevant Amps ratings.
- Additional information: www.deltron-emcon.com | www.schaffner.com

- External brake resistors are required to increase the braking capability of a drive
- Use the following tables to verify that the resistance of a selected brake resistor is greater than the minimum value stated in the table below.

POWERFLEX MINIMUM BRAKE RESISTORS

Drive rating Normal duty (ND)	Motor kW	Minimum resistance Ω				
		PF4	PF40/40P	PF400	PF70	PF700/S
400...480V, 0.37 kW	0.37				68	
400...480V, 0.75 kW	0.75	121	97		68	71
400...480V, 1.5 kW	1.5	121	97		68	69
400...480V, 2.2 kW	2.2	97	97	97	68	69
400...480V, 4 kW	4	97	77	77	68	69
400...480V, 5.5 kW	5.5		55	55	74	70
400...480V, 7.5 kW	7.5		39	39	74	72
400...480V, 11 kW	11		24	24	44	45
400...480V, 15 kW	15				31	44
400...480V, 18.5 kW	18.5				31	31
400...480V, 22 kW	22				31	22
400...480V, 30 kW	30				19	18
400...480V, 37 kW	37				19	19
400...480V, 45 kW	45					20
400...480V, 55 kW	55					10.4
400...480V, 75 kW	75					10.1
400...480V, 90 kW	90					5.4
400...480V, 110 kW	110					4.8
400...480V, 132 kW	132					4.8
400...480V, 160 kW	160					3.25

FRIZLEN RESISTORS

Catalogue number	Dynamic brake resistor specification	Dimensions HxWxD (mm)	Weight kg
FZG 600x65-82	380...480V, 82 Ω , 1 kW, IP20	686x92x120	3.4
FZZG 600x65-82	380...480V, 82 Ω , 2 kW, IP20	686x185x120	6.2
FZGQ 600x65-82	380...480V, 82 Ω , 1 kW, Klixon, IP20	686x92x120	3.4
FZZGQ 600x65-82	380...480V, 82 Ω , 2 kW, Klixon, IP20	686x185x120	6.2
FZDQG 600x65-47	380...480V, 47 Ω , 3 kW, Klixon, IP20	686x185x120	6.2
FGFLQ3100904-35	380...480V, 35 Ω , 4.5 kW, Klixon, IP20	490x330x270	9.5
FGFLQ3121604-32	380...480V, 32 Ω , 8 kW, Klixon, IP20	490x655x270	18
FGFLQ3122004-27	380...480V, 27 Ω , 10 kW, Klixon, IP20	490x655x270	20
FGFLQ3122404-20	380...480V, 20 Ω , 12 kW, Klixon, IP20	490x655x270	22
FGFLQ3133004-11	380...480V, 11 Ω , 15 kW, Klixon, IP20	490x855x270	31
FGFLQ3143604-10	380...480V, 10 Ω , 18 kW, Klixon, IP20	490x1055x270	40
FGFLQ3144404-5-3	380...480V, 5.3 Ω , 22 kW, Klixon, IP20	490x1055x270	44

Duty cycle	100%	50%	25%	15%	3%
Overload factor	1	1.8	3	4	12

- kW listed above are for 100% duty cycle. For lower duty cycles use following factors in table above.
- FZxxx = wire wound resistor; FGFxxx = steel grid resistor
- UL listed versions are also available
- Additional information: www.fritzlen.com

EXTERNAL BRAKE RESISTORS MEDIUM DUTY

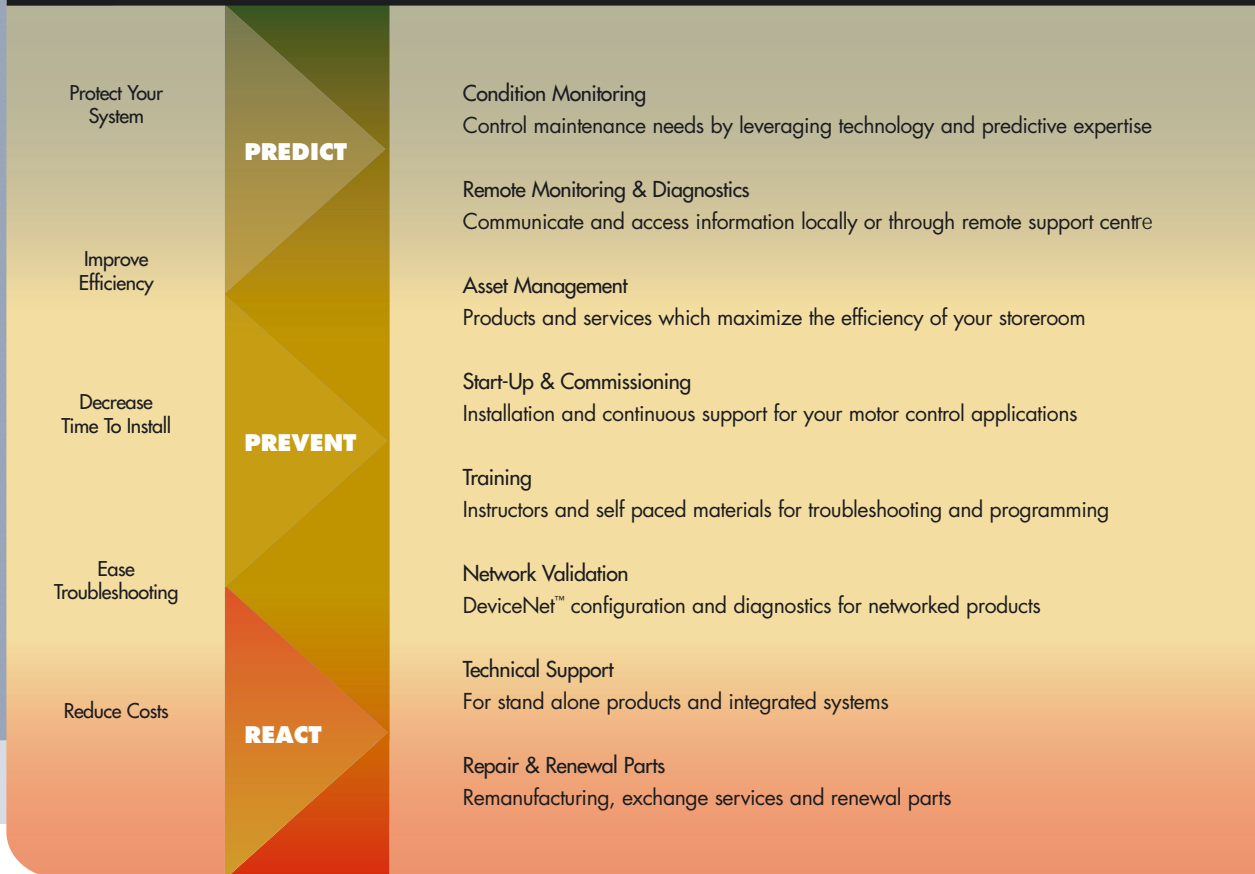
Drive & motor size kW	Catalogue number	Resistance Ω at 5%	Continuous power kW	Energy kJ Max.	Braking torque % of motor Max.	Application Type 1		Application Type 2	
						Braking torque % of motor	Duty cycle %	Braking torque % of motor	Duty cycle %
230V AC Input Drives									
0.37	AK-R2-091P500	91	0.086	17	293%	100%	46%	150%	31%
0.75	AK-R2-091P500	91	0.086	17	218%	100%	23%	150%	15%
1.5	AK-R2-091P500	91	0.086	17	109%	100%	11%	109%	11%
2.2	AK-R2-047P500	47	0.166	33	144%	100%	15%	144%	11%
4	AK-R2-047P500	47	0.166	33	79%	79%	11%	N/A	N/A
5.5	AK-R2-030P1K2	30	0.26	52	90%	90%	10%	N/A	N/A
7.5	AK-R2-030P1K2	30	0.26	52	66%	66%	10%	N/A	N/A
11	See Note *	15	0.52	104	90%	90%	10%	N/A	N/A
15	See Note *	15	0.52	104	66%	66%	10%	N/A	N/A
400V AC Input Drives									
0.37	AK-R2-360P500	360	0.086	17	305%	100%	47%	150%	31%
0.75	AK-R2-360P500	360	0.086	17	220%	100%	23%	150%	15%
1.5	AK-R2-360P500	360	0.086	17	110%	100%	12%	110%	11%
2.2	AK-R2-120P1K2	120	0.26	52	197%	100%	24%	150%	16%
4	AK-R2-120P1K2	120	0.26	52	124	100%	13%	124%	10%
5.5	AK-R2-120P1K2	120	0.26	52	90%	90%	10%	N/A	N/A
7.5	AK-R2-120P1K2	120	0.26	52	66%	66%	10%	N/A	N/A
11	See Note *	60	0.52	104	90%	90%	10%	N/A	N/A
15	See Note *	60	0.52	104	66	66%	10%	N/A	N/A
600V AC Input Drives									
0.37	AK-R2-360P500	360	0.086	17	274	100%	46	150	31
0.75	AK-R2-360P500	360	0.086	17	251	100%	23	150	15
1.5	AK-R2-360P500	360	0.086	17	172	100%	11	150	8
2.2	AK-R2-120P1K2	120	0.26	52	193	100%	24	150	16
4	AK-R2-120P1K2	120	0.26	52	185	100%	13	150	9
5.5	AK-R2-120P1K2	120	0.26	52	141	100%	9	141	7
7.5	AK-R2-120P1K2	120	0.26	52	103	100%	7	103	7
11	See Note *	60	0.52	104	141	100%	9	141	7
15	See Note *	60	0.52	104	103	100%	7	103	7

Catalogue number	Description
AK-R2-091P500	Dynamic brake resistor, 200...480V, 91 Ω , 86 W
AK-R2-047P500	Dynamic brake resistor, 200...480V, 47 Ω , 166 W
AK-R2-360P500	Dynamic brake resistor, 200...480V, 360 Ω , 86 W
AK-R2-030P1K2	Dynamic brake resistor, 200...480V, 30 Ω , 260 W
AK-R2-120P1K2	Dynamic brake resistor, 200...480V, 120 Ω , 260 W

- Duty cycle listed is based on full speed to zero speed deceleration. For constant regeneration at full speed, duty cycle capability is half of what is listed. Application Type 1 represents maximum capability up to 100% braking torque where possible. Application Type 2 represents more than 100% braking torque where possible, up to maximum of 150%.
- The resistors are CE and cUL certified
- * For 11 and 15 kW normal duty external resistor applications, use two 7.5 kW size resistors wired in parallel.

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Publication PFLEX-SG101E-EN-P — September 2006
Replaces publication: PFLEX-SG101D-EN-P

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