

PowerFlex 523 AC Drive

PowerFlex 523 AC drives are designed to help reduce installation and configuration time with an innovative modular design while providing just enough control for your application. These drives offer convenient programming features with the fast upload and download of configuration files over a standard USB connection, as well as installation flexibility with Zero Stacking and a high ambient operating temperature. PowerFlex 523 AC drives also provide a variety of motor control options, making these drives ideal for simple applications.

PowerFlex 523 AC Drive at a glance

Ratings

100...120V:	0.2...1.1 kW / 0.25...1.5 Hp / 1.6...6 A
200...240V:	0.2...1.5 kW / 0.25...2.0 Hp / 1.6...6.2 A
380...480V:	0.4...2.2 kW / 0.5...3.0 Hp / 1.4...4.3 A
525...600V:	0.4...2.2 kW / 0.5...3.0 Hp / 0.9...3.2 A

Motor Control

- V/Hz Control
- Sensorless Vector Control

Enclosures

- IP20, NEMA/UL Type Open
- IP30, NEMA/UL Type 1 (with optional kit)

Additional Features

- Modular design eases installation
- Operating temperatures from -20 °C (-4 °F) up to 50 °C (122 °F). Up to 70 °C (158 °F) with current derating and optional control module fan kit
- LCD HIM with multi-language support
- MainsFree™ Programming via USB
- Configure using Connected Components Workbench Software
- Add-on Profiles for Studio 5000™ Logix Designer Software
- Automatic Device Configuration ★
- Economizer motor control for energy savings
- Application specific parameter groups
- Option for dual port EtherNet/IP adapter which supports DLR functionality. DeviceNet and PROFIBUS DP adapters also available.
- Conformal coating to IEC 60721 3C2 standards

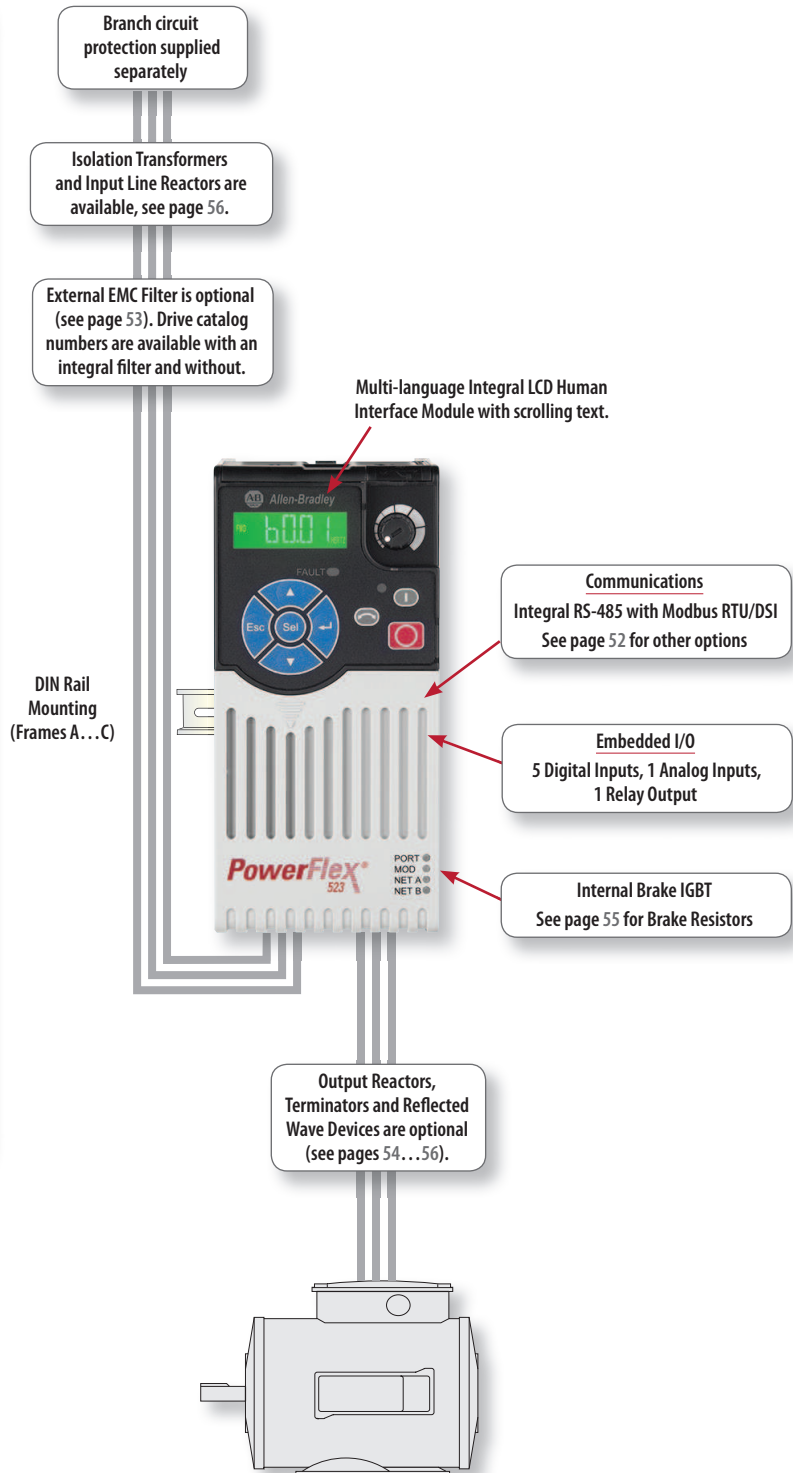
Certifications

- ACS 156
- C-Tick
- c-UL, UL
- CE
- GOST-R
- KCC
- REACH
- RoHS
- SEMI F47

Options

See pages 52...56

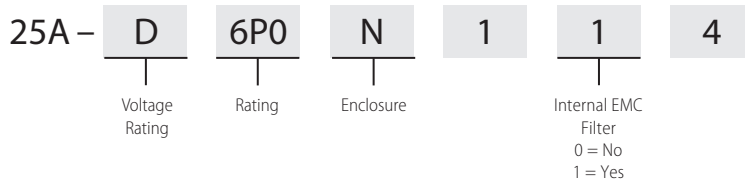
★ Requires Dual-port EtherNet/IP Option Module (Cat. No. 25-COMM-E2P).



Additional Information

PowerFlex 520-Series Technical Data, publication 520-TD001
PowerFlex 520-Series User Manual, publication 520-UM001

Catalog Number Explanation



Product Selection

100...120V AC, Single-Phase Input, Three-Phase Output Drives, 50/60 Hz

Drive Ratings					Frame Size	No Filter	with Integral EMC Filter
Normal Duty		Heavy Duty		Output Current		Cat. No.	Cat. No.
kW	Hp	kW	Hp	A			
0.2	0.25	0.2	0.25	1.6	A	25A-V1P6N104	–
0.4	0.5	0.4	0.5	2.5	A	25A-V2P5N104	–
0.75	1	0.75	1	4.8	B	25A-V4P8N104	–
1.1	1.5	1.1	1.5	6	B	25A-V6P0N104	–

200...240V AC, Single-Phase Input, Three-Phase Output Drives, 50/60 Hz

Drive Ratings					Frame Size	No Filter	with Integral EMC Filter ‡
Normal Duty		Heavy Duty		Output Current		Cat. No.	Cat. No.
kW	Hp	kW	Hp	A			
0.2	0.25	0.2	0.25	1.6	A	25A-A1P6N104	25A-A1P6N114
0.4	0.5	0.4	0.5	2.5	A	25A-A2P5N104	25A-A2P5N114
0.75	1	0.75	1	4.8	A	25A-A4P8N104	25A-A4P8N114
1.5	2	1.5	2	8	B	25A-A8P0N104	25A-A8P0N114
2.2	3	2.2	3	11	B	25A-A011N104	25A-A011N114

‡ This filter is suitable for use with cable lengths up to 10 meters (32.8 feet) for C2 spec and 20 meters (65.6 feet) for C3 spec.

200...240V AC, Three-Phase, 50/60 Hz

Drive Ratings					Frame Size	No Filter	with Integral EMC Filter
Normal Duty		Heavy Duty		Output Current		Cat. No.	Cat. No.
kW	Hp	kW	Hp	A			
0.2	0.25	0.2	0.25	1.6	A	25A-B1P6N104	–
0.4	0.5	0.4	0.5	2.5	A	25A-B2P5N104	–
0.75	1	0.75	1	5	A	25A-B5P0N104	–
1.5	2	1.5	2	8	A	25A-B8P0N104	–
2.2	3	2.2	3	11	A	25A-B011N104	–
4	5	4	5	17.5	B	25A-B017N104	–
5.5	7.5	5.5	7.5	24	C	25A-B024N104	–
7.5	10	7.5	10	32.2	D	25A-B032N104	–
11	15	11	15	48.3	E	25A-B048N104 ♣	–
15	20	11	15	62.1	E	25A-B062N104 ♣	–

♣ Contact your local Rockwell Automation sales office or Allen-Bradley distributor for availability.

380...480V AC, Three-Phase, 50/60 Hz

Drive Ratings					Frame Size	No Filter	with Integral EMC Filter ‡
Normal Duty		Heavy Duty		Output Current		Cat. No.	Cat. No.
kW	Hp	kW	Hp	A			
0.4	0.5	0.4	0.5	1.4	A	25A-D1P4N104	25A-D1P4N114
0.75	1	0.75	1	2.3	A	25A-D2P3N104	25A-D2P3N114
1.5	2	1.5	2	4	A	25A-D4P0N104	25A-D4P0N114
2.2	3	2.2	3	6	A	25A-D6P0N104	25A-D6P0N114
4	5	4	5	10.5	B	25A-D010N104	25A-D010N114
5.5	7.5	5.5	7.5	13	C	25A-D013N104	25A-D013N114
7.5	10	7.5	10	17	C	25A-D017N104	25A-D017N114
11	15	11	15	24	D	25A-D024N104	25A-D024N114
15	20	11	15	30	D	25A-D030N104 ♣	25A-D030N114 ♣
18.5	25	15	20	37	E	25A-D037N114 § ♣	25A-D037N114 ♣
22	30	18.5	25	43	E	25A-D043N114 § ♣	25A-D043N114 ♣

‡ This filter is suitable for use with cable lengths up to 10 meters (32.8 feet) for C2 spec and 20 meters (65.6 feet) for C3 spec.

§ With EMC filter.

♣ Contact your local Rockwell Automation sales office or Allen-Bradley distributor for availability.

525...600V AC, Three-Phase, 50/60 Hz

Drive Ratings					Frame Size	No Filter	with Integral EMC Filter
Normal Duty		Heavy Duty		Output Current		Cat. No.	Cat. No.
kW	Hp	kW	Hp	A			
0.4	0.5	0.4	0.5	0.9	A	25A-E0P9N104	–
0.75	1	0.75	1	1.7	A	25A-E1P7N104	–
1.5	2	1.5	2	3	A	25A-E3P0N104	–
2.2	3	2.2	3	4.2	A	25A-E4P2N104	–
4	5	4	5	6.6	B	25A-E6P6N104	–
5.5	7.5	5.5	7.5	9.9	C	25A-E9P9N104	–
7.5	10	7.5	10	12	C	25A-E012N104	–
11	15	11	15	19	D	25A-E019N104	–
15	20	11	15	22	D	25A-E022N104 ♣	–
18.5	25	15	20	27	E	25A-E027N104 ♣	–
22	30	18.5	25	32	E	25A-E032N104 ♣	–

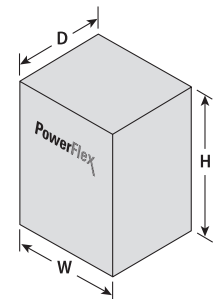
♣ Contact your local Rockwell Automation sales office or Allen-Bradley distributor for availability.

Approximate Dimensions and Weights

Dimensions are in mm (in.) - weights are in kg (lb)

IP20, NEMA/UL Type Open

Frame	H	W	D	Weight
A	152.0 (5.98)	72.0 (2.83)	172.0 (6.77)	1.10 (2.4)
B	180.0 (7.08)	87.0 (3.42)	172.0 (6.77)	1.60 (3.5)
C	220.0 (8.66)	109.0 (4.29)	184.0 (7.24)	2.30 (5.1)
D	260.0 (10.23)	130.0 (5.11)	212.0 (8.34)	3.20 (7.1)
E	300.0 (11.81)	185.0 (7.28)	279.0 (10.98)	12.90 (28.4)



PowerFlex 520-Series Options

Human Interface Modules and Accessories

Description	Cat. No.
Remote (Panel Mount) LCD Display, Digital Speed Control, CopyCat Capable. Includes 2.0 meter cable. IP66, NEMA Type 4X/12 - Indoor Use Only.	22-HIM-C2S ♣
Remote Handheld, LCD Display, Full Numeric Keypad, Digital Speed Control, CopyCat Capable. Includes 1.0 meter cable. IP30, NEMA Type 1. Panel mount with optional Bezel Kit.	22-HIM-A3
Bezel Kit. Panel Mount for LCD Display, Remote Handheld Unit. IP30, NEMA Type 1. Includes a 22-RJ45CBL-C20 cable.	22-HIM-B1
DSI HIM Cable (DSI HIM to RJ45 cable)	
1.0 Meter (3.3 Feet)	22-HIM-H10
2.9 Meter (9.5 Feet)	22-HIM-H30

♣ The 22-HIM-C2S is smaller than the 22-HIM-C2 and cannot be used as a direct replacement.

Communication Option Kits

Description	Cat. No.
DeviceNet™ Communication Adapter	25-COMM-D
EtherNet/IP™ Communication Adapter - Dual Port	25-COMM-E2P
PROFIBUS™ DP Communication Adapter	25-COMM-P
Serial Converter Module (RS485 to RS232). Provides serial communication via DF1 protocol for use with DriveExplorer and DriveExecutive™ software. Includes DSI to RS232 serial converter, 1203-SFC serial cable, 22-RJ45CBL-C20 cable, and DriveExplorer Lite CD.	22-SCM-232
Serial Cable. 2.0 meter with a locking low profile connector. Connects the serial converter to a 9-pin sub-miniature D female computer connector.	1203-SFC
Serial Null Modem Adapter. Use when connecting the serial converter to DriveExplorer on a handheld PC.	1203-SNM
Universal Serial Bus™ (USB) Converter includes 2m USB, 20-HIM-H10 and 22-HIM-H10 Cables.	1203-USB
DSI Cable. 2.0 meter RJ45 to RJ45 cable, male to male connectors.	22-RJ45CBL-C20
Splitter Cable. RJ45 one to two port splitter cable.	AK-U0-RJ45-SC1
Terminal Block. RJ45 two position terminal block (6 pieces) with two 120 Ohm terminating resistors (loose).	AK-U0-RJ45-TB2P
Terminating Resistors. 120 Ohm resistor embedded in an RJ45 connector (2 pieces).	AK-U0-RJ45-TR1
DSI External Communications Kit. External mounting kit for 22-COMM Communication Adapters.	22-XCOMM-DC-BASE
External Communications Kit Power Supply	20-XCOMM-AC-PS1
Optional 100...240V AC Power Supply for External DSI Communications Kit.	
Compact I/O Module (3 Channel)	1769-SM2

IP30, NEMA/UL Type 1 Conversion Kit

Description	Frame	Cat. No.
Converts IP20 drive to IP30, NEMA/UL Type 1 enclosure	A	25-JBAA
	B	25-JBAB
	C	25-JBAC
	D	25-JBAD
	E	25-JBAE

Other Options

Description	Frame	Cat. No.
EMC Grounding Plate	A	25-EMC1-FA
	B	25-EMC1-FB
	C	25-EMC1-FC
	D	25-EMC1-FD
	E	25-EMC1-FE
Mounting Adapter Plate, Bulletin 160 AC Drive to PowerFlex 525	A	25-MAP-FA
	B	25-MAP-FB
Incremental Encoder for PowerFlex 525	All	25-ENC-1
Control Module Fan Kit for 70 °C operation and/or horizontal drive mounting.	A...D	25-FAN1-70C
	E	25-FAN2-70C

EMC Filters (Required to Meet CE Certification)

Drive Ratings				Cat. No.
Input Voltage	kW	Hp	Frame	
100...120V, Single-Phase, 50/60 Hz	0.2	0.25	A	25-RF011-AL
	0.4	0.5	A	25-RF023-BL
	0.75	1	B	
	1	1.5	B	
200...240V, Single-Phase, 50/60 Hz	0.2	0.25	A	25-RF011-AL
	0.4	0.5	A	25-RF023-BL
	0.75	1	A	
	1.5	2	B	
	2.2	3	B	
200...240V, Three-Phase 50/60 Hz,	0.2	0.25	A	25-RF014-AL
	0.4	0.5	A	25-RF021-BL 25-RF027-CL 25-RF035-DL 25-RF056-EL
	0.75	1	A	
	1.5	2	A	
	2.2	3	A	
	3.7	5	B	
	5.5	7.5	C	
	7.5	10	D	
	11	15	E	
	15	20	E	
380...480V, Three-Phase 50/60 Hz	0.4	0.5	A	25-RF7P5-AL
	0.75	1	A	25-RF014-BL 25-RF018-CL 25-RF033-DL 25-RF039-EL
	1.5	2	A	
	2.2	3	A	
	3.7	5	B	
	5.5	7.5	C	
	7.5	10	C	
	11	15	D	
	15	20	D	
	18.5	25	E	
22	30	E		
525...600V, Three-Phase, 50/60 Hz	0.4	0.5	A	25-RF8P0-BL
	0.75	1	A	25-RF014-CL 25-RF027-DL 25-RF029-EL
	1.5	2	A	
	2.2	3	A	
	3.7	5	B	
	5.5	7.5	C	
	7.5	10	C	
	11	15	D	
	15	20	D	
	18.5	25	E	
22	30	E		

Control Module

Description	Frame	Cat. No.
PowerFlex 523 Control Module (includes control module front cover)	All	25A-CTM1
PowerFlex 525 Control Module (includes control module front cover)	All	25B-CTM1

Power Modules [§]

Input Voltage	Ratings				No Filter Cat No.	with Integral EMC Filter Cat No.
	Normal Duty		Heavy Duty			
	kW	Hp	kW	Hp		
100...120V AC, Single-Phase, 50/60 Hz	0.2	0.25	0.2	0.25	25-PM1-V1P6	—
	0.4	0.5	0.4	0.5	25-PM1-V2P5	—
	0.75	1	0.75	1	25-PM1-V4P8	—
	1.5	2	1.5	2	25-PM1-V6P0	—
200...240V AC, Single-Phase, 50/60 Hz	0.2	0.25	0.2	0.25	25-PM1-A1P6	25-PM2-A1P6
	0.4	0.5	0.4	0.5	25-PM1-A2P5	25-PM2-A2P5
	0.75	1	0.75	1	25-PM1-A4P8	25-PM2-A4P8
	1.5	2	1.5	2	25-PM1-A8P0	25-PM2-A8P0
200...240V AC, Three-Phase, 50/60 Hz	2.2	3	2.2	3	25-PM1-A011	25-PM2-A011
	0.2	0.25	0.2	0.25	25-PM1-B1P6	—
	0.4	0.5	0.4	0.5	25-PM1-B2P5	—
	0.75	1	0.75	1	25-PM1-B5P0	—
	1.5	2	1.5	2	25-PM1-B8P0	—
	2.2	3	2.2	3	25-PM1-B011	—
	4	5	4	5	25-PM1-B017	—
	5.5	7.5	5.5	7.5	25-PM1-B024	—
	7.5	10	7.5	10	25-PM1-B032	—
	11	15	11	15	25-PM1-B048	—
380...480V AC, Three-Phase, 50/60 Hz	15	20	11	15	25-PM1-B062	—
	0.4	0.5	0.4	0.5	25-PM1-D1P4	25-PM2-D1P4
	0.75	1	0.75	1	25-PM1-D2P3	25-PM2-D2P3
	1.5	2	1.5	2	25-PM1-D4P0	25-PM2-D4P0
	2.2	3	2.2	3	25-PM1-D6P0	25-PM2-D6P0
	4	5	4	5	25-PM1-D010	25-PM2-D010
	5.5	7.5	5.5	7.5	25-PM1-D013	25-PM2-D013
	7.5	10	7.5	10	25-PM1-D017	25-PM2-D017
	11	15	11	15	25-PM1-D024	25-PM2-D024
	15	20	11	15	25-PM1-D030	25-PM2-D030
525...600V AC, Three-Phase, 50/60 Hz	18.5	25	15	20	—	25-PM2-D037
	22	30	18.5	25	—	25-PM2-D043
	0.4	0.5	0.4	0.5	25-PM1-E0P9	—
	0.75	1	0.75	1	25-PM1-E1P7	—
	1.5	2	1.5	2	25-PM1-E3P0	—
	2.2	3	2.2	3	25-PM1-E4P2	—
	4	5	4	5	25-PM1-E6P6	—
	5.5	7.5	5.5	7.5	25-PM1-E9P9	—
	7.5	10	7.5	10	25-PM1-E012	—
	11	15	11	15	25-PM1-E019	—
15	20	11	15	25-PM1-E022	—	
18.5	25	15	20	25-PM1-E027	—	
22	30	18.5	25	25-PM1-E032	—	

§ Includes power module front cover (Frames B...E only).

Accessories

Description	Frame	Cat. No.
Power Module Front Cover	B	25-PMFC-FB
	C	25-PMFC-FC
	D	25-PMFC-FD
	E	25-PMFC-FE
PowerFlex 523 Control Module Front Cover	All	25A-CTMFC1
PowerFlex 525 Control Module Front Cover	All	25B-CTMFC1
Heatsink Fan Replacement Kit	A	25-FAN1-FA
	B	25-FAN1-FB
	C	25-FAN1-FC
	D	25-FAN1-FD
	E	25-FAN1-FE
Power Terminal Guard	A	25-PTG1-FA
	B	25-PTG1-FB
	C	25-PTG1-FC
	D	25-PTG1-FD
	E	25-PTG1-FE

Terminators

Description ★	Cat. No.
for use with 3.7 kW (5 Hp) and below drives	1204-TFA1
for use with 1.5 kW (2 Hp) and up drives	1204-TFB2

★ For selection information, refer to Appendix A of the Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication Drives-IN001.

Reflected Wave Reduction Modules

Voltage	kW	Hp	Cat. No.	
380... 480V AC	2.2...4	3...5	1321-RWR8-DP	
	4	5	1321-RWR12-DP	
	5.5	7.5	1321-RWR18-DP	
	7.5	10	1321-RWR25-DP	
	11	15	1321-RWR25-DP	
	15	20	1321-RWR35-DP	
	18.5	25	1321-RWR45-DP	
	22	30	1321-RWR55-DP	
	500... 600V AC	4	5	1321-RWR8-EP
		5.5	7.5	1321-RWR12-EP
7.5		10	1321-RWR18-EP	
11		15	1321-RWR25-EP	

Reflected Wave Reduction Module with Common Mode Choke

Description ★	Cat. No.
17A with Common Mode Choke	1204-RWC-17-A

★ For selection information, refer to Appendix A of the Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication Drives-IN001.

Dynamic Brake Resistors

Voltage	Drive Rating		Minimum Resistance	Resistance	Cat. No. ‡ §
	kW	Hp	Ohms, ±10%	Ohms, ±5%	
100...120V, 50/60 Hz, Single-Phase	0.4	0.5	60	91	AK-R2-091P500
	0.75	1	60	91	AK-R2-091P500
	1.1	1.5	48	91	AK-R2-091P500
200...240V, 50/60 Hz, Single-Phase	0.4	0.5	60	91	AK-R2-091P500
	0.75	1	60	91	AK-R2-091P500
	1.5	2	48	91	AK-R2-091P500
	2.2	3	32	47	AK-R2-047P500
200...240V, 50/60 Hz, Three-Phase	0.4	0.5	60	91	AK-R2-091P500
	0.75	1	60	91	AK-R2-091P500
	1.5	2	60	91	AK-R2-091P500
	2.2	3	32	47	AK-R2-047P500
	3.7	5	19	47	AK-R2-047P500
	5.5	7.5	19	30	AK-R2-030P1K2
	7.5	10	15	30	AK-R2-030P1K2
	11	15	15	15	AK-R2-030P1K2 ♣
380...480V, 50/60 Hz, Three-Phase	0.4	0.5	97	360	AK-R2-360P500
	0.75	1	97	360	AK-R2-360P500
	1.5	2	97	360	AK-R2-360P500
	2.2	3	97	120	AK-R2-120P1K2
	4.0	5	77	120	AK-R2-120P1K2
	5.5	7.5	55	120	AK-R2-120P1K2
	7.5	10	55	120	AK-R2-120P1K2
	11	15	50	60	AK-R2-120P1K2 ♣
	15	20	50	60	AK-R2-120P1K2 ♣
	18.5	25	30	40	AK-R2-120P1K2 △
500...600V, 50/60 Hz, Three-Phase	0.4	0.5	120	360	AK-R2-360P500
	0.75	1	120	360	AK-R2-360P500
	1.5	2	120	360	AK-R2-360P500
	2.2	3	120	120	AK-R2-120P1K2
	3.7	5	82	120	AK-R2-120P1K2
	5.5	7.5	65	120	AK-R2-120P1K2
	7.5	10	65	120	AK-R2-120P1K2
	11	15	65	60	AK-R2-120P1K2 ♣
	15	20	65	60	AK-R2-120P1K2 ♣
	18.5	25	60	60	AK-R2-120P1K2 ♣
	22	30	38	40	AK-R2-120P1K2 △

‡ Resistors listed are rated 5% duty cycle.

§ Use of Rockwell Automation resistors is recommended. The resistors listed have been carefully selected for optimizing performance in a variety of applications. Alternative resistors may be used, however, care must be taken when making a selection. Refer to the PowerFlex Dynamic Braking Resistor Calculator, publication PFLEX-AT001.

♣ Requires two resistors wired in parallel.

△ Requires three resistors wired in parallel.

Line Reactors - 3% Impedance

Voltage	Drive Ratings			IP00 ★ (NEMA/UL Open Type)	IP11 ★ (NEMA/UL Type 1)
	kW	Hp	Amps	Cat. No.	Cat. No.
200...240V, 60 Hz, Three-Phase	0.4	0.5	4.0	1321-3R4-B	1321-3RA4-B
	0.75	1	8.0	1321-3R8-B	1321-3RA8-B
	1.5	2	8.0	1321-3R8-A	1321-3RA8-A
	2.2	3	12	1321-3R12-A	1321-3RA12-A
	3.7	5	17.5	1321-3R18-A	1321-3RA18-A
	5.5	7.5	24	1321-3R25-A	1321-3RA25-A
	7.5	10	33	1321-3R35-A	1321-3RA35-A
	11	15	49	1321-3R45-A	1321-3RA45-A
	15	20	65	1321-3R55-A	1321-3RA55-A
380...480V, 60 Hz, Three-Phase	0.4	0.5	2.0	1321-3R2-B	1321-3RA2-B
	0.75	1	4.0	1321-3R4-C	1321-3RA4-C
	1.5	2	4.0	1321-3R4-B	1321-3RA4-B
	2.2	3	6.0	1321-3R8-C	1321-3RA8-C
	4.0	5	10.5	1321-3R8-B	1321-3RA8-B
	5.5	7.5	12	1321-3R12-B	1321-3RA12-B
	7.5	10	17	1321-3R18-B	1321-3RA18-B
	11	15	22	1321-3R25-B	1321-3RA25-B
	15	20	30	1321-3R35-B	1321-3RA35-B
	18.5	25	38	1321-3R35-B	1321-3RA35-B
	22	30	45.5	1321-3R45-B	1321-3RA45-B
500...600V, 60 Hz, Three-Phase	0.75	1	2.0	1321-3R2-B	1321-3RA2-B
	1.5	2	4.0	1321-3R4-C	1321-3RA4-C
	2.2	3	4.0	1321-3R4-B	1321-3RA4-B
	4.0	5	8.0	1321-3R8-C	1321-3RA8-C
	5.5	7.5	12	1321-3R12-B	1321-3RA12-B
	7.5	10	12	1321-3R12-B	1321-3RA12-B
	11	15	18	1321-3R18-B	1321-3RA18-B
	15	20	25	1321-3R25-B	1321-3RA25-B
	18.5	25	35	1321-3R35-C	1321-3RA35-C
22	30	35	1321-3R35-B	1321-3RA35-B	

★ Catalog numbers listed are for 3% impedance. 5% impedance reactor types are also available. Refer to 1321 Power Conditioning Products Technical Data, publication 1321-TD001.