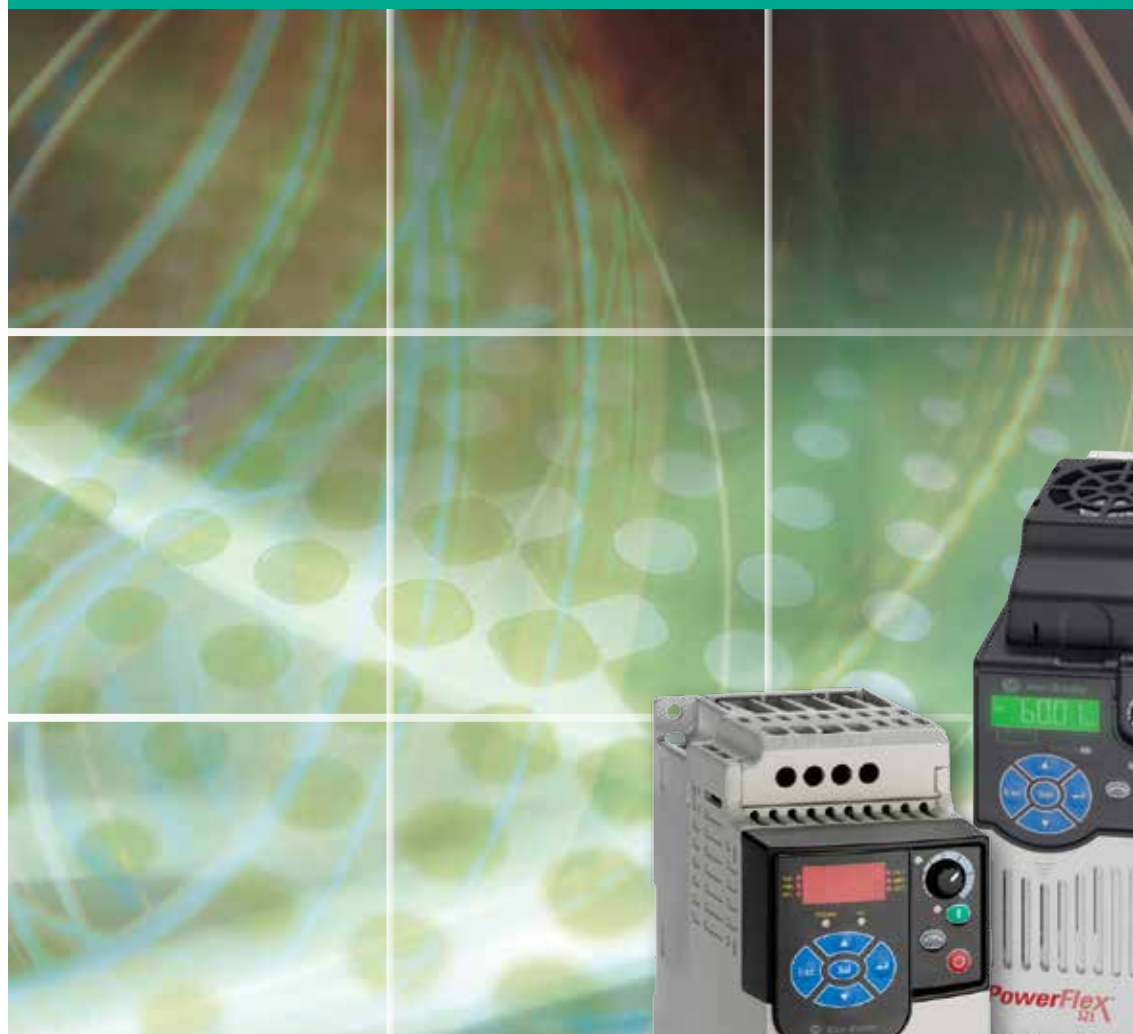


VARIABLE SPEED DRIVES

Easy Selection Guide



MOTOR CONTROL AND DRIVES



Follow the “three Easy Steps” to select the right variable speed drive for your motor control device.

step 1

STEP 1: Select your kW & full load current rating

Variable Speed Drives are most commonly used in motor applications.

Motor data ratings are referred to as the power of the motor in kW and the full load current (FLC) or nominal current in amps.

What is the kW and full load current of the motor?

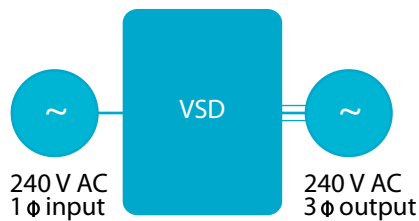
Both of these ratings can be found on the name plate of the motor or directly from the motor manufacturer. When selecting a drive be sure to check the kW and FLC rating are sufficient to run the motor.

Typical ratings for 3-phase motor @ 240 V		Typical ratings for 3-phase motor @ 415 V	
Motor size (kW)	Approx. full load current @ 240 V	Motor size (kW)	Approx. full load current @ 415 V
0.2	1.6	0.37	1.4
0.37	2.4	0.75	2.4
0.75	4.2	1.5	4.2
1.5	8	2.2	6
2.2	11.5	4	10.5
-	-	5.5	13
-	-	7.5	18
-	-	11	24

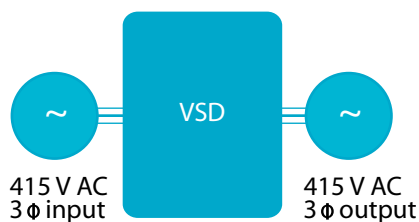
step 2

STEP 2: Select your Voltage Rating

Select the input voltage 240 V single phase supply or 415 V 3-phase.



or



step 3

STEP 3: Select either the Powerflex® 4M or Powerflex® 523 below

Using the table below ask the customer which features are required. For example, do they need PID functionality?



Attributes	PowerFlex®4M	PowerFlex® 523
Catalogue reference	22F...	25A...
Rated power	0.25 – 2.2 / 0.37 – 11 kW	0.37 - 2.2 / 0.37 – 11kW
Supply voltage	240 V / 415 V	240 V / 415 V
Ambient temperature	-10 to 50°C	-10 to 70°C ⁴⁾
Enclosure protection	IP20	IP20
EMC filter	Internal	Internal
Overload capability	150% - 60 seconds 200% – 3 seconds	150% - 60 seconds 200% – 3 seconds
Control type	V/Hz	V/Hz , Sensorless Vector Control, Economiser SVC
Analogue inputs ¹⁾	1	1
Analogue outputs ¹⁾	-	-
PTC inputs	-	1 via programmable digital input terminals
Pulse speed reference	-	1 via programmable digital input terminals
Logic inputs	3 fixed, 2 programmable	1 fixed, 4 programmable
Relay outputs ¹⁾	1	1
Transistor outputs ¹⁾	-	1
Communications (integrated)	RS485 (Modbus RTU)	RS485 (Modbus RTU)
Communication options	EtherNet/IP™, ControlNet™ DeviceNet™, Profibus™ DP	Dual port EtherNet/IP™ DeviceNet™, Profibus™ DP
	BACnet®, Bluetooth® ²⁾	
Brake chopper	Yes ³⁾	Yes
PID function	-	Yes

¹⁾ Inputs/ outputs are configurable/ programmable

²⁾ Communication cards are mounted external to the drive

³⁾ 5.5-11kW models only

⁴⁾ 70°C operation requires current de-rating and control fan module kit

examples

Selecting a Variable Speed Drive

An electrical fitter requires a VSD required for a 7.5kW, 415 V 3-phase motor with a full load current of 15A.



PowerFlex® 4M 415 V AC Input						
Heavy duty (kW)	Output current (A)	Dimensions			Watts Loss (W)	Cat. no.
		H	W	D		
0.37	1.5	174	72	136	24	22FD1P5N113
0.75	2.5	174	72	136	41	22FD2P5N113
1.5	4.2	174	72	136	74	22FD4P2N113
2.2	6	174	100	136	92	22FD6P0N113
3.7	8.7	174	100	136	135	22FD8P7N113
5.5	13	260	130	180	190	22FD013N114
7.5*	18*	260*	130*	180*	294*	22FD018N114
11	24	260	130	180	378	22FD024N114



PowerFlex® 523 415 V AC Input						
Heavy duty (kW)	Output current (A)	Dimensions			Watts Loss (W)	Cat. no.
		H	W	D		
0.37	1.4	152	72	172	27	25AD1P4N114
0.75	2.3	152	72	172	37	25AD2P3N114
1.5	4	152	72	172	81	25AD4P0N114
2.2	6	152	72	172	88	25AD6P0N114
4	10.5	180	87	172	133	25AD010N114
5.5	13	220	109	184	175	25AD013N114
7.5	17	220	109	184	230	25AD017N114
11	24	260	130	212	313	25AD024N114

With this kW and FLC rating we have two available options as shown above. To determine which one is right for the electrical fitter, you will need to refer to the inputs and outputs on page 3. You may ask the following questions.

- Is the drive required to operate in 70° ambient?
- Does the drive require optional Dual Port EtherNet/IP?
- Does the drive require PID functionality?
- Does the motor require thermistor protection (PTC)?
- Does the application require accurate speed control?
- Does the drive require simple USB programming?

If the answer is NO to all of the above questions, you will need to select the following:



PowerFlex® 4M 415 V AC Input						
Heavy duty (kW)	Output current (A)	Dimensions			Watts Loss (W)	Cat. no.
		H	W	D		
7.5	18	260	130	180	294	22FD018N114

If the answer is YES to any of the above questions, you will need to select the following:



PowerFlex® 523 415 V AC Input						
Heavy duty (kW)	Output current (A)	Dimensions			Watts Loss (W)	Cat. no.
		H	W	D		
7.5	17	220	109	184	230	25AD017N114

The Powerflex® 523 has greater functionality when compared to the PF4M.

Powerflex® 4M



Providing users with powerful motor speed control in a compact, space-saving design, the PowerFlex® 4M micro drive is the smallest and most cost effective member of the PowerFlex® family of drives.

Providing application flexibility, feed-through wiring and ease-of-programming, the PowerFlex® 4M micro drive is ideal for machine level speed control, for applications requiring space savings and easy-to-use AC drives.

- Feed-through wiring design
- DIN rail mountable (frames A & B)
- Zero stacking™ for ambient temperatures up to 40 °C saving valuable panel space, 50 °C ambient temperatures are permitted with minimal spacing between drives
- Keypad potentiometer
- All drives are heavy duty rated providing 150% overload capacity for 60 seconds, 200% for three seconds
- V/Hz control
- One analogue input
- Three fixed & two programmable digital inputs
- One relay output
- Dynamic brake chopper (5.5 – 11kW models only).

Ordering details

PowerFlex® 4M 240 V AC input

Heavy duty (kW)	Output current (A)	Frame size	Dimensions			Watts loss (W)	Cat. no.
			H	W	D		
0.25	1.6	A	174	72	136	14	22FA1P6N113
0.37	2.5	A	174	72	136	25	22FA2P5N113
0.75	4.2	A	174	72	136	43	22FA4P2N113
1.5	8	B	174	100	136	82	22FA8P0N113
2.2	11	B	174	100	136	109	22FA011N113

PowerFlex® 4M 415 V AC input

Heavy duty (kW)	Output current (A)	Frame size	Dimensions			Watts loss (W)	Cat. no.
			H	W	D		
0.37	1.5	A	174	72	136	24	22FD1P5N113
0.75	2.5	A	174	72	136	41	22FD2P5N113
1.5	4.2	A	174	72	136	74	22FD4P2N113
2.2	6	B	174	100	136	92	22FD6P0N113
3.7	8.7	B	174	100	136	135	22FD8P7N113
5.5	13	C	260	130	180	190	22FD013N114
7.5	18	C	260	130	180	294	22FD018N114
11	24	C	260	130	180	378	22FD024N114

Powerflex® 523



Designed for low-level machine control, the PowerFlex® 523 AC Drive provides users with flexibility, space savings and ease of use. Drives are available over 4 frame sizes that covers ratings from 0.37 to 11 kW; 200...240 V, 380...480 V and 500...600 V.

- Economiser algorithm to allow the drive to reduce energy consumption
- Embedded Communications including Modbus RTU and options for Dual Port EtherNet/IP™, DeviceNet™, Profibus™ DP, etc
- Integrated EMC filter through all frame sizes
- V/Hz, Sensorless Vector Control
- Ease of programming using USB, keypad, Connected Components Workbench (CCW) ¹⁾ or RSLogix 5000
- Removable control core with mains free programming using a standard USB printer cable
- Application specific parameter groups with possibility of creating customer user parameter sets, part of the standard menu structure
- Horizontal mounting capable
- Operation up to 70°C with de-rating
- Conformal coating on all PCBs as standard to reduce dust and moisture build up.

Ordering details

PowerFlex® 523 240 V AC Drive IP20							
Heavy duty (kW)	Output current (A)	Frame size	Dimensions			Watts loss (W)	Cat. no.
			H	W	D		
0.37	2.5	A	152	72	172	29	25AA2P5N114
0.75	4.8	A	152	72	172	53	25AA4P8N114
1.5	8	B	180	87	172	84	25AA8P0N114
2.2	11	B	180	87	172	116	25AA011N114

PowerFlex® 523 415 V AC Drive IP20								
Normal duty (kW)	Heavy duty (kW)	Output current (A)	Frame size	Dimensions			Watts loss (W)	Cat. no.
				H	W	D		
0.37	0.37	1.4	A	152	72	172	27	25AD1P4N114
0.75	0.75	2.3	A	152	72	172	37	25AD2P3N114
1.5	1.5	4	A	152	72	172	81	25AD4P0N114
2.2	2.2	6	A	152	72	172	88	25AD6P0N114
4	4	10.5	B	180	87	172	133	25AD010N114
5.5	5.5	13	C	220	109	184	175	25AD013N114
7.5	7.5	17	C	220	109	184	230	25AD017N114
11	11	24	D	260	130	212	313	25AD024N114



¹⁾ Connected Components Workbench (CCW) is a Windows based programming and configuration software package that supports PowerFlex® drives and other Rockwell Automation products. Scan the QR code for your free download.

Powerflex® 4M and Powerflex® 523

Accessories

Communication Option Kits for PowerFlex® 4M

Description	Cat. No.
DeviceNet™ communication adapter	22-COMM-D
EtherNet/IP™ communication adapter	22-COMM-E
External DSI communications kit	22-XCOMM-DC-BASE

Communication Options and Accessories for PowerFlex® 523

Description	Cat. No.
Dual Port EtherNet/IP™ communication adapter	25-COMM-E2P
DeviceNet™ communication adapter	25-COMM-D

Human Interface Modules for PowerFlex® 4M and PowerFlex® 523

Description	Cat. No.
Enhanced, LCD, full numerical, remote hand held	22-HIM-A3
Enhanced, LCD, fixed panel mount, IP 66	22-HIM-C2S
Panel mount bezel kit for remote hand held	22-HIM-B1



Type 1 remote & hand-held HIM (22-HIM-A3)



Type 1 remote mount bezel (22-HIM-B1 with 22-HIM-A3)



Type 4 remote mount HIM (22-HIM-C2S)



For extended range scan to download the low and medium voltage PowerFlex drives catalogue



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