

# Product Details and Certifications

**Cross Reference RA Part Number: I -\$\$, &\$- %' \* &\* ) %**

**Product: 20BF\$- \* A0ABNAND0**

Description: PowerFlex700 AC Drive, 650 VDC, DC, Pre Charge, 96 Amps, 75 HP Normal Duty, 60 HP Heavy Duty, IP20 / Type 1, with conformal coating, No HIM (Blank Plate), No Brake IGBT, Without Drive Mounted Brake Resistor, Second Environment Filter per CE EMC directive (89/336/EEC), No Communication Module, Vector Control with 120V I/O , No Feedback



Representative Photo Only (actual product may vary based on configuration selections)

## **BASE DRIVE INFORMATION**

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Input Voltage	650 VDC, DC, Pre Charge
Current Rating	96 Amps
Enclosure	IP20 / Type 1, with conformal coating
Frame Size	Frame Size 5
I/O Options	Vector Control with 120V I/O
Brake IGBT	No Brake IGBT
Brake Resistor	No Brake Resistor
Filter Options	Second Environment Filter per CE EMC Directive (89/336/EEC)
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## **~~CDHCBG~~IN: CFA5HCB**

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Base Plus Options	Base Plus Options Method
Internal Communication Module	No Communication Module

### Catalog Number Explanation



*a*

Drive	
Code	Type
<b>20B</b>	<b>PowerFlex 700</b>

*b*

Voltage Rating				
Code	Voltage	Ph.	Prechg.	Frames
B	240V AC	3	-	0...6
C	400V AC	3	-	0...10
D	480V AC	3	-	0...10
E	600V AC	3	-	0...6
F	690V AC	3	-	5...6
H	540V DC	-	N	5...6, 10
J	650V DC	-	N	5...6, 10
N	325V DC	-	Y	5...6
P	540V DC	-	Y	5...9
<b>R</b>	<b>650V DC</b>	<b>-</b>	<b>Y</b>	<b>5...9</b>
T	810V DC	-	Y	5...6
W	932V DC	-	Y	5...6

*c1*

ND Rating				
208/240V, 60 Hz Input				
Code	208V Amps	240V Amps	Hp	Frame
2P2	2.5	2.2	0.5	0
4P2	4.8	4.2	1.0	0
6P8	7.8	6.8	2.0	1
9P6	11	9.6	3.0	1
015	17.5	15.3	5.0	1
022	25.3	22	7.5	1
028	32.2	28	10	2
042	48.3	42	15	3
052	56	52	20	3
070	78.2	70	25	4
080	92	80	30	4
104	120	104	40	5
130	130	130	50	5
154	177	154	60	6
192	221	192	75	6
260	260	260	100	6

*c2*

ND Rating			
400V, 50 Hz Input			
Code	Amps	kW	Frame
1P3	1.3	0.37	0
2P1	2.1	0.75	0
3P5	3.5	1.5	0
5P0	5.0	2.2	0
8P7	8.7	4.0	0
011	11.5	5.5	0
015	15.4	7.5	1
022	22	11	1
030	30	15	2
037	37	18.5	2
043	43	22	3
056	56	30	3
072	72	37	3
085	85	45	4
105	105	55	5
125	125	55	5
140	140	75	5
170	170	90	6
205	205	110	6
260	260	132	6
292	292	160	7
325	325	180	7
365	365	200	8
415	415	240	8
481	481	280	8
535	535	300	8
600	600	350	8
730	730	400	9
875	875	500	10

*c3*

ND Rating			
480V, 60 Hz Input			
Code	Amps	Hp	Frame
1P1	1.1	0.5	0
2P1	2.1	1.0	0
3P4	3.4	2.0	0
5P0	5.0	3.0	0
8P0	8.0	5.0	0
011	11	7.5	0
014	14	10	1
022	22	15	1
027	27	20	2
034	34	25	2
040	40	30	3
052	52	40	3
065	65	50	3
077	77	60	4
096	96	75	5
125	125	100	5
156	156	125	6
180	180	150	6
248	248	200	6
292	292	250	7
325	325	250	7
365	365	300	8
415	415	350	8
481	481	400	8
535	535	450	8
600	600	500	8
730	730	600	9
875	875	700	10

*c4*

ND Rating			
600V, 60 Hz Input			
Code	Amps	Hp	Frame
1P7	1.7	1.0	0
2P7	2.7	2.0	0
3P9	3.9	3.0	0
6P1	6.1	5.0	0
9P0	9.0	7.5	0
011	11	10	1
017	17	15	1
022	22	20	2
027	27	25	2
032	32	30	3
041	41	40	3
052	52	50	3
062	62	60	4
077	77	75	5
099	99	100	5
125	125	125	6
144	144	150	6

## 650 Volt DC Input Protection Devices – Frames 0...6

Drive Catalog Number	Frame	Hp Rating		PWM Freq. kHz	Temp. <sup>(1)</sup> °C	DC Input Ratings			Output Amps			Fuse	Non-Time Delay Fuse <sup>(2)(11)</sup>
		ND	HD			Amps	Cont.	1 Min.	3 Sec.				
20BD1P1	0	0.5	0.33	4	50	1.0	1.1	1.2	1.6	3	JKS-3		
20BD2P1	0	1	0.75	4	50	1.9	2.1	2.4	3.2	6	JKS-6		
20BD3P4	0	2	1.5	4	50	3.0	3.4	4.5	6.0	6	JKS-6		
20BD5P0	0	3	2	4	50	4.5	5.0	5.5	7.5	10	JKS-10		
20BD8P0	0	5	3	4	50	8.1	8.0	8.8	12	15	HSJ15		
20BD011	0	7.5	5	4	50	11.1	11	12.1	16.5	20	HSJ20		
20BD014	1	10	7.5	4	50	14.7	14	16.5	22	30	HSJ30		
20BD022	1	15	10	4	50	23.3	22	24.2	33	40	HSJ40		
20BD027	2	20	15	4	50	28.9	27	33	44	50	HSJ50		
20BD034	2	25	20	4	50	36.4	34	40.5	54	60	HSJ60		
20BD040	3	30	25	4	50	42.9	40	51	68	80	HSJ80		
20BD052	3	40	30	4	50	55.7	52	60	80	90	HSJ90		
20BD065	3	50	40	4	50	69.7	65	78	104	100	HSJ100		
20BD077 <sup>(3)</sup>	4	60	–	4	50	84.5	77	85	116	150	HSJ150		
		–	50	4	50	69.7	65	98	130	150	HSJ150		
20BR096 <sup>(3)(6)</sup>	5	75	–	4	50 <sup>(4)</sup>	105.3	96	106	144	175	HSJ175		
		–	60	4	50 <sup>(4)</sup>	84.5	77	116	154	175	HSJ175		
20BR125 <sup>(3)(6)</sup>	5	100	–	4	50 <sup>(4)</sup>	137.1	125	138	163	200	HSJ200		
		–	75	4	50 <sup>(4)</sup>	105.3	96	144	168	200	HSJ200		
20BR156 <sup>(3)(6)</sup>	6	125	–	4	50 <sup>(4)</sup>	171.2	156	172	234	300	HSJ300		
		–	100	4	50 <sup>(4)</sup>	137.1	125	188	250	300	HSJ300		
20BR180 <sup>(3)(6)</sup>	6	150	–	4	50 <sup>(4)</sup>	204	180	198	270	400	HSJ400		
		–	125	4	50 <sup>(4)</sup>	171.2	156	234	312	400	HSJ400		
20BR248 <sup>(3)(6)</sup>	6	200	–	2	45 <sup>(4)</sup>	272	248	273	372	400	HSJ400		
		–	150	2	50 <sup>(4)</sup>	204	180	270	360	400	HSJ400		

## Notes

- (1) Frames 0...4 temperature rating is for NEMA / UL Type Open. The adhesive top label must be removed to operate drive at this temperature. Frames 5 & 6 do not have a top label.
- (2) The power source to common bus inverters must be derived from AC voltages 600V or less, as defined in NFPA70; Art 430-18 (NEC). Battery supplies or MG sets are not included. The following devices were validated to break current of the derived power DC Bus.  
Disconnects: Allen-Bradley Bulletin 1494, 30-400A; 194, 30-400A; or ABB OESA, 600 & 800A; OESL, all sizes.  
Fuses: Bussmann Type JKS, all sizes; Type 170M, Case Sizes 1, 2 and 3, or Ferraz Shawmut Type HSJ, all sizes. For any other devices, please contact the factory.
- (3) Drives have dual current ratings; one for normal duty applications, and one for heavy duty applications. The drive can be operated at either rating.
- (4) UL Type 12/IP54 (flange mount) heatsink ambient temperature rating is 40 °C/ambient of unprotected drive portion (inside enclosure) is 55 °C. The ambient temperature for the UL Type 12/IP54 stand-alone drives is 40 °C.
- (5) Also applies to "P" voltage class.
- (6) Also applies to "J" voltage class.
- (7) Must remove top label and vent plate, drive enclosure rating is IP00, NEMA / UL Type Open.
- (8) Two 630A Bussmann 170M6608 can also be used.
- (9) Two 700A Bussmann 170M6611 can also be used.
- (10) Bussmann or equivalent.
- (11) See Fuse Certification and Test Data in PowerFlex AC Drives in Common Bus Configurations Application Guidelines, publication [DRIVES-AT002](#) for fuse self-certification and test data for Bussmann 170M and JKS fuses recommended for the DC bus fusing.

20B
R
096
A
0
A
N
N
A
N
D
0

*a*      *b*      *c1...c5*      *d*      *e*      *f*      *g*      *h*      *i*      *j*      *k*      *l*      *m*      *n*

*c5*

ND Rating			
690V, 50 Hz Input			
Code	Amps	KW	Frame
052	52	45	5
060	60	55	5
082	82	75	5
098	98	90	6
119	119	110	6
142	142	132	6

*f*

Documentation	
Code	Type
<b>A</b>	Manual
N	No Manual
Q	No Shipping Package (Internal Use Only)

*k*

Control & I/O		
Code	Control	I/O Volts
A	Standard ♦	24V DC/AC
B	Standard ♦	115V AC
C	Vector Δ	24V DC
<b>D</b>	<b>Vector Δ</b>	<b>115V AC</b>
N	Standard	None

Δ Vector Control Option utilizes DPI Only.  
 ♦ Frame 0...6 drives only.

*d*

Enclosure	
Code	Enclosure
<b>A</b>	<b>IP20, NEMA/UL Type 1</b>
F ♦	Open/Flange Mount Front: IP00, NEMA/UL Type Open Back/Heatsink: IP54, NEMA Type 12
N ♦	Open/Flange Mount Front: IP00, NEMA/UL Type Open Back/Heatsink: IP54, NEMA 12
G ♦	Stand-Alone/Wall Mount IP54, NEMA/UL Type 12
U	Roll-In Front: IP00, NEMA/UL Type Open Back/Heatsink: IP54, NEMA 12 Frames 8 & 9 Only

♦ Only available for Frame 5 & Frame 6 drives, 400...690V.  
 ♦ Only available for Frames 7...10.

*g*

Brake	
Code	w/Brake IGBT ‡
Y	Yes
<b>N</b>	<b>No</b>

‡ Brake IGBT is standard on Frames 0-3, optional on Frames 4-6 and not available on Frames 7...10.

*l*

Feedback	
Code	Type
<b>0</b>	<b>None</b>
1	Encoder, 12V/5V

*e*

HIM	
Code	Operator Interface
<b>0</b>	<b>Blank Cover</b>
3	LCD Display, Full Numeric Keypad
J ♦	Remote (Panel Mount), IP66, NEMA/UL Type 12 Full Numeric LCD HIM
K ♦	Remote (Panel Mount), IP66, NEMA/UL Type 12 Prog. Only LCD HIM

♦ Available with Frames 5...6 Stand-Alone IP54 drives (Enclosure Code "G").

*h*

Internal Braking Resistor	
Code	w/Resistor
Y	Yes *
<b>N</b>	<b>No</b>

\* Not available for Frame 3 drives or larger.

*m*

Future Use	
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*i*

Emission		
Code	CE Filter §	CM Choke
<b>A</b>	<b>Yes</b>	<b>Yes</b>
B #	Yes	No
N	No	No

§ Note: 600V class drives below 77 Amps (Frames 0-4) are declared to meet the Low Voltage Directive. It is the responsibility of the user to determine compliance to the EMC directive. Frames 7...10, 400/480V AC drives (Voltage Rating codes "C" and "D") meet CE certification requirements when installed per recommendations.  
 # Only available for 208...240V Frame 0-3 drives.

*n*

Special Firmware (Frames 0...6 Only)	
Code	Type
AD ♦	60 Hz Maximum
AE ♦	Cascading Fan/Pump Control
AX ♦	82 Hz Maximum
BA ♦	Pump Off (for pump jack)

♦ Must be used with Vector Control option C or D (Position k). Positions m-n are only required when custom firmware is supplied.

*j*

Comm Slot	
Code	Network Type
C	ControlNet (Coax)
D	DeviceNet
E	EtherNet/IP
<b>N</b>	<b>None</b>