

### NEMA 1 Enclosed DC Controls for PMDC and Shunt Wound Motors

**1/100 thru 2 Hp 115/230 VAC Single Phase 50/60 Hz.**

**Applications:** General purpose industrial use with permanent magnet or shunt wound DC motors.

**Features:** SCR controls have a free-wheeling diode and feature adjustable accel, decel, current limit, IR comp, min. and max speed pots to match applications. The anti-demag feature protects PM motors and helps protect the SCR power bridge against direct shorts.

Rugged all-metal NEMA 1 / IP20 enclosure. Unidirectional drives - change motor rotation by switching armature leads or by adding Forward/Brake/Reverse switch kit, if available.

The controls have US and Canadian UL component recognition.

A Plug-in Horsepower Resistor® and armature fuse must be ordered and installed in BC138, BC139, BC140, BC140-FBR, BC141 and BC142.



BC140-FBR  
Enclosed  
(NEMA 1)



BC138  
Enclosed  
(NEMA 1)

Catalog Number	Hp Range & Input Voltage		Description	Max Input Current (AC Amps)	Max Output Current (DC Amps)	List Price	Mult. Sym.	Apr'x. Shpg. Wgt. (lbs)
	115VAC Input / 90VDC Armature	230VAC Input / 180VDC Armature (c)						
BC138	1/100 - 1/3	—	Enclosed SCR control, single voltage	5	3.5	218	E9	1
BC139	—	1/50 - 3/4	Enclosed SCR control, single voltage	5	3.5	218	E9	1
BC140	1/100 - 3/4	1/50 - 1.5	Enclosed SCR control, optional heatsink, dual voltage	12	6	369	E9	3
	1/100 - 1 (a)	1/50 - 2 (a)		16 (a)	12 (a)			
BC140-FBR (b)	1/100 - 3/4	1/50 - 1.5	BC140 with BC144 Forward/Brake/Reverse switch factory installed	12	6	510	E9	3
	1/100 - 1 (a)	1/50 - 2 (a)		16 (a)	12 (a)			

**NOTES:**

(a) Max rating of 1 Hp at 115V and 2 Hp at 230V requires BC143 heatsink kit. See specification pages at the end of this section for details.

(b) FBR = Forward/Brake/Reverse switch installed

(c) Drives with 230V input can operate 90V motors at reduced performance levels. Refer to Installation & Operation Manual for details.

A Plug-in Horsepower Resistor® and armature fuse **must** be ordered and installed in BC138, BC139, BC140 and BC140-FBR.

### DC Control Accessories

Catalog Number	Description	List Price	Mult. Sym.	Apr'x. Shpg. Wgt.
BC24-LF	Ac Line Filter for use with CE Applications (24 Amps AC Max.)	75	E9	1
BC143	External Heatsink Kit (BC140, BC140-FBR, BC141, BC142, BC204)	72	E9	2
BC144	Forward-Brake-Reverse Switch Kit for BC140	124	E9	1
BC145	Signal Isolator Board	211	E9	1
BC147	Barrier Terminal Board (BC141 and BC142)	30	E9	1
BC148	Replacement Potentiometer Kit (5K ohm)	13	E9	1
BC149	Knob and Dial Kit	15	E9	1
BC152	Barrier Terminal Board With Signal Isolator (BC141 and BC142)	193	E9	1
BC218	DIN-rail mounting kit for BC141, BC142 or BC204	36	E9	1

**NOTE:**

BC24-LF is an AC line filter required for applications where CE is required if the control is not filtered elsewhere in the application. This filter may be used on most 115 or 230 VAC, single phase applications where CE is required.

Definite Purpose Motors

Unit Handling Motors

Brake Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Gearmotors and Gear Products

Motor Accessories

Grinders

**Chassis Mount  
DC Controls**

**1/100 thru 1.5 Hp  
1/50 thru 5 Hp**

**115 VAC Single Phase 50/60 Hz.  
230 VAC Single Phase 50/60 Hz.**



BC142

**Applications:** General purpose industrial use with permanent magnet or shunt wound DC motors.

**Features:** Chassis-mount SCR controls have a free-wheeling diode and feature adjustable accel, decel, current limit, IR comp, min and max speed pots to match applications. The anti-demag feature protects PM motors and helps protect the SCR power bride against direct shorts. The controls have US and Canadian UL component recognition.

A Plug-in Horsepower Resistor® and armature fuse **must** be ordered and installed in all versions of BC141 and BC142.

Catalog Number	Hp Range & Input Voltage		Description	Max Input Current (AC Amps)	Max Output Current (DC Amps)	List Price	Mult. Sym.	Apr'x. Shpg. Wgt. (lbs.)
	115VAC Input / 90VDC Armature	230VAC Input / 180VDC Armature (c)						
<b>Chassis Mount – SCR Controls</b>								
BC141	1/100 - 0.75	—	Chassis SCR control, optional heatsink, single voltage	12.0	8.0	202	E9	1
	1/100 - 1.5 (a)	—		24.0 (a)	16.0 (a)			
BC141-SIH	1/100 - 0.75	—	BC141 with BC152 Signal Isolator and BC143 Heatsink factory installed	12.0	8.0	477	E9	2
	1/100 - 1.5 (a)	—		24.0 (a)	16.0 (a)			
BC142	—	1/100 - 1.5	Chassis SCR control, optional heatsink, single voltage	12.0	8	202	E9	2
	—	1/100 - 3.0 (a)		24.0 (a)	16.0 (a)			
BC142-SIH	—	1/100 - 1.5	BC142 with BC152 Signal Isolator and BC143 Heatsink factory installed	12.0	8.0	499	E9	2
	—	1/100 - 3.0 (a)		24.0 (a)	16.0 (a)			
BC142-5	1/100 - 0.75	1/100 - 1.5	Chassis SCR Control, optional heatsink, dual voltage, supplied without fuses and fuse holders	12.0	8.0	225	E9	1
	1/100 - 1.5 (a)	1/100 - 3.0 (a)		24.0 (a)	16.0 (a)			
BC142-6	1/100 - 0.75	1/100 - 1.5	Chassis SCR control, optional heatsink, dual voltage	12.0	8.0	224	E9	1
	1/100 - 1.5 (a)	1/100 - 3.0 (a)		24.0 (a)	16.0 (a)			
BC142-6-SIH	1/100 - 0.75	1/100 - 1.5	BC142-6 with BC152 signal isolator board and BC143 Heatsink factory installed	12.0	8.0	499	E9	1
	1/100 - 1.5 (a)	1/100 - 3.0 (a)		24.0 (a)	16.0 (a)			
BC155	—	5.0	Chassis SCR control with heatsink, single voltage	38.0	26.0	660	E9	5
<b>Chassis Mount – Line Regenerative SCR Controls</b>								
BC204	1/6 - 0.75	1/3 - 1.0	Chassis regen SCR control, optional heatsink, dual voltage	12.0	8.0	377	E9	3
	1/6 - 1.5 (a)	1/3 - 2.0 (a)		16.0 (a)	11.0 (a)			
BC204-BPSI	1/6 - 0.75	1/3 - 1.0	BC204 with BC215 Bi-polar Signal Isolator factory installed	12.0	8.0	487	E9	3
	1/6 - 1.5 (a)	1/3 - 2.0 (a)		16.0 (a)	11.0 (a)			
BC200	1/8 - 1.0	1/4 - 2.0	Chassis regen SCR control, optional heatsink, dual voltage	16.0	11.0	704	E9	4
BC201	1/8 - 1.5	1/4 - 3.0	Chassis regen SCR control, optional heatsink, dual voltage	16.0	16.0	836	E9	1
BC203	—	5.0	Chassis regen SCR control, with heatsink, single voltage	38.0	25.0	1,052	E9	10

**NOTES:**

Chassis mount controls include 5k speed potentiometer.

Chassis mount control accessories are shown on the previous page

(a) BC143 Heatsink kit required for higher power ratings. See accessory table at the end of this section for details.

(b) Except for BC203, drives with 230V input can operate 90V motors at reduced performance levels. Refer to Installation & Operation Manual for details.

Definite Purpose Motors

Unit Handling Motors

Brake Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Gearmotors and Gear Products

Motor Accessories

Grinders

## Plug-in Horsepower Resistor and Fuse Kit



Horsepower Resistors should be selected based on the motor's rated current. The price of the Hp resistor and fuse is included in the BC138, BC139, BC140, BC140-FBR, BC141 and BC142 list price.

See selection below for catalog number.

Ordered as a separate item and shipped at no charge with a drive. Spare resistor kits are available for \$11.00 list, E9 multiplier.

Motor Hp Armature Voltage		Plug-In Hp Resistor Resistance Value (Ohms)	Catalog Number	Ap'x DC Current (Amps)	DC Fuse Rating For Armature
90-130V	180V				
1/100	1/50	1.0	BR1000	0.20	0.5
1/50	1/25	0.51	BR0510	0.30	0.5
1/30	1/15	0.35	BR0350	0.33	0.5
1/20	1/10	0.25	BR0250	0.5	0.75
1/15	1/8	0.25	BR0251	0.8	1.0
1/12	1/6	0.18	BR0180	0.85	1.25
1/8	1/4	0.1	BR0100	1.3	2.0
1/6	1/3	0.1	BR0101	2.0	2.5
1/4	1/2	0.05	BR0050	2.5	4.0
1/3	3/4	0.035	BR0035	3.3	5.0
1/2	1	0.025	BR0025	5.0	8.0
3/4	1 1/2	0.015	BR0015SP	7.5	12.0
1 (a)	2 (a)	0.01	BR0010SP	10	15.0
1 1/2 (a)	3 (a)	0.006	BR0006	15	25.0 (b)

**NOTES:**

(a) External Heatsink required.

(b) Also used with AC Line Fuse. For AC line fuse rating see manual.

**NEMA 4X DC Control and Accessories**

**1/4 thru 2 Hp  
3 Hp**

**115/230 VAC  
230 VAC**

**Single Phase 50/60 Hz.  
Single Phase 50/60 Hz.**



BC154 / BC160 / BCWD140 / BC354

**Applications:** Constant torque, new or replacement.

**Features:** NEMA 4X / IP65 sealed enclosure with built-in heatsink for wet / dirty environments. BC154, BCWD140 and BC160 are unidirectional controls. Change motor direction by switching armature leads or by adding Forward/ Brake/Reverse switch kit, if available. BC254 is a line regenerative SCR control for reversing applications and can drive the motor to a timed stop. BC354 is a PWM control that provides low-ripple DC power to the motor allowing more Hp when used with a 130 or 260 VDC motor. BC154, BC160, BC254 and BC354 are painted light gray and come with a start-stop switch. BCWD140 has a white epoxy coating (ideal for food processing applications) with forward/brake/reverse and run-jog switches installed. All offer a choice of armature or tachometer feedback and a speed or torque mode.

No Hp resistors are needed for these controls and current is jumper selectable.

Catalog Number	Hp Range & Input Voltage		Description	Max Input Current (AC Amps)	Max Output Current (DC Amps)	List Price	Mult. Sym.	Apr'x. Shpg. Wgt. (lbs.)
	115VAC Input / 90VDC Armature	230VAC Input / 180VDC Armature (c)						
<b>NEMA 4X / IP65 Washdown Duty SCR Controls</b>								
BC154	1/50 - 1	1/25 - 2	Enclosed SCR control, dual voltage	15.0	10.2	467	E9	5
BC154-P	1/50 - 1	1/25 - 2	BC154 with Power switch instead of Start/Stop switch	15.0	10.2	467	E9	5
BC154-R	1/50 - 1	1/25 - 2	BC154 with BC156 - Fwd/Brake/Rev Switch factory installed	15.0	10.2	616	E9	5
BC154-SI	1/50 - 1	1/25 - 2	BC154 with BC145 Signal Isolator Board and BC158 Auto/Man Switch Kit factory installed	15.0	10.2	751	E9	5
BC160	1.5	3	Enclosed SCR control, dual voltage	22.0	15.0	537	E9	3
<b>NEMA 4X / IP65 Washdown Duty SCR Control with White Epoxy Coating</b>								
BCWD140	1/50 - 1	1/25 - 2	Enclosed SCR control, dual voltage, white epoxy coating	15.0	10.2	625	E9	6
<b>NEMA 4X / IP65 Washdown Duty Line Regenerative SCR Control</b>								
BC254	1/10 - 1	1/5 - 2	Enclosed regen SCR control, dual voltage (a)	15.0	11.0	673	E9	5
BC254-FBR	1/10 - 1	1/5 - 2	BC254 with Power On/Off switch instead of Start/Stop switch and BC253 Fwd-Brake-Rev Switch factory installed	15.0	11.0	706	E9	5
<b>NEMA 4X / IP65 Washdown Duty PWM Control</b>								
BC354	1/50 - 0.75	1/25 - 1.5	Enclosed PWM control, dual voltage, with SCR rated motor	11.5	7.5	723	E9	5
	1/30 - 1 (b)	1/20 - 2 (b)	Enclosed PWM control, dual voltage, with PWM rated motor					

**NOTES:**

- (a) See the next page for BC254 accessories.
- (b) Motors with PWM rated motors designed for 130VDC (115VAC input) or 260VDC (230VAC input) will give best drive performance.
- (c) Except for BC354, drives with 230V input can operate 90V motors at reduced performance levels. Refer to Installation & Operation Manual for details.

**DC SCR NEMA 4X DC Control Accessories**

Catalog Number	Description	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.
BC153	Electronic Forward-Dynamic Brake-Reverse Kit for BC154, BC354	223	E9	1
BC156	Mechanical Forward-Dynamic Brake-Reverse Switch for BC154, BC354	145	E9	1
BC157	Run/Jog switch for BC154 & BC160, BC354	27	E9	1
BC158	Auto/Manual Installation Kit for BC145 signal isolator for BC154, BC160, BC354	60	E9	1
BC159	AC Line Switch Kit for BC154, BCWD140, BC354	32	E9	1
BC145	Signal Isolator Board	211	E9	1

**NOTE:** BC159 AC Line Switch Kit is factory installed on BC154, BCWD140, BC254 and BC354. Listed here as replacement or spare parts.

### Line Regenerative DC Controls and Accessories

**1/4 thru 3 Hp    115/230 VAC    Single Phase 50/60 Hz.**  
**5 Hp                230 VAC                Single Phase 50/60 Hz.**

**Applications:** Frequent start/stop/reverse applications or where controlled braking is required.

**Features:** Single phase line regenerative open chassis control to operate permanent magnet or wound field DC motors. These line regen controls are ideal for applications with overhauling loads. In torque mode, it can be used for tensioning applications. Several accessory boards are available to further customize the control.

Includes 5k speed potentiometer. Jumper selectable current settings.



BC254-FBR



BC200 / BC201



BC204

Catalog Number	Hp Range & Input Voltage		Description	Max Input Current (AC Amps)	Max Output Current (DC Amps)	List Price	Mult. Sym.	Apr'x. Shpg. Wgt. (lbs.)
	115VAC Input / 90VDC Armature	230VAC Input / 180VDC Armature (c)						
<b>Chassis Mount - Line Regenerative SCR</b>								
BC204	1/6 - 0.75	1/3 - 1.0	Chassis regen SCR control, optional heatsink, dual voltage	12.0	8.0	377	E9	3
	1/6 - 1.5 (a)	1/3 - 2.0 (a)		16.0 (a)	11.0 (a)			
BC204-BPSI	1/6 - 0.75	1/3 - 1.0	BC204 with BC215 Bi-polar Signal Isolator factory installed	12.0	8.0	487	E9	3
	1/6 - 1.5 (a)	1/3 - 2.0 (a)		16.0 (a)	11.0 (a)			
BC200	1/8 - 1.0	1/4 - 2.0	Chassis regen SCR control, optional heatsink, dual voltage	16.0	11.0	704	E9	4
BC201	1/8 - 1.5	1/4 - 3.0	Chassis regen SCR control, optional heatsink, dual voltage	16.0	16.0	836	E9	1
BC203	—	5.0	Chassis regen SCR control, with heatsink, single voltage	38.0	25.0	1,052	E9	10
<b>NEMA 4X / IP65 Washdown Duty - Line Regenerative SCR</b>								
BC254	1/10 - 1	1/5 - 2	Enclosed regen SCR control, dual voltage	15.0	11.0	673	E9	5
BC254-FBR	1/10 - 1	1/5 - 2	BC254 with Power On/Off switch instead of Start/Stop switch and BC253 Fwd-Brake-Rev Switch factory installed	15.0	11.0	706	E9	5

**NOTES:**

Chassis mount controls include 5k speed potentiometer.

(a) BC143 Heatsink kit required for higher power ratings. See accessory table at the end of this section for details.

(c) Except for BC203, drives with 230V input can operate 90V motors at reduced performance levels. Refer to Installation & Operation Manual for details.

### Line Regenerative DC Control Accessories

Catalog Number	Description	List Price	Mult. Sym.	Apr'x. Shpg. Wgt.
<b>Accessories for BC200, BC201 and BC203</b>				
BC212 (b)	Bipolar signal isolator board	216	E9	1
<b>Accessories for BC204</b>				
BC143	External Heatsink Kit	72	E9	2
BC215 (b)	Bipolar signal isolator board	100	E9	3
BC216	Multispeed board for BC204	77	E9	1
BC218	DIN rail mounting kit	36	E9	1
<b>Accessories for BC254</b>				
BC245 (b)	Bipolar signal isolator for BC254	213	E9	1
BC253	Forward-Stop-Brake-Reverse Switch for BC254	27	E9	1
BC258	Auto-manual Switch for BC254	60	E9	1
BC259	AC Line Switch for BC254	27	E9	5

**NOTE:**

(b) Voltage following mode only.

## NEMA Enclosed DC Control Specifications

Features	Catalog Number													
	BC138	BC139	BC140 or BC140-FBR		BCWD140		BC154		BC160		BC254 or BC254-FBR		BC354	
Enclosure	NEMA 1	NEMA 1	NEMA 1		NEMA 4X		NEMA 4X		NEMA 4X		NEMA 4X		NEMA 4X	
Control Type		Reversible	Reversible		Reversible		Reversible		Reversible		Regenerative		Regenerative	
AC Line Input (VAC 50/60Hz)	115	230	115	230	115	230	115	230	115	230	115	230	115	230
Max. AC Load Current (RMS)	5.0	5.0	12.0	12.0	15.0	15.0	15.0	15.0	22	22	15	15	11.5	11.5
Max. AC Load Current (RMS) w/ BC143	—	—	16.0	16.0	—	—	—	—	—	—	—	—	—	—
DC Armature Voltage Nominal (VDC)	90	180	90-130	180	90	180	90	180	90	180	90	180	90	180
Max. DC Load Current (ADC)	3.5	3.5	6.0	6.0	10.2	10.2	10.2	10.2	15	15	11	11	7.5	7.5
Max. DC Load Current (ADC) w/ BC143	—	—	12.0	12.0	—	—	—	—	—	—	—	—	—	—
Shunt Field Power Supply (VDC)	50/100	100/200	50/100	100/200	50/100	100/200	50/100	100/200	50/100	100/200	50/100	100/200	50/100	100/200
Maximum Field Current (ADC)	1.0	1.0	1.0	1.0	1.13	1.13	1.0	1.0	1.5	1.5	1.0	1.0	1.0	1.0
Rated Horsepower Range (SCR motor)	1/100 - 1/3	1/50-3/4	1/100 - 3/4	1/50 - 1 1/2	1/50 - 1	1/25 - 2	1/50 - 1	1/25 - 2	1.5	3	1/10 - 1	1/5 - 2	1/50 - 3/4	1/25 - 1.5
Rated Horsepower Range (PWM motor)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1/30 - 1	1/20 - 2
Max. Hp with BC143 Ext. Heat Sink	N/A	N/A	1 Hp	2Hp	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	N/A	N/A
Ambient Temp Range (°C)	0 - 40	0 - 40	0 - 40		0 - 40		0 - 40		0 - 45		0 - 40		0 - 40	
Ambient Temp Range w/ BC143 (°C)	N/A	N/A	0 - 50		N/A		N/A		N/A		N/A		N/A	
Speed Range (Motor May Be 20: 1 Constant Torque)	50:1	50:1	50:1		50:1		50:1		50:1		50:1		50:1	
Adjustable Accel / Decel Time (sec)	0.2 - 10	0.2 - 10	0.2 - 10		0.1 - 15		0.1 - 15		0.1 - 15		0.2 - 15		0.5 - 10	
Min. Speed Adjustable Range (% full speed)	0 - 30	0 - 30	0 - 30		0 - 30		0 - 30		0 - 30		N/A		N/A	
Max. Speed Adjustable Range (% full speed)	50 - 110	50 - 110	50 - 110		60 - 140		60 - 140		50 - 110		40 - 110		50 - 140	
Current Limit Adjustable Range (%)	0 - 200	0 - 200	0 - 200		0 - 200		0 - 200		0 - 180		0 - 200		0 - 200	
Adjustable Current Limit and Trip Out Type	No	No	No		Timed or Non-Timed		Timed or Non-Timed		Timed or Non-Timed		Timed or Non-Timed		Timed or Non-Timed	
Control Of Speed or Torque	Speed	Speed	Speed		Speed or Torque		Speed or Torque		Speed or Torque		Speed or Torque		Speed or Torque	
IR Compensation Adjustable (VDC)	0 - 24	0 - 24	0 - 24	0 - 48	0 - 15	0 - 30	0 - 15	0 - 30	0 - 30		0 - 15	0 - 30	0 - 15	0 - 30
Tachometer Feedback Input	No	No	No		Yes		Yes		Yes		Yes		Yes	
Plug-In Horsepower Resistor ®	Required	Required	Required		N/A		N/A		N/A		N/A		N/A	
UL & cUL Listing, CE	Yes	Yes	Yes		Yes		Yes		Yes		Yes		Yes	
AC Line Fuse	Included	Included	Included		External		External		External		External		External	
DC Armature Fuse	Included with Hp Resistor	Included with Hp Resistor	Included with Hp Resistor		Not supplied with control		Not supplied with control		External		External		External	
<b>Options</b>														
AC Line Switch	Standard	Standard	Standard		Opt-BC159		Opt - BC159		No		Opt - BC159		Opt - BC159	
Forward/Brake/Reverse Switch			(BC140)								(BC254)			
Mechanical	No	No	Opt - BC144		Standard		Opt - BC156		No		Opt - BC253		Opt - BC156	
Electronic	No	No	No		Opt - BC153		Opt - BC153		No		No		Opt - BC153	
Run/Jog Switch	No	No	No		Standard		Opt-BC157		Opt-BC157		No		Opt - BC157	
Input Signal: Current (1-5, 4-20, 20-50mA)	No	No	External Mount Opt - BC145		Internal Mount Opt - BC145		Internal Mount Opt - BC145		Internal Mount Opt - BC145		No		Internal Mount Opt - BC145	
Input Signal: Voltage (0-25, 0-120, 0-550 VDC)	No	No	Opt - BC145		0-5, 0-10 VDC input standard		0-5, 0-10 VDC input standard		0-5, 0-10 VDC input standard		0-5, 0-10 VDC input standard		0-5, 0-10 VDC input standard	
Electrical Connection To Control Barrier Terminal Block	Standard	Standard	Standard		Standard		Standard		Standard		Standard		Standard	
Current Sensing Relay/Overload Protector	No	No	No		Standard		Standard		Standard		Standard		Standard	
AC Line Filter for CE	Opt - BC24-LF	Opt - BC24-LF	Opt-BC24-LF		Opt-BC24-LF		Opt-BC24-LF		Opt-BC24-LF		Opt-BC24-LF		Opt-BC24-LF	

Definite Purpose Motors

Unit Handling Motors

Brake Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Gearmotors and Gear Products

Motor Accessories

Grinders



### Chassis Mount DC Control Specifications

Features	Catalog Number											
	BC141	BC142	BC142-5 & BC142-6		BC155	BC204		BC200		BC201		BC203
Enclosure	Chassis	Chassis	Chassis		Chassis	Chassis		Chassis		Chassis		Chassis
Control Type	Reversible	Reversible	Reversible		Reversible	Regenerative		Regenerative		Regenerative		Regenerative
AC Line Input (VAC 50/60Hz)	115	230	115	230	230	115	230	115	230	115	230	230
Max. AC Load Current (RMS)	12.0	12.0	12.0	12.0	38.0	12.0	12.0	16.0	16.0	24.0	24.0	38.0
Max. AC Load Current (RMS) w/ BC143	24.0	24.0	24.0	24.0	N/A	16.0	16.0	N/A	N/A	N/A	N/A	N/A
DC Armature Voltage Nominal (VDC)	90	180	90	180	180	90	180	90	180	90	180	180
Max. DC Load Current (ADC)	8.0	8.0	8.0	8.0	26.0	8.0	8.0	11.0	11.0	16.0	16.0	25.0
Max. DC Load Current (ADC) w/ BC143	16.0	16.0	16.0	16.0	N/A	11.0	11.0	N/A	N/A	N/A	N/A	N/A
Shunt Field Power Supply (VDC)	50/100	100/200	50/100	100/200	100/200	50/100	100/200	50/100	100/200	50/100	100/200	100/200
Maximum Field Current (ADC)	1.13	1.13	1.13	1.13	2.5	1.0	1.0	3.0	3.0	3.0	3.0	3.0
Rated Horsepower Range	1/100 - 0.75	1/100 - 1.5	1/100 - 0.75	1/100 - 1.5	5	1/6 - 0.75	1/3 - 1	1/4 - 1	1/2 - 2	1/8 - 1.5	1/4 - 3	5
Max. Hp with BC143 Ext. Heat Sink	1/100 - 1.5	1/50 - 3	1/100 - 1.5	1/50 - 3	N/A	1/6 - 1.5	1/3 - 2	N/A		N/A		N/A
Ambient Temp Range (°C)	0 - 40	0 - 40	0 - 40		0 - 40	0 - 40		0 - 45 (horiz) 0 - 50 (vert)		0 - 45 (horiz) 0 - 50 (vert)		0 - 40
Ambient Temp Range w/ BC143 (°C)	0 - 40	0 - 40	0 - 40		N/A	0 - 40		N/A		N/A		N/A
Speed Range (Motor may be 20:1 Constant Torque)	50:1	50:1	50:1		50:1	50:1		50:1		50:1		50:1
Adjustable Accel / Decel Time (sec)	0.2 - 10	0.2 - 10	0.2 - 10		1 - 10	0.1 - 15		0.1 - 15		0.1 - 15		0.5 - 10
Min. Speed Adjustable Range (% full speed)	0 - 30	0 - 30	0 - 30		0 - 30	N/A		N/A		N/A		0 - 30
Max. Speed Adjustable Range (% full speed)	50 - 110	50 - 110	50 - 110		50 - 110	50 - 110		70 - 110		70 - 110		50 - 140
Current Limit Adjustable Range (%)	0 - 200	0 - 200	0 - 200		0 - 200	0 - 175		1 - 15		1 - 15		0 - 200
Adjustable Current Limit and Tripout Type	Non Timed	Non Timed	Non Timed		Non Timed	Non Timed		Timed		Timed		Timed
Control of Speed or Torque	Speed	Speed	Speed		Speed or Torque	Speed or Torque		Speed or Torque		Speed or Torque		Speed
IR Compensation Adjustment	Yes	Yes	Yes		Yes	Yes		Yes		Yes		Yes
Tachometer Feedback Input	Yes	Yes	Yes		Yes	Yes		Yes		Yes		Yes
Plug-in Horsepower Resistor®	Required	Required	Required		N/A	N/A		N/A		N/A		N/A
UL & cUL Listing, CE	Yes	Yes	Yes		Yes	Yes		Yes		Yes		Yes
AC Line Fuse	Included	Included	Included		External	External		Included		Included		External
DC Armature Fuse	Included with Hp Resistor	Included with Hp Resistor	Included with Hp Resistor		Included with Hp Resistor	External		Included		Included		External
<b>Options</b>												
Input Signal: Current (4-20mA)	Plug on Mount Opt - BC152		Plug on Mount Opt - BC152		External Mount Opt - BC145	None	None	None	None	None	None	None
Input Signal: Current (1-5, 4-20, 20-50mA)	External Mount Opt - BC145		External Mount Opt - BC145									
Input Signal: Voltage (must be isolated)	0-9 VDC Standard		0-9 VDC Standard		0 to 9 VDC Standard	0 to ± 10 VDC Standard	0 to ± 10 VDC Standard	0 to ± 10 VDC Standard	0 to ± 10 VDC Standard	0 to ± 10 VDC Standard	0 to ± 10 VDC Standard	0 to ± 10 VDC Standard
Input Signal: Voltage (0-5, 0-10, 1-100, or 0-200 VDC)	Plug on Mount Opt - BC152		Plug on Mount Opt - BC152		External Mount Opt - BC145	±5 to ±25 VDC Opt - BC215	±5 to ±250 VDC Opt - BC212	±5 to ±250 VDC Opt - BC212	±5 to ±250 VDC Opt - BC212	±5 to ±250 VDC Opt - BC212	±5 to ±250 VDC Opt - BC212	±5 to ±250 VDC Opt - BC212
Input Signal: Voltage (0-25, 0-120, or 0-550 VDC)	External Mount Opt - BC145		External Mount Opt - BC145									
Push-On Quick Connects	Standard		Standard		None	None	None	None	None	None	None	None
Barrier Terminal Block	Opt - BC147		Opt - BC147									
Regenerative Accel / Decel Board	None	None	None		None	None	Opt - BC211	Opt - BC211	Opt - BC211	Opt - BC211	Opt - BC211	Opt - BC211
AC Line Filter for CE	Opt - BC24-LF		Opt - BC24-LF		Opt - BC24-LF	Opt - BC24-LF	Opt - BC24-LF	Opt - BC24-LF	Opt - BC24-LF	Opt - BC24-LF	Opt - BC24-LF	Opt - BC24-LF

Definite Purpose  
Motors

Unit Handling  
Motors

Brake Motors

IEC Frame  
Motors

50 Hertz  
Motors

Inverter/Vector  
Motors & Controls

DC Motors  
and Controls

Gearmotors and  
Gear Products

Motor  
Accessories

Grinders