



Line Starter



Combination Starter

B70
Motor Starter

NEC / CEC Certifications

Class I, Groups B, C & D

Class I, Zone 1 IIB+H2 Gb

Class II, Groups E, F & G

Class III

Type 3, 4 & 4X

Ta=-25°C to +40°C

Ta=-50°C to +40°C

Files E83969

Certificate LR11716 - 51



FEATURES-SPECIFICATIONS

Features

- TYPE 4, 4X rated – providing protection from hose directed water and corrosion
- Universal mounting pan, pre-drilled to facilitate easy field installation of starters. Provision for grounding supplied as standard.
- More wiring room – meets latest NEC wire bend requirements
- Quick release, captivated cover bolts of 316 grade stainless steel
- Flange sealing gasket located to the inside of cover bolt – preventing water seepage into enclosure through bolt holes
- Hinged cover provided as standard for an extra measure of safety and convenience
- Breaker (MCP) handle can be padlocked in “ON” or “OFF” position
- Provisions provided for drain and breather plus conduit openings for power and control
- Reset button provided as standard
- Two control operator openings provided plugged as standard. Additional openings can be factory or field drilled.
- Copper-free (less than 4/10 of 1% copper) enclosure
- Ductile mounting lugs

Materials

- **ENCLOSURE** – Copper-free aluminum
- **O-RING GASKET** – BUNA-N nitrile
- **COVER BOLTS** – 316 grade stainless steel
- **CB/MCP HANDLE** – Copper-free aluminum
- **RESET OPERATOR** – Thermoplastic polyester button molded onto stainless steel shaft. Aluminum shroud.
- **MOUNTING PAN** – Sheet aluminum
- **HINGE** – Aluminum with stainless steel pin
- **RESET SHROUD** – Black anodized

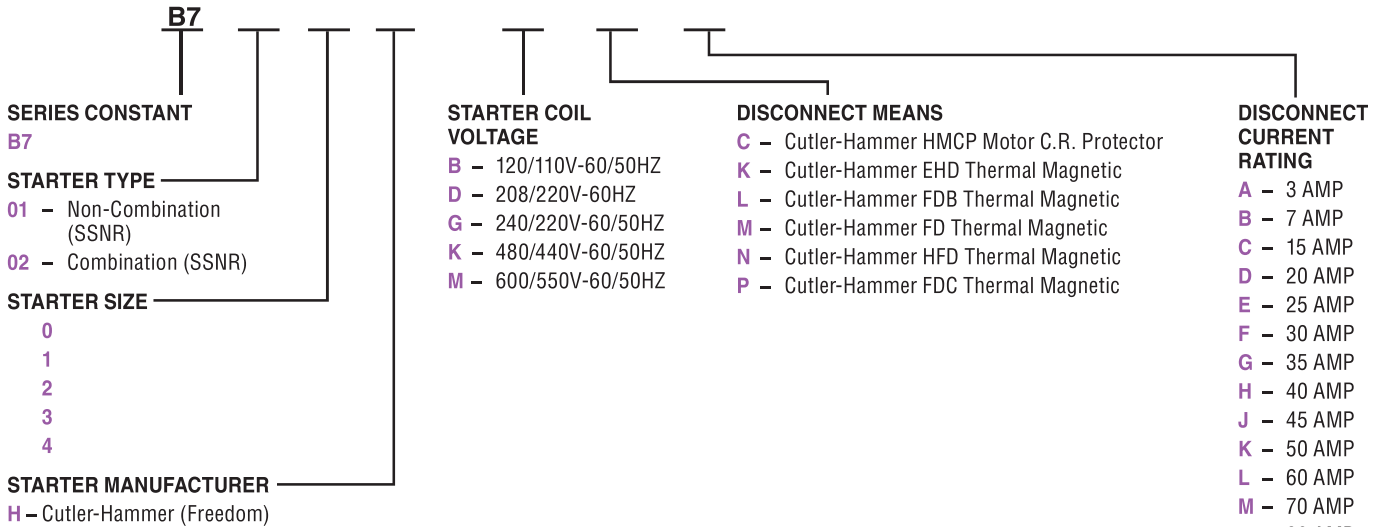
Electrical Rating

- Starters are 3 phase 50/60Hz
- 600VAC Single Speed Non-Reversing



STARTERS B7 SERIES

CATALOG LOGIC – B7 ENCLOSURES WITH CONTROLS



This Catalog Logic Chart is for reference only and is to be used for selection of special voltage and amperage requirements. Consult Factory since not all assemblies are available with complete list of options displayed.

B7 MAGNETIC LINE STARTERS					
NEMA STARTER SIZE	MOTOR VOLTS	COIL VOLTS	MAX. HP	CATALOG NUMBER	ENCLOSURE ONLY NO INTERIORS
				CUTLER-HAMMER SERIES AN16	
0	SEP. CONTROL	120	—	B7010HB	B7011
0	230	240	3	B7010HG	
0	460	480	5	B7010HK	
0	575	600	5	B7010HM	
1	SEP. CONTROL	120	—	B7011HB	B7011
1	230	240	7-1/2	B7011HG	
1	460	480	10	B7011HK	
1	575	600	10	B7011HM	
2	SEP. CONTROL	120	—	B7012HB	B7012
2	230	240	15	B7012HG	
2	460	480	25	B7012HK	
2	575	600	25	B7012HM	
3	SEP. CONTROL	120	—	B7013HB	B7013
3	230	240	30	B7013HG	
3	460	480	50	B7013HK	
3	575	600	50	B7013HM	
4	SEP. CONTROL	120	—	B7014HB	B7014
4	230	240	50	B7014HG	
4	460	480	100	B7014HK	
4	575	600	100	B7014HM	



Magnetic Line Starters - 3 Pole 3Phase, Single Speed Non Reversing 600VAC 60Hz - Overload Heaters Required

- See catalog logic page for additional coil voltages
- Control transformers for use in combination starters only.
- Control transformers will not fit in the starter only below.
- Supplied without overload heaters unless heater value is specified.



Combination Starter

B7 COMBINATION MAGNETIC LINE STARTERS

NEMA STARTER SIZE	MOTOR VOLTS	COIL VOLTS	MAX. HP	DISCONNECT TRIP AMPS	CATALOG NUMBER CUTLER-HAMMER SERIES AN16	ENCLOSURE ONLY NO INTERIORS
0	SEP. CONTROL	120	—	3	B7020HBCA	B7021
0	SEP. CONTROL	120	—	7	B7020HBCB	
0	SEP. CONTROL	120	—	15	B7020HBCC	
0	230	240	1	7	B7020HGCB	
0	230	240	3	15	B7020HGCC	
0	460	480	1	3	B7020HKCA	
0	460	480	2	7	B7020HKCB	
0	460	480	5	15	B7020HKCC	
0	575	600	1	3	B7020HMCA	
0	575	600	2	7	B7020HMCB	
0	575	600	5	15	B7020HMCC	
1	SEP. CONTROL	120	—	15	B7021HBCB	B7021
1	SEP. CONTROL	120	—	30	B7021HBCF	
1	230	240	7-1/2	30	B7021HGCF	
1	460	480	10	30	B7021HKCF	
1	575	600	10	30	B7021HMcF	
2	SEP. CONTROL	120	—	50	B7022HBCB	B7022
2	SEP. CONTROL	120	—	70	B7022HBCM	
2	230	240	15	50	B7022HGCB	
2	230	240	15	70	B7022HGCM	
2	460	480	25	50	B7022HKCB	
2	575	600	25	50	B7022HMCK	
3	SEP. CONTROL	120	—	100	B7023HBCB	B7023
3	230	240	30	100	B7023HGCB	
3	460	480	50	100	B7023HKCB	
3	575	600	50	100	B7023HMcB	
4	SEP. CONTROL	120	—	150	B7024HBCB	B7024
4	230	240	50	150	B7024HGCB	
4	460	480	100	150	B7024HKCB	
4	575	600	100	150	B7024HMCT	
5	SEP. CONTROL	120	—	250	B7025CBCMCPJ250	See chart below
5	SEP. CONTROL	120	—	400	B7025CBCMCPK400	
5	230	240	75	250	B7025CGCMCPJ250	
5	230	240	100	400	B7025CGCMCPK400	
5	460	480	150	250	B7025CKCMCPJ250	
5	460	480	200	400	B7025CKCMCPK400	
5	575	600	150	250	B7025CMCMCPJ250	
5	575	600	200	400	B7025CMCMCPK400	

**Combination Starters - 3 Pole
3Phase, Single Speed Non
Reversing 600VAC 60Hz - Overload
Heaters Required**

- See catalog logic page for additional coil voltages
- Control transformers for use in combination starters only.
- Supplied without overload heaters unless heater value is specified.
- Combination starter enclosures have sufficient space for factory or field mounting of a control transformer.
- Separate Control=Coil control voltage from a second supply source or from an internal control transformer



STARTERS B7 SERIES

SIZE 5 COMBINATION MOTOR STARTER ENCLOSURE ONLY					
STARTER MANUFACTURER	STARTER TYPE	CIRCUIT BREAKER FRAME			ENCLOSURE CAT. NUMBER
		C-H	GE	SQ-D	
Allen Bradley	Series 509	J	F-225	K	B7025A2
Allen Bradley	Series 509	K	J-600	L	B7025A4
Cutler Hammer	Freedom-AN16	J	F-225	K	B7025C2
Cutler Hammer	Freedom-AN16	K	J-600	L	B7025C4
General Electric	Series 306	J	F-225	K	B7025G2
General Electric	Series 306	K	J-600	L	B7025G4
Square D	Series 8536	J	F-225	K	B7025S2
Square D	Series 8536	K	J-600	L	B7025S4
Eaton	Freedom-AN19	J	F-225	K	B7025W2
Eaton	Freedom-AN19	K	J-600	L	B7025W4

OVERLOAD HEATERS

Overload heaters are not supplied as part of the starter assemblies and are to be ordered as separate items by catalog number and priced accordingly.

Heaters should be selected on the basis of the actual full-load current and service factor as shown on the motor nameplate or in the manufacturer's published literature.

When motor and overload relay are in the same ambient and the service factor of the motor is 1.15 to 1.25, select heaters from the heater selection chart. If the service factor of the motor is 1.0, or there is no service factor shown, or a maximum of 115% protection is desired, select one size smaller heater than indicated.

When motor and overload relay are in different ambients, select heaters from the chart using adjusted motor currents as follows: decrease rated motor current 1% for each °C motor ambient exceeds controller ambient; increase rated motor current 1% for each °C controller ambient exceeds motor ambient.

FOR SIZES 0-1				
KH2001B-3	.254	.306	.359	.411
KH2002B-3	.375	.452	.530	.607
KH2003B-3	.560	.676	.791	.907
KH2004B-3	.814	.983	1.15	1.32
KH2005B-3	1.20	1.45	1.71	1.96
KH2006B-3	1.79	2.16	2.53	2.90
KH2007B-3	2.15	2.60	3.04	3.49
KH2008B-3	3.23	3.90	4.56	5.23
KH2009B-3	4.55	5.50	6.45	7.40
KH2010B-3	6.75	8.17	9.58	11.0
KH2011B-3	9.14	10.8	12.4	14.0
KH2012B-3	14.0	16.9	19.9	22.8
KH2013B-3	18.7	22.7	26.7	30.7
KH2014B-3	23.5	28.5	33.5	38.5
FOR SIZE 2				
KH2015B-3	29.0	34.0	39.1	44.1
KH2016B-3	39.6	45.5	51.5	57.4
KH2017B-3	53.9	60.9	67.9	74.9
FOR SIZES 3-4				
KH2018-3	18.0	20.2	22.3	24.5
KH2019-3	24.6	27.6	30.5	33.4
KH2020-3	33.5	37.5	41.5	45.6
KH2021-3	45.7	51.2	56.7	62.1
KH2022-3	62.2	69.7	77.1	84.6
KH2023-3	84.7	95.0	105.0	115.0
KH2024-3	106.0	118.0	131.0	144.0
FOR SIZE 5				
KH2004B-3	49	59	69	79
KH2005B-3	72	87	103	118
KH2006B-3	107	130	152	174
KH2007B-3	129	156	182	209
KH2008B-3	194	234	274	—

OVERLOAD HEATERS/NON-REVERSING



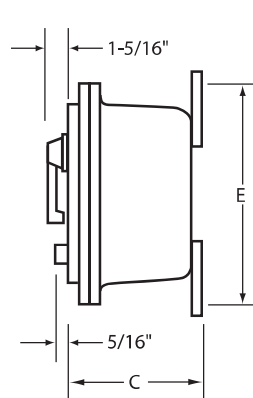
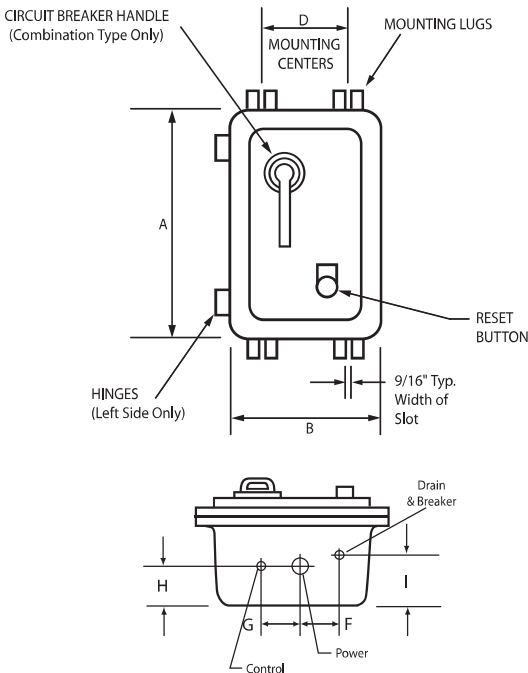
MOTOR STARTERS DIMENSIONS

B7 DIMENSIONS															
CATALOG NUMBER	NEMA SIZE	TYPE	DIMENSIONS IN (MM)									EST. ENCLOSURE WEIGH LBS. (KG)	CONDUIT OPENINGS TOP/BOTTOM (NPT)Ⓞ		
			A	B	C	D	E	F	G	H	I		POWER	CONTROL	DRAIN BREATHER
B7011	0,1	Starter Only	18" (457)	11" (280)	9-1/8" (232)	3-5/8" (92)	16-3/8" (416)	2-1/8" (54)	2-3/8" (60)	2-11/16" (68)	3-7/16" (87)	46 (21)	1-1/2"	3/4"	1/2"
B7012	2	Starter Only	20" (508)	12-1/2" (317)	9-1/8" (232)	5" (127)	18-3/8" (467)	2-1/2" (63)	2-1/2" (63)	2-11/16" (68)	3-3/16" (81)	56 (25)	1-1/2"	3/4"	1/2"
B7013	3	Starter Only	26-1/4" (667)	12-1/2" (317)	10-3/4" (276)	5" (127)	24-5/8" (625)	2-1/2" (63)	2-3/4" (70)	4-1/16" (103)	5-1/2" (140)	80 (36)	2"	1"	1/2"
B7014	4	Starter Only	34-1/4" (870)	16-1/2" (419)	11-1/2" (292)	9" (229)	32-5/8" (830)	3-3/4" (95)	4" (102)	4-7/16" (113)	6" (152)	155 (70)	3"	1"	1/2"
B7021	0,1	Combination Starter	23" (584)	14-1/2" (368)	9-1/8" (232)	7" (178)	21-3/8" (543)	2-1/8" (54)	2-1/2" (64)	2-11/16" (68)	3-7/16" (87)	78 (35)	1-1/2"	3/4"	1/2"
B7022	2	Combination Starter	25-1/2" (648)	14-1/2" (368)	9-1/8" (232)	7" (178)	23-7/8" (606)	2-1/8" (54)	2-1/2" (64)	2-11/16" (68)	3-7/16" (87)	88 (40)	1-1/2"	3/4"	1/2"
B7023	3	Combination Starter	27-1/4" (692)	17-7/8" (454)	11" (280)	10-3/8" (263)	25-5/8" (651)	3-1/2" (89)	3-1/2" (89)	4-3/16" (106)	5-1/2" (140)	143 (65)	2"	1"	1/2"
B7024	4	Combination Starter	34-1/4" (870)	21-1/2" (546)	11-7/8" (302)	14" (356)	32-5/8" (829)	4-3/4" (121)	5" (127)	4-9/16" (116)	6-3/16" (157)	235 (107)	3"	1"	1/2"

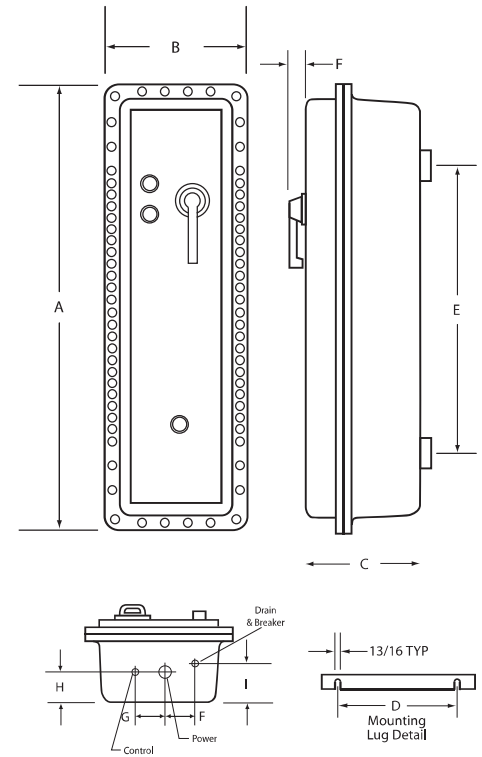
Ⓞ 1/2" conduit openings may be used for drain and/or breather installation. Smaller conduit openings may be used by utilizing reducing bushings. Custom conduit sizes and locations are available upon request.

DIMENSIONS FOR SIZE 5 COMBINATION STARTER													
DIMENSIONS IN (MM)										CONDUIT TOP & BTM. (NPT)			ENCL. WT. LBS (KG)
A	B	C	D	E	F	G	H	I	J	K	L	M	
62-1/4" (1581)	20-1/4" (514)	15" (381)	18-1/2" (470)	43-1/2" (1105)	2-5/8" (67)	3-1/8" (79)	5-3/8" (137)	7-3/8" (187)	3-1/2" (89)	4" (102)	1/2" (13)	1" (25)	540 (245)

Dimensions B7 Size 0 Thru 4



Dimensions B7 Size 5





STARTERS B7 SERIES



B7AD0 Combination Starter

B70

Motor Starter

NEC / CEC Certifications

Class I, Groups B, C & D

Class I, Zone 1 IIB+H2 Gb

Class II, Groups E, F & G

Class III

Type 3, 4 & 4X

Ta=-25°C to +40°C

Ta=-50°C to +40°C

UL Files E83969

CSB Certificate LR11716 - 51

FEATURES-SPECIFICATIONS

Eaton Freedom AN19 Starters with C440 Electronic Overload Relays

Features AN19 Starter

- Solid State Overload Relays
- Brownout Protection
- Communications and user interface capabilities
- Overload Heaters not required
- Phase loss and a selectable (On/Off) phase unbalance protection
- Selectable automatic/manual reset
- Selectable Trip Class (10A, 10, 20, 30)
- Class II ground-fault protection – option add “GF” at end of catalog number
- Heaters are not required with the AN19 Starter. The Overload Module has trip current settings via DIP Switch between the amperage range shown.
- All AN19 Starters Coils are wired for separate control and supplied with 110V/50Hz - 120V/60Hz as standard.

Features Enclosure

- TYPE 4, 4X rated – providing protection from hose directed water and corrosion
- Mounting pan, pre-drilled to facilitate easy field installation of starters. Provision for grounding supplied as standard.

- More wiring room – meets latest NEC wire bend requirements
- Quick release, captivated cover bolts of 316 grade stainless steel
- Flange sealing gasket located to the inside of cover bolt – preventing water see page into enclosure through bolt holes
- Hinged cover provided as standard for an extra measure of safety and convenience
- Breaker (MCP) handle can be padlocked in “ON” or “OFF” position
- Provisions provided for drain and breather plus conduit openings for power and control
- Field replaceable reset button provided as standard with gold contact blocks
- Two control operator openings provided plugged as standard. Additional openings can be factory or field drilled
- Copper-free (less than ¼% of 1% copper) enclosure
- Ductile mounting lugs
- Select from B7 Modification Chart
- Transformers are multi-tap
 - » Size 0 50VA
 - » Size 1-2 100VA
 - » Size 3 150VA
 - » Size 4-5 200VA
- AN19 Starters Auxiliary Contacts available, B7HAC

Materials

- **ENCLOSURE** – Copper-free aluminum
- **O-RING GASKET** – BUNA-N nitrile
- **COVER BOLTS** – 316 grade stainless steel
- **MCCB/MCP HANDLE** – Copper-free aluminum
- **RESET OPERATOR** – Thermoplastic polyester polyester button molded onto stainless steel shaft. Aluminum shroud.
- **MOUNTING PAN** – Sheet aluminum
- **HINGE** – Aluminum with stainless steel pin
- **RESET SHROUD** – Black anodized

ELECTRICAL RATING

- Starters are 3 phase 50/60Hz 600VAC Single Speed Non-Reversing



B7AD COMBINATION STARTER								
NEMA STARTER SIZE	MOTOR VOLTS	MAXIMUM HP	COIL VOLTS/ HZ	MCCB OR MCP AMP TRIP	WITH MOTOR PROTECTOR AND STARTER	CATALOG NUMBER		ENCLOSURE ONLY
						*ADD OLR CODE		
						OLR CODE	FLA RANGE	
0	230	3	110/50 120/60	3	B7AD020H6CA* B7AD020H6CB* B7AD020H6CC*	-1P6	0.33-1.62A	B7AD021
	460	5		7		-005	1.0-5.0A	
	575	5		15		-020	4.0-20A	
1	230	7-1/2	110/50 120/60	30	B7AD021H6CF*	-005	1.0-5.0A	B7AD021
	460	10				-020	4.0-20A	
	575	10				-045	0.9-45A	
2	230	15	110/50 120/60	50	B7AD022H6CK*	-20	4.0-20A	B7AD022
	460	25				-045	0.9-45A	
	575	25						
3	230	30	110/50 120/60	100	B7AD023H6CQ*	-100	20-100A	B7AD023
	460	50						
	575	50						
4	230	50	110/50 120/60	150	B7AD024H6CT*	-140	28-140A	B7AD024
	460	100						
	575	100						
5	230	100	110/50 120/60	400	B7AD025H6K400*	-300	60-300A	B7AD025K
	460	200						
	575	200						