

# Clamped EBMXC explosionproof combination motor starters

Cl. I, Div. 1 & 2, Groups B<sup>ⓐ</sup>, C, D  
Cl. I, Zones 1 & 2  
Cl. II, Groups E, F, G  
Cl. III  
NEMA 3R, 4X<sup>ⓑ</sup>, 7BCD, 9EFG

Explosionproof  
Dust-ignitionproof

1C

## Applications:

- Operating where flammable liquids or gases are handled, processed or used
- Damp, wet, dirty, dusty, hazardous areas where ultimate corrosion and ingress protection is required
- Harsh and hazardous motor control environments, including refineries, chemical and petrochemical plants, corrosive process facilities, food and beverage, marine and mining
- Across-the-line starting, stopping, speed changing and reversing of polyphased AC induction motors

## Features:

- Clamped enclosure significantly reduces time to enter enclosure and reduces opportunity for missing, stripped or broken bolts
- 65kAIC at 480V enclosure rating for high interrupting capacity applications
- -50°C to +60°C temperature range for extreme environments
- Magnetic, thermal magnetic and electronic break trip options for short circuit and overcurrent protection
- Bi-metallic and electronic/solid state overload protection options
- Normally open (NO) holding circuit contact supplied standard
- Up to six cover operators for a variety of applications
- Side operated breaker handle provides visual confirmation of proper operator alignment while cover is open and can be padlocked in either "ON" or "OFF" positions for OSHA compliance
- Neoprene cover gasket provides NEMA 4X protection for hose down applications
- Maximum wiring room compliance with National Electrical Code requirements allows for easy and safe installation<sup>Ⓐ</sup>
- Rugged, corrosion-resistant, cast copper-free aluminum construction provides NEMA 4X protection
- Semi-clamshell enclosure design, with an external flanged ground joint between body and cover, provides increased access to interior components
- Minimum enclosure-to-enclosure spacing with little interference between the opened cover and adjacent enclosure
- Pre-drilled mounting plate for simple starter and breaker installation
- Detachable tap-on mounting feet
- Steel brackets supplied standard for lifting during installation
- Bodies have top and bottom drilled and tapped entries for power and control conduits; removable reducers are supplied standard to accommodate smaller size conduits; all conduit entries are plugged

## Electrical ratings:

- Motor starters:
  - Single-, three-phase
  - 3-pole, non-reversing, full voltage
  - 600 VAC maximum
  - NEMA sizes 0-4
- Breakers and HMCPs:
  - 3-pole, 600 VAC, 125 VDC
  - Eaton frames: EG, JG (up to 250A)<sup>ⓓ</sup>



## Certifications and compliances:

### NEC/CEC:

- Class I, Divisions 1 & 2, Groups B<sup>ⓐ</sup>, C, D
- Class I, Zones 1 & 2
- Class II, Groups E, F, G
- Class III

### UL standards:

- UL1203 – Explosionproof and Dust-ignitionproof Electrical Equipment for use in Hazardous (Classified) Locations
- UL2062 – High AIC Ratings for Groups C, D

Voltage (VAC)	RMS symmetrical amps
240, 480	65,000
600	35,000

### CSA standard:

- cUL to CSA C22.2 No. 30

### Additional certifications:

- UL/cUL certified for -50°C to +60°C
- SASO Certificate of Conformity

### Environmental ratings:

- NEMA 3R, 4X<sup>ⓑ</sup>, 7BCD, 9EFG

## Standard materials:

- Body and cover – copper-free aluminum
- Clamp – anodized copper-free aluminum
- External hardware – stainless steel
- Internal parts – galvanized steel

<sup>Ⓐ</sup> Standard factory wiring included between the starter and breaker – consult factory for any additional wiring requirements.

<sup>ⓑ</sup> High AIC and -50°C temperature certifications do not apply for Group B.

<sup>ⓒ</sup> Enclosures with PB23, RR2 and RR3 options are rated NEMA 3R. All other options maintain NEMA 4X rating.

<sup>ⓓ</sup> 15-125A rated 600Y/347 VAC maximum; 150-250A rated 600 VAC maximum.

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## Ordering information:

### Part number example

EBMX2C-F2W4B-100 RLN AIC

**EBMX** **2** **C-F** **2** **W** **4** **B-100** **RLN**

**Series**  
EBMX Hazardous rated enclosure with clamping technology

**Enclosure size**  
2 NEMA sizes 0-2  
3 NEMA sizes 3 & 4

**Function**  
C Combo starter in clamped EBMX enclosure

**Combo starter function**

F	Full voltage, non-reversing starter, 120V coil, breaker, with CPT
G	Full voltage, non-reversing starter <sup>Ⓒ</sup> , breaker, without CPT
H	Full voltage, non-reversing starter, 120V coil, HMCP, with CPT
K	Full voltage, non-reversing starter <sup>Ⓒ</sup> , HMCP, without CPT

**Line voltage**

1	120 VAC
2	240 VAC
4	480 VAC
6	600 VAC

**Starter manufacturer**  
W Eaton

**NEMA starter size**  
0  
1  
3  
4

**Breaker trip<sup>Ⓓ</sup>  
(only with "F" or "G" as combo starter function)**

015	050	125
020	070	150
030	090	175
040	100	200

**HMCP trip<sup>Ⓓ</sup>  
(only with "H" or "K" as combo starter function)**

003	030	100
007	050	250
015	070	

**Cover operators<sup>Ⓘ</sup>**

GLB	Green LED pilot light with blank legend plate
GLF	Green LED light with "OFF" legend plate
PB23	Start/Stop pushbutton with "START" & "STOP" legend plates (two positions)
RLB	Red LED pilot light with blank legend plate
RLN	Red LED light with "ON" legend plate
RR2	2 position selector switch with "ON-OFF" legend plate
RR3	3 position selector switch with "HAND-OFF-AUTO" legend plate
BLANK	No cover operators

**FLA**

	FLA range	NEMA size			
		0, 1	2	3, 4	
<i>Blank or ER option</i>	0.0 - 0.0	•	•	•	
A	0.8 - 1.3	•	•		
B	1.2 - 2.0	•	•		
C	1.8 - 2.9	•	•		
D	2.2 - 3.5	•	•		
E	3.2 - 5.2	•	•		
F	4.6 - 7.4	•	•		
G	6.8 - 11.0	•	•		
H	9.1 - 14.0	•	•		
J	14.0 - 22.8	•	•		
L	23.5 - 38.5	•	•		
M	39.6 - 57.4		•		
N	53.9 - 74.9		•		
P	8.0 - 11.5			•	
Q	11.4 - 15.7			•	
R	14.3 - 19.0			•	
S	18.0 - 24.5			•	
T	24.6 - 33.4			•	
V	33.5 - 45.6			•	
W	45.7 - 62.1			•	
X	62.2 - 84.6			•	
Y	84.7 - 115.0			•	
Z	106.0 - 144.0			•	

**Options<sup>⓵</sup>**

AIC	65kAIC at 480V, 35kAIC at 600V
BST	Shunt trip, 120V
ER <sup>Ⓚ</sup>	Electronic overload relay (starter)
ET	Electronic trip breaker (thermal magnetic standard)
HT	Ambient compensated breaker; +60°C enclosure rating
MT	Freeze-tested breaker; -50°C enclosure rating
R11	Space heater, 25 watts, 120V
R22	Space heater, 25 watts, 240V
R44	Space heater, 25 watts, 480V
S214	External ground lug
S752	External epoxy coating
S753	Internal and external epoxy coating
S756V	Breather and drain (Class I, Groups B, C, D)
S781	Auxiliary contact on starter: (1) NO & (1) NC
S782	Auxiliary contacts on starter: (2) NO & (2) NC
S783	Auxiliary contacts on starter: (3) NO & (3) NC
S784	Auxiliary switch on circuit breaker: 1A & 1B
S785	Auxiliary switches on circuit breaker: 2A & 2B
S786	12-point terminal block, 30 amp, 300V

<sup>Ⓔ</sup> High AIC and -50°C temperature certifications do not apply for Group B.  
<sup>Ⓕ</sup> Enclosures with PB23, RR2 and RR3 options are rated NEMA 3R. All other options maintain NEMA 4X rating.  
<sup>Ⓖ</sup> Starter coil equals line voltage.  
<sup>Ⓗ</sup> 15-125A rated 600Y/347 VAC maximum; 150-250A rated 600 VAC maximum.  
<sup>Ⓘ</sup> List selected operators in order starting with the top position.  
<sup>⓵</sup> List selected options in alphanumeric order.  
<sup>Ⓚ</sup> Available with NEMA starter sizes 0-3. Pushbutton provided in cover for manual reset.

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## Freedom starter and G-Series breaker:

Motor starter		Circuit breaker		
Horsepower	Line voltage	NEMA size	Amperage	Frame
1	120	0	20	EG
3	240			
5	480			
5	600			
2	120	1	30	EG
5	240			
7.5	240			
10	480			
10	600	2	30	EG
3	120			
10	240			
15	240			
15	480	2	40	EG
15	600			
20	480			
20	600			
25	480	3	70	EG
25	600			
30	240			
30	480			
30	600	3	70	EG
40	480			
40	600			
50	480			
50	600	4	100	JG
40	240			
50	240			
60	480			
60	600	4	100	JG
75	480			
75	600			
100	480			
100	600		150	

Note: 120V is single-phase; other voltages are polyphase.

## Freedom starter and G-Series HMCP:

Motor starter		HMCP		
Horsepower	Line voltage	NEMA size	Amperage	Frame
3	240	0	15	EG
3	480			
3	600			
5	480			
5	600	1	15	EG
7.5	240			
7.5	480			
10	480			
10	600	2	15	EG
10	240			
15	240			
15	480			
20	600	2	30	EG
25	480			
25	600			
30	240			
30	600	3	50	EG
50	480			
50	600			
50	240			
100	480	4	250	JG
100	600		250	

## Reference tables:

### Starter electronic overload relay settings

NEMA size	FLA range (A)
0	1-5
1	4-20
2	9-45
3	20-100
4	28-140

### Breaker electronic trip dial settings

Amperage (A)	Range (A)
50	20, 25, 30, 32, 40, 45, 50
100	40, 45, 50, 63, 70, 80, 90, 100
160	63, 80, 90, 100, 110, 125, 150, 160
200	100, 125, 150, 160, 170, 200, 225, 250

### Control circuit transformer, 50/60 Hz, fusing for primary and secondary

NEMA size	VA
0-2	100
3	200
4	300

### HMCP trip settings

Amperage (A)	Trip range (A)
3	9-33
7	21-77
15	45-165
30	90-330
50	150-550
70	210-770
100	300-1100
250	1250-2500

Ⓛ High AIC and -50°C temperature certifications do not apply for Group B.

Ⓜ Enclosures with PB23, RR2 and RR3 options are rated NEMA 3R. All other options maintain NEMA 4X rating.

Ⓝ Fuses not included.

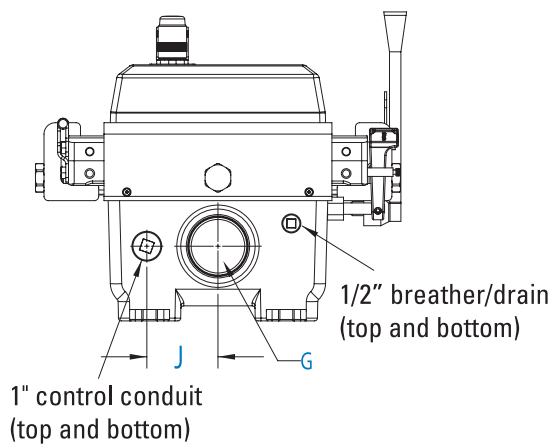
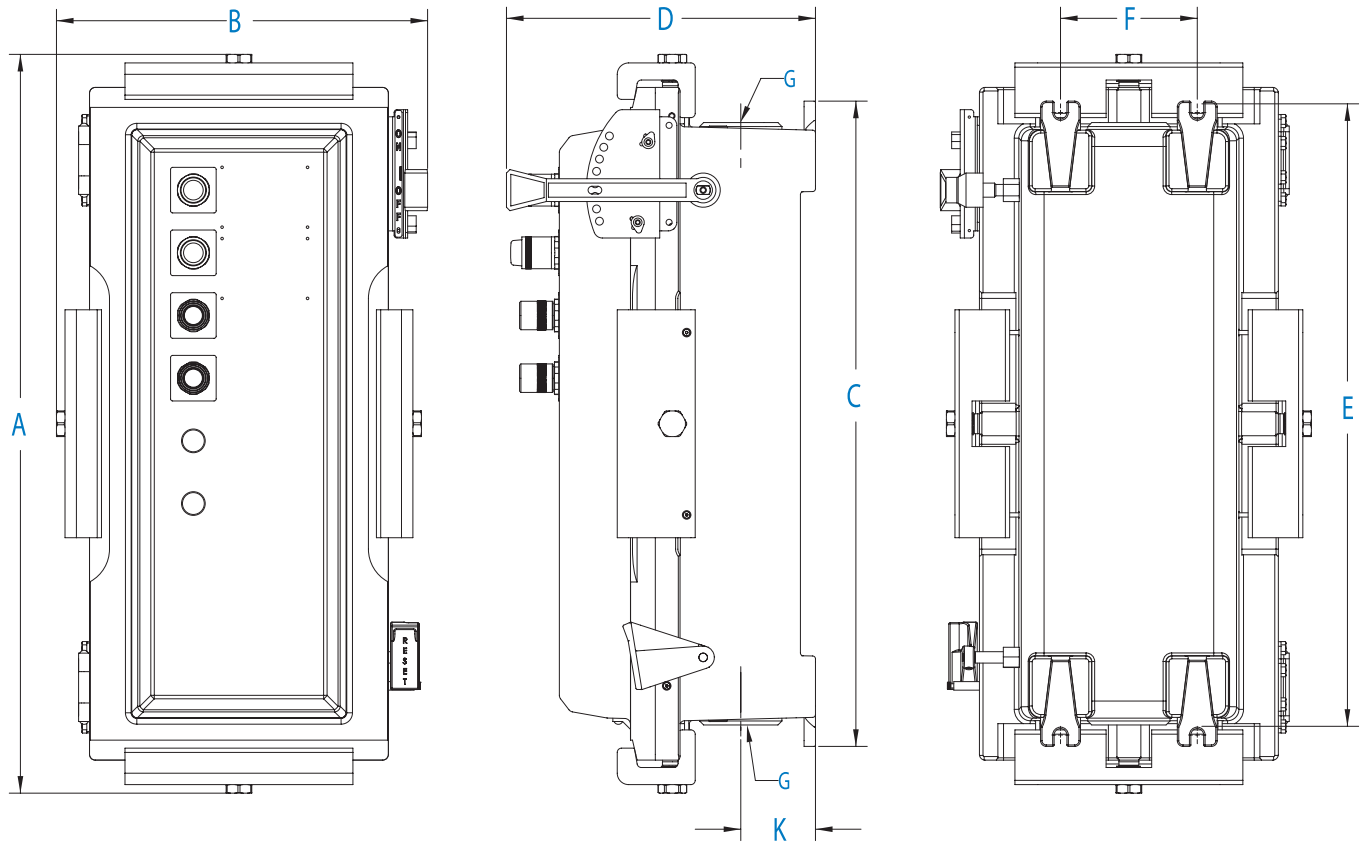
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1C Dimensions (in inches):



Enclosure size	A	B	C	D	E	F	G		J	K
							Drilled and tapped	With reducer		
2	32.40	16.28	28.31	13.56	27.25	6.00	3 NPT	2.5 NPT	3.12	3.28
3	42.28	17.93	38.15	13.85	37.25	6.00	3 NPT	2.5 NPT	3.93	3.56

⊕ High AIC and -50°C temperature certifications do not apply for Group B.

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