

October 1997
 Mailed to: E, D, C/29-100A, 31-400A,
 31-500A

Series C[®] Molded Case Circuit Breakers F-Frame 10-225 Amperes


Dimensions, Inches (mm)

No. of Poles	Width	Height	Depth
1	1.375 (35)	6 (152)	3.375 (86)
2	2.75 (70)	6 (152)	3.375 (86)
3	4.125 (105)	6 (152)	3.375 (86)
4	5.5 (140)	6 (152)	3.375 (86)

Approximate Shipping Weight, Lbs. (kg)

Breaker Type	Number of Poles			
	1	2	3	4
ED, EDH, EDC	—	3 (1.361)	4.5 (2.041)	—
EHD, FDB, FD, HFD	2 (.907)	3 (1.361)	4.5 (2.041)	6 (2.721)
FDC	—	3.25 (1.474)	4.75 (2.155)	6.35 (2.880)
HFDDC	—	—	4.5 (2.041)	—

INTERRUPTING CAPACITY RATINGS
UL489 Interrupting Capacity Ratings

Circuit Breaker Type	Number of Poles	Interrupting Capacity (Symmetrical Amperes)					
		Volts Ac (50/60 Hz)				Volts Dc ^⑤	
		240	277	480	600	125	250 ^{①②}
ED	2, 3	65,000	.....	.....	.....	10,000	.....
EDH	2, 3	100,000	.....	.....	.....	10,000	.....
EDC	2, 3	200,000	.....	.....	.....	10,000	.....
EHD	1	.....	14,000	.....	.....	10,000	.....
	2, 3	18,000	.....	14,000	.....	10,000	10,000
FDB	2, 3, 4	18,000	.....	14,000	14,000	.....	10,000
FD	1	.....	25,000	.....	.....	10,000	.....
	2, 3, 4	65,000	.....	25,000	18,000	.....	10,000
HFD	1	.....	65,000	.....	.....	10,000	.....
	2, 3, 4	100,000	.....	65,000	25,000	.....	22,000
FDC	2, 3, 4	200,000	.....	100,000	35,000	.....	22,000
HFDDC ^③	3	.....	.....	.....	.....	.....	42,000 ^④

IEC 157-1 Interrupting Capacity Ratings (P1)

Circuit Breaker Type	Number of Poles	Interrupting Capacity (Symmetrical Amperes)					
		Volts Ac (50/60 Hz)				Volts Dc ^⑤	
		220, 240	380, 415	440	500	125	250 ^①
ED	2, 3	65,000	.....	.....	.....	10,000	.....
EDH	2, 3	100,000	.....	.....	.....	10,000	.....
EDC	2, 3	200,000	.....	.....	.....	10,000	.....
FDB	2, 3, 4	18,000	14,000	14,000	14,000	.....	10,000
FD	1	25,000	.....	.....	.....	10,000	.....
	2, 3, 4	65,000	35,000	35,000	18,000	.....	10,000
HFD	1	65,000	.....	.....	.....	10,000	.....
	2, 3, 4	100,000	65,000	65,000	25,000	.....	22,000
FDC	2, 3, 4	200,000	100,000	100,000	35,000	.....	22,000

- ^① 2-pole circuit breaker, or two poles of 3-pole circuit breaker.
^② Time constant is 3 milliseconds minimum at 10 kA and 8 milliseconds minimum at 22 kA.
^③ HFDDC is UL only and is not tested to other standards.
^④ Interrupting rating is 35,000 amps at 600-volt Dc with 3 poles in series, for ungrounded systems only.
^⑤ Dc ratings apply to substantially non-inductive circuits.

STANDARDS

Series C molded case circuit breakers are designed to conform with the following standards:

- Australian Standard AS 2184, Molded Case Circuit Breakers
- British Standards Institution Standard BS 4752: Part 1, Switchgear and Control Gear Part 1: Circuit Breakers
- Canadian Standards Association Standard C22.2 No. 5, Service Entrance and Branch Circuit Breakers
- International Electrotechnical Commission Recommendations IEC 157-1, Circuit Breakers
- Japanese T-Mark Standard Molded Case Circuit Breakers
- National Electrical Manufacturers Association Standards Publication No. AB1-1993, Molded Case Circuit Breakers
- South African Bureau of Standards, Standard SABS 156, Standard Specification for Molded Case Circuit Breakers
- Swiss Electro-Technical Association Standard SEV 157-1, Safety Regulations for Circuit Breakers
- Underwriters Laboratories, Inc., Standard UL 489, Molded Case Circuit Breakers and Circuit Breaker Enclosures, including Marine Circuit Breakers File E7819
- Union Technique de l'Electricite Standard NF C 63-120, Low Voltage Switchgear and Control Gear Circuit Breaker Requirements
- Verband Deutscher Elektrotechniker (Association of German Electrical Engineers) Standard VDE 0660, Low Voltage Switchgear and Control Gear, Circuit Breakers

Conformance with these standards satisfies most local and international codes, assuming user acceptability and simplified application.

Series C molded case circuit breakers equal or exceed Federal Specification Classification W-C-375b requirements for the particular class associated with the circuit breaker frame being considered.



Series C Molded Case Circuit Breakers, F-Frame, 10-225 Amperes

THERMAL-MAGNETIC CIRCUIT BREAKERS

Sealed Breakers with Non-interchangeable Trip Units

Suitable for reverse feed use.

Maximum Continuous Ampere Rating @ 40°C	600 Vac Maximum, 250 Vdc			277 Vac Maximum, 125 Vdc		600 Vac Maximum, 250 Vdc		
	14 kAIC @ 600 Vac			25 kAIC @ 277 Vac		25 kAIC @ 480 Vac		
	Type FDB			Type FD				
	2-Pole	3-Pole	4-Pole	1-Pole		2-Pole	3-Pole	4-Pole
CATALOG NUMBERS (Includes Terminals on Load End Only)								
10 ^①	FDB2010	FDB3010	FDB4010	FD1010	—	—	—	—
15	FDB2015	FDB3015	FDB4015	FD1015 ^②	FD2015	FD3015	FD4015	—
20	FDB2020	FDB3020	FDB4020	FD1020 ^②	FD2020	FD3020	FD4020	—
25	FDB2025	FDB3025	FDB4025	FD1025	FD2025	FD3025	FD4025	—
30	FDB2030	FDB3030	FDB4030	FD1030	FD2030	FD3030	FD4030	—
35	FDB2035	FDB3035	FDB4035	FD1035	FD2035	FD3035	FD4035	—
40	FDB2040	FDB3040	FDB4040	FD1040	FD2040	FD3040	FD4040	—
45	FDB2045	FDB3045	FDB4045	FD1045	FD2045	FD3045	FD4045	—
50	FDB2050	FDB3050	FDB4050	FD1050	FD2050	FD3050	FD4050	—
60	FDB2060	FDB3060	FDB4060	FD1060	FD2060	FD3060	FD4060	—
70	FDB2070	FDB3070	FDB4070	FD1070	FD2070	FD3070	FD4070	—
80	FDB2080	FDB3080	FDB4080	FD1080	FD2080	FD3080	FD4080	—
90	FDB2090	FDB3090	FDB4090	FD1090	FD2090	FD3090	FD4090	—
100	FDB2100	FDB3100	FDB4100	FD1100	FD2100	FD3100	FD4100	—
110	FDB2110	FDB3110	FDB4110	FD1110	FD2110	FD3110	FD4110	—
125	FDB2125	FDB3125	FDB4125	FD1125	FD2125	FD3125	FD4125	—
150	FDB2150	FDB3150	FDB4150	FD1150	FD2150	FD3150	FD4150	—
175	—	—	—	—	FD2175	FD3175	FD4175	—
200	—	—	—	—	FD2200	FD3200	FD4200	—
225	—	—	—	—	FD2225	FD3225	FD4225	—

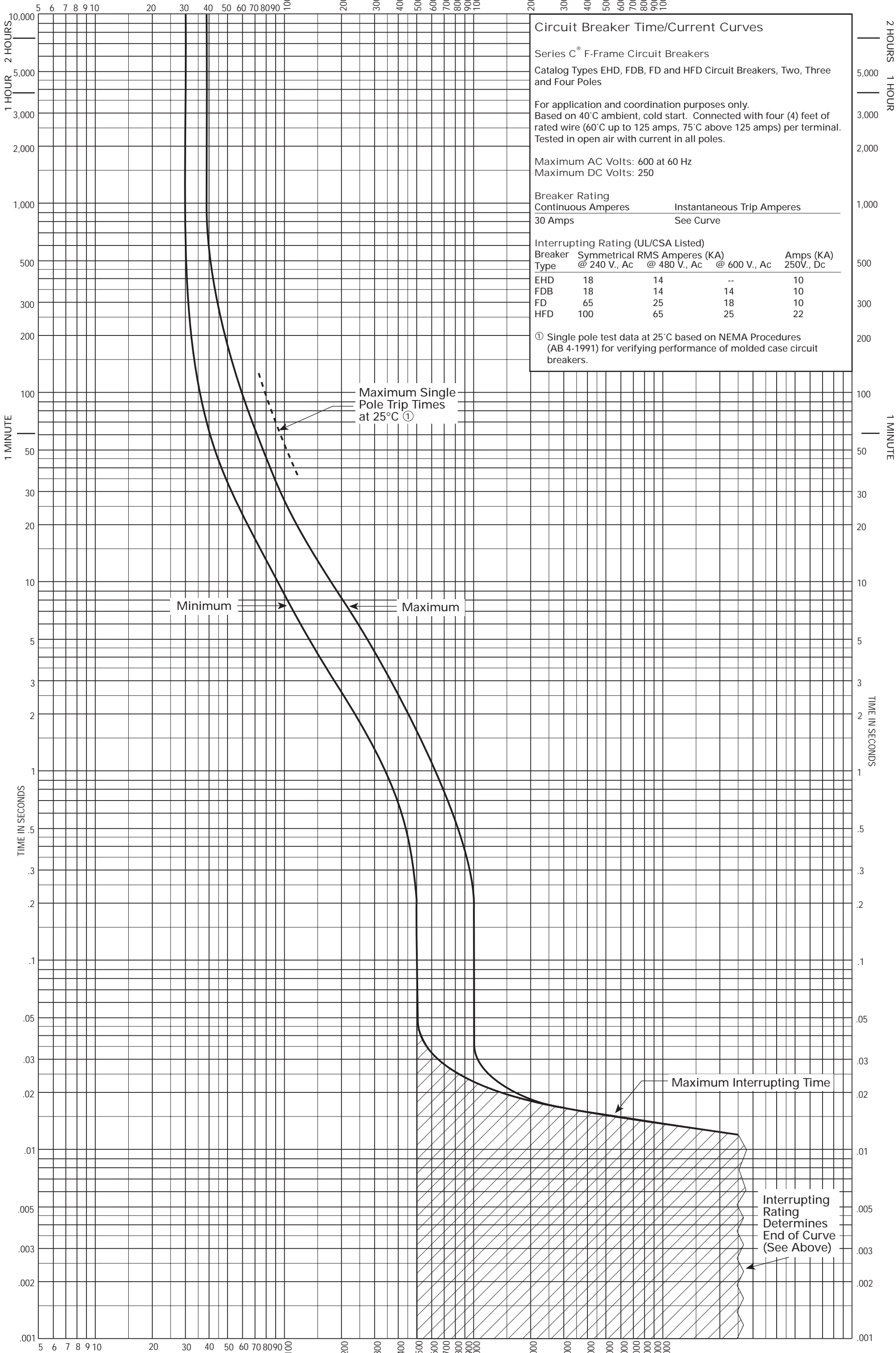
Maximum Continuous Ampere Rating @ 40°C	600 Vac Maximum, 250 Vdc		277 Vac Maximum, 125 Vdc		600 Vac Maximum, 250 Vdc			
	65 kAIC @ 277 Vac		65 kAIC @ 480 Vac		100 kAIC @ 480 Vac			
	Type HFD				Type FDC Current Limiting			
	1-Pole	2-Pole	3-Pole	4-Pole	2-Pole	3-Pole	4-Pole	
CATALOG NUMBERS (Includes Terminals on Load End Only)								
15	HFD1015	HFD2015	HFD3015	HFD4015	FDC2015	FDC3015	FDC4015	
20	HFD1020	HFD2020	HFD3020	HFD4020	FDC2020	FDC3020	FDC4020	
25	HFD1025	HFD2025	HFD3025	HFD4025	FDC2025	FDC3025	FDC4025	
30	HFD1030	HFD2030	HFD3030	HFD4030	FDC2030	FDC3030	FDC4030	
35	HFD1035	HFD2035	HFD3035	HFD4035	FDC2035	FDC3035	FDC4035	
40	HFD1040	HFD2040	HFD3040	HFD4040	FDC2040	FDC3040	FDC4040	
45	HFD1045	HFD2045	HFD3045	HFD4045	FDC2045	FDC3045	FDC4045	
50	HFD1050	HFD2050	HFD3050	HFD4050	FDC2050	FDC3050	FDC4050	
60	HFD1060	HFD2060	HFD3060	HFD4060	FDC2060	FDC3060	FDC4060	
70	HFD1070	HFD2070	HFD3070	HFD4070	FDC2070	FDC3070	FDC4070	
80	HFD1080	HFD2080	HFD3080	HFD4080	FDC2080	FDC3080	FDC4080	
90	HFD1090	HFD2090	HFD3090	HFD4090	FDC2090	FDC3090	FDC4090	
100	HFD1100	HFD2100	HFD3100	HFD4100	FDC2100	FDC3100	FDC4100	
110	HFD1110	HFD2110	HFD3110	HFD4110	FDC2110	FDC3110	FDC4110	
125	HFD1125	HFD2125	HFD3125	HFD4125	FDC2125	FDC3125	FDC4125	
150	HFD1150	HFD2150	HFD3150	HFD4150	FDC2150	FDC3150	FDC4150	
175	—	HFD2175	HFD3175	HFD4175	FDC2175	FDC3175	FDC4175	
200	—	HFD2200	HFD3200	HFD4200	FDC2200	FDC3200	FDC4200	
225	—	HFD2225	HFD3225	HFD4225	FDC2225	FDC3225	FDC4225	

① Not UL Listed. 5 KAIC interrupting rating.
 ② UL Listed for SWD applications, see NEC Article 240-83 (d).

Cutler-Hammer

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Circuit Breaker Time/Current Curves

Series C® F-Frame Circuit Breakers
 Catalog Types EHD, FDB, FD and HFD Circuit Breakers, Two, Three and Four Poles

For application and coordination purposes only.
 Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125 amps, 75°C above 125 amps) per terminal. Tested in open air with current in all poles.

Maximum AC Volts: 600 at 60 Hz
 Maximum DC Volts: 250

Breaker Rating
 Continuous Amperes Instantaneous Trip Amperes
 30 Amps See Curve

Interrupting Rating (UL/CSA Listed)

Breaker Type	Symmetrical RMS Amperes (KA) @ 240 V., Ac	@ 480 V., Ac	@ 600 V., Ac	Amps (KA) 250V., Dc
EHD	18	14	--	10
FDB	18	14	14	10
FD	65	25	18	10
HFD	100	65	25	22

① Single pole test data at 25°C based on NEMA Procedures (AB 4-1991) for verifying performance of molded case circuit breakers.

Maximum Single Pole Trip Times at 25°C ①

Minimum Maximum

Maximum Interrupting Time

Interrupting Rating Determines End of Curve (See Above)