

Technical Data **TD01203013E**Effective March 2011
Supersedes February 2010

F-Frame circuit breaker

10–225 amperes



Product description

- All of Eaton's F-Frame circuit breakers are HACR rated
- All F-Frame thermal-magnetic circuit breakers 10–50A are suitable for HID (high intensity discharge) use
- All F-Frame circuit breakers are suitable for reverse feed use

Table 1. Frame Trip Ratings

Frame	Ampere Rating
EDB, EDS, EDH, EDC	100–225
EHD	10–100
FDB	10–150
ED, HFD, FDC, HFDDC	15–225
FD	15–225
FDE, HFDE, FDCE ①	80, 160, 225

① The 80A FDE, HFDE, FDCE is adjustable from 15–80A.
The 160A FDE, HFDE, FDCE is adjustable from 60–160A.
The 225A FDE, HFDE, FDCE is adjustable from 100–225A.

EATON

Powering Business Worldwide

Table 2. UL® 489 Interrupting Capacity Ratings

Circuit Breaker Type	Number of Poles	Trip Type ①	Interrupting Capacity (Symmetrical Amperes)					
			Volts AC (50/60 Hz)				Volts DC	
			240	277	480	600	125	250 ②③
EDB	2, 3	T/M N.I.T.	22,000	—	—	—	10,000	—
EDS	2, 3	T/M N.I.T.	42,000	—	—	—	10,000	—
ED	2, 3	T/M N.I.T.	65,000	—	—	—	10,000	—
EDH	2, 3	T/M N.I.T.	100,000	—	—	—	10,000	—
EDC ④	2, 3	T/M N.I.T.	200,000	—	—	—	10,000	—
EHD	1	T/M N.I.T.	—	14,000	—	—	10,000	—
	2, 3	T/M N.I.T.	18,000	—	14,000	—	—	10,000
FDB	2, 3, 4	T/M N.I.T.	18,000	—	14,000	14,000	—	10,000
FD	1	T/M N.I.T.	—	35,000	—	—	10,000	—
	2, 3, 4	T/M N.I.T.	65,000	—	35,000	18,000	—	10,000
HFD	1	T/M N.I.T.	—	65,000	—	—	10,000	—
	2, 3, 4	T/M N.I.T.	100,000	—	65,000	25,000	—	22,000
FDC ④	2, 3, 4	T/M N.I.T.	200,000	—	100,000	35,000	—	22,000
HFDDC ⑤	3	T/M N.I.T.	—	—	—	—	—	50,000 ⑥
FDE	3	Electronic N.I.T.	65,000	—	35,000	18,000	—	—
HFDE	3	Electronic N.I.T.	100,000	—	65,000	25,000	—	—
FDCE ④	3	Electronic N.I.T.	200,000	—	100,000	25,000	—	—

① N.I.T. is non-interchangeable trip unit. T/M is thermal-magnetic. For DC applications, magnetics are approximately 40% higher.

② Two-pole circuit breaker, or two poles of three-pole circuit breaker.

③ Time constant is 3 milliseconds minimum at 10 kA and 8 milliseconds minimum at 22 kA.

④ Current limiting.

⑤ HFDDC is UL only and is not tested to other standards.

⑥ Interrupting rating is 42,000A at 600 Vdc with three-poles in series.

Table 3. Line and Load Terminals

Maximum Breaker Amperes	Terminal Body Material ①	Wire Type	AWG Wire Range	Metric Wire Range (mm²)	Catalog Number (Package of 3 Terminals)
Standard Pressure Type Terminals					
20 (EHD)	Steel	Cu/Al	(1) #14–#10	2.5–4	3T20FB
100	Steel	Cu/Al	(1) #14–1/0	2.5–50	3T100FB
150	Aluminum	Cu/Al	(1) #4–4/0	25–95	3TA150FB
225	Aluminum	Cu/Al	(1) #4–4/0	25–95	3TA225FD
Optional Pressure Terminals					
50	Aluminum	Cu/Al	(1) #14–#4	2.5–16	3TA50FB
100	Aluminum	Cu/Al	(1) #14–1/0	2.5–50	3TA100FD
225	Aluminum	Cu/Al	(1) #6–300 kcmil	16–150	3TA225FDK ②

① UL listed for use with copper or aluminum conductors as noted.

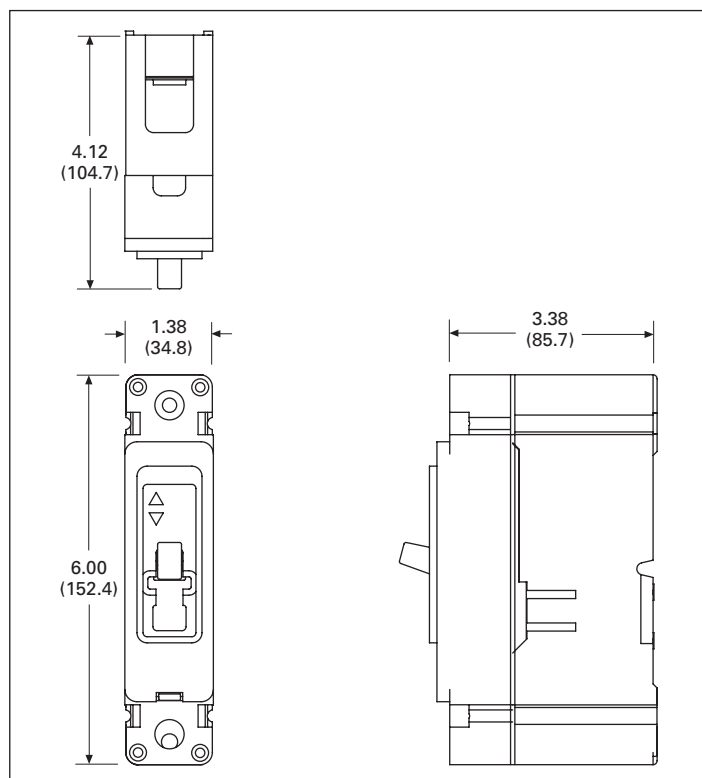
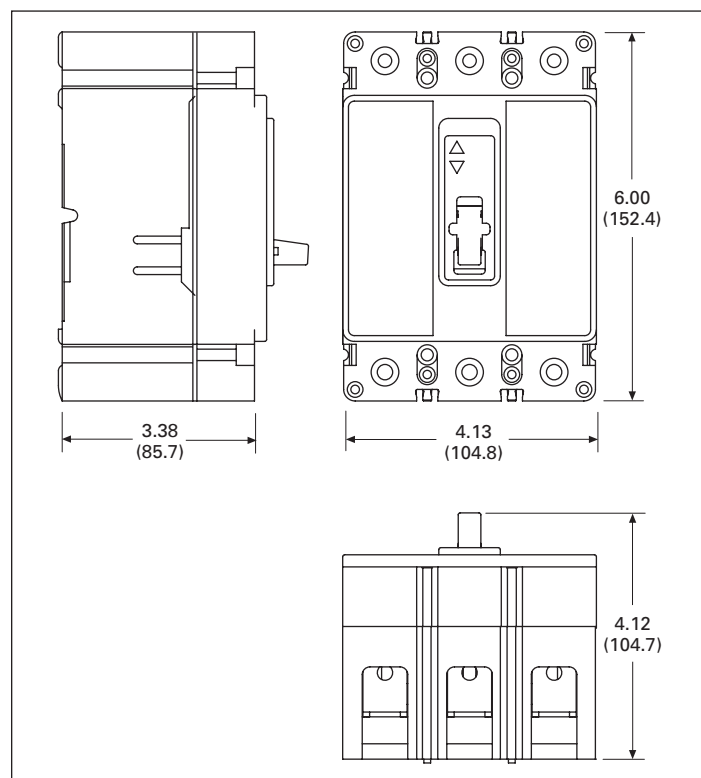
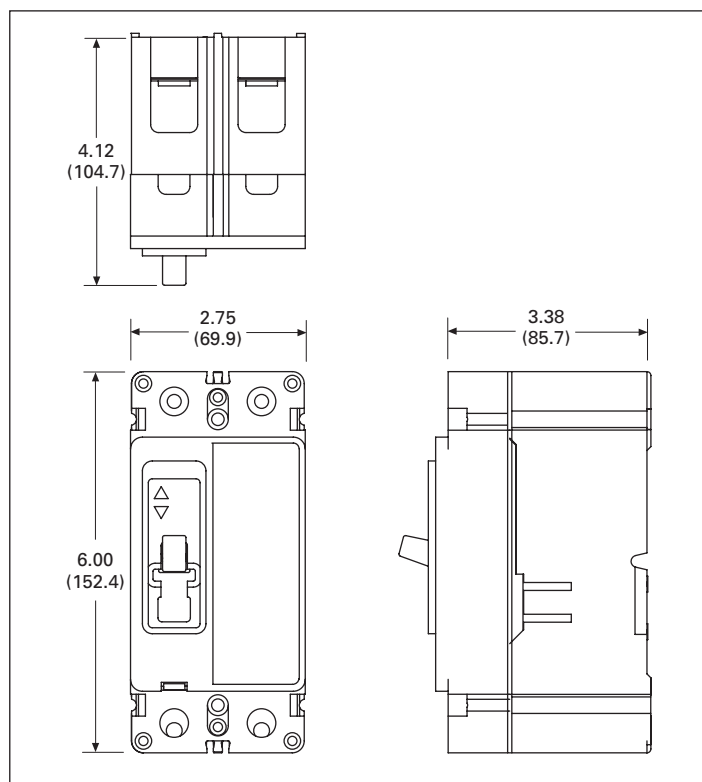
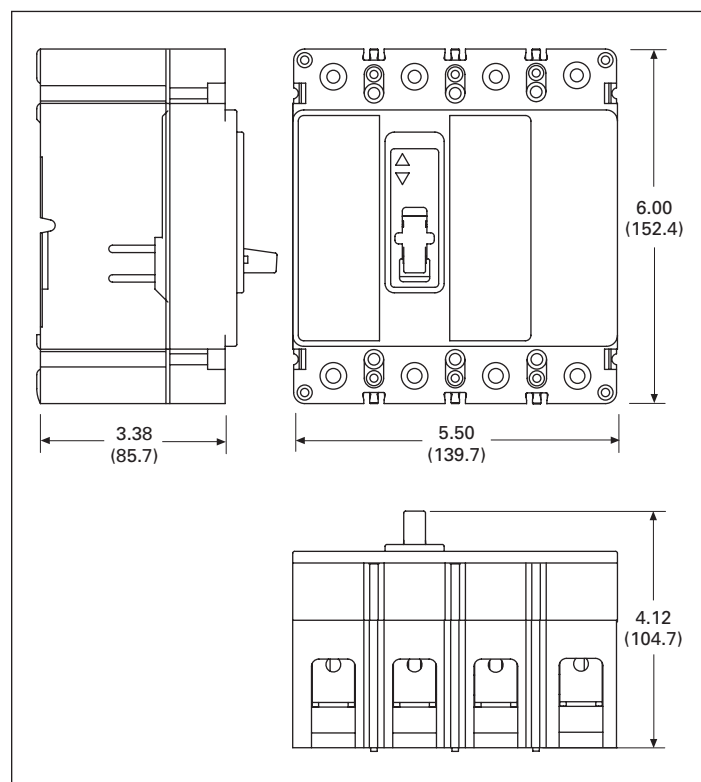
② Use only on 175–225A. Includes terminal shield and increases height.

Table 4. Approximate Shipping Weight in Lbs (kg)

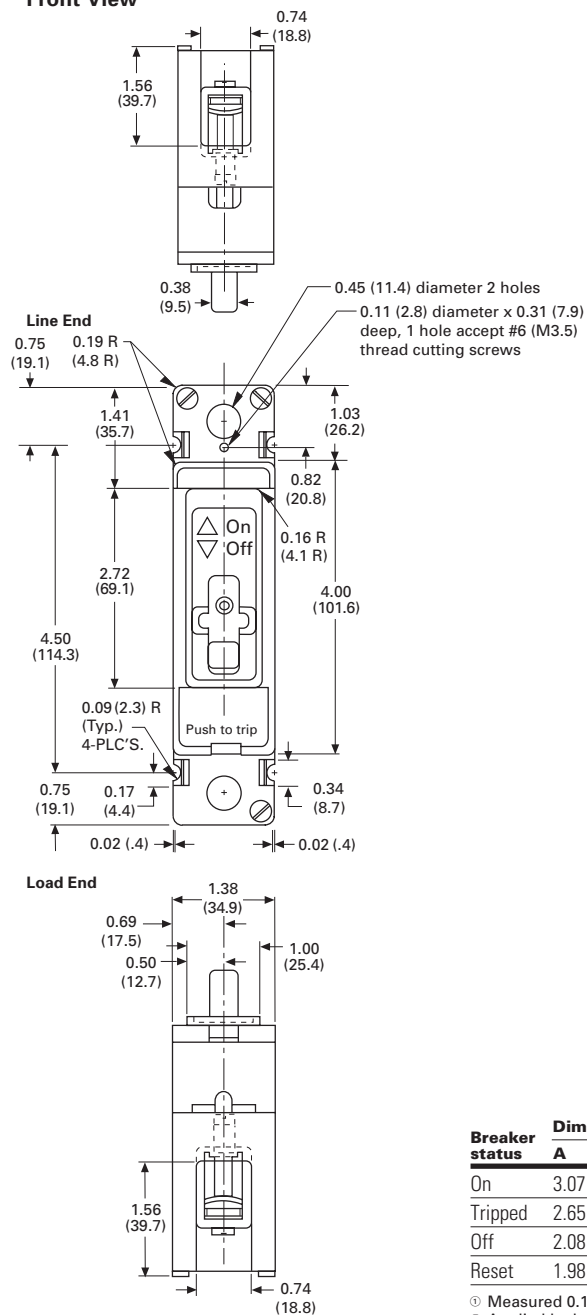
Circuit Breaker Type	Number of Poles			
	1	2	3	4
ED, EDB, EDS, EDH, EDC	—	3 (1.4)	4.5 (2.0)	—
EHD, FDB, FD, HFD, HFDDC, FDC	2 (0.9)	3 (1.4)	4.5 (2.0)	6 (2.7)
FDE, HFDE, FDCE	—	—	4.2 (1.9)	—

Table 5. Dimensions in Inches (mm)

Dimensions	Number of Poles			
	1	2	3	4
Height	6.00 (152.4)	6.00 (152.4)	6.00 (152.4)	6.00 (152.4)
Width	1.38 (34.8)	2.75 (69.9)	4.13 (104.8)	5.50 (139.7)
Depth	3.38 (85.7)	3.38 (85.7)	3.38 (85.7)	3.38 (85.7)

Dimensions in inches (mm)**Figure 1. Single-Pole F-Frame Breaker****Figure 3. Three-Pole F-Frame Breaker****Figure 2. Two-Pole F-Frame Breaker****Figure 4. Four-Pole F-Frame Breaker**

Note: For curves and additional technical information, please visit our Web site at www.eaton.com.



Reproduced from drawings 1490D61 and 1490D65

Side View

Handle: 0.34 (8.7) wide
x 0.38 (9.5) thick
0" taper, load end
7" taper, line end

2.35 (59.7) R

0.50 (12.7) wide conductor
with 0.22 (5.6) diameter hole

0.75 (19.1)
0.08 (2.0)
0.27 (6.8)
0.63 (15.9)
0.47 (11.9)
1.13 (28.6)
3.00 (76.2)
6.00 (152.4)

53°

Trough for attachment leads

0.22 (5.6)
0.09 R (2.4) R
0.19 (4.8)
1.25 (31.8)
0.31 (8.0)
2.38 (60.3)
0.44 (11.1)
0.27 (6.8)
0.47 (11.9)
0.25 (6.4)
0.75 (19.1)
0.06 (1.6)
0.08 (19.8)
2.22 (56.4)
2.94 (74.6)
3.19 (81.0)
3.38 (85.7)
3.50 (88.9)
C

E
D
B
A

To top of clip

0.50 (12.7) wide conductor
with 0.22 (5.6) diameter hole

Breaker status	Dimensions					Handle force, lbs. ①
	A	B	C	D	E	
On	3.07 (78.0)	2.92 (74.2)	3.96 (100.6)	3.40 (86.4)	3.33 (84.6)	8
Tripped	2.65 (67.3)	2.57 (65.3)	4.06 (103.1)	2.99 (75.9)	2.98 (75.7)	3 ②
Off	2.08 (52.8)	2.14 (54.4)	4.12 (104.7)	2.42 (61.5)	2.56 (65.0)	9
Reset	1.98 (50.3)	2.05 (52.1)	4.11 (104.4)	2.30 (58.4)	2.48 (63.1)	10

① Measured 0.125 (3.175) above Escutcheon.

② Applied by breaker handle to external handle mechanism.

Dimensions in parentheses in millimeters

Figure 5. Type FD Single-Pole Outline

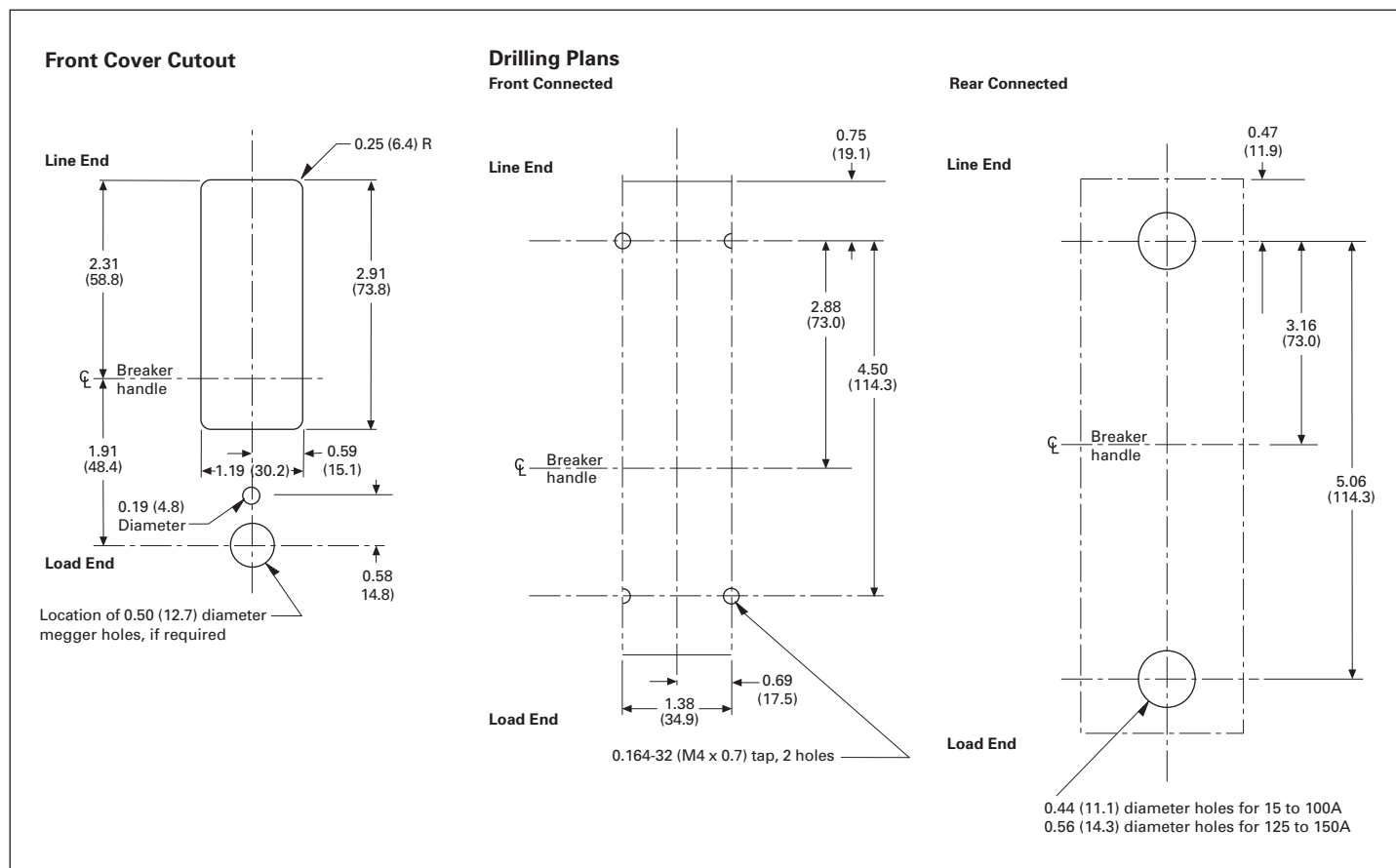


Figure 6. Type FD Single-Pole Outline Drilling Plans

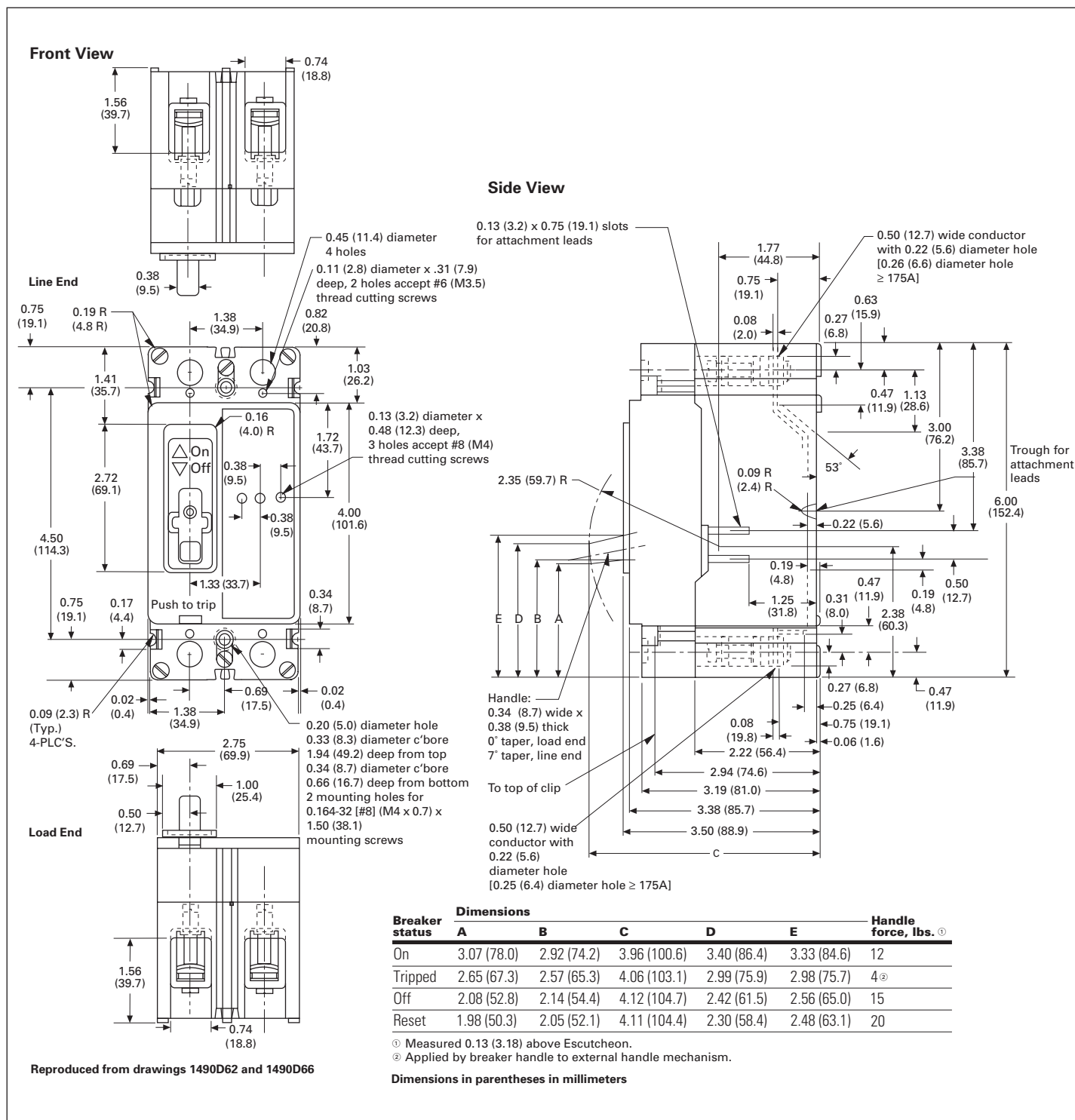


Figure 7. Type FD Two-Pole Outline

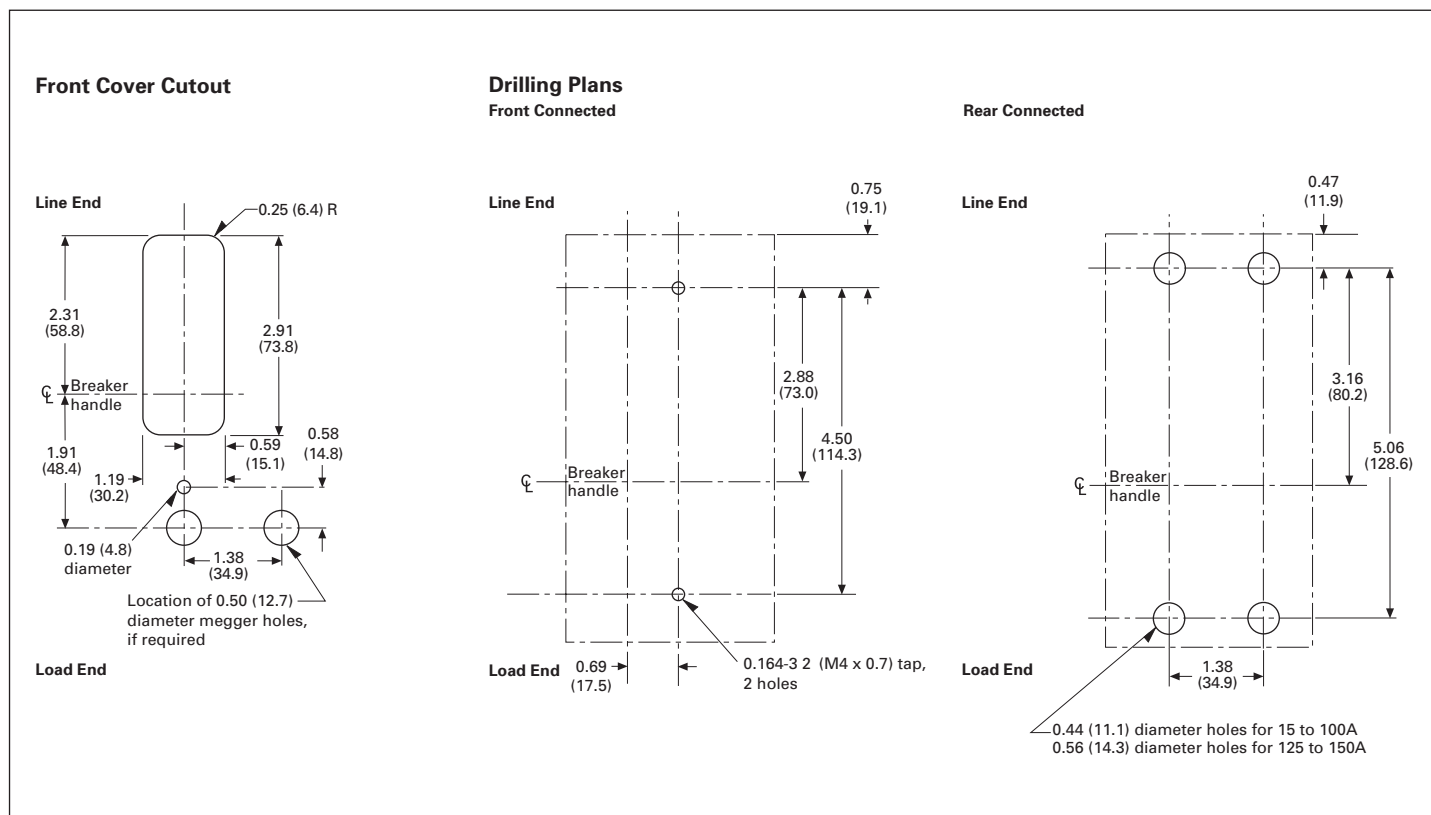


Figure 8. Type FD Two-Pole Outline Drilling Plans

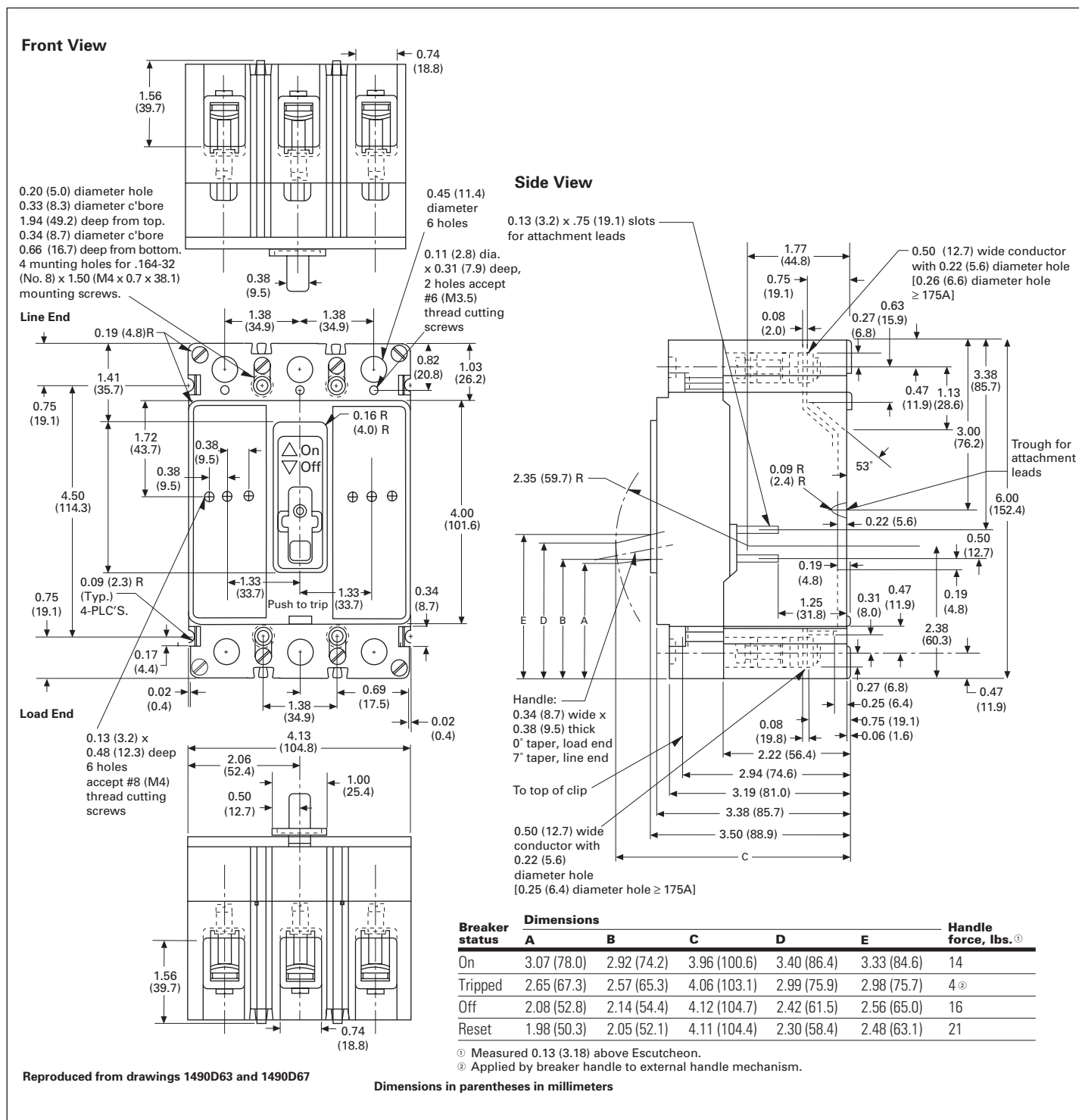


Figure 9. Type FD Three-Pole Outline

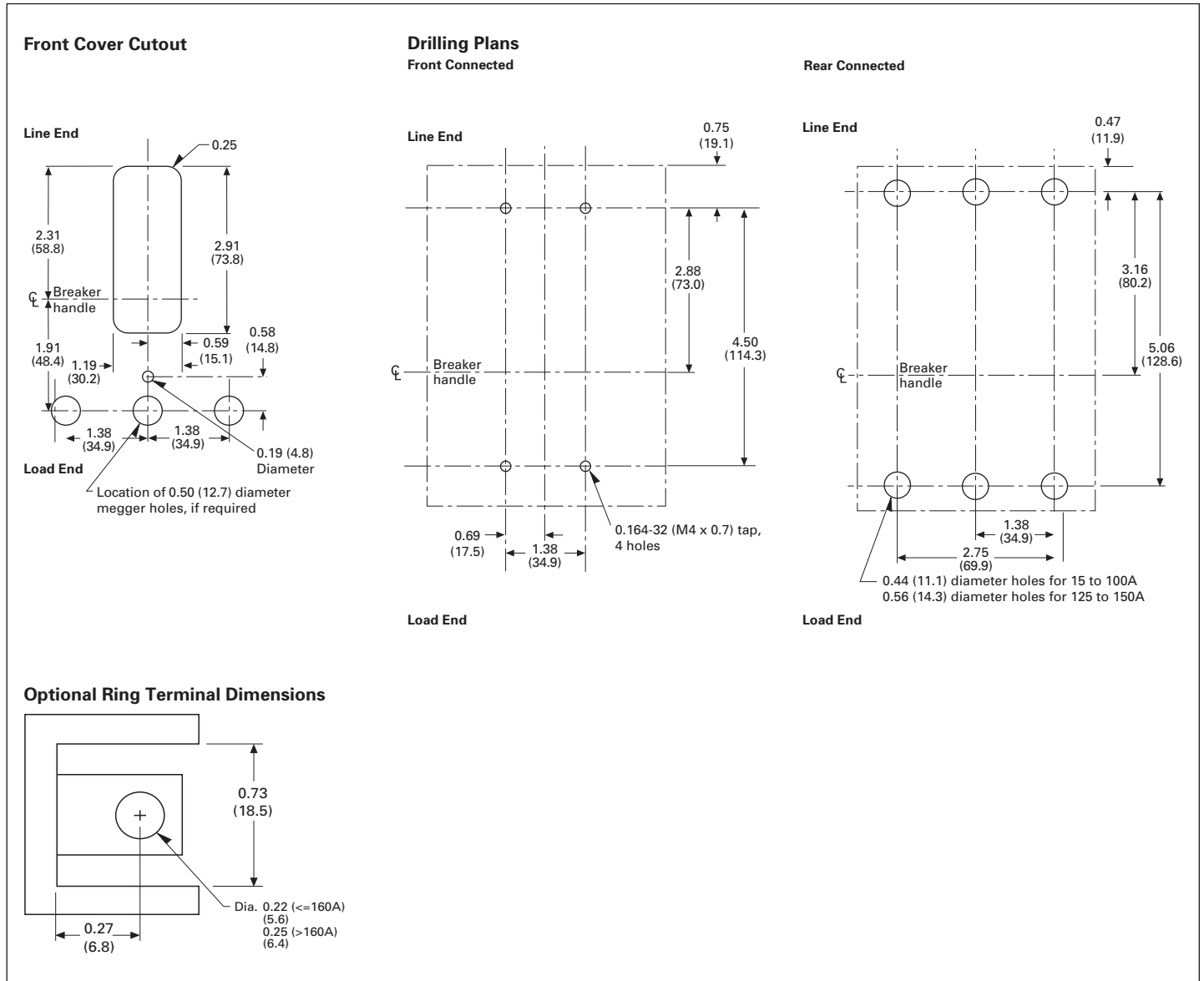


Figure 10. Type FD Three-Pole Outline Drilling Plans

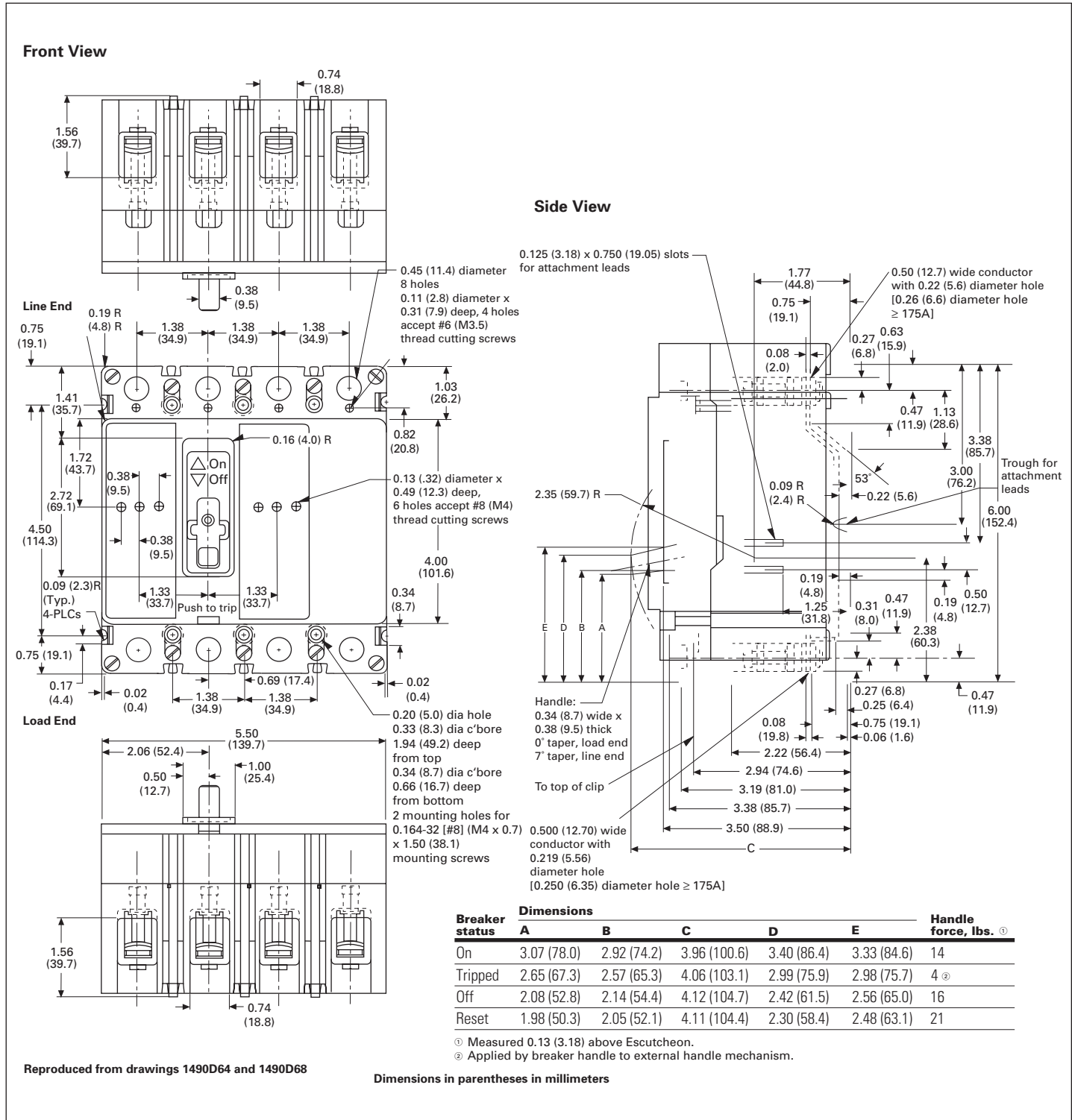


Figure 11. Type FD Four-Pole Outline

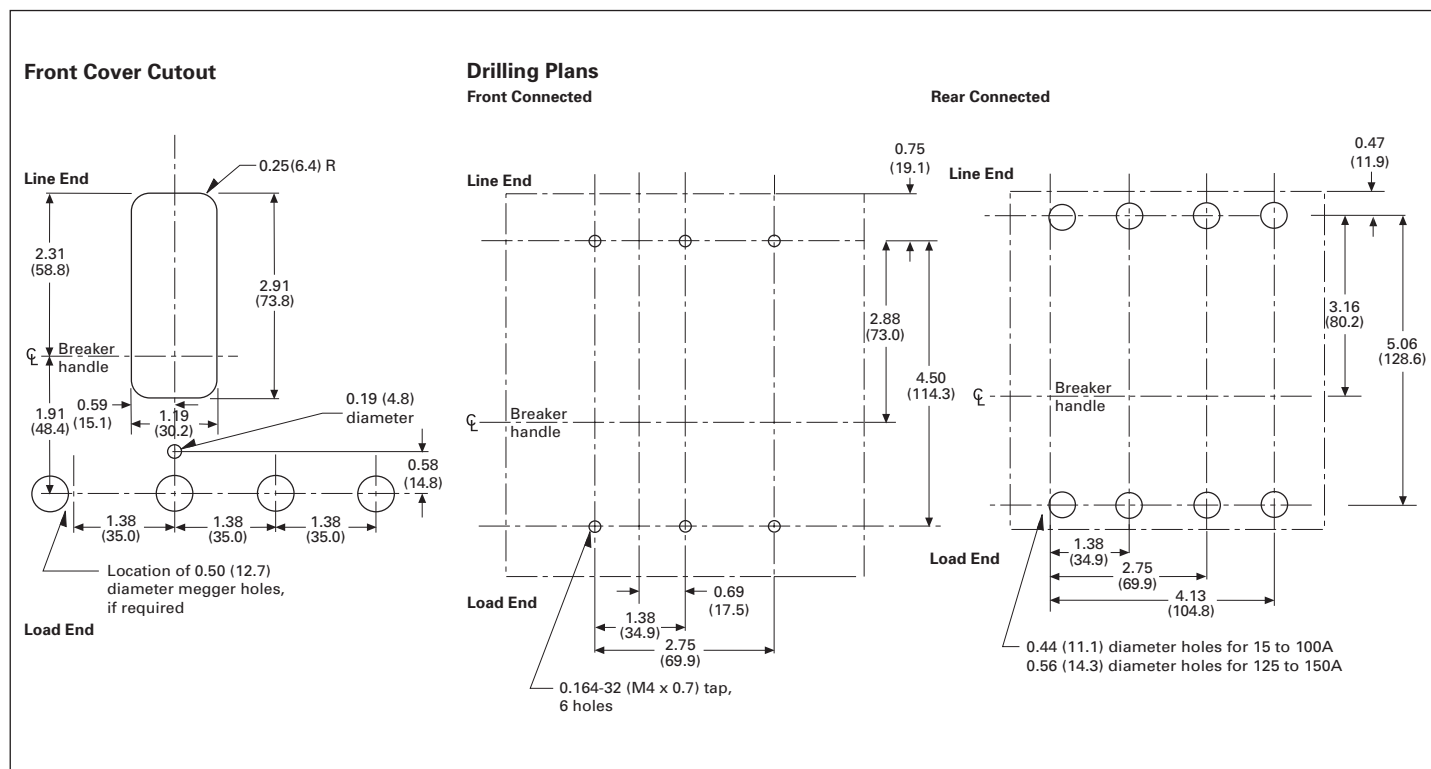


Figure 12. Type FD Four-Pole Outline Drilling Plans

Eaton Corporation

Electrical Sector
1111 Superior Ave.
Cleveland, OH 44114
United States
877-ETN-CARE (877-386-2273)
Eaton.com

© 2011 Eaton Corporation
All Rights Reserved
Printed in USA
Publication No. TD01203013E / Z10989
March 2011



Eaton is a registered trademark
of Eaton Corporation.

All other trademarks are property
of their respective owners.