



18 - Emax power breakers



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Emax / X1 by Emax Power breakers



Power breakers Emax / X1 by Emax



Emax

ABB's Emax series of low voltage power circuit breakers embodies over half a century's experience and technological development in power circuit breakers. The Emax offers a series of breakers that is totally innovative in its technological design, ease of installation and use, making it the ideal solution for the growing requirements of designers, switchboard and switchgear manufacturers, installers, OEMs and users.

The Emax power circuit breakers are UL listed and meet the ANSI and IEC Standards for low voltage power circuit breakers.

ABB Emax power circuit breakers are available in five different models with rated continuous current from 800A to 6300A and rated short-circuit current range from 42kA to 200kA (480V).

UL File # E194191 (breakers)
E194425 (accessories)

Catalog references:

UL Technical catalog 1SDC200005D0203; IEC Technical catalog 1SDC200006D0208

X1 by Emax

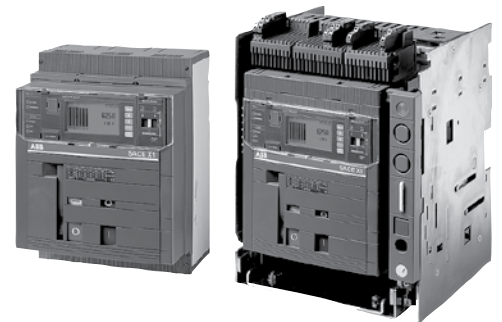
X1 by Emax, with the same performance as an air circuit breaker but with extremely compact dimensions.

X1 by Emax is the best solution for all those applications where dimensions are an important and determining factor in selecting the circuit breaker but without necessarily having to give up high rated current breaking capacity and short-time withstand current values.

X1 by Emax is available in one model with rated current I_u up to 1600A, high I_{cw} for selective circuit breakers and for the current limiting version, an incredible I_{cu} of 150 kA at 415 VAC. **For accessories, refer to pages 17.52-17.55 and 17.71-17.83.**

Catalog reference:

UL Technical catalog 1SDC200018D0201; IEC Technical catalog 1SDC200009D0203



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Ordering technical catalogs

To order the above referenced catalogs, visit our web site at:

www.abbnow.com/PublicSite/home/LiteratureResources.htm

General information

Catalog number explanation

Emax breaker

D

Locking provisions: X=none;
A=keylock (open)
B=button guard
C=padlock provision (open)
D=withdrawable position lock (connected, test, and disconnected positions)
E=withdrawable position lock (test, and disconnected positions)
F=A+B; G=A+C; H=A+D; J=A+E; K=B+D; L=B+E;
M=C+D; N=C+E; P=A+B+D; Q=A+B+E; R=A+C+D;
S=A+C+E; T=heavy duty padlock provision (open); U=A+T; V=T+D;
W=T+E; Y=A+T+D; Z=A+T+E
9 = Extra heavy duty padlock provision (open)

Accessories: X=none;
A=mechanical counter; **B** = bell alarm
C=bell alarm w/remote reset 24-30VAC/DC
D=bell alarm w/remote reset 110-130VAC/DC
E=bell alarm w/remote reset 220-240VAC/DC
F=A+B; G=A+C; H=A+D; J=A+E

Undervoltage trip or second shunt trip (50/60 Hz):

0= none
Undervoltage trip:
A=24VDC; **B**=30VAC/DC; **C**=48VAC/DC; **D**=60VAC/DC; **E**=110-120VAC/DC
F=120-127VAC/DC; **G**=220-240VAC/DC; **H**=240-250VAC/DC
J=380-400VAC; **K**=440-480VAC
Second shunt trip:
L=24VAC/DC; **M**=30VAC/DC; **N**=48VAC/DC; **P**=60VAC/DC
Q=110-120VAC/DC; **R**=120-127VAC/DC; **S**=220-240VAC/DC
T=240-250VAC/DC; **U**=380-400VAC; **V**=440-480VAC

Shunt trip (50/60 Hz):

0 = none
A=24VDC; **B**=30VAC/DC; **C**=48VAC/DC; **D**=60VAC/DC **E**=110-120VAC/DC;
F=120-127VAC/DC; **G**=220-240VAC/DC; **H**=240-250VAC/DC; **J**=380-400VAC;
K=440-480VAC; **L**=Special low (E1/E2/E3)

Spring charging motor: (includes spring charged signal)

0=none, **A**=24-30VAC/VDC, **B**=48-60VAC/VDC, **C**=110-130VAC/VDC, **D**=220-250VAC/VDC,
E=spring charged signal only

Contacts:

A=4 aux; **B**=10 aux; **D**=UV energ. N.O.; **E**=UV energ. NC; **F**=A & D; **G**=A & E; **H**=B & D; **J** = B & E
0 = No aux contacts (non-automatic only)
 (15 auxiliary contacts available as separate accessory)

Closing coil (50/60 Hz)

0=none; **A**=24VDC; **B**=30VAC/DC; **C**=48VAC/DC; **D**=60VAC/DC; **E**=110-120VAC/DC
F=120-127VAC/DC; **G**=220-240VAC/DC; **H**=240-250VAC/DC; **J**=380-400VAC **K**=440-480VAC

Trip unit accessories: (not compatible with PR121/P)

A=PR120/K4C; **B**=PR120/V (bottom terminals; supplied as std on PR123/P); **C**=PR120/D-M; **D**=PR120/D-BT;
E=A+B; **F**=A+C; **G**=A+D; **H**=A+B+C; **I**=A+B+D; **J**=B+C+D; **K**=A+C+D; **L**=A+B+C+D; **M**=B+C;
N=PR120/V (top terminals); **P**=A+N; **Q**=A+N+C; **R**=A+N+D; **S**=N+C+D; **T**=A+N+C+D; **U**=N+C; **V**=B+D;
W=N+D; **0**=none

Trip unit: **A**=PR121/P, LI; **B**=PR121/P, LSI; **C**=PR121/P, LSIG; **D**=non-automatic; **E**=PR122/P, LI; **F**=PR122/P, LSI;
G=PR122/P, LSIG; **H**=PR122/P, LSIRc (IEC); **J**=PR123/P, LSI + PR120/V; **K**=PR123/P, LSIG + PR120/V

Version: **B**=UL fixed^①; **D**=UL drawout, less cradle; **F**=IEC fixed; **W**=IEC drawout, less cradle

Rating plug: **A**=400; **B**=600/630 (UL/IEC); **C**=800; **D**=1000; **E**=1200/1250 (UL/IEC); **F**=1600; **G**=2000; **H**=2500; **J**=3000 (UL);
K=3200, **L**=3600 (UL); **M**=4000; **N**=5000; **P**=6300 (IEC); **R** = 100^②; **S** = 200^②; **T** = 250^②;
0=None (Non-automatic only); **U**=6000 (UL)

Frame ampere rating: **A**=800; **B**=1200/1250 (UL/IEC); **C**=1600; **D**=2000; **E**=2500; **F**=3200; **G**=3600; **H**=4000; **J**=5000;
N=6300 (IEC); **M**=6000 (UL); **P**=1000 (IEC); **R**=250^③

Breaking capacity: **B**=basic; **N**=normal; **S**=standard; **H**=high; **V**=very high; **L**=limiting; **Q**=1150VAC (IEC); **X**=200kA^②

Frame size: **1**=E1, 3P; **2**=E2, 3P; **3**=E3, 3P; **4**=E4, 3P; **6**=E6, 3P;
A=E1, 4P; **B**=E2, 4P; **C**=E3, 4P; **D**=E4, 4P; (50% neutral); **F**=E6, 4P (50% neutral); **G**=E4, 4P (100% neutral); **H**=E6, 4P (100% neutral)

① Except E3 3200A (only vertical terminals), all other frame sizes come standard with horizontal terminals. For vertical terminals conversion kit, see page 18.43.

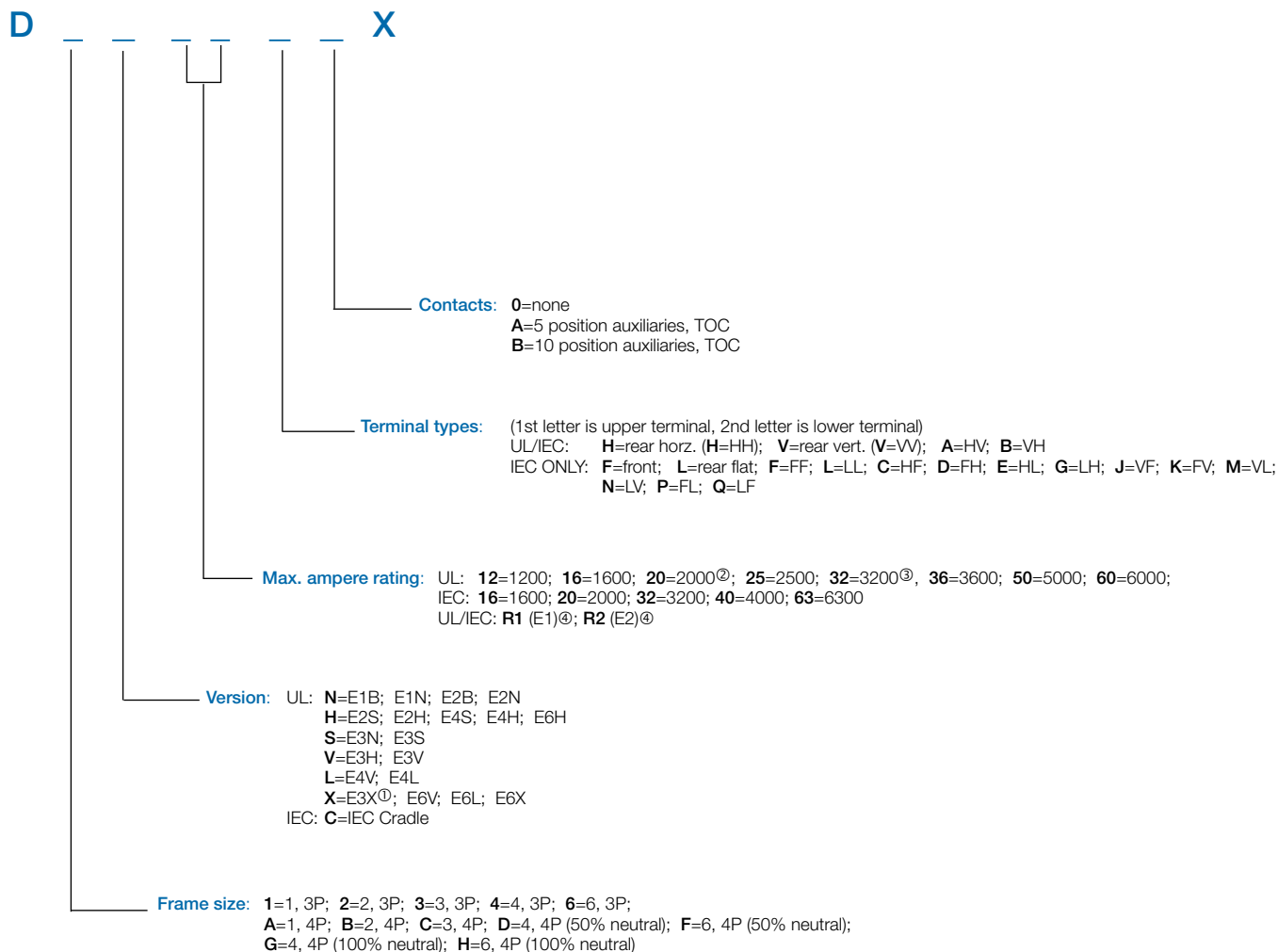
② Available as E3 up to 2000A and E6 up to 5000A.

③ Consult factory.

General information

Catalog number explanation

Emax cradle (fixed part)



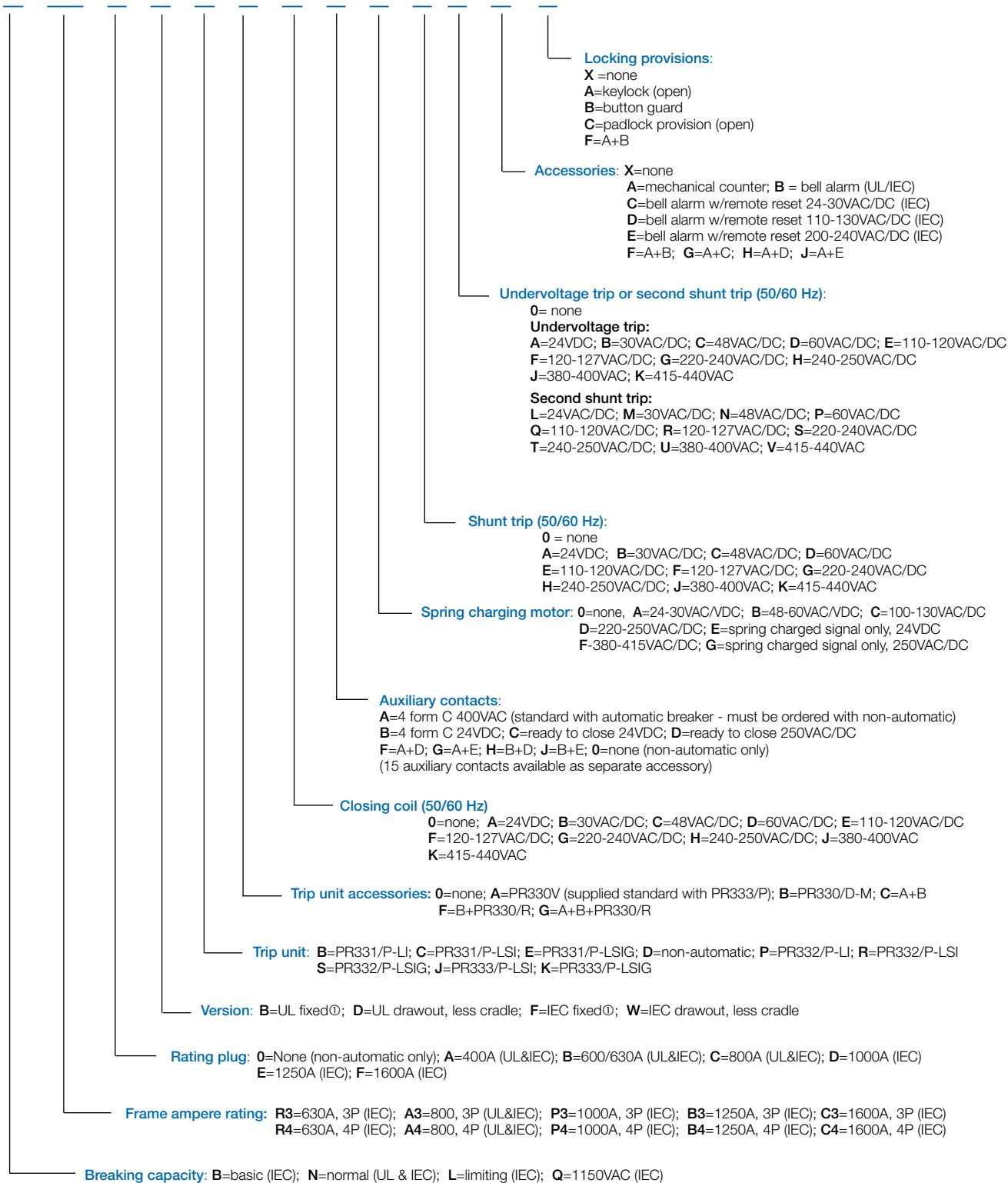
① Available as E3 up to 2000A
② Vertical only on E3 up to 2000A
③ Vertical only
④ Consult factory

General information

Catalog number explanation

X1 by Emax breaker

X1



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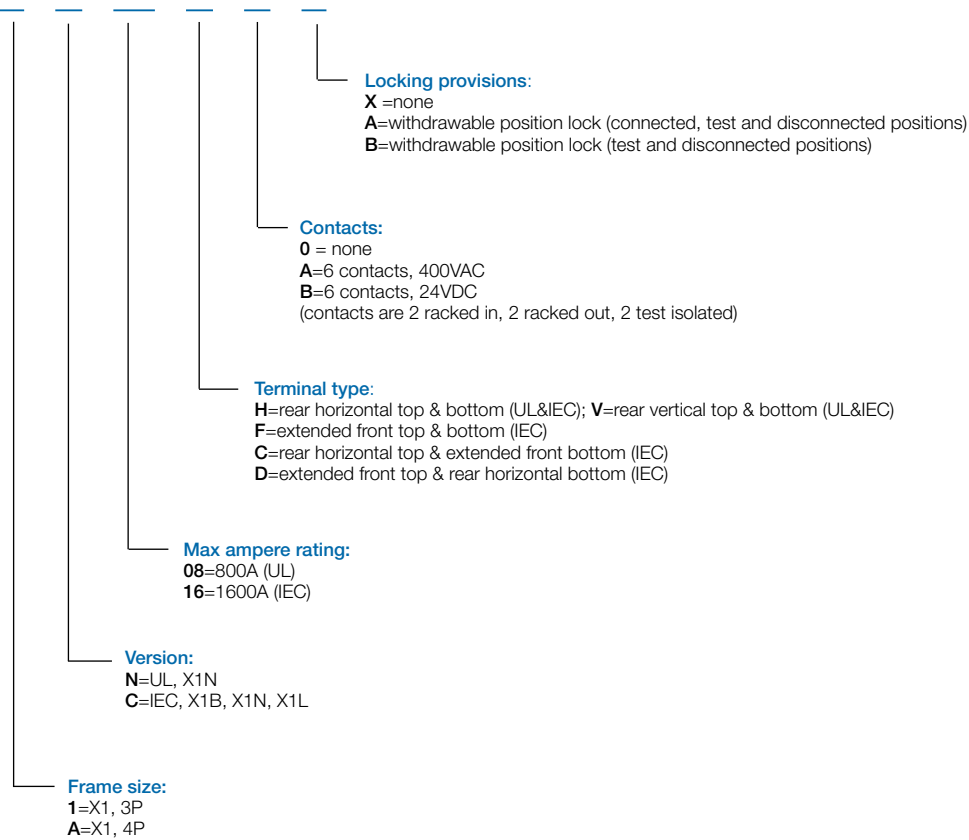
⓪ Front termination is standard on the fixed version of X1. Alternate termination kits are available as optional kits.
 NOTE: For accessories, refer to pages 17.52-17.55 and 17.71-17.83.

General information

Catalog number explanation

X1 by Emax cradle

X1



Selection guide UL Circuit breakers

Common data

Voltages	Rated maximum voltage	[V]	635
	Rated voltage	[V]	600
	Test voltage (1 min. 50/60 Hz)	[kV]	2.2
Service temperature		[°C]	-25...+70 ①
Storage temperature		[°C]	-40...+70
Frequency		[Hz]	50-60
Number of poles			3-4
Version			Fixed withdrawable



	A	X1		E1		E2		H-A
		N-A	B-A	N-A	B-A	N-A	S-A	
Levels of performance	A	800	800	800	1600	800	800	800
	A	-	1200	1200	-	1200	1200	1200
	A	-	-	-	-	1600	1600	1600
	A	-	-	-	-	-	-	-
	A	-	-	-	-	-	-	-
	A	-	-	-	-	-	-	-
Capacity of neutral pole for 4p circuit breakers		[% I _N]	100	100	100	100	100	100
Rated short circuit current		[kA]						
240 V		[kA]	50	42	50	42	65	65
480 V		[kA]	50	42	50	42	50	65
600 V		[kA]	35	42	50	42	50	65
Rated short time current		[kA]	42	42	50	42	50	65

Trip units								
PR121/P-A	-	•	•	•	•	•	•	•
PR122/P-A	-	•	•	•	•	•	•	•
PR123/P-A	-	•	•	•	•	•	•	•
PR331/P-A	•	-	-	-	-	-	-	-
PR332/P-A	•	-	-	-	-	-	-	-
PR333/P-A	•	-	-	-	-	-	-	-

Trip times								
Make time (max)	[ms]	80	80	80	80	80	80	80
Break time (<ST current) (max)	[ms]	70	70	70	70	70	70	70
Break time (>ST current) (max)	[ms]	30	30	30	30	30	30	12

Overall dimensions							
Fixed	H	[mm/in]	268/10.6	418/16.5		418/16.5	
	W 3p	[mm/in]	210/8.27	296/11.65		296/11.65	
	W 4p	[mm/in]	280/11.02	386/15.2		386/15.2	
	D	[mm/in]	181/7.1	302/11.9		302/11.9	
Draw out	H	[mm/in]	343/13.5	461/18.15		461/18.15	
	W 3p	[mm/in]	284/11.2	324/12.8		324/12.8	
	W 4p	[mm/in]	354/13.9	414/16.3		414/16.3	
	D	[mm/in]	254/10	396.5/15.6		396.5/15.6	

Weights (Circuit breaker complete with trip unit, terminals (RH), CS., No accessories)							
Fixed	3p	[kg/lbs]	11/24.3	45/99.2		50/110.25	
	4p	[kg/lbs]	14/30.9	54/119.1		61/134.51	
Draw out	3p	[kg/lbs]	32/70.6	70/154.4		78/171.99	
	4p	[kg/lbs]	42.6/93.9	82/180.1		93/205.07	

		X1 N-A	E1 B-A / N-A		E2 B-A / N-A / S-A / H-A		
Continuous current rating (at 40 °C)	[A]	800	800	1200	800	1200	1600
Mechanical life with regular ordinary maintenance	[No. operations x 1000]	12.5	20	20	20	20	20
Frequency of operations	[Operations/hour]	60	30	30	30	30	30
Electrical life	[No. operations x 1000]	6	10	10	10	10	10
Frequency of operations	[Operations/hour]	30	30	30	30	30	30

① For special Emax low temperature breakers (-40°C), consult factory.

Selection guide UL Circuit breakers

Emax
Power breakers



E3					E4					E6					
N-A	S-A	H-A	V-A	X-A	S-A	H-A	V-A	L-A	H-A/f ①	H-A	V-A	L-A	X-A	H-A/f ①	X-A/f ①
2000	800	800	800	800	3200	3200	3200	3200	3200	4000	4000	4000	4000	4000	4000
2500	1200	1200	1200	1200	3600	3600	3600	3600	3600	5000	5000	5000	5000	5000	5000
-	1600	1600	-	-	-	-	-	-	-	-	6000②	-	-	-	-
-	2000	2000	2000	2000	-	-	-	-	-	-	-	-	-	-	-
-	2500	2500	2500	-	-	-	-	-	-	-	-	-	-	-	-
-	3200	3200	3200	-	-	-	-	-	-	-	-	-	-	-	-
100	100	100	100	100	50	50	50	50	100	50	50	50	50	100	100

65	85	85	125	200	85	100	100	125	100	125	125	150	200	125	200
50	65	85	125	200	65	85	100	125	85	85	125	150	200	85	200
50	65	85	10	14	65	85	100	100	85	85	100	100	100	85	100
50	65	65	85	14	65	85	100	100	85	100	100	100	100	100	100

•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30

418/16.5	438/17.24	418/16.5	418/16.5	418/16.5	418/16.5
404/15.91	404/15.91	566/22.28	-	782/30.79	-
530/20.87	530/20.87	656/25.83	746/29.4	908/35.75	1034/40.71
302/11.9	302/11.9	302/11.9	302/11.9	302/11.9	302/11.9
461/18.15	481/18.94	461/18.15	461/18.15	461/18.15	461/18.15
432/17.01	432/17.01	594/23.39	-	810/31.89	-
558/21.97	558/21.97	684/26.93	774/30.5	936/36.85	1062/41.81
396.5/15.6	396.5/15.6	396.5/15.6	396.5/15.6	396.5/15.6	396.5/15.6

66/145.53	70/154.4	97/213.89	-	140/308.7	-
80/176.4	84/185.2	117/257.99	125/275.6	160/352.8	185/407.93
104/229.32	106/233.7	147/324.14	-	210/463.05	-
125/275.63	128/282.2	165/363.83	200/441	240/529.20	275/606.38

E3 N-A / S-A / H-A / V-A / X-A						E4 S-A / H-A / V-A / L-A / H-A/f				E6 H-A / V-A / L-A / X-A / H-A/f / X-A/f			
800	1200	1600	2000	2500	3200	3200		3600		4000		5000	
15③	15③	15③	15③	15	15	8		8		8		8	
30	30	30	30	30	30	30		30		30		30	
10④	10④	10④	8④	8	8	5		5		5		3	
30	30	30	30	30	30	30		30		30		30	

① 4 pole only.

Neutral pole rating

- E1-E3 = 100% rating
- E4-E6 = 50% rating

② 6000A only available in 3P, drawout; Width= 41.81 /1062 [in/mm]

③ 10 for E3X-A

④ 1.5 for E3X-A

Non-automatic switches UL

The switches share the same frames and accessories as the circuit breakers, with the only difference the absence of the trip unit.

The switch is available in both three-pole and four-pole fixed and draw out version and is identified by the code "/MS" (on the label). The electrical characteristics of the switches are given in the following table.



		X1	E1		E2	
Emax UL switch-disconnectors						
Level of performance		N-A/MS	B-A/MS	N-A/MS	B-A/MS	S-A/MS
Frame size	[A]	800	800	800	1600	800
	[A]	-	1200	1200	-	1200
	[A]	-	-	-	-	1600
	[A]	-	-	-	-	-
	[A]	-	-	-	-	-
Number of poles		3 / 4	3 / 4	3 / 4	3 / 4	3 / 4
Capacity of neutral pole for 4p circuit breakers	[% I _n]	100	100	100	100	100
Rated voltage	[V]	480	600	600	600	600
Rated maximum voltage	[V]	508	635	635	635	635
Test voltage (1min. 50/60 Hz)	[kV]	2.2	2.2	2.2	2.2	2.2
Frequency	[Hz]	50 - 60	50 - 60	50 - 60	50 - 60	50 - 60
Rated short time current	[kA]	42	42	50	42	50
Version		F - W	F - W	F - W	F - W	F - W

Overall dimensions

Fixed	H	[mm/in]	268/10.55	418/16.46	418/16.46
	W 3p	[mm/in]	210/8.27	296/11.65	296/11.65
	W 4p	[mm/in]	280/11.02	386/15.20	296/11.65
	D	[mm/in]	181/7.13	302/11.89	302/11.89
Draw out	H	[mm/in]	343/13.50	461/18.15	461/18.15
	W 3p	[mm/in]	284/11.18	324/12.76	324/12.76
	W 4p	[mm/in]	354/13.94	414/16.30	414/16.30
	D	[mm/in]	254/10.00	396.5/15.61	396.5/15.61

Weights

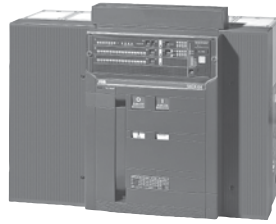
Fixed	3p	[kg/lbs]	11/24.26	45/99.23	50/110.25
	4p	[kg/lbs]	14/30.87	54/119.07	61/134.51
Draw out	3p	[kg/lbs]	32/70.56	70/154.35	78/171.99
	4p	[kg/lbs]	42.6/93.93	82/180.81	93/205.07

Non-automatic switches UL

Emax
Power breakers



E3



E4



E6

E3			E4				E6		
N-A/MS	S-A/MS	V-A/MS	S-A/MS	H-A/MS	V-A/MS	H-Af/MS ①	H-A/MS	H-Af/MS ①	V-A/MS ①
2000	800	800	3200	3200	3200	3200	4000	4000	6000
2500	1200	1200	3600	3600	3600	3600	5000	5000	-
-	1600	1600	-	-	-	-	-	-	-
-	2000	2000	-	-	-	-	-	-	-
-	2500	2500	-	-	-	-	-	-	-
-	3200	3200	-	-	-	-	-	-	-
3 / 4	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4	4	3 / 4	4	3
100	100	100	50	50	50	100	50	100	-
600	600	600	600	600	600	600	600	600	600
635	635	635	635	635	635	635	635	635	635
2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
50 - 60	50 - 60	50 - 60	50 - 60	50 - 60	50 - 60	50 - 60	50 - 60	50 - 60	50 - 60
50	85	85	65	85	100	85	100	100	100
F - W	F - W	F - W	F - W	F - W	F - W	F - W	F - W	F - W	W

418/16.46	418/16.46	418/16.50	418/16.50	418/16.50	-
404/15.91	566/22.28	-	782/30.79	-	-
530/20.87	656/25.83	746/29.40	908/35.75	1034/40.71	-
302/11.89	302/11.89	302/11.89	302/11.89	302/11.89	-
461/18.15	461/18.15	461/18.15	461/18.15	461/18.15	461/18.15
432/17.01	594/23.39	-	810/31.89	-	1062/41.81
558/21.97	684/26.93	774/30.50	936/36.85	1062/41.81	-
396.5/15.61	396.5/15.61	396.5/15.60	396.5/15.60	396.5/15.60	396.5/15.60
66/145.53	97/213.89	-	140/308.70	-	-
80/176.40	117/257.99	125/275.6	160/352.80	185/407.93	-
104/229.32	147/324.14	-	210/463.05	-	210/463.05
125/275.63	165/363.83	200/441	240/529.20	275/606.38	-

① 4 pole only.

Neutral pole rating:

- E1-E3 = 100% rating
- E4-E6 = 50% rating

Electronic trip units

Rating plugs for UL circuit breakers

Rating plugs

Type of circuit breaker	Rated current I_n	I_n [A] 400	600	800	1000	1200	1600	2000	2500	3000	3200	3600	4000	5000	6000
E1B	800	•	•	•											
	1200	•	•	•	•	•									
E2B	1600	•	•	•	•	•	•								
	800	•	•	•											
E2N	800	•	•	•											
	1200	•	•	•	•	•									
	1600	•	•	•	•	•	•								
E2S	800	•	•	•											
	1200	•	•	•	•	•									
	1600	•	•	•	•	•	•								
E2H	800	•	•	•											
	1200	•	•	•	•	•									
	1600	•	•	•	•	•	•								
E3N	2000	•	•	•	•	•	•	•							
	2500	•	•	•	•	•	•	•	•						
E3S	800	•	•	•											
	1200	•	•	•	•	•									
	1600	•	•	•	•	•	•								
	2000	•	•	•	•	•	•	•							
	2500	•	•	•	•	•	•	•	•						
	3200	•	•	•	•	•	•	•	•	•	•				
E3H	800	•	•	•											
	1200	•	•	•	•	•									
	1600	•	•	•	•	•	•								
	2000	•	•	•	•	•	•	•							
	2500	•	•	•	•	•	•	•	•						
	3200	•	•	•	•	•	•	•	•	•	•				
E3V	800	•	•	•											
	1200	•	•	•	•	•									
	1600	•	•	•	•	•	•								
	2000	•	•	•	•	•	•	•							
	2500	•	•	•	•	•	•	•	•						
	3200	•	•	•	•	•	•	•	•	•	•				
E4S	3200			•	•	•	•	•	•	•	•	•			
	3600			•	•	•	•	•	•	•	•	•	•		
E4H	3200			•	•	•	•	•	•	•	•	•			
	3600			•	•	•	•	•	•	•	•	•	•		
E4V	3200			•	•	•	•	•	•	•	•	•			
	3600			•	•	•	•	•	•	•	•	•	•		
E4L	3200			•	•	•	•	•	•	•	•	•			
	3600			•	•	•	•	•	•	•	•	•	•		
E6H	4000			•	•	•	•	•	•	•	•	•	•		
	5000			•	•	•	•	•	•	•	•	•	•	•	
E6V	4000			•	•	•	•	•	•	•	•	•	•		
	5000			•	•	•	•	•	•	•	•	•	•	•	
	6000			•	•	•	•	•	•	•	•	•	•	•	•
E6L	4000			•	•	•	•	•	•	•	•	•	•		
	5000			•	•	•	•	•	•	•	•	•	•	•	

① See page 18.40 for rating plugs sold separately.

Fixed breakers 3 & 4 pole UL

3 Pole

UL	Frame Amps	Interrupting Ratings kA, 480V
E1B	800	42
E1N	800	50
E2N	800	50
E2S	800	65
E2H	800	85
E3S	800	65
E3H	800	85
E3V	800	125
E3X	800	200
E1B	1200	42
E1N	1200	50
E2N	1200	50
E2S	1200	65
E2H	1200	85
E3S	1200	65
E3H	1200	85
E3V	1200	125
E3X	1200	200
E2B	1600	42
E2N	1600	50
E2S	1600	65
E2H	1600	85
E3S	1600	65
E3H	1600	85
E3V	1600	125
E3X	1600	200
E3N	2000	50
E3S	2000	65
E3H	2000	85
E3V	2000	125
E3X	2000	200
E3N	2500	50
E3S	2500	65
E3H	2500	85
E3V	2500	125
E3S	3200	65
E3H	3200	85
E3V	3200	125
E4S	3200	65
E4H	3200	85
E4V	3200	100
E4L	3200	150
E4S	3600	65
E4H	3600	85
E4V	3600	100
E4L	3600	150
E6H	4000	85
E6V	4000	125
E6L	4000	150
E6X	4000	200
E6H	5000	85
E6V	5000	125
E6L	5000	150
E6X	5000	200

4 Pole

UL	Frame Amps	Interrupting Ratings kA, 480V
E1B	800	42
E1N	800	50
E2N	800	50
E2S	800	65
E2H	800	85
E3S	800	65
E3H	800	85
E3V	800	125
E3X	800	200
E1B	1200	42
E1N	1200	50
E2N	1200	50
E2S	1200	65
E2H	1200	85
E3S	1200	65
E3H	1200	85
E3V	1200	125
E3X	1200	200
E2B	1600	42
E2N	1600	50
E2S	1600	65
E2H	1600	85
E3S	1600	65
E3H	1600	85
E3V	1600	125
E3X	1600	200
E3N	2000	50
E3S	2000	65
E3H	2000	85
E3V	2000	125
E3X	2000	200
E3N	2500	50
E3S	2500	65
E3H	2500	85
E3V	2500	125
E3S	3200	65
E3H	3200	85
E3V	3200	125
E4S	3200	65
E4H	3200	85
E4V	3200	100
E4L	3200	150
E4S	3600	65
E4H	3600	85
E4V	3600	100
E4L	3600	150
E6H	4000	85
E6V	4000	125
E6L	4000	150
E6X	4000	200
E6H	5000	85
E6V	5000	125
E6L	5000	150
E6X	5000	200

Standard features – manually operated UL breaker

- Rear horizontal terminals except for E3 3200A
- PR121 trip unit with LI protection functions
- Manual mechanical close and open pushbuttons
- CB open/closed mechanical indicator
- Spring charged/discharged mechanical indicator
- 2NO & 2NC auxiliary contacts for open/closed position indication
- Lifting plates
- Current transformers
- Terminal box

Neutral pole rating (Standard)

- E1 – E3 = 100% rating
- E4 – E6 = 50% rating

⓪ Special 100% neutral pole rating available.

Withdrawable breakers

3 & 4 pole

UL

3 Pole

UL	Frame Amps	Interrupting Ratings kA, 480V
E1B	800	42
E1N	800	50
E2N	800	50
E2S	800	65
E2H	800	85
E3S	800	65
E3H	800	85
E3V	800	125
E3X	800	200
E1B	1200	42
E1N	1200	50
E2N	1200	50
E2S	1200	65
E2H	1200	85
E3S	1200	65
E3H	1200	85
E3V	1200	125
E3X	1200	200
E2B	1600	42
E2N	1600	50
E2S	1600	65
E2H	1600	85
E3S	1600	65
E3H	1600	85
E3V	1600	125
E3X	1600	200
E3N	2000	50
E3S	2000	65
E3H	2000	85
E3V	2000	125
E3X	2000	200
E3N	2500	50
E3S	2500	65
E3H	2500	85
E3V	2500	125
E3S	3200	65
E3H	3200	85
E3V	3200	125
E4S	3200	65
E4H	3200	85
E4V	3200	100
E4L	3200	150
E4S	3600	65
E4H	3600	85
E4V	3600	100
E4L	3600	150
E6H	4000	85
E6V	4000	125
E6L	4000	150
E6X	4000	200
E6H	5000	85
E6V	5000	125
E6L	5000	150
E6X	5000	200
E6V	6000	125

4 Pole

UL	Frame Amps	Interrupting Ratings kA, 480V
E1B	800	42
E1N	800	50
E2N	800	50
E2S	800	65
E2H	800	85
E3S	800	65
E3H	800	85
E3V	800	125
E3X	800	200
E1B	1200	42
E1N	1200	50
E2N	1200	50
E2S	1200	65
E2H	1200	85
E3S	1200	65
E3H	1200	85
E3V	1200	125
E3X	1200	200
E2B	1600	42
E2N	1600	50
E2S	1600	65
E2H	1600	85
E3S	1600	65
E3H	1600	85
E3V	1600	125
E3X	1600	200
E3N	2000	50
E3S	2000	65
E3H	2000	85
E3V	2000	125
E3X	2000	200
E3N	2500	50
E3S	2500	65
E3H	2500	85
E3V	2500	125
E3S	3200	65
E3H	3200	85
E3V	3200	125
E4S	3200	65
E4H	3200	85
E4V	3200	100
E4L	3200	150
E4S	3600	65
E4H	3600	85
E4V	3600	100
E4L	3600	150
E6H	4000	85
E6V	4000	125
E6L	4000	150
E6X	4000	200
E6H	5000	85
E6V	5000	125
E6L	5000	150
E6X	5000	200

Standard features – electrically operated breaker

Moving part

- Rear horizontal terminals except for E3 3200A
- PR121 trip unit with LI protection feature
- Spring charging motor
- Shunt trip
- Closing coil
- Manual mechanical close and open pushbuttons
- CB open/closed mechanical indicator
- Spring charged/discharged mechanical indicator
- 2NO & 2NC auxiliary contacts for open-closed position indication
- Lifting plates
- Current transformers
- Racking device with closed door
- Circuit breaker racking position indicator
- Sliding contacts
- Anti-racking out device (not available with YU)

① Special 100% neutral pole rating available.

Standard features – electrically operated breaker

Fixed part

- Safety shutters
- Rear horizontal terminals
- Sliding contacts
- Anti-insertion lock
- Ground connection

Neutral pole rating (Standard)

- E1 – E3 = 100% rating
- E4 – E6 = 50% rating

Non-automatic switches

Fixed switches (without trip unit & c.t.s.), 3 & 4 pole

UL

3 Pole

UL	Frame Amps	Rated Short Time Current, kA
E1B	800	42
E1N	800	50
E2N	800	50
E2S	800	65
E3S	800	65
E3V	800	85
E1B	1200	42
E1N	1200	50
E2N	1200	50
E2S	1200	65
E3S	1200	65
E3V	1200	85
E2B	1600	42
E2N	1600	50
E2S	1600	65
E3S	1600	65
E3V	1600	85
E3N	2000	50
E3S	2000	65
E3V	2000	85
E3N	2500	50
E3S	2500	65
E3V	2500	85
E3S	3200	65
E3V	3200	85
E4S	3200	65
E4H	3200	85
E4V	3200	100
E4S	3600	65
E4H	3600	85
E4V	3600	100
E6H	4000	100
E6H	5000	100

4 Pole

UL	Frame Amps	Rated Short Time Current, kA
E1B	800	42
E1N	800	50
E2N	800	50
E2S	800	65
E3S	800	65
E3V	800	85
E1B	1200	42
E1N	1200	50
E2N	1200	50
E2S	1200	65
E3S	1200	65
E3V	1200	85
E2B	1600	42
E2N	1600	50
E2S	1600	65
E3S	1600	65
E3V	1600	85
E3N	2000	50
E3S	2000	65
E3V	2000	85
E3N	2500	50
E3S	2500	65
E3V	2500	85
E3S	3200	65
E3V	3200	85
E4S	3200	65
E4H	3200	85
E4V	3200	100
E4S	3600	65
E4H	3600	85
E4V	3600	100
E6H	4000	100
E6H	5000	100

Standard features – manually operated UL switch

- Rear horizontal terminals except for E3 3200A
- Manual mechanical close and open pushbuttons
- CB open/closed mechanical indicator
- Spring charged/discharged mechanical indicator
- Lifting plates
- Terminal box

Neutral pole rating (Standard)

- E1 – E3 = 100% rating
- E4 – E6 = 50% rating

⓪ Special 100% neutral pole rating available.

Non-automatic switches

Withdrawable switches (without trip unit & c.t.s.), 3 pole UL

3 Pole

UL	Frame Amps	Rated Short Time Current, kA
E1B	800	42
E1N	800	50
E2N	800	50
E2S	800	65
E3S	800	65
E3V	800	85
E1B	1200	42
E1N	1200	50
E2N	1200	50
E2S	1200	65
E3S	1200	65
E3V	1200	85
E2B	1600	42
E2N	1600	50
E2S	1600	65
E3S	1600	65
E3V	1600	85
E3N	2000	50
E3S	2000	65
E3V	2000	85
E3N	2500	50
E3S	2500	65
E3V	2500	85
E3S	3200	65
E3V	3200	85
E4S	3200	65
E4H	3200	85
E4V	3200	100
E4S	3600	65
E4H	3600	85
E4V	3600	100
E6H	4000	100
E6H	5000	100
E6V	6000	100

Standard features – manually operated switch

Moving part

- Rear horizontal terminals except for E3 3200A
- Manual mechanical close and open pushbuttons
- Circuit breaker open/closed mechanical indicator
- Spring charged/discharged mechanical indicator
- Lifting plates
- Racking device with closed door
- Circuit breaker racking position indicator
- Sliding contacts
- Anti-racking out device (not available with YU)

Standard features – manually operated switches

Fixed part

- Safety shutters
- Rear horizontal terminals except where noted
- Sliding contacts
- Anti-insertion lock
- Ground connection

Neutral pole rating (Standard)

- E1 – E3 = 100% rating
- E4 – E6 = 50% rating

Non-automatic switches

Withdrawable switches (without trip unit & c.t.s.), 4 pole

UL

4 Pole

UL	Frame Amps	Rated Short Time Current, kA
E1B	800	42
E1N	800	50
E2N	800	50
E2S	800	65
E3S	800	65
E3V	800	85
E1B	1200	42
E1N	1200	50
E2N	1200	50
E2S	1200	65
E3S	1200	65
E3V	1200	85
E2B	1600	42
E2N	1600	50
E2S	1600	65
E3S	1600	65
E3V	1600	85
E3N	2000	50
E3S	2000	65
E3V	2000	85
E3N	2500	50
E3S	2500	65
E3V	2500	85
E3S	3200	65
E3V	3200	85
E4S	3200	65
E4H ⊕	3200	85
E4V	3200	100
E4S	3600	65
E4H ⊕	3600	85
E4V	3600	100
E6H ⊕	4000	100
E6H ⊕	5000	100

Standard features – manually operated switch

Moving part

- Rear horizontal terminals except for E3 3200A
- Manual mechanical close and open pushbuttons
- Circuit breaker open/closed mechanical indicator
- Spring charged/discharged mechanical indicator
- Lifting plates
- Racking device with closed door
- Circuit breaker racking position indicator
- Sliding contacts
- Anti-racking out device (not available with YU)

Standard features – manually operated switches

Fixed part

- Safety shutters
- Rear horizontal terminals except where noted
- Sliding contacts
- Anti-insertion lock
- Ground connection

Neutral pole rating (Standard)

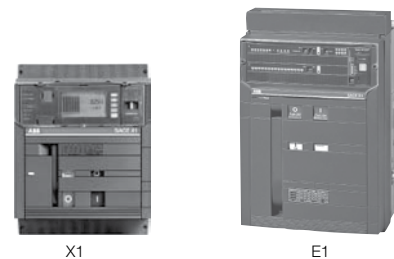
- E1 – E3 = 100% rating
- E4 – E6 = 50% rating

⊕ Special 100% neutral pole rating available.

Selection guide IEC Circuit breakers

Common data

Voltages			
Rated service voltage	U_e	[V]	690 ~
Rated insulation voltage	U_i	[V]	1000
Rated impulse withstand voltage	U_{imp}	[kV]	12
Service temperature		[°C]	-25...+70 ①
Storage temperature		[°C]	-40...+70
Frequency	f	[Hz]	50-60
Number of poles			3-4
Version			Fixed-Withdrawable



X1

E1

Levels of performance	X1			E1				
	B	N	L	B	N			
Currents: rated uninterrupted current (at 40 °C)	I_u	[A]	630	630	630	800	800	
		[A]	800	800	800	1000	1000	
		[A]	1000	1000	1000	1250	1250	
		[A]	1250	1250	1250	1600	1600	
		[A]	1600	1600	-	-	-	
		[A]	-	-	-	-	-	
Current carrying capacity of neutral pole for 4-pole cbs		[% I_u]	100	100	100	100	100	
Rated ultimate short-circuit breaking capacity	I_{cu}	220/230/380/400/415 V~	[kA]	42	65	150	42	50
		440 V~	[kA]	42	65	130	42	50
		500/525 V~	[kA]	42	50	100	42	50
		660/690 V~	[kA]	42	50	60	42	50
			[kA]	42	50	150	42	50
Rated service short-circuit breaking capacity	I_{cs}	220/230/380/400/415 V~	[kA]	42	50	130	42	50
		440 V~	[kA]	42	50	100	42	50
		500/525 V~	[kA]	42	42	45	42	50
		660/690 V~	[kA]	42	42	15	42	50
			[kA]	42	42	36	36	36
Rated short/time withstand current	I_{cw}	(1s)	[kA]	88.2	143	330	88.2	105
		(3s)	[kA]	88.2	143	286	88.2	105
			[kA]	88.2	121	220	88.2	105
			[kA]	88.2	121	132	88.2	105
			[kA]	-	-	-	-	-
Rated making capacity in short-circuit (peak value)	I_{cm}	220/230/380/400/415 V~	[kA]	88.2	143	330	88.2	105
		440 V~	[kA]	88.2	143	286	88.2	105
		500/525 V~	[kA]	88.2	121	220	88.2	105
		660/690 V~	[kA]	88.2	121	132	88.2	105
			[kA]	-	-	-	-	-
Category of use	CEI EN 60947-2		B	B	A	B	B	
Isolation behavior	CEI EN 60947-2		•	•	•	•	•	
Overcurrent protection								
Electronic releases for applications in AC			•	•	•	•	•	
Operating times								
Closing time (max)		[ms]	80	80	80	80	80	
Breaking time for $I < I_{cw}$ (max) ②		[ms]	70	70	70	70	70	
Breaking time for $I > I_{cw}$ (max)		[ms]	30	30	12	30	30	
Overall dimensions								
Fixed: H = 418 mm - D = 302 mm	L	(3/4 poles)	[mm]	H=268 mm - D=181 mm - L(3/4)=210/280			296/386	
Withdrawable: H = 461 mm - D = 396.5 mm	L	(3/4 poles)	[mm]	H=343 mm - D=254 mm - L(3/4)=284/354			324/414	
Weights (circuit-breaker complete with releases and CT, accessories excluded)								
Fixed 3/4 poles		[kg]	11/14	11/14	11/14	45/54	45/54	
Withdrawable 3/4 poles (including the fixed part)		[kg]	32/42.6	32/42.6	32/42.6	70/82	70/82	

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			X1 B	X1 N	X1 L	E1 B-N		
Rated uninterrupted current (at 40 °C)	I_u	[A]	800	1250	1600	800	1000/1250	1600
Mechanical life with regular ordinary maintenance		[No. operations x 1000]	12.5	12.5	12.5	25	25	25
Frequency of operations		[Operations/hour]	60	60	60	60	60	60
Electrical life	(440 V ~)	[No. operations x 1000]	6	4	3	10	10	10
	(690 V ~)	[No. operations x 1000]	3	2	1	10	8	8
Frequency of operations		[Operations/hour]	30	30	30	30	30	30

① For special Emax low temperature breakers (-40°C), consult factory.
② Without intentional delays.

Selection guide IEC Circuit breakers

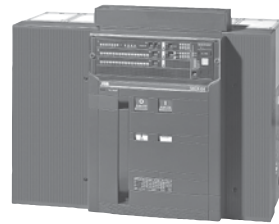
Emax
Power breakers



E2



E3



E4



E6

E2				E3					E4			E6		
B	N	S	L	N	S	H	V	L	S	H	V	H	V	
1600	1000	800	1250	2500	1000	800	800	2000	4000	3200	3200	4000	4000	
2000	1250	1000	1600	3200	1250	1000	1250	2500	-	4000	4000	5000	5000	
-	1600	1250	-	-	1600	1250	1600	-	-	-	-	6300	6300	
-	2000	1600	-	-	2000	1600	2000	-	-	-	-	-	-	
-	-	2000	-	-	2500	2000	2500	-	-	-	-	-	-	
-	-	-	-	-	3200	2500	3200	-	-	-	-	-	-	
-	-	-	-	-	-	3200	-	-	-	-	-	-	-	
100	100	100	100	100	100	100	100	100	50	50	50	50	50	
42	65	85	130	65	75	100	130	130	75	100	150	100	150	
42	65	85	110	65	75	100	130	110	75	100	150	100	150	
42	55	65	85	65	75	85	100	85	75	100	130	100	130	
42	55	65	85	65	75	85	100	85	75	85	100	100	100	
42	65	85	130	65	75	85	100	130	75	100	125	100	125	
42	65	85	110	65	75	85	100	110	75	100	125	100	125	
42	55	65	65	65	75	85	85	65	75	100	130	100	100	
42	55	65	65	65	75	85	85	65	75	85	100	100	100	
42	55	65	10	65	75	75	85	15	75	100	100	100	100	
42	42	42	-	65	65	65	65	-	75	75	75	85	85	
88.2	143	187	286	1143	165	220	286	286	165	220	330	220	330	
88.2	143	187	252	143	165	220	286	286	165	220	330	220	330	
88.2	121	143	187	143	165	187	220	187	165	220	286	220	286	
88.2	121	143	187	143	165	187	220	187	165	187	220	220	220	
B	B	B	A	B	B	B	B	A	B	B	B	B	B	
•	•	•	•	•	•	•	•	•	•	•	•	•	•	
•	•	•	•	•	•	•	•	•	•	•	•	•	•	
80	80	80	80	80	80	80	80	80	80	80	80	80	80	
70	70	70	70	70	70	70	70	70	70	70	70	70	70	
30	30	30	12	30	30	30	30	12	30	30	30	30	30	
296/386				404/530					566/656			782/908		
324/414				432/558					594/684			810/936		
50/61	50/61	50/61	52/63	66/80	66/80	66/80	66/80	72/83	97/117	97/117	97/117	140/160	140/160	
78/93	78/93	78/93	80/95	104/125	104/125	104/125	104/125	110/127	147/165	147/165	147/165	210/240	210/240	

E2 B-N-S				E2 L		E3 N-S-H-V							E3 L		E4 S-H-V				
800	1000	1600	2000	1250	1600	800	1000	1600	2000	2500	3200	3200	2000	2500	3200	4000	4000	5000	6300
25	25	25	25	20	20	20	20	20	20	20	20	20	15	15	15	15	12	12	12
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
12	15	12	10	4	3	12	12	10	9	8	6	6	2	1.8	7	5	4	3	2
12	15	10	8	3	2	12	12	10	9	7	5	5	1.5	1.3	7	4	4	2	1.5
30	30	30	30	20	20	20	20	20	20	20	20	20	20	20	10	10	10	10	10

Circuit breakers for specific applications IEC 6097-2

			X1	E1	E2
Circuit-breakers with full section neutral conductor					
Poles	[No]	Standard version	Standard version		Standard version
Current carrying capacity of the neutral of 4p circuit-breakers	[% I _u]				
I _u	(40 °C) [A]				
U _e	[V~]				
I _{cu}	(220...415 V) [kA]				
I _{cs}	(220...415 V) [kA]				
I _{cw}	(1s) [kA]				
	(3s) [kA]				

			X1B/MS	E1B/MS	E1N/MS	E2B/MS	E2N/MS	E2S/MS
Poles	[No]		3-4	3-4	3-4	3-4	3-4	3-4
I _u	(40 °C) [A]		1000-1250-1600	800-1000-1250-1600	800-1000-1250-1600	1600-2000	1000-1250-1600-2000	1000-1250-1600-2000
U _e	[V~]		690	690	690	690	690	690
I _{cw}	(1s) [kA]		42	42	50	42	42	42
	(3s) [kA]		-	36	36	42	42	42
I _{cm}	(220...440 V) [kA]		88.2	88.2	105	88.2	121	143

			X1B/E	E2B/E	E2N/E
Poles	[No]		3-4	3-4	3-4
I _u	(40 °C) [A]		630-800-1000-1250-1600	1600-2000	1250-1600-2000
U _e	[V~]		1150	1150	1150
I _{cu}	(1150 V) [kA]		25	20	30
I _{cs}	(1150 V) [kA]		20	20	30
I _{cw}	(1s) [kA]		25	20	30

			X1B/E MS	E2B/E MS	E2N/E MS
Poles	[No]		3-4	3-4	3-4
I _u	(40 °C) [A]		1000-1250-1600	1600-2000	1250-1600-2000
U _e	[V~]		1150	1150	1150
I _{cw}	(1s) [kA]		25	20	30
I _{cm}	(1150 V) [kA]		52.5	40	63

			E1 CS	E2 CS
I _u	(40 °C) [A]		1250	2000

			E1 MTP	E2 MTP
I _u	(40 °C) [A]		1250	2000

			E1 MTP	E2 MT
I _u	(40 °C) [A]		1250	2000

(*) The performance at 1000 V is 50 kA

Circuit breakers for specific applications

IEC 6097-2

Emax
Power breakers

E3			E4			E6	
			E4S/f 4 100	E4H/f 4 100		E6H/f 4 100	
			4000	3200-4000		4000-5000-6300	
			690	690		690	
			80	100		100	
			80	100		100	
			80	85		100	
			75	75		100	
E3N/MS 3-4 2500-3200	E3S/MS 3-4 1000-1250-1600- 2000-2500-3200	E3V/MS 3-4 800-1250-1600- 2000-2500-3200	E4S/MS 3-4 4000	E4H/MS 3-4 3200-4000	E4H/f MS 4 3200-4000	E6H/MS 3-4 4000-5000-6300	E6H/f MS 4 4000-5000-6300
690	690	690	690	690	690	690	690
65	75	85	75	100	85	100	100
65	65	65	75	75	75	85	85
143	165	187	165	220	187	220	220
	E3H/E 3-4 1250-1600-2000- 2500-3200			E4H/E 3-4 3200-4000		E6H/E 3-4 4000-5000-6300	
	1150			1150		1150	
	30			65		65	
	30			65		65	
	30(*)			65		65	
	E3H/E MS 3-4 1250-1600-2000- 2500-3200			E4H/E MS 3-4 3200-4000		E6H/E MS 3-4 4000-5000-6300	
	1150			1150		1150	
	30			65		65	
	63			143		143	
	E3 CS 3200			E4 CS 4000		E6 CS 6300	
	E3 MTP 3200			E4 MTP 4000		E6 MTP 6300	
	E3 MT 3200			E4 MT 4000		E6 MT 6300	

Fixed breakers

3 & 4 pole

IEC

3 Pole

IEC	Frame Amps	Interrupting Ratings kA, 415V
E1B	800	42
E1N	800	50
E2S	800	85
E3H	800	100
E3V	800	130
E1B	1000	42
E1N	1000	50
E2N	1000	65
E2S	1000	85
E3S	1000	75
E3H	1000	100
E1B	1250	42
E1N	1250	50
E2N	1250	65
E2S	1250	85
E2L	1250	130
E3S	1250	75
E3H	1250	100
E3V	1250	130
E1B	1600	42
E1N	1600	50
E2B	1600	42
E2N	1600	65
E2S	1600	85
E2L	1600	130
E3S	1600	75
E3H	1600	100
E3V	1600	130
E2B	2000	42
E2N	2000	65
E2S	2000	85
E3S	2000	75
E3H	2000	100
E3V	2000	130
E3L	2000	130
E3N	2500	65
E3S	2500	75
E3H	2500	100
E3V	2500	130
E3L	2500	130
E3N	3200	65
E3S	3200	75
E3H	3200	100
E3V	3200	130
E4H	3200	100
E4V	3200	150
E4S	4000	75
E4H	4000	85
E4V	4000	100
E6H	4000	100
E6V	4000	150
E6H	5000	100
E6V	5000	150
E6H	6300	100
E6V	6300	150

4 Pole

IEC	Frame Amps	Interrupting Ratings kA, 415V
E1B	800	42
E1N	800	50
E2S	800	85
E3H	800	100
E3V	800	130
E1B	1000	42
E1N	1000	50
E2N	1000	65
E2S	1000	85
E3S	1000	75
E3H	1000	100
E1B	1250	42
E1N	1250	50
E2N	1250	65
E2S	1250	85
E2L	1250	130
E3S	1250	75
E3H	1250	100
E3V	1250	130
E1B	1600	42
E1N	1600	50
E2B	1600	42
E2N	1600	65
E2S	1600	85
E2L	1600	130
E3S	1600	75
E3H	1600	100
E3V	1600	130
E2B	2000	42
E2N	2000	65
E2S	2000	85
E3S	2000	75
E3H	2000	100
E3V	2000	130
E3L	2000	130
E3N	2500	65
E3S	2500	75
E3H	2500	100
E3V	2500	130
E3L	2500	130
E3N	3200	65
E3S	3200	75
E3H	3200	100
E3V	3200	130
E4H	3200	100
E4V	3200	150
E4S	4000	75
E4H	4000	85
E4V	4000	100
E6H	4000	100
E6V	4000	150
E6H	5000	100
E6V	5000	150
E6H	6300	100
E6V	6300	150

Standard features – manually operated breaker

Fixed breaker

- Rear horizontal terminals
- PR121 trip unit with LI protection functions
- Manual mechanical close and open pushbuttons
- CB open/closed mechanical indicator
- Spring charged/discharged mechanical indicator
- 2NO & 2NC auxiliary contacts for open-closed position indication
- Lifting plates
- Current transformers
- Terminal box

Neutral pole rating (Standard)

- E1 – E3 = 100% rating
- E4 – E6 = 50% rating

⓪ Special 100% neutral pole rating available.

Withdrawable breakers 3 & 4 pole IEC

3 Pole

IEC	Frame Amps	Interrupting Ratings kA, 415V
E1B	800	42
E1N	800	50
E2S	800	85
E3H	800	100
E3V	800	130
<hr/>		
E1B	1000	42
E1N	1000	50
E2N	1000	65
E2S	1000	85
E3S	1000	75
E3H	1000	100
<hr/>		
E1B	1250	42
E1N	1250	50
E2N	1250	65
E2S	1250	85
E2L	1250	130
E3S	1250	75
E3H	1250	100
E3V	1250	130
<hr/>		
E1B	1600	42
E1N	1600	50
E2B	1600	42
E2N	1600	65
E2S	1600	85
E2L	1600	130
E3S	1600	75
E3H	1600	100
E3V	1600	130
<hr/>		
E2B	2000	42
E2N	2000	65
E2S	2000	85
E3S	2000	75
E3H	2000	100
E3V	2000	130
E3L	2000	130
<hr/>		
E3N	2500	65
E3S	2500	75
E3H	2500	100
E3V	2500	130
E3L	2500	130
<hr/>		
E3N	3200	65
E3S	3200	75
E3H	3200	100
E3V	3200	130
E4H	3200	100
E4V	3200	150
<hr/>		
E4S	4000	75
E4H	4000	85
E4V	4000	100
E6H	4000	100
E6V	4000	150
<hr/>		
E6H	5000	100
E6V	5000	150
<hr/>		
E6H	6300	100
E6V	6300	150

4 Pole

IEC	Frame Amps	Interrupting Ratings kA, 415V
E1B	800	42
E1N	800	50
E2S	800	85
E3H	800	100
E3V	800	130
<hr/>		
E1B	1000	42
E1N	1000	50
E2N	1000	65
E2S	1000	85
E3S	1000	75
E3H	1000	100
<hr/>		
E1B	1250	42
E1N	1250	50
E2N	1250	65
E2S	1250	85
E2L	1250	130
E3S	1250	75
E3H	1250	100
E3V	1250	130
<hr/>		
E1B	1600	42
E1N	1600	50
E2B	1600	42
E2N	1600	65
E2S	1600	85
E2L	1600	130
E3S	1600	75
E3H	1600	100
E3V	1600	130
<hr/>		
E2B	2000	42
E2N	2000	65
E2S	2000	85
E3S	2000	75
E3H	2000	100
E3V	2000	130
E3L	2000	130
<hr/>		
E3N	2500	65
E3S	2500	75
E3H	2500	100
E3V	2500	130
E3L	2500	130
<hr/>		
E3N	3200	65
E3S	3200	75
E3H	3200	100
E3V	3200	130
E4S	3200	75
E4H	3200	100
E4V	3200	150
<hr/>		
E4S	4000	75
E4H	4000	85
E4V	4000	100
E6H	4000	100
E6V	4000	150
<hr/>		
E6H	5000	100
E6V	5000	150
<hr/>		
E6H	6300	100
E6V	6300	150

Standard features – electrically operated breaker

Moving part

- PR121 trip unit with LI protection functions
- Spring charging motor
- Shunt trip
- Closing coil
- Manual mechanical close and open pushbuttons
- CB open/closed mechanical indicator
- Spring charged/discharged mechanical indicator
- 2NO & 2NC auxiliary contacts for open-closed position indication
- Lifting plates
- Current transformers
- Racking device with closed door
- Circuit breaker racking position indicator
- Sliding contacts

⓪ Special 100% neutral pole rating available.

Standard features – electrically operated breaker

Fixed part

- Safety shutters
- Rear horizontal terminals
- Sliding contacts
- Anti-insertion lock
- Ground connection

Neutral pole rating (Standard)

- E1 – E3 = 100% rating
- E4 – E6 = 50% rating

Non-automatic switches

Fixed switches (Without trip unit & c.t.s.), 3 & 4 pole

IEC

3 Pole

IEC	Frame Amps	Rated Short Time Current, kA
E1B	800	42
E1N	800	50
E3V	800	85
E1B	1000	42
E1N	1000	50
E2N	1000	55
E2S	1000	65
E3S	1000	75
E1B	1250	42
E1N	1250	50
E2N	1250	55
E2S	1250	65
E3S	1250	75
E3V	1250	85
E1B	1600	42
E1N	1600	50
E2B	1600	42
E2N	1600	55
E2S	1600	65
E3S	1600	75
E3V	1600	85
E2B	2000	42
E2N	2000	55
E2S	2000	65
E3S	2000	75
E3V	2000	85
E3N	2500	65
E3S	2500	75
E3V	2500	85
E3N	3200	65
E3S	3200	75
E3V	3200	85
E4H	3200	100
E4S	4000	75
E4H	4000	100
E6H	4000	100
E6H	5000	100
E6H	6300	100

4 Pole

IEC	Frame Amps	Rated Short Time Current, kA
E1B	800	42
E1N	800	50
E3V	800	85
E1B	1000	42
E1N	1000	50
E2N	1000	55
E2S	1000	65
E3S	1000	75
E1B	1250	42
E1N	1250	50
E2N	1250	55
E2S	1250	65
E3S	1250	75
E3V	1250	85
E1B	1600	42
E1N	1600	50
E2B	1600	42
E2N	1600	55
E2S	1600	65
E3S	1600	75
E3V	1600	85
E2B	2000	42
E2N	2000	55
E2S	2000	65
E3S	2000	75
E3V	2000	85
E3N	2500	65
E3S	2500	75
E3V	2500	85
E3N	3200	65
E3S	3200	75
E3V	3200	85
E4H ⊕	3200	100
E4S	4000	75
E4H	4000	100
E4H ⊕	4000	85
E6H ⊕	4000	100
E6H ⊕	5000	100
E6H ⊕	6300	100

Standard features – manually operated switch

- Rear horizontal terminals
- Manual mechanical close and open pushbuttons
- Circuit breaker open/closed mechanical indicator
- Spring charged/discharged mechanical indicator
- Lifting plates
- Terminal box

Neutral pole rating (Standard)

- E1 – E3 = 100% rating
- E4 – E6 = 50% rating

⊕ Special 100% neutral pole rating available.

Non-automatic switches

Withdrawable switches (Without trip unit & c.t.s.), 3 & 4 pole IEC

3 Pole

IEC	Frame Amps	Rated Short Time Current, kA
E1B	800	42
E1N	800	50
E3V	800	85
E1B	1000	42
E1N	1000	50
E2N	1000	55
E2S	1000	65
E3S	1000	75
E1B	1250	42
E1N	1250	50
E2N	1250	55
E2S	1250	65
E3S	1250	75
E3V	1250	85
E1B	1600	42
E1N	1600	50
E2B	1600	42
E2N	1600	55
E2S	1600	65
E3S	1600	75
E3V	1600	85
E2B	2000	42
E2N	2000	55
E2S	2000	65
E3S	2000	75
E3V	2000	85
E3N	2500	65
E3S	2500	75
E3V	2500	85
E3N	3200	65
E3S	3200	75
E3V	3200	85
E4H	3200	100
E4S	4000	75
E4H	4000	100
E6H	4000	100
E6H	5000	100
E6H	6300	100

4 Pole

IEC	Frame Amps	Rated Short Time Current, kA
E1B	800	42
E1N	800	50
E3V	800	85
E1B	1000	42
E1N	1000	50
E2N	1000	55
E2S	1000	65
E3S	1000	75
E1B	1250	42
E1N	1250	50
E2N	1250	55
E2S	1250	65
E3S	1250	75
E3V	1250	85
E1B	1600	42
E1N	1600	50
E2B	1600	42
E2N	1600	55
E2S	1600	65
E3S	1600	75
E3V	1600	85
E2B	2000	42
E2N	2000	55
E2S	2000	65
E3S	2000	75
E3V	2000	85
E3N	2500	65
E3S	2500	75
E3V	2500	85
E3N	3200	65
E3S	3200	75
E3V	3200	85
E4H ⊕	3200	100
E4S	4000	75
E4H	4000	100
E4H ⊕	4000	85
E6H ⊕	4000	100
E6H ⊕	5000	100
E6H ⊕	6300	100

Standard features – manually operated switch

Moving part

- Manual mechanical close and open pushbuttons
- Circuit breaker open/closed mechanical indicator
- Spring charged/discharged mechanical indicator
- Lifting plates
- Racking device with closed door
- Circuit breaker racking position indicator
- Sliding contacts

Standard features – manually operated switch

Fixed part

- Safety shutters
- Rear horizontal terminals
- Sliding contacts
- Anti-insertion lock
- Ground connection

Neutral pole rating (Standard)

- E1 – E3 = 100% rating
- E4 – E6 = 50% rating

⊕ Special 100% neutral pole rating available.

Notes

Emax DC Power breakers



Power breakers
Emax DC



Emax DC

The Emax range of low voltage circuit breakers is completed by the new Emax DC series of circuit breakers for direct current applications complying with the UL1066 and IEC 50947-2 standards. Thanks to the exclusive technology applied to the new PR122/DC and PR123/DC trip units, the Emax DC range allow all installation requirements to be met and protection up to 600V DC / 5000A (UL only) and 1000V DC / 5000A (IEC only).

Catalog reference:

UL Technical catalog available Q1 2013.

IEC Technical catalog 1SDC200012D0202

Ordering technical catalogs

To order the above referenced catalogs, visit our web site at:

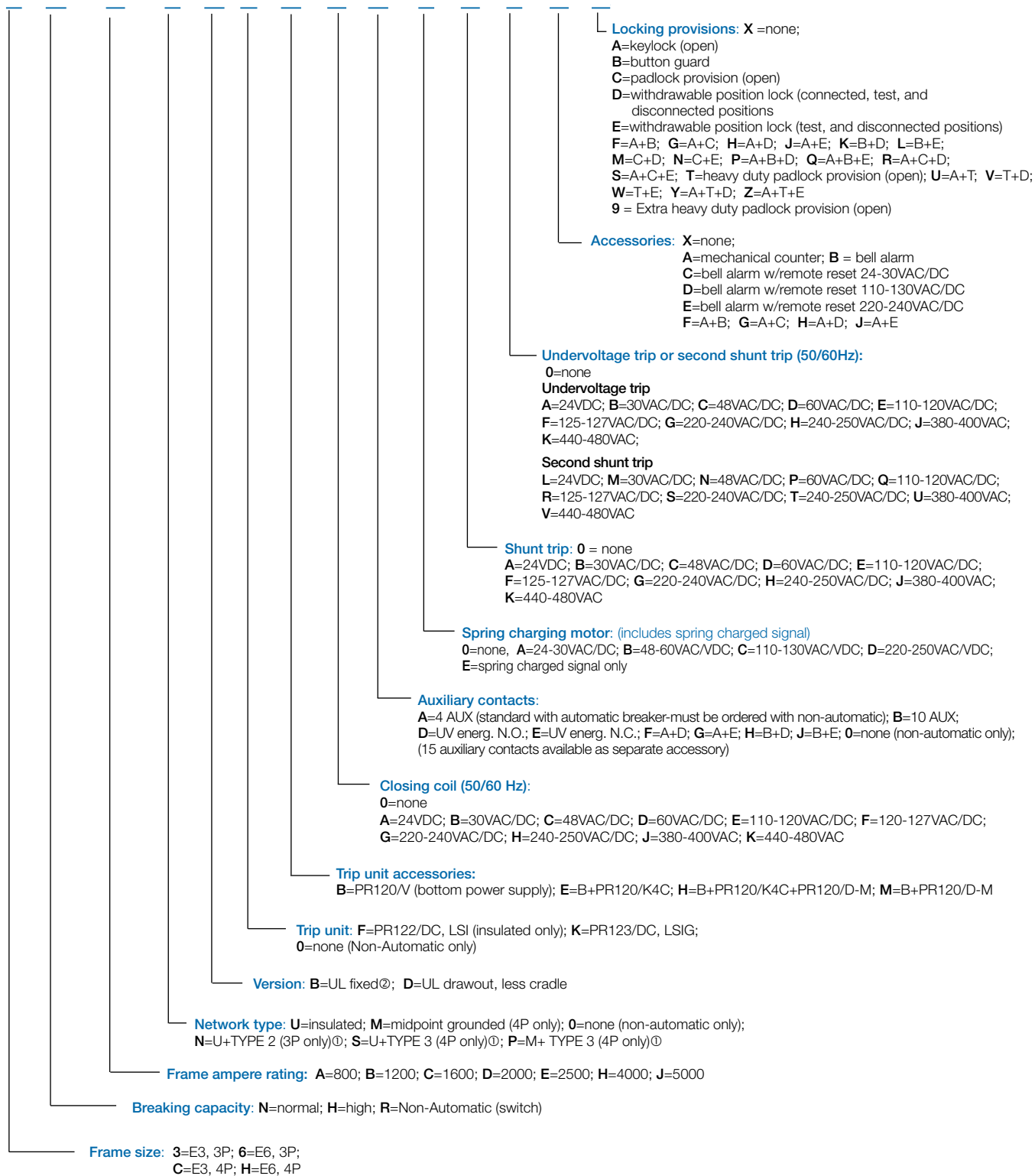
www.abbnw.com/PublicSite/home/LiteratureResources.htm

General information

Catalog number explanation

Emax DC breaker (UL only)

M



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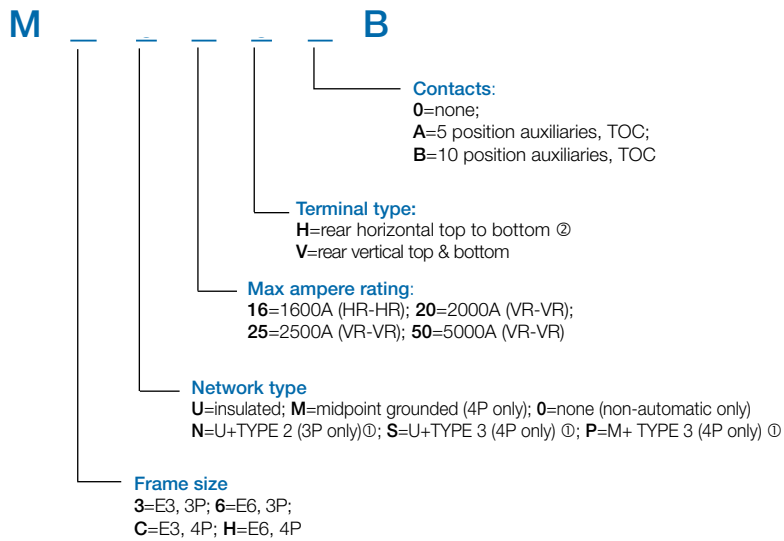
Ⓛ For network type explanation, see page 18.30.

Ⓛ Horizontal terminals are standard up to 1600A for automatic and non-automatic circuit breakers; for vertical terminals, see page 18.44 for conversion kit.

General information

Catalog number explanation

Emax DC cradle (UL only)



① For network type explanation, see page 18.30.
 ② Available as E3 up to 1600A.

Selection guide

Emax DC UL circuit breakers

Common data

Voltages		
Rated service voltage U_e	V-	600
Rated insulation voltage U_i	V	600
Rated impulse withstand voltage U_{imp}	kV	12
Operating temperature	°C	-25...+70
Storage temperature	°C	-40...+70
Number of poles		3 - 4
Versions		Fixed - withdrawable



		E3		E6	
		N-A/DC		H-A/DC	
Levels of performance					
Frame size I_u	A	800			
	A	1200			
	A	1600			
	A	2000			
	A	2500			
	A	-		4000	
	A	-		5000	
Rated short circuit					
@ 600 V DC (3p)	kA	60			65
@ 600 V DC (4p)	kA	60			65
Rated short-time current (0.5 sec)	kA	60			65
Rated short-time current (0.4 sec) ①	kA	60			-
Trip times					
Make time (max)	ms	80			80
Break time (max)	ms	60			60
Overall dimensions					
Fixed: H=418 mm/16.46 in; D=302 mm/11.89 in.					
W (3/4 poles)	mm	404/530			782/908
W (3/4 poles)	in	15.91/20.82			30.79/35.78
Withdrawable: H=461 mm/18.15 in - D=396.5 mm/15.61 in					
W (3/4 poles)	mm	432/558			810/936
W (3/4 poles)	in	17.01/21.97			31.89/36.85
Weights					
Fixed					
3/4 poles	kg	66/80			140/160
3/4 poles	lbs	145/176			308/353
Withdrawable					
3/4 poles (including the fixed part)	kg	104/125			210/240
3/4 poles (including the fixed part)	lbs	229/275			463/529

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		E3				E6	
	I_u	800 1200	1600	2000	2500	4000	5000
Life with regular maintenance	No. of operations						
Mechanical	x 1000	20	20	20	20	12	12
Electrical, 600 VDC	x 1000	12	10	9	7	4	2

① Without intentional delays.

Non-automatic switches Emax DC UL

The Emax DC UL MS range of switch-disconnectors make it possible to cover any installation requirement up to 600 V DC / 5000A. They are particularly switchable for use as bus-ties or main switch disconnectors in direct current plants.

The switch-disconnectors are available in both three-pole and four-pole fixed and drawout versions. They maintain all the overall dimensions and fixing points of the standard circuit breaker.

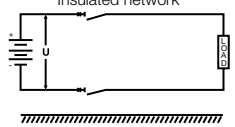
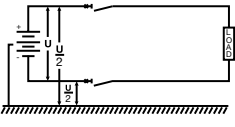
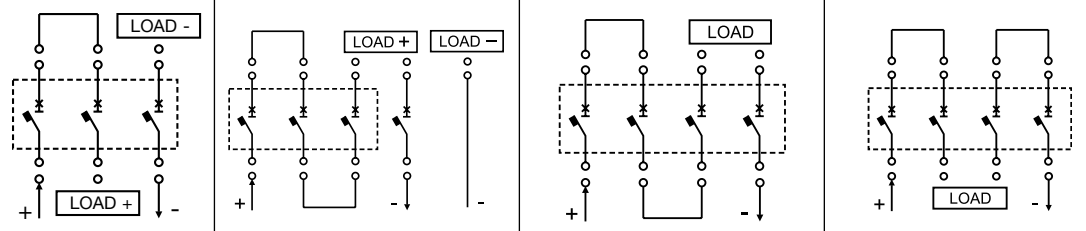
The switch-disconnectors share the same accessories as the circuit breaker, with the only difference the absence of the trip unit.

		E3N-A/DC MS		E6H-A/DC MS	
Rated current (@ 40°C) I_U	A	800	–	–	–
	A	1200	–	–	–
	A	1600	–	–	–
	A	2000	–	–	–
	A	2500	–	–	–
	A	–	–	4000	–
	A	–	–	–	5000
	A	–	–	–	–
Poles		3	4	3	4
Rated service voltage U_g	V	600	600	600	600
Rated short-time current I_{cw} (0.5s) ①	kA	60	60	65	65
Rated making capacity I_{cm}	% I_{cw}	100	100	100	100

① 0.4s only for E3 800.

Type of network

Emax DC UL

	E3 & E6 3 poles	E3 & E6 3 poles	E3 & E6 4 poles	E3 & E6 4 poles
Positive polarity	2 poles in series	3 poles in series	3 poles in series	2 poles in series
Negative polarity	1 pole	-	1 pole	2 poles in series
Insulated network 	✓	✓	✓	✓
Network with the mid-point earthed 			✓	✓
	Type 1	Type 2	Type 3	Type 4
Connection diagram 				

Versions and connections Emax DC UL

Emax DC circuit breakers are available in the fixed or withdrawable and in the three pole or four pole versions. Emax DC UL circuit breakers use several poles in series to break the fault. Special connection busbars, known as "U connections", are mounted on the circuit breaker terminals in order to complete the connections.

The power supply availability is from lower terminals only.

The standard connection for 3 pole breakers is 2 poles in series plus 1 pole and the standard connection for 4 pole breakers is 2 poles in series plus 2 poles in series. Connection of 3 poles in series for 3 pole breakers and 3 poles in series plus 1 pole for 4 pole breakers is available as a special option.

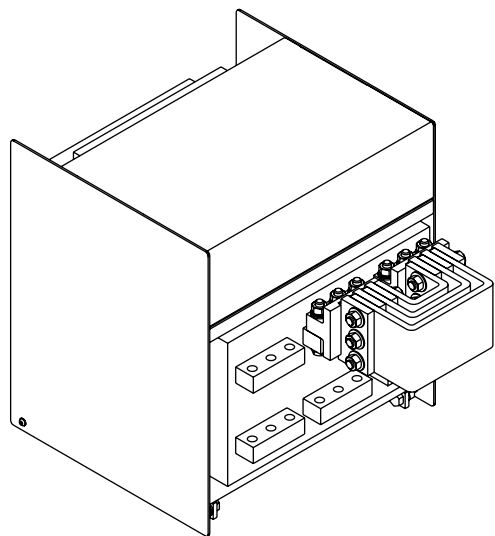
The fixed portions (cradle) of the circuit breakers are fitted with different terminals according to the frame of the circuit breaker.

Below is a table regarding the terminal type of the circuit breakers.

CB Type	Terminal type
E3N-A/DC 800	Horizontal or vertical
E3N-A/DC 1200	Horizontal or vertical
E3N-A/DC 1600	Horizontal or vertical
E3N-A/DC 2000	Vertical
E3N-A/DC 2500	Extended vertical + heat sink
E6H-A/DC 4000	Extended vertical + heat sink
E6H-A/DC 5000	Extended vertical + heat sink

Withdrawable circuit breaker

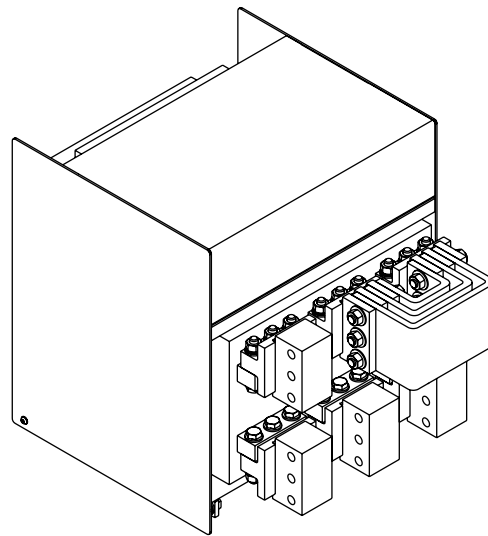
Horizontal rear terminals



Power supply from
lower terminals

Withdrawable circuit breaker

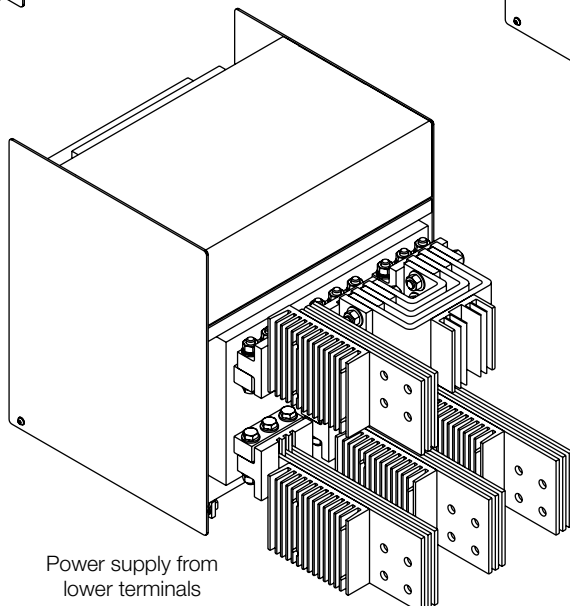
Vertical rear terminals



Power supply from
lower terminals

Withdrawable circuit breaker

Extended vertical rear terminals



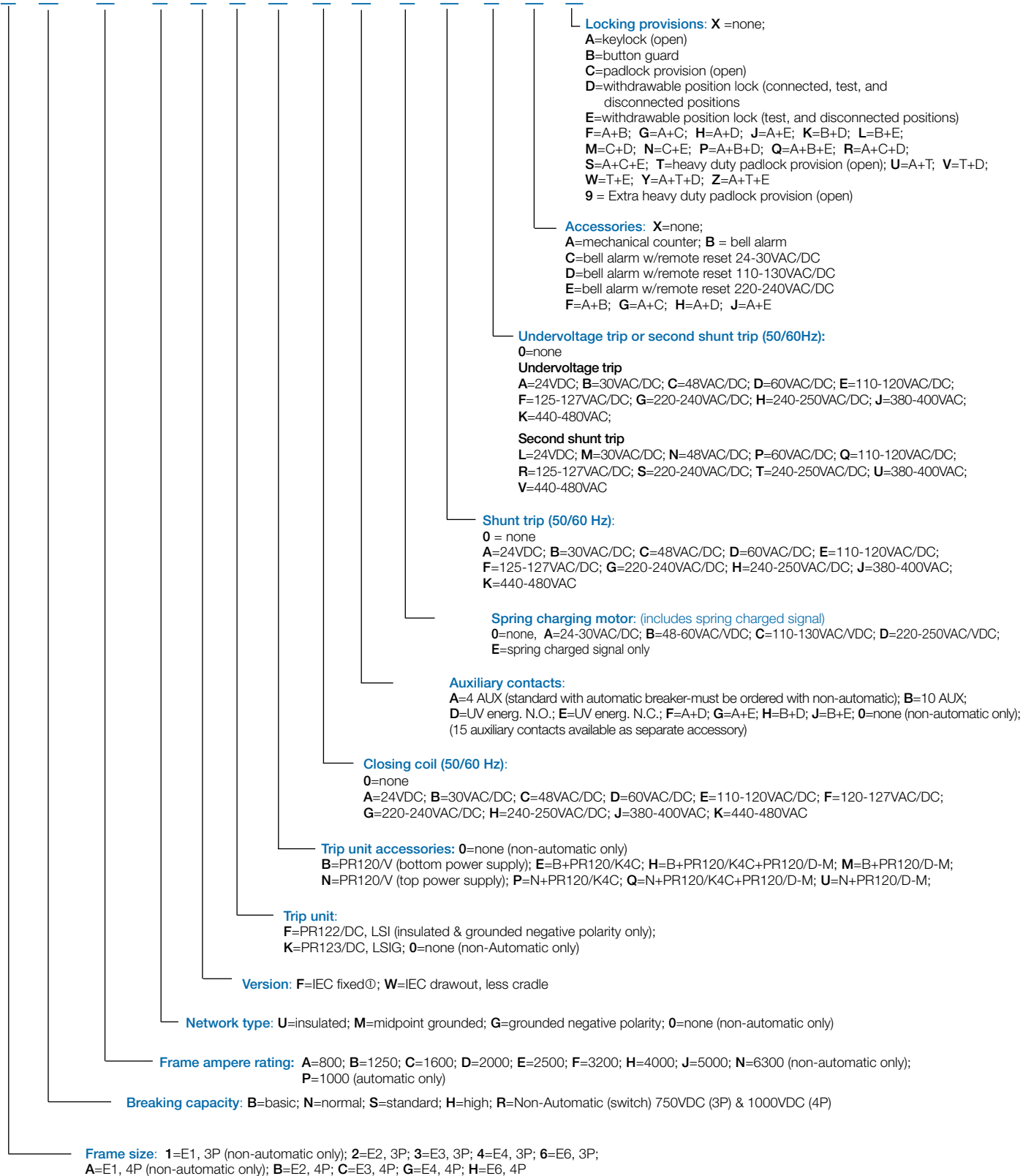
Power supply from
lower terminals

General information

Catalog number explanation

Emax DC breaker (IEC only)

B



18

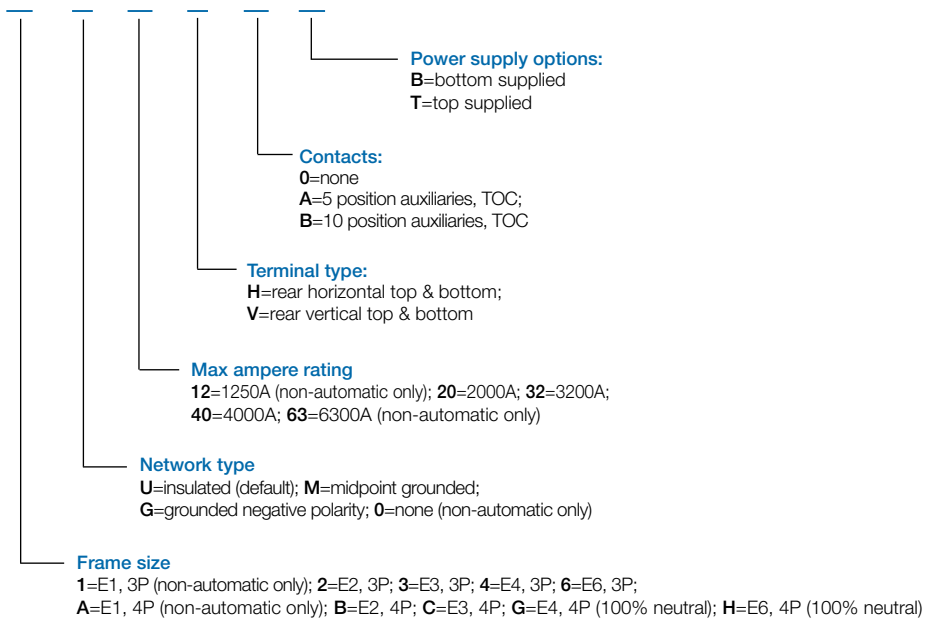
Ⓞ Fixed version is supplied with vertical terminals for automatic circuit breaker and with horizontal terminals for non-automatic circuit breakers.
 NOTE: For network type explanation, see page 18.36.

General information

Catalog number explanation

Emax DC cradle (IEC only)

B



Selection guide

Emax DC IEC circuit breakers

Common data

Voltages		
Rated service voltage U_e	V-	1000
Rated insulation voltage U_i	V	1000
Rated impulse withstand voltage U_{imp}	kV	12
Operating temperature	°C	-25...+70
Storage temperature	°C	-40...+70
Number of poles		3 - 4
Versions		Fixed - withdrawable



		E2		E3			E4		E6	
		B	N	N	H	S	H	H		
Levels of performance										
Rated uninterrupted current (at 40°C) I_u	A	800	-	800	-	-	-	-	-	
	A	1000	-	1000	-	-	-	-	-	
	A	1250	-	1250	-	-	-	-	-	
	A	1600	1600	1600	1600	1600	-	-	-	
	A	-	-	2000	2000	2000	-	-	-	
	A	-	-	2500	2500	2500	-	-	-	
	A	-	-	-	-	3200	3200	-	3200	
	A	-	-	-	-	-	-	-	4000	
A	-	-	-	-	-	-	-	5000		
Rated service short circuit breaking current I_{cs}	% I_{cu}	kA	100%	100%	100%	100%	100%	100%	100%	
Rated short time withstand current I_{cw} (0.5s)										
@ 500 V DC (3p)	kA	35	50	60	65	75	100	100		
@ 750 V DC (3p)	kA	25	25	40	40	65	65	65		
@ 750 V DC (4p)	kA	25	40	50	50	65	65	65		
@ 1000 V DC (4p)	kA	25	25	35	40	50	65	65		
Rated short circuit making current I_{cm}	% I_{cu}	kA	100%	100%	100%	100%	100%	100%		
Category of use (according to CEI EN 60947-2)			B	B	B	B	B	B		
Isolation behavior (according to CEI EN 60947-2)			■	■	■	■	■	■		
Overcurrent protection										
Electronic trip units for DC applications			■	■	■	■	■	■		
Operating times										
Closing time (max)	ms	80	80	80	80	80	80	80		
Breaking time for $I > I_{cw}$ (max) ①	ms	60	60	60	60	60	60	60		
Overall dimensions										
Fixed: H=418 mm D=302 mm W (3/4 poles)	mm	296/386	296/386	404/530	404/530	566/656	566/656	782/908		
Withdrawable: H=451 mm D=396.5 mm W (3/4 poles)	mm	324/414	324/414	432/558	432/558	594/684	594/684	610/936		
Weights										
Fixed 3/4 poles	kg	50/61	50/61	66/80	66/80	97/117	97/117	140/160		
Withdrawable 3/4 poles (including the fixed part)	kg	50/61	50/61	66/80	66/80	147/165	147/165	210/240		

18

		E2		E3			E4		E6				
		800	1600	800	1600	2000	2500	1600	2000	2500	3200	4000	5000
I_u		1000		1000									
1250				1250									
Life with regular maintenance		No. of operations											
Mechanical	x 1000	25	25	20	20	20	20	15	15	15	12	12	12
Electrical, 1000 VDC	x 1000	15	10	12	10	9	7	7	7	7	5	4	2

① Without intentional delays.

Non-automatic switches Emax DC IEC

The Emax DC IEC MS range of switch-disconnectors make it possible to cover any installation requirements up to 1000 V DC/6300A.

The switch disconnectors are available in both three-pole and four-pole fixed and drawout versions. They maintain all the overall dimensions and fixing points of the standard breaker. The drawout circuit breakers must be associated with the fixed parts in a special version for applications at 750/1000V DC.

The switch-disconnectors share the same accessories as the circuit breaker, with the only difference being the absence of the trip unit.

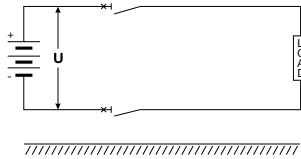
		E1B/E MS		E2N/E MS		E3H/E MS		E4H/E MS		E6H/E MS	
Rated current (@ 40°C) I_N	A	800		1250		1250		3200		5000	
	A	1250		1600		1600		4000		6300	
	A	-		2000		2000		-		-	
	A	-		-		2500		-		-	
	A	-		-		3200		-		-	
Poles		3	4	3	4	3	4	3	4	3	4
Rated service voltage U_s	V	750	1000	750	1000	750	1000	750	1000	750	1000
Rated insulation voltage U_i	V	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp}	kV	12	12	12	12	12	12	12	12	12	12
Rated short time withstand current I_{cw} (1s)	kA	20	20 ^⓪	25	25 ^⓪	40	40 ^⓪	65	65	65	65
Rated making current I_{cm}	% I_{cw}	100	100	100	100	100	100	100	100	100	100

NOTE: By means of an extreme protection relay with maximum timing of 500 ms, the I_{cu} breaking current is the same as the I_{cw} value (1s).

⓪ The performance at 750 V are:
for E1B/E MS I_{cw} =25kA
for E2N/E MS I_{cw} =40kA
for E3H/E MS I_{cw} =50kA

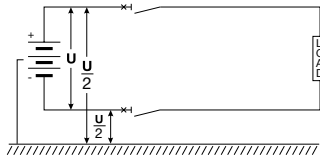
Type of network Emax DC IEC

Insulated network



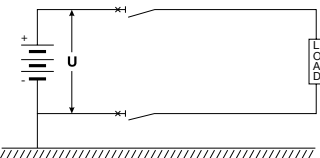
Rated voltage (U_e)	$U_e \leq 500$		$500V \leq U_e \leq 750V$		$750V \leq U_e \leq 1000V$
POLES	3p	4p	3p	4p	4p
Power supply from lower terminals (Lower Supply)					
Power supply from upper terminals (Upper Supply)					

Network with earthed mid-point



Rated voltage (U_e)	$U_e \leq 500V$		$500V \leq U_e \leq 750V$	$750V \leq U_e \leq 1000V$
Poles	3p	4p	4p	4p
Power supply from lower terminals (Lower Supply)				
Power supply from upper terminals (Upper Supply)				

Network with earthed negative polarity



Rated voltage (U_e)	$U_e \leq 500$ ¹⁾	
Poles	3p	4p
Power supply from lower terminals (Lower Supply)		
Power supply from upper terminals (Upper Supply)		

Versions and connections

Emax DC IEC

Versions and connections

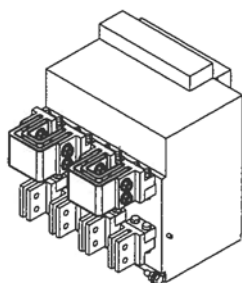
All DC IEC Emax circuit breakers for direct current have several poles in series involved in breaking the fault; for this reason, a special connections busbar (known as a "U connection kit") are mounted on the circuit breaker terminals.

Selection of the power supply side, from the lower or upper terminals, must only be made at the time of ordering and cannot be modified later by the customer.

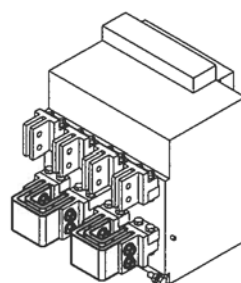
The fixed circuit breakers are fitted with vertical terminals, whereas it is possible to select between vertical and horizontal terminals for circuit breakers in the withdrawable version.

Fixed circuit breaker

Vertical rear terminals



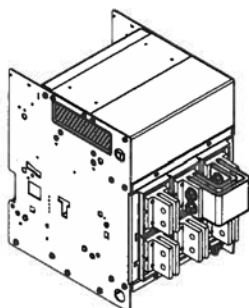
Power supply from lower terminals



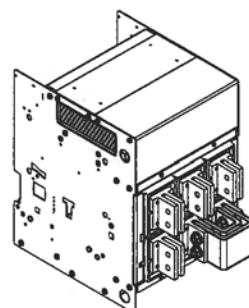
Power supply from upper terminals

Withdrawable circuit breaker

Vertical rear terminals

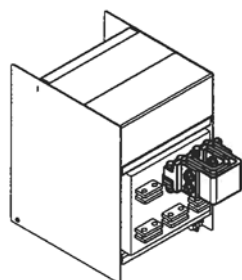


Power supply from lower terminals

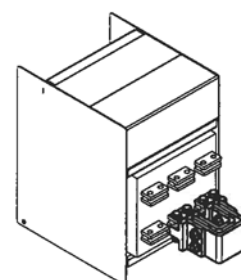


Power supply from upper terminals

Horizontal rear terminals



Power supply from lower terminals



Power supply from upper terminals

Notes

Accessories

Power breakers



Power breakers
Accessories

Power circuit breakers

Accessories

UL & IEC

Trip units ① (NOT for use with Emax DC)

Description	Catalog number
PR121/P-LI	PR121/P-LI
PR121/P-LSI	PR121/P-LSI
PR121/P-LSIG	PR121/P-LSIG
PR122/P-LI	PR122/P-LI
PR122/P-LSI	PR122/P-LSI
PR122/P-LSIRc (IEC only)	PR122/P-LSIRc
PR122/P-LSIG	PR122/P-LSIG
PR123/P-LSI (Standard with PR120/V)	PR123/P-LSI
PR123/P-LSIG (Standard with PR120/V)	PR123/P-LSIG

Rating plugs (NOT for use with Emax DC)

UL	Description	E1	E2	E3	E4	E6	Catalog number
	400A Rating plug	X	X	X			DE0400RP
	600A Rating plug	X	X	X			DE0600RP
	800A Rating plug	X	X	X	X	X	DE0800RP
	1000A Rating plug	X	X	X	X	X	DE1000RP
	1200A Rating plug	X	X	X	X	X	DE1200RP
	1600A Rating plug		X	X	X	X	DE1600RP
	2000A Rating plug			X	X	X	DE2000RP
	2500A Rating plug			X	X	X	DE2500RP
	3000A Rating plug			X	X	X	DE3000RP
	3200A Rating plug			X	X	X	DE3200RP
	3600A Rating plug				X	X	DE3600RP
	4000A Rating plug					X	DE4000RP
	5000A Rating plug					X	DE5000RP
	6000A Rating plug					X	DE6000RP
IEC		E1	E2	E3	E4	E6	
	400A Rating plug	X	X	X			DE0400RP
	630A Rating plug	X	X	X			DE0630RP
	800A Rating plug	X	X	X	X	X	DE0800RP
	1000A Rating plug	X	X	X	X	X	DE1000RP
	1250A Rating plug	X	X	X	X	X	DE1250RP
	1600A Rating plug	X	X	X	X	X	DE1600RP
	2000A Rating plug		X	X	X	X	DE2000RP
	2500A Rating plug			X	X	X	DE2500RP
	3000A Rating plug			X	X	X	DE3000RP
	3200A Rating plug			X	X	X	DE3200RP
	4000A Rating plug				X	X	DE4000RP
	5000A Rating plug					X	DE5000RP
	6300A Rating plug					X	DE6300RP

Trip unit optional features

Description	Catalog number
Signaling Unit	PR021/K
Signaling Module 4 output with independent terminals	PR120/K4
Signaling Module 4 + 1 input with common terminal	PR120/K4C
Voltage Measuring Module	PR120/V
Communication Module (Modbus RTU)	PR120/D-M
Bluetooth Wireless Communication Module internal	PR120/D-BT

Test kits

Description	Catalog number
Bluetooth wireless communication module external	BT030
Test and configuration unit	PR010/T
EKIP Connect communication software	EKIP
Hand-held battery (standard w/PR122 & 123)	PR030/B
RRD Remote racking device	KERRD
RRD Adapter kit	KERRDKIT

① Must order rating plug separately when ordering trip unit separately.

Power circuit breakers

Accessories

UL & IEC

Emax
Power breakers

Electrical and mechanical accessories

Description	Catalog number
Shunt trip coil (included in the electrically operated breaker)	
Rated voltage	
24V	KE6S0
30V	KE6S9
48V	KE6S8
60V	KE6S7
110/120V	KE6S6
120/127V	KE6S5
220/240V	KE6S4
250V	KE6S3
380/400V	KE6S2
440/480V	KE6S1
Second shunt trip coil (includes accessory support) ①	
24V	KE6S0-2
30V	KE6S9-2
48V	KE6S8-2
60V	KE6S7-2
110/120V	KE6S6-2
120/127V	KE6S5-2
220/240V	KE6S4-2
250V	KE6S3-2
380/400V	KE6S2-2
440/480V	KE6S1-2
Closing coil (included in the electrically operated breaker)	
24V	KE6C0
30V	KE6C9
48V	KE6C8
60V	KE6C7
110/120V	KE6C6
120/127V	KE6C5
220/240V	KE6C4
250V	KE6C3
380/400V	KE6C2
440/480V	KE6C1
Spring charging motor with limit switch and electrical indication charged spring (included in the electrically operated breaker)	
24/30V	KE6M9
48/60V	KE6M7
100/130V	KE6M5
220/250V	KE6M3
Spring charged signal only	KE6SC
Instantaneous under voltage trip release	
24V	KE6U0
30V	KE6U9
48V	KE6U8
60V	KE6U7
110/120V	KE6U6
120/127V	KE6U5
220/240V	KE6U4
250V	KE6U3
380/400V	KE6U2
440/480V	KE6U1
Energized undervoltage release signalling contact	
Auxiliary contact normally open	KE6UE10
Auxiliary contact normally closed	KE6UE01

Description	Catalog number
Auxiliary contacts for breakers ② (NOT for use with Emax DC)	
Rated 5A-250VAC / 0.3A -125VDC	
4 auxiliary open/closed contacts (PR121/ non-automatic switch)	KE6A4
4 auxiliary open/closed contacts for digital signals (PR121/ non-automatic switch)	KE6A4D
4 auxiliary open/closed contacts (2NO+2NC+PR122/3)	KE6A4-PR122/3
4 auxiliary open/closed contacts (2NO+2NC+PR122/3) for digital signals	KE6A4-PR122/3D
10 auxiliary open/closed contacts (PR121/non-automatic switch)	KE6A10
10 auxiliary open/closed contacts for digital signals (PR121/ non-automatic switch)	KE6A10D
10 auxiliary open/closed contacts (5NO+5NC+PR122/3)	KE6A10-PR122/3
10 auxiliary open/closed contacts (5NO+5NC+PR122/3) for digital signals	KE6A10-PR122/3D
15 additional auxiliary contacts for field installation on fixed breakers (connected to breaker with flexible cable) ③	KE6A15
15 additional auxiliary contacts for field installation on withdrawable breakers (connected to breaker with flexible cable) ③	KE6A15-W
Auxiliary contacts for switches	
2NO + 2NC	KE6A4
5NO + 5NC	KE6A10
Auxiliary contacts for service/test/disconnected position indication	
Cradle mounted	
5 auxiliary contacts	KE6PS1
10 auxiliary contacts for E1/2 - 3 pole	KE2PS3
10 auxiliary contacts for E1/2 - 4 pole	KE2PS4
10 auxiliary contacts for E3 - 3 pole	KE3PS3
10 auxiliary contacts for E3 - 4 pole	KE3PS4
10 auxiliary contacts for E4/6 - 3 & 4 pole	KE6PS2
Mechanical operation counter	
	KE6MC
Bell alarm	
Electrical signalling of overcurrent release tripped, Bell alarm contact	DE6TBA
Bell alarm w/remote reset	
Electrical signalling of overcurrent release tripped with remote reset 220-240V AC/DC	DE6TBAR4
Electrical signalling of overcurrent release tripped with remote reset 110-130V AC/DC	DE6TBAR5
Electrical signalling of overcurrent release tripped with remote reset 24-30V AC/DC	DE6TBAR9

① Order as alternative to UV trip.
 ② For field installation, order auxiliary contacts for corresponding trip unit/non-automatic switch.
 ③ For mounting on fixed breaker, also requires accessory KE6MLP.

Power circuit breakers

Optional features

UL & IEC

Locks and interlocks

Description	Catalog number
Button guard	KE6PG
Key lock in open position	
Key lock N. 20005 ①	DE6KL2
Key lock N. 20006	DE6KL3
Key lock N. 20007	DE6KL4
Key lock N. 20008	DE6KL5
Key lock different keys	DE6KL1
Padlocking provision	
3 - 4mm locks	KE6PD1
3 - 5/16 locks	KE6PDHD2
Extra heavy duty	KE6PDEHD9
Key and padlocking device to lock the breaker in disconnected, test or connected position (position lock)	
Key + padlocking 20005	DE6PL
Key + padlocking 20006	DE6PL3
Key + padlocking 20007	DE6PL4
Key + padlocking 20008	DE6PL5
Key + padlocking different keys	DE6PL1
Accessory to lock the breaker in test or disconnected position only ②	
Position lock	KE6PLA
Padlocking device for the safety shutters on the cradle	
Cradle padlock	KE6SP

① Keylock number when factory installed is N3004222.

② Also requires position lock.

External accessories

Neutral current transformers, UL & IEC (NOT for use with Emax DC) Required for 4 wire ground fault systems

For breaker	Amps	Catalog number	
E1 – E2	400	KE2NCT	
	800		
	1000		
	1200		
	1250		
	1600		
	2000		
E3	400	KE3NCT	
	800		
	1000		
	1200		
	1250		
	1600		
	2000		
	2500		
E4	3200	KE4NCT ①	
	3600		
	4000		
	3200		KE6NCT ①
	4000		
6300			

Mechanical interlocks ②

Mechanical interlocks (base plate for fixed circuit breakers)

For breaker	Interlock type	Catalog number
E1 – E6	All	KE6MLP

NOTE: order for fixed circuit breaker only; order one accessory for each fixed breaker.

Interlock for fixed circuit breaker/ fixed part of withdrawable circuit breaker (base attachment plate)

For breaker	Interlock type	Catalog number
E1 – E6	A, B, D	KE6MLA
	C	KE6MLC

NOTE: order one accessory for each fixed circuit breaker/ fixed part of withdrawable circuit breaker

Interlock for fixed circuit breaker/ moving part of withdrawable circuit breaker (internal interlocking shaft)

For breaker	Interlock type	Catalog number
E1 – E2	All	KE2ML
E3		KE3ML
E4, 3 pole		KE4ML-3
E4, 4 pole/ E6, 3 pole		KE6ML-3
E6, 4 pole		KE6ML-4

NOTE: order one accessory for each fixed circuit breaker/ mobile part of withdrawable circuit breaker

Interlock cables

For breaker	Interlock type	Horizontal catalog number	Vertical catalog number
E1 – E6	A	KE6MLC-HA	KE6MLC-VA
	B	KE6MLC-HB	KE6MLC-VB
	C	KE6MLC-HC	KE6MLC-VC
	D	KE6MLC-HD	KE6MLC-VD

NOTE: order one type of cable for each interlock

Electronic time delay for undervoltage release (IEC only)

Voltage	Time delay	Field installation catalog number
24/30V	0.5-1-1.5-2-3.5 s	KE6TL9
48V		KE6TL8
60V		KE6TL7
110/125V		KE6TL5
220/250V		KE6TL3

Transparent front cover (IP54)

Item	For breaker	Catalog number
Different keys	E1 - E6	KE6DC
Same keys		KE6SC

Kirk key lock adaptor plate - in open position

For breaker	Catalog number
E1 – E2 fixed breaker, 3-4 pole	KE6KKC-E2F
E1 – E2 withdrawable breaker, 3-4 pole	KE6KKC-E2W
E3 fixed breaker, 3-4 pole	KE6KKC-E3F
E3 withdrawable breaker, 3-4 pole	KE6KKC-E3W
E4 fixed breaker, 3 pole	KE6KKC-E4F
E4 withdrawable breaker, 3 pole	KE6KKC-E4W
E6 fixed breaker, 3 pole	KE6KKC-E6F
E6 withdrawable breaker, 3 pole	KE6KKC-E6W
E4 fixed breaker, 4 pole	KE6KKC-E4F-4
E4 withdrawable breaker, 4 pole	KE6KKC-E4W-4
E6 fixed breaker, 4 pole	KE6KKC-E6F-4
E6 withdrawable breaker, 4 pole	KE6KKC-E6W-4

NOTE: Provision for kirk lock (kirk key lock not included; use lock Type F – 1 inch bolt projection in withdrawn position).

Kit for converting fixed breaker with rear horizontal terminals to rear vertical – set of three terminals (UL only) ③

(NOT for use with Emax DC)

Description	Catalog number
E1, 3P	KE1FHRVR
E2, 3P	KE2FHRVR
E3 (12, 16, 20), 3P	KE3FHRVR
E3 (25), 3P	KE3F25HRVR
E4, 3P	KE4FHRVR
E6, 3P	KE6FHRVR

Kit for converting fixed breaker with rear horizontal terminals to rear vertical – set of three terminals (IEC only) ④

(NOT for use with Emax DC)

Description	Catalog number
E1, 3P	1SDA038052R1
E2, 3P	1SDA038053R1
E3, 3P	1SDA038054R1
E4, 3P	1SDA038055R1
E6, 3P	1SDA038056R1

① KE4NCT & KE6NCT are 100% rated. For 50% rated neutrals on E4 & E6, use KE2NCT & KE3NCT.

② Order as an alternative to auxiliary contacts (see page 18.41) and kirk key lock.

③ For 4 pole version, consult factory.

④ For 4 pole version, consult factory.

Emax DC

Kit for converting fixed breaker with rear horizontal terminals to rear vertical - set of three terminals

(ONLY for use with Emax DC)

Description	Catalog number
E3 (8, 12,16), 3P	KE3FHRVRDC3
E3 (8, 12,16), 4P	KE3FHRVRDC4

Emax lug kit - set of three terminals (UL only) ①

(NOT for use with Emax DC)

For breaker	Catalog number
E1, front terminals	KE1CLK4600
E1, rear terminals	KE1CLK4600S
E2, front terminals	KE2CLK4600
E2, rear terminals	KE2CLK4600S
E3, front terminals	KE3CLK6600
E3, rear terminals	KE3CLK6600S
E4, front terminals	KE4CLK10600
E4, rear terminals	KE4CLK10600S
E6, front terminals	KE6CLK12600
E6, rear terminals	KE6CLK12600S

Spare parts ②

Description	Catalog number
Racking crank	1SDA038092R1
Door escutcheon	1SDA038096R1
Support plate for auxiliary releases	1SDA038339R1
Lifting plates	1SDA038093R1

① For dimensions, see pages 18.91 - 18.100.

② For a complete list, refer to Spare Parts catalog, 1SDC001007D0202.

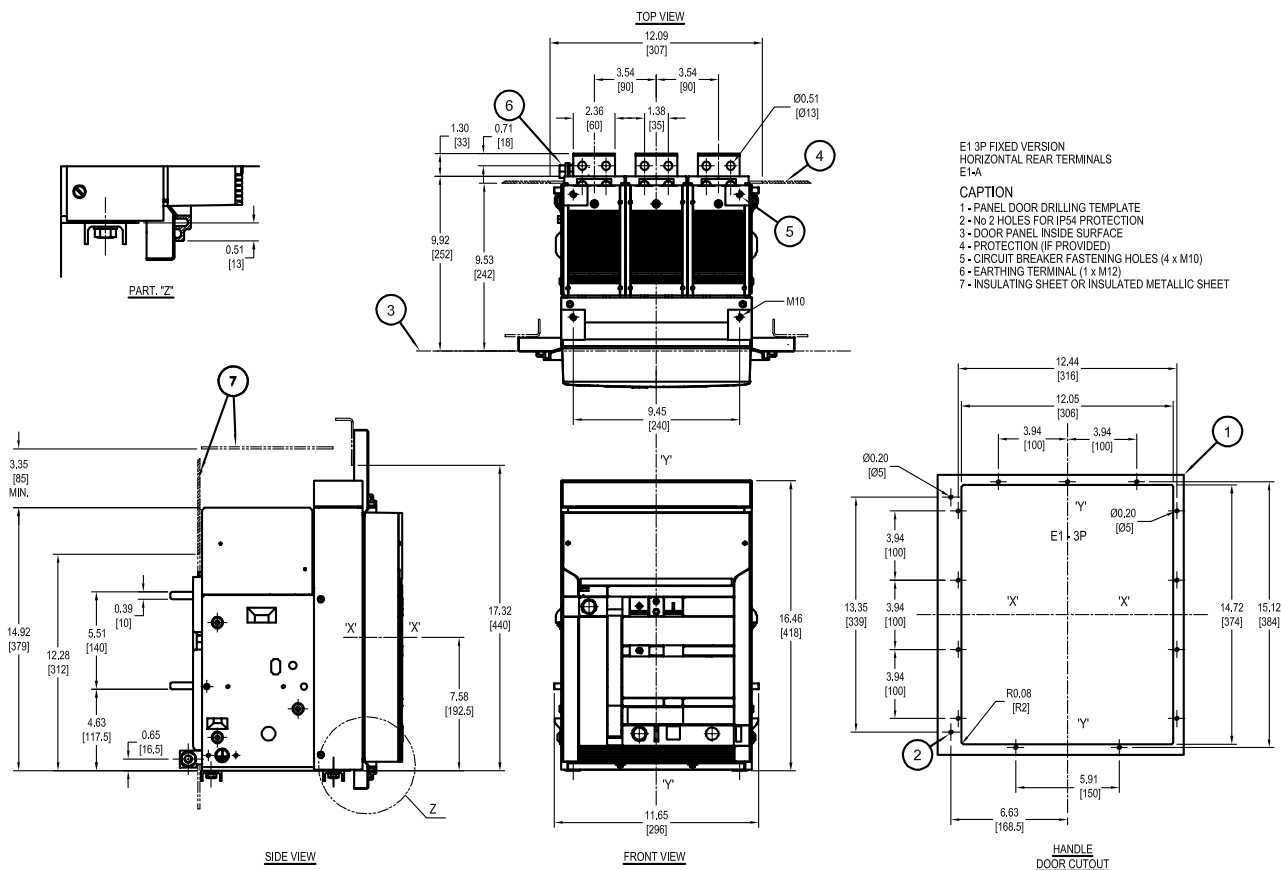
Approximate dimensions (for UL version) ①

E1, fixed with horizontal rear terminals

3 pole

← 00.00 → Inches
00.00 → [Millimeters]

← 00.00 → Inches
00.00 → [Millimeters]



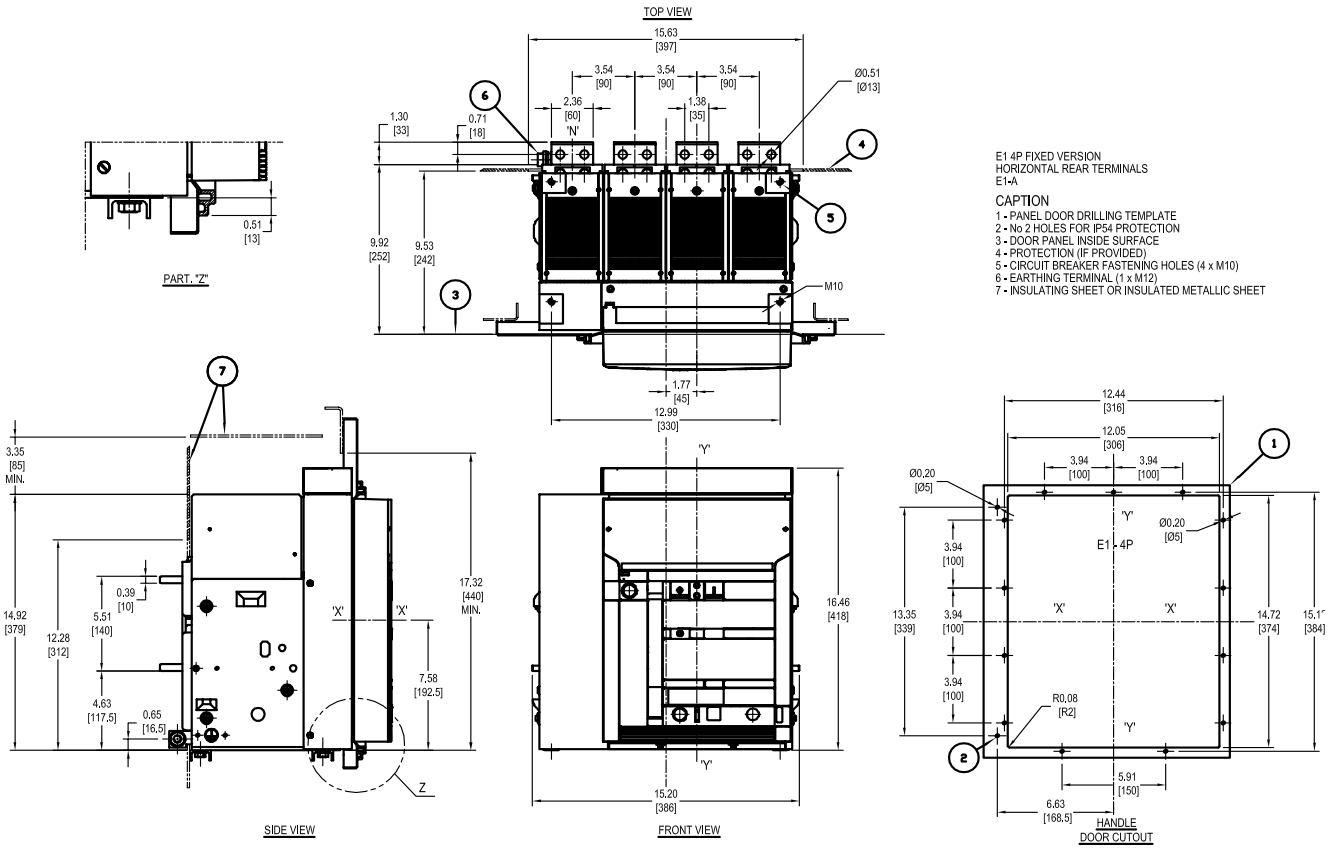
© For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E1, fixed with horizontal rear terminals

4 pole

← 00.00 → Inches
00.00 → [Millimeters]



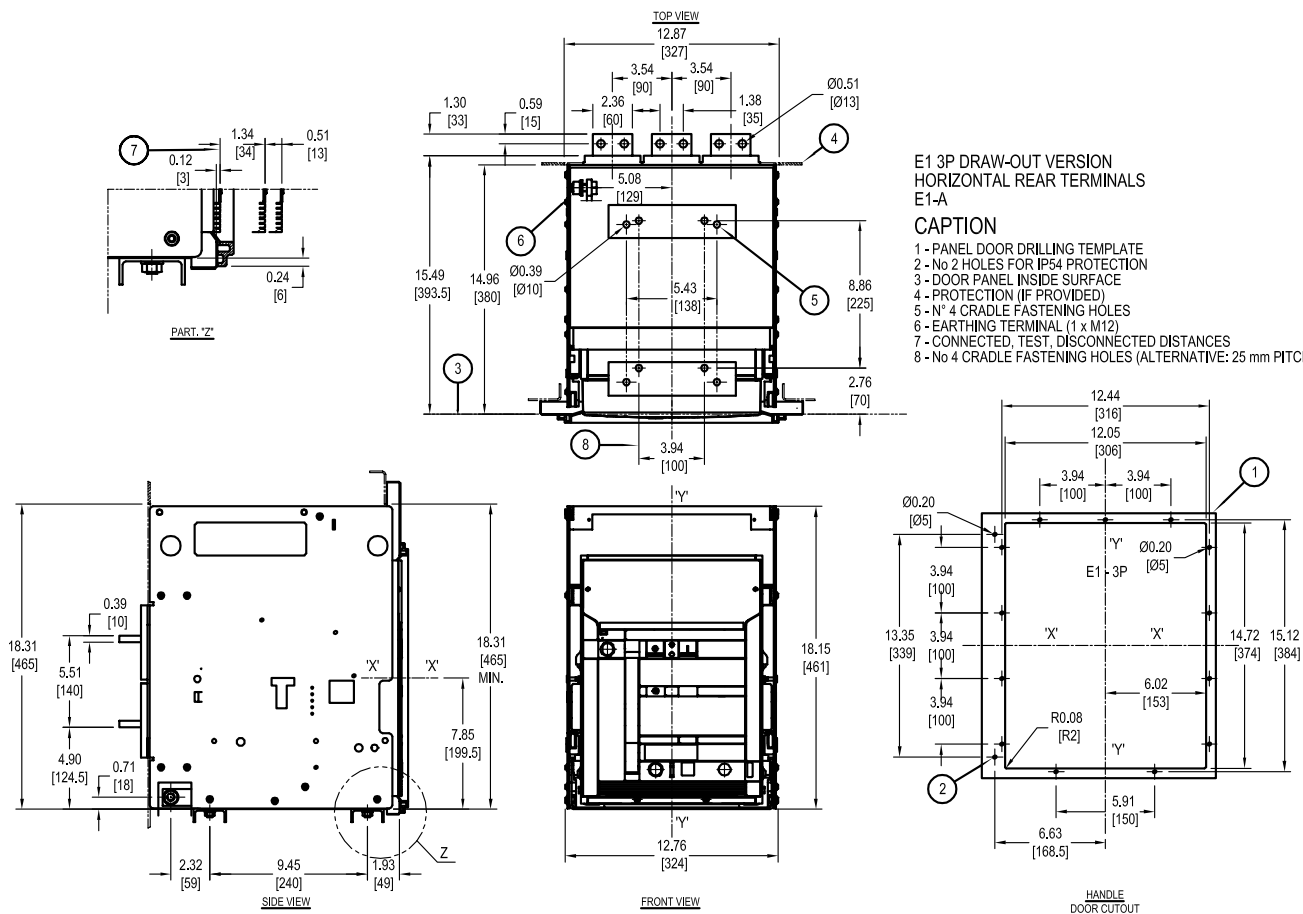
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E1, withdrawable with horizontal rear terminals

3 pole

← 00.00 Inches
00.00 → [Millimeters]



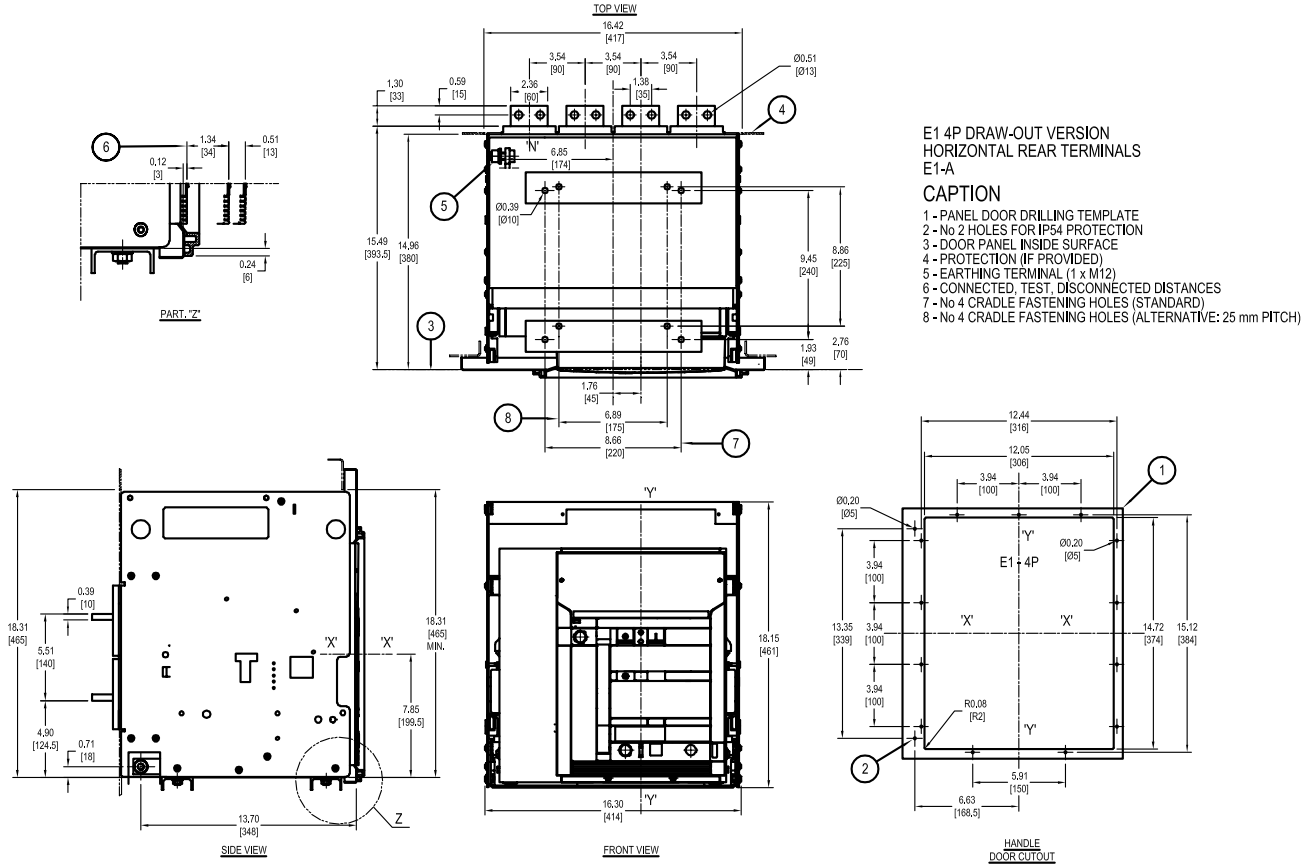
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E1, withdrawable with horizontal rear terminals

4 pole

00.00 Inches
00.00 [Millimeters]



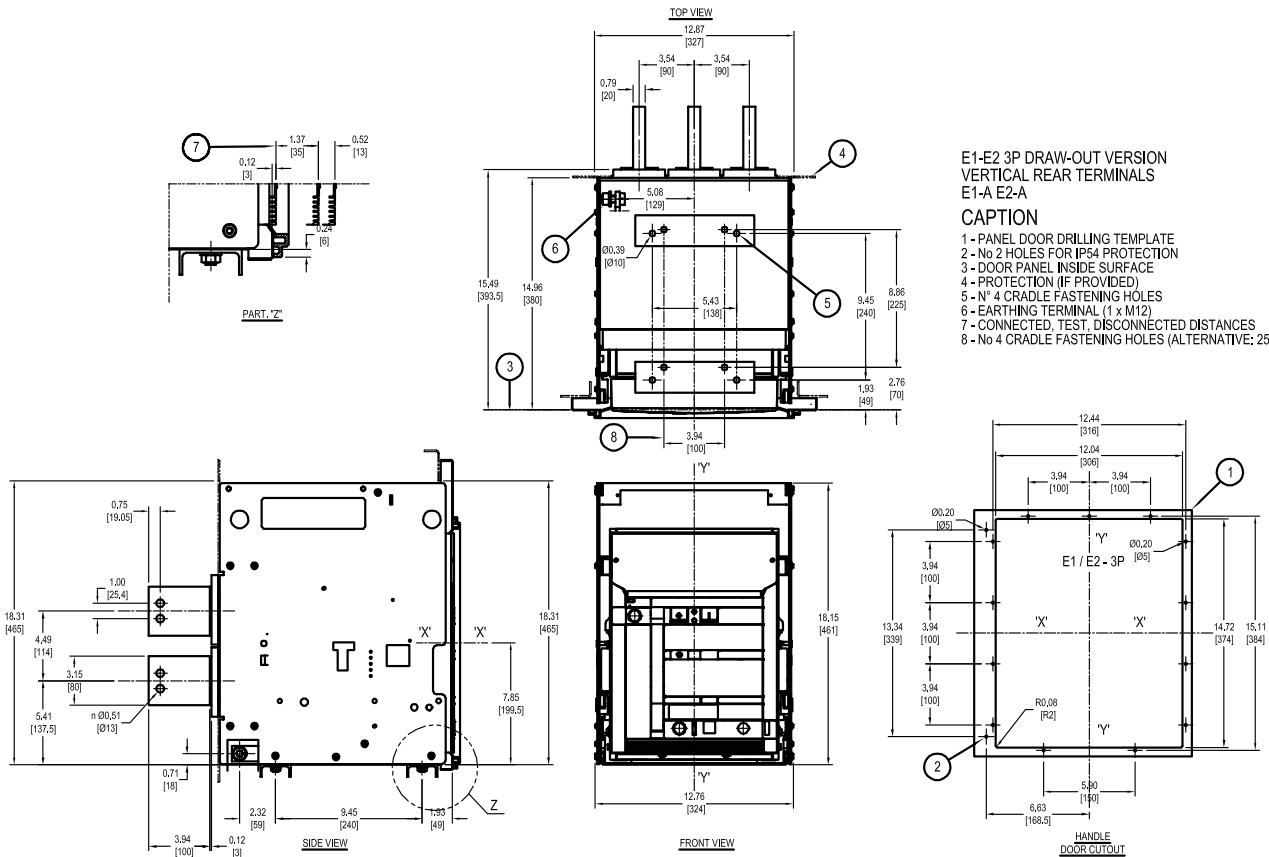
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E1 - E2, withdrawable with vertical rear terminals

3 pole

← 00.00 Inches
00.00 → [Millimeters]



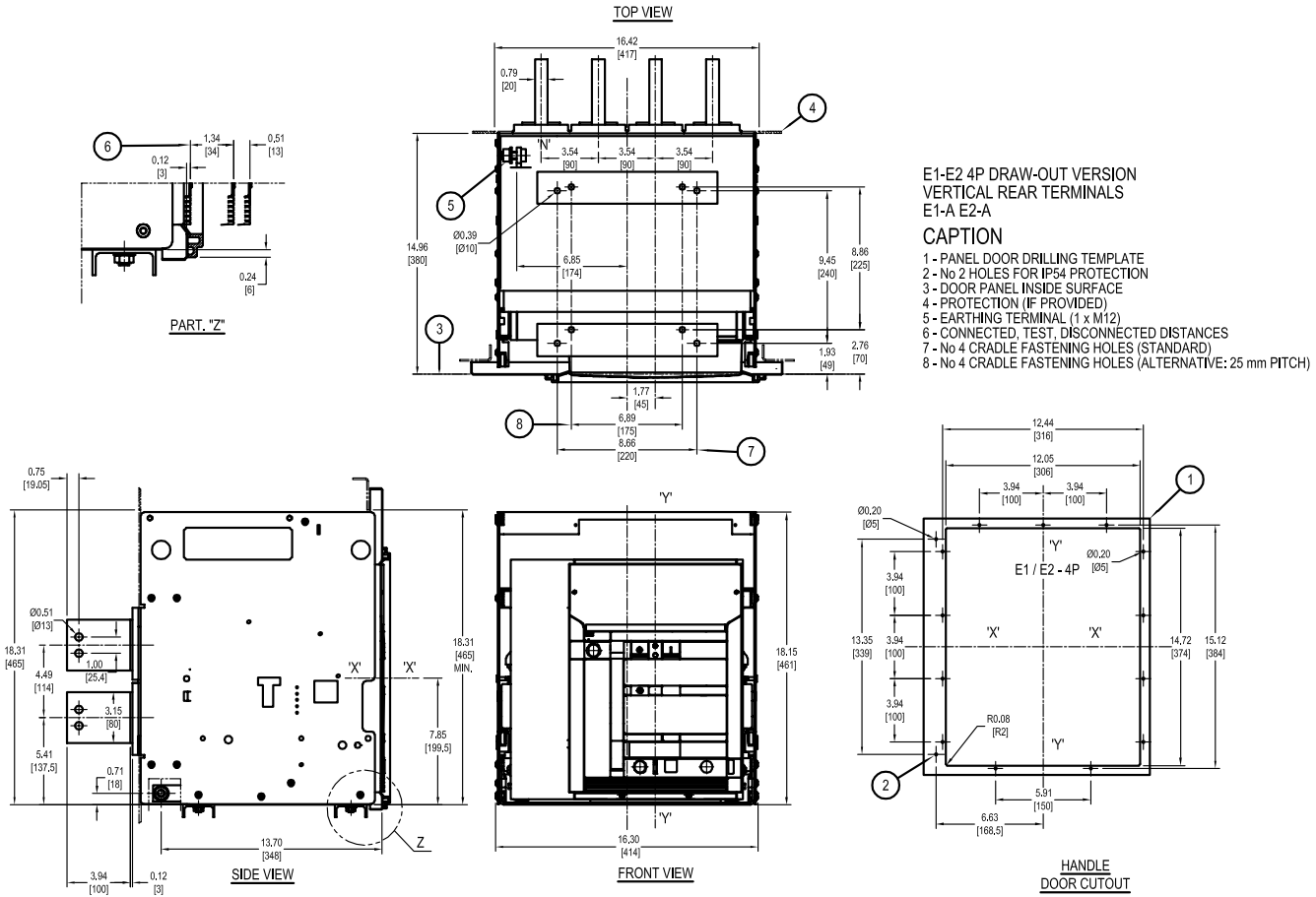
E1-E2 3P DRAW-OUT VERSION
VERTICAL REAR TERMINALS
E1-A E2-A

- CAPTION**
- 1 - PANEL DOOR DRILLING TEMPLATE
 - 2 - No 2 HOLES FOR IP54 PROTECTION
 - 3 - DOOR PANEL INSIDE SURFACE
 - 4 - PROTECTION (IF PROVIDED)
 - 5 - N° 4 CRADLE FASTENING HOLES
 - 6 - EARTHING TERMINAL (1 x M12)
 - 7 - CONNECTED, TEST, DISCONNECTED DISTANCES
 - 8 - No 4 CRADLE FASTENING HOLES (ALTERNATIVE: 25 mm PITCH)

① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①
E1 - E2, withdrawable with vertical rear terminals
4 pole

00.00 Inches
00.00 [Millimeters]



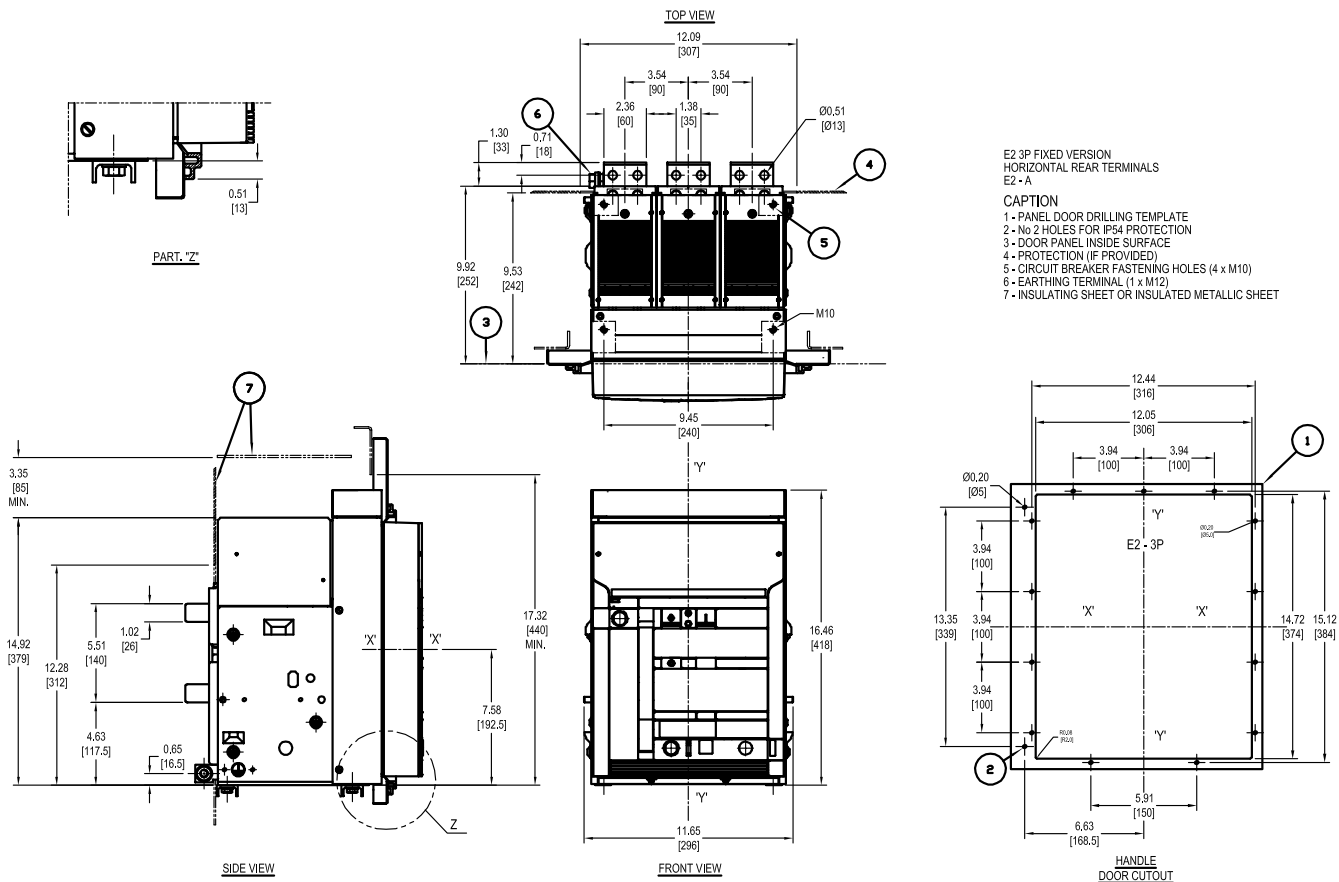
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E2, fixed with horizontal rear terminals

3 pole

← 00.00 Inches
00.00 → [Millimeters]



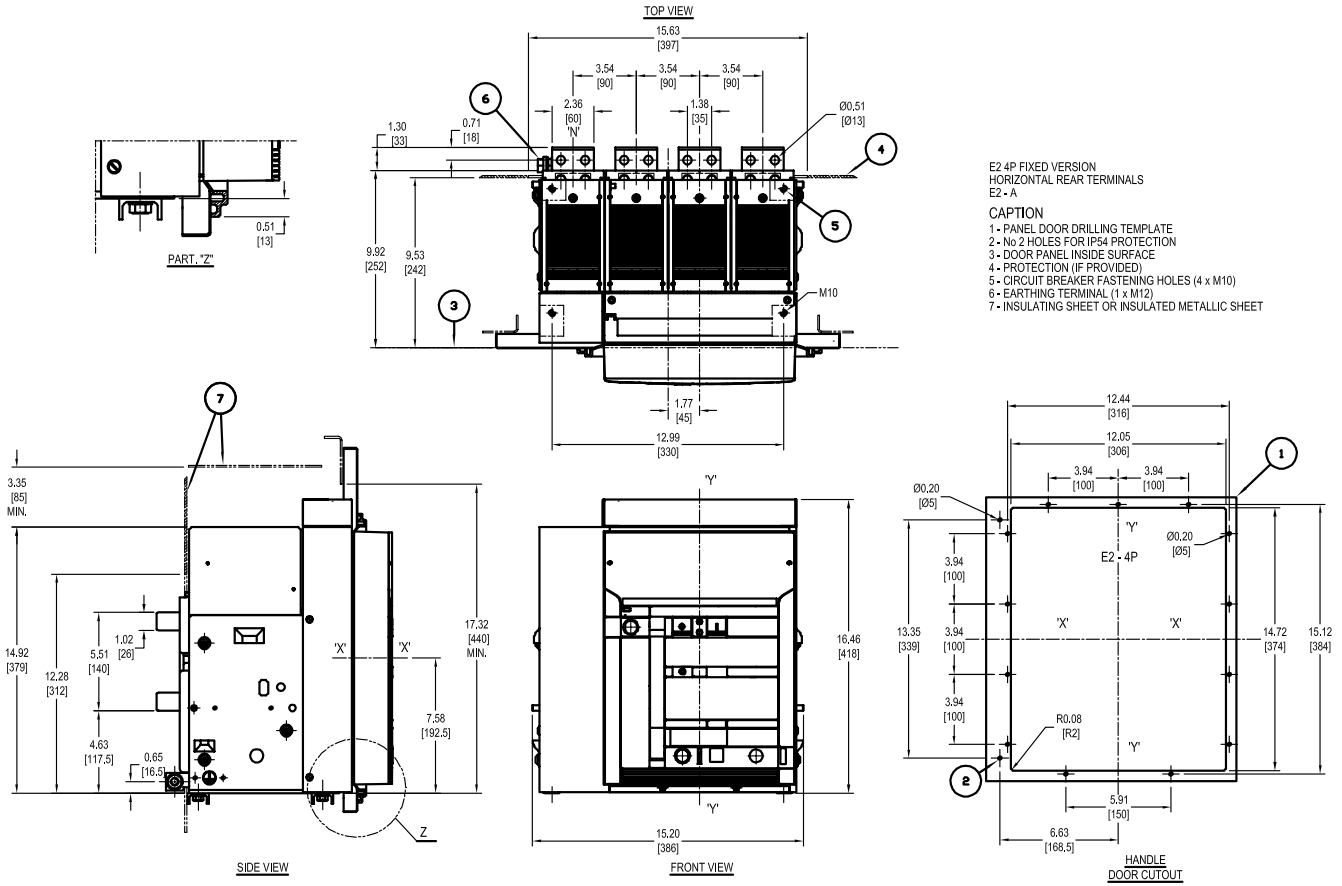
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E2, fixed with horizontal rear terminals

4 pole

00.00 Inches
00.00 [Millimeters]



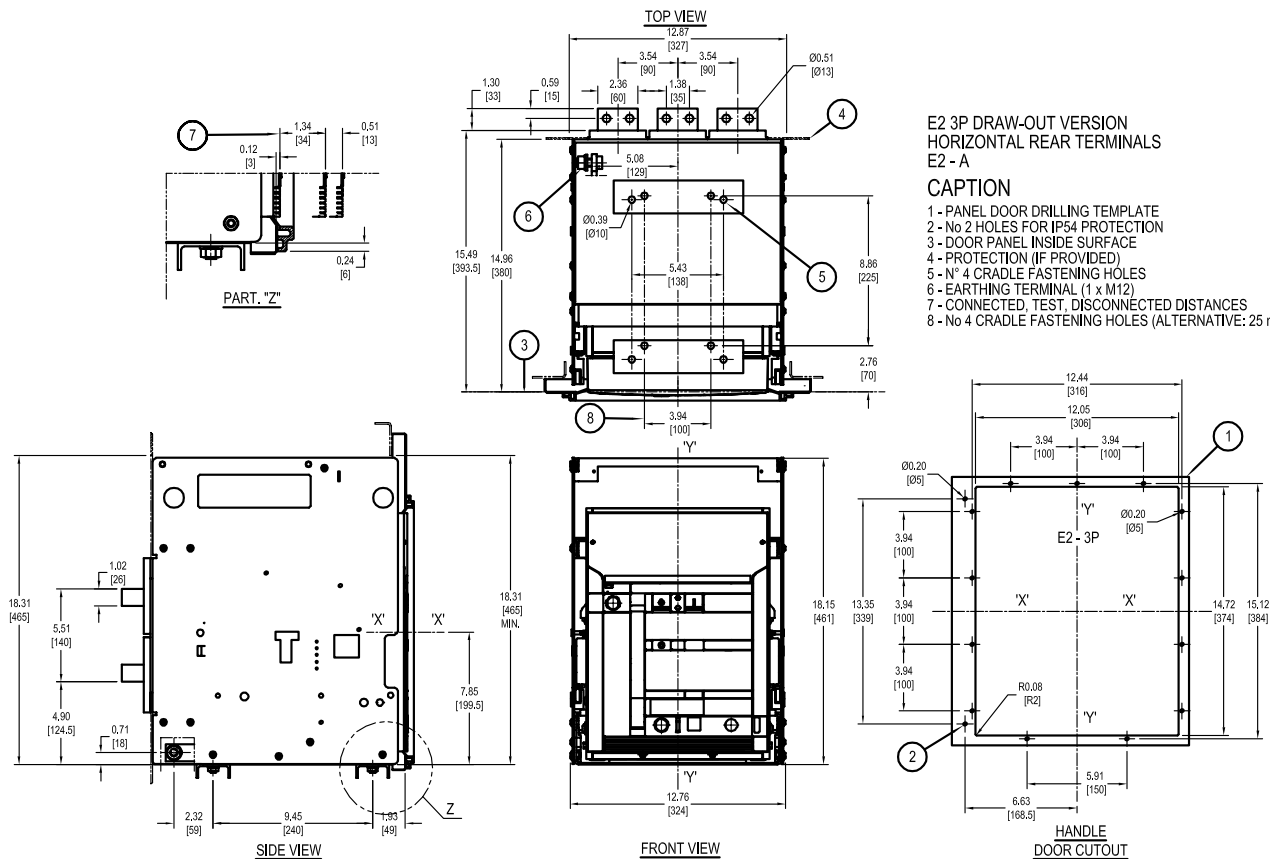
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E2, withdrawable with horizontal rear terminals

3 pole

← 00.00 → Inches
00.00 [Millimeters]



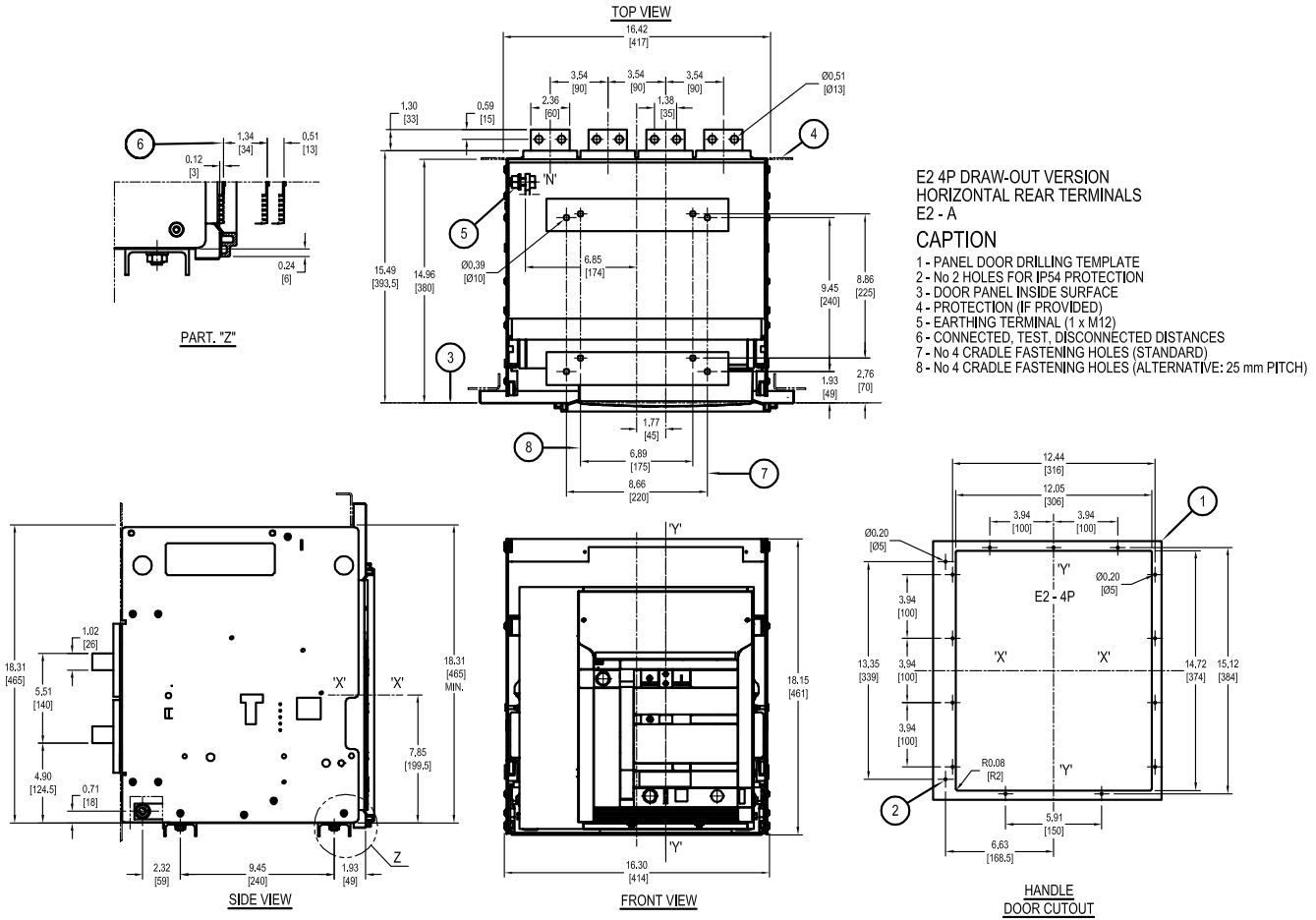
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E2, withdrawable with horizontal rear terminals

4 pole

00.00 Inches
00.00 [Millimeters]



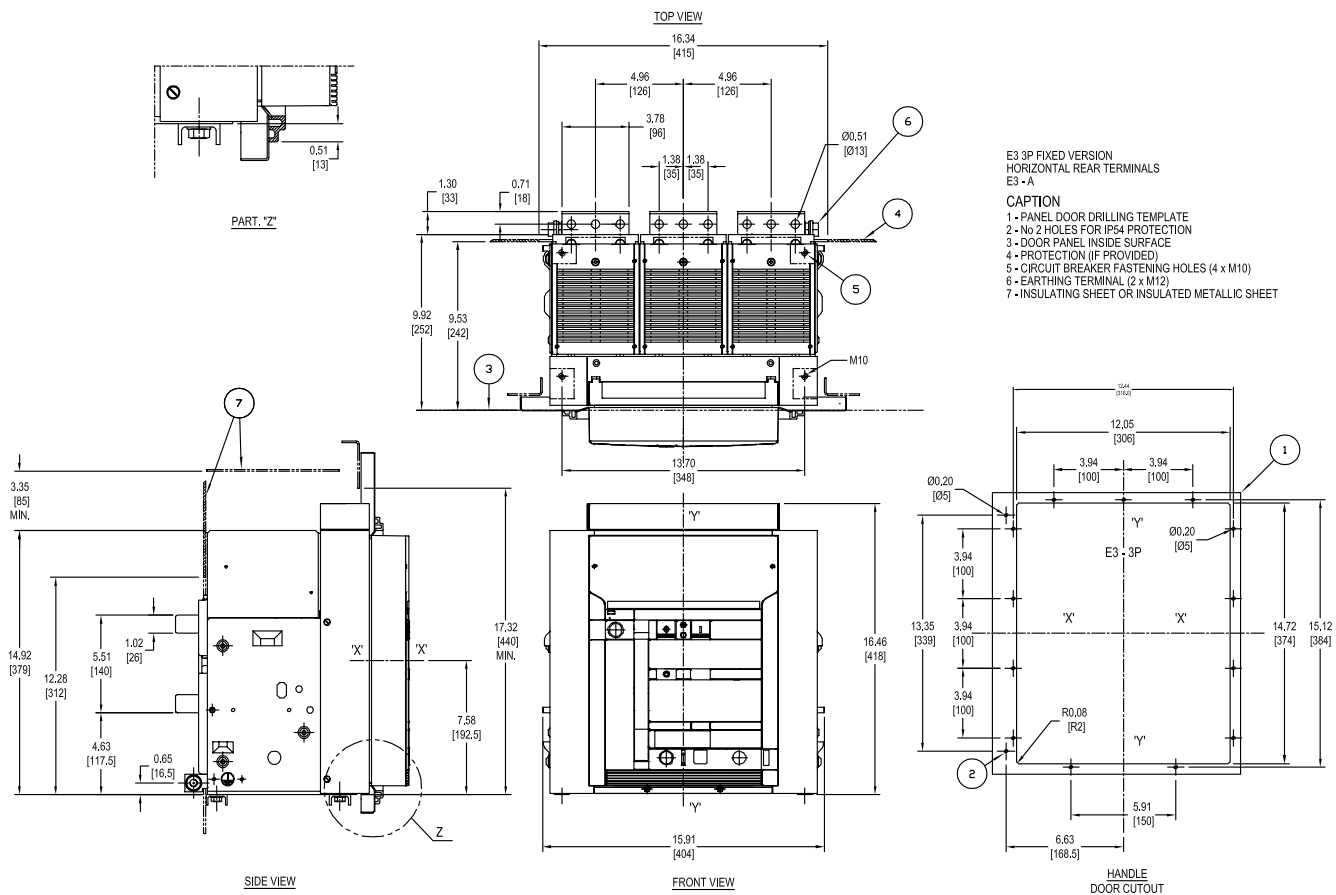
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E3, fixed with horizontal rear terminals

3 pole

00.00 Inches
00.00 [Millimeters]



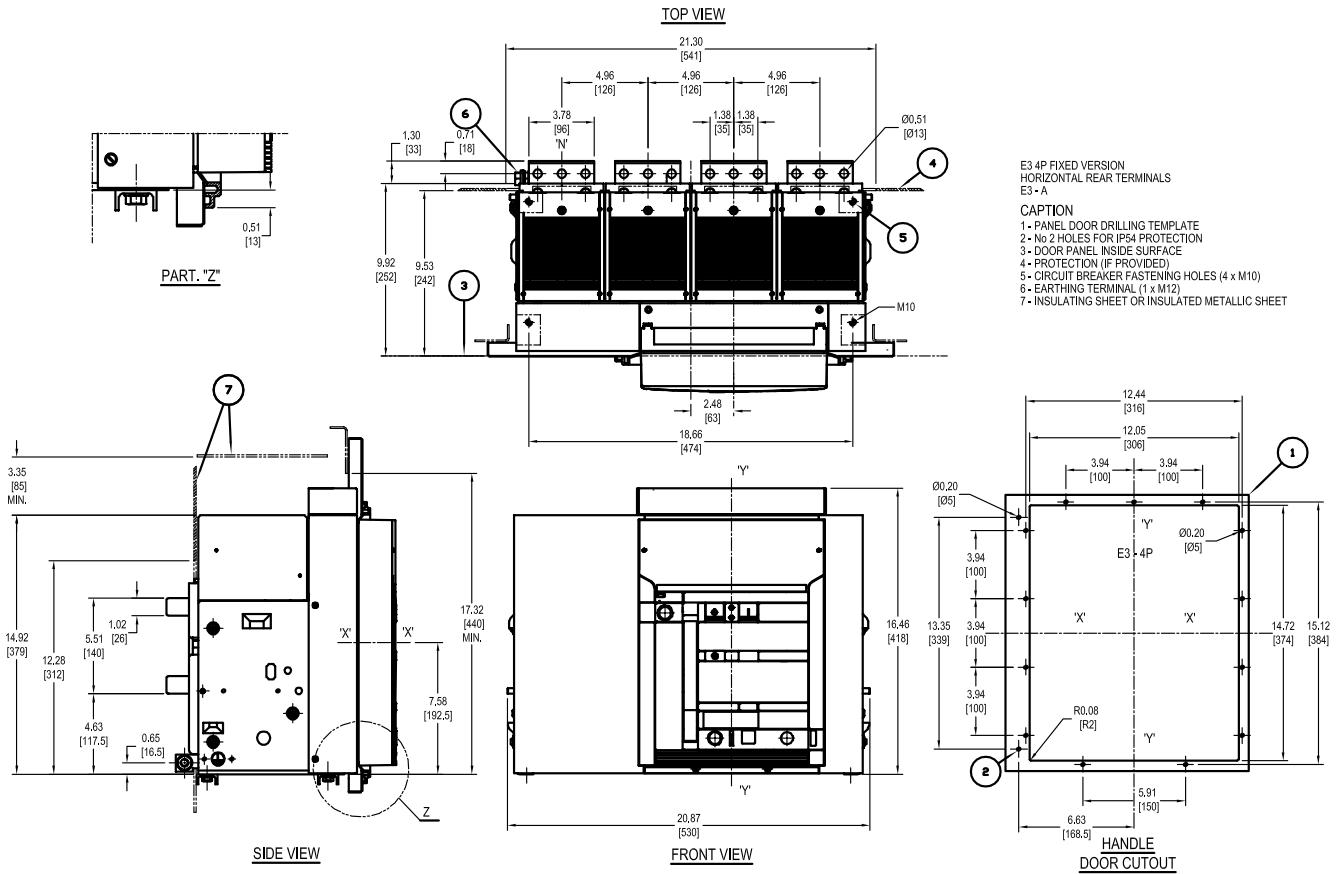
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E3, fixed with horizontal rear terminals

4 pole

← 00.00 → Inches
00.00 → [Millimeters]



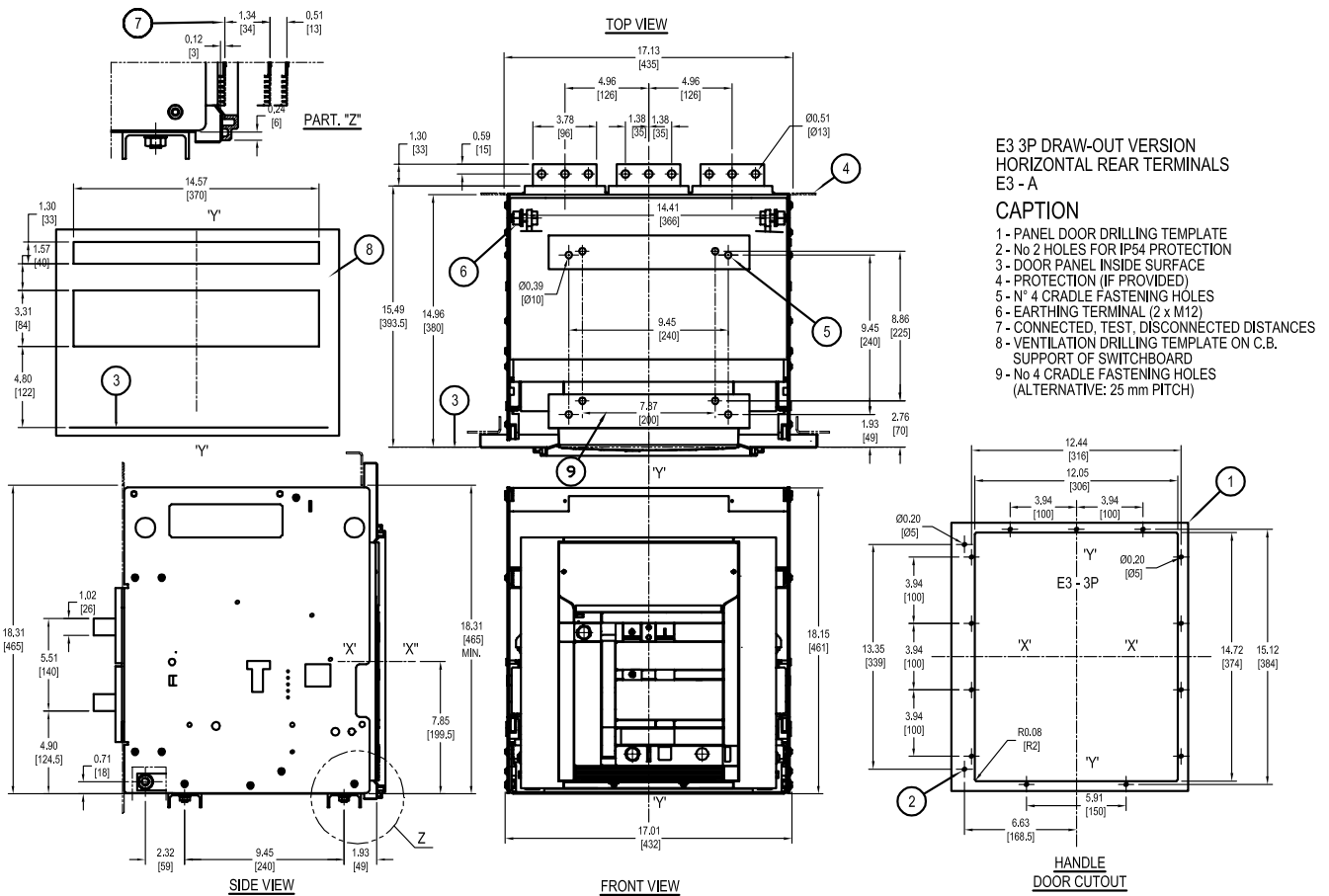
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E3, withdrawable with horizontal rear terminals

3 pole

← 00.00 Inches
00.00 [Millimeters] →



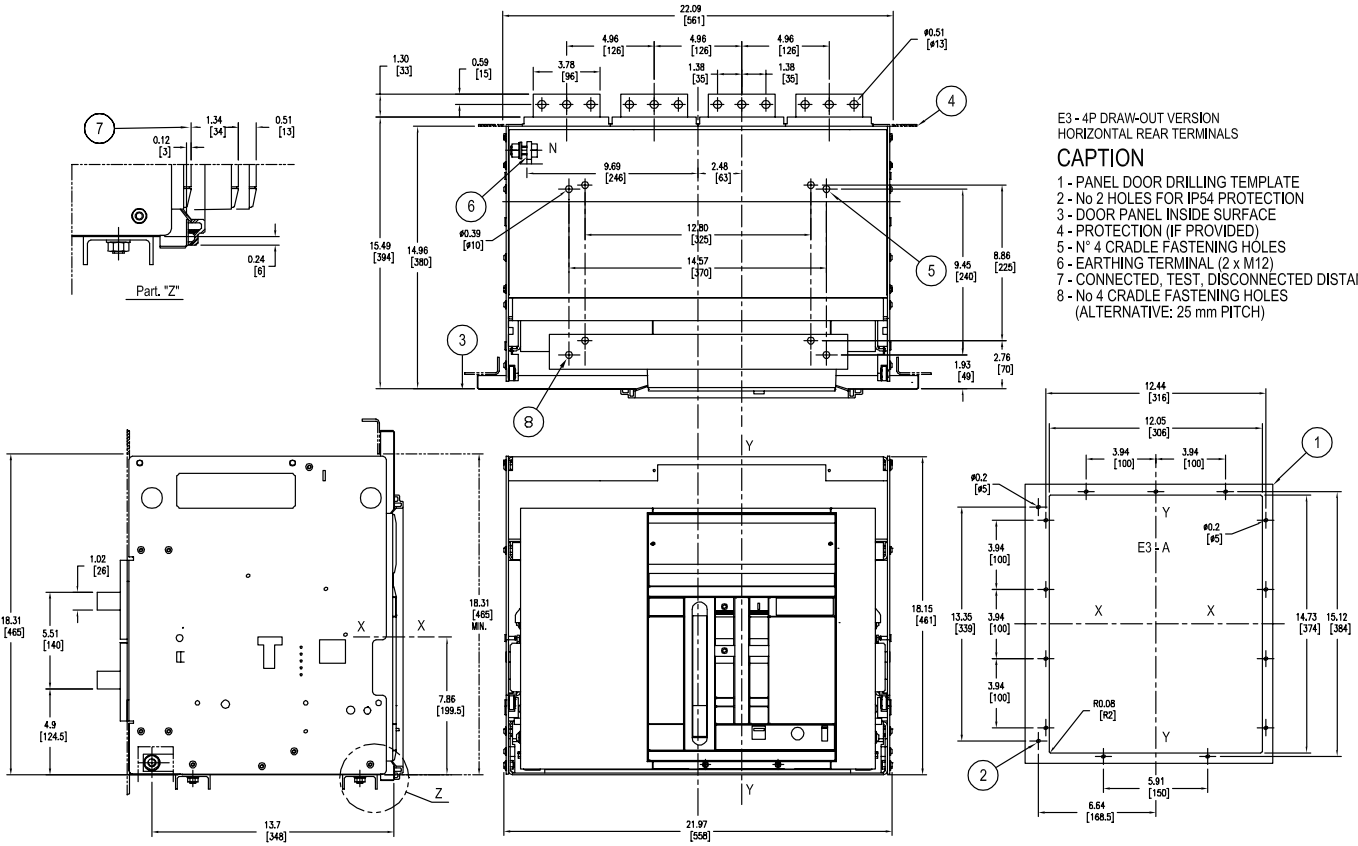
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E3, withdrawable with horizontal rear terminals

4 pole

← 00.00 → Inches
00.00 → Millimeters



E3 - 4P DRAW-OUT VERSION
HORIZONTAL REAR TERMINALS

CAPTION

- 1 - PANEL DOOR DRILLING TEMPLATE
- 2 - No 2 HOLES FOR IP54 PROTECTION
- 3 - DOOR PANEL INSIDE SURFACE
- 4 - PROTECTION (IF PROVIDED)
- 5 - N° 4 CRADLE FASTENING HOLES
- 6 - EARTHING TERMINAL (2 x M12)
- 7 - CONNECTED, TEST, DISCONNECTED DISTANCES
- 8 - No 4 CRADLE FASTENING HOLES (ALTERNATIVE: 25 mm PITCH)

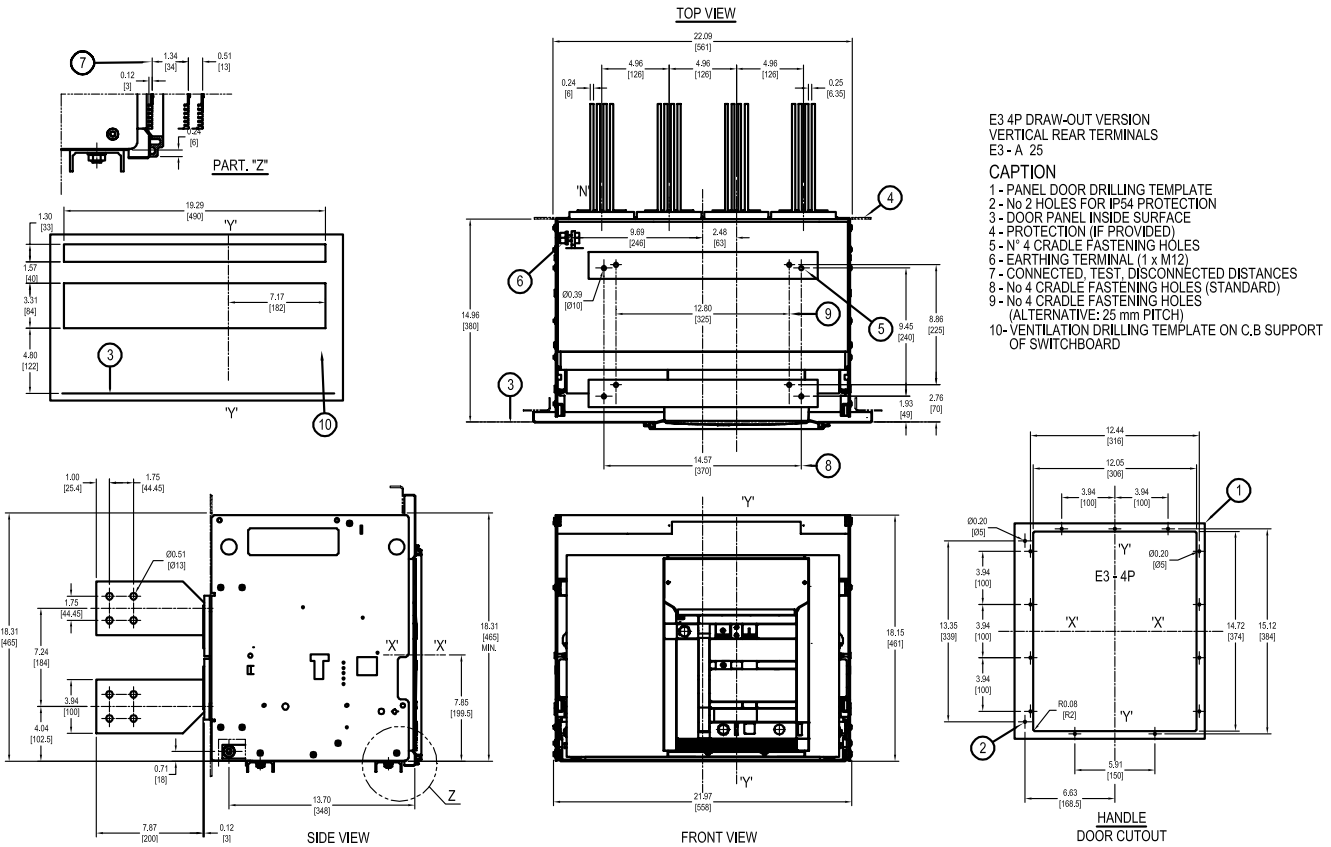
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E3 (2500A), withdrawable with vertical rear terminals

4 pole

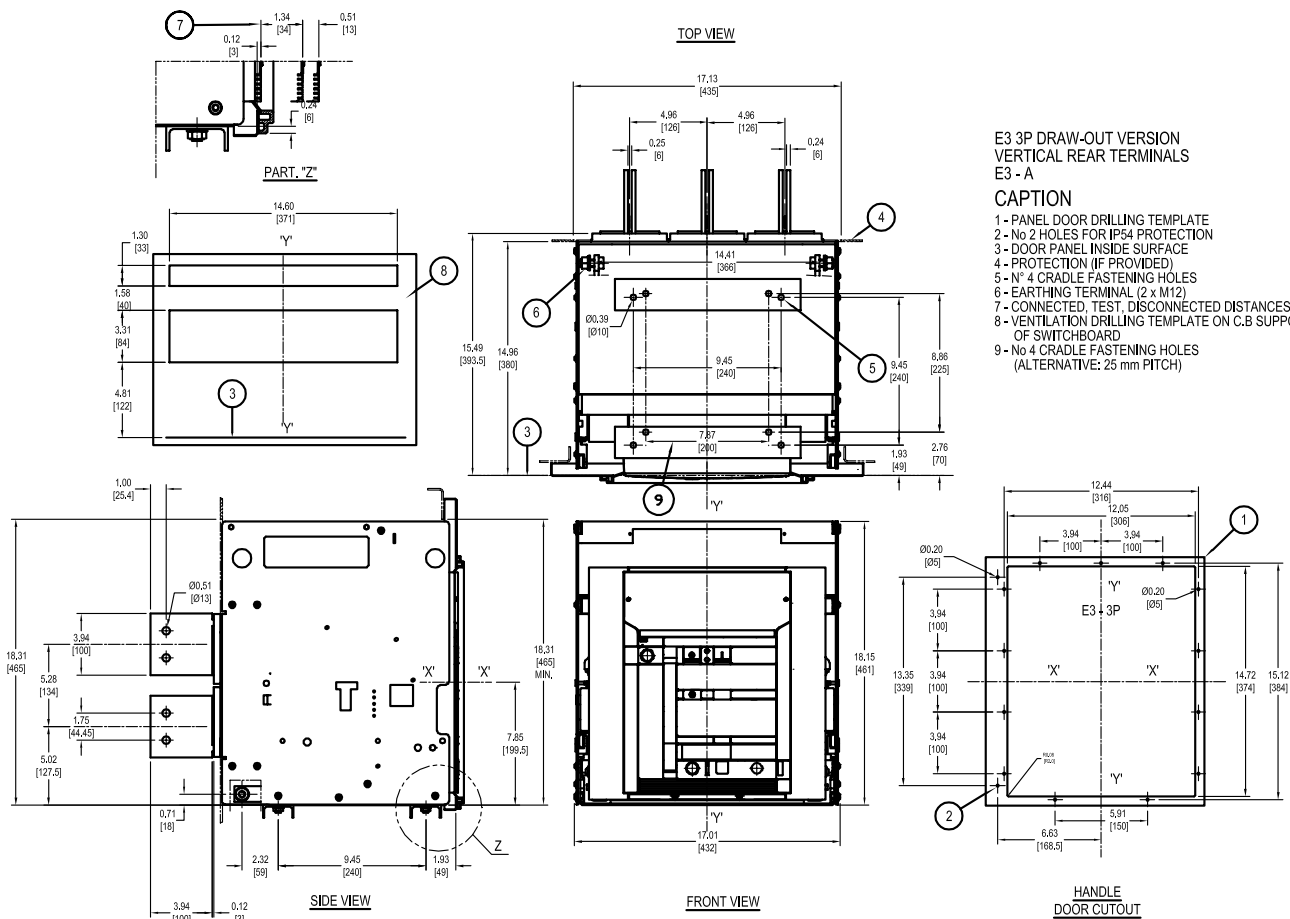
← 00.00 Inches
00.00 → [Millimeters]



① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ① E3 (1200A/1600A/2000A), withdrawable with Vertical rear terminals, 3 pole

← 00.00 Inches
00.00 Millimeters →

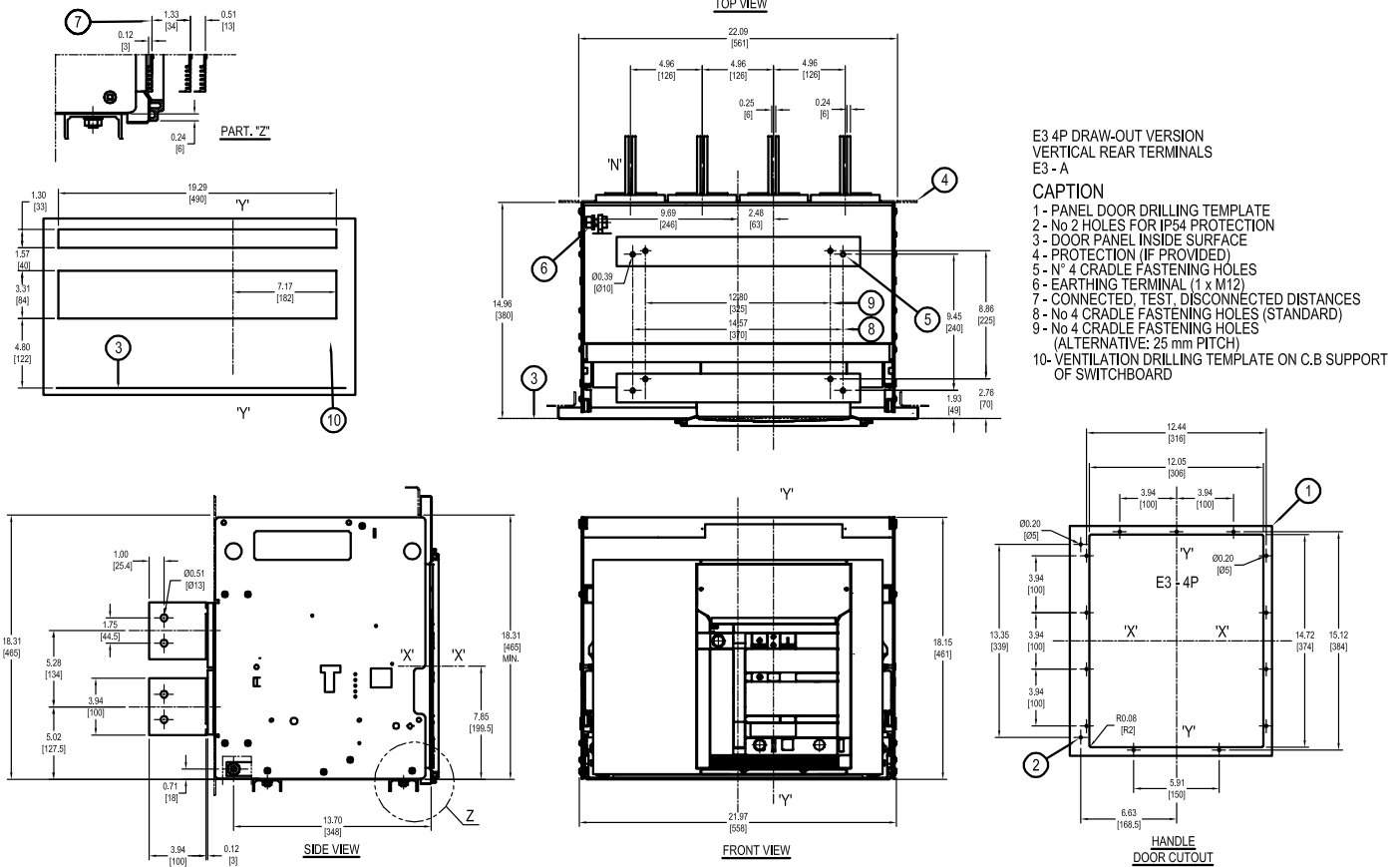


① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E3 (1200A/1600A/2000A), withdrawable with Vertical rear terminals, 4 pole

← 00.00 → Inches
00.00 → [Millimeters]

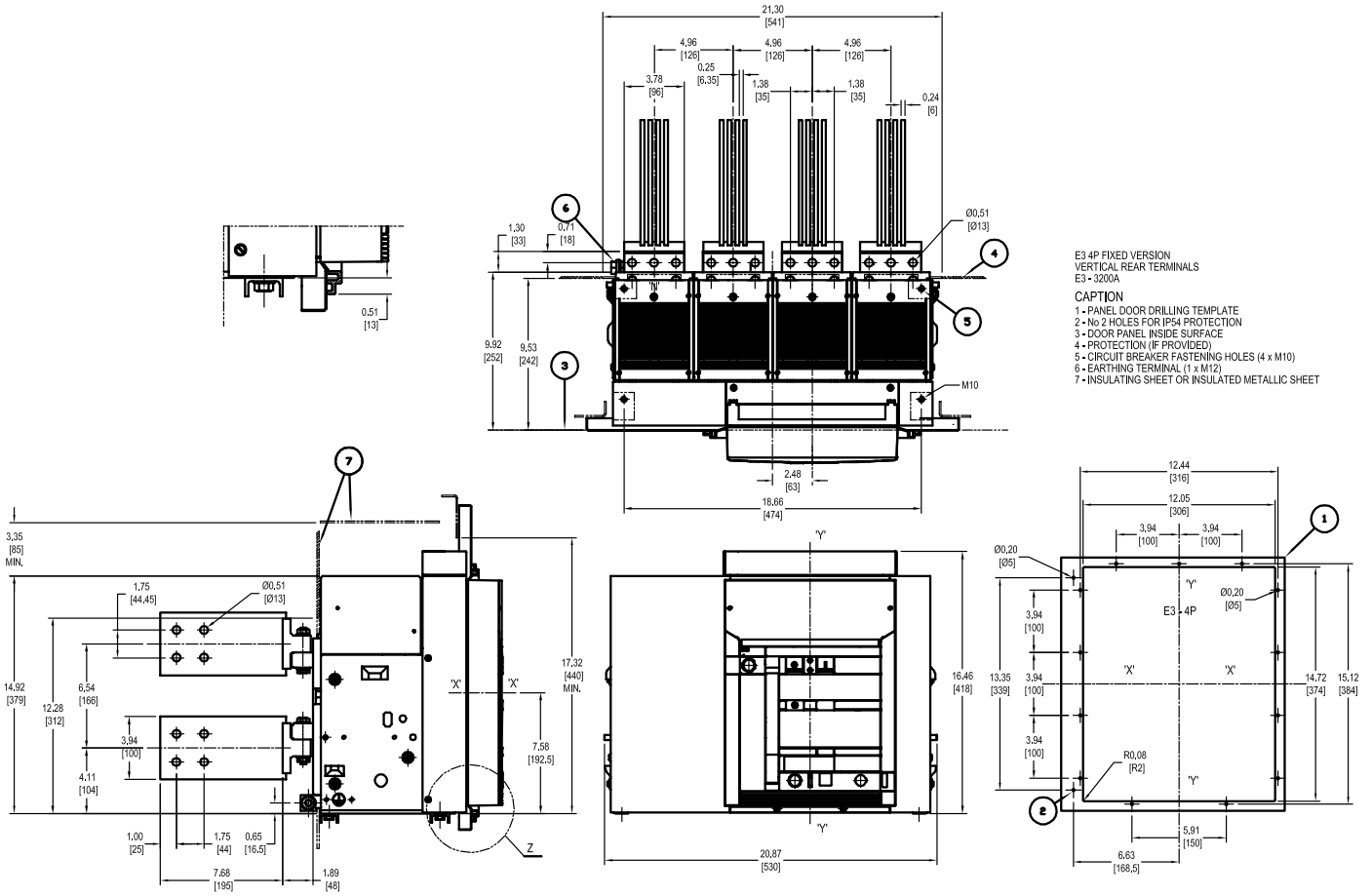


① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E3 (3200A), fixed with Vertical rear terminals, 4 pole

00.00 Inches
00.00 [Millimeters]

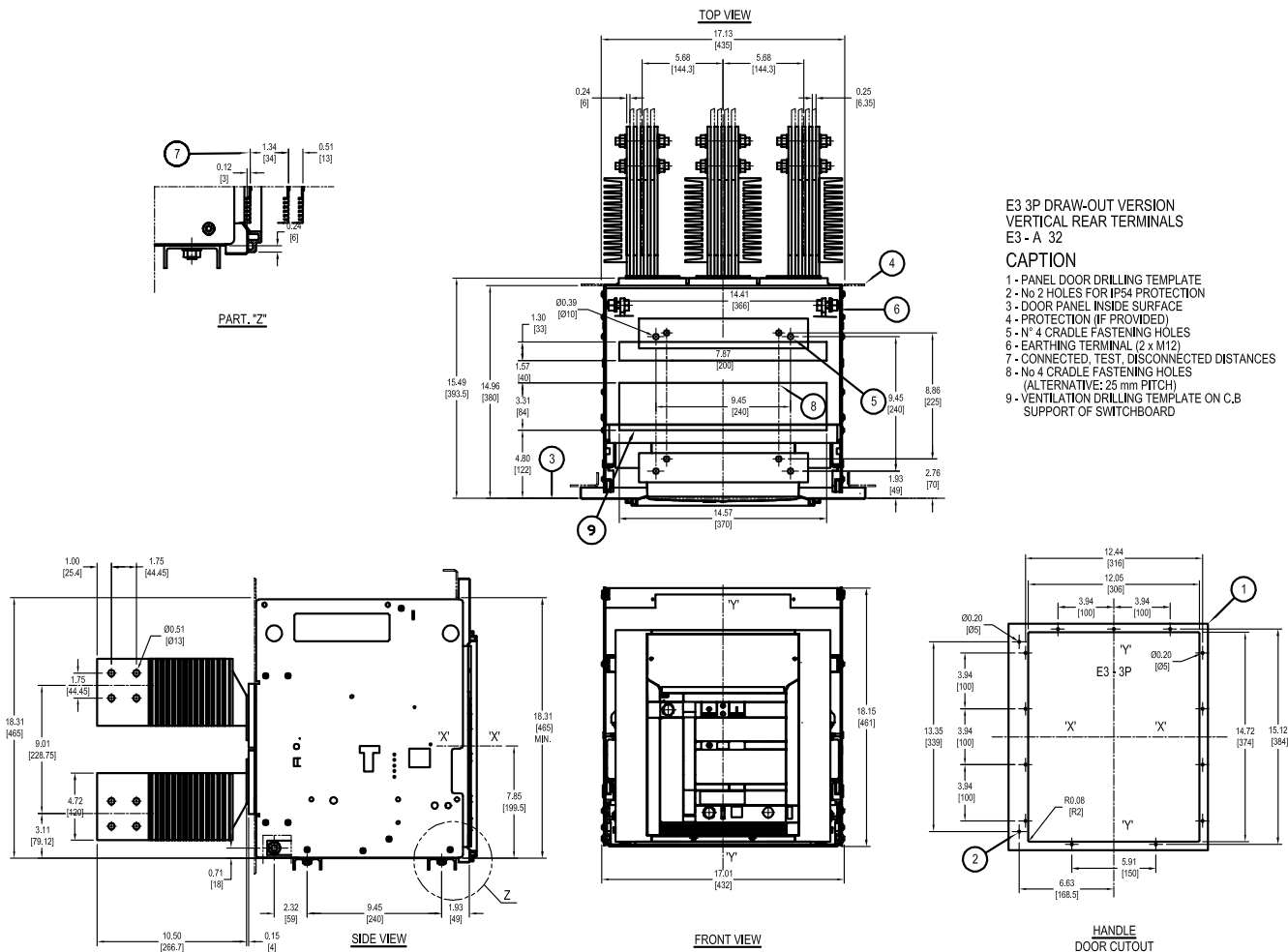


① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E3 (3200A), withdrawable with Vertical rear terminals, 3 pole

← 00.00 → Inches
00.00 → [Millimeters]

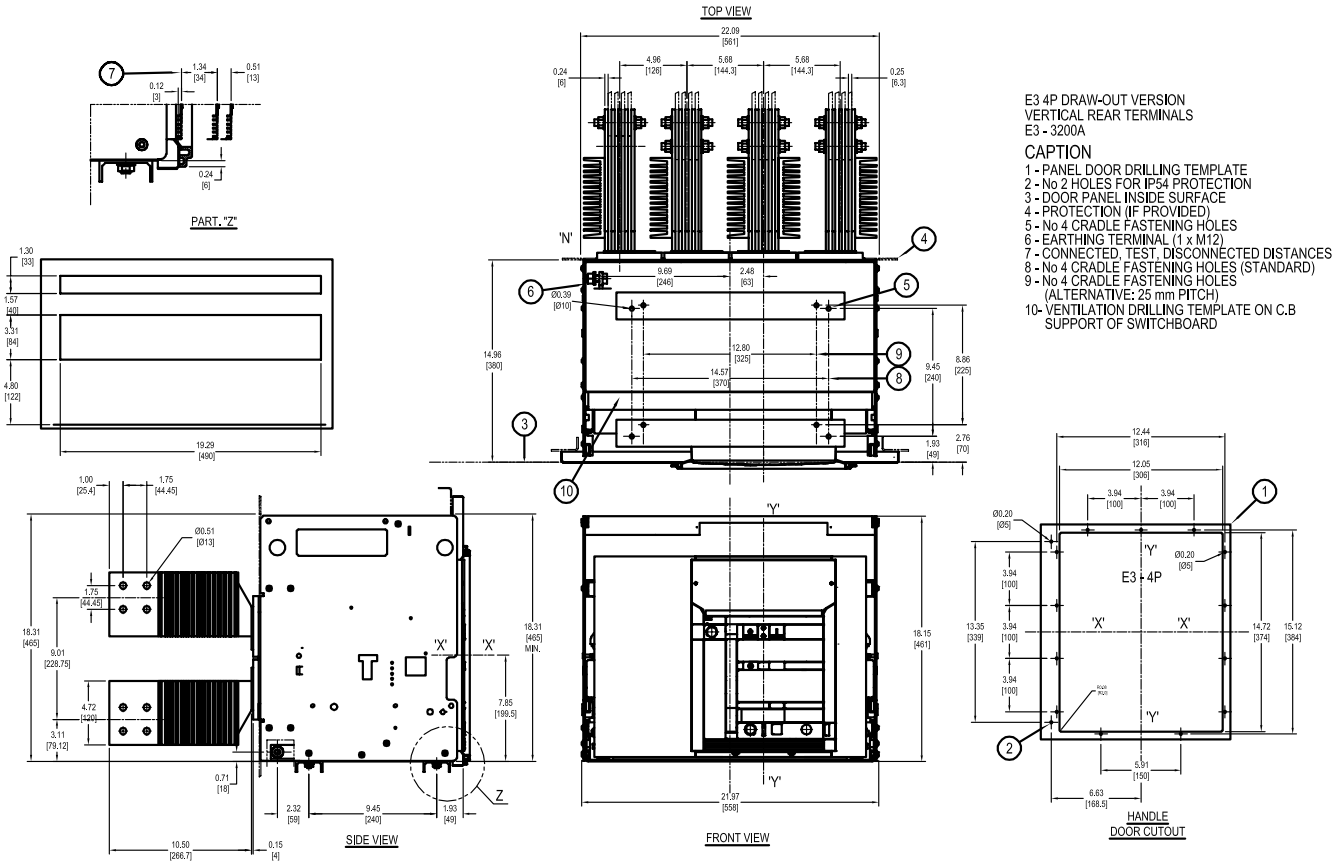


① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E3 (3200A), withdrawable with Vertical rear terminals, 4 pole

← 00.00 → Inches
00.00 → [Millimeters]



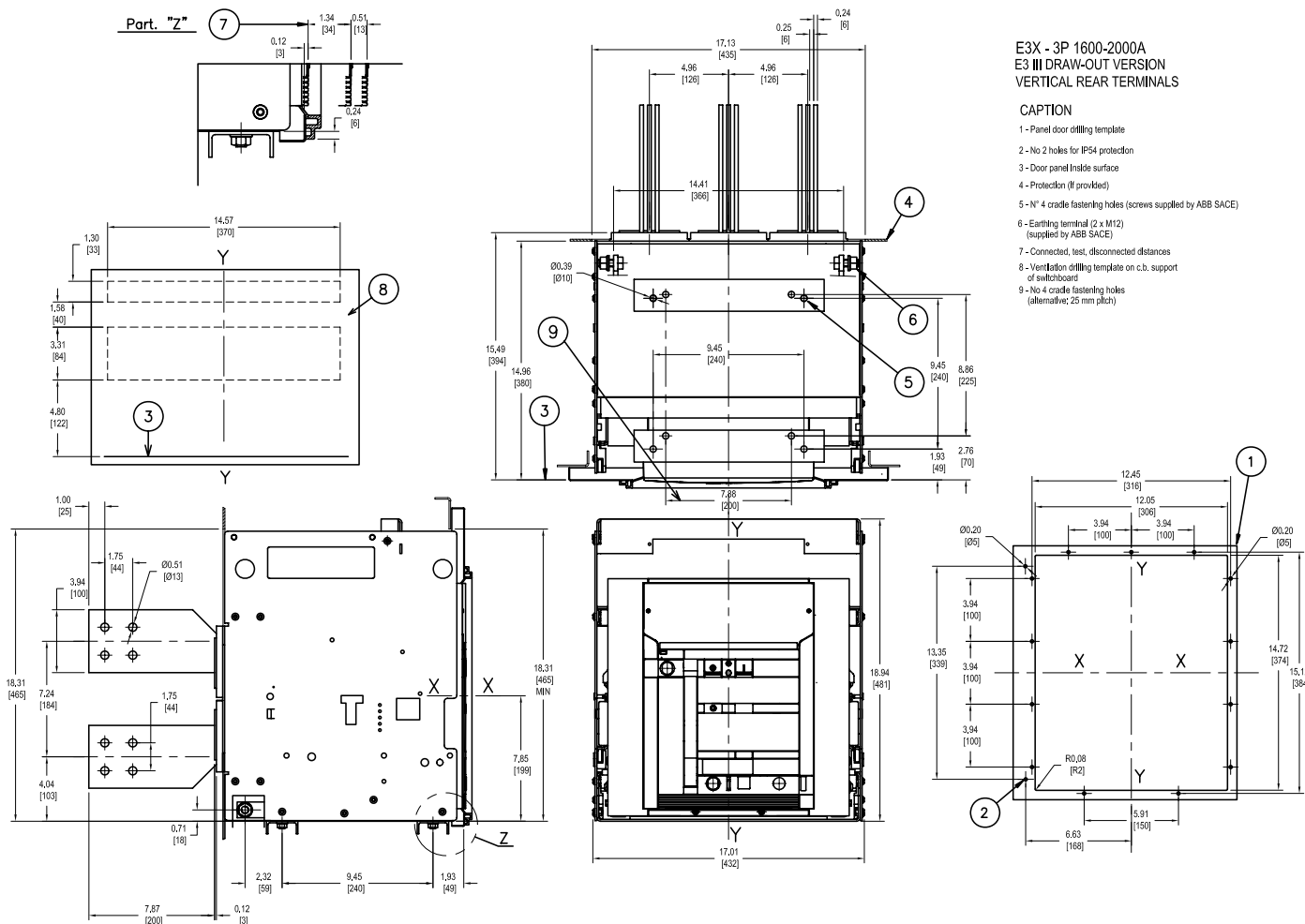
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E3X Draw-out with

Vertical rear terminals, 3 pole, 800-2000A

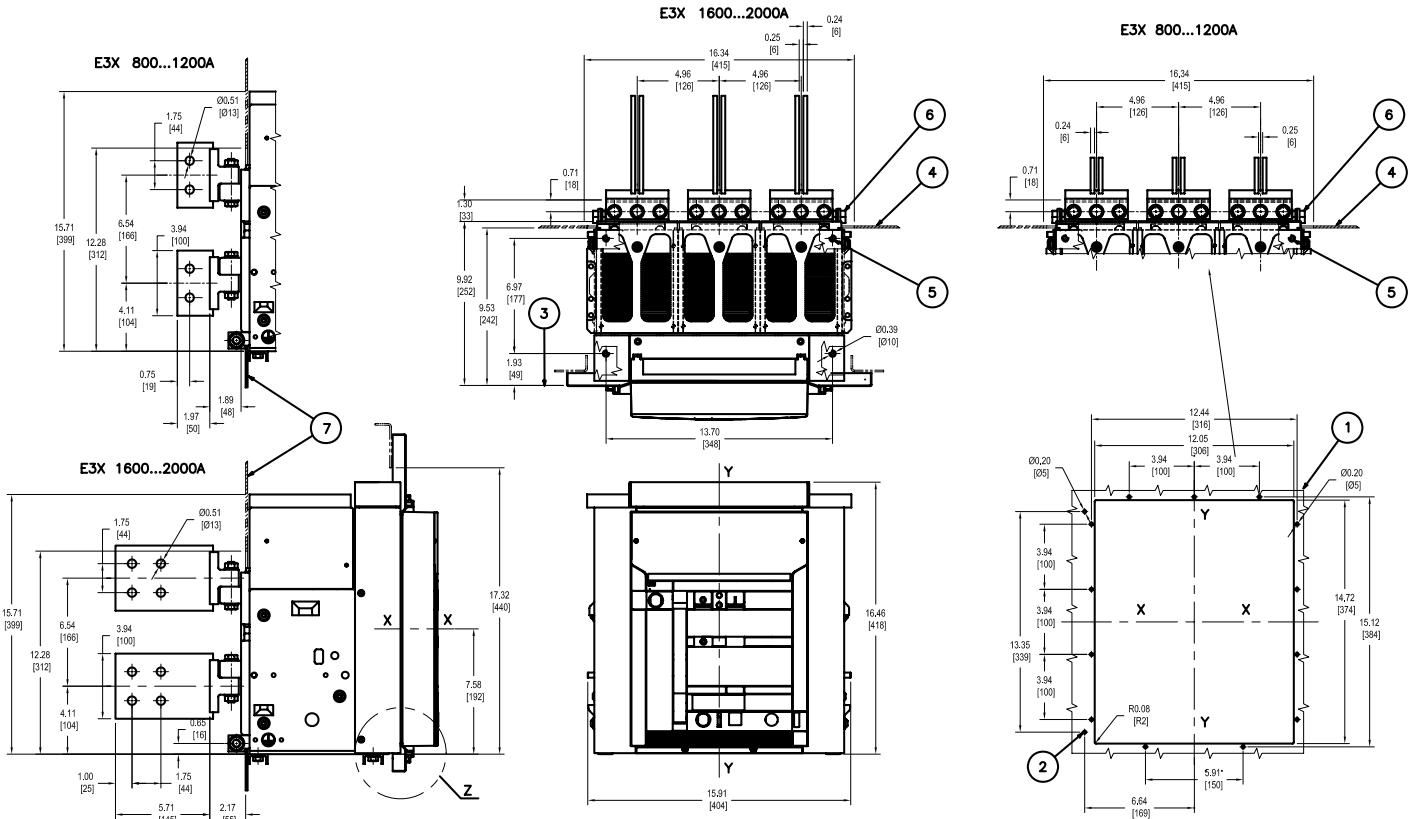
00.00 Inches
00.00 [Millimeters]



① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

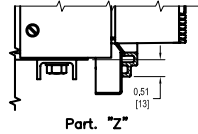
Approximate dimensions (for UL version) ①
E3X Fixed with
Vertical rear terminals, 3 pole, 800-2000A

00.00 Inches
00.00 [Millimeters]



E3X FIXED VERTICAL REAR TERMINALS

- CAPTION
- 1- PANEL DOOR DRILLING TEMPLATE
 - 2- No. 2 HOLES FOR IP54 PROTECTION
 - 3- DOOR PANEL INSIDE SURFACE
 - 4- PROTECTION (IF PROVIDED)
 - 5- CIRCUIT BREAKER FASTENING HOLES (4xM10)
 - 6- EARTHING TERMINALS (2xM12) (SUPPLIED BY ABB SACE)
 - 7- INSULATING SHEET OR INSULATED METALLIC SHEET

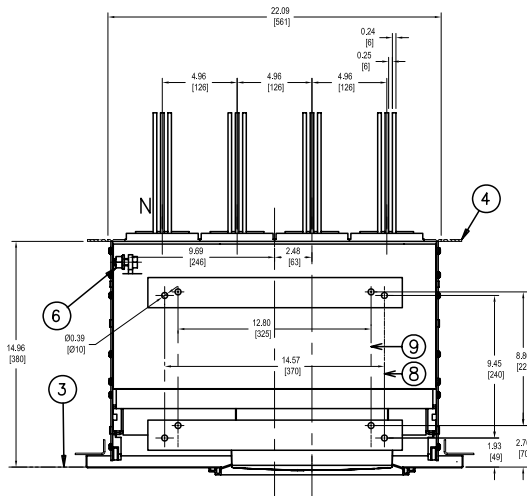
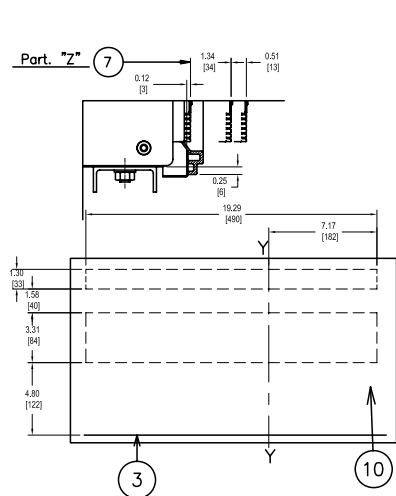


① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E3X Draw-out with Vertical rear terminals, 4 pole, 1600-2000A

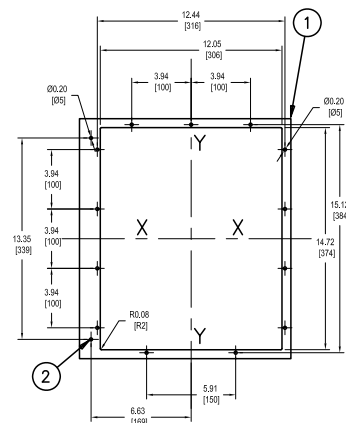
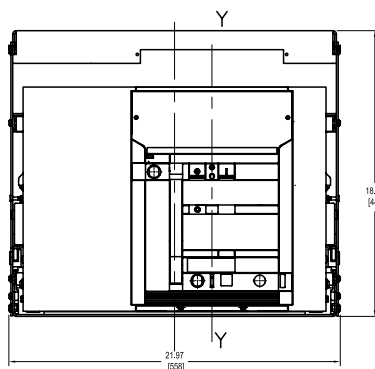
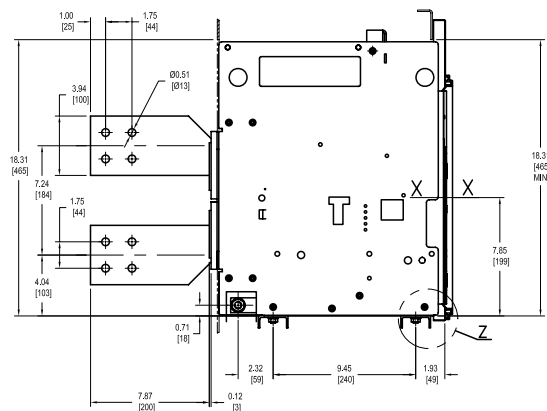
← 00.00 Inches
00.00 → [Millimeters]



E3X-A 4P 1600-200A
E3 IV DRAW-OUT VERSION
VERTICAL REAR TERMINALS

CAPTION

- 1 - Panel door drilling template
- 2 - No 2 holes for IP54 protection
- 3 - Door panel inside surface
- 4 - Protection (if provided)
- 6 - Earthing terminal (1 x M12) (supplied by ABB SACE)
- 7 - Connected, test, disconnected distances
- 8 - No 4 cradle fastening holes (Standard)
- 9 - No 4 cradle fastening holes (alternative: 25 mm pitch)
- 10 - Ventilation drilling template on c.b. support of switchboard

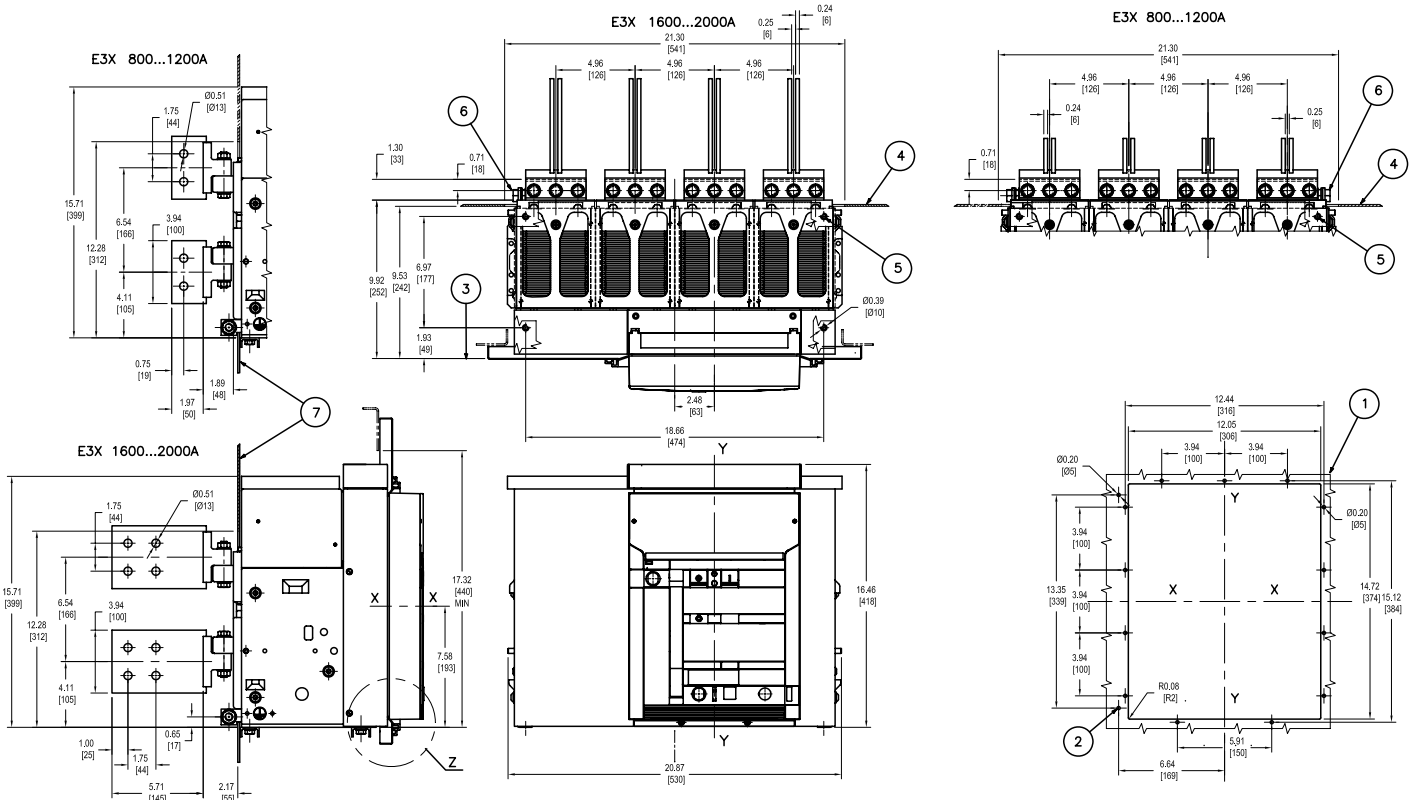


① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

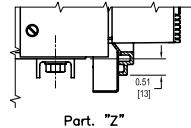
E3X Fixed with Vertical rear terminals, 4 pole, 800-2000A

← 00.00 → Inches
00.00 → [Millimeters]



E3X IV FIXED VERTICAL REAR TERMINALS

- CAPTION
- 1- PANEL DOOR DRILLING TEMPLATE
 - 2- No. 2 HOLES FOR IP54 PROTECTION
 - 3- DOOR PANEL INSIDE SURFACE
 - 4- PROTECTION (IF PROVIDED)
 - 5- CIRCUIT BREAKER FASTENING HOLES (4xM10)
 - 6- EARTHING TERMINALS (2xM12) (SUPPLIED BY ABB SACE)
 - 7- INSULATING SHEET OR INSULATED METALLIC SHEET



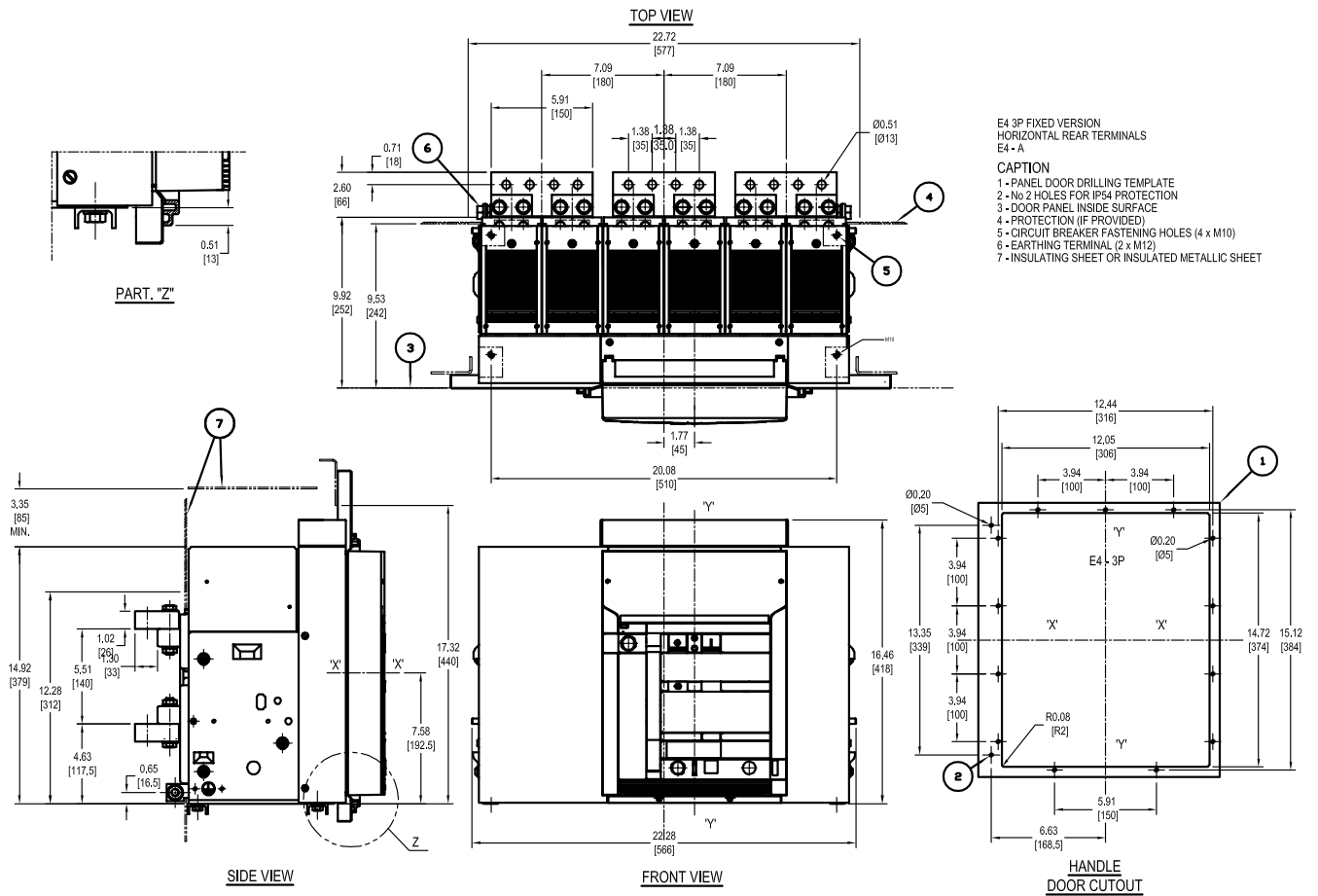
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E4, fixed with horizontal rear terminals

3 pole

← 00.00 Inches
00.00 → [Millimeters]



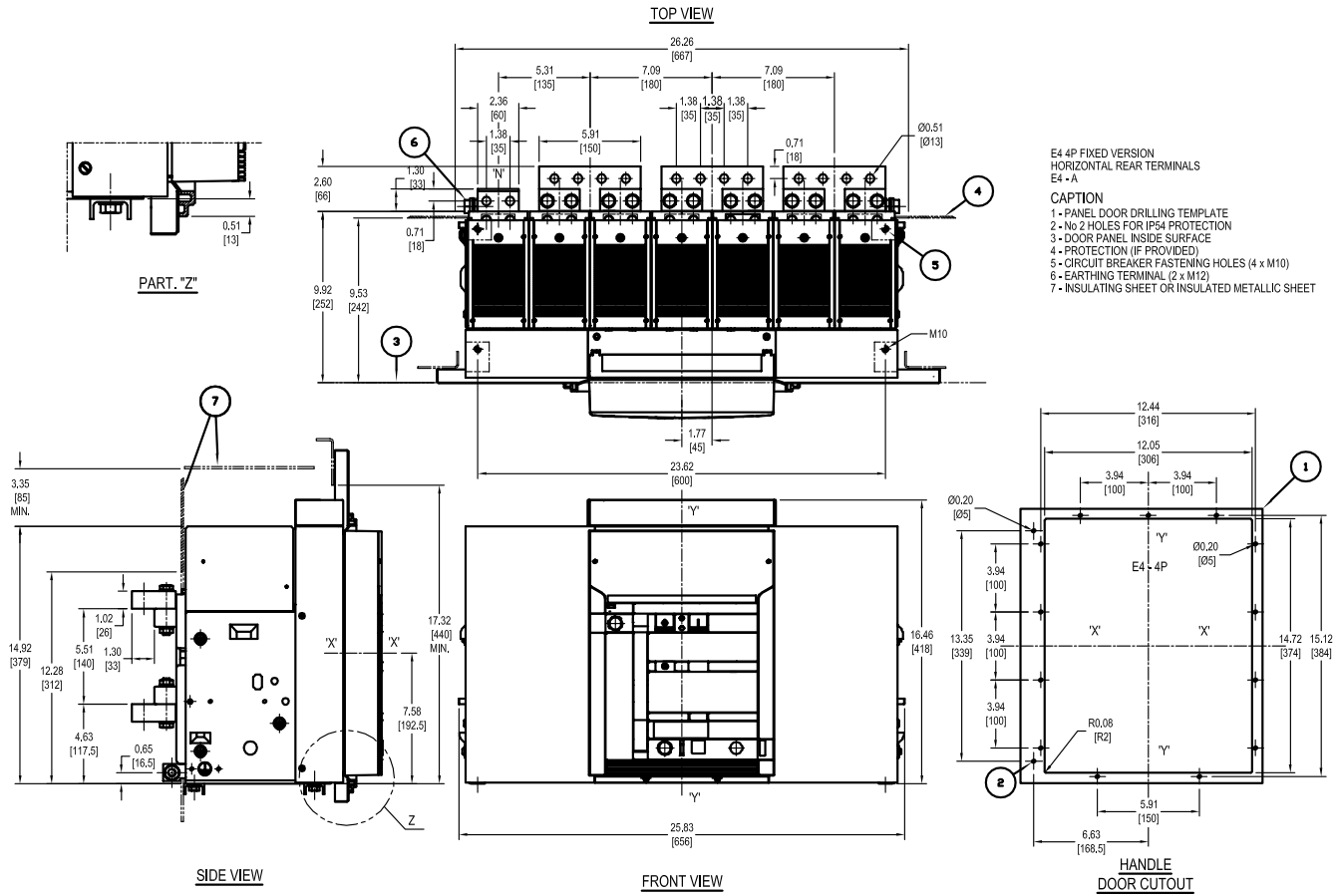
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E4, fixed with horizontal rear terminals

4 pole (50% neutral)

00.00 Inches
00.00 [Millimeters]



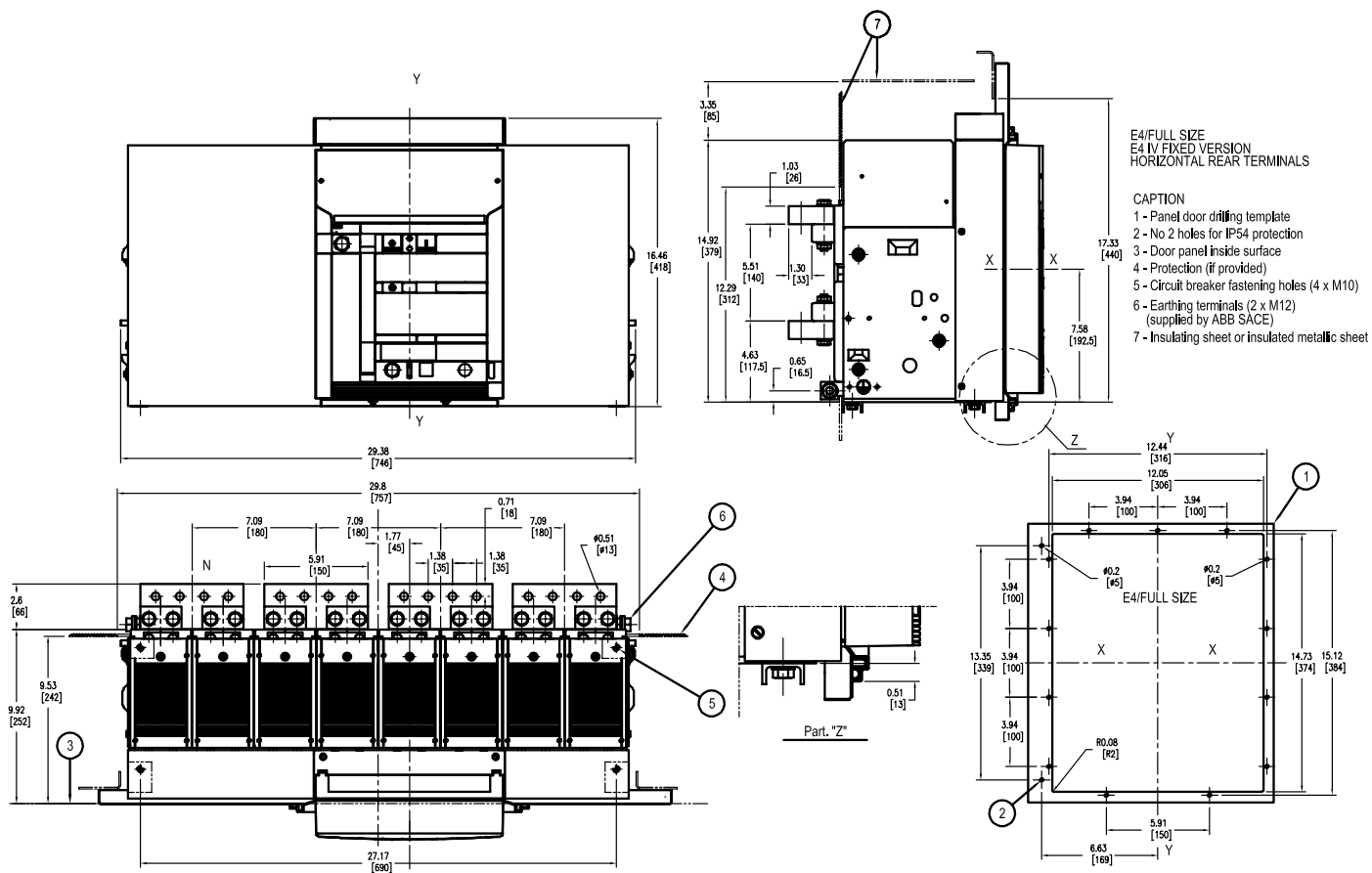
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E4, fixed with horizontal rear terminals

4 pole (100% neutral)

← 00.00 Inches
00.00 → [Millimeters]



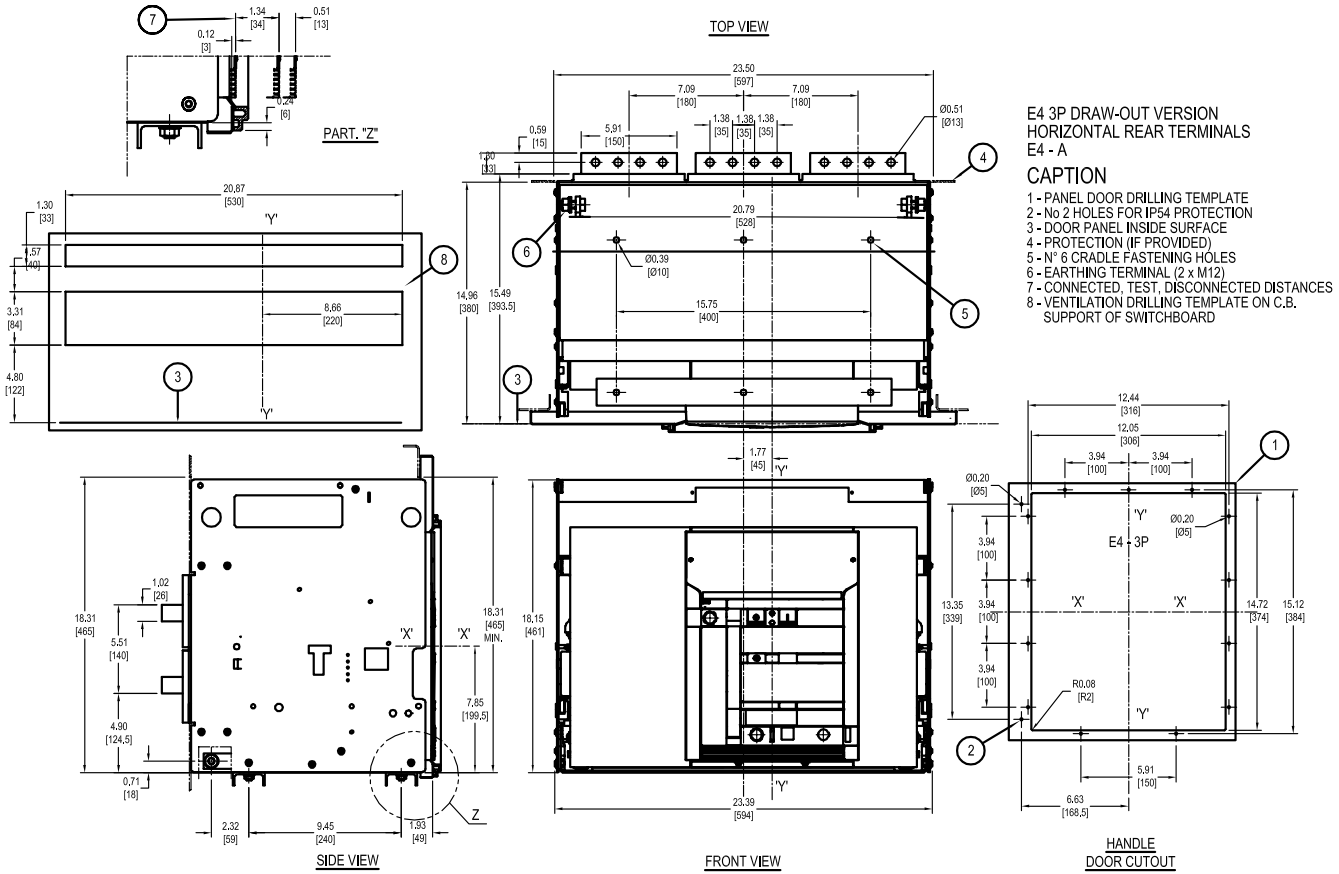
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E4, withdrawable with horizontal rear terminals

3 pole

00.00 Inches
00.00 [Millimeters]



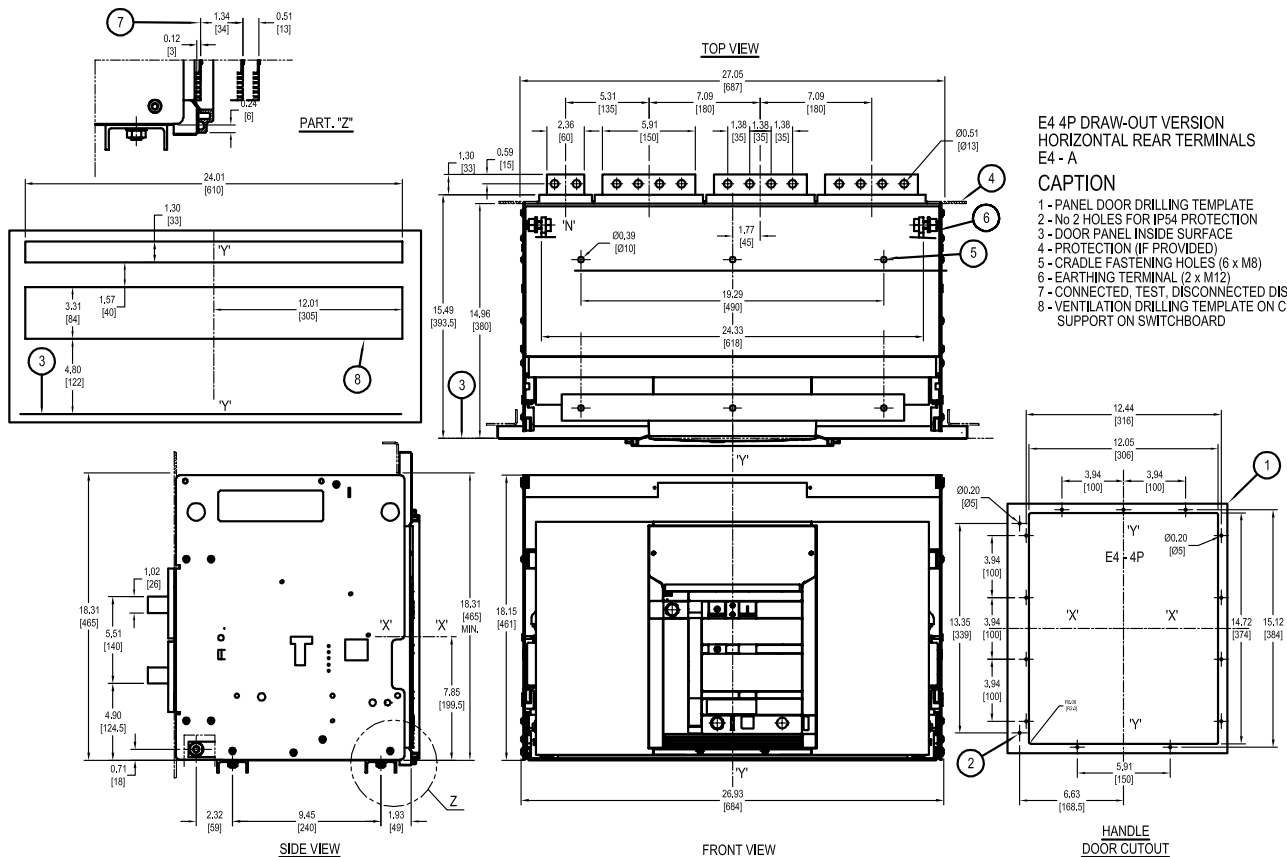
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E4, withdrawable with horizontal rear terminals

4 pole (50% neutral)

← 00.00 Inches
00.00 Millimeters →



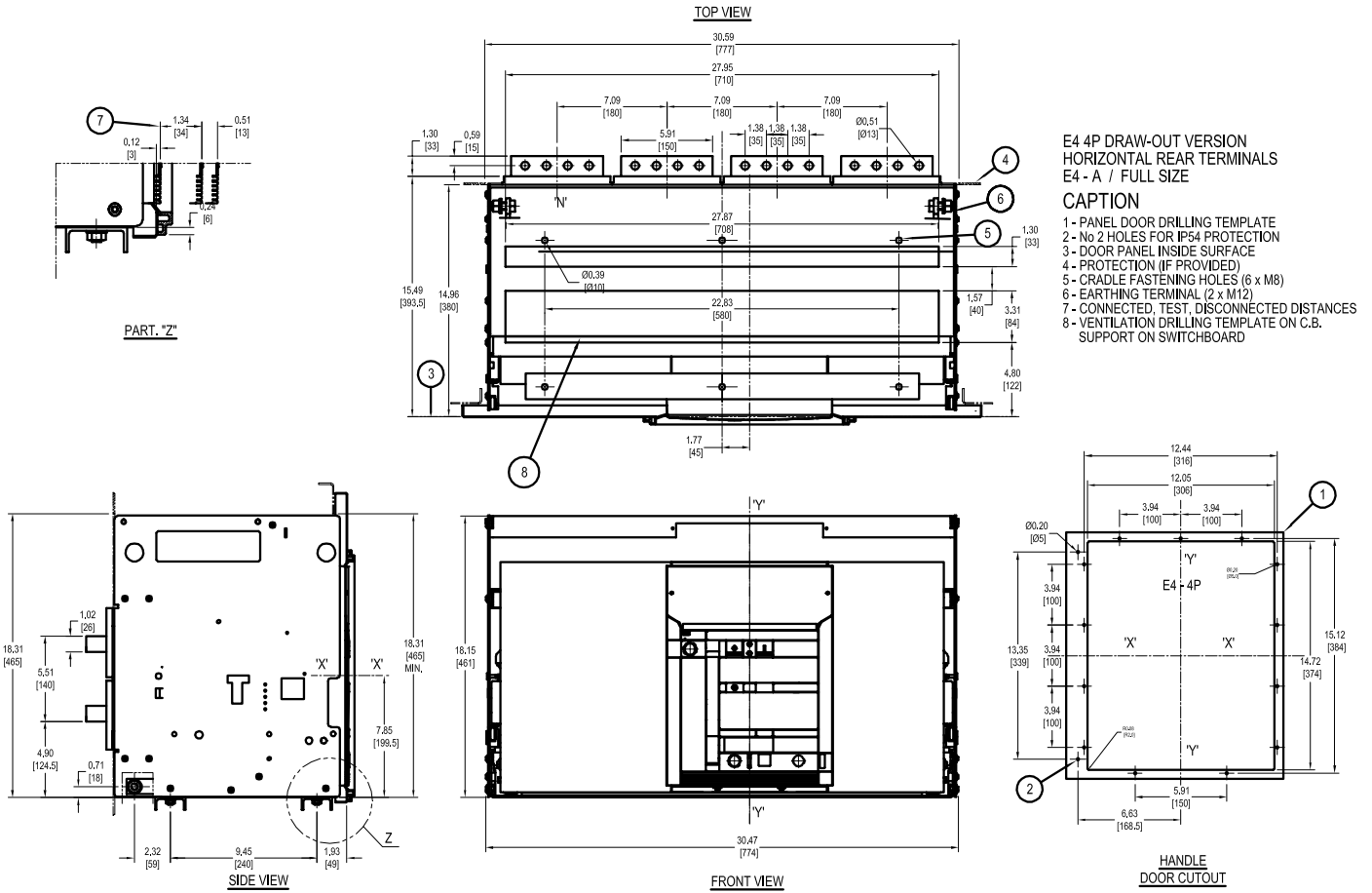
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E4, withdrawable with horizontal rear terminals

4 pole (100% neutral)

← 00.00 → Inches
00.00 → Millimeters



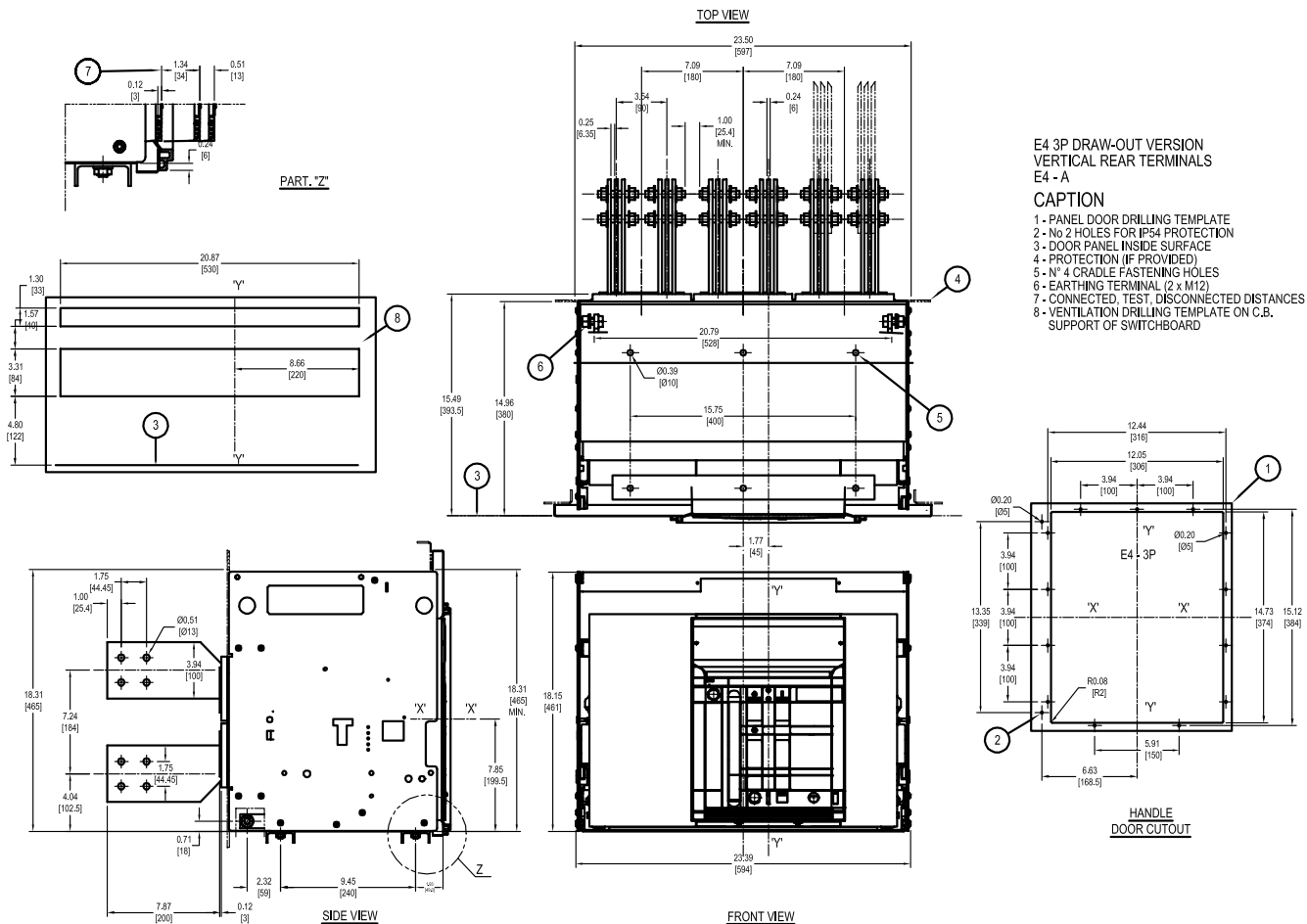
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E4, withdrawable with vertical rear terminals

3 pole

← 00.00 Inches
00.00 → [Millimeters]



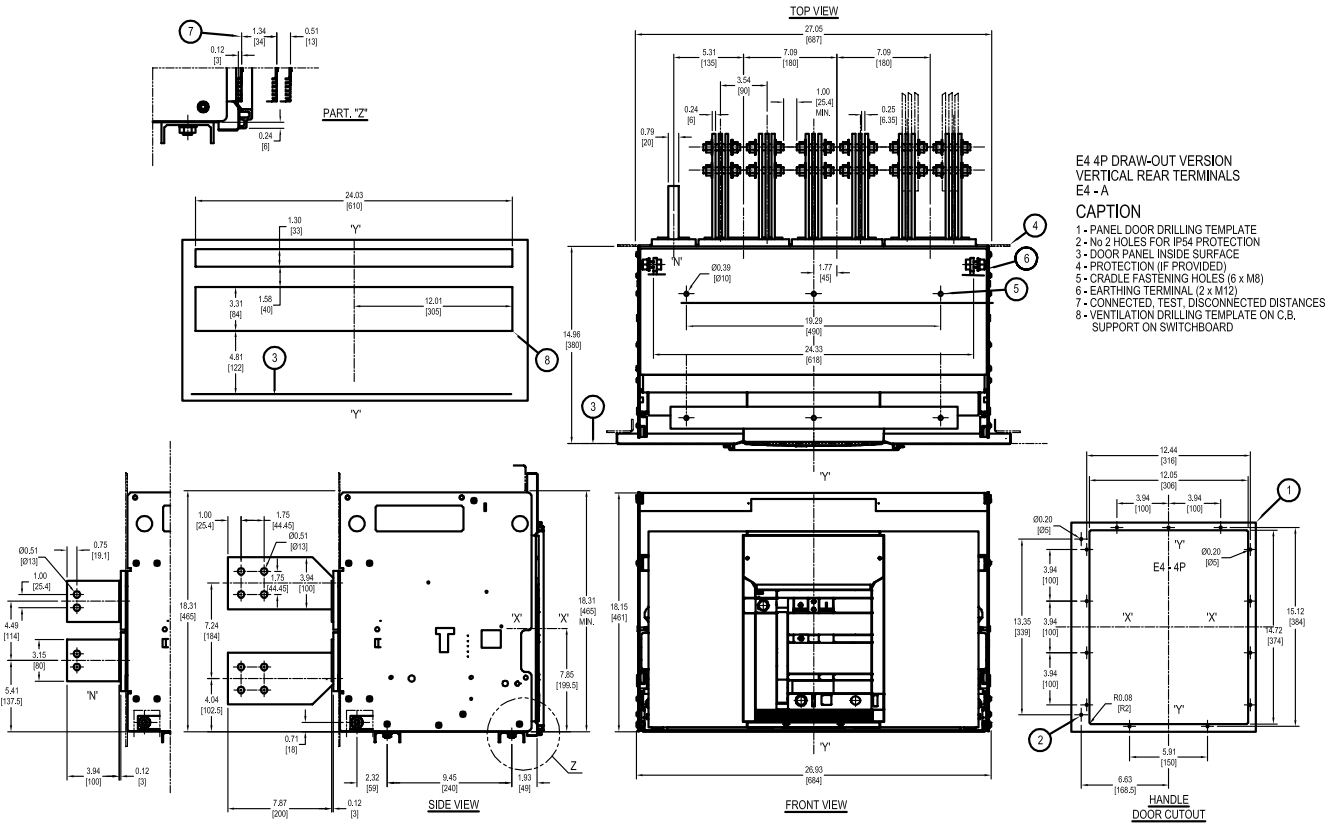
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E4, withdrawable with vertical rear terminals

4 pole (50% neutral)

00.00 Inches
00.00 Millimeters



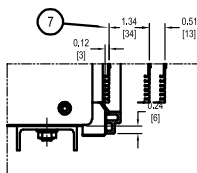
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

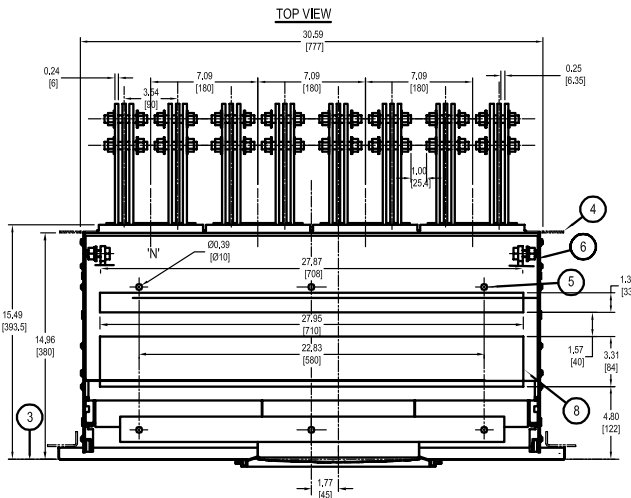
E4, withdrawable with vertical rear terminals

4 pole (100% neutral)

← 00.00 Inches
00.00 Millimeters →



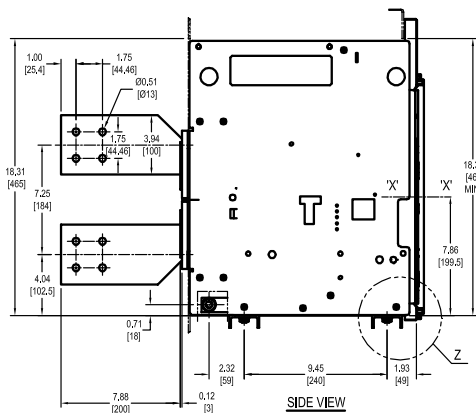
PART. 'Z'



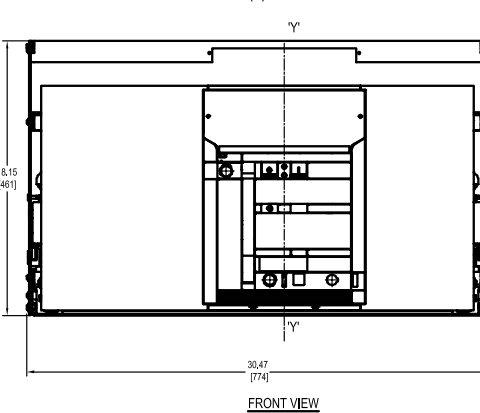
E4 4P DRAW-OUT VERSION
VERTICAL REAR TERMINALS
E4 - A / FULL SIZE

CAPTION

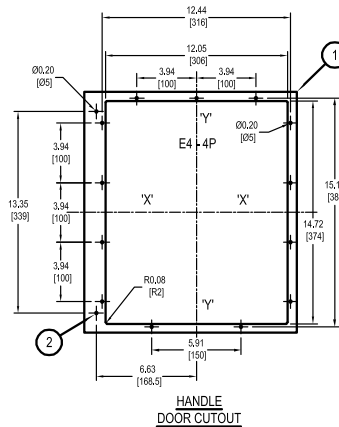
- 1 - PANEL DOOR DRILLING TEMPLATE
- 2 - No 2 HOLES FOR IP54 PROTECTION
- 3 - DOOR PANEL INSIDE SURFACE
- 4 - PROTECTION (IF PROVIDED)
- 5 - CRADLE FASTENING HOLES (6 x M8)
- 6 - EARTHING TERMINAL (2 x M12)
- 7 - CONNECTED, TEST, DISCONNECTED DISTANCES
- 8 - VENTILATION DRILLING TEMPLATE ON C.B. SUPPORT ON SWITCHBOARD



SIDE VIEW



FRONT VIEW



HANDLE
DOOR CUTOUT

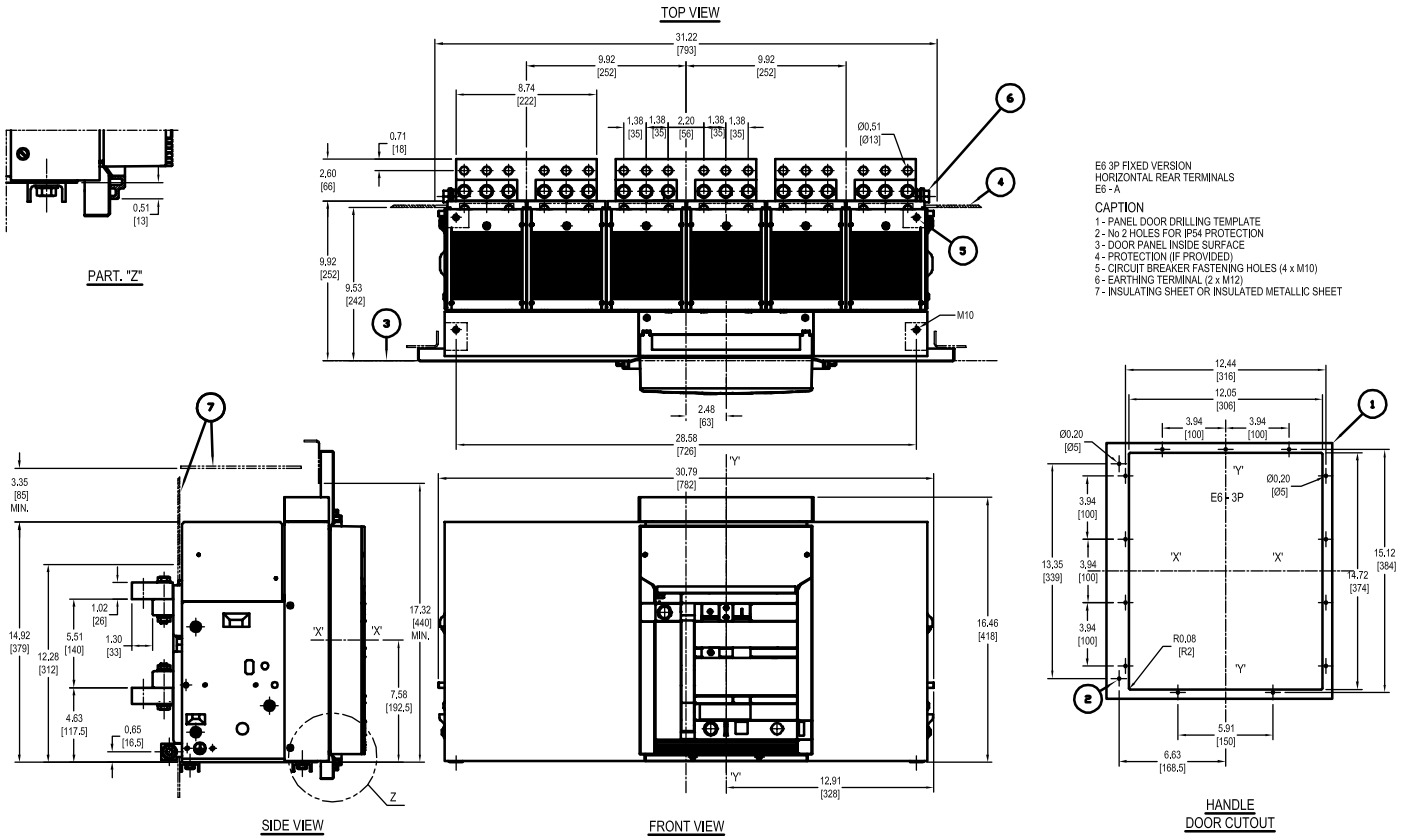
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E6, fixed with horizontal rear terminals

3 pole

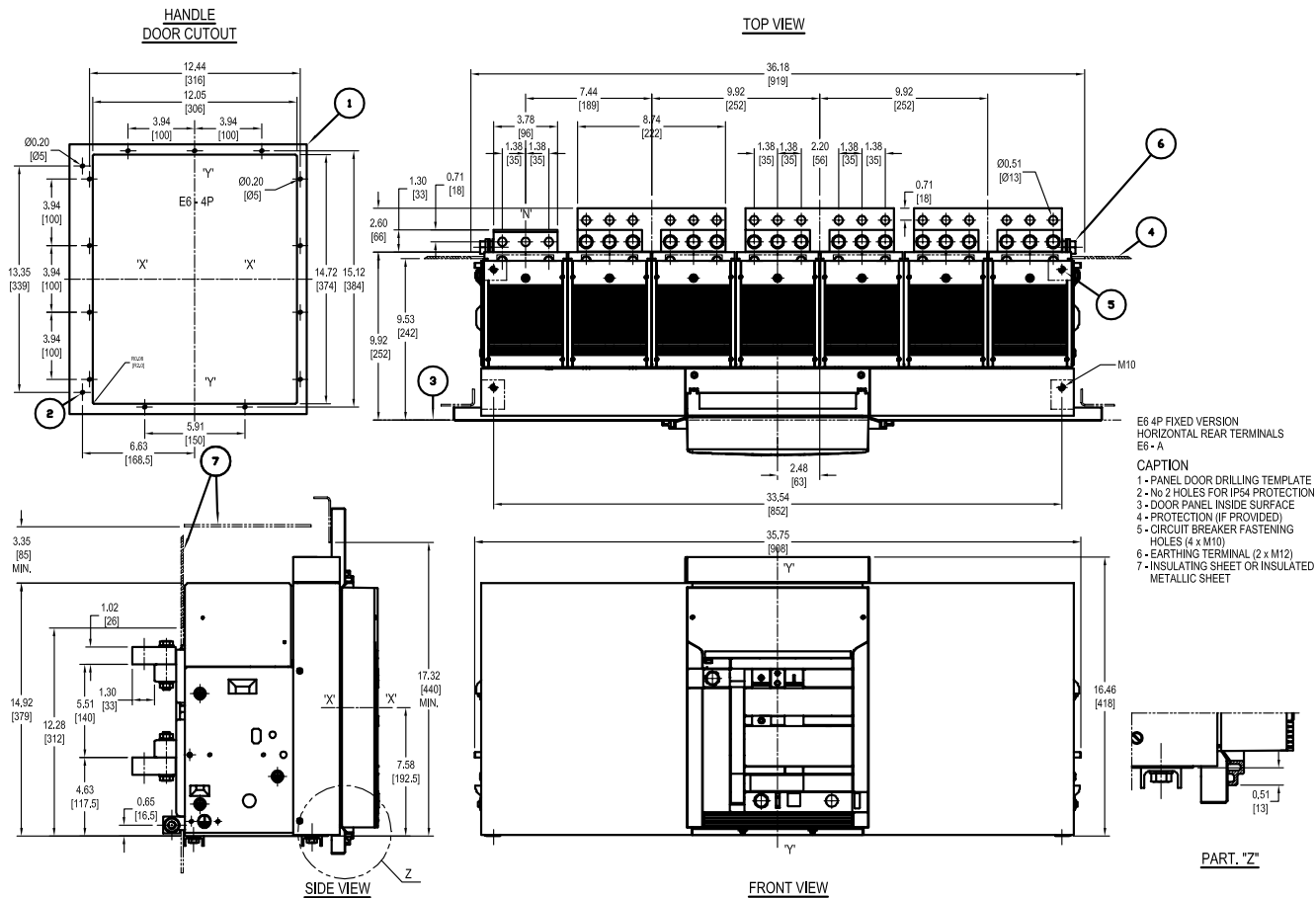
← 00.00 → Inches
00.00 → [Millimeters]



① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①
E6, fixed with horizontal rear terminals
4 pole (50% neutral)

00.00 Inches
00.00 [Millimeters]



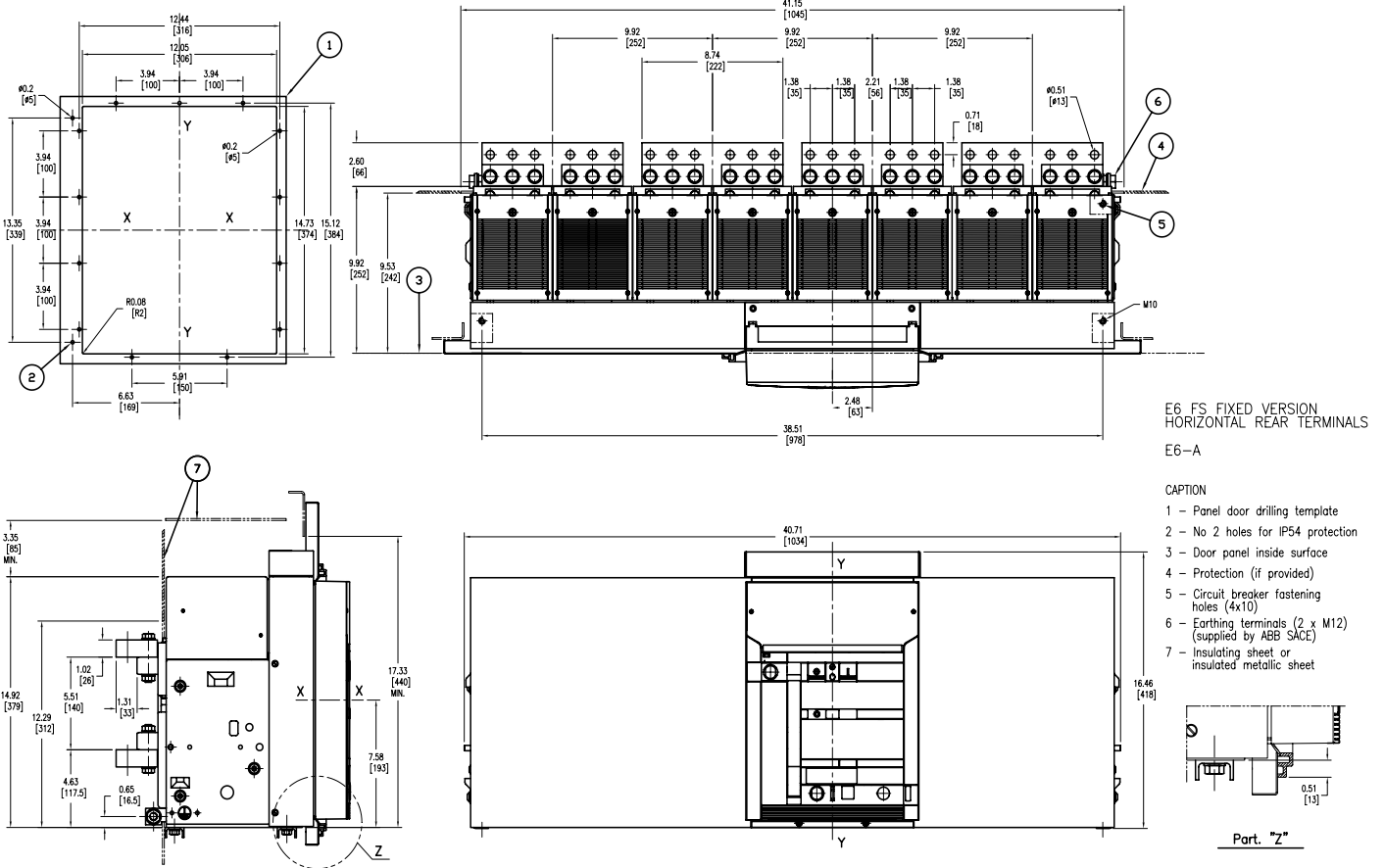
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E6, fixed with horizontal rear terminals

4 pole (100% neutral)

00.00 Inches
00.00 [Millimeters]



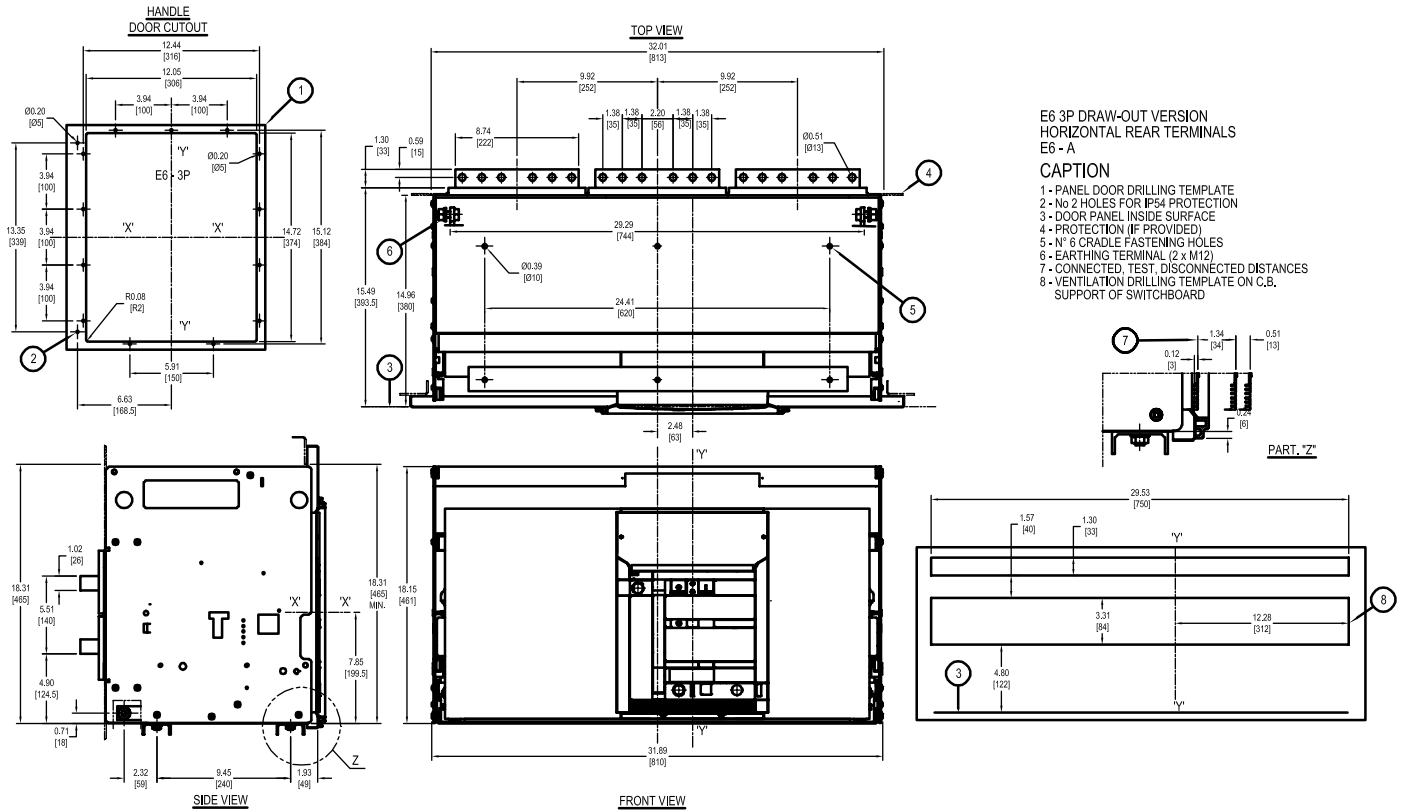
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E6, withdrawable with horizontal rear terminals

3 pole

00.00 → Inches
00.00 → [Millimeters]



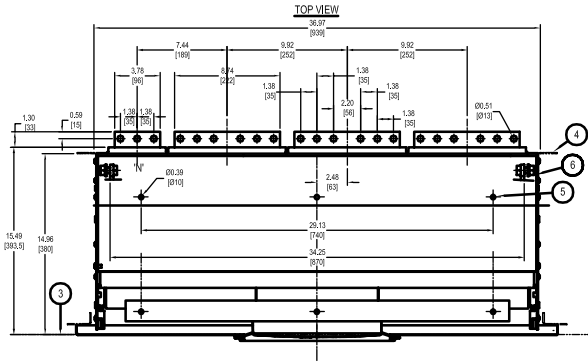
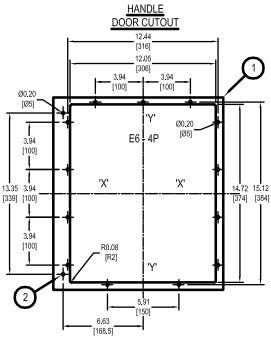
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E6, withdrawable with horizontal rear terminals

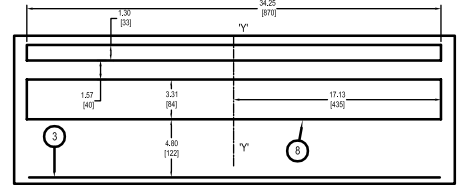
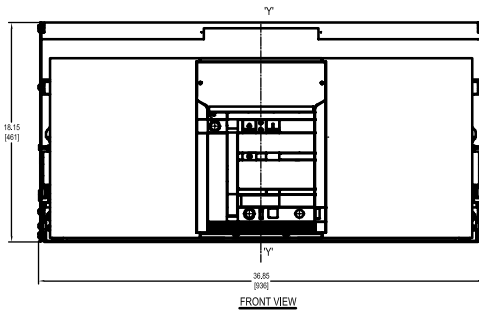
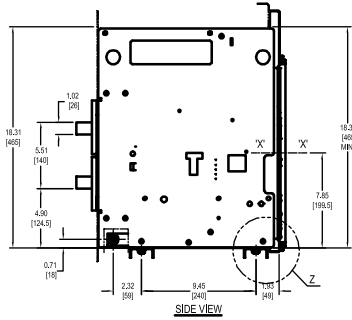
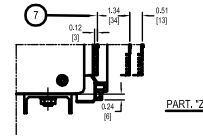
4 pole (50% neutral)

← 00.00 → Inches
00.00 [Millimeters]



E6 4P DRAW-OUT VERSION
HORIZONTAL REAR TERMINALS
E6 - A

- CAPTION**
- 1 - PANEL DOOR DRILLING TEMPLATE
 - 2 - NO 2 HOLES FOR IP54 PROTECTION
 - 3 - DOOR PANEL INSIDE SURFACE
 - 4 - PROTECTION (IF PROVIDED)
 - 5 - CRADLE FASTENING HOLES (6 x M8)
 - 6 - EARTHING TERMINAL (2 x M12)
 - 7 - CONNECTED, TEST, DISCONNECTED DISTANCES
 - 8 - VENTILATION DRILLING TEMPLATE ON C.B. SUPPORT ON SWITCHBOARD



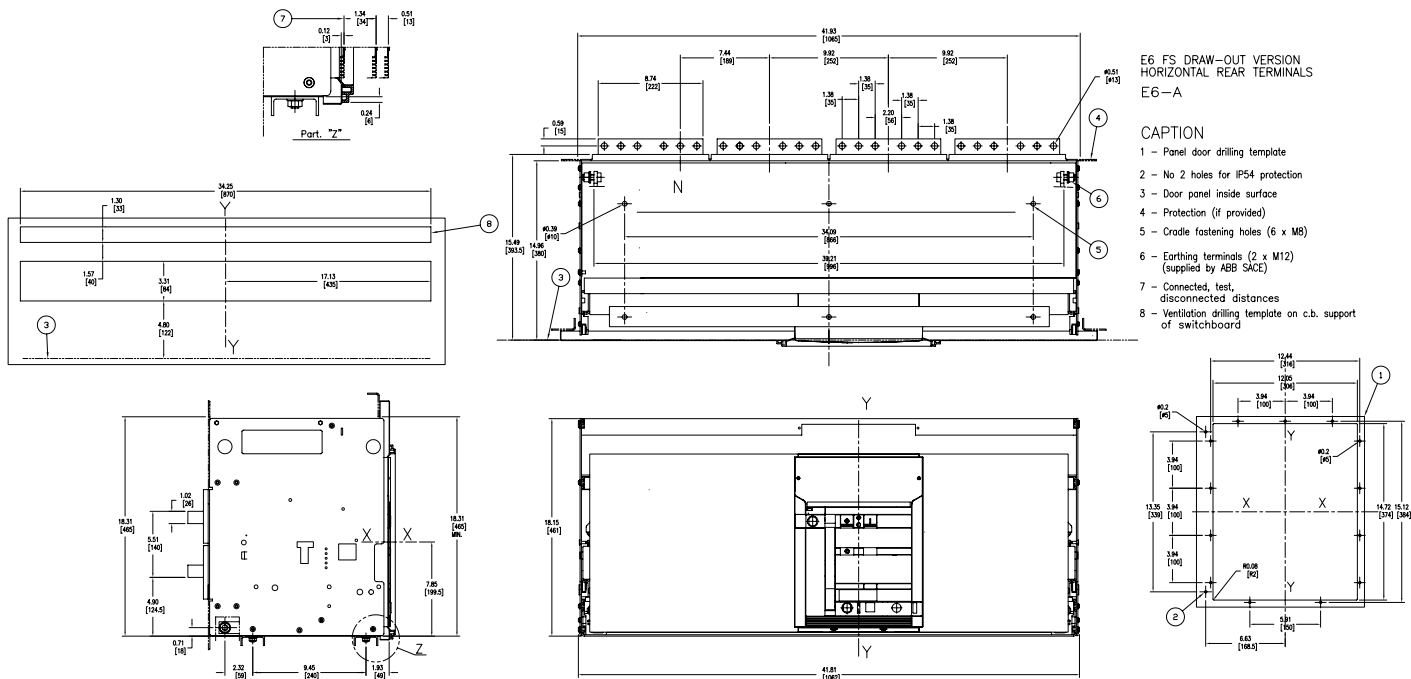
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E6, withdrawable with horizontal rear terminals

4 pole (100% neutral)

00.00 Inches
00.00 [Millimeters]



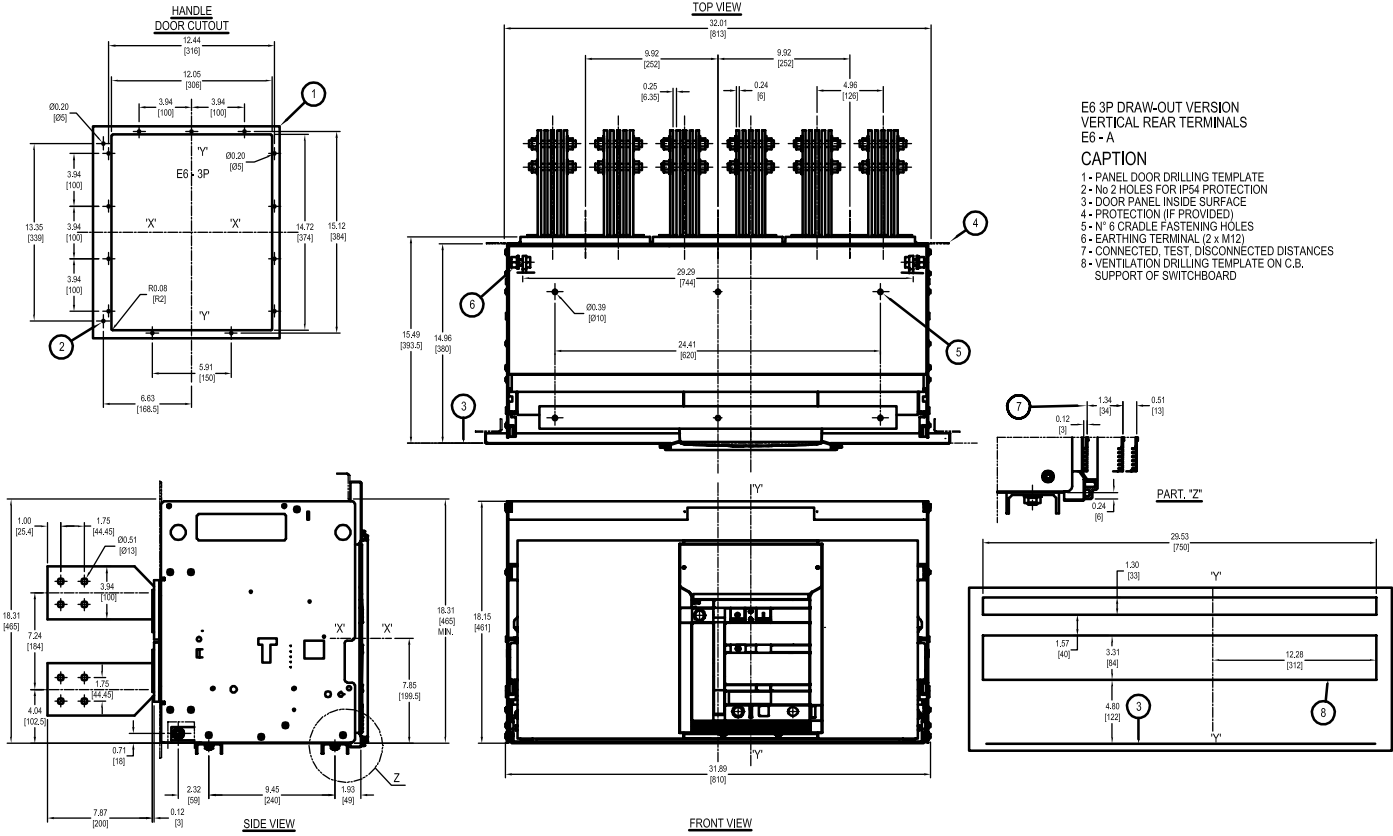
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E6, withdrawable with vertical rear terminals

3 pole

← 00.00 → Inches
00.00 → [Millimeters]



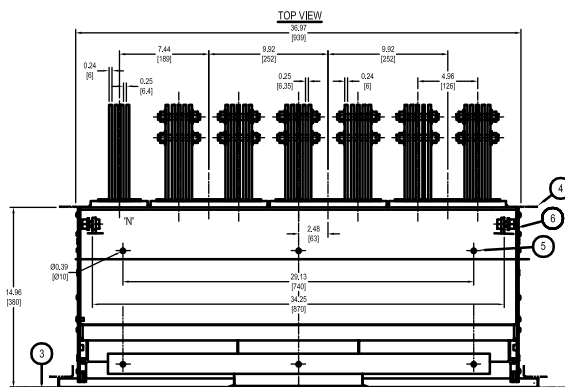
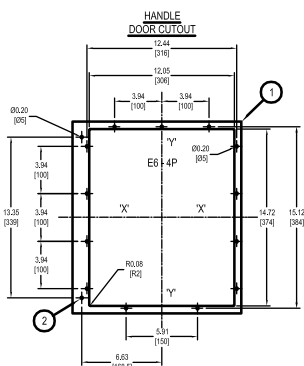
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

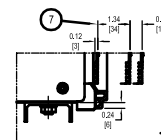
E6, withdrawable with vertical rear terminals

4 pole (50% neutral)

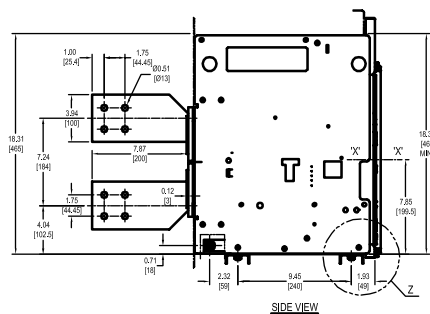
← 00.00 Inches
00.00 [Millimeters]



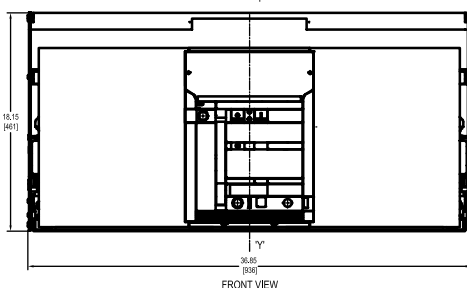
E6 4P DRAW-OUT VERSION
VERTICAL REAR TERMINALS
E6 - A
CAPTION
1 - PANEL DOOR DRILLING TEMPLATE
2 - NO 2 HOLES FOR IP54 PROTECTION
3 - DOOR PANEL INSIDE SURFACE
4 - PROTECTION (IF PROVIDED)
5 - CRADLE FASTENING HOLES (6 x M8)
6 - EARTHING TERMINAL (2 x M12)
7 - CONNECTED, TEST, DISCONNECTED DISTANCES
8 - VENTILATION DRILLING TEMPLATE ON C.B. SUPPORT ON SWITCHBOARD



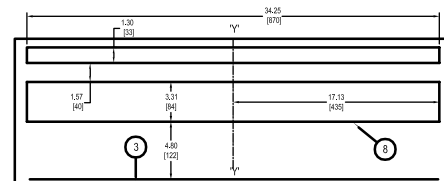
PART 'Z'



SIDE VIEW



FRONT VIEW



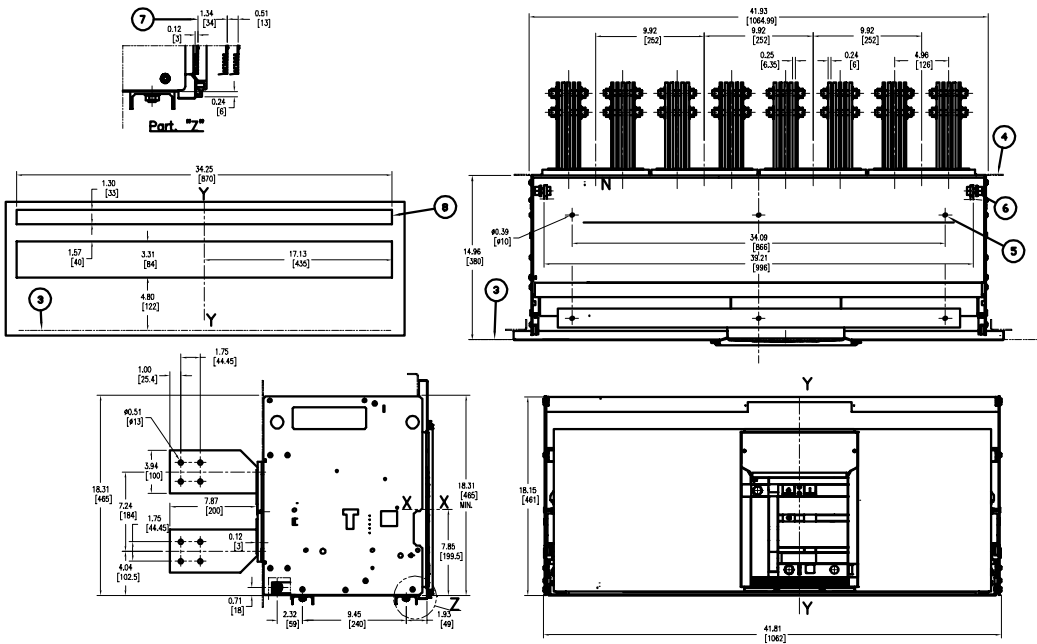
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E6, withdrawable with vertical rear terminals

4 pole (100% neutral)

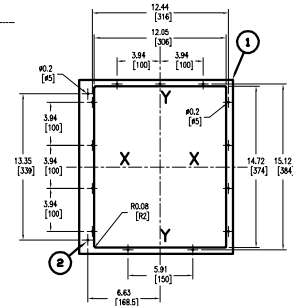
← 00.00 → Inches
00.00 → [Millimeters]



E6 FS DRAW-OUT VERSION VERTICAL REAR TERMINALS E6-A

CAPTION

- 1 - Panel door drilling template
- 2 - No 2 holes for IP54 protection
- 3 - Door panel inside surface
- 4 - Protection (if provided)
- 5 - Cradle fastening holes (6 x M8)
- 6 - Earthing terminals (2 x M12) (supplied by ABB SACE)
- 7 - Connected, test, disconnected distances
- 8 - Ventilation drilling template on c.b. support on switchboard



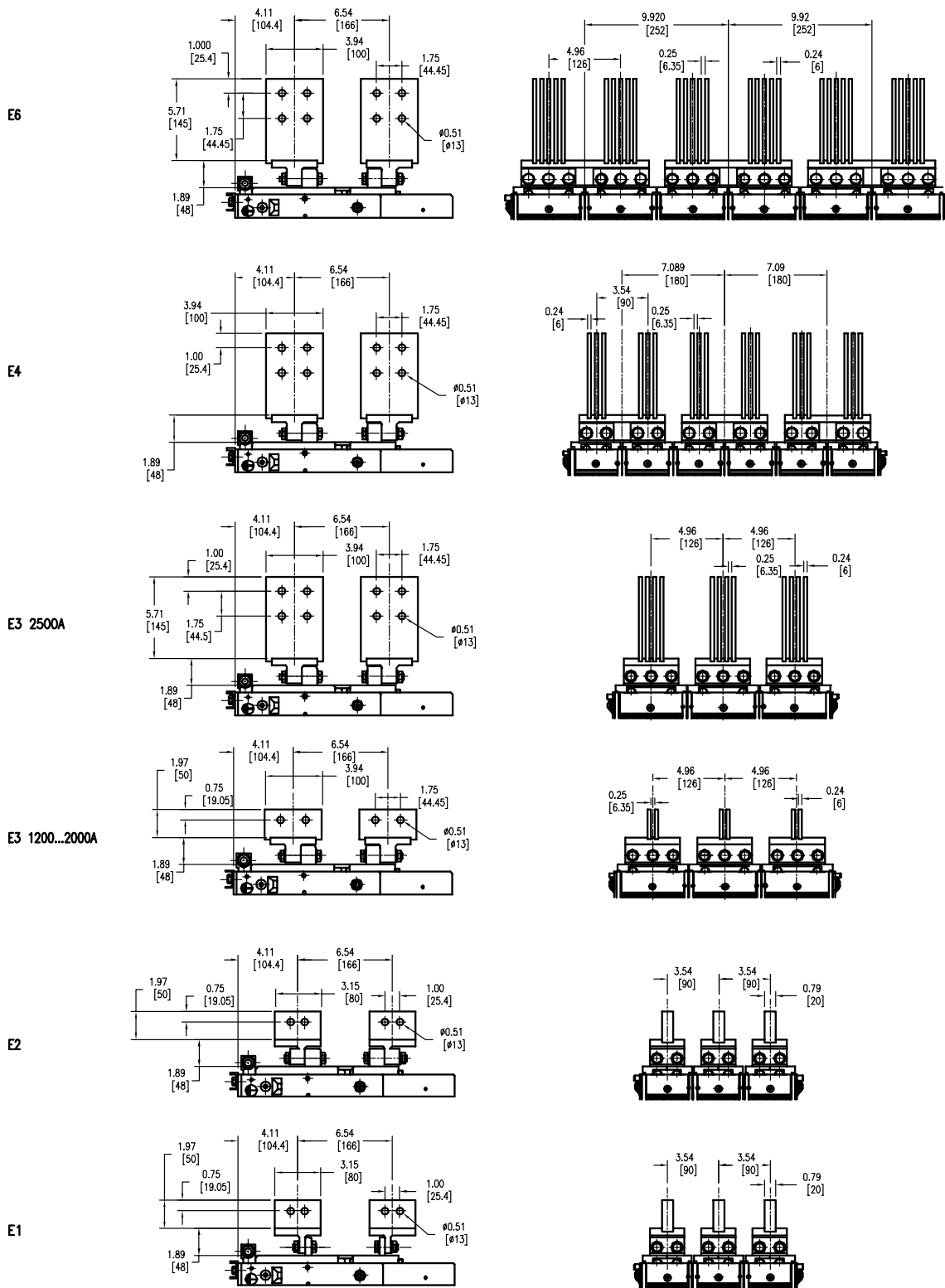
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E1 - E6, fixed with vertical rear terminals

3 pole

← 00.00 — Inches
00.00 — Millimeters



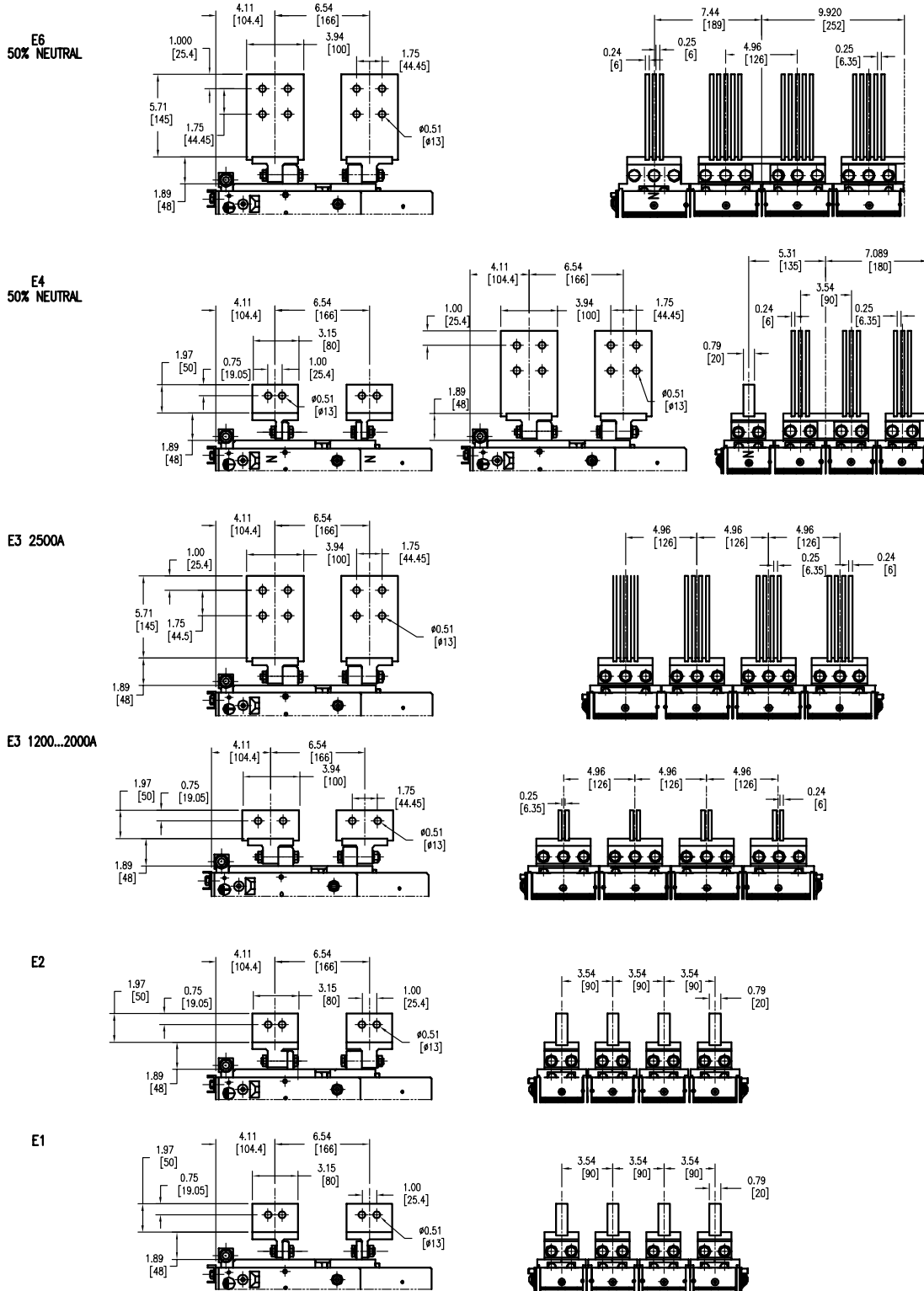
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions (for UL version) ①

E1 - E6, fixed with vertical rear terminals

4 pole

00.00 Inches
00.00 Millimeters



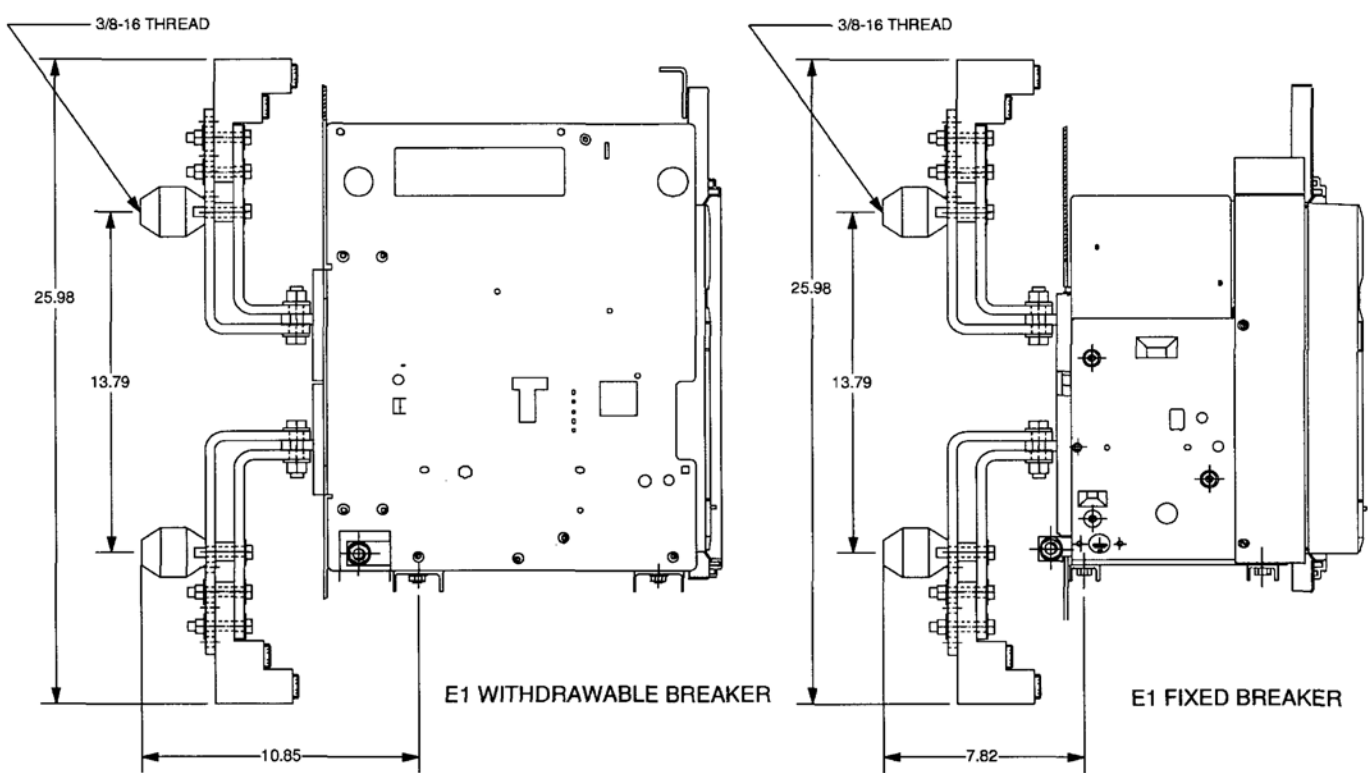
① For IEC dimensions, see Emax technical catalog 1SDC200006D0208.

Approximate dimensions

Emax lug kit

E1, front terminals

00.00 Inches
00.00 [Millimeters]

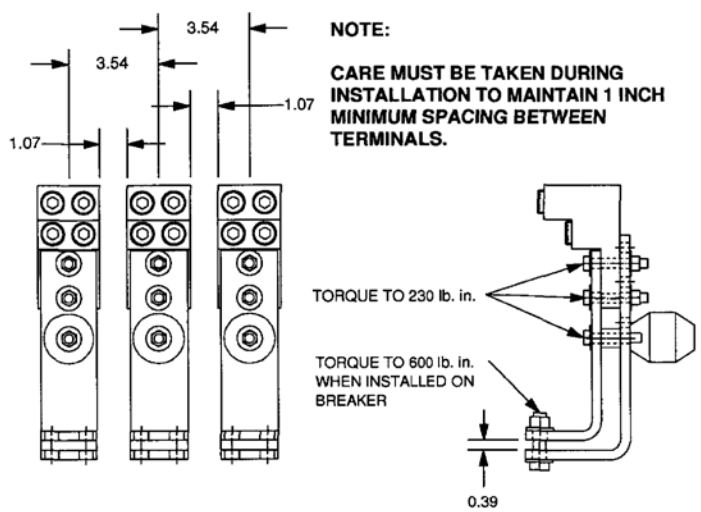


LUG KIT CONTAINS LUGS AND HARDWARE FOR THREE TERMINALS.
KIT CONTAINS:

- (3) CABLE LUGS
 - (3) SHORT BUSBARS
 - (3) LONG BUSBARS
 - (3) ALUMINUM SPACERS
 - (3) INSULATING STANDOFFS
- BUSBAR MOUNTING HARDWARE**
- (6) HX HD BOLTS, 1/2-13 X 2.00" LG
 - (6) HEX NUTS, 1/2-13
 - (12) BELLEVILLE SPRING WASHERS, 1/2"
- LUG MOUNTING HARDWARE**
- (6) HX HD BOLTS, 3/8-16 X 2.25" LG
 - (6) HEX NUTS, 3/8-16
 - (12) BELLEVILLE SPRING WASHERS, 3/8"
- INSULATING STANDOFF MOUNTING HARDWARE**
- (3) HX HD BOLTS, 3/8-16 X 2" LG
 - (3) FLAT WASHERS, 3/8"
 - (3) SPLIT LOCKWASHERS, 3/8"

ASSEMBLE LIKE THIS FOR E1 BREAKER

NOTE:
CARE MUST BE TAKEN DURING INSTALLATION TO MAINTAIN 1 INCH MINIMUM SPACING BETWEEN TERMINALS.



Wire range: #2 - 600 kcmils AL9CU
(4) Wires per Phase

Kit contains hardware and lugs for three terminals.

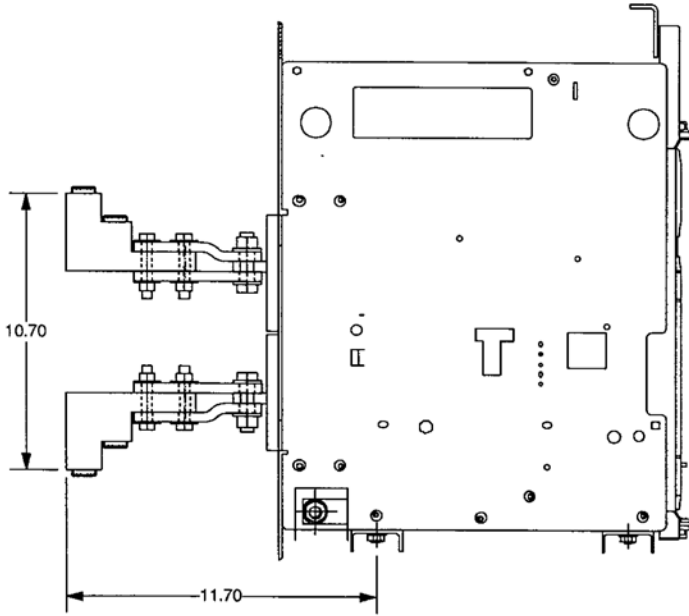
Tightening Torque for Lug to Busbar: 230 lb. in.
Wire Torque: 375 lb. in.
Lug Socket Size is 3/8"

Tightening Torque for Busbar to Breaker Terminal: 600 lb. in.

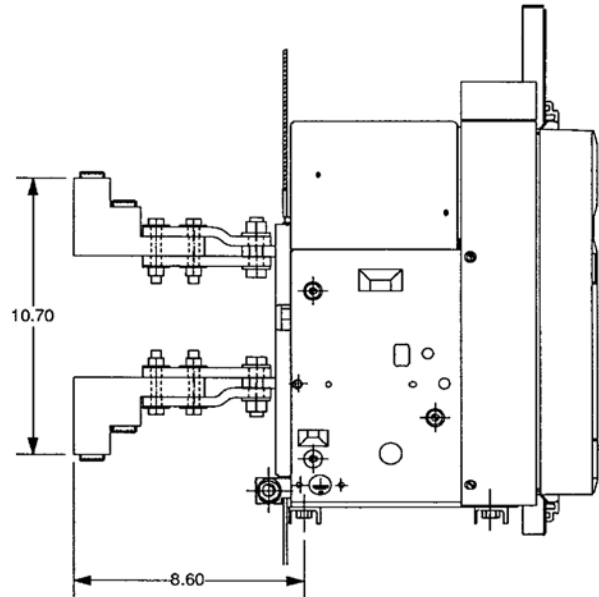
Approximate dimensions

Emax lug kit
E1, rear terminals

00.00 — Inches
00.00 — [Millimeters]



E1 WITHDRAWABLE BREAKER



E1 FIXED BREAKER

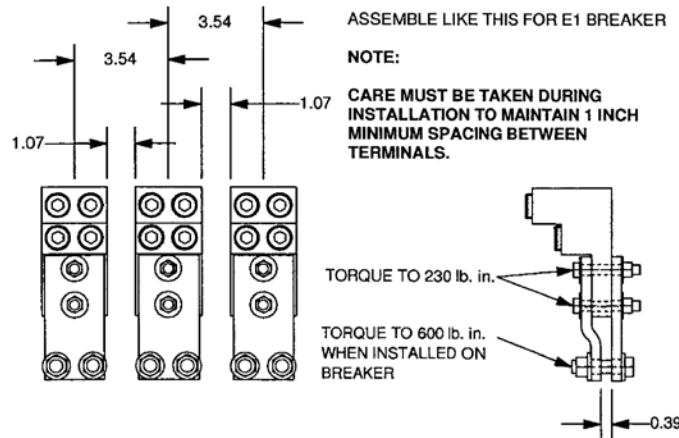
LUG KIT CONTAINS LUGS AND HARDWARE FOR THREE TERMINALS.

KIT CONTAINS:

- (3) CABLE LUGS
- (3) STRAIGHT BUSBARS
- (3) OFFSET BUSBARS

- BUSBAR MOUNTING HARDWARE
- (6) HX HD BOLTS, 1/2-13 X 2.00" LG
 - (6) HEX NUTS, 1/2-13
 - (12) BELLEVILLE SPRING WASHERS, 1/2"

- LUG MOUNTING HARDWARE
- (6) HX HD BOLTS, 3/8-16 X 2.25" LG
 - (6) HEX NUTS, 3/8-16
 - (12) BELLEVILLE SPRING WASHERS, 3/8"



Wire range: #2 - 600 kcmils AL9CU
(4) Wires per Phase

Kit contains hardware and lugs for three terminals.

Tightening Torque for Lug to Busbar: 230 lb. in.
Wire Torque: 375 lb. in.
Lug Socket Size is 3/8"

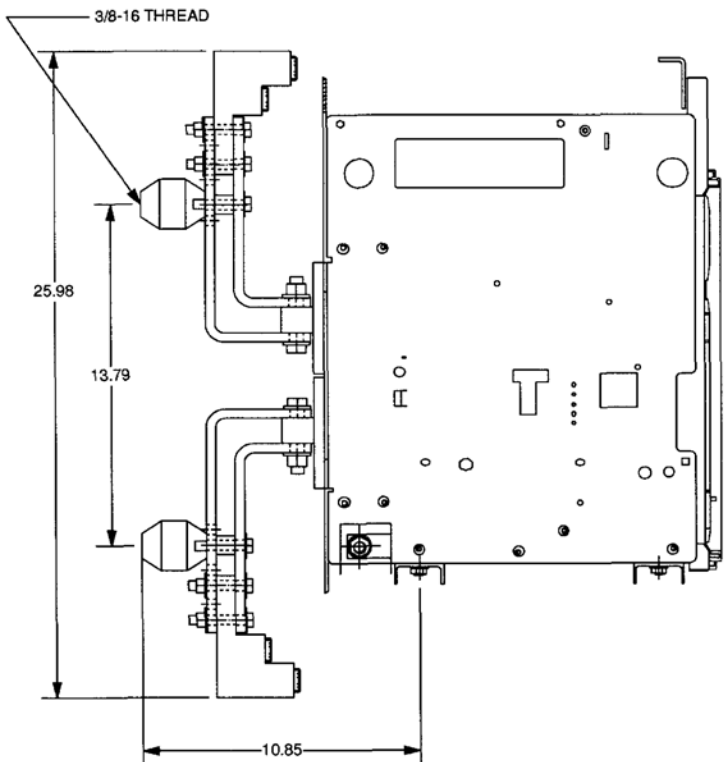
Tightening Torque for Busbar to Breaker Terminal: 600 lb. in.

Approximate dimensions

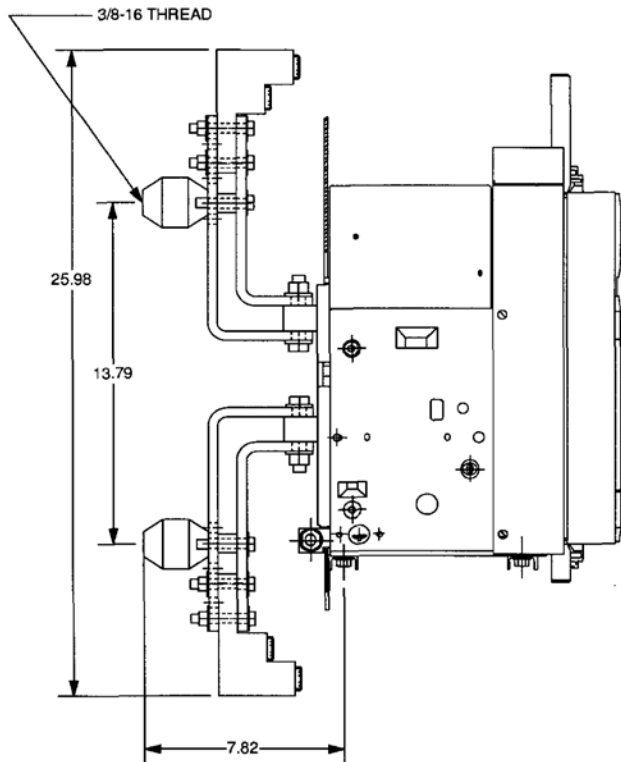
Emax lug kit

E2, front terminals

00.00 Inches
00.00 [Millimeters]



E2 WITHDRAWABLE BREAKER



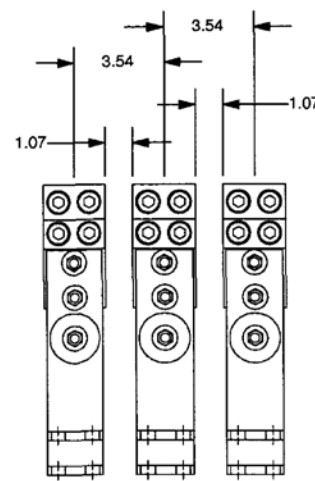
E2 FIXED BREAKER

LUG KIT CONTAINS LUGS AND HARDWARE FOR THREE TERMINALS.

KIT CONTAINS:

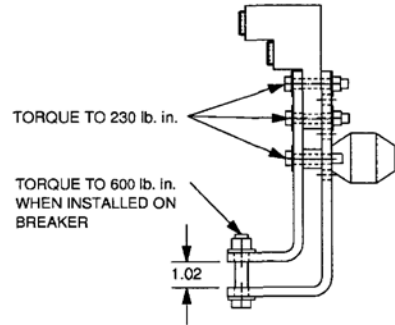
- (3) CABLE LUGS
 - (3) SHORT BUSBARS
 - (3) LONG BUSBARS
 - (3) ALUMINUM SPACERS
 - (3) INSULATING STANDOFFS
- BUSBAR MOUNTING HARDWARE
- (6) HX HD BOLTS, 1/2-13 X 2.25" LG
 - (6) HEX NUTS, 1/2-13
 - (12) BELLEVILLE SPRING WASHERS, 1/2"
- LUG MOUNTING HARDWARE
- (6) HX HD BOLTS, 3/8-16 X 2.25" LG
 - (6) HEX NUTS, 3/8-16
 - (12) BELLEVILLE SPRING WASHERS, 3/8"

- INSULATING STANDOFF MOUNTING HARDWARE
- (3) HX HD BOLTS, 3/8-16 X 2" LG
 - (3) FLAT WASHERS, 3/8"
 - (3) SPLIT LOCKWASHERS, 3/8"



ASSEMBLE LIKE THIS FOR E2 BREAKER

NOTE:
CARE MUST BE TAKEN DURING INSTALLATION TO MAINTAIN 1 INCH MINIMUM SPACING BETWEEN TERMINALS.



Wire range: #2 - 600 kmils AL9CU
(4) Wires per Phase

Kit contains hardware and lugs for three terminals.

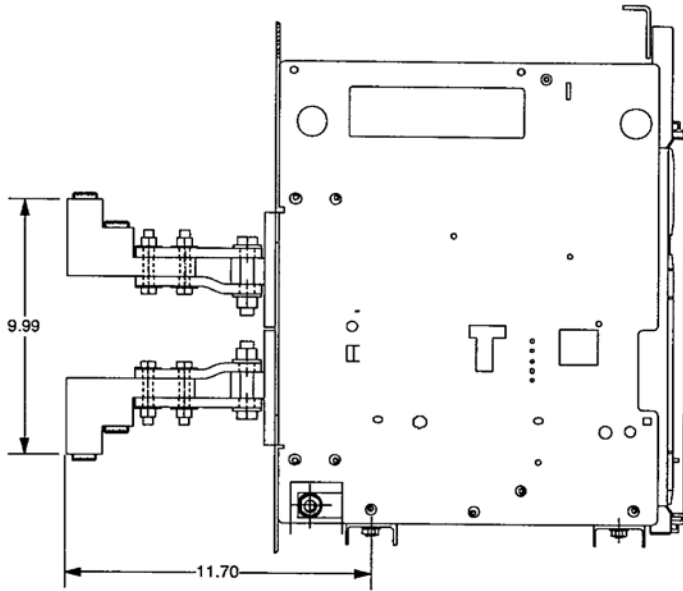
Tightening Torque for Lug to Busbar: 230 lb. in.
Wire Torque: 375 lb. in.
Lug Socket Size is 3/8"

Tightening Torque for Busbar to Breaker Terminal: 600 lb. in.

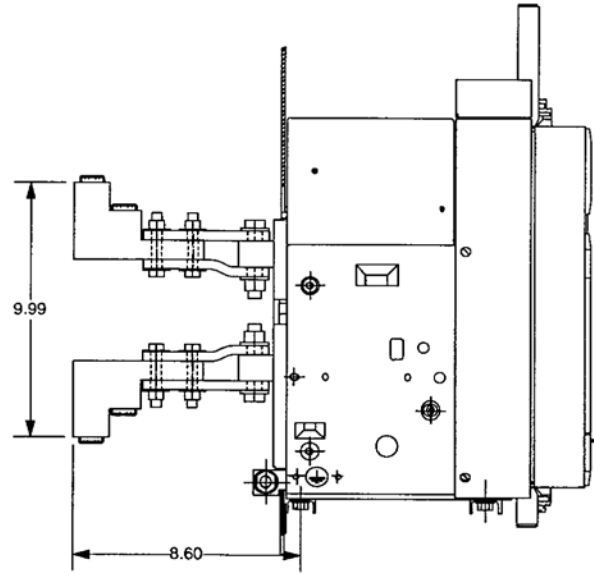
Approximate dimensions

Emax lug kit
E2, rear terminals

00.00 Inches
00.00 [Millimeters]



E2 WITHDRAWABLE BREAKER



E2 FIXED BREAKER

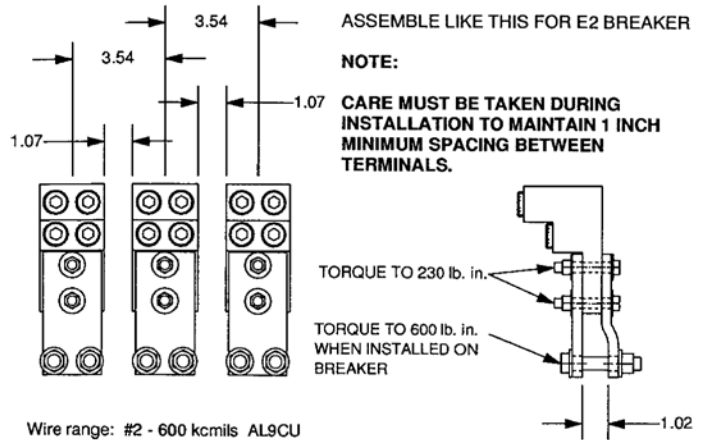
LUG KIT CONTAINS LUGS AND HARDWARE FOR THREE TERMINALS.

KIT CONTAINS:

- (3) CABLE LUGS
- (3) STRAIGHT BUSBARS
- (3) OFFSET BUSBARS

- BUSBAR MOUNTING HARDWARE
- (6) HX HD BOLTS, 1/2-13 X 2.75" LG
 - (6) HEX NUTS, 1/2-13
 - (12) BELLEVILLE SPRING WASHERS, 1/2"

- LUG MOUNTING HARDWARE
- (6) HX HD BOLTS, 3/8-16 X 2.25" LG
 - (6) HEX NUTS, 3/8-16
 - (12) BELLEVILLE SPRING WASHERS, 3/8"



Wire range: #2 - 600 kcmils AL9CU
(4) Wires per Phase

Kit contains hardware and lugs for three terminals.

Tightening Torque for Lug to Busbar: 230 lb. in.
Wire Torque: 375 lb. in.
Lug Socket Size is 3/8"

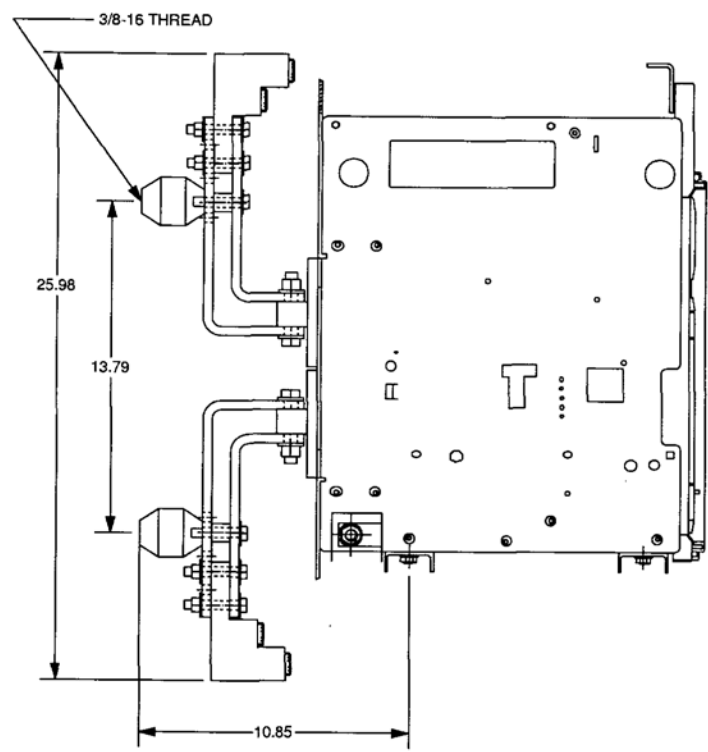
Tightening Torque for Busbar to Breaker Terminal: 600 lb. in.

Approximate dimensions

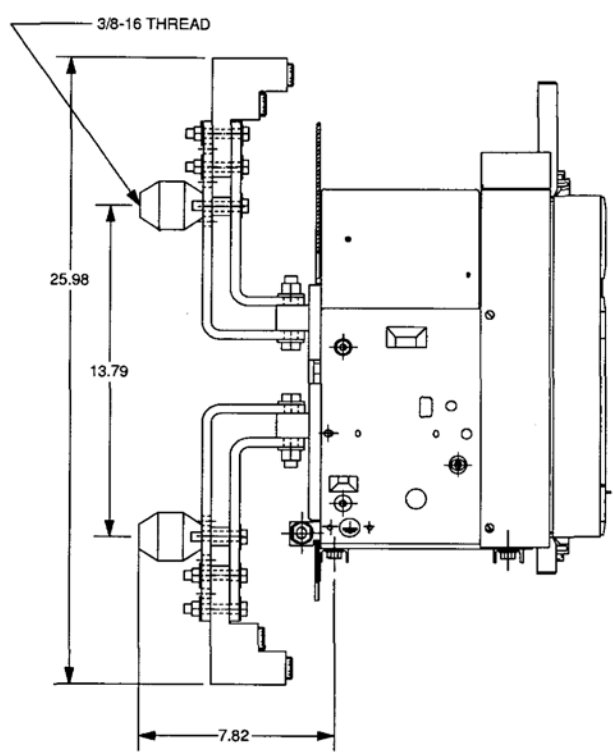
Emax lug kit

E3, front terminals

00.00 Inches
00.00 [Millimeters]



E3 WITHDRAWABLE BREAKER



E3 FIXED BREAKER

LUG KIT CONTAINS LUGS AND HARDWARE FOR THREE TERMINALS.

KIT CONTAINS:

- (3) CABLE LUGS D 1281
- (3) CABLE LUGS D 1459
- (3) SHORT BUSBARS
- (3) LONG BUSBARS
- (3) ALUMINUM SPACERS
- (3) INSULATING STANDOFFS

BUSBAR MOUNTING HARDWARE

- (9) HX HD BOLTS, 1/2-13 X 2.75" LG
- (9) HEX NUTS, 1/2-13
- (18) BELLEVILLE SPRING WASHERS, 1/2"

LUG MOUNTING HARDWARE

- (12) HX HD BOLTS, 3/8-16 X 2.25" LG
- (12) HEX NUTS, 3/8-16
- (24) BELLEVILLE SPRING WASHERS, 3/8"

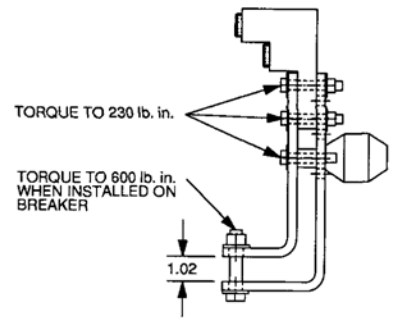
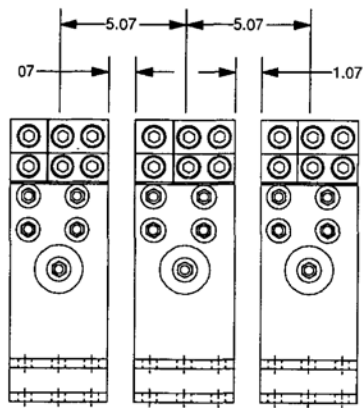
INSULATING STANDOFF MOUNTING HARDWARE

- (3) HX HD BOLTS, 3/8-16 X 2.00" LG
- (3) FLAT WASHERS, 3/8"
- (3) SPLIT LOCKWASHERS, 3/8"

ASSEMBLE LIKE THIS FOR E3 BREAKER

NOTE:

CARE MUST BE TAKEN DURING INSTALLATION TO MAINTAIN 1 INCH MINIMUM SPACING BETWEEN TERMINALS.



Wire range: #2 - 600 kcmils AL9CU
(6) Wires per Phase

Kit contains hardware and lugs for three terminals.

Tightening Torque for Lug to Busbar: 230 lb. in.
Wire Torque: 375 lb. in.
Lug Socket Size is 3/8"

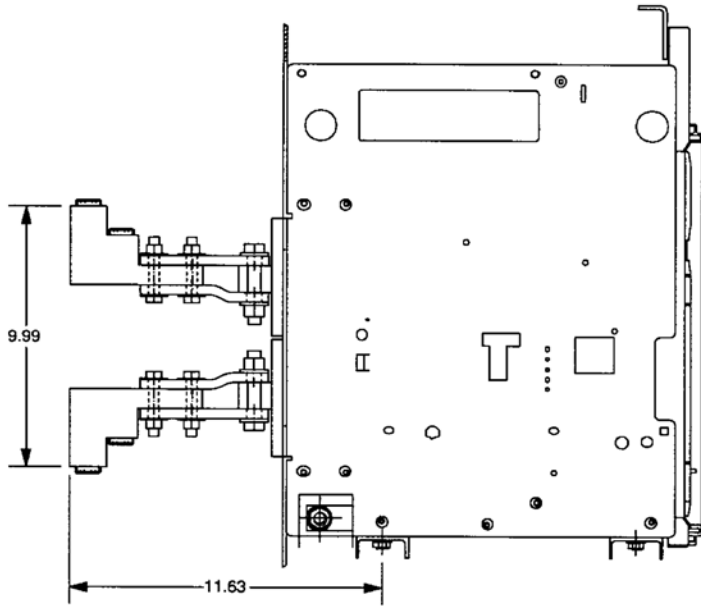
Tightening Torque for Busbar to Breaker Terminal: 600 lb. in.

Approximate dimensions

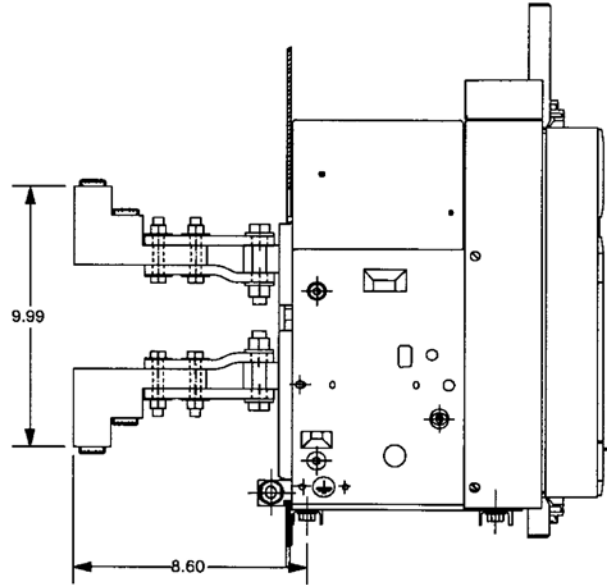
Emax lug kit

E3, rear terminals

00.00 Inches
00.00 [Millimeters]



E3 WITHDRAWABLE BREAKER



E3 FIXED BREAKER

LUG KIT CONTAINS LUGS AND HARDWARE FOR THREE TERMINALS.

KIT CONTAINS:

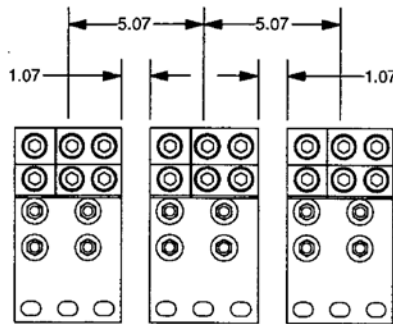
- (3) CABLE LUGS D 1281
- (3) CABLE LUGS D 1459
- (3) STRAIGHT BUSBARS
- (3) OFFSET BUSBARS

BUSBAR MOUNTING HARDWARE

- (9) HX HD BOLTS, 1/2-13 X 2.75" LG
- (9) HEX NUTS, 1/2-13
- (18) BELLEVILLE SPRING WASHERS, 1/2"

LUG MOUNTING HARDWARE

- (12) HX HD BOLTS, 3/8-16 X 2.25" LG
- (12) HEX NUTS, 3/8-16
- (24) BELLEVILLE SPRING WASHERS, 3/8"



Wire range: #2 - 600 kcmils AL9CU
(6) Wires per Phase

Kit contains hardware and lugs for three terminals.

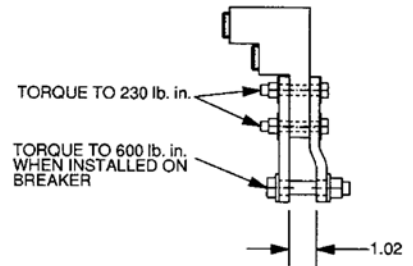
Tightening Torque for Lug to Busbar: 230 lb. in.
Wire Torque: 375 lb. in.
Lug Socket Size is 3/8"

Tightening Torque for Busbar to Breaker Terminal: 600 lb. in.

ASSEMBLE LIKE THIS FOR E3 BREAKER

NOTE:

CARE MUST BE TAKEN DURING INSTALLATION TO MAINTAIN 1 INCH MINIMUM SPACING BETWEEN TERMINALS.

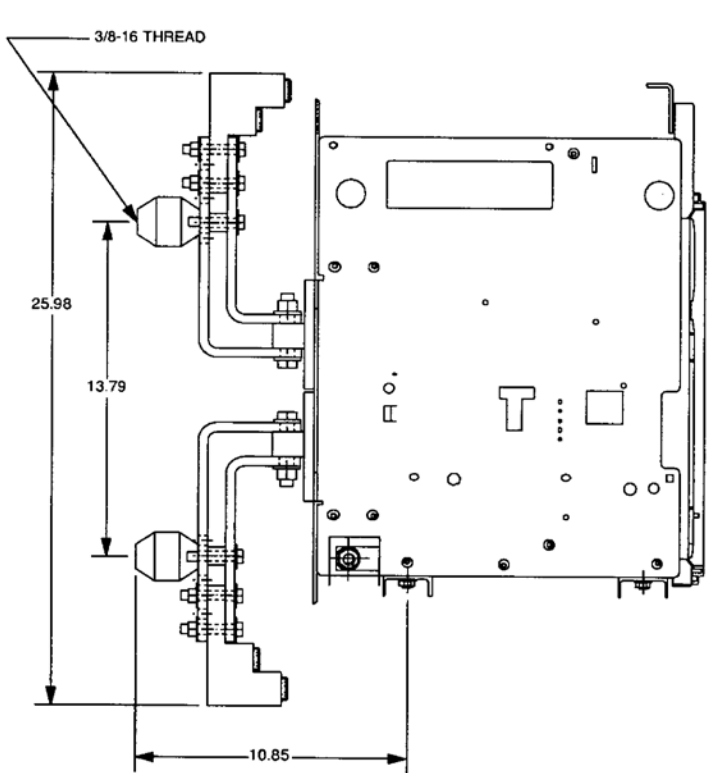


Approximate dimensions

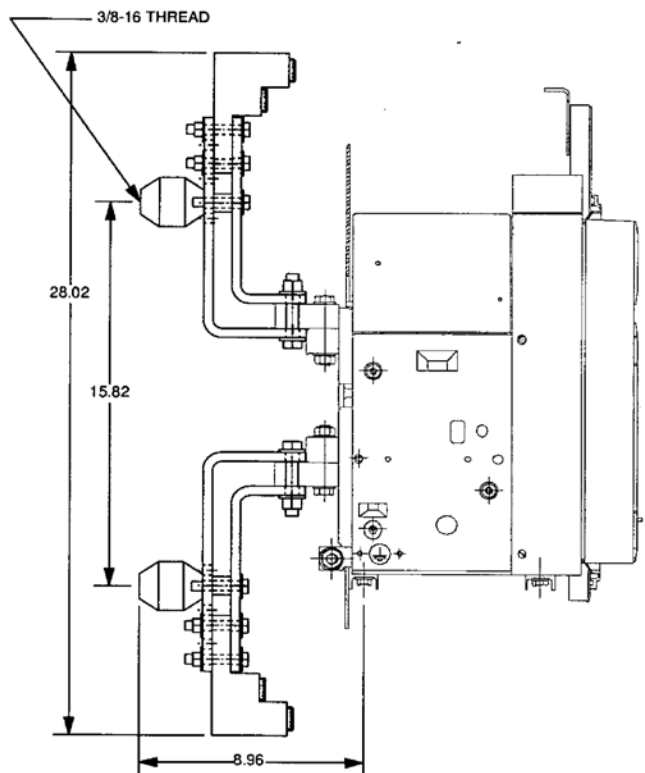
Emax lug kit

E4, front terminals

00.00 Inches
00.00 [Millimeters]



E4 WITHDRAWABLE BREAKER



E4 FIXED BREAKER

LUG KIT CONTAINS LUGS AND HARDWARE FOR THREE TERMINALS.

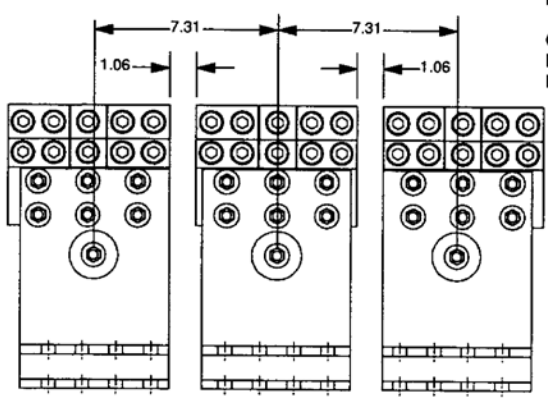
KIT CONTAINS:

- (6) CABLE LUGS D 1281
- (3) CABLE LUGS D 1459
- (3) SHORT BUSBARS
- (3) LONG BUSBARS
- (3) ALUMINUM SPACERS
- (3) INSULATING STANDOFFS

- BUSBAR MOUNTING HARDWARE**
- (12) HX HD BOLTS, 1/2-13 X 2.75" LG
 - (12) HEX NUTS, 1/2-13
 - (24) BELLEVILLE SPRING WASHERS, 1/2"

- LUG MOUNTING HARDWARE**
- (18) HX HD BOLTS, 3/8-16 X 2.25" LG
 - (18) HEX NUTS, 3/8-16
 - (36) BELLEVILLE SPRING WASHERS, 3/8"

- INSULATING STANDOFF MOUNTING HARDWARE**
- (3) HX HD BOLTS, 3/8-16 X 2" LG
 - (3) FLAT WASHERS, 3/8"
 - (3) SPLIT LOCKWASHERS, 3/8"



Wire range: #2 - 600 kcmils AL9CU
(10) Wires per Phase

Kit contains hardware and lugs for three terminals.

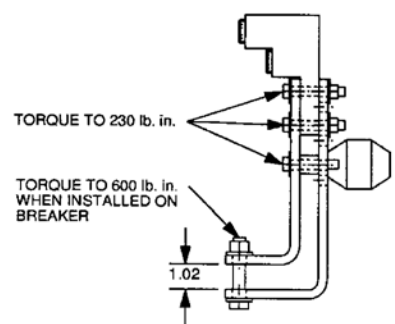
Tightening Torque for Lug to Busbar: 230 lb. in.
Wire Torque: 375 lb. in.
Lug Socket Size is 3/8"

Tightening Torque for Busbar to Breaker Terminal: 600 lb. in.

ASSEMBLE LIKE THIS FOR E4 BREAKER

NOTE:

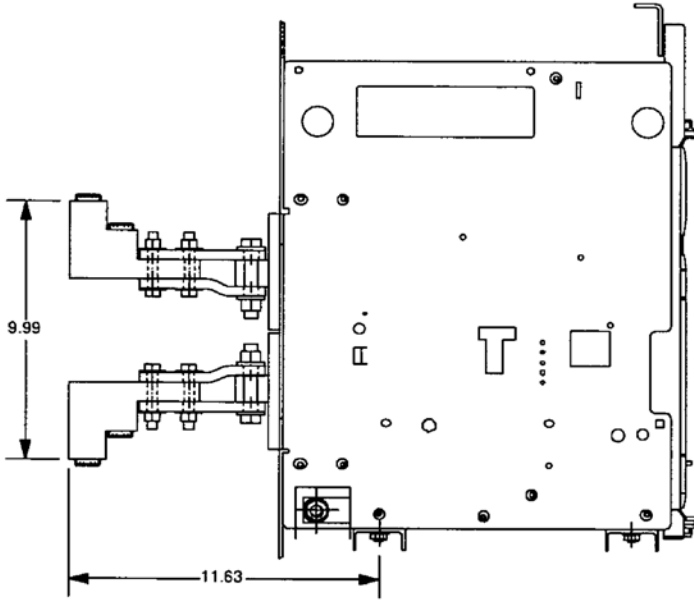
CARE MUST BE TAKEN DURING INSTALLATION TO MAINTAIN 1 INCH MINIMUM SPACING BETWEEN TERMINALS.



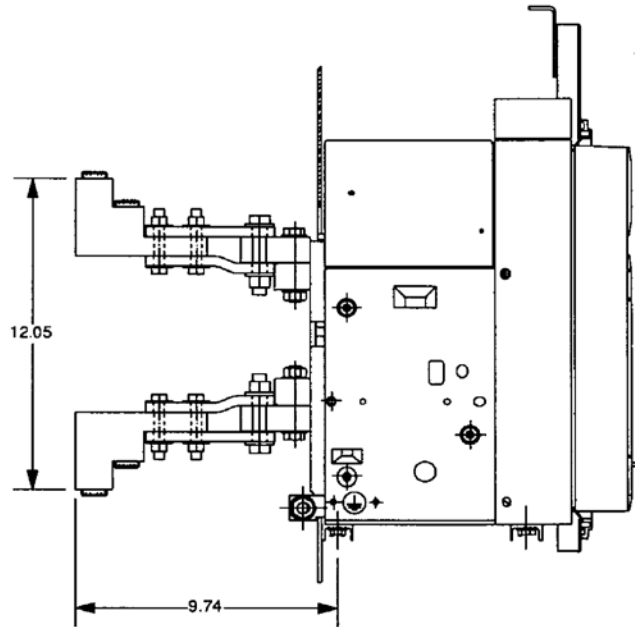
Approximate dimensions

Emax lug kit
E4, rear terminals

00.00 — Inches
00.00 — [Millimeters]



E4 WITHDRAWABLE BREAKER

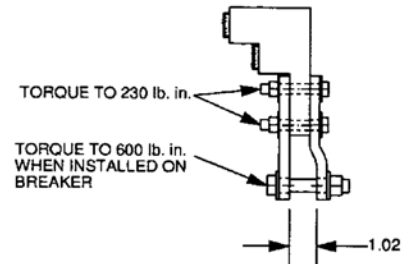
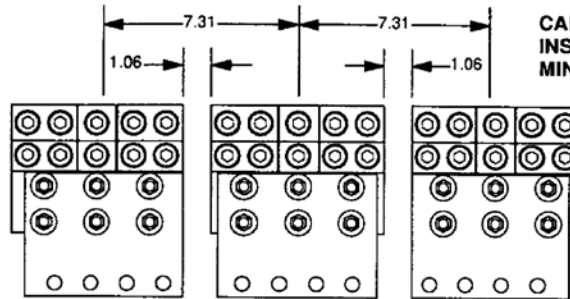


E4 FIXED BREAKER

ASSEMBLE LIKE THIS FOR E4 BREAKER

NOTE:

CARE MUST BE TAKEN DURING INSTALLATION TO MAINTAIN 1 INCH MINIMUM SPACING BETWEEN TERMINALS.



LUG KIT CONTAINS LUGS AND HARDWARE FOR THREE TERMINALS.

KIT CONTAINS:

- (6) CABLE LUGS D 1281
- (3) CABLE LUGS D 1459
- (3) STRAIGHT BUSBARS
- (3) OFFSET BUSBARS

BUSBAR MOUNTING HARDWARE

- (12) HX HD BOLTS, 1/2-13 X 2.75" LG
- (12) HEX NUTS, 1/2-13
- (24) BELLEVILLE SPRING WASHERS, 1/2"

LUG MOUNTING HARDWARE

- (18) HX HD BOLTS, 3/8-16 X 2.25" LG
- (18) HEX NUTS, 3/8-16
- (36) BELLEVILLE SPRING WASHERS, 3/8"

Wire range: #2 - 600 kcmils AL9CU
(10) Wires per Phase

Kit contains hardware and lugs for three terminals.

Tightening Torque for Lug to Busbar: 230 lb. in.
Wire Torque: 375 lb. in.
Lug Socket Size is 3/8"

Tightening Torque for Busbar to Breaker Terminal: 600 lb. in.

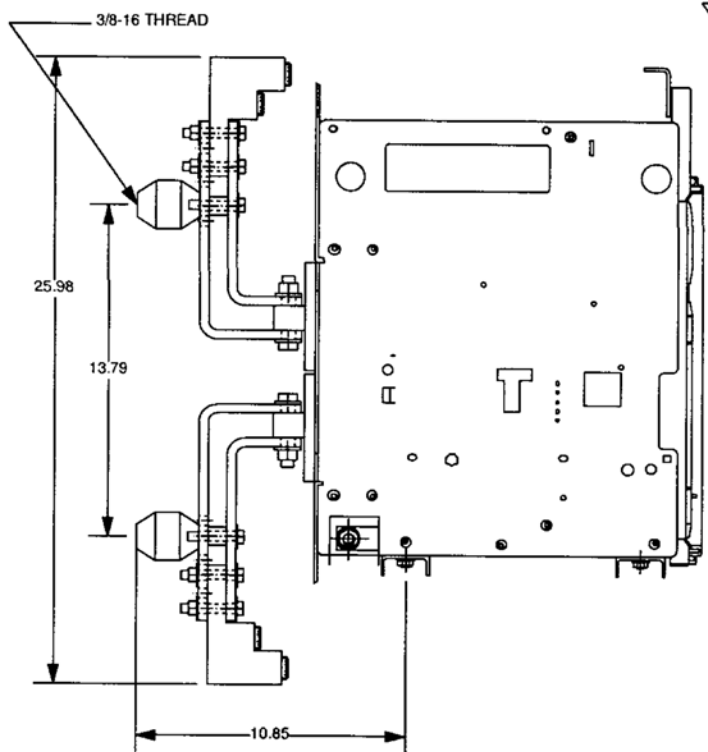
IlSCO D 1459
IlSCO D 1281

Approximate dimensions

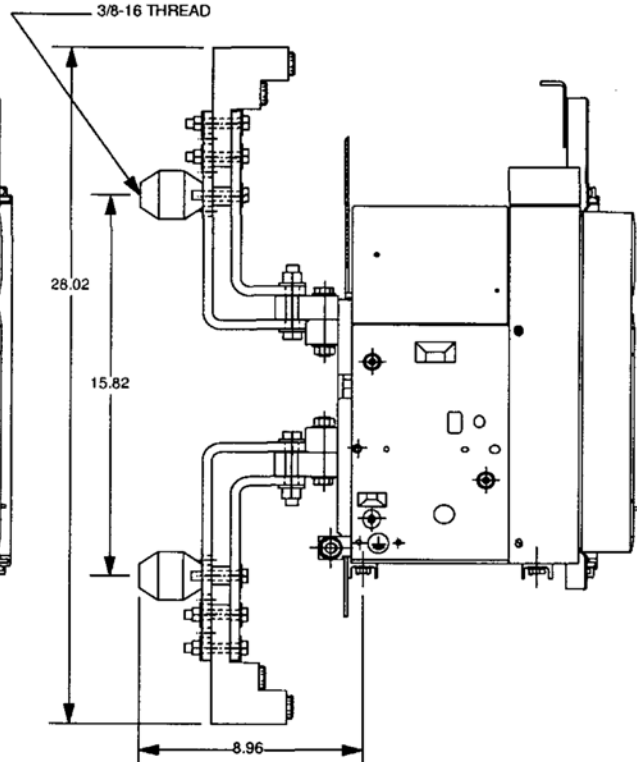
Emax lug kit

E6, front terminals

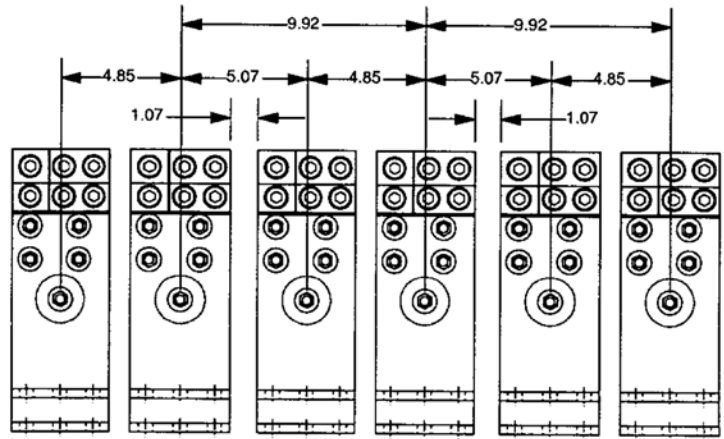
00.00 Inches
00.00 (Millimeters)



E6 WITHDRAWABLE BREAKER



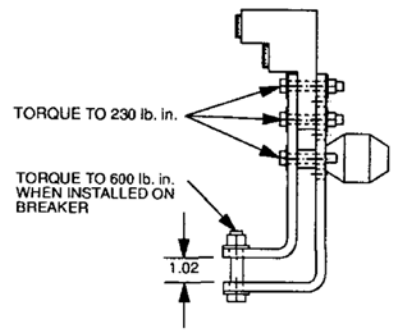
E6 FIXED BREAKER



ASSEMBLE LIKE THIS FOR E6 BREAKER

NOTE:

CARE MUST BE TAKEN DURING INSTALLATION TO MAINTAIN 1 INCH MINIMUM SPACING BETWEEN TERMINALS.



LUG KIT CONTAINS LUGS AND HARDWARE FOR THREE TERMINALS.
KIT CONTAINS:

- (6) CABLE LUGS D 1281
- (6) CABLE LUGS D 1459
- (6) SHORT BUSBARS
- (6) LONG BUSBARS
- (6) ALUMINUM SPACERS
- (6) INSULATING STANDOFFS

- BUSBAR MOUNTING HARDWARE
- (18) HX HD BOLTS, 1/2-13 X 2.75" LG
 - (18) HEX NUTS, 1/2-13
 - (36) BELLEVILLE SPRING WASHERS, 1/2"

- LUG MOUNTING HARDWARE
- (24) HX HD BOLTS, 3/8-16 X 2.25" LG
 - (24) HEX NUTS, 3/8-16
 - (48) BELLEVILLE SPRING WASHERS, 3/8"

- INSULATING STANDOFF MOUNTING HARDWARE
- (6) HX HD BOLTS, 3/8-16 X 2.00" LG
 - (6) FLAT WASHERS, 3/8"
 - (6) SPLIT LOCKWASHERS, 3/8"

Wire range: #2 - 600 kcmils ALSCU
(12) Wires per Phase

Kit contains hardware and lugs for three terminals.

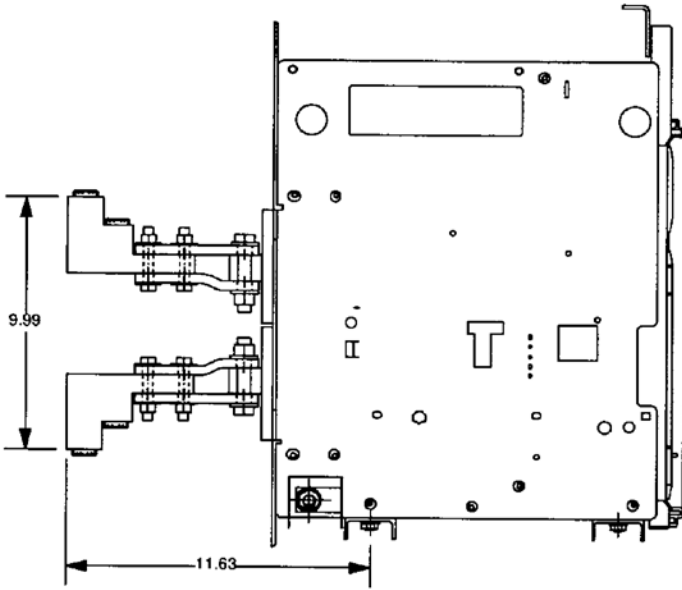
Tightening Torque for Lug to Busbar: 230 lb. in.
Wire Torque: 375 lb. in.
Lug Socket Size is 3/8"

Tightening Torque for Busbar to Breaker Terminal: 600 lb. in.

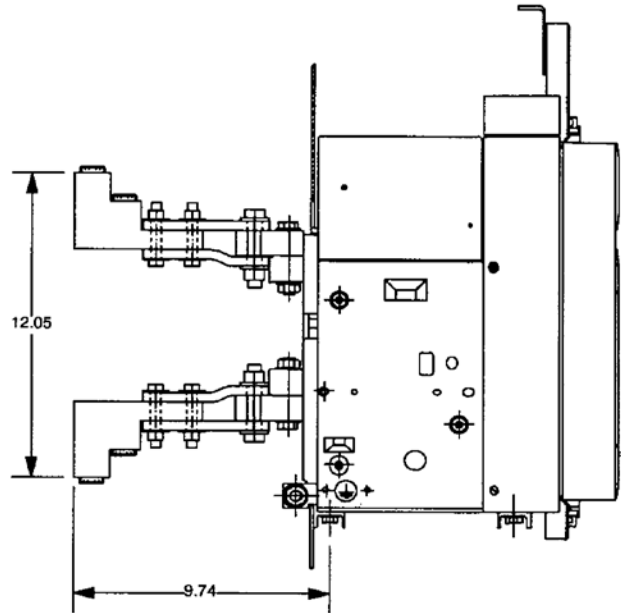
Approximate dimensions

Emax lug kit
E6, rear terminals

00.00 Inches
00.00 [Millimeters]



E6 WITHDRAWABLE BREAKER

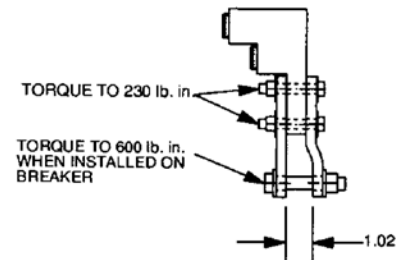
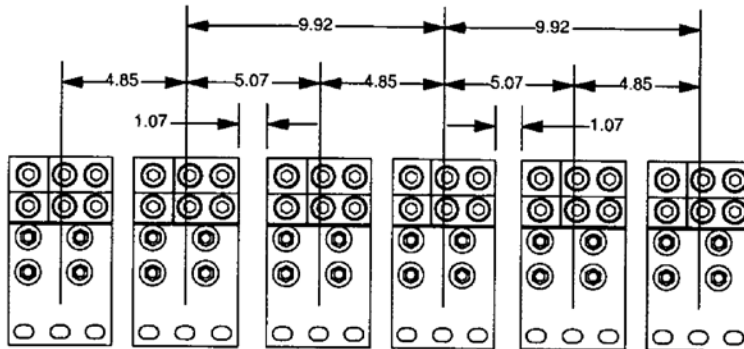


E6 FIXED BREAKER

ASSEMBLE LIKE THIS FOR E6 BREAKER

NOTE:

CARE MUST BE TAKEN DURING INSTALLATION TO MAINTAIN 1 INCH MINIMUM SPACING BETWEEN TERMINALS.



LUG KIT CONTAINS LUGS AND HARDWARE FOR THREE TERMINALS.
KIT CONTAINS:

- (6) CABLE LUGS D 1281
- (6) CABLE LUGS D 1459
- (6) STRAIGHT BUSBARS
- (6) OFFSET BUSBARS

- BUSBAR MOUNTING HARDWARE**
- (18) HX HD BOLTS, 1/2-13 X 2.75" LG
 - (18) HEX NUTS, 1/2-13
 - (36) BELLEVILLE SPRING WASHERS, 1/2"

- LUG MOUNTING HARDWARE**
- (24) HX HD BOLTS, 3/8-16 X 2.25" LG
 - (24) HEX NUTS, 3/8-16
 - (48) BELLEVILLE SPRING WASHERS, 3/8"

Wire range: #2 - 600 kcmils AL9CU
(12) Wires per Phase

Kit contains hardware and lugs for three terminals.

Tightening Torque for Lug to Busbar: 230 lb. in.
Wire Torque: 375 lb. in.
Lug Socket Size is 3/8"

Tightening Torque for Busbar to Breaker Terminal: 600 lb. in.