600 A 15, 25, and 28 kV class Cleer™ SecTER™ cabinet

General

Eaton's Cooper Power™ series versatile single- and three-phase 600 A Cleer™ SecTER™ cabinets are designed as cable sectionalizing centers. They can be used wherever underground cable must be sectionalized or connected. Functions include sectionalizing cable, switching cable, isolating cable and feeder taps.

Each Cleer SecTER cabinet comes complete with one Eaton's Cooper Power series exclusive 600 A, 15, 25, or 28 kV Class Cleer loadbreak connector installed per phase.

The aesthetic low profile design provides unobtrusive installations for sectionalizing, tapping or terminating underground cable.

The top hinged diagonally cut removable cover and cabinet are designed for easy one man opening. Recessed door and low sill provides improved access to interior terminations. A door stop prevents the door from accidentally closing.

TGIC powder coating exceeds ANSI® coating requirements.

Standard Munsell Green 7GY3.29/1.5 twelve gauge mild steel designs with standard stainless steel hardware are available. For highly corrosive environments, stainless steel or aluminum are also available. Continuous seam welding ensures a sturdy smooth cabinet. A welded-on ground nut is also provided for each phase.

Optional features

- Cleer 600 A loadbreak connectors installed
- Available in grey, tan, or brown colors
- 3/8" copper ground rod installed
- Mild steel base extensions
- Fiberglass ground sleeves

600 A 15, 25, and 28 kV Cleer loadbreak connector system

The Cleer loadbreak connector system is a 600 A loadbreak device available in ratings for operation on 15, 25, or 28 kV class systems. It is used to provide a visible break and visible ground on 600 A network and distribution systems without having to remove 600 A terminations and move heavy cable. The Cleer loadbreak connector system Is fully shielded, submersible and meets the applicable requirements of IEEE Std 386™ -2006 standard – "Separable Insulated Connector Systems".

When isolating underground cable, with the system energized or de-energized, with or without rated load current, with the use of a clampstick, the loadbreak connector (LCN) can be removed. A 600 A loadbreak protective cap (LPC6_ _) can then be installed on the two exposed loadbreak interfaces. All bushings of the connector system are then insulated and deadfront. If a 600 A termination with a 200 A reducing tap plug is used on the IEEE Std 386™ -2006 standard 600 A 15/25 kV deadbreak interfaces of the junction, a grounding elbow can be installed, providing a visible ground. It is then safe to perform work on the underground cable.

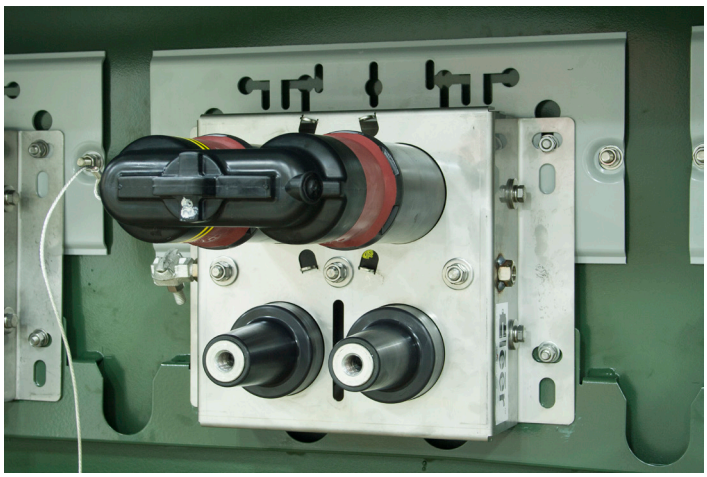


Figure 1. 600 A, 15 kV Cleer square configuration.

15 kV ratings, characteristics and ordering information

Production tests

Tests are conducted in accordance with IEEE Std 386™ -2006 standard.

- ac 60 Hz 1 Minute Withstand
  - 34 kV
- Minimum Partial Discharge Extinction Voltage
  - 11 kV (3-pc Sensitivity)

Tests are conducted in accordance with Eaton requirements.

- Physical Inspection
- Periodic Dissection
- Periodic Fluoroscopic Analysis

Table 1. Current Ratings and Characteristics

Description	Amperes
600 A Loadbreak Interface	
Continuous Current	600 A rms
Loadbreak Switching	Ten make and break operations at 600 A at 14.4 kV Phase-Phase
	Three make and break operations at 900 A at 14.4 kV Phase-Phase
Fault Closure	16 kA rms symmetrical at 14.4 kV Phase-Phase after ten 600 A loadbreak switching operations for 0.17 seconds
	16 kA rms symmetrical at 14.4 kV Phase-Phase after three 900 A loadbreak switching operations for 0.17 seconds
4 Hour Overload Current	900 A rms
Short Time Current	16 kA rms symmetrical for 0.17 seconds (limited by fault closure rating)*
	10 kA rms symmetrical for 3.0 seconds
IEEE Std 386™ -2006 standard 600 A, 15/25 kV Deadbreak Interface	
Continuous Current	600 A rms
4 Hour Overload Current	900 A rms
Short Time Current	16 kA rms symmetrical for 0.17 seconds*
	10 kA rms symmetrical for 3.0 seconds

Current ratings and characteristics are in accordance with applicable IEEE Std 386™ -2006 standard requirements.

* 600 A loadbreak connectors are generally capable of short-time current ratings well in excess of those listed (25 kA to 40 kA ratings for 0.17s are typical). However, ratings are limited in Table 1 by the fault-closure rating. Contact your Eaton representative for maximum short-time current ratings if fault-closure operations are infeasible in your application.

Table 2. Voltage Ratings and Characteristics

Description	kV
Standard Voltage Class	15
Maximum Rating Phase-to-Phase	14.4
Maximum Rating Phase-to-Ground	8.3
ac 60 Hz 1 Minute Withstand	34
dc 15 Minute Withstand	53
BIL and Full Wave Crest	95
Minimum Partial Discharge Extinction Voltage	11

Voltage ratings and characteristics are in accordance with applicable IEEE Std 386™ -2006 standard requirements.

25 kV ratings, characteristics and ordering information

Production tests

Tests are conducted in accordance with IEEE Std 386™ -2006 standard.

- ac 60 Hz 1 Minute Withstand
  - 40 kV
- Minimum Partial Discharge Extinction Voltage
  - 19 kV (3-pc Sensitivity)

Tests are conducted in accordance with Eaton requirements.

- Physical Inspection
- Periodic Dissection
- Periodic Fluoroscopic Analysis

Table 3. Current Ratings and Characteristics

Description	Amperes
600 A Loadbreak Interface	
Continuous Current	600 A rms
Loadbreak Switching	Five make and break operations at 600 A at 26.3 kV Phase-Phase
	One make and break operation at 900 A at 26.3 kV Phase-Phase
Fault Closure	10 kA rms symmetrical at 26.3 kV Phase-Phase after five 600 A loadbreak switching operations for 0.17 seconds
	10 kA rms symmetrical at 26.3 kV Phase-Phase after one 900 A loadbreak switching operation for 0.17 seconds
4 Hour Overload Current	900 A rms
Short Time Current	10 kA rms symmetrical for 0.17 seconds (limited by fault closure rating)*
	10 kA rms symmetrical for 3.0 seconds
IEEE Std 386™ -2006 standard 600 A, 15/25 kV Deadbreak Interface	
Continuous Current	600 A rms
4 Hour Overload Current	900 A rms
Short Time Current	10 kA rms symmetrical for 0.17 seconds*
	10 kA rms symmetrical for 3.0 seconds

Current ratings and characteristics are in accordance with applicable IEEE Std 386™ -2006 standard requirements.

* 600 A loadbreak connectors are generally capable of short-time current ratings well in excess of those listed (25 kV to 40 kA ratings for 0.17s are typical). However, ratings are limited in Table 3 by the fault-closure rating. Contact your Eaton representative for maximum short-time current ratings if fault-closure operations are infeasible in your application.

Table 4. Voltage Ratings and Characteristics

Description	kV
Standard Voltage Class	25
Maximum Rating Phase-to-Phase	26.3
Maximum Rating Phase-to-Ground	15.2
ac 60 Hz 1 Minute Withstand	40
dc 15 Minute Withstand	78
BIL and Full Wave Crest	125
Minimum Partial Discharge Extinction Voltage	19

Voltage ratings and characteristics are in accordance with applicable IEEE Std 386™ -2006 standard requirements.

28 kV ratings, characteristics and ordering information

Production tests

Tests are conducted in accordance with IEEE Std 386™ -2006 standard.

- ac 60 Hz 1 Minute Withstand
  - 45 kV
- Minimum Partial Discharge Extinction Voltage
  - 21.1 kV (3-pc Sensitivity)

Tests are conducted in accordance with Eaton requirements.

- Physical Inspection
- Periodic Dissection
- Periodic Fluoroscopic Analysis

Table 5. Current Ratings and Characteristics

Description	Amperes
600 A Loadbreak Interface	
Continuous Current	600 A rms
Loadbreak Switching	Five make and break operations at 600 A at 28.0 kV Phase-Phase
	One make and break operation at 900 A at 28.0 kV Phase-Phase
Fault Closure	10 kA rms symmetrical at 28.0 kV Phase-Phase after five 600 A loadbreak switching operations for 0.17 seconds
	10 kA rms symmetrical at 28.0 kV Phase-Phase after one 900 A loadbreak switching operation for 0.17 seconds
4 Hour Overload Current	900 A rms
Short Time Current	10 kA rms symmetrical for 0.17 seconds (limited by fault closure rating)*
	10 kA rms symmetrical for 3.0 seconds
IEEE Std 386™ -2006 standard 600 A, 15/25 kV Deadbreak Interface	
Continuous Current	600 A rms
4 Hour Overload Current	900 A rms
Short Time Current	10 kA rms symmetrical for 0.17 seconds*
	10 kA rms symmetrical for 3.0 seconds

Current ratings and characteristics are in accordance with applicable IEEE Std 386™ -2006 standard requirements.

* 600 A loadbreak connectors are generally capable of short-time current ratings well in excess of those listed (25 kV to 40 kA ratings for 0.17s are typical). However, ratings are limited in Table 5 by the fault-closure rating. Contact your Eaton representative for maximum short-time current ratings if fault-closure operations are infeasible in your application.

Table 6. Voltage Ratings and Characteristics

Description	kV
Standard Voltage Class	28
Maximum Rating Phase-to-Phase	28
Maximum Rating Phase-to-Ground	16.2
ac 60 Hz 1 Minute Withstand	45
dc 15 Minute Withstand	100
BIL and Full Wave Crest	125
Minimum Partial Discharge Extinction Voltage	21.1

Voltage ratings and characteristics are in accordance with applicable IEEE Std 386™ -2006 standard requirements.

Ordering information

1. Select size of SecTER cabinet from Table 7 based on junctions required. Refer to figures referenced to confirm SecTER cabinet configuration meets requirements.
2. Build SecTER catalog number from Table 8 based on size selected from Table 1 and options required.
3. Fiberglass ground sleeves are ordered separately. If ground sleeve is required, select catalog number from Table 9 on page 9.
4. Mild steel base extensions are ordered separately. If base extension is required, select catalog number from Table 10 on page 10.

Note: Width and depth dimensions of ground sleeves or base extensions must be matched to SecTER cabinet selected.

"S" = Standard. Recommended for best balance of size (footprint) and operability (frontplate space and standoff pockets) for typical applications.

"O" = Optional. Also available if the application requires compromise in size and/or operability.

Table 7. Cleer SecTER Matrix

Single-Phase				Pocket Placement		
	Cleer Loadbreak Connector			Below	In-Line with	
	15 kV	25 kV	28 kV	Mtg. Plates	Mtg. Plates	Figure
30H X 30W X 22D	S	S	S	yes	yes	2, page 7

Three-Phase				Pocket Placement		
	Cleer Loadbreak Connector			Below	In-Line with	
Dimensions	15 kV	25 kV	28 kV	Mtg. Plates	Mtg. Plates	Figure
30H X 66W X 22D	S	S	S	yes	no	3, page 7
30H X 84W X 22D	O	O	O	yes	yes	4, page 8
30H X 98W X 30D	O	O	O	yes	yes	5, page 8

Table 8. Catalog Number Selection

Digits	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	S	**E**	**C**					**3**								

Digits 1 - 3	
SEC	Default

Digit 4 Phases	
1	Single-Phase
3	Three-Phase

Digit 5 and 6 Width	
30	30" (1-ph only)
66	66" (3-ph only)
84	84" (3-ph only)
98	98" (3-ph only)

Digit 7 Depth	
2	22"
3	30" (98" wide only)

Digit 8 Height	
3	30"

Digit 9 Mounting Plate	
F	Flat (**Standard**)

Digits 10 through 13 Junctions	
CL15	15 kV Cleer 600 A Loadbreak Junctions
CL25	25 kV Cleer 600 A Loadbreak Junctions
CL28	28 kV Cleer 600 A Loadbreak Junctions

Digit 14 Material	
M	Mild Steel (**Standard**)
A	Aluminum
S	Stainless Steel

Digit 15 Ground Rod	
0	No Ground Rod (**Standard**) Ground nuts (1/2-13 threads)
G	Ground Rod Installed

Digit 16 Color	
G	Munsell Green 7GY3.29/1.5 (**Standard**)
1	ANSI® 70 Gray
2	Buckskin/Parchment **10YR 6.0/3.0**
3	Eagle Feather Tan **FS 595-23578**
4	Tobacco Brown **FS 595C-30108**
5	ANSI® 61 Gray
6	Desert Tan **FS 595-33446**

Note: Dimensions are for reference only.

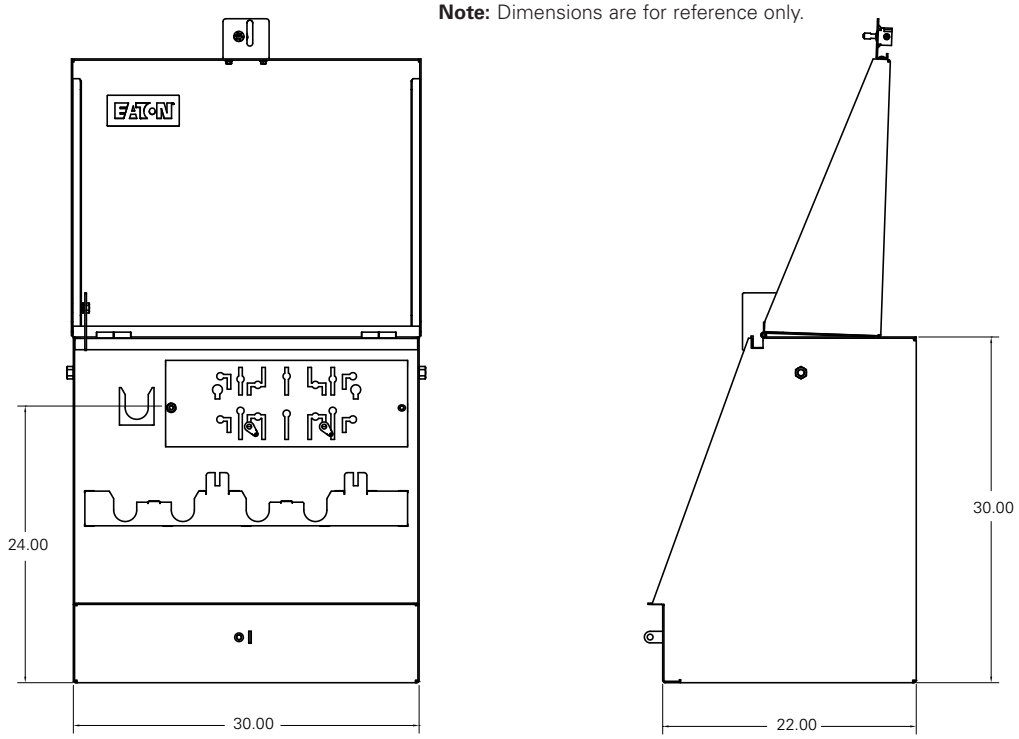


Figure 2. SEC13023F0000M0G SecTER cabinet shown.

Note: Dimensions are for reference only.

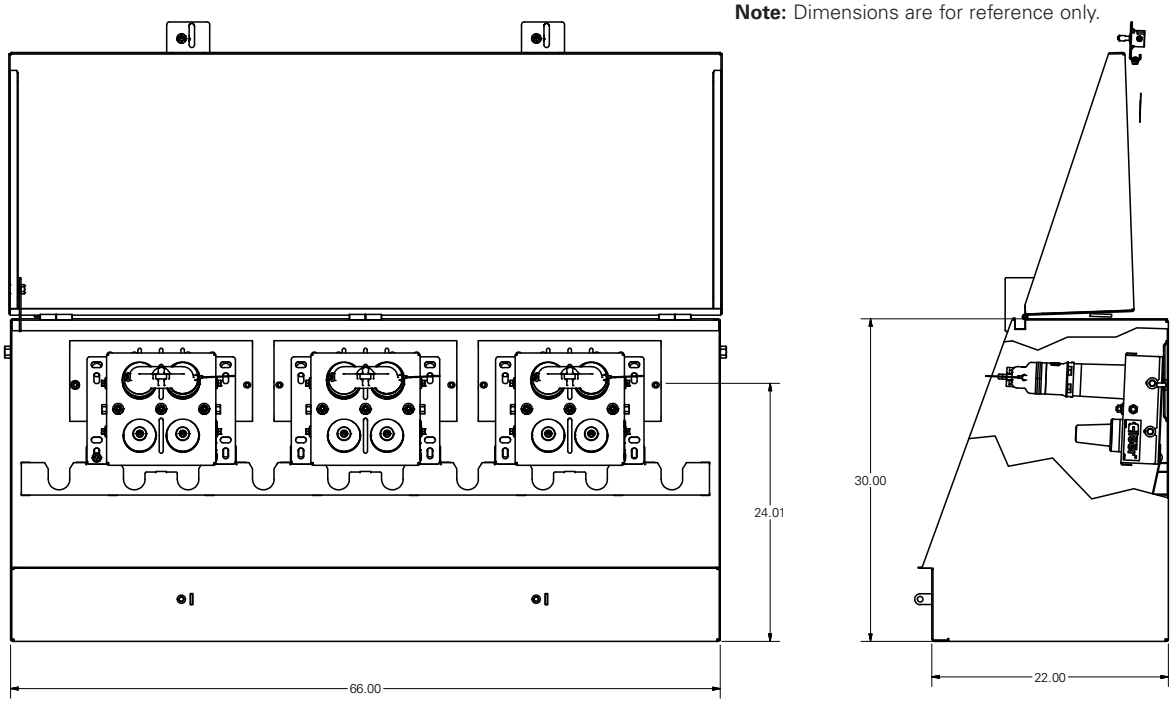


Figure 3. SEC36623F0000M0G SecTER cabinet shown with 600 A Cleer loadbreak installed.

Note: Dimensions are for reference only.

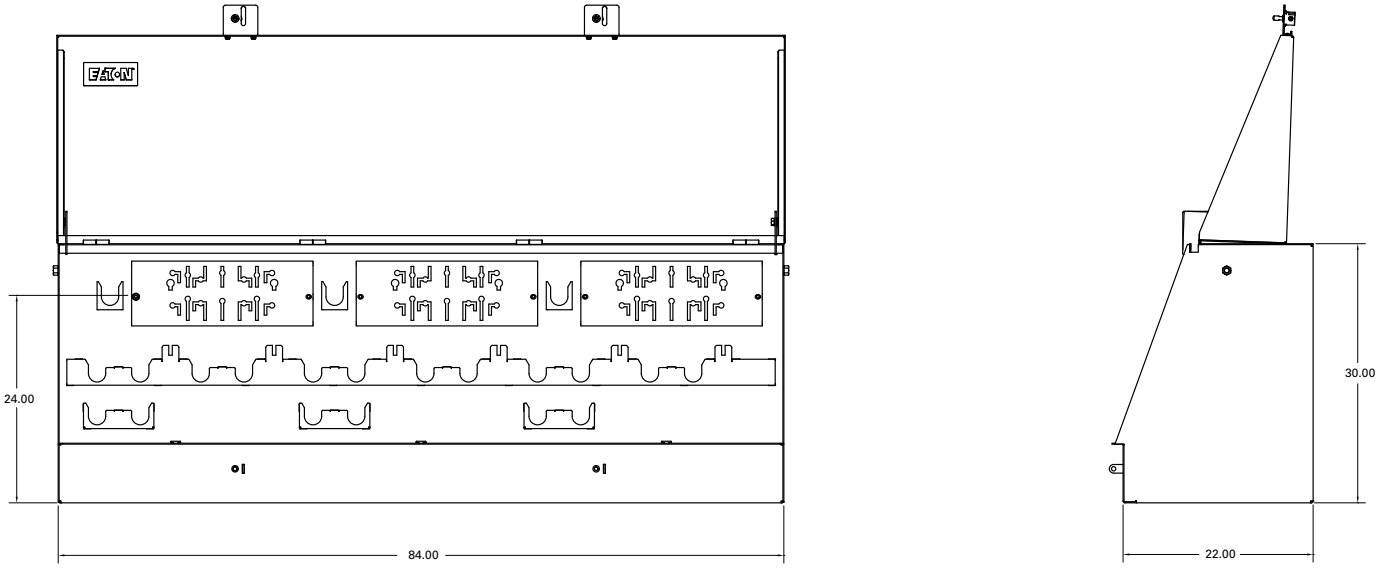


Figure 4. SEC38423F0000M0G SecTER cabinet shown.

Note: Dimensions are for reference only.

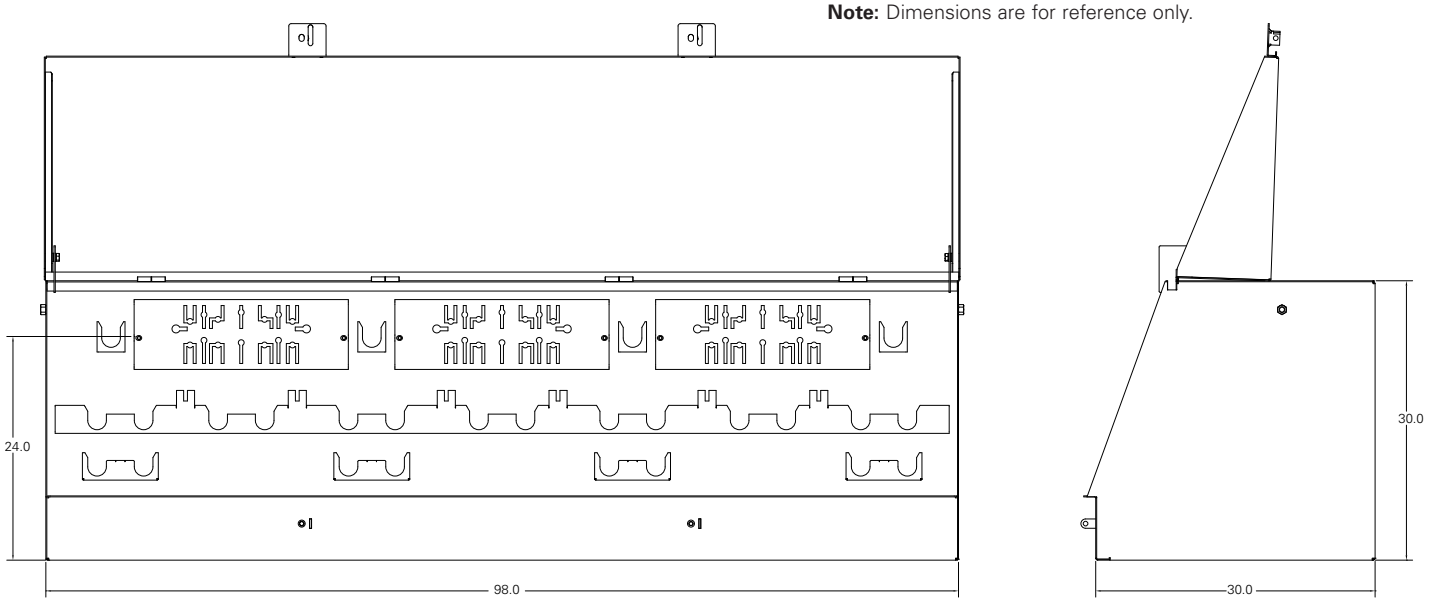
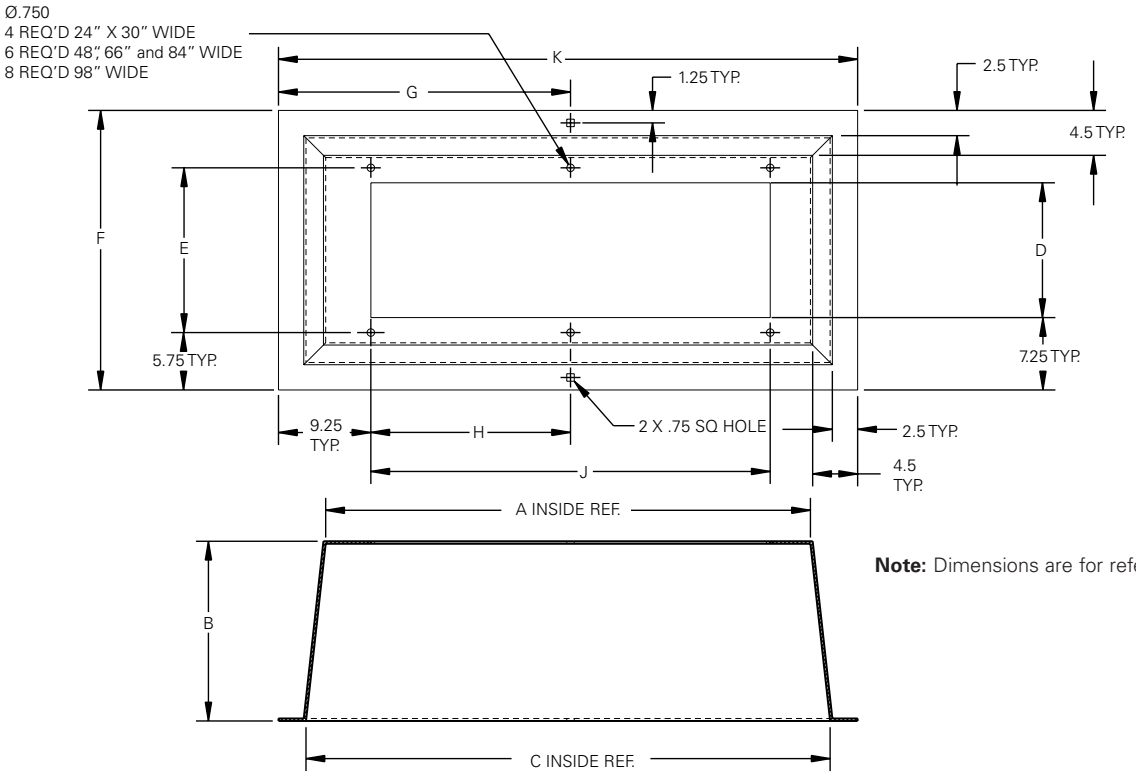


Figure 5. SEC39833F0000M0G SecTER cabinet shown.

Fiberglass ground sleeves

Lightweight, corrosive free ground sleeves provide ground level mounting base and underground cable compartment, allowing unrestricted movement of terminations.



Note: Dimensions are for reference only.

Figure 6. Ground sleeve dimensions.

Table 9. Fiberglass Ground Sleeve Dimensional Information in Inches (Reference Figure 6)

18" High

Catalog Number	Description	A	B	C	D	E	F	G	H	J	K
GS183022	18H X 30W X 22D	31.0	18.0	35.0	17.5	20.5	32.0	20.25	-	22.0	40.5
GS186622	18H X 66W X 22D	67.0	18.0	71.0	17.5	20.5	32.0	38.25	29.0	58.0	76.5
GS188422	18H X 84W X 22D	85.0	18.0	89.0	17.5	20.5	32.0	47.25	38.0	76.0	94.5
GS189830	18H X 98W X 30D	98.0	18.0	104.0	21.0	28.5	44.0	-	30.0	90.0	111.0

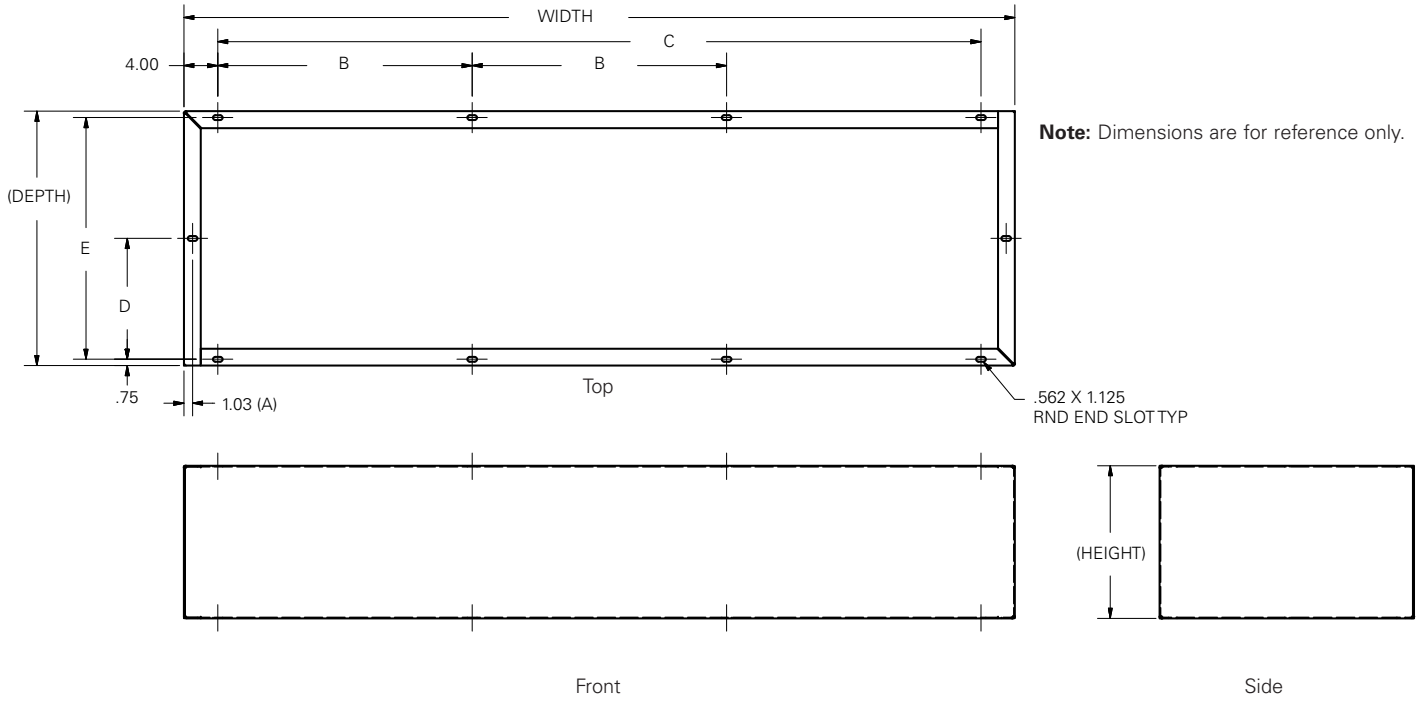
30" High

Catalog Number	Description	A	B	C	D	E	F	G	H	J	K
GS303022	30H X 30W X 22D	31.0	30.0	35.0	17.5	20.5	32.0	20.25	-	22.0	40.5
GS306622	30H X 66W X 22D	67.0	30.0	71.0	17.5	20.5	32.0	38.25	29.0	58.0	76.5
GS308422	30H X 84W X 22D	85.0	30.0	89.0	17.5	20.5	32.0	47.25	38.0	76.0	94.5
GS309830	30H X 98W X 30D	99.0	30.0	106.5	21.0	28.5	46.0	-	30.0	90.0	113.5

Note: Width and depth dimensions must be matched to corresponding SecTER cabinet dimension.

Steel base extensions

Mild steel base extensions provide pad mounted above ground cable compartment and can also be used with ground sleeves in applications where raising the SecTER cabinet to a greater height is required.



Note: Dimensions are for reference only.

Figure 7. Base extension dimensions.

Table 10. Steel Base Extension Dimensional Information (Reference Figure 7)

18" High

Catalog Number	Height	Width	Depth	A	B	C	D	E
SBE183022	18.0	30.0	22.0	-	-	22.00	-	20.50
SBE186622	18.0	66.0	22.0	-	29.00 (1X)	58.00	-	20.50
SBE188422	18.0	84.0	22.0	-	38.00 (1X)	76.00	-	20.50
SBE189830	18.0	98.0	30.0	1.03	30.00 (2X)	90.00	14.25	28.50

24" High

Catalog Number	Height	Width	Depth	A	B	C	D	E
SBE243022	24.0	30.0	22.0	-	-	22.00	-	20.50
SBE246622	24.0	66.0	22.0	-	29.00 (1X)	58.00	-	20.50
SBE248422	24.0	84.0	22.0	-	38.00 (1X)	76.00	-	20.50
SBE249830	24.0	98.0	30.0	1.03	30.00 (2X)	90.00	14.25	28.50

Note: Width and depth dimensions must be matched to corresponding SecTER cabinet dimension.

Accessories

Standoff bushing

Eaton's Cooper Power series 600 A, 15 and 25 kV Class Cleer loadbreak standoff bushing meets the applicable requirements of IEEE Std 386™-2006 standard - Separable Insulated Connector Systems and provides double interfaces for temporarily parking Eaton's Cleer loadbreak connector in sectionalizing cabinets and in underground vaults. The standoff bushing is designed to be installed in the parking stand of the sectionalizing cabinet.

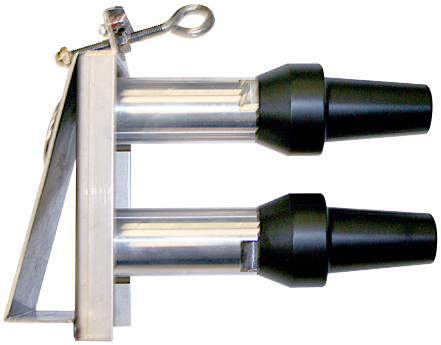


Figure 8. 600 A, 15 and 25 kV Cleer loadbreak standoff bushing.

Protective cap

Eaton's Cooper Power series 600 A, 15 kV Cleer loadbreak protective cap is an accessory device designed to electrically insulate and mechanically seal the 600 A Cleer loadbreak bushing interfaces.

It incorporates Eaton's Cooper Power series field proven POSI-BREAK™ technology, providing a layer of insulation over the conductive internal insert and an insulative sleeve on the base of the probe. This results in increased strike distance greatly reducing the possibility of partial vacuum flashovers and providing superior switching performance and reliability.

The protective cap is fully shielded and submersible and meets the applicable requirements of IEEE Std 386™ -2006 standard. Refer to Installation Instruction Sheet, S600-100-2 for details.

Figure 9. 600 A, 15 kV Cleer loadbreak connector protective cap.

Grounding elbow

Eaton's Cooper Power series 600 A, 15/25 kV Class Cleer loadbreak grounding elbow, Figure 6, mates directly to the Cleer 600 A loadbreak interfaces providing a convenient means to ground after a visible break has been achieved. See Catalog Section 600-103 for more details.

Figure 10. 600 A, 15 and 25 kV Cleer loadbreak grounding elbow.

Table 11. Accessories

Description	Catalog Number
600 A, 15 and 25 kV Cleer Loadbreak Standoff Bushing (Parking Stand Mount)	PS625CLEER
600 A, 15 kV Insulated Loadbreak Protective Cap	LPC615
600 A, 15 kV Loadbreak "C" Connector	LCN615
600 A, 25 kV Insulated Loadbreak Protective Cap	LPC625
600 A, 25 kV Loadbreak "C" Connector	LCN625
600 A, 28 kV Insulated Loadbreak Protective Cap	LPC628
600 A, 28 kV Loadbreak "C" Connector	LCN628

Applicable standards

IEEE Std C57.12.28™-2014 standard "IEEE Standard for Pad-Mounted Equipment-Enclosure Integrity"

IEEE Std C57.12.34™-2009 standard "IEEE Standard Requirements for Pad-Mounted, Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformers-Parking Standoff Pockets only"

IEEE Std C57.12.38™-2014 standard "IEEE Standard Requirements for Pad-Mounted, Compartmental-Type, Self-Cooled, Single-Phase Distribution Transformers-Parking Standoff Pockets only"

IEEE Std 386™-2006 standard "IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems Above 600 V"

Additional information

Refer to the following literature for more information.

CA901001EN	SecTER Cabinet Catalog
MN901002EN	SecTER Cabinet Installation Instructions
PA901002EN	Cleer Visible Break. Cleer Visible Gound. The Cleer Solution for Distribution Systems.
CT901001EN	SecTER Cabinet Sectionalizing Terminal Enclosure Certified Test Report

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

Eaton's Power Systems Division
2300 Badger Drive
Waukesha, WI 53188
United States
Eaton.com/cooperpowerseries

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For Eaton's Cooper Power series Cleer SecTER cabinet product information call 1-877-277-4636 or visit: www.eaton.com/cooperpowerseries.