

## Seismic Data Requirements for Eaton® UPS Equipment Installation

Eaton 9x55 UPS

Eaton 9390 UPS

Eaton 9395, 9395P, and 9395XC UPS

Eaton 93PM (480V) and 93PM-L (208V) UPS

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## Chapter 1 Introduction to Seismic Mounting Plans and Requirements

Eaton equipment represented in the following sections were subjected to seismic testing in accordance with the 2006 or 2012 International Building Code (IBC) and the 2007 California Building Code (CBC). The results of these tests exceeded the requirements as stated within the IBC, CBC, and OSHPD and demonstrated the ability to function after the test. All installation guidelines covered in this document as well as the instruction and operations literature provided with the equipment must be followed to ensure installation suitable for a seismic application.

Certificates for various types of distribution and control equipment along with an application paper, “Earthquake Requirements and Seismic Capabilities for Eaton’s Electrical Distribution and Control Equipment” can be found at [www.eaton.com/seismic](http://www.eaton.com/seismic).

The California State Office of Statewide Health Planning and Development (OSHPD) pre-approval for this equipment can be found at <https://oshpd.ca.gov/FDD/Pre-Approval/SpecSeisCert-wTemplate.html>.

## Chapter 2 Eaton 9x55 UPS Foundation Plan and Mounting Requirements

Proper mounting of the equipment is the single most important factor in withstanding a seismic event. The foundation must be level and continuous under the entire assembly. The foundation must be designed to withstand the reaction loads imposed on it by the equipment during a seismic event. At a minimum, the foundation must be designed to accommodate the tensile strength of the hardware indicated in [Table 1](#). The anchoring system should be put in place prior to equipment installation to reduce effort associated with anchoring. Welding to embedded steel members is acceptable provided the strength of the welds is comparable to the mounting bolts.

### CAUTION

The user is responsible for compliance with all local seismic codes.



#### NOTE

Anchoring hardware is not provided with Eaton seismic mounting kits because the type of hardware is dependant on the foundation construction and composition.

**Table 1. 9x55 Unit and Fastener Requirements from Unit to Floor**

Type	Bolt Type and Size	Torque	Quantity
8-15 kVA UPS, 2 High	Class 8.8, M10	42 Nm 31 lb-ft.	12
8-15 kVA UPS, 3 High			12
8-15 kVA EBC, 2 and 3 High			12
20-30 kVA UPS Cabinet			10
20-30 kVA Options Cabinet			10

**NOTE** The torque value for each extension bracket connecting bolt is listed below:

- Class 8.8 **M6** Bolt = 12 Nm [9 lb-ft.]
- Class 8.8 **M8** Bolt = 27 Nm [20 lb-ft.]

### 2.1 Displacement

The horizontal displacement of the top of the equipment is listed in [Table 2](#). The horizontal displacements given in the table are plus/minus values. The equipment must be at the minimum distance listed in the table to avoid contact with other stationary objects during a seismic event.

**Table 2. 9x55 Unit Seismic Displacement Requirements**

Type	Front to Back	Side to Side
8-15 kVA UPS, 2 High	112 mm	112 mm
8-15 kVA UPS, 3 High	117 mm	117 mm
8-15 kVA EBC, 2 and 3 High	153 mm	153 mm
20-30 kVA UPS Cabinet	122 mm	122 mm
20-30 kVA Options Cabinet	121 mm	121 mm



Consideration must be given to attachments (conduits, bus duct, etc.) made to the top of the equipment. Attachments must have provisions to accommodate the displacement of the equipment indicated in [Table 2](#). Entry from the bottom of the equipment eliminates the need for accommodating this motion for attachments.

## 2.2 Center of Gravity

For seismic calculations, the center of gravity can be approximated using the dimensions in [Table 3](#) with respect to the left side bracket's front mounting hole (x,y,z origin). UPS center of gravity dimensions are with batteries installed.

**Table 3. 9x55 Unit Center of Gravity Specifications**

Type	X (left to right)	Y (front to rear)	Z (bottom to top)
8-15 kVA UPS, 2 High	81 mm	452 mm	406 mm
8-15 kVA UPS, 3 High	81 mm	452 mm	610 mm
8-15 kVA EBC, 2 and 3 High	81 mm	452 mm	406 mm, 2 High 610 mm, 3 High
20-30 kVA UPS Cabinet	178 mm	475 mm	838 mm
20-30 kVA Options Cabinet	178 mm	275 mm	838 mm

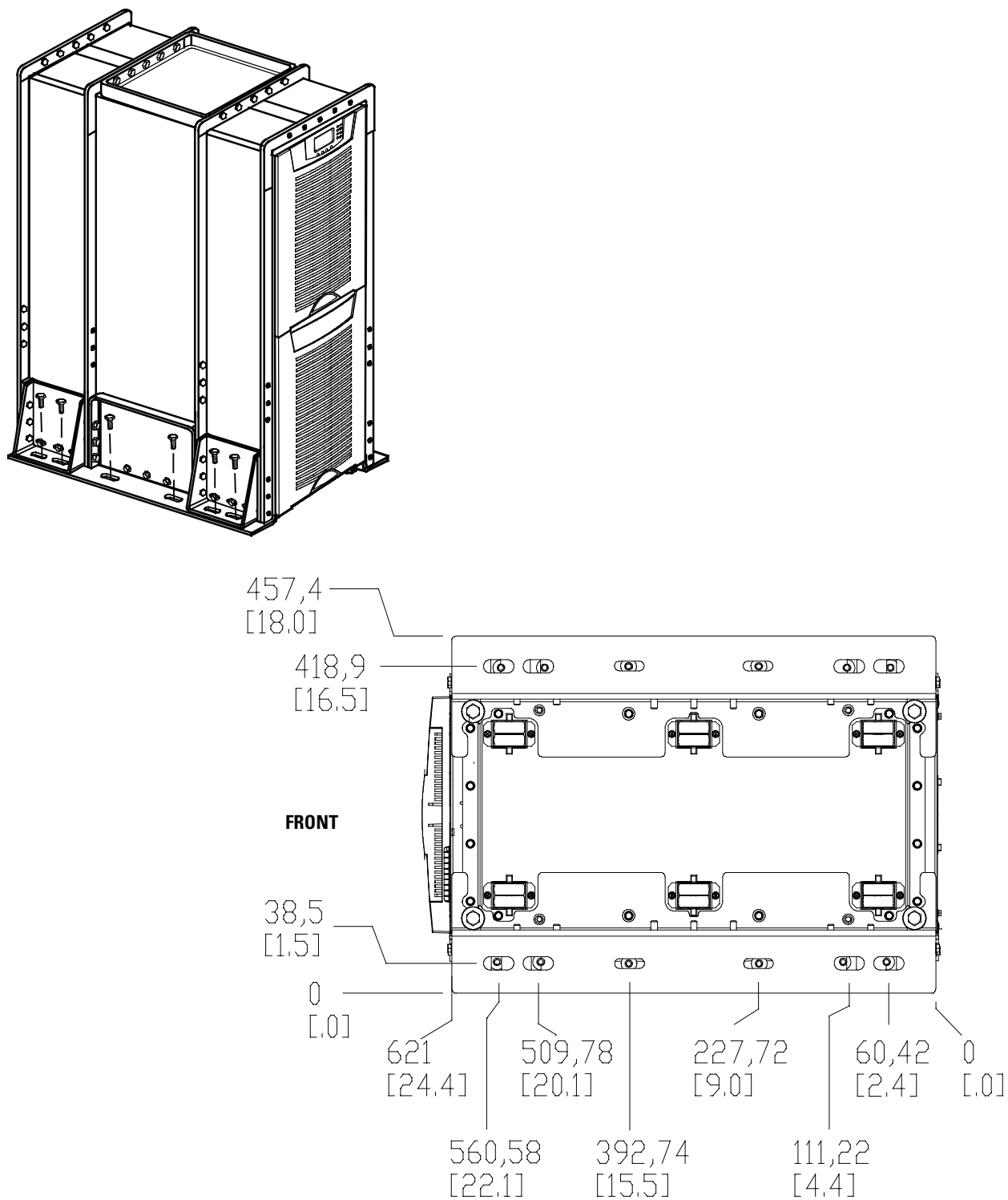
## 2.3 Power Cables

It is recommended that power cables be lashed together at least every meter within the equipment. Refer to the appropriate Eaton UPS instruction and operation manual for other requirements related to securing power cables.

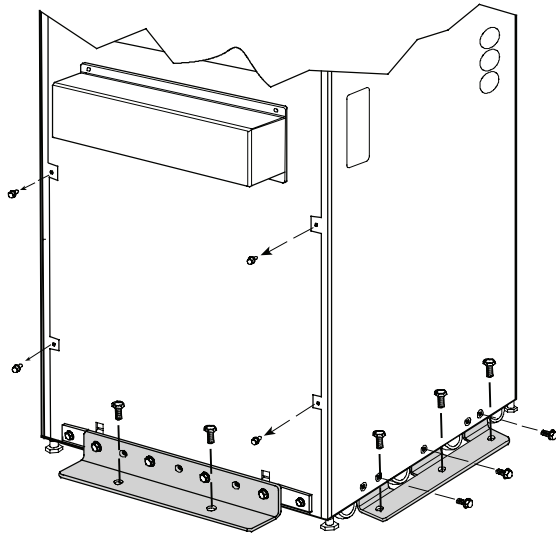
## 2.4 9x55 Floor Plan Securing Dimensions

[Figure 1](#) and [Figure 2](#) detail the measurements for attaching the 9x55 seismic brackets to the floor of the building. The drawings are for reference only and are not to scale. Dimension are in millimeters (inches).

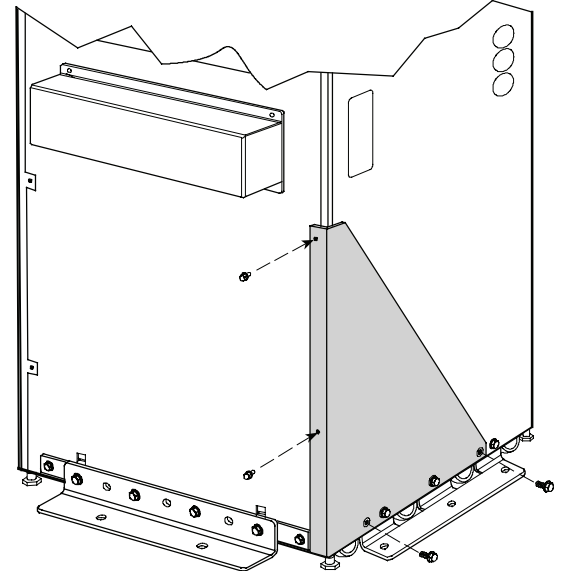
**Figure 1. 9x55 Stackable Unit Seismic Mounting Detail**



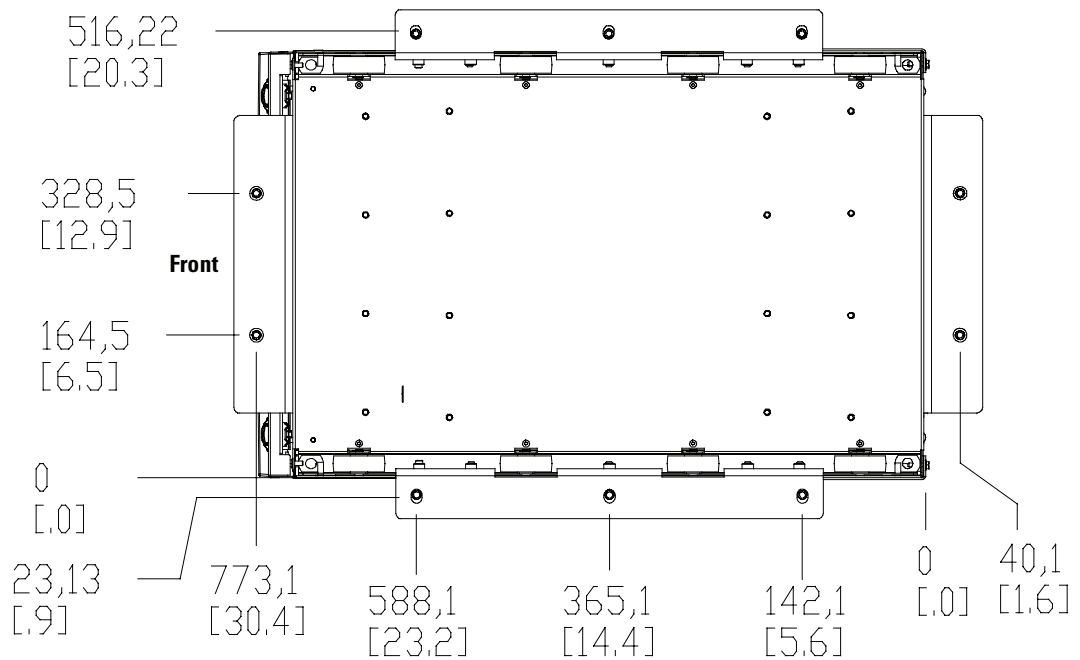
**Figure 2. 9x55 20-30 kVA Cabinet Seismic Mounting Detail**



**Installing the Hold Down Brackets**



**Installing the Seismic Gusset**



## Chapter 3 Eaton 9390 Foundation Plan and Mounting Requirements

Proper mounting of the equipment is the single most important factor in withstanding a seismic event. The foundation must be level and continuous under the entire assembly. The foundation must be designed to withstand the reaction loads imposed on it by the equipment during a seismic event. At a minimum, the foundation must be designed to accommodate the tensile strength of the hardware indicated in [Table 4](#). The anchoring system should be put in place prior to equipment installation to reduce effort associated with anchoring. Welding to embedded steel members is acceptable provided the strength of the welds is comparable to the mounting bolts.

### CAUTION

The user is responsible for compliance with all local seismic codes.



#### NOTE

Anchoring hardware is not provided with Eaton seismic mounting kits because the type of hardware is dependant on the foundation construction and composition.

**Table 4. 9390 Unit and Fastener Requirements from Unit to Floor**

Type	Bolt Type and Size	Torque	Quantity
20-80 kVA UPS	Class 8.8, M10	42 Nm 31 lb-ft.	10
20-80 kVA UPS w/sidecar			11
100-160 UPS kVA			14
UPS 100-160 kVA w/sidecar			15
20-80 kVA IDC			14
100-160 kVA IDC			16
IAC-B and IAC-T			10
IAC-D			10

**NOTE** The torque value for each bracket-to-cabinet connecting bolt is listed below:

- Class 8.8 **M8** Bolt = 27 Nm [20 lb-ft.]
- Class 8.8 **M10** Bolt = 42 Nm [31 lb-ft.]
- Class 8.8 **M12** Bolt = 87 Nm [64 lb-ft.]

### 3.1 Displacement

The horizontal displacement of the top of the equipment is listed in [Table 5](#). The horizontal displacements given in the table are plus/minus values. The equipment must be at the minimum distance listed in the table to avoid contact with other stationary objects during a seismic event.

**Table 5. 9390 Unit Seismic Displacement Requirements**

Type	Front to Back	Side to Side
20-80 kVA UPS	30 mm	30 mm
20-80 kVA UPS w/sidecar	30 mm	30 mm

**Table 5. 9390 Unit Seismic Displacement Requirements (Continued)**

Type	Front to Back	Side to Side
100-160 UPS kVA	48 mm	48 mm
UPS 100-160 kVA w/sidecar	48 mm	48 mm
20-80 kVA IDC	140 mm	140 mm
100-160 kVA IDC	108 mm	108 mm
IAC-B and IAC-T	36 mm	36 mm
IAC-D	36 mm	36 mm

Consideration must be given to attachments (conduits, bus duct, etc.) made to the top of the equipment. Attachments must have provisions to accommodate the displacement of the equipment indicated in [Table 5](#). Entry from the bottom of the equipment eliminates the need for accommodating this motion for attachments.

### 3.2 Center of Gravity

For seismic calculations, the center of gravity can be approximated using the dimensions in [Table 6](#) with respect to the left side bracket's front mounting hole (x,y,z origin).

**Table 6. 9390 Unit Center of Gravity Specifications**

Type	X (left to right)	Y (front to rear)	Z (bottom to top)
20-80 kVA UPS	252 mm	248 mm	940 mm
20-80 kVA UPS w/sidecar	393 mm	248 mm	940 mm
100-160 UPS kVA	482 mm	248 mm	965 mm
UPS 100-160 kVA w/sidecar	540 mm	248 mm	965 mm
20-80 kVA IDC	482 mm	248 mm	965 mm
100-160 kVA IDC	575 mm	248 mm	965 mm
IAC-B and IAC-T	319 mm	248 mm	965 mm
IAC-D	319 mm	248 mm	965 mm

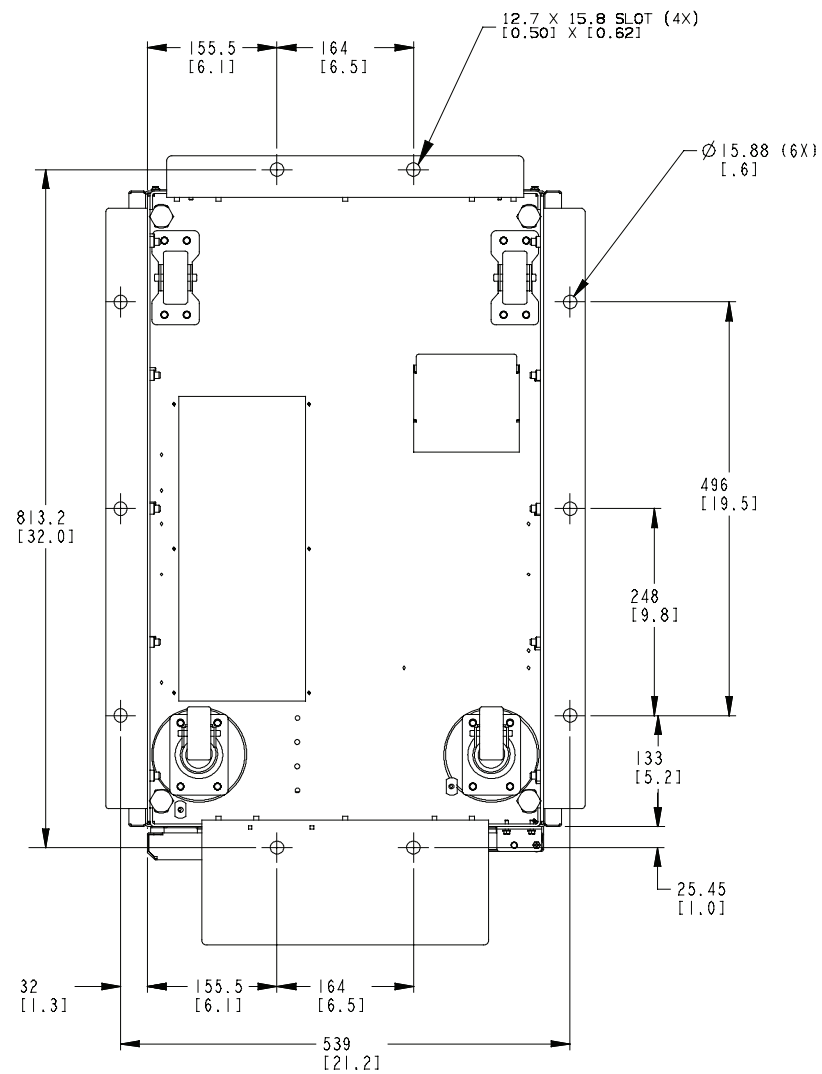
### 3.3 Power Cables

It is recommended that power cables be lashed together at least every meter within the equipment. Refer to the appropriate Eaton UPS instruction and operation manual for other requirements related to securing power cables.

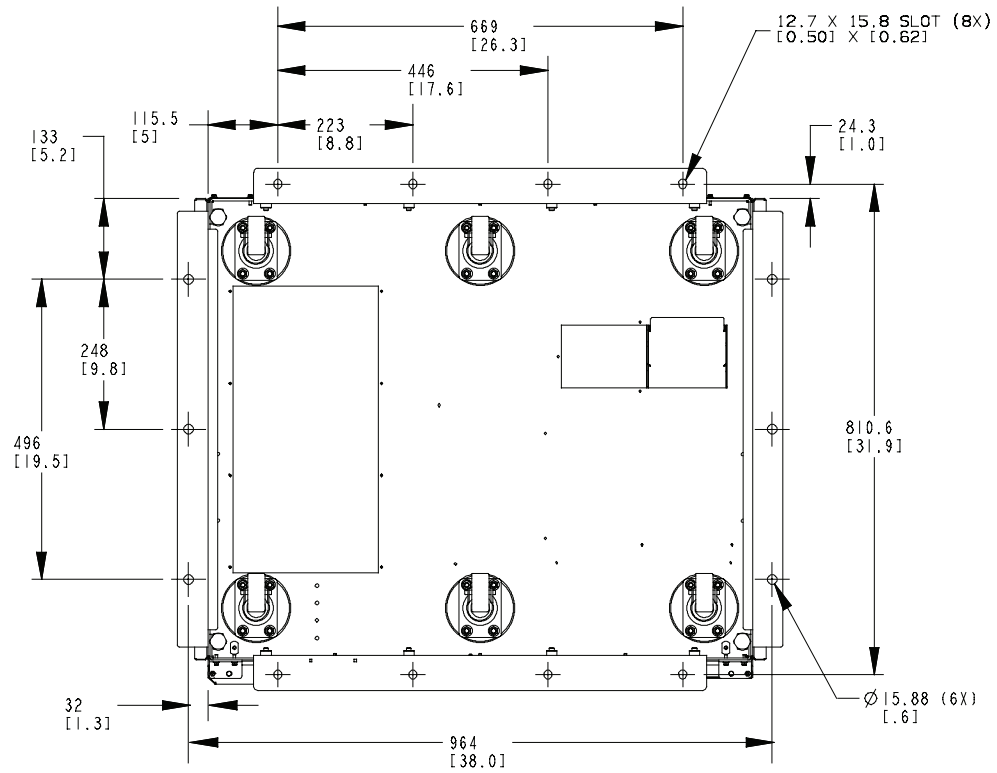
### 3.4 9390 Floor Plan Securing Dimensions

[Figure 3](#) through [Figure 9](#) detail the measurements for attaching the 9390 seismic brackets to the floor of the building. The drawings are for reference only and are not to scale. Dimension are in millimeters (inches).

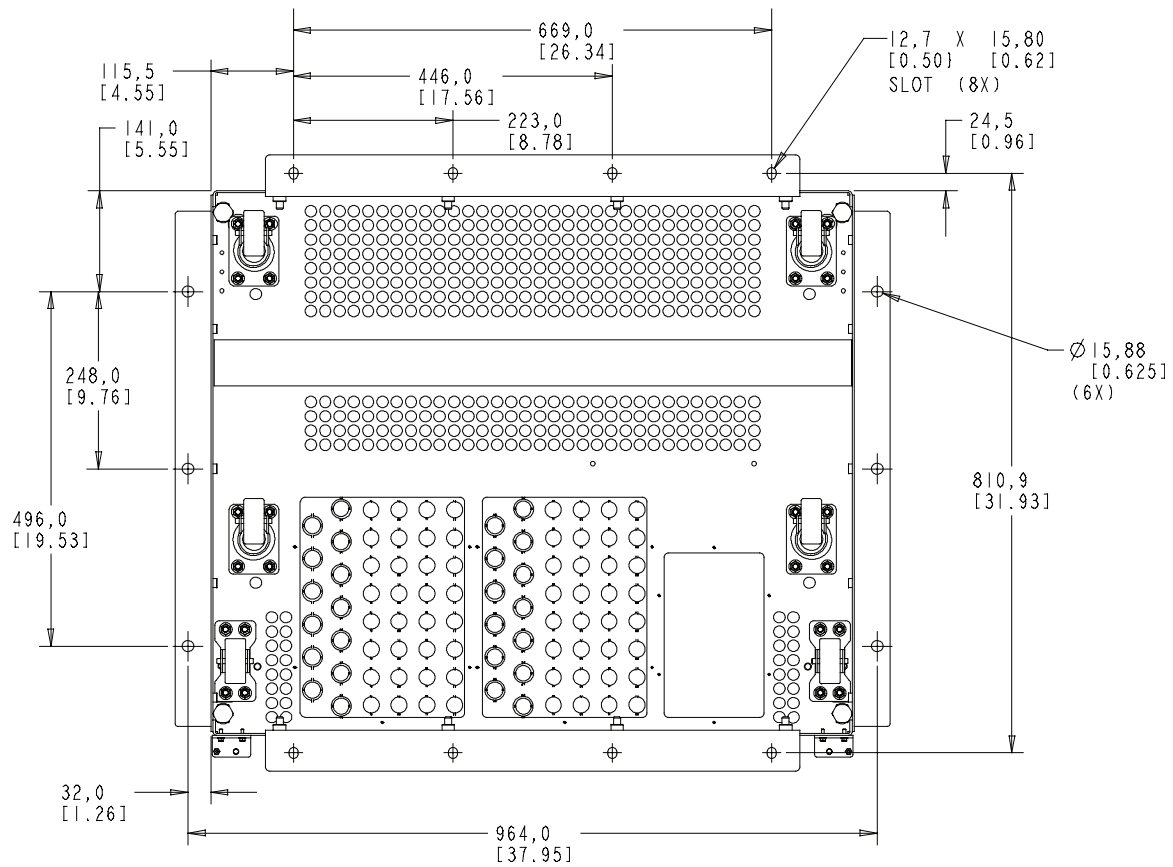
**Figure 3. 9390 80 kVA UPS Seismic Mounting Detail**



**Figure 4. 9390 160 kVA UPS Seismic Mounting Detail**

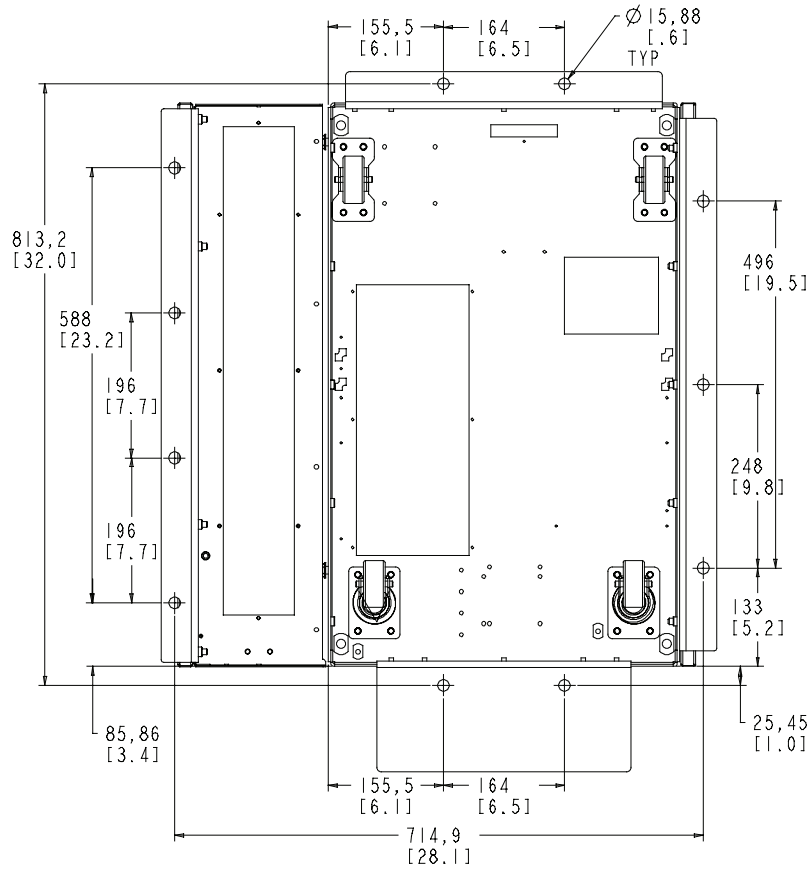


**Figure 5. 9390 20-80 kVA IDC Seismic Mounting Detail**

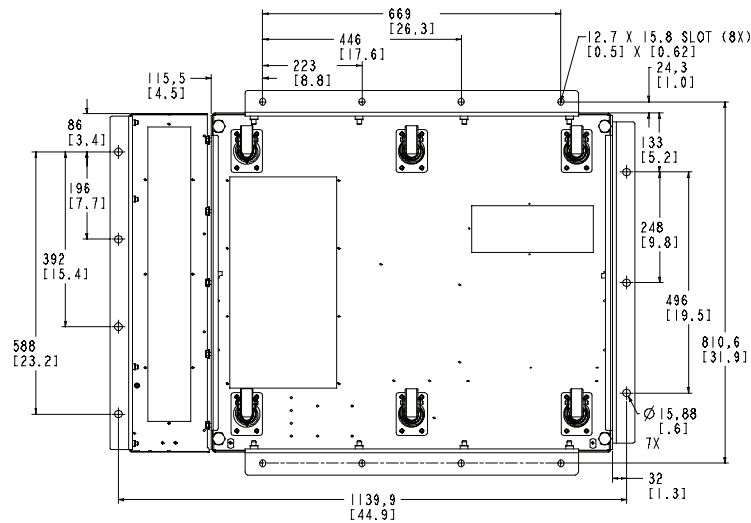




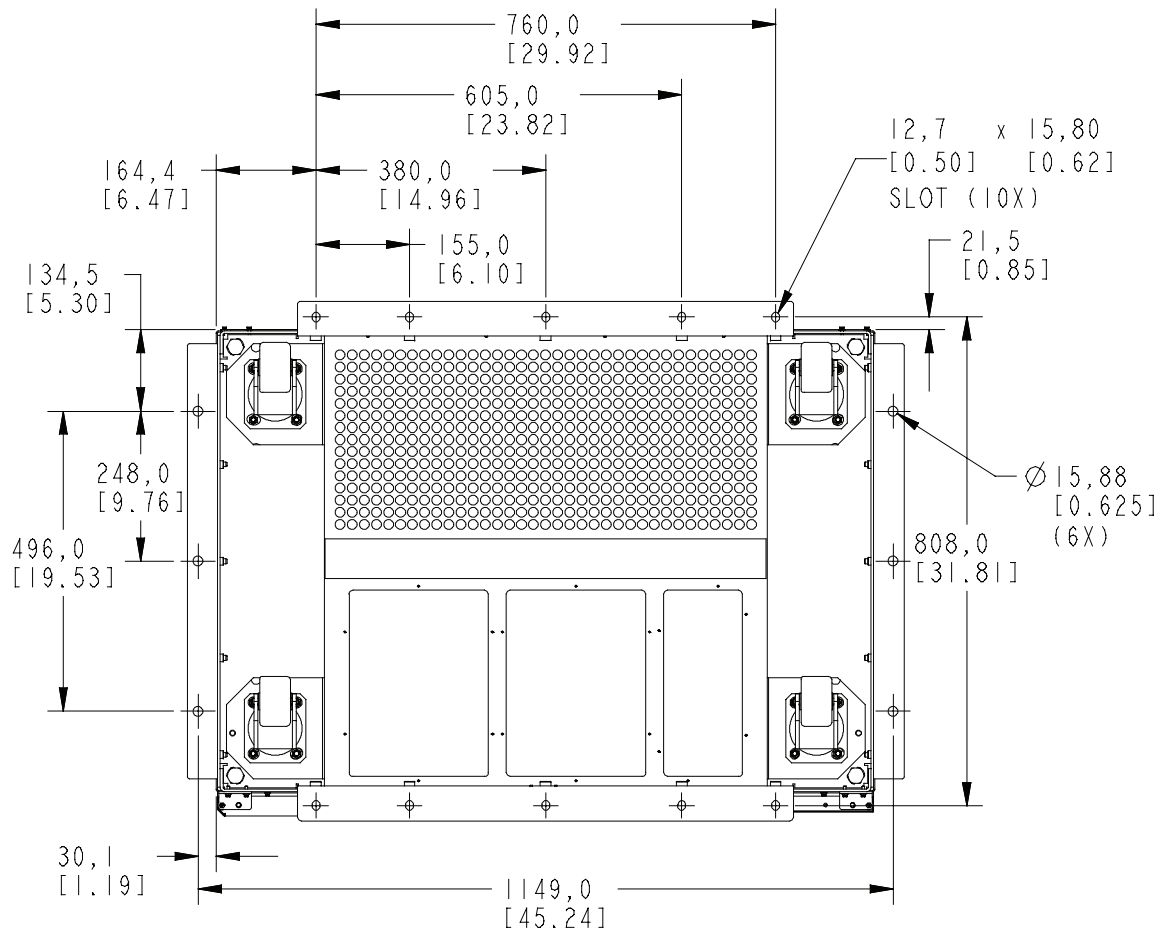
**Figure 6. 9390 20-80 kVA with Sidecar Seismic Mounting Dimensions**



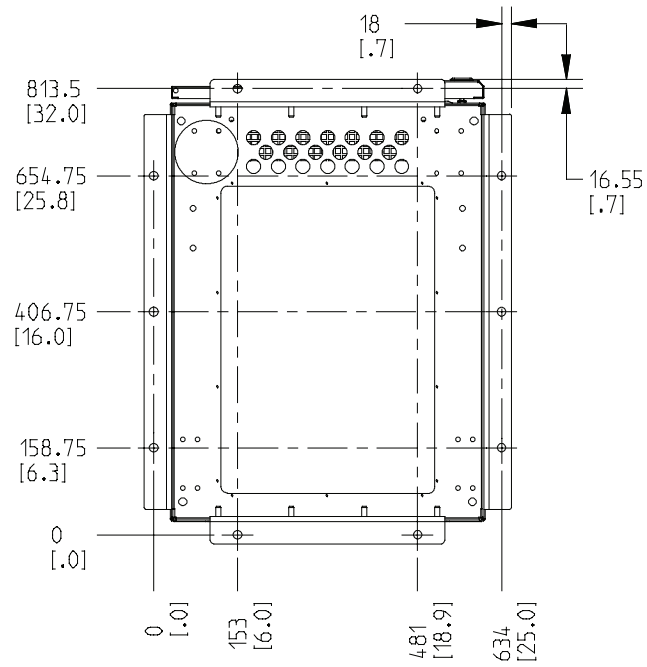
**Figure 7. 9390 100-160 kVA with Sidecar Seismic Mounting Dimensions**



**Figure 8. 9390 160 kVA IDC Seismic Mounting Dimensions**



**Figure 9. 9390 80 kVA and 160 kVA IAC (B, D, & T)**



## Chapter 4 Eaton 9395, 9395P and 9395XC Foundation Plan and Mounting Requirements

Proper mounting of the equipment is the single most important factor in withstanding a seismic event. The foundation must be level and continuous under the entire assembly. The foundation must be designed to withstand the reaction loads imposed on it by the equipment during a seismic event. At a minimum, the foundation must be designed to accommodate the tensile strength of the hardware indicated in [Table 7](#). The anchoring system should be put in place prior to equipment installation to reduce effort associated with anchoring. Welding to embedded steel members is acceptable provided the strength of the welds is comparable to the mounting bolts.

### CAUTION

The user is responsible for compliance with all local seismic codes.



#### NOTE

Anchoring hardware is not provided with Eaton seismic mounting kits because the type of hardware is dependant on the foundation construction and composition.

**Table 7. 9395/P/XC Unit and Fastener Requirements from Unit to Floor**

Product	Type	Bolt Type and Size	Torque	Quantity
9395	275 kVA UPS	Class 8.8, M12	83 Nm 61 lb-ft.	8
	275 kVA UPS and FI-UPM			12
	550 kVA UPS			8
	550 kVA UPS and FI-UPM			14
	825 kVA UPS			16
	825 kVA UPS (2X-UPM)			14
	825 kVA UPS (2X-UPM and FI-UPM)			20
	1100 kVA or 825 kVA and FI-UPM			22
	225-550 kVA MBM			8
	275 kVA UPS and MBM			12
	550 kVA UPS and MBM			14
9395P	300 kVA UPS	Class 8.8, M12	83 Nm 61 lb-ft.	8
	300 kVA UPS and FI-UPM			12
	300 kVA UPS (2X-UPM)			14
	600 kVA UPS			8
	600 kVA UPS and FI-UPM			14
	600 kVA UPS (2X-UPM)			12
	600 kVA UPS (FI-UPM and 2X-UPM)			12
	900 kVA UPS (FI-UPM and 2X-UPM)			14
	900 kVA UPS (FI-UPM and 3X-UPM)			14
	900 kVA UPS (2X-UPM)			14

**Table 7. 9395/P/XC Unit and Fastener Requirements from Unit to Floor (Continued)**

Product	Type	Bolt Type and Size	Torque	Quantity
9395P <i>continued</i>	900 kVA UPS (3X-UPM)	Class 8.8, M12	83 Nm 61 lb-ft.	14
	1200 kVA UPS (3X-UPM)			20
	1200 kVA UPS (4X-UPM)			22
9395XC	1500 kW (HD) UPS	Class 8.8, M12	66 Nm 64 lb-ft.	16
	1500 kW (LD) UPS			16
<b>NOTE</b> The torque value for each bracket-to-cabinet connecting bolt is Class 8.8 <b>M12</b> Bolt = 83 Nm [61 lb-ft.]				

## 4.1 Displacement

The horizontal displacement of the top of the equipment is listed in [Table 8](#). The horizontal displacements given in the table are plus/minus values. The equipment must be at the minimum distance listed in the table to avoid contact with other stationary objects during a seismic event.

**Table 8. 9395/P/XC Unit Seismic Displacement Requirements**

Product	Type	Front to Back	Side to Side
9395	275 kVA UPS	74 mm	49 mm
	275 kVA UPS and FI-UPM	74 mm	49 mm
	550 kVA UPS	39 mm	44 mm
	550 kVA UPS and FI-UPM	39 mm	49 mm
	825 kVA UPS	44 mm	44 mm
	825 kVA UPS (2X-UPM)	74 mm	49 mm
	825 kVA UPS (2X-UPM and FI-UPM)	74 mm	49 mm
	1100 kVA or 825 kVA and FI-UPM	44 mm	49 mm
	225-550 kVA MBM	36 mm	36 mm
	275 kVA UPS and MBM	74 mm	49 mm
9395P	550 kVA UPS and MBM	39 mm	44 mm
	300 kVA UPS	74 mm	49 mm
	300 kVA UPS and FI-UPM	74 mm	49 mm
	300 kVA UPS (2X-UPM)	74 mm	49 mm
	600 kVA UPS	39 mm	44 mm
	600 kVA UPS and FI-UPM	39 mm	44 mm
	600 kVA UPS (2X-UPM)	39 mm	44 mm
	600 kVA UPS (FL-UPM and 2X-UPM)	39 mm	44 mm
	900 kVA UPS (FL-UPM and 2X-UPM)	44 mm	49 mm
	900 kVA UPS (FL-UPM and 3X-UPM)	44 mm	49 mm
	900 kVA UPS (2X-UPM)	74 mm	49 mm
	900 kVA UPS (3X-UPM)	74 mm	49 mm
	1200 kVA UPS (3X-UPM)	44 mm	49 mm
	1200 kVA UPS (4X-UPM)	44 mm	49 mm
9395XC	1500 kW (HD) UPS	50 mm	69 mm
	1500 kW (LD) UPS	50 mm	69 mm

Consideration must be given to attachments (conduits, bus duct, etc.) made to the top of the equipment. Attachments must have provisions to accommodate the displacement of the equipment indicated in [Table 8](#). Entry from the bottom of the equipment eliminates the need for accommodating this motion for attachments.

## 4.2 Center of Gravity

For seismic calculations, the center of gravity can be approximated using the dimensions in [Table 9](#) with respect to the left side bracket's front mounting hole (x,y,z origin).

**Table 9. 9395/P/XC Unit Center of Gravity Specifications**

Product	Type	X (left to right)	Y (front to rear)	Z (bottom to top)
9395	275 kVA UPS	856 mm	452 mm	956 mm
	275 kVA UPS and FI-UPM	1063 mm	461 mm	943 mm
	550 kVA UPS	1140 mm	475 mm	929 mm
	550 kVA UPS and FI-UPM	1406 mm	475 mm	928 mm
	825 kVA UPS	2160 mm	460 mm	870 mm
	825 kVA UPS (2X-UPM)	1823 mm	455 mm	868 mm
	825 kVA UPS (2X-UPM and FI-UPM)	2011 mm	460 mm	882 mm
	1100 kVA or 825 kVA and FI-UPM	2388 mm	462 mm	880 mm
	225-550 kVA MBM	431 mm	323 mm	966 mm
	275 kVA UPS and MBM	1409 mm	412 mm	959 mm
	550 kVA UPS and MBM	1768 mm	442 mm	937 mm
9395P	300 kVA UPS	856 mm	452 mm	956 mm
	300 kVA UPS and FI-UPM	1063 mm	461 mm	943 mm
	300 kVA UPS (2X-UPM)	1063 mm	461 mm	943 mm
	600 kVA UPS	790 mm	360 mm	918 mm
	600 kVA UPS and FI-UPM	1526 mm	360 mm	918 mm
	600 kVA UPS (2X-UPM)	1085 mm	360 mm	918 mm
	600 kVA UPS (FL-UPM and 2X-UPM)	1821 mm	360 mm	918 mm
	900 kVA UPS (FL-UPM and 2X-UPM)	2119 mm	362 mm	918 mm
	900 kVA UPS (FL-UPM and 3X-UPM)	2477 mm	362 mm	918 mm
	900 kVA UPS (2X-UPM)	1850 mm	357 mm	850 mm
	900 kVA UPS (3X-UPM)	2172 mm	357 mm	850 mm
	1200 kVA UPS (3X-UPM)	2444 mm	361 mm	875 mm
9395XC	1200 kVA UPS (4X-UPM)	2444 mm	365 mm	915 mm
	1500 kW (HD) UPS	1553 mm	383 mm	780 mm
	1500 kW (LD) UPS	1721 mm	384 mm	784 mm

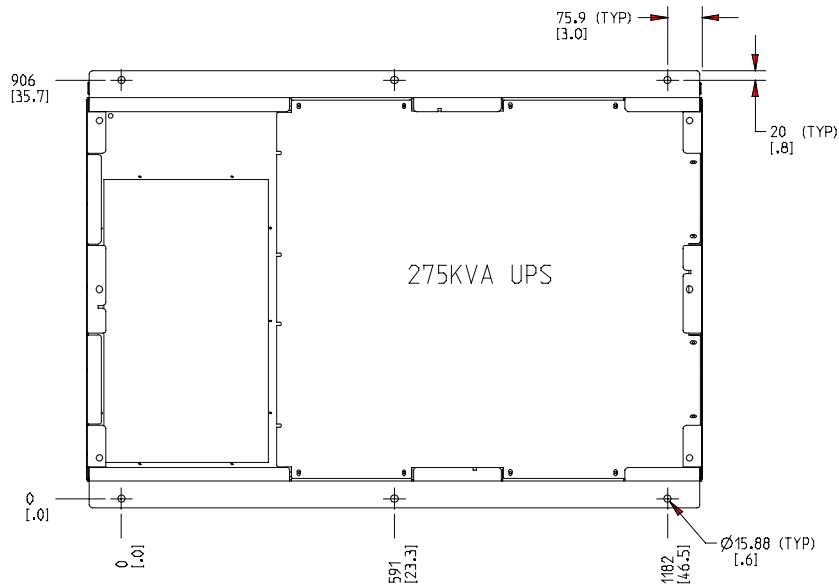
### 4.3 Power Cables

It is recommended that power cables be lashed together at least every meter within the equipment. Refer to the appropriate Eaton UPS instruction and operation manual for other requirements related to securing power cables.

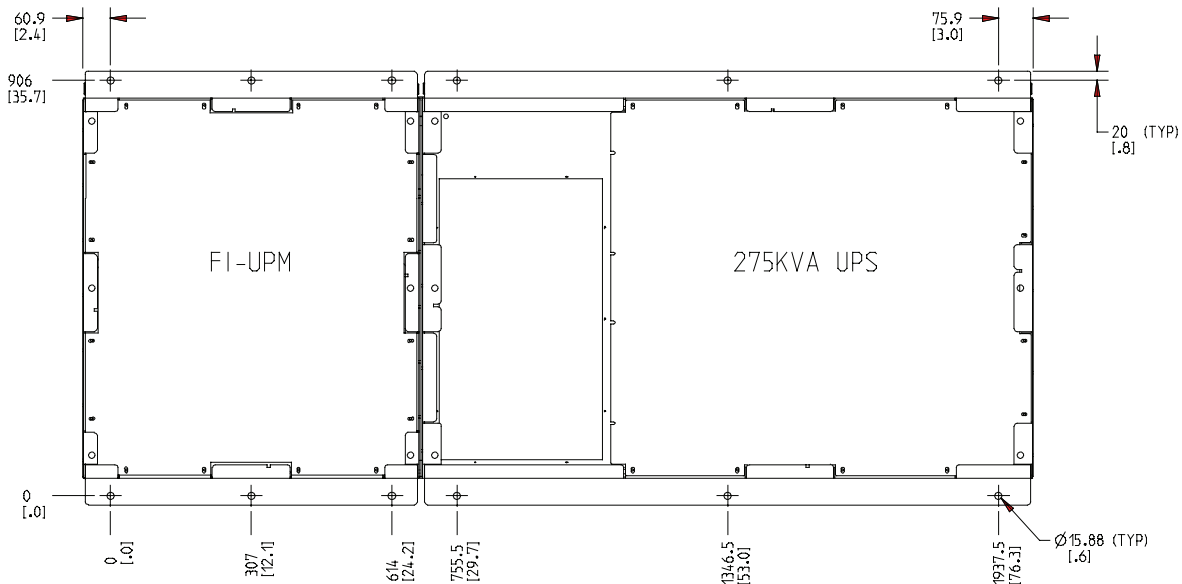
### 4.4 9395 Floor Plan Securing Dimensions

[Figure 10](#) through [Figure 26](#) detail the measurements for attaching the 9395 seismic brackets to the floor of the building. The drawings are for reference only and are not to scale. Dimensions are in millimeters (inches).

**Figure 10. 9395 275 kVA or 9395P 300/600 UPS Seismic Mounting Dimensions**

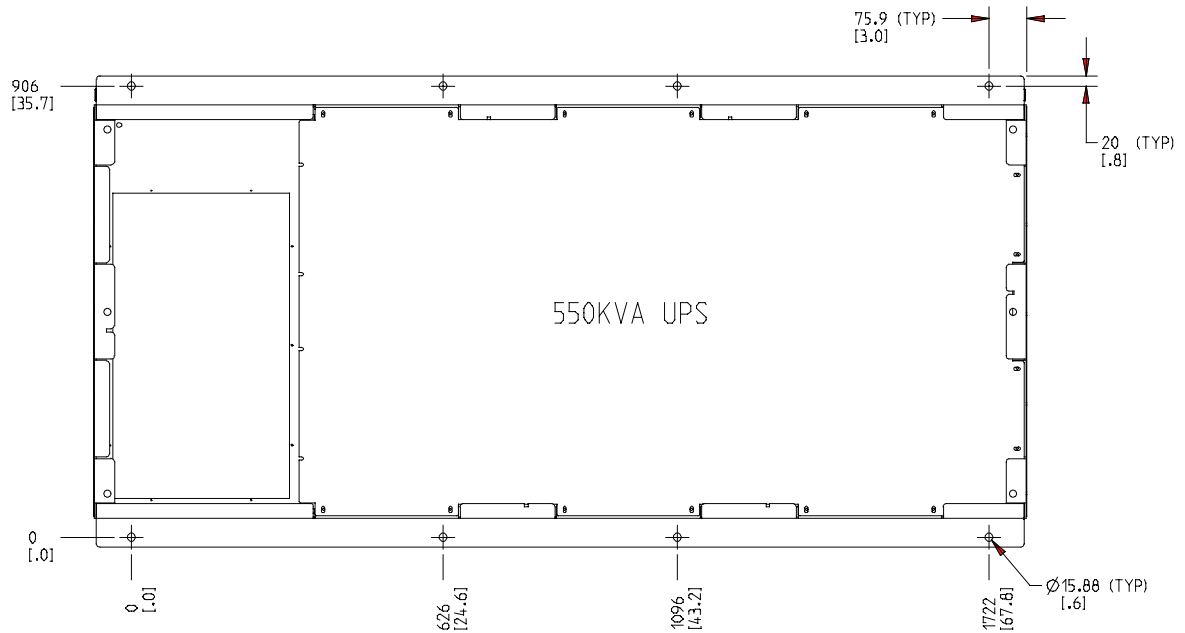


**Figure 11. 9395 275 kVA or 9395P 300/600 kVA UPS and FI-UPM Seismic Mounting Dimensions**

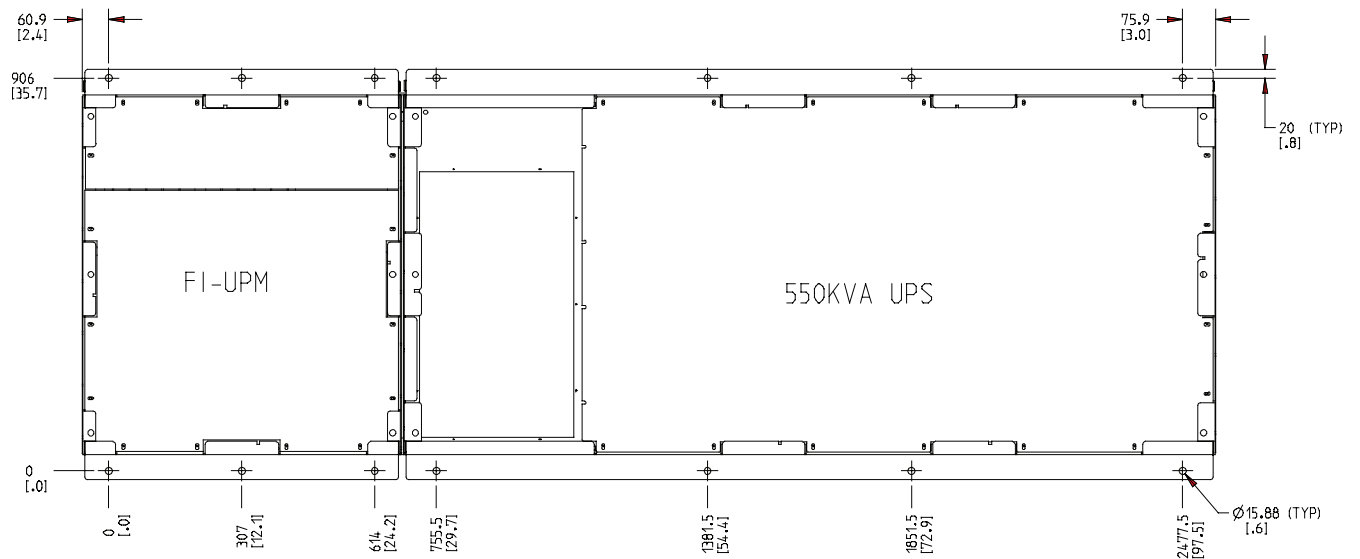




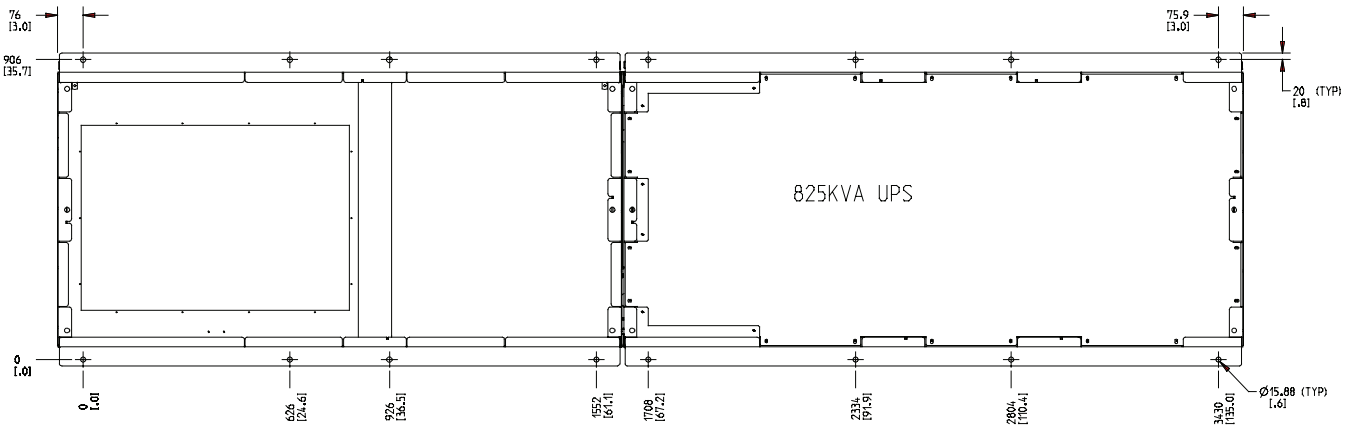
**Figure 12. 9395 550 kVA or 9395P 600 kVA UPS Seismic Mounting Dimensions**



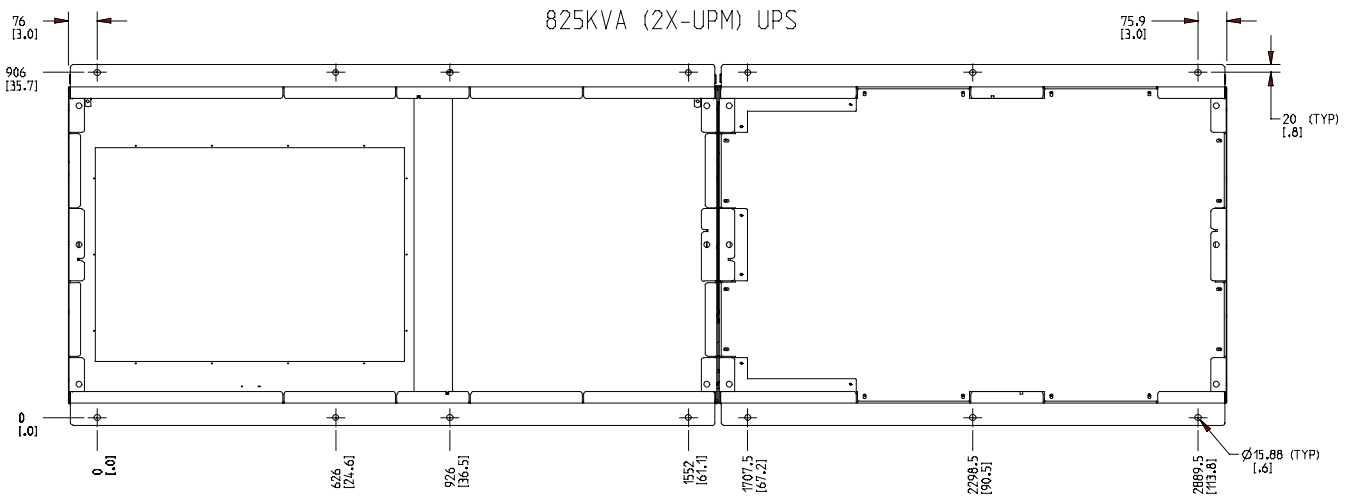
**Figure 13. 9395 550 kVA or 9395P 600 kVA UPS and FI-UPM Seismic Mounting Dimensions**



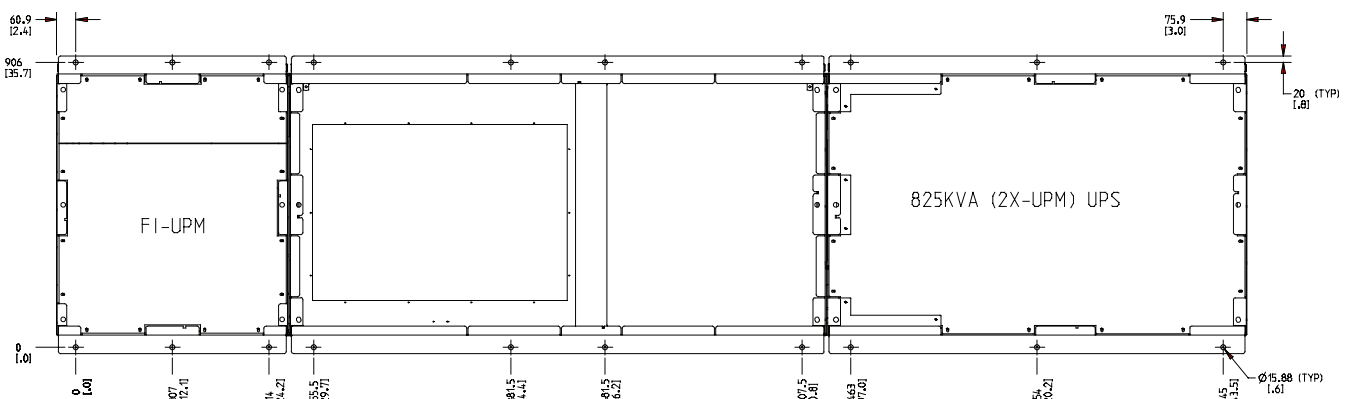
**Figure 14. 9395 825 kVA or 9395P 900 kVA UPS Seismic Mounting Dimensions**



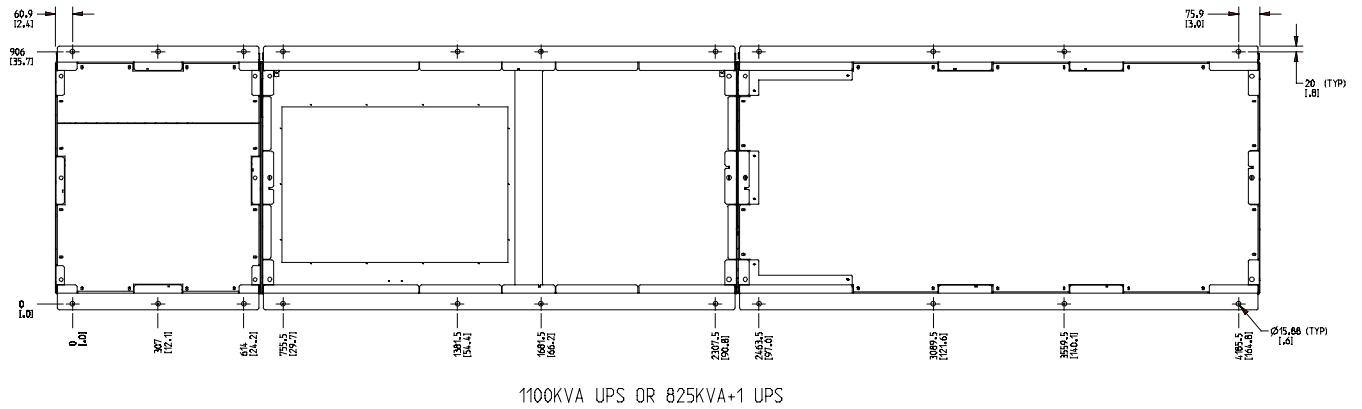
**Figure 15. 9395 825 kVA UPS (2X-UPM) Seismic Mounting Dimensions**



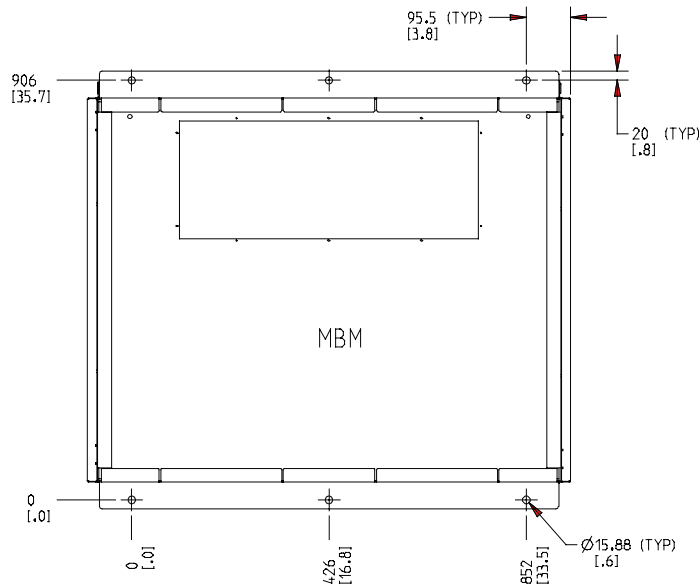
**Figure 16. 9395 825 kVA or 9395P 900 kVA UPS (2X-UPM and FI-UPM) Seismic Mounting Dimensions**



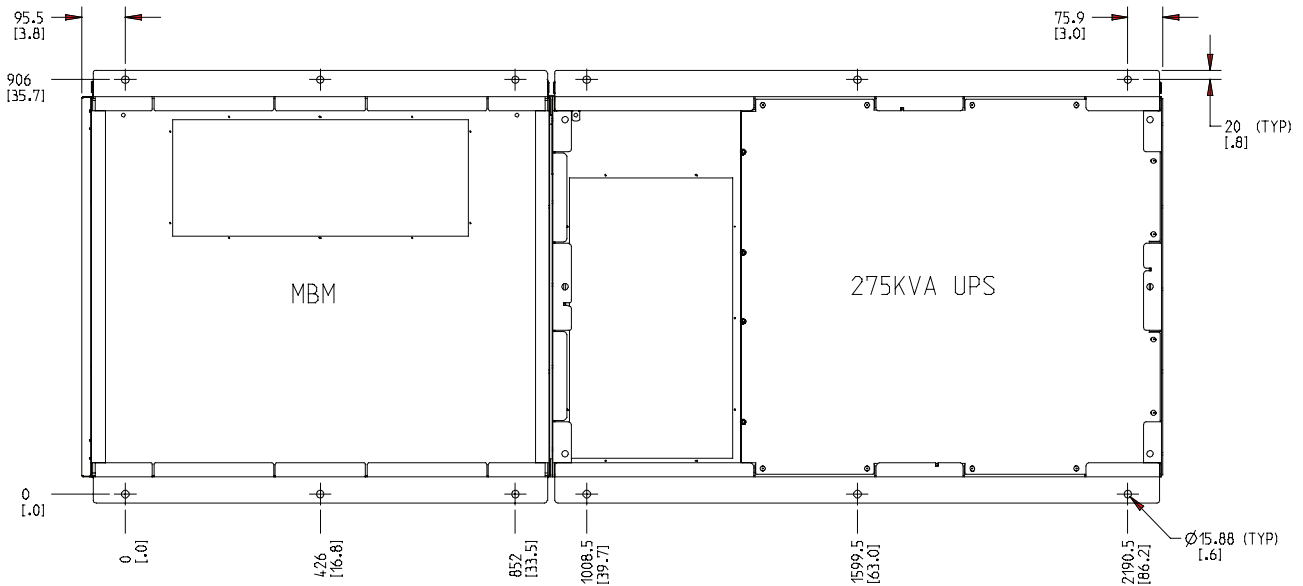
**Figure 17. 9395 1100 kVA UPS or 825 kVA +1 or 9395P 1200 kVA UPS Seismic Mounting Dimensions**



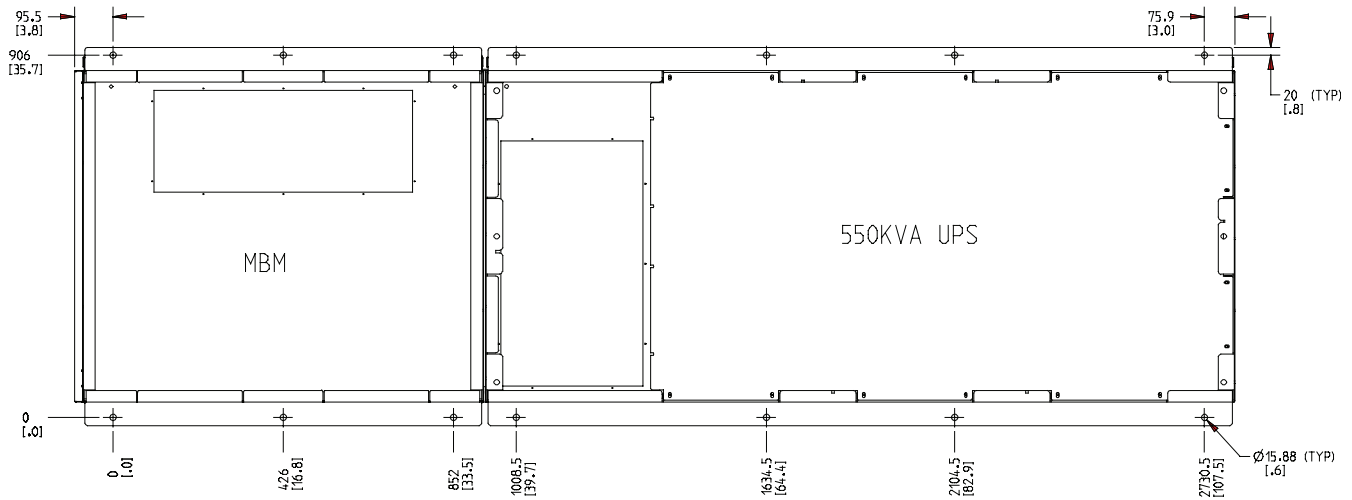
**Figure 18. 9395 MBM Seismic Mounting Dimensions**



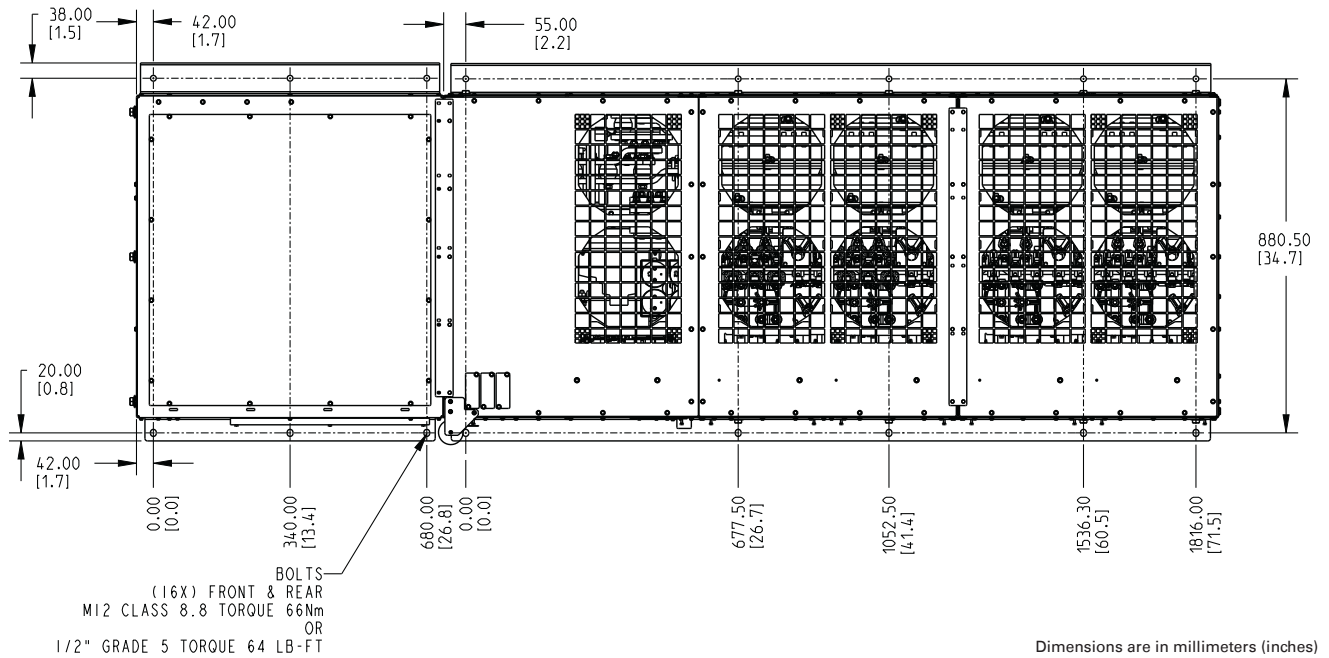
**Figure 19. 9395 MBM and 275 kVA UPS Seismic Mounting Dimensions**



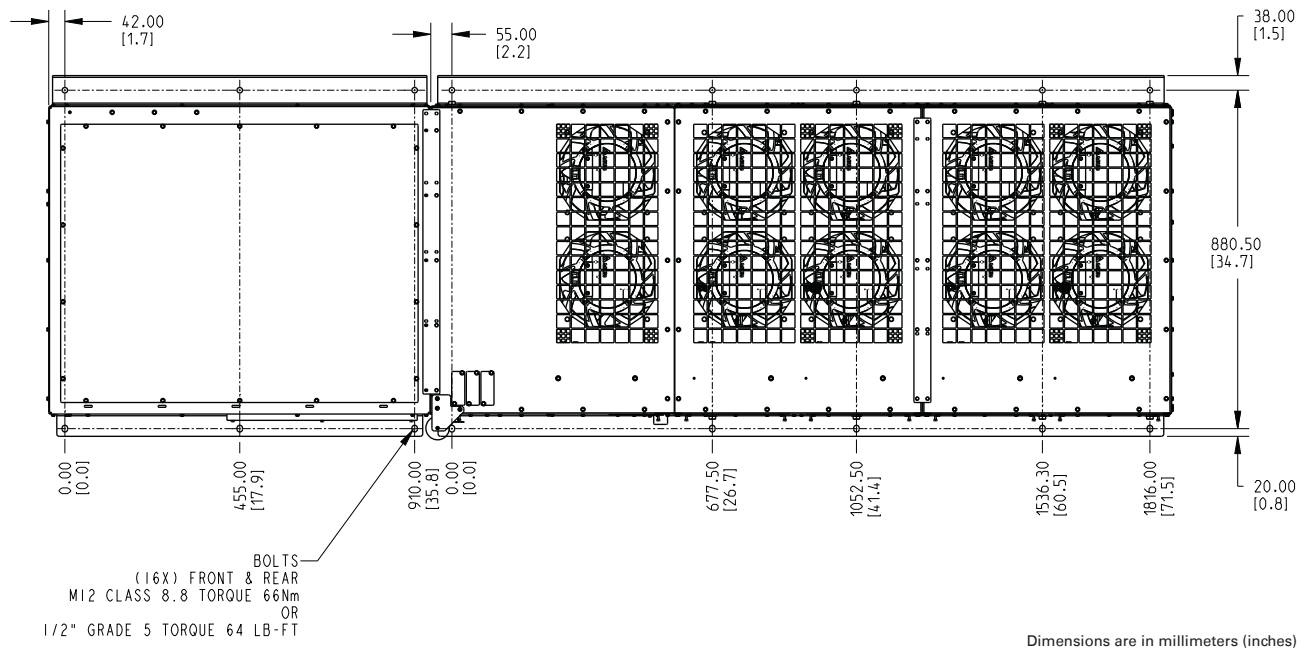
**Figure 20. 9395 MBM and 550 kVA UPS Seismic Mounting Dimensions**



**Figure 21. 9395XC 1500 kW (HD) UPS Seismic Mounting Dimensions**



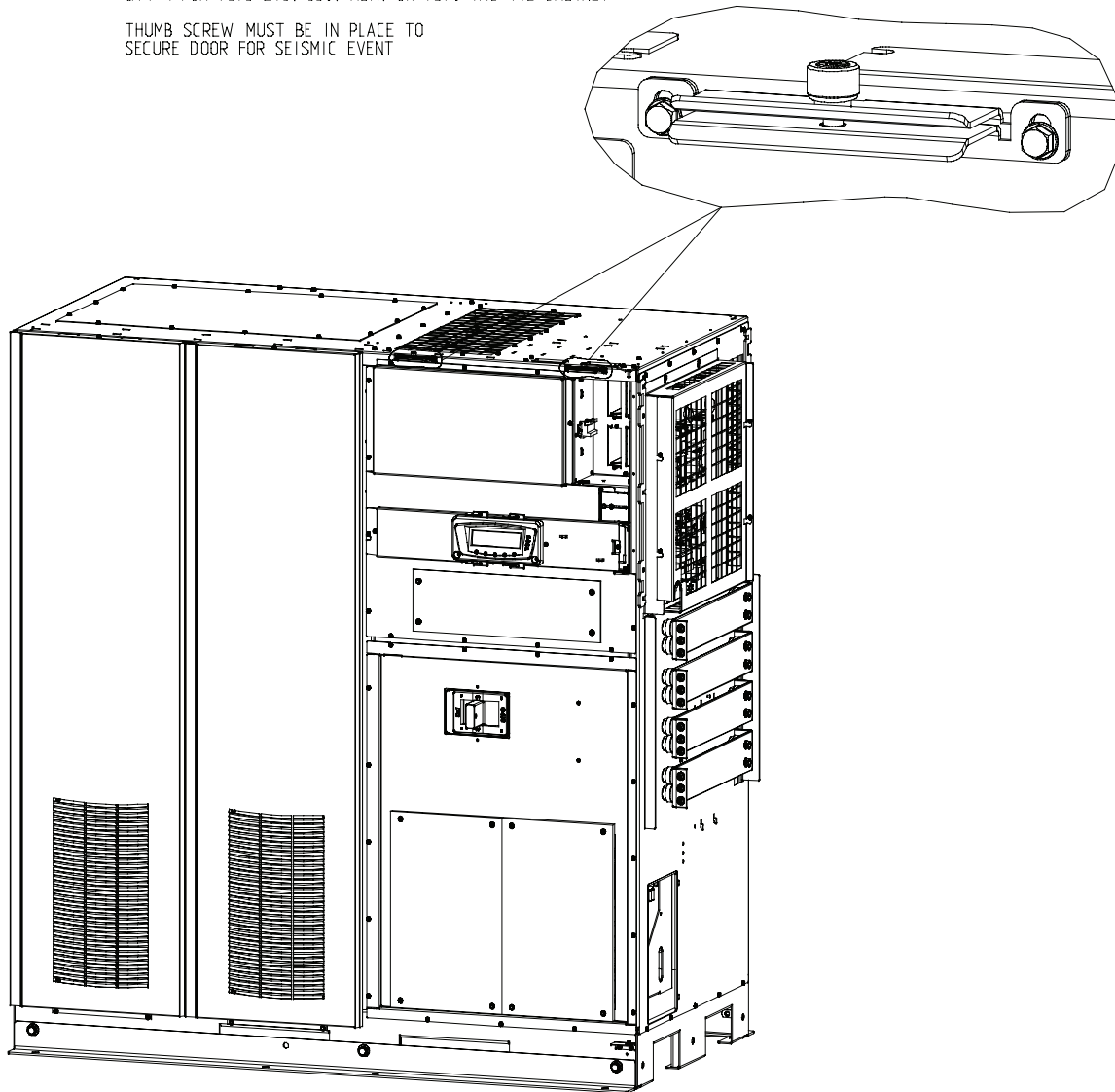
**Figure 22. 9395XC 1500 kW (LD) UPS Seismic Mounting Dimensions**



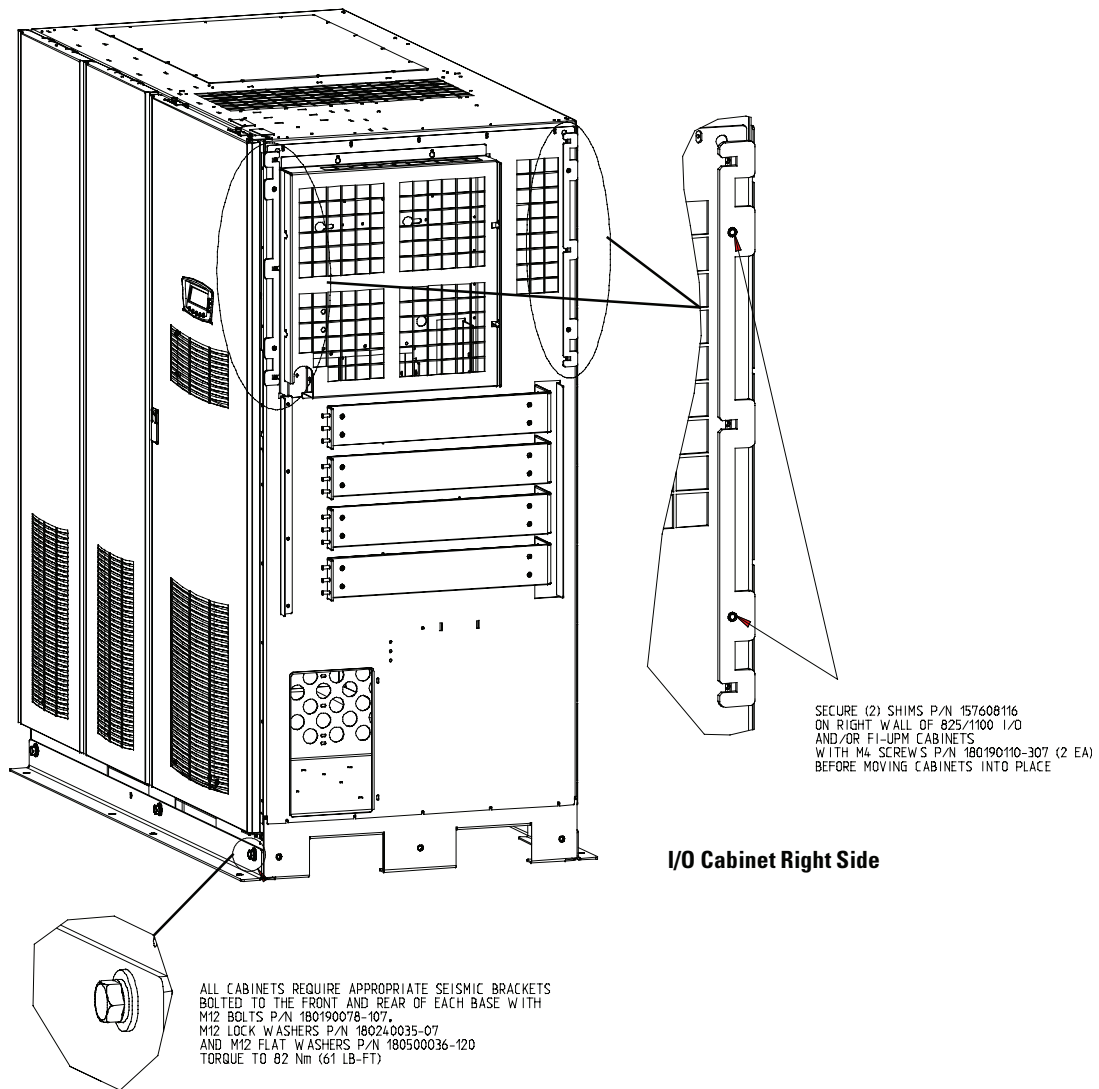
**Figure 23. 9395 Seismic Door Securing Hardware Detail**

INSTALL DOOR BRACKET KIT 103008371  
USING M4 SCREWS P/N 180190118-015  
QTY 2 FOR 9395 825/1100 I/O CABINET  
QTY 1 FOR 9395 275, 550, MBM, OR 9390 IAC TIE CABINET

THUMB SCREW MUST BE IN PLACE TO  
SECURE DOOR FOR SEISMIC EVENT



**Figure 24. 9395 I/O Intercabinet Shim Location and Seismic Floor Bracket Attachment Detail**



**Figure 25. 9395 FI-UPM Shim Location Detail for Seismic Kit**

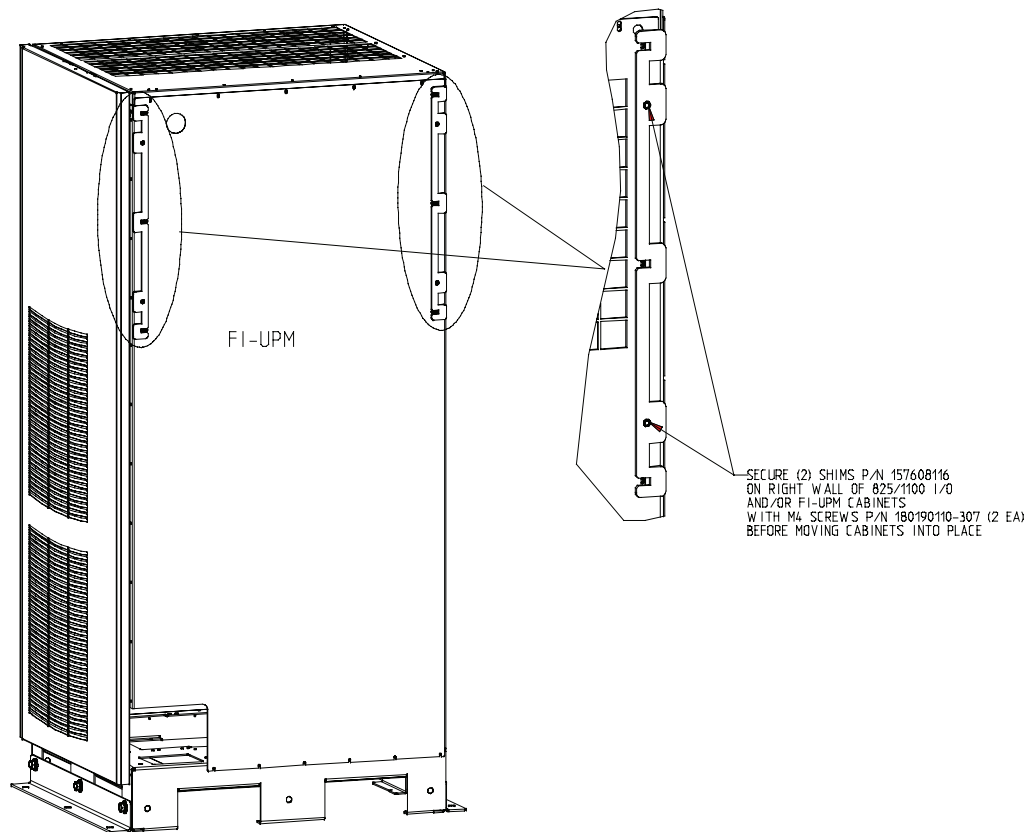
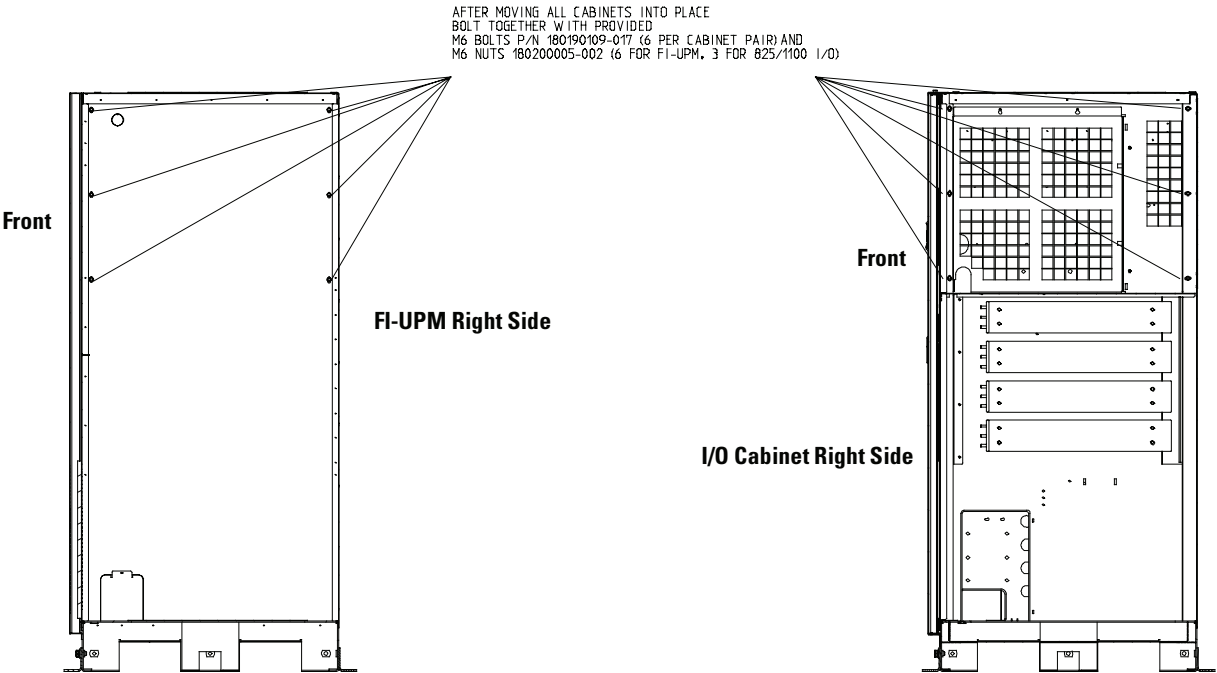




Figure 26. 9395 Attachment Detail for FI-UPM and I/O Module



## Chapter 5 Eaton 93PM (480V) and 93PM-L (208V) Foundation Plan and Mounting Requirements

Proper mounting of the equipment is the single most important factor in withstanding a seismic event. The foundation must be level and continuous under the entire assembly. The foundation must be designed to withstand the reaction loads imposed on it by the equipment during a seismic event. At a minimum, the foundation must be designed to accommodate the tensile strength of the hardware indicated in [Table 10](#). The anchoring system should be put in place prior to equipment installation to reduce effort associated with anchoring. Welding to embedded steel members is acceptable provided the strength of the welds is comparable to the mounting bolts.

### CAUTION

The user is responsible for compliance with all local seismic codes.



#### NOTE

Anchoring hardware is not provided with Eaton seismic mounting kits because the type of hardware is dependant on the foundation construction and composition.

**Table 10. 93PM Unit and Fastener Requirements from Unit to Floor**

Model Voltage	Type	Bolt Type and Size	Torque	Quantity
93PM 480 Vac	UPS 50 kW, 100 kW, and 150 kW Frames	Class 8.8, M12 or Grade 5, 1/2"	87 Nm 64 lb-ft.	8
	UPS 50 kW, 100 kW, and 150 kW Frames with Small Left or Right-Mounted Sidecar			12
	UPS 100 kW and 150 kW Frames with Large Left or Right-Mounted Sidecar			12
	UPS 200 kW Frame			8
	UPS 200 kW Frame with Left or Right-Mounted Sidecar			12
	UPS 400 kW Frame			16
	IAC-B (400 kW)			8
	IAC-BD			8
	IAC-T			8
93PM-L 208 Vac	UPS 60 kW and 120 kW	Class 8.8, M12 or Grade 5, 1/2"	87 Nm 64 lb-ft.	8
	UPS 60 kW with Left or Right-Mounted Top Entry Sidecar			12
	UPS 60 kW with MBS Left or Right-Mounted Sidecar or UPS 120 kW with Top Entry/MBS Left or Right-Mounted Sidecar			12
	UPS 160 kW			12
	UPS 200 kW			8
	IAC-B (160 and 200 kW)			8

**Table 10. 93PM Unit and Fastener Requirements from Unit to Floor (Continued)**

Model Voltage	Type	Bolt Type and Size	Torque	Quantity
Both 93PM (480V) and 93PM-L (208V)	IAC-D (208V and 480V)	Class 8.8, M12 or Grade 5, 1/2"	87 Nm 64 lb-ft.	8
	IAC-PD (208V and 480V)			8
	IBC-S			8
	IBC-L, IBC-LH			8
	IBC-L, IBC-LH with Left or Right-Mounted Sidecar			12
	IBC-LW, IBC-LHW			12
<b>NOTE</b> The torque value for each bracket-to-cabinet connecting bolt is listed below: Class 8.8, <b>M8</b> Bolt = 27 Nm [20 lb-ft.] Class 8.8, <b>M10</b> Bolt = 42 Nm [31 lb-ft.] Class 8.8, <b>M12</b> Bolt = 87 Nm [64 lb-ft.]				

## 5.1 Displacement

The horizontal displacement of the top of the equipment is listed in [Table 11](#). The horizontal displacements given in the table are plus/minus values. The equipment must be at the minimum distance listed in the table to avoid contact with other stationary objects during a seismic event.

**Table 11. 93PM Unit Seismic Displacement Requirements**

Model Voltage	Type	Front to Back	Side to Side
93PM 480 Vac	UPS 50 kW, 100 kW, and 150 kW Frames	130 mm	180 mm
	UPS 50 kW, 100 kW, and 150 kW Frames with Small Left or Right-Mounted Sidecar	120 mm	140 mm
	UPS 100 kW and 150 kW Frames with Large Left or Right-Mounted Sidecar	120 mm	140 mm
	UPS 200 kW Frame	130 mm	180 mm
	UPS 200 kW Frame with Left or Right-Mounted Sidecar	130 mm	180 mm
	UPS 400 kW Frame	94 mm	112 mm
	IAC-B (400 kW)	130 mm	180 mm
	IAC-BD	100 mm	100 mm
	IAC-T (480V)	100 mm	100 mm
93PM-L 208 Vac	UPS 60 kW and 120 kW	130 mm	180 mm
	UPS 60 kW with Left or Right-Mounted Top Entry Sidecar	120 mm	140 mm
	UPS 60 kW with MBS Left or Right-Mounted Sidecar or UPS 120 kW with Top Entry/MBS Left or Right-Mounted Sidecar	120 mm	140 mm

**Table 11. 93PM Unit Seismic Displacement Requirements (Continued)**

Model Voltage	Type	Front to Back	Side to Side
93PM-L 208 Vac	UPS 160 kW	120 mm	140 mm
	UPS 200 kW	100 mm	100 mm
	IAC-B	100 mm	100 mm
Both 93PM (480V) and 93PM-L (208V)	IAC-D (208V and 480V)	100 mm	100 mm
	IAC-PD (208V and 480V)	100 mm	100 mm
	IBC-S	100 mm	160 mm
	IBC-L, IBC-LH	100 mm	160 mm
	IBC-L, IBC-LH with Left or Right-Mounted Sidecar	90 mm	100 mm
	IBC-LW, IBC-LHW	94 mm	122 mm

Consideration must be given to attachments (conduits, bus duct, etc.) made to the top of the equipment. Attachments must have provisions to accommodate the displacement of the equipment indicated in [Table 11](#). Entry from the bottom of the equipment eliminates the need for accommodating this motion for attachments.

## 5.2 Center of Gravity

For seismic calculations, the center of gravity can be approximated using the dimensions in [Table 12](#) with respect to the left side bracket's front mounting hole (x,y,z origin). Battery cabinet center of gravity dimensions are with batteries installed.

**Table 12. 93PM Unit Center of Gravity Specifications**

Model Voltage	Type	X (left to right)	Y (front to rear)	Z (bottom to top)
93PM 480 Vac	UPS 50 kW Frame (480V)	538 mm	278 mm	887 mm
	UPS 50 kW Frame with Left or Right-Mounted Sidecar Top Entry Wiring / MBS Sidecar	452 mm	540 mm	884 mm
	UPS 100 kW Frame	537 mm	276 mm	921 mm
	UPS 100 kW Frame with Left-Mounted Sidecar Top Entry Wiring Sidecar	427 mm	541 mm	917 mm
	UPS 100 kW Frame with Right-Mounted Sidecar Top Entry Wiring Sidecar	564 mm	356 mm	917 mm
	UPS 100 kW Frame with Large Left-Mounted Sidecar	552 mm	543 mm	922 mm
	UPS 100 kW Frame with Large Right-Mounted Sidecar	552 mm	386 mm	922 mm
	UPS 150 kW Frame	530 mm	282 mm	1014 mm
	UPS 150 kW Frame with Top Entry Left-Mounted Sidecar	534 mm	434 mm	979 mm

**Table 12. 93PM Unit Center of Gravity Specifications (Continued)**

<b>Model Voltage</b>	<b>Type</b>	<b>X (left to right)</b>	<b>Y (front to rear)</b>	<b>Z (bottom to top)</b>
93PM 480 Vac	UPS 150 kW Frame with Top Entry Right-Mounted Sidecar	534 mm	332 mm	979 mm
	UPS 150 kW Frame with Large Left-Mounted Sidecar	549 mm	523 mm	977 mm
	UPS 150 kW Frame with Large Right-Mounted Sidecar	549 mm	402 mm	977 mm
	UPS 200 kW Frame	543 mm	358 mm	989 mm
	UPS 200 kW Frame with Left-Mounted Sidecar	566 mm	594 mm	973 mm
	UPS 200 kW Frame with Right-Mounted Sidecar	566 mm	522 mm	974 mm
	UPS 400 kW Frame	810 mm	549 mm	1006 mm
	IAC-B (400 kW)	251 mm	627 mm	954 mm
	IAC-BD	395 mm	638 mm	902 mm
	IAC-T (480V)	245 mm	659 mm	891 mm
93PM-L 208 Vac	UPS 60 kW	280 mm	551 mm	1105 mm
	UPS 60 kW with Top Entry Left-Mounted Sidecar	446 mm	550 mm	1080 mm
	UPS 60 kW with Top Entry Right-Mounted Sidecar	317 mm	550 mm	1080 mm
	UPS 60 kW with MBS Left-Mounted Sidecar	507 mm	552 mm	1065 mm
	UPS 60 kW with MBS Right-Mounted Sidecar	370 mm	552 mm	1065 mm
	UPS 120 kW	288 mm	529 mm	1115 mm
	UPS 120 kW with Top Entry/MBS Left-Mounted Sidecar	515 mm	532 mm	1073 mm
	UPS 120 kW with Top Entry/MBS Right-Mounted Sidecar	373 mm	532 mm	1073 mm
	UPS 160 kW (208V)	417 mm	547 mm	906 mm
	UPS 200 kW (208V)	406 mm	549 mm	967 mm
	IAC-B (160 and 200 kW)	396 mm	557 mm	933 mm
	IAC-D (208V and 480V)	473 mm	388 mm	698 mm
Both 93PM (480V) and 93PM-L (208V)	IAC-PD (208V and 480V)	473 mm	388 mm	698 mm
	IBC-S	579 mm	262 mm	814 mm
	IBC-L, IBC-LH (432V)	427 mm	600 mm	1046 mm
	IBC-L, IBC-LH (480V)	410 mm	600 mm	1046 mm
	IBC-L, IBC-LH (432V) with Left-Mounted Sidecar	612 mm	600 mm	1046 mm
	IBC-L, IBC-LH (432V) with Right-Mounted Sidecar	444 mm	600 mm	1046 mm

**Table 12. 93PM Unit Center of Gravity Specifications (Continued)**

<b>Model Voltage</b>	<b>Type</b>	<b>X (left to right)</b>	<b>Y (front to rear)</b>	<b>Z (bottom to top)</b>
Both 93PM (480V) and 93PM-L (208V)	IBC-L, IBC-LH (480V) with Left-Mounted Sidecar	602 mm	600 mm	1046 mm
	IBC-L, IBC-LH (480V) with Right-Mounted Sidecar	421 mm	600 mm	1046 mm
	IBC-LW, IBC-LHW (432V)	456 mm	506 mm	1036 mm
	IBC-LW, IBC-LHW (480V)	434 mm	507 mm	981 mm

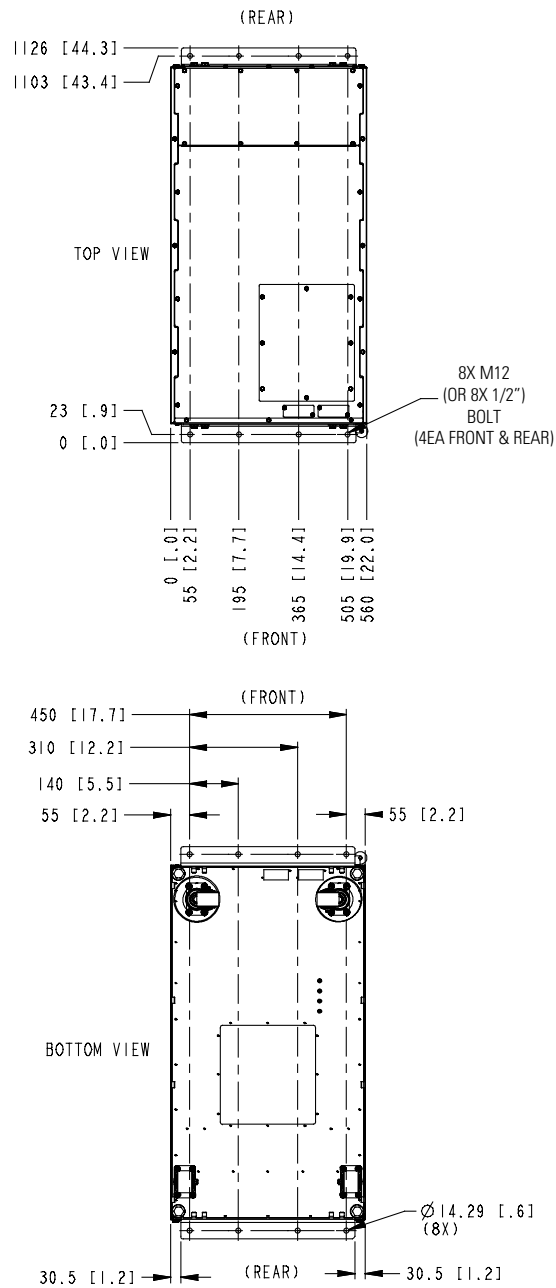
### 5.3 Power Cables

It is recommended that power cables be lashed together at least every meter within the equipment. Refer to the appropriate Eaton UPS instruction and operation manual for other requirements related to securing power cables.

### 5.4 93PM Floor Plan Securing Dimensions

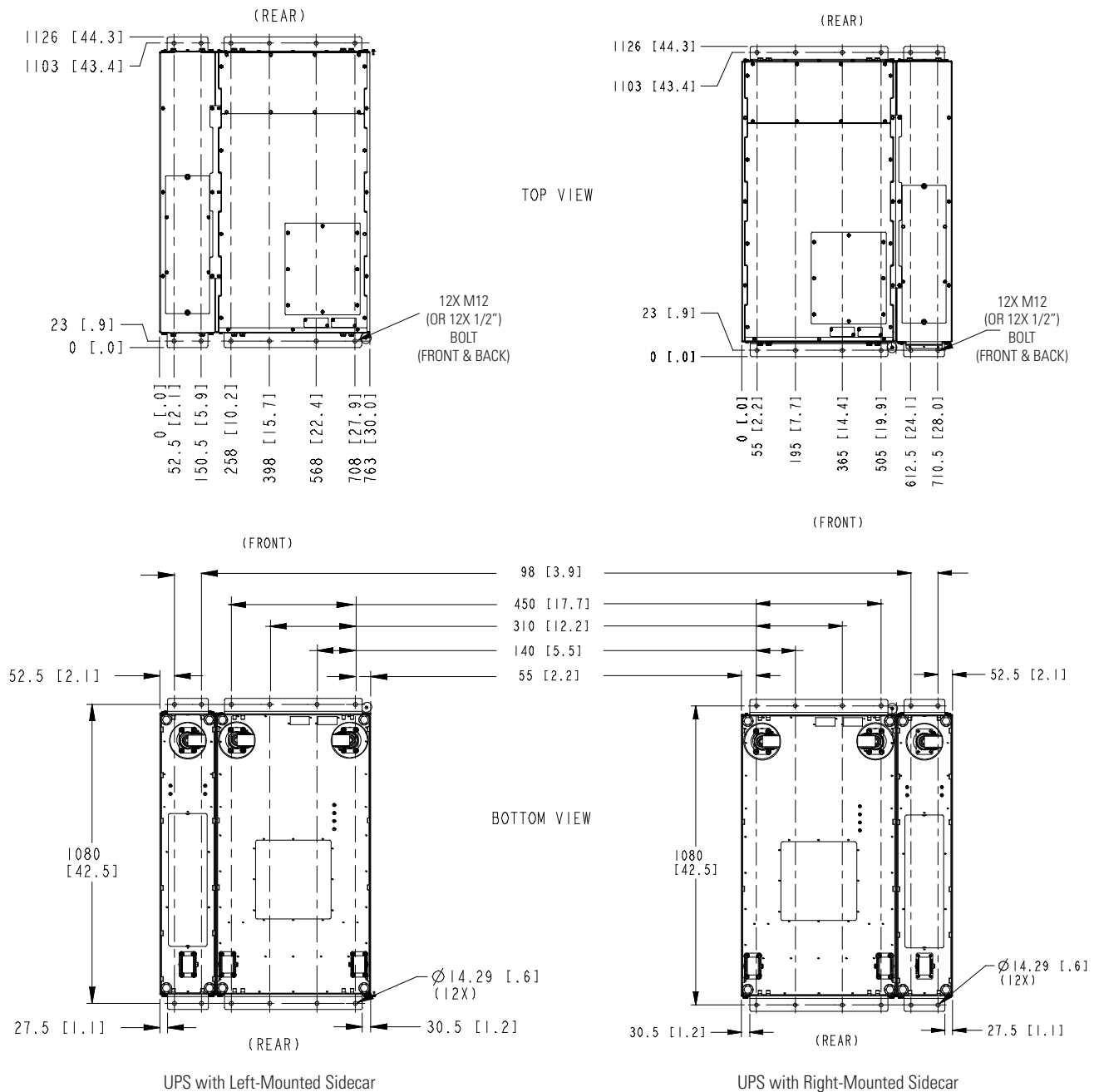
[Figure 27](#) through [Figure 43](#) detail the measurements for attaching the seismic brackets to the floor of the building. The drawings are for reference only and are not to scale. Dimension are in millimeters (inches).

**Figure 27. 93PM-L UPS 60 and 120 kW (208V) /93PM UPS 50, 100, and 150 kW Frame (480V) Seismic Mounting Dimensions**



Dimensions are in millimeters [inches]

**Figure 28. 93PM-L UPS 60 kW (208V) with Top Entry Sidecar /93PM UPS 50, 100, and 150 kW Frame (480V) with Small Sidecar**

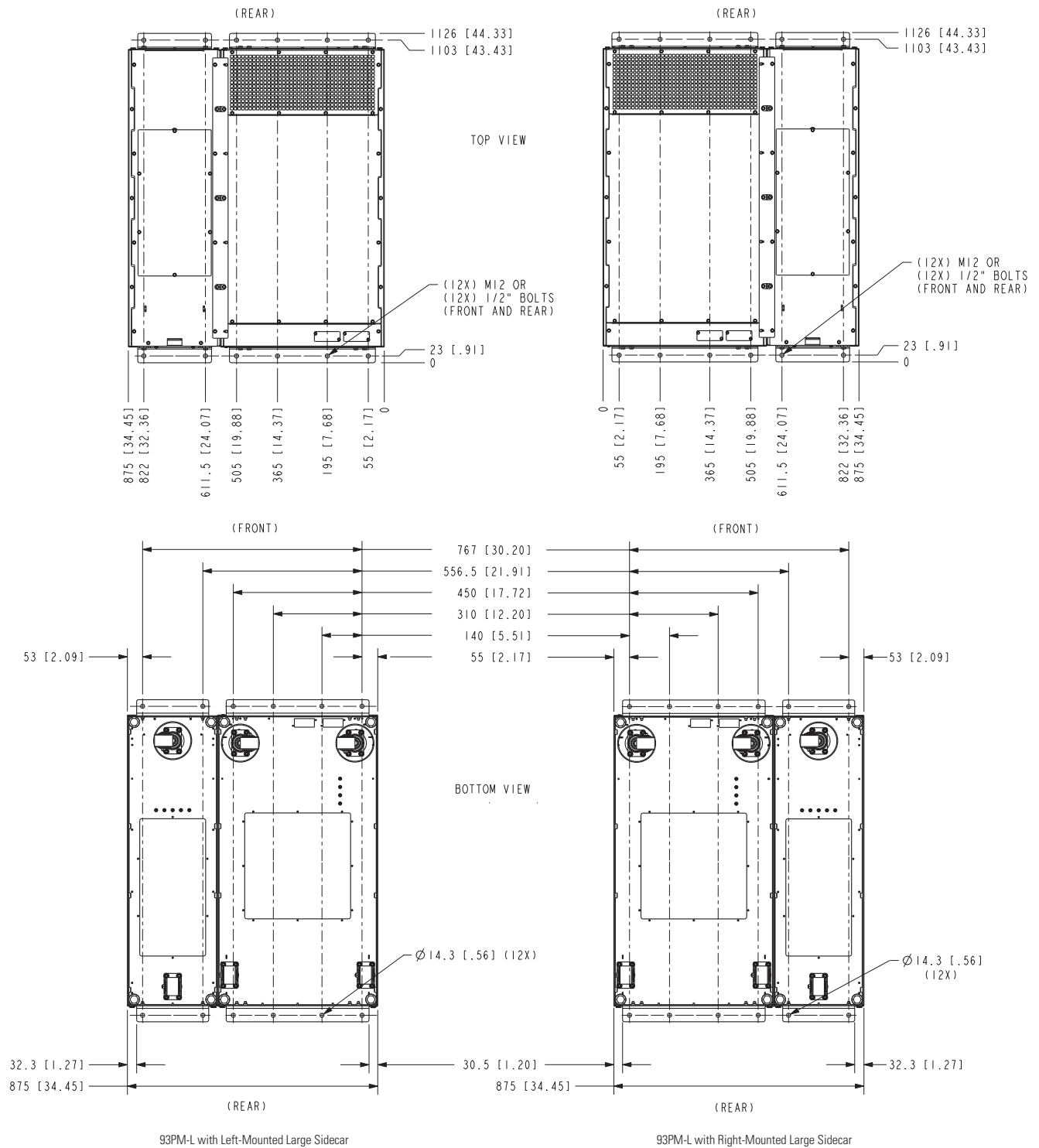


NOTE: 93PM-L 60 kW UPS with Top Entry Sidecar and 93PM UPS 50, 100, and 150 kW UPS with Small Sidecar floor mounting brackets and locations are identical.

Dimensions are in millimeters [inches]



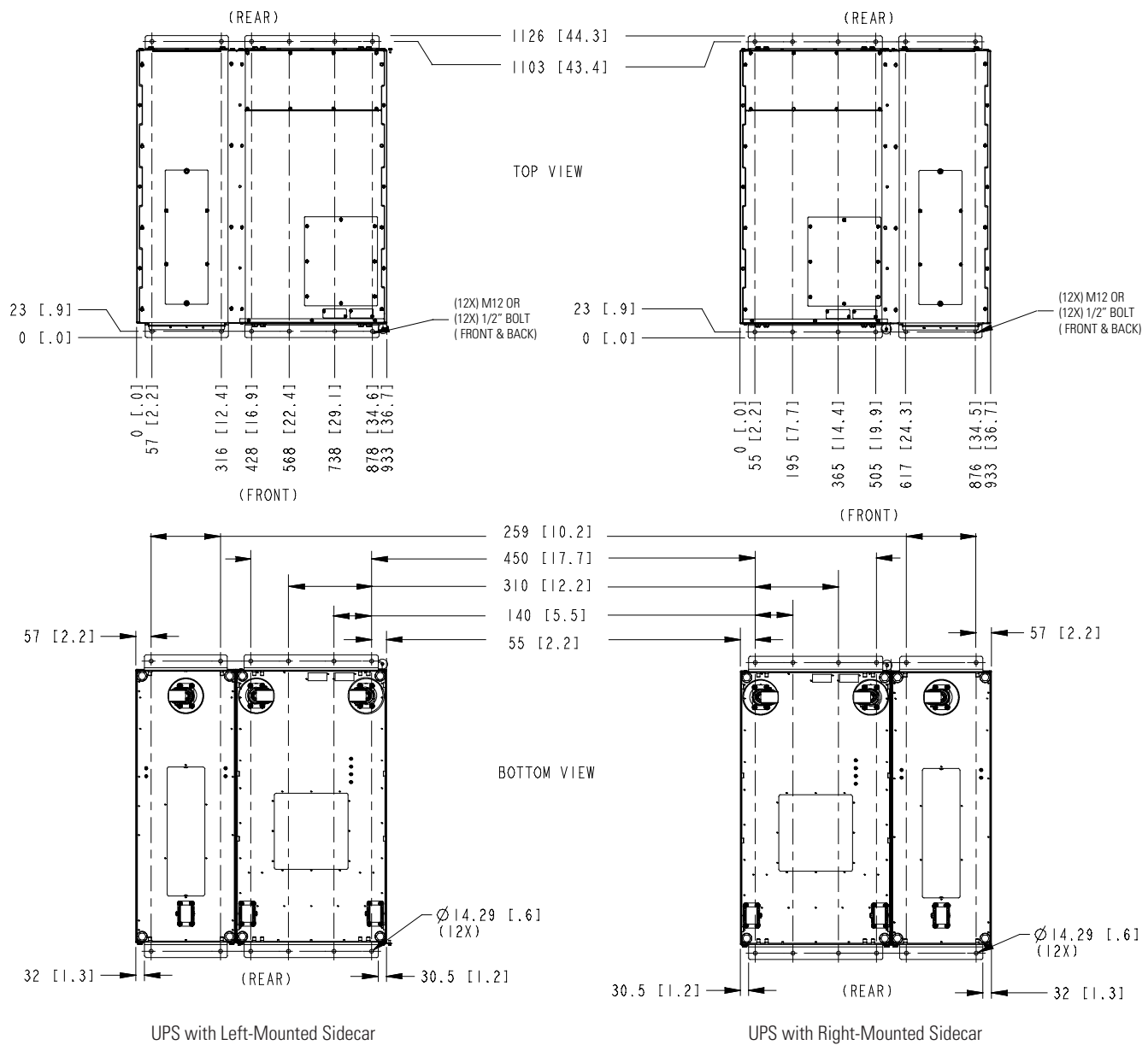
**Figure 29. 93PM-L UPS 60 kW with and 120 kW (208V) with Large Sidecar**



NOTE: 93PM-L 60 kW and 120 kW UPS floor mounting brackets and locations are identical.

Dimensions are in millimeters [inches]

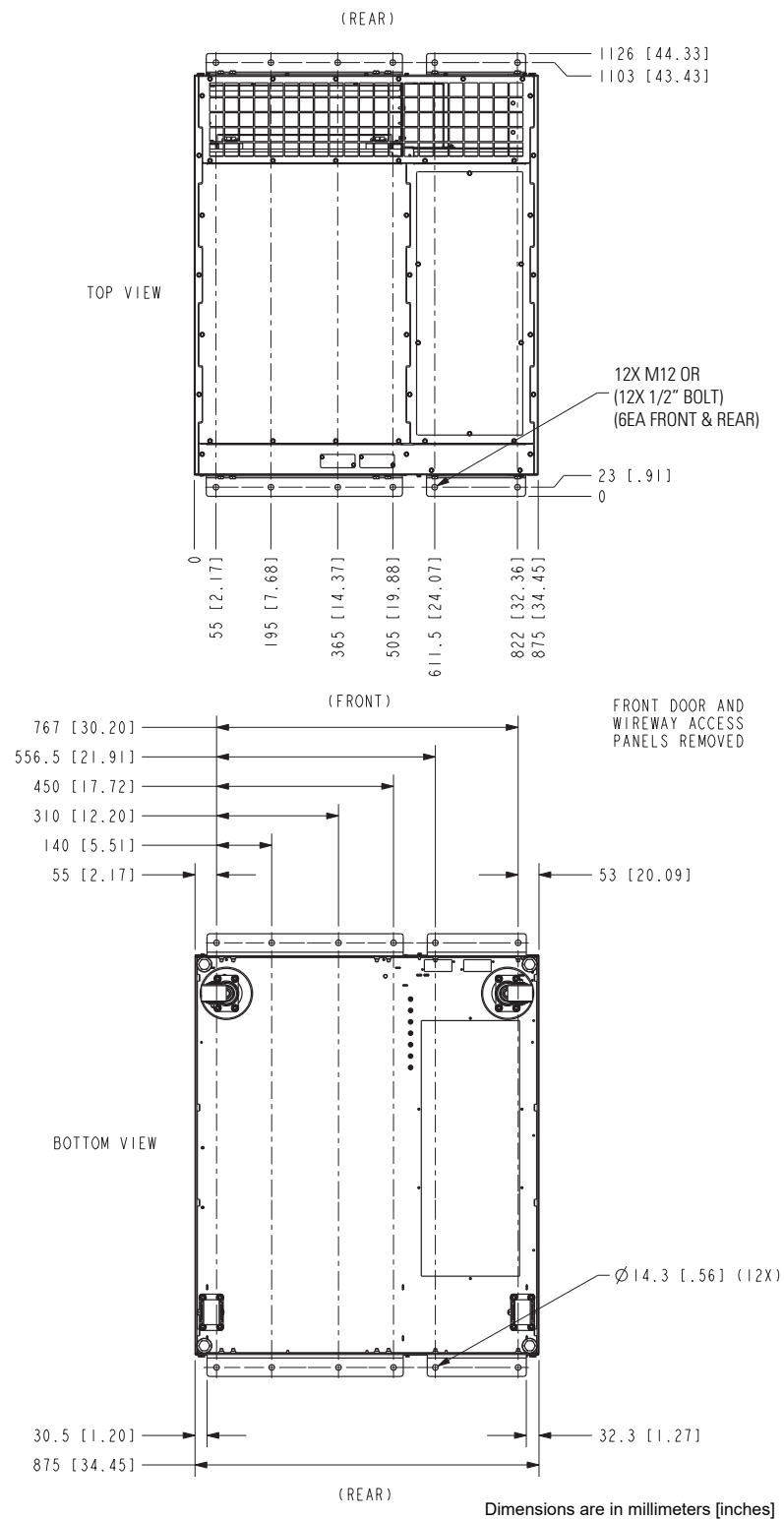
**Figure 30. 93PM UPS 100 kW and 150 kW Frames with Large Sidecar (480V)**



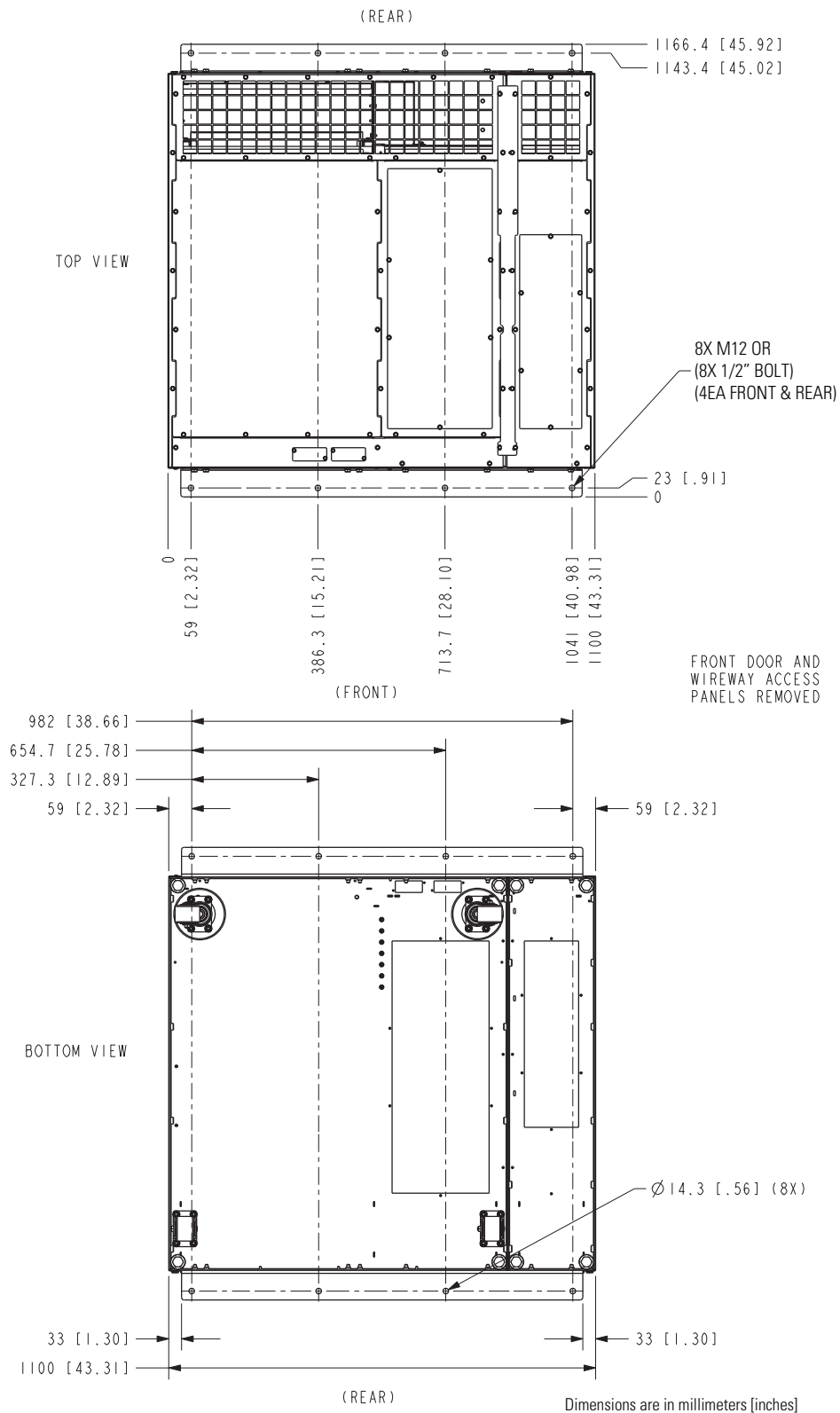
NOTE: 93PM 100 kW and 150 kW UPS floor mounting brackets and locations are identical.

Dimensions are in millimeters [inches]

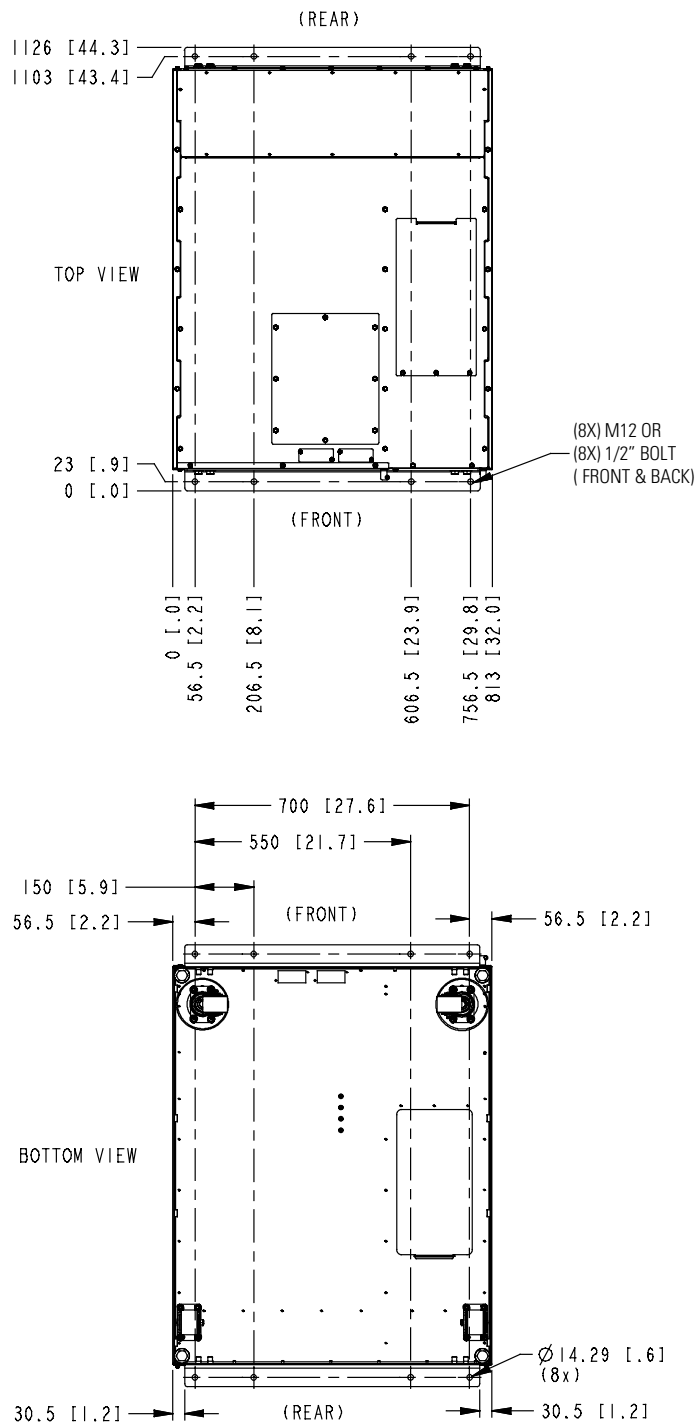
**Figure 31. 93PM-L UPS 160 kW (208V) Seismic Mounting Dimensions**



**Figure 32. 93PM-L UPS 200 kW (208V) Seismic Mounting Dimensions**

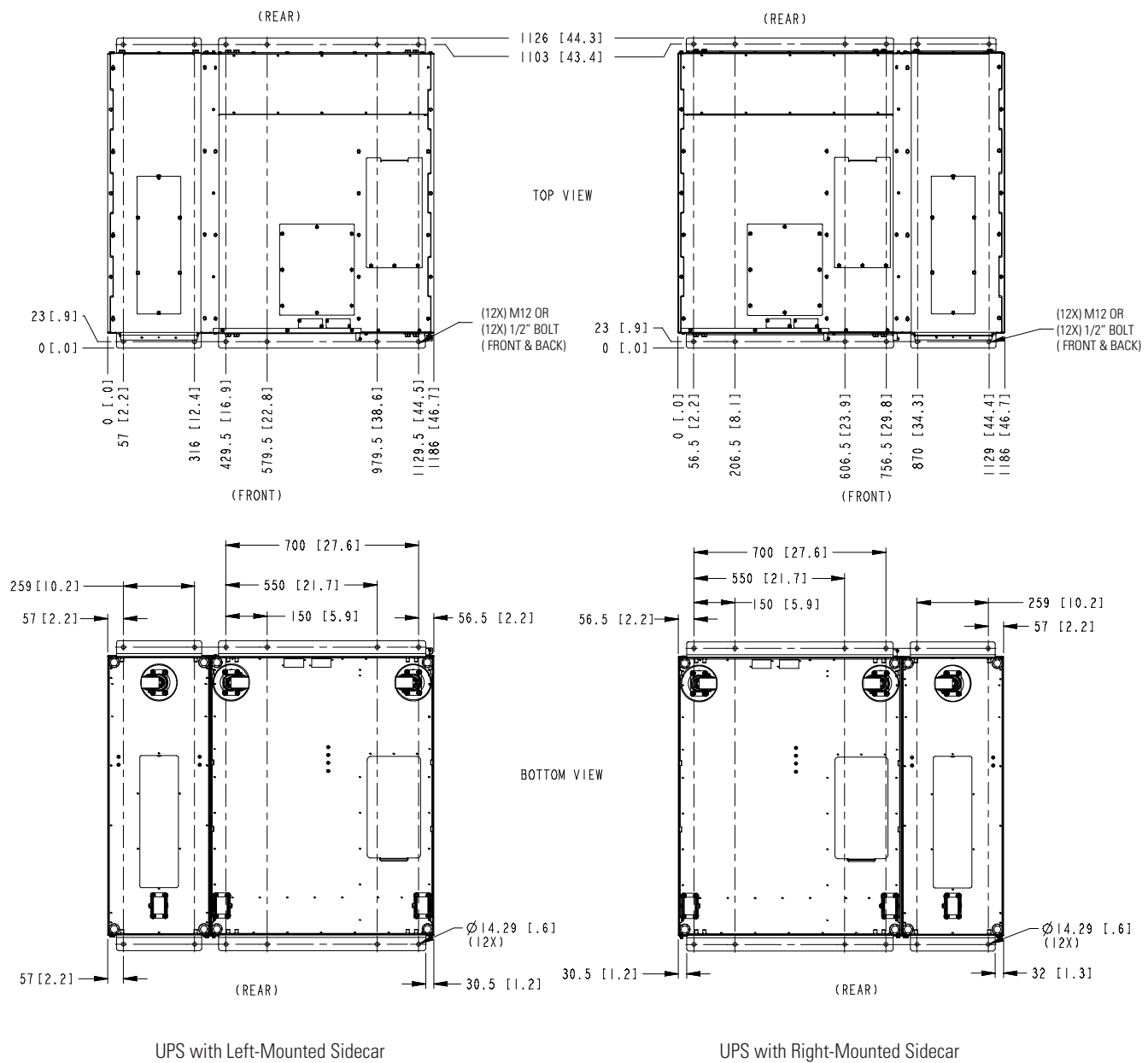


**Figure 33. 93PM UPS (200 kW Frame) Seismic Mounting Dimensions (480V)**



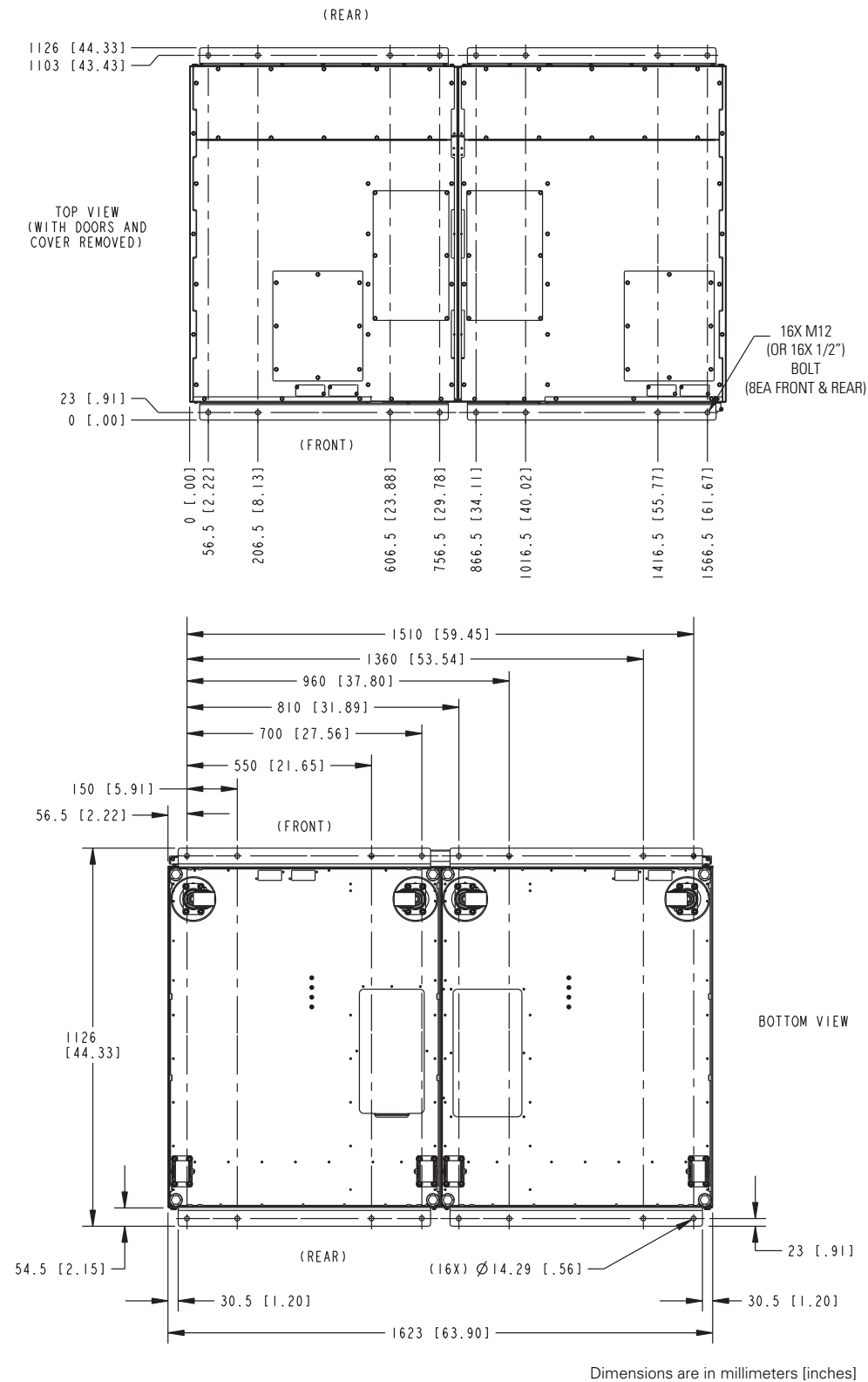
Dimensions are in millimeters [inches]

**Figure 34. 93PM UPS (200 kW Frame with Sidecar) Seismic Mounting Dimensions (480V)**

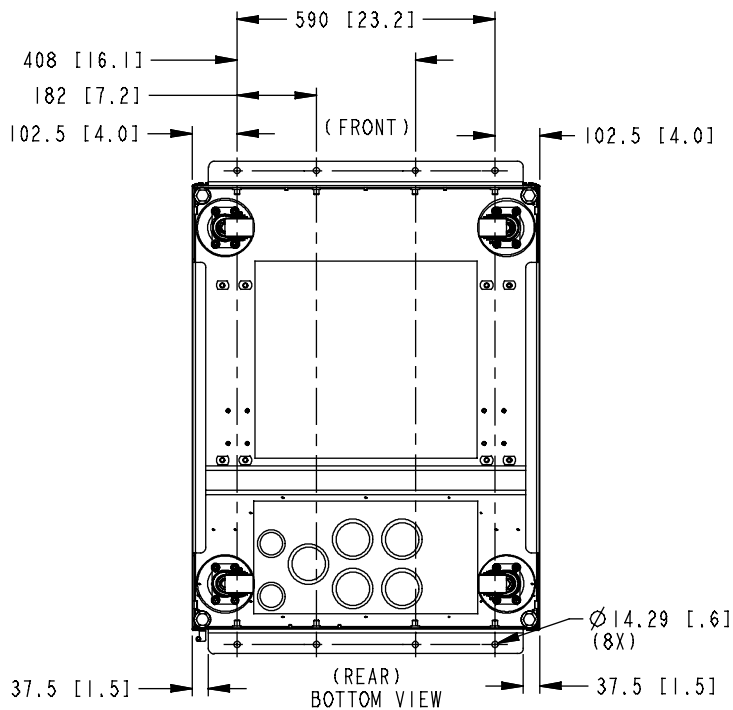
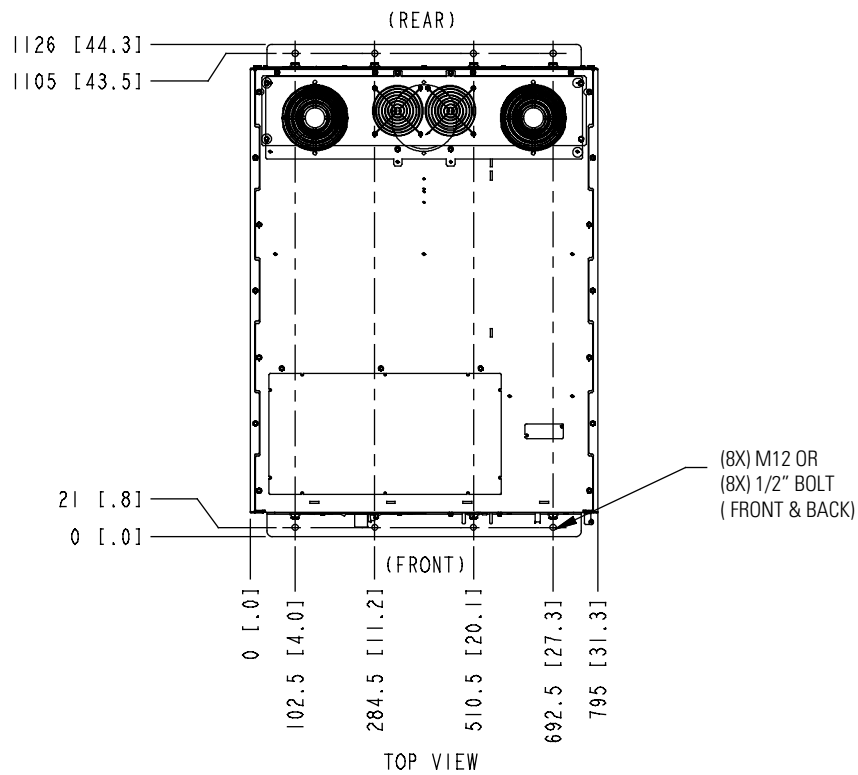


Dimensions are in millimeters [inches]

**Figure 35. 93PM UPS (400 kW Frame) Seismic Mounting Dimensions (480V)**



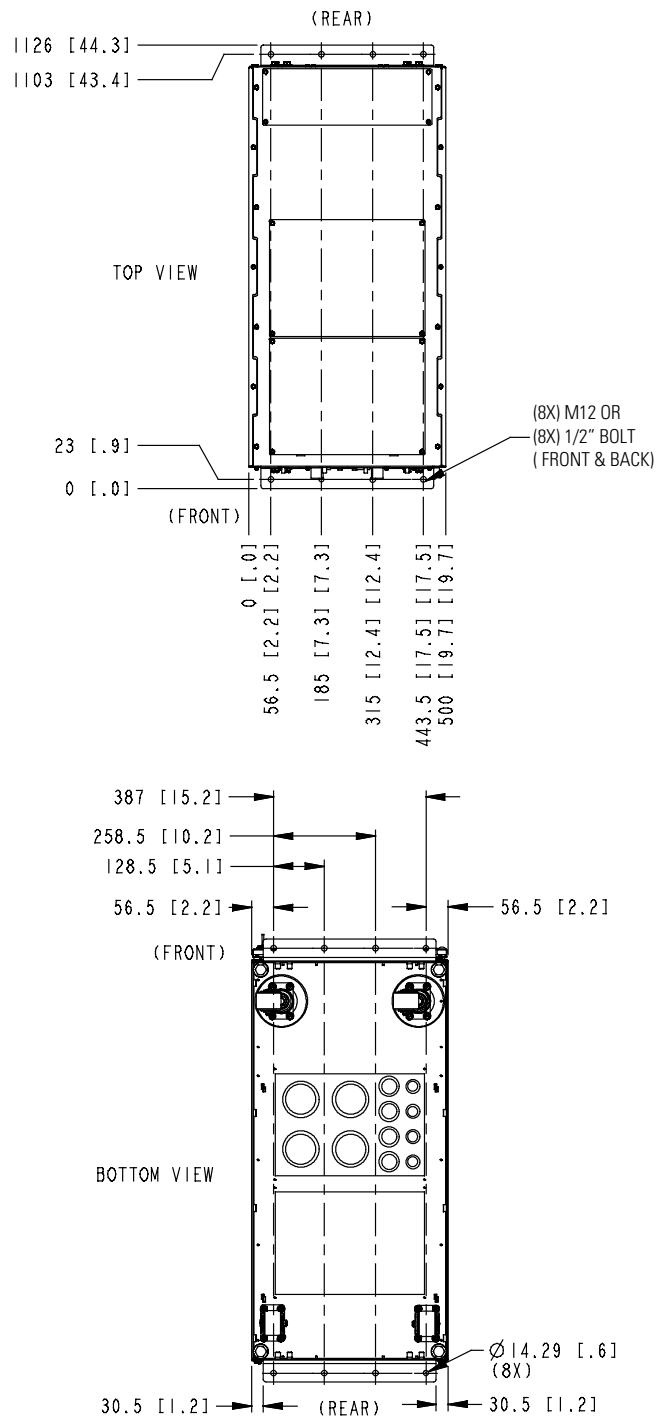
**Figure 36. 93PM-L (208V) and 93PM (480V) IAC-D Seismic Mounting Dimensions**



Dimensions are in millimeters [inches]

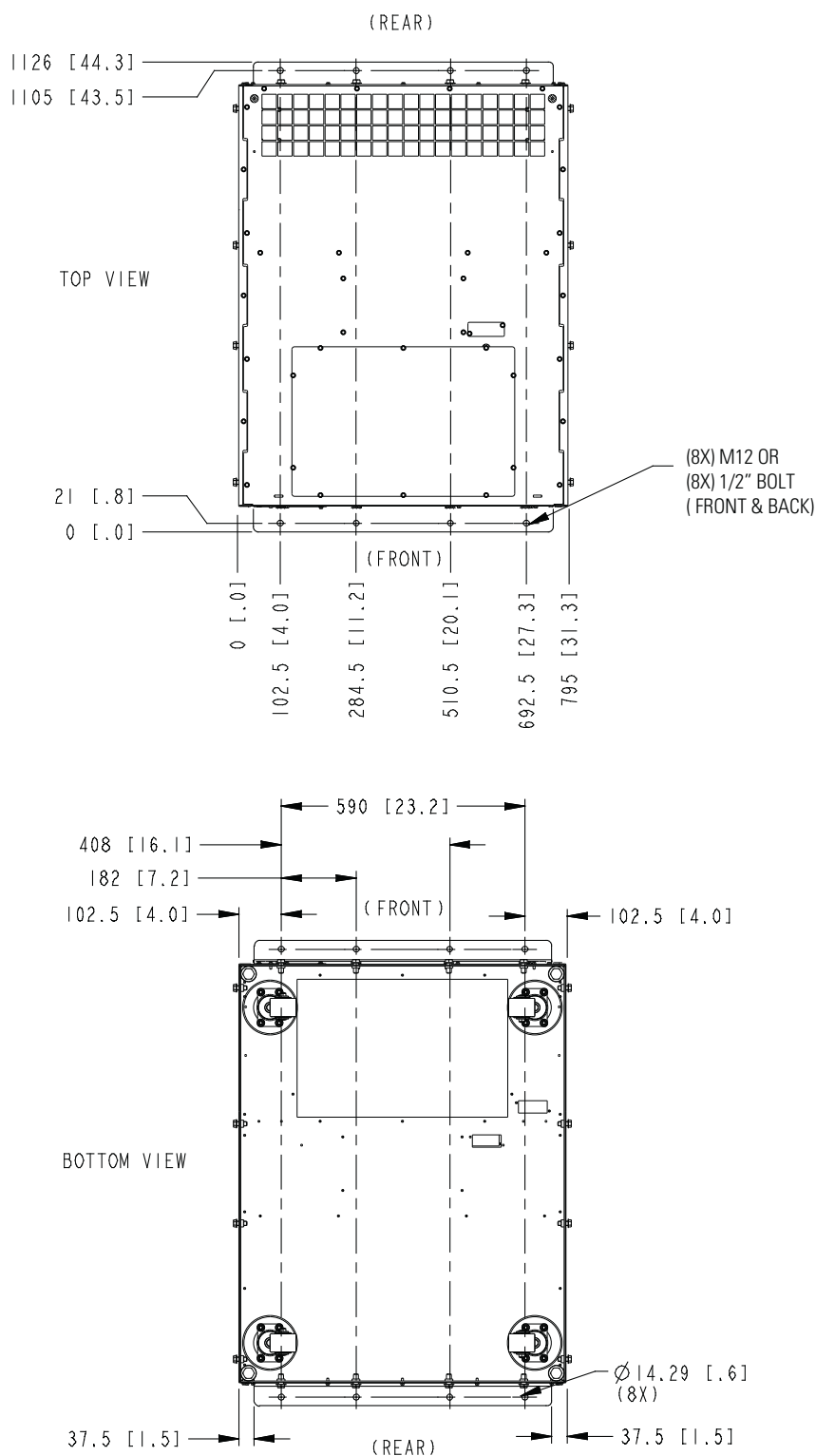


**Figure 37. 93PM (480V) IAC-T Seismic Mounting Dimensions**



Dimensions are in millimeters [inches]

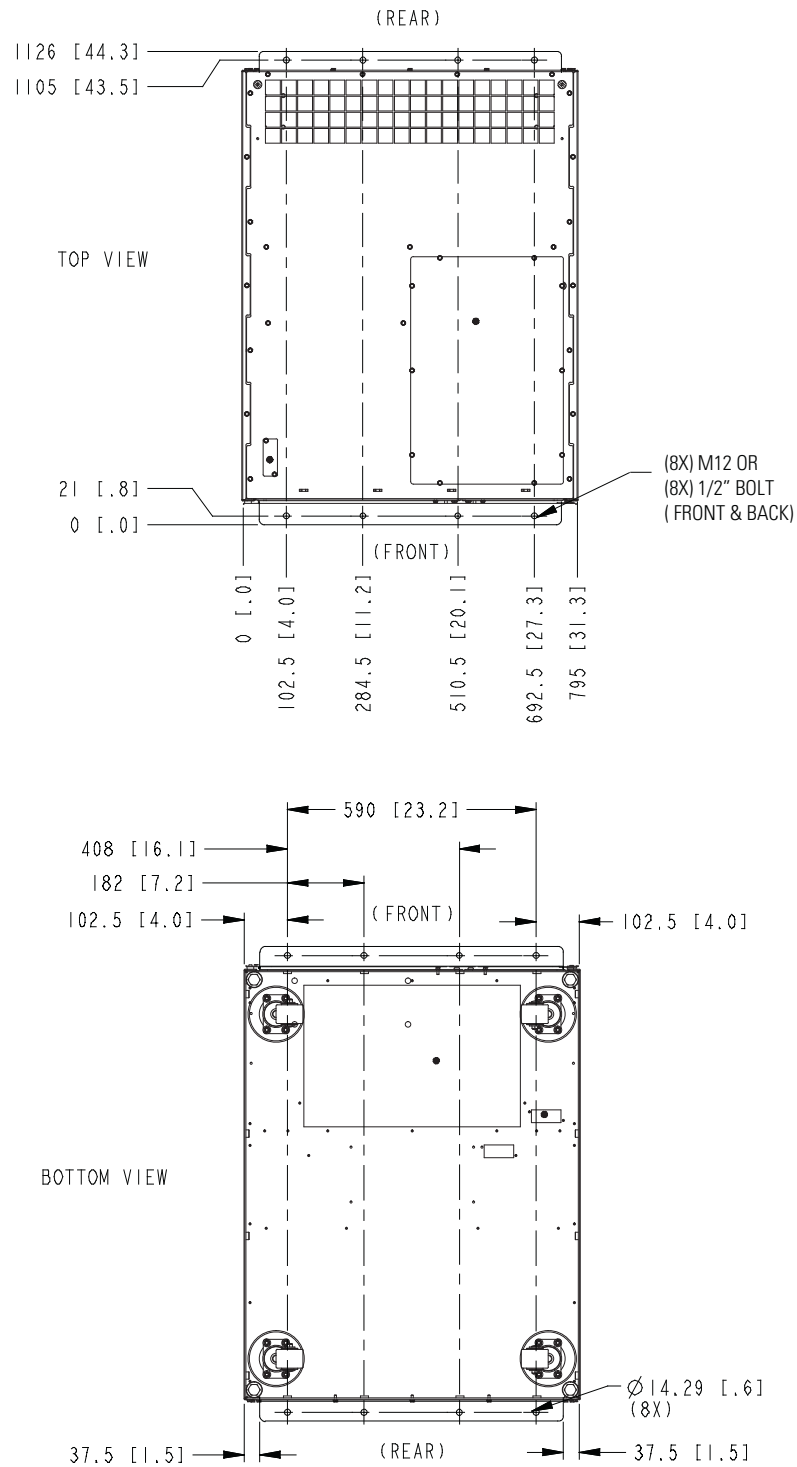
**Figure 38. 93PM-L (208V) IAC-B and 93PM (480) IAC-BD Seismic Mounting Dimensions**



NOTE: 93PM-L IAC-B and 93PM IAC-BD floor mounting brackets and locations are identical.

Dimensions are in millimeters [inches]

**Figure 39. 93PM-L (208V) and 93PM (480V) IAC-PD Seismic Mounting Dimensions**



Dimensions are in millimeters [inches]

TOP VIEW

(REAR)

(FRONT)

1126 [44.3]

1103 [43.4]

23 [.9]

0 [.0]

0 [.0]

56.5 [2.2] [2.2]

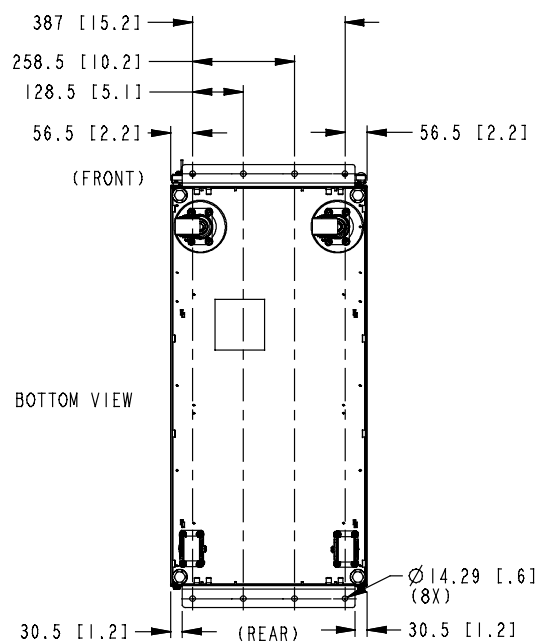
185 [7.3] [7.3]

315 [12.4] [12.4]

443.5 [17.5] [17.5]

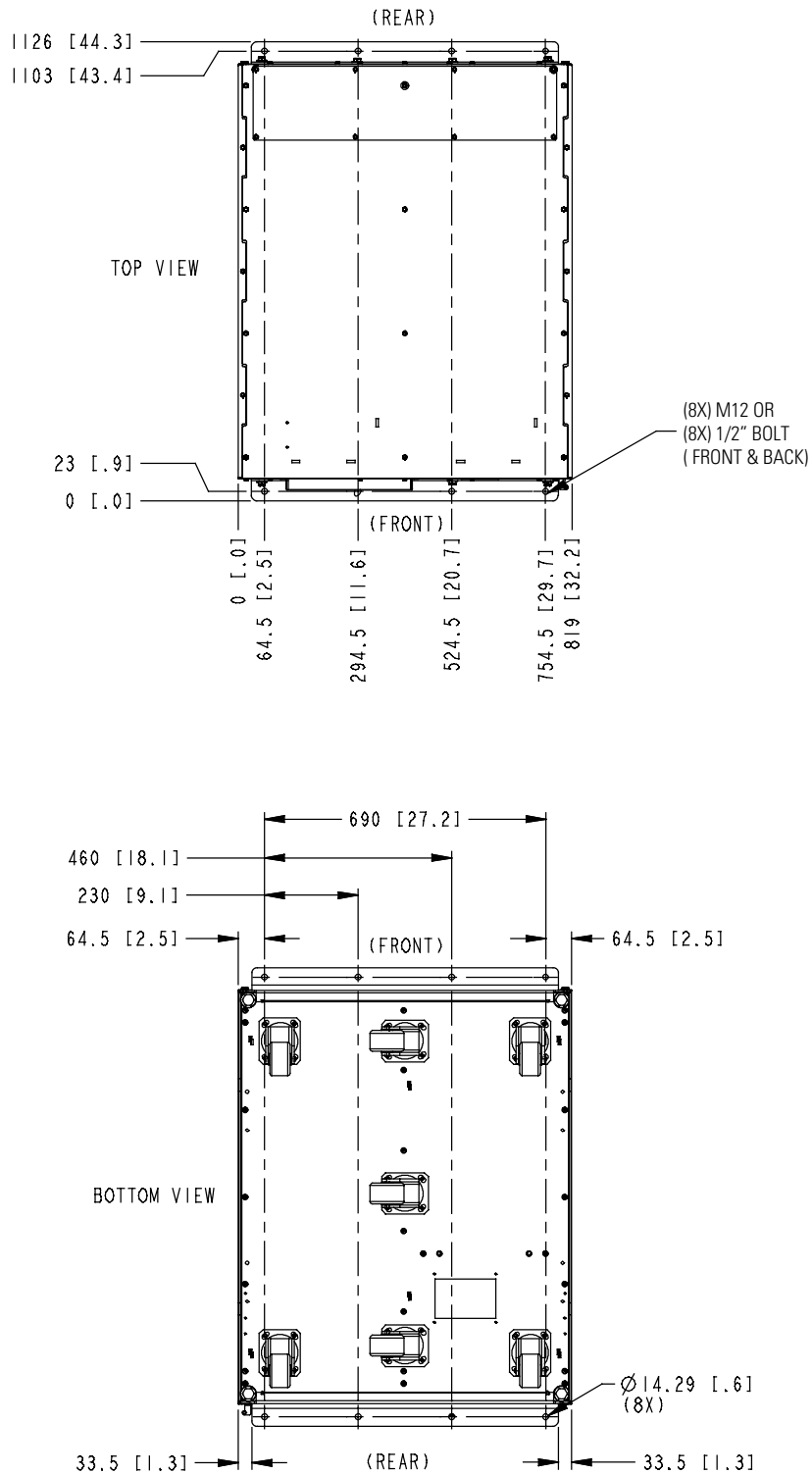
500 [19.7] [19.7]

(8X) M12 OR  
(8X) 1/2" BOLT  
(FRONT & BACK)



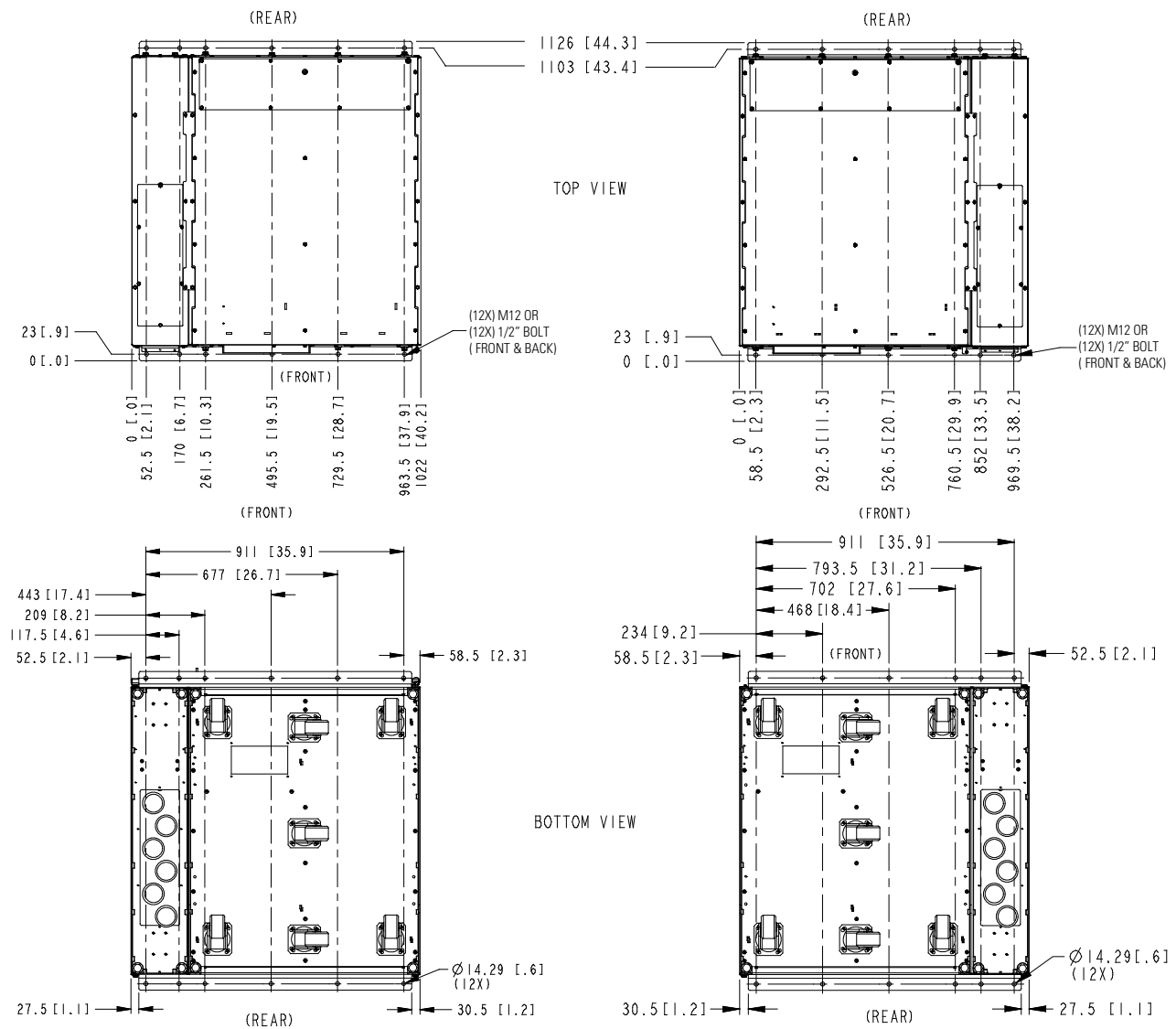
Seismic Data Requirements for Eaton UPS Equipment Installation User's Guide 164000050—Rev 05

**Figure 41. 93PM IBC-L and IBC-LH Seismic Mounting Dimensions**



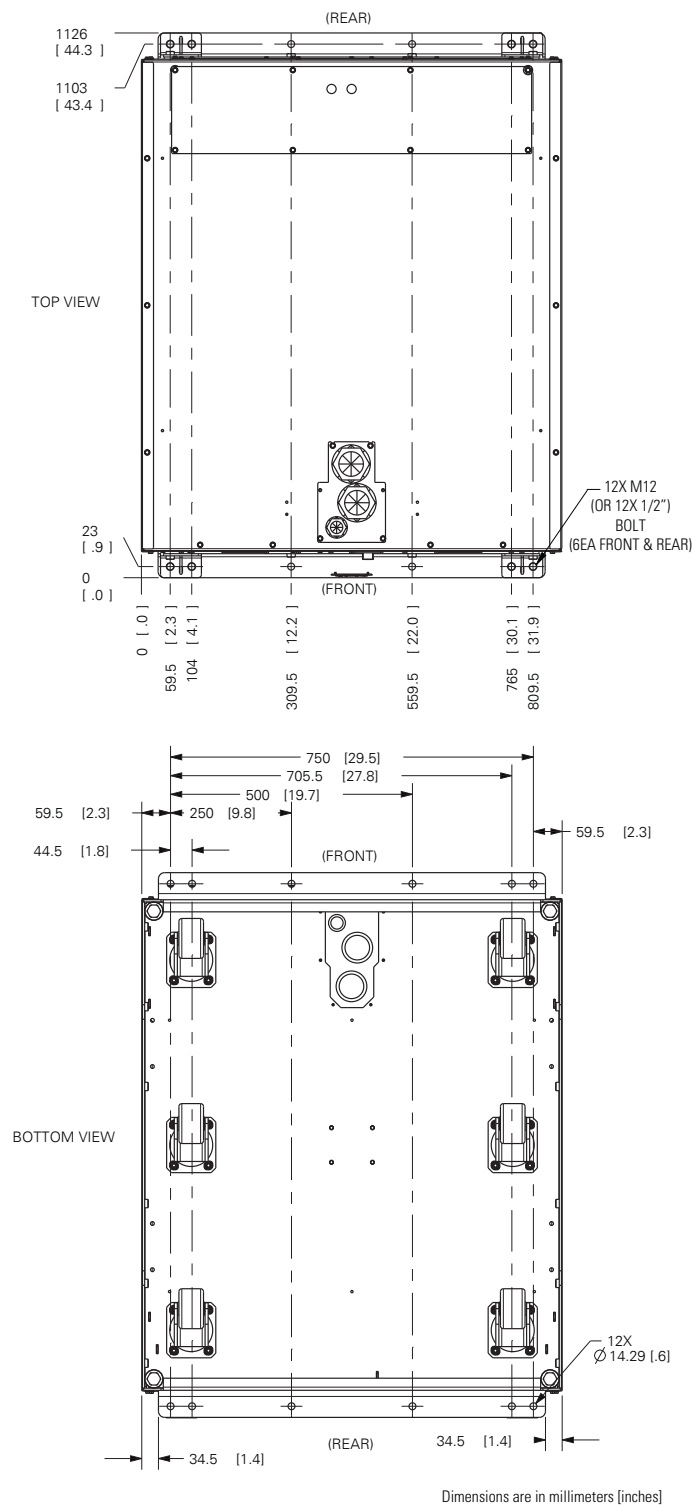
Dimensions are in millimeters [inches]

**Figure 42. 93PM IBC-L and IBC-LH with Sidecar Seismic Mounting Dimensions**



Dimensions are in millimeters [inches]

**Figure 43. 93PM IBC-LW and IBC-LHW Seismic Mounting Dimensions**





## 5.5 Eaton 93PM-L UPS (208V) and 93PM UPS (480V) Seismic (OSHDP) Door Retention Kit Install Instructions

Use these instructions to install the seismic door retention kit brackets to secure the uninterruptible power supply (UPS) door. One kit is required per UPS door.

These instructions are applicable to all UPS frame sizes for the following models:

- Eaton 93PM-L UPS (208V)
- Eaton 93PM UPS (480V)

	<b>NOTE 1</b> This kit is used to support seismic installations where applicable.
	<b>NOTE 2</b> Refer to the installation and operation manual supplied with the UPS for dimensions and required clearances.

Seismic Door Retention Kit Contents	Quantity
Bracket, 93PM Cabinet, OSHPD	1
Bracket, 93PM Door, OSHPD	1
Flange Head Bolt, Black M5 X 12	2
<b>NOTE</b> See <a href="#">Figure 44</a> for door retention kit details.	



### IMPORTANT

For seismic installations, the UPS cabinet floor mounting surface must be level.

To install the brackets:

1. Unload and mechanically install the UPS according to the instructions in the applicable installation and operation manual.
2. Open the UPS door. Locate the horizontal slot on the top rear of the door. See [Figure 45](#) for the bracket horizontal slot location.
3. Remove the two M4 screws directly beneath the opening. See [Figure 45](#) for the screw location.
4. Install the door bracket and secure with two M4 screws previously removed. Hand tighten the screws.
5. Install the cabinet bracket using the two M5 thread forming screws included in the kit. Hand tighten the screws. See [Figure 46](#) for cabinet bracket mounting location and [Figure 47](#) bracket installation details.
6. Both brackets have slots for adjusting bracket position. Adjust brackets so the spring-loaded fastener on the cabinet bracket aligns with the threaded insert of the door bracket.
7. Once the brackets are properly aligned, secure the brackets by tightening the screws to the following torque specifications.

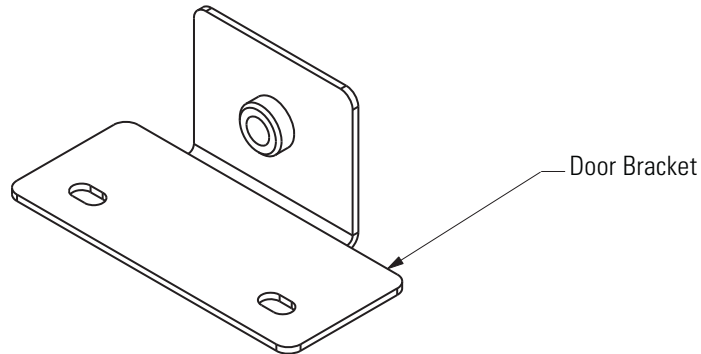
Door bracket M4 screws	2.0–3.3 Nm, or 18–29 in-lbs.
Cabinet bracket M5 screws	4.1–6.6 Nm, or 36–58 in-lbs.

8. Close and secure the UPS door.

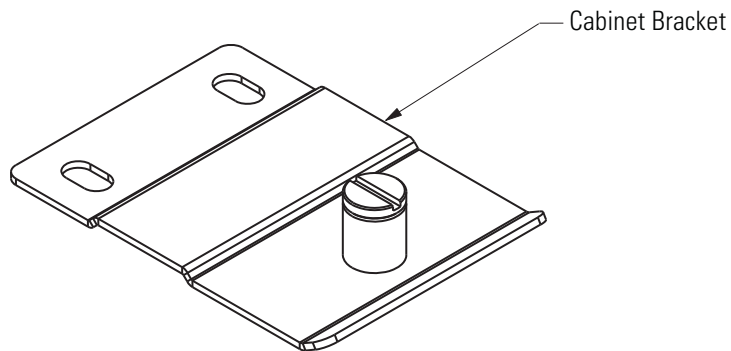


### 5.5.1 Seismic Door Retention Kit Reference Images

**Figure 44. Seismic Door Retention Kit Bracket Details**



**NOTE** Slots in door bracket allow for horizontal adjustment.



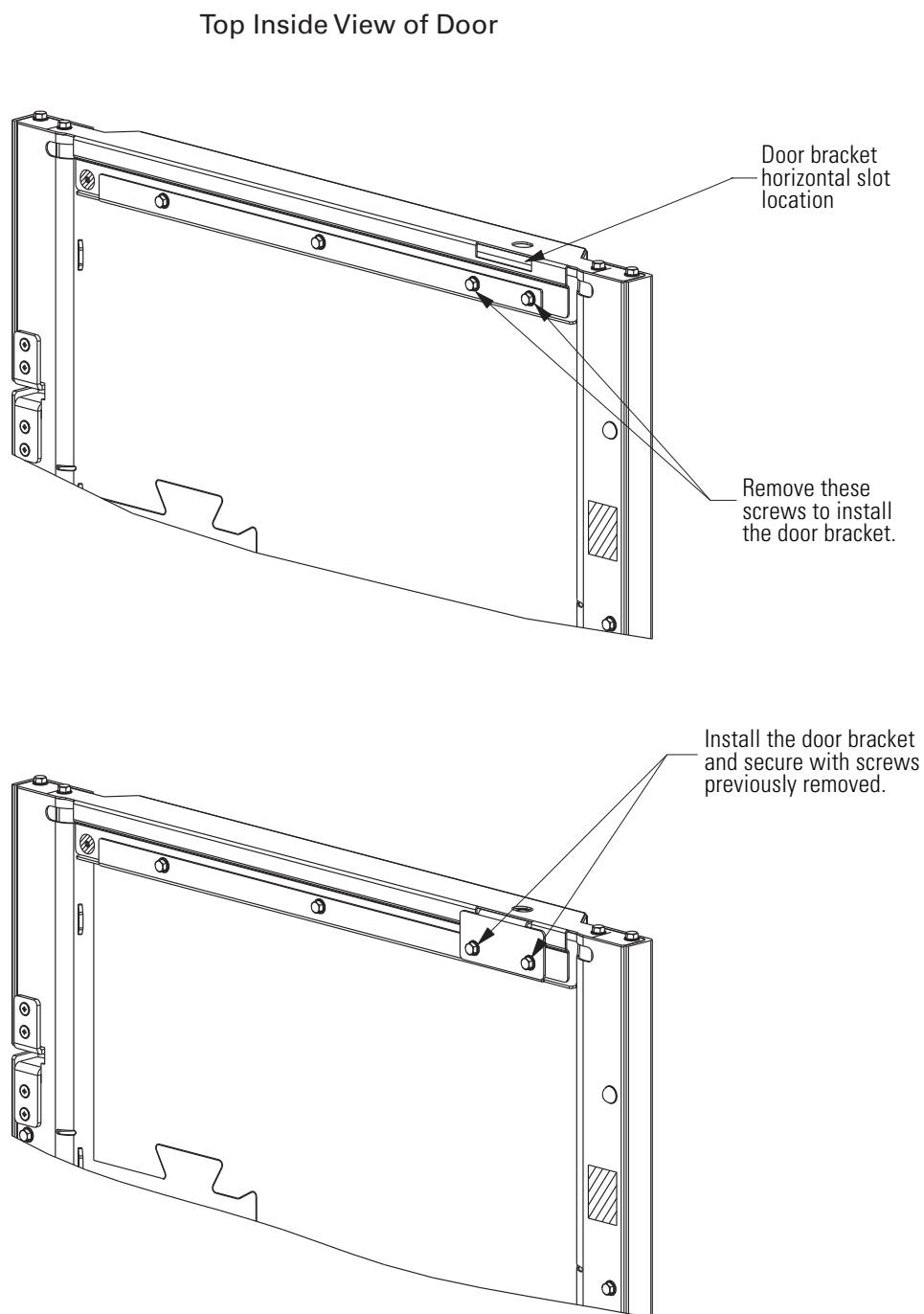
**NOTE** Slots in cabinet bracket allow for adjustment in the depth direction.



**NOTE 1** The Seismic Door Retention kit is designed for use with all Eaton 93PM UPS (480V) and Eaton 93PM-L UPS (208V) models.

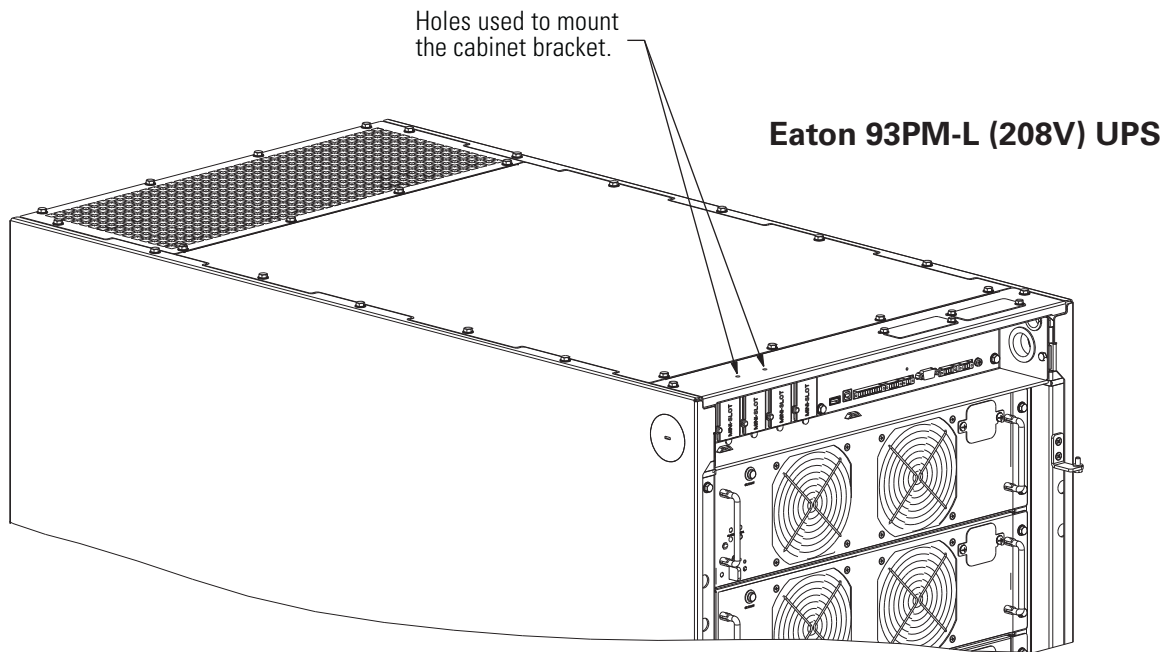
**NOTE 2** One kit is required per UPS door.

**Figure 45. Seismic Door Bracket Install Location and Details**

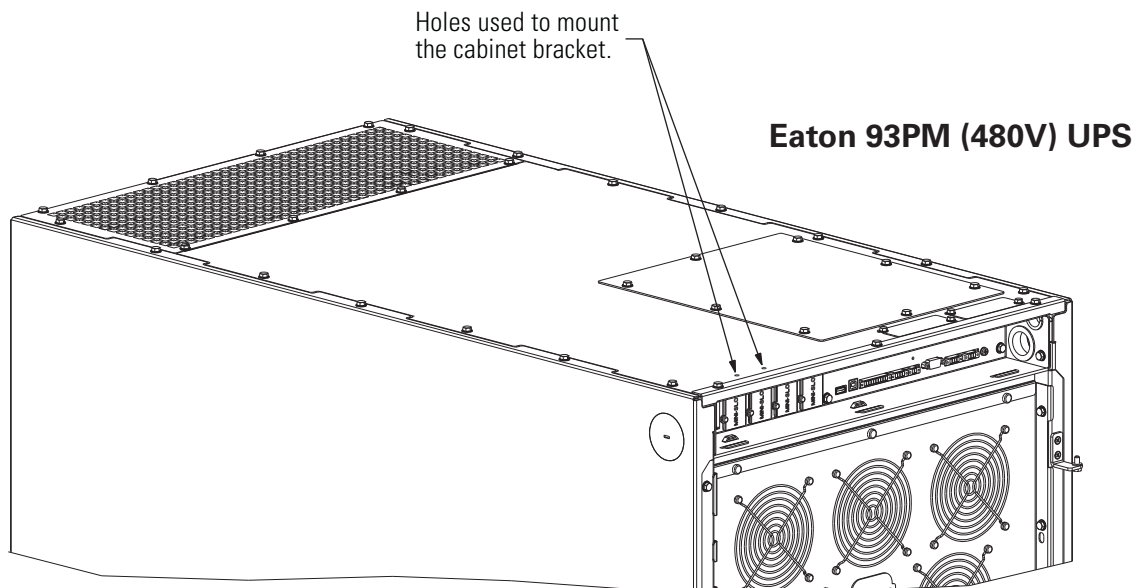


**NOTE** The interior of the UPS door is identical for the Eaton 93PM-L UPS (208V) and Eaton 93PM UPS (480V) models.

**Figure 46. Seismic Cabinet Bracket Install Location**

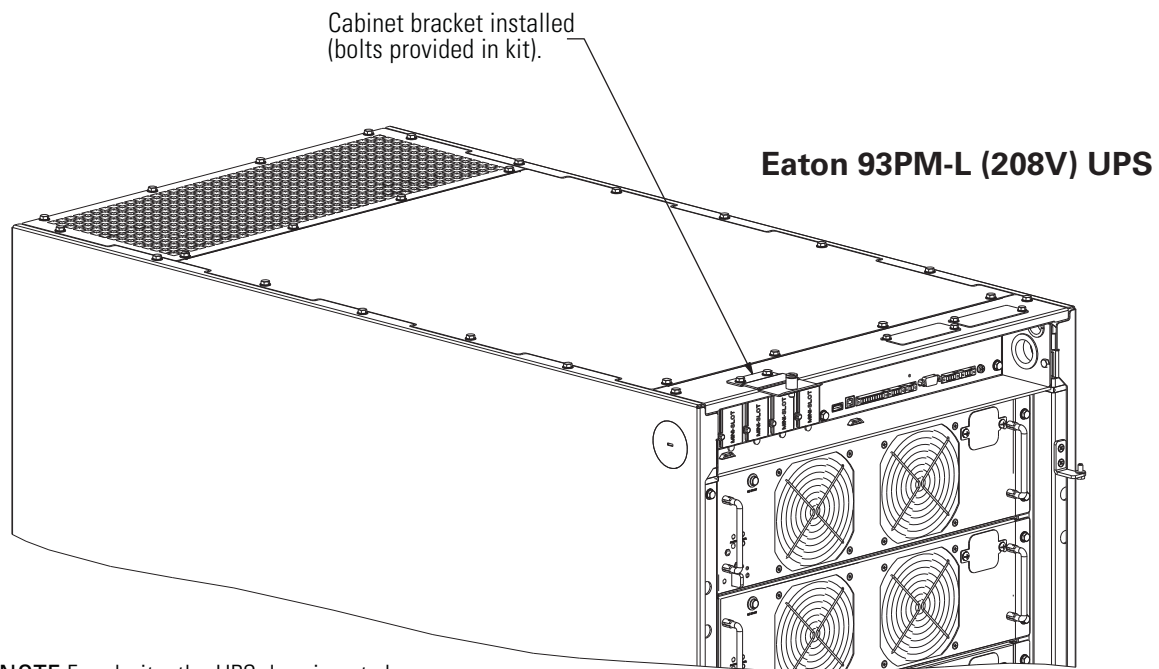


**NOTE** For clarity, the UPS door is not shown.

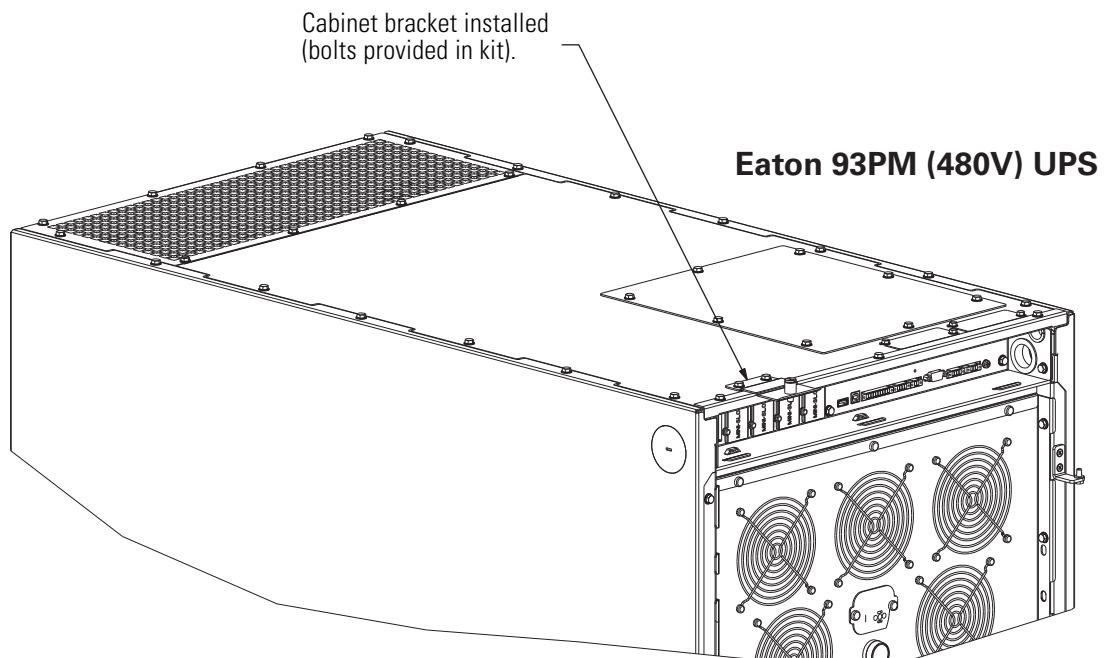


**NOTE** For clarity, the UPS door is not shown.

**Figure 47. Seismic Cabinet Bracket Install Details**



**NOTE** For clarity, the UPS door is not shown.



**NOTE** For clarity, the UPS door is not shown.





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