



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0454

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Tornatech, Inc.

Manufacturer's Technical Representative: Felix Turcotte

Mailing Address: 4100 Desserte Sud, (A-440 Ouest), Laval, QC H7T0H3

Telephone: (514) 334-2503

Email: felixt@tornatech.com

Product Information

Product Name: Electrical Control Panels on Life Safety/Critical Branch

Product Type: Fire Protection & Security Panels

Product Model Number: Varies, see attachment.

General Description: Electric and diesel fire pump controllers with various subcomponents with carbon or stainless enclosures.

Mounting Description: Rigid, Wall and Base/Wall

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: TRU Compliance, by Structural Integrity Associates

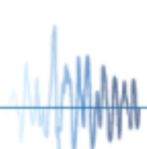
Contact Person: Daniel Zentner

Mailing Address: 233 SW Wilson Ave, Suite 101, Bend, OR 97702

Telephone: (541) 292-5839

Email: dzentner@structint.com

Title: Program Manager





DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION

California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: STRUCTURAL INTEGRITY ASSOCIATES
Name: Mehrshad Ketabdar California License Number: S6105
Mailing Address: 316 E Dexter St, Covina, CA 91723
Telephone: (669) 946-2838 Email: mketabdar@structint.com

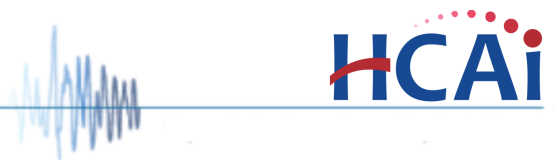
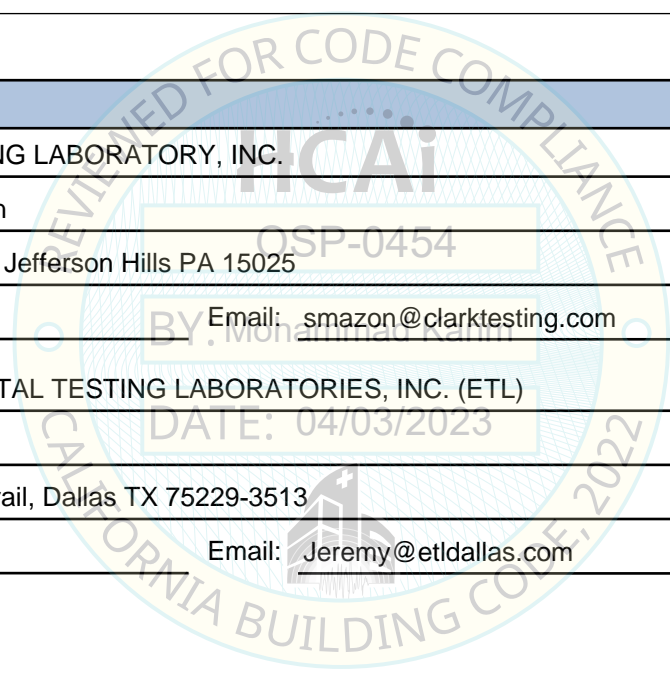
Certification Method

GR-63-Core [X] ICC-ES AC156 IEEE 344 IEEE 693 NEBS 3
Other (Please Specify):

Testing Laboratory

Company Name: CLARK TESTING LABORATORY, INC.
Contact Person: Suzanne Mazon
Mailing Address: 1801 Route 51, Jefferson Hills PA 15025
Telephone: (412) 387-1001 Email: smazon@clarktesting.com

Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)
Contact Person: Jeremy Lange
Mailing Address: 11034 Indian Trail, Dallas TX 75229-3513
Telephone: (972) 247-9657 Email: Jeremy@etldallas.com





**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION**

Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.50 (SDS = 2.0 at z/h = 1); 1.44 (SDS = 3.2 at z/h = 0)

SDS (Design spectral response acceleration at short period, g) = 2.0 (z/h = 1); 3.2 (z/h = 0)

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1 and 0

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

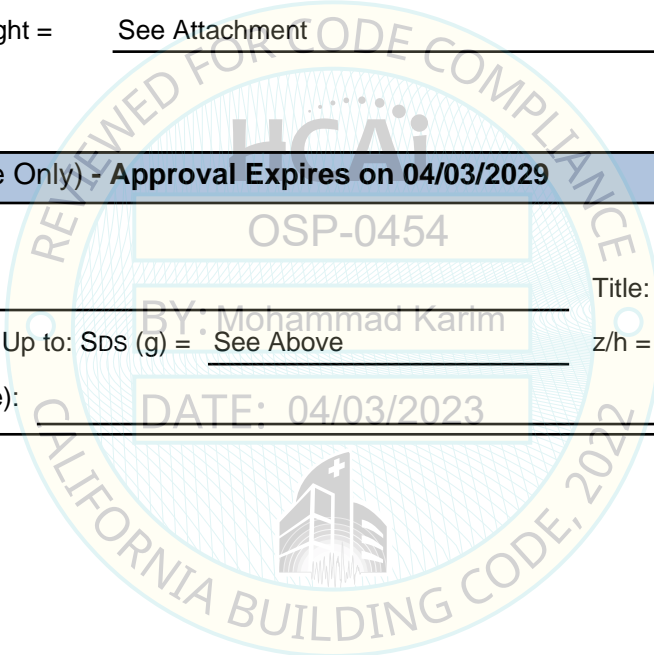
HCAI Approval (For Office Use Only) - Approval Expires on 04/03/2029

Date: 4/3/2023

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = See Above z/h = See Above

Condition of Approval (if applicable): DATE: 04/03/2023



SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

2100139-CR-001-R2



Manufacturer: Tornatech Inc.	TABLE 1
Model Line: GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	

Certified Product Construction Summary:
Painted carbon steel & stainless steel enclosure.

Certified Options Summary:
Anti-condensation heater, thermostat and humidistat. Field programmable I/O board

Mounting Configuration:
Base/wall mounted - rigid
Note: Installed mounting must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 **Seismic Certification Limits:** $S_{DS} = 2.0g \quad z/h=1.0$ $I_p = 1.5$
 $S_{DS} = 3.2g \quad z/h=0.0$

Model Line	Model ^{1,2}	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Across-the-line Starter	GPA	12.0	20.0	48.0	170		Interp.
		14.0	24.0	54.0	230		Interp.
		18.0	30.0	68.0	400		Interp.
		18.0	36.0	68.0	450		Interp.
		20.0	40.0	75.0	600		Interp.
Across-the-line Starter w/ Automatic Power Transfer Switch	GPA+GPU	12.0	36.0	48.0	280	UUT11: 229 lbs.	11
		14.0	44.0	54.0	390		Interp.
		18.0	54.0	68.0	850		Interp.
		18.0	72.0	68.0	1,000	UUT12: 955 lbs.	12
		20.0	80.0	75.0	1,150	UUT19: 1,130 lbs.	19
Partwinding Starter	GPP	12.0	20.0	48.0	170		Interp.
		14.0	24.0	54.0	230		Interp.
		18.0	30.0	68.0	400		Interp.
		18.0	36.0	68.0	450		Interp.
		20.0	40.0	75.0	600		Interp.
Partwinding Starter w/ Automatic Power Transfer Switch	GPP+GPU	12.0	36.0	48.0	280		Interp.
		14.0	44.0	54.0	390		Interp.
		18.0	54.0	68.0	850		Interp.
		18.0	60.0	68.0	1,000		Interp.
		20.0	80.0	75.0	1,200		Interp.

Notes:
1. The model numbers listed in this table represent specific sets of subcomponents. Test units 1-4, 9, 11-19 cover the range of materials, enclosures, and subcomponents for all models. Models that do not list a UUT are interpolated between the test units.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

2100139-CR-001-R2



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Certified Options Summary:
Anti-condensation heater, thermostat and humidistat. Field programmable I/O board

Mounting Configuration:
Base/wall mounted - rigid
Note: Installed mounting must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 **Seismic Certification Limits:** $S_{DS} = 2.0g \quad z/h=1.0$ $I_p = 1.5$
 $S_{DS} = 3.2g \quad z/h=0.0$

Model Line	Model ^{1,2}	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Wye-Delta Closed Starter	GPW	12.0	26.0	48.0	275		Interp.
		14.0	30.0	54.0	350		Interp.
		18.0	36.0	68.0	510	UUT3: 510 lbs.	3
		18.0	60.0	68.0	600		Interp.
		20.0	65.0	75.0	750		Interp.
Wye-Delta Closed Starter w/ Automatic Power Transfer Switch	GPW+GPU	12.0	42.0	48.0	315		Interp.
		14.0	50.0	54.0	440		Interp.
		18.0	60.0	68.0	850		Interp.
		18.0	72.0	68.0	1,150		Interp.
		20.0	80.0	75.0	1,300		Interp.
Wye-Delta Open Starter	GPY	12.0	20.0	48.0	200		Interp.
		14.0	24.0	54.0	300		Interp.
		18.0	30.0	68.0	500		Interp.
		20.0	40.0	75.0	650		Interp.
Wye-Delta Open Starter w/ Automatic Power Transfer Switch	GPY+GPU	12.0	36.0	48.0	300		Interp.
		14.0	44.0	54.0	490		Interp.
		18.0	54.0	68.0	990		Interp.
		18.0	60.0	68.0	1,100		Interp.
		20.0	80.0	75.0	1,200		Interp.

Notes:
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2100139-CR-001-R2



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Painted carbon steel & stainless steel enclosure.

Certified Options Summary:
Anti-condensation heater, thermostat and humidistat. Field programmable I/O board

Mounting Configuration:
Base/wall mounted - rigid
Note: Installed mounting must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 **Seismic Certification Limits:** $S_{DS} = 2.0g$ $z/h=1.0$ $I_p = 1.5$
 $S_{DS} = 3.2g$ $z/h=0.0$

Model Line	Model ^{1,2}	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Soft Start/Soft Stop	GPS	12.0	26.0	48.0	200	UUT13: 158 lbs.	13
		12.0	26.0	48.0	200	UUT15: 153 lbs.	15
		12.0	26.0	48.0	200	UUT4: 189 lbs.	4
		14.0	30.0	54.0	320		Interp.
		18.0	36.0	68.0	475	UUT16: 409 lbs.	16
		18.0	36.0	68.0	475	UUT2: 453 lbs.	2
		18.0	54.0	68.0	600		Interp.
		18.0	60.0	68.0	750		Interp.
		18.0	60.0	68.0	769	UUT14: 769 lbs.	14
Soft Start/Soft Stop w/ Automatic Power Transfer Switch	GPS+GPU	12.0	42.0	48.0	335		Interp.
		14.0	50.0	54.0	600		Interp.
		18.0	60.0	68.0	1,050		Interp.
		20.0	105.0	75.0	1,350		Interp.
Autotransformer Starter	GPR	12.0	26.0	48.0	310		Interp.
		14.0	30.0	54.0	425		Interp.
		18.0	36.0	68.0	765		Interp.
		18.0	60.0	68.0	1,210		Interp.
		20.0	65.0	75.0	1,350		Interp.
Autotransformer Starter w/ Automatic Power Transfer Switch	GPR+GPU	12.0	42.0	48.0	600		Interp.
		14.0	50.0	54.0	810		Interp.
		18.0	60.0	68.0	1,210	UUT1: 1,210 lbs.	1
		18.0	72.0	68.0	1,210	UUT9: 1,003 lbs.	9
		20.0	105.0	75.0	2,000		Interp.

Notes:
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SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

2100139-CR-001-R2



Manufacturer: Tornatech Inc.	TABLE 1
Model Line: GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	

Certified Product Construction Summary:
Painted carbon steel & stainless steel enclosure.

Certified Options Summary:
Anti-condensation heater, thermostat and humidistat. Field programmable I/O board

Mounting Configuration:
Base/wall mounted - rigid
Note: Installed mounting must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 **Seismic Certification Limits:** $S_{DS} = 2.0g$ $z/h=1.0$ $I_p = 1.5$
 $S_{DS} = 3.2g$ $z/h=0.0$

Model Line	Model ^{1,2}	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Pressure Limiting (VFD) w/ Across-the-line Bypass	VPA	12.0	52.0	48.0	270		Interp.
		14.0	60.0	54.0	650		Interp.
		18.0	72.0	68.0	900		Interp.
		30.0	107.0	75.0	1,350		Interp.
Pressure Limiting (VFD) w/ Across-the-line Bypass w/ Automatic Power Transfer Switch	VPA+VPU	12.0	68.0	48.0	375	UUT17: 375 lbs.	17
		14.0	80.0	54.0	800		Interp.
		18.0	96.0	68.0	1,300		Interp.
		30.0	147.0	75.0	1,800		Interp.
Pressure Limiting (VFD) w/ Soft Start Bypass	VPS	12.0	52.0	48.0	350		Interp.
		14.0	60.0	54.0	820		Interp.
		18.0	72.0	68.0	1,100		Interp.
		30.0	107.0	75.0	2,200	UUT18: 2,181 lbs.	18
Pressure Limiting (VFD) w/ Soft Start Bypass w/ Automatic Power Transfer Switch	VPS+VPU	12.0	68.0	48.0	455		Interp.
		14.0	80.0	54.0	970		Interp.
		18.0	96.0	68.0	1,500		Interp.
		30.0	147.0	75.0	2,650		Interp.

Notes:
1. The model numbers listed in this table represent specific sets of subcomponents. Test units 1-4, 9, 11-19 cover the range of materials, enclosures, and subcomponents for all models. Models that do not list a UUT are interpolated between the test units.
2. The VPX (VPX+VPU) model lines are identical to the GPX (GPX+GPU) model lines except for a VFD enclosure which is added on the left side for VPX models.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

2100139-CR-001-R2



Manufacturer: Tornatech Inc.	TABLE 1
Model Line: GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	

Certified Product Construction Summary:
Painted carbon steel & stainless steel enclosure.

Certified Options Summary:
Anti-condensation heater, thermostat and humidistat. Field programmable I/O board

Mounting Configuration:
Base/wall mounted - rigid
Note: Installed mounting must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 **Seismic Certification Limits:** $S_{DS} = 2.0g \quad z/h=1.0$ $I_p = 1.5$
 $S_{DS} = 3.2g \quad z/h=0.0$

Model Line	Model ^{1,2}	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Pressure Limiting (VFD) w/ Autotransformer Bypass	VPR	12.0	52.0	48.0	350		Interp.
		14.0	60.0	54.0	820		Interp.
		18.0	72.0	68.0	1,100		Interp.
		30.0	107.0	75.0	2,200		Interp.
Pressure Limiting (VFD) w/ Autotransformer Bypass w/ Automatic Power Transfer Switch	VPR+VPU	12.0	68.0	48.0	455		Interp.
		14.0	80.0	54.0	970		Interp.
		18.0	96.0	68.0	1,500		Interp.
		30.0	147.0	75.0	2,650		Interp.

Notes:
1. The model numbers listed in this table represent specific sets of subcomponents. Test units 1-4, 9, 11-19 cover the range of materials, enclosures, and subcomponents for all models. Models that do not list a UUT are interpolated between the test units.
2. The VPx and VPx+VPU model lines are identical to the GPx and GPx+GPU model lines except for a VFD enclosure which is added on the left side for VPx models.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

2100139-CR-001-R2



Manufacturer: Tornatech Inc.	TABLE 2
Model Line: GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	

Certified Product Construction Summary:
Painted carbon steel & stainless steel enclosure.

Certified Options Summary:
GPD Models: CE compliance (disconnect switch), Engine block heater, Anti-condensation heater, thermostat and humidistat, field programmable I/O board.

Mounting Configuration:
Wall mounted - rigid
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 **Seismic Certification Limits:** $S_{DS} = 2.0g \quad z/h=1.0$ $I_p = 1.5$
 $S_{DS} = 3.2g \quad z/h=0.0$

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Diesel Engine Driven Fire Pump Controller	GPD	8.0	23.6	27.5	90	UUT: 73 lbs.	8
		8.0	30.0	40.0	132		10
Limited Service Fire Pump Controller	GPL	8.0	20.0	24.0	140		Interp.
	GPL+GLU	8.0	40.0	24.0	140		7
Jockey Fire Pump Controller	JP1	6.0	10.0	12.0	20		5
		7.0	16.0	16.0	40		Interp.
	JP2	6.0	10.0	12.0	20		Interp.
		7.0	16.0	16.0	40		Interp.
	JP3	6.0	9.5	12.0	20	UUT25: 17 lbs.	25
		7.0	16.0	16.0	40	UUT6: 38 lbs.	6
8.0	20.0	24.0	60	UUT24: 56 lbs.	24		
Disconnecting Device	OPD	11.0	12.0	22.0	40	UUT21: 38 lbs. UUT23: 36 lbs.	21, 23
		11.0	14.0	26.0	75		Interp.
		11.0	16.0	30.0	100		Interp.
		12.5	18.0	42.0	130	UUT20: 120 lbs. UUT22: 129 lbs.	20, 22

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer: Tornatech Inc. Model Line: GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx								
UUT	Unit Description (Mounting)	Report Number (UUT#)	Testing Lab	Year Tested	ISO 17025 Accredited?	S _{DS}	z/h	I _p
1	GPR + GPU-600/400/3/60 (Base/wall mounted - rigid)	13729 Rev.2 (UUT1)	Environmental Testing Lab (ETL)	2015	Yes	2.0 3.2	1.0 0.0	1.5
2	GPS-600/300/3/60 (Base/wall mounted - rigid)	13729 Rev.2 (UUT2)	Environmental Testing Lab (ETL)	2015	Yes	2.0 3.2	1.0 0.0	1.5
3	GPW-600/400/3/60 (Base/wall mounted - rigid)	13729 Rev.2 (UUT3)	Environmental Testing Lab (ETL)	2015	Yes	2.0 3.2	1.0 0.0	1.5
4	GPS-600/60/3/60 (Base/wall mounted - rigid)	13729 Rev.2 (UUT4)	Environmental Testing Lab (ETL)	2015	Yes	2.0 3.2	1.0 0.0	1.5
5	JP1-120/0.25/1/60 (Wall mounted - rigid)	13729 Rev.2 (UUT5)	Environmental Testing Lab (ETL)	2015	Yes	2.0 3.2	1.0 0.0	1.5
6	JP3-220/20/3/60 (Wall mounted - rigid)	13729 Rev.2 (UUT6)	Environmental Testing Lab (ETL)	2015	Yes	2.0 3.2	1.0 0.0	1.5
7	GPL+GLU-208/30/3/60 (Wall mounted - rigid)	13729 Rev.2 (UUT7)	Environmental Testing Lab (ETL)	2015	Yes	2.0 3.2	1.0 0.0	1.5
8	GPD-24-220 (Wall mounted - rigid)	13729 Rev.2 (UUT8)	Environmental Testing Lab (ETL)	2015	Yes	2.0 3.2	1.0 0.0	1.5
9	GPR + GPU-800/400/3/60 (Base/wall mounted - rigid)	JID 15-01258 (UUT9)	Clark Testing	2015	Yes	2.0 3.2	1.0 0.0	1.5
10	GPD-12-220 (Wall mounted - rigid)	JID 15-01258 (UUT10)	Clark Testing	2015	Yes	2.0 3.2	1.0 0.0	1.5
11	GPA+GPU-220/60/3/60 (Base/wall mounted - rigid)	14599 Rev.1 (UUT11)	Environmental Testing Lab (ETL)	2015	Yes	2.0 3.2	1.0 0.0	1.5

Notes:

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer: Tornatech Inc. Model Line: GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx								
UUT	Unit Description (Mounting)	Report Number (UUT#)	Testing Lab	Year Tested	ISO 17025 Accredited?	S _{DS}	z/h	I _p
12	GPA+GPU-600/400/3/60 (Base/wall mounted - rigid)	14599 Rev.1 (UUT12)	Environmental Testing Lab (ETL)	2017	Yes	2.0 3.2	1.0 0.0	1.5
13	GPS-480/5/3/60 (Base/wall mounted - rigid)	2100139-TR-001 (UUT1)	Environmental Testing Lab (ETL)	2021	Yes	2.0 3.2	1.0 0.0	1.5
14	GPS-480/500/3/60 (Base/wall mounted - rigid)	2100139-TR-001 (UUT2)	Environmental Testing Lab (ETL)	2021	Yes	2.0 3.2	1.0 0.0	1.5
15	GPS-480/5/3/60 (Base/wall mounted - rigid)	2100139-TR-001 (UUT3)	Environmental Testing Lab (ETL)	2021	Yes	2.0 3.2	1.0 0.0	1.5
16	GPS-480/250/3/60 (Base/wall mounted - rigid)	2100139-TR-001 (UUT4)	Environmental Testing Lab (ETL)	2021	Yes	2.0 3.2	1.0 0.0	1.5
17	VPA+VPU-200/5/3/60 (Base/wall mounted - rigid)	2101253-TR-001 (UUT17)	Environmental Testing Lab (ETL)	2022	Yes	2.0 3.2	1.0 0.0	1.5
18	VPS-480/450/3/60 (Base/wall mounted - rigid)	2101253-TR-001 (UUT18)	Environmental Testing Lab (ETL)	2022	Yes	2.0 3.2	1.0 0.0	1.5
19	GPA+GPU-230/400/3/60 (Base/wall mounted - rigid)	2101253-TR-001 (UUT19)	Environmental Testing Lab (ETL)	2022	Yes	2.0 3.2	1.0 0.0	1.5
20	OPD-480/350/3/60 (Schneider CB) (Wall mounted - rigid)	2101253-TR-001 (UUT20)	Environmental Testing Lab (ETL)	2022	Yes	2.0 3.2	1.0 0.0	1.5
21	OPD-480/5/3/60 (Schneider CB) (Wall mounted - rigid)	2101253-TR-001 (UUT21)	Environmental Testing Lab (ETL)	2022	Yes	2.0 3.2	1.0 0.0	1.5
22	OPD-480/350/3/60 (3L3 CB) (Wall mounted - rigid)	2101253-TR-001 (UUT22)	Environmental Testing Lab (ETL)	2022	Yes	2.0 3.2	1.0 0.0	1.5

Notes:

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 1
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	GPR + GPU-600/400/3/60	
Serial Number:	N/A	
Test Report:		13729 Rev.2 (UUT1)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,210	18.0	60.0	68.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:	Test Mounting Details:
Painted 14 ga. Carbon Steel Enclosure (2BOX103D/2BOX203D)	

Options/Subcomponent Summary:		
Description	Mfr.	Part Number
Alarm Bell	Newsmart	1NEW001
Contactor	Siemens	3RT105, 3RT106, 3RT107, 3RH1921-1FA22
Control Relay	Siemens	3RH1122-1AB00
Fan	Orion	0A172SAP-11-1TB
HMI	Tornatech	2VIZ001
I/O Board	Tornatech	2VIZ002/2VIZ102, 2VIZ003/2VIZ103
Pressure Transducer	Telemecanique	XMLP600PPF13Q3
Resistor	Huntington Vishay	ALSR5F-5-1.0-1%
Shunt Trip	Siemens	S17JLD6
Solenoid Valve	Granzow	1ASC024
Surge Arrester	Square D	SDSA 3650
Switches	Saia-Burgess	XGG6-88-P27Z1
	Siemens	MCS 600A, A01JLD64
Switch Contact Block	Siemens	3SB3400-0B
Transformer	Rex Mfg.	RS400J
	Transfab	EXS114340, ET5841, DL8849QB, DL8882QB



UUT1 was Base and Wall mounted - rigid.
 Base: Four (4) 7/16" Grade 5 bolts and washers.
 Wall: Two (2) 3/8" Grade 5 bolts and washers,
 Wall Bracket: Two (2) M10-1.5mm Grade 8.8 bolts and washers.
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 2
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	GPS-600/300/3/60	
Serial Number:	N/A	
Test Report:		13729 Rev.2 (UUT2)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
453	18.0	36.0	68.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:			Test Mounting Details:						
Painted 14 ga. Carbon Steel Enclosure (2BOX103B/2BOX203B)									
Options/Subcomponent Summary:									
Description	Mfr.	Part Number							
Alarm Bell	Newsmart	1NEW001							
Circuit Breaker	Siemens	MCP 400A							
Contactora	Siemens	3RT106							
Control Relay	Siemens	3RH1122-1AB00)							
Heater	DBK	HP06-2-15-240							
HMI	Tornatech	2VIZ001							
Humidistat	DBK	RFHSS-112							
I/O Board	Tornatech	2VIZ002/2VIZ102, 2VIZ005/2VIZ105							
Pressure Transducer	Telemecanique	XMLP600PPF13Q3							
Resistor	Huntington Vishay	ALSR5F-5-1.0-1%							
Shunt Trip	Siemens	3VL9400-1SC01							
Soft-Started	Siemens	3RW4075							
Solenoid Valve	Granzow	1ASC024							
Surge Arrester	Square D	SDSA 3650							
Switches	Siemens	MCS 400A							
Switch Contact Block	Siemens	3SB3400-0B							
Thermostat	DBK	FGT100							
Transformer	Marcus Transformer	MTC250-39	UUT2 was Base and Wall mounted - rigid. Base: Four (4) 7/16" Grade 5 bolts and washers. Wall: Two (2) 3/8" Grade 5 bolts and washers. Wall Bracket: Two (2) M10-1.5mm Grade 8.8 bolts and washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.						
	Transfab	EXS114340, ET5841							

UNIT UNDER TEST (UUT) SUMMARY SHEET



2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 3
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	GPW-600/400/3/60	
Serial Number:	N/A	
Test Report:		13729 Rev.2 (UUT3)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
510	18.0	36.0	68.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information								
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85
		3.2	0.0					

Product Construction Summary:			Test Mounting Details:					
Painted 14 ga. Carbon Steel Enclosure (2BOX103B/2BOX203B)								
Options/Subcomponent Summary:								
Description	Mfr.	Part Number						
Alarm Bell	Newsmart	1NEW001						
Circuit Breaker	Siemens	MCP 400A						
Contactor	Siemens	3RT105, 3RT106, 3RH1921-1FC22						
Control Relay	Siemens	3RH1122-1AB00						
HMI	Tornatech	2VIZ001						
I/O Board	Tornatech	2VIZ002/2VIZ102						
Pressure Transducer	Telemecanique	XMLP600PPF13Q3						
Resistor	Huntington Vishay	ALSR5F-5-1.0-1%						
	I-Gard Corp.	TR-600-400						
Shunt Trip	Siemens	S17JLD6						
Solenoid Valve	Granzow	1ASC024						
Surge Arrester	Square D	SDSA 3650						
Switches	Saia-Burgess	XGG6-88-P27Z1						
	Siemens	MCS 600A						
Switch Contact Block	Siemens	(3SB3400-0B						
Transformer	Transfab	ET5841						
			<p>UUT3 was Base and Wall mounted - rigid. Base: Four (4) 7/16" Grade 5 bolts and washers Wall: Two (2) 3/8" Grade 5 bolts and washers, Wall Bracket: Two (2) M10-1.5mm Grade 8.8 bolts and washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.</p>					

UNIT UNDER TEST (UUT) SUMMARY SHEET



2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 4
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	GPS-600/60/3/60	
Serial Number:	N/A	
Test Report:		13729 Rev.2 (UUT4)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
189	12.0	26.0	48.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:			Test Mounting Details:						
Painted 16 ga. Carbon Steel Enclosure (2BOX101B/2BOX201B)									
Options/Subcomponent Summary:									
Description	Mfr.	Part Number							
Alarm Bell	Newsmart	1NEW001							
Circuit Breaker	Siemens	MCP 100A, MCP 600A							
Contactors	Siemens	3RT104, 3RH1921-1DA11							
Control Relay	Siemens	3RH1122-1AB00							
HMI	Tornatech	2VIZ001							
I/O Board	Tornatech	2VIZ002/2VIZ102							
Pressure Transducer	Telemecanique	XMLP600PPF13Q3							
Resistor	Huntington Vishay	ALSR5F-5-1.0-1%							
Soft-Started	Siemens	3RW4427							
Solenoid Valve	Granzow	1ASC024							
Surge Arrester	Square D	SDSA 3650							
Switches	Siemens	MCS100A, 3VL9400-2AB01							
Switch Contact Block	Siemens	3SB3400-0B							
Transformer	Transfab	ET5874, DL8882QB							
	Marcus Transformer	MTC250-39							
Trip Module	Tornatech	2PLA048							
			<p>UUT4 was Base and Wall mounted - rigid. Base: Four (4) 7/16" Grade 5 bolts and washers Wall: Two (2) 3/8" Grade 5 bolts and washers, Wall Bracket: Two (2) M10-1.5mm Grade 8.8 bolts and washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.</p>						

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	<h2 style="margin: 0;">UUT 5</h2>
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	JP1-120/0.25/1/60	
Serial Number:	N/A	
Test Report:		13729 Rev.2 (UUT5)

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
20	6.0	10.0	12.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85
		3.2	0.0					

Product Construction Summary:	Test Mounting Details:
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Painted 16 ga. Carbon Steel Enclosure (2BOX13A)



Options/Subcomponent Summary:

Description	Mfr.	Part Number
Contact Block	Schneider	GV-AE11
Fuses	Ferraz Shawmut	GDL6/10
Switches	Katko	KU325N
Transformers	Transfab	DO 0025HC



UUT5 wall mounted - rigid using four (4) 1/4" Grade 8 bolts and washers
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET



2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 6
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	JP3-220/20/3/60	
Serial Number:	N/A	
Test Report:		13729 Rev.2 (UUT6)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
38	7.0	16.0	16.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:			Test Mounting Details:
Painted 16 ga. Carbon Steel Enclosure (2BOX13C)			
Options/Subcomponent Summary:			
Description	Mfr.	Part Number	
Switches	Katko	VKA3100N	
Transformers	Transfab	DL 9997SB	
			<p>UUT6 wall mounted - rigid using four (4) 1/4" Grade 8 bolts and washers</p> <p>Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.</p>

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 7
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	GPL+GLU-208/30/3/60	
Serial Number:	N/A	
Test Report: 13729 Rev.2 (UUT7)		

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
140	8.0	40.0	24.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85
		3.2	0.0					

Product Construction Summary:	Test Mounting Details:
Painted 16 ga. Carbon Steel Enclosure (2BOX08A x2)	
Options/Subcomponent Summary:	

Description	Mfr.	Part Number
HMI	Tornatech	2VIZ001
I/O Board	Tornatech	2VIZ002/2VIZ102, 2VIZ003/2VIZ103
Surge Arrester	Square D	SDSA 3650
Transformer	Transfab	ET5874, DL 8848FB, DL 9316SB



UUT7 wall mounted - rigid using four (4) 1/4" Grade 8 bolts and washers
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET



2100139-CR-001-R2

Manufacturer: Tornatech Inc.		UUT 8
Model Line: GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx		
Model Number: GPD-24-220		
Serial Number: N/A	Test Report: 13729 Rev.2 (UUT8)	

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
73	8.0	23.6	27.5	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:			Test Mounting Details:						
Painted 16 ga. Carbon Steel Enclosure (2BOX11A)									
Options/Subcomponent Summary:									
Description	Mfr.	Part Number							
Alarm Bell	Newsmart	1NEW002							
Battery Charger	Lovato	BCG1024							
Circuit Breaker	Schneider	Multi 9, MG-24506, MG-17406							
Contact Block	Siemens	3SB3400-0B							
EMC Filter	EPCOS/TDK	B84111F0000B110							
	Bel Fuse	5ST8-R							
Fuses	Ferraz Shawmut	GDL1-1/4							
Heater	DBK	HP06-2-15-240							
HMI	Tornatech	2VIZ001							
Humidistat	DBK	RFHSS-112							
I/O Board	Tornatech	2VIZ004/2VIZ104, 2VIZ005/2VIZ105							
Pressure Transducer	Telemecanique	XMLP600PPF13Q3							
Solenoid Valve	Granzow	1ASC025							
Switches	Katko	KU325N							
Thermostat	DBK	FGT100							

UUT8 wall mounted - rigid using four (4) 1/4" Grade 8 bolts and washers

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 9
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	GPR + GPU-800/400/3/60	
Serial Number:	N/A	
Test Report:		JID 15-01258 (UUT9)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,003	18.0	72.0	68.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:			Test Mounting Details:						
Painted 14 ga. Stainless Steel Enclosure (2BOX103G/2BOX203G)									
Options/Subcomponent Summary:									
Description	Mfr.	Part Number							
Alarm Bell	Newsmart	1NEW001							
Contactors	Siemens	3RT106, 3RT107, 3RH1921-1FA22							
Control Relay	Siemens	3RH1122-1AB00							
Fan	Orion	0A172SAP-11-1TB							
Control Relay	Siemens	3RH1122-1AB00							
HMI	Tornatech	VZASS0001							
I/O Board	Tornatech	2VIZ002/2VIZ102, 2VIZ003/2VIZ103, 2VIZ005/2VIZ105							
Pressure Transducer	Telemecanique	XMLP600PPF13Q3							
Resistor	Huntington Vishay	ALSR5F-5-1.0-1%							
	I-Gard Corp.	TR-600-75							
Shunt Trip	Siemens	S17JLD6							
Solenoid Valve	Granzow	1ASC024							
Switches	Saia-Burgess	XGG6-88-P27Z1							
	Siemens	MCS 600A, A01JLD64							
Switch Contact Block	Siemens	3SB3400-0B							
Transformer	Rex Mfg.	RS75J							
	Transfab	EXS114340, ET5841, DL 8849QB, DL 8882QB							
			<p>UUT 9 was Base and Wall mounted - rigid Base: Four (4) 7/16" Grade 5 bolts and lock washers Wall: Two (2) 3/8" Grade 5 bolts and lock washers Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.</p>						

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 10
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	GPD-12-220	
Serial Number:	N/A	
Test Report:		JID 15-01258 (UUT10)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
132	8.0	30.0	40.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:			Test Mounting Details:						
Painted 16 ga. Stainless Steel Enclosure (2BOX11D)									
Options/Subcomponent Summary:									
Description	Mfr.	Part Number							
Alarm Bell	Newsmart	1NEW002							
Battery Charger	Lovato	BCG1212							
Circuit Breaker	Schneider	P1MB1PD10, P1MB1PB16, P1MB1PC25							
Contact Block	Siemens	3SB3400-0B							
EMC Filter	EPCOS/TDK	B84111F0000B110							
Fuses	Bel Fuse	5ST8-R							
	Ferraz Shawmut	GDL1-1/4							
Heater	DBK	HP06-2-15-240							
HMI	Tornatech	VZASS0001							
Humidistat	DBK	RFHSS-112							
I/O Board	Tornatech	2VIZ004/2VIZ104, 2VIZ005/2VIZ105							
Pressure Transducer	Telemecanique	XMLP600PPF13Q3							
Solenoid Valve	Granzow	1ASC025							
Switches	Katko	GA025A, GA080A, GAX7200							
Thermostat	DBK	FGT100							
			<p>UUT10 wall mounted - rigid using four (4) 3/8-14" Grade 5 bolts and lock washers</p> <p>Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.</p>						

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 11
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	GPA+GPU-220/60/3/60	
Serial Number:	N/A	
Test Report:		14599 Rev.1 (UUT11)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
229	12.0	36.0	48.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:	Test Mounting Details:
Painted 16 ga. Stainless Steel Enclosure (2BOX101C/2BOX201C)	

Options/Subcomponent Summary:		
Description	Mfr.	Part Number
3-Way Valve	Granzow	1ASC028
Alarm Bell	Newsmart	1NEW002
Auxiliary Contact	Socomec	1SOC011
Circuit Breaker	Schneider	HJL36150M74
Contactor	Schneider	LC1D25
	Siemens	3RT1016-1BB41, 3RA1912-2H
Contactor Replacement Parts	Siemens	3RT202
HMI	Tornatech	VZASS0001
I/O Board	Tornatech	2VIZ002/2VIZ102, 2VIZ003/2VIZ103
Switches	Schneider	HGL36000S15
	Socomec	97233010
Transformer	Transfab	DL 150VA 380/400/ 415-240V



UUT11 was Base and Wall mounted - rigid.
 Base: Four (4) 7/16" Grade 5 bolts and washers
 Wall: Two (2) 3/8" Grade 5 bolts and washers
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 12
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	GPA+GPU-600/400/3/60	
Serial Number:	N/A	
Test Report:		14599 Rev.1 (UUT12)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
955	18.0	72.0	68.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:	Test Mounting Details:
Painted 16 ga. Stainless Steel Enclosure (2BOX103G/2BOX203G)	

Options/Subcomponent Summary:		
Description	Mfr.	Part Number
3-Way Valve	Granzow	1ASC031
Circuit Breaker	Schneider	PJL36080M68
Contactor	Schneider	LC1F800
	Siemens	3RT1016-1BB41, 3RA1912-2H
Contactor Replacement Parts	Siemens	3RT203
HMI	Tornatech	VZASS0001
I/O Board	Tornatech	2VIZ002/2VIZ102, 2VIZ003/2VIZ103
Switches	Schneider	PJL36000S80
	Socomec	97233080
Transformer	Transfab	DL 200VA 600-240V

UUT12 was Base and Wall mounted - rigid.
 Base: Four (4) 7/16" Grade 5 bolts and washers
 Wall: Two (2) 3/8" Grade 5 bolts and washers
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 13
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	GPS-480/5/3/60	
Serial Number:	N/A	
Test Report:		2100139-TR-001 (UUT1)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
158	12.0	26.0	48.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:	Test Mounting Details:
Painted 16 ga. Carbon Steel Enclosure (2BOX101B/2BOX201B)	

Options/Subcomponent Summary:		
Description	Mfr.	Part Number
Alarm Bell	Newsmart	1NEW001
Circuit Breaker	Schneider	HJL36050M72
Contactors	Schneider	LC1D40
Control Relay	Siemens	3RH1122-1AB00
HMI	Tornatech	VZASS0001
I/O Board	Tornatech	2VIZ002/2VIZ102
Pressure Transducer	Telemecanique	XMLP600PPF13Q3
Resistor	Huntington Vishay	ALSR5F-5-1.0-1%
Soft-Starter	Schneider	ATS22D17S6U
Solenoid Valve	Granzow	1ASC024
Surge Arrester	Citel	DS44US-480D
Switches	Schneider	HGL36000S15
Switch Contact Block	Siemens	3SB2400-0B
Transformer	Marcus Transformer	MTC250-39
	Transfab	ET5874, DL8882QB



UUT13 was Base and Wall mounted - rigid.
 Base: Four (4) 7/16" Grade 5 bolts and washers
 Wall: Two (2) 3/8" Grade 5 bolts and washers
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 14
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	GPS-480/500/3/60	
Serial Number:	N/A	
Test Report:		2100139-TR-001 (UUT2)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
769	18.0	60.0	68.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:	Test Mounting Details:
Painted 16 ga. Carbon Steel Enclosure (2BOX103D/2BOX203D)	

Options/Subcomponent Summary:		
Description	Mfr.	Part Number
Alarm Bell	Newsmart	1NEW001
Circuit Breaker	Schneider	PJL36080M68
Contactors	Schneider	LC1F630
Control Relay	Siemens	3RH1122-1AB00
Heater	DBK	HP06-2-15-240
HMI	Tornatech	VZASS0001
Humidistat	DBK	RFHSS-112
I/O Board	Tornatech	2VIZ002/2VIZ102, 2VIZ005/2VIZ105
Pressure Transducer	Telemecanique	XMLP600PPF13Q3
Resistor	Huntington Vishay	ALSR5F-5-1.0-1%
Soft-Starter	Schneider	ATS48C66Y/ATS480C66Y
Solenoid Valve	Granzow	1ASC024
Surge Arrester	Citel	DS44US-480D
Switches	Schneider	PJL36000S80
Switch Contact Block	Siemens	3SB3400-0B
Thermostat	DBK	FGT100
Transformer	Marcus Transformer	MTC250-39
	Transfab	EXS114340, ET5841



UUT14 was Base and Wall mounted - rigid.
 Base: Four (4) 7/16" Grade 5 bolts and washers
 Wall: Two (2) 3/8" Grade 5 bolts and washers
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET



2100139-CR-001-R2

Manufacturer: Tornatech Inc.		UUT 15
Model Line: GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx		
Model Number: GPS-480/5/3/60		
Serial Number: N/A		
		Test Report: 2100139-TR-001 (UUT3)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
153	12.0	26.0	48.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:			Test Mounting Details:
Painted 16 ga. Carbon Steel Enclosure (2BOX101B/2BOX201B)			
Options/Subcomponent Summary:			
Description	Mfr.	Part Number	
Alarm Bell	Newsmart	1NEW001	
Circuit Breaker	Schneider	HJL36050M72	
Contactors	Schneider	LC1D40	
Control Relay	Siemens	3RH1122-1AB00	
HMI	Tornatech	VZASS0001	
I/O Board	Tornatech	2VIZ002/2VIZ102	
Pressure Transducer	Telemecanique	XMLP600PPF13Q3	
Resistor	Huntington Vishay	ALSR5F-5-1.0-1%	
Soft-Starter	Lovato	ADXL 0030 600	
Solenoid Valve	Granzow	1ASC024	
Surge Arrester	Citel	DS44US-480D	
Switches	Schneider	HGL36000S15	
Switch Contact Block	Siemens	3SB3400-0B	
Transformer	Marcus Transformer	MTC250-39	
	Transfab	ET5874, DL8882QB	

UUT15 was Base and Wall mounted - rigid.
 Base: Four (4) 7/16" Grade 5 bolts and washers
 Wall: Two (2) 3/8" Grade 5 bolts and washers
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET




2100139-CR-001-R2

Manufacturer:	Tornatech Inc.	UUT 16
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	GPS-480/250/3/60	
Serial Number:	N/A	
Test Report:		2100139-TR-001 (UUT4)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
409	18.0	36.0	68.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:	Test Mounting Details:
Painted 16 ga. Carbon Steel Enclosure (2BOX103B/2BOX203B)	

Options/Subcomponent Summary:		
Description	Mfr.	Part Number
Alarm Bell	Newsmart	1NEW001
Circuit Breaker	Schneider	LJL36400M37X
Contactora	Schneider	LC1F400
Control Relay	Siemens	3RH1122-1AB00
Heater	DBK	HP06-2-15-240
HMI	Tornatech	VZASS0001
Humidistat	DBK	RFHSS-112
I/O Board	Tornatech	2VIZ002/2VIZ102, 2VIZ005/2VIZ105
Pressure Transducer	Telemecanique	XMLP600PPF13Q3
Resistor	Huntington Vishay	ALSR5F-5-1.0-1%
Soft-Starter	Lovato	ADXL 0320 600
Solenoid Valve	Granzow	1ASC024
Surge Arrester	Citel	DS44US-480D
Switches	Schneider	LGL36000S40X
Switch Contact Block	Siemens	3SB3400-0B
Thermostat	DBK	FGT100
Transformer	Marcus Transformer	MTC250-39
	Transfab	EXS114340, ET5841

UUT16 was Base and Wall mounted - rigid.
 Base: Four (4) 7/16" Grade 5 bolts and washers
 Wall: Two (2) 3/8" Grade 5 bolts and washers
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



UUT 17

Manufacturer: Tornatech Inc.								
Model Line: GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx								
Model Number: VPA+VPU-200/5/3/60								
Serial Number: WZ1264790	Test Report: 2101253-TR-001 (UUT17)							
UUT Properties								
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)				
	Depth	Width	Height	Front-Back	Side-Side	Vertical		
375	12.0	68.0	48.0	N/A	N/A	N/A		
UUT Highest Passed Seismic Run Information								
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85
		3.2	0.0					
Product Construction Summary:				Test Mounting Details:				
Painted 16 ga. Carbon Steel Enclosure (2BOX201D+ENENC0007)								
Options/Subcomponent Summary:								
Description	Mfr.	Part Number						
Circuit Breaker	3L3	MCPNK0015M1F						
Contactor	3L3	CONNK0009						
Fan	Rittal	3241.100						
Fuse	Schneider	AJT25						
Fuse Holders	Schneider	60308SJ						
HMI	Tornatech	VZASS0003						
I/O Board	Tornatech	2VIZ002/2VIZ102, 2VIZ003/2VIZ103, 2VIZ005/2VIZ105						
Line Reactor	Transfab TMS	KDRB26H						
Switches	3L3	MCSNK0100M1F						
VFD	Schneider	ATV630U40M3						



UUT17 was Base and Wall mounted - rigid.
Base: Six (6) 3/8" Grade 5 bolts and washers.
Wall: Two (2) 3/8" Grade 5 bolts and washers.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET



2100139-CR-001-R2

Manufacturer: Tornatech Inc.	
Model Line: GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number: VPS-480/450/3/60	
Serial Number: WZ1264791	Test Report: 2101253-TR-001 (UUT18)

UUT 18

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
2,181	30.0	107.0	75.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85
		3.2	0.0					

Product Construction Summary: Test Mounting Details:

Painted 16 ga. Carbon Steel Enclosure (ENENC0003+ENENC0005+ENENOC0006)

Options/Subcomponent Summary:

Description	Mfr.	Part Number
Fan	Rittal	3244.100, 3140.100, 3243.200
Fuse	Schneider	AJT600
Fuse Holders	Schneider	JM60600-3CR
HMI	Tornatech	VZASS0001
I/O Board	Tornatech	2VIZ002/2VIZ102, 2VIZ005/2VIZ105
Line Reactor	Transfab TMS	KDRL5H
Soft-Starter	Schneider	ATS22C59S6U
VFD	Schneider	ATV630C31N4

UUT18 was Base and Wall mounted - rigid.
Base: Four (4) 3/8" Grade 5 bolts and washers.
Wall: Three (3) 3/8" Grade 5 bolts and washers.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

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UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 19
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	GPA+GPU-230/400/3/60	
Serial Number:	WZ1244958	
Test Report:		2101253-TR-001 (UUT19)

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,130	20.0	80.0	75.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85
		3.2	0.0					

Product Construction Summary:	Test Mounting Details:
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Painted 16 ga. Stainless Steel Enclosure (ENENC0004)

Options/Subcomponent Summary:

Description	Mfr.	Part Number
Circuit Breaker	3L3	MCPNK1200M6F
	Schneider	PJL36120M70
Contactator	3L3	CONNK1000
HMI	Tornatech	VZASS0003
I/O Board	Tornatech	2VIZ002/2VIZ102, 2VIZ003/2VIZ103
Switches	3L3	MCSNK1200M6F
	Schneider	PJL36000S12
	Socomec	97233120



UUT19 was Base and Wall mounted - rigid.
 Base: Four (4) 3/8" Grade 5 bolts and washers.
 Wall: Two (2) 3/8" Grade 5 bolts and washers.
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer: Tornatech Inc.	UUT 20
Model Line: GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number: OPD-480/350/3/60 (Schneider CB)	
Serial Number: WZ1244955	
Test Report: 2101253-TR-001 (UUT20)	

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
120	12.5	18.0	42.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:			Test Mounting Details:						
Painted 16 ga. Carbon Steel Enclosure (ENENC0015)									
Options/Subcomponent Summary:									
Description	Mfr.	Part Number							
Circuit Breakers	Schneider	P(J/L/R)L36120U31A							
UUT20 was wall - mounted rigid using four (4) 3/8" Grade 5 bolts and washers.									
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.									

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



UUT 21

Manufacturer: Tornatech Inc.	UUT 21
Model Line: GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number: OPD-480/5/3/60 (Schneider CB)	
Serial Number: WZ1244953	
Test Report: 2101253-TR-001 (UUT21)	

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
38	11.0	12.0	22.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85
		3.2	0.0					

Product Construction Summary:

Painted 16 ga. Carbon Steel Enclosure (2BOX16A)

Options/Subcomponent Summary:

Description	Mfr.	Part Number
Circuit Breakers	Schneider	H(J/L/R)L36050M72

Test Mounting Details:



UUT21 was wall - mounted rigid using four (4) 3/8" Grade 5 bolts and washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer: Tornatech Inc.		<h2>UUT 22</h2>
Model Line: GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx		
Model Number: OPD-480/350/3/60 (3L3 CB)		
Serial Number: WZ1244956	Test Report: 2101253-TR-001 (UUT22)	

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
129	12.5	18.0	42.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:
Painted 16 ga. Carbon Steel Enclosure (ENENC0015)

Options/Subcomponent Summary:

Description	Mfr.	Part Number
Circuit Breakers	3L3	MCPNK1200M6F

Test Mounting Details:



UUT22 was wall - mounted rigid using four (4) 3/8" Grade 5 bolts and washers.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 23
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	OPD-480/5/3/60 (3L3 CB)	
Serial Number:	WZ1244954	
		Test Report: 2101253-TR-001 (UUT23)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
36	11.0	12.0	22.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:			Test Mounting Details:		
Painted 16 ga. Carbon Steel Enclosure (2BOX16A)					
Options/Subcomponent Summary:					
Description	Mfr.	Part Number			
Circuit Breakers	3L3	MCPNK0025M1F			
UUT23 was wall - mounted rigid using four (4) 3/8" Grade 5 bolts and washers.					
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.					

UNIT UNDER TEST (UUT) SUMMARY SHEET

2100139-CR-001-R2



Manufacturer:	Tornatech Inc.	UUT 24
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	JP3-480/40/3/60	
Serial Number:	FZ1244957	
		Test Report: 2101253-TR-001 (UUT24)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
56	8.0	20.0	24.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	$S_{DS}(g)$	z/h	I_p	$A_{FLX-H}(g)$	$A_{RIG-H}(g)$	$A_{FLX-V}(g)$	$A_{RIG-V}(g)$	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary: Painted 16 ga. Carbon Steel Enclosure (ENENC0025)	Test Mounting Details:
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Options/Subcomponent Summary:		
Description	Mfr.	Part Number
Circuit Breakers	Schneider	BJL36100
Contactors	Schneider	LC1D65A
HMI	Tornatech	VZASS0004



UUT24 was wall - mounted rigid using four (4) 3/8" Grade 5 bolts and washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET



2100139-CR-001-R2

Manufacturer:	Tornatech Inc.	UUT 25
Model Line:	GPx, GPx+GPU, GPL, GPL+GLU, GPD, VPx, VPx+VPU, OPD, JPx	
Model Number:	JP3-480/2/3/60	
Serial Number:	WZ1244959	
Test Report:		2101253-TR-001 (UUT25)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
17	6.0	9.5	12.0	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85	
		3.2	0.0						

Product Construction Summary:	Test Mounting Details:
Painted 16 ga. Carbon Steel Enclosure (2BOX213A)	

Options/Subcomponent Summary:		
Description	Mfr.	Part Number
HMI	Tornatech	VZASS0004
Switches	3L3	MMSNK00403PH-F

UUT25 was wall - mounted rigid using four (4) 1/4" Grade 5 bolts and washers.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.