



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

**APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

APPLICATION #: **OSP – 0136 – 10**

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Hammond Power Solutions, Inc.

Manufacturer's Technical Representative: Watson Wong

Mailing Address: 595 Southgate Drive, Guelph, Ontario, Canada N1G 3W6

Telephone: (519) 822-2441 Email: wwong@hammondpowersolutions.com

Product Information

Product Name: Transformer Product Families

Product Type: Dry-Type Transformer

Product Model Number: Various (See Attachment)

(List all unique product identification numbers and/or part numbers)

General Description: Product lines include a range of kVA ratings from 0.025 kVA – 3,750 kVA. 1-3 Phase transformers. Seismic enhancements made to the test units and modifications required to address the anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Rigid Floor Mounted

Applicant Information

Applicant Company Name: Tobolski Watkins Engineering, Inc.

Contact Person: Matthew J. Tobolski, Ph.D., S.E.

Mailing Address: 9246 Lightwave Ave, Suite 140, San Diego, CA 92123

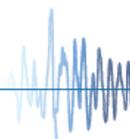
Telephone: (858) 381-5843 Email: mtobolski@tobolskiwatkins.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant:  Date: 3/27/2015

Title: President & CEO Company Name: Tobolski Watkins Engineering, Inc.

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

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

Company Name: Tobolski Watkins Engineering, Inc.

Name: Matthew J. Tobolski, Ph.D., S.E. California License Number: S5648

Mailing Address: 9246 Lightwave Ave, Suite 140, San Diego, CA 92123

Telephone: (858) 381-5843 Email: mtobolski@tobolskiwatkins.com

Supports and Attachments Preapproval

- Supports and attachments are preapproved under OPM- _____
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- Supports and attachments are not preapproved

Certification Method

- Testing in accordance with: ICC-ES AC156
- Other (Please Specify): _____

Testing Laboratory

Company Name: Clark Dynamic Test Laboratory, Inc.

Contact Name: Susan Chang

Mailing Address: 1801 Route 51 South, Building 8, Jefferson Hills, PA 15025

Telephone: (412) 387-1001 Email: schang@clarktesting.com

Company Name: Environmental Testing Laboratory, Inc.

Contact Name: Paul E. Little

Mailing Address: 11034 Indian Trail Dallas, TX 75229

Telephone: (972) 247-9657 Email: paul@etldallas.com





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Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: [X] Yes [] No

Design Basis of Equipment or Components (Fp/Wp) = 1.44

Sds (Design spectral response acceleration at short period, g) = 2.0

ap (In-structure equipment or component amplification factor) = 1.0

Rp (Equipment or component response modification factor) = 2.5

Omega_0 (System overstrength factor) = 2.5

Ip (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0

Equipment or Component Natural Frequencies (Hz) = (See Attachment)

Overall dimensions and weight (or range thereof) = (See Attachment)

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: [] Yes [X] No

Design Basis of Equipment or Components (V/W) =

Sds (Design spectral response acceleration at short period, g) =

Sd1 (Design spectral response acceleration at 1 second period, g) =

R (Response modification coefficient) =

Omega_0 (System overstrength factor) =

Cd (Deflection amplification factor) =

Ip (Importance factor) = 1.5

Height to Center of Gravity above base =

Equipment or Component Natural Frequencies (Hz) =

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2010: [] Yes [X] No

List of Attachments Supporting Special Seismic Certification

[X] Test Report(s) [] Drawings [] Calculations [X] Manufacturer's Catalog

[X] Other(s) (Please Specify): Attachment

OSHPD Approval (For Office Use Only) - Approval Expires on December 31, 2019

Signature: [Signature] Date: April 27, 2015

Print Name: Timothy J. Pjland Title: SSE

Special Seismic Certification Valid Up to : Sds (g) = 2.0 z/h = 1

Condition of Approval (if applicable):





Table - 1

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type E Transformers

Certified Product Construction Summary:

NEMA 1 ventilated carbon steel enclosure.

Certified Options Summary:

1 Phase. General purpose enclosed transformer (Fusion™). Octagonal wound core (OWC) copper windings.

Transformer brand name options: Hammond Power Solutions, Inc., Eaton, Square-D Company/Schneider Electric, Siemens Energy and Automation, GE. OSHPD OSP labels are applied by Hammond Power Solutions at the factory and designate units built under this approval.

Certified Mounting Summary:

Rigid Base Mounted.

Building Code: CBC 2013

Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$

$I_p = 1.5$

Model Line	Model	Dimension (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
HPS Fusion™ (FS Model: 1PH)	0.025 kVA	5.9	2.7	3.3	3.0	UUT: Fusion™	1
	0.05 kVA	6.1	2.9	3.5	3.4		
	0.10 kVA	6.3	3.1	3.6	3.9		
	0.15 kVA	6.9	3.1	3.6	5.2		
	0.25 kVA	6.6	3.9	4.3	7.7		
	0.35 kVA	7.2	3.9	4.3	9.4		
	0.50 kVA	7.2	4.6	4.6	13.0		
	0.75 kVA	7.2	5.6	5.1	18.0		
	1.0 kVA	8.0	5.6	5.1	23.0		
	1.5 kVA	8.5	6.6	6.0	31.0		
	2.0 kVA	9.1	6.6	6.0	38.0		
	3.0 kVA	11.7	7.8	6.7	69.0		
	5.0 kVA	13.4	8.0	7.1	91.0		
	7.5 kVA	15.1	9.3	8.0	104.0	UUT: Fusion™	2



Table - 2

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type F and K Transformers (VPI Construction)

Certified Product Construction Summary:
NEMA 3R ventilated carbon steel enclosure.

Certified Options Summary:
NMF: 1 Phase. NMK: 3 Phase. MV1S: 1PH. MV3S: 3 Phase. Energy efficient general purpose (Sentinel™). General purpose medium voltage distribution (Millenium™). Vacuum Pressure Impregnated (VPI). Copper and aluminum windings. 600V Class - 34.5 kV Class.
Transformer brand name options: Hammond Power Solutions, Inc., Eaton, Square-D Company/Schneider Electric, Siemens Energy and Automation, GE. OSHPD OSP labels are applied by Hammond Power Solutions at the factory and designate units built under this approval.

Certified Mounting Summary:
Rigid Base Mounted.

Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.0g$ $z/h = 1.0$ $I_p = 1.5$

Model Line	Model	Dimension (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
HPS Sentinel™ (NMF & NMK) HPS Millenium™ (MV1S & MV3S)	15 kVA	20.2	19.4	21.5	185	UUT: 1PH, Al winding, -Sentinel™	5
	25 kVA	25.0	23.9	28.8	220		
	30 kVA	25.0	23.9	28.8	445		
	45 kVA	25.0	26.0	38.0	610		
	50 kVA	25.0	26.0	38.0	370		
	75 kVA	29.5	32.0	41.0	830		
	100 kVA	29.5	32.0	41.0	650		
	112.5 kVA	29.5	32.0	41.0	1,100		
	150 kVA	34.0	39.5	51.5	1,500		
	167 kVA	32.5	32.0	50.0	900		
	225 kVA	34.0	39.5	51.5	1,600		
	300 kVA	34.0	39.5	51.5	1,900		
	500 kVA	38.4	48.5	59.0	2,900		
	750 kVA	43.4	51.5	66.0	4,150		
	1,000 kVA	44.4	64.0	71.0	5,450		
	1,250 kVA	44.4	64.0	71.0	6,150		
1,500 kVA	51.4	64.0	75.0	6,600	UUT: 3PH, Cu winding, -Millenium™	6	
Type F and K (Custom Voltage)	15 kVA	20.2	19.4	21.5	185		
	...						
	300 kVA	76.0	50.0	74.1	3,870	UUT: 3PH, Al & Cu winding	9
	3,750 kVA	125.0	72.0	111	16,595	UUT: 3PH, Al & Cu winding	10



Table - 3

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type CF and CK (Cast Resin Construction)

Certified Product Construction Summary:

NEMA 3R carbon steel enclosure.

Certified Options Summary:

3 Phase Cast Resin construction with inner and outer winding. Reactor (R) construction has an inner winding only. Inner and outer windings are Copper and/or Aluminum. Inside low voltage coil: Cast Resin or VPI construction. 5kV to 34.5kV Class. With or without coordinated bus and enclosure. **Transformer brand name options:** Hammond Power Solutions, Inc., Eaton, Square-D Company/Schneider Electric, Siemens Energy and Automation, GE. OSHPD OSP labels are applied by Hammond Power Solutions at the factory and designate units built under this approval.

Certified Mounting Summary:

Rigid Base Mounted.

Building Code: CBC 2013

Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$

$I_p = 1.5$

Model Line	Model	Dimension (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
HPS EnduraCoil™ Cast Transformer: CF, CK Cast Reactor: CFR, CFK	300 kVA	50	76	74.1	3,870	UUT: winding Al & Cu	9
		54	90	91.5	3,750		
		60	90	91.5	4,150		
	500 kVA	54	70	91.5	4,600		
		54	90	91.5	4,900		
		60	90	91.5	5,400		
	750 kVA	54	70	91.5	5,600		
		54	90	91.5	6,000		
		60	105	91.5	6,600		
	1,000 kVA	60	90	91.5	6,700		
		60	90	91.5	7,200		
		60	105	91.5	7,900		
	1,500 kVA	60	90	91.5	9,400		
		60	90	91.5	10,100		
		72	105	91.5	11,100		
	2,000 kVA	60	105	91.5	11,900		
		60	105	91.5	12,700		
		72	110	91.5	14,000		
	2,500 kVA	60	105	110	13,100		
		60	105	110	14,000		
		72	105	110	15,400		



Table - 3

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type CF and CK (Cast Resin Construction)

Certified Product Construction Summary:

NEMA 3R carbon steel enclosure.

Certified Options Summary:

3 Phase Cast Resin construction with inner and outer winding. Reactor (R) construction has an inner winding only. Inner and outer windings are Copper and/or Aluminum. Inside low voltage coil: Cast Resin or VPI construction. 5kV to 34.5kV Class. With or without coordinated bus and enclosure. **Transformer brand name options:** Hammond Power Solutions, Inc., Eaton, Square-D Company/Schneider Electric, Siemens Energy and Automation, GE. OSHPD OSP labels are applied by Hammond Power Solutions at the factory and designate units built under this approval.

Certified Mounting Summary:

Rigid Base Mounted.

Building Code: CBC 2013

Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$

$I_p = 1.5$

Model Line	Model	Dimension (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
HPS EnduraCoil™ Cast Transformer: CF, CK Cast Reactor: CFR, CFK	3,000 kVA	60	105	110	13,750		
		60	110	110	14,700		
		72	110	110	16,200		
	3,500 kVA	60	110	110	14,700		
		72	110	110	15,700		
		72	125	110	17,300		
	3,750 kVA	60	110	110	14,400		
		72	110	110	15,400		
		72	125	111	16,595	UUT: winding Al & Cu	10
HPS EnduraCoil™ Cast Transformer: CF, CK Cast Reactor: CFR, CFK (Custom Voltage)	112.5 kVA	34	40	52	2,000		
	...						
	300 kVA	64	50	71	3,500		
	...						
	300 kVA	50	76	74.1	3,870	UUT: winding Al & Cu	9
	...						
3,750 kVA	72	125	111	16,595	UUT: winding Al & Cu	10	



Table - 4

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type PH and 3AH Transformers

Certified Product Construction Summary:

Non-enclosed. Copper winding. 1 Phase

Certified Options Summary:

Open style core and coil (Spartan™) with Octagonal wound core (OWC) winding construction. Machine tool industrial control transformer (Imperator™) with enclosed OWC construction.

Transformer brand name options: Hammond Power Solutions, Inc., Eaton, Square-D Company/Schneider Electric, Siemens Energy and Automation, GE. OSHPD OSP labels are applied by Hammond Power Solutions at the factory and designate units built under this approval.

Certified Mounting Summary:

Rigid Base Mounted.

Building Code: CBC 2013

Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$

$I_p = 1.5$

Model Line	Model	Dimension (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
HPS Spartan™ (SP Models) HPS Imperator™ (PH Models)	0.025 kVA	3.0	4.4	3.2	3.5	UUT: Spartan™	3
	0.05 kVA	3.0	4.1	3.3	3.5		
	0.075 kVA	3.3	3.9	3.6	3.5		
	0.1 kVA	3.3	4.2	3.6	4.5		
	0.15 kVA	4.0	4.9	3.8	5.7		
	0.25 kVA	4.5	5.4	3.8	7.5		
	0.35 kVA	4.5	5.2	4.4	10		
	0.5 kVA	4.8	5.9	4.3	14		
	0.75 kVA	4.1	6.7	4.3	17		
	1 kVA	5.3	6.8	4.9	24		
	1.5 kVA	5.3	8.2	4.9	32		
	2 kVA	6.4	5.9	5.3	35		
	3 kVA	7.5	7.5	6.5	64		
	5 kVA	8.3	8.8	7.1	97		
7.5 kVA	9.0	9.9	7.8	104	UUT: Imperator™	4	



Table - 5

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type Q and QT Transformers

Certified Product Construction Summary:

NEMA 3R, NEMA 4 or NEMA 12 non-ventilated carbon steel enclosure. Copper winding.

Certified Options Summary:

1 and 3 Phase. Industrial encapsulated winding construction (Titan™)

Transformer brand name options: Hammond Power Solutions, Inc., Eaton, Square-D Company/Schneider Electric, Siemens Energy and Automation, GE. OSHPD OSP labels are applied by Hammond Power Solutions at the factory and designate units built under this approval

Certified Mounting Summary:

Rigid Base Mounted.

Building Code: CBC 2013

Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$

$I_p = 1.5$

Model Line	Model	Dimension (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
HPS Titan™ (Q models: 1PH) (P models: 3PH)	0.05 kVA	5.3	3.8	7.3	6	UUT: 1PH tested	7
	...						
	0.5 kVA	4.8	5	9.3	15		
	0.75 kVA	4.8	5	9.3	18		
	1 kVA	5.5	5.9	10	22		
	1.5 kVA	5.5	5.9	10	25		
	2 kVA	6.5	12.4	11.3	49		
	3 kVA	6.5	12.4	11.3	68		
	5 kVA	7.8	10	17.3	90		
	6 kVA	6.9	15.2	15.1	146		
	7.5 kVA	7.8	10	17.3	115		
	9 kVA	10.3	16.6	16.6	211		
	10 kVA	9.3	12.3	20.9	165		
	15 kVA	10.4	19.3	16.6	270		
	30 kVA	13	20.3	23.4	555		
	45 kVA	13	22.3	28.4	765		
	75 kVA	16	31.3	29.9	1,600		
112.5 kVA	26	38.5	39.1	2,100			
150 kVA	26	38.5	39.1	2,450	UUT: 3PH tested	8	



UUT - 1

**UNIT UNDER TEST (UUT)
Summary Sheet**

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type E (Fusion)

Model Number: FS25MQMJ **Serial Number:** N/A

Product Construction Summary:
NEMA 1 Ventilated carbon steel enclosure.

Options/Subcomponent Summary:
0.025kVA. 1 Phase. General purpose enclosed transformer. OWC Copper windings.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
3	5.9	2.7	3.3	21.7	28.0	>33

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.0g	1.0	1.5	3.20g	2.40g	1.33g	0.53g

Test Mounting Details:



Unit is rigid base mounted to the seismic table using (3) #10-32 screws, washers and lock washers.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



UUT - 2

**UNIT UNDER TEST (UUT)
Summary Sheet**

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type E (Fusion)

Model Number: FS7500MQMJ **Serial Number:** N/A

Product Construction Summary:
NEMA 1 Ventilated carbon steel enclosure.

Options/Subcomponent Summary:
7.5 kVA. 1 Phase. General purpose enclosed transformer. OWC Copper windings.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
104	8.0	9.3	15.1	18.7	28.0	>33

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.0g	1.0	1.5	3.20g	2.40g	1.33g	0.53g

Test Mounting Details:



Unit is rigid base mounted to the seismic table using (4) 3/8" Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



UUT - 3

**UNIT UNDER TEST (UUT)
Summary Sheet**

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type PH & 3AH (Spartan)

Model Number: PH25MQMJ **Serial Number:** N/A

Product Construction Summary:
Non-enclosed.

Options/Subcomponent Summary:
0.025 kVA. 1 Phase. Open core & coil style. OWC copper windings.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
3.5	4.0	3.2	4.4	21.4	21.6	>33

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.0g	1.0	1.5	3.20g	2.40g	1.33g	0.53g

Test Mounting Details:



UUT 3

Unit is rigid base mounted to the seismic table using (4) #10-32 screws, washers and lock washers.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



UUT - 4

**UNIT UNDER TEST (UUT)
Summary Sheet**

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type PH & 3AH (Imperator)

Model Number: SP7500MQMJ **Serial Number:** N/A

Product Construction Summary:
Non-enclosed.

Options/Subcomponent Summary:
1 Phase. Open core & coil style with molded covers. Enclosed OWC copper windings.

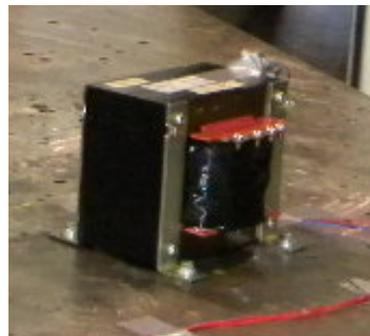
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
104	9.0	9.9	7.8	33.0	22.2	>33

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.0g	1.0	1.5	3.20g	2.40g	1.33g	0.53g

Test Mounting Details:



Unit is rigid base mounted to the seismic table using (4) 3/8" 16 hex head bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



UUT - 5

**UNIT UNDER TEST (UUT)
Summary Sheet**

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type F & K (Sentinel)

Model Number: NFP015LEAH3 **Serial Number:** N/A

Product Construction Summary:
NEMA 3R carbon steel enclosure.

Options/Subcomponent Summary:
15 kVA. 1 phase. Energy Efficient General Purpose. Vacuum pressure impregnated (VPI) aluminum windings.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
184	20.2	19.4	21.5	23.4	11.5	23.8

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.0g	1.0	1.5	3.20g	2.40g	1.33g	0.53g

Test Mounting Details:



UUT 5

Unit is rigid base mounted to the seismic table using (4) 1/2" Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



UUT - 6

**UNIT UNDER TEST (UUT)
Summary Sheet**

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type F & K (Millenium)

Model Number: MV3S1500SKC **Serial Number:** N/A

Product Construction Summary:
NEMA 3R ventilated carbon steel enclosure. Modified I-beam base frame.

Options/Subcomponent Summary:
1,500 kVA. 3 phase. General purpose medium voltage distribution. Vacuum pressure impregnated (VPI) copper windings.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
6,600	51.4	64.0	75.0	13.8	15.4	33.3

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.0g	1.0	1.5	3.20g	2.40g	1.33g	0.53g

Test Mounting Details:



UUT 6

Unit is rigid base mounted to the seismic table using (4) 5/8" Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



UUT - 7

**UNIT UNDER TEST (UUT)
Summary Sheet**

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type Q & QT (Titan)

Model Number: QC05YECB **Serial Number:** N/A

Product Construction Summary:
NEMA 3R non-ventilated carbon steel enclosure.

Options/Subcomponent Summary:
0.05 kVA. 1 phase. Industrial Encapsulated. Copper Windings.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
6	7.3	3.8	5.3	18.6	22.2	>33

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.0g	1.0	1.5	3.20g	2.40g	1.33g	0.53g

Test Mounting Details:



UUT 7

Unit is rigid base mounted to the seismic table using (3) #10-32 screws.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



UUT - 8

**UNIT UNDER TEST (UUT)
Summary Sheet**

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type Q & QT (Titan)

Model Number: P150KBKF **Serial Number:** N/A

Product Construction Summary:
NEMA 3R non-ventilated carbon steel enclosure.

Options/Subcomponent Summary:
150 kVA. 3 phase. Industrial Encapsulated. Copper Windings.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
2,450	39.1	38.5	26.0	19.8	21.6	>33

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.0g	1.0	1.5	3.20g	2.40g	1.33g	0.53g

Test Mounting Details:



Unit is rigid base mounted to the seismic table using (4) 5/8" Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



UUT - 9

**UNIT UNDER TEST (UUT)
Summary Sheet**

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type F and K (Cast Resin Construction)

Model Number: 300 kVA **Serial Number:** N/A

Product Construction Summary:
NEMA 3R carbon steel enclosure.

Options/Subcomponent Summary:
3 Phase. Coordinated bus enclosure. Copper and aluminum windings. (2) Cast resin construction coils with copper and aluminum windings; (1) Vacuum pressure impregnated (VPI) coil with copper and aluminum windings.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
3,870	50.0	76.0	74.1	8.3	11.5	30.7

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.0g	1.0	1.5	3.20g	2.40g	1.33g	0.53g

Test Mounting Details:



Unit is rigid base mounted to the seismic table using (8) 5/8" Grade 8 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



UUT - 10

**UNIT UNDER TEST (UUT)
Summary Sheet**

TWEI Project No.: 2014-0808-CO-001

Manufacturer: Hammond Power Solutions, Inc.

Model Line: Type F and K (Cast Resin Construction)

Model Number: 3750 kVA **Serial Number:** N/A

Product Construction Summary:
NEMA 3R carbon steel enclosure.

Options/Subcomponent Summary:
3 Phase. Coordinated bus enclosure. Copper and aluminum windings. (2) Cast resin construction coils with copper and aluminum windings; (1) Vacuum pressure impregnated (VPI) coil with copper and aluminum windings.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
16,595	72.0	125.0	111.0	4.0	4.3	20.7

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.0g	1.0	1.5	3.20g	2.40g	1.33g	0.53g

Test Mounting Details:



Unit is rigid base mounted to the seismic table using (18) 3/4" Grade 8 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.