



APPLICATION FOR PREAPPROVAL SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.
OSP – 0098-10

Check whether application is: NEW RENEWAL

1.0 Prolec GE Internacional S. de R.L. de C.V. Óscar Onofre
Manufacturer *Manufacturer's Technical Representative*

Blvd. Carlos Salinas de Gortari Km 9.25, Apodaca, N.L. 66600 México
Mailing Address

+52 (81) 8030 2280 oscar.onofre@ge.com
Telephone *E-mail Address*

2.0 Commercial & Industrial Transformers Liquid-Filled Transformers
Product Name *Product Type*

Prolec GE transformers are custom-built and do not have product numbers
Product Model No. (List all unique product identification numbers and/or serial numbers)

General Description: Prolec GE Floor-Mounted Copper Core liquid-filled transformers range between 45 and 2500 kVA. Commercial and industrial (substation) applications differ in their enclosures only.

3.0 Prolec GE Internacional S. de R.L. de C.V. Óscar Onofre
Applicant Company Name *Contact Person*

Blvd. Carlos Salinas de Gortari Km 9.25, Apodaca, N.L. 66600 México
Mailing Address

+52 (81) 8030 2280 oscar.onofre@ge.com
Telephone *E-mail Address*

I hereby agree to reimburse the Office of Statewide Health Planning and Development for the actual costs incurred by the department for review.

7/19/2010
Signature of Applicant *Date*

Certification Leader Prolec GE Internacional S. de R.L. de C.V.
Title *Company Name*

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Registered Design Professional Preparing the Report

4.0 W. E. Gundy & Associates
Company Name

William E. Gundy CE-26539
Contact Name California License Number

P.O. Box 2900; Hailey, ID 83333
Mailing Address

208-788-5989 wegai@mindspring.com
Telephone E-mail Address

California Licensed Structural Engineer Review and Acceptance of the Report

5.0 Forell-Elsesser Engineers, Inc.
Company Name

Marco Scanu, SE S4454
Contact Name California License Number

160 Pine St., 6th Flr., San Francisco, CA 94111
Mailing Address

415-837-0700 m.scanu@forell.com
Telephone E-mail Address

Anchorage Pre-Approval

6.0 Anchorage is pre-approved under OPA-
 (Separate application for anchorage pre-approval is required)

Anchorage is not Pre-approved

Certification Method

7.0 Testing in accordance with: ICC-ES AC-156 Other (Please Specify):

Analysis

Experience data

Combination of Testing, Analysis, and/or Experience Data (Please Specify):

Testing Laboratory (if applicable)

8.0 Clark Dynamic Test Laboratory, Inc. John R. Antenucci
Company Name Contact Name

1801 Route 51, Jefferson Hills, PA 15025
Mailing Address

412-387-1001 jrantnucci@clarkdynamic.com
Telephone E-mail:

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Approval Parameters

9.0

Design in accordance with ASCE 7-05 Chapter 13: Yes No

Design Basis of Equipment or Components (F_p/W_p) = 0.624g

- S_{DS} (Spectral response acceleration at short period) = 2.60g
- a_p (In-structure equipment or component amplification factor) = 1.0
- R_p (Equipment or component response modification factor) = 2.5
- I_p (Importance factor) = 1.5
- z/h (Height factor ratio) = 0
- Equipment or Component fundamental period(s) = See attachment, "Resonant Frequency Summary"
- Building period limits (if any) = n/a
- Overall dimensions and weight (or range thereof) = See attachment, "Product Range Summary"

Equipment or Components @ grade designed in accordance with ASCE 7-05 Chapter 15: Yes No

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

- S_{DS} (Spectral response acceleration at short period) =
- S_1 (Spectral response acceleration at 1 second period) =
- R (Response modification coefficient) = 1.0
- Ω_0 (System overstrength factor) = 1.0
- C_d (Deflection amplification factor) = 1.0
- I_p (Importance factor) = 1.5
- Height to Center of Gravity above base =
- Equipment or Component fundamental period(s) = Sec
- Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2007: Yes No

11.0 List of attachments supporting the special seismic certification of equipment or components:

- Test Report Drawings Manufacturer's Catalog
- Calculations Other (Please Specify): SE Acceptance Letter, Product Range Summary, CAN2-1708A.5 & AC156 Requirements Checklist

11.0 OSHPD Approval (For Office Use Only)


Signature & Date

7/19/10

December 31, 2013

Chris Tokas, SHFR

S_{DS} (g) = 2.60 z/h = 0.0

Name & Title

Special Seismic Certification Valid Up to

Condition of Approval (if any): **Only floor mounted copper core Liquid-Filled Transformers are approved.**

OSP APPLICATION
Prolec GE - Liquid-Filled Transformers
Product Range Summary

Prolec GE - Liquid-Filled Transformers Product Range Summary (English units)					
	Height	Width	Depth	Max. Service Weight (lbs)	Notes
Commercial Transformers					
45 kVA	75.1 in	68.4 in	46.7 in	2,801 lbs	
75 kVA	77.2 in	80.7 in	57.7 in	3,784 lbs	
113 kVA	80.5 in	76.7 in	54.9 in	4,400 lbs	
150 kVA	87.5 in	91.9 in	70.1 in	5,672 lbs	
225 kVA	83.5 in	76.9 in	70.5 in	5,830 lbs	
300 kVA	87.3 in	89.3 in	69.8 in	6,215 lbs	
500 kVA	88.3 in	91.0 in	79.8 in	7,493 lbs	
750 kVA	91.9 in	95.8 in	94.0 in	9,515 lbs	
1000 kVA	97.4 in	91.7 in	88.1 in	10,613 lbs	Sample 1 (IBCCT 101)
1200 kVA	83.0 in	88.3 in	93.3 in	11,708 lbs	
1400 kVA	81.3 in	89.9 in	100.3 in	14,274 lbs	
1500 kVA	92.1 in	97.2 in	102.1 in	14,375 lbs	
1550 kVA	81.2 in	92.5 in	93.7 in	14,375 lbs	
1700 kVA	81.2 in	99.3 in	90.3 in	14,375 lbs	
1750 kVA	86.4 in	108.9 in	96.7 in	14,375 lbs	
1850 kVA	86.5 in	83.3 in	96.0 in	14,375 lbs	
2000 kVA	97.5 in	96.8 in	105.9 in	14,375 lbs	
2500 kVA	95.1 in	114.6 in	106.4 in	14,375 lbs	
Substation Transformers					
250 kVA	87.6 in	50.3 in	51.2 in	7,438 lbs	
300 kVA	98.7 in	71.3 in	59.9 in	8,230 lbs	
500 kVA	98.7 in	79.2 in	68.1 in	10,230 lbs	
750 kVA	98.7 in	74.6 in	113.9 in	11,000 lbs	
1000 kVA	100.3 in	89.4 in	116.6 in	12,003 lbs	
1500 kVA	100.3 in	102.0 in	123.7 in	14,375 lbs	
2000 kVA	110.1 in	115.6 in	125.3 in	14,375 lbs	Sample 2 (IBCT 101)
2500 kVA	112.5 in	120.2 in	130.8 in	14,375 lbs	
Anchorage					
GE Prolec Transformers are rigidly anchored to the floor. Lateral forces are resisted by shear membrane action in the light gauge metal exterior sheathing. Shear is transferred to adjacent metal panels through screws into light gauge metal angle frames, then to light gauge bent metal mounting brackets then through anchorage to concrete. The Commercial and Substation transformers are internally similar; only the enclosures are different.					
Materials					
The tested units were built with copper cores.					

OSP APPLICATION
Prolec GE - Liquid-Filled Transformers
Product Range Summary

Prolec GE - Liquid-Filled Transformers Product Range Summary (metric)					
	Height	Width	Depth	Max. Service Weight (lbs)	Notes
Commercial Transformers					
45 kVA	1907 mm	1738 mm	1186 mm	1,273 kg	
75 kVA	1960 mm	2050 mm	1465 mm	1,720 kg	
113 kVA	2045 mm	1949 mm	1395 mm	2,000 kg	
150 kVA	2224 mm	2334 mm	1779 mm	2,578 kg	
225 kVA	2120 mm	1954 mm	1792 mm	2,650 kg	
300 kVA	2216 mm	2269 mm	1774 mm	2,825 kg	
500 kVA	2242 mm	2311 mm	2026 mm	3,406 kg	
750 kVA	2335 mm	2434 mm	2389 mm	4,325 kg	
1000 kVA	2473 mm	2329 mm	2237 mm	4,824 kg	Sample 1 (IBCCT 101)
1200 kVA	2109 mm	2242 mm	2369 mm	5,322 kg	
1400 kVA	2066 mm	2284 mm	2548 mm	6,488 kg	
1500 kVA	2339 mm	2469 mm	2593 mm	6,534 kg	
1550 kVA	2064 mm	2349 mm	2380 mm	6,534 kg	
1700 kVA	2063 mm	2521 mm	2295 mm	6,534 kg	
1750 kVA	2195 mm	2767 mm	2455 mm	6,534 kg	
1850 kVA	2198 mm	2117 mm	2439 mm	6,534 kg	
2000 kVA	2477 mm	2459 mm	2690 mm	6,534 kg	
2500 kVA	2416 mm	2911 mm	2703 mm	6,534 kg	
Substation Transformers					
250 kVA	2226 mm	1277 mm	1300 mm	3,381 kg	
300 kVA	2506 mm	1812 mm	1521 mm	3,741 kg	
500 kVA	2506 mm	2012 mm	1731 mm	4,650 kg	
750 kVA	2506 mm	1894 mm	2892 mm	5,000 kg	
1000 kVA	2547 mm	2271 mm	2962 mm	5,456 kg	
1500 kVA	2547 mm	2591 mm	3142 mm	6,534 kg	
2000 kVA	2797 mm	2936 mm	3182 mm	6,534 kg	Sample 2 (IBCT 101)
2500 kVA	2857 mm	3052 mm	3322 mm	6,534 kg	
Anchorage					
GE Prolec Transformers are rigidly anchored to the floor. Lateral forces are resisted by shear membrane action in the light gauge metal exterior sheathing. Shear is transferred to adjacent metal panels through screws into light gauge metal angle frames, then to light gauge bent metal mounting brackets then through anchorage to concrete. The Commercial and Substation transformers are internally similar; only the enclosures are different.					
Materials					
The tested units were built with copper cores.					

**Prolec GE - Liquid-Filled Transformers
Resonant Frequency Summary**

Direction	Sample 1 - 1,000kVA Commercial Transformer		Sample 2 - 2,000kVA Industrial Transformer	
	Frequency	Period	Frequency	Period
Front-Back	8.5 Hz	0.12 sec	7.8 Hz	0.13 sec
Side-Side	15.5 Hz	0.06 sec	5.9 Hz	0.17 sec
Vertical	> 33.3 Hz	< 0.03 sec	19.5 Hz	0.05 sec

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