



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

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

OFFICE USE ONLY

APPLICATION #: **OSP – 0170 – 10**

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: **SIEMENS MEDICAL SOLUTIONS USA, INC**

Manufacturer's Technical Representative: Carri Catalano

Mailing Address: 51 Valley Stream Parkway, Mail Code B2A, Malvern, PA 19355-1406

Telephone: (610) 219-2137 Email: On File

Product Information

Product Name: KKT Chillers

Product Type: Commercial Processing Water Cooler

Product Model Number: See Attachment 1

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

General Description: Air-cooled water cooling systems intended to provide chilled water to Siemens MRI medical
Imaging systems. Seismic enhancements made to the test units shall be incorporated into the production units.

Mounting Description: KSC 215-L-U/S & KCC 215-L-U/S chillers are rigid base mounted. ECO Chillers are
flexible base mounted. Interface panels are rigid wall mounted.

Applicant Information

Applicant Company Name: **EASE Co.**

Contact Person: JONATHAN ROBERSON, S.E.

Mailing Address: 5877 Pine Ave. Suite 210, Chino Hills, CA 91709

Telephone: (406) 541-EASE (3273) Email: J.Roberson@EASECo.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: 7/5/13

Title: Principal Engineer Company Name: EASE Co.

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

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
OSH-FD-759 (REV 1/24/13)



osHPD



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

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

Company Name: EASE Co.

Name: JONATHAN ROBERSON, S.E. California License Number: S4197

Mailing Address: 5877 Pine Ave. Suite 210, Chino Hills, CA 91709

Telephone: (909) 606-7622 Email: J.Roberson@EASECo.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

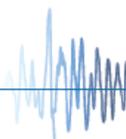
Company Name: Environmental Testing Laboratory, Inc.

Contact Name: Brady Richard

Mailing Address: 11034 Indian Trail, Dallas, TX 75229-3513

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

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





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Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = See Attachment 1, Table 2

S_{DS} (Design spectral response acceleration at short period, g) = See Attachment 1, Table 2

a_p (In-structure equipment or component amplification factor) = See Attachment 1, Table 2

R_p (Equipment or component response modification factor) = See Attachment 1, Table 2

Ω_0 (System overstrength factor) = See Attachment 1, Table 2

I_p (Importance factor) = **1.5**

z/h (Height factor ratio) = See Attachment 1, Table 2

Equipment or Component Natural Frequencies (Hz) = See Attachment 2

Overall dimensions and weight (or range thereof) = See Attachment 1, Table 1

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

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

S_{DS} (Design spectral response acceleration at short period, g) = _____

S_{D1} (Design spectral response acceleration at 1 second period, g) = _____

R (Response modification coefficient) = _____

Ω_0 (System overstrength factor) = _____

C_d (Deflection amplification factor) = _____

I_p (Importance factor) = **1.5**

Height to Center of Gravity above base = _____

Equipment or Component Natural Frequencies (Hz) = _____

Overall dimensions and weight (or range thereof) = _____

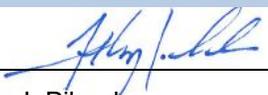
Tank(s) designed in accordance with ASME BPVC, 2010: Yes No

List of Attachments Supporting Special Seismic Certification

Test Report(s) Drawings Calculations Manufacturer's Catalog

Other(s) (Please Specify): Attachments 1 & 2

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

Signature: 

Date: July 30, 2013

Print Name: Timothy J. Piland

Title: SSE

Special Seismic Certification Valid Up to : S_{DS} (g) = See Application

z/h = See Application

Condition of Approval (if applicable): _____



ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

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TABLE 1: SEISMIC CERTIFIED COMPONENTS

DISTRIBUTOR	SIEMENS MEDICAL SOLUTIONS					
MANUFACTURER	ALPHA-INNOTEK GMBH BUSINESS UNIT KKT CHILLERS ^[3] ^[4]					
COMPONENT MODEL	DIMENSIONS (IN.)			MAX. WT. (LB.) ^[2]	MOUNTING	BASIS ^[1]
	W	D	H			
WATER CHILLERS						
KSC-215-L-U/S Water Chiller	120.5	37.8	72.05	2337	Rigid Base	UUT1
KCC-215-L-U/S Water Chiller	120.5	37.8	72.05	2337	Rigid Base	SAME
ECO 133L Chiller w/ factory installed Seismic Kit	84.4	43.3	80.7	1675	Flexible Base	UUT A1
ECO 122L Chiller w/ factory-installed Seismic Kit	84.5	43.3	68 - 7/8	1447	Flexible Base	UUT B1
INTERFACE PANELS						
KUTTING Model # 7549053 Interface Panel	41.5	7.5	31.5	90	Wall	UUT2
ECO 133L Interface Panel	45	8	31.5	148	Wall	UUT A2
ECO 122L IFP	45.1	7.1	31.5	151	Wall	UUT B2
STRUCTURAL FEATURES	Painted, galvanized carbon steel cabinet construction. ECO chillers require factory-installed Seismic Option Kit to structurally enhance the cabinet frame.					
MOUNTING	<p><u>Rigid Base (Floor)</u>: a free-standing, base mounted condition with the component rigidly attached to a supporting structure and no lateral support above the base.</p> <p><u>Flexible Base (Floor)</u>: a free-standing, base-mounted condition with the component attached to manufacturer-provided elastomeric pads rigidly mounted to a supporting structure and with no lateral support above the base.</p> <p><u>Wall</u>: fully supported by a building wall structure.</p>					
NOTES	<p>1. BASIS:</p> <ul style="list-style-type: none"> • UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program. • SAME: Model is physically, mechanically & electrically the same as test specimen. Difference is limited to model number, color and/or software. <p>2. All weights listed are dry weight.</p> <p>3. Manufacturer unless otherwise noted in table.</p> <p>4. Formerly KKT Kraus Klimatechnik GmbH</p> <p>5. This document, all test results and other related documents are for the exclusive benefit of Siemens Medical Solutions. The professional opinions expressed herein extend only to projects authorized by Siemens Medical Solutions. Use of these resources for anything other than Siemens Medical Solutions projects is prohibited without express written consent from Siemens Medical Solutions.</p>					

TABLE 2: ASCE 7-10 DESIGN BASIS FOR EQUIPMENT

COMPONENT	F _P /W _P	E _v	z/h	S _{ds}	I _p	a _p	R _p	Ω ₀
KSC-215-L-U/S & KCC-215-L-U/S WATER CHILLER	1.94W _p	0.54W _p	1.0	2.7	1.5	1	2 ½	2 ½
KSC-215-L-U/S & KCC-215-L-U/S INTERFACE PANEL	1.52W _p	0.43W _p	1.0	2.11	1.5	1	2 ½	2 ½
ECO 122L WATER CHILLER	3.60W _p	0.52W _p	1.0 0.0	2.0 2.6	1.5	2 ½	2 ½	2 ½
ECO 122L INTERFACE PANEL	1.44W _p	0.52W _p	1.0 0.0	2.0 2.6	1.5	1	2 ½	2 ½
ECO 133L WATER CHILLER	3.60W _p	0.40W _p	1.0	2.0	1.5	2 ½	2 ½	2 ½
ECO 133L INTERFACE PANEL	1.87W _p	0.52W _p	1.0	2.6	1.5	1	2 ½	2 ½

ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT- 1		KSC 215-L-U/S						
MANUFACTURER:		KKT Kraus Klimatechnik GmbH						
IDENTIFICATION:		Model No.: KSC 215-L-U/S						
		Serial No.: S215.4001.02.526.1210						
DESCRIPTION:		Housing: welded, galvanized framework-construction, lateral cover-plates with drawer edges made of galvanized steel plate. All outer fastening screws rust-proof. Control System: Siemens SPS Evaporator: GEA Ecoflex GmbH Model M25-60 GLX Pump: GRUNDOS Type CR10-05 A-A-A-E-HQQE Motor-Compressor: Copland Scroll Type ZR 16 M3E-TWD-591 Fans: ZIEHL-ABEGG Model FE050 VDS.41.V7 Frequency Inverter: YASKAWA E7 – Series Expansion Valve: Siemens Refrigerant Valves MLV661 Refrigerant: R134a Unit was tested full with water-glycol.						
MOUNTING:		Rigid Base (Floor) Mounted using (6)-3/8" Dia Gr-5 bolts w/ washers and hex nuts						
PROPERTIES:								
DIMENSIONS (in.)			Dry	LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height	Weight (lb.)	X-Axis	Y-Axis	Z-Axis		
120.5	37.8	72.1	2280.5	6.22	6.9	8.6		
SHAKE TABLE TEST PARAMETERS								
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 AC156-10	2.70	1.0	1.0	4.32	3.24	1.81	0.72
Unit maintained structural integrity and functionality after the ICC-ES AC 156 test								



UUT-2		Interface Panel for KSC-215						
MANUFACTURER:		Kutting						
IDENTIFICATION:		Model No.: 7549053						
		Serial No.: 2312						
DESCRIPTION:		Unit was tested full with water-glycol. Weight noted is dry weight.						
MOUNTING:		Rigid Wall mounted using (2)-#14 HWH SMS w/ 1.5" O.D. fender washers (Top) & (2)-#14 HWH SMS w/ Standard washers (Bottom)						
PROPERTIES:								
DIMENSIONS (in.)			Dry	LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height	Weight (lb.)	X-Axis	Y-Axis	Z-Axis		
41.5	7.5	31.5	90	N/A	N/A	N/A		
SHAKE TABLE TEST PARAMETERS								
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 AC156-10	2.11	1.0	1.0	3.38	2.53	1.41	0.57
Unit maintained structural integrity and functionality after the ICC-ES AC 156 test								



ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT- A1 ECO 133L Chiller									
MANUFACTURER:		KKT Kraus Klimatechnik GmbH							
IDENTIFICATION:		Model No.: ECO 133L							
		Serial No.: 133.6002.00.1063.0811							
DESCRIPTION:		<p>Housing: welded, galvanized framework-construction, lateral cover-plates with drawer edges made of galvanized steel plate. Framework-construction and top-plates, powder-coated on the inside and outside. All outer fastening screws rust-proof. Test specimen included factory-installed structural enhancements to the standard model.</p> <p>Control System: Siemens SPS Pump: GRUNDOS Type 100IC2-CML3A-D1 Compressor: Danfoss HLP Scroll compressor Compressor Drive: Danfoss VTZ Fans: ZIEHL-ABEGG VFD: Danfoss VTZ Expansion Valve: Siemens Refrigerant Valves MLV661 Refrigerant: R407c Unit was tested full with water-glycol.</p>							
MOUNTING:		Flexible Base (Floor) Mounted using (4) AC Mecanocaucho elastomeric pads w/ (2) – ½” cap screws/ pad to interface frame. (8 bolts total)							
PROPERTIES:									
DIMENSIONS (in.)			Dry Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)					
Width	Depth	Height		X-Axis	Y-Axis	Z-Axis			
84.4	43.3	80.7	1651	3.6	5.1	7.7			
SHAKE TABLE TEST PARAMETERS									
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 AC156-10	2.00	1.0	1.5	3.20	2.40	1.34	0.54	
Unit maintained structural integrity and functionality after the ICC-ES AC 156 test									



UUT-A2 ECO 133L Interface Panel									
MANUFACTURER:		KKT Kraus Klimatechnik GmbH							
IDENTIFICATION:		Model No.: IFP Transfer Station							
		Serial No.: IFP 00.044.0111							
DESCRIPTION:		Unit was tested full with water-glycol.							
MOUNTING:		Rigid Wall mounted using (4) – #12 HWH SMS w/ 1½” O.D fender washers							
PROPERTIES:									
DIMENSIONS (in.)			Dry Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)					
Width	Depth	Height		X-Axis	Y-Axis	Z-Axis			
45.1	7.1	31.5	148	N/A	N/A	N/A			
SHAKE TABLE TEST PARAMETERS									
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 AC156-10	2.60	1.0	1.5	4.16	3.12	1.74	0.70	
Unit maintained structural integrity and functionality after the ICC-ES AC 156 test									



ATTACHMENT 2: TEST SPECIMEN SUMMARY

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UUT- B1		ECO 122L Chiller						
MANUFACTURER:		KKT Kraus Klimatechnik GmbH						
IDENTIFICATION:		Model No.: ECO 122L						
		Serial No.: 122.6002.00.1014.0411						
DESCRIPTION:		Unit was tested full with water-glycol.						
MOUNTING:		Flexible Base (Floor) Mounted using (4) AC Mecanocaucho elastomeric pads w/ (2) – ½” cap screws/ pad to interface frame. (8 bolts total)						
PROPERTIES:								
DIMENSIONS (in.)			Dry	LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height	Weight (lb.)	X-Axis	Y-Axis	Z-Axis		
84.5	43.3	68 – 7/8	1447	4.27	5.36	4.13		
SHAKE TABLE TEST PARAMETERS								
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 AC156-10	2.0 2.6	1.0 0.0	1.5	3.20	2.40	1.74	0.70
Unit maintained structural integrity and functionality after the ICC-ES AC 156 test								



UUT-B2		ECO 122L Interface Panel						
MANUFACTURER:		Alpha-InnoTec GmbH Business Unit KKT Chillers						
IDENTIFICATION:		Model No.: IFP						
		Serial No.: IFP 00.1209.1012						
DESCRIPTION:		Unit was tested full with water-glycol.						
MOUNTING:		Rigid Wall mounted using (4) – ¼” dia HWH SMS w/ 1½” O.D fender washers						
PROPERTIES:								
DIMENSIONS (in.)			Dry	LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height	Weight (lb.)	X-Axis	Y-Axis	Z-Axis		
45.1	7.1	31.5	150.5 dry	N/A	N/A	N/A		
SHAKE TABLE TEST PARAMETERS								
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 AC156-10	2.0 2.6	1.0 0.0	1.5	3.20	2.40	1.74	0.70
Unit maintained structural integrity and functionality after the ICC-ES AC 156 test								

