



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

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

OFFICE USE ONLY

APPLICATION #: **OSP – 0173-10**

**OSHPD Special Seismic Certification Preapproval (OSP)**

Type:  New  Renewal

**Manufacturer Information**

Manufacturer: **JOHNSON THERMAL SYSTEMS**

Manufacturer's Technical Representative: Jeff Johnson

Mailing Address: 1614 Industrial Way, Ste.104, Caldwell, ID. 83605-6925

Telephone: On File Email: On File

**Product Information**

Product Name: **JTS CHILLERS**

Product Type: Air-Cooled Process Chillers

Product Model Number: **SEE ATTACHMENT 1**

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

General Description: Chillers for medical equipment cooling, data center cooling, space cooling and dehumidification. Chiller frame is constructed from G90 galvanized steel members. All cover panels are powder coated carbon steel. Cabinets have NEMA 4 electrical enclosure. Structural enhancements incorporated in the test units and required to anomalies observed during test shall be incorporated into all certified units.

Mounting Description: Rigid Base mounted.

**Applicant Information**

Applicant Company Name: **EASE Co.**

Contact Person: Jonathan Roberson, S.E.

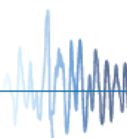
Mailing Address: 5877 Pine Ave, Suite 210, Chino Hills, CA. 91709

Telephone: (909) 606-7622 Email: [j.roberson@easeco.com](mailto: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, 2016.

Signature of Applicant:  Date: 2/20/2017

Title: Principal Structural Engineer Company Name: **EASE Co.**





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

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY  
OSH-FD-759 (REV 12/16/15)

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### 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): \_\_\_\_\_

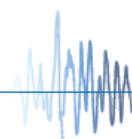
### Testing Laboratory

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





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## Seismic Parameters

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

Design Basis of Equipment or Components ( $F_p/W_p$ ) = 2.16 (30 Ton Chiller) | 1.99 (All other model in Table 1)

$S_{DS}$  (Design spectral response acceleration at short period, g) = 3.0 (30 Ton Chiller) | 2.77 (All others)

$a_p$  (In-structure equipment or component amplification factor) = 1

$R_p$  (Equipment or component response modification factor) = 2 1/2

$\Omega_0$  (System overstrength factor) = 2

$I_p$  (Importance factor) = 1.5

$z/h$  (Height factor ratio) = 1

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

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

$\Omega_0$  (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, 2015:  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, 2022

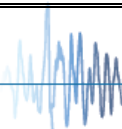
Signature:  Date: 2/21/2017

Print Name: M. R. Karim Title: SHFR

Special Seismic Certification Valid Up to :  $S_{DS}$  (g) = See Above  $z/h$  = 1.0

Condition of Approval (if applicable): \_\_\_\_\_

\_\_\_\_\_



# ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

**TABLE 1: SEISMIC CERTIFIED SYSTEMS & COMPONENTS**

<i>Manufacturer</i>	<b>JOHNSON THERMAL SYSTEMS</b>						
<i>Product Line</i>	<b>CHILLERS</b>						
COMPONENT	PART NO.	DIMENSIONS (IN.)			MAX. WT. (LB.)	MOUNTING	BASIS <sup>[1]</sup>
		W	D	H			
3 Ton Chiller (SAC)	JTS3SAC-OSP	34	60	60	690	Rigid Base	INT
4 Ton Chiller (SAC)	JTS4SAC-OSP	34	60	60	690	Rigid Base	INT
5 Ton Chiller (SAC)	JTS5SAC-OSP	34	60	60	700	Rigid Base	UUT1
7 Ton Chiller (SAC)	JTS7SAC-OSP	42	83	78	1050	Rigid Base	INT
7 Ton Chiller (SAC-HA)	JTS7SAC-HA-OSP	42	83	78	1200	Rigid Base	INT
10 Ton Chiller (SAC)	JTS10SAC-OSP	42	83	78	1100	Rigid Base	INT
10 Ton Chiller (SAC-HA)	JTS10SAC-HA-OSP	42	83	78	1164	Rigid Base	INT
10 Ton Chiller (DIAC)	JTS10DIAC-OSP	52	79	80	1750	Rigid Base	INT
15 Ton Chiller (DIAC)	JTS15DIAC-OSP	52	79	80	1800	Rigid Base	INT
15 Ton Chiller (DIAC-HA)	JTS15DIAC-HA-OSP	52	79	80	1950	Rigid Base	INT
20 Ton Chiller (DIAC)	JTS20DIAC-OSP	52	79	80	1950	Rigid Base	INT
20 Ton Chiller (DIAC-HA)	JTS20DIAC-HA-OSP	52	79	80	1950	Rigid Base	INT
25 Ton Chiller (DIAC)	JTS25DIAC-OSP	68	79	88	2200	Rigid Base	INT
25 Ton Chiller (DIAC-HA)	JTS25DIAC-HA-OSP	68	79	88	2250	Rigid Base	INT
30 Ton Chiller (DIAC)	JTS30DIAC-OSP	68	79	88	2250	Rigid Base	UUT2
<i>Mount</i>	<b>Rigid Base:</b> free-standing, base-mounted tower configuration with the component rigidly attached to a supporting structure and no lateral support above the base.						
<i>Notes</i>	<ol style="list-style-type: none"> <li>BASIS: <ul style="list-style-type: none"> <li>UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program.</li> <li>INT (Interpolated or Extrapolated): indicates a model that was not specifically tested, and by which seismic certification is established through evaluation of testing of other, similar models in the product line.</li> </ul> </li> <li>Subassemblies: Units are seismically certified with the subassemblies listed in Table 2 below.</li> </ol>						

**ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS**

**TABLE 2: CHILLER SUBASSEMBLIES ACCEPTED IN SEISMIC CERTIFICATION**

MANUFACTURER	PRODUCT LINE	MODEL	MAX. DIMENSIONS (IN)				MAX. WT. (LB)	NOTES
			DIAM	LENGTH	WIDTH	HEIGHT		
<b>COMPRESSORS</b>								
COPELAND	Digital Scroll Compressor, Hermetic R-410a	ZPD34K5E	N/A	9.57"	9.57"	17.66"	68.2 lb	
COPELAND	Digital Scroll Compressor, Hermetic R-410a	ZPD51K5E	N/A	9.26"	9.26"	18.39"	72.8 lb	
COPELAND	Digital Scroll Compressor, Hermetic R-410a	ZPD61KCE	N/A	9.63"	9.82"	17.91"	88.8 lb	UUT1
COPELAND	Digital Scroll Compressor, Hermetic R-410a	ZPD103KCE	N/A	11.54"	11.23"	21.00"	134 lb	
COPELAND	Digital Scroll Compressor, Hermetic R-410a	ZPD120KCE	N/A	11.54"	11.23"	21.00"	136 lb	
COPELAND	Digital Scroll Compressor, Hermetic R-410a	ZPD83KCE	N/A	9.48"	9.70"	19.46"	89.9 lb	
COPELAND	Digital Scroll Compressor, Hermetic R-410a	ZPD137KCE	N/A	10.38"	11.23"	21.00"	137 lb	
COPELAND	Digital Scroll Compressor, Hermetic R-410a	ZPD154KCE	N/A	12.83"	11.61"	21.72"	144 lb	
COPELAND	Digital Scroll Compressor, Hermetic R-410a	ZPD182KCE	N/A	12.83"	11.61"	21.71"	147 lb	UUT2
<b>RESERVOIR</b>								
JTS	Custom SS water/glycol reservoir, closed	15T-M005-1-B	18"	64 1/2"	18"	20"	70 lb	
JTS	Custom SS water/glycol reservoir, closed	JTS4SAC-V001	18"	22 1/2"	18"	20"	45 lb	
JTS	Custom SS water/glycol reservoir, closed	15T-M005-1-B	18"	64 1/2"	18"	20"	70 lb	UUT1
JTS	Custom SS water/glycol reservoir, closed	JTS4SAC-V001	18"	22 1/2"	18"	20"	45 lb	UUT2
<b>PUMP</b>								
Goulds	End suction centrifugal pump, single impeller	1ST1G5A4	9"	14.5"	9"	10"	45 lb	UUT1
Goulds	End suction centrifugal pump, single impeller	1ST1E5C4	9"	14.5"	9"	10"	45 lb	
Goulds	End suction centrifugal pump, dual impeller	LCC1J2D0	6.75"	21.2"	6.75"	9.37"	57 lb	UUT2
Weber	End suction centrifugal pump, dual impeller	FC40B50-3T	10"	21"	10"	10"	64 lb	UUT2
<b>FAN ASSEMBLY</b>								
Ziehl-Abegg	FN Series, EC Axial motor driven, 500 mm	FN050-4DQ.4I.V7P1	N/A	26"	26"	6"	37 lb	UUT2
Ziehl-Abegg	FN Series, EC Axial motor driven, 710 mm	FN071-ZIQ.DG.V7P3	N/A	33 1/2"	33 1/2"	9"	49 lb	UUT2
EBM-Pabst	W3G Series, EC Axial motor driven, 500 mm	W3G500-CE33-01 3/60/460	N/A	26"	26"	6"	37 lb	UUT1
EBM-Pabst	W3G Series, EC Axial motor driven, 650 mm	W3G650-CK02-03 3/60/460	N/A	33 1/2"	33 1/2"	9"	49 lb	UUT2
<b>EVAPORATOR</b>								
Alfa Laval	Brazed Plate Heat Exchanger	AC-30-60EQ-S21	N/A	3.9"	3.7"	12.8"	14.2 lb	UUT1
Alfa Laval	Brazed Plate Heat Exchanger	AC-70X-50M	N/A	20 1/2"	4 1/2"	6"	25 lb	UUT2
<b>ELECTRONIC EXPANSION VALVES</b>								
Carel	E2V	E2V24BSM00	N/A	5"	2 1/2"	5/8"	1 1/2"	UUT1
Carel	E3V	E3V45ASR00	N/A	3"	2 1/2"	1 1/4"	2 lb	UUT2

Table continues next page


**ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS**


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**TABLE 2: CHILLER SUBASSEMBLIES ACCEPTED IN SEISMIC CERTIFICATION**

MANUFACTURER	PRODUCT LINE	MODEL	MAX. DIMENSIONS (IN)				MAX. WT. (LB)	NOTES
			DIAM	LENGTH	WIDTH	HEIGHT		
<b>CONDENSER</b>								
Heatcraft	Micro-channel aluminium coil	59509901 HTS-D Cabinet	N/A	37"	26"	1 1/4"	15 lb	UUT1
Luvata	Micro-channel aluminium coil	E66005OH	N/A	69"	32 1/2"	1 1/4"	36 lb	UUT2
<b>FLOW SWITCH</b>								
W.E. Anderson	flow switch	119151	N/A	5"	2"	1"	1 oz	All UUT
<b>CONTROLLER</b>								
Carel	pCOxs	PCO1000BX0	N/A	5 1/2"	4 1/2"	3"	1 1/2 lb	UUT1
Carel	pCO3	PCO3000ES0	N/A	9"	4 1/2"	3"	2 lb	UUT2
<b>PRESSURE RELIEF VALVE</b>								
Wilkins	pressure relief valve	P-1000A952	N/A	3'	2"	1/4"	6 oz	All UUT
<b>LIQUID LINE FILTER DRIER</b>								
Flow	liquid line filter drier	30 EK 4155	3 1/2"	3 1/2"	3 1/2"	8"	3 lb	All UUT
<b>AUTOMATIC AIR VENT</b>								
McDonnell Mill	automatic air vent	AAV-90	2 1/2"	2 1/2"	2 1/2"	6 1/2"	1 1/2 lb	All UUT

**ATTACHMENT 2: TEST SPECIMEN SUMMARY**

<b>UUT- 1 5 TON CHILLER (SAC)</b>								
<i>Manufacturer:</i> JOHNSON THERMAL SYSTEMS								
<i>Identification:</i> Model No.: JTS5SAC-OSP								
<i>Description:</i> Controller: Carel PCOxs Compressor: (1) Copland Digital Scroll ZPD61KCE 5 Ton Pump: (1) Goulds 1 <sup>ST</sup> 1G5A4 2HP Fan Assy: (1) EBM-Pabst W3G Series, EC Axial motor driven, 500mm Evaporator: (1) Alfa Laval Brazed Plate Heat Exchanger Condensor: (1) Heatcraft HTS-D Cabinet Micro-channel aluminum coil Refrigerant: R-410a Cabinet: NEMA 4 electrical enclosure Tank: 20 gallon Pressure relief bypass valve, flow switch & liquid line filter drier								
<i>Mounting:</i> Rigid Base Mount w/ (4) – 3/8" dia grade 8 bolts.				Unit was full of content during AC156 test				
DIMENSIONS (in.)				Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)			
Width	Depth	Height	FRONT-AXIS		SIDE-AXIS	VERT-AXIS	OFF-AXIS	
34	60	60	866	15.2	13.8	8.9	11.1	
<i>Shake Table Test Parameters</i>								
CODE	TEST CRITERIA	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2016	ICC-ES AC156	2.77	1	1.5	4.43	3.32	1.86	0.75
Unit maintained structural integrity and functionality per manufacturer requirements after the ICC-ES AC 156 test								

<b>UUT- 2 30 TON CHILLER (DIAC)</b>								
<i>Manufacturer:</i> JOHNSON THERMAL SYSTEMS								
<i>Identification:</i> Model No.: JTS30DIAC-OSP								
<i>Description:</i> Controller: Carel PCOxs Compressor: (2) Copland Digital Scroll ZPD182KCE 5 Ton Pump: (1) Goulds 5HP (1) Weber 5HP Fan Assy: (2) Ziehl-Abegg, FN Series, EC Axial motor driven, 500mm (1) Ziehl-Abegg, FN Series, EC Axial motor driven, 710mm (1) EBM-Pabst W3G Series, EC Axial motor driven, 650mm Evaporator: (1) Alfa Laval Brazed Plate Heat Exchanger Condensor: (1) Luvata Micro-channel aluminum coil Refrigerant: R-410a Cabinet: NEMA 4 electrical enclosure Tank: 65 gallon Pressure relief bypass valve, flow switch & liquid line filter drier								
<i>Mounting:</i> Rigid Base Mount w/ (4) – 1/2" dia grade 8 bolts.				Unit was full of content during AC156 test				
DIMENSIONS (in.)				Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)			
Width	Depth	Height	FRONT-AXIS		SIDE-AXIS	VERT-AXIS	OFF-AXIS	
68	79	88	2791	8.9	7.7	>50	8.9	
<i>Shake Table Test Parameters</i>								
CODE	TEST CRITERIA	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2016	ICC-ES AC156-15	3.0	1	1.5	4.80	3.60	2.01	0.81
Unit maintained structural integrity and functionality per manufacturer requirements after the ICC-ES AC 156 test								