



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT**

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

OFFICE USE ONLY

APPLICATION #: OSP-0580

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Advanced Cooling Technologies, Inc.

Manufacturer's Technical Representative: Cathy He

Mailing Address: 3151 Independence Drive, Livermore, CA 94551

Telephone: (925) 393-0780 Email: cathy.he@advancedcoolingtech.com

Product Information

Product Name: Chillers

Product Model Number(s): See attached

Product Category: Chillers

Product Sub-Category: Chillers - Air Cooled

General Description: Air cooled chiller containing condensers, evaporators, pumps, compressors, and controller.

Mounting Description: Rigid floor mounted and isolated floor mounted on neoprene pads

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

Applicant Company Name: Dynamic Certification Laboratories

Contact Person: Kelly Laplace

Mailing Address: 1315 Greg Street, Sparks, NV 894316098

Telephone: (775) 358-5085 Email: kelly@shaketest.com

Title: VP of Sales: Test and Measurement Division





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

Company Name: THE VMC GROUP
Name: Kenneth Tarlow California License Number: S2851
Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814
Telephone: (832) 627-2214 Email: ken.tarlow@thevmcgroup.com

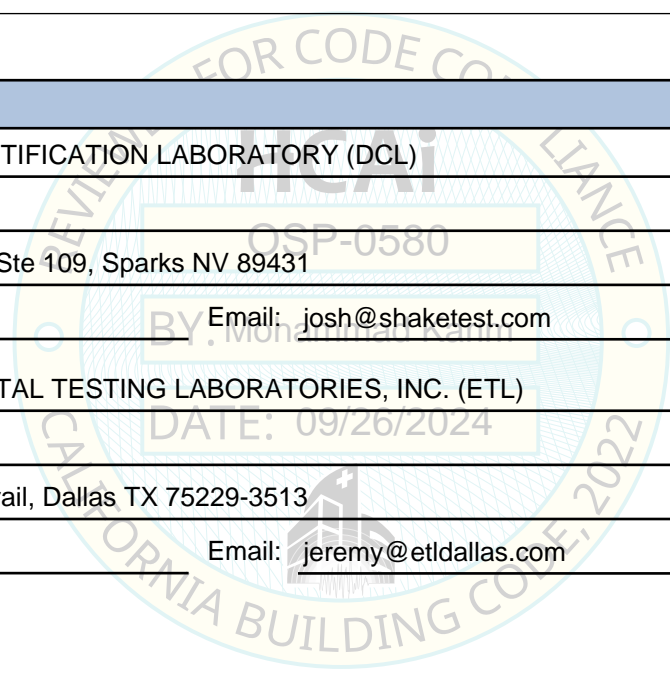
Certification Method

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

Testing Laboratory

Company Name: DYNAMIC CERTIFICATION LABORATORY (DCL)
Contact Person: Josh Sailer
Mailing Address: 1315 Greg St., Ste 109, Sparks NV 89431
Telephone: (775) 358-5085 Email: josh@shaketest.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





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = Rigid:1.5, Iso.:3.6 (SDS = 2.0g); Rigid:1.13, Iso.:1.5 (SDS = 2.5g)

SDS (Design spectral response acceleration at short period, g) = 2.00 (z/h=1), 2.50 (z/h=0)

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6.0 (rigid); 2.5 (neoprene isolated)

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

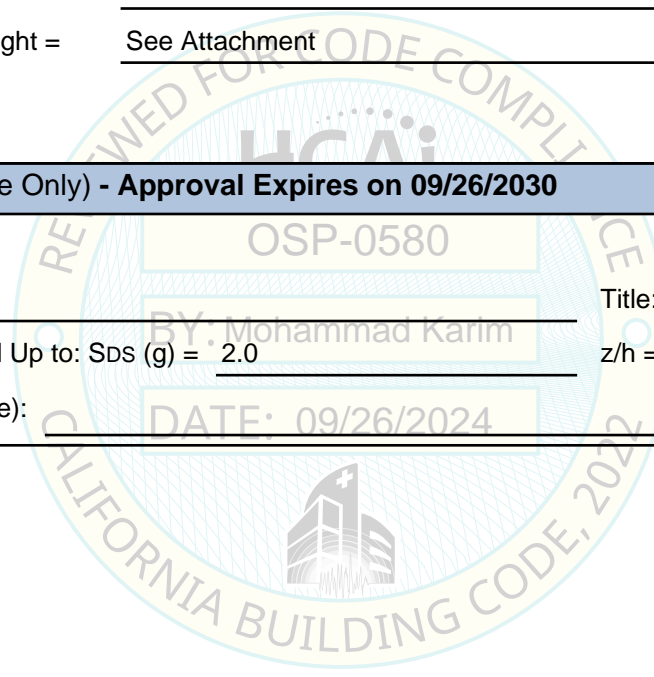
HCAI Approval (For Office Use Only) - Approval Expires on 09/26/2030

Date: 9/26/2024

Name: Mohammad Karim Title: Supervisor, Health Facilities

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

Condition of Approval (if applicable): DATE: 09/26/2024



Special Seismic Certification
Table 1- Certified Components



DCL Project Number: 71124-2401

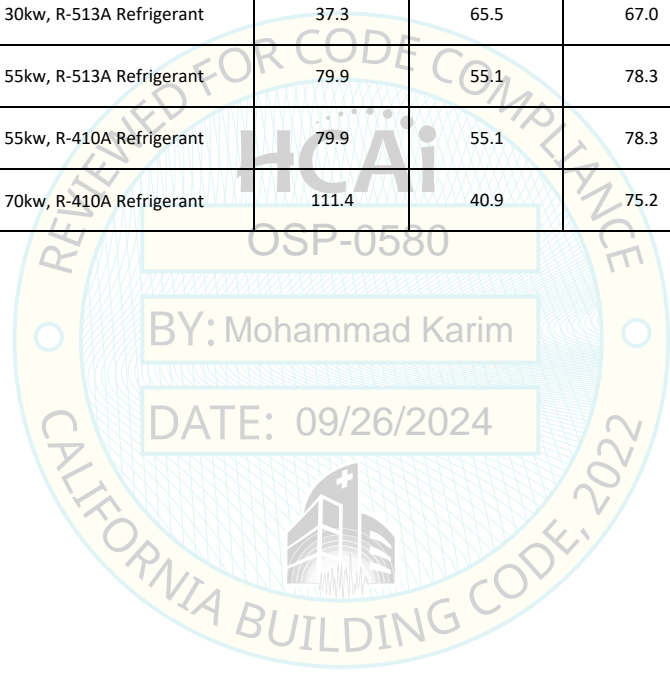
Manufacturer: AIRSYS Refrigeration Engineering Technology (Beijing) Co., Ltd., designed for Advanced Cooling Technologies, Inc.

Product Line: MEDICOOL

Mounting: Base Mounted With and Without Nitrile Butadiene Rubber Isolator Pads

Certified Seismic Levels: Sds = 2.00g, z/h=1.0; Sds = 2.50g, z/h=0.0

Model Number	Description	Dimensions [in.]			Weight [lb.]	Unit
		Depth	Width	Height		
CH10E1P4R407.M.GEH	10kw, R-410A Refrigerant	25.2	55.5	65.0	640	UUT-01
CH10E1P4R513.M.GEH	10kw, R-513A Refrigerant	25.2	55.5	65.0	641	Interpolated
CH.30E2P4.R410.M	30kw, R-410A Refrigerant	37.3	65.5	67.0	1,440	UUT-04
CH.30E2P4.R513.M	30kw, R-513A Refrigerant	37.3	65.5	67.0	1,434	Interpolated
CH55E4P4R513.M	55kw, R-513A Refrigerant	79.9	55.1	78.3	2,121	Interpolated
CH55E4P4R410A.M	55kw, R-410A Refrigerant	79.9	55.1	78.3	2,130	UUT-02
CH70E4P4R410.M	70kw, R-410A Refrigerant	111.4	40.9	75.2	2,920	UUT-03



Special Seismic Certification
Table 2 - Certified Subcomponents



DCL Project Number: 71124-2401

Certified Seismic Levels: Sds = 2.00g, z/h=1.0; Sds = 2.50g, z/h=0.0

Model Number	Manufacturer	Description	Material	Weight [lb]	Unit
Compressors					
ZR47KCE	Copland	Scroll Compressor, 4 kW	Iron, Copper	62	UUT-01
C-SBP205H38B	Panasonic	Scroll Compressor, 7.5 kW	Iron, Copper	85	UUT-03
C-SBP170H38B	Panasonic	Scroll Compressor, 5 kW	Iron, Copper	86	UUT-02, UUT-04
Condensers					
8156513260	AIRSYS	Condenser; Copper Tube, 9.52 mm diameter	Copper, Aluminum	118	UUT-01, UUT-04
8156512900	AIRSYS	Condenser; Copper Tube, 7.0 mm diameter	Copper, Aluminum	198	UUT-02
8156512920	AIRSYS	Condenser; Copper Tube, 7.0 mm diameter	Copper, Aluminum	322	UUT-03
Fan Units					
8251006340	Dunli	Fan Unit	Stainless Steel, Carbon Steel, Plastic, Aluminum	86	UUT-01
FN071-ZIQ.DG.V7P3	ZIEHL-ABEGG	Fan Unit	Metal, Plastic	95	UUT-02
EC137-A500	Dunli	Fan Unit	Metal, Plastic	96	UUT-04
FN050	ZIEHL-ABEGG	Fan Unit	Metal, Plastic	109	UUT-03
Evaporators					
C62L-EZB-22	Danfoss	40-70 L/min, Plate-Type Evaporator	Stainless Steel	38	UUT-01, UUT-04
C62L-EZB-62	Danfoss	100-150 L/min, Plate-Type Evaporator	Stainless Steel	76	UUT-02
C62L-EZB-76	Danfoss	100-150 L/min, Plate-Type Evaporator	Stainless Steel	89	UUT-03
Pumps					
MHI204	Wilo	40 mH ₂ O Pump, 1.5 kW	Iron, Copper, Aluminum, Stainless Steel	96	UUT-01, UUT-04
CM10-3	Grundfos	50 mH ₂ O Pump, 4 kW	Iron, Copper, Aluminum, Stainless Steel	219	UUT-02, UUT-03
Expansion Valves					
TE20	Danfoss	Expansion Valve	Metal, Plastic	3	UUT-02, UUT-03
E2V24	Carel	Expansion Valve	Metal, Plastic	3	UUT-04
8155412270	Carel	Expansion Valve	Copper, Carbon Steel, Plastic	3	UUT-01
Controller Units					
2040317370	AIRSYS	Controller Unit	Iron, Copper, Plastic	6	UUT-03
2040329530	AIRSYS	Controller Unit	Iron, Copper, Plastic	6	UUT-01, UUT-04
2040311800	AIRSYS	Controller Unit	Iron, Copper, Plastic	6	UUT-02

Special Seismic Certification
Table 3- Tested Units



DCL Project Number: 71124-2401

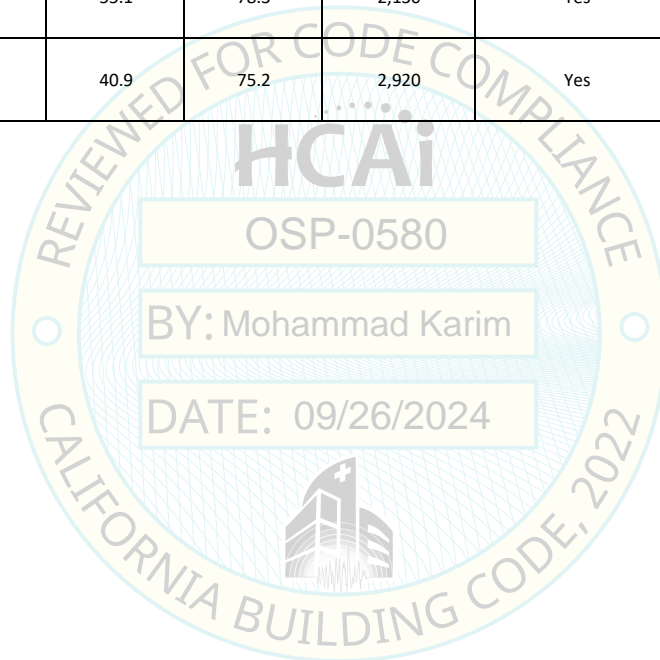
Manufacturer: AIRSYS Refrigeration Engineering Technology (Beijing) Co., Ltd., designed for Advanced Cooling Technologies, Inc.

Product Line: MEDICOOL

Mounting: Base Mounted With and Without Nitrile Butadiene Rubber Isolator Pads

Certified Seismic Levels: Sds = 2.00g, z/h=1.0; Sds = 2.50g, z/h=0.0

Model Number	Dimensions [in.]			Weight [lb.]	Nitrile Butadiene Rubber Isolator Pads	Test Report [Lab]	Unit
	Depth	Width	Height				
CH10E1P4R407.M.GEH	25.2	55.5	65.0	640	No	18042TR1.0 [Environmental Testing Lab]	UUT-01
CH.30E2P4.R410.M	37.3	65.5	67.0	1,440	Yes	10322-2201 [DCL]	UUT-04
CH55E4P4R410A.M	79.9	55.1	78.3	2,130	Yes	18042TR1.0 [Environmental Testing Lab]	UUT-02
CH70E4P4R410.M	111.4	40.9	75.2	2,920	Yes	18042TR1.0 [Environmental Testing Lab]	UUT-03



UNIT UNDER TEST (UUT) Summary Sheet



UUT-01

Manwill Engineering Test Report Number: 18042TR1.0

Manufacturer: AIRSYS Refrigeration Engineering Technology (Beijing) Co., Ltd., designed for Advanced Cooling Technologies, Inc.

Product Line: MEDICOOL

Model Number: CH10E1P4R407.M.GEH

Product Construction Summary: Painted Carbon Steel

Options / Component Summary: Compressors, evaporators, pumps, condensers and controller.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component and attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	UUT	Depth	Width	Height	Front-Back	Side-Side	Vertical
640	UUT-01	25.2	55.5	65.0	8.9	10.0	>33.3

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	N/A	N/A
		2.50	0.0		N/A	N/A	1.67	0.67

Unit Mounting Description:

Unit was rigid base mounted to the fixture using (6) 5/16" Grade 8 bolts with clipped washers.



UUT-01 Front View



UUT-01 Interior View

UNIT UNDER TEST (UUT) Summary Sheet



UUT-04

DCL Test Report Number: 10322-2201 (was UUT1 in test report)

Manufacturer: AIRSYS Refrigeration Engineering Technology (Beijing) Co., Ltd., designed for Advanced Cooling Technologies, Inc.

Product Line: MEDICOOL

Model Number: CH.30E2P4.R410.M

Product Construction Summary: Painted Carbon Steel

Options / Component Summary: Compressors, evaporators, pumps, condensers and controller.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component and attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	UUT	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,440	UUT-04	37.3	65.5	67.0	16.0	6.0	30.0

Seismic Test Parameters

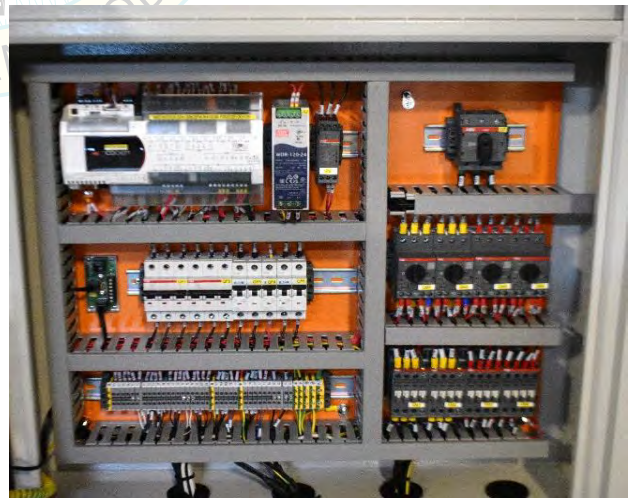
Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	N/A	N/A
		2.50	0.0		N/A	N/A	1.67	0.67

Unit Mounting Description:

Unit was base mounted to the steel shake table interface plate with (4) Grade 8 5/8" bolts, flat washers, and manufacturer-supplied 4.0" x 4.0" x 0.8" nitrile butadiene rubber pads with a part number of 8254500670 manufactured by AIRSYS. The bolts were spaced 51" on-center in the X-direction and 33" on-center in the Y-direction using the manufacturer-provided channels at the base of the unit.



UUT-04 Front View



UUT-04 Interior View

UNIT UNDER TEST (UUT) Summary Sheet



UUT-02

Manwill Engineering Test Report Number: 18042TR1.0

Manufacturer: AIRSYS Refrigeration Engineering Technology (Beijing) Co., Ltd., designed for Advanced Cooling Technologies, Inc.

Product Line: MEDICOOL

Model Number: CH10E1P4R407.M.GEH

Product Construction Summary: Painted Carbon Steel

Options / Component Summary: Compressors, evaporators, pumps, condensers and controller.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component and attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	UUT	Depth	Width	Height	Front-Back	Side-Side	Vertical
2,130	UUT-02	79.9	55.1	78.3	6.2	8.5	16.9

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	N/A	N/A
		2.50	0.0		N/A	N/A	1.67	0.67

Unit Mounting Description:

Unit was base mounted to the fixture using (6) 4"x4"x0.75" neoprene pads and (6) 5/8" Grade 8 bolts.



UUT-02 Front View



UUT-02 Interior view

UNIT UNDER TEST (UUT) Summary Sheet



UUT-03

Manwill Engineering Test Report Number: 18042TR1.0

Manufacturer: AIRSYS Refrigeration Engineering Technology (Beijing) Co., Ltd., designed for Advanced Cooling Technologies, Inc.

Product Line: MEDICOOL

Model Number: CH70E4P4R410.M

Product Construction Summary: Painted Carbon Steel

Options / Component Summary: Compressors, evaporators, pumps, condensers and controller.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component and attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	UUT	Depth	Width	Height	Front-Back	Side-Side	Vertical
2,920	UUT-03	111.4	40.9	75.2	8.9	7.4	22.9

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	N/A	N/A
		2.50	0.0		N/A	N/A	1.67	0.67

Unit Mounting Description:

Unit was base mounted to the fixture using (6) 4"x4"x0.75" neoprene pads and (6) 5/8" Grade 8 bolts.

DATE: 09/26/2024



UUT-03 Back View



UUT-03 Interior view