



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-0169

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

Type:  New  Renewal

**Manufacturer Information**

Manufacturer: DIMPLEX THERMAL SOLUTIONS

Manufacturer's Technical Representative: Ben Post

Mailing Address: 2625 Emerald Drive, Kalamazoo, MI 490014542

Telephone: (800) 968-5665 Email: bpost@dimplexthermal.com

**Product Information**

Product Name: See Attachment

Product Model Number(s): See Attachment

Product Category: Chillers

Product Sub-Category: Chillers - Air Cooled

General Description: Cataloged, air cooled condensing process chillers acceptable for indoor or outdoor use.

Mounting Description: Rigid and flexible

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: Daniel Rodgers

Mailing Address: 1315 Greg Parkway #109, Sparks, NV 89431

Telephone: (775) 358-5085 Email: daniel.rodgers@Shaketest.com

Title: Laboratory Project Manager





**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION  
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**California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)**

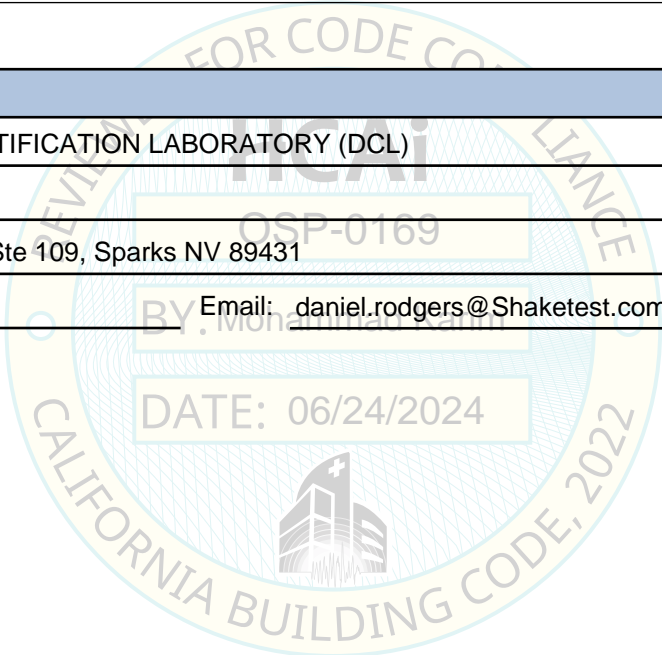
Company Name: THE VMC GROUP  
 Name: Kenneth Tarlow California License Number: S2851  
 Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814  
 Telephone: (832) 627-2214 Email: ken.tarlow@thevmcgroup.com

**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: Daniel Rodgers  
 Mailing Address: 1315 Greg St., Ste 109, Sparks NV 89431  
 Telephone: (775) 358-5085 Email: daniel.rodgers@Shaketest.com



*"A healthier California where all receive equitable, affordable, and quality health care"*



**STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY**



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**Seismic Parameters**

Design Basis of Equipment or Components ( $F_p/W_p$ ) = 1.44 , 1.13 (Rigid Base Mount); 4.50, 1.88 (Flexible Base Mount)

SDS (Design spectral response acceleration at short period, g) = Sds 2.0g, z/h=1; Sds 2.5g, z/h=0

$a_p$  (Amplification factor) = 1.0 (Rigid Base Mount), 2.5 (Flexible Base Mount)

$R_p$  (Response modification factor) = 2.5 (Rigid Base Mount), 2.0 (Flexible Base Mount)

$\Omega_0$  (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

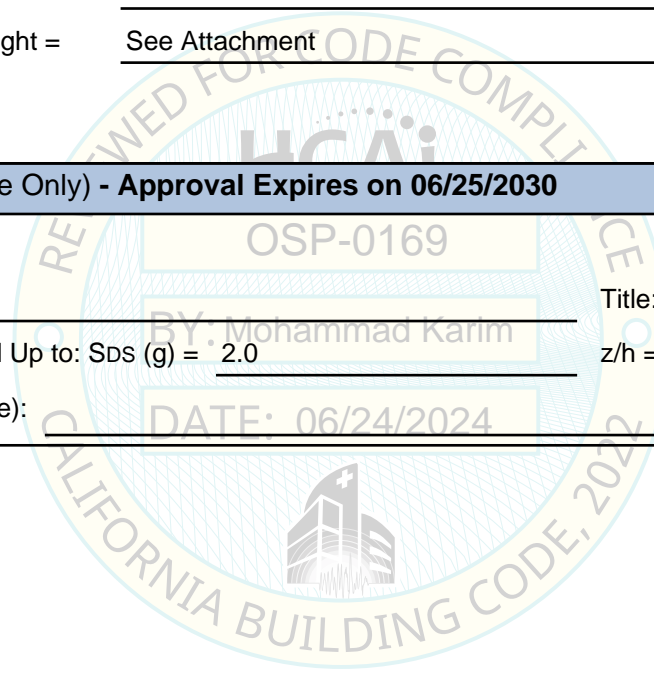
**HCAI Approval (For Office Use Only) - Approval Expires on 06/25/2030**

Date: 6/24/2024

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: 06/24/2024



**Special Seismic Certification**  
**Table 1 - Certified Components**



**DCL Project Number:** 82658-2301  
**Manufacturer:** Dimplex Thermal Solutions  
**Model Line:** Koolant Coolers WO Chillers  
**Certified Seismic Level:** Sds=2.0g, z/h=1.0; Sds=2.5g, z/h=0.0

Component	Model Number	Max Dimensions (in.)			Max Weight (lb.)	Tested Mounting Configuration	UUT
		Width	Depth	Height			
3 Ton Dual Chiller	WO2-3000-SF-OSP-20-105-513A-M	114.5	44.5	72.4	2700	Rigid and Isolated Base Mount	UUT-7a,b
3 -10 Ton Dual Chillers	WO2-xxxx-xx-OSP-xx-xxx-513A-M <sup>1</sup>	114.5	44.5	72.4	4200	Rigid and Isolated Base Mount	Interpolated
3 -10 Ton Quad Chillers	WO2-x-xxxx-xx-OSP-xx-xxx-513A-M <sup>1</sup>	136.3	44.8	86.8	4200	Rigid and Isolated Base Mount	Interpolated
10 Ton Quad Chiller	WO2-2-10000-CC-OSP-40-105-513A-M	136.3	44.8	86.8	4200	Rigid and Isolated Base Mount	UUT-8a,b

1. Nomenclature Table is provided in Table 2



**Special Seismic Certification**  
**Table 2 - Certified Options, 3 - 10 Ton Dual and Quad Chillers**



**DCL Project Number:** 82658-2301  
**Manufacturer:** Dimplex Thermal Solutions  
**Model Line:** Koolant Koolers WO Chillers  
**Mounting Configuration:** Rigid and Isolated Base Mounted  
**Certified Seismic Level:** Sds=2.0g, z/h=1.0; Sds=2.5g, z/h=0.0

**3 - 10 Ton Dual and Quad Chiller Model Chart**

**A-B-C-D-E-F-G-H-I**

Variable	Definition	Allowable Value	Allowable Value Description	Unit
A	Product Category	WO2	Koolant Koolers WO Chillers	UUT-7a,b, -8a,b
B	Product Line	Blank	Dual Chiller	UUT-7a,b
		2	Quad Chiller	UUT-8a,b
C	Size	3000	3 Ton	UUT-7a,b
		5000	5 Ton	Interpolated
		7500	7.5 Ton	Interpolated
		10000	10 Ton	UUT-8a,b
D	Finish	SF	Standard Finish (Carbon Steel Construction)	UUT-7a,b
		PW	Powder-Coated (Carbon Steel Construction)	Interpolated
		CC	Coated Coil (Stainless Steel Construction)	UUT-8a,b
E	Installation Type	OSP	OSHPD Installation	UUT-7a,b, -8a,b
F	Ambient Low Temperature	20	-20°F Low Ambient Temperature	UUT-7a,b
		40	-40°F Low Ambient Temperature	UUT-8a,b
G	Ambient High Temperature	105	105°F High Ambient Temperature	UUT-7a,b, -8ab
		122	122°F High Ambient Temperature	Same as UUT-7a,b, -8a,b <sup>1</sup>
H	Refrigerant Type	513A	Refrigerant 513A	UUT-7a,b, -8a,b
I	UL Listing	M	UL Listed Product	UUT-7a,b, -8a,b

1. Option only changes the rating of a unit, units with only a difference between the 105 and 122 options are physically identical.

**Special Seismic Certification**  
**Table 3 - Certified Subcomponents**



DCL Project Number: 82658-2301

Mounting Configuration: Rigid and Isolated Base Mounted

Certified Seismic Level: Sds=2.0g, z/h=1.0; Sds=2.5g, z/h=0.0

Subcomponent	Manufacturer	Model Number	Description	Max Weight (lb)	UUT
Enclosure	Dimplex Thermal Solutions	Small Galvanized Carbon Steel Cabinet	Dual Series Machine Enclosure	1100	UUT-7a,b
		Small Stainless Steel Cabinet	Dual Series Machine Enclosure	1100	Interpolated
		Large Galvanized Carbon Steel Cabinet	Quad Series Machine Enclosure	1500	Interpolated
		Large Stainless Steel Cabinet	Quad Series Machine Enclosure	1500	UUT-8a,b
Filter	Dust Free	28-3/4" X 57"	Intake Air Filter	5	UUT-8a,b
		23" X 57"	Intake Air Filter	4	UUT-7a,b
Compressor	Sanyo / Panasonic	LCC083LA04	Scroll, 3 Ton, 4 HP	83	UUT-7a,b
		LCC137LA04	Scroll, 5 Ton, 7.5HP	147	Interpolated
		LCC205LA04	Scroll, 7.5 Ton, 12HP	156	Interpolated
		LCC260LA04	Scroll, 10 Ton, 15 HP	171	UUT-8a,b
Pump	Grundfos	CM5-5 A-S-I-E-AQQE E-A-A-N	Horizontal Centrifugal, 3.35 HP	55	Extrapolated
		CM5-6 A-S-I-E-AQQE E-A-A-N	Horizontal Centrifugal, 3.35 HP	56	UUT-7a,b
		CM 10-3 A-S-I-E-AQQE E-A-A-N	Horizontal Centrifugal, 5.5 HP	78	UUT-8a,b
	Xylem	10HM05N40T6PBQV	Horizontal Centrifugal, 5.5 HP	75	UUT-8a,b
	Walrus	TPH4T5-5S	Horizontal Centrifugal, 1.5 HP	31	UUT-7a,b
Fan	Ziehl Abegg	ZN063-ZIL.DG.V7P2	Axial Fan, 630mm, 1.15kW	44	UUT-7a,b
		ZN063-ZIL.GL.V7P3	Axial Fan, 630mm, 3.7kW	80	Interpolated
		ZN080-ZIL.GL.V7P3	Axial Fan, 800mm, 2.8kW	115	UUT-8a,b
Braze Plate Heat Exchanger	Kaori	R095H-18-18	Plate Heat Exchanger	18	UUT-7a,b
		R095H-30-30	Plate Heat Exchanger	30	Interpolated
		R095H-42-42	Plate Heat Exchanger	36	Interpolated
		R095H-48-48	Plate Heat Exchanger	39	Interpolated
		R095H-62-62	Plate Heat Exchanger	48	Interpolated
		K205-30-30	Plate Heat Exchanger	100	Interpolated
		K205-44-44	Plate Heat Exchanger	110	Interpolated
		K205-52-52	Plate Heat Exchanger	126	Interpolated
K205-64-64	Plate Heat Exchanger	152	UUT-8a,b		
Condenser	Cancoil Thermal Corporation	BC16991X	7.5-10 Ton	143	UUT-7a,b
		BC16985X	15 Ton	207	Interpolated
		BC16984X	20 Ton	265	UUT-8a,b

**Special Seismic Certification**  
**Table 3 - Certified Subcomponents (Continued)**



DCL Project Number: 82658-2301

Mounting Configuration: Rigid and Isolated Base Mounted

Certified Seismic Level: Sds=2.0g, z/h=1.0; Sds=2.5g, z/h=0.0

Subcomponent	Manufacturer	Model Number	Description	Max Weight (lb)	UUT
Controller	Carel	c.PCO	N/A	1	UUT-7a,b, UUT-8a,b
Tanks	Jer-Den Plastics	Plastic Tank 36 Gal	36 Gallon Tank	25	Extrapolated
		Plastic Tank 60 Gal	60 Gallon Tank	34	UUT-7a,b
		Plastic Tank 75 Gal	75 Gallon Tank	65	UUT-8a,b



**Special Seismic Certification**

**Table 4 - Tested Units**



**DCL Project Number:** 82658-2301  
**Manufacturer:** Dimplex Thermal Solutions  
**Model Lines:** Koolant Koolers WO Chillers  
**Mounting Configuration:** Rigid and Isolated Base Mounted  
**Certified Seismic Level:** Sds=2.0g, z/h=1.0; Sds=2.5g, z/h=0.0

Component	Model Number	Dimensions (in.)			Weight (lb.)	Tested Mounting Configuration	Test Report Number [Lab]	UUT
		Width	Depth	Height				
3 Ton Dual Chiller	WO2-3000-SF-OSP-20-105-513A-M	114.5	44.5	72.4	2700	Rigid and Isolated Base Mount	82658-2301 [DCL]	UUT-7a,b
10 Ton Quad Chiller	WO2-2-10000-CC-OSP-40-105-513A-M	136.3	44.8	86.8	4200		82658-2301 [DCL]	UUT-8a,b





# UNIT UNDER TEST (UUT) Summary Sheet



## UUT-7a - DCL Test Report 82658-2301

**Manufacturer:** Dimplex Thermal Solutions

**Model Line:** Koolant Coolers WO Chillers

**Model Number:** WO2-3000-SF-OSP-20-105-513A-M (3 Ton Dual Chiller)

**Product Construction Summary:** Galvanized Carbon Steel

**Options / Component Summary:** 4 HP Compressor. 3.35 HP pump and 1.5 HP pump. Brazed plate heat exchanger. 7.5-10 ton Condenser. Controller. 60 gallon plastic tank.

**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

Tested unit	Dimensions (in)			Operating Weight (lb)	Lowest Natural Frequency (Hz)		
	Length	Width	Height		Front-Back	Side-Side	Vertical
UUT-7a	114.5	44.5	72.4	2700	6.0	7.0	23.0

### 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	2.0	1	1.5	3.20	2.40	N/A	N/A
		2.5	0		N/A	N/A	1.67	0.67

**Unit Mounting Description:** The unit was rigid base mounted using (8) ½” Grade 5 bolts, nuts, flat washers, and 3.5” x 4.0” x 0.1” manufacturer-provided galvanized steel washers. The ½” bolts were spaced 27.0” apart measured on-center in the front-back direction and 44.0” apart measured on-center in the side-side direction.



UUT-7a Overall Picture

# UNIT UNDER TEST (UUT) Summary Sheet



## UUT-7b - DCL Test Report 82658-2301

**Manufacturer:** Dimplex Thermal Solutions

**Model Line:** Koolant Coolers WO Chillers

**Model Number:** WO2-3000-SF-OSP-20-105-513A-M (3 Ton Dual Chiller)

**Product Construction Summary:** Galvanized Steel

**Options / Component Summary:** 4 HP Compressor. 3.35 HP pump and 1.5 HP pump. Brazed plate heat exchanger. 7.5-10 ton Condenser. Controller. 60 gallon plastic tank.

**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

Tested unit	Dimensions (in)			Operating Weight (lb)	Lowest Natural Frequency (Hz)		
	Length	Width	Height		Front-Back	Side-Side	Vertical
UUT-7b	114.5	44.5	72.4	2700	2.5	3.0	6.5

### 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	2.0	1	1.5	3.20	2.40	N/A	N/A
		2.5	0		N/A	N/A	1.67	0.67

**Unit Mounting Description:** The unit was base mounted using (8) Mason SLRS0-B-750 spring isolators. The unit was attached to each isolator using (4) ½” Grade 5 bolts, nuts, flat washers, lock washers, and (1) 3.5” x 4.0” x 0.1” manufacturer-provided galvanized steel washer. The ½” bolts were spaced 2.3” apart measured on-center in the front-back direction and 2.3” apart measured on-center in the side-side direction. Each isolator was attached to the fixture using (4) 5/8” Grade 5 bolts, nuts, and flat washers. The 5/8” bolts were spaced 7.0” apart measured on-center in the front-back direction and 2.3” apart measured on-center in the side-side direction. The spring isolators were spaced approximately 27.0” apart measured on-center in the front-back direction and 40.5” apart measured on-center in the side-side direction.



UUT-7b Overall Picture

# UNIT UNDER TEST (UUT) Summary Sheet



## UUT-8a - DCL Test Report 82658-2301

**Manufacturer:** Dimplex Thermal Solutions

**Model Line:** Koolant Koolers WO Chillers

**Model Number:** WO2-2-10000-CC-OSP-40-105-513A-M (10 Ton Quad Chiller)

**Product Construction Summary:** Stainless Steel

**Options / Component Summary:** 15 HP Compressor. Two 5.5 HP pumps. Brazed plate heat exchanger. 20 ton Condenser. Controller. 75 gallon plastic tank.

**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

Tested unit	Dimensions (in)			Operating Weight (lb)	Lowest Natural Frequency (Hz)		
	Length	Width	Height		Front-Back	Side-Side	Vertical
UUT-8a	136.3	44.8	86.8	4200	5.0	5.0	12.0

### 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	2.0	1	1.5	3.20	2.40	N/A	N/A
		2.5	0		N/A	N/A	1.67	0.67

**Unit Mounting Description:** The unit was rigid base mounted using (8) ½” Grade 5 bolts, nuts, flat washers, and 3.5” x 4.0” x 0.1” manufacturer-provided galvanized steel washers. The ½” bolts were spaced 43.0”, 20.3”, and 42.8” apart measured on-center in the front-back direction and 43.5” apart measured on-center in the side-side direction.



UUT-8a Overall Picture

# UNIT UNDER TEST (UUT) Summary Sheet



## UUT-8b - DCL Test Report 82658-2301

**Manufacturer:** Dimplex Thermal Solutions

**Model Line:** Koolant Koolers WO Chillers

**Model Number:** WO2-2-10000-CC-OSP-40-105-513A-M (10 Ton Quad Chiller)

**Product Construction Summary:** Stainless Steel

**Options / Component Summary:** 15 HP Compressor. Two 5.5 HP pumps. Brazed plate heat exchanger. 20 ton Condenser. Controller. 75 gallon plastic tank.

**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

Tested unit	Dimensions (in)			Operating Weight (lb)	Lowest Natural Frequency (Hz)		
	Length	Width	Height		Front-Back	Side-Side	Vertical
UUT-8b	136.3	44.8	86.8	4200	2.5	2.5	7.0

### 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	2.0	1	1.5	3.20	2.40	N/A	N/A
		2.5	0		N/A	N/A	1.67	0.67

**Unit Mounting Description:** The unit was base mounted using (8) Mason SLRS0-B-750 spring isolators. The unit was attached to each isolator using (4) 1/2" Grade 5 bolts, nuts, flat washers, lock washers, and (1) 3.5" x 4.0" x 0.1" manufacturer-provided galvanized steel washer. The 1/2" bolts were spaced 2.3" apart measured on-center in the front-back direction and 2.3" apart measured on-center in the side-side direction. Each isolator was attached to the fixture using (4) 5/8" Grade 5 bolts, nuts, and flat washers. The 5/8" bolts were spaced 7.0" apart measured on-center in the front-back direction and 2.3" apart measured on-center in the side-side direction. The spring isolators were spaced 43.0", 20.3", and 42.9" apart measured on-center in the front-back direction and 40.8" apart measured on-center in the side-side direction.

**Retrofits:** The plastic drain horsebarb fitting was replaced with a brass fitting, and spacers were put under the cushion mount to raise the hose fitting assembly. (1) 1/4" bolt and nut were installed on each panel, 4.1" from the inner edge, measured on-center. (2) 1/4" bolts on the bottom and top of each filter casing, approximately 4.8" apart measured on-center. (2) 1/4" bolt on each door approximately 9.5" apart measured on-center. (2) 1/4" bolt and nut in the door casing on each side of the unit, approximately 11.3" apart, measured on-center. The filters were turned so the straps in the middle faced outwards, (3) 5.8" x 3.0" x 0.3" carbon steel brace plates were attached to the door casings overlapping the bottom corners of the access doors, two on each outer corner and one in the middle of the access doors. The brace plates were attached with (2) 1/4" bolts on each brace plates, spaced approximately 1.8" apart, measured on-center.



UUT-8b Overall Picture