APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0581

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Trane

Manufacturer's Technical Representative: Ryan Doud

Mailing Address: 3600 Pammel Creek Road, La Crosse, WI 54601

Telephone: (608) 787-4200 Email: rdoud@trane.com

Product Information

Product Name: Trane Agility

Product Type: Water Cooled Centrifugal Liquid Chiller

Product Model Number: HDWA 200 – HDWA 400
(List all unique product identification numbers and/or part numbers)

General Description: Catalogued Shell and Tube Water Cooled Chillers with 2-Stage Compressor

Mounting Description: Rigid Mounting to Floor & Elastomeric Pad

Applicant Information

Applicant Company Name: The VMC Group

Contact Person: John P. Giuliano, PE

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: (973) 838-1780 Email: john.giuliano@thevmcgroup.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: 9/21/2020

Title: President Company Name: The VMC Group

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

Company Name: The VMC Group

Name: Mr. Ken Tarlow California License Number: SE2851

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: (973) 838-1780 Email: ken.tarlow@thevmcgroup.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: Construction Engineering Research Laboratory

Contact Name: James Wilcoski

Mailing Address: 2902 Newmark Drive, Champaign, IL 61822

Telephone: (217) 352-6511 Email: james.wilcoski@usace.army.mil

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.44; (Rigid, z/h = 1); 3.60 (Neoprene Pad Isolated, z/h = 0)
1.02; (Rigid, z/h = 1); 1.36 (Neoprene Pad Isolated, z/h = 0)

S_{DS} (Design spectral response acceleration at short period, g) = 2.00 (z/h = 1); 2.27 (z/h = 0)

a_p (In-structure equipment or component amplification factor) = 1.0 Rigid; 2.5 Neoprene Pad Isolated

R_p (Equipment or component response modification factor) = 2.5 Rigid; 2.5 Neoprene Pad Isolated

Ω_0 (System overstrength factor) = 2

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1 and 0

Equipment or Component Natural Frequencies (Hz) = See Attachments

Overall dimensions and weight (or range thereof) = See Attachments

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, 2015: ☐ Yes ☒ No

List of Attachments Supporting Special Seismic Certification

☒ Test Report(s) ☒ Drawings ☐ Calculations ☐ Manufacturer's Catalog

☒ Other(s) (Please Specify): Product Reports

OSHPD Approval (For Office Use Only) – **Approval Expires on December 31, 2025**

Signature: _____ Date: September 23, 2020

Print Name: Timothy J. Piland Title: SSE

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

Condition of Approval (if applicable):

Table 1 - Certified Chiller Matrix

Model	Rating [Tons]	Shells		Max Dimensions [in]			Max Weight [lbs]	S_{DS} @ z/h=0	S_{DS} @ z/h=1.0	Installation Method[1,2]	UUT
		Size	Configuration	Length	Width	Height					
HDWA	200	020/020	Transformer option, Marine Water Box Option, Analog Output Sine Filter	129.9	67.4	72.2	10,900	2.27	2.00	**Rigid**/Pad	UUT-1
HDWA	300	020/020	Transformer option, Marine Water Box Option, Analog Output Sine Filter	129.9	67.4	72.2	15,032	2.27	2.00	Rigid/Pad	Interpolated
HDWA	300	040/040	Transformer option, Marine Water Box Option, Analog Output Sine Filter	129.9	70.7	78	16,775	2.27	2.00	Rigid/Pad	Interpolated
HDWA	400	040/040	Transformer option, Marine Water Box Option, Analog Output Sine Filter	129.9	70.7	78	19,100	2.27	2.00	Rigid/**Pad**	UUT-2

1) Pads Used for Leveling Purposes Only
2) **Bolded Text** Indicates Tested Configuration

Table 2 - Certified Shells

Shell Size	Dimensions						Construction	UUT
	Evaporator (1)			Condenser (1)				
	OD [in]	L [in]	Max Weight [lbs]	OD [in]	L [in]	Max Weight [lbs]		
020/020	21	113.4	1960	21	129.9	2235	Carbon Steel	UUT-1
040/040	27.9	113.4	2917	26.2	129.9	3582	Carbon Steel	UUT-2

1) Standard tube material is Carbon Steel

Table 3 - Certified Variable Speed Drives and Control Panels

Model Number	Input Voltage / Output Current	Weight [lbs]	Manufacturer	UUT
TR200 AFDT	208 to 600V / 243A	3352	Trane	UUT-1
TR200 AFDT	208 to 600V / 362A	3352	Trane	Interpolated
TR200 AFDT	208 to 600V / 440A	3355	Trane	Interpolated
TR200 AFDT	208 to 600V / 533A	3355	Trane	Interpolated
TR200 AFDT	208 to 600V / 676A	3861	Trane	UUT-2

Table 4 - Certified Compressors

Model Number	Type / Configuration	Size [Tons]	Weight [lbs]	Manufacturer	UUT
200T	Centrifugal / 2-Stage	200T	2353	Trane	UUT-1
300T	Centrifugal / 2-Stage	300T	2741	Trane	Interpolated
400T	Centrifugal / 2-Stage	400T	2741	Trane	UUT-2

Table 5 - Certified Options & Accessories

Description	Type / Configuration	Weight [lbs]	Manufacturer	UUT
Transformer	Voltage Transformer	1847	Basler Electric	UUT-1, UUT-2
Harmonic Filter	Analog Harmonic Filter	1247	CTM MAGNETICS	UUT-1, UUT-2
Output Filter	Analog Output Sine Filter	340	CTM MAGNETICS	UUT-1, UUT-2
Marine Water Boxes	Marine Water Boxes	990	Trane	UUT-1, UUT-2

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-01

30899-1901

Model Line	Model Number	Manufacturer
Agility	HDWA 200	Trane

Product Construction Summary

Carbon Steel Shell & Tube Water Cooled Chiller

Options / Subcomponent Summary

Shells: Trane, Variable Speed Drive & Control Panel: Trane, Compressor: Trane, Transformer: Basler Electric, Harmonic Filter: CTM Magnetics, Outlet Filter: CTM Magnetics, Marine Water Boxes: Trane

UUT Properties

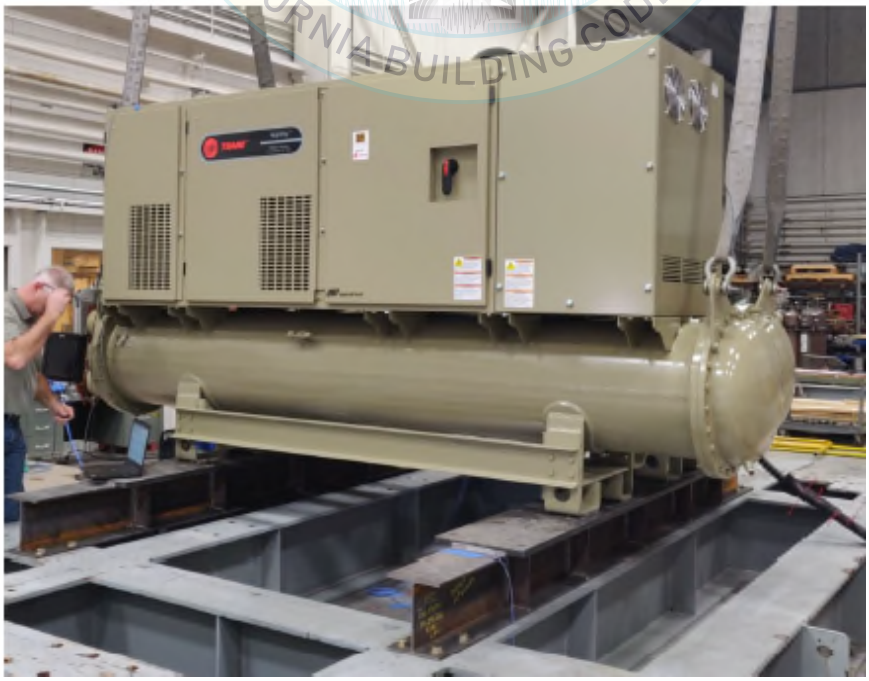
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
10,900	130	67	72	14.0	10	23

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS} (g)	z/h	I_P	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
CBC 2016	ICC-ES AC156	2.27	0.0	1.5	-	-	1.51	0.61

Test Mounting Details

Chiller is rigidly based mounted to table interface fixture using (8) 7/8" diameter, grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-02

30899-1901

Model Line	Model Number	Manufacturer
Agility	HDWA 400	Trane

Product Construction Summary

Carbon Steel Shell & Tube Water Cooled Chiller

Options / Subcomponent Summary

Shells: Trane, Variable Speed Drive & Control Panel: Trane, Compressor: Trane, Transformer: Basler Electric, Harmonic Filter: CTM Magnetics, Outlet Filter: CTM Magnetics, Marine Water Boxes: Trane

UUT Properties

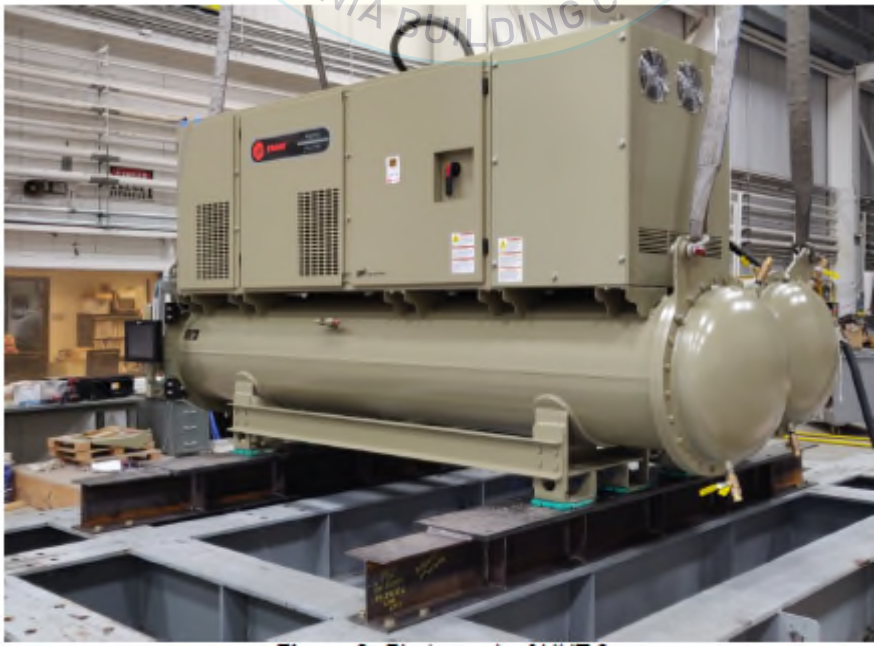
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
19,100	130	71	78	9.0	7.0	16.0

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS} (g)	z/h	I_P	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
CBC 2016	ICC-ES AC156	2.27	0.0	1.5	-	-	1.51	0.61

Test Mounting Details

Chiller is partially rigid base mounted on (8) 6"x8"x3/4" VMC Maxi-Flex Green Elastomeric Pads to table interface fixture using (8) 7/8" diameter, grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC156 test.