

DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION FACILITIES DEVELOPMENT DIVISION

OFFICE USE ONLY APPLICATION FOR HCAI SPECIAL SEISMIC **CERTIFICATION PREAPPROVAL (OSP) APPLICATION #: OSP-0200 HCAI Special Seismic Certification Preapproval (OSP)** Renewal Type: New **Manufacturer Information** Manufacturer: Cryoquip, Inc. Manufacturer's Technical Representative: Raul Boza Mailing Address: 25720 Jefferson Ave Murrieta, CA 92562 Telephone: (951) 677-2062 Email: RBoza@Cryoquip.com **Product Information** Product Name: Medical Gas and Vacuum Systems Product Type: Medical Gas Systems Product Model Number: See Attachment General Description: Ambient air cryogenic fluid vaporizer mad Karim Mounting Description: Rigid, Floor Mounted None Tested Seismic Enhancements: **Applicant Information** Applicant Company Name: TRU Compliance, by Structural Integrity Associates Contact Person: Daniel Zentner Mailing Address: 233 SW Wilson Ave, Suite 101 Bend, OR 97702 Telephone: (541) 292-5839 Email: dzentner@structint.com





Title: Program Manager

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DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION FACILITIES DEVELOPMENT DIVISION

California Liaguaged Chrystyral Fundinger Decreasible for the Fundingering and Test Deports
California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)
Company Name: STRUCTURAL INTEGRITY ASSOCIATES, INC.
lame: Andrew Coughlin California License Number: S6082
failing Address: 5215 Hellyer Ave, Suite 101 San Jose, CA 951381025
elephone: (415) 635-8461 Email: acoughlin@structint.com
Certification Method
GR-63-Core ▼ ICC-ES AC156
Other (Please Specify):
EOR CODE CO.
esting Laboratory
Company Name: Clark Dynamics Test Laboratory
Contact Person: Robert Francis
failing Address: 1801 Route 51 Jefferson Hills, GA 15025
elephone: (412) 387-1001 Email: rfrancis@clarktesting.com
DATE: 01/09/2023







DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION FACILITIES DEVELOPMENT DIVISION

Seismic Parameters	
Design Basis of Equipment or Components	(Fp/Wp) = 1.5
SDS (Design spectral response accele	eration at short period, g) = 2.5
ap (Amplification factor) =	2.5
Rp (Response modification factor) =	2.5
Ω0 (System overstrength factor) =	2.0
I _P (Importance factor) =	1.5
z/h (Height ratio factor) =	0
Natural frequencies (Hz) =	See Attachment
Overall dimensions and weight =	See Attachment

Date:	1/9/2023	OSP-0200	116	
Name:	Mohammad Karim	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Title:	Supervisor, Health Facilities
Special S	Seismic Certification Valid Up to: SDS (g	Y : Mohammad Karım) = 2.5	z/h =	0







STATE OF CALIFORNIA - HEALTH AND HUMAN SERVICES AGENCY

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SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 2200959



Manufacturer: Cryoquip, Inc.

Model Line: Ambient Vaporizer

TABLE 1

Certified Product Construction Summary:

Aluminum base frame that holds "spar" link plates which are arranged vertically and connect to vaporizer tubing via standard crimping detail. Tubing is aluminum with stainless steel lining.

Certified Options Summary:

N/A

Mounting Configuration:

Base mounted - rigid

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022

Seismic Certification Limits:

 $S_{DS} = 2.5 g z/h = 0.0$

/_P= 1.5

Madalita.		Dimensions (in)			Weight		
Model Line	Model	Depth Width		Height	(lb.) ¹	Notes	UUT
	VAI-12 <mark>08-FB</mark> L15	22.6/	ha44.9na	209.3	625	(10A)	1
	VAI-8 <mark>12-F-S</mark> P	33.8	44.9	122.3	482	(2AH)	Interp.
Ambient	VAI-824-F-SP	44.9	67.1	128.1	962	(3AH)	Interp.
Vaporizer	VAI-824-FL12-SP	44.9	67.1	183.1	1,543	(5AH)	Interp.
	VAI-H48-FBL15-SP	100.9	67.1	221.6	2,945	(20AH)	2
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	The state of the s			MAND			
		VIA					
		B	UILD!	NO			

Notes

^{1.} Weights shown for each unit are operating weights without ice weight. Iced weight is three times operating weight. Vertical and lateral supports must be designed using iced weight, due to the accumulation of ice during use.





UUT	Unit Description	Report Number	Testing Lab	Year Tested	ISO 17025 Accredited?	S _{DS}	z/h	I _P
1A	VAI-1208-FBL15 (w/o Operational Load)	EL: 9681 (UUT1 w/o water)	Clark Testing	2011	No ¹	2.5	0.0	1.5
1B	VAI-1208-FBL15 (w/ Operational Load)	EL: 9681 (UUT1 w/ water)	Clark Testing	2011	No ¹	2.5	0.0	1.5
2A	VAI-H48-FBL15-SP (w/o Operational Load)	EL: 9681 (UUT2 w/o water)	Clark Testing	2011	No ¹	2.5	0.0	1.5
2B	VAI-H48-FBL15-SP (w/ Operational Load)	EL: 9681 (UUT2 w/ water)	Clark Testing	2011	No ¹	2.5	0.0	1.5
		LINE	l(Ai					
		2 C	SP-0200		Z			
		BY: Mo	hammad Kari	m				
			04/00/2023					
	\	P. DATE.	0 170972023		3			
		Continue						
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Notes:

^{1.} Clark was not ISO 17025 accredited at the time of testing but have been reviewed by TRU Compliance and found to meet the requirements for ICC-ES AC156 testing. Review form is on file with TRU Compliance.

TRU PROJECT NO. 2200959



Manufacturer: Cryoquip, Inc.

Model Line: Ambient Vaporizer

UUT 1A

Model Number: VAI-1208-FBL15 Serial Number: 43008-2-1

Product Construction Summary:

Aluminum base frame that holds "spar" link plates which are arranged vertically and connect to vaporizer tubing via standard crimping detail. Tubing is aluminum with stainless steel lining.

Options/Subcomponent Summary:

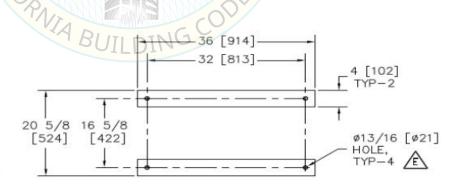
This test was conducted without operational load.

			UUT	Properties		4						
Weight		Dimension (in)					Lowest Natural Frequency (Hz)					
(lb.)	Depth	Depth Width OS Heig		Height ()	Fron	t-Back	Side	-Side	Ver	tical		
575	22.6	44.9		209.3		4.9		.5	>3	3.3		
		UUT Highes	t Passed	l Seismic Rui	n Inform	ation						
Buildi	ng Code	Test Crit	eria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)		

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 2022 ICC-ES AC156 01/09 2.50 2 3 0.0 1.5 2.50 1.00 1.67 0.67

Test Mounting Details: (Test Report: EL: 9681 (UUT1 without water))





ANCHOR BOLT PATTERN

UUT1 was base mounted - rigid using four (4) 3/4"-10 hex head 316 stainless steel bolts with flat and lock washers. Torqued to 150 ft-lbs.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

TRU PROJECT NO. 2200959



Manufacturer: Cryoquip, Inc.

Model Line: Ambient Vaporizer

UUT 1B

Model Number: VAI-1208-FBL15 Serial Number: 43008-2-1

Product Construction Summary:

Aluminum base frame that holds "spar" link plates which are arranged vertically and connect to vaporizer tubing via standard crimping detail. Tubing is aluminum with stainless steel lining.

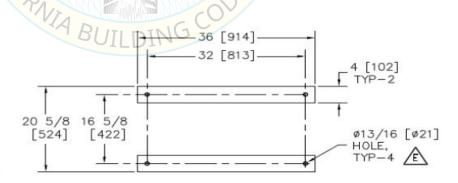
Options/Subcomponent Summary:

This test was conducted with operational load.

				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\								
			UUT PI	roperties		P						
Weight		Dimension (in)				Lowest Natural Frequency (Hz)						
(lb.)	Depth	Width S Height		ight () ()	Front-Back		Side	-Side	Ver	tical		
625	22.6	44.9	20	209.3		4.6		5.2		>33.3		
		UUT Highes	t Passed S	eismic Ru	n Informa	ntion						
Buildi	ng 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 2022		ICC-ES AC156 01/		092502	3 0.0	1.5	3.20	2.40	1.67	0.67		

Test Mounting Details: (Test Report: EL: 9681 (UUT1 with water),





ANCHOR BOLT PATTERN

UUT1 was base mounted - rigid using four (4) 3/4"-10 hex head 316 stainless steel bolts with flat and lock washers. Torqued to 150 ft-lbs.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

TRU PROJECT NO. 2200959



Manufacturer: Cryoquip, Inc.

Model Line: Ambient Vaporizer

UUT 2A

Model Number: VAI-H48-FBL15-SP Serial Number: 43008-1-1

Product Construction Summary:

Aluminum base frame that holds "spar" link plates which are arranged vertically and connect to vaporizer tubing via standard crimping detail. Tubing is aluminum with stainless steel lining.

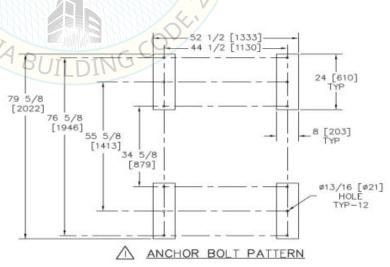
Options/Subcomponent Summary:

This test was conducted without operational load.

				\/**\/\ \ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\	(XXX								
			UUT Pro	perties		P							
Weight		Dimension (in)	Dimension (in)				Lowest Natural Frequency (Hz)						
(lb.)	Depth	Depth Width Sheight Front-Back		Side	-Side	Ver	tical						
2,765	100.9	67.1	22	221.6		4.2		.9	>3	3.3			
		UUT Highest	t Passed Se	ismic Rui	Informa	ntion							
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 2022		ICC-ES AC	156 01/0	195312	300	105	3 20	2 40	1 67	0.67			

Test Mounting Details: (Test Report: EL: 9681 (UUT2 without water))





UUT2 was base mounted - rigid using twelve (12) 3/4"-10 hex head 316 stainless steel bolts with flat and lock washers. Torqued to 150 ft-lbs.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

TRU PROJECT NO. 2200959



Manufacturer: Cryoquip, Inc.

Model Line: Ambient Vaporizer

UUT 2B

Model Number: VAI-H48-FBL15-SP Serial Number: 43008-1-1

Product Construction Summary:

Aluminum base frame that holds "spar" link plates which are arranged vertically and connect to vaporizer tubing via standard crimping detail. Tubing is aluminum with stainless steel lining.

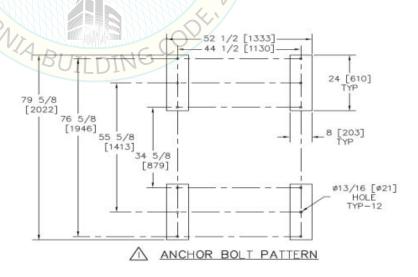
Options/Subcomponent Summary:

This test was conducted with operational load.

		141	UUTF	Properties		7						
Weight		Dimension (in)				Lowest Natural Frequency (Hz)						
(lb.)	Depth	Depth Width		SHeight()()		Front-Back		-Side	Ver	tical		
2,945	100.9	67.1		221.6 3.9		3.9		.7	>3	3.3		
		UUT Highes	t Passed	Seismic Rui	n Informa	ation						
Buildi	ng 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 2022		ICC-ES AC156 01/(/092302	3 0.0	1.5	3.20	2.40	1.67	0.67		

Test Mounting Details: (Test Report: EL: 9681 (UUT2 with water))





UUT2 was base mounted - rigid using twelve (12) 3/4"-10 hex head 316 stainless steel bolts with flat and lock washers. Torqued to 150 ft-lbs.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.