



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION**

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

OFFICE USE ONLY

APPLICATION #: OSP-0159

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Johnson Controls

Manufacturer's Technical Representative: Joshua Borden

Mailing Address: 5000 Renaissance Drive, New Freedom, PA 17349

Telephone: (717) 825-9190

Email: joshua.lee.borden@jci.com

Product Information

Product Name: Chillers

Product Type: Chillers - Water Cooled

Product Model Number: York Magnetic Bearing Centrifugal Chillers (YMC2)

General Description: Welded carbon steel evaporator and condenser vessels with compressor, motor, VSD, and controller.

Mounting Description: Neoprene Pad or Spring Vibration Isolated, Floor Mounted

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: Manwill Engineering LLC

Contact Person: Derek Manwill

Mailing Address: PO Box 1194, Bend, OR 97709

Telephone: (541) 241-2102

Email: derek@manwillSE.com

Title: President





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FACILITIES DEVELOPMENT DIVISION

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

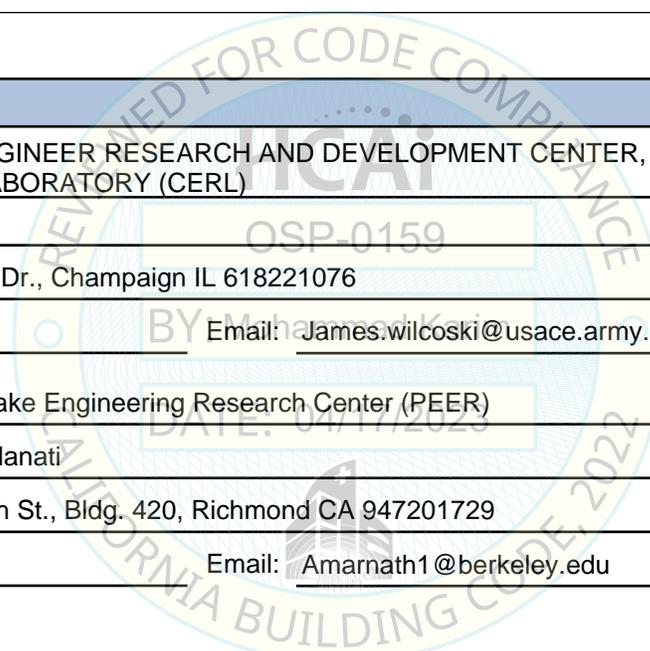
Company Name: MANWILL ENGINEERING LLC
Name: Derek Manwill California License Number: S6266
Mailing Address: PO Box 1194, Bend, OR 97709
Telephone: (541) 241-2102 Email: derek@manwillse.com

Certification Method

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

Testing Laboratory

Company Name: U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER, CONSTRUCTION ENGINEERING RESEARCH LABORATORY (CERL)
Contact Person: James Wilcoski
Mailing Address: 2902 Newmark Dr., Champaign IL 618221076
Telephone: (217) 373-6763 Email: James.wilcoski@usace.army.mil
Company Name: Pacific Earthquake Engineering Research Center (PEER)
Contact Person: Amarnath Kasalanati
Mailing Address: 1301 South 46th St., Bldg. 420, Richmond CA 947201729
Telephone: (510) 642-3437 Email: Amarnath1@berkeley.edu





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 3.60 (neoprene pads); 4.50 (spring isolators)

SDS (Design spectral response acceleration at short period, g) = 2.00

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 2.5 (neoprene pads); 2.0 (spring isolators)

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

HCAI Approval (For Office Use Only) - Approval Expires on 04/17/2029

Date: 4/17/2023

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = 2.00 z/h = 1

Condition of Approval (if applicable): DATE: 04/17/2023



ATTACHMENT 1: CERTIFIED COMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 1

DOCUMENT NO.: 17082CR1.3

MANUFACTURER: JOHNSON CONTROLS						
PRODUCT FAMILY: YORK MAGNETIC CENTRIFUGAL CHILLERS (YMC2)						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
YMC2						
YMC2-M1197-102521-490	65.0	120.0	75.0	11,750		UUT 2a,2b
YMC2-M1***-082525-****	65.0	96.0	80.0	14,300		
YMC2-M2***-082525-****	66.0	96.0	77.6	15,200		
YMC2-M1***-102521-****	65.0	120.0	75.0	14,400		
YMC2-M2***-102521-****	66.0	120.0	92.5	16,300		
YMC2-M1***-102525-****	65.0	120.0	80.0	15,600		
YMC2-M2***-102525-****	66.0	120.0	90.9	17,400		
YMC2-M2***-102925-****	67.0	120.0	93.2	20,150		
YMC2-M2***-102929-****	70.0	120.0	97.5	21,500		
YMC2-M2***-103329-****	74.0	120.0	97.5	23,850		
YMC2-M2***-103333-****	79.0	120.0	98.5	25,200		
YMC2-M6***-123329-****	74.0	144.0	99.5	29,600		
YMC2-M1***-142525-****	65.0	168.0	80.0	18,600		
YMC2-M2***-142521-****	66.0	168.0	92.5	19,500		
YMC2-M2***-142525-****	66.0	168.0	90.9	20,500		
YMC2-M2***-142925-****	67.0	168.0	93.2	23,900		
YMC2-M2***-142929-****	70.0	168.0	97.5	25,650		
YMC2-M2***-143329-****	74.0	168.0	97.5	28,650		
YMC2-M2***-143333-****	79.0	168.0	98.5	30,450		
YMC2-M6***-143333-****	79.0	168.0	103.5	33,900		
YMC2-M6***-143933-****	88.0	168.0	104.5	40,100		
YMC2-M6***-143939-****	94.0	168.0	109.1	44,246		
YMC2-M6331-143939-1278	94.0	168.0	109.1	44,246		UUT 3,4
MOUNTING: Neoprene Pad or Spring Vibration Isolated; Floor Mounted				SEISMIC LEVEL:	$S_{DS} = 2.0g$ for $z/h = 1$	$I_p = 1.5$
NOTES:						
<p>Model Number: Model number listed in the York Engineering Guide and on Order documents is based on kW capacity and will not match the number listed here. The model number listed here is based on the unique assembly of subcomponents, which could be used for multiple capacities.</p> <p>Product Construction: Welded carbon steel vessels. NEMA 1 carbon steel electrical panels. Copper tubes.</p> <p>Options/Subcomponents: Available subcomponents are listed in Table 2. Evaporator/Condenser tubes: 0.025"-0.035" thickness. Evaporator insulation: 3/4" or 1-1/2" thickness. Water boxes: 150psi or 300psi, compact or marine. Voltage: 460V 60Hz. Refrigerant: R-134a, R-513a, R-515B or R-1234ze.</p> <p>Depth ("A" in engineering guide) is defined as the outside edge of the evaporator tubesheet to the outside edge of the condenser tubesheet.</p> <p>Width ("E" in engineering guide) is defined as the face-to-face of tubesheets and does not include water boxes or nozzles.</p> <p>Height ("B" in engineering guide) is defined as the bottom of the tubesheet to the highest point on the VSD (does not include feet, pads, or isolators).</p> <p>Weight is defined as the total operating weight including listed subcomponents, water, refrigerant, and water boxes (maximum configuration listed for interpolated models).</p>						

ATTACHMENT 1: CERTIFIED SUBCOMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 2 - SUBCOMPONENTS

DOCUMENT NO.: 17082CR1.3

MANUFACTURER: JOHNSON CONTROLS						
PRODUCT FAMILY: YORK MAGNETIC CENTRIFUGAL CHILLERS (YMC2)						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Subcomponent: Compressor & Motor Driveline - Manufacturer: Johnson Controls - Material: Cast Iron						
M1B-197FAB	40.7	45.7	31.5	1,937	197mm dia.	UUT 2a,2b
M1B-205FAB	41.4	45.7	31.1	1,954	205mm dia.	INTERP
M2C-197FAC	40.4	47.7	33.5	2,848	197mm dia.	INTERP
M2C-197FACD	35.5	47.7	33.0	2,843	197mm dia.	INTERP
M2C-205FAC	40.4	47.7	33.5	2,855	205mm dia.	INTERP
M2C-205FACD	35.5	47.7	32.6	2,848	205mm dia.	INTERP
M2C-218FAC	42.9	49.8	33.5	2,974	218mm dia.	INTERP
M2C-233FAC	44.4	49.8	33.5	2,985	233mm dia.	INTERP
M2C-246FAC	42.9	49.8	34.1	2,985	246mm dia.	INTERP
M6C-295FAC	45.8	59.2	38.9	4,298	295mm dia.	INTERP
M6C-331FAC	47.5	59.2	39.4	4,439	331mm dia.	UUT 3,4
Subcomponent: Evaporator - Manufacturer: Johnson Controls - Material: Carbon Steel						
EA2508	34.0	96.0	41.0	2,867	25in dia., 8ft length	EXTRAP
EB2508	34.0	96.0	41.0	3,052	25in dia., 8ft length	EXTRAP
EA2510	31.0	120.0	42.0	3,393	25in dia., 10ft length	UUT 2a,2b
EB2510	34.0	120.0	41.0	3,747	25in dia., 10ft length	INTERP
EA2514	31.0	168.0	42.0	2,514	25in dia., 14ft length	INTERP
EB2514	34.0	168.0	41.0	4,776	25in dia., 14ft length	INTERP
EB2910	35.0	120.0	45.0	4,516	29in dia., 10ft length	INTERP
EB2914	35.0	168.0	45.0	5,832	29in dia., 14ft length	INTERP
EB3310	39.0	120.0	49.0	5,716	33in dia., 10ft length	INTERP
EB3314	39.0	168.0	49.0	7,341	33in dia., 14ft length	INTERP
EC3312	39.0	144.0	51.3	7,477	33in dia., 12ft length	INTERP
ED3314	39.4	168.0	53.8	8,036	33in dia., 14ft length	INTERP
EC3314	39.0	168.0	51.3	8,389	33in dia., 14ft length	INTERP
ED3914	48.0	168.0	56.8	10,898	39in dia., 14ft length	INTERP
EC3914	48.0	168.0	56.3	11,834	39in dia., 14ft length	UUT 3,4
Subcomponent: Condenser - Manufacturer: Johnson Controls - Material: Carbon Steel						
CA2110	31.0	120.0	39.5	2,837	21in dia., 10ft length	UUT 2a,2b
CB2110	32.0	120.0	44.0	2,937	21in dia., 10ft length	INTERP
CC2508	32.0	96.0	37.5	3,351	25in dia., 8ft length	INTERP
CA2510	31.0	120.0	44.5	4,014	25in dia., 10ft length	INTERP
CB2510	32.0	120.0	42.0	4,637	25in dia., 10ft length	INTERP
CA2514	31.0	168.0	44.5	5,297	25in dia., 14ft length	INTERP
CB2514	32.0	168.0	42.0	6,077	25in dia., 14ft length	INTERP
CB2910	35.0	120.0	46.0	6,101	29in dia., 10ft length	INTERP
CB2912	35.0	144.0	46.0	7,473	29in dia., 12ft length	INTERP
CB2914	35.0	168.0	46.0	7,999	29in dia., 14ft length	INTERP
CB3310	40.0	120.0	48.0	7,673	33in dia., 10ft length	INTERP
CB3314	40.0	168.0	48.0	10,118	33in dia., 14ft length	INTERP
CB3914	46.0	168.0	55.0	10,297	39in dia., 14ft length	UUT 3,4
NOTES: Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.						

ATTACHMENT 1: CERTIFIED SUBCOMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 2 - SUBCOMPONENTS (continued)

DOCUMENT NO.: 17082CR1.3

MANUFACTURER: JOHNSON CONTROLS						
PRODUCT FAMILY: YORK MAGNETIC CENTRIFUGAL CHILLERS (YMC2)						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Subcomponent: VSD - Manufacturer: Johnson Controls - Material: Carbon Steel (Enclosure)						
HYP0490XHC30B-46A	26.3	53.0	38.0	1,190		UUT 2a,2b
HYP0490XHC30B-46B	26.3	53.0	38.0	1,226		INTERP
HYP0490XHC30B-46C	26.3	53.0	38.0	1,226		INTERP
HYP0612XHC30B-46B	26.5	58.0	49.2	1,934		INTERP
HYP0730XHC30B-46B	29.2	59.0	52.0	1,980		INTERP
HYP0730XHC30B-46C	29.2	59.0	52.0	1,980		INTERP
HYP0785XHC30B-46B	29.0	67.0	52.0	2,585		UUT 5
HYP1278XHC30B-46B	30.0	85.0	55.0	3,806		UUT 3,4
Subcomponent: Controller - Manufacturer: Johnson Controls - Material: Carbon Steel (Enclosure)						
OPTIVIEW 371-06986-101	6.0	27.0	30.0	75		UUT 2-4
Subcomponent: Power Panel - Manufacturer: Johnson Controls - Material: Carbon Steel (Enclosure)						
371-06680-002	21.9	18.0	36.0	245	20A/120V/M2, Carbon steel encl.	UUT 3
371-06730-002	12.7	24.0	36.0	250	20A/120V/M2, Carbon steel encl.	EXTRAP
371-06730-006	12.7	24.0	36.0	250	20A/120V/M6, Carbon steel encl.	UUT 4
MOUNTING: Mounted within unit.				SEISMIC LEVEL:	$S_{DS} = 2.0g$ for $z/h = 1$	$I_p = 1.5$
NOTES: Construction/Options: Model number uniquely identifies manufacturer, materials, and configuration of subcomponents. -Weight listed for Evaporator and Condenser is dry weight and does not include water, refrigerant, or water boxes.						

ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 2a - NEOPRENE PADS

DOCUMENT NO.: 17082CR1.3

MANUFACTURER:	JOHNSON CONTROLS
MODEL NUMBER:	YMC2-M1197-102521-490
UNIT FUNCTION:	WATER COOLED CHILLER
SERIAL NUMBER:	N/A



DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
65	120	75	11,750	12.0	13.6	>33

CODE & CRITERIA:	2022 CBC	ICC-ES AC156
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TEST LABORATORY:	ERDC-CERL
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REPORT:	14684-1101 (dated 2/1/12), tested 10/6/11
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S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.0	1	3.20	2.40	1.34	0.54

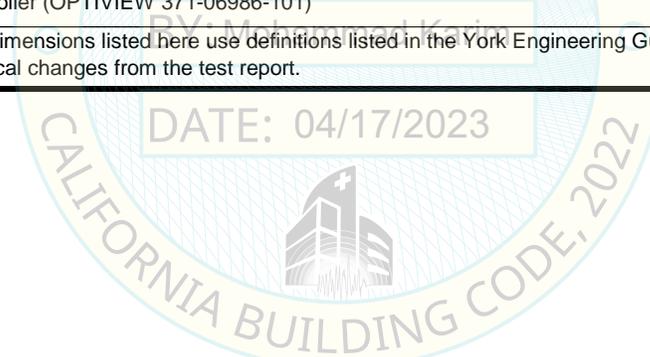
IMPORTANCE FACTOR, I_p = 1.5
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

MOUNTING:	Floor mounted on (4) Mason A-33208 neoprene pads with a total of (8) 3/4" Grade 5 bolts.
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CONSTRUCTION:	Welded carbon steel vessels. NEMA 1 carbon steel electrical panels. Copper tubes.
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SUBCOMPONENTS:	Johnson Controls - Compressor & Motor Driveline (M1B-197FAB), Johnson Controls - Evaporator (EA2510), Johnson Controls - Condenser (CA2110), Johnson Controls - VSD (HYP0490XHC30B-46A), Johnson Controls - Controller (OPTIVIEW 371-06986-101)
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TESTING NOTES:	The dimensions listed here use definitions listed in the York Engineering Guide and match Table 1. There are no physical changes from the test report.
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ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 2b - SPRING ISOLATORS

DOCUMENT NO.: 17082CR1.3

MANUFACTURER:		JOHNSON CONTROLS				
MODEL NUMBER:		YMC2-M1197-102521-490				
UNIT FUNCTION:		WATER COOLED CHILLER				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
65	120	75	11,750	3.4	2.7	3.2
CODE & CRITERIA:		2022 CBC		ICC-ES AC156		
TEST LABORATORY:		ERDC-CERL				
REPORT: 14684-1101, (dated 2/1/12), tested on 11/14/11						
S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)	
2.0	1	3.20	2.40	1.34	0.54	
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Floor mounted on (4) Mason SLFADA600 spring isolators with a total of (16) 3/4" Grade 5 bolts. Isolators mounted to table with a total of (16) 5/8" Grade 5 bolts.				
CONSTRUCTION:		Welded carbon steel vessels. NEMA 1 carbon steel electrical panels. Copper tubes.				
SUBCOMPONENTS:		Identical to UUT 2 - NEOPRENE PADS				
TESTING NOTES:		The dimensions listed here use definitions listed in the York Engineering Guide and match Table 1. There are no physical changes from the test report.				



DATE: 04/17/2023



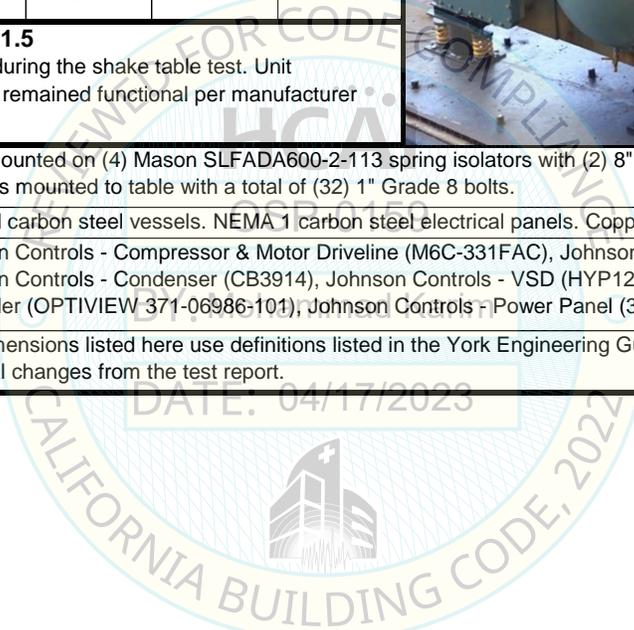
ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 3 - M2 PANEL

DOCUMENT NO.: 17082CR1.3

MANUFACTURER:		JOHNSON CONTROLS				
MODEL NUMBER:		YMC2-M6331-143939-1278				
UNIT FUNCTION:		WATER COOLED CHILLER				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
94	168	109.1	44,246	1.8	1.9	2.8
CODE & CRITERIA:		2022 CBC		ICC-ES AC156		
TEST LABORATORY:		PEER-Berkeley				
REPORT: 15045-TR-001, Rev. 0 (dated 9/6/16), tested on 8/1/2016						
S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)	
2.0	1	3.20	2.40	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Floor mounted on (4) Mason SLFADA600-2-113 spring isolators with (2) 8" long 9/16" fillet welds per isolator. Isolators mounted to table with a total of (32) 1" Grade 8 bolts.				
CONSTRUCTION:		Welded carbon steel vessels. NEMA 1 carbon steel electrical panels. Copper tubes.				
SUBCOMPONENTS:		Johnson Controls - Compressor & Motor Driveline (M6C-331FAC), Johnson Controls - Evaporator (EC3914), Johnson Controls - Condenser (CB3914), Johnson Controls - VSD (HYP1278XHC30B-46B), Johnson Controls - Controller (OPTIVIEW 371-06986-101), Johnson Controls - Power Panel (371-06680-002)				
TESTING NOTES:		The dimensions listed here use definitions listed in the York Engineering Guide and match Table 1. There are no physical changes from the test report.				



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 4 - M6 PANEL

DOCUMENT NO.: 17082CR1.3

MANUFACTURER:		JOHNSON CONTROLS				
MODEL NUMBER:		YMC2-M6331-143939-1278				
UNIT FUNCTION:		WATER COOLED CHILLER				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
94	168	109.1	44,246	1.7	1.9	3.3
CODE & CRITERIA:		2022 CBC		ICC-ES AC156		
TEST LABORATORY:		PEER-Berkeley				
REPORT: 15045-TR-001, Rev. 0 (dated 9/6/16), tested on 8/2/2016						
S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)	
2.0	1	3.20	2.40	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Floor mounted on (4) Mason SLFADA600-2-113 spring isolators with (2) 8" long 9/16" fillet welds per isolator. Isolators mounted to table with a total of (32) 1" Grade 8 bolts.				
CONSTRUCTION:		Welded carbon steel vessels. NEMA 1 carbon steel electrical panels. Copper tubes.				
SUBCOMPONENTS:		Identical to UUT 3 except power panel replaced with: Johnson Controls - Power Panel (371-06730-006)				
TESTING NOTES:		The dimensions listed here use definitions listed in the York Engineering Guide and match Table 1. There are no physical changes from the test report.				



DATE: 04/17/2023



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 5 - VSD ASSEMBLY

DOCUMENT NO.: 17082CR1.3

MANUFACTURER:		JOHNSON CONTROLS				
MODEL NUMBER:		HYP0785XHC VSD ASSEMBLY				
UNIT FUNCTION:		WATER COOLED CHILLER				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
76	146	69	9300	12.4	9.7	>33
CODE & CRITERIA:		2022 CBC		ICC-ES AC156		
TEST LABORATORY:		ERDC-CERL				
REPORT: ERDC 17082TR1.0, Rev. 0 (dated 6/12/18), tested on 5/29/18						
S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)	
2.0	1	SEE NOTES	SEE NOTES	SEE NOTES	SEE NOTES	
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Floor mounted with (15) 3/4" Grade 8 bolts.				
CONSTRUCTION:		Welded carbon steel. NEMA 1 carbon steel electrical panels.				
SUBCOMPONENTS:		Johnson Controls - VSD (HYP0785XHC30B-46B)				
TESTING NOTES:		UUT 5 was tested as a subassembly to a custom RRS based on data from UUTs 2-4. The equivalent target level was S _{DS} =2.0g for z/h=1. Due to the excessive accelerations, two anomalies within the VSD occurred during testing. The affected subcomponents were successfully tested when mounted on a chiller (UUT 2, UUT 3, UUT 4).				



DATE: 04/17/2023

ATTACHMENT 3: MODEL NOMENCLATURE

SPECIAL SEISMIC CERTIFICATION

YORK MAGNETIC CENTRIFUGAL CHILLERS (YMC2)

DOCUMENT NO.: 17082CR1.3

DIGIT:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	-	-	-	-	-	-						
SAMPLE:	Y	M	C	2	-	M	6	3	3	1	-	1	4	3	9	3	9	-	1	2	7	8	-	-	-	-	-	-						
DIGIT	DIGIT DESCRIPTION		CODES		DEFINITIONS																													
1-4	Product Family		YMC2		York Magnetic Centrifugal Chillers																													
6-7	Driveline Motor Size		M1																															
			M2																															
			M6																															
8-10	Driveline Compressor Impeller Diameter		197		197mm																													
			205		205mm																													
			218		218mm																													
			233		233mm																													
			246		246mm																													
			295		295mm																													
			331		331mm																													
12-13	Face to Face of Tube Heads		08		8-ft																													
			10		10-ft																													
			12		12-ft																													
			14		14-ft																													
14-15	Evaporator Diameter		25		25-in																													
			29		29-in																													
			33		33-in																													
			39		39-in																													
16-17	Condenser Diameter		21		21-in																													
			25		25-in																													
			29		29-in																													
			33		33-in																													
			39		39-in																													
19-21	VSD Size		490		490A																													
			612		612A																													
			730		730A																													
			785		785A																													
			1278		1278A																													

NOTE: The "Model Number" listed on sales orders and other documents is based on the capacity of the system and differs from this document.