APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0299

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Data-Aire

Manufacturer's Technical Representative: Dan McInnis

Mailing Address: 230 W BlueRidge Ave, Orange, CA 92865

Telephone: (714) 921-6000 Email: dmcinnis@dataair.com

Product Information

Product Name: gForce

Product Type: Chilled Water Cooling Units

Product Model Number: GFCD/U Size 007 thru 260
(List all unique product identification numbers and/or part numbers)

General Description: In-room precision cooling units installed on Floorstands. Seismic enhancements made to the test units required to address anomalies observed during the tests shall be incorporated into the production units for models GFCD/U-211 and GFCD/U-260.

Mounting Description: Floor Mounted to External Elastomeric Vibration Isolators.

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: 11/24/20

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. Kai Yin Ho California License Number: SE4941

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: PEER, UC Berkeley

Contact Name: Wesley Neighbour

Mailing Address: 1302 South 46h St., Richmond CA 94804

Telephone: 510-665-3409 Email: wdn@berkeley.edu

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 3.71

S_{DS} (Design spectral response acceleration at short period, g) = 1.65

a_p (In-structure equipment or component amplification factor) = 2.5

R_p (Equipment or component response modification factor) = 2.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0

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): See Attached

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

Signature: M. Aliaari Date: January 11, 2021

Print Name: Mohammad Aliaari Title: Senior Structural Engineer

Special Seismic Certification Valid Up to : S_{DS} (g) = 1.65 z/h = 1

Condition of Approval (if applicable):

Table 1 - Certified Product Matrix

Model[1]	Capacity [Btu / hr]	Operating Weight [lb]	Max Dimensions [in]			Carbon Steel Cabinet Construction			Acceptable Maximum Floorstand Height [in]	S_{DS} @ z/h=1	Mounting Method	UUT
			Length	Width	Height[2]	Base	Frame	Panel				
GFCD/U-007	20,700 - 37,500	630	36	41	78	14-Gauge	14-Gauge	18-Gauge	**12** / 36	1.65	Attached to Isolated Floor Stand	UUT 1
GFCD/U-011	28,000 - 51,500	530	36	41	78	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-014	39,500 - 71,500	545	36	41	78	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-018	48,500 - 84,900	570	36	41	78	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-025	64,800 - 108,400	760	48	41	78	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-032	81,300 - 137,200	785	48	41	78	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-039	95,400 - 170,800	845	48	41	78	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-046	108,600 - 201,200	890	48	41	78	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-053	151,200 - 259,700	1005	83	41	78	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-063	190,800 - 337,000	1120	83	41	78	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-077	230,700 - 412,100	1275	83	41	78	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-091	251,900 - 450,400	1485	83	41	78	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-106	314,500 - 553,300	1960	106	41	78	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-141	361,330 - 641,620	2610	120	41	78 / 84	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-158	434,104 - 773,486	2820	120	41	78 / 84	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-176	491,600 - 874,038	2450	120	41	78 / **84**	14-Gauge	14-Gauge	18-Gauge	46	1.65		UUT 2
GFCD/U-211	546,700 - 1,043,700	3213	120	46	99	14-Gauge	14-Gauge	18-Gauge	36	1.65		Interpolated
GFCD/U-260	667,000 - 1,500,000	3900	138	46	99	14-Gauge	14-Gauge	18-Gauge	36	1.65		UUT 3

1. Data Aire is the manufacturer of all models
2. Height does not include height of the floorstand

Table 2a - Certified Coils

# of Tube Rows	Face Area [ft^2]							MFR
	4.2	12.2	24.4	30.9	42.8	58.3	70	
3	UUT 1							Super Radiator
		X						
			X					
4	X							
		X						
			X					
5		X						
			X					
6		X						
			X					
				X				
					UUT 2			
						X		
							UUT 3	

Table 2b - Certified Coil Options

		UUT
Casing Material	16 Gauge Steel	UUT 1, 2, 3
Tube Material	Copper	UUT 1, 2, 3
Tube Outer Diameter	0.500"	UUT 1, 2
	0.625"	UUT 3
Tube Wall Thickness	0.016"	UUT 1, 2
	0.020"	UUT 3
Permitted Fin Material	Aluminum	UUT 1, 2, 3

Table 3 - Certified Fans

Size	Part Number[1]	Chilled Water Model Availability	Manufacturer	Tested Unit
450 mm (1 kw)	R3G450AG3301	**007**, 011, 014, 018	EBM Papst	UUT 1
500 mm (2.8 kw)	R3G500AG0603	014, 018, 025, 032, 039, 046, 053, 063, 077, 106		Interpoalted
560 (3 kw)	R3G560AH0203	025, 032, 039, 046, 053, 063, 077, 091, 106, 141		
560 (5 kw)	R3G560AQ0403	025, 032, 039, 046, 053, 063, 077, 091, 106, 141, 158, **176**, 211, **260**		UUT 2

1. Part Number uniquely identifies component

Table 4 - Certified Fan Motors

Phase	Rating [HP]	Voltage Rating	MFR	Tested Unit
3-Phase	1.4	208-230	EBM Papst	Extrapolated
		460		UUT 1
	3.7	208-230		Interpolated
		460		
	4.0	208-230		
		460		
	6.7	208-230		
		460		UUT 2, 3

Table 5 - Certified Electric Heat

Capacity [kW]	Part Number	Chilled Water Model Availability	Manufacturer	Tested Unit
6	57Z1-74000	**007**, 011	Indeeco	UUT 1
12	57Z1-73869	014, 018		Interpolated
15	57Z1-75744	025, 032, 039, 046, 141		
22.5	57Z1-73287	053, 063, 077, 091, 106		
30	57Z1-73554	141, 158, **176**, 211, **260**		UUT 2, 3

Table 6 - Certified Humidifiers

Capacity [kW]	Part Number	Chilled Water Model Availability	Manufacturer	Tested Unit
3.4	MES2 Series	**007**, 011, 014, 018, 025, 032, 039, 046	Condair	UUT 1
10.2	MES2 Series	053, 063, 077, 091, 106, 141, 158, **176**, 211, **260**		UUT2, 3

Table 7 - Certified Condensate Pumps

Capacity [GPH]	Part Number[1]	Chilled Water Model Availability	Manufacturer	Tested Unit
130	CB504ULHT	**007**, 011, 014, 018, 025, 032, 039, 046, 053, 063, 077, 091, 106, 141, 158, **176**, 211, **260**	Beckett	UUT 1, 2, 3

1. Part Number uniquely identifies component

Table 8 - Certified Floorstands

Height	Material	Manufacturer	Isolator	Manufacturer	UUT
6" - 12"	Welded Carbon Steel	Data Aire	MBX3	The VMC Group	Extrapolated
12"	Welded Carbon Steel	Data Aire	MBX3	The VMC Group	UUT 1
12" - 36"	Welded Carbon Steel	Data Aire	MBX3	The VMC Group	Interpolated
36"	Welded Carbon Steel	Data Aire	MBX3	The VMC Group	UUT 3
36" - 46"	Welded Carbon Steel	Data Aire	MBX3	The VMC Group	Interpolated
46"	Welded Carbon Steel	Data Aire	MBX3	The VMC Group	UUT 2

Table 9 - Certified Control Valves

Size	Part Number[1]	Chilled Water Model Availability	Manufacturer	UUT
1"	VG1841CN + 943GGB	**007**, 011, 014, 018, 025, 032	Johnson Controls	UUT 1
1.25"	VG1841DN + 958GGC	39		Interpolated
1.5"	VG1841EP + 958GGC	046, 053		
2"	VG1841FS + 958GGC	063, 077, 091, 106, 141, 158, **176**		UUT 2
2"	VG1841FT + 958GGC	211, **260**		UUT 3

1. Part Number uniquely identifies component

Table 10a - Certified Control Panels

Description	Max Dimensions [in]			Chilled Water Model Availability	Material / Thicknes	MFR	UUT
	Length	Width	Height				
Electrical Box	32	4.25	32	**007**, 011, 014, 018, 025, 032, 039, 046, 053, 063, 077, 091, 106, 141, 158, **176**, 211, **260**	Carbon Steel / 18 Gauge	Data Aire	UUT 1, 2, 3

Table 10b - Certified Control Panel Components

Description	Part Number	Chilled Water Model Availability	Manufacturer	UUT
Controller (Microprocessor)	PCO5DR00U0CL0	**007**, 011, 014, 018, 025, 032, 039, 046, 053, 063, 077, 091, 106, 141, 158, **176**, 211, **260**	Carel	UUT 1, 2, 3
Temperature/Humidity	DPPC11100N		Carel	UUT 1, 2, 3
Contactor	C25DNY133 **C25DNY132**		Eaton	UUT 1, 2, 3
Current Sensing Relay	A/ACSX		ACI	UUT 1, 2, 3
Differential Pressure Switch	P32AF-1D		Johnson Controls	UUT 1, 2, 3
Transformer	`````		Jard/Mars	UUT 1, 2, 3
Fuses	**ATQ10**, **ATM10**, **ATM15**, **ATM25**, TRM10, TRM15, OTM15, OTM20, OTM25, OTM30, A2K60R, A2K45R		Mersen	UUT 1, 2, 3
Fuse Block 2-pole	30312		Mersen	UUT 1, 2, 3
Fuses Block 3-pole	30313		Mersen	UUT 1, 2, 3
Time Delay	ICM102B		ICM Controls	UUT 1, 2, 3
Isolation Transformer	TB4002424B10A90		Mars	UUT 1, 2, 3
Terminal Strip	27-pin 600 Series		Mersen	UUT 1, 2, 3
	3-pin 600		Mersen	UUT 1, 2, 3
	4-pin 6000		Mersen	UUT 1, 2, 3
Terminal Block	67513		Mersen	UUT 1, 2, 3
Humidifier Control	2550280, **2550290**	**007**, 011, 014, 018, 025, 032, 039, 046	Nortec	UUT 1
	2550373, **2550383**	053, 063, 077, 091, 106, 141, 158, **176**, 211, **260**	Nortec	UUT 2, 3

Table 11 - Other Certified Subcomponents

Description	Part Number[1]	Chilled Water Model Availability	Manufacturer	UUT
Smoke Detector	2151 + B114LPBT	007, 011, 014, 018, 025, 032, 039, 046, 053, 063, 077, 091, 106, 141, 158, **176**, 211, 260	System Sensor	UUT 2
High Efficiency Filters	Z-Line ZLP	**007**, 011, 014, 018, 025, 032, 039, 046, 053, 063, 077, 091, 106, 141, 158, **176**, 211, **260**	Glassfloss	UUT 1, 2, 3

1. Part Number uniquely identifies component

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-01

UCB PEER STI 2012-12

Model Line	Model Number	Manufacturer
gForce	GFCD-007 Downflow	Data Aire

Product Construction Summary

Floor Stand Mounted, Carbon Steel, Air Handlers
Note: Listed height includes UUT height and 12" floorstand height

Options / Subcomponent Summary

Coils: Super Radiator, Fan: EBM Papst, Fan Motor: EBM Ppast, Electric Heat: Indeeco, Humidifier: Condair, Condensate Pump: Beckett, Floorstand: Data Aire, Control Valve: Johnson Controls, Control Panel: Data Aire, High Efficiency Filter: Glassfloss

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
630	41	36	90	4.7	5.4	15.4

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 2019	ICC-ES AC156	1.65	1.0	1.50	2.64	1.98	1.10	0.44

Test Mounting Details

Unit is mounted to the floorstand using Qty (8) 3/8" Diameter, Grade 8 Bolts. Floorstand is mounted atop Qty (4) MBX3-350 Isolator Mounts provided by The VMC Group. The Mounts are Attached to the Fixture using Qty (2) 1/2" Diameter, Grade 8 Bolts per Mount

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

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-02

UCB PEER STI 2012-12

Model Line	Model Number	Manufacturer
gForce	GFCU-176 Upflow	Data Aire

Product Construction Summary

Floor Stand Mounted, Carbon Steel, Air Handlers
Note: Listed height includes UUT height and 46" floorstand height

Options / Subcomponent Summary

Coils: Super Radiator, Fan: EBM Papst, Fan Motor: EBM Ppast, Electric Heat: Indeeco, Humidifier: Condair, Condensate Pump: Beckett, Floorstand: Data Aire, Control Valve: Johnson Controls, Control Panel: Data Aire, Smoke Detector: System Sensor, High Efficiency Filter: Glassfloss

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
2,450	41	120	130	2.3	5.2	11.6

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 2019	ICC-ES AC156	1.65	1.0	1.50	2.64	1.98	1.10	0.44

Test Mounting Details

Unit is mounted to the floorstand using Qty (28) 3/8" Diameter, Grade 8 Bolts. Floorstand is mounted atop Qty (8) MBX3-350 Isolator Mounts provided by The VMC Group. The Mounts are Attached to the Fixture using Qty (2) 1/2" Diameter, Grade 8 Bolts per Mount

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

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-03

UCB PEER STI 2012-12

Model Line	Model Number	Manufacturer
gForce	GFCD-260 Downflow	Data Aire

Product Construction Summary

Floor Stand Mounted, Carbon Steel, Air Handlers
Note: Listed height includes UUT height and 36" floorstand height

Options / Subcomponent Summary

Coils: Super Radiator, Fan: EBM Papst, Fan Motor: EBM Ppast, Electric Heat: Indeeco, Humidifier: Condair, Condensate Pump: Beckett, Floorstand: Data Aire, Control Valve: Johnson Controls, Control Panel: Data Aire, High Efficiency Filter: Glassfloss

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
3,900	46	138	135	2.8	4.2	10.2

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 2019	ICC-ES AC156	1.65	1.0	1.50	2.64	1.98	1.10	0.44

Test Mounting Details

Unit is mounted to the floorstand using Qty (28) 3/8" Diameter, Grade 8 Bolts. Floorstand is mounted atop Qty (10) MBX3-350 Isolator Mounts provided by The VMC Group. The Mounts are Attached to the Fixture using Qty (2) 1/2" Diameter, Grade 8 Bolts per Mount. Seismic enhancements made to test unit as follows: door hinge thin plates increased from 12 gauge to 10 gauge; strengthened attachement of plug fan seismic restraint brackets by changing from two sheet metal screws to four 1/4" Gr. 8 bolts; bolt added that fastens to door frame to prevent latch from opening, added bolt held in place by heavy duty rivet nut.

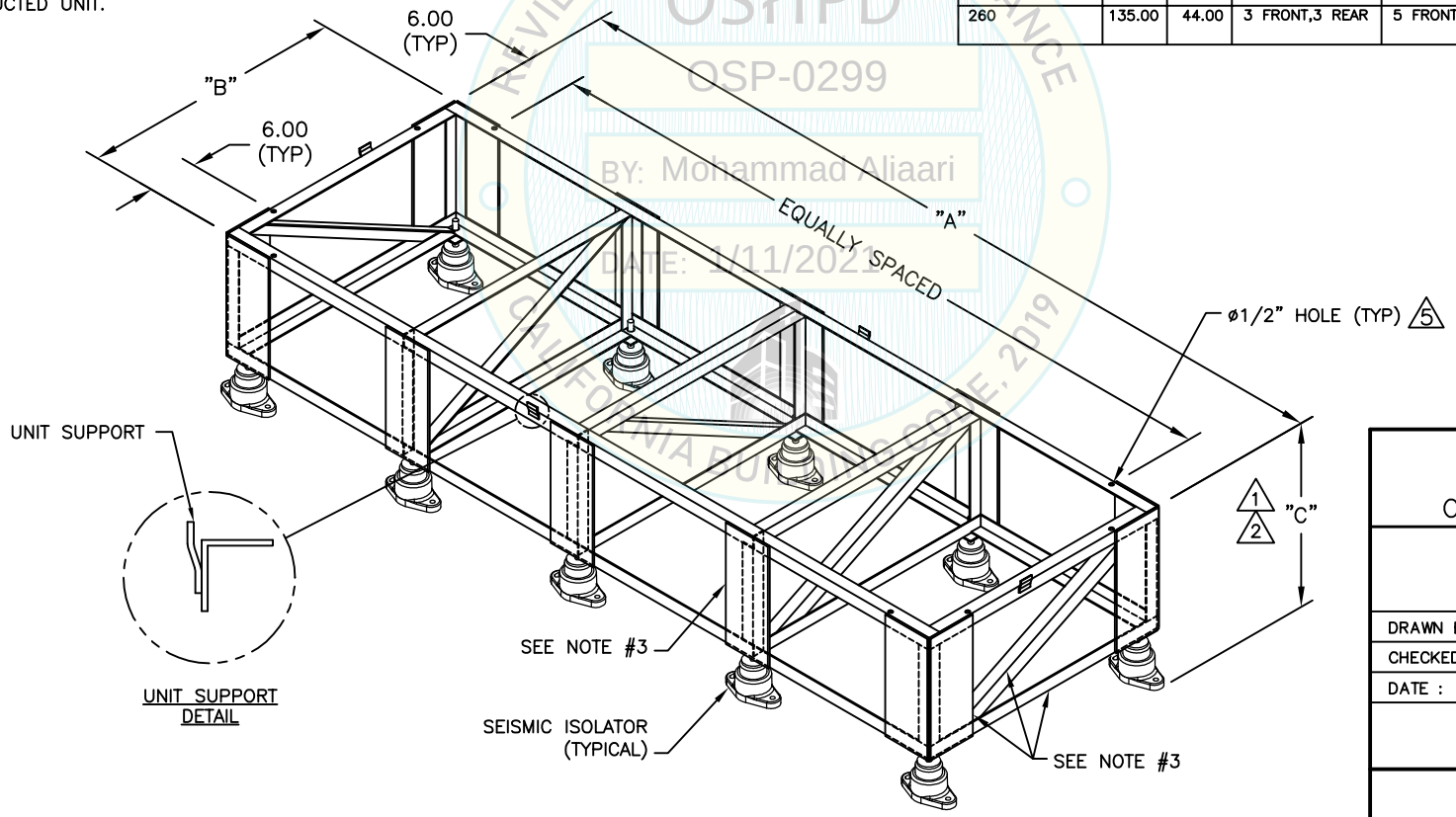
All units were filled with contents and maintained structural integrity and functionality after AC156 test.

NOTES:

1. DIMENSION "C" IS THE TOTAL HEIGHT SPECIFIED ON ORDER. THE SEISMIC STAND FRAMING, WILL BE BUILT 6 INCHES LESS THAN THE TOTAL HEIGHT SPECIFIED, AND WILL HAVE SEISMIC ISOLATORS THAT PROVIDE ±0.75" INCHES OF ADJUSTMENT FROM THE SPECIFIED HEIGHT.
2. TOTAL SPECIFIED HEIGHT MUST BE BETWEEN 18 AND 36 INCHES HIGH.
3. 1 1/2 X 1 1/2 X 1/8 ANGLE FRAME CONSTRUCTION. 1/4" PLATE CONSTRUCTION AT CORNERS & INTERMEDIATE VERTICAL LOCATIONS.
4. INTERMEDIATE VERTICAL SUPPORTS AND SEISMIC ISOLATOR PLACEMENT WILL VARY, BASED ON THE UNIT SIZE AND WEIGHT. SEE UNIT TABLES.
5. USE 3/8" GRADE 5 BOLTS, WITH 1" OD WASHERS TO MOUNT CRAH TO FLOOR STAND.
6. BASE IS ONLY CERTIFIABLE TO SEISMIC IBC OR OSHPD STANDARDS WHEN FURNISHED WITH SEISMIC CONSTRUCTED UNIT.

REVISIONS				
REV	DESCRIPTION	DATE	BY	FROM
B	UPDATED HEIGHT RANGE TO MATCH PSG	12-07-16	RK	JB

gForce CHILLED WATER UNITS					
UNIT SIZE (KW)	"A"	"B"	INTERMEDIATE VERTICAL SUPPORTS	QUANTITY OF ISOLATORS	MOUNTING HOLES
07, 11, 14, 18	33.00	38.50	–	2 FRONT,2 REAR	2 FRONT & REAR, (4) TOTAL
25, 32, 39, 46	46.50	38.50	–	2 FRONT,2 REAR	2 FRONT & REAR, (4) TOTAL
53, 63, 77. 91	80.00	38.50	1 FRONT,1 REAR	3 FRONT,3 REAR	3 FRONT & REAR, 2 LEFT & RIGHT, (10) TOTAL
106	103.00	38.50	2 FRONT,2 REAR	4 FRONT,4 REAR	4 FRONT & REAR, 2 LEFT & RIGHT, (12) TOTAL
141, 158, 176	117.00	38.50	2 FRONT,2 REAR	4 FRONT,4 REAR	5 FRONT & REAR, 2 LEFT & RIGHT, (14) TOTAL
211	117.00	44.00	2 FRONT,2 REAR	4 FRONT,4 REAR	5 FRONT & REAR, 2 LEFT & RIGHT, (14) TOTAL
260	135.00	44.00	3 FRONT,3 REAR	5 FRONT,5 REAR	5 FRONT & REAR, 2 LEFT & RIGHT, (14) TOTAL



SEISMIC BASE FOR
gForce
CHILLED WATER UNITS

dataaire

DRAWN BY :	RRK	SCALE: NONE	
CHECKED BY :		SH 1 OF 1	
DATE :	02-02-2016	REV	B

PART OF

560-919-007
DWG NO.

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