

Technical Data Sheet for CH-1

Job Information		Technical Data Sheet	
Job Name	Cumberland County Courthouse		
Date	2/13/2017		
Submitted By	Briggs Equipment Sales, Inc.		
Software Version	07.20		
Unit Tag	CH-1		



Unit Overview						
Model Number	Capacity ton	IPLV, IP* EER	Voltage	Unit Starter Type	ASHRAE 90.1	LEED EA Credit 4
AGZ191E	183.2	16.10	460 / 60.0 / 3	Across the Line	'07, '10, '13	Pass

* IPLV reflects AHRI standard rating conditions and does not change with user defined conditions.

Unit		
Unit Type	Platform	Unit Revision
Air-Cooled Scroll Compressor Chiller	Packaged	00
Head Pressure	Tubing	
VFD w/o Line Reactors [Low Ambient]	Replaceable Filter Dryer with Discharge & Liquid Valves, with HGBP	
Unit Controls	Display	
Electronic Expansion Valve	On Controller only	
Refrigerant Type	Refrigerant Weight	
R410A	174 lb (per unit)	
Pump Controls		
Dual Evaporator Pumps - Dual Control Output		
Approval		
ETL/cETL, AHRI & ASHRAE 90.1		
Evaporator		

Water Volume:	18.0 gal						
Connection Hand:	Universal Connection - Facing out back						
Connection Size:	6.0 in						
Insulation:	Single Layer Insulation to Suction at each Compressor						
Entering Fluid Temperature	Leaving Fluid Temperature	Fluid Type	Glycol Concentration	Fluid Flow	Fluid Flow (with glycol) Min / Max	Pressure Drop	Fouling Factor
55.00 °F	44.00°F	Water & Propylene	30.0 %	421.3 gpm	189.8 / 791.2 gpm	11.5 ft H ₂ O	0.000100 °F.ft ² .h/Btu

Condenser				
Coil Fins:	MicroChannel (Electro Fin Coating)			
Guards:	None			
Design Ambient Air Temperature	Altitude	Fan Diameter	Fan Motor Horsepower	Minimum Design Ambient Temperature
95.0 °F	0 ft	30.0 in	2.0 hp	14.0 °F

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Unit Performance										
Design										
Capacity		Input Power			Efficiency			IPLV.IP*		
183.2 ton		217.0 kW			10.10 EER			16.10 EER		
Performance Points rated at AHRI Ambient Relief										
Point #	% Load	Unit			Evaporator				Condenser	
		Capacity ton	Input Power kW	Efficiency EER	Fluid Flow gpm	Pressure Drop ft H ₂ O	Entering Fluid Temperature °F	Leaving Fluid Temperature °F	Ambient Air Temperature °F	Altitude ft
1	100.0	183.2	217.0	10.10	421.3	11.5	55.00	44.00	95.0	0
2	75.0	137.4	119.6	13.80	421.3	11.5	52.20	44.00	80.0	0
3	50.0	91.60	64.50	17.00	421.3	11.5	49.50	44.00	65.0	0
4	25.0	45.80	28.40	19.30	421.3	11.5	46.70	44.00	55.0	0

* IPLV reflects AHRI standard rating conditions and does not change with user defined conditions

Sound									
Sound Pressure (at 30 feet)									
63 Hz dB	125 Hz dB	250 Hz dB	500 Hz dB	1 kHz dB	2 kHz dB	4 kHz dB	8 kHz dB	Overall dBA	
69	71	69	67	64	61	61	58	70	
Sound Power									
63 Hz dB	125 Hz dB	250 Hz dB	500 Hz dB	1 kHz dB	2 kHz dB	4 kHz dB	8 kHz dB	Overall dBA	
96	98	96	94	91	88	88	85	97	

Octave band is non 'A' weighted and overall readings are 'A' weighted. Sound data rated in accordance with AHRI Standard-370.

Physical				
Unit				
Length*	Height	Width*	Shipping Weight*	Operating Weight*
283 in	99 in	88 in	8635 lb	8785 lb

* Shipping and operating weights do not include the weights of any Options or Accessories. Contact Chiller Applications for additional information.

Electrical				
Unit Electrical Data				
Voltage	Starter Type	Fan Motor Quantity	LRA Fan Motor (each)	FLA Fan Motors (each)
460 / 60.0 / 3	Across the Line	12	18A	3.6A
Power Connection Type: Single Point Disconnect Switch with Circuit Protection				
Short Circuit Current Rating: 5 kA				
Phase Voltage: Phase & Under/Over Voltage Protection with LED				
Single Point Power Connection				
MCA:	424.3 A			
Fuse Size (recommended):	500 A			
Fuse Size (maximum):	500 A			
Connector Wire Range:	(2) 3/0-500MCM			



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Compressor Electrical Data						
Compressor Type	Compressor Quantity				Starter Type	
Scroll	6				Across the Line	
Circuit #:	1			2		
Compressor #:	1	3	5	2	4	6
RLA:	57.2 A	57.2 A	57.2 A	57.2 A	76 A	57.2 A
Inrush Current:	310 A	310 A	310 A	310 A	408 A	310 A

Note: Power wiring connections to the chiller may be done with either copper or aluminum wiring. Wire should be sized per NEC and/or local codes. Wire sizing and wire count must fit in the power connection lug sizing listed in latest installation manual. Please contact your local sales office for more information.

Options

Basic Unit	
Control Box Ambient:	High / Low Ambient with Exhaust Fans (125°F maximum)
Suction Shut-off Valve:	Included
Control	
Communication:	BACnet MS/TP or IP as Needed
Electrical	
Water Flow Indicator:	Evaporator only (Thermal Dispersion)

Warranty

Unit Startup	By Briggs Equipment Sales, Inc. 2 weeks notice required for scheduling
Standard Warranty:	1st Year Entire Unit Parts & Labor
Extended Unit Warranty:	Entire Unit; Extended 4 years parts & labor
Refrigerant Warranty	5 Years

AHRI Certification



Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Using Vapor Compression Cycle Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Unit containing freeze protection fluids in the condenser or in the evaporator with a leaving chilled fluid temperature above 32°F [0°C] is certified when rated per the Standard with water. Certified units may be found in the AHRI Directory at www.ahridirectory.org.

Accessories

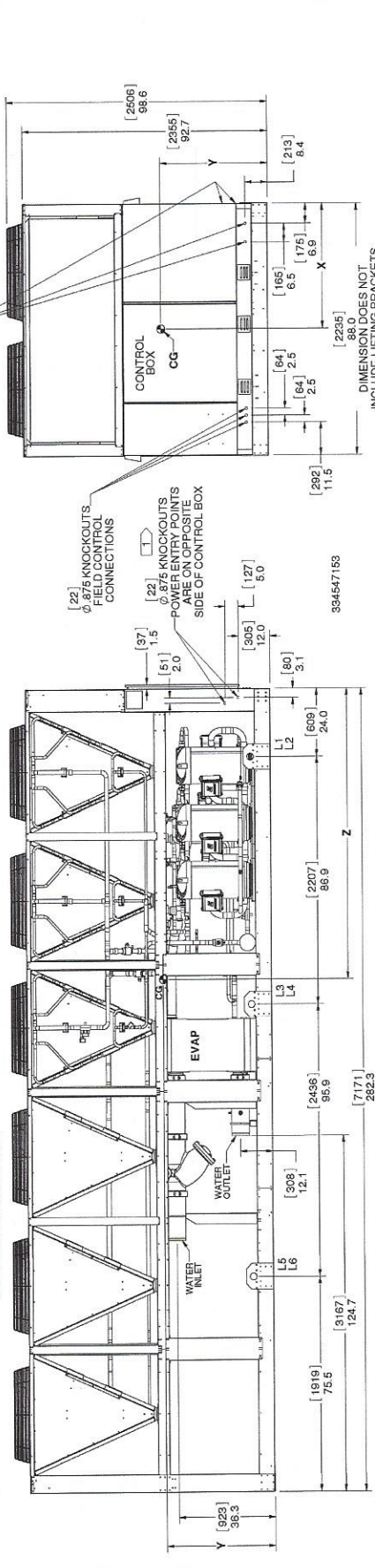
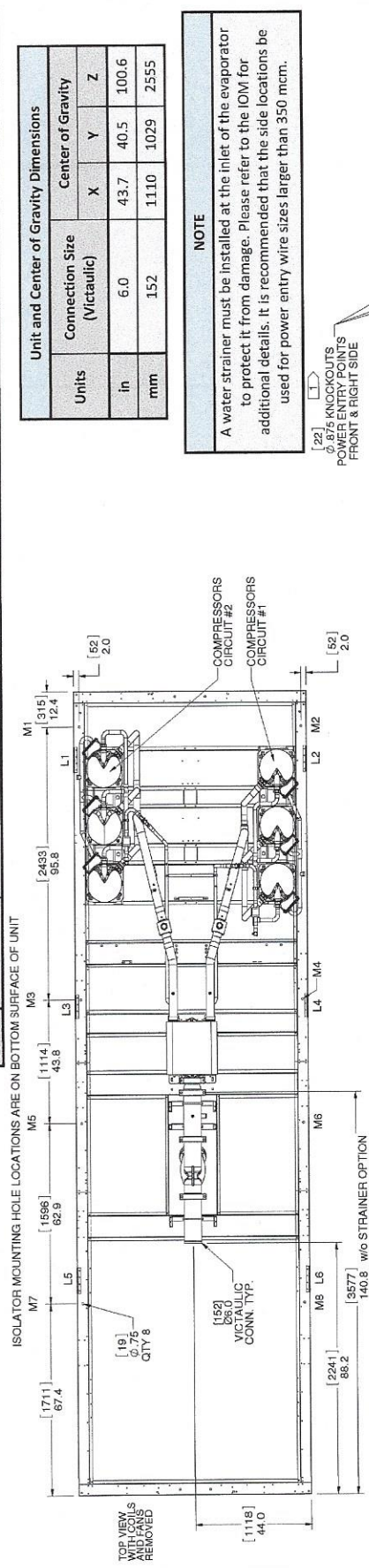
Optional	
Part Number	Description
332320108	Spring Isolator Kit; AGZ: Packaged, Al Fin

W.A. Board
3/20/17

AGZ191E Packaged (Microchannel Condenser)

Unit Dimensions

Unit Weight Data																	
Units	Weight			Lifting Weight			Mounting Weight										
	Shipping	Operating		L1	L2	L3	L4	L5	L6	M1	M2	M3	M4	M5	M6	M7	M8
lb	8635	8785		1759	1738	1458	1441	1127	1113	1578	1560	1164	1150	974	963	702	694
kg	3917	3985		798	788	661	654	511	505	716	708	528	522	442	437	318	315



NOTE: IS RECOMMENDED THAT THE SIDE LOCATIONS BE USED FOR POWER ENTRY WIRE SIZES LARGER THAN 350 MCM.

NOTE: A water strainer must be installed at the inlet of the evaporator to protect it from damage. Please refer to the IOM for additional details, it is recommended that the side locations be used for power entry wire sizes larger than 350 mcm.

DAIKIN

13600 Industrial Park Blvd. Minneapolis, MN 55441
www.DaikinApplied.com Software Version: 07.20

Product Drawing Unit Tag: CH-1
 Product: Air-Cooled Scroll Chiller Project Name: Cumberland County
 Model: AGZ191E Feb. 13, 2017 Ver/Rev: Sheet: 1 of 1

Sales Office: Briggs Equipment Sales
 Sales Engineer: Ann Marie Juliano
 Scale: NTS Tolerance: +/- 1.0" Dwg Units: in (mm)

No change to this drawing may be made unless approved in writing by Daikin Applied. Purchaser must determine that the equipment is fit and sufficient for the job specifications.

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AGZ-E: Base Unit

0A

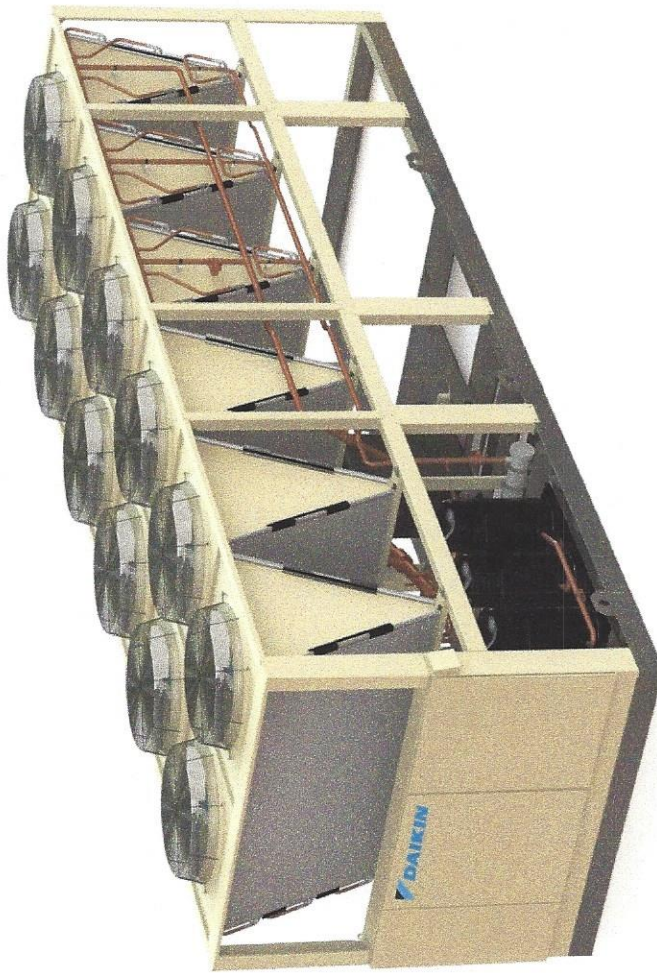


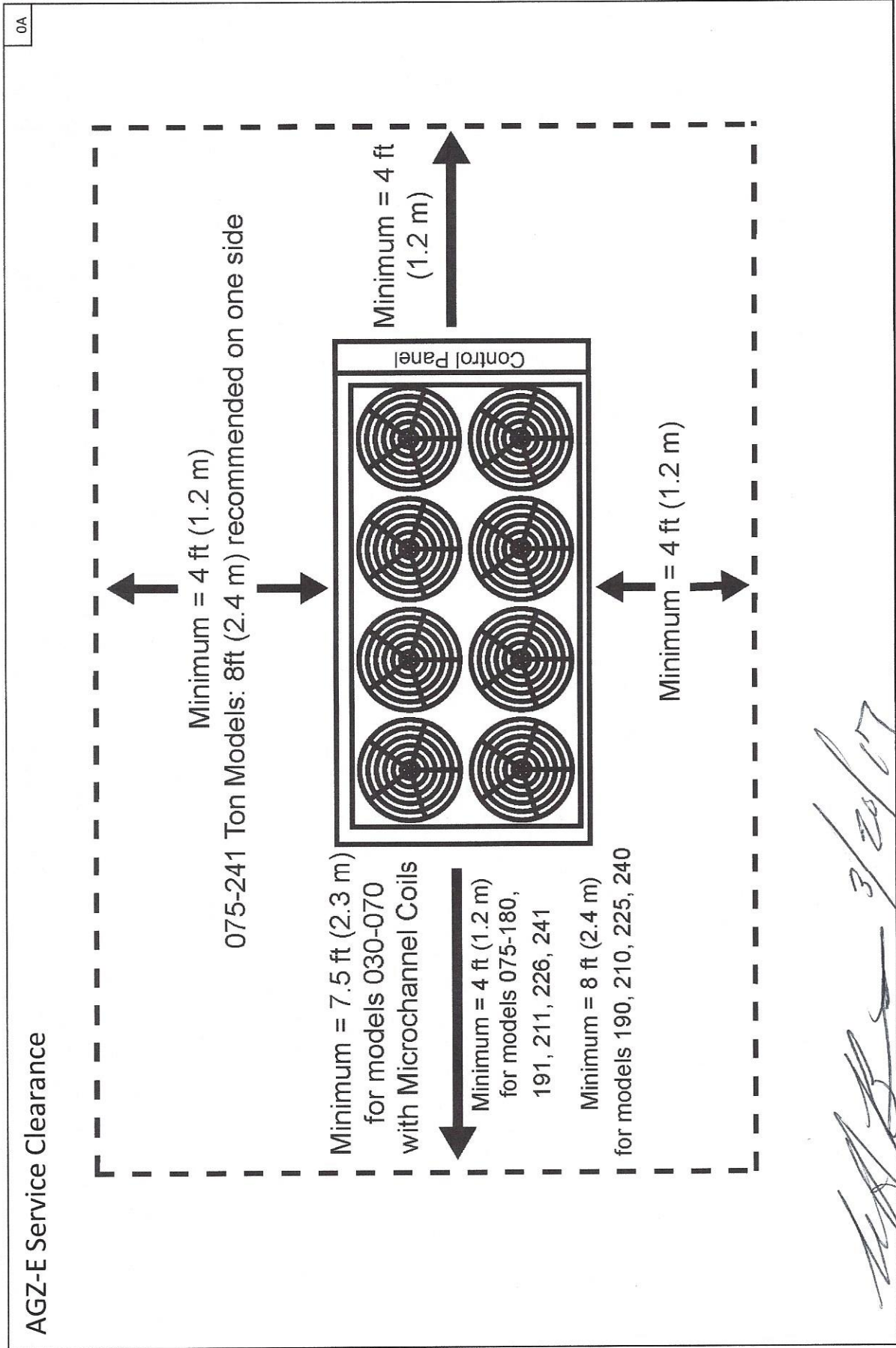
Diagram Notes
 Diagram simulates wrap, grille and louver options as selected only. Refrigeration components may vary depending on selected options.

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Product Drawing		Unit Tag: CH-1		Sales Office: Briggs Equipment Sales	
Product: Air-Cooled Scroll Chiller	Project Name: Cumberland County	Sales Engineer: Ann Marie Juliano		13600 Industrial Park Blvd. Minneapolis, MN 55441	
Model: AGZ191-211E	Feb. 13, 2017	Ver/Rev: N/A	Scale: N/A	Tolerance: N/A	Dwg Units: N/A
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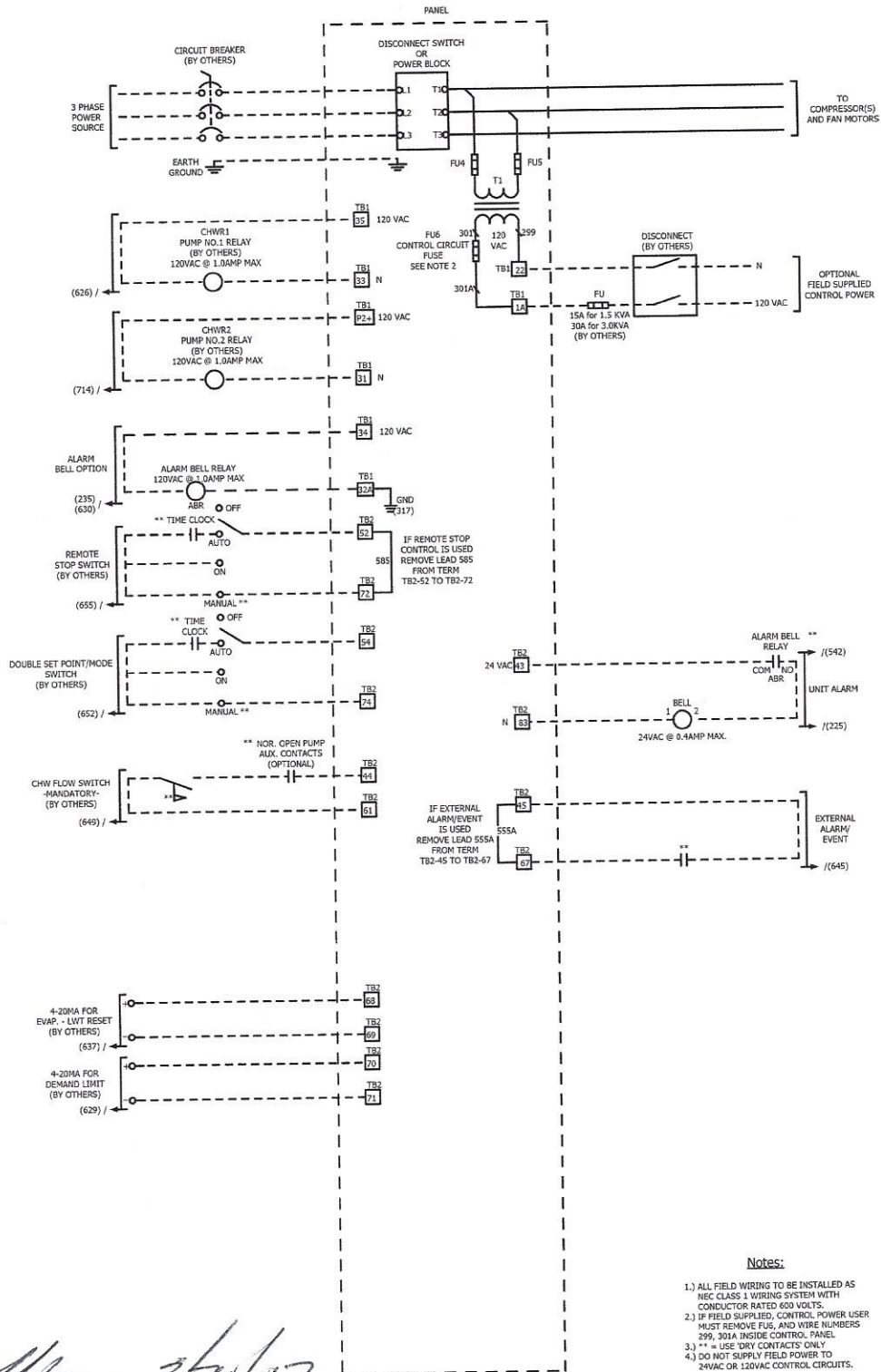
Product Drawing		Unit Tag: CH-1	
Product: Air-Cooled Scroll Chiller	Project Name: Cumberland County	Sales Office: Briggs Equipment Sales	
Model: AGZ-E	Feb. 13, 2017 Ver/Rev:	Scale: +/- 1.0"	Dwg Units: in [mm]
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AGZ030-241E Single-Point Connection Field Wiring Diagram

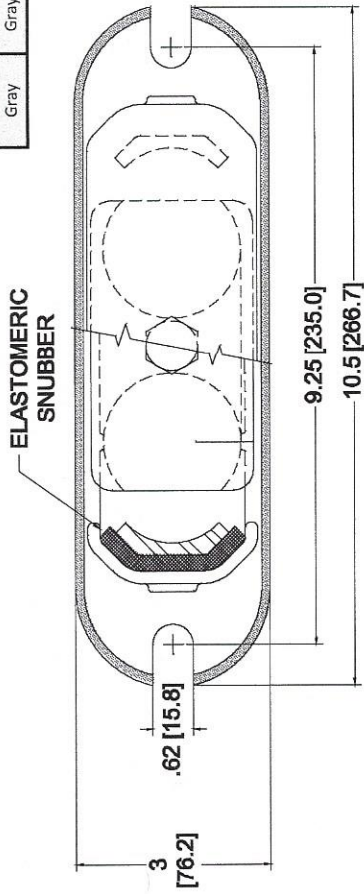


- Notes:**
- 1.) ALL FIELD WIRING TO BE INSTALLED AS NEC CLASS 1 WIRING SYSTEM WITH CONDUCTOR RATED 600 VOLTS.
 - 2.) IF FIELD SUPPLIED, CONTROL POWER USER MUST REMOVE FUG, AND WIRE NUMBERS 299, 301A INSIDE CONTROL PANEL.
 - 3.) ** = USE 'DRY CONTACTS' ONLY.
 - 4.) DO NOT SUPPLY FIELD POWER TO 24VAC OR 120VAC CONTROL CIRCUITS.

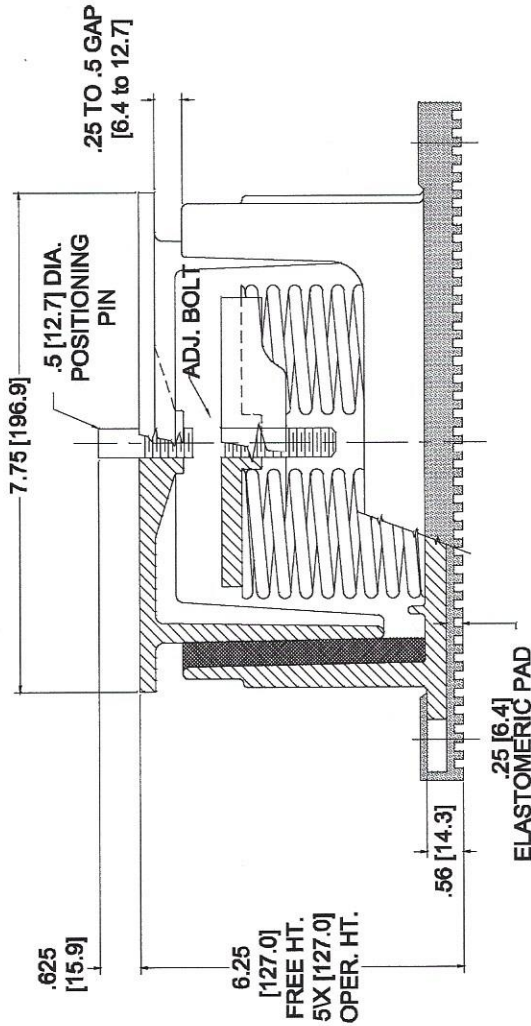
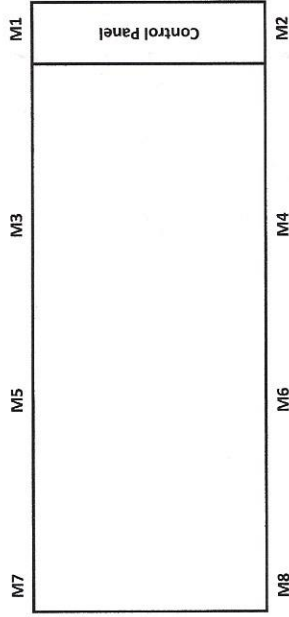
Field Wiring Diagram	Unit Tag: CH-1	
Product: Air-Cooled Scroll	Project Name: Cumberland County	
Model: AGZ030-241E Single-Point	Sales Office: Briggs Equipment Sales	13600 Industrial Park Blvd. Minneapolis, MN 55441
Sales Engineer: Ann Marie Juliano	Feb. 13, 2017	www.DaikinApplied.com Software Version: 07.20
	Ver/Rev:	Scale: N/A Tolerance: N/A Dwg Units: N/A
	Sheet 1 of 1	

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Spring Isolator Kit
Dimensions and Placement



Mounting Location							
M1	M2	M3	M4	M5	M6	M7	M8
Gray	Gray	Dark Green	Dark Green	Dark Green	Dark Green	Black	Black



[Signature] 3/20/2017

Product Drawing		Unit Tag: CH-1		Sales Office: Briggs Equipment Sales	
Accessory: Spring Isolator Kit		Project Name: Cumberland County		Sales Engineer: Ann Marie Juliano	
Kit Part Number: 332320108		Feb. 13, 2017 Ver/Rev:		Scale: NTS Tolerance: +/- 1.0" Dwg Units: in [mm]	
No change to this drawing may be made unless approved in writing by Daikin Applied. Purchaser must determine that the equipment is fit and sufficient for the job specifications.		Sheet: 1 of 1		www.DaikinApplied.com Software Version: 07.20	



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Specification for CH-1

PART 1: GENERAL

1.01 WARRANTY

A. Standard Warranty (Domestic): The refrigeration equipment manufacturer's guarantee shall be for a period of one year from date of equipment start-up but not more than 18 months from shipment. The guarantee shall provide for repair or replacement due to failure by material and workmanship that prove defective within the above period, excluding refrigerant.

Included extended warranties are as follows:

- B. Extended Unit Warranty: Entire unit, four (4) years parts and labor.
- C. Refrigerant Warranty: Five (5) years R410A refrigerant.

PART 2: PRODUCTS

2.01 UNIT DESCRIPTION

- A. Factory-assembled, factory-charged air-cooled scroll compressor packaged chiller. Each chiller shall consist of hermetic tandem scroll compressor sets (total four compressors), brazed plate evaporator, air-cooled condenser section, microprocessor-based control system and all components necessary for controlled unit operation.
- B. Each chiller shall be factory run-tested to verify operation. Operating controls and refrigerant charge shall be checked for proper operation and optimum performance.

2.02 CHILLER COMPONENTS

A. Compressor

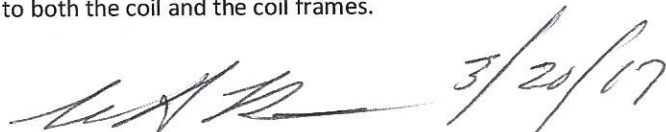
- 1. The compressors shall be sealed hermetic, scroll type with crankcase oil heater and suction strainer. The compressor motor shall be refrigerant gas cooled, high torque, hermetic induction type, two-pole, with inherent thermal protection on all three phases and shall be mounted on RIS vibration isolator pads. The compressors shall be equipped with an internal module providing compressor protection and communication capability.

B. Evaporator

- 1. The evaporator shall be a compact, high efficiency, dual circuit, brazed plate-to-plate type heat exchanger consisting of parallel stainless steel plates.
- 2. The evaporator shall be protected with an external, electric resistance heater plate and insulated with 3/4" (19mm) thick closed-cell polyurethane insulation. This combination shall provide freeze protection down to -20°F (-29°C) ambient air temperature.
- 3. The water-side working pressure shall be a minimum of 653 psig (4502 kPa). Evaporators shall be designed and constructed according to, and listed by Underwriters Laboratories (UL).

C. Condenser

- 1. Condenser fans shall be propeller type arranged for vertical air discharge and individually driven by direct-drive fan motors. The fans shall be equipped with a heavy-gauge vinyl-coated fan guard. Fan motors shall be TEAO type with permanently lubricated ball bearings, inherent overload protection, three-phase, direct-drive, 1140 rpm. Each fan section shall be partitioned to avoid cross circulation.
- 2. Coil shall be microchannel design and shall have a series of flat tubes containing multiple, parallel flow microchannels layered between the refrigerant manifolds. Tubes shall be 9153 aluminum alloy. Tubes made of 3102 alloy or other alloys of lower corrosion resistance shall not be accepted. Coils shall consist of a two-pass arrangement. Each condenser coil shall be factory leak tested with high-pressure air under water. Condenser coils shall include ElectroFin™ baked epoxy coating providing 5000+ hour salt spray resistance (ASTM B117-90) applied to both the coil and the coil frames.



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Specification for CH-1

D. Refrigerant Circuit

1. Each of the two refrigerant circuits shall include a replaceable-core refrigerant filter-drier, sight glass with moisture indicator, liquid line solenoid valve (no exceptions), expansion valve, and insulated suction line.

E. Construction

1. Unit casing and all structural members and rails shall be fabricated of pre-painted or galvanized steel. Painted parts shall be able to meet ASTM B117, 1000-hour salt spray test.

F. Control System

1. A centrally located weatherproof control panel shall contain the field power connection points, control interlock terminals, and control system. Box shall be designed in accordance with NEMA 3R rating. Power and starting components shall include factory circuit breaker for fan motors and control circuit, individual contactors for each fan motor, solid-state compressor three-phase motor overload protection, inherent fan motor overload protection and two power blocks (one per circuit) for connection to remote, contractor supplied disconnect switches. Hinged access doors shall be lockable. Barrier panels or separate enclosures are required to protect against accidental contact with line voltage when accessing the control system.
2. Shall include optional single-point connection to a non-fused disconnect switch with through-the-door handle and compressor circuit breakers.

G. Unit Controller

1. An advanced DDC microprocessor unit controller with a 5-line by 22-character liquid crystal display provides the operating and protection functions. The controller shall take preemptive limiting action in case of high discharge pressure or low evaporator pressure. The controller shall contain the following features as a minimum:
2. The unit shall be protected in two ways: (1) by alarms that shut the unit down and require manual reset to restore unit operation and (2) by limit alarms that reduce unit operation in response to some out-of-limit condition. Shut down alarms shall activate an alarm signal.
3. Shutdown Alarms
 - a. No evaporator water flow (auto-restart)
 - b. Sensor failures
 - c. Low evaporator pressure
 - d. Evaporator freeze protection
 - e. High condenser pressure
 - f. Outside ambient temperature (auto-restart)
 - g. Motor protection system
 - h. Phase voltage protection (Optional)
4. Limit Alarms
 - a. Condenser pressure stage down, unloads unit at high discharge pressures.
 - b. Low ambient lockout, shuts off unit at low ambient temperatures.
 - c. Low evaporator pressure hold, holds stage #1 until pressure rises.
 - d. Low evaporator pressure unload, shuts off one compressor.
5. Unit Enable Section
 - a. Enables unit operation from either local keypad, digital input, or BAS
6. Unit Mode Selection
 - a. Selects standard cooling, ice, glycol, or test operation mode
7. Analog Inputs:
 - a. Reset of leaving water temperature, 4-20 mA\
 - b. Current Limit

 3/20/17