

Project Name: **Augustana Chilled Water Project**

Unit Tag: **CH-1**

Qty.: **1**

Model: **YVAA0176**

Full Load - Design

PIN

YVAA0176B1	217AHVSBXX	SAXLXUSNXD	BXXXSAXVBI	BW1SXGA2S4	XVA0606XXX	XXNSGXVXX	VBIBBSAX2	0051626200
...5...10	...5...20	...5...30	...5...40	...5...50	...5...60	...5...70	...5...80	...5...90
51626J1XXN	XAPG350712	0350454191	00057AD					
...5...100	...5...110	...5...120	...5...130					

Unit

Model No.	YVAA0176
Number of Compressors	2
Compressor Type	VSD Screw - Semi Hermetic
Number of Compressor Circuits	2
Capacity Control	10% - 100%
Refrigerant	R-513A

Performance Data

Net Cooling Capacity [tons.R]	129.0
Total Power Input [kW]	157.8
EER [Btu/W.h]	9.812
NPLV.IP [Btu/W.h]	17.75
A-Weighted Sound Power [dB(A)]	99.0

Electrical Data

Nominal Voltage / Voltage Limits	200-3-60.0 / 180V - 220V
Compressor kW (each circuit)	70.65 / 74.04
Compressor RLA (each circuit) [A]	226.0 / 236.1
Fan QTY (each circuit)	6 / 6
Fan FLA (each circuit) [A]	5.6 / 5.6
Min. Circuit Ampacity [A]	594.5
Max. Fuse / CB Rating [A]	800.0
Unit Short Circuit Withstand [kA]	30 kA
Displacement Power Factor	0.95
Control kVA	2.000



Performance Impacting Options

Compressor Style	Optimized Part Load Efficiency
Condenser Coil	Microchannel Coils
Fan	Low Sound Fans With Variable Speed Control
Sound Attenuation	Standard Factory Sound Kit (Level 0 Reduction)

Weight & Dimensional Data

Shipping Weight [lbs]	15869
Operating Weight [lbs]	16536
Refrigerant Charge [lbs]	196 / 196
Length [in]	291.2
Width [in]	88.3
Height [in]	92.8



Performance Report

Performance Specification

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Heat Exchanger Performance

Evaporator		Condenser (Air Cooled)	
Heat Exchanger Type	Hybrid Falling Film	Ambient Air Temperature* [°F]	95.0
Entering Fluid Temperature* [°F]	54.00	Altitude* [ft]	5400
Leaving Fluid Temperature* [°F]	44.00	Condensing Temperature [°F]	115.92 / 117.73
Flow Rate [USGPM]	333.1	Number of Fans (Circuit 1 / Circuit 2)	6 / 6
Fouling Factor* [h ft ² F/Btu]	0.000100	Total Air Flow [cfm]	132053
Fluid Type* / Concentration* [%]	Propylene Glycol / 35.0	Total Fan Power [kW]	13.11
Passes*	2		
Pressure Drop [ft H ₂ O]	13.4		
Fluid Volume [USGAL]	80.0		
Evaporating Temperature [°F]	30.90		
Minimum Flow Rate [USGPM]	201.0		
Maximum Flow Rate [USGPM]	640.0		
Bundle Code (System 1 / System 2)	Tube Bundle 1 (1") / Tube Bundle 1 (1")		

* Designates user specified input

Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org. Unit contains freeze protection fluids in the evaporator with a leaving chilled fluid temperature above 32 DEG F [0 DEG C] and is certified when rated per the Standard with water. Auxiliary components included in total KW - Oil heaters, Chiller controls. Auxiliary power is already included in the compressor and fan power



Part Load Performance (Based on Standard AHRI Unloading)

Percent Load	Ambient [°F]	Capacity [tons.R]	Power Input [kW]	Unit Efficiency [Btu/W.h]
100.0	95.0	129.0	157.8	9.812
75.0	80.1	96.78	85.05	13.66
50.0	65.1	64.51	38.23	20.25
25.0	55.0	32.26	16.57	23.35

Sound Power Levels (In Accordance with AHRI 370)

Percent Load	Ambient [°F]	Octave Band Center Frequency [Hz]								LWA
		63	125	250	500	1000	2000	4000	8000	
100.0	95.0	96.0	96.0	97.0	98.0	94.0	88.0	84.0	80.0	99.0
75.0	80.1	92.0	92.0	93.0	93.0	89.0	84.0	80.0	75.0	94.0
50.0	65.1	89.0	91.0	90.0	90.0	87.0	81.0	77.0	73.0	91.0
25.0	55.0	85.0	88.0	86.0	87.0	84.0	77.0	73.0	69.0	88.0

Note: Unit is equipped with Low Sound Fans With Variable Speed Control.

Measurement of sound pressure used to obtain the sound power data presented is based on AHRI-370.

Air-cooled chillers are rated in terms of sound power not sound pressure. Johnson Controls provides estimates of sound pressure, but this is not the rating metric.

For an air-cooled chiller, sound pressure calculated from sound power varies depending on how the chiller is assumed to behave, i.e. the radiation model. In other words, determining sound pressure from sound power requires making assumptions that result in different answers at a given distance from the chiller. The environment also influences sound pressure in the field installation. Sound pressure estimation radiation models pertaining to air-cooled chillers include the 'traditional' hemispherical model, parallelepiped model and equivalent hemispherical model.

Regarding sound power, Johnson Controls references tolerance limits based on ASHRAE guidelines. These are +/- 6dB in the 63Hz octave band, +/- 4dB in all other octave bands and +/- 3dB for the overall dBA.

Tolerance limits are based on uncertainties associated with:

1. Measurement Test Procedure
2. Repeatability
3. Production / Manufacturing Variability

Standard deviation associated with air-cooled chiller sound data is a measure of spread i.e. it indicates the range of probability of sound levels. Note that for operating conditions other than AHRI's Standard Rating Condition, higher levels of uncertainty can be expected.

Lead times for factory performance testing depend on test laboratory availability. Please confirm with Johnson Controls Customer Service.

Performance at AHRI Conditions

Evaporator		Condenser	
EFT [°F]	54.00	Ambient Temp. [°F]	95.0
LFT [°F]	44.00	Altitude [ft]	0.00
Flow Rate [USGPM]	308.8	Performance	
Pressure Drop [ft H ₂ O]	11.8	EER [Btu/W.h]	11.24
Fluid Type	Water	IPLV.IP [Btu/W.h]	19.50
Fouling Factor [h ft ² F/Btu]	0.000100	Net Cooling Capacity [tons.R]	129.0
Fluid Volume [USGAL]	80.0		

Note: Unit rated at design condition capacity.

Part Load Performance (Based on AHRI 550/590 - 2018 (IP))

Percent Load	Ambient [°F]	Capacity [tons.R]	Power Input [kW]	Unit Efficiency [Btu/W.h]
100.0	95.0	129.0	137.8	11.24
75.0	80.0	96.76	76.60	15.16
50.0	65.0	64.51	34.97	22.14
25.0	55.0	32.26	15.21	25.45



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Notes:

Country of Origin: Mexico

Displacement Power Factor refers to compressor only. Unit Power Factor depends on fan option selected. Calculated value is available by request.

Minimum and maximum evaporator flow information are for full load ratings with Propylene Glycol.

Evaporator Passes: 2, Condenser Type: 4, Fan Type: V

Compliant with ASHRAE 90.1 - 2010, 2013, 2016, 2019, 2022.

Compliant with IECC - 2012, 2015, 2018.

The product image shown is for illustrative purposes only and is not representative of selected options.