SUBMITTAL

Project

Augustana Lutheran Church

Date

Wednesday, October 25, 2023

General Contractor

Mechanical Contractor

Mechanical Engineer

Andrew Cunningham

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Project: Augustana Lutheran Church 10/25/2023
Prepared By: Andrew Cunningham 09:35PM

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Screw

Tag Cover Sheet
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Detailed Performance Report

Unit Report For Screw

Project: Augustana Lutheran Church
Prepared By: Andrew Cunningham

10/25/2023
09:35PM

Unit Information

Tag Name:	**Screw**	
Model Number:	**30XV140**	
Condenser Type:	**Air Cooled**	
Compressor Type:	**VFD Screw**	
Nameplate Voltage:	**208/230-3-60**	V-Ph-Hz
Quantity:	**1**	
Manufacturing Source:	**Charlotte, NC USA**	
Refrigerant:	**r513a**	
Independent Refrigerant Circuits:	**2**	
Capacity Control Steps:	**0**	
Minimum Capacity:	**15.0**	%
Shipping Weight:	**12353**	lb
Operating Weight:	**12541**	lb
Unit Length:	**255**	in
Unit Width:	**88**	in
Unit Height:	**99**	in

Accessories and Installed Options

Control Transformer
Sound/Capacity Optimization Option
Flooded Evaporator, 2 pass for Brine Application, w/ Heater
Coil T Panel (Header side), Grilles(sides), Upper Hail Guards (End)
R-513A
Low Ambient Head Pressure Control
Display Heater for Control Panel
High Tier

Chiller Warranty Information (Note: for US & Canada only)

First Year - Parts Only (Standard)
Start up, First Unit
Compressor Year 2-5 Parts Only

Ordering Information

Part Number	Description	Quantity
30XV-1405HL23K3C2	Packaged Chiller	1
	Base Unit	
	Control Transformer	
	Sound/Capacity Optimization Option	
	Flooded Evaporator, 2 pass for Brine Application, w/ Heater	
	Coil T Panel (Header side), Grilles(sides), Upper Hail Guards (End)	
	R-513A	
30XV70001601	Display Heater for Control Panel	1

Please refer to the Chiller Submittal Drawing Manager program for 30XV drawings

There is no Certified Drawing available for this tag

Summary Performance Report For Screw

Project: Augustana Lutheran Church 10/25/2023
Prepared By: Andrew Cunningham 09:35PM

AquaForce™ Air-Cooled Variable Speed Screw Chiller

Unit Information

Tag Name:	**Screw**	
Model Number:	**30XV140H**	
Quantity:	**1**	
Manufacturing Source:	**Charlotte, NC USA**	
ASHRAE 90.1:	**2022 path A/B & older**	
Refrigerant:	**R-513A**	
Independent Refrigerant Circuits:	**2**	
Shipping Weight:	**12353**	lb
Operating Weight:	**12541**	lb
Refrigerant Weight (Circuit A):	**144**	lb
Refrigerant Weight (Circuit B):	**148**	lb
Unit Length:	**255**	in
Unit Width:	**88**	in
Unit Height:	**99**	in
Required Pad Length:	**235**	in

Evaporator Information

Fluid Type:	**Propylene Glycol**	
Brine Concentration:	**30.00**	%
Fouling Factor:	**0.000100**	(hr-sqft-F)/BTU
Leaving Temperature:	**44.00**	°F
Entering Temperature:	**54.45**	°F
Fluid Flow:	**309.6**	gpm
Pressure Drop:	**27.2**	ft H2O

Condenser Information

Altitude:	**5,300**	ft
Number of Fans:	**10**	
Total Condenser Fan Air Flow:	**145,000**	CFM
Entering Air Temperature:	**95.0**	°F

Sound/Capacity Optimization Information

Sound at:	**129.0**	Tons

Performance Information

Cooling Capacity:	**129.0**	Tons
Total Compressor Power:	**135.7**	kW
Total Fan Motor Power:	**6.830**	kW
Total Unit Power (without pump):	**145.1**	kW
Efficiency (without pump) (EER):	**10.67**	BTU/Wh
IPLV:.IP:	**19.97**	BTU/Wh

Integrated Pump Information

No Pump Selected

Accessories and Installed Options

Control Transformer
Sound/Capacity Optimization Option
Flooded Evaporator, 2 pass for Brine Application, w/ Heater
Coil T Panel (Header side), Grilles(sides), Upper Hail Guards (End)
R-513A
Low Ambient Head Pressure Control
Display Heater for Control Panel
High Tier

Electrical Information

Unit Voltage:	**208/230-3-60**	V-Ph-Hz
Connection Type:	**Single Point**	
Minimum Voltage:	**187**	Volts
Maximum Voltage:	**253**	Volts
SCCR:	**25**	kA

Amps	Electrical Circuit 1	Electrical Circuit 2
MCA	571.1	---
MOCP	700.0	---
Rec Fuse Size	700.0	---

Sound power measured in accordance with ANSI/AHRI Standard 370-2015.

Summary Performance Report For Screw

Project: Augustana Lutheran Church 10/25/2023
Prepared By: Andrew Cunningham 09:35PM

Outside the scope of AHRI Air-Cooled Water-Chilling Packages Certification Program or not optionally certified, but is rated in accordance with AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI).

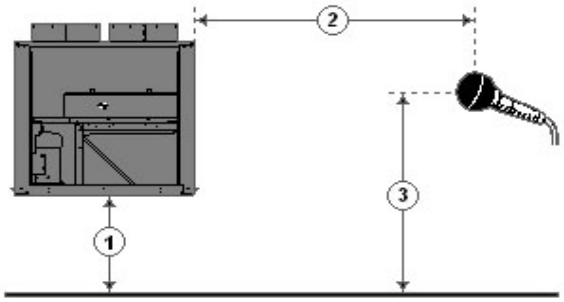
Summary Performance Report For Screw

Project: Augustana Lutheran Church 10/25/2023
Prepared By: Andrew Cunningham 09:35PM

Acoustic Information

Unit Parameters

Tag Name: **Screw**
Model Number: **30XV140H**
Condenser Type: **Air Cooled**
Compressor Type: **VFD Screw**
Chiller Nameplate Voltage: **208/230-3-60** V-Ph-Hz
Quantity: **1**
Manufacturing Source: **Charlotte, NC USA**
Refrigerant: **R-513A**
Shipping Weight: **12353** lb
Operating Weight: **12541** lb
Refrigerant Weight (Circuit A): **144** lb
Refrigerant Weight (Circuit B): **148** lb
Unit Length: **255** in
Unit Width: **88** in
Unit Height: **99** in



1 - Chiller Height Above Ground
2 - Horizontal Distance From Chiller to Receiver
3 - Receiver Height Above Ground
(See Note 3)

Sound/Capacity Optimization Information

Sound at: **129.0** Tons

Accessories and Installed Options

Control Transformer
Sound/Capacity Optimization Option
Flooded Evaporator, 2 pass for Brine Application, w/ Heater
Coil T Panel (Header side), Grilles(sides), Upper Hail Guards (End)
R-513A
Display Heater for Control Panel

Acoustic Information

Table 1. A-Weighted Sound Power Levels (dB re 1 picowatt). See note #1.

Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k	8k	Overall
100% Load	63	75	79	92	91	91	85	75	97
75% Load	59	70	82	87	87	84	75	72	92
50% Load	56	64	78	81	81	76	68	69	85
25% Load	52	60	75	77	78	72	65	65	82

Table 2. A-Weighted Sound Pressure Levels (dB re 20 micropascals) calculated based upon user defined input for dimensions 1, 2 and 3 as shown in above diagram. See note #2 and #3.

Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k	8k	Overall
100% Load	34	46	50	63	62	62	56	46	67
75% Load	30	41	53	58	58	55	46	43	63
50% Load	27	35	49	51	52	47	39	40	56
25% Load	23	31	46	48	48	43	35	36	53

Notes: (1) Measurements performed in accordance with AHRI Standard 370-2015 for air cooled Chillers.
(2) Chiller is assumed to be a point source on a reflecting plane.
(3) Without user defined input, the default dimensions used to construct Table 2 are as follows:
1 - Chiller Height Above Ground = 0.0 ft
2 - Horizontal Distance From Chiller to Receiver = 30.0 ft
3 - Receiver Height Above Ground = 3.0 ft

Please refer to Performance Output Summary or Detailed Performance Report for Acoustic information

Detailed Performance Summary For Screw

Project: Augustana Lutheran Church 10/25/2023
Prepared By: Andrew Cunningham 09:35PM

AquaForce™ Air-Cooled Variable Speed Screw Chiller

Unit Information

Tag Name:	**Screw**	
Model Number:	**30XV140H**	
Condenser Type:	**Air Cooled**	
Compressor Type:	**VFD Screw**	
Nameplate Voltage:	**208/230-3-60**	V-Ph-Hz
Quantity:	**1**	
Manufacturing Source:	**Charlotte, NC USA**	
ASHRAE 90.1:	**2022 path A/B & older**	
Refrigerant:	**R-513A**	
Minimum Capacity:	**17.33**	%
Shipping Weight:	**12353**	lb
Operating Weight:	**12541**	lb
Refrigerant Weight (Circuit A):	**144**	lb
Refrigerant Weight (Circuit B):	**148**	lb
Unit Length:	**255**	in
Unit Width:	**88**	in
Unit Height:	**99**	in
Required Pad Length:	**235**	in
Minimum Outdoor Operating Temp:	**-20.0**	°F

Performance Information

Cooling Capacity:	**129.0**	Tons
Total Compressor Power:	**135.7**	kW
Total Fan Motor Power:	**6.830**	kW
Total Unit Power (without pump):	**145.1**	kW
Efficiency (without pump) (EER):	**10.67**	BTU/Wh

Evaporator Information

Fluid Type:	**Propylene Glycol**	
Brine Concentration:	**30.00**	%
Fouling Factor:	**0.000100**	(hr-sqft-F)/BTU
Leaving Temperature:	**44.00**	°F
Entering Temperature:	**54.45**	°F
Fluid Flow:	**309.6**	gpm
Fluid Flow Min:	**145.4**	gpm
Fluid Flow Max:	**682.0**	gpm
Pressure Drop:	**27.2**	ft H2O

Condenser Information

Altitude:	**5,300**	ft
Number of Fans:	**10**	
Total Condenser Fan Air Flow:	**145,000**	CFM
Entering Air Temperature:	**95.0**	°F

Sound/Capacity Optimization Information

Sound at:	**129.0**	Tons

Integrated Pump Information

No Pump Selected

Accessories and Installed Options

Control Transformer
Sound/Capacity Optimization Option
Flooded Evaporator, 2 pass for Brine Application, w/ Heater
Coil T Panel (Header side), Grilles(sides), Upper Hail Guards (End)
R-513A
Low Ambient Head Pressure Control
Display Heater for Control Panel
High Tier

Electrical Information

Unit Voltage:	**208/230-3-60**	V-Ph-Hz
Connection Type:	**Single Point**	
Minimum Voltage:	**187**	Volts
Maximum Voltage:	**253**	Volts
SCCR:	**25**	kA

Amps	Electrical Circuit 1	Electrical Circuit 2
MCA	571.1	---
MOCP	700.0	---
Rec Fuse Size	700.0	---

Detailed Performance Summary For Screw

Project: Augustana Lutheran Church 10/25/2023
Prepared By: Andrew Cunningham 09:35PM

Integrated Part Load Value (AHRI)

IPLV.IP: **19.97** BTU/Wh

Unit Performance				
Percent of Full Load Capacity, %	100.00	75.00	50.00	25.00
Percent of Full Load Power, %	100.00	53.65	25.15	10.35
Unloading Sequence	A	A	A	A
Cooling Capacity, Tons	132.7	99.49	66.33	33.16
Total Unit Power, kW	142.0	76.20	35.72	14.70
Efficiency (EER), BTU/Wh	11.21	15.67	22.28	27.07
Evaporator Data				
Fluid Entering Temperature, °F	54.00	51.28	48.85	46.43
Fluid Leaving Temperature, °F	44.00	44.00	44.00	44.00
Fluid Flow Rate, gpm	326.3	326.3	326.3	326.3
Fouling Factor, (hr-sqft-F)/BTU	0.000100	0.000100	0.000100	0.000100
Pressure Drop, psi	12.6	12.6	12.6	12.7
Condenser Data				
Entering Air Temperature, °F	95.0	80.0	65.0	55.0

Sound power measured in accordance with ANSI/AHRI Standard 370-2015.
Outside the scope of AHRI Air-Cooled Water-Chilling Packages Certification Program or not optionally certified, but is rated in accordance with AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI).

Detailed Performance Summary For Screw

Project: Augustana Lutheran Church 10/25/2023
Prepared By: Andrew Cunningham 09:35PM

Unit Parameters

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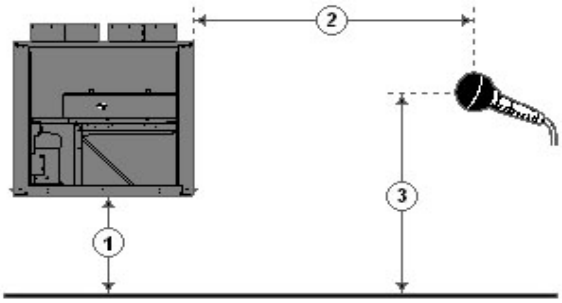
Compressor Type: **VFD Screw**
Chiller Nameplate Voltage: **208/230-3-60** V-Ph-Hz
Quantity: **1**
Manufacturing Source: **Charlotte, NC USA**
Refrigerant: **R-513A**
Shipping Weight: **12353** lb
Operating Weight: **12541** lb
Refrigerant Weight (Circuit A): **144** lb
Refrigerant Weight (Circuit B): **148** lb
Unit Length: **255** in
Unit Width: **88** in
Unit Height: **99** in
Required Pad Length: **235** in



1 - Chiller Height Above Ground
2 - Horizontal Distance From Chiller to Receiver
3 - Receiver Height Above Ground
(See Note 3)

Sound/Capacity Optimization Information

Sound at: **129** Tons

Accessories and Installed Options

Control Transformer
Sound/Capacity Optimization Option
Flooded Evaporator, 2 pass for Brine Application, w/ Heater

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75% Load	30	41	53	58	58	55	46	43	63
50% Load	27	35	49	51	52	47	39	40	56
25% Load	23	31	46	48	48	43	35	36	53

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3 - Receiver Height Above Ground = 3.0 ft