SUBMITTAL

Project

~Untitled27

Date

General Contractor

Mechanical Contractor

Mechanical Engineer

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Project: ~Untitled27 01/25/2011
Prepared By: 02:23PM

60 ton

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Unit Report For 60 ton

Project: ~Untitled27 01/25/2011
Prepared By: 02:23PM

Unit Information

Tag Name:	**60 ton**	
Model Number:	**30RAP060**	
Condenser Type:	**Air Cooled**	
Compressor Type:	**Scroll**	
Nameplate Voltage:	**208/230-3-60**	V-Ph-Hz
Quantity:	**1**	
Manufacturing Source:	**Charlotte, NC USA**	
Refrigerant:	**R410A**	
Independent Refrigerant Circuits:	**2**	
Capacity Control Steps:	**4**	
Minimum Capacity:	**25.0**	%
Shipping Weight:	**2924**	lb
Operating Weight:	**2719**	lb
Unit Length:	**89**	in
Unit Width:	**93**	in
Unit Height:	**79**	in

Accessories and Installed Options

Cooler Heater
Micro Channel, E-Coat
Ultra Low Sound
Single Pump, 7.5 HP
Low Sound Compressor Blankets
Vibration Isolation Package

Warranty Information (Note: for US & Canada only)

First Year - Parts Only (Standard)
Compressor Years 2-5 Parts & Carrier CCS Labor

Ordering Information

Part Number	Description	Quantity
30RAP0605K-70100	Packaged Chiller	1
	Base Unit	
	Cooler Heater	
	Micro Channel, E-Coat	
	Ultra Low Sound	
	Single Pump, 7.5 HP	
38AP-900---009	Low Sound Compressor Blankets	4
30RA-900---005	Vibration Isolation Package	1

UNIT	CENTER OF GRAVITY		UNIT HEIGHT		VICTAULIC CONNECTIONS
	X	Y	H (STANDARD)	H (VALUE SOUND)	WATER IN/OUT
30RA035	36.45 [926]	46.08 [1170]	66.5 [1689]	61.0 [1549]	2-1/2"
30RA040	36.24 [921]	44.03 [1118]	66.5 [1689]	61.0 [1549]	2-1/2"
30RA045	36.24 [921]	46.15 [1172]	78.5 [1994]	73.0 [1854]	2-1/2"
30RA050	36.00 [914]	44.00 [1118]	78.5 [1994]	73.0 [1854]	2-1/2"
30RA055	36.48 [927]	44.60 [1133]	78.5 [1994]	73.0 [1854]	2-1/2"
30RA060	36.50 [927]	44.56 [1132]	78.5 [1994]	73.0 [1854]	2-1/2"

NOTES:

1. DO NOT CAP OR OTHERWISE OBSTRUCT THE LIQUID LINE TEMPERATURE RELIEF.
2. Ø7/8 [22.4] PILOT HOLE PROVIDED FOR LOCATING FIELD POWER WIRING. ACTUAL HOLE REQUIRED DEPENDS ON FIELD WIRE SIZING.
3. Ø0.437 [11.10] HOLE USED FOR MOUNTING UNIT.
4. UNIT MUST HAVE CLEARANCES AS FOLLOWS:
   TOP - DO NOT RESTRICT.
   COIL SIDE - 42 [1067] FROM SOLID SURFACE.
   PANEL SIDE - 48 [1219] PER NEC.
5. SEE TABLE COLUMN H; DIMENSION FOR STANDARD FAN OR VALUE SOUND FAN OPTION.
6. CARRIER DOES NOT RECOMMEND INSTALLATION IN A PIT.
7. UNIT CAN BE HANDLED USING THE FORK TRUCK LIFT POCKETS (MINIMUM OF 60" FORK LENGTH).
8. WATER CONNECTIONS RECESSED 4-1/2 INCHES INSIDE UNIT.

DIMENSIONS IN [ ] ARE IN MILLIMETERS

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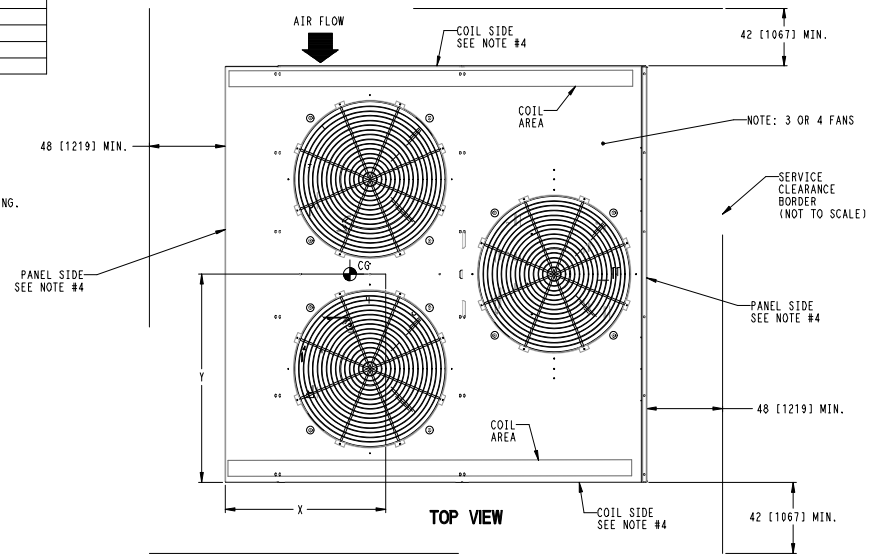
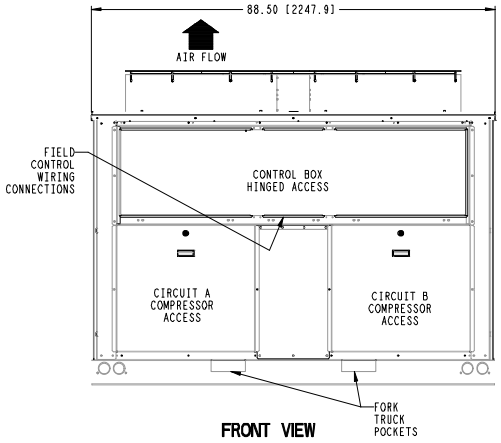
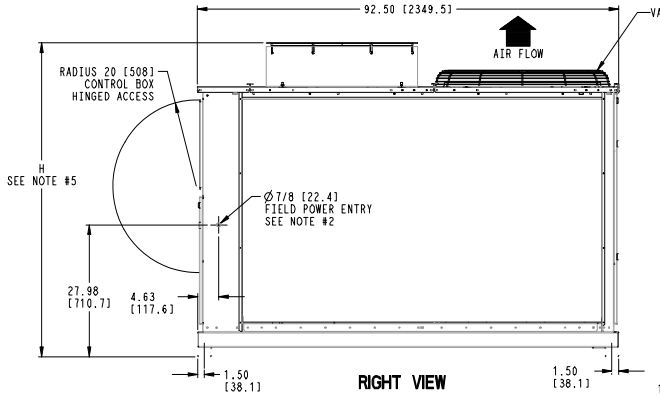


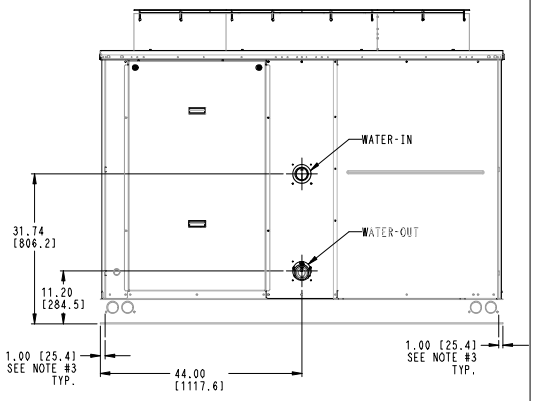
TOP VIEW



FRONT VIEW



RIGHT VIEW



REAR VIEW

DATE	SUPERCEDES			REV
08/20/09	-	UNIT ASSY	30RA555556	1.5

NOTES:

1. FACTORY WIRING IS IN ACCORDANCE WITH UL 1995 STANDARDS. FIELD MODIFICATIONS OR ADDITIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
2. ALL UNITS OR MODULES HAVE SINGLE POINT PRIMARY POWER CONNECTION. MAIN POWER MUST BE SUPPLIED FROM A FIELD OR FACTORY SUPPLIED DISCONNECT.
3. WIRING FOR MAIN FIELD SUPPLY MUST BE RATED 75C. USE COPPER CONDUCTORS ONLY.
   a. INCOMING WIRE SIZE RANGE FOR TERMINAL BLOCK WITH MCA UPTO 175 AMPS IS 14 AWG (AMERICAN WIRE GAGE) TO 2/0.
   b. INCOMING WIRE SIZE RANGE FOR TERMINAL BLOCK WITH MCA FROM 175.1 AMPS TO 420 AMPS IS 2 AWG (AMERICAN WIRE GAGE) TO 600 KCMIL.
   c. INCOMING WIRE SIZE RANGE FOR NON-FUSED DISCONNECT WITH MCA UPTO 100 AMPS IS 14 AWG (AMERICAN WIRE GAGE) TO 1/0.
   d. INCOMING WIRE SIZE RANGE FOR NON-FUSED DISCONNECT WITH MCA FROM 100.1 AMPS TO 200 AMPS IS 6 AWG (AMERICAN WIRE GAGE) TO 350 KCMIL.
   e. INCOMING WIRE SIZE RANGE FOR NON-FUSED DISCONNECT WITH MCA FROM 200.1 AMPS TO 450 AMPS IS 3/0 TO 500 KCMIL.
4. REFER TO CERTIFIED DIMENSIONAL DRAWINGS FOR EXACT LOCATIONS OF THE MAIN POWER AND CONTROL POWER ENTRANCE LOCATIONS.
5. TERMINALS 21 AND 25 OF THE LVT ARE FOR CONTROL OF CHILLED WATER PUMP1 (CWP1) STARTER. TERMINALS 21 AND 24 OF THE LVT ARE FOR CONTROL OF CHILLED WATER PUMP2 (CWP2) STARTER. THE MAXIMUM LOAD ALLOWED FOR THE CHILLED WATER PUMP RELAY IS 5 VA SEALED, 10 VA INRUSH AT 24 V. FIELD POWER SUPPLY IS NOT REQUIRED.
6. TERMINALS 18 AND 21 OF LVT ARE FOR AN ALARM RELAY. THE MAXIMUM LOAD ALLOWED FOR THE ALARM RELAY IS 5 VA SEALED, 10 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
7. MAKE APPROPRIATE CONNECTIONS TO LVT AS SHOWN FOR ENERGY MANAGEMENT BOARD OPTIONS. THE CONTACTS FOR DEMAND LIMIT AND ICE DONE OPTIONS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 MA. INSTALLATION OF OPTIONAL ENERGY MANAGEMENT BOARD REQUIRED.
8. REMOVE JUMPER BETWEEN TERMINALS 11 AND 17 WHEN FIELD CWPI IS INSTALLED.
9. TERMINALS 13 & 14 OF TB5 ARE FOR FIELD EXTERNAL CONNECTIONS FOR REMOTE ON-OFF. THE CONTACTS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50MA.

LEGEND:

ALM R	- ALARM RELAY (24V) 5 VA MAX
AWG	- AMERICAN WIRE GAUGE
CWP	- CHILLED WATER PUMP
CWPI	- CHILLED WATER PUMP INTERLOCK
EMM	- ENERGY MANAGEMENT MODULE
LVT	- LOW VOLTAGE TERMINAL STRIP
SPT	- SPACE TEMPERATURE

FIELD POWER WIRING
FIELD CONTROL WIRING
FACTORY INSTALLED WIRING
FACTORY INSTALLED OPTION

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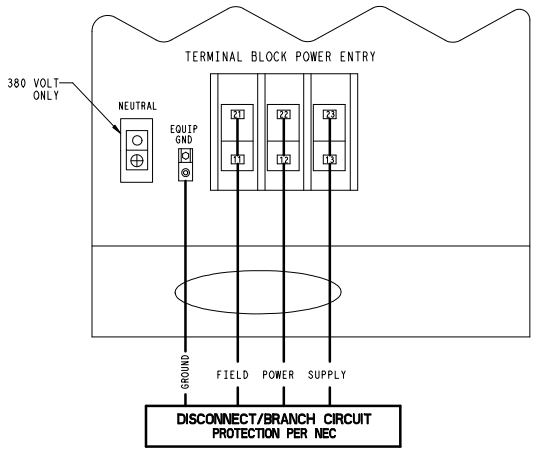
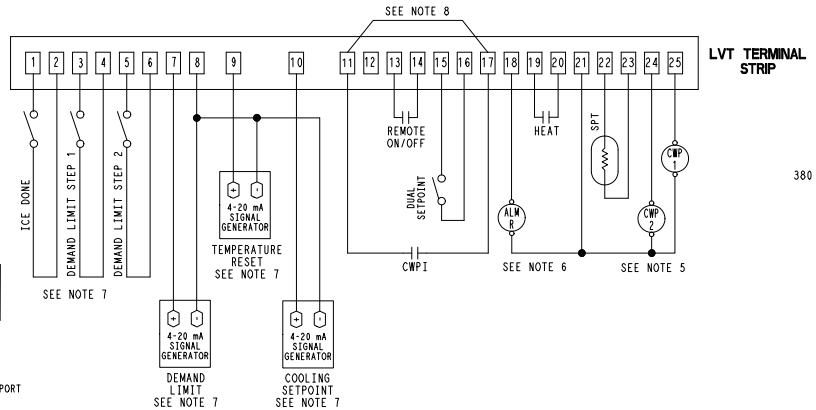
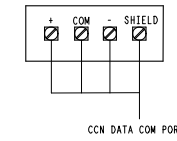


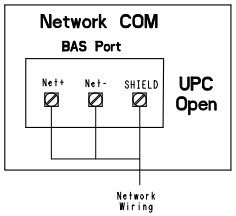
TERMINAL BLOCK

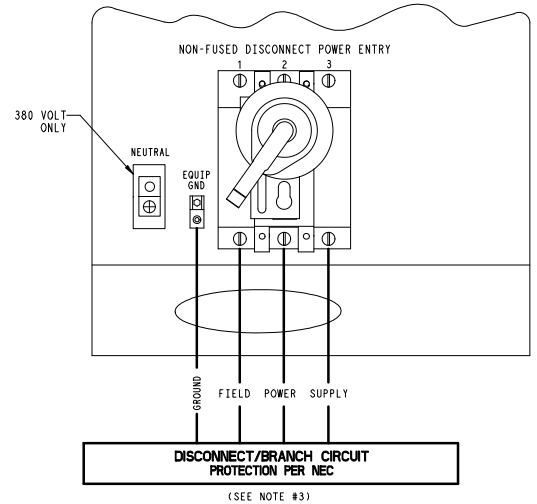
LVT CONTROL WIRING



COM WIRING







NON-FUSED DISCONNECT

DATE	SUPERCEDES		
10/20/10	04-22-10	30RAP010-060 ELECTRICAL	30RA555560	REV C

Summary Performance Report For 60 ton

Project: ~Untitled27 01/25/2011
Prepared By: 02:23PM

AquaSnap™ Air-Cooled Scroll Chiller

Unit Information

Tag Name:	**60 ton**	
Model Number:	**30RAP060**	
Quantity:	**1**	
Manufacturing Source:	**Charlotte, NC USA**	
Refrigerant:	**R410A**	
Independent Refrigerant Circuits:	**2**	
Shipping Weight:	**2924**	lb
Operating Weight:	**2719**	lb
Unit Length:	**89**	in
Unit Width:	**93**	in
Unit Height:	**79**	in

Evaporator Information

Fluid Type:	**Fresh Water**	
Fouling Factor:	**0.00010**	(hr-sqft-F)/BTU
Leaving Temperature:	**44.0**	°F
Entering Temperature:	**54.0**	°F
Fluid Flow:	**132.7**	gpm
Pressure Drop:	**39.2**	ft

Condenser Information

Altitude:	**0**	ft
Number of Fans:	**4**	
Total Condenser Fan Air Flow:	**38800**	CFM
Entering Air Temperature:	**95.0**	°F

Integrated Pump Information

Dynamic Head At Pump:	**101.9**	ft
Internal Chiller Head Loss:	**39.2**	ft
Dynamic Head External To Chiller:	**62.7**	ft

Performance Information

Cooling Capacity:	**55.5**	Tons
Total Compressor Power:	**61.8**	kW
Total Fan Motor Power:	**5.36**	kW
Pump Power:	**5.68**	kW
Total Unit Power (without pump):	**67.1**	kW
Total Unit Power (with pump):	**72.8**	kW
Efficiency (without pump):	**9.92**	EER
A-Weighted Sound Power Level:	**88**	dbA

Accessories and Installed Options

Cooler Heater
Micro Channel, E-Coat
Ultra Low Sound
Single Pump, 7.5 HP
Low Sound Compressor Blankets
Vibration Isolation Package

Electrical Information

Unit Voltage:	**208/230-3-60**	V-Ph-Hz
Connection Type:	**Single Point**	

Amps	Electrical Circuit 1	Electrical Circuit 2
MCA	279.7	---
MOCP	300.0	---
ICF	525.9	---

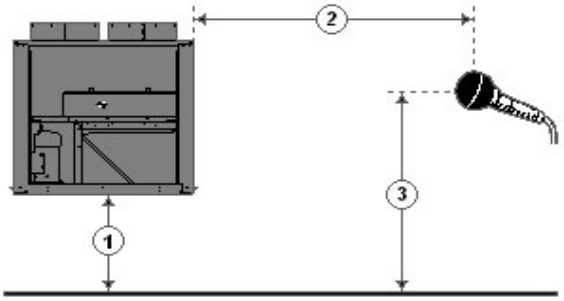
All performance efficiency data are without pump.
Certified in accordance with the AHRI Water-Chilling Packages using the Vapor Compression Cycle Certification Program, which is based on AHRI Standard 550/590-2003.
Sound power measured in accordance with ANSI/AHRI Standard 370-2001.

Acoustic Summary For 60 ton

Project: ~Untitled27 01/25/2011
Prepared By: 02:23PM

Unit Parameters

Tag Name:	**60 ton**	
Model Number:	**30RAP060**	
Condenser Type:	**Air Cooled**	
Compressor Type:	**Scroll**	
Chiller Nameplate Voltage:	**208/230-3-60**	V-Ph-Hz
Quantity:	**1**	
Manufacturing Source:	**Charlotte, NC USA**	
Refrigerant:	**R410A**	
Shipping Weight:	**2924**	lb
Operating Weight:	**2719**	lb
Unit Length:	**89**	in
Unit Width:	**93**	in
Unit Height:	**79**	in



1 - Chiller Height Above Ground
2 - Horizontal Distance From Chiller to Receiver
3 - Receiver Height Above Ground

Accessories and Installed Options

Cooler Heater	Single Pump, 7.5 HP
Micro Channel, E-Coat	38AP-900---009
Ultra Low Sound	30RA-900---005

Acoustic Information (Full Load)

Octave Band Center Frequency, Hz	31	63	125	250	500	1k	2k	4k	8k	Total
Sound pressure at specified distance in a free field, dB	43	55	55	52	53	53	48	43	36	61
A-Weighted Sound Pressure Level, dBA	4	28	39	44	49	53	49	44	35	56
Sound Power at Chiller Acoustic Center, dB	75	87	87	84	85	85	80	75	68	93
A-Weighted Sound Power, dBA	36	60	71	76	82	85	81	76	67	88

Notes

1 - Chiller Height Above Ground = 0.0 ft
2 - Horizontal Distance From Chiller to Receiver = 50.0 ft
3 - Receiver Height Above Ground = 0.0 ft
Estimated Sound Power levels - dB re: 1 picowatt
Estimated Sound Pressure levels - dB re: 20 micropascal
Estimated sound levels given above are assumed to originate at the acoustic center of the chiller.

Sound pressure level data used to develop this program was determined in accordance with AHRI Standard 575 for water chillers in a free field and ANSI/AHRI Standard 370 for air cooled chillers.

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.

Detailed Performance Summary For 60 ton

Project: ~Untitled27 01/25/2011
Prepared By: 02:23PM

Unit Information

Tag Name:	**60 ton**	
Model Number:	**30RAP060**	
Condenser Type:	**Air Cooled**	
Compressor Type:	**Scroll**	
Nameplate Voltage:	**208/230-3-60**	V-Ph-Hz
Quantity:	**1**	
Manufacturing Source:	**Charlotte, NC USA**	
Refrigerant:	**R410A**	
Capacity Control Steps:	**4**	
Minimum Capacity:	**25.0**	%
Shipping Weight:	**2924**	lb
Operating Weight:	**2719**	lb
Unit Length:	**89**	in
Unit Width:	**93**	in
Unit Height:	**79**	in
Minimum Outdoor Operating Temp:	**32**	°F

Performance Information

Cooling Capacity:	**55.5**	Tons
Total Compressor Power:	**61.8**	kW
Total Fan Motor Power:	**5.36**	kW
Pump Power:	**5.68**	kW
Total Unit Power (without pump):	**67.1**	kW
Total Unit Power (with pump):	**72.8**	kW
Efficiency (without pump):	**9.92**	EER

Acoustics Information

A-Weighted Sound Power Level:	**88**	dbA

Evaporator Information

Fluid Type:	**Fresh Water**	
Fouling Factor:	**0.00010**	(hr-sqft-F)/BTU
Leaving Temperature:	**44.0**	°F
Entering Temperature:	**54.0**	°F
Fluid Flow:	**132.7**	gpm
Pressure Drop:	**39.2**	ft

Condenser Information

Altitude:	**0**	ft
Number of Fans:	**4**	
Total Condenser Fan Air Flow:	**38800**	CFM
Entering Air Temperature:	**95.0**	°F

Electrical Information

Unit Voltage:	**208/230-3-60**	V-Ph-Hz
Connection Type:	**Single Point**	

Amps	Electrical Circuit 1	Electrical Circuit 2
MCA	279.7	---
MOCP	300.0	---
ICF	525.9	---

Integrated Pump Information

Dynamic Head At Pump:	**101.9**	ft
Internal Chiller Head Loss:	**39.2**	ft
Dynamic Head External To Chiller:	**62.7**	ft

Detailed Performance Summary For 60 ton

Project: ~Untitled27 01/25/2011
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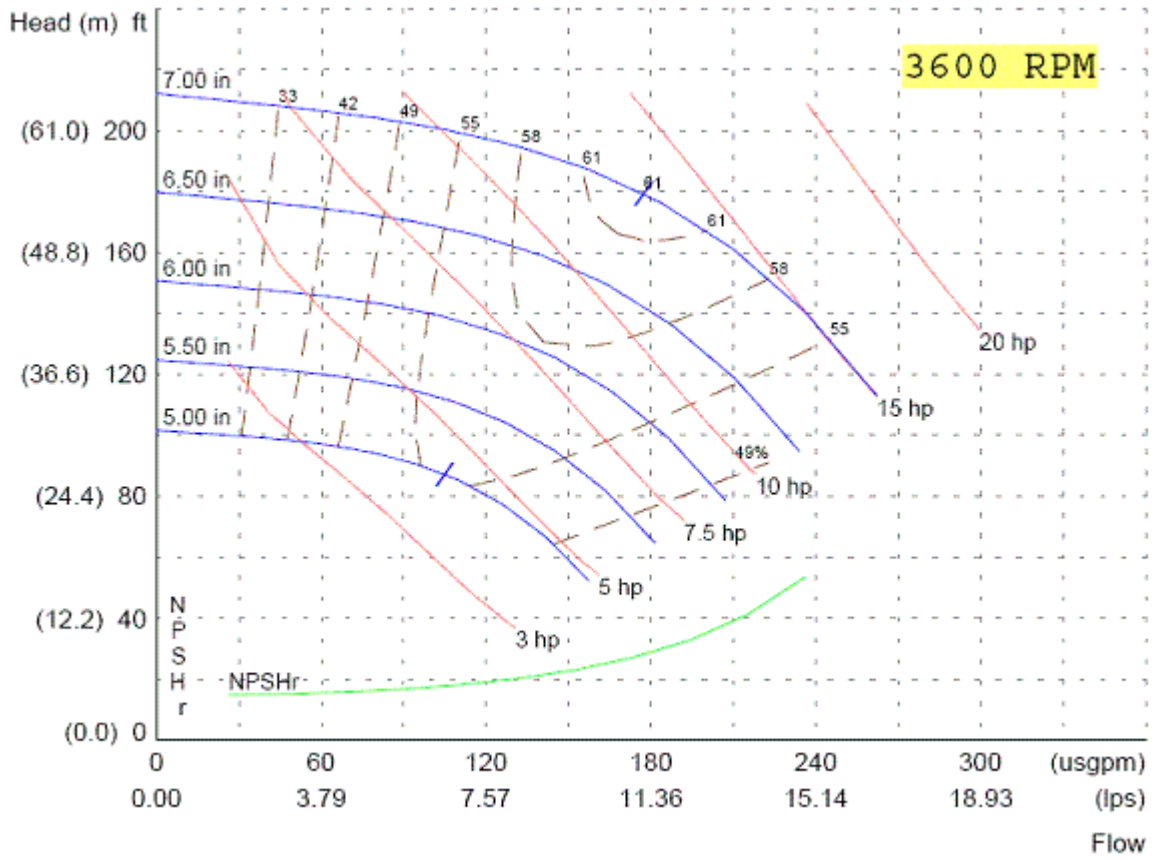

Accessories and Installed Options

Cooler Heater
Micro Channel, E-Coat
Ultra Low Sound
Single Pump, 7.5 HP
Low Sound Compressor Blankets
Vibration Isolation Package

Integrated Part Load Value (ARI)

IPLV: **14.28** EER

Unit Performance				
Percent of Full Load Capacity, %	100	75	50	25
Percent of Full Load Power, %	100.0	69.8	52.2	24.9
Unloading Sequence	A	A	A	A
Cooling Capacity, Tons	55.5	41.6	27.7	13.9
Total Unit Power, kW	67.1	46.8	35.0	16.7
Efficiency, EER	9.92	13.50	15.16	14.08
Evaporator Data				
Fluid Entering Temperature, °F	54.0	51.5	49.0	46.5
Fluid Leaving Temperature, °F	44.0	44.0	44.0	44.0
Fluid Flow Rate, gpm	133.1	133.1	133.1	133.1
Fouling Factor, (hr-sqft-F)/BTU	0.0001	0.0001	0.0001	0.0001
Condenser Data				
Entering Air Temperature, °F	95.0	80.0	65.0	55.0

For some 75% operating points, the efficiency may be calculated at a condenser inlet air operating temperature as much as 0.8 degrees higher.

All performance efficiency data are without pump.
Certified in accordance with the AHRI Water-Chilling Packages using the Vapor Compression Cycle Certification Program, which is based on AHRI Standard 550/590-2003.
Sound power measured in accordance with ANSI/AHRI 370-2001.