AHRI CERTIFICATION PROGRAM FOR FORCED CIRCULATION AIR-COOLING AND AIR-HEATING COILS - COIL INPUTS FORM

Purpose of Form: **Qualification of new BMG**

AHRI Reference No.:
Manufacturer: A.C HUMIDIN AIR SYSTEMS PVT LTD
Coil Model No.: 102522_SW_G_DX 20T 4NR 586.74A 2.12P 4NC
Attached Output File Name:

Coil Information:

Function: Cooling
Fluid: Volatile Refrigerant R-410A
Continuous Circuit Typ

Physical Coil Data

a	Length, Finned (mm.)		586.74	e	Tubes	1	Nom. O.D.	9.54 MM
b	Height (mm.)		508			2	Material	COPPER
c	Face Area (sq. ft.)		3.21			3	No. Rows	4
d	Fins	1	Configuration: Sine Wave			4	No. Circuits	4
		2	Material: AL			5	Spacing (S_f / S_r)	25.4/22 mm
		2	Thickness: 0.12			6	No. Tubes	20
		3	Spacing (FPI): 12			7	Internal Construction	Internally Groved Tube (IGT)
		4	Fin Collars: Full			8	Header	28x1 [1 1/8"]

AHRI Certified Rating Conditions (Standard Barometric Pressure 29.92 in. Hg)

Entering Conditions:		Leaving Conditions:	
Air (°F) DB	80	Air (°F) DB	55.8
Air (°F) WB	67	Air (°F) WB	54.4
Air Face Velocity (fpm)	499	Total Air Volume (cfm)	1600
Design Saturated Condensing Temp (°F)	110	Saturated Suction Ref Temp, Coil Outlet (°F)	45
Subcooled Refrigerant Liquid Temp (°F)	100	Suction Vapor Superheat, Coil Outlet (°F)	10

AHRI Certified Ratings Obtained:

1. Total Coil Capacity (Btu/h): 61,256
2. Sensible Coil Capacity (Btu/h): 41,583
3. Coil Pressure Drop:
   a. Air-Side (in. H2O): 0.487

Selection Method/Information:

Software Name: Unilab coils
Software Version No.: 8

Request by:

Name: Vibhor Gupta
Title: Director
Company: A.C HUMIDIN AIR SYSTEMS PVT LTD
Phone: 9654452921
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Date: 4/29/2022

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STEADY-STATE HEATING TEST WITH REFRIGERANT ENTHALPY
AHRI 410 - 2001: Forced-Circulation Air-Cooling and Air-Heating Coils
ASHRAE 33 - 2000, ASHRAE Fundamentals 2013, NIST REFPROP Library 9.1

V01:2014/12/31

PROJECT / UUT INFORMATION

Project / Task:	G104948227	Test Duration:	1800	Ratings:	
AHRI # / Ref#:	PVT	Refrigerant:	R410A	Capacity:	61,256.00 [btu/hr]
Manufacturer:	HUMIDIN	Heat/Cool:	COOLING	APD:	0.49 [inH2O]
Model Number:	102522_SW_G_DX 20T 4NR 586.74A 2.12P 4 NC	Test File:	Cool_ACHC_8k_DX	Air Flow:	1,600.00 [CFM]
Serial Number:					
Test Date/Time:	8/25/2022 16:27				
Technician:	JAC				

TEST DATA G104948227_CRTHVAC08b_4253

AIR SIDE:

	Indoor		Nozzle Ø: ID
Barometer:	28.86	[inHg]	0.00
Inlet Dry Bulb:	79.99	[°F]	0.00
Inlet Wet Bulb:	66.93	[°F]	0.00
Outlet Dry Bulb:	56.51	[°F]	4.98
Outlet Wet Bulb:	55.43	[°F]	0.00
Noz Temp:	56.51	[°F]	5.99
Ambient:	86.71	[°F]	
Static at Inlet:	0.03	[inH2O]	
Unit Pressure Drop:	0.59	[inH2O]	
Noz Diff Pressure:	1.47	[inH2O]	
Before Noz Pressure:	-0.74	[inH2O]	
Air Flow:	1,599.82	[CFM]	

Refrigerant:

	High-side	Low-side	
Temperature:	100.67	55.07	[°F]
Pressure:	368.47	130.07	[PSIG]
Oil Weight Ratio:	0.99		[%]
Mass Flow Rate:	793.39		[lb/hr]

Coil Dimensions:

	Width	Height	
Size:	23.13	20.00	[in]
Total Face Area:	3.21		[ft^2]
FPI:	12.000		

CALCULATION

INDOOR AIR ENTHALPY

	Inlet	Outlet	Nozzle	
Spec Volume {v'n}:			13.6956	
Humidity Ratio {W}:	0.01165	0.00944	0.00944	
Enthalpy {h}:	31.97	23.79		
Absolute Static Pressure:	28.842			[inHg]
Average Air Density:	0.07248			[lb/cf]
Outlet Duct Leakage:	7.7892			[BTU/hr-F]
Inlet Duct Leakage:	1.7392			[BTU/hr-F]
Air Flow:	117			[lb dry air/min]
Standard Air Flow:	1,564			[SCFM]
Sensible Capacity:	40,393			[btu/hr]
Total Air Side Capacity:	57,244			[btu/hr]
Air Pressure Drop:	0.566			[in WG]
Average Capacity	56,899			[btu/hr]

INDOOR REFRIGERANT ENTHALPY

	High-side	Low-side	
State:	LIQUID	VAPOR	[L/V]
Spec enthalpy, h:	112.95	184.95	[btu/lb]
Spec density, rho:	62.19	2.29	[cf/lb]
Spec heat, Cp:	0.45	0.27	[Btu/lb·°F]
Sat Temp @P, Tsat:	110.30	44.77	[°F]
Sat Press @T, Psat:	336.31	170.85	[PSIA]
SC/SH:	9.63	10.30	[°F]
ID Total Ref Capacity:	56,553		[btu/hr]
Heat Balance:	1.21%		[%]

Percent Rated AirFlow:	99.99%	[%]
Percent Rated Capacity:	92.89%	[%]
Percent Rated APD:	116.22%	[%]

NOTES

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Project / Task:	G104948227	Manufacturer:	HUMIDIN
AHRI # / Ref#:	PVT	Model Number:	102522_SW_G_DX 20T 4NR 586.74A 2.12P 4 NC
Test Date/Time:	8/25/22 4:27 PM	Serial Number:	

TEST DATA G104948227_CRTHVAC08b_4253

Channel Name	Minimum	Maximum	Delta	Average	Units
Barometer	28.86	28.87	0.01	28.86	inHg
Air Inlet Dry Bulb	79.91	80.06	0.14	79.99	degF
Air Inlet Wet Bulb	66.85	67.02	0.16	66.93	degF
Air Outlet Dry Bulb	56.47	56.58	0.11	56.51	degF
Air Outlet Wet Bulb	55.35	55.53	0.18	55.43	degF
Nozzle Temp	56.47	56.58	0.11	56.51	degF
ID Nozzle Delta P	1.47	1.48	0.01	1.47	inH2O
Nozzle Before P	-0.75	-0.73	0.02	-0.74	inH2O
UUT Delta P	0.58	0.60	0.01	0.59	inH2O
UUT Static P	0.03	0.03	0.00	0.03	inH2O
Ambient Air Temperature	86.31	87.03	0.72	86.71	degF
Coil Inlet Temp	100.26	100.93	0.67	100.67	degF
Coil Outlet Temp	52.28	56.48	4.20	55.07	degF
Refrigerant Flowrate	789.00	798.00	9.00	793.39	lb/hr
Liquid Pressure A	-0.12	-0.09	0.03	-0.12	PSIG
Suction Pressure A	1.76	1.80	0.03	1.78	PSIG
R-410A Liquid Press A	367.30	369.90	2.60	368.47	PSIG
R-410A Suction Press A	129.70	130.60	0.90	130.07	PSIG