SDi Decades Extreme HP Specifications

Up to 16 SEER2 / 9.5 HSPF2
R-410A VARIABLE SPEED
IoT TECHNOLOGY

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ODU Features

1. **Comfort.** Side Discharge Inverter (SDi) condensing units output flexible capacity from 28%-130% to achieve your desired temperature – no more, no less.
2. **Quiet.** Compressors are equipped with noise cancelling jacket.
3. **Free match.** SDi Decades Extreme condensing units are compatible with most traditional indoor air handlers / furnaces and 24VAC controlled thermostats.

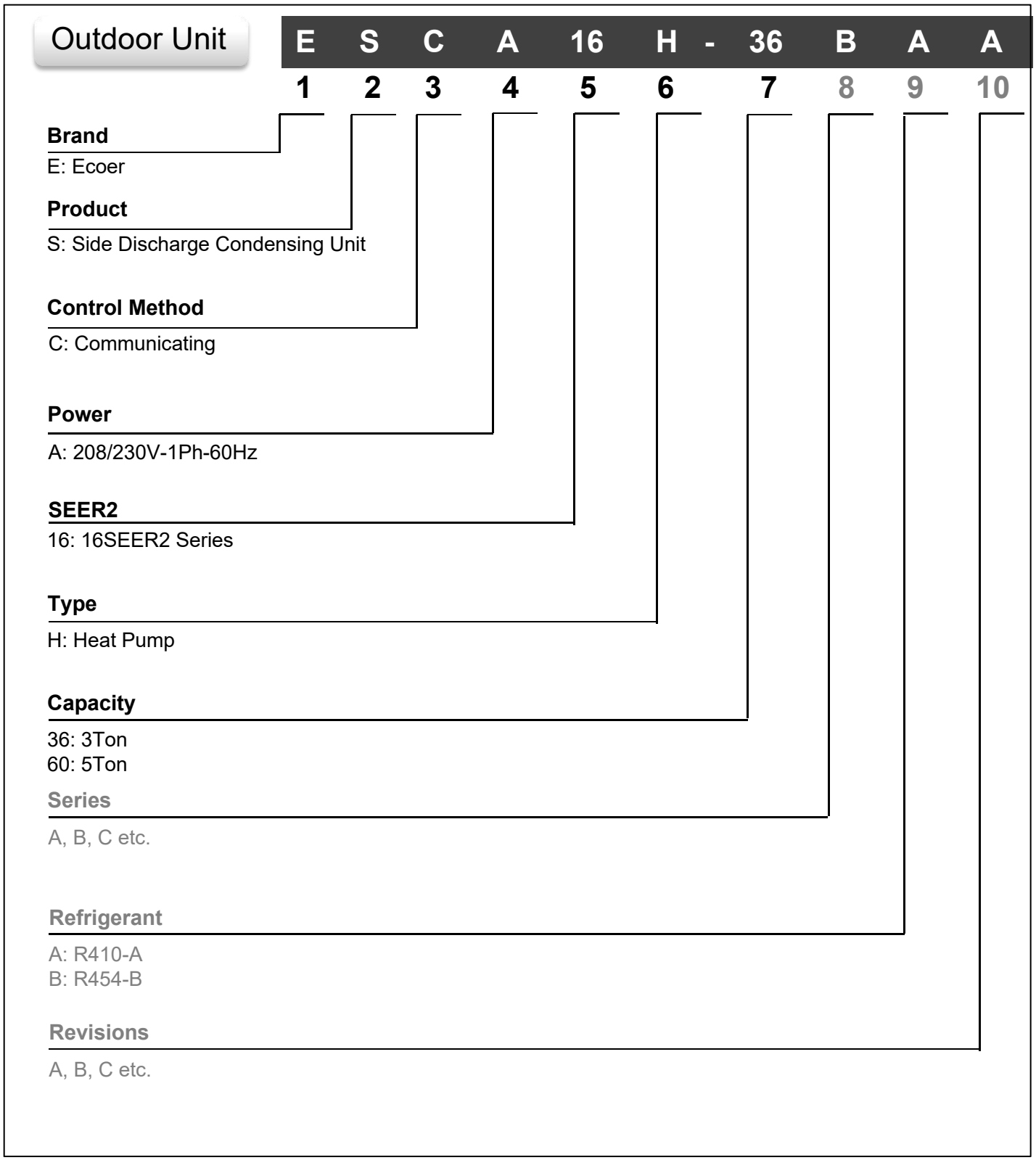
Ecoer IoT Features

1. 24/7 monitoring service (Up to 2 months history data on ESS Pro App).
2. Diagnostic and alerts service.
3. ESS Pro App reminds dealers and homeowners of valuable service.

AHU Features

1. Full Multi-position installation
2. Simplification of air volume adjustment proccess
2. Easy fault code checking
3. Two front panels (upper and lower) design for ease of maintenance.
4. Nitrogen Charge and Leakage Check Valve
5. Automatic Airflow Adjustment

1. Nomenclature



Indoor Unit

E	AH	A	E	C	-	36	B	A	A
1	2	3	4	5		6	7	8	9

Brand

E: Ecoer

Product

AH: Air Handler
FC: Fan Coil

Power

A: 208/230V-1Ph-60Hz

Metering device

T: TXV
E: EEV

Control Method

N: 24V Non-Communicating
C: Communicating

Capacity

36=3Ton
60=5Ton

Series

A, B, C etc.

Refrigerant

A: R410-A
B: R454-B

Revisions

A, B, C etc.

2. Dimensions

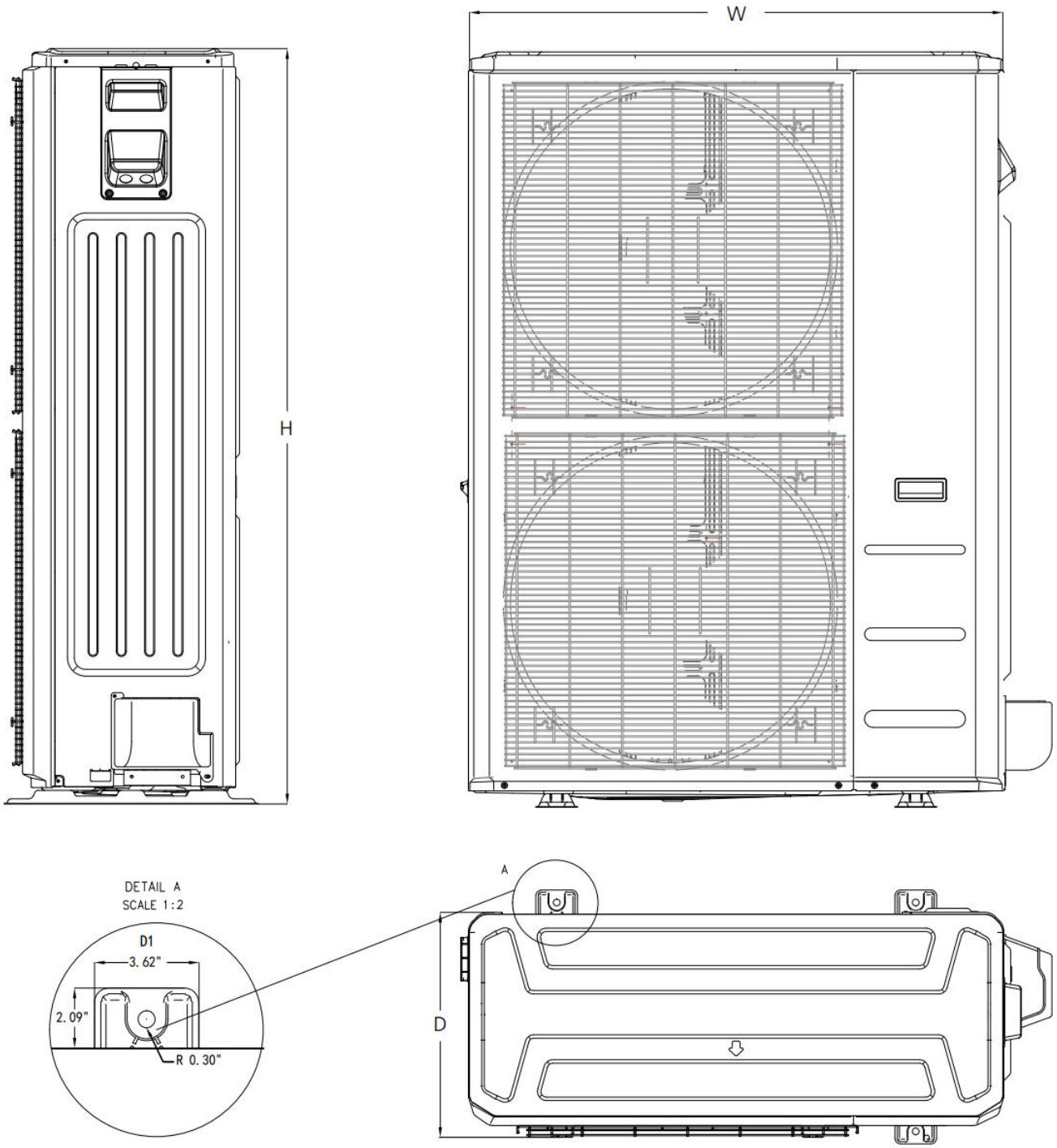


Fig 1. Condensing unit dimensions

Model	Dimensions (In. [mm])		
	H	W	D
36/60	52-1/2 [1333]	37-1/2 [952]	16-11/32 [415]

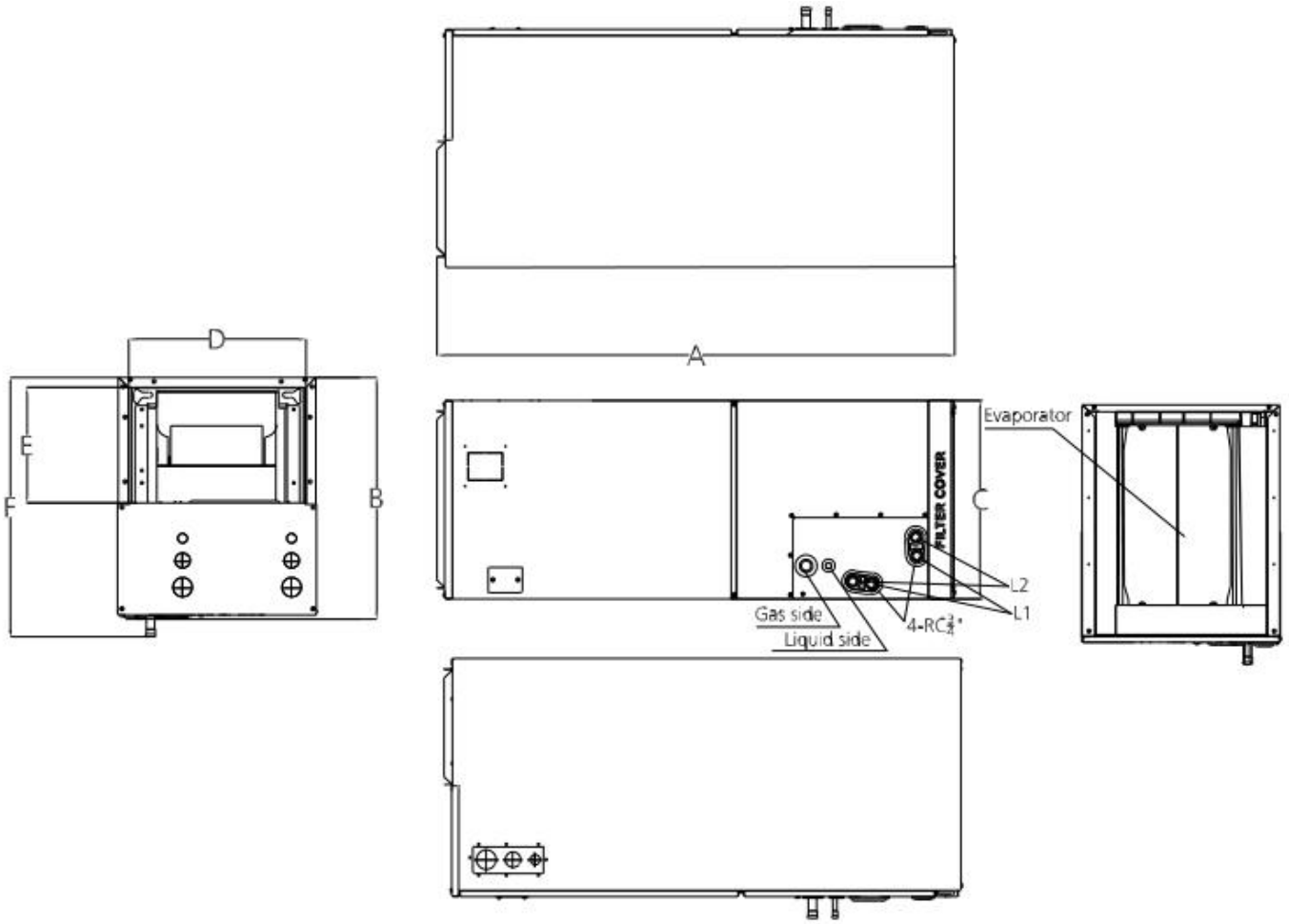


Fig 2. Air handler unit dimensions

Model	Dimension(in.[mm])						Drain hole	
	A	B	C	D	E	F	L1	L2
36k	49 [1245]	21 [534]	21 [534]	19-5/16 [490]	10-1/4 [260]	23 [585]	Primary	Secondary
60K	53 [1346]	21 [534]	24-1/2 [622]	22-7/8 [580]	10-1/4 [260]	23 [585]	Primary	Secondary

3. Product Data

Outdoor Unit Model	ESCA16H-36	ESCA16H-60
Combination	**3Ton**	**5Ton**
Indoor Unit Model	EAHAEC-36	EAHAEC-60
Capacity [1]		
Cooling(Standard conditions)(BTU/h)	36000	55000
EER2(BTU/h/W)	9.8	8.8
SEER2(BTU/h/W)	16	15.3
Heating(Standard conditions)(BTU/h)	40000	59000
HSPF2(BTU/h/W)	9.5	9.4
Heating(5℉)(BTU/h)	34400	48500
COP(5℉)(W/W)	1.97	1.91
Operation limit		
Cooling operation range	5~122℉	5~122℉
Heating operation range	-22~75℉	-22~75℉
Compressor		
RLA	32	26.2
Condenser Fan Motor Qty	2	2
Input(W)	126	126
Output(W)	85	85
RLA	1.2	1.2
Refrigeration System		
Refrigerant Line Size		
Liquid Line Size ("O.D.)	3/8"	3/8"
Suction Line Size ("O.D.)	3/4"	7/8"
Refrigerant Connection Size		
Liquid Line Size ("O.D.)	3/8"	3/8"
Suction Line Size ("O.D.)	3/4"	7/8"
Cooling Metering Device (Indoor Side)	EEV	EEV
Heating Metering Device	EEV	EEV
Maximum Line Length	213.25FT	213.25FT
Maximum Elevation Difference	98.4FT	98.4FT
Electrical Data		
Voltage-Phase-Hz	208/230-1-60	208/230-1-60
Minimum Circuit Ampacity [2]	41	42
Max. Over-current Protection [3]	50	60
Allowed Volts Range	187~253	187~253
Condenser Decibels [dB(A)] [4]	64	63.5
Equipment Weight (lbs)	227	240
Ship Weight (lbs) [5]	255.7	271.6

REMARKS:

1. Tested and rated in accordance with AHRI Standard 210/240-2022.
2. Wire size should be determined in accordance with National Electrical Codes.
3. Must use time-delay fuses or HACR-type circuit breakers of the same size as noted.
4. It may vary based on the actual installation status.
5. Weight shown includes packaging.

The constant airflow volume motor is applied .So the airflow volume is constant at all ESP within stated range

Capacity	External Static Pressure Range	Fan Speed	Electric Heater kit	24V Thermostat		Wired controller		Air Flow (CFM)
				DIP Switch	24V Terminal engaged	Dip Switch	Mode	
36K	0-0.8 in.wg.	Cooling Turbo	-	SW3-4=ON	Y2/Y	-	Cool	**1188**
		Cooling High	-	SW3-4=OFF	Y2/Y	-	Cool	**1082**
		Cooling Medium	-	-	Y1	-	Cool	**971**
		Cooling Low	-	-	-	-	Cool	**865**
		Heating Turbo	-	-	-	-	Heat	**1112**
		Heating High	-	-	B+Y2/Y, W	-	Heat	**1059**
		Heating Medium	-	-	Y1	-	Heat	**794**
		Heating Low	-	-	-	-	Heat	**582**
		E-heater 0 (Default)	20kW	SW4-1=OFF SW4-2=OFF SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=OFF	Heat+AUX, AUX	**1306**
		E-heater 1	15kW	SW4-1=OFF SW4-2=OFF SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=ON	Heat+AUX, AUX	**1241**
		E-heater 2	8/10kW	SW4-1=OFF SW4-2=ON SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=OFF	Heat+AUX, AUX	**1176**
		E-heater 3	5/8kW	SW4-1=OFF SW4-2=ON SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=ON	Heat+AUX, AUX	**1112**
60K	0-0.8 in.wg.	Cooling Turbo	-	SW3-4=ON	Y2/Y	-	Cool	**1806**
		Cooling High	-	SW3-4=OFF	Y2/Y	-	Cool	**1582**
		Cooling Medium	-	-	Y1	-	Cool	**1359**
		Cooling Low	-	-	-	-	Cool	**1135**
		Heating Turbo	-	-	-	-	Heat	**1659**
		Heating High	-	-	B+Y2/Y, W	-	Heat	**1582**
		Heating Medium	-	-	Y1	-	Heat	**1247**
		Heating Low	-	-	-	-	Heat	**976**
		E-heater 0 (Default)	25kW	SW4-1=OFF SW4-2=OFF SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=OFF	Heat+AUX, AUX	**2171**
		E-heater 1	15/20kW	SW4-1=OFF SW4-2=OFF SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=ON	Heat+AUX, AUX	**2029**
		E-heater 2	10/15kW	SW4-1=OFF SW4-2=ON SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=OFF	Heat+AUX, AUX	**1894**
		E-heater 3	10kW	SW4-1=OFF SW4-2=ON SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=ON	Heat+AUX, AUX	**1753**

4. Performance Sheet

COOLING-3TON

Cooling	Indoor Conditions	DB	65℉ (18.3℃)			70℉ (21.1℃)			75℉ (23.9℃)			80℉ (26.7℃)		
		WB	54℉ (12.2℃)			59℉ (15℃)			63℉ (17.2℃)			67℉ (19.4℃)		
	Capacity		TC	SC	Input	TC	SC	Input	TC	SC	Input	TC	SC	Input
Outdoor conditions (DB)	5℉	-15℃	43.37	30.69	1.84	45.42	31.97	1.81	47.56	33.31	1.79	49.54	34.48	1.78
	17℉	-8.3℃	46.07	33.00	2.17	48.50	34.58	2.16	51.48	36.53	2.18	54.02	38.14	2.18
	25℉	-3.9℃	45.81	33.24	2.46	48.68	35.12	2.47	51.13	36.70	2.46	53.88	38.47	2.47
	35℉	1.7℃	45.96	33.40	2.78	48.43	35.01	2.81	51.14	36.77	2.83	53.72	38.41	2.81
	47℉	8.3℃	43.48	33.19	2.68	46.16	35.03	2.68	48.85	36.84	2.71	51.80	38.85	2.73
	55℉	12.8℃	44.75	33.58	2.86	47.01	35.05	2.86	48.97	36.33	2.85	51.66	38.12	2.85
	65℉	18.3℃	43.60	33.58	2.99	45.56	34.90	2.95	48.42	36.89	2.96	51.51	38.99	2.98
	75℉	24℃	43.72	34.11	3.08	46.41	35.99	3.14	48.86	37.65	3.15	51.37	39.40	3.13
	80℉	26.7℃	43.27	33.18	3.21	45.83	34.96	3.24	48.25	36.63	3.24	51.22	38.67	3.27
	85℉	29.4℃	41.80	32.94	3.94	44.24	34.64	3.97	46.66	36.37	4.00	49.48	38.35	5.19
	95℉	35℃	40.50	32.99	5.56	43.04	34.90	5.59	45.02	36.34	5.61	47.49	38.09	5.56
	105℉	40.5℃	38.78	32.91	5.46	40.61	34.26	5.46	42.70	35.79	5.48	45.33	37.81	5.56
	110℉	43.3℃	36.03	32.19	5.51	38.13	33.85	5.48	40.18	35.45	5.44	42.74	37.49	5.45
	115℉	46℃	33.24	30.90	5.62	34.88	32.22	5.61	36.99	33.99	5.64	39.02	35.62	5.60
	122℉	50℃	29.84	29.73	5.80	31.54	31.30	5.78	33.31	32.92	5.75	34.84	34.28	5.69

TC: Total capacity (MBH) **SC:** Sensible capacity (MBH) **DB:** Dry bulb **WB:** Wet bulb

COOLING-5TON

Cooling	Indoor Conditions	DB	65℉ (18.3℃)			70℉ (21.1℃)			75℉ (23.9℃)			80℉ (26.7℃)		
		WB	54℉ (12.2℃)			59℉ (15℃)			63℉ (17.2℃)			67℉ (19.4℃)		
	Capacity		TC	SC	Input	TC	SC	Input	TC	SC	Input	TC	SC	Input
Outdoor conditions (DB)	5℉	-15℃	48.92	33.71	2.70	52.04	35.68	2.72	55.01	37.53	2.73	57.67	39.16	2.72
	17℉	-8.3℃	54.46	38.37	3.31	56.73	39.75	3.24	59.65	41.54	3.24	62.79	43.45	3.22
	25℉	-3.9℃	54.73	39.46	3.44	57.01	40.92	3.43	59.51	42.49	3.38	63.24	44.90	3.40
	35℉	1.7℃	55.00	40.74	3.71	58.44	43.02	3.70	61.07	44.68	3.69	63.68	46.36	3.64
	47℉	8.3℃	53.23	39.24	3.79	56.56	41.47	3.82	59.42	43.35	3.81	62.41	45.31	3.80
	55℉	12.8℃	53.37	40.20	4.01	56.07	41.97	4.00	59.39	44.24	4.05	62.32	46.18	4.04
	65℉	18.3℃	54.08	41.46	4.29	56.39	42.97	4.28	59.11	44.79	4.30	62.22	46.85	4.31
	75℉	24℃	53.65	42.98	4.62	56.36	44.88	4.64	58.77	46.57	4.62	62.12	48.95	4.62
	80℉	26.7℃	53.29	42.20	5.05	55.98	44.11	5.03	58.93	46.19	5.05	62.03	48.38	5.03
	85℉	29.4℃	49.35	38.65	5.45	52.22	40.70	5.50	55.56	43.06	5.51	59.10	45.57	6.09
	95℉	35℃	48.35	38.46	6.45	50.42	39.91	6.37	53.58	42.22	6.50	56.40	44.16	6.45
	105℉	40.5℃	45.89	38.09	6.41	48.56	40.07	6.39	50.69	41.57	6.37	53.41	43.59	6.36
	110℉	43.3℃	42.52	37.80	6.34	45.19	39.97	6.37	47.92	42.16	6.34	50.76	44.42	6.32
	115℉	46℃	41.09	38.36	6.57	43.03	39.95	6.61	45.06	41.56	6.51	47.23	43.36	6.47
	122℉	50℃	36.47	36.41	6.45	38.11	37.88	6.44	39.78	39.37	6.44	42.05	41.46	6.49

TC: Total capacity (MBH) **SC:** Sensible capacity (MBH) **DB:** Dry bulb **WB:** Wet bulb

HEATING-3TON

Heating	Indoor Conditions (DB)		60℉ (15.6℃)		65℉ (18.3℃)		70℉ (21.1℃)		75℉ (23.9℃)	
			TC	Input	TC	Input	TC	Input	TC	Input
Outdoor conditions (DB)	-22℉	-30℃	22.99	4.73	22.25	4.87	21.50	5.00	20.60	5.14
	-13℉	-25℃	26.97	4.59	26.32	4.70	25.50	4.82	24.35	4.95
	-4℉	-20℃	31.48	5.06	30.41	5.19	29.50	5.34	28.47	5.50
	0℉	-17.8℃	34.14	4.98	33.11	5.10	32.02	5.25	30.77	5.39
	5℉	-15℃	36.32	4.87	35.33	4.99	34.40	5.12	33.02	5.29
	10℉	-12.2℃	41.29	5.48	40.01	5.64	38.66	5.78	36.96	5.94
	17℉	-8.3℃	45.58	6.09	44.08	6.27	42.84	6.44	41.00	6.60
	20℉	-6.7℃	46.09	5.74	44.61	5.88	43.19	6.03	41.29	6.22
	25℉	-3.9℃	46.22	5.43	44.66	5.54	43.52	5.69	41.78	5.83
	32℉	0℃	46.67	5.16	45.40	5.30	43.86	5.41	42.15	5.60
	35℉	1.7℃	46.87	4.88	45.37	4.99	44.18	5.14	42.23	5.28
	40℉	4.4℃	54.10	5.20	52.73	5.35	51.09	5.48	48.80	5.62
	47℉	8.3℃	60.54	5.40	58.66	5.53	**57.23**	**5.69**	54.88	5.83
	50℉	10℃	61.77	5.21	60.20	5.37	58.67	5.52	56.33	5.66
	57℉	13.9℃	64.06	5.16	62.19	5.28	60.09	5.41	57.69	5.58

HEATING-5TON

Heating	Indoor Conditions (DB)		60℉ (15.6℃)		65℉ (18.3℃)		70℉ (21.1℃)		75℉ (23.9℃)	
			TC	Input	TC	Input	TC	Input	TC	Input
Outdoor conditions (DB)	-22℉	-30℃	31.60	6.21	30.80	6.35	29.96	6.51	28.82	6.71
	-13℉	-25℃	45.80	6.48	44.68	6.68	43.51	6.88	41.64	7.11
	-4℉	-20℃	50.53	6.78	48.92	6.94	47.59	7.14	45.83	7.35
	0℉	-17.8℃	52.96	7.08	51.41	7.23	49.67	7.40	47.44	7.59
	5℉	-15℃	55.31	7.31	53.80	7.51	51.98	7.69	49.90	7.94
	10℉	-12.2℃	58.97	7.37	57.20	7.56	55.69	7.79	53.69	8.00
	17℉	-8.3℃	63.23	7.38	61.33	7.57	59.48	7.80	57.40	8.04
	20℉	-6.7℃	62.47	6.96	60.77	7.11	59.17	7.31	56.63	7.53
	25℉	-3.9℃	62.63	6.59	60.74	6.73	58.86	6.88	56.68	7.08
	32℉	0℃	62.28	6.23	60.23	6.37	58.53	6.50	56.13	6.70
	35℉	1.7℃	62.27	5.81	60.22	5.96	58.19	6.14	55.98	6.33
	40℉	4.4℃	68.07	5.76	66.41	5.92	64.47	6.05	61.83	6.21
	47℉	8.3℃	74.29	5.63	71.78	5.76	**69.83**	**5.89**	67.24	6.07
	50℉	10℃	75.95	5.42	73.52	5.55	71.45	5.70	68.88	5.86
	57℉	13.9℃	77.71	5.28	75.22	5.43	73.32	5.59	70.17	5.76

Capacity Corrections

The system can extend the line sets flexibly within its limitation to fit the actual situation. However, it will cause cooling/heating capacity decrease because of the pressure loss by longer line length. Using the following correction factor to calculate the approximate capacity accordingly.

SUCTION LINE LENGTH/SIZE VS CAPACITY MULTIPLIER (R-410A)

Capacity (Btu/h)	36k		Pipe Length (m/ft)					
Cooling			7.5/24.6	15/49.2	25/82	35/114.8	50/164	65/213.3
Height difference H(m/ft)	Indoor Upper than Outdoor	30/98.4				0.889	0.850	0.812
		20/65.6			0.924	0.898	0.859	0.820
		10/32.8		0.959	0.933	0.907	0.868	0.828
		5/16.4	0.995	0.969	0.942	0.916	0.876	0.837
		0	1.000	0.974	0.947	0.921	0.881	0.841
	Outdoor Upper than Indoor	-5/-16.4	1.000	0.974	0.947	0.921	0.881	0.841
		-10/-32.8		0.974	0.947	0.921	0.881	0.841
		-20/-65.6			0.947	0.921	0.881	0.841
		-30/-98.4				0.921	0.881	0.841
Heating			7.5/24.6	15/49.2	25/82	35/114.8	50/164	65/213.3
Height difference H(m/ft)	Indoor Upper than Outdoor	30/98.4				0.964	0.945	0.927
		20/65.6			0.976	0.964	0.945	0.927
		10/32.8		0.988	0.976	0.964	0.945	0.927
		5/16.4	1.000	0.988	0.976	0.964	0.945	0.927
		0	1.000	0.988	0.976	0.964	0.945	0.927
	Outdoor Upper than Indoor	-5/-16.4	0.992	0.980	0.968	0.956	0.938	0.920
		-10/-32.8		0.972	0.960	0.948	0.930	0.912
		-20/-65.6			0.952	0.941	0.923	0.905
		-30/-98.4				0.933	0.915	0.898

Capacity (Btu/h)	60k		Pipe Length (m/ft)					
Cooling			7.5/24.6	15/49.2	25/82	35/114.8	50/164	65/213.3
Height difference H(m/ft)	Indoor Upper than Outdoor	30/98.4				0.870	0.823	0.775
		20/65.6			0.911	0.879	0.831	0.783
		10/32.8		0.953	0.920	0.888	0.840	0.791
		5/16.4	0.995	0.962	0.930	0.897	0.848	0.799
		0	1.000	0.967	0.934	0.902	0.852	0.803
	Outdoor Upper than Indoor	-5/-16.4	1.000	0.967	0.934	0.902	0.852	0.803
		-10/-32.8		0.967	0.934	0.902	0.852	0.803
		-20/-65.6			0.934	0.902	0.852	0.803
		-30/-98.4				0.902	0.852	0.803
Heating			7.5/24.6	15/49.2	25/82	35/114.8	50/164	65/213.3
Height difference H(m/ft)	Indoor Upper than Outdoor	30/98.4				0.955	0.932	0.909
		20/65.6			0.970	0.955	0.932	0.909
		10/32.8		0.985	0.970	0.955	0.932	0.909
		5/16.4	1.000	0.985	0.970	0.955	0.932	0.909
		0	1.000	0.985	0.970	0.955	0.932	0.909
	Outdoor Upper than Indoor	-5/-16.4	0.992	0.977	0.962	0.947	0.924	0.902
		-10/-32.8		0.969	0.954	0.939	0.917	0.895
		-20/-65.6			0.947	0.932	0.910	0.887
		-30/-98.4				0.924	0.902	0.880

Fig 4. Line length and elevation difference limits

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43671 Trade Center Place, Suite 100
Dulles, VA 20166

Tel: 703-348-2538

www.ecoer.com