

## WSA2BF Series

### Extra High Efficiency Air Conditioner 16 SEER Residential System 2 - 5 Ton Capacity

The WSA2BF Series air conditioners offers exceptional performance. The unit, when combined with our engineered coils or air handlers, offers a line of quality, 16 SEER split system cooling equipment.



## FEATURES and BENEFITS

### 2 - 4 Ton Units

- **Copeland Scroll Compressor:** Copeland's proven and simple design equates to years of comfort and reliability for the homeowner with virtually silent operation.

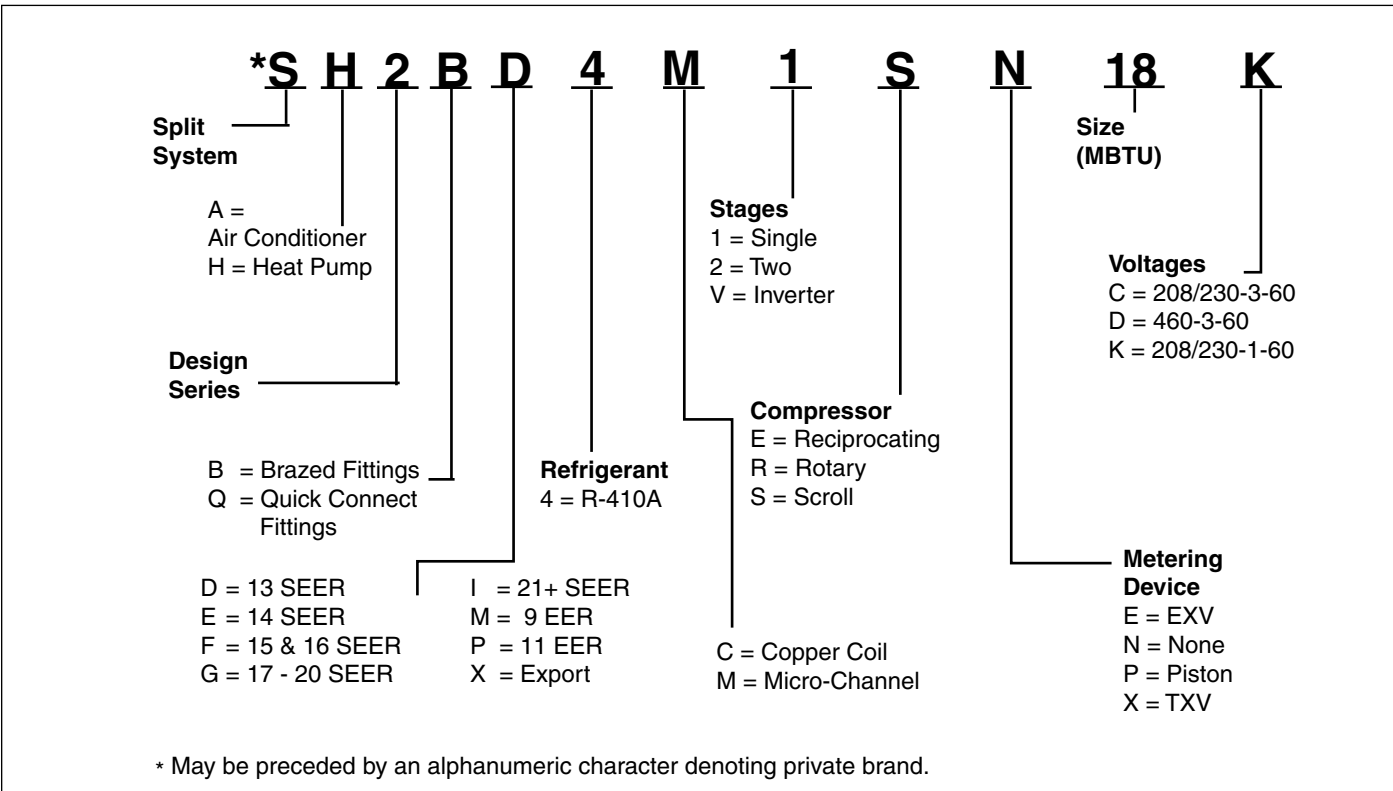
### 5 Ton Units

- **Copeland Scroll UltraTech™ Compressor:** The Ultra Tech Compressor operates with 2 stages of cooling capacity to provide superior comfort and efficiency. Copeland's proven and simple design equates to years of comfort and reliability for the homeowner with virtually silent operation.

### All Units

- **Full Service Valves:** These brass valves are easily accessible and simplify servicing of the refrigeration system.
- **Designed Using Galvanized Steel:** With a polyester urethane coat finish, it passes 950 hours of salt spray per ASTM Std. B117.
- **Composite Base Pan:** Absorbs sound and is corrosion resistant. Composite is also stronger and lighter than steel.
- **Permanently Lubricated Motor:** A heavy duty PSC motor for long lasting reliability and quiet operation. Requires no maintenance and is completely protected from rain and snow.
- **Removable Top Grille Assembly:** Allows ease of service from the top without disconnecting fan motor leads.
- **High Pressure Switch:** Protects against abnormally high system pressures. Auto-reset feature prevents nuisance service visits.
- **Liquid Line Filter Drier:** Included with unit, field installed.
- **One Piece Top/Orifice:** Designed for maximum airflow and quiet operation.
- **Easy Compressor and Control Access:** Designed to make servicing easier for the contractor, access panels are provided to all controls and the compressor from the side of the unit.
- **All-Aluminum Coils:** Aluminum coils in all models which provides high corrosion resistance.
- **Powder Coated Wire Guard and Mesh Hail Guard:** Will never rust and protects the coil from being damaged by balls, lawnmowers, hail etc.

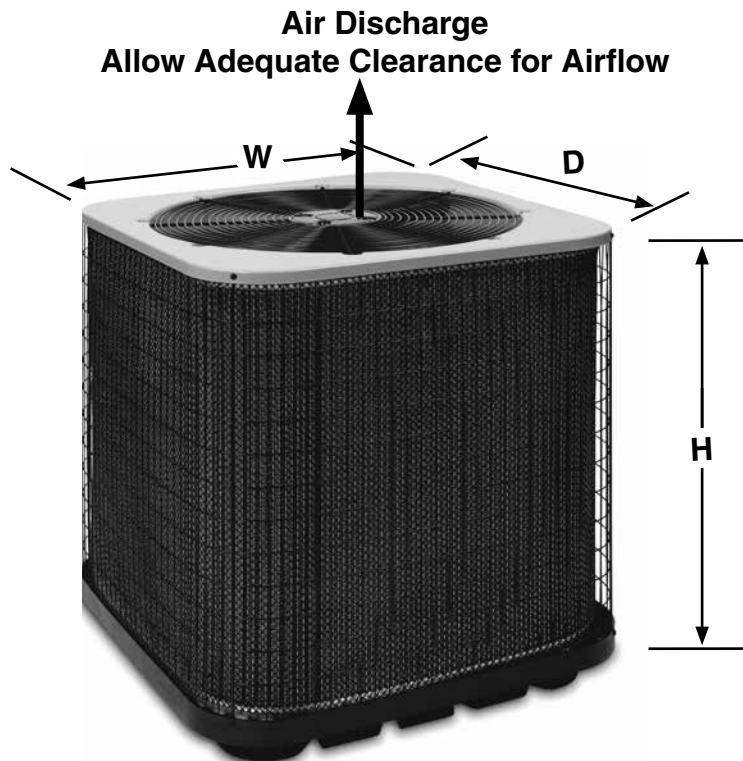
# MODEL IDENTIFICATION CODES



## DIMENSIONS

### AIR CONDITIONER OUTDOOR SECTION

WSA2BF	24K	30K	36K	42K	48K	60K
H	36.5	29.25	41.25	45.25	45.25	45.25
W	22.75	30.75	30.75	30.75	30.75	30.75
D	22.75	30.75	30.75	30.75	30.75	30.75



# PHYSICAL AND ELECTRICAL SPECIFICATIONS / OUTDOOR UNITS

## 16 SEER — R-410A Extra High Efficiency — Single Phase

Model Number WSA2BF		1SN24K	1SN30K	1SN36K	1SN42K	1SN48K	2SN60K
Electrical Data	Volts-Cycles-Phase (1)	208/230-60-1					
	Delay Fuse Max. (2)	30	25	30	40	45	60
	Min. Circuit Ampacity	17.5	16.9	18.6	23.8	27.4	38.6
	Fan Motor HP	1/10	1/8	1/5	1/4	1/3	1/3
Refrigerant suction line O.D. NOTE: Liquid line is 3/8" O.D. for entire length.	0-24 ft.	3/4"	3/4"	3/4"	7/8"	7/8"	7/8"
	25-39 ft.	3/4"	3/4"	7/8" (3)	7/8"	7/8"	1-1/8" (4)
	40-75 ft.	3/4"	3/4"	7/8" (3)	7/8"	7/8"	1-1/8" (4)
Approximate Weight (lbs.)	Net	108	121	188	172	176	185
	Ship	124	142	212	197	201	210
Sound Rating db		74	79	79	79	75	77

(1) Operating Voltage Range: 187v min. - 253v max.

(2) HACR Type Circuit Breakers may be used.

(3) Requires 7/8" to 3/4" reducer from line to unit.

(4) Requires 7/8" to 1-1/8" reducer from line to unit.

## ACCESSORIES - Condensing Unit

### Start Assist Kit - 912933

Provides additional starting torque for the compressor motor when operating with low line voltage or high operating temperatures.

### Extreme Wind Conditioning Mounting Kit - 1017210

### Low Ambient Kit - 918837

### Cantilever Mounting Kit - 1018671

COPPER WIRE SIZE — AWG (1% Voltage Drop)				
Supply Wire Length-Feet				Supply Circuit Ampacity
200	150	100	50	
6	8	10	14	15
4	6	8	12	20
4	6	8	10	25
4	4	6	10	30
3	4	6	8	35
3	4	6	8	40
2	3	4	6	45
2	3	4	6	50

Wire Size based on N.E.C. for 60° type copper conductors.

# SYSTEM COOLING CAPACITIES

## 16 SEER — Extra High Efficiency — Single Phase

With this Air Handler						
Outdoor Unit	Indoor Unit	High Speed Capacity (BTU/h)	SEER	EER	Low Speed SCFM	High Speed SCFM
WSA1BF4M1SN24K	B6EMMX24K-A	24,000	16.0	13.0	N/A	835
WSA1BF4M1SN24K	B6EMMX24K-B	24,000	16.0	13.0	N/A	835
WSA1BF4M1SN30K	B6EMMX30K-A	29,000	16.0	13.0	N/A	995
WSA1BF4M1SN30K	B6EMMX30K-B	29,000	16.0	13.0	N/A	995
WSA1BF4M1SN36K	B6EMMX36K-B	34,200	16.0	13.0	N/A	1035
WSA1BF4M1SN42K	B6EMMX48K-C	40,000	16.0	13.0	N/A	1200
WSA1BF4M1SN48K	B6EMMX48K-C	46,000	16.0	13.0	N/A	1500
WSA1BF4M2SN60K	B6VMMX60K-C	56,000	16.0	12.5	1200	1700

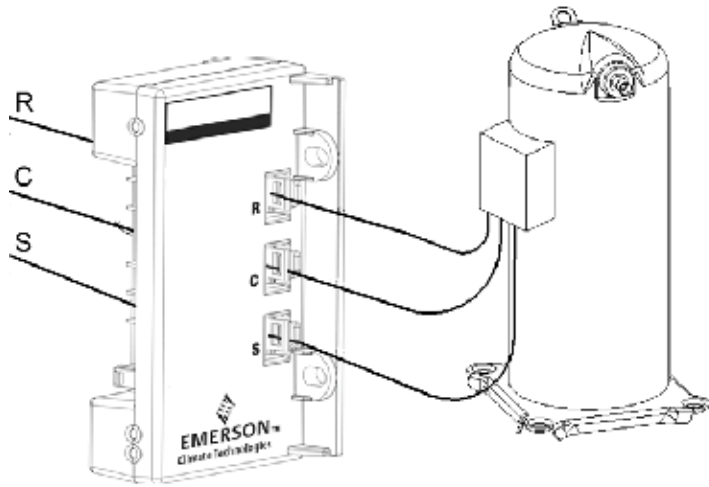
With this Coil						
Outdoor Unit	Indoor Unit	High Speed Capacity (BTU/h)	SEER	EER	Low Speed SCFM	High Speed SCFM
WSA1BF4M1SN24K	C7B(A,H)MX24(C,U)-A	24,000	14.0	12.2	N/A	845
WSA1BF4M1SN24K	C7B(A,H)MX24(C,U)-B	24,000	14.0	12.2	N/A	845
WSA1BF4M1SN30K	C7B(A,H)MX30(C,U)-A	27,800	14.0	12.2	N/A	860
WSA1BF4M1SN30K	C7B(A,H)MX30(C,U)-B	27,800	14.0	12.2	N/A	860
WSA1BF4M1SN30K	C7B(A,H)MX30(C,U)-C	27,800	14.0	12.2	N/A	860
WSA1BF4M1SN36K	C7B(A,H)MX36(C,U)-B	35,000	14.0	12.2	N/A	1325
WSA1BF4M1SN36K	C7B(A,H)MX36(C,U)-C	35,000	14.0	12.2	N/A	1325
WSA1BF4M1SN42K	C7B(A,H)MX42(C,U)-C	40,000	14.0	12.2	N/A	1200
WSA1BF4M1SN48K	C7B(A,H)MX48(C,U)-C	46,000	14.5	12.0	N/A	1500
WSA1BF4M2SN60K	C7B(A,H)MX60(C,U)-C + MB7VM(*)C	56,000	16.0	12.5	1200	1700

Air handlers and coils used in tables are designed and manufactured by Nortek Global HVAC.

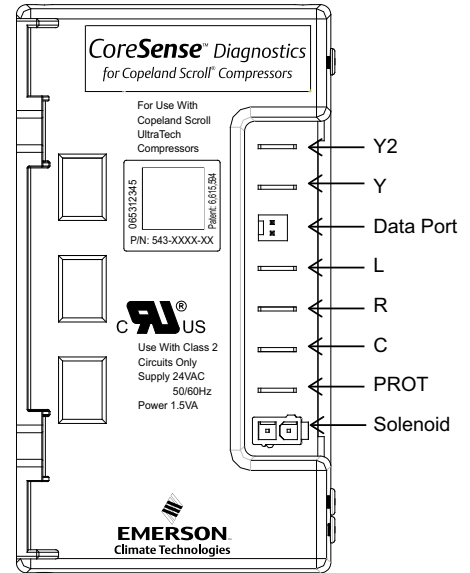
**See current AHRI Directory for certified combinations and ratings.**

[www.ahridirectory.org](http://www.ahridirectory.org)

# CORESENSE™ DIAGNOSTIC MODULE



**Figure 1**  
Wires Pulled Through Module



**Figure 2**  
Terminal Locations

## CORESENSE™ DIAGNOSTIC MODULE (CONT.)

CoreSense™ Flash Code Description			
Alert Code	Alert Condition	Lockout Level	Lockout Indication
Normal Run Solid Green	Normal operation, no trip.	N/A	N/A
Code1 Yellow Flash 1	Long run time. Compressor is running for more than 18 hours at full load. (Code1 is disabled in Heat Pump mode.)	N/A	N/A
Code2 Yellow Flash 2	Compressor Pressure trip. Compressor runs for 12sec to 15min followed by a compressor trip condition lasting longer than 7min.	4x consecutive, 10x total	Red: Flash 2
Code 3 Yellow Flash 3	Pressure switch cycling. Compressor runs for 12sec to 15min followed by a compressor trip lasting between 35sec to 7min.	4x consecutive, 10 total	Red: Flash 3
Code4 Yellow Flash 4	Locked rotor. Compressor trips within a compressor run time of 12sec and does not start within 35sec.	10x consecutive	Red: Flash 4
Code5 Yellow Flash 5	Compressor moderate run trip. Compressor runs for 15min to 18hrs followed by a compressor trip lasting longer than 7min.	4x consecutive, 10x total	Red: Flash 5
Code6 Red Flash 6	Open start circuit. Module has detected Y or Y1, and current in the R winding of the compressor and no current in the S winding of the compressor for 2 seconds.	1 occurrence	Red: Flash 6
Code7 Red Flash 7	Open run circuit. Module has detected Y or Y1, and current in the S winding of the compressor and no current in the R winding of the compressor for 2 seconds.	1 occurrence	Red: Flash 7
Code8 Yellow Flash 8	Welded Contactor. Module has detected line currents in R and S windings, and Y or Y1 is at 0 VAC for 15 seconds.	N/A	N/A
Code9 Yellow Flash 9	Low Voltage. Module has detected a 24 VAC supply voltage below 17 VAC +/- 1 VAC for 2 seconds	N/A	N/A
Code10 Red Flash 10	Over Current Protection. PROT terminal has above a 2A input for more than 40 milliseconds.	1 occurrence	Red: Flash 10

# EXPANDED COOLING PERFORMANCE - LOOSE COIL

WSA1BF4M1SN24K with C7B(A,H)MX24(C,U)-B

O.D.T			65°F			75°F			85°F			95°F			105°F			115°F		
CFM	E.D.B.	E.W.B.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.
700	80	62	23.9	18.7	1.42	23.0	18.6	1.59	22.1	18.7	1.76	21.1	18.4	1.96	20.00	19.40	2.18	18.87	18.31	2.43
	80	67	26.1	15.0	1.43	25.1	14.9	1.60	24.0	15.1	1.77	22.9	14.8	1.97	21.71	14.57	2.19	20.42	13.64	2.44
	80	72	28.7	11.7	1.43	27.6	11.6	1.61	26.4	11.9	1.79	25.2	11.6	1.99	23.85	11.46	2.21	22.35	11.74	2.48
	75	62	23.7	15.2	1.42	22.8	15.1	1.59	21.9	15.2	1.76	20.9	14.9	1.96	19.75	13.74	2.18	18.57	14.74	2.43
800	80	62	24.5	20.2	1.46	23.6	20.6	1.63	22.6	20.1	1.80	21.6	20.0	2.00	20.62	19.82	2.22	19.65	19.49	2.47
	80	67	26.7	15.9	1.46	25.6	16.4	1.64	24.5	16.0	1.81	23.3	15.8	2.01	22.10	15.85	2.23	20.75	15.83	2.49
	80	72	29.3	12.3	1.47	28.2	12.8	1.65	26.9	12.5	1.83	25.6	12.4	2.03	24.20	12.46	2.26	22.62	12.53	2.52
	75	62	24.2	16.1	1.46	23.3	16.5	1.62	22.3	16.1	1.80	21.2	15.9	2.00	20.10	15.86	2.22	18.95	16.29	2.47
900	80	62	25.0	21.8	1.50	24.1	21.9	1.66	23.2	21.4	1.84	22.3	21.2	2.04	21.33	20.61	2.26	20.21	20.13	2.51
	80	67	27.1	17.1	1.50	26.1	17.3	1.67	24.9	16.9	1.85	23.7	16.8	2.05	22.39	16.71	2.27	21.00	16.78	2.53
	80	72	29.8	13.1	1.51	28.6	13.4	1.69	27.3	13.0	1.88	25.9	13.1	2.07	24.37	13.04	2.30	22.81	13.17	2.56
	75	62	24.7	17.3	1.50	23.7	17.4	1.66	22.7	17.0	1.84	21.6	16.9	2.04	20.43	17.31	2.26	19.20	17.34	2.50

WSA1BF4M1SN30K with C7B(A,H)MX36(C,U)-B

O.D.T			65°F			75°F			85°F			95°F			105°F			115°F		
CFM	E.D.B.	E.W.B.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.
875	80	62	29.5	22.0	1.67	28.3	21.8	1.84	27.4	23.3	2.03	26.1	23.0	2.25	24.78	24.27	2.50	23.30	22.82	2.79
	80	67	32.0	18.2	1.67	30.7	18.1	1.84	29.4	18.2	2.04	28.0	17.9	2.26	26.51	17.58	2.51	24.88	16.63	2.80
	80	72	35.0	14.1	1.67	33.6	14.1	1.84	32.2	14.4	2.04	30.6	14.1	2.26	29.01	13.87	2.52	27.19	14.23	2.82
	75	62	29.3	18.5	1.67	28.2	18.3	1.84	27.0	18.4	2.03	25.7	18.0	2.25	24.32	16.57	2.50	22.78	17.77	2.79
1000	80	62	30.5	25.2	1.72	29.3	25.7	1.89	28.0	25.2	2.08	26.8	25.0	2.30	25.69	24.74	2.55	24.41	24.21	2.85
	80	67	32.7	19.3	1.72	31.4	19.8	1.89	30.0	19.3	2.08	28.6	19.1	2.30	27.00	19.05	2.56	25.30	18.99	2.85
	80	72	35.7	14.8	1.72	34.2	15.5	1.89	32.7	15.0	2.09	31.0	14.9	2.31	29.25	15.08	2.57	27.27	15.15	2.86
	75	62	30.0	19.6	1.72	28.8	20.0	1.89	27.5	19.5	2.08	26.2	19.2	2.30	24.75	19.13	2.55	23.14	18.98	2.84
1125	80	62	31.1	27.3	1.76	29.9	27.5	1.94	28.9	26.8	2.13	27.9	26.5	2.35	26.53	25.64	2.60	25.04	24.94	2.90
	80	67	33.3	20.6	1.76	31.9	20.8	1.94	30.4	20.3	2.13	28.9	20.2	2.35	27.31	20.00	2.61	25.57	20.04	2.90
	80	72	36.2	15.9	1.76	34.6	16.2	1.93	32.9	15.8	2.13	31.1	15.8	2.35	29.42	15.68	2.61	27.57	15.81	2.91
	75	62	30.6	20.9	1.76	29.3	21.0	1.93	27.9	20.5	2.13	26.5	20.3	2.34	25.07	20.10	2.60	23.57	21.38	2.89

WSA1BF4M1SN36K with C7B(A,H)MX42(C,U)-B

O.D.T			65°F			75°F			85°F			95°F			105°F			115°F		
CFM	E.D.B.	E.W.B.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.
1050	80	62	35.8	28.0	2.01	34.5	27.8	2.23	33.0	27.9	2.46	31.5	27.4	2.73	29.79	28.60	3.04	28.05	26.93	3.37
	80	67	39.1	23.2	2.02	37.5	23.0	2.24	35.9	23.2	2.48	34.1	22.8	2.76	32.35	22.40	3.05	30.45	20.88	3.39
	80	72	43.0	18.0	2.05	41.3	17.9	2.27	39.4	18.3	2.52	37.4	17.9	2.78	35.19	17.65	3.07	33.06	18.04	3.41
	75	62	35.6	23.5	2.01	34.3	23.3	2.23	32.8	23.4	2.46	31.2	22.9	2.72	29.50	21.14	3.04	27.75	22.64	3.37
1200	80	62	36.7	30.0	2.07	35.2	30.5	2.29	33.7	29.8	2.52	32.1	29.3	2.79	30.40	29.00	3.10	28.72	28.48	3.43
	80	67	39.9	24.6	2.08	38.3	25.3	2.31	36.6	24.7	2.55	34.7	24.3	2.82	32.87	24.34	3.11	30.90	24.31	3.45
	80	72	43.7	19.0	2.11	41.7	19.8	2.33	39.6	19.2	2.58	37.7	19.0	2.84	35.67	19.07	3.14	33.53	19.14	3.47
	75	62	36.3	24.9	2.07	34.9	25.5	2.29	33.4	24.8	2.52	31.7	24.5	2.79	29.95	24.26	3.09	28.16	24.14	3.43
1350	80	62	37.3	32.1	2.12	35.8	32.2	2.35	34.3	31.3	2.58	32.7	30.8	2.86	31.09	30.04	3.16	29.49	29.37	3.50
	80	67	40.5	26.4	2.14	38.9	26.7	2.36	37.0	26.0	2.61	35.2	25.9	2.88	33.26	25.67	3.17	31.27	25.75	3.51
	80	72	44.0	20.3	2.16	42.1	20.6	2.39	40.2	20.0	2.64	38.2	20.0	2.90	36.07	19.84	3.20	33.85	20.03	3.53
	75	62	36.9	26.6	2.12	35.4	26.8	2.34	33.9	26.0	2.58	32.1	25.8	2.85	30.33	25.54	3.15	28.47	25.50	3.49

# EXPANDED COOLING PERFORMANCE - LOOSE COIL (CONT.)

WSA1BF4M1SN42K with C7B(A,H)MX48(C,U)-C

O.D.T			65°F			75°F			85°F			95°F			105°F			115°F		
CFM	E.D.B.	E.W.B.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.
1225	80	62	41.8	32.5	2.45	40.4	32.3	2.67	38.8	32.5	2.92	37.0	31.9	3.23	35.09	33.34	3.58	33.12	31.47	3.97
	80	67	45.9	26.9	2.45	44.2	26.8	2.67	42.4	27.1	2.94	40.4	26.6	3.25	38.31	26.19	3.59	36.12	24.36	3.98
	80	72	50.5	20.9	2.46	48.6	20.8	2.69	46.5	21.3	2.97	44.3	20.8	3.27	42.01	20.56	3.61	39.54	21.12	3.99
	75	62	41.7	27.2	2.45	40.2	27.0	2.66	38.6	27.3	2.92	36.8	26.7	3.22	34.87	24.79	3.58	32.87	26.54	3.97
1400	80	62	42.9	34.7	2.51	41.4	35.4	2.73	39.6	34.6	2.99	37.8	34.2	3.30	35.84	33.89	3.64	33.90	33.38	4.03
	80	67	46.9	28.6	2.52	45.2	29.5	2.74	43.2	28.7	3.01	41.1	28.4	3.32	38.94	28.48	3.66	36.66	28.51	4.05
	80	72	51.5	22.0	2.53	49.4	23.0	2.76	47.2	22.3	3.03	44.9	22.2	3.34	42.45	22.33	3.68	39.98	22.49	4.06
	75	62	42.6	28.9	2.51	41.1	29.6	2.73	39.4	28.9	2.99	37.4	28.6	3.30	35.44	28.52	3.64	33.37	28.30	4.03
1575	80	62	43.7	37.2	2.58	42.1	37.4	2.80	40.4	36.5	3.06	38.5	36.0	3.37	36.53	35.30	3.71	34.76	34.61	4.10
	80	67	47.6	30.6	2.58	45.8	31.0	2.81	43.8	30.3	3.08	41.7	30.2	3.38	39.41	30.04	3.73	37.09	30.22	4.12
	80	72	52.1	23.5	2.59	49.9	24.0	2.83	47.7	23.3	3.10	45.4	23.4	3.40	42.92	23.27	3.75	40.39	23.59	4.13
	75	62	43.3	30.9	2.58	41.7	31.2	2.80	39.9	30.5	3.06	37.9	30.2	3.37	35.92	29.89	3.71	33.75	29.91	4.10

WSA1BF4M1SN48K with C7B(A,H)MX48(C,U)-C

O.D.T			65°F			75°F			85°F			95°F			105°F			115°F		
CFM	E.D.B.	E.W.B.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.
1400	80	62	48.4	37.3	2.62	46.7	37.0	2.88	44.7	37.2	3.20	42.6	36.5	3.54	40.39	38.26	3.94	38.06	36.05	4.38
	80	67	52.9	30.9	2.64	50.8	30.7	2.91	48.7	31.0	3.21	46.5	30.4	3.56	44.03	29.96	3.95	41.58	27.82	4.39
	80	72	58.1	24.0	2.67	55.9	23.9	2.93	53.5	24.4	3.23	51.0	24.0	3.58	48.17	23.65	3.96	45.31	24.29	4.40
	75	62	48.2	31.3	2.62	46.5	31.0	2.88	44.4	31.2	3.20	42.3	30.6	3.54	40.12	28.32	3.94	37.80	30.33	4.37
1600	80	62	49.5	39.8	2.69	47.7	40.6	2.96	45.5	39.6	3.27	43.4	39.1	3.62	41.16	38.83	4.01	38.91	38.32	4.45
	80	67	54.0	32.8	2.72	51.8	33.7	2.99	49.6	32.9	3.29	47.3	32.5	3.64	44.77	32.55	4.03	42.19	32.57	4.47
	80	72	59.1	25.3	2.75	56.8	26.5	3.01	54.2	25.7	3.31	51.4	25.5	3.65	48.72	25.63	4.04	45.91	25.79	4.47
	75	62	49.2	33.2	2.69	47.4	34.0	2.96	45.3	33.1	3.27	43.1	32.7	3.62	40.81	32.59	4.01	38.39	32.48	4.45
1800	80	62	50.4	42.6	2.78	48.5	42.8	3.04	46.3	41.8	3.35	44.2	41.3	3.70	41.93	40.52	4.09	39.87	39.70	4.53
	80	67	54.9	35.1	2.80	52.7	35.5	3.07	50.4	34.6	3.37	47.9	34.5	3.71	45.38	34.30	4.10	42.71	34.49	4.54
	80	72	59.6	27.0	2.82	57.3	27.6	3.08	54.8	26.8	3.38	52.1	26.8	3.73	49.33	26.68	4.12	46.44	27.02	4.55
	75	62	50.1	35.5	2.77	48.2	35.8	3.04	46.0	34.9	3.35	43.7	34.7	3.70	41.31	34.13	4.09	38.82	34.16	4.53



## GENERAL TERMS OF LIMITED WARRANTY

Nortek Global HVAC, LLC will furnish a replacement for any part of this product which fails in normal use and service within the terms and conditions of the warranty.

For complete details of the Limited Warranty, including applicable terms and conditions, see your local installer or contact the Nortek Global HVAC, LLC warranty department for a copy.

Before purchasing this appliance, read important energy cost and efficiency information available from your retailer. Specifications and illustrations subject to change without notice and without incurring obligations. Printed in U.S.A (04/2019)