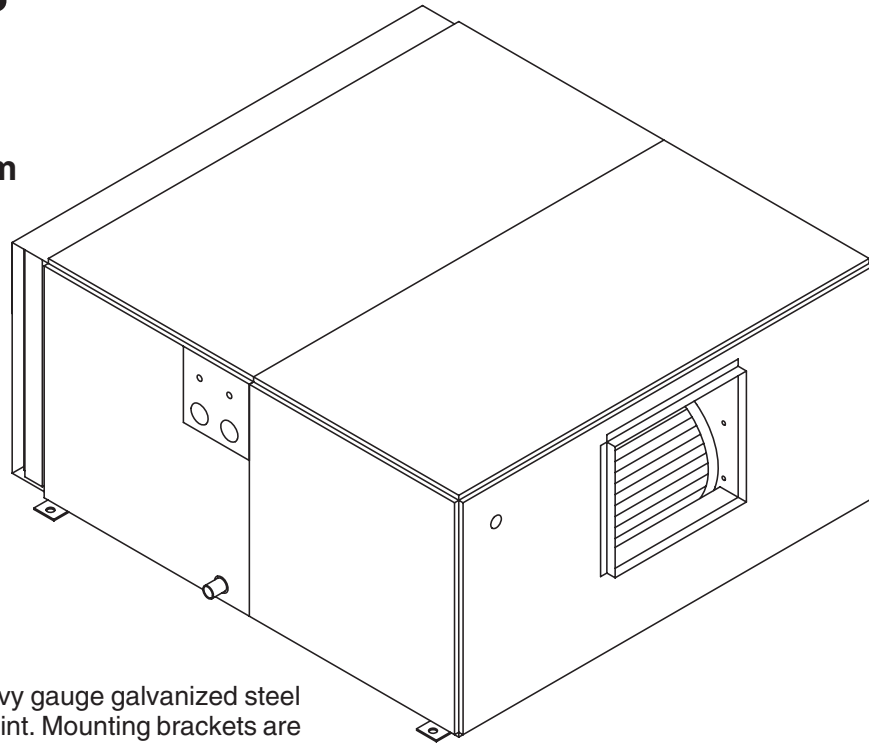


## B3SM Series

### Air Handler

7-1/2 and 10Ton

Light Commercial System

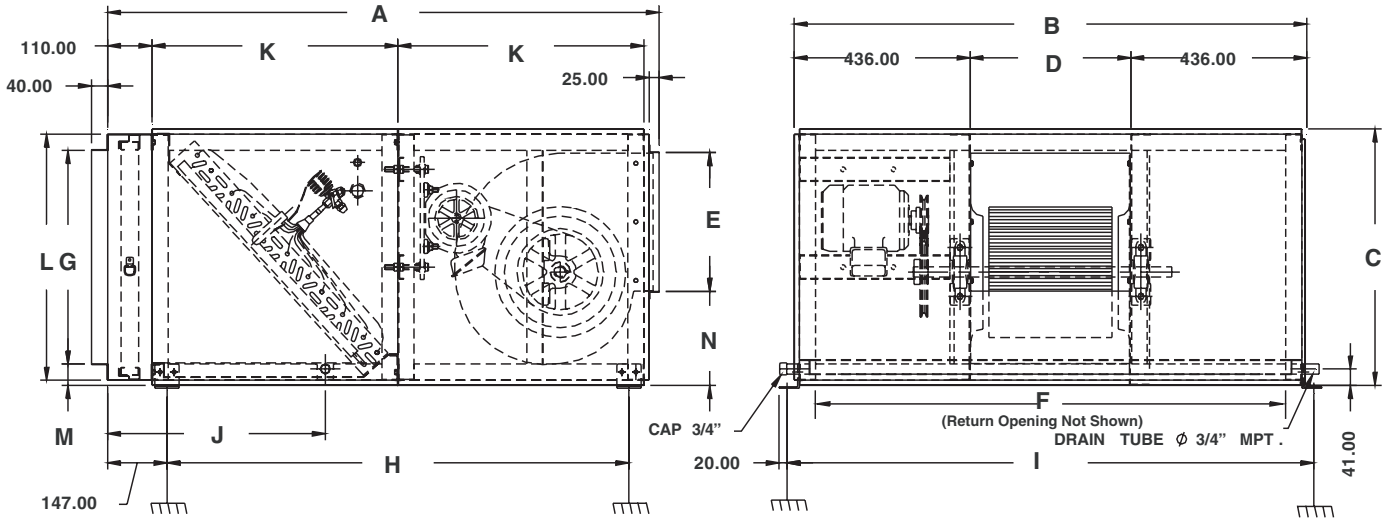


Horizontal Shown

#### Features and Benefits

- **Cabinet** — Fabricated of heavy gauge galvanized steel with polyester powder coat paint. Mounting brackets are standard on all models.
- **Motor** — All motors operate at 1425 RPM (50 Hz.) and 1725 RPM (60 Hz.) The adjustable motor mount allows easy belt adjustment. A variable pitch motor pulley allows balancing of the system to the desired CFM.
- **Blower** — All blowers are heavy duty, double inlet, forward curved blade, centrifugal type. Each wheel is dynamically balanced for smooth, quiet operation. All blowers are belt driven with field adjustable motor pulleys to permit variations in static pressure and air requirements.
- **Blower Bearings** — Pillow block type bearing unit is used. Double sealed by heat resistant synthetic rubber seal and steel plated slinger. Rubber seal minimizes leak out of lubricating grease. Periodic maintenance is recommended to the bearing with injection of grease for supplement.
- **Coils** — All coils are constructed using 3/8" OD seamless copper tubing mechanically expanded to highly efficient aluminum fins to maximize heat transfer. All 7-1/2 and 10 Ton models have factory installed expansion valves approved for straight cooling (not heat pump) operation. The 7-1/2 ton model has single circuit coils, and the 10 ton model has dual-circuited coils.  
**WARNING!** All coils are shipped from factory with a dry Nitrogen holding charge. This assures leak free operation prior to installation.
- **Insulation** — The entire interior of the cabinet is insulated with a closed cell foam thermal insulation. This insulation can handle the abuse of maintenance and cleaning practices listed by NAIMA (North American Manufacturers Association).
- **Filters** — 2" permanent filters are provided as standard in all 7-1/2 and 10 ton models. Filter rack is easily accessible from either side of cabinet and can be converted to 1" permanent filters, if desired. If converting to disposable pleated filters use only 2" filters.
- **Miscellaneous** —
  - Motor wiring exits unit in convenient location for mounting a field supplied junction box for completion of unit wiring.
  - 3/4 inch MPT drain connections on both sides of cabinet.
  - Header connections are provided through knockouts on motor side of the unit but can be re-piped out opposite side if required.
  - Drain pans are coated for corrosion resistance.
- **Warranty** — 1 Year Limited Parts.

# PHYSICAL DATA - B3SM – HORIZONTAL (AS SHIPPED)



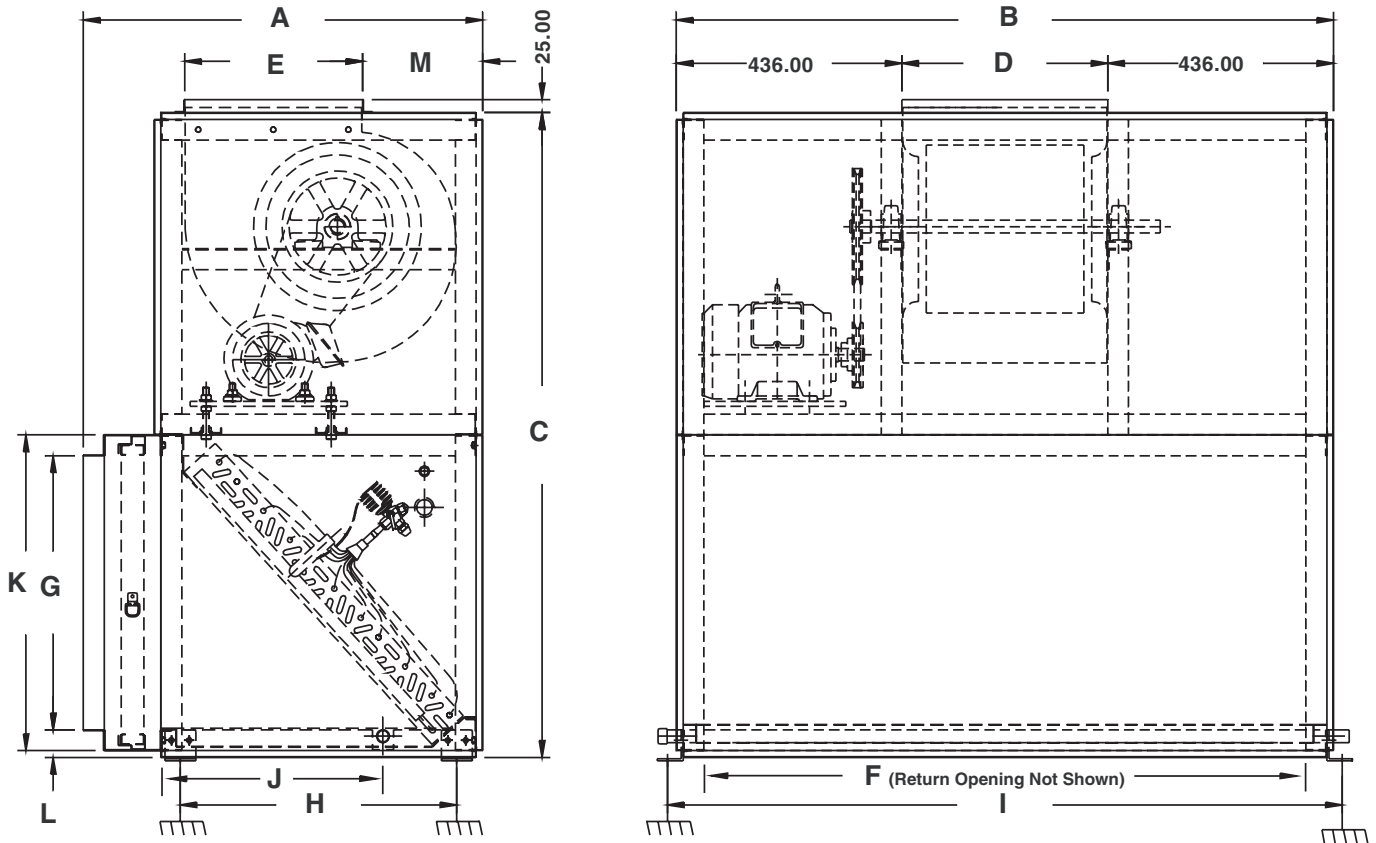
Model	DIMENSIONS, inches (mm)													
	Length	Width	Height	Supply Duct Opening		Return Duct Opening		Support Bracket		Drain	K	L	M	N
B3SM	A	B	C	D	E	F	G	H	I	J				
- 090( )	54 (1366)	50 (1270)	25 (635)	15.75 (398)	13.63 (344)	46.06 (1170)	21 (533)	45 (1143)	51.25 (1304)	21 (539)	24 (609)	24 (609)	2.1 (53)	9.1 (232)
- 120( )	60 (1512)	53 (1346)	28 (708)	18.75 (474)	16.06 (407)	49.06 (1246)	23.75 (603)	50.75 (1289)	54.25 (1380)	24 (612)	27 (682)	27 (682)	1.6 (40)	9.8 (250)

- Notes:** 1) All drain connections are 3/4" MPT and located on both sides.  
 2) All units have refrigerant lines stubbed out to motor side of cabinet. Knockouts available on opposite side if required.

Model	General Specifications									
	Nom.	Coil Area	Tubing	Blower	Filter	4 Row Coil		Weights, lbs.(kg)		
B3SM	Cooling	(sq. ft.)	Size	Size	Size	Liquid	Suction	Shipping	Unit	
- 090( )	7.5 Ton	7.78	3/8" OD	12" x 12"	16"x20" (3)	5/8" OD	1-1/8" OD	514 (233)	390 (177)	
- 120( )	10 Ton	9.78	3/8" OD	15" x 15"	16"x25" (3)	5/8" OD	7/8" OD	606 (275)	450 (204)	

- Notes:** 1) All technical specifications subject to change without notice.  
 2) No electric heat available (supplied by others).

**PHYSICAL DATA - B3SM – VERTICAL (OPTIONAL POSITION)**



Model	DIMENSIONS, inches (mm)												
	Length	Width	Height	Supply Duct Opening		Return Duct Opening		Support Bracket		Drain			
B3SM	A	B	C	D	E	F	G	H	I	J	K	L	M
- 090( )	30.5 (772)	50 (1270)	49 (1244)	15.75 (398)	13.63 (344)	46.06 (1170)	21 (533)	21 (534)	51.25 (1304)	21 (539)	24 (609)	2.1 (53)	9.1 (232)
- 120( )	32.75 (832)	53 (1346)	54.5 (1384)	18.75 (474)	16.06 (407)	49.06 (1246)	23.75 (603)	24 (608)	54.25 (1380)	24 (612)	27 (682)	1.6 (40)	9.8 (250)

- Notes:** 1) All drain connections are 3/4" MPT and located on both sides.  
 2) All units have refrigerant lines stubbed out to motor side of cabinet. Knockouts available on opposite side if required.

Model	General Specifications									
	Nom.	Coil Area	Tubing	Blower	Filter	4 Row Coil		Weights, lbs.(kg)		
B3SM	Cooling	(sq. ft.)	Size	Size	Size	Liquid	Suction	Shipping	Unit	
- 090( )	7.5 Ton	7.78	3/8" OD	12" x 12"	16"x20" (3)	5/8" OD	1-1/8" OD	514 (233)	390 (177)	
- 120( )	10 Ton	9.78	3/8" OD	15" x 15"	16"x25" (3)	5/8" OD	7/8" OD	606 (275)	450 (204)	

- Notes:** 1) All technical specifications subject to change without notice.  
 2) No electric heat available (supplied by others).

# SPECIFICATIONS

## CABINETS

Cabinets shall be manufactured of heavy gauge galvanized steel. The entire interior of the cabinet shall be insulated with half inch thick IAQ type insulation. Removable access panels shall be provided on both sides of the cabinet for maintenance and service. All cabinets shall have minimum 1" supply and return flanges.

## INSULATION

The entire interior of the cabinet shall be insulated with half inch insulation. This insulation must meet the requirements of ASTM C1071, ASTM G21, ASTM G22, NFPA 90A, UL-181, and the cleaning practices of NAIMA.

## MOTOR/BLOWERS

Blowers shall be resiliently mounted, with ball bearings, forward curved blade, and of centrifugal type. Each wheel shall be dynamically balanced for smooth, quiet operation. Blowers shall be belt driven with field adjustable pulleys to permit variations in static pressure and air requirements.

Standard motors are 1425 RPM (50 Hz.) and 1725 RPM (60 Hz.) either single or three phase. All motors are factory installed and wired. All three phase motors are wired for 460V operation.

## COILS

All coils shall consist of aluminum fins mechanically bonded onto 3/8" OD seamless copper tubing. All coils shall be leak tested at 350 PSIG minimum air pressure. 7-1/2 ton model is single-circuited, whereas the 10 ton model is dual-circuited. Both models have factory installed expansion valves approved for straight cool only (not heat pump) operation. Drain pans shall be coated for corrosion protection.

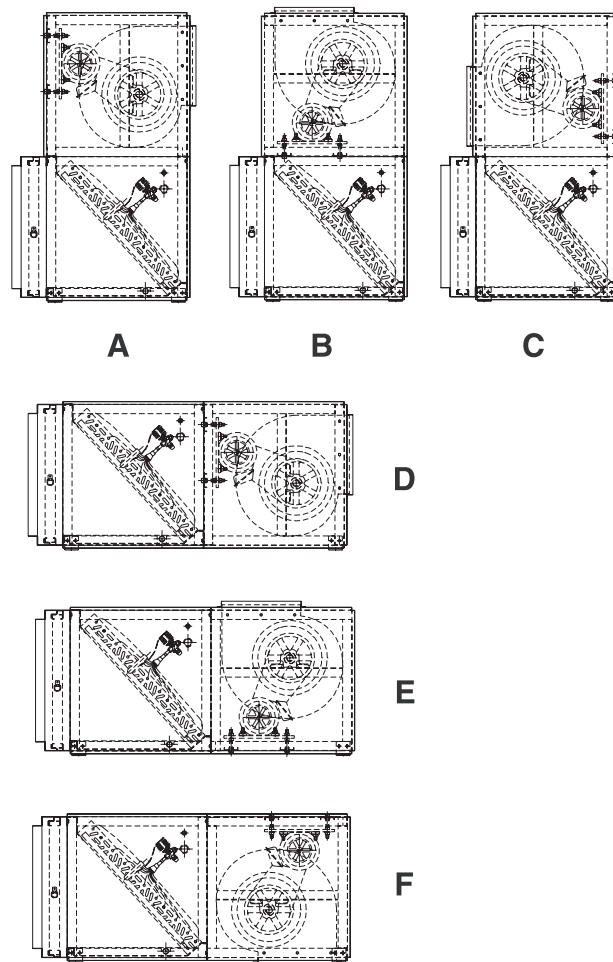
## FILTERS

Two inch permanent filters are provided as standard in 7-1/2 and 10 ton units. Filters shall be accessible from either side.

## LISTING

All standard motors are ETL Listed. All air handlers shall be rated in accordance with ARI 430.

### UNIT ARRANGEMENT



### B3SM 090 DIRECT EXPANSION COOLING CAPACITIES

CFM	O.D.T		65°F			75°F			85°F			95°F			105°F			115°F		
	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.
2500	75	62	89.7	60.8	7.15	87.1	59.7	7.74	84.1	58.4	8.42	80.8	57.0	9.22	77.4	54.6	10.10	73.2	52.9	11.13
	75	67	97.4	48.4	7.30	94.6	47.4	7.88	91.5	46.2	8.57	87.9	44.9	9.37	83.9	43.4	10.25	79.5	41.8	11.26
	75	72	107.0	35.5	7.47	103.9	34.5	8.07	100.5	33.4	8.76	96.6	32.1	9.56	92.2	30.8	10.45	87.5	29.3	11.44
	80	62	90.4	70.7	7.16	87.7	69.4	7.74	84.7	68.1	8.43	81.4	66.6	9.22	77.7	64.9	10.10	73.7	63.0	11.13
	80	67	97.6	59.7	7.29	94.9	58.7	7.88	91.7	57.5	8.57	88.1	56.1	9.36	84.1	54.6	10.24	79.7	53.0	11.25
	80	72	105.8	47.2	7.44	102.7	46.2	8.03	99.3	45.1	8.73	95.5	43.8	9.52	91.2	42.4	10.42	86.5	40.9	11.41
	85	62	91.2	80.3	7.16	88.6	78.9	7.75	85.8	77.2	8.44	81.9	74.2	9.23	78.8	72.5	10.12	75.4	70.1	11.15
	85	67	98.1	69.8	7.29	95.3	68.7	7.88	92.2	67.4	8.57	88.6	66.0	9.36	84.6	64.5	10.24	80.2	62.7	11.26
	85	72	105.9	58.5	7.43	102.9	57.4	8.03	99.5	56.3	8.73	95.7	55.0	9.52	91.5	53.6	10.42	86.8	52.0	11.41
3000	75	62	92.7	64.8	7.41	89.9	63.7	7.99	86.8	62.4	8.67	83.2	60.9	9.46	79.2	59.3	10.35	74.9	57.4	11.36
	75	67	100.0	51.7	7.54	97.0	50.6	8.13	93.7	49.4	8.82	89.9	48.0	9.61	85.6	46.5	10.50	81.0	44.9	11.49
	75	72	109.5	36.6	7.71	106.3	35.7	8.31	102.7	34.5	9.01	98.6	33.3	9.80	94.0	32.0	10.69	89.0	30.5	11.66
	80	62	93.2	76.9	7.40	90.4	75.6	7.99	87.3	74.1	8.67	83.9	72.4	9.47	80.1	70.4	10.36	76.0	68.0	11.37
	80	67	100.1	65.0	7.53	97.2	63.9	8.12	93.9	62.6	8.81	90.1	61.3	9.60	86.4	58.5	10.51	81.7	56.9	11.48
	80	72	108.5	50.4	7.68	105.3	49.3	8.28	101.6	48.2	8.97	97.6	46.9	9.77	93.1	45.5	10.66	88.1	43.9	11.63
	85	62	93.8	87.1	7.40	91.5	86.0	8.00	88.9	84.4	8.70	86.0	82.5	9.50	82.7	80.2	10.40	79.1	77.5	11.43
	85	67	101.1	76.3	7.54	98.1	75.1	8.13	94.7	73.8	8.82	91.0	72.3	9.61	86.8	70.6	10.51	82.3	68.7	11.48
	85	72	108.6	63.7	7.68	105.5	62.6	8.27	102.0	61.4	8.97	98.0	60.1	9.76	93.4	58.7	10.66	88.5	57.1	11.63
3500	75	62	94.6	69.3	7.63	91.7	68.1	8.22	88.4	66.8	8.90	84.7	65.2	9.69	80.6	63.5	10.58	76.1	61.5	11.59
	75	67	101.7	54.7	7.77	98.7	53.6	8.36	95.2	52.4	9.05	91.2	51.0	9.84	86.9	49.5	10.73	82.1	47.8	11.70
	75	72	111.1	37.8	7.94	107.8	36.8	8.53	104.1	35.6	9.23	99.8	34.4	10.03	95.1	33.1	10.91	89.9	31.6	11.90
	80	62	95.5	82.2	7.64	92.7	80.7	8.23	89.5	78.9	8.91	84.6	78.2	9.70	81.1	75.3	10.58	77.3	71.9	11.61
	80	67	102.8	68.4	7.77	99.7	67.3	8.36	96.1	66.0	9.05	92.1	64.6	9.84	87.8	63.0	10.74	83.0	61.2	11.71
	80	72	110.3	53.4	7.91	107.0	52.3	8.50	103.2	51.2	9.20	99.0	49.9	9.99	94.4	48.4	10.89	89.3	46.9	11.87
	85	62	97.6	95.6	7.66	95.1	94.2	8.26	92.4	92.4	8.96	89.3	89.3	9.77	85.8	85.8	10.68	81.9	81.9	11.67
	85	67	103.3	82.2	7.77	100.2	81.0	8.36	96.7	79.5	9.05	92.8	77.8	9.85	88.6	75.9	10.74	84.0	73.5	11.73
	85	72	110.6	68.7	7.91	107.3	67.6	8.50	103.6	66.4	9.20	100.0	63.5	10.01	95.3	62.1	10.90	90.2	60.5	11.88

### B3SM 120 DIRECT EXPANSION COOLING CAPACITIES

CFM	O.D.T		65°F			75°F			85°F			95°F			105°F			115°F		
	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.
3500	75	62	116.9	78.2	9.82	113.4	76.7	10.64	109.5	75.0	11.59	105.2	73.1	12.66	100.5	71.0	13.89	95.6	68.8	15.25
	75	67	126.5	62.6	10.06	122.7	61.2	10.88	118.5	59.5	11.84	113.8	57.7	12.91	108.6	55.8	14.19	103.1	53.7	15.54
	75	72	139.7	46.4	10.39	135.5	45.0	11.22	130.8	43.5	12.19	125.6	41.9	13.29	119.9	40.1	14.55	113.7	38.3	15.98
	80	62	118.3	90.1	9.85	114.8	88.5	10.67	110.9	86.7	11.61	106.5	84.7	12.68	101.7	82.4	13.94	96.7	80.0	15.28
	80	67	125.4	76.2	9.83	121.8	74.8	10.63	117.6	73.1	11.55	113.0	71.3	12.61	107.9	69.4	13.83	102.6	67.3	15.16
	80	72	137.1	61.1	10.31	132.9	59.6	11.14	128.4	58.1	12.10	123.3	56.3	13.21	117.8	54.5	14.47	111.8	52.4	15.89
	85	62	119.2	102.2	9.86	115.7	100.3	10.68	111.9	98.1	11.63	107.7	93.3	12.71	101.6	92.9	13.93	97.3	90.5	15.29
	85	67	127.3	91.0	10.05	123.6	89.5	10.88	119.4	87.9	11.84	115.7	83.8	12.96	110.5	81.8	14.22	105.0	79.5	15.59
	85	72	137.6	75.2	10.31	133.6	73.8	11.15	129.0	72.2	12.11	124.0	70.4	13.22	118.4	68.4	14.48	112.5	66.4	15.90
4000	75	62	119.2	82.8	10.08	115.6	81.2	10.90	111.6	79.4	11.84	107.2	77.5	12.93	102.2	75.4	14.18	97.9	70.9	15.55
	75	67	128.9	65.3	10.32	124.9	63.8	11.14	120.4	62.2	12.09	115.7	60.3	13.19	110.3	58.3	14.44	104.6	56.2	15.82
	75	72	142.0	47.4	10.64	137.6	46.0	11.48	132.7	44.6	12.44	127.3	42.9	13.55	121.2	41.1	14.82	114.8	39.3	16.23
	80	62	121.1	95.4	10.11	117.4	93.7	10.93	113.2	91.7	11.87	108.7	89.6	12.96	103.7	87.1	14.21	98.5	84.3	15.56
	80	67	127.8	80.7	10.08	124.1	79.2	10.89	119.7	77.5	11.81	114.9	75.7	12.87	109.6	73.6	14.07	104.1	71.5	15.42
	80	72	139.4	63.7	10.57	135.3	62.2	11.40	130.6	60.6	12.36	125.4	58.9	13.47	119.4	57.0	14.72	113.2	54.9	16.15
	85	62	122.5	107.4	10.13	118.7	105.5	10.92	112.9	106.7	11.85	109.1	104.7	12.96	104.9	101.8	14.23	100.5	98.5	15.62
	85	67	131.4	94.5	10.35	127.4	92.9	11.18	122.9	91.1	12.13	117.9	89.1	13.23	112.5	86.9	14.47	106.8	84.5	15.87
	85	72	140.2	79.7	10.57	136.0	78.2	11.41	131.2	76.5	12.37	126.0	74.7	13.48	120.2	72.7	14.73	114.1	70.6	16.18
4500	75	62	121.0	87.1	10.32	117.3	85.5	11.14	113.2	83.7	12.09	109.7	78.9	13.20	104.5	76.8	14.45	98.9	74.4	15.80
	75	67	130.7	67.9	10.56	126.7	66.4	11.39	122.1	64.7	12.34	117.1	62.8	13.43	111.5	60.7	14.68	105.6	58.6	16.07
	75	72	143.6	48.4	10.88	139.1	47.0	11.73	134.0	45.5	12.68	128.3	43.9	13.79	122.0	42.1	15.05	115.1	40.2	16.47
	80	62	123.3	100.1	10.36	119.5	98.3	11.18	115.2	96.1	12.13	110.6	93.7	13.20	105.5	90.8	14.45	98.3	90.3	15.82
	80	67	129.8	85.0	10.33	125.6	83.5	11.13	121.2	81.7	12.05	116.3	79.8	13.11	110.8	77.7	14.32	106.1	73.0	15.72
	80	72	141.5	66.2	10.81	137.1	64.7	11.65	132.2	63.1	12.61	126.7	61.3	13.72	120.7	59.4	14.99	114.4	57.3	16.41
	85	62	122.7	119.9	10.33	119.6	118.4	11.17	116.0	116.0	12.13	112.1	112.1	13.23	107.7	107.7	14.54	103.1	103.1	15.93
	85	67	133.6	99.6	10.60	129.4	97.9	11.43	124.8	96.0	12.38	119.7	93.9	13.48	114.1	91.5	14.74	108.2	88.8	16.15
	85	72	142.1	83.9	10.81	137.8	82.4	11.65	132.9	80.7	12.62	127.5	78.8	13.73	121.6	76.8	15.00	115.2	74.6	16.43

## BLOWER PERFORMANCE - B3SM 60 HZ. SERIES

Model	Motor Sheave Position	External Static Pressures (Inches Water Column)																							
		0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9									
		CFM	RPM	Kw	CFM	RPM	Kw	CFM	RPM	Kw	CFM	RPM	Kw	CFM	RPM	Kw	CFM	RPM	Kw						
B3SM-090 (1.5 HP) 60Hz	Fully Closed	3275	919	1.50	3175	921	1.44	3075	922	1.38	3000	925	1.32	2925	928	1.25	2733	933	1.15	2540	937	1.05	2350	941	0.95
	1 Turn Open	3063	876	1.29	2969	878	1.23	2875	879	1.18	2779	882	1.11	2683	884	1.05	2500	887	1.00	2370	889	0.95			
	2 Turns Open	2850	833	1.08	2763	835	1.03	2675	836	0.98	2558	838	0.91	2440	840	0.84									
	3 Turns Open	2710	798	0.96	2609	799	0.91	2509	801	0.86	2390	802	0.76												
	4 Turns Open	2570	762	0.83	2456	764	0.79	2342	765	0.74															

B3SM-120 (2 HP) 60Hz	Fully Closed				4700	803	2.16	4500	805	2.02	4300	809	1.89	4100	812	1.75	3830	816	1.62	3560	819	1.48	3365	822	1.35
	1 Turn Open	4615	763	1.95	4401	765	1.83	4188	767	1.72	3938	770	1.58	3688	773	1.45	3425	775	1.32						
	2 Turns Open	4325	725	1.6	4100	727	1.51	3875	728	1.41	3575	731	1.28	3275	734	1.15									
	3 Turns Open	4013	685	1.38	3756	686	1.28	3500	688	1.17	3250	690	1.08												
	4 Turns Open	3700	644	1.16	3425	646	1.05																		

Notes: Boldface indicates factory recommended blower operating range.  
 Values include losses for air filters, unit casing, and dry evaporator coil.  
 Shaded area is not recommended for operation.

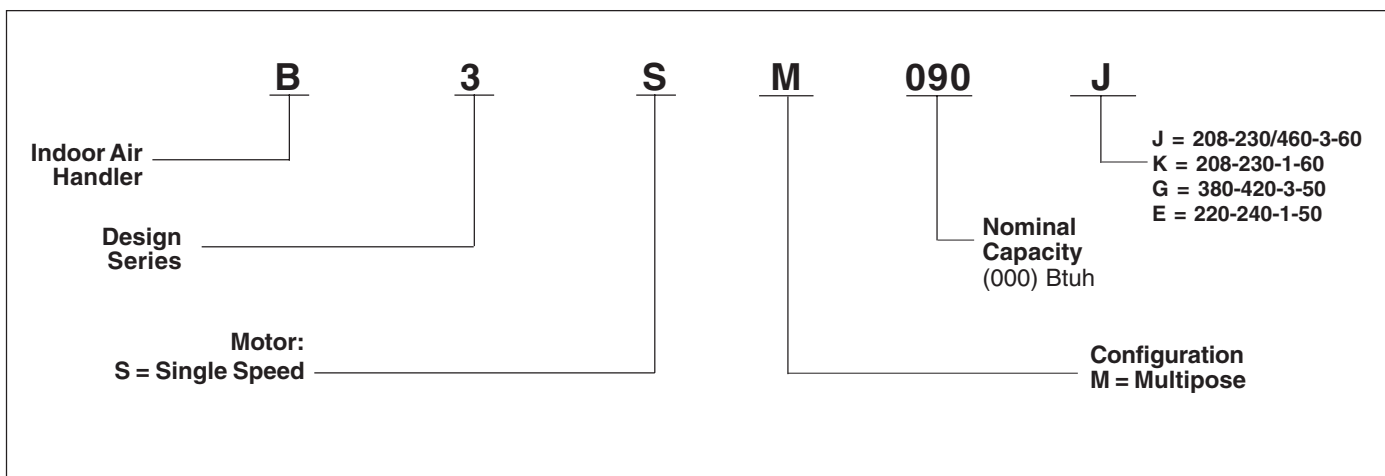
## B3SM 60 HZ. ELECTRICAL RATINGS

Model No.	Voltage	Ph.	Hz.	FLA	HP	MCA	MOP
B3SM-090K	208-230	1	60	7.0-7.0	1.5	8.8-8.8	15
B3SM-090J	208-230 / 460	3	60	5.2-5.2 / 2.6	1.5	6.5-6.5 / 3.3	15
B3SM-120K	208-230	1	60	9.7-9.7	2.0	12.1-12.1	20
B3SM-120J	208-230 / 460	3	60	6.9-7.2 / 3.7	2.0	8.6-9.0 / 4.6	15

FLA = Full Load Amp; MCA = Min. Circuit Ampacity; MOP = Max. Overcurrent Protection



## MODEL IDENTIFICATION CODE



## COMPONENT STATIC PRESSURE

MODEL B3SM	NOMINAL CFM	CABINET	COOLING COIL*	FILTER	
			4 ROW	SIZE	RESISTANCE " W. C.
090	2500	0.12	0.34	16" x 20" (2")	0.16
	2750	0.14	0.39		0.18
	3000	0.16	0.45		0.21
	3250	0.17	0.51		0.24
	3500	0.19	0.57		0.26
120	3500	0.14	0.37	16" x 25" (2")	0.16
	3750	0.15	0.42		0.18
	4000	0.17	0.47		0.21
	4250	0.19	0.53		0.24
	4500	0.21	0.59		0.26

\*Wet Coil (Dry Coil P.D.=Wet P.D. x .70)