

TECHNICAL SPECIFICATIONS

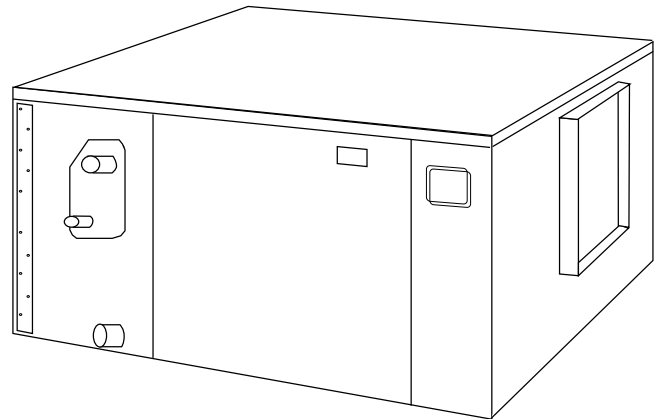
B3SH/V

Air Handler

7-1/2 and 10 Ton Light Commercial System

Features and Benefits

- Cabinet** — Fabricated of heavy gauge galvanized steel. Seismic resistant mounting brackets are standard on all models.
- Blower** — Resiliently mounted, 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 pulleys to permit variations in static pressure and air requirements. All blowers have sealed ball bearings.
- Coils** — Fabricated of 3/8" or 1/2" OD seamless copper tubes 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 cool only (not heat pump) operation. The 7-1/2 ton model has single circuit coils, and the 10 ton model has dual-circuited coils.
- Insulation** — The entire interior of the cabinet is insulated with a special one (1) inch insulation coated with an EPA registered agent which effectively resists the growth of bacteria and fungi. This insulation can also handle the abuse of maintenance and cleaning practices listed by NAIMA (North American Insulation Manufacturers Association).
- Filter** — One inch permanent filters are provided as standard in all 7-1/2 and 10 ton units. **Filters can be changed without tools.** Space available for 2".
- Motor** — Standard motor is 1725 RPM. The adjustable motor mount permits easy belt adjustment. A variable pitch pulley allows balancing of the system to the desired CFM. (On some models drive kit is purchased as separate item)
- Miscellaneous** —
 - Rails are turned down 1/2" on each end for safer and easier installation.
 - 4 x 4 junction box accepts a field installed (24/120V) relay / transformer for low voltage control.
 - 3/4 inch NPT drain connections on both sides of cabinet.
 - Header connections on the right side as standard. Knockouts are provided for conversion to the left side. (Looking with airflow).
 - Drain pans are coated for corrosion protection.
- Warranty** — 1 Year Limited Parts



Horizontal Shown

COMPONENT STATIC PRESSURE

MODEL B3SH/V	NOMINAL CFM	CABINET	COOLING COIL*	OPTIONAL HEATING COIL	FILTER
			4 ROW	2 ROW	
090	2500	0.12	0.34	0.13	0.04
	2750	0.14	0.39	0.16	0.05
	3000	0.16	0.45	0.18	0.06
	3250	0.17	0.51	0.21	0.07
	3500	0.19	0.57	0.24	0.08
120	3400	0.14	0.37	0.14	0.05
	3700	0.15	0.42	0.16	0.06
	4000	0.17	0.47	0.19	0.07
	4300	0.19	0.53	0.21	0.08
	4600	0.21	0.59	0.24	0.09

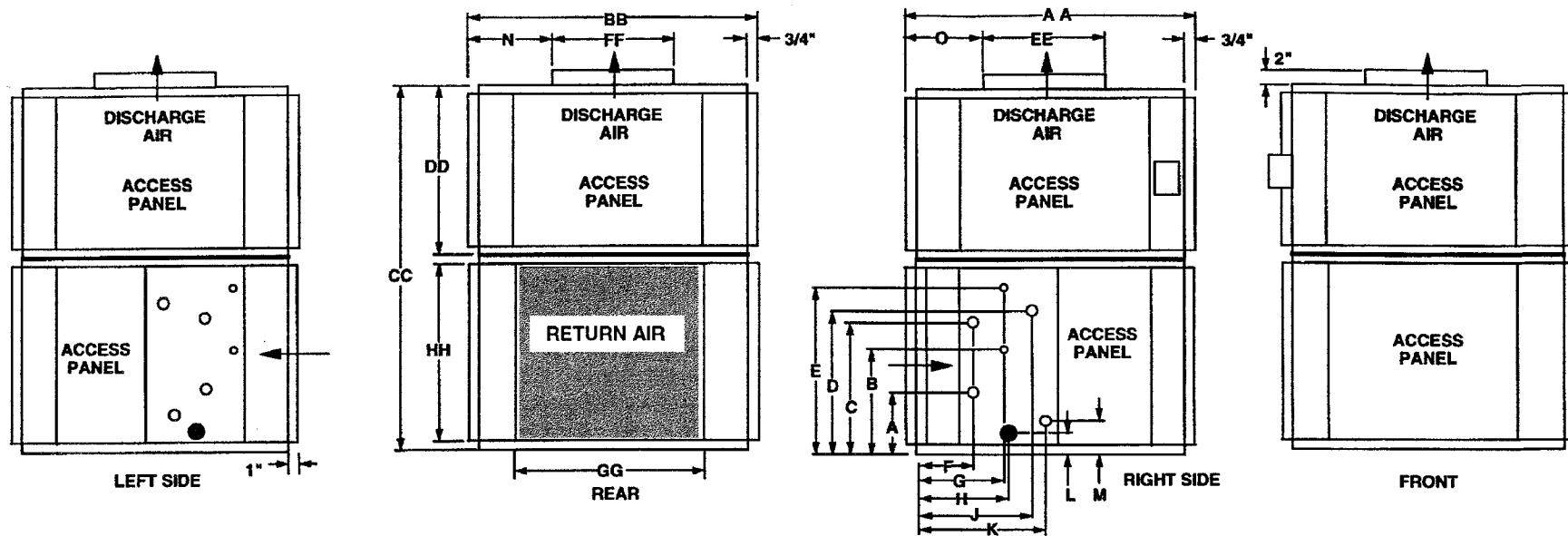
*Wet Coil (Dry Coil P.D.=Wet P.D. x .70)

B3SH/V MOTOR DRIVE ASSEMBLY SELECTION CHART

MODEL CFM	External Static Range		Total Static in	Blower Speed RPM	Motor Selection			Complete Motor Drive Assembly Number	Unit with Drive Kit	Unit with Drive Kit
	4 Row DX Coil	4 Row DX/ 2R-HW Coil			HP	Volt (60hz)	PH			
	Horizontal							Horizontal	Vertical	
B3SH/V 090	90C(*)X4	90C(*)X42	Unit Less Drive Kit 547900						B3SH 090	B3SV 090
3/4 HP										
2800	0.00 - 0.26	0.00 - 0.11	0.50 - 0.85	485-655	3/4	115/208-230	1	547921		
3000	0.00 - 0.14	NA	0.50 - 0.80			208-230/460	3	547922		
3200	NA	NA								
1 HP										
2800	0.00 - 0.26	0.00 - 0.11	0.55 - 0.85	485-655	1	115/208-230	1	547923		
3000	0.00 - 0.15	NA	0.50 - 0.80			208-230/460	3	547924		
3200	0.00 - 0.13	NA	0.50 - 0.75							
1 HP										
2800	0.11 - 0.71	0.00 - 0.56	0.70 - 1.30	600-820	1	115/208-230	1	547925		
3000	0.04 - 0.64	0.00 - 0.46	0.70 - 1.30			208-230/460	3	547926		
3200	NA	NA								
1.5 HP										
2800	0.11 - 0.71	0.00 - 0.56	0.70 - 1.30	600-820	1.5	208-230/460	3	547927	547902*	547906*
3000	0.04 - 0.64	0.00 - 0.46	0.70 - 1.30							
3200	0.00 - 0.58	0.00 - 0.18	0.70 - 1.30							
1.5 HP										
2800	0.21 - 1.06	0.16 - 0.91	0.90 - 1.65	690-935	1.5	115/208-230	1	547928	547903*	547907*
3000	0.20 - 1.04	0.06 - 0.86	0.90 - 1.70			208-230/460	3	547929		
3200	0.18 - 0.93	0.00 - 0.58	0.90 - 1.67							
2 HP										
2800	0.31 - 1.26	0.16 - 0.91	0.90 - 1.65	690-935	2	208-230/460	3	547930		
3000	0.24 - 1.04	0.06 - 0.86	0.90 - 1.70							
3200	0.18 - 1.03	0.00 - 0.98	0.90 - 1.75							
2 HP										
2800	0.71 - 1.61	0.56 - 1.46	1.30 - 2.20	805-1090	2	208-230/460	3	547931		
3000	0.64 - 1.60	0.46 - 1.30	1.30 - 2.20							
3200	0.51 - 1.58	0.15 - 1.18	1.25 - 2.30							

MODEL CFM	External Static Range		Total Static in	Blower Speed RPM	Motor Selection			Complete Motor Drive Assembly Number	Unit with Drive Kit	Unit with Drive Kit
	4 Row DX Coil	4 Row DX/ 2R-HW Coil			HP	Volt (60hz)	PH			
	Horizontal							Horizontal	Vertical	
B3SH/V 120	120C(*)X4	120C(*)X42	Unit Less Drive Kit 547901						B3SH 120	B3SV 120
1.5 HP										
3800	0.00 - 0.32	0.00 - 0.16	0.50 - 0.95	535-730	1.5	115/208-230	1	547935		
4000	0.00 - 0.19	NA	0.50 - 0.90			208-230/460	3	547936		
4200	0.00 - 0.06	NA	0.50 - 0.85							
1.5 HP										
3800	0.00 - 0.52	0.00 - 0.36	0.50 - 1.15	605-820	1.5	115/208-230	1	547937		
4000	0.00 - 0.39	0.00 - 0.20	0.50 - 1.10							
4200	0.00 - 0.31	0.00 - 0.10	0.50 - 1.10							
2 HP										
3800	0.00 - 0.41	0.00 - 0.16	0.50 - 0.95	535-730	2	208-230/460	3	547939	547904*	
4000	0.00 - 0.19	NA	0.50 - 0.90							
4200	0.00 - 0.06	NA	0.50 - 0.85							
2 HP										
3800	0.17 - 1.41	0.00 - 0.21	0.80 - 2.00	690-935	2	115/208-230	1	547938	547905*	547909*
4000	0.09 - 0.94	0.00 - 0.75	0.80 - 1.65			208-230/460	3	547940		547908*
4200	0.00 - 0.71	0.00 - 0.50	0.80 - 1.50							
3 HP										
3800	0.67 - 1.47	0.51 - 1.31	1.30 - 2.10	825-1015	3	208-230/460	3	547941		
4000	0.59 - 1.29	0.40 - 1.10	1.30 - 2.00							
4200	0.41 - 1.21	0.20 - 1.00	1.20 - 2.00							

*Air handlers with drive kits included. **Units are built to order.**



UNIT DIMENSIONS

MODEL B3SV	UNIT CABINET				BLOWER OUTLET		RETURN DUCT CONNECTION		STUBOUT LOCATION FOR COIL CONNECTIONS													
	AA	BB	CC	DD	EE	FF	GG	HH	A	B	C	D	E	F	G	H	J	K	L	M	N	O
090	37-1/2	55-1/2	51	24	16-3/8	19-1/8	45	25-1/4	12-3/4	---	---	19	21-3/4	5-7/8	8-3/4	10	12-5/16	14	1-1/2	3-9/16	18-1/4	11-1/4
120	37-1/2	58-1/2	56	24	16-3/8	19-1/8	48	30-1/4	7-11/16	3-11/16	9-5/16	24	28-3/4	5-7/8	8-3/4	10	12-5/16	14	1-1/2	3-9/16	19-3/4	9-3/4

- Notes:** 1) All drain connections are 3/4" MPT and located on both sides.
 2) All units have knockouts on both sides for either right (standard) or left side coil stub outs. (Looking with airflow)

GENERAL SPECIFICATIONS

MODEL B3SV	NOM. COOL TONS	FACE AREA SQ. FT.	TUBE SIZE	BLOWER SIZE	FILTER SIZE	4 ROW COIL		
						LIQUID (SWEAT)	SUCTION (SWEAT)	SHIPPING WEIGHT
090	7-1/2	7.3	1/2	15 x 15	25 x 25 (2)	5/8" OD	1-1/8" OD	460
120	10	9.4	1/2	15 x 15	26 x 30 (2)	1/2" OD	7/8" OD	575

- Notes:** 1) All technical specifications subject to change without notice.
 2) When B3BV units are used with hot water coil the leaving air temperature must not exceed 150 degrees.
 At high altitude conditions, blower motor may cutout at a lower LAT. Contact factory for information.
 3) 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 one 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 2" supply and 1" return flanges.

INSULATION

The entire interior of the cabinet shall be insulated with one (1) inch insulation. This insulation must meet the requirements of ASTM C1071, ASTM G21, ASTM G22, NFPA90A, 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 1725 RPM either single or three phase. All motors to be field or factory installed and wired at voltage specified by customer.

COILS

All coils shall consist of aluminum fins mechanically bonded onto 3/8" or 1/2" 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

One inch permanent filters are provided as standard in 7-1/2 and 10 ton units. Filters shall be accessible without tools.

LISTING

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

B3SH/V 090 DIRECT EXPANSION COOLING CAPACITIES

SUCTION TEMP. °F	CFM	85°F DB / 71°F WB ENT. AIR				80°F DB / 67°F WB ENT. AIR				75°F DB / 63°F WB ENT. AIR			
		TOTAL MBTUH	SENS. MBTUH	LVG. AIR °F		TOTAL MBTUH	SENS. MBTUH	LVG. AIR °F		TOTAL MBTUH	SENS. MBTUH	LVG. AIR °F	
				DB	WB			DB	WB			DB	WB
40	2500	147.9	85.9	53.2	52.6	123.3	77.7	51.2	50.7	98.7	68.5	49.6	49.2
	3000	164.2	97.3	55.0	54.3	136.9	88.2	52.8	52.1	109.5	78.0	50.9	50.3
	3500	176.7	107.1	56.7	55.8	147.3	97.4	54.2	53.4	117.9	86.4	52.1	51.4
45	2500	127.4	77.8	56.2	55.6	102.8	69.4	54.3	53.8	78.2	60.0	52.8	52.3
	3000	141.5	88.5	57.7	57.0	114.1	79.2	55.6	54.9	86.8	68.8	53.8	53.2
	3500	152.2	97.9	59.1	58.2	122.8	87.9	56.8	55.9	93.4	76.6	54.7	54.0
50	2500	105.1	69.5	59.3	58.7	80.5	60.9	57.5	57.0	55.9	51.2	56.0	55.5
	3000	116.7	79.5	60.5	59.8	89.4	68.8	58.4	57.8	62.1	59.1	56.8	56.1
	3500	125.6	88.4	61.6	60.8	96.2	77.9	59.4	58.6	66.3	66.3	57.5	---

B3SH/V 090 HOT WATER HEATING CAPACITIES

90HWK (2 ROW COIL)					
180°F ENTERING WATER TEMPERATURE					
CFM	GPM	WTR. P.D. FT.	TOTAL MBH	LVG. AIR °F	LVG. WTR. °F
2500	8	1.0	146.2	124	143
3000			160.5	120	140
3500			171.5	115	137
2500	14	2.8	162.3	130	157
3000			180.4	126	154
3500			196.2	122	153
2500	21	6.1	171.1	133	164
3000			191.2	129	162
3500			209.1	125	160

*70 degree return air

B3SH/V 120 DIRECT EXPANSION COOLING CAPACITIES

SUCTION TEMP. °F	CFM	85°F DB / 71°F WB ENT. AIR				80°F DB / 67°F WB ENT. AIR				75°F DB / 63°F WB ENT. AIR			
		TOTAL MBTUH	SENS. MBTUH	LVG. AIR °F		TOTAL MBTUH	SENS. MBTUH	LVG. AIR °F		TOTAL MBTUH	SENS. MBTUH	LVG. AIR °F	
				DB	WB			DB	WB			DB	WB
40	3400	196.6	114.8	53.7	53.1	163.9	104.0	51.7	51.1	131.2	91.7	50.0	49.5
	4000	215.0	128.0	55.4	54.6	179.2	116.2	53.1	52.4	143.5	102.8	51.2	50.6
	4600	229.1	139.4	57.0	56.0	191.0	126.9	54.5	53.6	152.9	112.6	52.3	51.6
45	3400	169.4	104.2	56.6	56.0	136.7	93.1	54.7	54.1	104.0	80.5	53.1	52.6
	4000	185.2	116.6	58.0	57.3	149.5	104.4	55.8	55.1	113.7	90.7	54.0	53.4
	4600	197.4	127.6	59.3	58.4	159.3	114.6	56.9	56.1	121.2	99.9	54.9	54.1
50	3400	139.8	93.2	59.6	59.0	107.1	81.7	57.8	57.2	74.4	68.9	56.2	55.7
	4000	152.9	104.8	60.7	60.0	117.1	92.2	58.7	58.0	81.3	78.1	56.9	56.3
	4600	162.9	115.2	61.8	60.9	124.8	101.7	59.5	58.7	86.6	86.6	57.6	---

B3SH/V 120 HOT WATER HEATING CAPACITIES

120HWK (2 ROW COIL)					
180°F ENTERING WATER TEMPERATURE					
CFM	GPM	WTR. P.D. FT.	TOTAL MBH	LVG. AIR °F	LVG. WTR. °F
3400	11	1.0	198.5	124	144
4000			215.8	120	140
4600			229.4	116	138
3400	18	2.8	217.8	129	156
4000			239.8	125	153
4600			257.8	122	151
3400	25	5.3	227.8	132	162
4000			251.9	128	160
4600			272.0	125	158

*70 degree return air

HOT WATER HEATING CORRECTION FACTORS

ENTERING AIR TEMP. (°F)	ENTERING WATER TEMPERATURE (°F)								
	100	110	120	130	140	150	160	170	180
50	0.455	0.545	0.636	0.727	0.818	0.909	1.000	1.091	1.182
55	0.409	0.500	0.591	0.682	0.773	0.864	0.955	1.045	1.136
60	0.363	0.455	0.545	0.636	0.727	0.818	0.909	1.000	1.091
65	0.318	0.409	0.500	0.591	0.682	0.773	0.864	0.955	1.045
70	0.272	0.363	0.455	0.545	0.636	0.727	0.818	0.909	1.000
75	0.227	0.318	0.409	0.500	0.591	0.682	0.773	0.864	0.955
80	0.182	0.272	0.363	0.455	0.545	0.636	0.727	0.818	0.909

- Notes:**
- 1) To determine heating capacity at other than 180 deg. E.W.T. and 70 deg. E.A.T. multiply the selected heating capacity at 180 deg. times the appropriate correction factor from above chart.
 - 2) These correction factors may be used on all published 180 deg. heating capacities.
 - 3) When B3SH/V units are used with hot water coils the leaving air temperature must not exceed 150 degrees. At high altitude conditions, blower motor may cutout at a lower LAT. Contact factory for information.

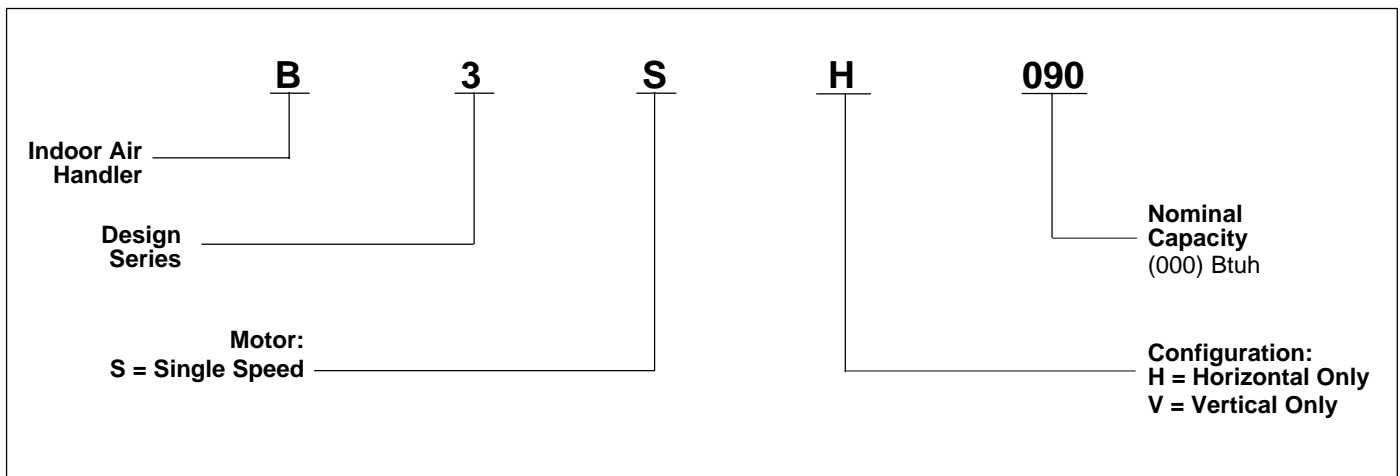
B3SH/V BELT DRIVEN BLOWER PERFORMANCE VERIFICATION FORM

Due to the variable CFM and ESP capabilities of the belt driven air handlers, the following information is necessary in order to select the most appropriate motor drive for the belt driven air handlers your company has requested.

Please provide the following information and return it as soon as possible. If your customer can not provide data simply check the data not available box at the bottom of this form and the appropriate motor drive kit will be selected.

Unit Model	CFM	ESP	Voltage	Phase	H.P.
Date:		Customer:			
<input type="checkbox"/>	If data requested is not available please check box.		Purchase Order#		
Telephone No.:		Signature:			

MODEL IDENTIFICATION CODE



Options

1. Separate 2 row hot water coil can be field installed in either the reheat or preheat position.
2. **Discharge plenum** with four way double - deflection grille (field installed) (for B3SH units only).

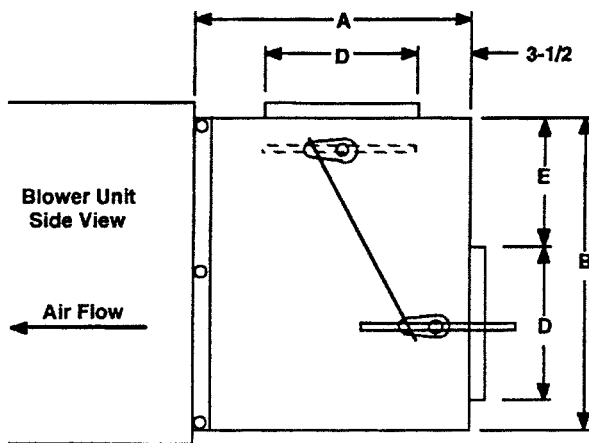
NOTE: When hot water coils are added, a "Freeze Stat" must be field installed in order to keep hot water coil from freezing.

PART NUMBER	FOR UNIT MODEL	MANIFOLD CONNECTIONS
547932	B3SH/V 090	1-3/8" OD
547942	B3SH/V 120	

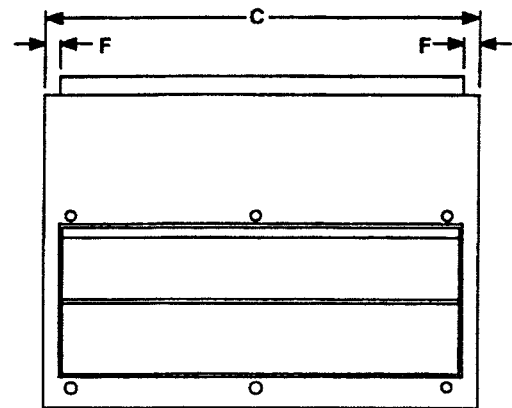
PART NUMBER	FOR UNIT MODEL	DEPTH(1)
547933	B3SH 090	6"
547943	B3SH 120	

(1) Height and width are the same as the unit being attached to.

3. Mixing Box



Mixing Box
Side View



Mixing Box
Rear View

Dimensions:

PART NUMBER	FOR UNIT MODEL	A	B	C	D	E	F	DAMPER SIZE (NOM)	SHIPPING WEIGHT
547932	B3SH/V 090	18	25-3/8	45-1/8	10	8	1-1/16	2-42 X 10	110
547942	B3SH/V 120	20	30-3/8	48-1/8	12	10	1-1/16	2-46 X 12	135

1. Cabinet fully insulated - 3/4 inch.
2. Embossed galvanized cabinet.
3. Crank arms and linkage rod for damper connection are furnished. Connections can be made on either side of mixing boxes. The balance of necessary linkage hardware, damper motor, and controls to be field supplied.
4. Dampers can be positioned for either rear/top or rear/bottom locations.
5. 1" duct flanges provided on damper openings.
6. Dampers have air seals on the edges for positive closing. B3SH/B 090 have single horizontal damper blades. B3SH/V 120 have double horizontal damper blades.
7. When used with water coil units, a "freezestat" must be installed to prevent coil damage caused by low ambient conditions.

888A-0700 (Replaces 888A-0400)