



## EXHAUSTO Box Ventilator **BESB**

**Description**  
The EXHAUSTO BESB Box Ventilator is a high-efficiency ventilator with a backward curved centrifugal impeller. The BESB is completely insulated to reduce noise and condensation. The ventilator housing is galvanized steel, while the impeller is cast aluminum. The design is a Type B, Spark Resistant Construction.  
The BESB is equipped with an energy-efficient, totally enclosed, variable speed motor (TEFC). A service door is provided allowing easy access to the motor and impeller.  
BESB can be used for combustion air supply or exhaust systems where reliability, efficiency and low noise are important factors.  
The BESB Box Ventilator is a component in the Modulating Combustion Air System (MCAS) and Mechanical Dryer Venting System (MDVS).

**Material**  
The housing is galvanized steel and insulated with fiber mat. Impeller is cast aluminum and balanced with permanently attached lead balancing weights.



**Motor**  
Commercial grade, totally enclosed, variable speed 1 or 3-phase motor. Class B insulated, IP54 Protection Class. Sealed ball bearings. Thermal overload protection.

**Standard Equipment**  
Slip connections with silicone seals.

**Accessories**  
EBC 12, Modulating Fan Control  
EBC 14, Pressure Control  
EBC 30, Modulating Pressure Control  
Variable Frequency Drive, VFD  
Flexible connections, FLP  
Proven Draft Switch, PDS

**Listings**  
ETL listing #E109205500  
UL705-Power Ventilator  
Suitable for venting lint-laden air from dryers. Component in an ETL Listed MCAS System (ETL Report J99\*18091-003)  
Component in an ETL Listed MDVS System (ETL Report J99\*18091-004)  
CE compliant  
Manufactured at ISO 9001 certified plant. Complies with and meets Type B, Spark Resistant Construction per AMCA standard 99-0421 classifications of Spark Resistant Construction.

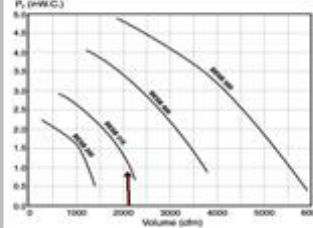
**Warranty**  
2 year factory warranty

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### Specifications

	BESB 200	BESB 315	BESB 400	BESB 500
Motor		General Purpose Motor (3-Phase)		
Fan Type		TEFC		
Voltage	V AC	1x120	2 x 200/240/3/460/480	3/014-0
Amperage	Amps	0.8	3.0/1.7	6.5/3.9
Motor Output	HP	0.5	1	2
	kW	0.36	0.75	1.5
HP/HP		1/2	1.25	1.75
Weight	lbs	110	128	167
	kg	50	57	76
Duct Connection	E in	10	12	16
	E mm	250	315	400
	A in	30.91	30.91	35.24
	A mm	785	785	895
	B in	24.81	28.31	30.91
	B mm	625	719	785
	C in	10.83	13.98	15.35
	C mm	275	355	390
	D in	7.66	7.66	10.24
	D mm	195	195	260
	G in	31.50	31.50	31.50
	G mm	800	800	800
	H in	13.73	15.10	17.32
	H mm	350	385	440
	J in	18.50	17.91	20.47
	J mm	460	453	525
	K in	7.25	8.08	9.84
	K mm	185	205	250
	L in	4.83	4.83	4.83
	L mm	122	122	122
	M in	2.36	2.15	3.15
	M mm	60	55	80

### Capacity



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## EXHAUSTO Variable Frequency Drive **VFD** (Danfoss VLT2800)

**Description**  
The Danfoss Model VLT2800 is an industrial type variable frequency drive that is designed specifically to control and adjust the speed of EXHAUSTO fans. The Danfoss VLT2800 is used with CASV, Chimney Automation Systems, MDVS, Mechanical Dryer Venting Systems, and MCAS, Modulating Combustion Air Systems.  
Drives are available from 1 HP through 7.5 HP and have pre-wired power and control connections. The VFD is pre-programmed by EXHAUSTO for the specific application for which it is to be used. However, if program changes are necessary the settings can be adjusted using the VFD keypad panel.



**Material**  
The frame is made of aluminum while the cover is plastic. The enclosure has a NEMA 1 rating.

**Maintenance**  
No special maintenance is required.

**Approvals**  
Tested and listed to UL, cUL and CSA standards. CE compliant.

**Warranty**  
2-year factory warranty.

Specifications are subject to change without notice.

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## EXHAUSTO Modulating Pressure Control **EBC 30**

**Use**  
The EBC 30 is a draft or pressure control device that can monitor and maintain a constant draft or pressure by varying the speed of a fan(s) or the position of an actuator. It can be used with EXHAUSTO models RS, RSV, RSF, BESS, BESB and MDR.  
Typical uses are: 1) Controlling draft in a mechanical draft system serving boilers and water heaters; 2) Controlling position of an over-draft damper serving boilers and water heaters; 3) Controlling duct pressure in a dryer venting system or a ventilation system; or 4) Controlling the supply of combustion air to a mechanical room.

**Description**  
The EBC 30 features "Plug-n-Play" to automatically detect connections, setting requirements and accessories during initial start-up. A rotation check feature makes it easy to determine the rotation of a 3-phase fan motor.  
The control can provide a 0-10V signal to a Variable Frequency Drive (VFD) or actuator. An add-on board can supply 0-120VAC power directly to the mechanical draft fan or air supply ventilator. It can interlock with up to 6 heating appliances, and an unlimited number of additional heating appliances can be handled by using one or more ES12, Relay Box. An integrated Proven Draft Switch function assures that sufficient draft cannot be maintained, the control will lock out the appliance(s) within an adjustable time period. Automatic reset avoids nuisance lockouts and the need for manual reset.  
The EBC 30 can be set up for intermittent operation so it purges the stack prior to the boiler(s) start and post-purge up to 30 minutes after boiler stop. Alternatively, it can be set up for continuous operation where the fan runs continuously but modulates and runs at idle speed, if no appliances are operating.  
The programmable processor allows manual overrides, manual functionality, low and high limit fan speeds. An Operating Priority set up option allows one or more appliance to operate during electrical or mechanical failure of the fan(s) provided the draft requirement can be met and safe operation assured. It automatically checks for fan operation every two hours and goes back to normal operation, if appropriate.  
A bearing cycle program activates the fan(s) for up to 3 minutes in case the fan(s) has not been operating for a week.  
Required draft and pressures can be maintained and shown via a LCD-panel. A self-diagnostics panel with LED-diods verifies proper operation. The control maintains an error log including the last 50 fault codes.  
The control has 53 programmable functions and an RS-232 connection to a Building Management System. The control can be factory or field programmed to meet "Sequence-of-Operation" requirements for Over-Draft Controls as well as Draft Equipment.



**Material**  
The housing is made in steel and is NEMA 1 rated.

**Standard Equipment**  
Control box and XTP-Sensor with 6' silicone tubing and a stack probe.

**Listings**  
ETL listing #109205500  
UL508 and CSA C22 2 No. 14-96 - Standard for Industrial Control Equipment (ETL Report 302852A4)  
Component in an ETL listed CASV System (ETL Report 043098A)  
Component in an ETL listed MCAS System (ETL Report J99\*18091-003)  
Component in an ETL listed MDVS System (ETL Report J99\*18091-004)  
Component in an ETL listed MCOS System (ETL Report 302852A4)  
CE Compliant  
Manufactured at ISO 9001 certified plant.

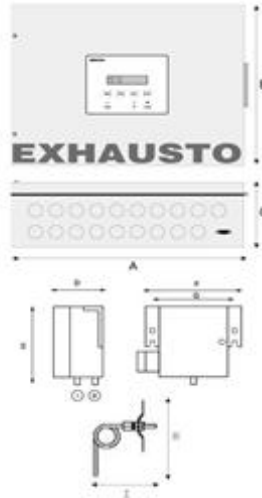
**Warranty**  
2-Year Factory Warranty

Specifications are subject to change without notice.

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### Specifications

EBC 30 Control	
Power Supply	V 1x120VAC
Amperage	A 6.3
Operating Temperature	°F/C -4 to 104/20 to 50
Range of Operation	mWC/Pa 0-0.60-150
Tolerance	mWC/Pa 0.01/3 +/-10%
Control Signal	mA max 10
Control Relay	Max 120 VAC/5A
Output	VAC 10-120
	VDC 0-10
Dimensions	
A in/mm	14.65/372
B in/mm	11.03/280
C in/mm	4.22/107
Weight	lbs/kg 8.94/0
EMC Standard	
Emission	EN 50 081-1
Immunity	EN 50 082-2
XTP Sensor	
Power Supply	VDC 0-24
Amperage	mA <20
Output	VDC 0-10
Operating Temperature	°F/C -4 to 115/-20 to 60
Tolerance	mWC/Pa 0.01/3 +/-10%
Dimensions	
D in/mm	4.71/120
E in/mm	3.7/95
F in/mm	5.31/134
G in/mm	3.91/100
Weight	lbs/kg 3/4
Dimensions	
H in/mm	4.25/108
I in/mm	3.50/89



- Programmable features:**
1. Rotation check
  2. Exhaust (draft) setting
  3. Exhaust mode
  4. Exhaust pre-purge time and speed mode
  5. Exhaust post-purge time and speed mode
  6. Exhaust sensor range
  7. Exhaust alarm limit
  8. Exhaust alarm delay
  9. Exhaust speed min and max
  10. Intake set
  11. Intake mode
  12. Intake pre-purge time and speed mode
  13. Intake post-purge time and speed mode
  14. Intake sensor range
  15. Intake alarm limit
  16. Intake alarm delay
  17. Intake speed min and max
  18. Language
  19. Display units
  20. Display light
  21. Alarm reset
  22. Service triac board
  23. Service override exhaust
  24. Service override intake
  25. Service override alarm mode
  26. Option priority mode
  27. Option bearing cycle
  28. Manual exhaust/intake

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EXHAUSTO

### FanCalc 2005

EXHAUSTO Job # : F-15361  
Job/Project Name : PPH 2  
City/State : Portland, ME

Prepared for : Brian Kenney  
Company : PPH

Prepared by : Dan Burnell  
E-mail : dburnell@nemech.com  
Phone Ext. :

### Fan System Data:

System Type	Description
MCAS	Combustion Air

### Location Data:

Local Altitude	: 26 ft A.S.L.	Ambient Temperature	: 60 °F
Barometric Pressure	: 29.89 in. Hg		

### Equipment Data:

Appl. No.	Type	Manufacturer	Model	Input MBH	CO2%	Volume CFM
1	Boiler/W/H	Cleaver-Brooks	CB-80	3350	9	698
2	Boiler/W/H	Cleaver-Brooks	CB-80	3350	9	698
3	Ventilation AL	N/A	N/A	N/A	N/A	700

### Duct Data:

Total Length	Duct Size In.	45° Elbow(s)	90° Elbow(s)	Add.K	Misc. Pressure	Velocity FPM	Duct Heater
10.8%	12e	0	2	0	0	2669	NO

### Results:

Mass Flow Rate	: 9578 lb/h	Max. k value	: 2.267
Volumetric Flow	: 2095 CFM	Max. Inlet Pressure	: 1.021 in. W.C.

### Fan Selection:

BESB315

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