AEROVENT

INDUSTRIAL VENTILATION SYSTEMS

UPBLAST TUBEAXIAL ROOF VENTILATORS

MODEL: BSB40

CATALOG 620
SEPTEMBER 2024

Model BSB40

Overview

Tubeaxial Roof Ventilators

Aerovent Tubeaxial Roof Ventilators provide cost effective, general-purpose ventilation of commercial buildings. The belt driven models are standard with adjustable pitch, cast aluminum impellers to meet specific application requirements.

Upblast Model BSB40 includes a heavy-duty, galvanized steel stack cap with butterfly dampers to discharge air upward and prevent recirculation into the building. A splash guard located over the damper pivot area protects against rain entry.

Typical Industries Include
Agriculture, Air Pollution Control, Automotive, Boilers, Brick, Car Wash, Commercial Plan & Spec, Composting, Ethanol, Food & Beverage, Foundry, General Manufacturing, Glass, Green/LEED, HVAC, Institutional & Hospitality, Metal & Minerals, Microchip, Mining, Nuclear, OEM, Petrochemical, Pharmaceutical, Power Generation, Pulp & Paper, Recycling, Textile, Transportation

Configuration
Upblast

Impeller Type
"B" Die Cast Aluminum Impellers

Standard Construction
Heavy-Gauge Galvanized Steel

Optional Construction
Special Coatings, Spark 'B' Resistant, UL 705

Certifications
UL 705 Listed for Electrical

Energy Regulations

Aerovent supports energy efficiency regulations enacted by the U.S. Department of Energy (DOE) and specific states. The selection and application of fan products is a significant part of these regulations. Engineers and specifiers must understand how to apply Aerovent products to their specific applications to meet applicable DOE and state regulatory requirements. Aerovent has made significant investments in product testing and development to provide efficient products. Developments in Aerovent's Fan Selector software are in place to aid your decision in product selection to assist with meeting the efficiency requirements as stipulated in the applicable regulations.

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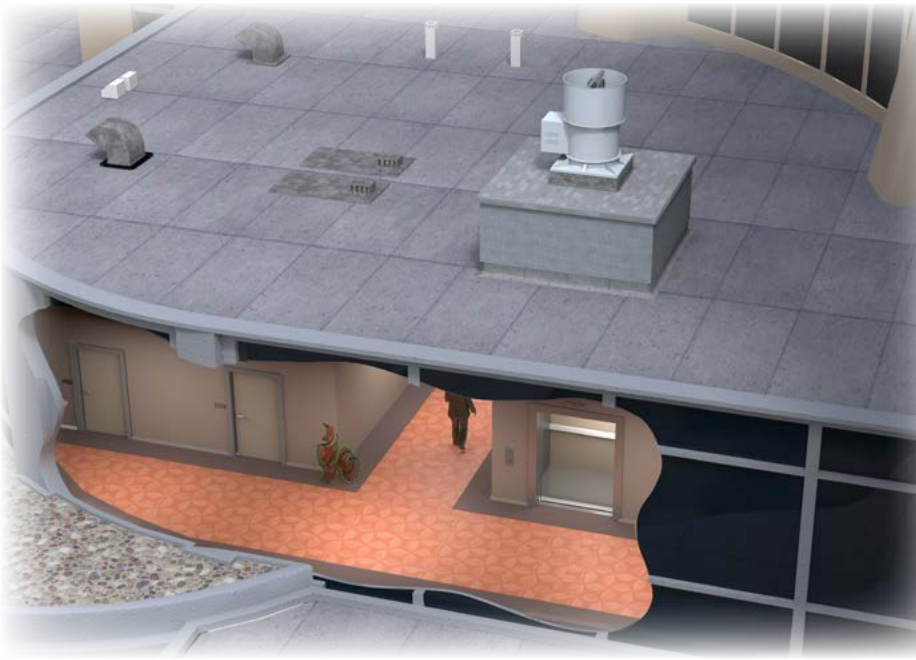
c UL us All models are cULus 705 listed, for electrical, File No. E158680.

For complete product performance, drawings and available accessories, download our Fan Selector software at *aerovent.com*.

Overview

BSB40

Model BSB40
14" to 60" impeller diameters
Airflow to 72,400 CFM
Static pressure to 1.5" w.g.



Elevator Exhaust
with Model BSB40

Impeller

"B" Die Cast Aluminum Impellers

The "B" series features a die cast aluminum impeller available in 4, 5 and 6 blade designs. Blade angles are factory set and mounted in a die cast aluminum hub. "B" impellers are available in 14" through 54" diameters.

Model Nomenclature

BSB40 - 24 - B - 1 - 05 - 25

Model
BSB40 = Upblast Tubeaxial Roof Ventilator, Belt Driven

Fan Size

Impeller Type
B = Cast Aluminum, Adjustable Pitch (4-, 5- and 6-Bladed)

Hub Designation

Blade Count

Blade Angle

Construction Features

Curb Cap
Heavy-duty, painted steel curb cap includes venturi inlet for efficient airflow and pre-punched mounting holes for easy installation.

Galvanized Steel Frame
Structural, galvanized steel frame provides strong support and mounting base for motor and drive.

Motors
Motors are ball bearing type, available in ODP, TE and EXP with a variety of standard voltages.

Motor Cover
Motor cover is standard on Model BSB40.

Lube Lines
Extended lube lines are standard on belt driven fans.

Windband
Painted steel windband on stack cap.

Butterfly Damper
Aluminum (sizes 14" to 36") and galvanized steel (sizes 42" to 54") butterfly dampers on stack cap.

Engineering Data

Material Specifications

FAN SIZE	GAUGES			SHAFT SIZE (IN.)	APPROX. SHIP WT. (LB)
	WIND BAND	CURB CAP	IMPELLER		
14	20	16	DIE CAST ALUM.	3/4	74
16	20	16		3/4	132
18	20	16		3/4	169
21	20	16		3/4	222
24	20	16		1	292
30	20	16		1	419
36	20	16		13/16	589
42	20	16		17/16	724
48	20	14		17/16	1077
54	18	14		17/16	1345

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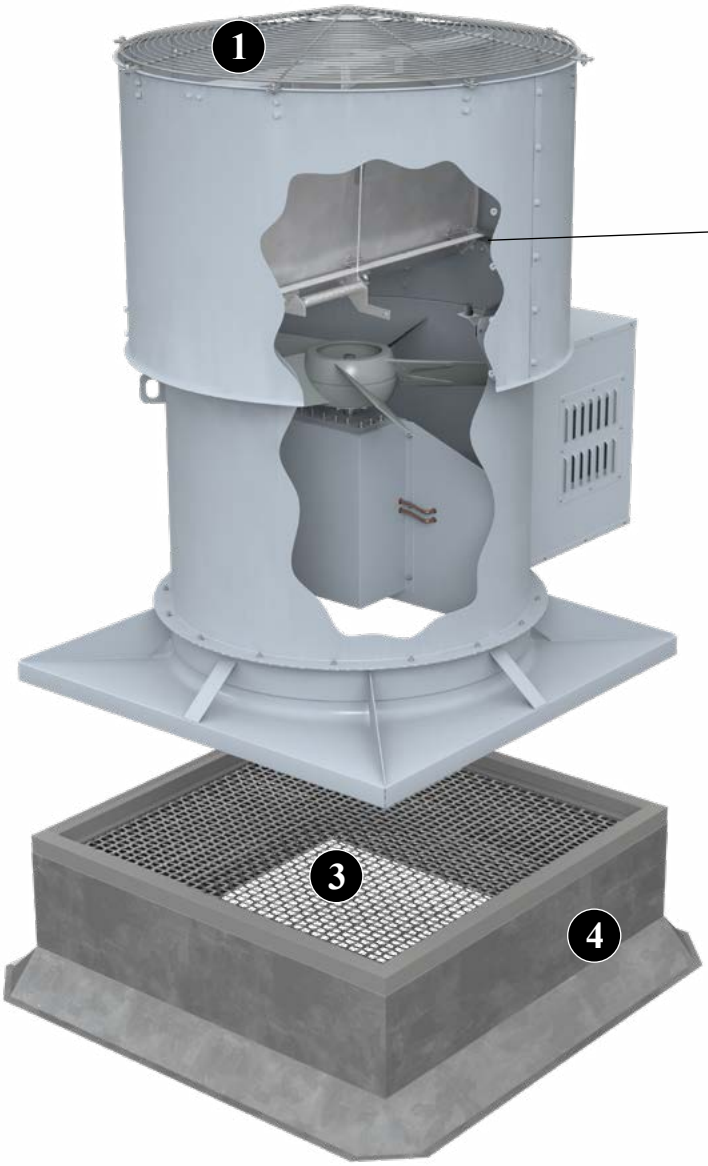

Magnetic Damper Latch

1. **Bird Screen/Outlet Guard** Protects the impeller, inlet and internal components from entry of birds. (Upblast only)

2. **Magnetic Damper Latches (Upblast Only)** Used to hold butterfly dampers closed when fan is not in operation. Damper blades must be steel.

3. **Inlet Safety Guard** A flat style guard to sit between the roof curb and the curb cap is available on all models. Aerovent recommends the use of an inlet safety screen on all non-ducted installations.

4. **Canted Roof Curb** Prefabricated roof curbs are available in heavy-duty galvanized steel or aluminum construction, in heights of 8", 12" or 18". Curbs are provided with 1.5" of insulation as standard and feature continuously-welded seams for added rigidity and moisture protection. See page 6 for further details on roof curb options.

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Other Accessories Include:

- Shaft Seal
- Curb Extension with Damper Shelf
- Disconnect Switches (see page 7)
- Spark 'B' Construction
- Fusible Link Butterfly Dampers
- Special Coatings

Overview

Canted Roof Curbs

- Constructed of 18-gauge galvanized steel with continuously-welded seams
- Large 3" built-in 45° cant to accommodate roofing material to top of curb. Cant is beveled at corners for better support of roofing material
- Wood nailer (1 1/2") secured to top ledge
- Lined with 1 1/2" fiberglass fire-resistant, sound-absorbing insulation
- Damper shelf standard
- Options: Aluminum (16-gauge) construction, burglar security bars, metal liner (galvanized or aluminum), special heights up to 24", single- or double-pitched curbs for sloping roofs

Self-Flashing & Straight-Sided Roof Curbs

- Constructed of 18-gauge galvanized steel with continuously-welded seams
- Wide base plate (flashing) to ensure watertight seal to roof
- Top ledge covered with 3/16" polystyrene gasket (self-flashing) for weather seal and to reduce metal-to-metal conducted noise
- Wood nailer secured to top ledge (straight-sided)
- Lined with 1 1/2" fiberglass fire-resistant, sound-absorbing insulation
- Damper shelf standard
- Straight-sided roof curbs are constructed with the same features as the self-flashing curbs, but are one dimensional to allow for field supplied cants and roofing material to be brought up to the top of the curb
- Options: Aluminum (16-gauge) construction, burglar security bars, metal liner (galvanized or aluminum), special heights up to 24", single- or double-pitched curbs for sloping roofs

Self-Flashing Vented Roof Curbs

For High Temperature Applications

- Completely assembled unit, easier to install and less expensive than a field constructed curb
- Constructed of 18-gauge galvanized steel with continuously-welded seams and wide base flashing for watertight seal to roof
- Meets NFPA-96 code requirements
- Top ledge covered with 3/16" polystyrene gasket
- Furnished with ventilation slots

Curb Adapters

- Constructed of heavy-gauge galvanized steel with continuously-welded seams
- Top ledge covered with 3/16" polystyrene gasket to reduce metal-to-metal conducted noise and act as a weather seal
- Available in enlarger or reducer (shown) models

Overview

Disconnect switches provide positive electrical shutoff during fan cleaning or maintenance.

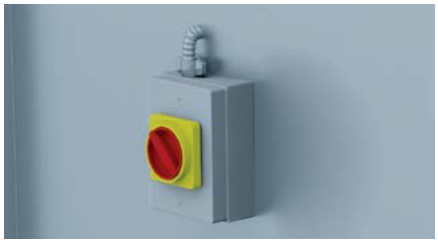
NEMA 3R Disconnect Switch

A NEMA 3R, rain proof, disconnect is available shipped loose for field mounting and wiring or factory mounted and wired externally.

NEMA 3R Disconnect Switch

NEMA 4 Disconnect Switch

A NEMA 4, water and dust tight, disconnect is available shipped loose for field mounting and wiring or factory mounted and wired externally.



NEMA 4 Disconnect Switch

NEMA 7/9 Disconnect Switch

A NEMA 7/9 disconnect switch is recommended on fans with explosion proof motors. The NEMA 7/9 switch is designed for use with fans operating in hazardous environments. Available shipped loose for field mounting and wiring. (Not shown.)

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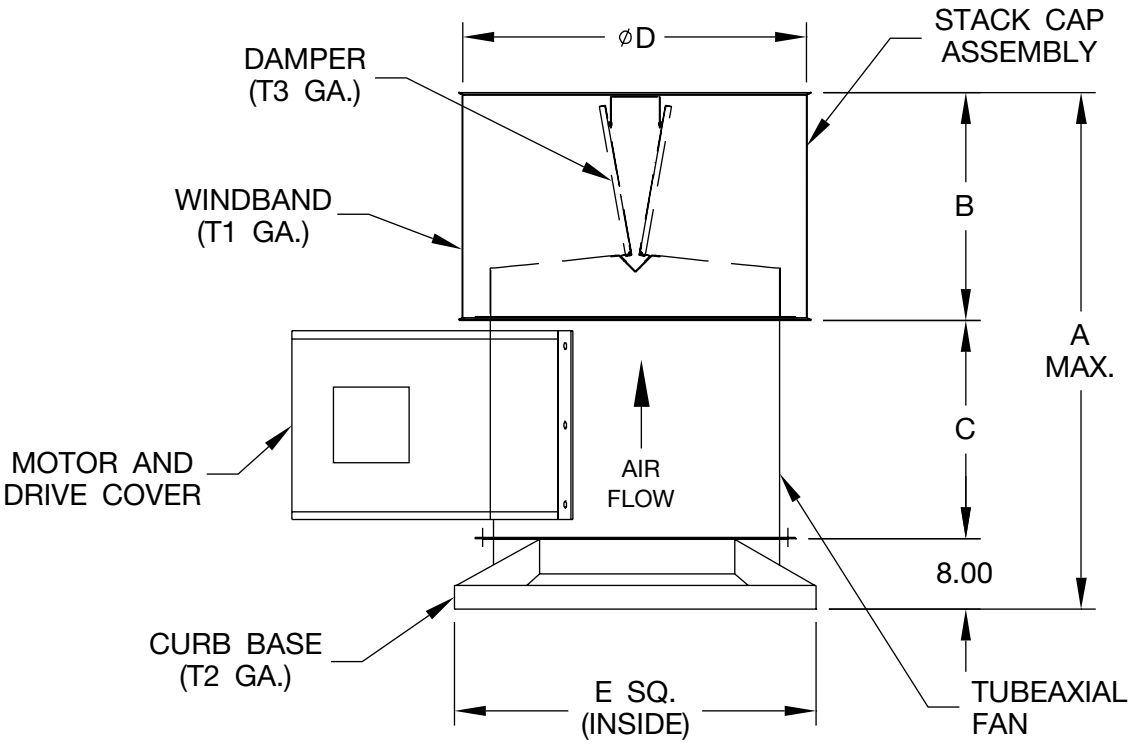
BSB40 | Belt Driven



SIZE	A MAX.	B	C	D	E	T1	T2	T3	SHAFT SIZE	MAX. FRAME
14	47.75	20.75	19.00	20.38	23.88	20 GA.	16 GA.	24 GA.	0.75	56
16	47.75	20.75	19.00	22.38	23.88	20 GA.	16 GA.	24 GA.	0.75	143T
18	48.75	21.75	19.00	25.38	27.88	20 GA.	16 GA.	24 GA.	0.75	145T
21	52.75	23.75	21.00	26.88	31.88	20 GA.	16 GA.	24 GA.	0.75	145T
24	53.75	24.75	21.00	28.88	35.88	20 GA.	16 GA.	24 GA.	1.00	184T
30	61.75	27.75	26.00	36.88	42.88	18 GA.	16 GA.	20 GA.	1.00	213T
36	65.75	30.75	27.00	42.88	48.88	18 GA.	16 GA.	20 GA.	1.19	215T
42	72.75	33.75	31.00	48.88	54.88	18 GA.	16 GA.	20 GA.	1.44	215T
48	79.75	36.75	35.00	54.88	60.88	18 GA.	14 GA.	20 GA.	1.44	254T
54	87.75	39.75	40.00	60.75	74.88	18 GA.	14 GA.	20 GA.	1.44	256T

Dimensions are not to be used for construction. 1004679

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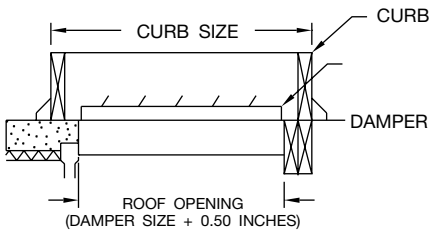
Accessories

Roof Curb

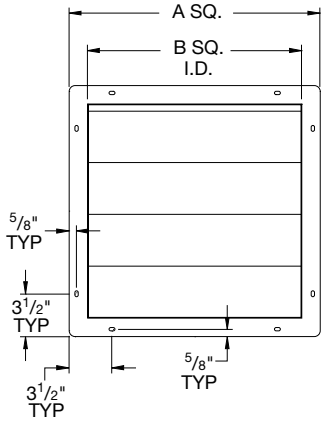


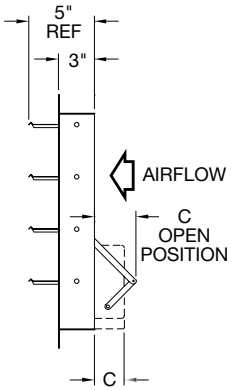
SIZE	CURB DIMENSIONS
14	22.50 x 22.50
16	22.50 x 22.50
18	26.50 x 26.50
21	30 x 30
24	34 x 34
30	41 x 41
36	47 x 47
42	53 x 53
48	59 x 59
54	73 x 73
60	73 x 73

F-DMP-C

Note:
1. Curbs have $1^1/_2$" thick insulation, wood nailer (canted) or $^3/_{16}$" polystyrene gasket (self-flashing) and damper tray as standard. A 12" high curb is required when using a motorized damper.

Backdraft Damper





SIZE	A SQ.	B SQ.	C	NO. OF PANELS
14	18.50	16	6	1
16	18.50	16	6	1
18	22.50	20	6	1
21	26	23.50	6	1
24	30	27.50	6	1
30	37	34.50	6	1
36	43	40.50	7.50	1
42	49	46.50	7.50	2
48	55	52.50	7.50	2
54	69	66.50	7.50	4
60	69	66.50	7.50	4

Notes:
1. Exhaust damper shown (with front flange).
2. Supply damper has rear flange.

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Model

BSB40

Upblast Tubeaxial Roof Ventilators shall be Model BSB40 (standard belt driven) as manufactured by Aerovent, Minneapolis, Minnesota.

PERFORMANCE — Performance ratings shall conform to AMCA Standard 211 (air performance) and 311 (sound performance). Fans shall be tested in accordance with ANSI/AMCA Standard 210 (air performance) and 300 (sound performance) in an AMCA accredited laboratory.

Model BSB40 shall be UL 705 listed. Fans shall bear a permanently attached nameplate displaying model and serial number of the unit for future identification.

CONSTRUCTION — Housings, curb caps and wind bands shall be constructed of heavy-gauge, continuously-welded steel to prevent air leakage. Motor and bearing supports shall be constructed of heavy-gauge steel and shall be suitably braced to prevent vibration or pulsation. Butterfly dampers shall contain a splash guard over the pivot area to protect against rain entry. Butterfly damper blades on model BSB40 shall be aluminum (sizes 14-36) and galvanized steel (sizes 42-60).

IMPELLERS — Impellers on model BSB40 shall be constructed of fabricated steel or cast aluminum blades and hubs. Impellers shall be secured to the fan shaft with a taper lock bushing.

SHAFTS — Shafts shall be AISI 1045 cold rolled steel, accurately turned, ground, polished and ring-gauged for accuracy. Shafts shall be sized for the first critical speed of at least 1.43 times the maximum speed.

BEARINGS — Bearings are to be pillow block, heavy-duty, anti-friction, self-aligning, grease lubricated, ball type. Each fan's bearings are sized with a minimum average life, per AFBMA, in excess of 200,000 hours when operating at the maximum RPM of the fan size.

DRIVES — Motor sheaves shall be cast iron and supplied as either variable pitch or fixed pitch. Drives and belts on model BSB40 shall be rated for a minimum of 150% of the required motor HP.

MOTORS — All motors shall be single phase or three phase induction, permanently lubricated, heavy-duty, ball bearing type, closely matched to the fan load and provided at the voltage, phase, hertz and enclosure as provided on the fan schedule. Direct drive motors shall be split phase and capacitor start.

FINISH AND COATING — The entire fan assembly, excluding the shaft, shall be properly washed and pretreated before application of a rust-preventative primer, if called out on the order. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly, if called out on the order. The fan shaft shall be coated with a petroleum-based rust protectant. Aluminum and galvanized components shall be unpainted.

ACCESSORIES — When specified, accessories such as fusible link assembly, magnetic damper latches, access door, shaft seal, spark resistant construction, roof curb and disconnect switch shall be provided by Aerovent to maintain one source responsibility.

FACTORY RUN TEST — All fans prior to shipment shall be completely assembled and test run as a unit at operating speed or maximum RPM allowed for the particular construction type. Each impeller shall be statically and dynamically balanced in accordance with ANSI/AMCA 204-96 "Balance Quality and Vibration Levels for Fans" to Fan Application Category BV-3, Balance Quality Grade G6.3. Balance readings shall be taken by electronic type equipment in the axial, vertical and horizontal directions on each of the bearings. Records shall be maintained and a written copy shall be available upon request.

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