TCF

TWIN CITY FAN

INDUSTRIAL PROCESS AND
COMMERCIAL VENTILATION SYSTEMS

ROOF VENTILATORS
LOW PROFILE HOODED

LHD/LHB (EXHAUST/SUPPLY) | LHDF/LHBF (FILTERED SUPPLY)

LHB with Standard Bird Screen

LHDF
(Hooded Filtered Supply)

Overview

LHD I LHB I LHDF I LHBF

Twin City Fan & Blower Low Profile Hooded Roof Ventilators provide cost effective, general purpose ventilation solutions for commercial and light industrial applications. The aesthetically pleasing modular hood design minimizes extension above the roof line. Both direct and belt driven models are available in exhaust, supply or filtered supply configurations. A wide array of fixed pitch, fabricated steel or adjustable pitch, cast aluminum impellers are available to meet specific performances and application requirements. Twin City Fan & Blower also offers a complete line of options and accessories such as roof curbs, backdraft dampers, disconnect switches and special coatings to maintain single source responsibility.

Typical Industries Include

Warehouse Ventilation, Office Ventilation, General HVAC, Gymnasium Ventilation, Factory Ventilation, Greenhouse Ventilation, Attic Exhaust, Hospital Exhaust, Agriculture, Manufacturing Exhaust, Paper Mills, Foundry, Textile, Commercial Plan and Spec, Office Ventilation

Configurations

Hooded Supply or Exhaust

Impeller Types

"L1" and "L2" Fabricated Steel Impellers; "B" and "E" Die Cast Aluminum Impellers; "C" Cast Aluminum Impellers; "Z" Fabricated Steel Impellers

Standard Construction

Heavy-Gauge Galvanized Steel

Optional Construction

Special Coatings, Aluminum Construction, UL 705

Certifications

UL 705 Listed for Electrical

Energy Regulations

Twin City Fan & Blower 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 TCF products to their specific applications to meet applicable DOE and state regulatory requirements. Twin City Fan & Blower has made significant investments in product testing and development to provide efficient products. Developments in Twin City Fan & Blower'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.

All models are UL/cUL 705 listed, for electrical, File No. E158680.

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

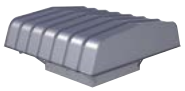
Overview

LHD I LHB I LHDF I LHBF

Hooded

Hooded non-filtered LHD (direct drive) and LHB (belt driven) models are available for exhaust or supply service and feature a removable galvanized steel hood for cleaning and servicing the fan as well as a galvanized steel bird screen.

LHD (Direct Drive)
14" to 48" impeller diameters
Airflow to 33,500 CFM
Static pressure to 1" w.g.

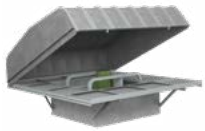


LHB (Belt Driven)
21" to 60" impeller diameters
Airflow to 46,000 CFM
Static pressure to 1" w.g.

Filtered

Hooded filtered supply models LHDF (direct drive) and LHBF (belt driven) feature a removable galvanized steel hood for cleaning and servicing the fan as well as 2" washable aluminum mesh filters.

LHDF (Direct Drive)
21" to 48" impeller diameters
Airflow to 30,400 CFM
Static pressure to 1" w.g.



LHBF (Belt Driven)
21" to 60" impeller diameters
Airflow to 46,000 CFM
Static pressure to 1" w.g.

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Retail and Grocery Store
Supply and Exhaust

Exploded View

LHD | LHB | LHDF | LHBF

Modular Hood Design

The stackable hood panels allow for easy field assembly when necessary. The snap together rib design provides added strength and rigidity. Hoods are constructed of galvanized steel as standard.

Impellers

Fabricated steel or cast aluminum blades and hubs. Impellers on belt driven units shall be welded to the fan shaft or secured to the fan shaft with a taper lock bushing. Impellers on direct drive units shall be mounted directly on the motor shaft with a taper lock bushing.

Mechanical Run Test & Final Vibration Check

All fans are assembled for a mechanical run test and final balance prior to shipment. Vibration readings are taken in the axial, horizontal and vertical directions at the specified speed. Fans are balanced to 0.15 in./sec. peak or less.

Bearings (LHB and LHBF only)

Cast iron pillow block bearings selected for L50 average life of 200,000 hours at maximum cataloged operating speeds.

Shaft (LHB and LHBF only)

Shaft diameters are sized to have a first critical speed of at least 125% of the fan's maximum operating speed.

Motors

ODP, TEFC and Explosion proof, single and three phase motors are carefully matched to the fan load.

Drives (LHB and LHBF only)

Motor sheaves shall be of cast iron and supplied as variable pitch standard. Drives and belts shall be rated for 150% of the required motor HP.

Motor and Drive Frame

Support assemblies are constructed of heavy-gauge galvanized or finish painted steel.

Motor Access

Fans designed for exhaust, supply and filtered supply allow for service and are provided with convenient access to the motor from the roof.

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HOOD CONSTRUCTION

The Twin City Fan modular hood provides numerous benefits over conventional sheet metal hood designs.

LHB, Belt Driven
(Showing how hood
panels stack together)

Hood Construction

- The Twin City Fan modular hood design features ribbed panels, which provide added strength and rigidity. This is particularly important in climates where snow loads are a consideration.
- Hood profile allows rain and snow to run off.
- Hoods are galvanized steel as standard, but can also be constructed of aluminum or painted steel to accommodate specific application requirements.

Filtered Supply

- Units built for filtered supply service (LHDF and LHBF) come standard with 2" washable aluminum mesh filters.
- On all fan sizes, filters can be removed with the hood in place to allow for easy cleaning of filters and inspection of fan parts.

Easy Access

- Fan sizes 14 to 36 incorporate a pivoted hood design. By removing two fasteners, the hood can be opened up for convenient cleaning and service.
- Fan sizes 42 to 60 allow for the entire hood to be taken off by removing four fasteners.
- Exhaust and supply fans are constructed with motor and drive components easily accessible from the roof. There is no need to try and access components below the roof line or through an access door.
- Non-filtered units include removable bird screens, which can be removed with the hood still in place to allow for quick and easy inspection of the fan components without taking off the hood.

Shipping Advantage

Most units ship fully assembled as standard (see chart below for specific models and sizes) to allow for fast and easy installation at the job site. Larger units ship knocked down to the job site as standard and can be easily assembled with standard tools. Twin City Fan does offer the option to ship larger units fully assembled to the job site (standard freight rates do not apply). Contact your local sales representative for more information.

MODEL	FAN SIZE										
	14	16	18	21	24	30	36	42	48	54	60
LHD	F	F	F	F	F	F	F	F	K	—	—
LHDF		—	—	F	F	F	F	K	K	—	—
LHB	—	—	—	F	F	F	F	F	K	K	K
LHBF	—	—	—	F	F	F	F	K	K	K	K

F = Ships Fully Assembled
K = Ships Knocked Down, Field Assembly Required

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FAN SIZE	DIRECT DRIVE	BELT DRIVEN
14	B, E	—
16	B, E	—
18	B, E	—
21	B, E	L1, L2, B, E
24	B, E, Z	L1, L2, B, E, Z
30	B, E, Z	L1, L2, B, E, Z
36	B, E, Z	L1, L2, B, E, Z
42	B, E, Z	L1, L2, B, E, Z
48	B, E, Z	L1, L2, B, E
54	—	L1, L2, B, C
60	—	L1, L2

Impeller Availability

Impellers

LHD| LHB | LHDF | LHBF

LHD and LHB roof ventilators are available with either fixed pitch fabricated steel (sizes 21 through 60) or adjustable pitch cast aluminum impellers (sizes 14 through 60). Each impeller type is designed for a wide variety of commercial market applications with static pressure capabilities from 0" to 1". Regardless of the application requirement, LHD and LHB impellers offer the right choice.

"L1 & L2" Fabricated Steel Impellers

The "L1" and "L2" series features fixed pitch, fabricated steel, 5-bladed impellers. Galvanized steel impeller blades are riveted to galvanized steel hubs. Available in 8 sizes from 21" to 60" diameters in either standard L1 construction or reinforced L2 construction.

"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.

"E" Die Cast Aluminum Impellers

The "E" series features a die cast aluminum impeller available in 4 and 8 blade designs. Blade angles are factory set and mounted in a die cast aluminum hub. "E" impellers are available in 14" through 48" diameters.

"C" Cast Aluminum Impellers

The "C" series is a cast aluminum impeller available in 4 and 6 blade designs and is available in 54" diameter only. Blade angles are factory set and mounted in a cast aluminum hub.

"Z" Fabricated Steel Impeller

The "Z" series features a fixed pitch, fabricated steel, 5-bladed impeller. Steel blades are continuously-welded to a heavy-gauge hub at the customer's selected blade angle. "Z" impellers are available in 24" through 42" diameters.

MODEL NOMENCLATURE

LHB - E - 24 - B - 1 - 05 - 25

Model
LHD = Low Profile Hooded Roof Ventilator, Direct Drive
LHB = Low Profile Hooded Roof Ventilator, Belt Driven
LHDF = Low Profile Hooded Filtered Supply Roof Ventilator, Direct Drive
LHBF = Low Profile Hooded Filtered Supply Roof Ventilator, Belt Driven

E = Exhaust, S = Supply (LHB/LHD Only)

Fan Size

Impeller Type

L1 = Level 1, Fab. Steel	C3 = Cast Alum., 3-Bladed
L2 = Level 2, Fab. Steel	C6 = Cast Alum., 6-Bladed
E4 = Cast Alum., 4-Bladed	Z5 = Fab. Steel, 5-Bladed
E8 = Cast Alum., 8-Bladed	B = Cast Aluminum, Adjustable Pitch (4-, 5- and 6-Bladed)

Hub Designation (B Impeller Only)

No. of Blades

Blade Angle (B, C, E and Z Impellers Only)

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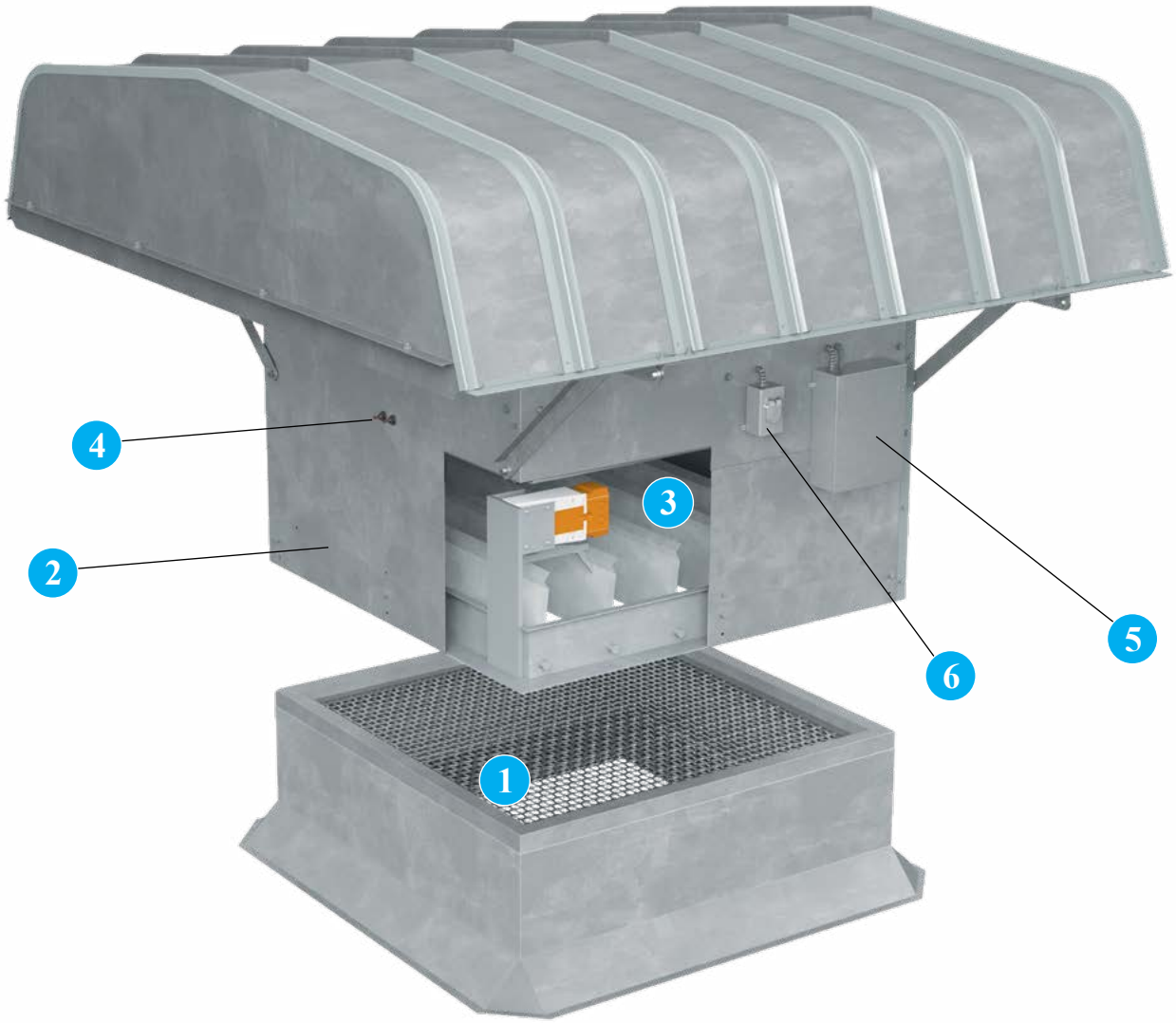
OPTIONS/ACCESSORIES



1 **Curb Side Guard** Mounted to the curb side of the fan to allow for protection of personnel below fan in non-ducted installations. **Twin City Fan recommends the use of a curb side guard on all non-ducted installations.**

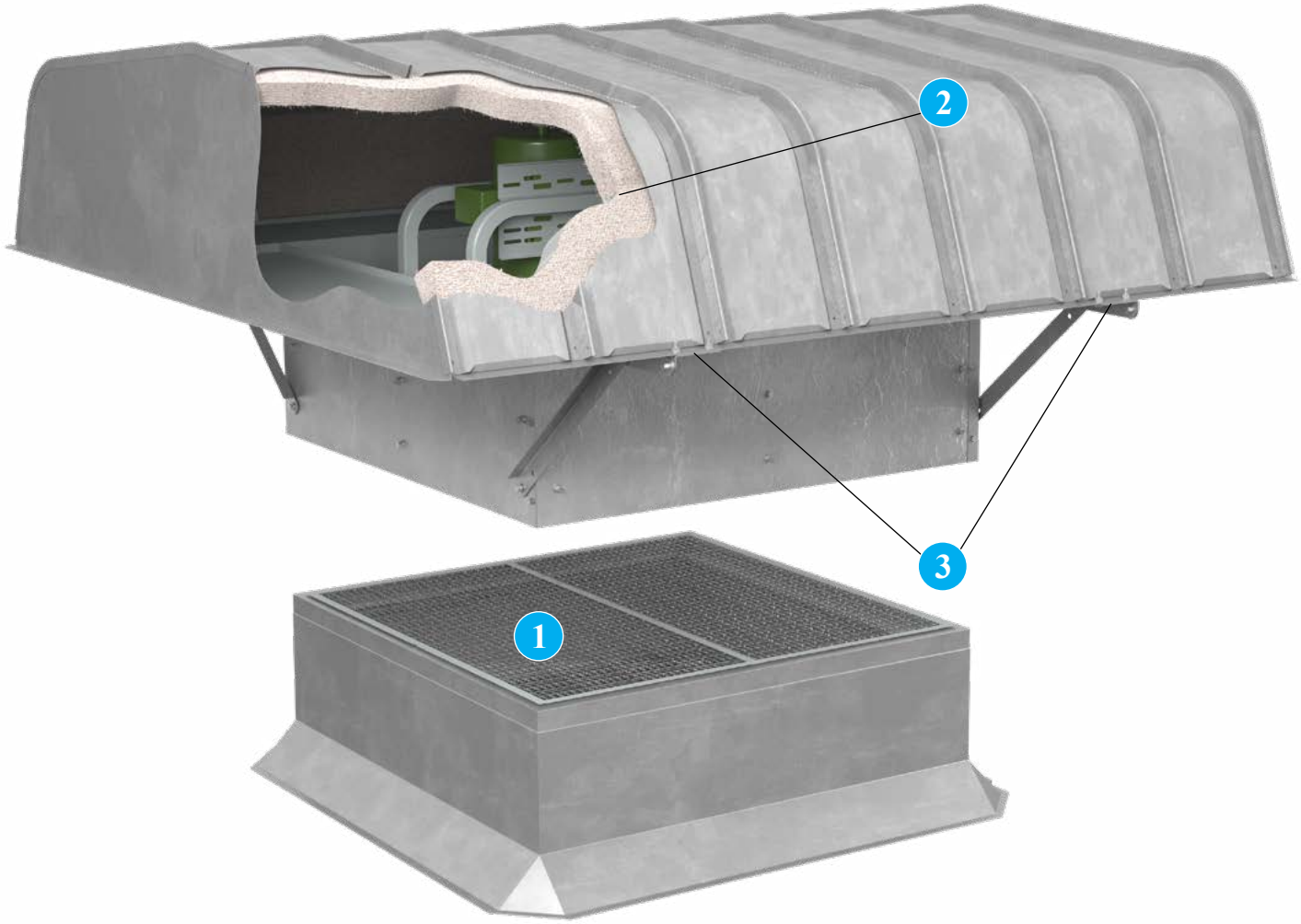
2 **Curb Cap (Tall)** Extended base section with access door and damper tray allows for easy access of motorized and non-motorized backdraft dampers for maintenance and cleaning. This option is advantageous over the standard fan with roof curb extension because the base ships as one piece.

3 **Motorized Damper** Used to keep unwanted air out of the building when the fan is not in use, dampers are available as either gravity operated or motorized.

4 **Extended Lube Lines** (on panel) Allow for easy lubrication of bearings on belt driven units without disassembly by extending polyethylene lines from fan bearings to exterior of base.

5 **Single Point Wiring** Junction box on exterior of base houses disconnect switch and motorized damper wire connections. Available with tall base, motorized damper and wired disconnect switch only.

6 **NEMA 3R Disconnect Switch** NEMA 3R, rain proof, disconnects are available shipped loose for field mounting and wiring or factory mounted and wired.



1 **Insect Screen** An aluminum insect screen, placed between the fan base and the roof curb, prevents insects from entering the building.

2 **Insulated Hood** Inside of hood is lined with insulation to reduce sound and condensation from the hood.

3 **Tie Downs** A quantity of four tie-down brackets are included to help secure the unit to the roof in areas with strong winds. Cables used for tie down are supplied by others.

Other Accessories Include:

- Aluminum Construction
- Special Coatings

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PREFABRICATED ROOF CURBS

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

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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

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

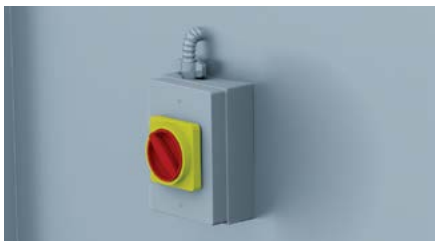
NEMA 3R Disconnect Switch

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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Material Specifications – Direct Drive, LHD/LHDF

FAN SIZE	GAUGE OF MATERIAL						
	FAN HOUSING	HOOD	FAN PANEL	DRIVE FRAME	IMPELLERS		HUBS
					B/E	Z	Z
14	18	22	16	14	DIE CAST ALUM.	—	—
16	18	22	16	14		—	—
18	18	22	16	14		—	—
21	18	22	16	14		—	—
24	18	22	14	12		14	12
30	18	22	14	12		14	12
36	18	22	14	12		12	12
42	16	22	12	10		10	10
48	16	22	12	10		—	—

* All gauges are minimums.

Material Specifications – Belt Driven, LHB/LHBF

FAN SIZE	GAUGE OF MATERIAL												SHAFT SIZE (IN.)		
	FAN HOUSING	HOOD	FAN PANEL		DRIVE FRAME		IMPELLERS					HUBS			
			L1/L2	B/E/C/Z	L1/L2	E/C/Z	L1/L2	B	E	C	Z	L1/L2	Z	L1	L2	B/E/C/Z
21	18	22	16	16	14	14	16	CAST ALUM.	CAST ALUM.	—	—	14	—	3/4	3/4	1
24	18	22	16	14	14	14	16			—	14	14	12	3/4	3/4	1
30	18	22	16	14	12	12	16			—	14	14	12	3/4	1	1
36	18	22	16	14	12	12	16			—	12	14	12	3/4	1	1
42	16	22	14	12	12	12	14			—	10	12	10	1	1 3/16	1 3/16
48	16	22	14	12	12	12	14			—	—	12	—	1	1 3/16	1 7/16
54	16	22	14	12	12	10	14		—	CAST	—	12	—	1	1 3/16	1 7/16
60	16	22	14	12	12	10	12	—	—	—	—	3/16	—	1 3/16	1 1/2	—

* All gauges are minimums.

Shipping Weights – LHD/LHDF

FAN SIZE	B/E4		E8		Z5	
	LHD	LHDF	LHD	LHDF	LHD	LHDF
14	153	—	155	—	—	—
16	163	—	165	—	—	—
18	170	—	173	—	—	—
21	205	251	208	253	—	—
24	272	319	307	354	308	355
30	379	472	386	479	375	468
36	512	586	520	593	515	589
42	645	714	660	729	653	722
48	760	871	776	887	—	—

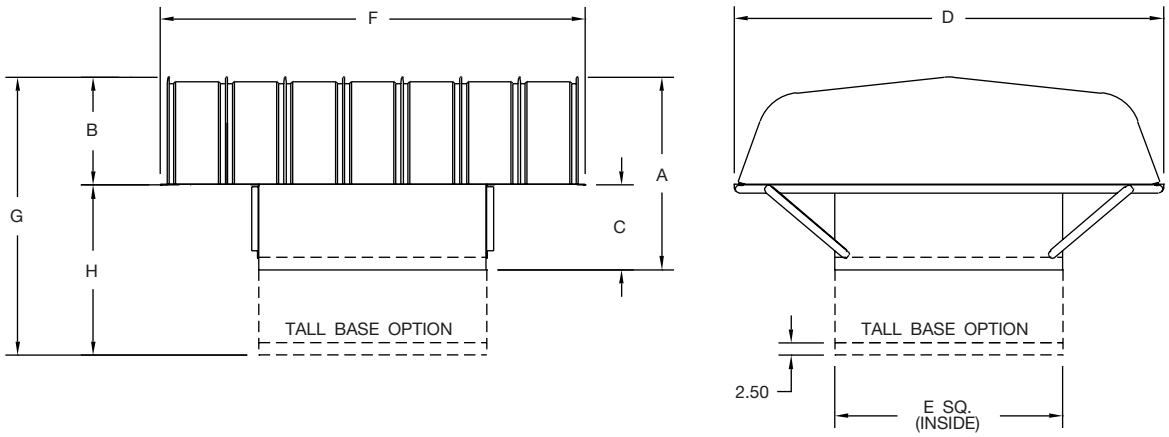
* Weights are only approximate and do not include accessories. Consult Fan Selector Software for actual shipping weights.

Shipping Weights – LHB/LHBF

FAN SIZE	L1		L2		B/E4		E8		C3		C6		Z5	
	LHB	LHBF	LHB	LHBF	LHB	LHBF	LHB	LHBF	LHB	LHBF	LHB	LHBF	LHB	LHBF
21	203	247	209	254	209	256	212	258	—	—	—	—	—	—
24	260	305	269	314	273	318	276	321	—	—	—	—	277	322
30	368	458	391	482	393	535	399	542	—	—	—	—	388	531
36	465	500	490	562	516	590	524	597	—	—	—	—	519	593
42	568	634	632	699	674	745	689	760	—	—	—	—	682	753
48	678	786	756	865	796	909	812	925	—	—	—	—	—	—
54	779	925	859	1005	—	—	—	—	942	1094	956	1108	—	—
60	926	1085	1028	1187	—	—	—	—	—	—	—	—	—	—

* Weights are only approximate and do not include accessories. Consult Fan Selector Software for actual shipping weights.

Models LHD/LHB/LHDF/LHBF



FAN SIZE	A		B		C		D	
	LHD/LHB	LHDF/LHBF	LHD/LHB	LHDF/LHBF	LHD/LHB	LHDF/LHBF	LHD/LHB	LHDF/LHBF
14	22.75	—	12.75	—	10.00	—	40.00	—
16	22.75	—	12.75	—	10.00	—	40.00	—
18	22.75	—	12.75	—	10.00	—	48.00	—
21	26.75	27.00	15.75	16.00	11.00	11.00	54.00	54.00
24	28.75	29.00	17.75	18.00	11.00	11.00	66.00	66.00
30	33.75	34.00	19.75	20.00	14.00	14.00	75.00	78.00
36	39.25	39.50	21.75	22.00	17.50	17.50	88.00	94.00
42	42.25	42.50	23.75	24.00	18.50	18.50	86.00	93.00
48	43.25	43.50	23.75	24.00	19.50	19.50	93.00	112.00
54	46.25	46.50	23.75	24.00	22.50	22.50	112.00	124.00
60	49.75	50.00	26.25	26.50	—	—	124.00	136.00

FAN SIZE	E SQ.		F		G		H	
	LHD/LHB	LHDF/LHBF	LHD/LHB	LHDF/LHBF	LHD/LHB	LHDF/LHBF	LHD/LHB	LHDF/LHBF
14	21.50	—	39.00	—	40.25	—	27.50	—
16	24.50	—	39.00	—	40.25	—	27.50	—
18	26.50	—	51.00	—	40.25	—	27.50	—
21	29.50	29.50	51.00	51.00	44.25	44.50	28.50	28.50
24	32.50	32.50	63.00	63.00	46.25	46.50	28.50	28.50
30	40.50	40.50	75.00	87.00	51.25	51.50	31.50	31.50
36	46.50	46.50	87.00	87.00	56.75	57.00	35.00	35.00
42	52.50	52.50	99.00	99.00	59.75	60.00	36.00	36.00
48	58.50	58.50	111.00	111.00	60.75	61.00	37.00	37.00
54	64.50	64.50	111.00	123.00	63.75	64.00	40.00	40.00
60	70.50	70.50	123.00	135.00	67.25	67.50	41.00	41.00

D4860-1B D4860-3B
D4860-2B D4860-4B

NOTES:
1. Dimensions are not to be used for construction.

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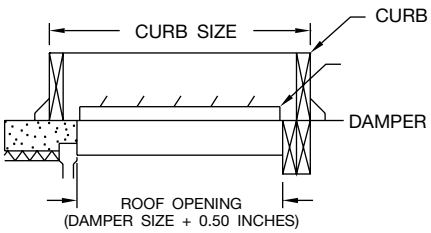
Roof Curb

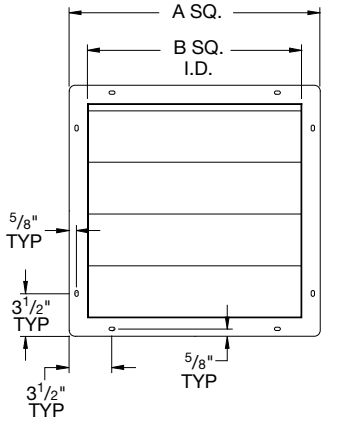


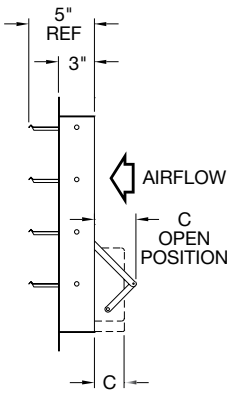
FAN SIZE	CANTED CURB SIZE	SELF-FLASHING CURB SIZE
14	20.00 x 20.00	20.50 x 20.50
16	23.00 x 23.00	23.50 x 23.50
18	25.00 x 25.00	25.50 x 25.50
21	28.00 x 28.00	28.50 x 28.50
24	31.00 x 31.00	31.50 x 31.50
30	39.00 x 39.00	39.50 x 39.50
36	45.00 x 45.00	45.50 x 45.50
42	51.00 x 51.00	51.50 x 51.50
48	57.00 x 57.00	57.50 x 57.50
54	63.00 x 63.00	63.50 x 63.50
60	69.00 x 69.00	69.50 x 69.50

D4860-1B
D4860-2B

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





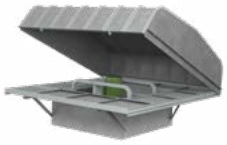
FAN SIZE	A SQ.	B SQ.	C	NO. OF PANELS
14	16.00	13.50	6.00	1
16	19.00	16.50	6.00	1
18	21.00	18.50	6.00	1
21	24.00	21.50	6.00	1
24	27.00	24.50	6.00	1
30	35.00	32.50	6.00	1
36	41.00	38.50	6.00	1
42	47.00	44.50	7.50	2
48	53.00	50.50	7.50	2
54	59.00	56.50	7.50	2
60	65.00	62.50	7.50	2

F-DMP-C

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

Model

LHD



Low Profile Hooded Roof Ventilators, shall be Model LHD direct drive as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

PERFORMANCE — Fans shall be tested in accordance with AMCA test codes for air moving devices and shall be guaranteed by the manufacturer to deliver rated published performance levels. Fans shall be cULus 705 listed for electrical.

CONSTRUCTION — Fan curb caps shall be constructed of heavy-gauge galvanized or finish painted steel for durability and appearance. Curb caps shall have a deep formed inlet venturi for efficient airflow and pre-punched holes for easy mounting to the roof curb. Hood and hood support mechanisms shall be heavy-gauge galvanized or finish painted steel. Motor mount assemblies shall be constructed of heavy-gauge galvanized or finish painted steel.

IMPELLERS — Impellers shall be constructed of fabricated steel or cast aluminum blades and hubs. Impellers on direct drive units shall be mounted directly on the motor shaft with a taper lock bushing.

MOTORS — All motors shall be split phase and capacitor start 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.

FINISH AND COATING — Fans shall have galvanized steel or finish painted steel curb caps, motor supports, hoods and hood supports.

ACCESSORIES — When specified, accessories such as backdraft and motorized dampers, curb extensions, roof curb and disconnect switch shall be provided by Twin City Fan 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.

TCF
TWIN CITY FAN

Model
LHB

Low Profile Hooded Roof Ventilators, shall be Model LHB belt driven as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

PERFORMANCE — Fans shall be tested in accordance with AMCA test codes for air moving devices and shall be guaranteed by the manufacturer to deliver rated published performance levels. Fans shall be cULus 705 listed for electrical.

CONSTRUCTION — Fan curb caps shall be constructed of heavy-gauge galvanized or finish painted steel for durability and appearance. Curb caps shall have a deep formed inlet venturi for efficient airflow and pre-punched holes for easy mounting to the roof curb. Hood and hood support mechanisms shall be heavy-gauge galvanized steel. Motor mount assemblies shall be constructed of heavy-gauge galvanized or finish painted steel.

IMPELLERS — Impellers shall be constructed of fabricated steel or cast aluminum blades and hubs. Impellers on belt driven units shall be welded to the fan shaft or 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 variable pitch standard. Drives and belts 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.

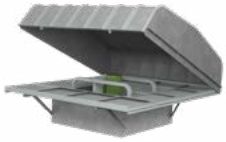
FINISH AND COATING — Fans shall have galvanized steel or finish painted steel curb caps, motor supports, hoods and hood supports.

ACCESSORIES — When specified, accessories such as backdraft and motorized dampers, curb extensions, roof curbs and disconnect switches shall be provided by Twin City Fan 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.

Model

LHDF



Low Profile Hooded Roof Ventilators, shall be Type LHDF direct drive filtered supply as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

PERFORMANCE — Fans shall be tested in accordance with AMCA test codes for air moving devices and shall be guaranteed by the manufacturer to deliver rated published performance levels. Fans shall be cULus 705 listed for electrical.

CONSTRUCTION — Fan curb caps shall be constructed of heavy-gauge galvanized or finish painted steel for durability and appearance. Curb caps shall have a deep formed inlet venturi for efficient airflow and pre-punched holes for easy mounting to the roof curb. Hood and hood support mechanisms shall be heavy-gauge galvanized or finish painted steel. Motor mount assemblies shall be constructed of heavy-gauge galvanized or finish painted steel.

IMPELLERS — Impellers shall be constructed of fabricated steel or cast aluminum blades and hubs. Impellers on direct drive units shall be mounted directly on the motor shaft with a taper lock bushing.

MOTORS — All motors shall be split phase and capacitor start 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.

FINISH AND COATING — Fans shall have galvanized steel or finish painted steel curb caps, motor supports, hoods and hood supports.

ACCESSORIES — When specified, accessories such as backdraft and motorized dampers, curb extensions, roof curb and disconnect switch shall be provided by Twin City Fan 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.

TCF
TWIN CITY FAN

Model
LHBF

Low Profile Hooded Roof Ventilators, shall be Type LHBF belt driven filtered supply as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

PERFORMANCE — Fans shall be tested in accordance with AMCA test codes for air moving devices and shall be guaranteed by the manufacturer to deliver rated published performance levels. Fans shall be cULus 705 listed for electrical.

CONSTRUCTION — Fan curb caps shall be constructed of heavy-gauge galvanized or finish painted steel for durability and appearance. Curb caps shall have a deep formed inlet venturi for efficient airflow and pre-punched holes for easy mounting to the roof curb. Hood and hood support mechanisms shall be heavy-gauge galvanized steel. Motor mount assemblies shall be constructed of heavy-gauge galvanized or finish painted steel.

IMPELLERS — Impellers shall be constructed of fabricated steel or cast aluminum blades and hubs. Impellers on belt driven units shall be welded to the fan shaft or 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 variable pitch standard. Drives and belts 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.

FINISH AND COATING — Fans shall have galvanized steel or finish painted steel curb caps, motor supports, hoods and hood supports.

ACCESSORIES — When specified, accessories such as backdraft and motorized dampers, curb extensions, roof curbs and disconnect switches shall be provided by Twin City Fan 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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RADIAL BLADED FANS | RADIAL TIP FANS | HIGH EFFICIENCY INDUSTRIAL FANS | PRESSURE BLOWERS
LABORATORY EXHAUST FANS | FILTERED SUPPLY FANS | MANCOOLERS | FIBERGLASS FANS | CUSTOM FANS

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