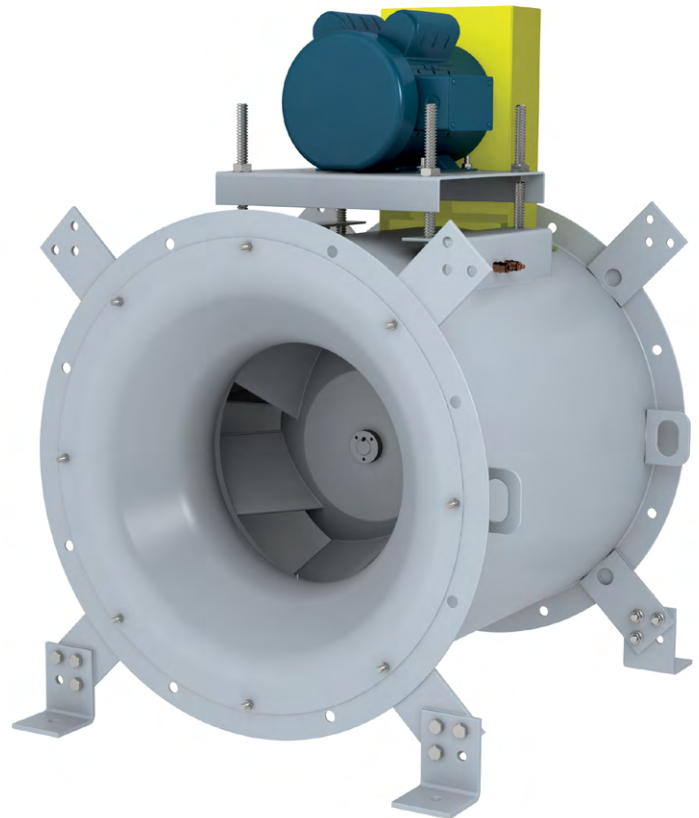




INDUSTRIAL PROCESS AND  
COMMERCIAL VENTILATION SYSTEMS

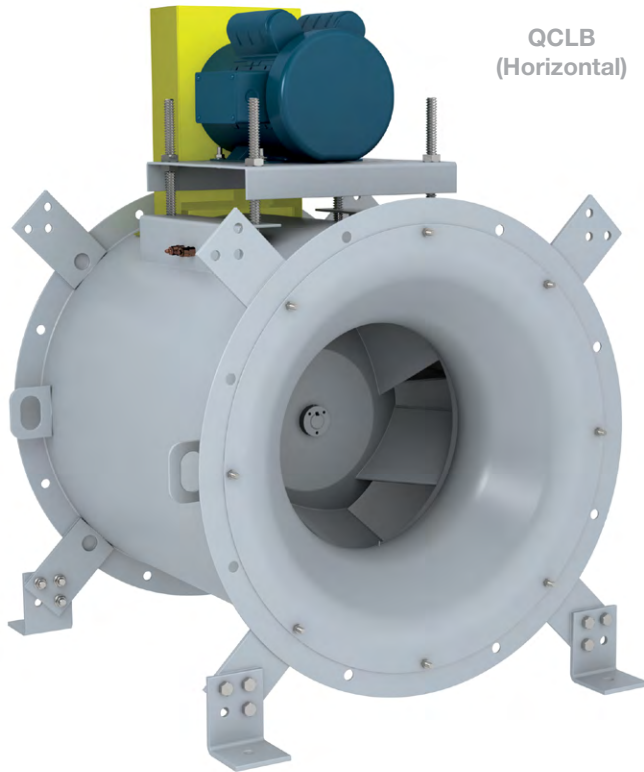
# LOW PRESSURE MIXED FLOW FANS

QCLB | QCLBR | QCLBSH



## Models

QCLB | QCLBR | QCLBSH



QCLB  
(Horizontal)

### Benefits of Mixed Flow Fans

Twin City Fan Model QCLB Mixed Flow Fans combine the benefits of axial flow and centrifugal flow fans. The QCLB has the advantages of an axial fan in its compact design and straight-through airflow combined with a centrifugal fan's preferred acoustical characteristics and high pressure capabilities. Mixed flow fans offer the most economy of operation when compared with equivalently sized tubular centrifugal or axial fans with a higher and broader efficiency range.

### Typical Applications Include

Data Center Exhaust, General HVAC, Generator Room Ventilation, Swimming Pool Exhaust, Kitchen Exhaust, Dishwasher Exhaust, Elevator Shaft Exhaust/Pressurization, Emergency Smoke Exhaust, Stairwell Pressurization

### Configurations

Belt Driven - vertical & horizontal mount configurations

### Wheel Types

Mixed Flow

### Standard Construction

Level 1 & 2

### Optional Construction

Spark Resistant, UL 705, UL 762, UL Smoke & Heat, Seismic

### Certifications

AMCA Sound/Air and FEG, UL 705 Listed for Electrical, UL 762 Listed for Grease Laden Air, UL Listed for Smoke Control Systems, OSHPD Seismic - OSP-0195-10

Model QCLB is available with the UL/cUL 705 listing for electrical, File No. E158680.

Model QCLBR is UL/cUL 762 listed for the exhaust of grease-laden air as standard, File No. MH-25478.

Model QCLBSH is UL/cUL listed for Smoke Control Systems as standard, File No. MH-29313, 500°F for 4 hours and 1000°F for 15 minutes.



Twin City Fan & Blower certifies that the Model QCLB, QCLBR and QCLBSH Mixed Flow Fans shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. See Catalog 1071 for sound ratings.



For complete product performance, drawings and available accessories, download our Fan Selector program at [tcf.com](http://tcf.com).

## Models

**QCLB | QCLBR | QCLBSH**

### General HVAC Fans

#### **QCLB**

12.25" to 73" wheel diameters  
Airflow to 105,000 CFM  
Static pressure to 4.5" w.g.



### Kitchen & Restaurant Fans

#### **QCLBR**

12.25" to 73" wheel diameters  
Airflow to 105,000 CFM  
Static pressure to 4.5" w.g.



### Smoke & Heat Applications

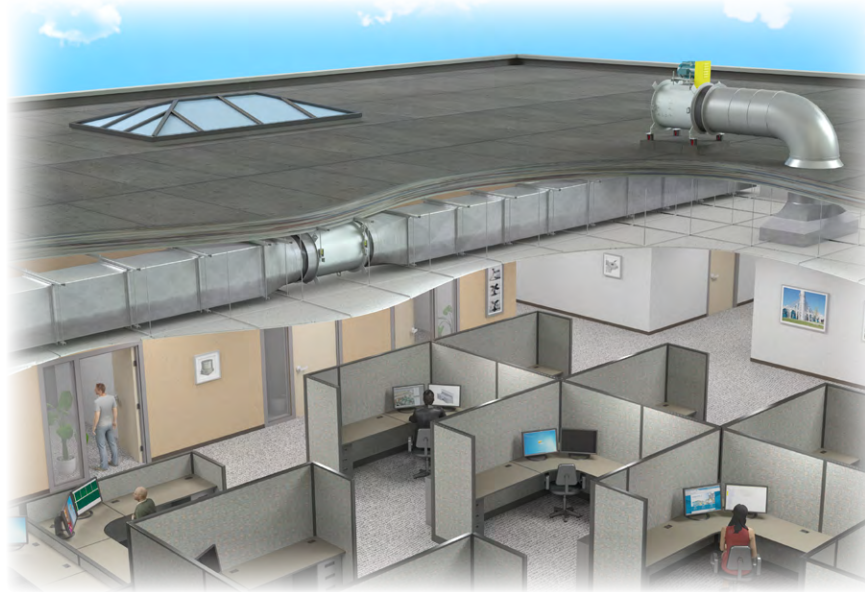
#### **QCLBSH**

12.25" to 73" wheel diameters  
Airflow to 105,000 CFM  
Static pressure to 4.5" w.g.

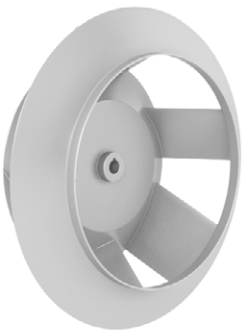


### Temperature Rating

500°F for 4 Hours  
1000°F for 15 Minutes

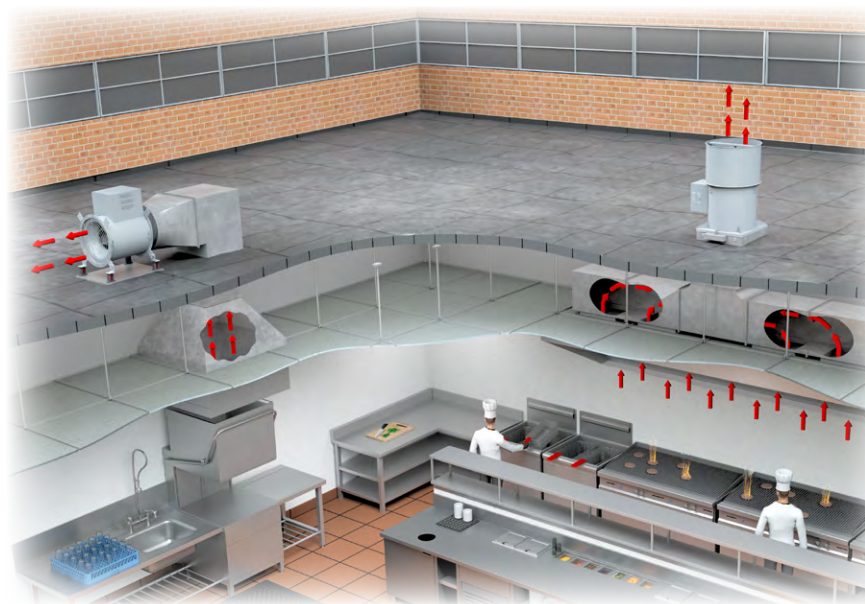


**General HVAC  
Supply and Exhaust**

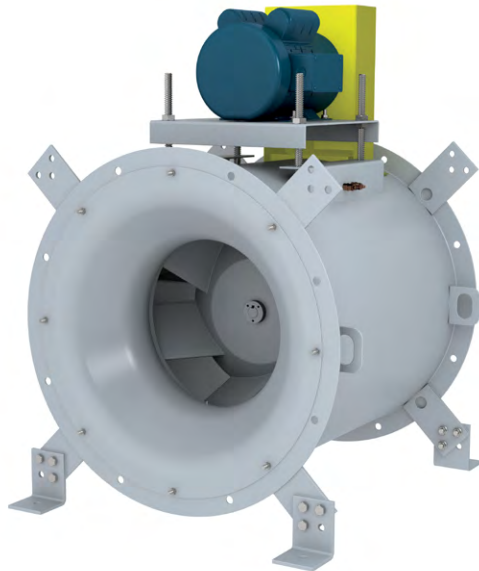


### Wheel Design

Mixed flow wheels are designed with single surface, die-formed, continuously-welded blades for stable air performance throughout the operating range. The wheel is statically and dynamically balanced prior to assembly and rechecked for balance after assembly by Twin City Fan & Blower.



**Smoke & Heat (Emergency Smoke Control)  
and Restaurant Exhaust**



## QCLB Mixed Flow Fans

The QCLB Mixed Flow Fan is a popular choice for many air supply, return and exhaust air applications in the HVAC industry for both constant or variable air volume systems. The efficiency and sound characteristics of mixed flow fans are often desired in buildings such as hospitals, libraries, theaters, and general offices. The heavy-duty construction of QCLB fans also makes them suitable for many industrial applications handling ambient air.

### Standard Product Features

- Belt guard, ventilated (weather cover for VRM)
- Discharge cap (for VRM)
- Continuously welded housing
- Inlet & outlet flanges
- Bolted access door



## QCLBR Restaurant Fans

Twin City Fan & Blower offers a specially modified version of the QCLB fan designated as "QCLBR" (Mixed Flow Restaurant Exhaust) for exhausting grease-laden air from kitchens, restaurants, cooking and dishwasher hoods. QCLBR is available in sizes 90 through 600.

Model QCLBR is cULus 762 listed for exhaust of grease-laden air. QCLBR is licensed to bear the AMCA certified ratings seal for sound and air performance.

The QCLBR fan is available in all configurations with the exception of vertical down (VDO and VDI).

### Standard Product Features

- Belt guard, totally enclosed, ventilated (weather cover for VRM)
- Belt tube, sealed
- Two cleanout doors located 180° apart (90° from motor) 2" drain located 180° from motor (lowest point for horizontal) vertical at the funnel
- Cooling fins on wheel
- Housing sealed with Hi-Temp caulk
- Two (2) bolted access doors

## QCLBSH Smoke & Heat Fans

Twin City Fan & Blower offers a specially modified version of the QCLB fan designated as "QCLBSH" (Mixed Flow Smoke and Heat Exhaust) for smoke control applications where temperatures can reach 1000°F. QCLBSH is available in sizes 90 through 600.

Model QCLBSH is cULus 705 listed and cULus listed for smoke control systems for 500°F for 4 hours or 1000°F for 15 minutes. Vertical roof mounted configuration, with discharge cap, meets UL 793 Snow Load Test requirements for butterfly dampers. QCLBSH is licensed to bear the AMCA certified ratings seal for sound and air performance.

The QCLBSH fan is available in all configurations with the exception of vertical down (VDO and VDI).

## Standard Product Features

- Belt guard, ventilated (weather cover for VRM)
- Belt tube, sealed
- Two-groove drive minimum w/2.0 SF
- Cooling fins on wheel
- Stack cap with fusible link (for VRM)
- Continuously welded housing
- Bolted access door



## OPTIONAL CONSTRUCTION

### Spark Resistant Construction

Fan applications may involve the handling of fumes or vapors. Such applications require careful consideration by the system designer to insure the safe handling of such gases. Twin City Fan & Blower offers the following classifications of spark resistant construction per AMCA Standard 99-0401. It is the specifier's or the user's responsibility to specify the type of spark resistant construction with full recognition of the potential hazards and the degree of protection required.

**Type B** - The fan shall have a nonferrous wheel and nonferrous rub ring about the opening through which the shaft passes — usually aluminum wheel and rub ring and limited to 200°F. Consult factory for availability.

**Type C** - The fan is constructed so that a shift of the wheel or shaft will not permit two ferrous parts of the fan to rub or strike.

### OSHPD Seismic Certification

Models QCLB, QCLBR and QCLBSH have been seismically tested and certified with the California Office of Statewide Health, Planning and Development (OSHPD) per OSP-0271-10. Seismic certification is limited to certain product options and configurations.





## Housing

All fans are constructed of heavy-gauge steel and continuously welded for strength and rigidity. All fans are provided with punched inlet and outlet flanges as standard.

## Belt Guard

Totally enclosed, sealed belt guard is standard on Model QCLB. Totally enclosed, non-sealed belt guard is standard on Models QCLBR and QCLBSH, and Model QCLB when an optional belt tube is provided. Belt guards meet OSHA requirements.

## Adjustable Motor Base

A heavy-duty adjustable motor base provides easy and positive adjustment of belt tension.

## Belt Tube

A belt tube encloses the belts and drive components, protecting them from the airstream on Models QCLBR and QCLBSH. A belt tube is an optional accessory on Model QCLB.

## Bolted Access Door

Bolted access door allows for inspection and maintenance of internal fan components. A hinged access door is an available option.

## Extended Lube Lines

Lube lines with grease fittings are extended to the outside of the fan housing on all models. Nylon lines are standard on Model QCLB. Models QCLBR and QCLBSH feature copper lube lines.

## Straightening Vanes

Straightening vanes convert tangential velocity pressure into useful static pressure, reducing turbulence and increasing efficiency. Extensive testing of various shapes and locations has resulted in the most efficient aerodynamic design of the straightening vanes.

## Drain (QCLBR)

A two inch drain allows drainage of grease to the lowest point of the fan. Drain is located 180° from the motor on vertical fans and at the lowest point of the housing on horizontal fans. A grease box with drain connection is an available option.

## Universal Mounting Feet

Fan sizes 90-270 (non-curb mounted) come standard with eight mounting brackets and four universal mounting feet. This allows for easy mounting and motor position changes in the field.

## Inlet and Outlet Flanges

Inlet and outlet flanges with prepunched mounting holes are standard on all sizes, providing a bolted connection to ductwork.

## Clean Out Doors (QCLBR)

Two cleanout doors are located 180° apart, providing access to the wheel for cleaning.

## Minimum 2-Groove Drive with 2.0 Service Factor (QCLBSH)

Drives on Model QCLBSH are provided with a minimum of 2-grooves and with a service factor of 2.0 or greater to meet UL requirements for smoke control systems.

## Inner Cylinder

The inner tube is rigidly constructed to support the shaft and bearings. The removable discharge cone provides full access to the shaft, bearings and fan sheave. It is strongly recommended that an access door be provided in the ductwork adjacent to the discharge end of the fan for such service.

## Bearings

Standard bearings are selected to exceed the L-10 life of 80,000 hours at the maximum operating speed.

## 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 on both fan bearings in the axial, horizontal and vertical directions at the specified speed. Fans are balanced to 0.15 in./sec. peak or less.

## Shaft

Shaft diameters sized so that maximum operating speed does not exceed 70% of first critical speed.



## Vertical Construction

Vertical construction is available on sizes 90 through 600.

**Floor or Ceiling Mounted (VUI/VUO/VDI/VDO)** — Four vertical brackets are welded to either end of the fan housing. Bracket location is determined by airflow direction and support details (see drawing below).

**Roof Mounted (VRM)** — A curb cap provides a weathertight seal for roof curb mounted fans. A discharge cap and weather cover are also available for the upblast style roof ventilator.

Available Discharges by Model

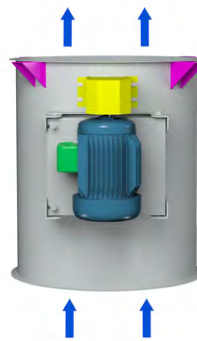
QCLB	QCLBR	QCLBSH
HBM	HBM	HBM
HCH	HCH	HCH
VDI	N/A	N/A
VDO	N/A	N/A
VUI	VUI	VUI
VUO	VUO	VUO
VRM	VRM	VRM



**VRM**  
*Vertical Roof Mounted*



**VUI**  
*Vertical Discharge Up, Floor Mount Support Brackets On Inlet*



**VUO**  
*Vertical Discharge Up, Ceiling Hung Support Brackets On Outlet*



**VDO**  
*Vertical Discharge Down, Floor Mount Support Brackets On Outlet*



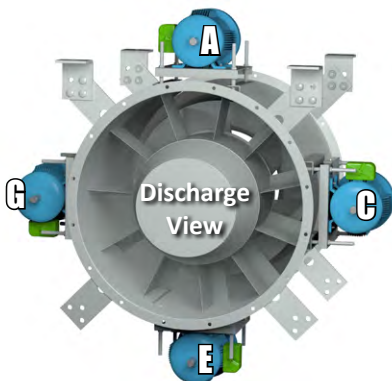
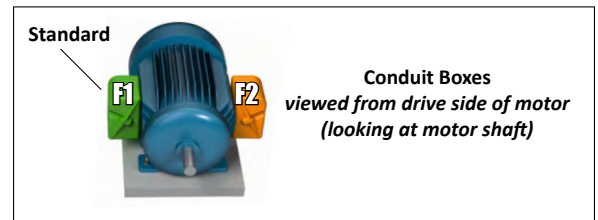
**VDI**  
*Vertical Discharge Down, Ceiling Hung Support Brackets On Inlet*

## Horizontal Construction

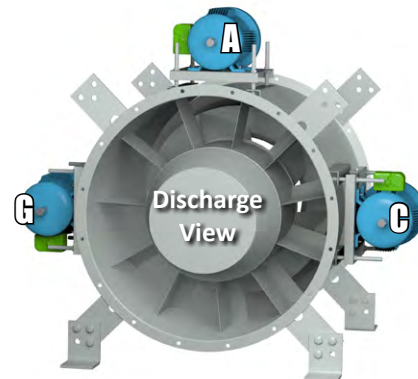
Horizontal construction is available on sizes 90 through 600.

**Horizontal Base Mounted (HBM)** — Support legs are provided at each end of the fan for floor mounting.

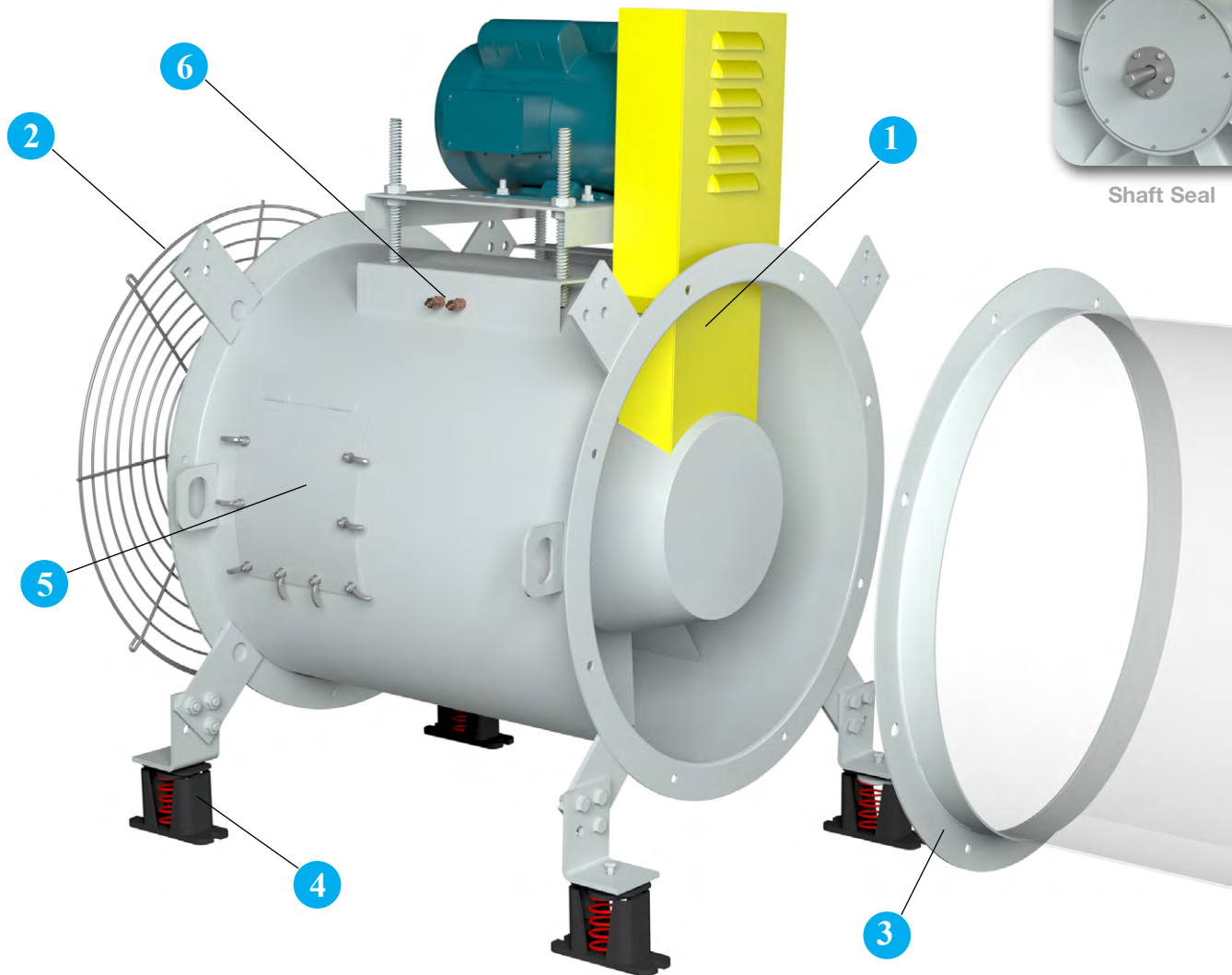
**Horizontal Ceiling Hung (HCH)** — For duct mounted fans, four suspension clips are welded to the fan casing to allow ceiling suspension using rod hangers. (Motor position E is not available on a Model QCLBR.)



**HCH**  
*Horizontal Ceiling Hung*



**HBM**  
*Horizontal Base Mounted*



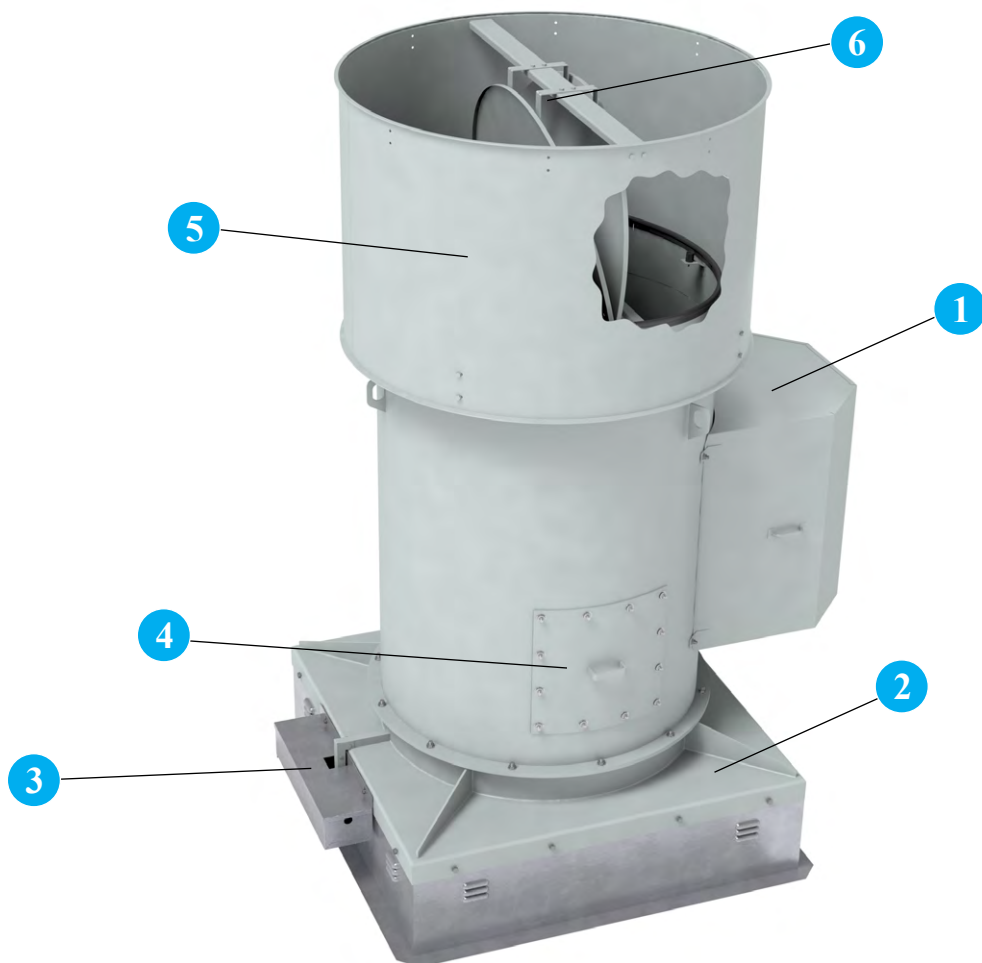
Shaft Seal

- 1 Belt Tube** A belt tube encloses the belts and drive components, protecting them from the airstream. A belt tube is an optional accessory on Model QCLB and standard on Models QCLBR and QCLBSH.
- 2 Inlet/Outlet Screens** Safety screening can be provided for installation in the fan inlet or outlet.
- 3 Companion Flanges** Inlet and outlet companion flanges are available for ease of duct connection. Companion flanges are rolled angle rings punched to match the standard inlet or outlet flange.
- 4 Spring Isolators** Spring type vibration isolation mounts are available to reduce the transmission of fan vibration in 1" or 2" deflection. Spring isolators can be provided for floor mount or ceiling hung orientation.
- 5 Quick Open Access Door** For quick wheel inspection and maintenance. Access doors are specified where examination and cleaning of the fan interior is required.
- 6 Extended Lube Lines** Allow for easy lubrication of bearings on belt driven units without disassembly by extending polyethylene lines from fan bearings to exterior of the guard.

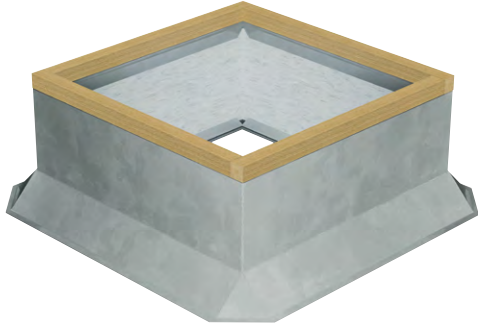
### Other Accessories

- Floor Mounted Rubber Isolators
- Ceiling Hung Spring & Rubber Isolators
- Sound Attenuating Box
- Hinged Weather Cover
- Drain (QCLB & QCLBSH)
- Thrust Restraints
- Shaft Seal
- Piezometer Ring





- 1 Weather Cover** For outdoor installations, the weather cover completely encloses the motor and V-belt drive from the elements and is provided with slots for ventilation. Weather covers are available for either horizontal or vertical flow fans. Standard accessory on vertical roof mounted configuration.
- 2 Curb Cap** Attached to the fan's flange for curb mounting. Standard accessory on vertical roof mounted configuration.
- 3 Grease Box** The heavy gauge galvanized grease box is designed to trap the grease in and allow the water to run off onto the roof.
- 4 Bolted Access Door** Bolted access door allows for inspection and maintenance of internal fan components.
- 5 Discharge Cap** Discharge caps are provided as a standard accessory on vertical roof mounted configurations. Discharge caps feature butterfly type dampers that seal out weather when the fan is shut off. Butterfly dampers on Models QCLB and QCLBR open with airflow (see table 3 on page 12 for minimum flow rates required to open damper blades). Discharge caps on Model QCLBSH meet UL 793 requirements, providing a fusible link and spring assembly that forces the discharge butterfly dampers open when the fuse melts at 165°F. Discharge caps on QCLBSH meet snow load tests set forth by UL, IRI and SBCCI.
- 6 Magnetic Damper Latches** Magnetic latches are available to hold discharge cap butterfly dampers closed when not in operation.



## Canted Roof Curbs

- Constructed of 18-gauge galvanized steel with continuous 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 (1½") secured to top ledge
- Lined with 1½" 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

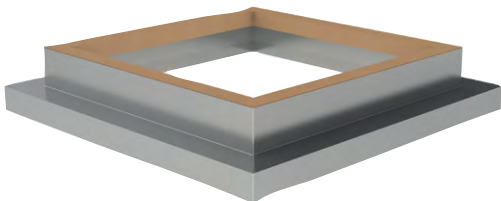
- Constructed of 18-gauge galvanized steel with continuous welded seams
- Wide base plate (flashing) to insure watertight seal to roof
- Top ledge covered with 3/16" polystyrene gasket for weather seal and to reduce metal-to-metal conducted noise
- Lined with 1½" fiberglass fire-resistant, sound-absorbing 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", Wood nailer (1½") secured to top ledge in lieu of polystyrene gasket, 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 continuous 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 continuous 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 1 Disconnect Switch (Standard)**

A NEMA 1 disconnect switch is available shipped loose for field mounting and wiring or factory mounted and wired with ODP or TEFC motors.



NEMA 1 Disconnect Switch

## **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.)



Table 1. Maximum RPM, Wheel Weights, and WR<sup>2</sup> (moment of inertia in lb-ft<sup>2</sup>)

FAN SIZE	LEVEL 1			LEVEL 2		
	MAX. RPM	WEIGHT LB.	WR <sup>2</sup> LB-FT <sup>2</sup>	MAX. RPM	WEIGHT LB.	WR <sup>2</sup> LB-FT <sup>2</sup>
90	3156	8	0.99	4225	9	1.05
122	2577	11	2.03	3450	12	2.15
135	2343	13	2.98	3137	15	3.50
150	2118	16	4.34	2836	18	5.1
165	1933	22	6.9	2588	31	9.9
182	1737	26	10	2326	37	14
200	1578	29	15	2113	46	23
222	1432	34	20	1917	59	34
245	1289	41	29	1725	70	50
270	1171	49	42	1568	84	72
300	1059	67	70	1418	115	121
330	960	78	100	1286	134	171
365	869	119	190	1163	196	313
402	789	142	275	1056	234	452
445	713	172	407	954	282	668
490	644	270	784	863	463	1346
542	586	336	1183	784	577	2030
600	530	405	1743	709	695	2992

Table 2. Bare Fan Weights (lb) (without motor and drive)

FAN SIZE	LEVEL 1	LEVEL 2
90	74	83
122	99	111
135	114	129
150	136	154
165	161	187
182	180	221
200	221	262
222	248	310
245	316	395
270	369	463
300	554	585
330	648	756
365	810	952
402	1022	1202
445	1238	1457
490	1481	1884
542	2010	2305
600	2434	2859

Table 3. Minimum CFM Required to Open Discharge Cap

FAN SIZE	CFM
90	515
122	770
135	935
150	1051
165	1707
182	2532
200	3527
222	3527
245	4693
270	6574
300	7605
330	8712
365	11158
402	15891
445	15891
490	20904
542	26613
600	34100

Table 4. Temperature and Altitude Density Ratios

AIR TEMP °F	ALTITUDE IN FEET ABOVE SEA LEVEL											
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	15000
	BAROMETRIC PRESSURE IN INCHES OF MERCURY											
	29.92	28.86	27.82	26.82	25.84	24.90	23.98	23.09	22.22	21.39	20.58	16.89
-50	1.293	1.247	1.201	1.159	1.116	1.076	1.036	0.997	0.960	0.924	0.889	0.729
0	1.152	1.111	1.071	1.032	0.995	0.959	0.923	0.889	0.856	0.824	0.792	0.650
70	1.000	0.964	0.930	0.896	0.864	0.832	0.801	0.772	0.743	0.714	0.688	0.564
100	0.946	0.912	0.880	0.848	0.818	0.787	0.758	0.730	0.703	0.676	0.651	0.534
150	0.869	0.838	0.808	0.770	0.751	0.723	0.696	0.671	0.646	0.620	0.598	0.490
200	0.803	0.774	0.747	0.720	0.694	0.668	0.643	0.620	0.596	0.573	0.552	0.453

## INSTALLATION PHOTOS



General Exhaust



General Exhaust

# 90 QCLB

Wheel Dia.: 12.25"  
Outlet Dia.: 13.69"

Max. BHP = 0.033 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 2.40 x RPM

Outlet Area: 1.03 ft<sup>2</sup>  
Fan Efficiency Grade: FEG75

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
650	631	1124	0.05	1385	0.09	1634	0.13																
800	777	1274	0.06	1496	0.11	1699	0.16	1900	0.21														
950	922	1445	0.09	1617	0.14	1810	0.19	1979	0.25	2319	0.38	2644	0.53										
1100	1068	1623	0.12	1767	0.17	1925	0.23	2092	0.30	2383	0.43	2678	0.59	2963	0.76								
1250	1214	1804	0.16	1935	0.22	2063	0.28	2207	0.35	2488	0.50	2740	0.66	3000	0.84	3256	1.03	3497	1.23				
1400	1359	1989	0.21	2110	0.28	2223	0.34	2339	0.41	2602	0.57	2840	0.74	3065	0.92	3296	1.12	3528	1.33	3750	1.55	3963	1.78
1550	1505	2176	0.27	2288	0.34	2392	0.41	2493	0.48	2718	0.65	2954	0.84	3164	1.02	3367	1.22	3575	1.44	3786	1.67	3992	1.90
1700	1650	2366	0.34	2469	0.42	2567	0.50	2660	0.57	2851	0.74	3068	0.94	3277	1.14	3467	1.35	3652	1.56	3840	1.79		
1850	1796	2556	0.43	2652	0.51	2745	0.59	2832	0.68	3002	0.85	3189	1.04	3392	1.26	3581	1.49	3755	1.71	3925	1.95		
2000	1942	2748	0.52	2838	0.61	2925	0.70	3008	0.80	3165	0.98	3327	1.17	3508	1.39	3695	1.63	3869	1.88				
2150	2087	2941	0.64	3025	0.73	3107	0.83	3186	0.93	3335	1.12	3481	1.32	3638	1.54	3810	1.79	3984	2.05				
2300	2233	3135	0.76	3214	0.87	3291	0.97	3366	1.08	3509	1.28	3645	1.49	3784	1.72	3936	1.96						
2450	2379	3329	0.91	3404	1.02	3476	1.13	3547	1.24	3685	1.46	3814	1.68	3942	1.91								
2600	2524	3524	1.07	3594	1.19	3663	1.30	3731	1.42	3863	1.66	3986	1.89										
2750	2670	3720	1.26	3786	1.38	3852	1.50	3916	1.62														
2900	2816	3915	1.46	3979	1.59																		

MAXIMUM RPM: Level 1 — 3156    Level 2 — 4225    MAXIMUM MOTOR FRAME SIZE: Level 1 — 145T    Level 2 — 182T

# 122 QCLB

Wheel Dia.: 15.00"  
Outlet Dia.: 16.75"

Max. BHP = 0.089 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 2.93 x RPM

Outlet Area: 1.54 ft<sup>2</sup>  
Fan Efficiency Grade: FEG71

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1000	649	930	0.07	1140	0.13	1338	0.20	1526	0.28														
1220	792	1053	0.10	1230	0.17	1395	0.24	1556	0.32	1869	0.51												
1440	935	1190	0.14	1328	0.21	1484	0.29	1622	0.38	1896	0.58	2161	0.80										
1660	1078	1332	0.19	1450	0.26	1577	0.35	1713	0.45	1950	0.66	2189	0.89	2421	1.15								
1880	1221	1477	0.24	1584	0.33	1688	0.42	1805	0.52	2034	0.75	2239	0.99	2451	1.26	2660	1.54	2856	1.84				
2100	1364	1625	0.32	1724	0.41	1816	0.51	1911	0.61	2126	0.86	2320	1.11	2503	1.38	2692	1.68	2882	1.99	3062	2.32	3236	2.66
2320	1506	1775	0.41	1866	0.51	1951	0.62	2034	0.72	2218	0.97	2411	1.25	2582	1.53	2748	1.83	2918	2.15	3091	2.49	3260	2.85
2540	1649	1926	0.51	2010	0.62	2091	0.74	2167	0.86	2323	1.10	2502	1.40	2673	1.70	2828	2.01	2979	2.34	3134	2.68	3291	3.05
2760	1792	2078	0.63	2157	0.76	2233	0.88	2304	1.01	2444	1.26	2598	1.56	2764	1.88	2919	2.22	3061	2.55	3201	2.90	3341	3.27
2980	1935	2231	0.77	2305	0.91	2376	1.04	2445	1.18	2574	1.45	2707	1.74	2857	2.07	3010	2.43	3152	2.79	3284	3.15	3414	3.53
3200	2078	2385	0.94	2454	1.08	2521	1.22	2587	1.37	2709	1.66	2829	1.96	2959	2.29	3102	2.66	3244	3.04	3375	3.43		
3420	2221	2540	1.12	2605	1.27	2668	1.43	2730	1.58	2847	1.89	2959	2.20	3074	2.54	3200	2.90	3335	3.31				
3640	2364	2695	1.33	2756	1.49	2816	1.65	2875	1.82	2988	2.15	3094	2.48	3199	2.82	3311	3.19	3432	3.59				
3860	2506	2851	1.57	2909	1.74	2966	1.91	3021	2.08	3130	2.44	3231	2.78	3330	3.13	3431	3.50						
4080	2649	3007	1.83	3062	2.01	3116	2.19	3169	2.37	3272	2.74	3371	3.11										
4300	2792	3163	2.12	3216	2.31	3267	2.50	3318	2.69	3417	3.08												

MAXIMUM RPM: Level 1 — 2577    Level 2 — 3450    MAXIMUM MOTOR FRAME SIZE: Level 1 — 145T    Level 2 — 184T

# 135 QCLB

Wheel Dia.: 16.50"  
Outlet Dia.: 18.50"

Max. BHP = 0.144 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 3.23 x RPM

Outlet Area: 1.87 ft<sup>2</sup>  
Fan Efficiency Grade: FEG67

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1200	642	842	0.09	1034	0.16	1215	0.24	1387	0.34														
1460	781	950	0.12	1113	0.20	1264	0.29	1412	0.39	1698	0.62												
1720	920	1071	0.16	1199	0.25	1342	0.35	1469	0.45	1721	0.69	1963	0.96										
1980	1059	1197	0.22	1305	0.31	1424	0.41	1548	0.53	1765	0.78	1986	1.06	2198	1.37								
2240	1198	1326	0.29	1424	0.39	1520	0.50	1629	0.62	1838	0.89	2028	1.18	2224	1.50	2415	1.85	2595	2.21				
2500	1337	1456	0.37	1547	0.48	1632	0.60	1721	0.72	1920	1.02	2096	1.32	2266	1.64	2442	2.00	2616	2.38	2781	2.78		
2760	1476	1589	0.47	1673	0.60	1752	0.72	1828	0.85	2001	1.15	2177	1.48	2334	1.82	2487	2.18	2646	2.57	2805	2.98	2959	3.41
3020	1615	1723	0.59	1801	0.73	1875	0.86	1945	1.00	2092	1.30	2258	1.65	2413	2.02	2555	2.39	2695	2.78	2839	3.20	2985	3.64
3280	1754	1858	0.73	1931	0.88	2001	1.03	2066	1.17	2196	1.48	2341	1.84	2495	2.23	2634	2.62	2765	3.03	2894	3.45	3025	3.89
3540	1893	1994	0.89	2062	1.05	2128	1.21	2191	1.37	2310	1.69	2435	2.05	2576	2.45	2716	2.88	2845	3.31	2966	3.74	3086	4.19
3800	2032	2131	1.08	2194	1.25	2256	1.42	2316	1.59	2429	1.93	2541	2.29	2664	2.70	2797	3.14	2926	3.60	3046	4.06		
4060	2171	2268	1.29	2328	1.47	2386	1.65	2443	1.83	2551	2.20	2655	2.58	2763	2.98	2882	3.42	3007	3.90	3128	4.40		
4320	2310	2406	1.53	2462	1.72	2517	1.91	2572	2.11	2675	2.50	2773	2.89	2872	3.30	2977	3.74	3091	4.23				
4580	2449	2544	1.79	2597	2.00	2650	2.20	2701	2.41	2801	2.82	2895	3.24	2987	3.66	3081	4.10						
4840	2588	2682	2.09	2733	2.31	2783	2.52	2832	2.74	2928	3.18	3018	3.62	3105	4.06								
5100	2727	2821	2.42	2869	2.65	2917	2.88	2964	3.11	3055	3.57												

MAXIMUM RPM: Level 1 — 2343    Level 2 — 3137    MAXIMUM MOTOR FRAME SIZE: Level 1 — 145T    Level 2 — 184T

- NOTES:
1. Performance certified is for installation Type B: Free inlet, ducted outlet.
  2. Power rating (BHP) does not include transmission losses.
  3. Performance ratings do not include the effects of appurtenances (accessories).

### 150 QCLB

Wheel Dia.: 18.25"  
Outlet Dia.: 20.25"

Max. BHP = 0.210 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 3.57 x RPM

Outlet Area: 2.25 ft<sup>2</sup>  
Fan Efficiency Grade: FEG63

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1500	667	827	0.12	1005	0.21	1169	0.32																
1840	818	935	0.16	1089	0.27	1232	0.39	1367	0.52														
2180	969	1052	0.23	1188	0.35	1315	0.48	1435	0.62	1662	0.92												
2520	1120	1174	0.30	1296	0.44	1410	0.58	1519	0.74	1724	1.06	1920	1.42										
2860	1271	1300	0.40	1410	0.55	1514	0.71	1613	0.87	1802	1.23	1981	1.61	2154	2.02	2317	2.44						
3200	1422	1429	0.52	1529	0.69	1624	0.86	1716	1.04	1890	1.41	2056	1.82	2215	2.25	2370	2.70	2519	3.17	2660	3.67		
3540	1573	1560	0.67	1651	0.85	1739	1.03	1825	1.23	1987	1.63	2141	2.06	2290	2.52	2434	2.99	2574	3.49	2712	4.00		
3880	1724	1693	0.84	1777	1.04	1858	1.24	1938	1.45	2090	1.88	2234	2.33	2374	2.81	2509	3.31	2640	3.83	2769	4.37		
4220	1876	1827	1.05	1905	1.26	1980	1.47	2054	1.69	2197	2.16	2334	2.64	2465	3.14	2593	3.66	2717	4.20				
4560	2027	1962	1.28	2034	1.51	2105	1.74	2174	1.97	2309	2.47	2438	2.98	2562	3.50	2683	4.05	2801	4.61				
4900	2178	2098	1.56	2165	1.79	2231	2.04	2296	2.29	2423	2.81	2546	3.36	2664	3.91	2779	4.48						
5240	2329	2234	1.87	2297	2.12	2360	2.38	2421	2.65	2541	3.20	2657	3.77	2770	4.35								
5580	2480	2371	2.22	2431	2.49	2489	2.76	2547	3.04	2661	3.62	2772	4.22										
5920	2631	2508	2.61	2565	2.90	2620	3.19	2675	3.48	2783	4.09												
6260	2782	2646	3.06	2699	3.35	2752	3.66	2804	3.97														
6600	2933	2784	3.55	2835	3.86																		

MAXIMUM RPM: Level 1 — 2188    Level 2 — 2836    MAXIMUM MOTOR FRAME SIZE: Level 1 — 182T    Level 2 — 184T

### 165 QCLB

Wheel Dia.: 20.00"  
Outlet Dia.: 22.31"

Max. BHP = 0.322 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 3.91 x RPM

Outlet Area: 2.72 ft<sup>2</sup>  
Fan Efficiency Grade: FEG63

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1800	662	755	0.14	917	0.25	1067	0.38																
2200	809	851	0.20	992	0.32	1122	0.47	1246	0.62														
2600	956	955	0.27	1080	0.41	1196	0.57	1306	0.74	1515	1.10												
3000	1103	1064	0.36	1176	0.52	1281	0.69	1380	0.87	1569	1.27	1749	1.69										
3400	1250	1176	0.47	1277	0.65	1373	0.84	1464	1.03	1638	1.46	1802	1.91	1961	2.40	2110	2.91						
3800	1397	1291	0.61	1383	0.81	1471	1.01	1556	1.23	1716	1.67	1868	2.16	2015	2.68	2157	3.21	2294	3.78				
4200	1544	1408	0.78	1492	0.99	1574	1.22	1652	1.45	1802	1.93	1944	2.44	2080	2.98	2213	3.55	2342	4.14	2468	4.75	2588	5.38
4600	1691	1527	0.98	1604	1.21	1680	1.45	1753	1.70	1893	2.21	2026	2.75	2154	3.32	2279	3.92	2400	4.54	2519	5.18		
5000	1838	1647	1.21	1718	1.46	1788	1.72	1857	1.98	1988	2.53	2114	3.10	2235	3.70	2353	4.32	2467	4.97	2579	5.64		
5400	1985	1767	1.48	1834	1.75	1899	2.02	1963	2.30	2087	2.89	2206	3.50	2321	4.12	2432	4.77	2541	5.44				
5800	2132	1888	1.80	1951	2.08	2012	2.37	2072	2.67	2189	3.29	2302	3.93	2411	4.59	2517	5.26						
6200	2279	2010	2.15	2069	2.45	2126	2.76	2183	3.08	2294	3.73	2401	4.41	2505	5.10								
6600	2426	2132	2.55	2188	2.87	2242	3.20	2296	3.53	2401	4.22	2503	4.93										
7000	2574	2255	3.01	2307	3.34	2359	3.69	2410	4.04	2509	4.75												
7400	2721	2378	3.51	2428	3.87	2477	4.23	2525	4.59														
7800	2868	2502	4.08	2549	4.45																		

MAXIMUM RPM: Level 1 — 1933    Level 2 — 2588    MAXIMUM MOTOR FRAME SIZE: Level 1 — 182T    Level 2 — 213T

### 182 QCLB

Wheel Dia.: 22.25"  
Outlet Dia.: 24.69"

Max. BHP = 0.566 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 4.35 x RPM

Outlet Area: 3.34 ft<sup>2</sup>  
Fan Efficiency Grade: FEG63

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2200	659	674	0.17	821	0.31	956	0.47																
2675	801	756	0.24	885	0.39	1003	0.57	1116	0.75														
3150	943	845	0.32	959	0.49	1065	0.68	1166	0.89	1356	1.34												
3625	1085	938	0.42	1041	0.62	1137	0.83	1228	1.05	1401	1.53	1564	2.05										
4100	1228	1035	0.55	1128	0.77	1216	1.00	1299	1.23	1458	1.75	1609	2.31	1753	2.90								
4575	1370	1134	0.71	1218	0.94	1299	1.20	1377	1.45	1524	2.00	1663	2.59	1797	3.22	1928	3.88	2051	4.56				
5050	1512	1234	0.90	1312	1.16	1387	1.43	1459	1.71	1596	2.29	1726	2.91	1851	3.57	1973	4.26	2092	4.98	2206	5.73	2315	6.52
5525	1654	1336	1.12	1408	1.40	1477	1.69	1544	1.99	1673	2.61	1795	3.26	1913	3.96	2027	4.69	2139	5.45	2248	6.22		
6000	1796	1439	1.39	1505	1.68	1570	1.99	1633	2.31	1754	2.98	1870	3.67	1981	4.39	2089	5.15	2194	5.94	2296	6.76		
6475	1939	1543	1.69	1605	2.01	1665	2.34	1724	2.68	1838	3.38	1948	4.12	2053	4.87	2156	5.67	2255	6.48				
6950	2081	1647	2.04	1705	2.38	1762	2.73	1817	3.09	1925	3.84	2029	4.61	2130	5.41	2227	6.22	2322	7.08				
7425	2223	1752	2.44	1806	2.80	1860	3.17	1912	3.55	2015	4.34	2114	5.16	2209	5.99	2302	6.84						
7900	2365	1857	2.89	1908	3.26	1959	3.66	2008	4.05	2106	4.89	2200	5.74	2292	6.63								
8375	2507	1963	3.39	2011	3.79	2059	4.20	2106	4.62	2199	5.49	2289	6.39										
8850	2650	2069	3.95	2115	4.38	2160	4.81	2205	5.25	2293	6.15												
9325	2792	2175	4.57	2219	5.02	2262	5.47	2304	5.93														

MAXIMUM RPM: Level 1 — 1737    Level 2 — 2326    MAXIMUM MOTOR FRAME SIZE: Level 1 — 184T    Level 2 — 213T

- NOTES:
- Performance certified is for installation Type B: Free inlet, ducted outlet.
  - Power rating (BHP) does not include transmission losses.
  - Performance ratings do not include the effects of appurtenances (accessories).

## 200 QCLB

Wheel Dia.: 24.50"  
Outlet Dia.: 27.06"

Max. BHP = 0.915 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 4.79 x RPM

Outlet Area: 4.04 ft<sup>2</sup>  
Fan Efficiency Grade: FEG63

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2700	668	616	0.21	748	0.38	871	0.57																
3325	823	698	0.30	812	0.49	918	0.70	1019	0.94														
3950	978	786	0.41	888	0.63	982	0.87	1071	1.12	1240	1.67												
4575	1132	879	0.56	970	0.80	1054	1.06	1135	1.34	1287	1.93	1432	2.58	1567	3.27								
5200	1287	975	0.74	1057	1.01	1134	1.30	1207	1.60	1347	2.24	1479	2.93	1607	3.66	1729	4.44						
5825	1442	1074	0.97	1147	1.26	1218	1.58	1286	1.91	1415	2.59	1537	3.32	1655	4.10	1770	4.92	1880	5.77	1985	6.66		
6450	1597	1173	1.24	1241	1.57	1306	1.91	1369	2.26	1489	2.99	1603	3.77	1713	4.59	1819	5.46	1923	6.35	2024	7.27		
7075	1751	1274	1.56	1336	1.92	1396	2.28	1455	2.67	1567	3.45	1674	4.27	1777	5.14	1877	6.05	1974	6.99	2069	7.96		
7700	1906	1376	1.95	1433	2.32	1489	2.72	1544	3.13	1649	3.97	1750	4.84	1847	5.75	1941	6.69	2033	7.68				
8325	2061	1479	2.39	1532	2.80	1584	3.22	1635	3.65	1734	4.55	1830	5.48	1921	6.43	2011	7.42	2098	8.45				
8950	2215	1582	2.91	1632	3.34	1681	3.79	1729	4.25	1822	5.20	1912	6.18	2000	7.20	2084	8.22						
9575	2370	1686	3.50	1733	3.96	1778	4.43	1823	4.91	1912	5.92	1998	6.97	2081	8.03								
10200	2525	1790	4.16	1834	4.65	1877	5.15	1920	5.66	2003	6.71	2085	7.81										
10825	2679	1895	4.91	1936	5.43	1977	5.96	2017	6.49	2096	7.59												
11450	2834	1999	5.74	2038	6.29	2077	6.84																
12075	2989	2104	6.67																				

MAXIMUM RPM: Level 1 — 1578    Level 2 — 2113    MAXIMUM MOTOR FRAME SIZE: Level 1 — 213T    Level 2 — 254T

## 222 QCLB

Wheel Dia.: 27.00"  
Outlet Dia.: 30.06"

Max. BHP = 1.66 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 5.28 x RPM

Outlet Area: 4.97 ft<sup>2</sup>  
Fan Efficiency Grade: FEG71

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3300	664	511	0.22	623	0.40	737	0.62																
4050	815	580	0.30	672	0.50	763	0.73	856	1.00														
4800	966	654	0.41	734	0.64	811	0.89	888	1.16	1045	1.79	1194	2.50										
5550	1117	732	0.55	803	0.80	871	1.07	937	1.36	1071	2.01	1207	2.76	1337	3.57								
6300	1268	811	0.73	876	1.01	937	1.30	996	1.61	1113	2.29	1231	3.05	1351	3.89	1468	4.80						
7050	1419	892	0.95	952	1.25	1007	1.57	1061	1.90	1166	2.62	1271	3.41	1377	4.27	1484	5.20	1590	6.20	1692	7.24		
7800	1569	974	1.21	1029	1.54	1081	1.89	1131	2.25	1227	3.01	1322	3.83	1417	4.72	1512	5.66	1608	6.68	1705	7.76	1800	8.89
8550	1720	1057	1.53	1109	1.89	1157	2.25	1203	2.64	1292	3.44	1379	4.31	1465	5.22	1552	6.20	1639	7.23	1726	8.32	1815	9.48
9300	1871	1141	1.90	1189	2.28	1234	2.67	1278	3.09	1361	3.94	1442	4.85	1521	5.80	1601	6.82	1680	7.87	1760	8.98	1840	10.15
10050	2022	1226	2.34	1270	2.74	1313	3.16	1354	3.59	1432	4.50	1508	5.45	1582	6.45	1656	7.50	1729	8.59	1803	9.73	1877	10.92
10800	2173	1311	2.83	1352	3.26	1393	3.71	1432	4.17	1506	5.13	1577	6.13	1647	7.17	1716	8.26	1784	9.39	1853	10.57		
11550	2324	1396	3.40	1435	3.85	1473	4.33	1510	4.81	1581	5.82	1648	6.87	1715	7.97	1780	9.10	1844	10.27	1907	11.47		
12300	2475	1482	4.04	1519	4.53	1555	5.03	1590	5.54	1657	6.59	1722	7.70	1785	8.84	1847	10.02	1907	11.22				
13050	2626	1567	4.75	1603	5.28	1637	5.80	1670	6.33	1735	7.45	1796	8.59	1856	9.78	1915	11.01						
13800	2777	1653	5.56	1687	6.11	1719	6.65	1751	7.22	1813	8.38	1873	9.59										
14550	2928	1740	6.46	1772	7.03	1803	7.61	1833	8.19	1893	9.42												

MAXIMUM RPM: Level 1 — 1432    Level 2 — 1917    MAXIMUM MOTOR FRAME SIZE: Level 1 — 213T    Level 2 — 254T

## 245 QCLB

Wheel Dia.: 30.00"  
Outlet Dia.: 33.13"

Max. BHP = 2.82 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 5.87 x RPM

Outlet Area: 6.01 ft<sup>2</sup>  
Fan Efficiency Grade: FEG71

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4000	666	455	0.26	558	0.48	662	0.75																
4900	815	515	0.36	599	0.60	683	0.89	769	1.21														
5800	965	579	0.48	653	0.76	723	1.06	794	1.40	938	2.17												
6700	1115	647	0.65	712	0.95	774	1.28	835	1.64	958	2.43	1084	3.35	1202	4.34								
7600	1265	716	0.86	775	1.19	831	1.55	886	1.93	994	2.76	1102	3.69	1213	4.73	1319	5.83						
8500	1414	787	1.11	841	1.47	892	1.86	942	2.27	1039	3.15	1136	4.11	1233	5.16	1332	6.31	1429	7.54	1521	8.80		
9400	1564	858	1.41	909	1.81	956	2.22	1002	2.66	1090	3.59	1178	4.60	1265	5.67	1353	6.84	1443	8.10	1532	9.43	1617	10.80
10300	1714	931	1.78	978	2.20	1022	2.65	1064	3.11	1147	4.10	1226	5.15	1306	6.27	1386	7.46	1466	8.72	1547	10.07	1629	11.50
11200	1864	1004	2.20	1048	2.66	1090	3.14	1129	3.63	1206	4.68	1280	5.78	1353	6.94	1427	8.18	1500	9.46	1574	10.83	1648	12.27
12100	2013	1078	2.70	1119	3.19	1158	3.69	1196	4.22	1267	5.32	1337	6.47	1405	7.69	1473	8.97	1541	10.30	1609	11.69	1677	13.14
13000	2163	1152	3.26	1190	3.78	1228	4.33	1263	4.88	1331	6.04	1397	7.26	1461	8.52	1524	9.84	1587	11.22	1651	12.67	1714	14.15
13900	2313	1226	3.91	1263	4.47	1298	5.04	1332	5.63	1396	6.84	1458	8.11	1520	9.45	1579	10.81	1638	12.24	1697	13.72		
14800	2463	1301	4.64	1335	5.22	1369	5.84	1401	6.45	1463	7.73	1522	9.07	1580	10.46	1637	11.89	1692	13.34				
15700	2612	1376	5.46	1409	6.09	1440	6.72	1471	7.37	1530	8.71	1587	10.11	1642	11.55	1696	13.04						
16600	2762	1452	6.39	1482	7.03	1512	7.70	1542	8.39	1599	9.79	1653	11.25	1705	12.74								
17500	2912	1527	7.41	1556	8.09	1585	8.79	1613	9.50	1668	10.98	1720	12.49										

MAXIMUM RPM: Level 1 — 1289    Level 2 — 1725    MAXIMUM MOTOR FRAME SIZE: Level 1 — 213T    Level 2 — 254T

**NOTES:**

1. Performance certified is for installation Type B: Free inlet, ducted outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).

## 270 QCLB

Wheel Dia.: 33.00"  
Outlet Dia.: 36.50"

Max. BHP = 4.54 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 6.45 x RPM

Outlet Area: 7.28 ft<sup>2</sup>  
Fan Efficiency Grade: FEG71

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4800	659	412	0.31	506	0.58	602	0.91																
5900	810	466	0.43	544	0.73	620	1.07	699	1.47														
7000	962	526	0.59	592	0.91	657	1.28	722	1.69	853	2.63												
8100	1113	588	0.79	647	1.15	703	1.55	759	1.98	871	2.94	985	4.05	1093	5.25								
9200	1264	651	1.04	705	1.44	756	1.87	805	2.33	904	3.35	1002	4.46	1103	5.72	1199	7.06						
10300	1415	716	1.35	766	1.79	812	2.26	857	2.75	945	3.81	1033	4.98	1121	6.25	1211	7.64	1299	9.12	1382	10.64		
11400	1566	782	1.72	828	2.20	871	2.71	912	3.23	992	4.35	1071	5.57	1151	6.88	1231	8.30	1312	9.81	1393	11.43	1470	13.08
12500	1717	849	2.17	891	2.68	931	3.22	970	3.79	1044	4.98	1116	6.25	1189	7.62	1261	9.05	1334	10.59	1407	12.21	1482	13.96
13600	1868	916	2.69	955	3.24	993	3.82	1029	4.42	1099	5.69	1166	7.03	1232	8.43	1299	9.94	1365	11.49	1432	13.15	1499	14.88
14700	2019	984	3.30	1021	3.90	1056	4.51	1090	5.14	1155	6.48	1219	7.90	1280	9.35	1341	10.89	1403	12.52	1465	14.22	1527	15.99
15800	2170	1052	4.00	1086	4.62	1120	5.29	1152	5.96	1214	7.37	1274	8.86	1332	10.39	1389	11.99	1446	13.66	1503	15.39	1561	17.22
16900	2321	1120	4.79	1153	5.47	1185	6.17	1215	6.87	1274	8.36	1330	9.90	1386	11.53	1439	13.17	1493	14.91	1546	16.70		
18000	2473	1189	5.70	1220	6.42	1250	7.15	1279	7.90	1335	9.45	1388	11.06	1441	12.76	1492	14.48	1543	16.28				
19100	2624	1258	6.72	1287	7.47	1316	8.25	1343	9.02	1397	10.66	1448	12.35	1498	14.11	1547	15.91						
20200	2775	1327	7.85	1355	8.65	1382	9.46	1408	10.28	1460	11.99	1509	13.76	1556	15.57								
21300	2926	1396	9.11	1422	9.93	1448	10.79	1474	11.67	1523	13.44												

MAXIMUM RPM: Level 1 — 1171    Level 2 — 1568    MAXIMUM MOTOR FRAME SIZE: Level 1 — 215T    Level 2 — 256T

## 300 QCLB

Wheel Dia.: 36.50"  
Outlet Dia.: 40.56"

Max. BHP = 7.54 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 7.14 x RPM

Outlet Area: 9.00 ft<sup>2</sup>  
Fan Efficiency Grade: FEG71

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6000	667	377	0.39	460	0.72	545	1.13																
7350	817	427	0.54	495	0.91	564	1.33	633	1.81														
8700	967	481	0.74	540	1.14	598	1.60	655	2.10	772	3.25												
10050	1117	537	0.99	590	1.44	641	1.94	690	2.46	790	3.64	892	5.01	989	6.49								
11400	1267	595	1.31	643	1.80	689	2.34	733	2.91	821	4.15	909	5.53	999	7.08	1085	8.71						
12750	1417	654	1.69	698	2.23	740	2.82	780	3.42	859	4.74	937	6.16	1016	7.72	1096	9.42	1175	11.24	1251	13.15		
14100	1567	714	2.16	755	2.75	793	3.37	830	4.02	902	5.41	973	6.91	1044	8.51	1115	10.23	1188	12.11	1260	14.07	1330	16.11
15450	1717	774	2.72	812	3.35	848	4.02	883	4.72	950	6.20	1014	7.75	1079	9.43	1144	11.20	1209	13.08	1275	15.09	1341	17.19
16800	1867	835	3.37	871	4.06	905	4.78	937	5.51	999	7.06	1060	8.72	1119	10.45	1179	12.30	1238	14.20	1298	16.23	1358	18.37
18150	2017	897	4.13	930	4.86	962	5.63	993	6.42	1051	8.06	1108	9.79	1163	11.60	1218	13.50	1273	15.48	1328	17.54	1384	19.73
19500	2167	959	5.01	990	5.79	1020	6.60	1049	7.43	1104	9.16	1158	10.99	1210	12.87	1261	14.83	1312	16.88	1364	19.04	1415	21.24
20850	2317	1021	6.01	1050	6.83	1079	7.70	1106	8.56	1159	10.39	1209	12.29	1259	14.28	1308	16.34	1355	18.43	1403	20.64		
22200	2467	1083	7.13	1111	8.01	1138	8.92	1164	9.83	1214	11.74	1262	13.73	1309	15.80	1356	17.96	1401	20.14				
23550	2617	1146	8.40	1172	9.33	1198	10.29	1223	11.26	1271	13.26	1317	15.35	1361	17.48	1406	19.74						
24900	2767	1208	9.80	1233	10.78	1258	11.80	1282	12.82	1328	14.91	1372	17.08	1415	19.34								
26250	2917	1271	11.37	1295	12.41	1318	13.45	1341	14.52	1385	16.70												

MAXIMUM RPM: Level 1 — 1059    Level 2 — 1418    MAXIMUM MOTOR FRAME SIZE: Level 1 — 215T    Level 2 — 256T

## 330 QCLB

Wheel Dia.: 40.25"  
Outlet Dia.: 44.63"

Max. BHP = 12.23 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 7.87 x RPM

Outlet Area: 10.89 ft<sup>2</sup>  
Fan Efficiency Grade: FEG71

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
7200	661	339	0.47	416	0.87	494	1.36																
8800	808	383	0.64	446	1.08	509	1.59	573	2.18														
10400	955	431	0.87	485	1.36	538	1.90	591	2.51	699	3.90												
12000	1102	480	1.16	529	1.70	575	2.29	621	2.93	714	4.37	807	6.00	896	7.79								
13600	1249	531	1.52	575	2.11	618	2.77	658	3.44	739	4.93	821	6.62	904	8.48	983	10.47						
15200	1396	583	1.96	624	2.62	662	3.31	699	4.03	772	5.62	845	7.35	918	9.25	992	11.30	1064	13.49	1133	15.76		
16800	1543	636	2.50	674	3.21	709	3.95	743	4.73	810	6.41	875	8.20	941	10.14	1007	12.23	1074	14.48	1141	16.88	1204	19.31
18400	1690	689	3.13	724	3.89	758	4.71	789	5.53	851	7.30	911	9.19	971	11.20	1031	13.34	1091	15.61	1152	18.03	1214	20.62
20000	1837	743	3.88	776	4.70	807	5.55	837	6.45	894	8.30	950	10.28	1005	12.37	1060	14.57	1115	16.88	1171	19.36	1227	21.96
21600	1983	797	4.74	828	5.62	857	6.52	886	7.48	939	9.43	992	11.52	1043	13.69	1094	15.98	1145	18.37	1196	20.86	1247	23.46
23200	2130	852	5.74	881	6.68	908	7.62	935	8.62	986	10.70	1036	12.90	1084	15.16	1131	17.51	1179	20.01	1226	22.55	1274	25.24
24800	2277	907	6.88	934	7.87	960	8.88	986	9.94	1034	12.11	1081	14.41	1127	16.79	1171	19.21	1216	21.80	1260	24.42		
26400	2424	962	8.16	987	9.19	1012	10.27	1037	11.40	1083	13.67	1127	16.05	1171	18.55	1213	21.07	1255	23.71				
28000	2571	1017	9.59	1041	10.69	1065	11.83	1088	12.99	1133	15.41	1175	17.88	1216	20.45	1257	23.12						
29600	2718	1072	11.19	1095	12.35	1118	13.55	1140	14.77	1183	17.28	1223	19.85	1263	22.57								
31200	2865	1128	12.98	1150	14.21	1171	15.44	1192	16.70	1233	19.32	1273	22.06										

MAXIMUM RPM: Level 1 — 960    Level 2 — 1286    MAXIMUM MOTOR FRAME SIZE: Level 1 — 254T    Level 2 — 284T

- NOTES:
1. Performance certified is for installation Type B: Free inlet, ducted outlet.
  2. Power rating (BHP) does not include transmission losses.
  3. Performance ratings do not include the effects of appurtenances (accessories).



### 365 QCLB

Wheel Dia.: 44.50"  
Outlet Dia.: 49.38"

Max. BHP = 21.74 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 8.70 x RPM

Outlet Area: 13.33 ft<sup>2</sup>  
Fan Efficiency Grade: FEG71

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
9000	675	302	0.59	368	1.08	433	1.66																
11000	825	342	0.81	397	1.36	450	1.97	504	2.68														
13000	975	386	1.11	432	1.71	478	2.37	523	3.10	614	4.77												
15000	1125	431	1.49	472	2.15	512	2.87	552	3.65	630	5.38	709	7.34										
17000	1275	478	1.97	515	2.70	550	3.48	585	4.30	656	6.14	724	8.14	794	10.37	863	12.77						
19000	1425	526	2.55	559	3.34	591	4.19	622	5.06	686	6.99	748	9.09	809	11.36	872	13.85	935	16.50				
21000	1575	574	3.25	605	4.12	634	5.02	662	5.96	720	8.00	778	10.23	833	12.55	889	15.10	945	17.77	1002	20.63	1058	23.62
23000	1725	623	4.09	652	5.04	679	6.01	705	7.01	757	9.15	810	11.46	862	13.92	913	16.52	963	19.23	1014	22.13	1066	25.18
25000	1875	672	5.07	699	6.09	725	7.15	749	8.21	796	10.44	845	12.87	894	15.45	942	18.17	988	20.95	1034	23.87	1081	26.98
27000	2026	722	6.21	747	7.31	771	8.43	794	9.57	838	11.92	883	14.47	928	17.14	973	19.95	1017	22.87	1060	25.88	1103	29.03
29000	2176	772	7.53	795	8.68	818	9.89	840	11.10	882	13.62	922	16.20	964	18.99	1006	21.89	1048	24.93	1089	28.07	1130	31.36
31000	2326	822	9.02	844	10.26	865	11.51	886	12.80	926	15.46	964	18.18	1003	21.08	1042	24.08	1081	27.19	1121	30.52	1159	33.83
33000	2476	872	10.70	893	12.02	913	13.35	933	14.72	971	17.50	1007	20.36	1043	23.34	1080	26.49	1117	29.74	1154	32.44		
35000	2626	922	12.57	942	13.98	961	15.38	980	16.82	1017	19.79	1051	22.75	1085	25.85	1119	29.07						
37000	2776	973	14.71	991	16.14	1010	17.66	1028	19.18	1063	22.26	1096	25.39	1128	28.59	1160	31.91						
39000	2926	1023	12.03	1041	18.58	1059	20.17	1076	21.74	1109	24.94	1142	28.29										

MAXIMUM RPM: Level 1 — 869    Level 2 — 1163    MAXIMUM MOTOR FRAME SIZE: Level 1 — 256T    Level 2 — 286T

### 402 QCLB

Wheel Dia.: 49.00"  
Outlet Dia.: 54.38"

Max. BHP = 35.16 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 9.58 x RPM

Outlet Area: 16.16 ft<sup>2</sup>  
Fan Efficiency Grade: FEG71

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
11000	681	275	0.71	335	1.32	394	2.03																
13400	829	311	0.99	361	1.65	409	2.40	458	3.26														
15800	978	351	1.35	393	2.08	435	2.89	476	3.79	558	5.80												
18200	1126	392	1.81	428	2.60	465	3.48	502	4.44	572	6.52	644	8.91										
20600	1275	434	2.38	467	3.26	499	4.20	532	5.23	595	7.41	657	9.85	721	12.56	784	15.49						
23000	1423	477	3.08	507	4.04	536	5.06	565	6.15	623	8.48	679	11.01	735	13.78	792	16.78	849	19.99				
25400	1572	520	3.92	549	4.99	575	6.07	601	7.22	653	9.66	706	12.37	756	15.18	806	18.20	858	21.51	910	24.98	961	28.62
27800	1720	564	4.92	590	6.05	615	7.24	639	8.46	686	11.03	735	13.87	782	16.83	828	19.95	874	23.26	920	26.73	968	30.48
30200	1869	608	6.08	633	7.33	656	8.58	678	9.87	722	12.62	766	15.53	810	18.61	854	21.92	896	25.28	938	28.83	981	32.61
32600	2017	653	7.45	676	8.77	698	10.13	719	11.51	759	14.36	800	17.44	841	20.66	882	24.06	922	27.58	961	31.21	1000	35.01
35000	2166	698	9.01	719	10.41	740	11.86	760	13.33	798	16.35	835	19.50	873	22.85	912	26.42	950	30.08	987	33.83	1024	37.78
37400	2314	743	10.79	763	12.28	782	13.78	801	15.33	838	18.57	873	21.89	908	25.35	944	29.01	980	32.82	1015	36.68	1050	40.73
39800	2463	788	12.78	807	14.37	825	15.96	843	17.60	878	20.98	911	24.43	944	28.05	977	31.78	1011	35.73	1045	39.81		
42200	2611	833	15.02	851	16.70	869	18.43	886	20.15	919	23.67	951	27.33	982	31.07	1013	34.95	1044	38.93				
44600	2760	879	17.56	896	19.33	912	21.07	929	22.94	961	26.67	991	30.43	1021	34.37	1050	38.37						
47000	2908	924	20.32	940	22.16	956	24.04	972	25.98	1002	29.82	1032	33.86										

MAXIMUM RPM: Level 1 — 789    Level 2 — 1056    MAXIMUM MOTOR FRAME SIZE: Level 1 — 256T    Level 2 — 324T

### 445 QCLB

Wheel Dia.: 54.25"  
Outlet Dia.: 60.19"

Max. BHP = 58.51 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 10.61 x RPM

Outlet Area: 19.80 ft<sup>2</sup>  
Fan Efficiency Grade: FEG71

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
13000	657	244	0.84	299	1.55	355	2.43																
16000	808	276	1.15	322	1.95	367	2.87	412	3.90														
19000	960	312	1.59	351	2.47	390	3.47	427	4.54	503	7.01												
22000	1111	350	2.15	383	3.11	417	4.19	451	5.37	515	7.90	581	10.81										
25000	1263	389	2.86	419	3.93	448	5.07	478	6.32	536	9.01	592	11.96	650	15.25								
28000	1414	428	3.71	456	4.90	482	6.13	508	7.44	561	10.30	612	13.40	663	16.80	714	20.40	766	24.34				
31000	1566	468	4.75	494	6.05	518	7.39	541	8.77	589	11.80	636	15.05	682	18.54	728	22.29	774	26.23	821	30.46	867	34.89
34000	1717	509	6.01	532	7.38	555	8.85	576	10.32	619	13.49	663	16.94	706	20.60	747	24.36	789	28.46	831	32.74	874	37.29
37000	1869	549	7.44	571	8.95	592	10.49	612	12.07	652	15.46	692	19.05	732	22.85	771	26.83	809	30.96	847	35.30	886	39.96
40000	2020	590	9.14	611	10.78	631	12.45	650	14.14	686	17.63	723	21.41	760	25.36	797	29.53	833	33.84	869	38.39	904	43.03
43000	2172	632	11.13	651	12.84	669	14.57	688	16.44	722	20.13	755	23.96	790	28.15	824	32.40	859	36.98	893	41.68	926	46.47
46000	2323	673	13.33	691	15.16	709	17.07	726	18.98	759	22.93	790	26.96	822	31.26	854	35.71	886	40.33	918	45.13	950	50.17
49000	2475	715	15.88	732	17.83	748	19.77	765	21.85	796	25.97	826	30.26	855	34.63	885	39.26	915	44.03	946	49.11		
52000	2626	756	18.67	772	20.72	788	22.83	804	25.01	834	29.39	862	33.80	890	38.42	918	43.22	946	48.13				
55000	2778	798	21.85	813	24.00	828	26.20	843	28.47	872	33.09	899	37.72	926	42.58	952	47.49						
58000	2929	840	25.38	855	27.71	869	30.00	883	32.35	910	37.10	937	42.07										

MAXIMUM RPM: Level 1 — 713    Level 2 — 954    MAXIMUM MOTOR FRAME SIZE: Level 1 — 284T    Level 2 — 326T

**NOTES:**

1. Performance certified is for installation Type B: Free inlet, ducted outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).

### 490 QCLB

Wheel Dia.: 60.00"  
Outlet Dia.: 66.25"

Max. BHP = 96.93 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 11.73 x RPM

Outlet Area: 23.98 ft<sup>2</sup>  
Fan Efficiency Grade: FEG71

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
16000	667	221	1.03	271	1.91	321	2.98																
19600	817	250	1.42	292	2.41	332	3.52	373	4.80														
23200	967	282	1.94	317	3.02	352	4.22	386	5.55	455	8.58												
26800	1118	316	2.62	346	3.80	376	5.08	407	6.53	465	9.61	525	13.18										
30400	1268	350	3.45	377	4.74	404	6.16	431	7.67	483	10.91	535	14.59										
34000	1418	385	4.48	410	5.90	433	7.37	457	8.98	506	12.52	552	16.27	588	18.63								
37600	1568	420	5.69	443	7.24	465	8.87	486	10.55	530	14.25	573	18.22	615	22.48	657	27.07	699	31.88	742	37.07	784	42.52
41200	1718	456	7.17	478	8.88	498	10.61	517	12.38	557	16.29	597	20.48	636	24.92	674	29.59	712	34.55	750	39.72	789	45.22
44800	1868	492	8.88	512	10.70	531	12.56	550	14.55	585	18.53	622	22.93	659	27.62	694	32.39	729	37.46	764	42.81	799	48.38
48400	2018	528	10.85	547	12.82	565	14.83	583	16.94	616	21.19	649	25.68	683	30.50	717	35.60	750	40.88	782	46.27	815	52.11
52000	2168	565	13.17	583	15.30	600	17.44	616	19.59	647	24.05	678	28.80	710	33.89	741	39.05	773	44.63	803	50.16	834	56.16
55600	2319	602	15.81	618	17.99	634	20.25	650	22.61	680	27.38	709	32.35	738	37.54	767	42.90	797	48.64	826	54.45	855	60.55
59200	2469	639	18.78	654	21.09	669	23.47	684	25.93	713	31.00	740	36.13	767	41.51	794	47.04	822	52.93	850	59.03		
62800	2619	676	22.11	690	24.53	705	27.13	719	29.69	746	34.92	772	40.33	798	46.00	823	51.70	849	57.72				
66400	2769	713	25.82	727	28.45	740	31.03	754	33.81	780	39.32	805	44.99	829	50.76	853	56.74						
70000	2919	750	29.92	763	32.65	776	35.44	789	38.30	814	44.09	838	49.99	861	55.99								

MAXIMUM RPM: Level 1 — 644    Level 2 — 863    MAXIMUM MOTOR FRAME SIZE: Level 1 — 286T    Level 2 — 364T

### 542 QCLB

Wheel Dia.: 66.00"  
Outlet Dia.: 73.38"

Max. BHP = 156.05 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 12.91 x RPM

Outlet Area: 29.36 ft<sup>2</sup>  
Fan Efficiency Grade: FEG71

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
19500	664	202	1.26	247	2.34	292	3.62																
23900	814	228	1.73	266	2.93	302	4.27	339	5.82														
28300	964	258	2.39	289	3.68	321	5.16	352	6.78	414	10.44												
32700	1114	289	3.22	316	4.65	344	6.26	371	7.96	424	11.76	478	16.08										
37100	1264	320	4.24	345	5.84	369	7.55	393	9.36	441	13.38	487	17.75	535	22.69	582	28.00						
41500	1413	352	5.50	375	7.26	396	9.06	418	11.05	461	15.24	503	19.83	545	24.88	587	30.23	630	36.11				
45900	1563	385	7.05	406	8.96	426	10.96	445	13.01	484	17.45	523	22.30	561	27.50	598	32.93	636	38.79	675	45.12	713	51.73
50300	1713	418	8.88	437	10.91	456	13.09	473	15.23	509	19.99	545	25.08	580	30.44	614	36.05	648	42.02	683	48.44	718	55.09
54700	1863	451	11.00	469	13.22	487	15.57	503	17.87	535	22.77	568	28.08	601	33.71	634	39.76	665	45.82	696	52.20	728	59.07
59100	2013	484	13.44	501	15.84	518	18.36	533	20.79	563	25.99	593	31.49	624	37.42	655	43.69	684	49.93	714	56.75	743	63.65
63500	2163	518	16.33	534	18.90	549	21.47	564	24.15	592	29.59	620	35.39	648	41.42	677	47.91	705	54.49	733	61.44	760	68.47
67900	2313	552	19.61	567	22.34	581	25.05	595	27.86	622	33.66	648	39.68	674	45.96	701	52.67	728	59.64	754	66.66	780	74.02
72300	2463	586	23.31	600	26.18	613	29.02	627	32.09	653	38.25	677	44.44	701	50.91	726	57.80	751	64.91	776	72.26		
76700	2612	620	27.45	633	30.45	646	33.55	659	36.74	683	43.05	707	49.75	730	56.56	753	63.62	776	70.85				
81100	2762	654	32.06	666	35.18	679	38.54	691	41.83	714	48.46	737	55.45	759	62.56	781	69.95						
85500	2912	688	37.18	700	40.55	712	44.01	723	47.37	746	54.53	768	61.81										

MAXIMUM RPM: Level 1 — 586    Level 2 — 784    MAXIMUM MOTOR FRAME SIZE: Level 1 — 324T    Level 2 — 365T

### 600 QCLB

Wheel Dia.: 73.00"  
Outlet Dia.: 81.19"

Max. BHP = 258.42 (RPM ÷ 1000)<sup>3</sup>  
Tip Speed FPM = 14.27 x RPM

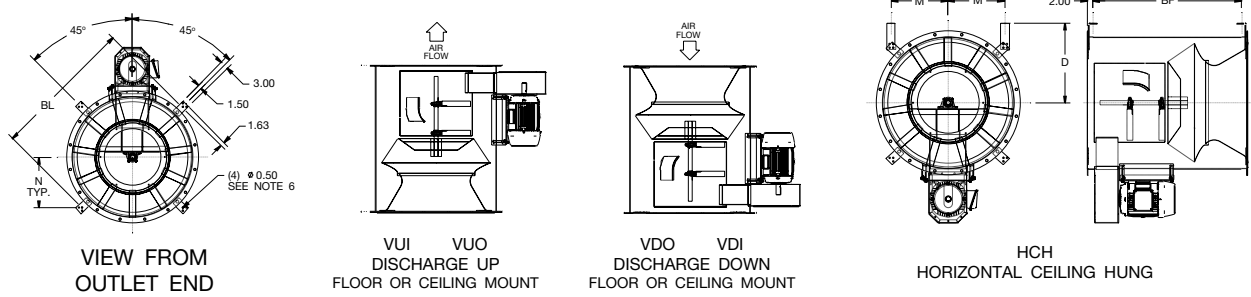
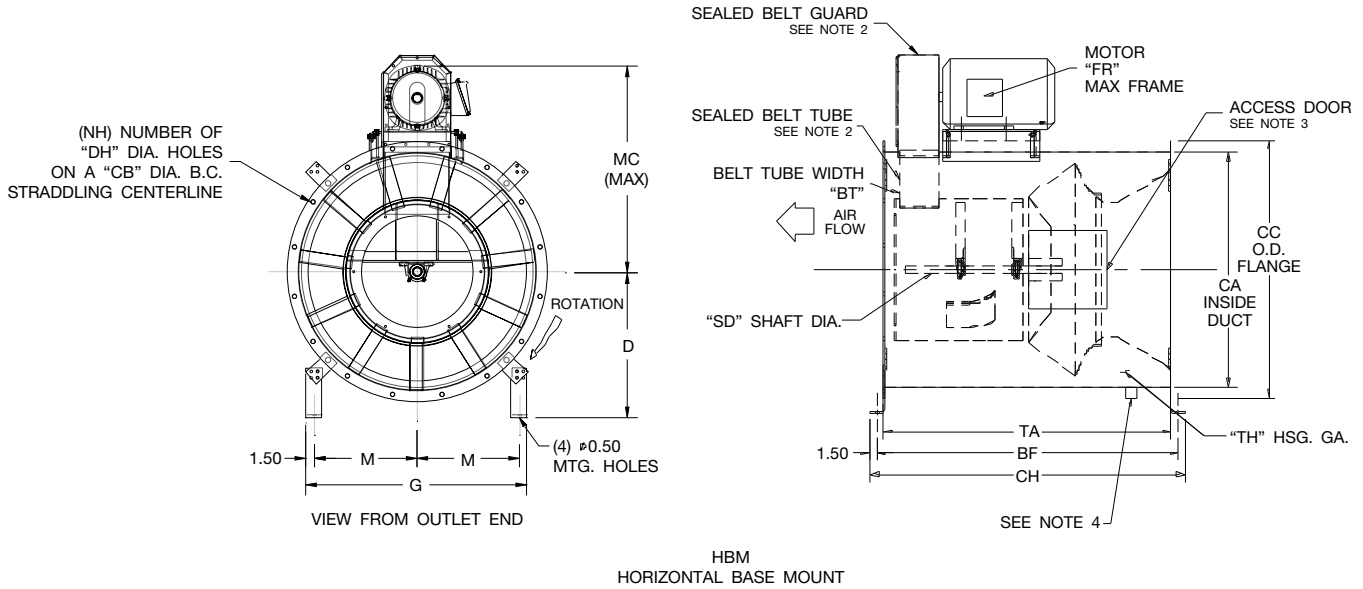
Outlet Area: 35.94 ft<sup>2</sup>  
Fan Efficiency Grade: FEG71

CFM	OV	0.25" SP		0.5" SP		0.75" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
24000	668	183	1.55	224	2.89	264	4.44																
29400	818	207	2.14	241	3.60	274	5.28	307	7.17														
34800	968	234	2.94	262	4.53	291	6.36	319	8.36	374	12.77												
40200	1119	262	3.97	287	5.76	311	7.65	336	9.78	384	14.47	432	19.69										
45600	1269	291	5.27	313	7.21	334	9.25	356	11.51	399	16.41	441	21.84	484	27.86	526	34.29						
51000	1419	320	6.84	340	8.94	359	11.16	379	13.62	418	18.80	456	24.47	493	30.52	531	37.11	570	44.37				
56400	1569	349	8.69	368	11.03	386	13.48	403	15.98	439	21.55	474	27.48	508	33.81	541	40.40	576	47.78	611	55.51	645	63.52
61800	1720	379	10.95	397	13.53	413	16.07	429	18.78	461	24.56	493	30.71	525	37.36	556	44.33	587	51.74	618	59.48	650	67.77
67200	1870	409	13.57	426	16.38	441	19.12	456	22.01	485	28.05	515	34.62	545	41.60	574	48.84	602	56.29	630	64.12	659	72.60
72600	2020	440	16.71	455	19.62	470	22.68	484	25.75	511	32.13	538	38.90	565	45.95	593	53.65	620	61.55	646	69.59	672	77.99
78000	2170	470	20.18	484	23.27	498	26.50	512	29.88	537	36.52	562	43.59	588	51.19	613	58.84	639	67.15	664	75.59	688	84.10
83400	2321	501	24.26	514	27.53	527	30.92	540	34.44	564	41.49	588	49.02	611	56.63	635	64.76	659	73.20	683	82.00	706	90.85
88800	2471	532	28.86	544	32.28	557	36.01	569	39.67	592	47.13	614	54.82	636	62.87	658	71.18	681	80.07	703	88.90		
94200	2621	562	33.83	574	37.57	586	41.42	597	45.18	620	53.26	641	61.31	662	69.75	682	78.17	703	87.13				
99600	2771	593	39.56	605	43.63	616	47.60	627	51.68	648	59.90	668	68.27	688	77.05	707	85.81						
105000	2922	624	45.90	635	50.08	646	54.38	656	58.53	676	67.10	696	76.08										

MAXIMUM RPM: Level 1 — 530    Level 2 — 709    MAXIMUM MOTOR FRAME SIZE: Level 1 — 326T    Level 2 — 405T

- NOTES:
- Performance certified is for installation Type B: Free inlet, ducted outlet.
  - Power rating (BHP) does not include transmission losses.
  - Performance ratings do not include the effects of appurtenances (accessories).

# Horizontal & Vertical, Size 90 - 270



SIZE	BF	BL	BT	CA	CB	CC	CH	D	DH	FR	G	M	MC	N	NH	SD		TA	TH	
																Level 1	Level 2		Level 1	Level 2
90	22.25	21.00	4.06	13.75	15.25	16.00	25.25	10.69	0.44	184T	19.13	8.06	22.88	7.44	8.00	0.75	0.75	19.44	14.00	12.00
122	25.06	24.25	5.06	16.63	18.50	19.88	28.06	11.81	0.56	184T	21.38	9.19	24.25	8.56	8.00	0.75	0.75	22.25	14.00	12.00
135	26.94	26.13	5.69	18.56	20.38	21.75	29.94	12.50	0.56	184T	22.75	9.88	26.88	9.25	8.00	0.75	0.75	24.13	14.00	12.00
150	30.69	27.88	6.31	20.25	22.13	23.50	33.69	13.13	0.56	213T	23.94	10.50	27.75	9.88	8.00	0.75	0.75	27.88	14.00	12.00
165	33.19	30.13	6.31	22.25	24.38	25.56	36.19	13.88	0.56	213T	25.56	11.25	28.75	10.63	8.00	0.75	1.00	30.38	14.00	12.00
182	36.00	32.50	6.31	24.69	26.75	28.00	39.00	16.75	0.69	215T	27.25	12.13	29.88	11.50	12.00	0.75	1.19	33.19	14.00	12.00
200	37.81	34.88	7.06	27.06	29.13	30.31	40.81	17.56	0.81	254T	28.88	12.94	34.88	12.38	12.00	0.75	1.44	35.00	14.00	12.00
222	39.94	37.88	7.81	30.06	32.13	33.38	42.94	18.63	0.81	256T	31.00	14.00	36.25	13.44	12.00	1.00	1.44	37.13	14.00	12.00
245	43.44	40.88	8.69	33.13	35.13	36.38	46.44	21.69	0.81	256T	33.13	15.06	37.75	14.44	12.00	1.19	1.69	40.63	14.00	12.00
270	47.25	44.25	9.56	36.50	38.50	39.75	50.25	22.88	0.81	284T	35.50	16.25	39.38	15.69	12.00	1.19	1.69	44.44	14.00	12.00

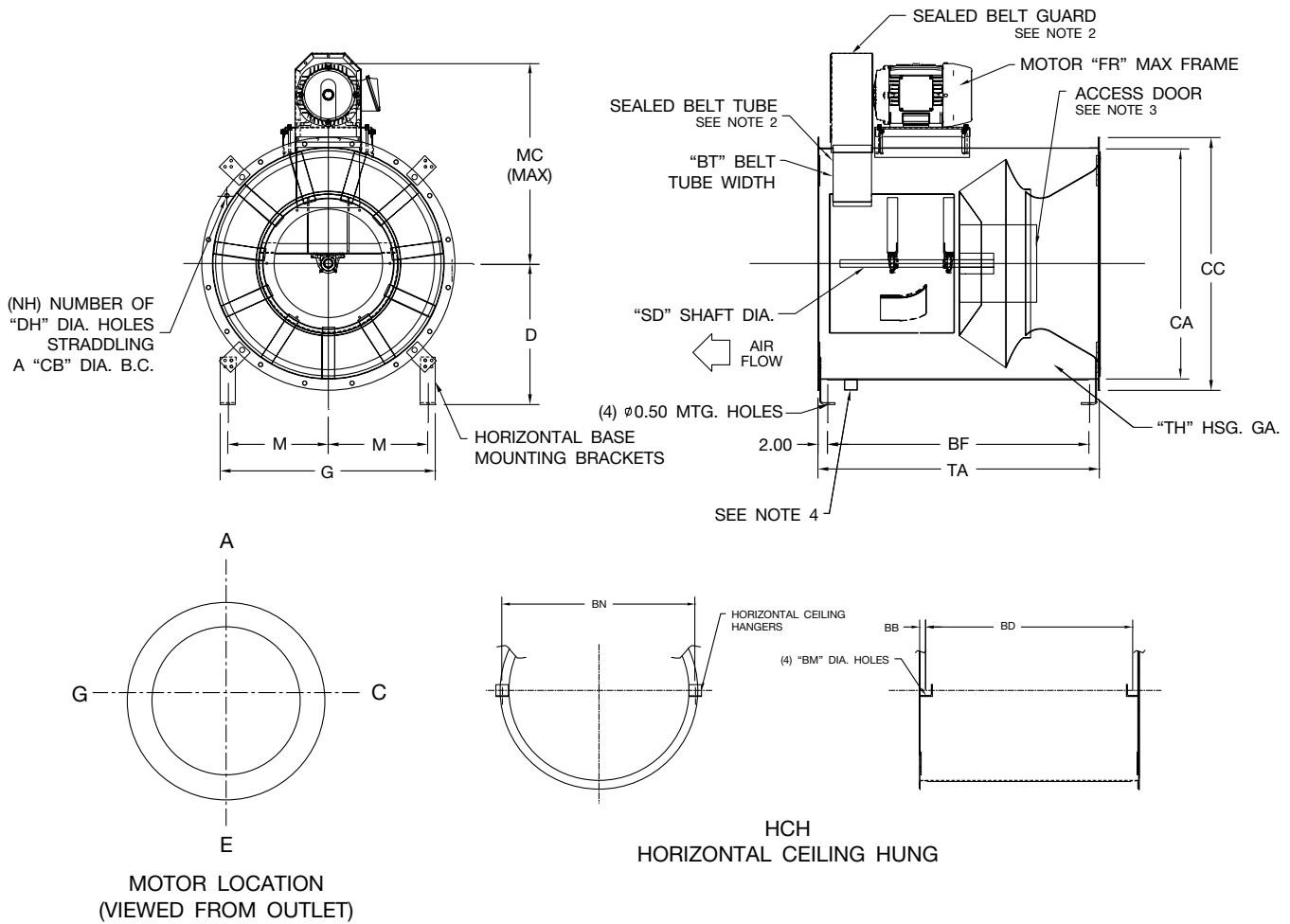
AC1002864B

DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE ON REQUEST.

**NOTES:**

- Fan shown in horizontal shipping position, universal mounting brackets allow for other mounting configurations.
- Sealed belt guard standard on QCLB, belt tube optional; OSHA type belt guard standard on QCLBR & QCLBSH with belt tube standard.
- Access door is optional for QCLB & QCLBSH; (2) clean out doors 90° from motor and 180° apart standard on QCLBR.
- Drain optional on QCLB & QCLBSH, standard on QCLBR
- (2) Locking collars required on vertical applications.
- For vertical applications remove support legs.

**Horizontal, Size 300 - 600**



SIZE	BB	BD	BF	BM	BN	BT	CA	CB	CC	D	DH	FR	G	M	MC	NH	SD		TA	TH	
																	Level 1	Level 2		Level 1	Level 2
300	1.50	46.94	45.94	0.81	43.75	10.69	40.56	43.13	44.88	24.50	0.81	286T	38.81	17.94	41.31	16.00	1.44	1.94	50.06	12.00	10.00
330	1.50	51.50	50.50	0.81	47.88	11.81	44.63	47.25	49.00	27.50	0.81	286T	41.75	19.38	43.25	16.00	1.44	1.94	54.63	12.00	10.00
365	2.00	56.06	56.06	0.81	52.56	12.94	49.38	52.00	53.75	29.19	0.81	324T	45.06	21.06	49.81	16.00	1.44	2.19	60.19	12.00	10.00
402	2.00	62.25	62.25	0.81	57.56	14.44	54.38	57.50	59.75	31.13	0.81	326T	48.94	23.00	52.19	16.00	1.69	2.19	66.38	12.00	10.00
445	2.00	69.06	69.06	0.81	63.38	15.94	60.19	63.25	65.50	34.63	0.81	364T	53.00	25.00	55.00	16.00	1.69	2.44	73.19	12.00	10.00
490	2.00	76.13	76.13	0.81	69.44	17.69	66.25	69.38	73.63	37.81	0.81	365T	57.38	27.19	58.00	24.00	1.94	2.44	80.25	12.00	10.00
542	2.00	85.00	85.00	1.06	76.56	19.56	73.38	77.00	79.75	42.00	0.81	404T	62.75	29.88	71.50	24.00	1.94	2.69	89.13	12.00	10.00
600	2.50	93.63	93.63	1.06	85.38	21.81	81.19	84.75	87.50	44.75	0.81	444T	68.25	32.63	78.44	24.00	2.19	2.94	97.75	12.00	10.00

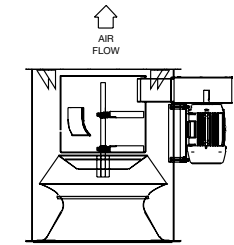
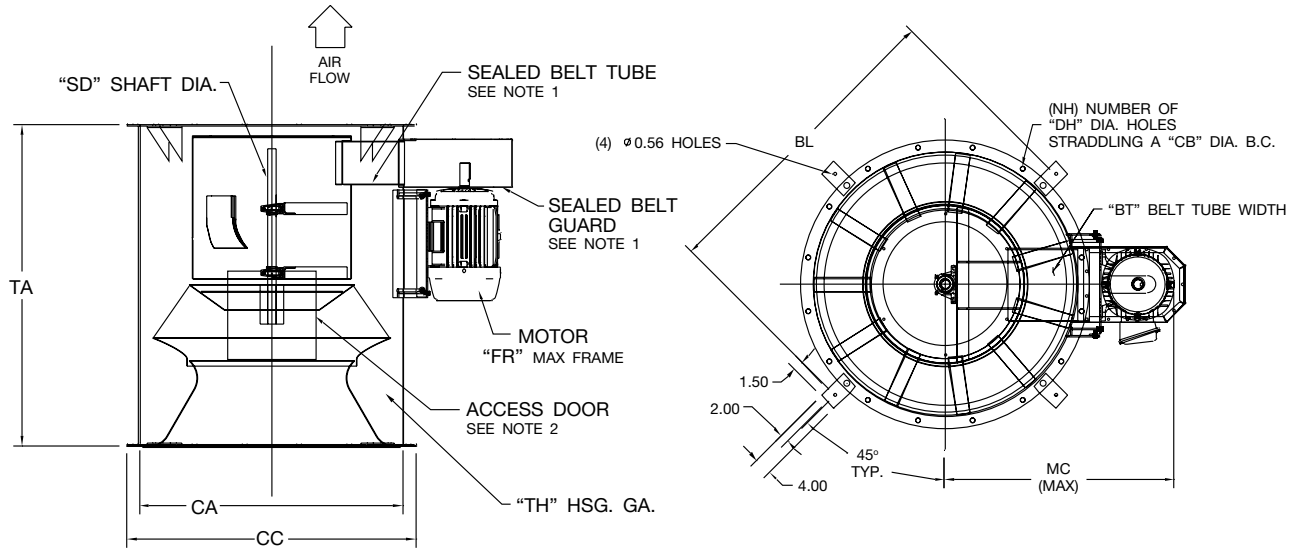
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DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE ON REQUEST.

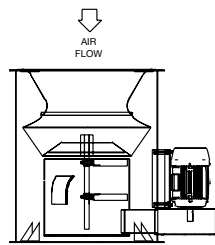
**NOTES:**

1. Fan shown in horizontal shipping position, universal mounting brackets allow for other mounting configurations.
2. Sealed belt guard standard on QCLB, belt tube optional; OSHA type belt guard standard on QCLBR & QCLBSH with belt tube standard.
3. Access door is optional for QCLB & QCLBSH; Two (2) clean out doors 90° from motor and 180° apart standard on QCLBR.
4. Drain optional on QCLB & QCLBSH, standard on QCLBR.

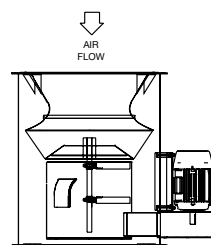
Vertical, Size 300 - 600



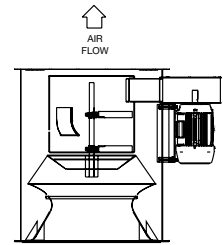
VUO  
DISCHARGE UP  
CEILING MOUNT



VDO  
DISCHARGE DOWN  
FLOOR MOUNT



VDI  
DISCHARGE DOWN  
CEILING MOUNT



VUI  
DISCHARGE UP  
FLOOR MOUNT

SIZE	BL	BT	CA	CB	CC	DH	FR	MC	NH	SD		TA	TH	
										Level 1	Level 2		Level 1	Level 2
300	49.88	10.69	40.56	43.13	44.88	0.81	286T	41.31	16.00	1.44	1.94	50.06	12.00	10.00
330	54.00	11.81	44.63	47.25	49.00	0.81	286T	43.25	16.00	1.44	1.94	54.63	12.00	10.00
365	58.75	12.94	49.38	52.00	53.75	0.81	324T	49.81	16.00	1.44	2.19	60.19	12.00	10.00
402	64.75	14.44	54.38	57.50	59.75	0.81	326T	52.19	16.00	1.69	2.19	66.38	12.00	10.00
445	70.50	15.94	60.19	63.25	65.50	0.81	364T	55.00	16.00	1.69	2.44	73.19	12.00	10.00
490	78.63	17.69	66.25	69.38	73.63	0.81	365T	57.94	24.00	1.94	2.44	80.25	12.00	10.00
542	84.75	19.56	73.38	77.00	79.75	0.81	404T	71.50	24.00	1.94	2.69	89.13	12.00	10.00
600	92.50	21.81	81.19	84.75	87.50	0.81	444T	78.44	24.00	2.19	2.94	97.75	12.00	10.00

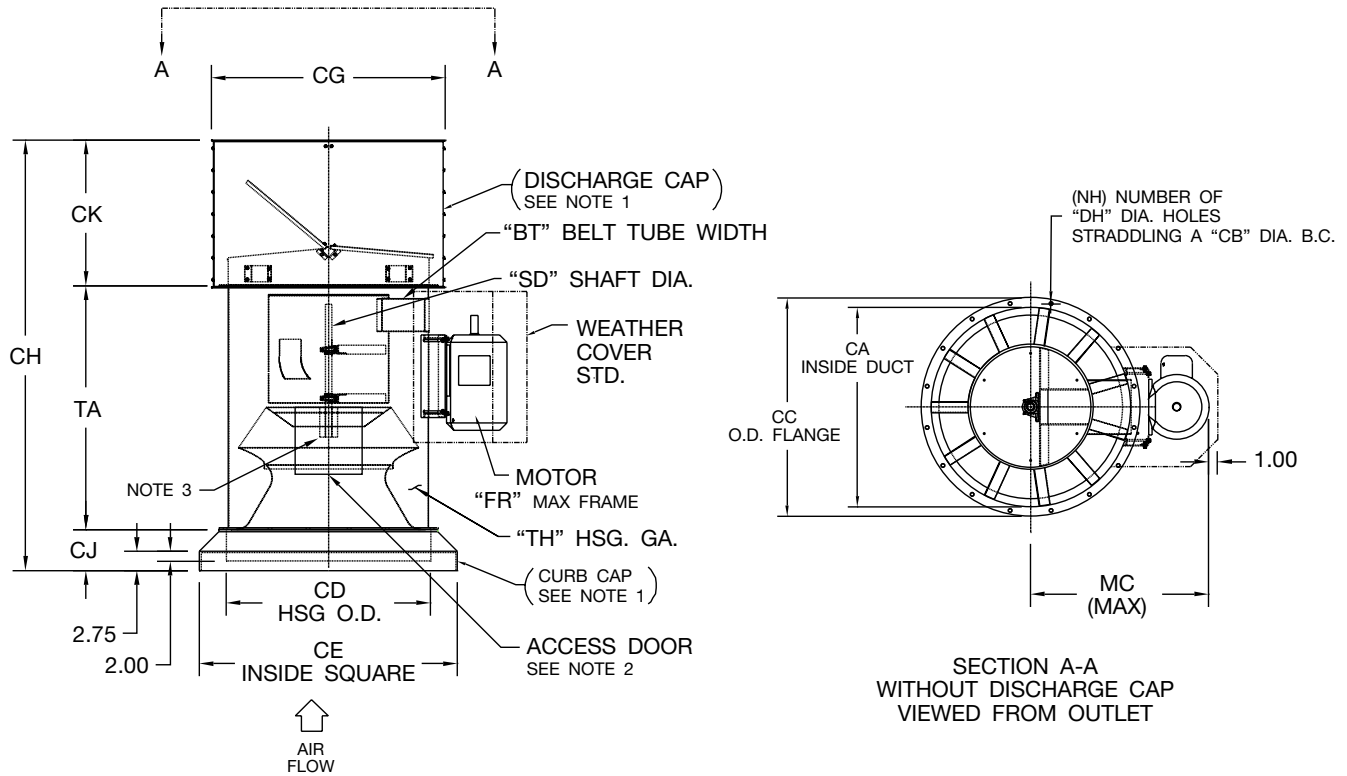
AC1002866

DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE ON REQUEST.

NOTES:

1. Sealed belt guard standard on QCLB, belt tube optional; OSHA type belt guard standard on QCLBR & QCLBSH with belt tube standard.
2. Access door is optional for QCLB & QCLBSH; Two (2) clean out doors 90° from motor and 180° apart standard on QCLBR.
3. Two (2) locking collars required on vertical applications.
4. For vertical applications remove support legs.

**Vertical Roof Mounted, Size 90 - 600**



SIZE	BT	CA	CB	CC	CD	CE	CG	CH	CJ	CK	DH	FR	MC	NH	SD		TA	TH	
															Level 1	Level 2		Level 1	Level 2
90	4.06	13.75	15.25	16.00	14.00	17.06	21.06	40.69	5.00	16.25	0.44	184T	22.88	8.00	0.75	0.75	19.44	14.00	12.00
122	5.06	16.63	18.50	19.88	16.88	23.75	23.25	45.13	5.63	17.25	0.56	184T	24.25	8.00	0.75	0.75	22.25	14.00	12.00
135	5.69	18.56	20.38	21.75	18.81	25.38	25.31	48.25	5.88	18.25	0.56	184T	26.94	8.00	0.75	0.75	24.13	14.00	12.00
150	6.31	20.25	22.13	23.50	20.50	27.38	28.63	53.63	6.00	19.75	0.56	213T	27.75	8.00	0.75	0.75	27.88	14.00	12.00
165	6.31	22.25	24.38	25.56	22.56	30.88	28.63	56.44	6.31	19.75	0.56	213T	28.75	8.00	0.75	1.00	30.38	14.00	12.00
182	6.31	24.69	26.75	28.00	24.88	34.88	32.00	61.31	6.63	21.50	0.69	215T	29.94	12.00	0.75	1.19	33.19	14.00	12.00
200	7.06	27.06	29.13	30.31	27.25	37.88	35.00	64.75	6.75	23.00	0.81	254T	34.88	12.00	0.75	1.44	35.00	14.00	12.00
222	7.81	30.06	32.13	33.38	30.25	40.38	38.13	68.63	6.75	24.75	0.81	256T	36.25	12.00	1.00	1.44	37.13	14.00	12.00
245	8.69	33.13	35.13	36.38	33.31	43.38	41.38	74.13	7.00	26.50	0.81	256T	37.75	12.00	1.19	1.69	40.63	14.00	12.00
270	9.56	36.50	38.50	39.75	36.69	46.75	44.38	79.94	7.25	28.25	0.81	284T	39.38	12.00	1.19	1.69	44.44	14.00	12.00
300	10.69	40.56	43.13	44.88	40.81	51.00	50.63	89.31	7.75	31.50	0.81	286T	41.31	16.00	1.44	1.94	50.06	12.00	10.00
330	11.81	44.63	47.25	49.00	44.88	55.13	52.50	95.38	7.75	33.00	0.81	286T	43.25	16.00	1.44	1.94	54.63	12.00	10.00
365	12.94	49.38	52.00	53.75	49.63	59.88	56.63	102.44	7.75	34.50	0.81	324T	49.81	16.00	1.44	2.19	60.19	12.00	10.00
402	14.44	54.38	57.50	59.75	54.63	64.88	63.25	112.38	8.00	38.00	0.81	326T	52.19	16.00	1.69	2.19	66.38	12.00	10.00
445	15.94	60.19	63.25	65.50	60.44	69.63	69.25	123.19	8.50	41.50	0.81	364T	55.00	16.00	1.69	2.44	73.19	12.00	10.00
490	17.69	66.25	69.38	73.63	66.50	78.00	80.00	129.25	9.00	40.00	0.81	365T	57.94	24.00	1.94	2.44	80.25	12.00	10.00
542	19.56	73.38	77.00	79.75	76.63	88.75	86.50	148.00	9.25	49.63	0.81	404T	71.50	24.00	1.94	2.69	89.13	12.00	10.00
600	21.81	81.19	84.75	87.50	81.44	98.00	100.00	162.50	9.75	55.00	0.81	444T	78.44	24.00	2.19	2.94	97.75	12.00	10.00

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DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE ON REQUEST.

**NOTES:**

1. Curb cap and discharge cap are required.
2. Access door is optional for QCLB & QCLBSH; Two (2) clean out doors 90° from motor and 180° apart standard on QCLBR.
3. Two (2) locking collars required on vertical applications.
4. For vertical applications remove support legs.



## Model QCLB

Fans shall be Model QCLB (standard mixed flow) of the non-overloading design, as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

**PERFORMANCE** — Performance ratings shall conform to AMCA Standard 205 (fan efficiency grade), 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. Fans shall be licensed to bear the AMCA certified ratings seal for both sound and air, and fan efficiency grade (FEG). Sound certification shall apply to both inlet and outlet sound power levels.

Fans shall be designed for maximum efficiency. Fans shall have a sharply rising pressure characteristic extending through the operating range and continuing to rise well beyond the efficiency peak to assure quiet and stable operation under all conditions. Horsepower characteristics shall be truly self-limiting and shall reach a peak in the normal selection area.

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

**HOUSING** — Housings shall be cylindrical and welded steel throughout. Inlets shall be fully streamlined. Housings shall be suitably braced to prevent vibration or pulsation. Totally enclosed belt guard shall enclose motor sheave and V-belt drives. Punched inlet and outlet flanges shall be equipped for duct mounting. Extended lube lines shall be provided for ease of lubrication. Model QCLB shall include bolted access door for inspection and maintenance of wheel.

**WHEEL** — Fan wheels shall have die-formed single thickness blades designed for maximum efficiency, and quiet and stable operation. Blades shall be continuously welded to the back plate and wheel cone. Wheels shall be statically and dynamically balanced and the complete fan assembly including motor and drive shall be test balanced at or near the operating speed at the factory prior to shipment.

**SHAFT** — Shafts shall be AISI 1040 or 1045 hot 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 shall be heavy duty, grease lubricated, anti-friction ball or roller, self-aligning, pillow block type and selected for a minimum L-10 life of 80,000 hours at the maximum fan RPM. Bearings shall be equipped with extended lubrication lines with grease fittings outside of the fan housing.

**DRIVE** — Motor sheaves shall be cast iron, variable pitch on applications 10 HP and smaller, and fixed pitch on 15 HP and larger.

**FINISH AND COATING** — The entire fan assembly, excluding the shaft, shall be thoroughly degreased and deburred before application of a rust-preventative primer. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly. The fan shaft shall be coated with a petroleum-based rust protectant. Aluminum components shall be unpainted.

**FACTORY RUN TEST** — All fans with motors and drives mounted by Twin City Fan & Blower shall be completely assembled and test run as a unit at the specified operating speed prior to shipment. Each wheel 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.

**GUARANTEE** — The manufacturer shall guarantee the workmanship and materials for its QCLB Mixed Flow Fans for at least one (1) year from startup or eighteen (18) months from shipment, whichever occurs first.

# TYPICAL SPECIFICATIONS



## Model QCLBR

Fans shall be Model QCLBR (restaurant) of the non-overloading design, as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

**PERFORMANCE** — Performance ratings shall conform to AMCA Standard 205 (fan efficiency grade), 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. Fans shall be licensed to bear the AMCA certified ratings seal for both sound and air, and fan efficiency grade (FEG). Sound certification shall apply to both inlet and outlet sound power levels.

Fans shall be designed for maximum efficiency. Fans shall have a sharply rising pressure characteristic extending through the operating range and continuing to rise well beyond the efficiency peak to assure quiet and stable operation under all conditions. Horsepower characteristics shall be truly self-limiting and shall reach a peak in the normal selection area.

Model QCLBR shall be UL 762 listed for the exhaust of grease-laden air. Fans shall bear a permanently attached nameplate displaying model and serial number of the unit for future identification.

**HOUSING** — Housings shall be cylindrical and welded steel throughout. Inlets shall be fully streamlined. Housings shall be suitably braced to prevent vibration or pulsation. Totally enclosed belt guard shall enclose motor sheave and V-belt drives. Punched inlet and outlet flanges shall be equipped for duct mounting. Extended lube lines shall be provided for ease of lubrication. Model QCLBR shall include a belt tube, 2 wheel cleanout doors (located 180° apart) for inspection and maintenance of the wheel and a 2" drain.

**WHEEL** — Fan wheels shall have die-formed single thickness blades designed for maximum efficiency, and quiet and stable operation. Blades shall be continuously welded to the back plate and wheel cone. Wheels shall be statically and dynamically balanced and the complete fan assembly including motor and drive shall be test balanced at or near the operating speed at the factory prior to shipment. Wheels on model QCLBR shall have cooling fins to draw cool air over shaft and bearings.

**SHAFT** — Shafts shall be AISI 1040 or 1045 hot 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 shall be heavy duty, grease lubricated, anti-friction ball or roller, self-aligning, pillow block type and selected for a minimum L-10 life of 80,000 hours at the maximum fan RPM. Bearings shall be equipped with extended lubrication lines with grease fittings outside of the fan housing.

**DRIVE** — Motor sheaves shall be cast iron, variable pitch on applications 10 HP and smaller, and fixed pitch on 15 HP and larger.

**FINISH AND COATING** — The entire fan assembly, excluding the shaft, shall be thoroughly degreased and deburred before application of a rust-preventative primer. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly. The fan shaft shall be coated with a petroleum-based rust protectant. Aluminum components shall be unpainted.

**FACTORY RUN TEST** — All fans with motors and drives mounted by Twin City Fan & Blower shall be completely assembled and test run as a unit at the specified operating speed prior to shipment. Each wheel 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.

**GUARANTEE** — The manufacturer shall guarantee the workmanship and materials for its QCLBR Mixed Flow Fans for at least one (1) year from startup or eighteen (18) months from shipment, whichever occurs first.





## Model QCLBSH

Fans shall be Model QCLBSH (smoke and heat) of the non-overloading design, as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

**PERFORMANCE** — Performance ratings shall conform to AMCA Standard 205 (fan efficiency grade), 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. Fans shall be licensed to bear the AMCA certified ratings seal for both sound and air, and fan efficiency grade (FEG). Sound certification shall apply to both inlet and outlet sound power levels.

Fans shall be designed for maximum efficiency. Fans shall have a sharply rising pressure characteristic extending through the operating range and continuing to rise well beyond the efficiency peak to assure quiet and stable operation under all conditions. Horsepower characteristics shall be truly self-limiting and shall reach a peak in the normal selection area.

Model QCLBSH shall be UL listed for Smoke Control Systems (500°F for 4 hours and 1000°F for 15 minutes). Fans shall bear a permanently attached nameplate displaying model and serial number of the unit for future identification.

**HOUSING** — Housings shall be cylindrical and welded steel throughout. Inlets shall be fully streamlined. Housings shall be suitably braced to prevent vibration or pulsation. Totally enclosed belt guard shall enclose motor sheave and V-belt drives. Punched inlet and outlet flanges shall be equipped for duct mounting. Extended lube lines shall be provided for ease of lubrication. Model QCLBSH shall include a belt tube for the protection of belts and drive components from the airstream and bolted access door.

**WHEEL** — Fan wheels shall have die-formed single thickness blades designed for maximum efficiency, and quiet and stable operation. Blades shall be continuously welded to the back plate and wheel cone. Wheels shall be statically and dynamically balanced and the complete fan assembly including motor and drive shall be test balanced at or near the operating speed at the factory prior to shipment. Wheels on model QCLBSH shall have cooling fins to draw cool air over shaft and bearings.

**SHAFT** — Shafts shall be AISI 1040 or 1045 hot 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 shall be heavy duty, grease lubricated, anti-friction ball or roller, self-aligning, pillow block type and selected for a minimum L-10 life of 80,000 hours at the maximum fan RPM. Bearings shall be equipped with extended lubrication lines with grease fittings outside of the fan housing.

**DRIVE** — Motor sheaves shall be cast iron, variable pitch on applications 10 HP and smaller, and fixed pitch on 15 HP and larger. Model QCLBSH shall be equipped with a two-groove drive minimum.

**FINISH AND COATING** — The entire fan assembly, excluding the shaft, shall be thoroughly degreased and deburred before application of a rust-preventative primer. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly. The fan shaft shall be coated with a petroleum-based rust protectant. Aluminum components shall be unpainted.

**FACTORY RUN TEST** — All fans with motors and drives mounted by Twin City Fan & Blower shall be completely assembled and test run as a unit at the specified operating speed prior to shipment. Each wheel 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.

**GUARANTEE** — The manufacturer shall guarantee the workmanship and materials for its QCLBSH Mixed Flow Fans for at least one (1) year from startup or eighteen (18) months from shipment, whichever occurs first.

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