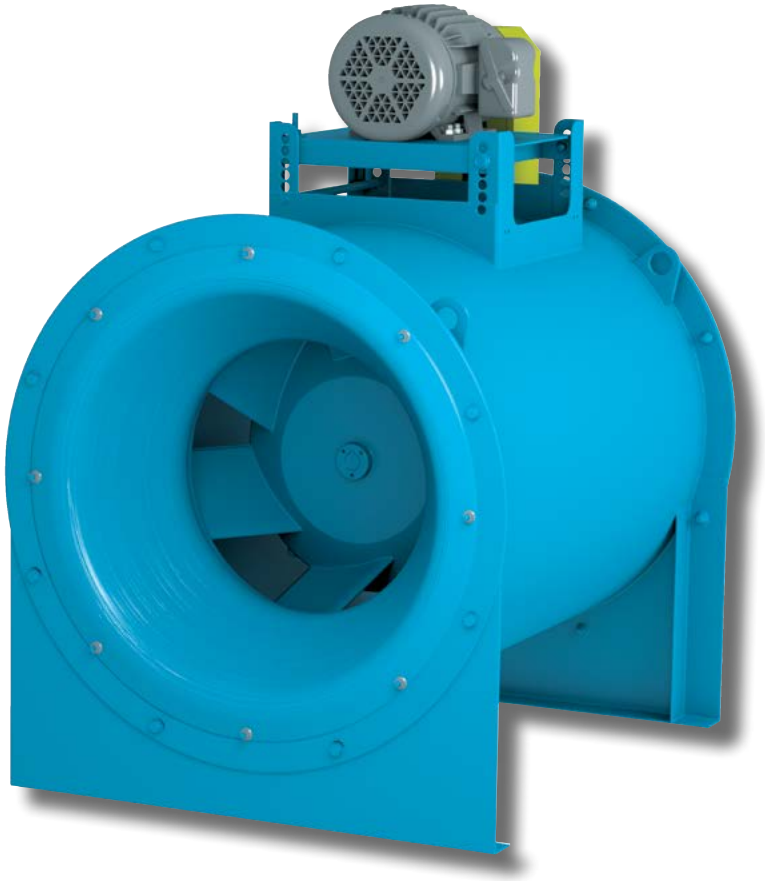
TCF

TWIN CITY FAN

INDUSTRIAL PROCESS AND
COMMERCIAL VENTILATION SYSTEMS

MIXED FLOW FANS

QSL | QSLR | QSLSH



CATALOG 1060 | MARCH 2017

WWW.TCF.COM

Overview

QSL | QSLR | QSLSH

Arr. 9
Model QSL

Benefits of Mixed Flow Fans

Twin City Fan Model QSL Mixed Flow Fan combines the benefits of axial flow and centrifugal flow fans. The QSL has the advantage of the compact design and straight-through airflow as well as the preferred acoustic characteristics and high pressure capability. QSL fans offer superior air and sound performance and the AMCA certified rating seal for air and sound.

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

Arrangements

Available in Arrangement 4, Direct Drive (QSL) and Arrangement 9, Belt Driven (QSL, QSLR, QSLSH)

Impeller Type

Mixed Flow Airfoil

Optional Construction

Clamshell Design, Swingout Design, Special Materials, Fume Hood Design, Spark Resistant, UL 705, UL 762, UL Smoke and 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-0271-10

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

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

Model QSLSH 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 Models QSL, QSLR and QSLSH 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 1061 for sound ratings.

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

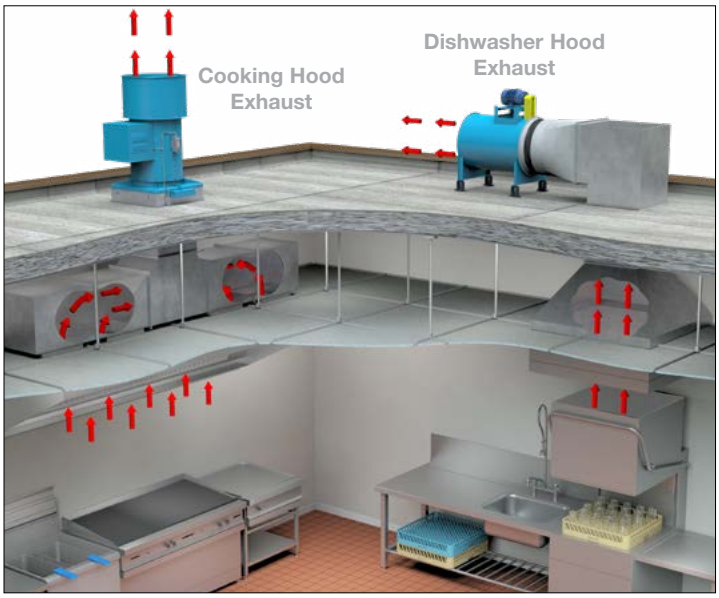
Overview

QSL | QSLR | QSLSH

Product Applications

Mixed flow fans are becoming a popular choice on many air supply, return, general and grease-laden exhaust and laboratory exhaust applications in the HVAC industry for both constant or variable air volume systems. The efficiency and sound characteristics of the mixed flow fans are often desired in buildings such as hospitals, libraries, theaters and general offices. The heavy-duty construction of QSL fans also makes them suitable for many industrial applications handling ambient air. Applications involving fumes, spray booth exhaust, particulate, heavy moisture content or high temperature should be discussed with the factory for possible product modifications.

General HVAC (Model QSL)



Kitchen Exhaust (Model QSLR)

Emergency Smoke Control (Model QSLSH)

General HVAC Fans

QSL
18.25" to 89" impeller diameters
Airflow to 160,000 CFM
Static pressure to 8" w.g.

Restaurant Fans

QSLR
18.25" to 89" impeller diameters
Airflow to 160,000 CFM
Static pressure to 8" w.g.

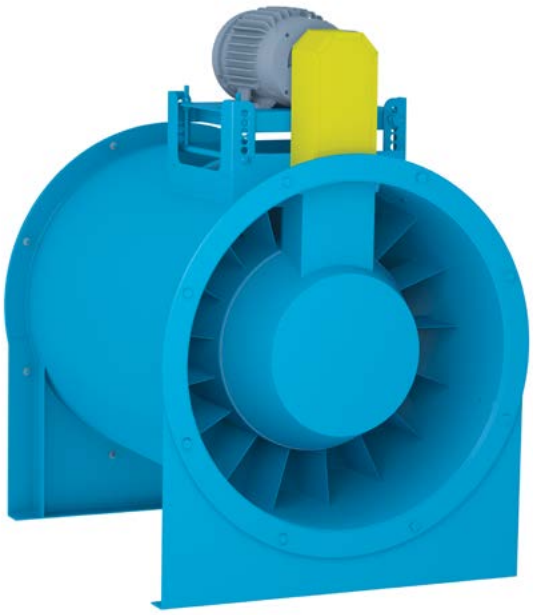
Smoke & Heat Fans

QSLSH
18.25" to 89" impeller diameters
Airflow to 160,000 CFM
Static pressure to 8" w.g.

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

Model

QSL



General HVAC

Model QSL is available in both direct drive and belt driven. The QSL mounts both vertically and horizontally, allowing for numerous applications with multiple mounting arrangements. Sizes range from 150 - 730 and performance ranges from 1,300 - 160,000 CFM. Model QSL is UL/cUL 705 listed.

Ultra Quiet

The AMCA Certified Ratings for Air and Sound applies to both inlet and outlet sound power levels. The table below displays sound and static efficiency differences between performance points for a comparable tubular centrifugal fan and a vaneaxial fan.

PERFORMANCE	SIZE	SOUND LwA (dB)		
		QSL Mixed Flow Fan	TSL Inline Centrifugal Fan	TCVA Vaneaxial Fan
5000 CFM @ 1" SP	QSL 245	**72**	77	79
10000 CFM @ 1" SP	QSL 330	**72**	81	82
25000 CFM @ 3" SP	QSL 402	**86**	92	98
50000 CFM @ 6" SP	QSL 490	**95**	102	112

Energy Savings

Mixed flow fans offer the economy of operation with a higher and broader efficiency range. The lower operating speed for a given performance provides longer and more reliable operation.

PERFORMANCE	SIZE	STATIC EFFICIENCY (%)		
		QSL Mixed Flow Fan	TSL Inline Centrifugal Fan	TCVA Vaneaxial Fan
5000 CFM @ 1" SP	QSL 245	**70**	55	61
10000 CFM @ 1" SP	QSL 330	**70**	63	63
25000 CFM @ 3" SP	QSL 402	**72**	68	65
50000 CFM @ 6" SP	QSL 490	**71**	69	64

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Models

QSLR | QSLSH

QSLSH Smoke & Heat Fans (Belt Driven Only)

Twin City Fan & Blower offers a specially modified version of the QSL fan designated as "QSLSH" (Mixed Flow Smoke and Heat Exhaust) for smoke control applications where temperatures can reach 1000°F. QSLSH is available in sizes 150 through 730. Model QSLSH 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 stack cap, meets UL 793 Snow Load Test requirements for butterfly dampers. QSLSH is licensed to bear the AMCA certified ratings seal for sound and air performance.

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

Standard Product Features

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

QSLR Restaurant Fans (Belt Driven Only)

Twin City Fan & Blower offers a specially modified version of the QSL fan designated as "QSLR" (Mixed Flow Restaurant Exhaust) for exhausting grease-laden air from kitchens, restaurants, cooking and dishwasher hoods. QSLR is available in sizes 150 through 730.

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

The QSLR fan is available in all configurations with the exception of vertical down (VDN, 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 impeller
- Housing sealed with Hi-Temp caulk

STANDARD CONSTRUCTION

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

Impeller
The QSL impeller is designed with true airfoil (double surface - hollow) die-formed, continuously-welded blades for a stable air performance throughout the operating range. The impeller is statically and dynamically balanced prior to assembly and rechecked for balance after assembly by Twin City Fan & Blower.

QSL Impeller

Belt Guard
Totally enclosed, sealed belt guard is standard on Model QSL. Totally enclosed, non-sealed belt guard is standard on Models QSLR and QSLSH.

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 40,000 hours at the maximum operating speed.

Drives
V-belt drives or direct drive fans with motors and drives mounted by Twin City Fan & Blower are test run as a complete assembly and rechecked for balance.

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.

Motor Mounting Platform
A heavy-duty motor mounting platform pivots to offer easy and positive adjustment of belt tension. The motor mounting platform is offered in eight standard locations to allow for motor accessibility and space requirements.

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

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 A - All parts of the fan in contact with the airstream must be made of nonferrous material — usually aluminum and limited to 200°F.

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

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

OSHPOD Seismic Certification
Models QSL, QSLR and QSLSH 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.

Additional Options
- Clamshell and Swingout Designs (see page 7)
- Fume Hood Design (see page 7)
- UL 705

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Swingout Construction

Provides full access to the impeller and inner casing. The entire impeller/shaft/bearing assembly is mounted on a large swingout door. Ideal for systems requiring frequent cleaning without removal of ductwork. Swingout construction is available for vertical mounting only. Available on sizes 182 to 600.

Clamshell Design (Single & Double Door)

Clamshell style doors swing open wide to provide complete access to the interior of the fan for maintenance or cleaning without removal of ductwork. Heavy-duty hinges, positive locking latches and full gasketing provide a complete seal when doors are closed. An access door provides access to the bearings. All clamshell fans feature removable bearing covers. Available on all fan sizes, typically vertical mount.

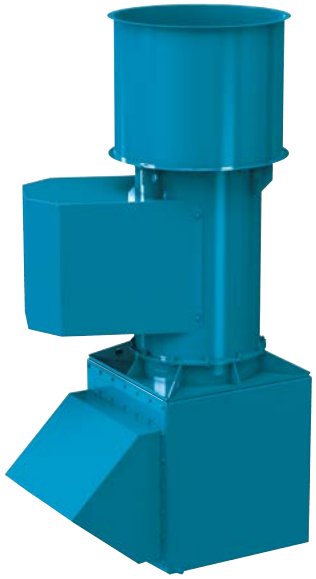
Accessories and Options

- Steel, aluminum and stainless steel construction available.
- FRP plastic inlet funnels available when aluminum is not suitable for spark resistant construction.
- Removable bearing cover plate is optional on axial swingout fans.
- Special coatings are available for corrosion resistance.
- OSHA belt guard available for all swingout and clamshell fans.

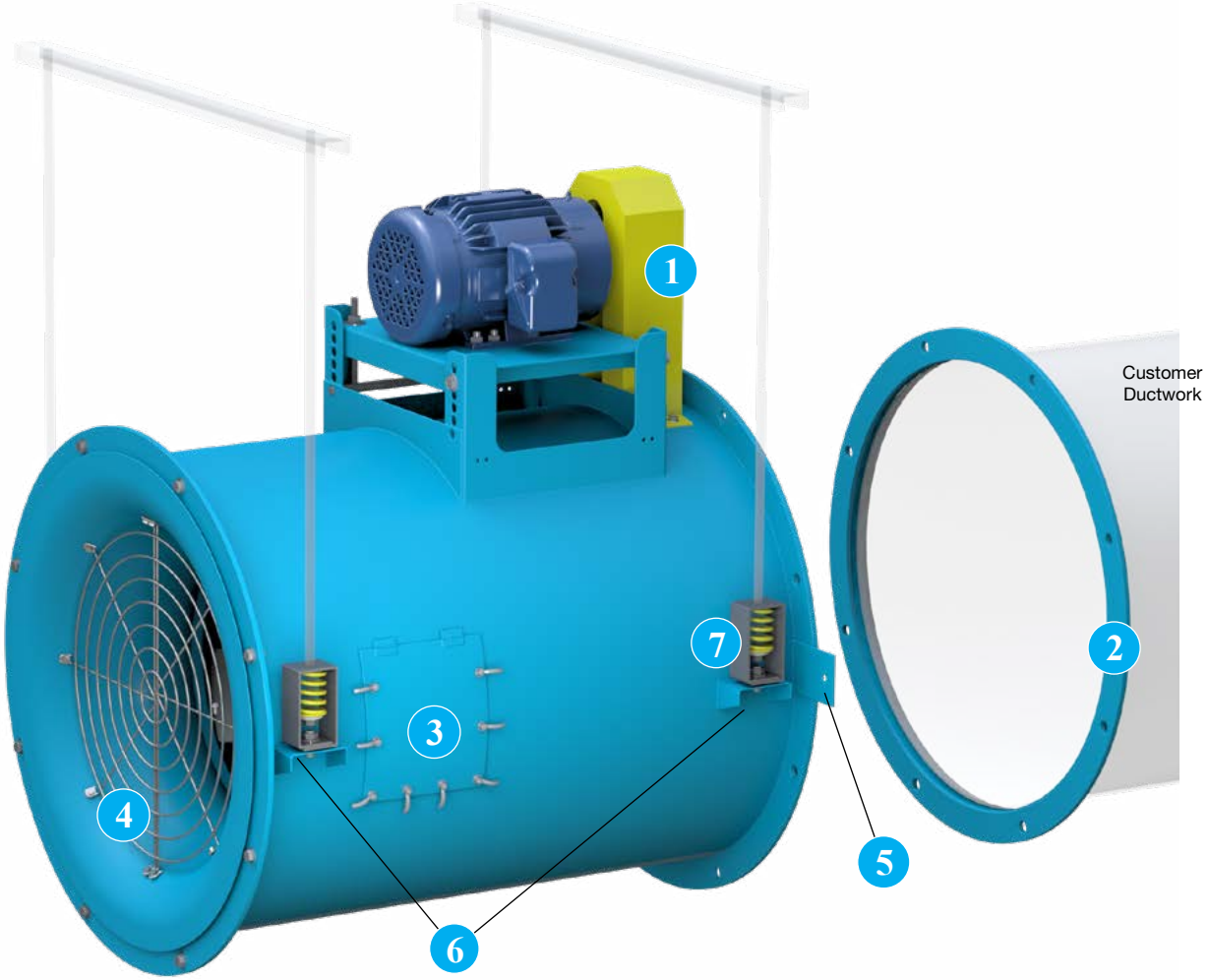
Fume Hood Exhaust Design

Twin City Fan & Blower offers a specially modified version of the QSL fan designated as “QFE” for laboratory fume hood exhaust applications, available in sizes 90 through 542. The QFE fan consists of a vertically mounted mixed flow fan with a reinforced curb cap and a modified stack cap. The stack cap includes an outlet venturi to permit the outlet velocity to meet the specific roof exhaust requirements. QFE fans in a standard configuration utilize an extended discharge with optional stack extensions available. The heavy-duty curb cap will permit stack extensions for outlet height of 10 feet (120 inches) from the roof line without need for guide wires.

Refer to Catalog 1505 for selection and specifications.



OPTIONS/ACCESSORIES



1 **Belt Guard** Available in Arrangement 9 belt driven fans, the belt guard encloses the motor sheave and V-belts. The guard is easily removable for inspection and maintenance.

2 **Companion Flanges** Flanges are rolled angle rings, drilled to match the fan's inlet or outlet flange.

3 **Quick Open Access Door** For quick impeller inspection and maintenance. Access doors are specified where examination and cleaning of the fan interior is required. A bolted access door is also available.

4 **Safety Screen** Safety screening can be provided for installation in the fan inlet, fan outlet.

5 **Thrust Restraints** Steel brackets located near the outlet to mount thrust restraint isolators (supplied by others).

6 **Suspension Clips** For horizontal flow with ceiling mounting, four clips of formed angle are welded to the fan housing for suspension via tie rods to the ceiling support structure.

7 **Vibration Isolators** Spring type vibration isolation mounts are available to reduce the transmission of fan vibration in 1" or 2" deflection. Rubber-in-shear isolators are also available as an option.

Other Accessories Include:

- Hinged Weather Cover
- Magnetic Damper latches
- Piezometer Ring
- Pressure Transducers
- Shaft Seal
- Variable Inlet Vanes
- Insulated Roof Curb
- Vertical Support Legs
- Horizontal Support Legs
- Insulated Enclosure

OPTIONS/ACCESSORIES

1. **Stack Cap** Stack caps are designed for vertical, rooftop discharge with butterfly type dampers to seal out the weather when the fan is shut off.

2. **Weather Cover** For outdoor installations, the weather cover completely encloses the motor and V-belt drive from the elements. Provided with slots for ventilation. Weather covers are available for either horizontal or vertical flow fans. Weather covers are standard on Model QSLSH.

3. **Curb Cap** Attached to the fan's inlet flange for curb mounting. Standard accessory on vertical roof mounted configuration.

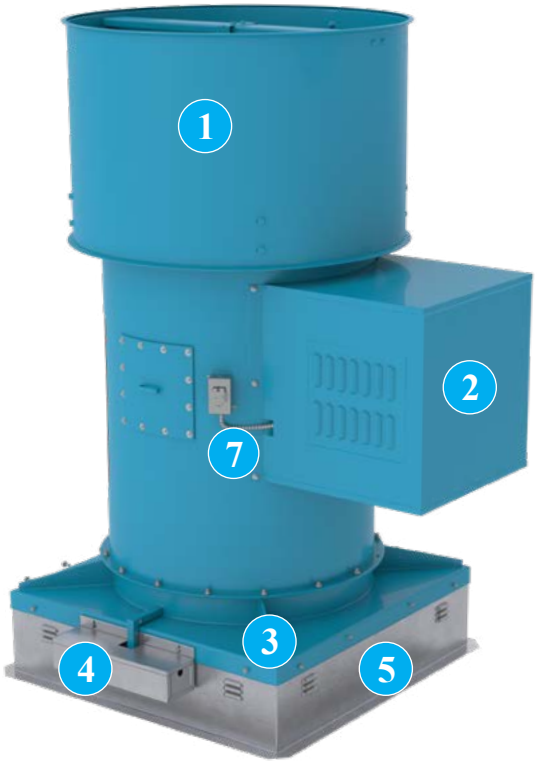
4. **Grease Box** The heavy gauge galvanized grease box is designed to trap the grease in and allow the water to run off onto the roof.

5. **Vented Roof Curb** Self-flashing style curbs with ventilation louvers allow ambient air in to cool and dilute grease- or smoke-laden airstreams. (See page 10 for additional curb options.)

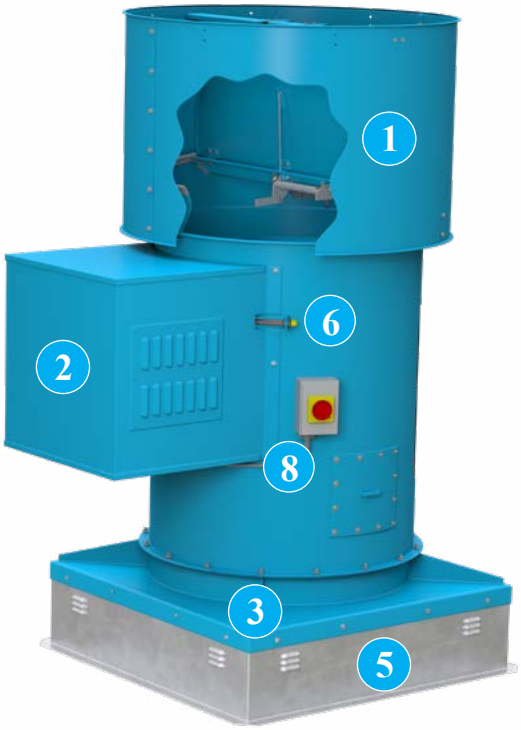
6. **Extended Copper Lube Lines** Lube lines with grease fittings are extended to the outside of the fan housing. Nylon lube lines are standard on Model QSL. Copper lube lines are standard construction on Models QSLR and QSLSH.

7. **NEMA 3R Disconnect Switch** QSL fans are provided with a NEMA 3R rain-tight disconnect switch, externally mounted when ODP or TEFC motors are used. Switch is available shipped loose for field mounting and wiring or factory mounted and wired.

8. **NEMA 4 Disconnect Switch** A NEMA 4 disconnect switch is mounted externally and is water and dust-tight. Switch is available shipped loose for field mounting and wiring or factory mounted and wired. (See page 11 for additional disconnect switch options.)



Model QSLR
(Restaurant Fan)



Model QSLSH
(Smoke & Heat Fan)

PREFABRICATED ROOF CURBS

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
- Not available on Models QSLR and QSLSH
- 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

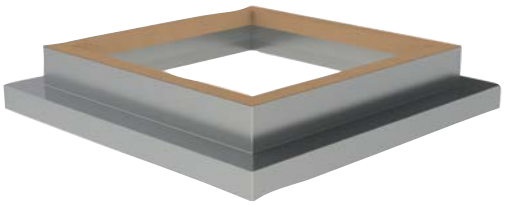
Self-Flashing & Straight Sided Roof Curbs

- 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 sized smaller to allow for field supplied cants and roofing material to be brought up to the top of the curb
- Not available on Models QSLR and QSLSH
- 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. For indoor applications.

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 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 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.)

NEMA 1
Disconnect Switch

NEMA 3R
Disconnect Switch

NEMA 4
Disconnect Switch

INSTALLATION PHOTOS

Biofilter Exhaust

Paint Spray Booth

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General HVAC

Smoke Control (Stadium)

FAN SIZE	ARR. 3 OVERALL LENGTH (TA)	LENGTH SAVINGS (IN.)
182	26.75	7.13
200	28.81	8.38
222	30.88	9.25
245	33.94	10.38
270	36.50	12.31
300	40.88	13.69
330	44.94	14.94
365	49.44	16.94
402	54.31	18.69
445	59.06	21.88
490	64.06	24.94
542	71.38	27.38

Arrangement 3
Where space is a premium, the QSL Arrangement 3 is available to shorten the overall fan length. The table above shows the overall savings in length versus an Arrangement 9 fan. Consult factory for further information.

Arrangement 4 (Direct Drive)
The arrangement 4 QSL is constructed with the fan impeller mounted directly on the motor shaft, this fan provides premium efficiency with minimal obstructions in the airstream. Only available on Model QSL.

Arrangement 9 (Belt Driven)
Designed for mounting the motor on outside of casing in one of the standard locations shown below. For horizontal and vertical discharge.

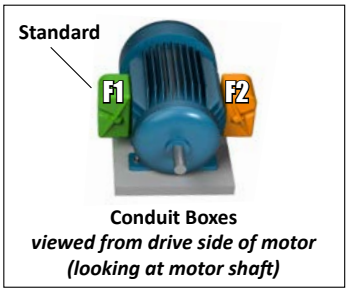
MOUNTING CONFIGURATIONS

Horizontal Construction
Horizontal construction is available in sizes 150 through 730.

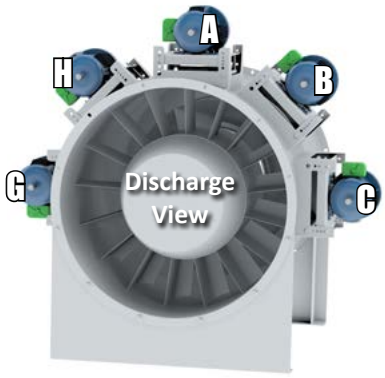
Horizontal Base Mounted (HBM) — Support legs are provided at each end of the fan for floor mounting.

Horizontal Ceiling Hung (HCH) — For duct mounted fans, four suspension clips are welded to the fan casing to allow ceiling suspension using rod hangers.

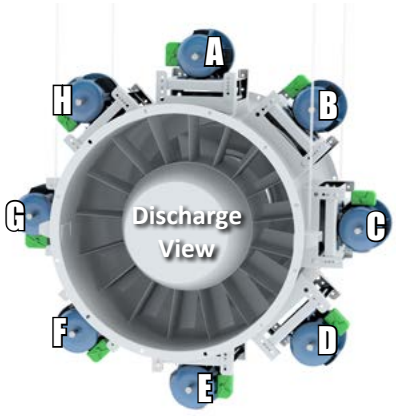
Horizontal (HOR) — For mounting configurations where support legs and suspension clips are not required.



Conduit Boxes
viewed from drive side of motor (looking at motor shaft)



HBM
Horizontal Base Mounted



HCH
Horizontal Ceiling Hung

HOR
Horizontal No Mounting Brackets

Vertical Construction

Vertical construction is available in sizes 150 through 542. Consult factory for larger sizes.

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 below).

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

Vertical (VUN/VDN) — For mounting configurations where support brackets are not required.

Available Discharges by Model

QSL	QSLSH	QSLR
HBM	HBM	HBM
HCH	HCH	HCH
HOR	HOR	HOR
VDI	**N/A**	**N/A**
VDN	**N/A**	**N/A**
VDO	**N/A**	**N/A**
VUI	VUI	VUI
VUN	VUN	VUN
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

VUN
Vertical Up No Brackets

VDI
Vertical Discharge Down, Ceiling Hung Support Brackets On Inlet

VDO
Vertical Discharge Down, Floor Mount Support Brackets On Outlet

VDN
Vertical Down No Brackets

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Table 1. Maximum RPM, Impeller Weights, and WR^2 (moment of inertia in lb-ft^2)

FAN SIZE	CLASS I			CLASS II		
	MAX. RPM	WEIGHT LB	WR^2 LB-FT^2	MAX. RPM	WEIGHT LB	WR^2 LB-FT^2
150	2721	24	5.5	3558	28	7.1
165	2483	32	8.0	3247	36	10.3
182	2232	38	12	2918	44	15
200	2027	48	20	2650	52	23
222	1839	57	29	2405	62	34
245	1655	69	45	2165	75	52
270	1505	82	66	1968	90	76
300	1360	140	133	1779	150	145
330	1234	167	197	1613	179	215
365	1116	233	320	1459	247	347
402	1013	324	588	1325	324	588
445	915	393	883	1197	393	883
490	828	478	1321	1082	478	1321
542	752	591	1934	984	591	1934
600	680	715	2893	890	715	2893
660	615	867	4334	804	867	4334
730	558	1064	6396	730	1064	6396

Table 2. Bare Fan Weights (lb)

FAN SIZE	ARRANGEMENT 9	
	CLASS I	CLASS II
150	168	175
165	202	210
182	215	227
200	257	267
222	303	315
245	367	377
270	434	450
300	660	690
330	802	821
365	1019	1048
402	1332	1357
445	1595	1627
490	1992	2008
542	2504	2537
600	3006	3034
660	3880	3979
730	4719	4758

Table 3. 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

Table 4. Bearing Specifications

FAN SIZE	CLASS I			CLASS II		
	SHAFT DIA. (IN.)	HORIZ.	VERT.	SHAFT DIA. (IN.)	HORIZ.	VERT.
150	1.000	SDB	SDB	1.187	SDB	SDB
165	1.000	SDB	SDB	1.437	SDB	SDB
182	1.000	SDB	SDB	1.437	HDB	HDB
200	1.187	SDB	SDB	1.437	HDB	HDB
222	1.187	SDB	SDB	1.437	HDB	HDB
245	1.437	SDB	SDB	1.687	HDB	HDB
270	1.437	SDB	SDB	1.687	HDB	RB
300	1.437	HDB	HDB	1.937	HDB	RB
330	1.687	HDB	HDB	2.187	HDB	RB
365	1.937	HDB	HDB	2.187	RB	RB
402	1.937	HDB	RB	2.187	RB	RB
445	1.937	HDB	RB	2.437	RB	RB
490	2.187	HDB	RB	2.437	RB	RB
542	2.437	HDB	RB	2.687	RB	RB
600	2.687	HDB	—	2.937	RB	—
660	2.937	HDB	—	3.437	RB	—
730	2.937	HDB	—	3.937	RB	—

NOTES:

1. BEARINGS CODES:
   SDB — Standard-Duty Ball such as Dodge SCAH or SKF SY Series
   HDB — Heavy-Duty Ball such as Dodge SCMAH or SKF SYM Series
   RB — Roller Bearing such as Dodge S2000 or SKF SYR Series

2. Standard bearings are selected to exceed L-10 life of 40,000 hours at the maximum operating speed.

Table 5. Minimum CFM Required to Open Stack Cap

FAN SIZE	CFM
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

TCF
TWIN CITY FAN

150 QSL

Impeller Dia.: 18.25"
Outlet Dia.: 20.31"

Max. BHP = 0.20 (RPM ÷ 1000)^3
Tip Speed FPM = 4.78 x RPM

Outlet Area: 2.25 ft^2
Fan Efficiency Grade: FEG71

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1300	583	930	0.16	1208	0.33																		
1500	673	984	0.19	1241	0.37	1466	0.59																
1700	762	1045	0.22	1282	0.41	1496	0.65	1689	0.89														
1900	852	1109	0.26	1331	0.46	1532	0.70	1717	0.97	1888	1.25												
2100	942	1177	0.30	1386	0.52	1574	0.76	1751	1.05	1916	1.34	2071	1.65										
2400	1076	1281	0.38	1476	0.62	1649	0.88	1812	1.17	1968	1.49	2115	1.82	2388	2.52								
2700	1211	1389	0.47	1573	0.74	1735	1.01	1885	1.31	2030	1.64	2169	1.99	2430	2.75	2672	3.54						
3000	1345	1499	0.58	1675	0.88	1827	1.17	1969	1.49	2103	1.82	2233	2.18	2482	2.98	2714	3.82	2933	4.70	3138	5.61		
3300	1480	1613	0.71	1779	1.03	1924	1.35	2058	1.68	2186	2.04	2307	2.41	2542	3.22	2765	4.11	2975	5.04	3175	6.00	3366	7.00
3600	1614	1730	0.86	1885	1.20	2026	1.56	2153	1.91	2274	2.28	2390	2.66	2611	3.49	2823	4.41	3026	5.39	3219	6.4	3405	7.45
4000	1794			2030	1.46	2164	1.86	2286	2.25	2399	2.64	2508	3.05	2716	3.92	2913	4.85	3105	5.86	3289	6.94	3467	8.06
4400	1973			2179	1.77	2306	2.20	2423	2.64	2531	3.06	2634	3.49	2831	4.41	3016	5.37	3195	6.40	3370	7.50	3540	8.67
4800	2152			2333	2.13	2450	2.59	2563	3.07	2668	3.54	2766	4.00	2952	4.95	3130	5.97	3299	7.03	3463	8.14		
5200	2332					2598	3.03	2705	3.54	2807	4.05	2902	4.56	3080	5.57	3249	6.62	3411	7.73				
5800	2601					2827	3.81	2924	4.35	3019	4.92	3111	5.50	3281	6.63	3439	7.76						
6200	2780					2983	4.41	3074	4.97	3164	5.57	3252	6.18	3419	7.41								

MAXIMUM RPM: Class I — 2721 Class II — 3558

165 QSL

Impeller Dia.: 20.00"
Outlet Dia.: 22.33"

Max. BHP = 0.31 (RPM ÷ 1000)^3
Tip Speed FPM = 5.24 x RPM

Outlet Area: 2.72 ft^2
Fan Efficiency Grade: FEG71

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1500	551	837	0.18	1095	0.39																		
1700	625	876	0.21	1119	0.43	1328	0.68																
1900	699	920	0.24	1147	0.47	1348	0.73	1528	1.02														
2100	772	967	0.27	1180	0.51	1372	0.79	1547	1.09														
2400	882	1042	0.34	1239	0.59	1416	0.88	1582	1.21	1735	1.55	1878	1.91										
2700	993	1121	0.41	1305	0.68	1469	0.98	1624	1.32	1770	1.70	1908	2.08	2163	2.90								
3000	1103	1201	0.49	1375	0.79	1530	1.11	1674	1.45	1813	1.84	1945	2.26	2191	3.12	2416	4.03						
3400	1250	1311	0.62	1476	0.96	1619	1.30	1753	1.66	1880	2.06	2004	2.49	2237	3.42	2454	4.40	2657	5.42				
3800	1397	1425	0.78	1580	1.15	1715	1.52	1841	1.91	1960	2.33	2074	2.76	2294	3.73	2501	4.78	2696	5.87	2882	7.00	3057	8.17
4200	1544	1542	0.97	1687	1.37	1817	1.78	1934	2.19	2047	2.63	2154	3.09	2360	4.07	2557	5.17	2745	6.33	2923	7.52	3094	8.75
4600	1691			1796	1.62	1921	2.08	2034	2.52	2140	2.98	2242	3.46	2436	4.48	2622	5.59	2801	6.79	2973	8.06	3138	9.36
5000	1838			1907	1.90	2027	2.40	2137	2.89	2238	3.37	2335	3.87	2520	4.93	2695	6.06	2865	7.29	3031	8.61	3190	9.98
5500	2022			2051	2.31	2163	2.85	2268	3.39	2365	3.92	2457	4.46	2632	5.57	2798	6.76	2957	8.01	3112	9.34		
6000	2206			2199	2.80	2301	3.35	2402	3.95	2496	4.54	2585	5.13	2750	6.30	2909	7.54	3060	8.84	3206	10.21		
6500	2390					2444	3.94	2538	4.57	2629	5.22	2715	5.86	2875	7.12	3025	8.41	3170	9.77				
7000	2574					2589	4.62	2678	5.27	2764	5.96	2848	6.66	3003	8.03	3147	9.39						

MAXIMUM RPM: Class I — 2483 Class II — 3247

182 QSL

Impeller Dia.: 22.25"
Outlet Dia.: 24.75"

Max. BHP = 0.53 (RPM ÷ 1000)^3
Tip Speed FPM = 5.83 x RPM

Outlet Area: 3.34 ft^2
Fan Efficiency Grade: FEG71

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1700	512	733	0.21	974	0.45																		
2000	602	772	0.24	996	0.51																		
2300	693	819	0.29	1025	0.57	1208	0.89																
2600	783	870	0.34	1061	0.63	1234	0.98	1391	1.36														
3000	904	943	0.42	1118	0.74	1276	1.10	1424	1.51	1562	1.94	1690	2.38										
3400	1024	1019	0.52	1182	0.86	1328	1.24	1466	1.66	1597	2.13	1720	2.61	1948	3.63								
3800	1145	1097	0.64	1252	1.01	1389	1.41	1516	1.84	1639	2.32	1757	2.84	1976	3.93	2177	5.06						
4200	1265	1177	0.77	1325	1.18	1454	1.60	1574	2.05	1689	2.55	1800	3.08	2010	4.23	2205	5.44	2388	6.70				
4600	1386	1259	0.92	1401	1.37	1523	1.82	1638	2.30	1746	2.81	1850	3.34	2051	4.54	2239	5.82	2416	7.15	2583	8.52		
5100	1536	1365	1.15	1497	1.64	1615	2.14	1722	2.64	1824	3.18	1922	3.74	2109	4.95	2288	6.30	2458	7.72	2620	9.19	2774	10.69
5600	1687			1596	1.94	1709	2.50	1811	3.04	1907	3.60	2000	4.19	2176	5.44	2345	6.81	2508	8.30	2664	9.86	2813	11.45
6100	1837			1697	2.29	1805	2.89	1904	3.49	1995	4.08	2083	4.69	2251	6.00	2410	7.39	2565	8.91	2714	10.52	2859	12.22
6600	1988			1800	2.68	1903	3.33	1999	3.98	2087	4.62	2171	5.26	2332	6.63	2483	8.06	2629	9.60	2772	11.25	2910	12.98
7100	2139			1906	3.14	2002	3.81	2095	4.51	2182	5.22	2262	5.90	2415	7.31	2561	8.81	2701	10.39	2836	12.05		
7600	2289			2014	3.65	2104	4.35	2193	5.10	2277	5.85	2356	6.59	2503	8.07	2643	9.62	2778	11.26	2907	12.96		
8100	2440					2208	4.95	2292	5.73	2374	6.54	2451	7.34	2594	8.91	2729	10.52	2858	12.20				

MAXIMUM RPM: Class I — 2232 Class II — 2918

Legend:
Class I = Regular face to left of Class II
Class II = Regular face in light shaded area

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).
Underlined figures indicate maximum static efficiency.

200 QSL

Impeller Dia.: 24.50"
Outlet Dia.: 27.22"

Max. BHP = 0.82 (RPM ÷ 1000)^3
Tip Speed FPM = 6.41 x RPM

Outlet Area: 4.04 ft^2
Fan Efficiency Grade: FEG71

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2400	602	699	0.29	903	0.61																		
2800	702	745	0.35	932	0.69	1098	1.09																
3200	802	796	0.42	968	0.78	1124	1.20	1266	1.66	1396	2.15												
3600	902	851	0.51	1011	0.88	1156	1.32	1291	1.81	1416	2.33	1533	2.87										
4100	1028	922	0.63	1071	1.04	1204	1.49	1330	2.01	1449	2.57	1561	3.16	1768	4.38								
4600	1153	995	0.77	1136	1.22	1260	1.70	1376	2.23	1488	2.81	1595	3.44	1794	4.75	1977	6.14						
5100	1278	1070	0.93	1204	1.43	1322	1.95	1431	2.50	1535	3.09	1636	3.74	1826	5.13	2003	6.60	2169	8.14				
5600	1404	1147	1.13	1275	1.68	1386	2.22	1490	2.80	1588	3.42	1682	4.07	1864	5.52	2035	7.08	2195	8.69	2347	10.37		
6100	1529	1226	1.35	1347	1.94	1455	2.54	1553	3.14	1646	3.78	1736	4.46	1907	5.93	2071	7.56	2227	9.27	2374	11.02	2515	12.83
6700	1679			1436	2.30	1539	2.96	1632	3.61	1721	4.29	1806	5.00	1967	6.50	2122	8.17	2271	9.96	2413	11.83	2549	13.74
7300	1830			1526	2.70	1625	3.43	1715	4.14	1799	4.85	1880	5.59	2033	7.16	2179	8.85	2321	10.68	2457	12.63	2589	14.66
7900	1980			1619	3.17	1713	3.94	1801	4.73	1881	5.48	1958	6.26	2105	7.90	2244	9.64	2377	11.48	2508	13.48	2635	15.59
8500	2130			1714	3.70	1802	4.51	1887	5.35	1966	6.19	2040	7.01	2180	8.71	2313	10.51	2441	12.42	2565	14.43		
9200	2306			1827	4.41	1909	5.26	1989	6.16	2066	7.08	2138	7.98	2271	9.76	2399	11.65	2521	13.62	2638	15.67		
9900	2481					2018	6.11	2094	7.06	2168	8.05	2238	9.03	2367	10.94	2488	12.89	2606	14.96				
10600	2657					2129	7.07	2200	8.05	2271	9.10	2339	10.16	2465	12.23	2582	14.29						

MAXIMUM RPM: Class I — 2027 Class II — 2650

222 QSL

Impeller Dia.: 27.00"
Outlet Dia.: 30.19"

Max. BHP = 1.37 (RPM ÷ 1000)^3
Tip Speed FPM = 7.07 x RPM

Outlet Area: 4.97 ft^2
Fan Efficiency Grade: FEG75

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2500	508	600	0.29	793	0.61																		
3000	610	632	0.34	818	0.71	968	1.11																
3500	711	669	0.39	847	0.81	993	1.25	1120	1.72														
4000	813	711	0.46	878	0.91	1020	1.40	1144	1.91	1256	2.45												
4500	915	759	0.55	911	1.01	1050	1.56	1171	2.11	1281	2.69	1381	3.28										
5000	1016	811	0.64	950	1.13	1082	1.71	1200	2.31	1308	2.94	1407	3.58	1586	4.91								
5500	1118	866	0.76	992	1.26	1116	1.86	1232	2.52	1337	3.19	1434	3.87	1610	5.29	1769	6.78						
6000	1220	923	0.89	1038	1.42	1153	2.02	1264	2.72	1367	3.44	1463	4.18	1636	5.68	1793	7.25	1937	8.89				
6500	1321	981	1.04	1087	1.59	1194	2.21	1299	2.92	1400	3.70	1493	4.48	1664	6.08	1818	7.73	1960	9.44	2093	11.23		
7000	1423	1041	1.21	1140	1.79	1239	2.44	1337	3.15	1433	3.94	1525	4.78	1693	6.48	1845	8.22	1986	10.04	2116	11.87	2239	13.78
8000	1626	1163	1.61	1250	2.26	1336	2.95	1423	3.70	1509	4.51	1593	5.38	1756	7.30	1904	9.25	2040	11.21	2168	13.24	2288	15.30
9000	1829			1365	2.82	1442	3.57	1518	4.36	1596	5.22	1673	6.11	1823	8.09	1967	10.27	2100	12.45	2224	14.63	2342	16.87
10000	2033			1484	3.49	1553	4.30	1622	5.15	1691	6.04	1761	6.99	1899	9.00	2034	11.25	2164	13.66	2286	16.09	2401	18.52
11000	2236			1606	4.28	1669	5.16	1732	6.07	1795	7.01	1857	7.99	1984	10.09	2109	12.36	2231	14.84	2350	17.48		
12000	2439			1730	5.21	1788	6.15	1846	7.12	1903	8.12	1961	9.16	2076	11.34	2192	13.67	2306	16.17				
13000	2642					1909	7.28	1962	8.31	2016	9.38	2069	10.47	2175	12.75	2282	15.18	2389	17.74				

MAXIMUM RPM: Class I — 1839 Class II — 2405

245 QSL

Impeller Dia.: 30.00"
Outlet Dia.: 33.20"

Max. BHP = 2.31 (RPM ÷ 1000)^3
Tip Speed FPM = 7.85 x RPM

Outlet Area: 6.01 ft^2
Fan Efficiency Grade: FEG75

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3500	585	559	0.40	728	0.84																		
4000	669	584	0.45	748	0.93	882	1.46																
4500	753	612	0.51	770	1.04	900	1.60	1014	2.20														
5000	836	644	0.58	793	1.14	921	1.75	1032	2.39	1132	3.05												
5500	920	679	0.66	817	1.24	942	1.90	1052	2.58	1151	3.30	1241	4.02										
6000	1003	717	0.76	845	1.35	966	2.06	1073	2.79	1170	3.54	1259	4.31	1422	5.94								
7000	1171	797	0.99	907	1.62	1015	2.36	1118	3.19	1212	4.04	1299	4.90	1457	6.70	1599	8.56						
8000	1338	881	1.28	977	1.96	1073	2.72	1168	3.59	1259	4.56	1343	5.52	1497	7.49	1636	9.54	1763	11.63	1883	13.83		
9000	1505	968	1.62	1054	2.37	1139	3.18	1225	4.07	1308	5.04	1390	6.12	1540	8.31	1676	10.52	1801	12.81	1918	15.15	2028	17.56
10000	1672	1058	2.05	1135	2.85	1212	3.72	1289	4.65	1366	5.65	1441	6.73	1586	9.11	1719	11.55	1841	13.99	1956	16.51	2064	19.09
11000	1839			1219	3.41	1289	4.33	1358	5.31	1429	6.36	1499	7.46	1635	9.90	1765	12.56	1885	15.23	1997	17.91	2104	20.68
12000	2007			1305	4.06	1369	5.04	1433	6.07	1497	7.16	1562	8.31	1689	10.77	1813	13.54	1931	16.45	2041	19.35	2145	22.27
13000	2174			1394	4.81	1453	5.85	1512	6.94	1571	8.08	1630	9.27	1749	11.80	1865	14.57	1979	17.63	2088	20.80		
14000	2341			1483	5.66	1538	6.76	1593	7.91	1648	9.10	1703	10.34	1813	12.96	1923	15.79	2030	18.84	2135	22.14		
16000	2676					1714	8.93	1762	10.20	1810	11.51	1858	12.85	1954	15.67	2050	18.65	2147	21.81				
18000	3010					1894	11.61	1937	13.01	1979	14.42	2022	15.89	2107	18.91								

MAXIMUM RPM: Class I — 1655 Class II — 2165

Legend:
Class I = Regular face to left of Class II
Class II = Regular face in light shaded area

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).
Underlined figures indicate maximum static efficiency.

270 QSL

Impeller Dia.: 33.00"
Outlet Dia.: 36.54"

Max. BHP = 3.71 (RPM ÷ 1000)^3
Tip Speed FPM = 8.64 x RPM

Outlet Area: 7.28 ft^2
Fan Efficiency Grade: FEG75

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4500	620	518	0.51	670	1.06	793	1.67																
5000	689	537	0.56	685	1.16	806	1.81	911	2.50														
5500	758	559	0.62	702	1.27	820	1.95	923	2.67														
6000	826	583	0.69	719	1.37	835	2.10	937	2.87	1028	3.67												
6500	895	609	0.78	737	1.46	852	2.26	951	3.06	1042	3.91	1124	4.78										
7000	964	637	0.87	757	1.57	869	2.41	967	3.27	1056	4.15	1138	5.07	1286	7.00								
8000	1102	695	1.08	801	1.82	904	2.70	1000	3.67	1087	4.66	1167	5.66	1311	7.73	1442	9.94						
9000	1240	757	1.34	851	2.13	945	3.03	1036	4.08	1120	5.16	1198	6.26	1340	8.52	1468	10.87	1585	13.31				
10000	1377	822	1.65	906	2.49	991	3.43	1074	4.48	1156	5.67	1232	6.88	1371	9.32	1496	11.84	1612	14.46	1719	17.13	1821	19.94
11000	1515	888	2.01	964	2.91	1041	3.90	1119	4.99	1194	6.17	1268	7.48	1404	10.15	1527	12.84	1640	15.61	1746	18.46	1846	21.40
12000	1653	955	2.43	1025	3.39	1096	4.44	1167	5.57	1237	6.77	1306	8.08	1439	10.96	1559	13.86	1671	16.82	1775	19.84	1874	22.96
13000	1791	1023	2.92	1088	3.94	1153	5.04	1218	6.21	1284	7.46	1349	8.79	1475	11.74	1594	14.90	1703	18.04	1806	21.24	1903	24.51
14000	1928			1153	4.57	1213	5.72	1273	6.93	1334	8.23	1395	9.60	1514	12.57	1629	15.87	1737	19.27	1838	22.67	1934	26.12
15000	2066			1218	5.26	1275	6.48	1331	7.75	1387	9.08	1444	10.50	1557	13.52	1666	16.85	1773	20.49	1872	24.11	1966	27.75
17000	2342			1352	6.90	1402	8.24	1452	9.63	1502	11.08	1551	12.57	1651	15.75	1751	19.18	1848	22.88	1943	26.87		
19000	2617					1534	10.38	1578	11.88	1623	13.45	1667	15.05	1756	18.43	1846	22.02	1935	25.80				

MAXIMUM RPM: Class I — 1505 Class II — 1968

300 QSL

Impeller Dia.: 36.50"
Outlet Dia.: 40.62"

Max. BHP = 6.16 (RPM ÷ 1000)^3
Tip Speed FPM = 9.56 x RPM

Outlet Area: 9.00 ft^2
Fan Efficiency Grade: FEG75

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5000	558	455	0.57	595	1.20																		
5750	642	475	0.65	611	1.35	721	2.10																
6500	725	498	0.73	629	1.50	737	2.33	830	3.19														
7250	809	524	0.84	648	1.66	753	2.54	845	3.47	928	4.45												
8000	893	553	0.96	668	1.80	771	2.77	861	3.76	943	4.81	1018	5.89										
8750	977	583	1.09	690	1.96	790	3.00	879	4.08	959	5.18	1032	6.30	1166	8.69								
9500	1060	616	1.26	715	2.15	810	3.23	897	4.38	976	5.55	1048	6.74	1180	9.25								
11000	1228	684	1.63	769	2.60	854	3.71	936	4.98	1012	6.31	1083	7.66	1211	10.41	1327	13.29	1433	16.27				
12500	1395	756	2.11	830	3.15	906	4.33	980	5.61	1052	7.05	1121	8.58	1245	11.60	1359	14.76	1463	18.00	1560	21.33	1651	24.76
14000	1562	829	2.67	896	3.81	963	5.05	1030	6.39	1096	7.85	1161	9.46	1283	12.85	1393	16.25	1495	19.75	1590	23.33	1680	27.02
15500	1730	905	3.37	965	4.59	1025	5.91	1086	7.33	1146	8.82	1206	10.44	1322	14.03	1430	17.79	1530	21.57	1623	25.39	1712	29.38
17000	1897			1036	5.50	1091	6.90	1146	8.39	1201	9.96	1257	11.64	1365	15.26	1470	19.31	1567	23.41	1659	27.56	1745	31.72
19000	2121			1133	6.92	1183	8.46	1232	10.05	1281	11.72	1330	13.46	1429	17.20	1525	21.29	1620	25.81	1710	30.46		
21000	2344			1233	8.63	1278	10.29	1322	11.99	1367	13.79	1411	15.62	1500	19.52	1590	23.74	1677	28.27	1763	33.19		
23000	2567					1375	12.42	1416	14.27	1456	16.14	1497	18.10	1578	22.20	1660	26.57	1741	31.17				
25000	2790					1474	14.88	1511	16.83	1549	18.86	1586	20.92	1661	25.23	1736	29.79						

MAXIMUM RPM: Class I — 1360 Class II — 1779

330 QSL

Impeller Dia.: 40.25
Outlet Dia.: 44.68"

Max. BHP = 10.03 (RPM ÷ 1000)^3
Tip Speed FPM = 10.54 x RPM

Outlet Area: 10.89 ft^2
Fan Efficiency Grade: FEG75

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
7250	668	436	0.81	559	1.70	658	2.63																
8000	737	454	0.90	572	1.85	670	2.86	754	3.91														
8750	806	473	1.00	586	2.00	682	3.07	765	4.19	841	5.39												
9500	876	494	1.12	601	2.15	695	3.30	777	4.49	851	5.72	920	7.03										
10250	945	517	1.26	617	2.30	709	3.53	790	4.79	863	6.10	930	7.44										
11000	1014	541	1.41	634	2.47	724	3.77	803	5.09	875	6.46	942	7.88	1062	10.83								
12500	1152	590	1.75	673	2.89	754	4.20	832	5.72	902	7.24	966	8.75	1084	11.96	1190	15.31						
14000	1290	642	2.17	716	3.38	790	4.75	862	6.31	930	7.99	993	9.68	1109	13.16	1213	16.77	1308	20.47	1398	24.39		
15500	1429	696	2.66	763	3.96	829	5.38	896	6.97	960	8.72	1022	10.60	1135	14.38	1237	18.23	1331	22.22	1419	26.33	1501	30.53
17000	1567	751	3.24	812	4.63	872	6.12	934	7.78	993	9.52	1052	11.48	1163	15.61	1263	19.75	1355	23.97	1442	28.37	1523	32.81
19000	1751	826	4.17	880	5.66	935	7.29	989	9.01	1044	10.86	1097	12.80	1202	17.18	1300	21.80	1390	26.41	1475	31.13	1555	35.96
21000	1935			951	6.90	1000	8.62	1049	10.44	1099	12.40	1148	14.42	1245	18.84	1339	23.78	1428	28.91	1510	33.96	1588	39.10
23000	2120			1024	8.34	1069	10.20	1114	12.14	1158	14.14	1203	16.27	1293	20.79	1381	25.79	1467	31.27	1548	36.84		
25000	2304			1098	10.01	1139	11.97	1181	14.05	1222	16.17	1263	18.39	1346	23.10	1428	28.14	1509	33.69	1588	39.64		
27000	2488			1173	11.91	1211	14.00	1250	16.21	1288	18.44	1326	20.76	1402	25.64	1479	30.85	1555	36.42				
29000	2673					1285	16.33	1320	18.60	1356	20.99	1391	23.39	1462	28.48	1534	33.92	1605	39.57				

MAXIMUM RPM: Class I — 1234 Class II — 1613

Legend:
Class I = Regular face to left of Class II
Class II = Regular face in light shaded area

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).
Underlined figures indicate maximum static efficiency.

365 QSL

Impeller Dia.: 44.50"
Outlet Dia.: 49.44"

Max. BHP = 17.44 (RPM ÷ 1000)^3
Tip Speed FPM = 11.65 x RPM

Outlet Area: 13.33 ft^2
Fan Efficiency Grade: FEG80

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
8000	602	371	0.88	484	1.88																		
9000	677	386	0.99	495	2.07																		
10000	752	403	1.11	507	2.24	595	3.52																
12000	903	445	1.43	535	2.64	618	4.06	692	5.59														
14000	1053	491	1.84	567	3.10	645	4.63	715	6.29	780	8.07	840	9.86										
16000	1204	538	2.32	608	3.71	675	5.27	742	7.05	804	8.96	862	10.96	968	15.05								
18000	1354	586	2.88	653	4.46	711	6.05	772	7.91	832	9.94	887	12.04	990	16.55	1084	21.17						
20000	1505	636	3.56	699	5.30	754	7.04	806	8.88	861	10.97	915	13.22	1014	17.96	1105	22.98	1190	28.13				
22000	1655	687	4.37	746	6.24	798	8.14	846	10.06	895	12.19	944	14.46	1041	19.47	1129	24.76	1212	30.35	1289	35.92	1363	41.64
24000	1806			794	7.30	844	9.38	890	11.46	934	13.62	978	15.92	1070	21.12	1156	26.65	1236	32.49	1312	38.55	1384	44.69
26000	1956			843	8.50	891	10.75	936	13.04	977	15.29	1017	17.63	1100	22.83	1184	28.63	1262	34.67	1336	41.03	1406	47.53
28000	2107			893	9.88	938	12.23	981	14.69	1022	17.16	1060	19.61	1135	24.83	1213	30.70	1290	37.04	1362	43.59	1431	50.45
30000	2257			943	11.41	987	13.92	1028	16.52	1067	19.14	1104	21.76	1174	27.12	1245	32.98	1319	39.52	1390	46.34	1457	53.36
32000	2408			994	13.15	1036	15.76	1076	18.53	1113	21.30	1149	24.09	1216	29.69	1282	35.65	1350	42.18	1419	49.24		
34000	2558					1086	17.81	1124	20.68	1160	23.63	1195	26.62	1260	32.52	1322	38.61	1384	45.09	1449	52.23		
36000	2709					1136	20.06	1173	23.06	1208	26.16	1242	29.34	1306	35.64	1365	41.93	1423	48.50				

MAXIMUM RPM: Class I — 1116 Class II — 1459

402 QSL

Impeller Dia.: 49.00"
Outlet Dia.: 54.43"

Max. BHP = 28.23 (RPM ÷ 1000)^3
Tip Speed FPM = 12.83 x RPM

Outlet Area: 16.16 ft^2
Fan Efficiency Grade: FEG80

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
10000	620	340	1.10	442	2.34																		
11000	682	351	1.20	450	2.52																		
12000	744	364	1.33	459	2.69	539	4.22																
14000	868	395	1.64	480	3.09	556	4.77	624	6.56														
16000	993	429	2.02	502	3.51	575	5.31	641	7.30	700	9.32												
18000	1117	464	2.47	530	4.05	597	5.93	660	8.03	717	10.23	771	12.54										
20000	1241	499	2.96	562	4.71	620	6.59	681	8.82	736	11.13	788	13.60	884	18.72								
22000	1365	536	3.55	596	5.47	649	7.44	703	9.66	757	12.11	807	14.67	900	20.15	986	25.85						
24000	1489	573	4.22	630	6.30	680	8.38	729	10.65	779	13.16	828	15.85	919	21.63	1002	27.69	1079	33.84				
26000	1613	611	5.01	665	7.21	714	9.50	758	11.79	803	14.30	850	17.11	938	23.05	1019	29.42	1095	36.07	1166	42.74		
29000	1799			719	8.78	765	11.32	807	13.85	847	16.45	887	19.23	970	25.47	1048	32.15	1121	39.22	1190	46.55	1256	54.03
32000	1985			774	10.60	817	13.35	858	16.19	895	18.96	931	21.82	1005	28.14	1080	35.16	1151	42.59	1218	50.37	1281	58.30
35000	2171			830	12.73	871	15.69	910	18.79	946	21.84	980	24.90	1045	31.20	1114	38.41	1183	46.22	1248	54.29	1309	62.58
38000	2357			888	15.25	926	18.34	963	21.66	997	24.95	1030	28.26	1092	34.98	1153	42.14	1216	49.99	1280	58.54		
41000	2543					982	21.35	1017	24.85	1050	28.42	1082	32.04	1141	39.14	1197	46.45	1254	54.34	1313	62.94		
44000	2730					1039	24.79	1072	28.42	1103	32.15	1134	36.05	1192	43.77	1245	51.39	1297	59.35				

MAXIMUM RPM: Class I — 1013 Class II — 1325

445 QSL

Impeller Dia.: 54.25"
Outlet Dia.: 60.25"

Max. BHP = 46.94 (RPM ÷ 1000)^3
Tip Speed FPM = 14.20 x RPM

Outlet Area: 19.80 ft^2
Fan Efficiency Grade: FEG80

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
13000	658	313	1.42	404	3.01																		
15000	759	332	1.67	417	3.36	489	5.27																
17000	861	355	1.98	432	3.75	501	5.80	563	8.00														
19000	962	380	2.36	448	4.16	515	6.34	575	8.73	629	11.15												
21000	1063	405	2.77	467	4.65	531	6.96	588	9.43	641	12.08	690	14.76										
23000	1165	431	3.24	490	5.27	547	7.58	603	10.19	654	12.96	702	15.87	790	21.79								
25000	1266	457	3.76	514	5.96	565	8.27	619	11.01	669	13.91	715	16.92	801	23.28								
28000	1418	498	4.68	551	7.11	598	9.60	644	12.30	692	15.38	737	18.60	820	25.46	896	32.60						
31000	1570	540	5.80	589	8.42	634	11.15	675	13.93	717	17.00	761	20.45	841	27.62	915	35.34	984	43.29	1048	51.19		
34000	1722	582	7.09	629	9.93	671	12.88	710	15.87	747	18.95	786	22.39	864	29.96	936	38.07	1002	46.42	1065	55.07	1125	63.82
37000	1873			669	11.61	709	14.80	747	18.07	782	21.34	816	24.73	888	32.45	958	40.85	1023	49.69	1085	58.98	1143	68.31
40000	2025			710	13.53	748	16.93	785	20.51	818	23.95	850	27.50	915	35.24	982	43.95	1045	53.02	1105	62.62	1162	72.53
43000	2177			751	15.67	788	19.31	823	23.11	855	26.80	886	30.59	945	38.37	1007	47.18	1069	56.72	1128	66.69	1183	76.85
47000	2380			808	19.08	842	22.86	875	26.94	906	31.05	936	35.19	991	43.39	1046	52.25	1102	61.85	1159	72.27		
51000	2582					897	26.95	928	31.25	958	35.73	986	40.15	1040	49.12	1090	58.15	1140	67.75	1193	78.43		
55000	2785					953	31.66	982	36.11	1011	40.91	1038	45.69	1090	55.36	1137	64.80	1184	74.79				

MAXIMUM RPM: Class I — 915 Class II — 1197

Legend:
Class I = Regular face to left of Class II
Class II = Regular face in light shaded area

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).
Underlined figures indicate maximum static efficiency.

490 QSL

Impeller Dia.: 60.00"
Outlet Dia.: 66.31"

Max. BHP = 74.47 (RPM ÷ 1000)^3
Tip Speed FPM = 15.71 x RPM

Outlet Area: 23.98 ft^2
Fan Efficiency Grade: FEG80

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
18000	753	298	2.00	375	4.05	441	6.36																
20000	836	314	2.29	386	4.42	449	6.88	506	9.49														
22000	920	332	2.65	398	4.84	459	7.42	514	10.22														
24000	1003	350	3.03	410	5.26	470	7.98	523	10.92	572	14.00												
27000	1129	379	3.70	433	6.08	487	8.87	539	12.04	586	15.37	630	18.83										
30000	1254	408	4.45	459	7.06	507	9.92	556	13.21	601	16.68	644	20.43	722	28.07								
33000	1380	438	5.34	487	8.22	530	11.15	574	14.47	618	18.15	659	22.00	735	30.21	805	38.73						
36000	1505	468	6.34	515	9.47	556	12.61	595	15.94	636	19.72	677	23.86	750	32.36	818	41.48	881	50.71				
40000	1672	510	7.97	553	11.32	592	14.80	628	18.35	664	22.18	701	26.38	772	35.38	838	45.13	899	55.19	956	65.31	1011	75.72
44000	1839			592	13.44	630	17.34	664	21.17	696	25.07	728	29.21	795	38.58	859	48.73	918	59.34	975	70.59	1028	81.77
48000	2007			632	15.89	668	20.09	701	24.30	731	28.43	760	32.67	821	42.23	882	52.72	940	63.86	994	75.37	1046	87.38
52000	2174			673	18.73	707	23.17	738	27.67	768	32.25	796	36.81	850	46.31	907	57.11	963	68.64	1016	80.64	1067	93.28
56000	2341			715	22.02	747	26.65	777	31.50	805	36.34	832	41.21	883	51.11	934	61.83	987	73.68	1039	86.21		
60000	2508			756	25.60	787	30.48	816	35.63	843	40.82	870	46.18	918	56.48	965	67.34	1014	79.36	1063	92.10		
64000	2676					828	34.82	855	40.09	882	45.73	907	51.29	955	62.49	999	73.64	1044	85.72				
68000	2843					869	39.61	896	45.24	921	50.99	945	56.84	992	68.84	1035	80.65	1076	92.67				

MAXIMUM RPM: Class I — 828 Class II — 1082

542 QSL

Impeller Dia.: 66.00"
Outlet Dia.: 73.37"

Max. BHP = 125.16 (RPM ÷ 1000)^3
Tip Speed FPM = 17.28 x RPM

Outlet Area: 29.36 ft^2
Fan Efficiency Grade: FEG80

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
22000	750	272	2.45	342	4.94	401	7.72																
25500	869	294	2.99	357	5.63	413	8.67	464	11.98														
29000	988	318	3.66	373	6.38	427	9.64	475	13.18	520	16.94												
32500	1107	343	4.43	393	7.32	442	10.68	489	14.47	532	18.52	572	22.67										
36000	1227	369	5.32	415	8.42	459	11.87	504	15.85	545	20.03	584	24.52	655	33.68								
39500	1346	395	6.33	439	9.72	479	13.28	520	17.34	560	21.75	598	26.47	667	36.30	730	46.37						
43500	1482	425	7.64	468	11.45	505	15.23	541	19.30	578	23.84	615	28.80	682	39.19	743	50.05	801	61.36				
47500	1618	456	9.22	496	13.24	532	17.39	565	21.61	598	26.17	633	31.32	698	42.11	758	53.72	814	65.78	867	78.05		
51500	1755	488	11.08	526	15.35	560	19.82	591	24.25	622	29.02	652	33.96	715	45.24	774	57.40	828	69.96	880	83.16	929	96.40
55500	1891			555	17.58	588	22.41	619	27.30	647	32.11	675	37.22	734	48.79	791	61.28	844	74.39	894	88.04	942	102.15
59500	2027			586	20.24	617	25.28	647	30.56	674	35.66	701	41.06	754	52.52	808	65.24	861	79.04	910	93.23	957	108.02
64000	2181			620	23.47	651	28.96	679	34.52	706	40.16	731	45.71	779	57.22	830	70.37	880	84.32	928	98.97	974	114.33
68500	2334			655	27.18	684	32.83	711	38.73	737	44.76	762	50.83	808	62.92	853	75.72	901	90.20	948	105.44		
73000	2487			691	31.44	718	37.21	744	43.41	769	49.81	793	56.23	838	69.09	880	82.15	924	96.64	968	111.96		
77500	2641					753	42.17	778	48.64	802	55.36	825	62.15	868	75.55	909	89.33	949	103.68				
82000	2794					788	47.61	812	54.29	835	61.27	857	68.36	900	82.88	939	97.09	977	111.81				

MAXIMUM RPM: Class I — 752 Class II — 984

600 QSL

Impeller Dia.: 73.00"
Outlet Dia.: 81.18"

Max. BHP = 207.58 (RPM ÷ 1000)^3
Tip Speed FPM = 19.11 x RPM

Outlet Area: 35.94 ft^2
Fan Efficiency Grade: FEG80

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
28000	779	250	3.12	312	6.22	365	9.74																
32000	890	270	3.81	325	7.03	376	10.86	421	14.91														
36000	1002	290	4.57	339	7.91	388	11.97	431	16.32	471	20.91	508	25.55										
40000	1113	311	5.45	356	9.00	401	13.20	443	17.82	482	22.81	518	27.91										
44000	1224	333	6.48	375	10.29	415	14.52	456	19.43	493	24.55	528	30.00	592	41.15								
48000	1336	355	7.62	396	11.84	432	16.15	469	21.07	506	26.56	539	32.07	602	44.13	660	56.61						
52000	1447	377	8.89	416	13.40	450	17.93	484	22.96	519	28.61	552	34.48	613	47.03	669	60.21	721	73.55				
57000	1586	406	10.82	443	15.72	475	20.60	506	25.80	536	31.27	568	37.50	628	50.76	682	64.66	733	79.21	781	93.91		
62000	1725	435	13.04	470	18.23	501	23.60	530	29.07	557	34.61	586	40.90	644	54.74	697	69.36	746	84.57	793	100.44	837	116.19
67000	1864			497	20.99	527	26.82	555	32.70	581	38.62	607	44.92	660	58.77	712	73.99	760	89.88	806	106.67	849	123.51
72000	2003			525	24.18	554	30.41	581	36.75	606	43.03	630	49.46	678	63.30	728	79.01	776	95.79	820	112.87	863	131.00
78000	2170			559	28.50	587	35.19	612	41.89	636	48.65	659	55.50	703	69.67	749	85.64	795	102.93	838	120.63	880	139.57
84000	2337			594	33.54	620	40.44	644	47.60	668	55.14	690	62.43	731	77.08	772	92.88	815	110.49	858	129.40		
90000	2504			629	39.18	653	46.23	677	54.00	699	61.77	721	69.80	761	85.48	799	101.62	838	119.21	878	138.23		
96000	2671					688	53.07	710	60.94	732	69.38	752	77.60	791	94.32	828	111.42	863	128.76				
102000	2838					722	60.36	744	68.77	764	77.24	784	86.14	822	104.01	857	121.64						

MAXIMUM RPM: Class I — 680 Class II — 890

Legend:
Class I = Regular face to left of Class II
Class II = Regular face in light shaded area

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).
Underlined figures indicate maximum static efficiency.

660 QSL

Impeller Dia.: 80.75"
Outlet Dia.: 89.31"

Max. BHP = 342.30 (RPM ÷ 1000)^3
Tip Speed FPM = 21.14 x RPM

Outlet Area: 43.50 ft^2
Fan Efficiency Grade: FEG80

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
33000	759	222	3.65	280	7.44	328	11.60																
37000	851	236	4.28	289	8.19	335	12.65	377	17.45														
41000	943	251	5.01	298	8.96	344	13.80	384	18.93	421	24.24												
45000	1035	266	5.80	309	9.90	353	14.93	392	20.37	428	26.11	461	31.84										
50000	1150	286	6.97	326	11.39	365	16.47	403	22.22	437	28.21	470	34.68										
55000	1265	306	8.26	344	13.08	379	18.27	415	24.25	448	30.52	480	37.39	538	51.45								
60000	1380	326	9.70	363	15.01	394	20.20	427	26.29	460	33.04	491	40.17	547	55.01	598	70.18						
67500	1552	358	12.40	391	18.09	421	23.96	450	30.26	479	37.10	508	44.48	562	60.21	612	77.10	659	94.61	702	111.79		
75000	1725	390	15.60	421	21.79	450	28.42	476	34.98	501	41.81	527	49.33	580	66.23	628	83.99	673	102.71	715	121.64	755	140.76
82500	1897			452	26.10	479	33.29	504	40.49	527	47.66	550	55.27	598	72.37	645	91.10	688	110.45	730	131.33	769	152.17
90000	2069			483	30.97	508	38.55	532	46.43	555	54.43	576	62.29	619	79.56	663	98.76	706	119.47	746	140.85	784	162.96
97500	2242			514	36.48	539	44.79	562	53.35	583	61.67	604	70.37	643	87.90	683	107.31	724	128.67	763	150.80	800	173.75
105000	2414			546	42.92	569	51.41	591	60.48	612	69.75	632	78.96	669	97.35	705	116.72	743	138.39	781	161.53		
112500	2587					601	59.31	622	68.85	642	78.68	661	88.50	697	108.15	730	127.75	765	149.70	800	172.88		
120000	2759					632	67.73	652	77.61	672	88.24	690	98.57	725	119.55	757	140.27	789	162.24				
127500	2932					664	77.35	684	87.92	702	98.52	720	109.69	754	132.10	785	153.94						

MAXIMUM RPM: Class I — 615 Class II — 804

730 QSL

Impeller Dia.: 89.00"
Outlet Dia.: 98.81"

Max. BHP = 556.14 (RPM ÷ 1000)^3
Tip Speed FPM = 23.30 x RPM

Outlet Area: 53.25 ft^2
Fan Efficiency Grade: FEG80

CFM	OV	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
40000	752	202	4.47	254	9.03	298	14.13																
45000	846	214	5.19	262	9.93	304	15.37	342	21.20														
50000	940	228	6.10	271	10.96	312	16.75	349	23.13	382	29.49												
57500	1081	250	7.71	287	12.79	325	18.95	360	25.73	392	32.92	422	40.32										
65000	1222	272	9.53	307	15.23	340	21.53	373	28.65	404	36.38	432	44.23	485	60.85								
72500	1364	295	11.71	328	18.03	357	24.47	387	31.85	417	40.03	444	48.31	496	66.65	542	84.86						
80000	1505	318	14.23	349	21.09	377	28.17	403	35.51	430	43.74	457	52.69	507	71.83	553	92.19	595	112.50				
87500	1646	342	17.28	371	24.59	398	32.35	422	40.03	446	48.31	471	57.48	520	77.64	564	98.76	605	120.69	644	143.15	681	165.88
95000	1787	366	20.77	394	28.63	419	36.85	442	45.06	464	53.56	487	62.98	533	83.54	576	105.50	616	128.59	654	152.57	690	176.78
102500	1928			417	33.09	441	41.93	463	50.73	484	59.71	505	69.27	547	89.94	589	112.81	628	136.70	666	162.51	701	188.15
110000	2069			440	38.01	463	47.37	485	57.11	505	66.58	524	76.16	563	97.27	603	120.81	641	145.42	678	172.00	712	198.61
120000	2257			472	45.79	493	55.50	514	66.09	534	76.79	552	87.05	587	108.47	623	132.25	659	157.73	695	185.35	728	213.00
130000	2445			504	54.66	524	64.92	544	76.22	563	87.77	580	98.71	614	121.83	646	145.53	679	171.44	713	199.74		
140000	2633					555	75.44	574	87.29	592	99.51	609	111.71	641	135.93	672	161.19	702	187.36				
150000	2821					587	87.61	605	99.94	622	112.69	639	126.10	670	152.20	699	178.30	727	205.14				
160000	3009					619	101.14	636	113.86	653	127.58	668	140.88	699	169.47	727	197.09						

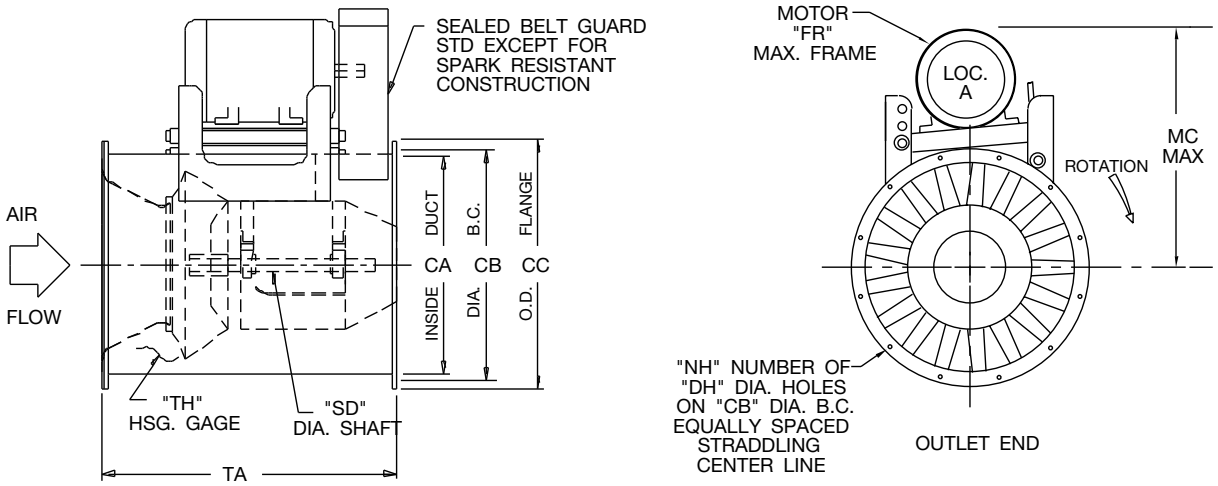
MAXIMUM RPM: Class I — 558 Class II — 730

Legend:
Class I = Regular face to left of Class II
Class II = Regular face in light shaded area

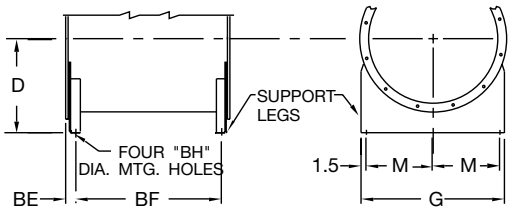
Performance certified is for installation Type B: Free inlet, ducted outlet.
Power rating (BHP) does not include transmission losses.
Performance ratings do not include the effects of appurtenances (accessories).
Underlined figures indicate maximum static efficiency.

TCF
TWIN CITY FAN

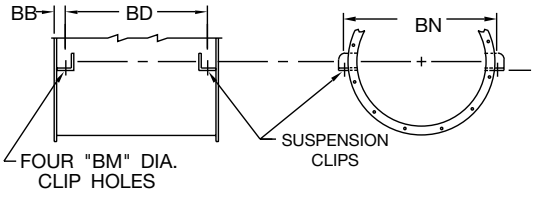
Models QSL, QSLR, QSLSH
Arr. 9, Horizontal



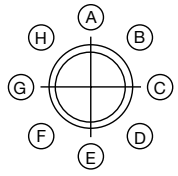
TYPE "QSL" HORIZONTAL DISCHARGE



HBM HORIZONTAL BASE MOUNTED



HCH HORIZONTAL CEILING HUNG



MOTOR LOCATION

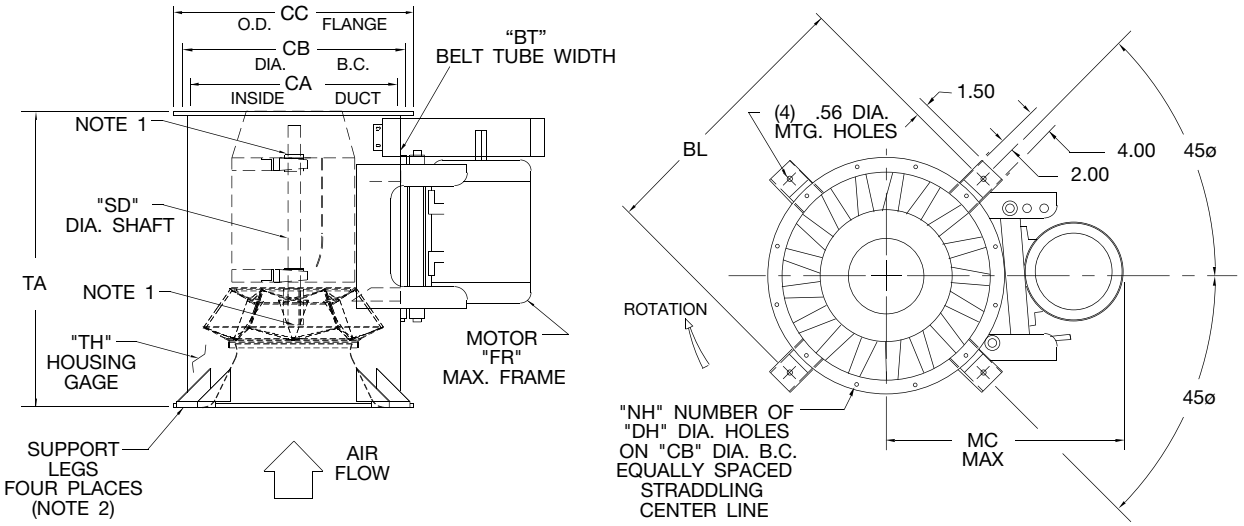
VIEWED FROM
OUTLET END

SIZE	BB	BD	BE	BF	BH	BM	BN	BT	CA	CB	CC	D	DH	FR	G	M	MC	NH	SD		TA	TH
																			CL I	CL II		
150	1.00	25.78	1.06	25.65	0.44	0.56	23.50	6.50	20.25	22.13	23.38	14.00	0.56	215T	23.38	10.19	25.73	8	1.000	1.187	27.78	10
165	1.00	28.63	1.06	28.50	0.44	0.56	25.88	6.50	22.31	24.38	25.75	15.00	0.69	215T	25.75	11.25	27.79	8	1.000	1.437	30.62	10
182	1.50	30.89	1.06	31.76	0.44	0.56	27.75	6.50	24.69	26.75	28.00	16.00	0.69	256T	28.00	12.50	34.45	12	1.000	1.437	33.89	12
200	1.50	34.18	1.06	35.05	0.56	0.56	30.13	7.25	27.06	29.13	30.31	18.00	0.81	256T	30.31	13.66	36.20	12	1.187	1.437	37.18	12
222	1.50	37.19	1.31	37.57	0.56	0.56	33.13	8.00	30.06	32.13	33.38	20.00	0.81	256T	33.38	15.19	37.65	12	1.187	1.437	40.19	12
245	1.50	41.31	1.31	41.69	0.56	0.81	36.25	8.93	33.13	35.13	36.38	21.00	0.81	286T	36.38	16.69	37.8	12	1.437	1.687	44.31	12
270	1.50	45.83	1.31	46.20	0.56	0.81	39.63	9.75	36.50	38.50	39.75	23.00	0.81	286T	39.75	18.38	42.16	12	1.437	1.687	48.83	12
300	1.50	51.52	1.31	51.89	0.56	0.81	43.75	10.93	40.56	43.13	44.88	25.00	0.81	326T	44.88	20.94	45.13	16	1.437	1.937	54.52	10
330	1.50	56.90	1.31	57.28	0.56	0.81	47.88	12.00	44.63	47.25	49.00	27.00	0.81	326T	49.00	23.00	46.56	16	1.687	2.187	59.90	10
365	2.00	62.37	1.56	63.25	0.81	0.81	52.56	13.25	49.38	52.00	53.75	29.00	0.81	365T	53.75	25.38	51.50	16	1.937	2.187	66.37	10
402	2.00	69.00	1.69	69.63	0.81	0.81	57.56	14.75	54.38	57.50	59.75	33.00	0.81	365T	59.75	28.38	59.77	16	1.937	2.187	73.00	10
445	2.00	76.92	1.69	77.54	0.81	0.81	63.38	16.25	60.19	63.25	65.50	36.00	0.81	405T	65.50	31.25	62.22	16	1.937	2.437	80.92	10
490	2.00	84.99	1.69	85.62	0.81	0.81	69.44	18.00	66.25	69.38	71.63	39.00	0.81	405T	71.63	34.31	67.68	24	2.187	2.437	88.99	10
542	2.00	94.71	2.44	93.84	0.81	1.06	76.56	19.88	73.38	77.00	79.75	43.00	0.81	445T	79.75	38.38	71.57	24	2.437	2.687	98.71	10
600	2.50	103.74	2.44	103.87	0.81	1.06	85.38	22.13	81.19	84.75	87.50	47.00	0.81	445T	87.50	42.25	78.47	24	2.687	2.937	108.74	10
660	2.50	115.11	2.44	115.24	1.06	1.06	93.56	24.25	89.31	92.88	95.63	52.00	0.81	445T	95.63	46.37	82.77	24	2.937	3.437	120.11	10
730	2.50	127.71	2.44	127.84	1.06	1.06	102.94	26.88	98.75	104.38	107.13	57.00	0.81	445T	107.13	52.06	87.75	24	2.937	3.937	132.77	10

QSL-AC1000023E
QSLR-AC1001672A
QSLSH-AC1001666B

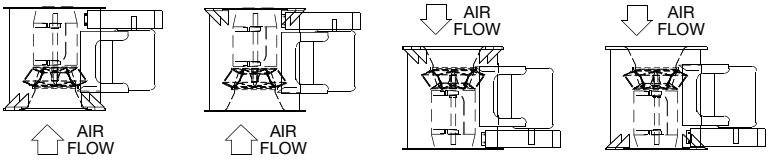
DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE ON REQUEST.

Models QSL, QSLR, QSLSH
Arr. 9, Vertical



VIEWED FROM OUTLET END

TYPE "QSL" VERTICAL UP DISCHARGE WITH FLOOR MOUNT SUPPORT LEGS



NOTES:
1. One locking collar and impeller hub cap included to prevent shifting of components.
2. Support legs shown are provided as an accessory.

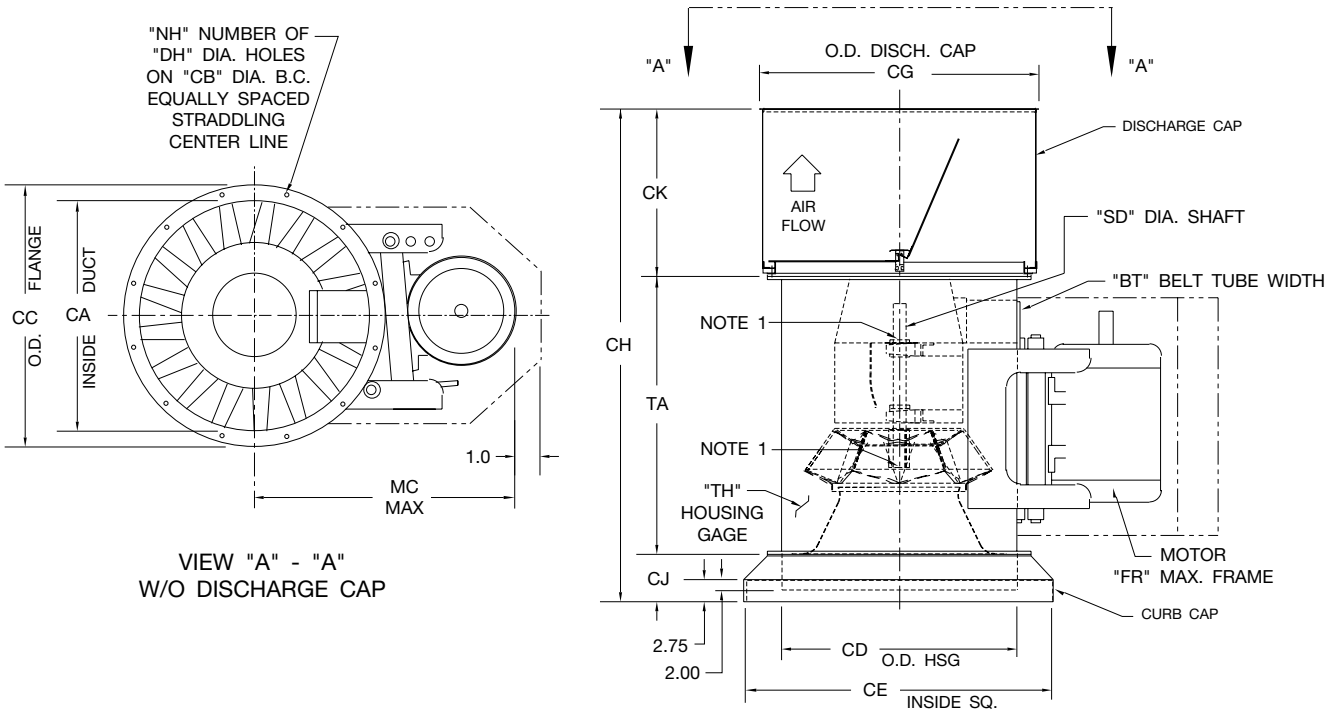
VUI	DISCHARGE UP FLOOR MOUNT	VUO	DISCHARGE UP CEILING HUNG
VDI	DISCH. DOWN CEILING HUNG	VDO	DISCH. DOWN FLOOR MOUNT

SIZE	BL	BT	CA	CB	CC	DH	FR	MC	NH	SD		TA	TH
										CLI	CLII		
150	25.38	6.50	20.25	22.13	23.38	0.56	215T	25.73	8	1.000	1.187	27.75	10
165	27.94	6.50	22.31	24.38	25.75	0.69	215T	27.73	8	1.000	1.437	30.36	10
182	33.00	6.50	24.69	26.75	28.00	0.69	256T	34.45	12	1.000	1.437	33.88	12
200	35.38	7.25	27.06	29.13	30.31	0.81	256T	36.20	12	1.187	1.437	37.19	12
222	38.00	8.00	30.06	32.13	33.38	0.81	256T	37.65	12	1.187	1.437	40.19	12
245	41.38	8.93	33.13	35.13	36.38	0.81	286T	37.86	12	1.437	1.687	44.31	12
270	44.75	9.75	36.50	38.50	39.75	0.81	286T	42.16	12	1.437	1.687	48.81	12
300	49.88	10.93	40.56	43.13	44.88	0.81	326T	45.13	16	1.437	1.937	54.56	10
330	54.00	12.00	44.63	47.25	49.00	0.81	326T	46.56	16	1.687	2.187	59.88	10
365	58.75	13.25	49.38	52.00	53.75	0.81	365T	51.50	16	1.937	2.187	66.38	10
402	64.75	14.75	54.38	57.50	59.75	0.81	365T	59.77	16	1.937	2.187	73.00	10
445	70.50	16.25	60.19	63.25	65.50	0.81	405T	62.22	16	1.937	2.437	80.94	10
490	76.63	18.00	66.25	69.38	71.63	0.81	405T	67.68	24	2.187	2.437	88.00	10
542	84.75	19.88	73.38	77.00	79.75	0.81	445T	71.51	24	2.437	2.687	98.69	10

QSL-AC1000024F
QSLR-AC1001675B
QSLSH-AC1001667C

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

Models QSL, QSLR, QSLSH
Arr. 9, Vertical Roof



TYPE "QSL" VERTICAL DISCHARGE WITH DISCHARGE CAP AND CURB CAP

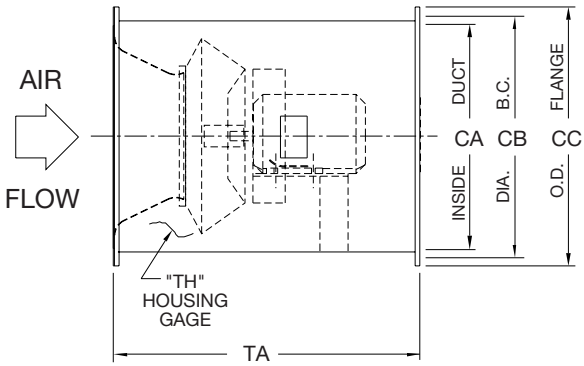
NOTES:
1. One locking collar and impeller hub cap included to prevent shifting of components.
2. Stack cap and curb cap are optional accessories.

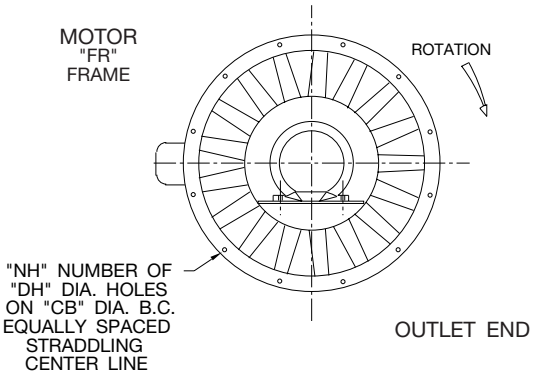
SIZE	BL	BT	CA	CB	CC	CD	CE	CG	CH	CJ	CK	DH	FR	MC	NH	SD		TA	TH
																CLI	CLII		
150	25.38	6.50	20.25	22.13	23.38	20.50	27.38	30.00	48.75	6.00	15.00	0.56	215T	25.73	8	1.000	1.187	27.75	10
165	27.94	6.50	22.31	24.38	25.75	22.56	30.88	32.00	54.94	6.31	18.00	0.69	215T	27.73	8	1.000	1.437	30.36	10
182	33.00	6.50	24.69	26.75	28.00	24.88	34.88	34.00	58.50	6.63	18.00	0.69	256T	34.45	12	1.000	1.437	33.88	12
200	35.38	7.25	27.06	29.13	30.31	27.25	37.38	40.00	64.94	6.75	21.00	0.81	256T	36.20	12	1.187	1.437	37.19	12
222	38.00	8.00	30.06	32.13	33.38	30.25	40.38	40.00	67.94	6.75	21.00	0.81	256T	37.65	12	1.187	1.437	40.19	12
245	41.38	8.93	33.13	35.13	36.38	33.31	43.38	46.00	75.31	7.00	24.00	0.81	286T	37.86	12	1.437	1.687	44.31	12
270	44.75	9.75	36.50	38.50	39.75	36.69	46.75	46.00	80.06	7.25	24.00	0.81	286T	42.16	12	1.437	1.687	48.81	12
300	49.88	10.93	40.56	43.13	44.88	40.81	51.00	53.00	89.31	7.75	27.00	0.81	326T	45.13	16	1.437	1.937	54.56	10
330	54.00	12.00	44.63	47.25	49.00	44.88	55.13	59.00	97.63	7.75	30.00	0.81	326T	46.56	16	1.687	2.187	59.88	10
365	58.75	13.25	49.38	52.00	53.75	49.63	59.88	60.00	104.13	7.75	30.00	0.81	365T	51.50	16	1.937	2.187	66.38	10
402	64.75	14.75	54.38	57.50	59.75	54.63	64.88	67.00	114.00	8.00	33.00	0.81	365T	59.77	16	1.937	2.187	73.00	10
445	70.50	16.25	60.19	63.25	65.50	60.44	69.63	73.00	125.44	8.50	36.00	0.81	405T	62.22	16	1.937	2.437	80.94	10
490	76.63	18.00	66.25	69.38	71.63	66.50	78.00	80.00	138.00	9.00	40.00	0.81	405T	67.68	24	2.187	2.437	88.00	10
542	84.75	19.88	73.38	77.00	79.75	73.63	88.75	86.50	157.56	9.25	49.63	0.81	445T	71.51	24	2.437	2.687	98.69	10

QSL-AC1000567B
QSLR-AC1001673B
QSLSH-AC1001674B

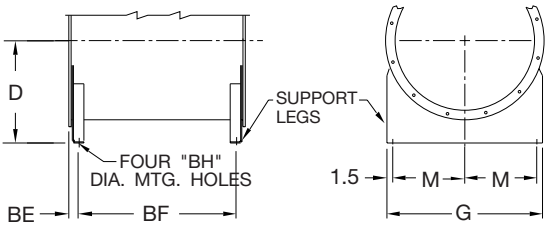
DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE ON REQUEST.

Model QSL
Arr. 4, Horizontal

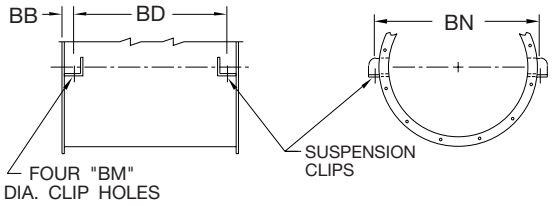




TYPE "QSL" HORIZONTAL DISCHARGE



HBM HORIZONTAL BASE MOUNTED



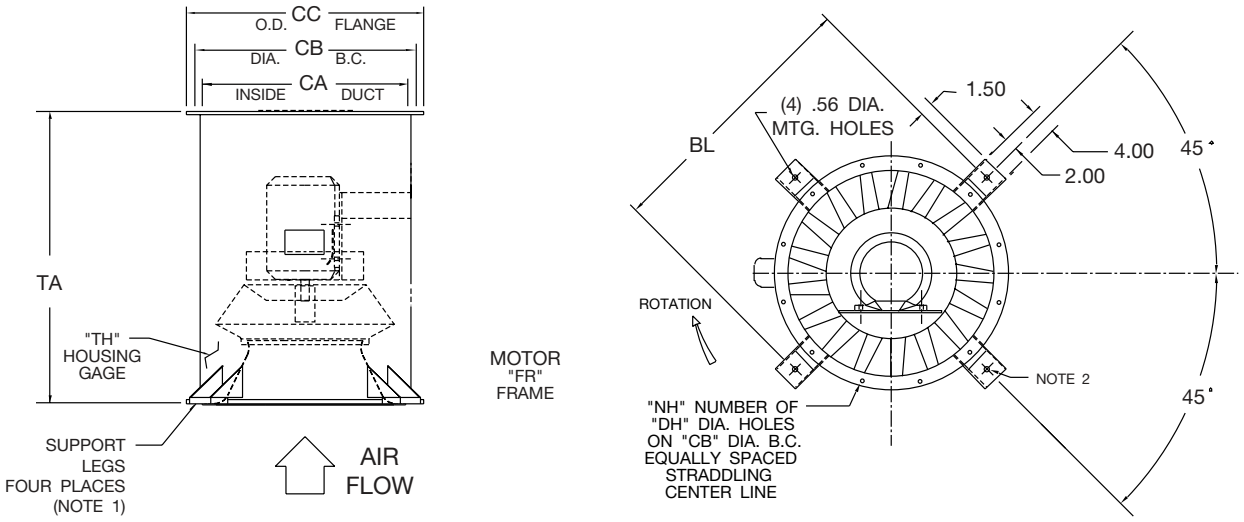
HCH HORIZONTAL CEILING HUNG

SIZE	BB	BD	BE	BF	BH	BM	BN	CA	CB	CC	D	DH	FR		G	M	NH	TA	TH
													MIN.	MAX.					
150	1.00	25.75	1.06	25.63	0.44	0.56	23.50	20.25	22.13	23.38	14.00	0.56	56	145T	23.38	10.19	8	27.75	10
165	1.00	28.63	1.06	28.50	0.44	0.56	25.88	22.25	24.38	25.75	15.00	0.69	56	184T	25.75	11.25	8	30.63	10
182	1.50	30.88	1.06	31.75	0.44	0.56	27.75	24.69	26.75	28.00	16.00	0.69	56	215T	28.00	12.50	12	33.88	12
200	1.50	34.19	1.06	35.06	0.56	0.56	30.13	27.06	29.13	30.31	18.00	0.81	56	254T	30.31	13.66	12	37.19	12
222	1.50	37.19	1.31	37.56	0.56	0.56	33.13	30.06	32.13	33.38	20.00	0.81	56	256T	33.38	15.19	12	40.19	12
245	1.50	41.31	1.31	41.69	0.56	0.81	36.25	33.13	35.13	36.38	21.00	0.81	56	286T	36.38	16.69	12	44.31	12
270	1.50	45.81	1.31	46.19	0.56	0.81	39.63	36.50	38.50	39.75	23.00	0.81	143T	286T	39.75	18.38	12	48.81	12
300	1.50	51.56	1.31	51.94	0.56	0.81	43.75	40.56	43.13	44.88	25.00	0.81	182T	326T	44.88	20.94	16	54.56	10
330	1.50	56.88	1.31	57.25	0.56	0.81	47.88	44.63	47.25	49.00	27.00	0.81	184T	326T	49.00	23.00	16	59.88	10
365	2.00	62.38	1.56	63.25	0.56	0.81	52.56	49.38	52.00	53.75	29.00	0.81	184T	405T	53.75	25.38	16	66.38	10
402	2.00	69.00	1.69	69.63	0.81	0.81	57.56	54.38	57.50	59.75	33.00	0.81	213T	405T	59.75	28.38	16	73.00	10
445	2.00	76.94	1.69	77.56	0.81	0.81	63.38	60.19	63.25	65.50	36.00	0.81	215T	445T	65.50	31.25	16	80.94	10
490	2.00	85.00	1.69	85.63	0.81	0.81	69.44	66.25	69.38	71.63	39.00	0.81	254T	445T	71.63	34.31	24	89.00	10
542	2.00	94.69	2.44	93.81	0.81	1.06	76.56	73.38	77.00	79.75	43.00	0.81	256T	445T	79.75	38.38	24	98.69	10
600	2.50	103.75	2.44	103.88	0.81	1.06	85.38	81.19	84.75	87.50	47.00	0.81	284T	445T	87.50	42.25	24	108.75	10
660	2.50	115.13	2.44	115.25	1.06	1.06	93.56	89.31	92.88	95.63	52.00	0.81	324T	445T	95.63	46.31	24	120.13	10
730	2.50	127.69	2.44	127.81	1.06	1.06	102.94	98.75	104.38	107.13	57.00	0.81	326T	445T	107.13	52.06	24	132.69	10

QSL-AC1002376A

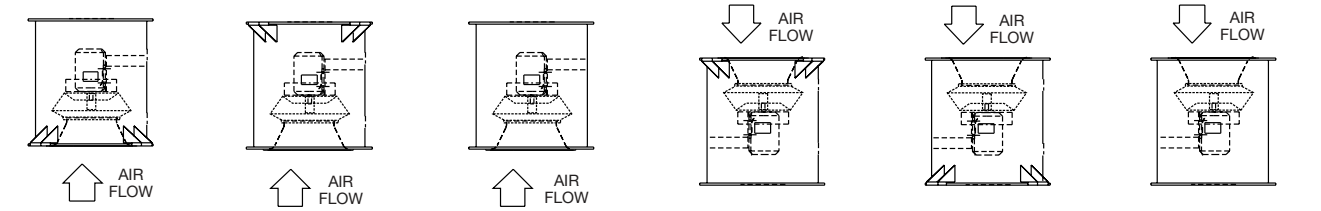
DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE ON REQUEST.

Model QSL
Arr. 4, Vertical



VIEWED FROM OUTLET END

TYPE "QSL" VERTICAL UP DISCHARGE WITH FLOOR MOUNT SUPPORT LEGS (NOTE 1)



VUI DISCHARGE UP FLOOR MOUNT

VUO DISCHARGE UP CEILING HUNG

VUN DISCHARGE UP NO SUPPORT LEGS

VDI DISCHARGE DOWN CEILING HUNG

VDO DISCHARGE DOWN FLOOR MOUNT

VDN DISCHARGE DOWN NO SUPPORT LEGS

NOTE:
1. Support legs shown are provided as an accessory.

SIZE	BL	CA	CB	CC	DH	FR MIN.	FR MAX.	NH	TA	TH
150	25.38	20.25	22.13	23.38	0.56	56	145T	8	27.75	10
165	27.94	22.25	24.38	25.75	0.69	56	184T	8	30.63	10
182	33.00	24.69	26.75	28.00	0.69	56	215T	12	33.88	12
200	35.38	27.06	29.13	30.31	0.81	56	254T	12	37.19	12
222	38.00	30.06	32.13	33.38	0.81	56	256T	12	40.19	12
245	41.38	33.13	35.13	36.38	0.81	56	286T	12	44.31	12
270	44.75	36.50	38.50	39.75	0.81	143T	286T	12	48.81	12
300	49.88	40.56	43.13	44.88	0.81	182T	326T	16	54.56	10
330	54.00	44.63	47.25	49.00	0.81	184T	326T	16	59.88	10
365	58.75	49.38	52.00	53.75	0.81	184T	405T	16	66.38	10
402	64.75	54.38	57.50	59.75	0.81	213T	405T	16	73.00	10
445	70.50	60.19	63.25	65.50	0.81	215T	445T	16	80.94	10
490	76.63	66.25	69.38	71.63	0.81	254T	445T	24	89.00	10
542	84.75	73.38	77.00	79.75	0.81	256T	445T	24	98.69	10

QSL-AC1002377B

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

Model

QSL

Fans shall be Model QSL (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 QSL 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 QSL shall include bolted access door for inspection and maintenance of impeller.

IMPELLER — Fan impellers shall have die-formed hollow airfoil blades designed for maximum efficiency, and quiet and stable operation. Blades shall be continuously welded to the back plate and impeller cone. Impellers 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 (Arr. 9 Only) — 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 (Arr. 9 Only) — 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 40,000 hours at the maximum fan RPM. Bearings shall be equipped with extended lubrication lines with grease fittings outside of the fan housing.

DRIVE (Arr. 9 Only) — Motor sheaves shall be cast iron, variable pitch on applications 10 HP and smaller, and fixed pitch on 15 HP and larger.

INLET VANES — Inlet vanes, where specified, shall be of the nested design. Inlet vanes shall be designed for economical, stable and efficient air volume control at partial load conditions.

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 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.

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

Model

QSLR

Fans shall be Model QSLR (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 QSLR 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 QSLR shall include a belt tube, 2 impeller cleanout doors (located 180° apart) for inspection and maintenance of the impeller and a 2" drain.

IMPELLER — Fan impellers shall have die-formed hollow airfoil blades designed for maximum efficiency, and quiet and stable operation. Blades shall be continuously welded to the back plate and impeller cone. Impellers 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. Impellers on model QSLR 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 40,000 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.

INLET VANES — Inlet vanes, where specified, shall be of the nested design. Inlet vanes shall be designed for economical, stable and efficient air volume control at partial load conditions.

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 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.

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

Model

QSLSH

Fans shall be Model QSLSH (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 QSLSH 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 QSLSH shall include a belt tube for the protection of belts and drive components from the airstream and bolted access door.

IMPELLER — Fan impellers shall have die-formed hollow airfoil blades designed for maximum efficiency, and quiet and stable operation. Blades shall be continuously welded to the back plate and impeller cone. Impellers 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. Impellers on Model QSLSH 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 40,000 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 QSLSH shall be equipped with a two-groove drive minimum.

INLET VANES — Inlet vanes, where specified, shall be of the nested design. Inlet vanes shall be designed for economical, stable and efficient air volume control at partial load conditions.

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 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.

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

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