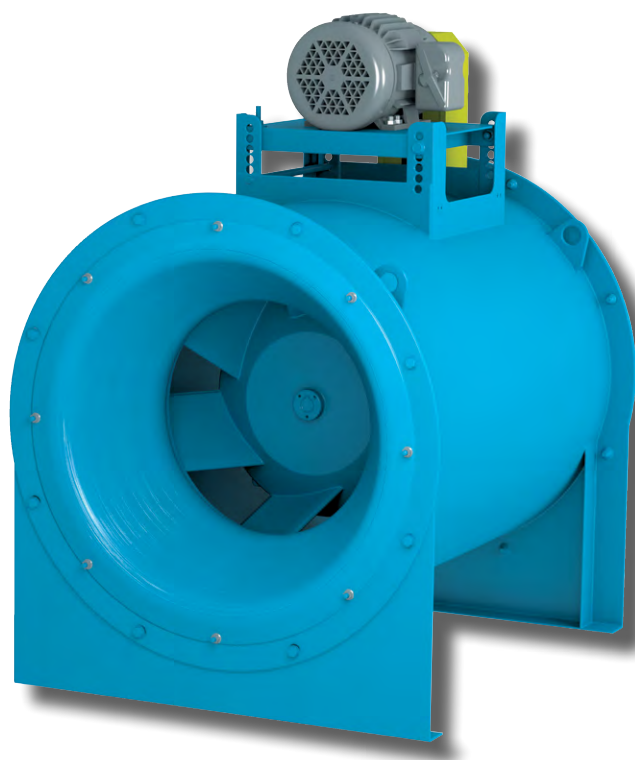




INDUSTRIAL PROCESS AND
COMMERCIAL VENTILATION SYSTEMS

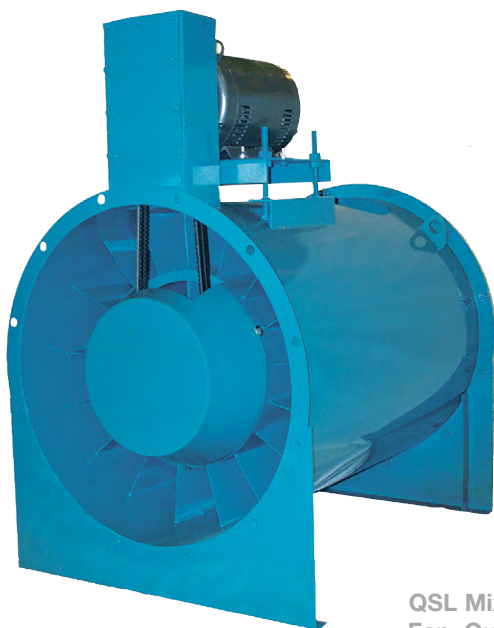
MIXED FLOW FANS

QSL (Standard) | QSLR (Restaurant) | QSLSH (Smoke and Heat)



Models

QSL | QSLR | QSLSH



QSL Mixed Flow Fan, Outlet View

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.

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.

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 vane axial fan.

Performance	Size	Static Efficiency (%)			Sound LwA (dB)		
		QSL	TSL	TCVA	QSL	TSL	TCVA
2.35 m ³ /sec @ 250 Pa	QSL 245	70	55	61	72	77	79
4.72 m ³ /sec @ 250 Pa	QSL 330	70	63	63	72	81	82
11.80 m ³ /sec @ 750 Pa	QSL 402	72	68	65	86	92	98
23.60 m ³ /sec @ 1500 Pa	QSL 490	71	69	64	95	102	112

Mixed Flow Models

QSL – 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 0.6 to 75 m³/sec. Model QSL is UL/cUL 705 listed.

QSLR – Model QSLR is similar to the QSL but is specifically designed for exhausting grease-laden air from kitchens, restaurants and cooking and dishwasher hoods. Model QSLR is UL/CUL 762 listed for the exhaust of grease-laden air.

QSLSH – Model QSLSH is specifically designed for smoke control applications. UL/CUL listed for smoke control systems for 250°C for 4 hours or 525°C for 15 minutes.

Application

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 Twin City Fan heavy-duty construction of QSL fans also make 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.



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 Catalogue 1061 for sound ratings.



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, 250°C for 4 hours and 525°C for 15 minutes.

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 aerofoil (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.

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 Companies 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.



QSL Impeller

Extended Lube Lines

Allow for ease of lubrication on all sizes.

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.

EASY ACCESS DESIGNS

Clamshell Design

Two 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 a full gasket provides a complete seal when doors are closed. An access door provides access to the bearings. Available on all fan sizes, typically vertical mount.

Swing-out Design

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

Horizontal Construction

Horizontal construction is available in sizes 150 to 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.

Vertical Construction

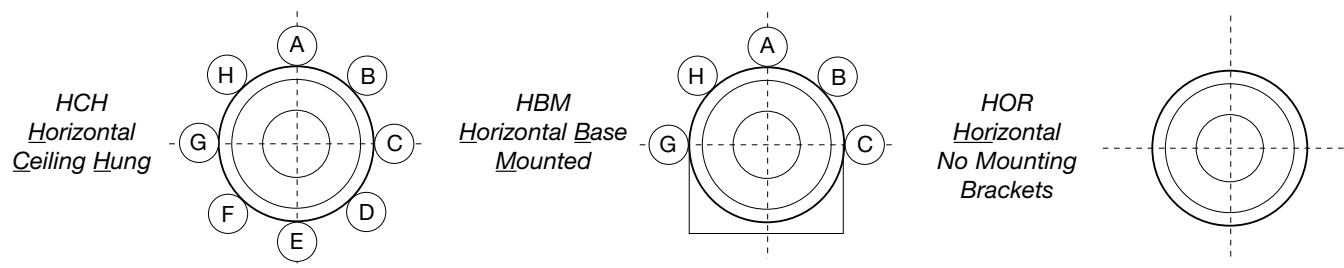
Vertical construction is available in sizes 150 to 542. Consult factory for larger sizes.

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 drawing below).

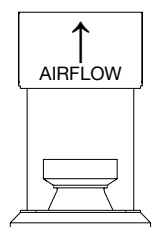
Roof Mounted (VRM) — A curb cap provides weather-tight seal for roof curb mounted fans. A discharge cap and weather cover are also available for the up-blast style roof ventilator.

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

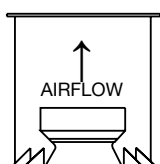
Discharge Arrangements



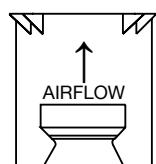
NOTE: Horizontal motor positions shown from outlet end.



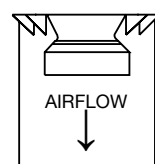
VRM
Vertical Roof Mounted



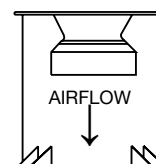
VUI
Vertical Discharge Up, Floor Mount Support Brackets On Inlet



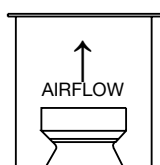
VUO
Vertical Discharge Up, Ceiling Hung Support Brackets On Outlet



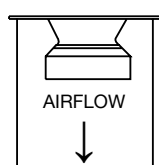
VDI
Vertical Discharge Down, Ceiling Hung Support Brackets On Inlet



VDO
Vertical Discharge Down, Floor Mount Support Brackets On Outlet



VUN
Vertical Up No Brackets



VDN
Vertical Down No Brackets

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

Belt Tube

A belt tube encloses the belts and drive components, protecting them from the airstream.

Support Legs — Horizontal Flow

For horizontal flow with floor mounting, support legs are welded to the fan flange with bolt holes aligned for connection of ductwork.

Support Legs — Vertical Flow

For vertical flow with either floor or ceiling mounting, support legs are welded to the fan housing for four-point support.

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.

Inlet and Outlet Screens

Safety screening can be provided for installation in the fan inlet or fan outlet.

Discharge Cap

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

Curb Cap

Attached to the fan's flange for curb mounting.

Shaft Seal

To limit the air entering the inner cylinder and avoid contact of airstream contaminants with the bearings and V-belt drive. Consists of a Teflon wear pad/plate and a rubber check-seal at the impeller end of the inner cylinder. Please note that a shaft seal does not make the inner cylinder gas tight.

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.

Companion Flanges

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

Spark-Resistant Construction

Various grades of spark resistance are as dictated by AMCA: Types A, B, and C (for ATEX, please enquire). Spark resistant construction requires the addition of a sealed belt tube.

Vibration Isolation

Spring or rubber-in-shear isolators as an option. Spring isolators can be provided for floor mount or ceiling hung orientation.

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.



Support Legs, Horizontal



Support Legs, Vertical



Suspension Clips,
Horizontal



Discharge Cap



Curb Cap



Shaft Seal



Inlet/Outlet Screens



Companion Flange

QSLR Restaurant Fans

Twin City Fan Companies 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 to 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)
- 50 mm drain located 180° from motor (lowest point for horizontal) vertical at the funnel
- Cooling fins on impeller
- Housing sealed with Hi-Temp caulk

QSLSH Smoke & Heat Fans

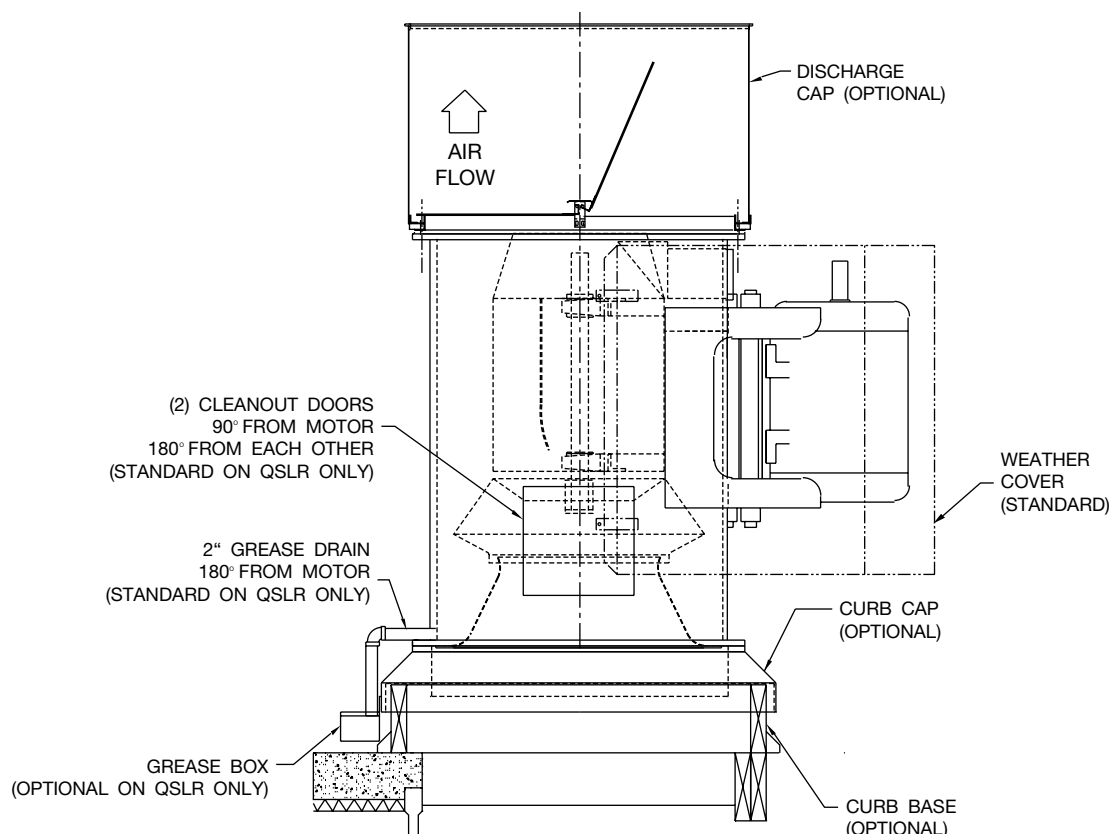
Twin City Fan Companies offers a specially modified version of the QSL fan designated as "QSLSH" (Mixed Flow Smoke and Heat Exhaust) for smoke control applications where temperatures can reach 525°C. QSLSH is available in sizes 150 to 730.

Model QSLSH is cULus 705 listed and cULus listed for smoke control systems for 250°C for 4 hours or 525°C for 15 minutes. Vertical roof mounted configuration, with discharge 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).

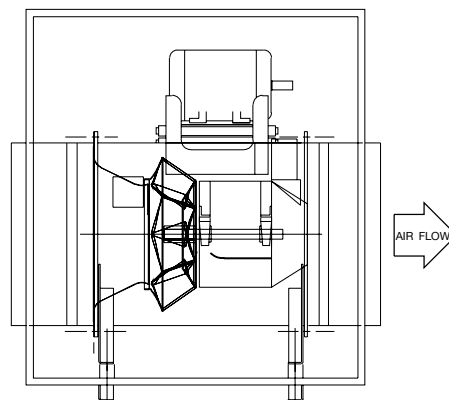
Standard Product Features

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



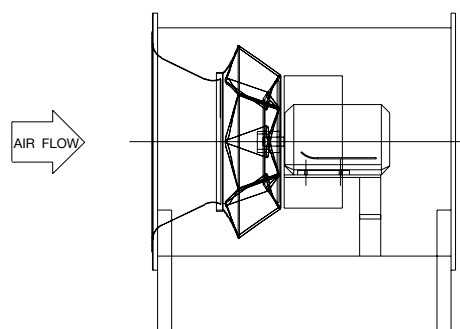
Insulated Enclosure

To further reduce case radiated sound and motor noise, an optional Insulated Enclosure is available. The enclosure consists of a box with 50 mm thick, dual density fiberglass. Consult the factory for dimensions and sound reduction values.



Arrangement 4 (Direct Drive)

Where space constraints require the use of a complete "in line" fan or the desire is for a simple, dependable fan with minimum maintenance requirements, the direct drive Arrangement 4 QSL is available. Constructed with the fan impeller mounted directly on the motor shaft, this fan provides premium efficiency with minimal obstructions in the airstream. The use of a variable frequency drive (VFD) may be necessary for some applications.



Arrangement 3

Where space is a premium, the QSL arrangement 3 is available to shorten the overall fan length. The table on the right shows the overall savings in length versus an arrangement 9 fan.

FAN SIZE	ARR. 3 OVERALL LENGTH (TA)	LENGTH SAVINGS (mm)
182	679	181
200	732	213
222	784	235
245	862	264
270	927	313
300	1038	348
330	1141	379
365	1256	430
402	1379	475
445	1500	556
490	1627	633
542	1813	695

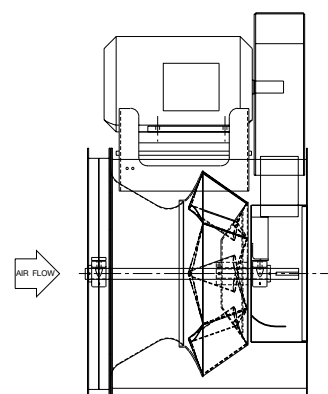


Table 1. Maximum RPM, Impeller Weights, and WR²
(moment of inertia in kg-m²)

FAN SIZE	CLASS I			CLASS II		
	MAX. RPM	WEIGHT kg	WR ² (kg-m ²)	MAX. RPM	WEIGHT kg	WR ² (kg-m ²)
150	2721	10.9	0.23	3558	12.7	0.30
165	2483	14.5	0.34	3247	16.4	0.43
182	2232	17.3	0.51	2918	20.0	0.63
200	2027	21.8	0.84	2650	23.6	0.97
222	1839	25.9	1.22	2405	28.2	1.43
245	1655	31.4	1.90	2165	34.1	2.19
270	1505	37.3	2.78	1968	40.9	3.20
300	1360	63.6	5.61	1779	68.2	6.11
330	1234	75.9	8.30	1613	81.4	9.06
365	1116	106	13.5	1459	112	14.6
402	1013	147	24.8	1325	147	24.8
445	915	179	37.2	1197	179	37.2
490	828	217	55.7	1082	217	55.7
542	752	269	81.5	984	269	81.5
600	680	325	122	890	325	122
660	615	394	183	804	394	183
730	558	484	270	730	484	270

Table 2. Bare Fan Weights (kg)

FAN SIZE	ARRANGEMENT 9	
	CLASS I	CLASS II
150	76	80
165	92	96
182	98	103
200	117	121
222	138	143
245	167	171
270	197	205
300	300	314
330	365	373
365	463	476
402	606	617
445	725	740
490	906	913
542	1138	1153
600	1366	1379
660	1764	1809
730	2145	2163

Table 3. Temperature and Altitude Density Ratios

AIR TEMP °C	ALTITUDE IN METRES ABOVE SEA LEVEL											
	0	300	600	900	1200	1500	1750	2000	2400	2800	3500	4500
	BAROMETRIC PRESSURE IN kPa											
	101.32	97.77	94.32	90.97	87.71	84.55	81.99	79.49	75.62	71.91	65.76	57.73
-40	1.258	1.214	1.171	1.129	1.089	1.05	1.018	0.987	0.939	0.893	0.816	0.717
-20	1.158	1.117	1.078	1.04	1.002	0.966	0.937	0.909	0.864	0.822	0.752	0.66
10	1.035	0.999	0.963	0.929	0.896	0.864	0.838	0.812	0.772	0.735	0.672	0.59
20	1	0.965	0.931	0.898	0.866	0.835	0.809	0.785	0.746	0.71	0.649	0.57
40	0.936	0.903	0.871	0.84	0.81	0.781	0.757	0.734	0.699	0.664	0.608	0.533
65	0.867	0.837	0.807	0.778	0.751	0.724	0.702	0.68	0.647	0.615	0.563	0.494
100	0.786	0.758	0.732	0.706	0.68	0.656	0.636	0.617	0.587	0.558	0.51	0.448

Table 4. Bearing Specifications

FAN SIZE	CLASS I			CLASS II		
	SHAFT DIA. (mm.)	HORIZ.	VERT.	SHAFT DIA. (mm.)	HORIZ.	VERT.
150	25	SDB	SDB	30	SDB	SDB
165	25	SDB	SDB	38	SDB	SDB
182	25	SDB	SDB	38	HDB	HDB
200	30	SDB	SDB	38	HDB	HDB
222	30	SDB	SDB	38	HDB	HDB
245	38	SDB	SDB	42	HDB	HDB
270	38	SDB	SDB	42	HDB	RB
300	38	HDB	HDB	50	HDB	RB
330	42	HDB	HDB	55	HDB	RB
365	50	HDB	HDB	55	RB	RB
402	50	HDB	RB	55	RB	RB
445	50	HDB	RB	65	RB	RB
490	55	HDB	RB	65	RB	RB
542	60	HDB	RB	70	RB	RB
600	70	HDB	—	75	RB	—
660	75	HDB	—	90	RB	—
730	75	HDB	—	100	RB	—

Table 5. Minimum m³/sec
Required to Open
Discharge Cap

FAN SIZE	m ³ /sec
150	0.5
165	0.8
182	1.2
200	1.7
222	1.7
245	2.2
270	3.1
300	3.6
330	4.1
365	5.3
402	7.5
445	7.5
490	9.9
542	12.6

NOTES:

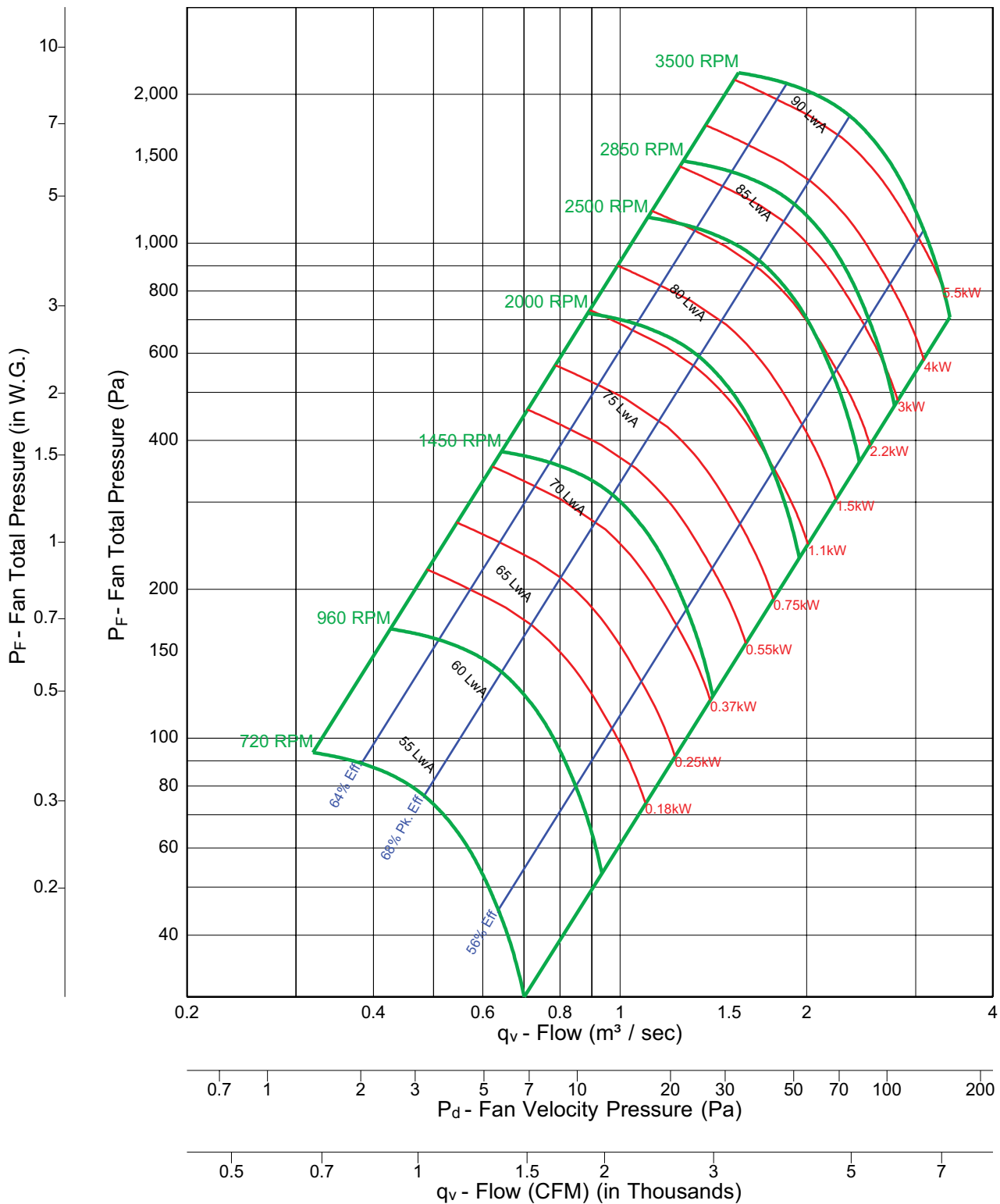
1. BEARINGS CODES:

- 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.



QSL 150



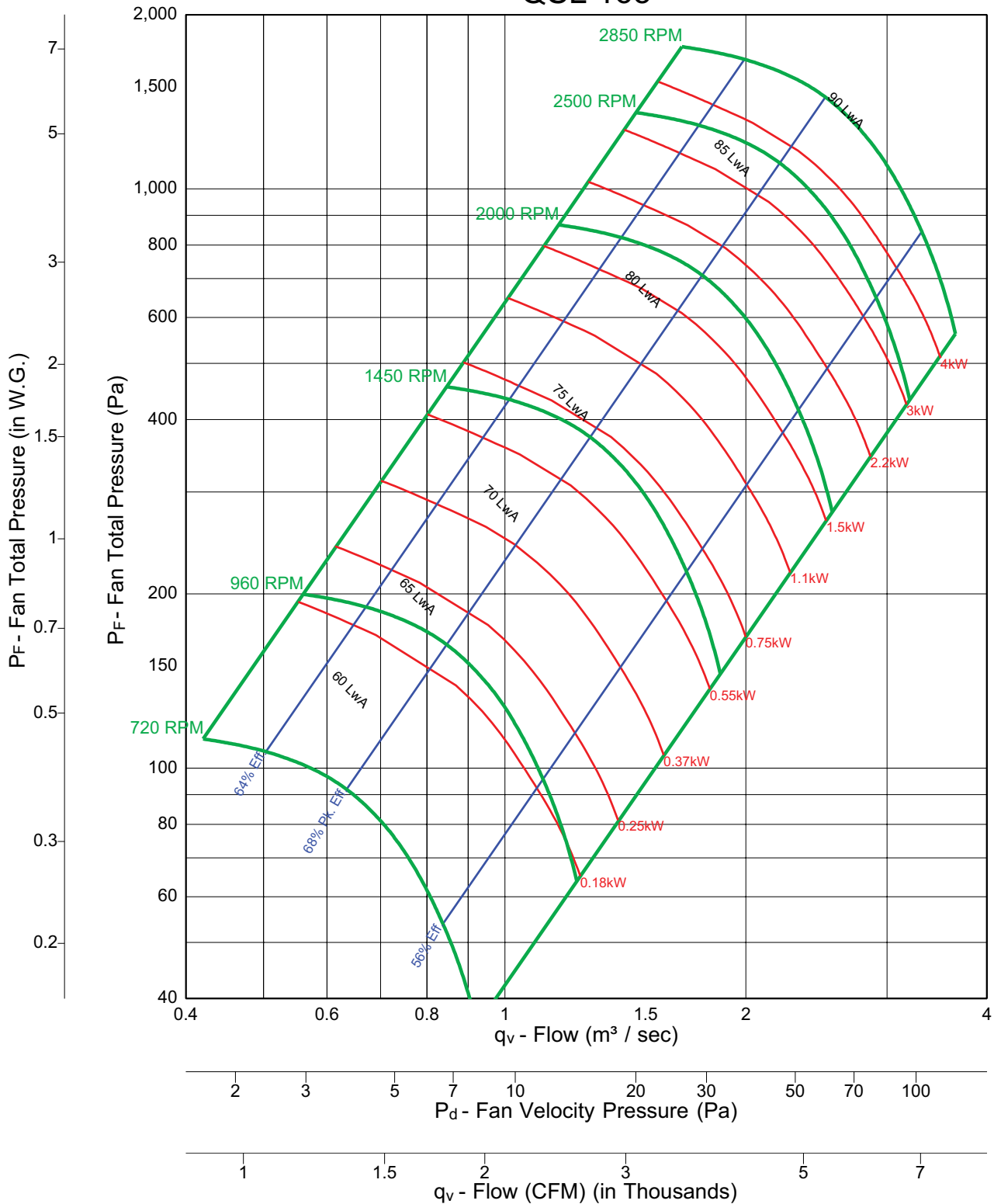
Fan Efficiency Grade = FEG 71



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

QSL 165



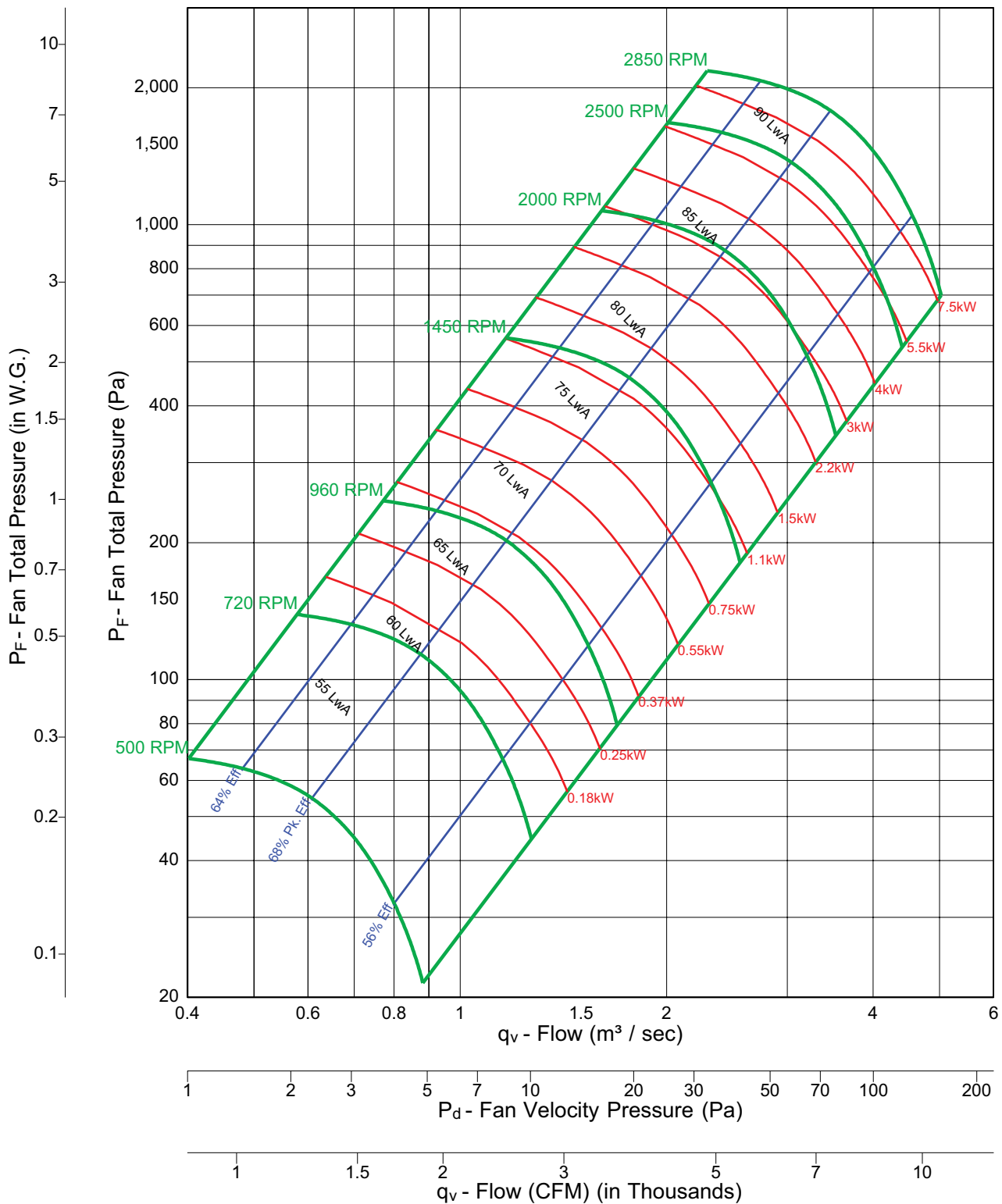
Fan Efficiency Grade = FEG 71



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

QSL 182



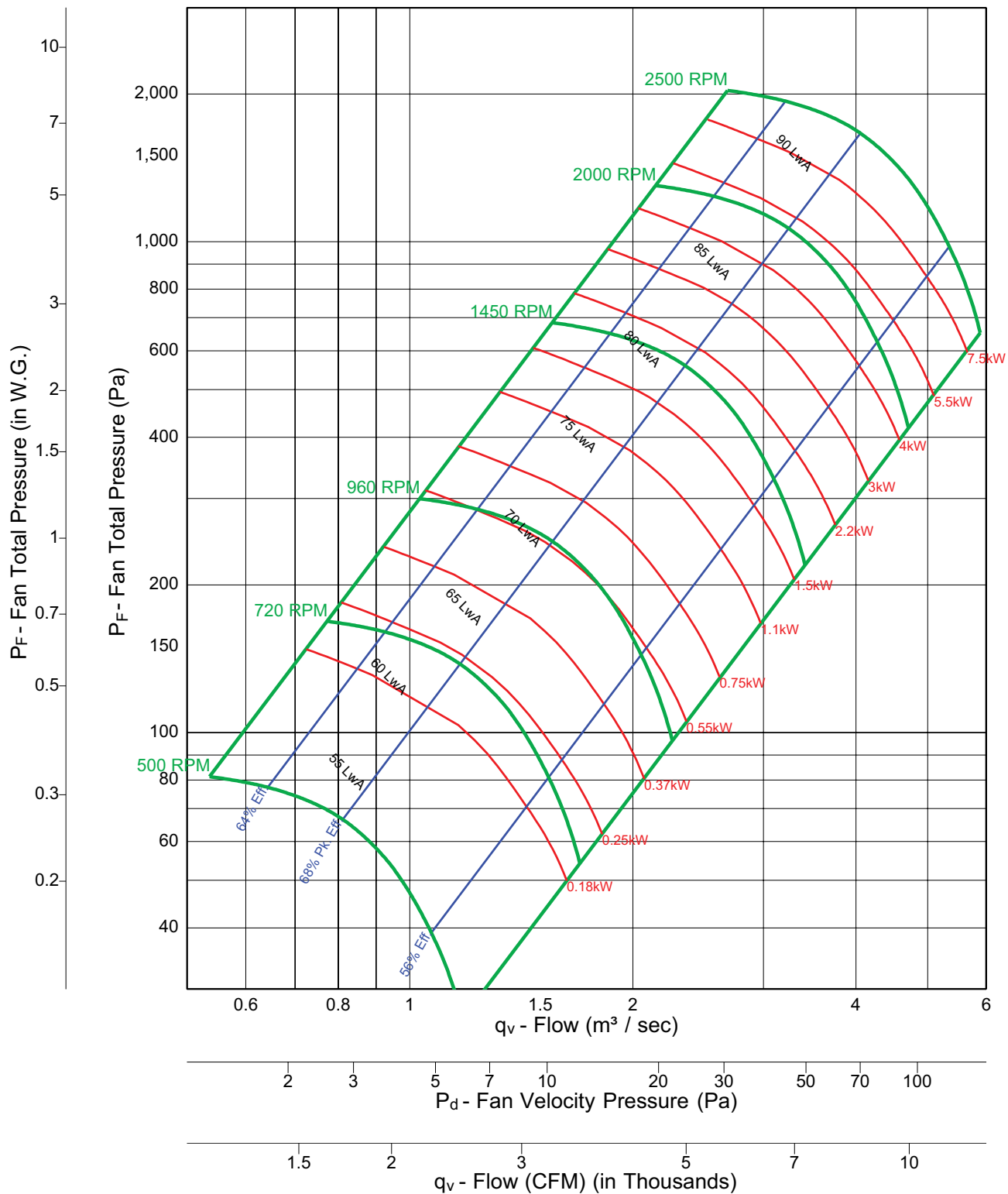
Fan Efficiency Grade = FEG 71



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

QSL 200



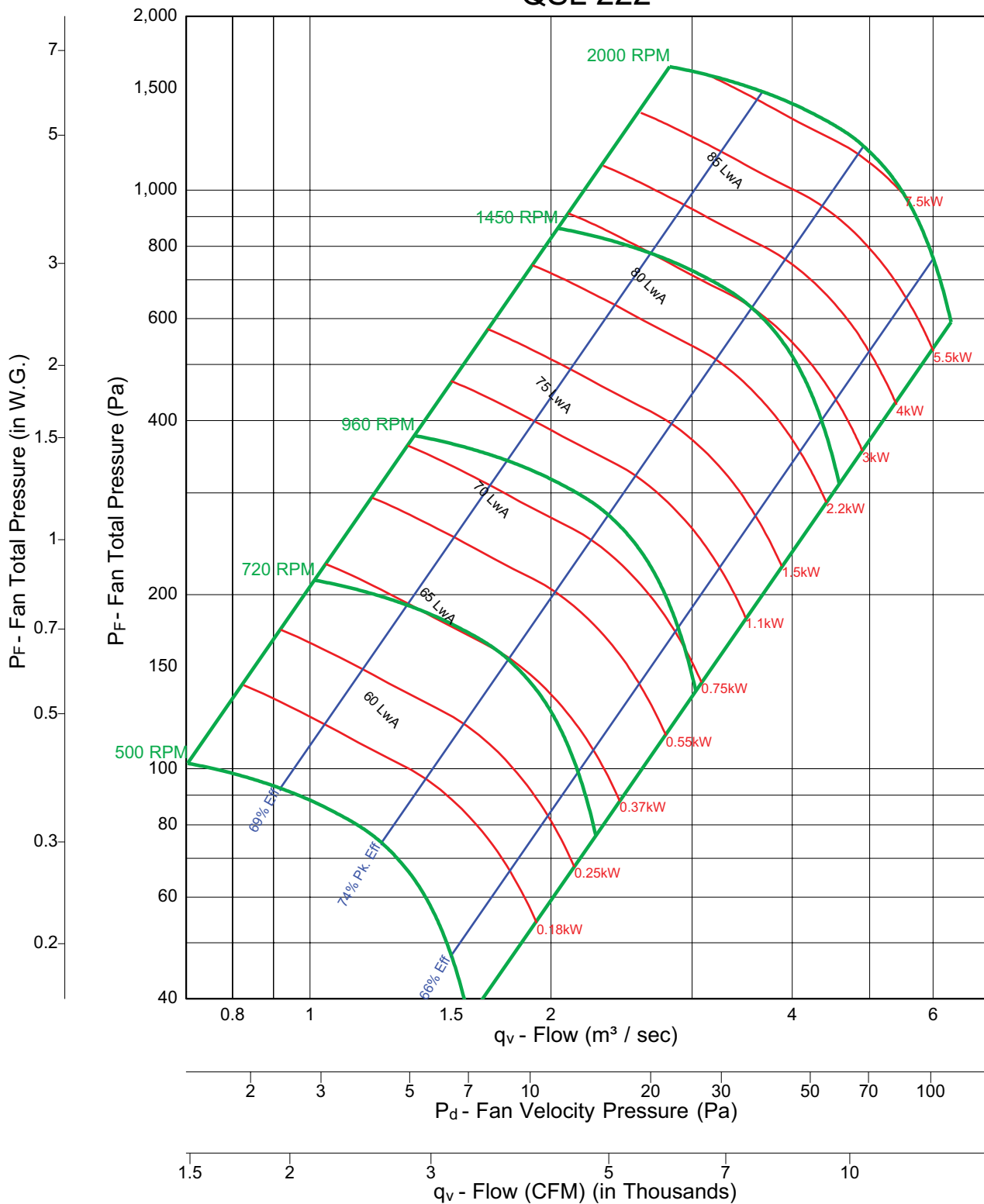
Fan Efficiency Grade = FEG 71



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

QSL 222



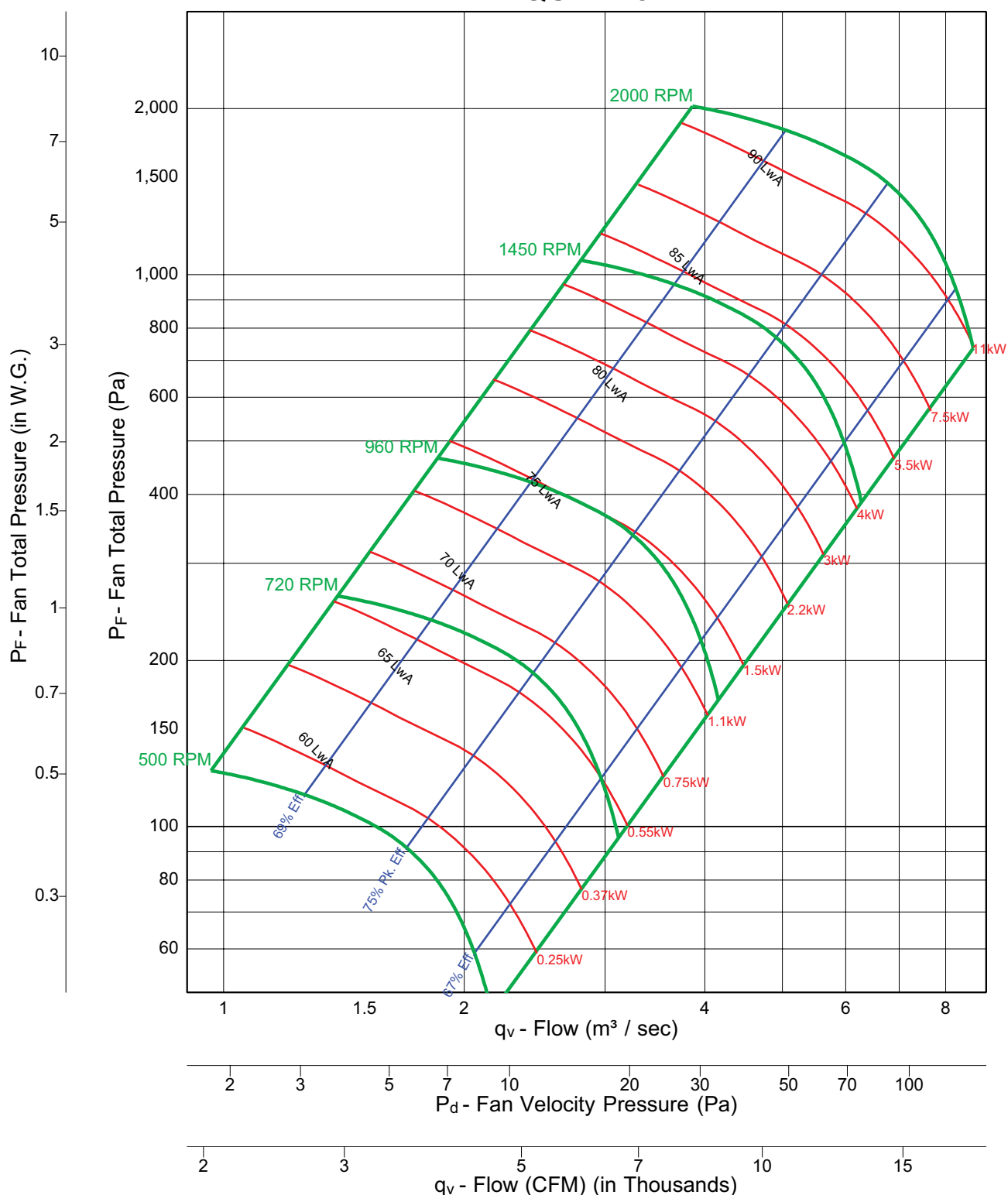
Fan Efficiency Grade = FEG 75



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

QSL 245

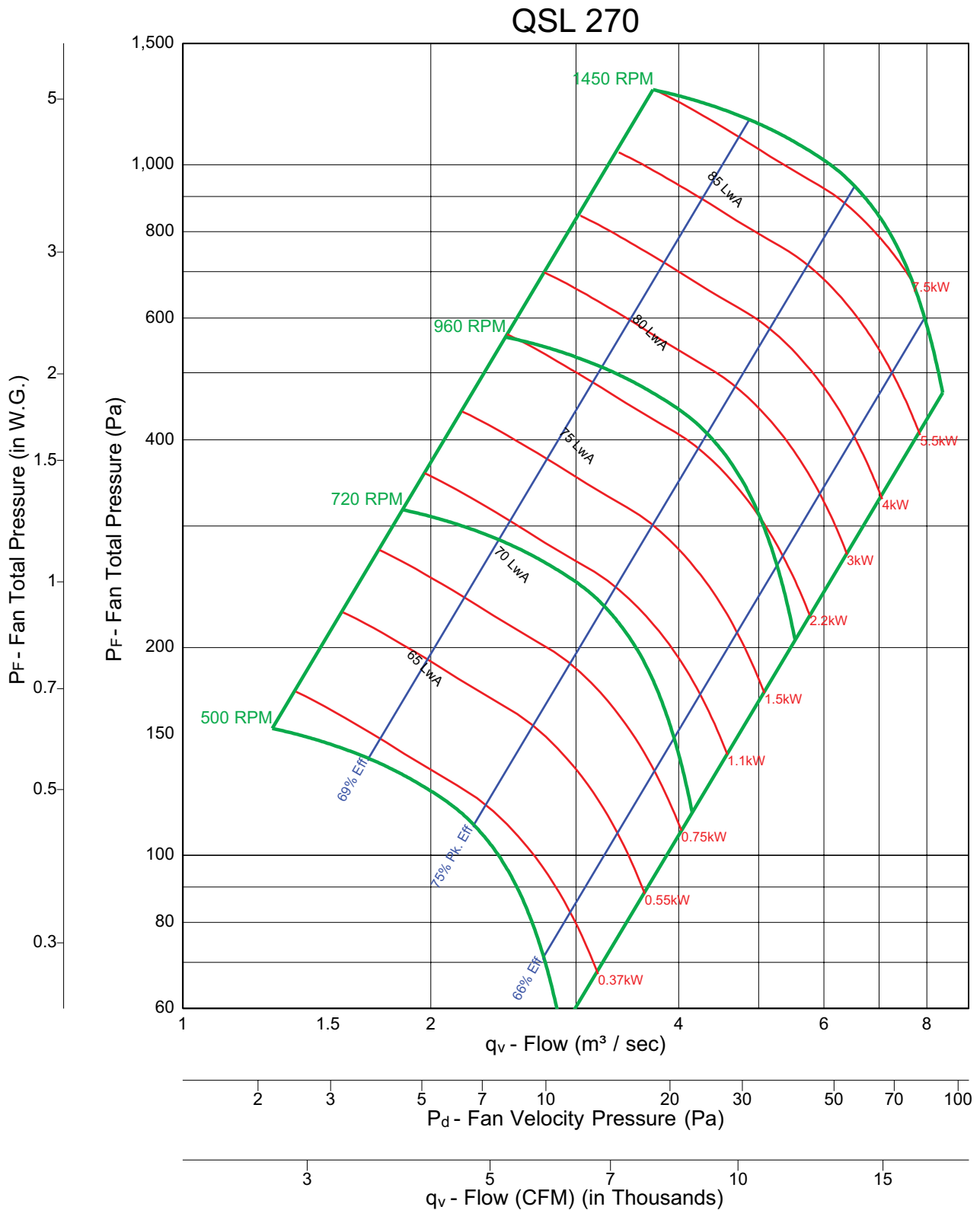


Fan Efficiency Grade = FEG 75



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.



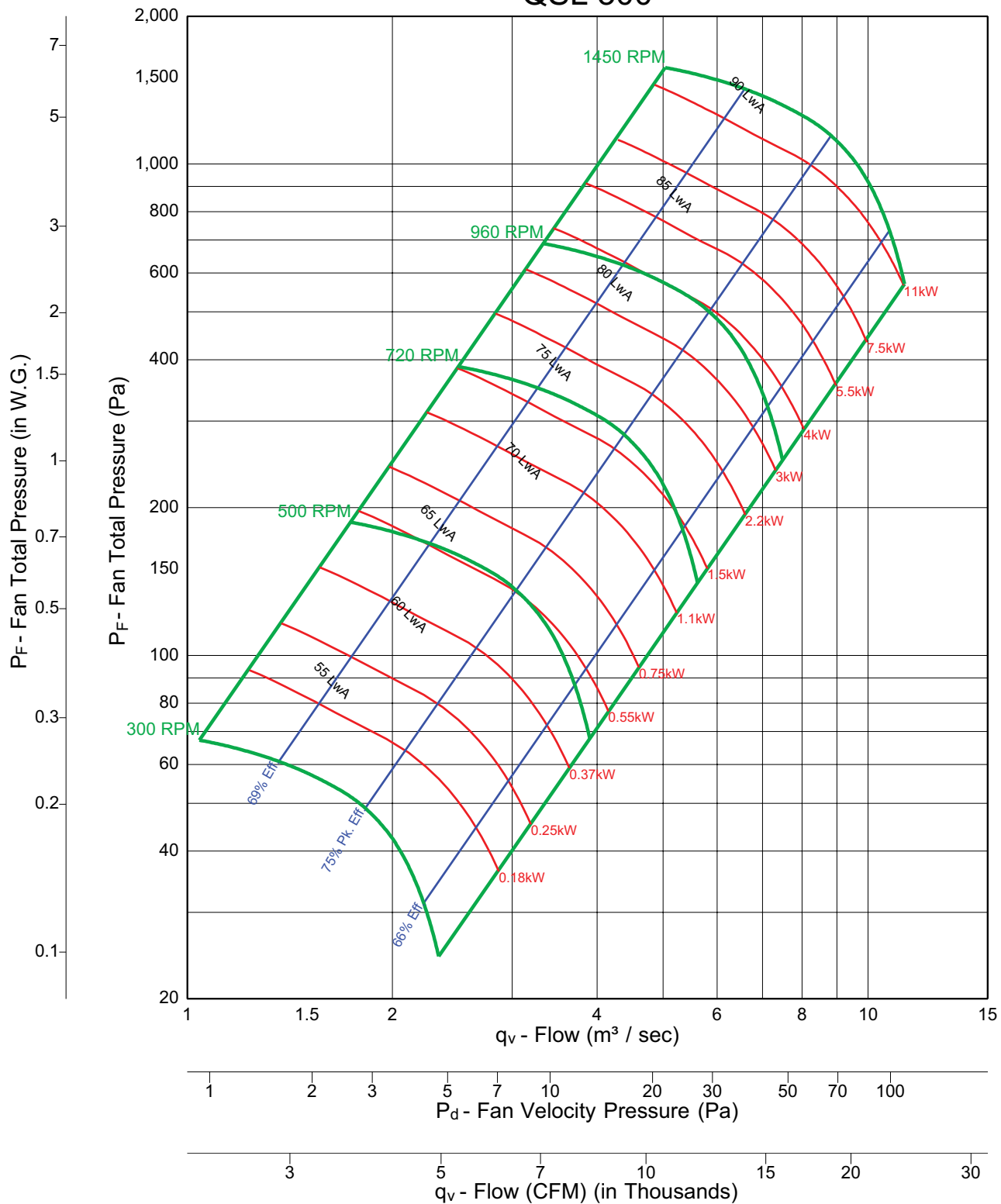
Fan Efficiency Grade = FEG 75



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

QSL 300

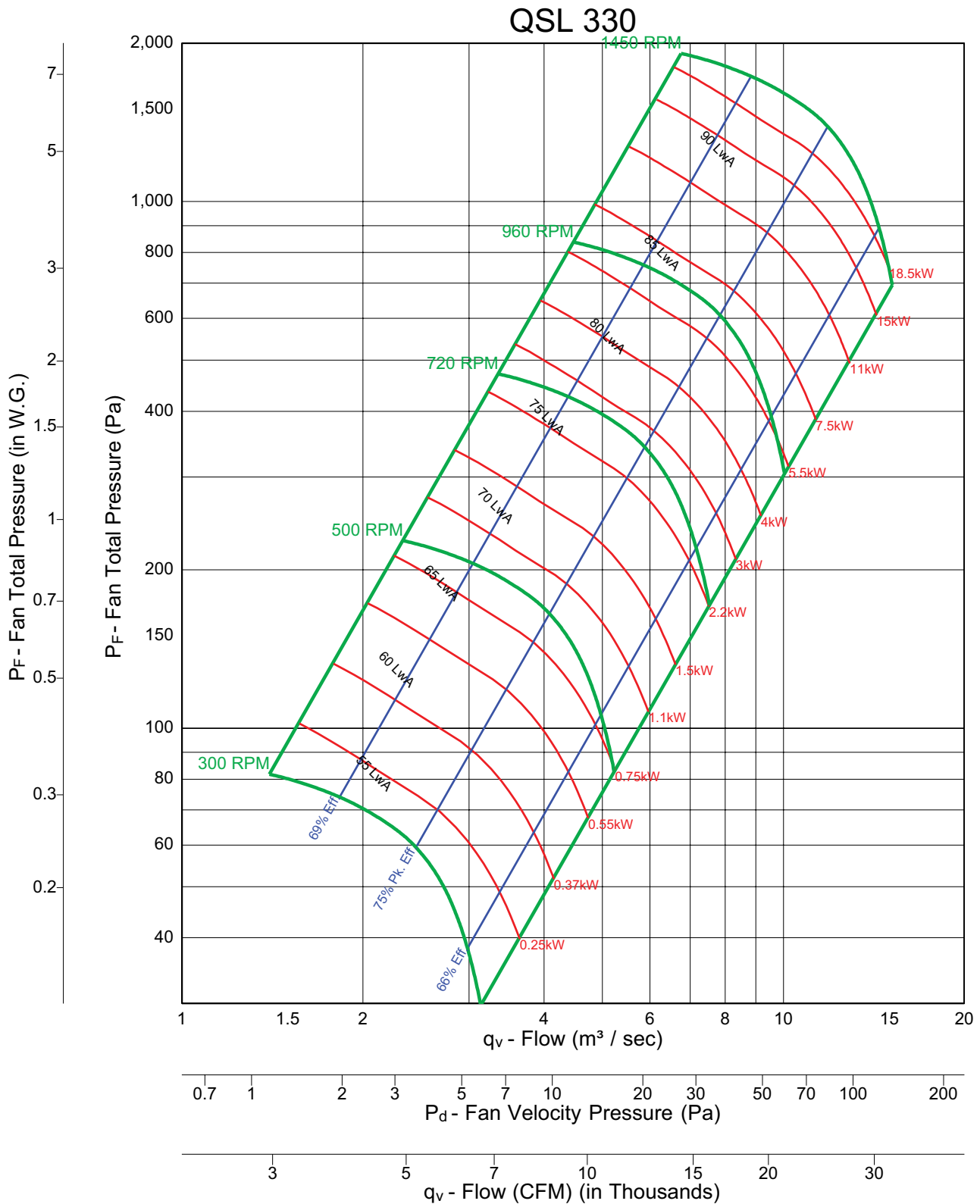


Fan Efficiency Grade = FEG 75



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.



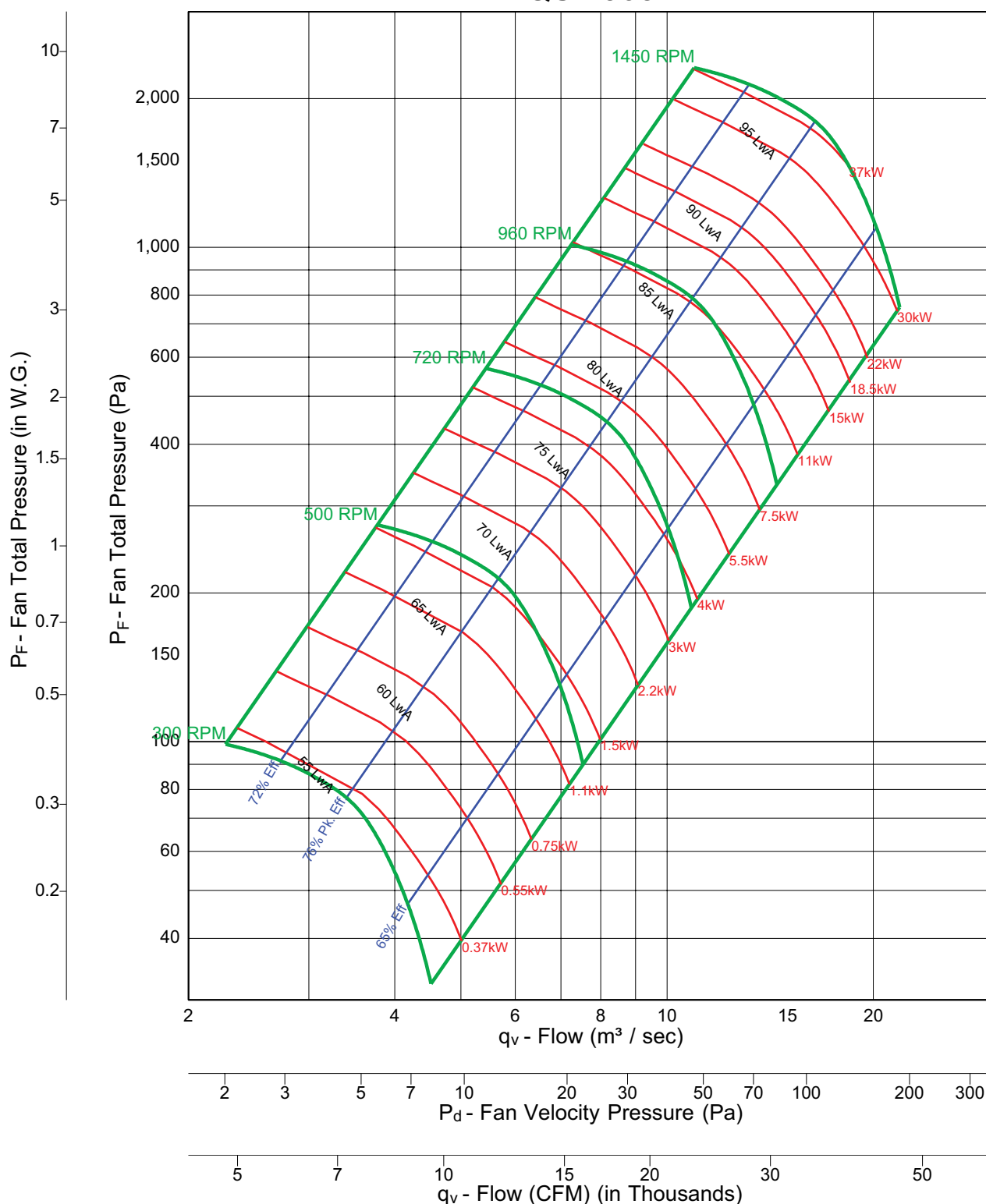
Fan Efficiency Grade = FEG 75



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

QSL 365



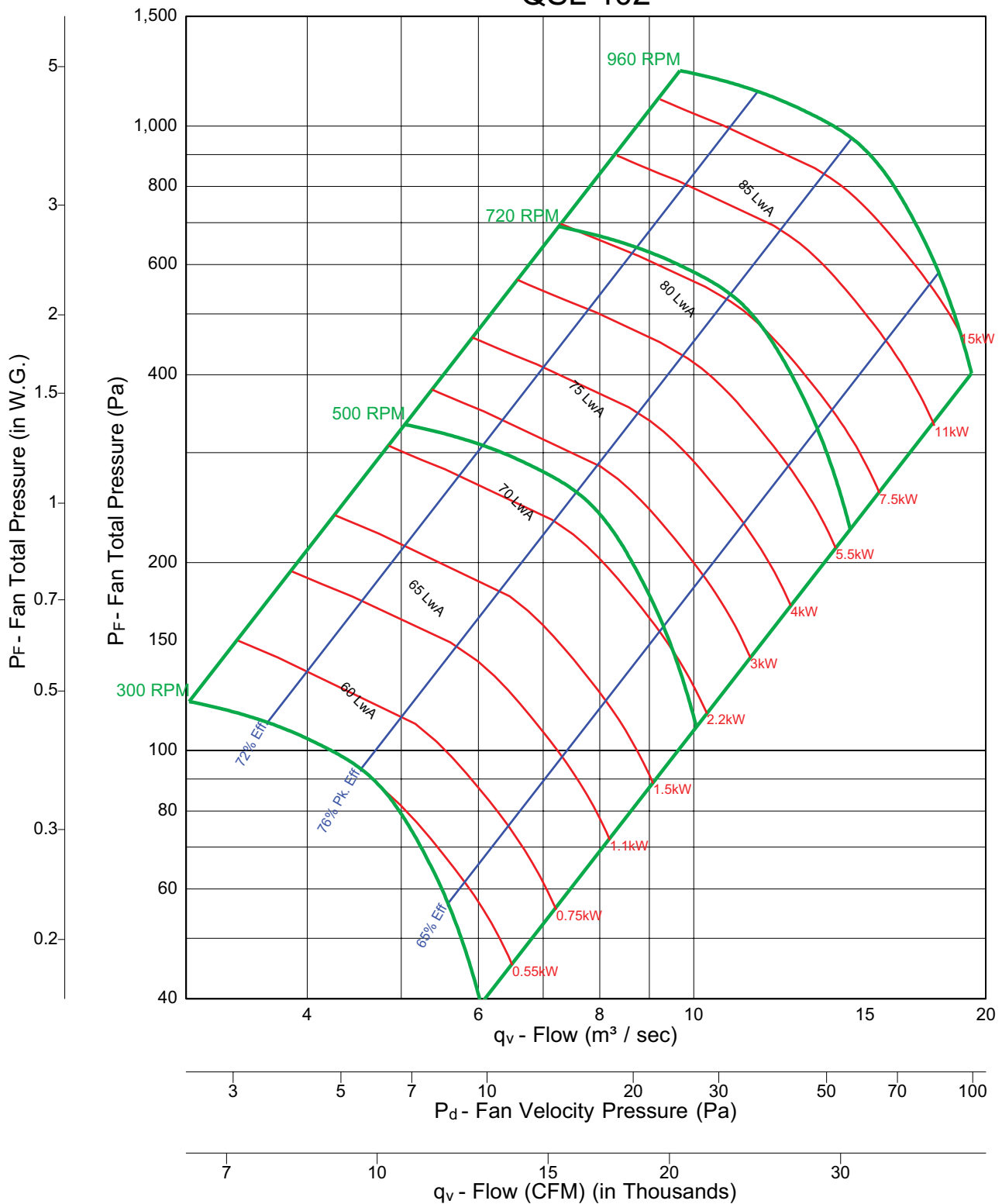
Fan Efficiency Grade = FEG 80



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

QSL 402



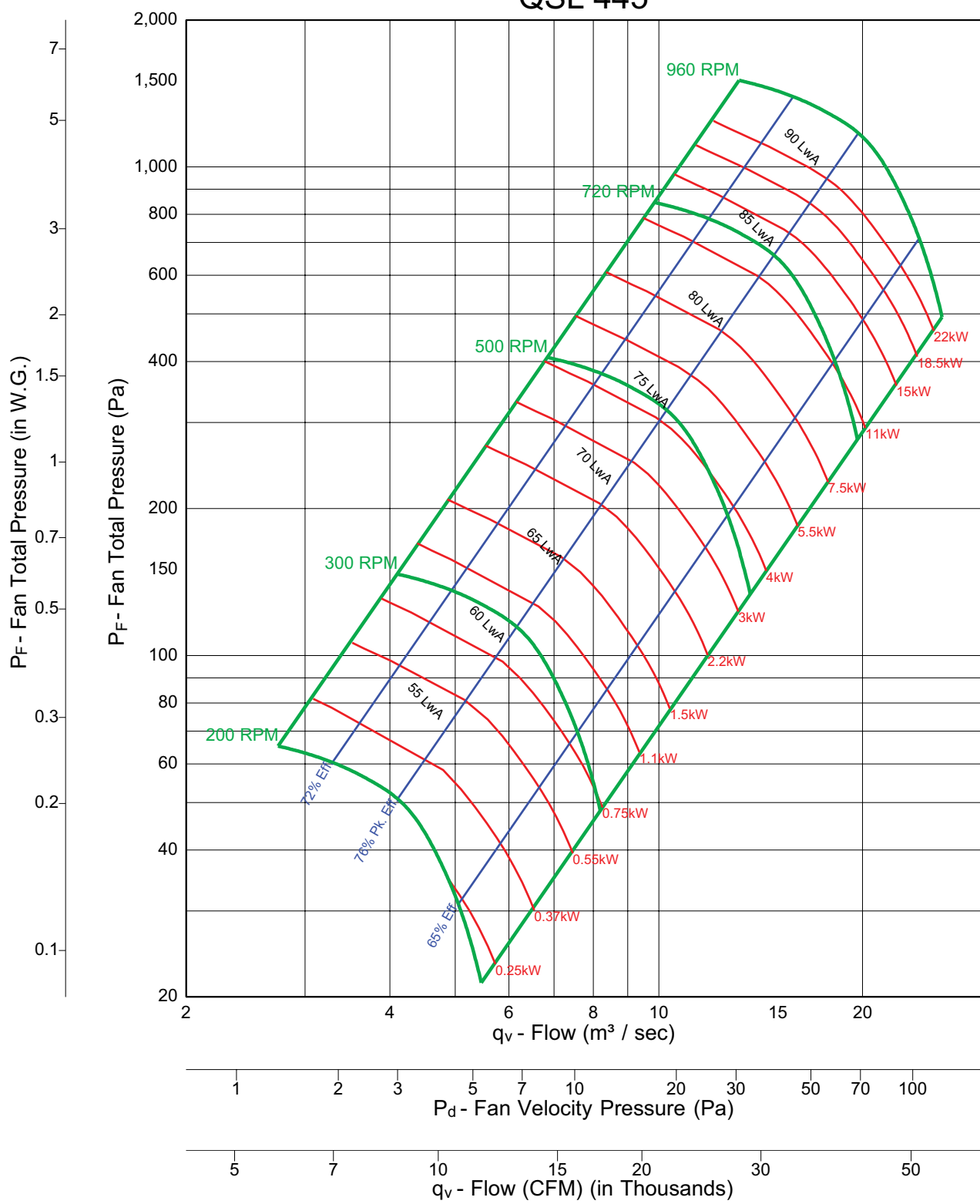
Fan Efficiency Grade = FEG 80



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

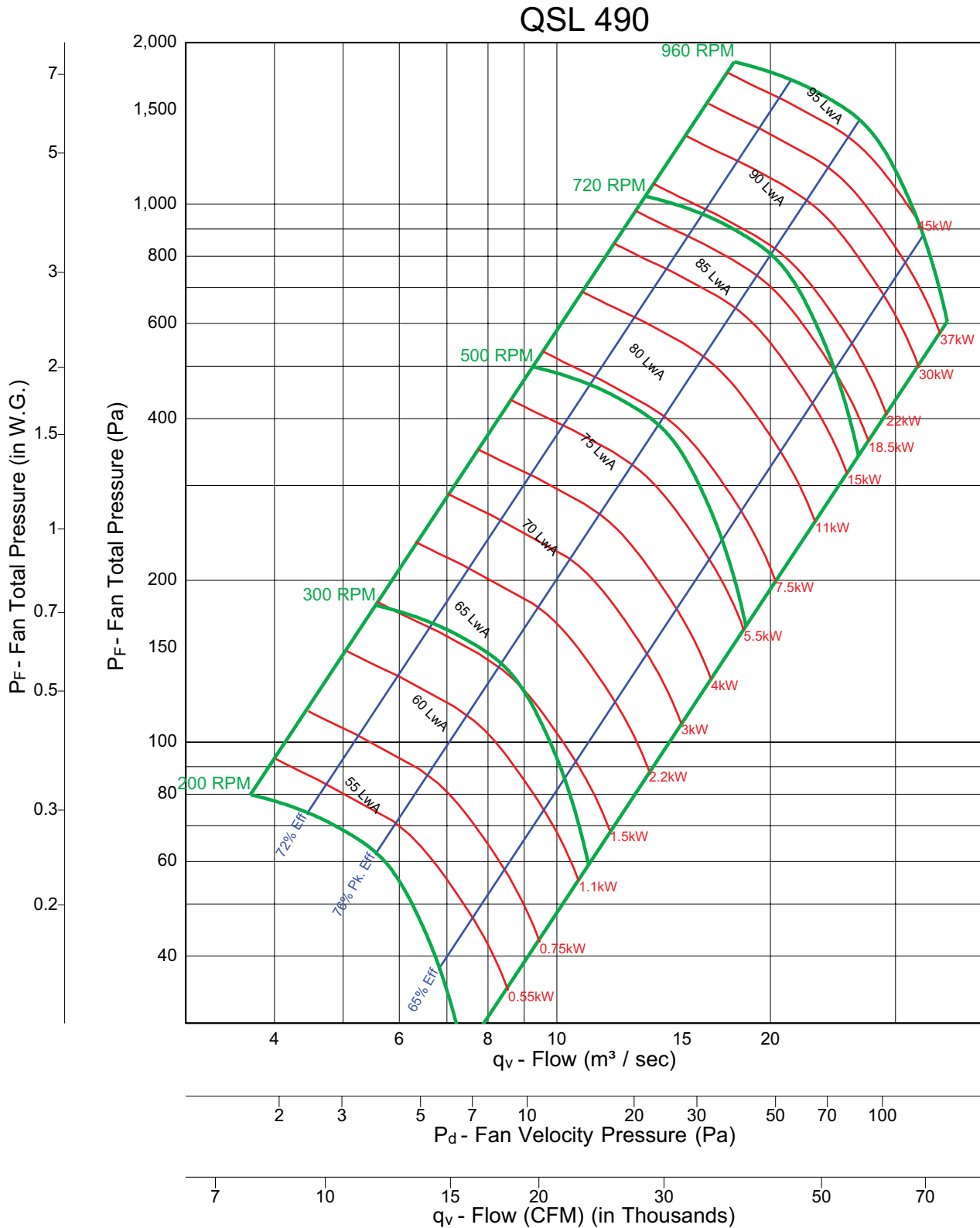
QSL 445



Fan Efficiency Grade = FEG 80



- Notes:**
1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
 2. Power rating (kW) does not include transmission losses.
 3. Performance ratings do not include the effects of appurtenances (accessories).
 4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
 5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
 6. Ratings do not include the effects of duct end correction.
 7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.



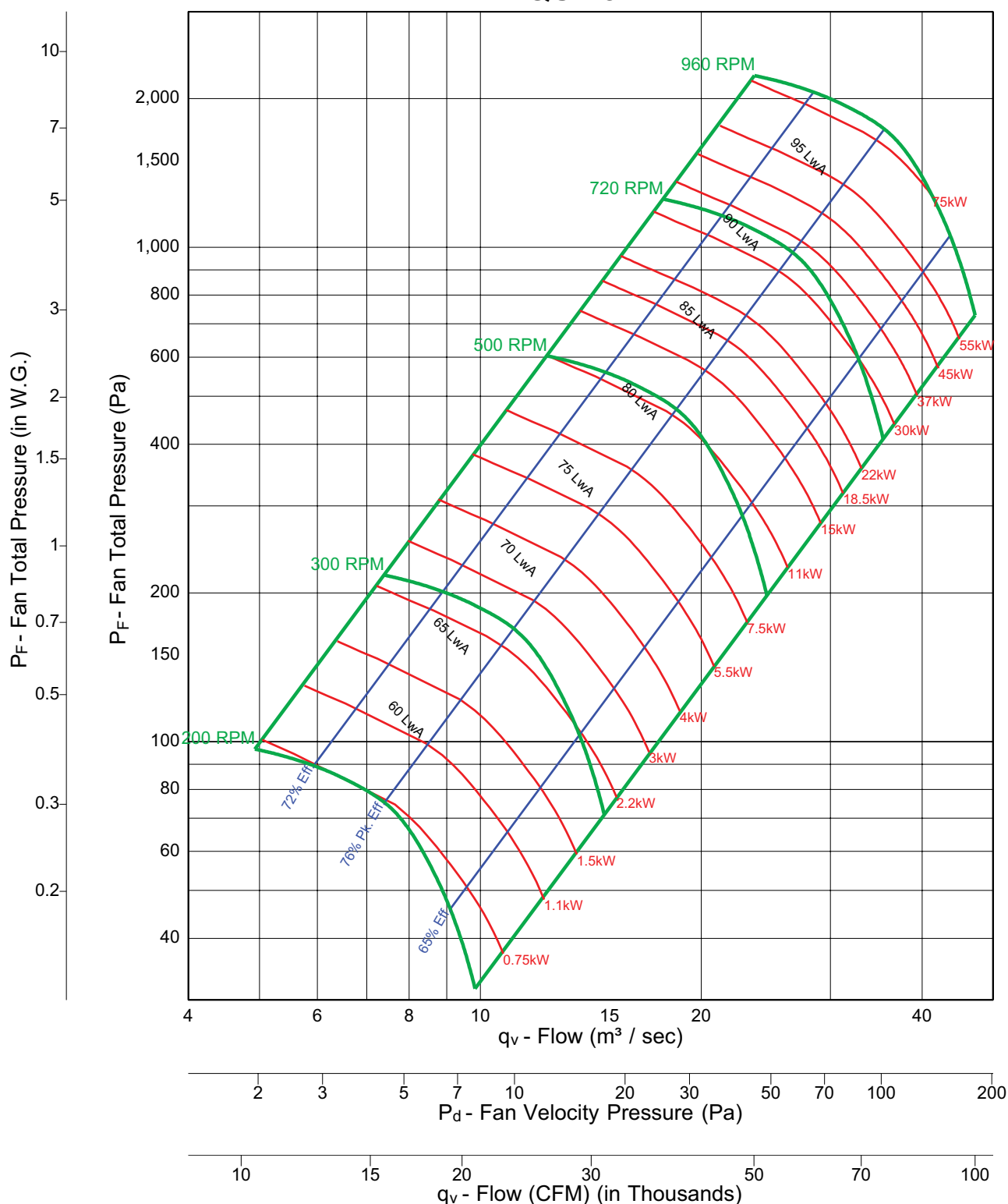
Fan Efficiency Grade = FEG 80



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

QSL 542



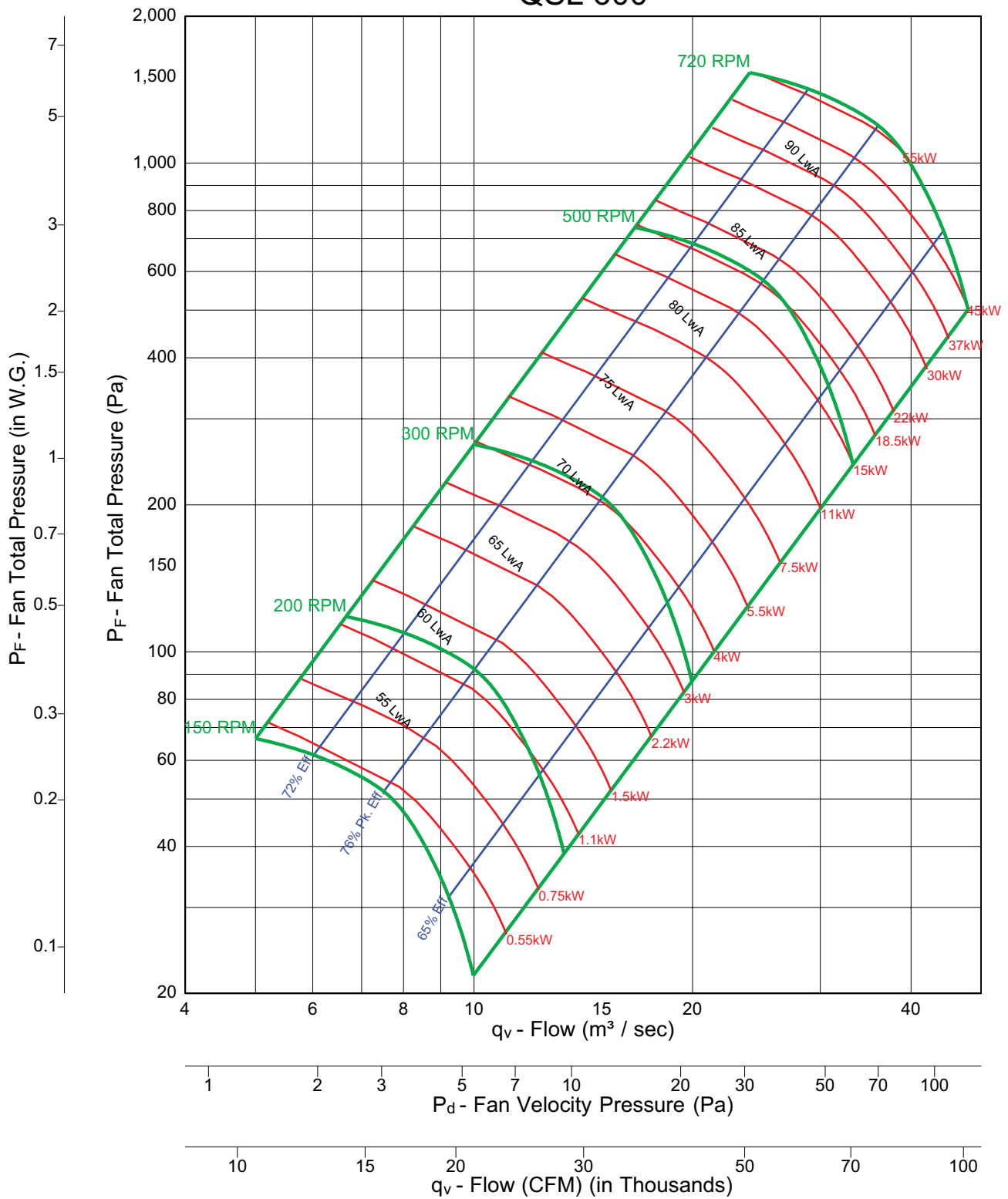
Fan Efficiency Grade = FEG 80



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

QSL 600



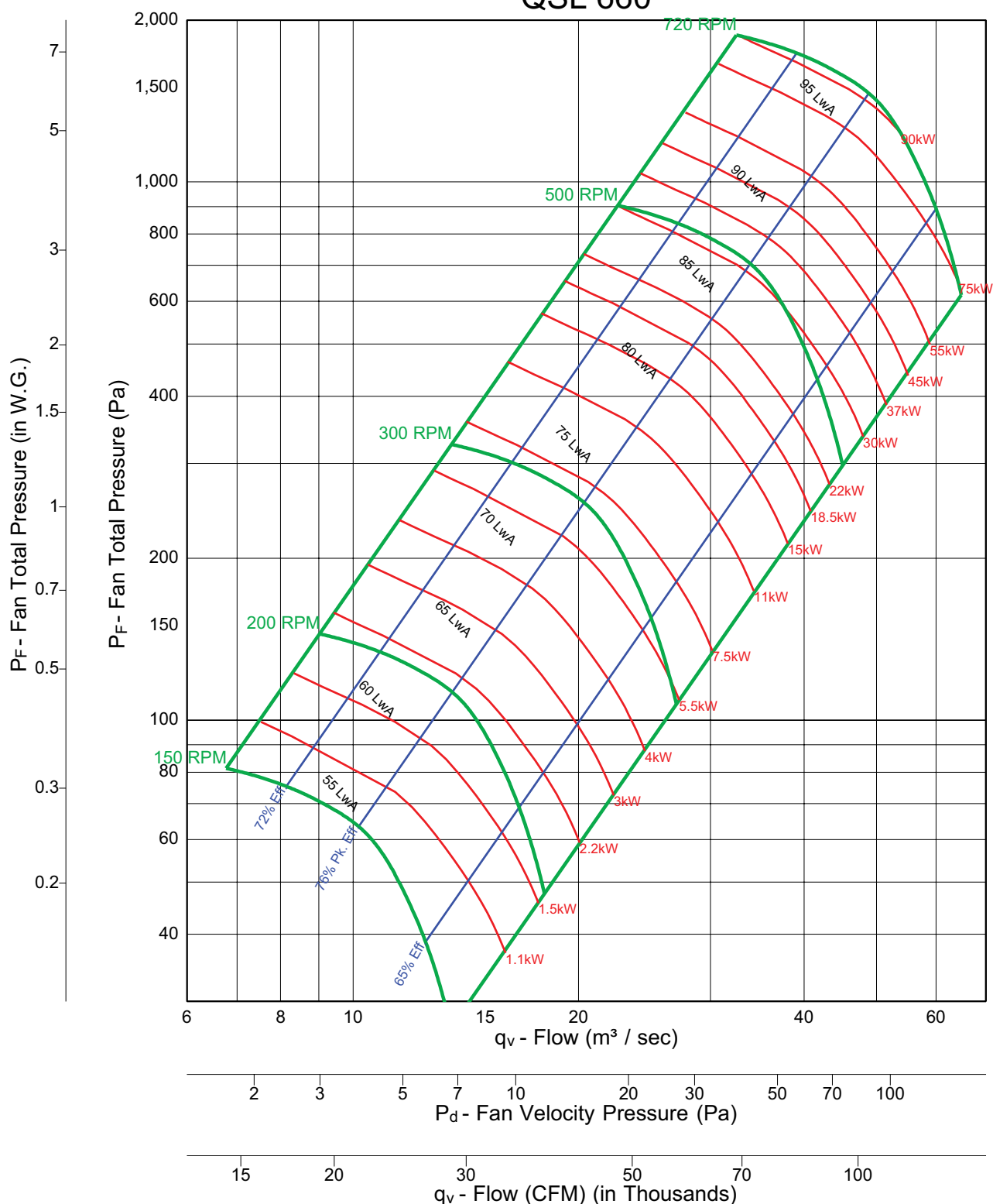
Fan Efficiency Grade = FEG 80



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

QSL 660



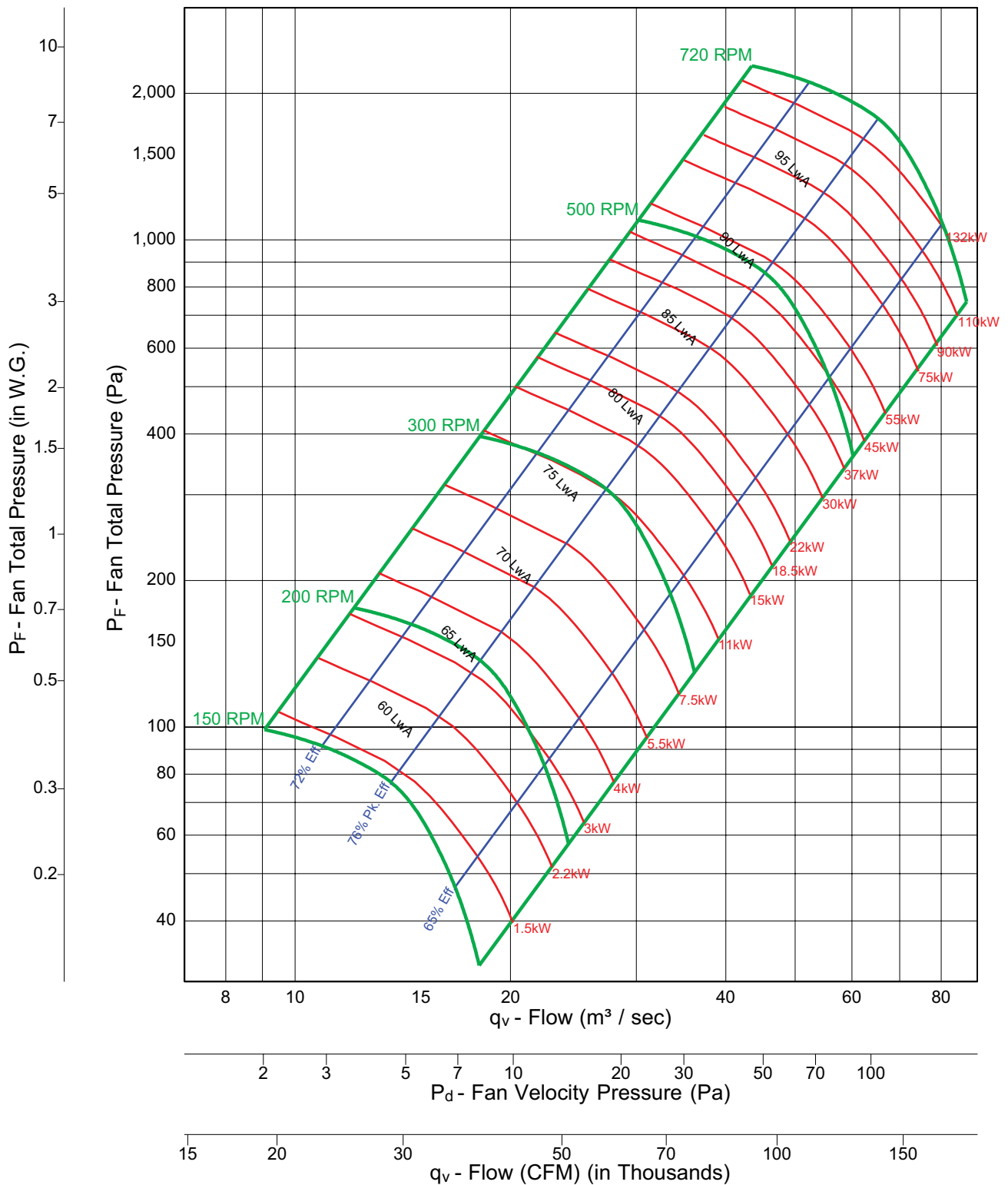
Fan Efficiency Grade = FEG 80



Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

QSL 730



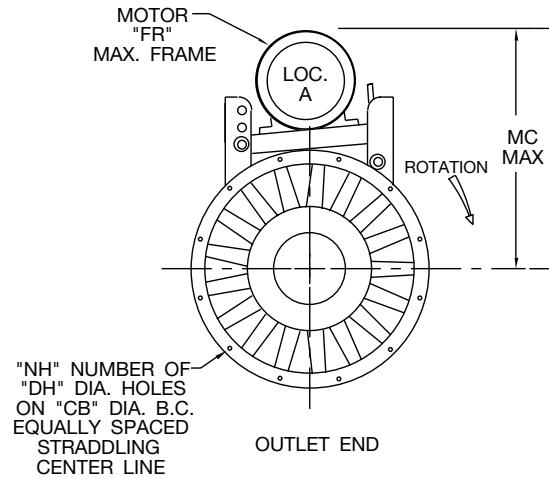
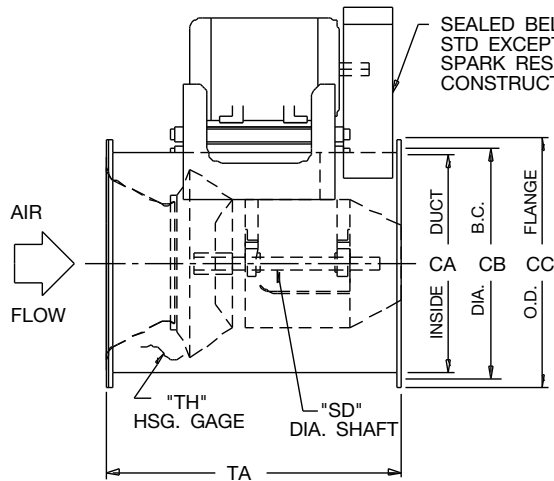
Fan Efficiency Grade = FEG 80



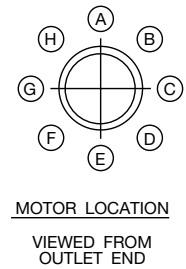
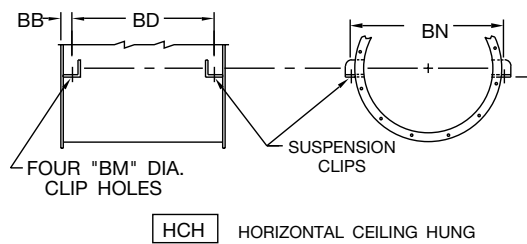
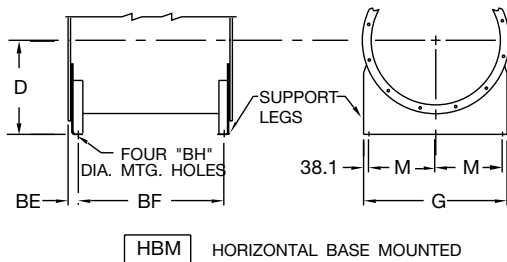
Notes:

1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwA sound power levels for Installation Type B: Free inlet, ducted outlet.
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

Horizontal



TYPE "QSL" HORIZONTAL DISCHARGE

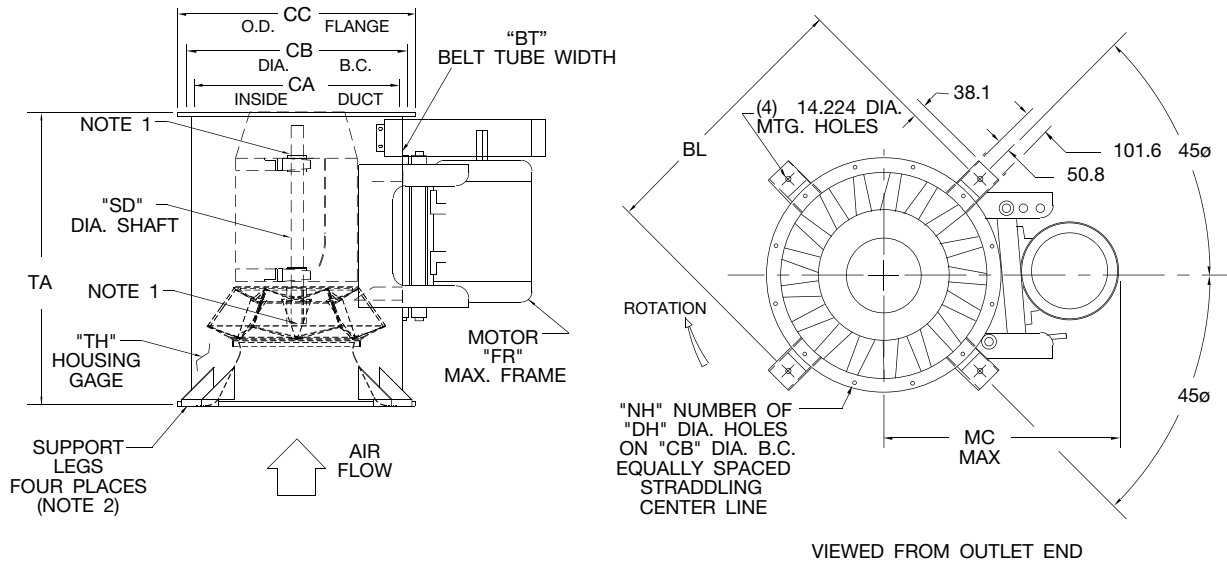


SIZE	BB	BD	BE	BF	BH	BM	BN	BT	CA	CB	CC	D	DH	FR	G	M	MC	NH	SD		TA	TH
																			CL I	CL II		
150	25	655	27	652	11	14	597	165	514	562	594	356	14	132M	594	259	654	8	25	30	706	10
165	25	727	27	724	11	14	657	165	567	619	654	381	18	132M	654	286	706	8	25	35	778	10
182	38	785	27	807	11	14	705	165	627	679	711	406	18	160L	711	318	875	12	25	35	861	12
200	38	868	27	890	14	14	765	184	687	740	770	457	21	160L	770	347	919	12	30	35	944	12
222	38	945	33	954	14	14	842	203	764	816	848	508	21	160L	848	386	956	12	30	35	1021	12
245	38	1049	33	1059	14	21	921	227	842	892	924	533	21	180L	924	424	960	12	35	42	1125	12
270	38	1164	33	1173	14	21	1007	248	927	978	1010	584	21	180L	1010	467	1071	12	35	42	1240	12
300	38	1309	33	1318	14	21	1111	278	1030	1096	1140	635	21	200L	1140	532	1146	16	35	50	1385	10
330	38	1445	33	1455	14	21	1216	305	1134	1200	1245	686	21	200L	1245	584	1183	16	42	55	1521	10
365	51	1584	40	1607	21	21	1335	337	1254	1321	1365	737	21	225M	1365	645	1308	16	50	55	1686	10
402	51	1753	43	1769	21	21	1462	375	1381	1461	1518	838	21	225M	1518	721	1518	16	50	55	1854	10
445	51	1954	43	1970	21	21	1610	413	1529	1607	1664	914	21	250M	1664	794	1580	16	50	65	2055	10
490	51	2159	43	2175	21	21	1764	457	1683	1762	1819	991	21	250M	1819	871	1719	24	55	65	2260	10
542	51	2406	62	2384	21	27	1945	505	1864	1956	2026	1092	21	280M	2026	975	1818	24	65	70	2507	10
600	64	2635	62	2638	21	27	2169	562	2062	2153	2223	1194	21	280M	2223	1073	1993	24	70	75	2762	10
660	64	2924	62	2927	27	27	2376	616	2268	2359	2429	1321	21	280M	2429	1178	2102	24	75	90	3051	10
730	64	3244	62	3247	27	27	2615	683	2508	2651	2721	1448	21	280M	2721	1322	2229	24	75	100	3372	10

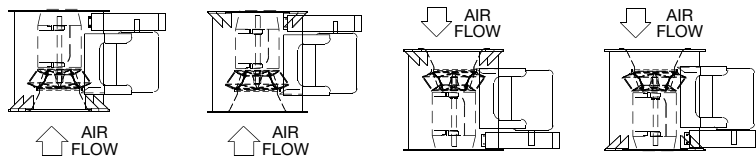
QSL-AC1000023E
QSLR-AC1001672A
QSLSH-AC1001666B

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

Vertical



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.

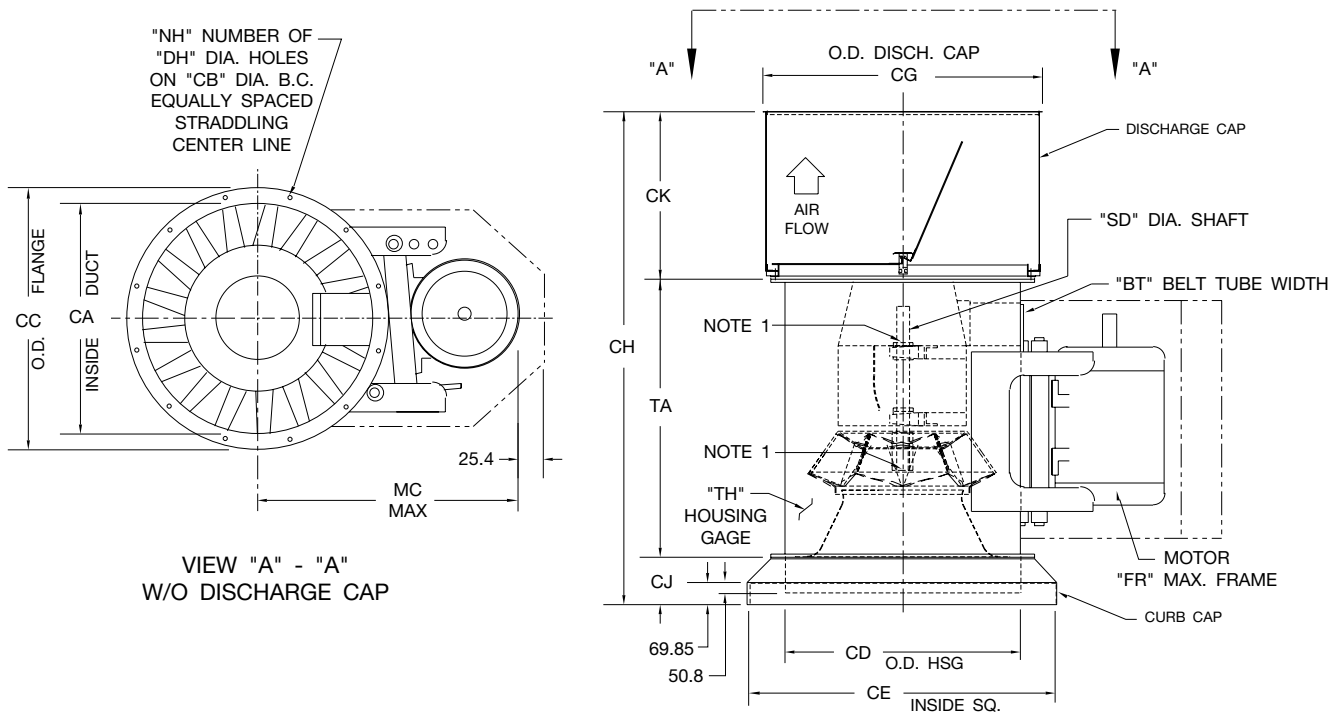
VUI DISCHARGE UP FLOOR MOUNT VUO DISCHARGE UP CEILING HUNG VDI DISCH. DOWN CEILING HUNG VDO DISCH. DOWN FLOOR MOUNT

SIZE	BL	BT	CA	CB	CC	DH	FR	MC	NH	SD		TA	TH
										CLI	CLII		
150	645	165	514	562	594	14	132M	654	8	25	30	705	10
165	710	165	567	619	654	18	132M	704	8	25	35	771	10
182	838	165	627	679	711	18	160L	875	12	25	35	861	12
200	899	184	687	740	770	21	160L	919	12	30	35	945	12
222	965	203	764	816	848	21	160L	956	12	30	35	1021	12
245	1051	227	842	892	924	21	180L	962	12	35	42	1125	12
270	1137	248	927	978	1010	21	180L	1071	12	35	42	1240	12
300	1267	278	1030	1096	1140	21	200L	1146	16	35	50	1386	10
330	1372	305	1134	1200	1245	21	200L	1183	16	42	55	1521	10
365	1492	337	1254	1321	1365	21	225M	1308	16	50	55	1686	10
402	1645	375	1381	1461	1518	21	225M	1518	16	50	55	1854	10
445	1791	413	1529	1607	1664	21	250M	1580	16	50	65	2056	10
490	1946	457	1683	1762	1819	21	250M	1719	24	55	65	2235	10
542	2153	505	1864	1956	2026	21	280M	1816	24	65	70	2507	10

QSL-AC1000024F
QSLR-AC1001675B
QSLSH-AC1001667C

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

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. Discharge 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	645	165	514	562	594	521	695	762	1238	152	381	14	132M	654	8	25	30	705	10
165	710	165	567	619	654	573	784	813	1395	160	457	18	132M	704	8	25	35	771	10
182	838	165	627	679	711	632	886	864	1486	168	457	18	160L	875	12	25	35	861	12
200	899	184	687	740	770	692	949	1016	1649	171	533	21	160L	919	12	30	35	945	12
222	965	203	764	816	848	768	1026	1016	1726	171	533	21	160L	956	12	30	35	1021	12
245	1051	227	842	892	924	846	1102	1168	1913	178	610	21	180L	962	12	35	42	1125	12
270	1137	248	927	978	1010	932	1187	1168	2034	184	610	21	180L	1071	12	35	42	1240	12
300	1267	278	1030	1096	1140	1037	1295	1346	2268	197	686	21	200L	1146	16	35	50	1386	10
330	1372	305	1134	1200	1245	1140	1400	1499	2480	197	762	21	200L	1183	16	42	55	1521	10
365	1492	337	1254	1321	1365	1261	1521	1524	2645	197	762	21	225M	1308	16	50	55	1686	10
402	1645	375	1381	1461	1518	1388	1648	1702	2896	203	838	21	225M	1518	16	50	55	1854	10
445	1791	413	1529	1607	1664	1535	1769	1854	3186	216	914	21	250M	1580	16	50	65	2056	10
490	1946	457	1683	1762	1819	1689	1981	2032	3505	229	1016	21	250M	1719	24	55	65	2235	10
542	2153	505	1864	1956	2026	1870	2254	2197	4002	235	1261	21	280M	1816	24	65	70	2507	10

QSL-AC1000567B
QSLR-AC1001673B
QSLSH-AC1001674B

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



Model QSL

Fans shall be Type QSL (standard mixed flow) of the non-overloading design, as manufactured by Twin City Fan Companies.

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. Power 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 aerofoil 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 — 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 7.5 kW and smaller, and fixed pitch on 11 kW 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 de-burred 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 Type QSLR (restaurant) of the non-overloading design, as manufactured by Twin City Fan Companies.

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. Power 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 aerofoil 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 7.5 kW and smaller, and fixed pitch on 11 kW 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 de-burred 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 Type QSLSH (smoke and heat) of the non-overloading design, as manufactured by Twin City Fan Companies.

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. Power 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 ((250°C for 4 hours and 525°C 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 aerofoil 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 and 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 7.5 kW and smaller, and fixed pitch on 11 kW 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 de-burred 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.

INDUSTRIAL PROCESS AND COMMERCIAL VENTILATION SYSTEMS

CENTRIFUGAL FANS | UTILITY SETS | PLENUM & PLUG FANS | INLINE CENTRIFUGAL FANS
MIXED FLOW FANS | TUBEAXIAL & VANEAXIAL FANS | PROPELLER WALL FANS | PROPELLER ROOF VENTILATORS
CENTRIFUGAL ROOF & WALL EXHAUSTERS | CEILING VENTILATORS | GRAVITY VENTILATORS | DUCT BLOWERS
RADIAL BLADED FANS | RADIAL TIP FANS | HIGH EFFICIENCY INDUSTRIAL FANS | PRESSURE BLOWERS
LABORATORY EXHAUST FANS | FILTERED SUPPLY FANS | MANCOOLERS | FIBERGLASS FANS | CUSTOM FANS



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