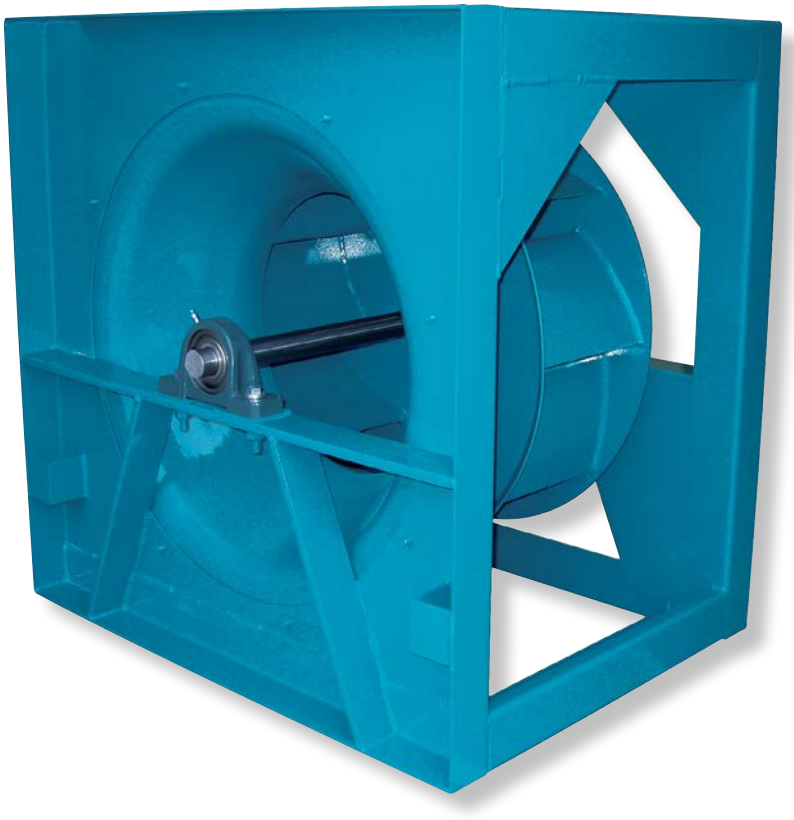
Fans & Blowers

Twin City

Air Moving Solutions.



E-SERIES PLUG TYPE PLENUM FANS

EPF | EPFN | EPQ | EPQN

Catalogue M470
August 2012

E-Series

EPF | EPFN | EPQ | EPQN

Arr. 3 EPF
Plenum Fan

Arr. 1 EPQN
Plenum Fan

Twin City Fan & Blower, the world's largest supplier of plug type plenum fans, now offers the completely redesigned E-Series, the first plug type plenum fan to be AMCA approved for sound and air in both Arrangement 1 and 3 configurations.

The E-Series offers the flexibility of two plug type plenum fan designs, with each model offering its own unique performance characteristics. While every E-Series fan is highly efficient and quiet, you can choose an E-Series design option that optimises the performance requirements most important to your application.

Benefits of a Plug Type Plenum Fan

Saves Space – There are no housings, transitions, or diffusers within the air handling unit.

Efficiency – Plug type plenum fans can be as efficient, or more efficient than scroll type fans at specific operating points towards the bottom of the fan curve.

Lower cost – Plug type plenum fans are less expensive than many scroll type fans.

Compact Designs with Performance Assurance

Space is often a key consideration in the selection of plug type plenum fans, making the compact Arrangement 3 configuration very popular.

The Arrangement 3 configuration is constructed with a bearing and bearing bar in the inlet, which will affect fan performance. These performance affects should be taken into account to ensure that your system functions as designed.

Plug type plenum fans are un-housed fans designed to operate inside of field-fabricated or factory-built air handling units.

Application

The fan impeller pressurizes the entire surrounding air plenum in which the fan is installed, allowing air ducts from any direction to be directly connected to the air handling unit enclosure. This design generally saves space by eliminating the fan housing, transitions, and diffusers within the air handling unit.

Plug type plenum fans have found a ready acceptance in the air conditioning industry. In addition, the construction versatility, adaptability in the direction of the discharges, suitability for internal isolation and application of sound attenuators, and generally lower cost makes it a very popular fan arrangement.

AMCA CERTIFIED RATINGS
SOUND AND AIR PERFORMANCE
FEG FAN EFFICIENCY GRADE CERTIFIED
AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.
www.amca.org

Twin City Fan & Blower certifies that the Model EPF, EPFN, EPQ & EPQN Plenum 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.

Refer to Catalogue 475 for sound power levels.

9-Bladed Impellers

EPF (Arr. 3)
The model EPF features a highly efficient and cost effective, nine-bladed aerofoil impeller design. The high efficiency of the EPF will often allow the use of smaller fans without increasing power requirements. The EPF is an Arrangement 3 design.

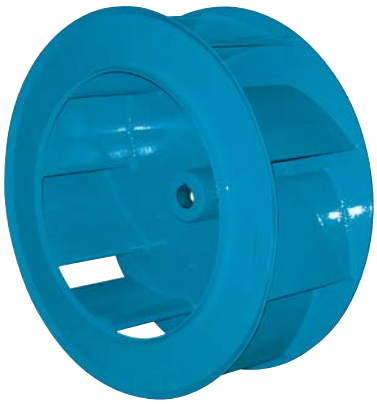
EPFN (Arr. 1 and 4)
The model EPFN features the same highly efficient, nine-bladed aerofoil impeller design as the EPF, but is available in Arrangement 1 or 4 designs without inlet obstructions.

Sizes
315 mm to 1850 mm impeller diameters

Performance
Airflow from 0.5 to 80 m^3/sec
Static pressure to 2500 Pa

Drive Configurations
Available in both direct and belt drive configurations.

Construction
Class I, II, & III



EPF/EPFN
9-Bladed Impeller

12-Bladed Impellers

EPQ (Arr. 3)
The Better Sound Quality model EPQ features a twelve-bladed aerofoil impeller design that flattens the sound spectrum and reduces the dominance of pure tones. The EPQ is an Arrangement 3 design.

EPQN (Arr. 1 and 4)
The model EPQN features the same Better Sound Quality, twelve-bladed aerofoil impeller design as the EPQ, but is available in Arrangement 1 or 4 without inlet obstructions.

Sizes
315 mm to 1850 mm impeller diameters

Performance
Airflow from 0.5 to 80 m^3/sec
Static pressure to 3000 Pa

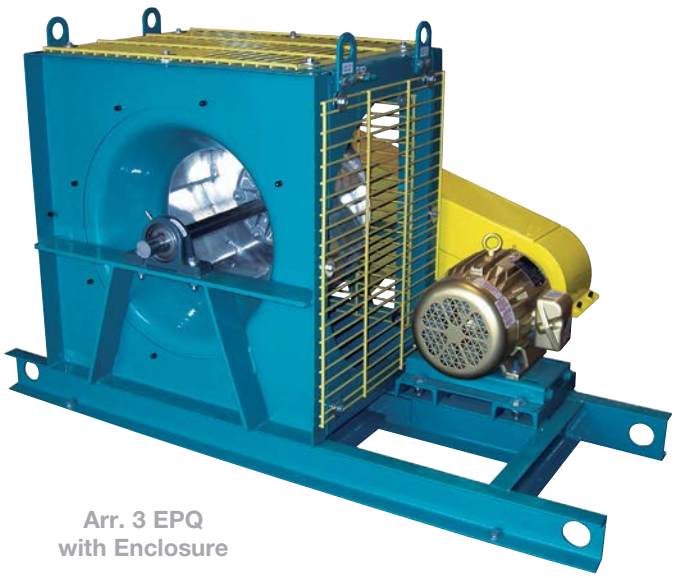
Drive Configurations
Available in both direct and belt drive configurations.

Construction
Class I, II, & III

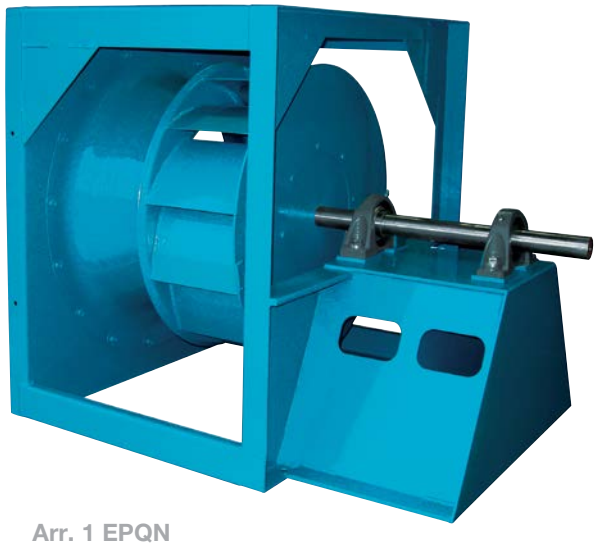
EPQ/EPQN
12-Bladed Impeller

Fans & Blowers
Twin City

EPQ/EPQNAdvantage



Arr. 3 EPQ
with Enclosure



Arr. 1 EPQN
Plenum Fan

The EPQ/EPQN plug type plenum fans offer unique performance features that are beneficial for many sound sensitive and higher pressure applications.

The EPQ/EPQN features a twelve-bladed aerofoil impeller versus the nine-bladed impeller of our type EPF/EPFN plug type plenum fans or eight- to ten-bladed impellers with most other competition. The "Q" in the EPQ/EPQN designation stands for Better Noise Quality. Noise quality is a subjective description for noise that is less objectionable.

Looking at the sound comparison, you will notice that the type EPQ/EPQN offers noise (SPL) that is more equally distributed across all frequencies. This can be more pleasant to hear than the sound characteristics of a nine-bladed design. Fans are often dominated in noise by the noise occurring at the blade pass frequency. (Blade pass frequency = RPM x Number of blades/60.) Noise quality is improved by reducing the difference in amplitude between the blade pass amplitudes and the neighbouring frequency amplitudes. The increased higher frequency sound power levels on the twelve-bladed impellers mask the blade pass frequency offering a better sound quality. Although the overall A-weighted sound power levels of the nine-bladed EPF/EPFN fans are slightly lower, the sound "quality" of the twelve-bladed EPQ/EPQN fans may be desirable for the application.

A higher blade pass frequency allows for easier attenuation of the noise, especially when installed inside an air handling unit. In many applications, the use of the EPQ/EPQN design will move the blade pass frequency from the 125 Hz octave to the 250 Hz band. Acoustic silencers will normally perform about 10 dB better in the 250 Hz band.

In addition to sound considerations, there are also additional benefits to using the EPQ/EPQN at higher pressures. Selections over 2000 Pa static pressure are often near the peak pressure of the fan. The additional blades give a higher peak pressure and also add stability to the fan. Twelve smaller passages through the fan impeller are more resistant to flow disturbances on the inlet than nine larger passages. The EPQ/EPQN is thus more resistant to system effects when operating at high pressures and the higher inlet velocities that accompany these selections.

TYPE	M^3/sec	Pa	RPM	BkW	FREQUENCY, HZ								LwA
					663	125	250	500	1000	2000	4000	8000	
EPQN – 12 Blades	9.44	7.46	977	10.07	86	89	(90)	83	81	77	69	64	87
EPFN – 9 Blades	9.44	7.46	967	9.63	89	(94)	87	79	80	74	67	63	85

NOTE: Circled figures indicate blade pass frequency.

Impellers

High efficiency, non-overloading aerofoil impellers are provided on all sizes and arrangements.

Arr. 1 and 3 – Aluminium impellers using extruded aluminium blades are standard to size 245 on arrangement 1 and 3 fans, and available as an option on larger sizes. Steel impellers are standard on sizes 270 and larger.

Arr. 4 – Aluminium impellers using extruded aluminium blades are standard to size 600 on direct drive arrangement 4 fans, a popular choice for applications requiring precision balance and improved reliability.

Inlet Cones

Heavy-gauge spun steel inlet cones are closely matched to the impeller intake rim to ensure efficient and quiet operation.

Structural Frame

Frames are constructed of heavy-gauge steel, continuously welded at all connections for maximum strength and rigidity. The “cross frame” bearing support is designed for maximum stability and load distribution.

Shafts

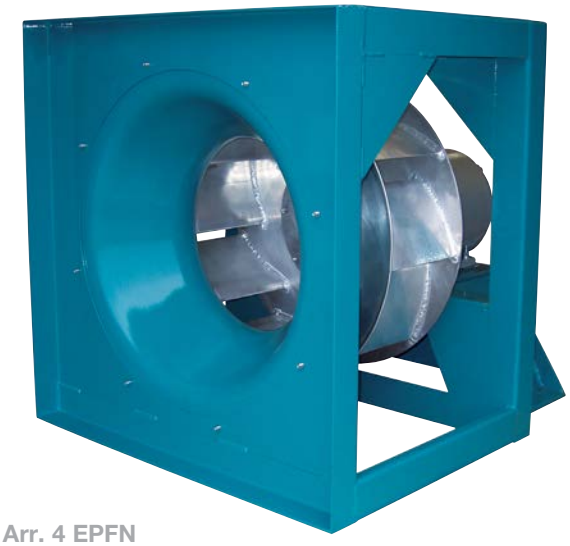
Shafts are AISI Grade 1040 or 1045 hot-rolled steel accurately turned, ground, polished, and ring-gauged for verification. Shafts are generously sized for a first critical speed of at least 1.43 times the maximum speed for the class.

Fan Bearings

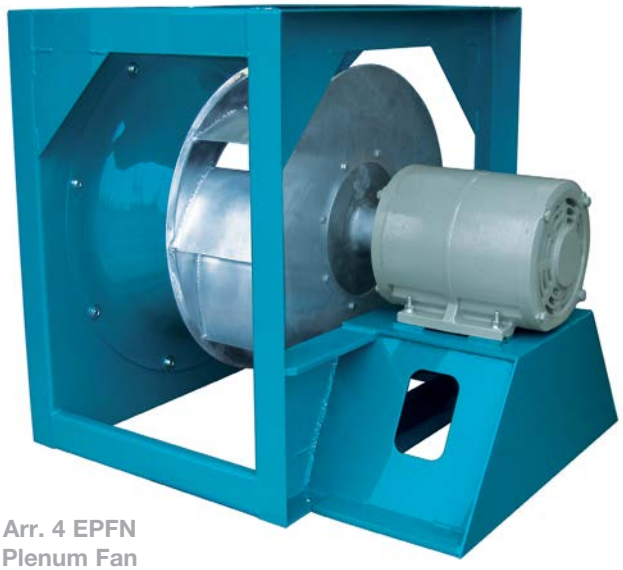
Bearings are heavy duty, grease lubricated, spherical roller or adapter mounted anti-friction ball, self-aligning, pillow block type, selected for minimum average bearing life L10 in excess of 40,000 hours at the maximum fan RPM. Considering the long life offered with our standard bearing selections, we do not recommend upgrades to split-roller bearings due to their large size, especially on Arrangement 3 fans.

Inlet Collar

Horizontal configurations are designed to be flex-connected to the perimeter of the square panel without the addition of an inlet collar.



Arr. 4 EPFN
Plenum Fan

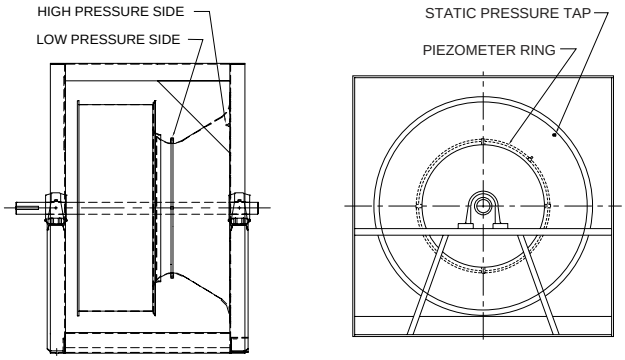


Arr. 4 EPFN
Plenum Fan

Fans & Blowers
Twin City

FlowMeasurementSystem

Piezometer Ring Mounted at Throat of Inlet Cone



Piezometer Ring (Airflow Measuring System)

A piezometer ring is available on plug type plenum fans, as well as other Twin City Fan housed fans, as part of an airflow measuring system, based on the principle of a flow nozzle. The inlet cone of the fan is used as the flow nozzle. The flow can be calculated by measuring the pressure drop through the inlet cone. No tubes or sensors are inserted in the high velocity airstream which could obstruct airflow.

The system consists of a piezometer ring mounted at the throat and a static pressure tapping mounted on the face of the inlet cone. A differential pressure transducer and digital display can also be provided.

The pressure drop is measured from the tapping located on the face of the inlet cone to the piezometer ring in the throat. The inlet tapping is connected to the high-pressure side of the transducer and the piezometer ring is connected to the low-pressure side. See diagram on right.

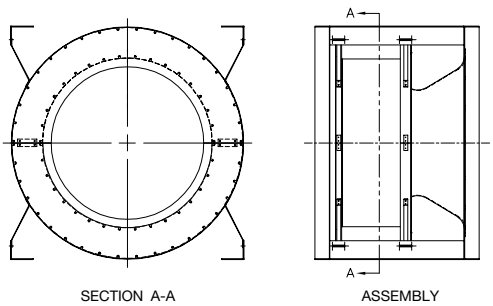
Based on Twin City Fan laboratory tests, the system was determined to be accurate within +/-5%.

Refer to Twin City Fan Engineering Supplement ES-105.

NOTE: Twin City Fan does not recommend placement of flow measuring probes inside the fan inlet cone in the path of airflow. These devices create disturbances and unpredictable performance losses. Twin City Fan will not be responsible for loss of performance due to such devices.

AeroAcousticDiffuser™
(U.S. Patent 8025477)

Aero Acoustic Diffuser™ mounted on Arr. 4 EPQN



The new Aero Acoustic Diffuser™ is exclusively available on the Twin City Fan E-Series plug type plenum fans. The patented design allows the plug type plenum fan to discharge sound power reductions by up to 3dBA while increasing aerodynamic static efficiency by up to 4%.

The Aero Acoustic Diffuser™ features a fully galvanised construction that mount at the front and back of the fan impeller. The acoustic material is inserted within a solid housing and a perforated front plate that directs airflow across the diffuser reducing fan noise and increasing static efficiency.

Mounting brackets constructed of galvanised steel mount directly to the framework allowing for mounting within the existing fan framework.

The Aero Acoustic Diffuser™ is available on all E-Series plug type plenum fan sizes, both direct drive and belt drive. The diffuser is available on fans direct from the factory or as a retrofit kit to existing fans.

Accessories

Variable Inlet Vanes
Variable inlet vanes provide economical, stable, and efficient air volume control for manual or motorized operation. Blades are supported with fatigue-resistant steel shafts and two needle roller bearings riding on zone-hardened surfaces to minimize wear. Bearings are lubricated for life with high grade moisture resistant grease and protected with lip seals. The vane bearing housings are welded in position and stiffened with a welded support ring. The welded structure eliminates flutter and vibration while utilizing a cantilevered design to minimize insertion loss.

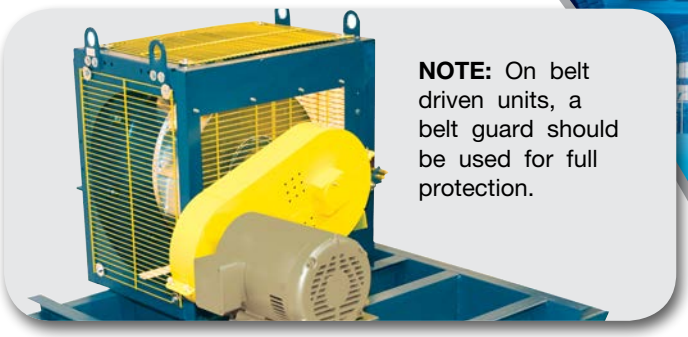
NOTE: Inlet vanes are not recommended on fans smaller than size 200 due to noise and loss in performance.

Inlet Collar
The standard, square-panel design provides the means for flexible connection on all arrangements without an inlet collar.

Belt Guard
Provides protection to personnel from the moving drive parts. Both standard and OSHA compliant totally enclosed types are available.

Protective Enclosure
Grill style protective enclosure completely encloses all sides and the back of the fan impeller. Side panels are individually removable to provide access to the impeller.

Inlet Screen
Heavy-gauge inlet screen that nests in the inlet funnel for personnel protection on non-ducted inlets.



NOTE: On belt driven units, a belt guard should be used for full protection.

Optional Belt Guard & Protective Enclosure

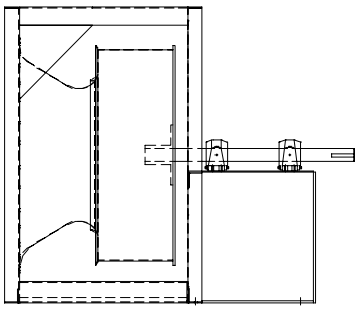
Inlet Screen

Inlet Collar

Arrangements

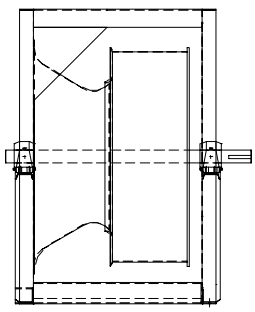
Arrangement 1 (EPFN and EPQN)
Arrangement 1 features an overhung impeller design suitable for V-belt drive and requires mounting of motor independent of the fan.

- Class I and II available in sizes 122 to 890. See dimensional drawing on page 93.
- Class III available in sizes 182 to 890. Contact factory for dimensional drawing.

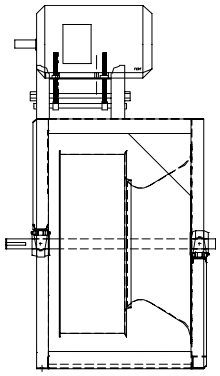


Arrangement 3 (Horizontal - EPF and EPQ)
This is the most common plug type plenum fan arrangement for use in OEM and site-built air handling units. Arrangement 3 is suitable for V-belt drive and requires mounting of the motor independently of the fan. Twin City Fan & Blower offers common unitary bases and isolation bases for the fan and motor as accessories.

- Class I and II available in sizes 122 to 890. Class III available in sizes 182 to 890. See dimensional drawing on page 94.



Arrangements



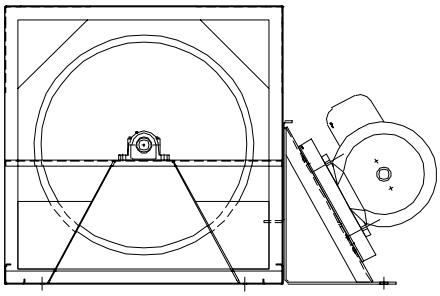
Arr. 3HA

Arrangements 3HA
(Horizontal with Top Mounted Motor)

Arrangement 3HA provides a means for mounting the motor on top of the unit. This design is often desirable when floor space is limited.

Available with a heavy duty Twin City Fan & Blower designed “adjustable motor base” for all fan sizes.

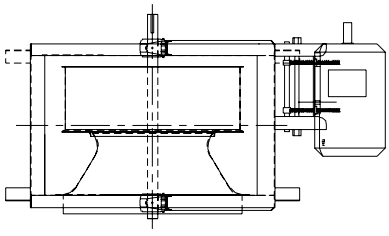
- Models EPF and EPQ.
- Arrangement 3HA with pivot motor base is available in Class I and II for sizes 122 to 542. See dimensional drawing on page 96-97.



Arrangement 3SM
(Horizontal With Side Mounted Motor)

Arrangement 3SM is designed to provide an economical and space-saving means to supply plug type plenum fans with motors mounted to the side of the fan frame. A motor slide base allows for quick and easy belt adjustments.

- Models EPF and EPQ.
- Class I and II available in sizes 165 to 600. Motor limited to maximum frame size shown on drawing. See dimensional drawing on page 95.



Arr. 3VA
Shown with optional inlet collar

Arrangements 3VA
(Vertical with Side Mounted Motor)

Vertical Arrangement 3 is available with a heavy duty Twin City Fan & Blower designed “adjustable motor base” for all fan sizes.

- Models EPF and EPQ.
- Arrangement 3VA with pivot motor base is available in Class I and II for sizes 122 to 542. See dimensional drawing on page 98-99.
- Unless specified otherwise, units will be built for vertical up airflow.

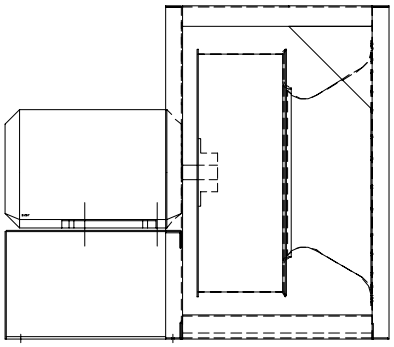
Arrangement 4 (Horizontal)

Direct drive Arrangement 4 mounts the fan impeller directly onto the motor shaft. This arrangement provides a compact fan/motor unit which eliminates belt residue and requires less maintenance than other arrangements. It also negates any drive loss so provides an energy efficient solution.

For these reasons, Arrangement 4 plug type plenum fans are widely used in cleanroom, pharmaceutical, and other critical applications.

Fans can be selected with varying impeller widths to provide desired performance at direct drive motor speeds. Performance changes in the field are usually achieved by means of variable inlet vanes or VFD.

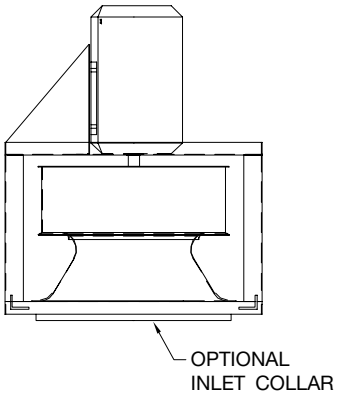
- Models EPFN and EPQN.
- Aluminium impellers using extruded aluminium blades are standard.
- Class I and II available in sizes 122 to 660. See dimensional drawing on pages 100-101.
- Class III available in sizes 182 to 660. See dimensional drawing on pages 102-103.



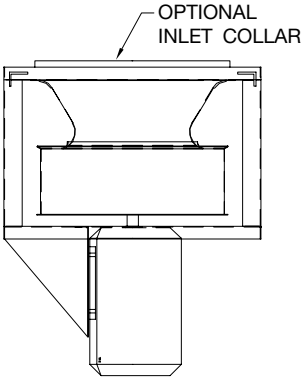
Arrangement 4 (Vertical)

Vertical Arrangement 4 is available for mounting with either vertical up airflow (inlet under the motor) or vertical down airflow (inlet above the motor).

- Models EPFN and EPQN.
- Aluminium impellers using extruded aluminium blades are standard.
- Class I and II available in sizes 182 to 490.
- Inlet flange available.
- See dimensional drawing on page 104.



Vertical Up Airflow



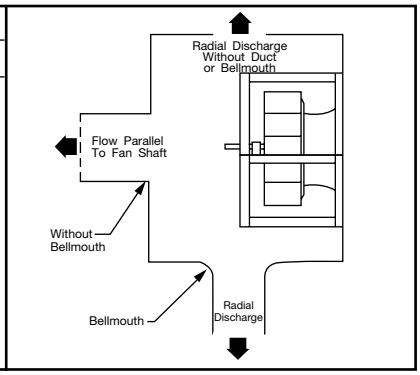
Vertical Down Airflow

Fans & Blowers
Twin City

Duct Entrance Losses From Plenum Cabinet

To achieve the air velocity in the discharge duct and overcome the loss associated with the air entering the ductwork, additional resistance must be added to the external static pressure (ESP) requirements of the fan. Different types of duct entrances and locations will require varying correction factors. Therefore, prior to selecting a fan, make the following correction, depending upon the type of duct and its location.

ADDITIONAL DUCT ENTRANCE LOSS TO BE ADDED TO FAN ESP	
DISCHARGE TYPE	**CORRECTION FACTOR**
• Radial and ducted with bellmouth	1.1 x Duct Velocity Pressure
• Radial and ducted without bellmouth	1.4 x Duct Velocity Pressure
• Radial without duct or bellmouth	1.8 x Duct Velocity Pressure
• Flow parallel to shaft and ducted with bellmouth	1.6 x Duct Velocity Pressure
• Flow parallel to shaft and ducted without bellmouth	1.9 x Duct Velocity Pressure
• Flow parallel to shaft without duct or bellmouth	2.4 x Duct Velocity Pressure



Example: A system requires 14.15 m^3/sec at 1250 Pa static pressure at standard air density with one 1250 mm diameter duct with bell-mouth placed in a radial discharge. Determine RPM and absorbed power:

Duct area = $(1.25^2 \times \Pi) \div 4 = 1.227\ m^2$
Duct velocity = $14.15 \div 1.227 = 11.53$ m/s
Duct velocity pressure = $0.5 \times \rho \times v^2 = 0.6 \times 11.53^2$
= 80 Pa @ std. cond.

Entrance loss correction factor = 1.1 x duct velocity pressure
= 1.1 x 80 = 88 Pa
Thus, select the fan for = 1250 + 88
= 1338 Pa static pressure

ApplicationGuidelines

Fan Selection Recommendations

1. System effect losses (see AMCA 201) and plenum losses should be estimated and added to the required static pressure, prior to making selections. Refer to AMCA Publication 201 at www.amca.org and Twin City Fan Engineering Data Letter "Fan Performance Troubleshooting Guide" (FE-100) at www.tcf.com.
2. Fans should be selected so that the point of operation is approximately between 55% and 90% of the free delivery point on the fan curve.
3. Avoid selections over 4000 RPM. A narrow width, larger size impeller can be used to avoid this.
4. Arrangements 1 and 4 will offer the best efficiency and lowest noise as there are no inlet obstructions.
5. Where space is available, mount the fan and motor on a sub-base. The motor can be mounted on the fan on Arrangements 3HS, 3HA, 3SM, 3VS, and 3VA.
6. Use inertia-type isolation bases or rigid mounting for lowest fan vibration. Rigid mounting requires dynamic analysis (by others) of the support structure to avoid resonance.
7. Applications exceeding 2500 Pa static pressure are prone to high system effect losses. Use of housed fans (BAE-DWDI) should be considered.
8. Where static pressures over 2000 Pa are required, Model EPQ or EPQN are preferred because of lower operating speeds and improved stability. Select the fan so the design pressure is at least 10% below the peak pressure.
9. Where flow monitoring is required, use a piezometer ring or externally mounted flow measurement station. Fan performance may be substantially affected by flow measurement probes mounted directly in the fan inlet cone. Refer to page 5.
10. For direct drive fans without speed control (or where speed control cannot exceed 50 Hz), select fans at 3 – 5% below the nominal speed of the motor. This will normally cover the uncertainties associated with the system and air balance measurements. Select motors loaded no closer than 90% of the maximum loading of the motor.
11. For multiple fans in a plenum, alternate CW and CCW rotation fans to minimise losses. If fans are not counter-rotating, install walls between each fan to create cells in the outlet plenum.
12. Add losses for duct take-offs per the chart above to pressure requirements of the fan. Bellmouth entries will always reduce losses and are recommended.
13. For highest reliability, specify the required bearing life. For example, the statement "minimum L10 bearing life = 40,000 hours" allows for the best bearing to be put on the fan without creating other problems. Some specifications state "use split roller bearings." This can cause a number of problems, such as:
    a. On smaller fans, there may not be enough radial load to prevent roller skidding. This is especially a problem for Arrangement 3 fans.
    b. Split roller bearings are not offered in sizes smaller than 36 mm bore. Smaller fans use shafts smaller than this.
    c. The oversized bearing in the inlet will block some air in smaller fans (above the losses that are already included in the EPF/EPQ ratings).

Location and Placement of Fans in Air Handlers

1. Centre the fan inlets in both the horizontal and vertical planes.
2. For inlet clearance, see Figure 1. The flow should converge at an angle not greater than 45° when approaching the opening for the fan inlet. A minimum of one fan impeller diameter clearance is recommended.
3. In the fan outlet plenum, a minimum wall clearance of one-half fan impeller diameter to the periphery of the fan impeller is recommended.
4. Figure 1 shows that the minimum clearance between the back of the fan impeller and the nearest component downstream (Dim. E) should be one impeller diameter. Small clearances do not allow the flow to equalize behind the fan impeller and the pressure drop of the downstream component is increased.
5. When the flow enters the inlet plenum perpendicular to the fan shaft, large system effect losses can occur. See Figure 2 for a recommended flow baffle or a vortex breaker that may help preserve rated fan performance.
6. When two or more fans are installed in a plenum, divide the plenum into imaginary cells of equal area. Centre the fan inlets on each cell. See Figure 3.

Installation Recommendations

1. Install the fan so the flexible connector on the inlet remains un-collapsed during operation.
2. Install thrust restraints (snubbers) to maintain the axial position of the fan when it is generating pressure.
3. Peripheral equipment, such as electrical components, inverters, control panels, etc., should be positioned away from the high velocity air entering or leaving the fan.
4. Adjust springs on the isolation base so that spring deflection is approximately equal for all isolators.
5. Follow safety, installation, start-up, and maintenance instructions supplied with each fan.

Figure 1. Recommended Location of Fan in Plenum

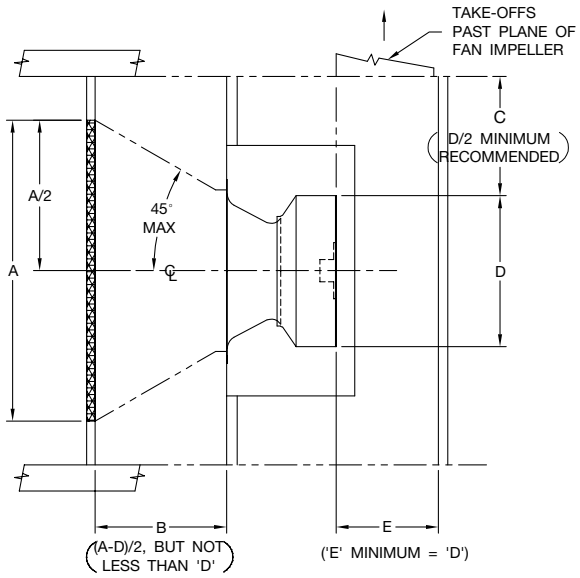


Figure 2. Flow Baffle and Vortex Spin Breaker Location

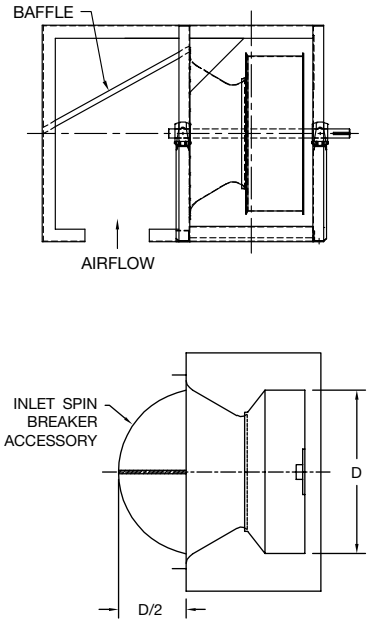
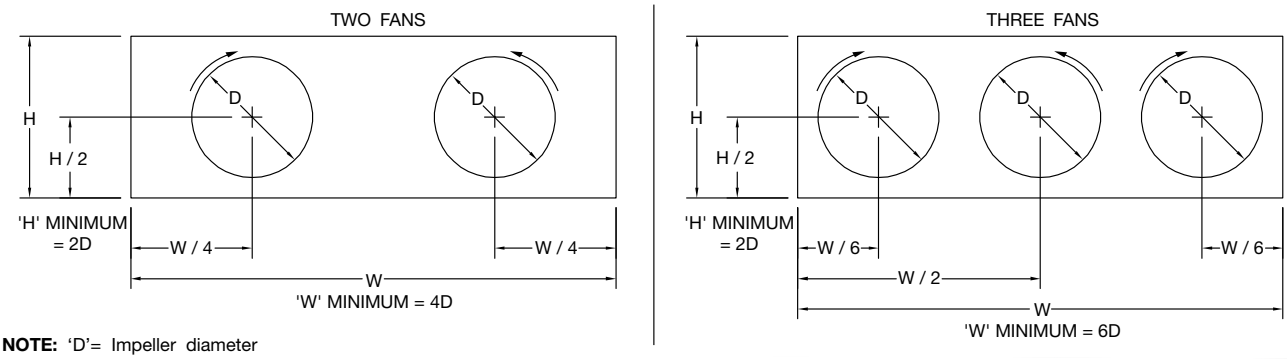


Figure 3. Location of Counter-Rotating Fans



NOTE: 'D'= Impeller diameter

Maximum RPM, Impeller Weights, & WR^2 – EPF and EPFN

EPF EPFN	IMPELLER DIA (mm)	CLASS I					CLASS II					CLASS III				
		MAX. RPM (20°C)	ALUMINIUM		STEEL		MAX. RPM (20°C)	ALUMINIUM		STEEL		MAX. RPM (20°C)	ALUMINIUM		STEEL	
			WT. (kg)	WR^2 (kg-m^2)	WT. (kg)	WR^2 (kg-m^2)		WT. (kg)	WR^2 (kg-m^2)	WT. (kg)	WR^2 (kg-m^2)		WT. (kg)	WR^2 (kg-m^2)	WT. (kg)	WR^2 (kg-m^2)
122	315	3388	4.1	0.04	N/A	N/A	4000	4.1	0.04	N/A	N/A	N/A	N/A	N/A	N/A	N/A
150	355	3006	5.5	0.07	N/A	N/A	3909	5.5	0.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A
165	400	2668	6.8	0.12	N/A	N/A	3468	6.8	0.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A
182	464	2302	7.7	0.26	N/A	N/A	2930	8.2	0.26	N/A	N/A	3767	9.5	0.26	N/A	N/A
200	508	2101	9.5	0.27	N/A	N/A	2674	9.5	0.31	N/A	N/A	3438	10.9	0.39	N/A	N/A
222	565	1888	13.6	0.51	N/A	N/A	2403	13.6	0.51	N/A	N/A	3090	15.5	0.63	N/A	N/A
245	622	1715	15.9	0.88	N/A	N/A	2183	15.9	0.88	N/A	N/A	2806	17.3	0.93	N/A	N/A
270	686	1556	18.2	1.2	38.6	3.5	1981	18.2	1.2	44.1	3.9	2546	21.4	1.3	59.5	5.3
300	762	1401	22.3	1.9	46.8	5.1	1783	24.5	2.1	50.5	5.4	2291	26.4	2.2	69.5	7.5
330	838	1273	28.2	2.9	61.8	8.2	1620	30.5	3.2	70.0	9.1	2083	32.7	3.2	93.6	12.4
365	927	1151	33.2	4.3	71.4	11.5	1465	35.9	4.7	81.4	12.9	1884	38.2	4.8	108	17.2
402	1022	1044	38.6	6.4	81.8	15.8	1329	42.3	7.0	95.0	18.1	1708	44.5	7.0	141	27.3
445	1130	944	57.3	9.8	149	37.1	1202	61.4	10.7	160	39.3	1545	64.5	10.8	214	52.9
490	1245	857	74.5	16.5	166	49.3	1091	74.5	16.5	180	52.6	1403	79.1	22.5	243	72.0
542	1378	775	103	26.6	233	86.3	986	103	26.6	297	108	1267	109	28.4	316	117
600	1524	700	116	39.2	301	136	891	116	39.2	341	149	1146	123	41.8	364	162
660	1676	637	157	58.0	433	237	810	157	58.0	500	274	1041	169	62.3	462	249
730	1854	576	187	86.3	489	322	733	227	113	524	340	942	250	126	599	391
807	2051	488	227	127	585	327	637	261	146	635	356	802	N/A	N/A	735	447
890	2261	443	352	238	880	595	578	402	271	882	595	728	N/A	N/A	1070	765

Maximum RPM, Impeller Weights, & WR^2 – EPQ and EPQN

EPQ EPQN	IMPELLER DIA (mm)	CLASS I					CLASS II					CLASS III				
		MAX. RPM (20°C)	ALUMINIUM		STEEL		MAX. RPM (20°C)	ALUMINIUM		STEEL		MAX. RPM (20°C)	ALUMINIUM		STEEL	
			WT. (kg)	WR^2 (kg-m^2)	WT. (kg)	WR^2 (kg-m^2)		WT. (kg)	WR^2 (kg-m^2)	WT. (kg)	WR^2 (kg-m^2)		WT. (kg)	WR^2 (kg-m^2)	WT. (kg)	WR^2 (kg-m^2)
122	315	3388	4.5	0.09	N/A	N/A	4000	4.5	0.09	N/A	N/A	N/A	N/A	N/A	N/A	N/A
150	355	3006	5.9	0.14	N/A	N/A	3909	5.9	0.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A
165	400	2668	7.7	0.22	N/A	N/A	3468	7.7	0.22	N/A	N/A	N/A	N/A	N/A	N/A	N/A
182	464	2302	9.1	0.30	N/A	N/A	2930	9.1	0.3	N/A	N/A	3767	10.5	0.31	N/A	N/A
200	508	2101	10.9	0.42	N/A	N/A	2674	10.9	0.35	N/A	N/A	3438	12.3	0.42	N/A	N/A
222	565	1888	15.5	0.59	N/A	N/A	2403	15.5	0.59	N/A	N/A	3090	17.3	0.72	N/A	N/A
245	622	1715	17.7	1.0	N/A	N/A	2183	17.7	1.0	N/A	N/A	2806	19.5	1.01	N/A	N/A
270	686	1556	20.9	1.5	43.6	4.0	1981	20.9	1.5	48.6	4.4	2546	24.1	1.6	64.5	5.7
300	762	1401	25.9	2.3	52.7	5.7	1783	27.7	2.5	56.4	6.1	2291	29.5	2.5	75.5	8.1
330	838	1273	32.7	3.4	68.6	9.1	1620	35.0	3.7	76.8	10.0	2083	37.3	3.7	101	13.3
365	927	1151	38.6	5.1	80.0	12.9	1465	41.4	5.4	90.5	14.3	1884	43.6	5.5	117	18.7
402	1022	1044	45.0	7.4	92.3	17.9	1329	48.6	8.0	105	20.2	1708	50.9	8.0	157	30.4
445	1130	944	64.1	11.5	162	40.2	1202	68.2	12.4	172	42.4	1545	71.4	12.5	233	57.6
490	1245	857	83.2	19.0	182	54.0	1091	83.2	19.0	195	57.3	1403	90.9	20.3	266	78.9
542	1378	775	114	30.4	250	93.3	986	114	30.4	325	118	1267	119	32.2	345	127
600	1524	700	132	44.6	336	151	891	132	44.6	375	164	1146	139	47.1	397	176
660	1676	637	173	66.3	476	260	810	173	66.3	505	272	1041	184	70.6	542	297
730	1854	576	206	98.7	541	356	733	246	125	576	374	942	269	138	651	425
807	2051	488	248	144	642	372	637	293	170	691	401	802	N/A	N/A	811	509
890	2261	443	384	269	964	677	578	450	315	966	677	728	N/A	N/A	1162	856

*Consult factory for fans over 4000 RPM.

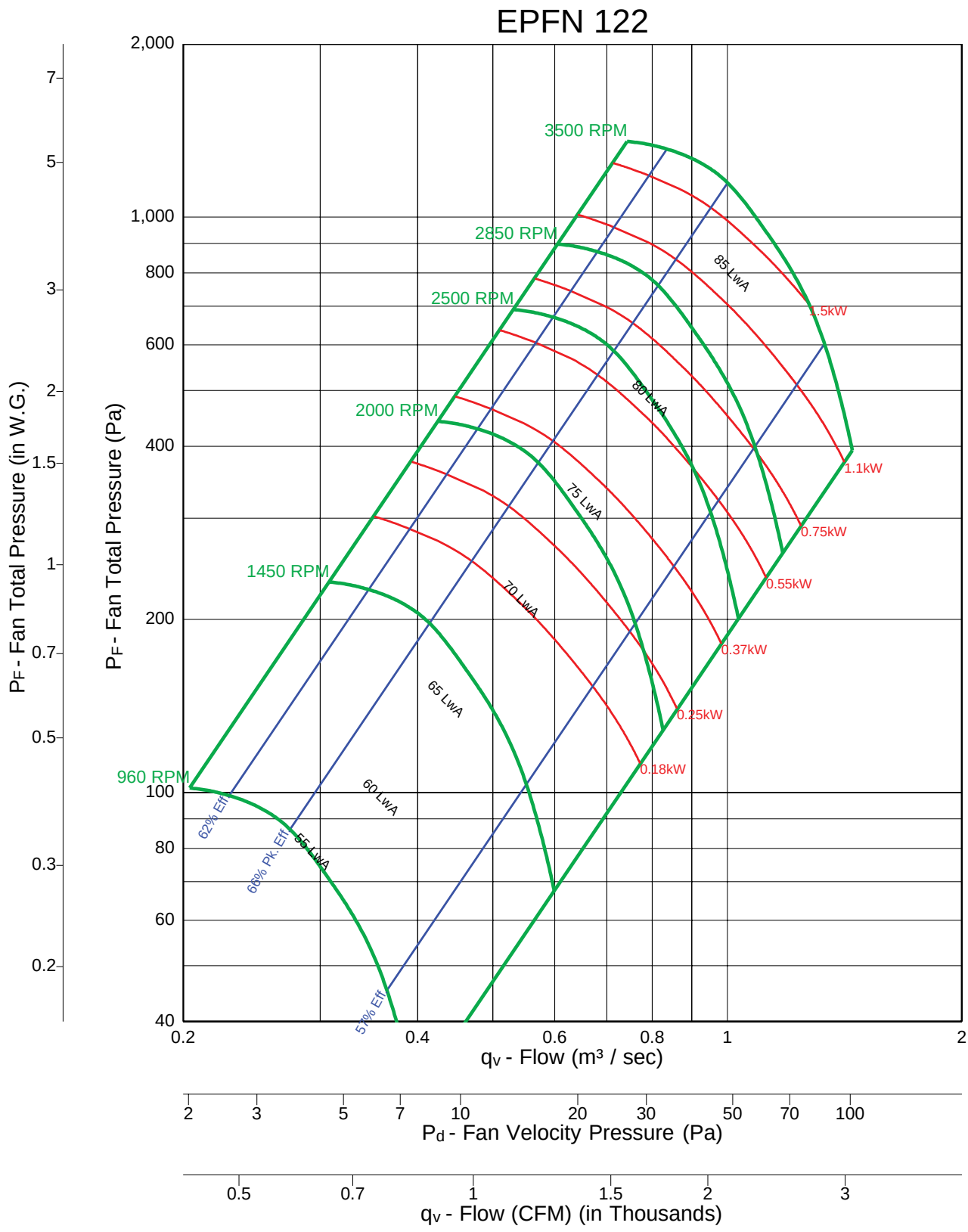
Contact factory for belt driven fans above 110 kW.

Bare Fan Weights

SIZE	IMPELLER DIA (mm)	ARR. 1 (EPQN)			ARR. 3 (EPQ)			ARR. 4 (EPQN)		
		CL I	CL II	CL III	CL I	CL II	CL III	CL I	CL II	CL III
122	315	42.3	42.7	N/A	35.9	35.9	N/A	37.7	37.7	N/A
150	355	52.3	53.2	N/A	45.0	45.9	N/A	46.4	46.4	N/A
165	400	60.5	61.4	N/A	51.8	52.7	N/A	54.5	54.5	N/A
182	464	75.0	76.8	85.5	65.0	66.8	74.5	67.7	68.2	75.5
200	508	87.3	87.3	96.8	75.9	75.9	84.5	78.2	78.2	86.4
222	565	110	112	124	95.0	95.0	108	100	100	110
245	622	129	131	144	111	114	126	115	115	127
270	686	180	187	217	155	163	195	165	170	198
300	762	226	230	267	196	204	238	205	210	245
330	838	276	288	333	239	255	297	254	263	306
365	927	347	365	420	305	325	369	322	333	384
402	1022	398	416	498	346	370	448	367	381	462
445	1130	587	603	705	515	538	650	547	559	660
490	1245	675	694	807	586	612	742	629	642	761
542	1378	834	923	992	740	824	903	784	863	936
600	1524	948	1002	1075	865	925	1014	883	923	1000
660	1676	1190	1238	1333	1106	1163	1277	948	970	1065
730	1854	1362	1417	1558	1295	1329	1492	N/A	N/A	N/A
807	2051									
890	2261									

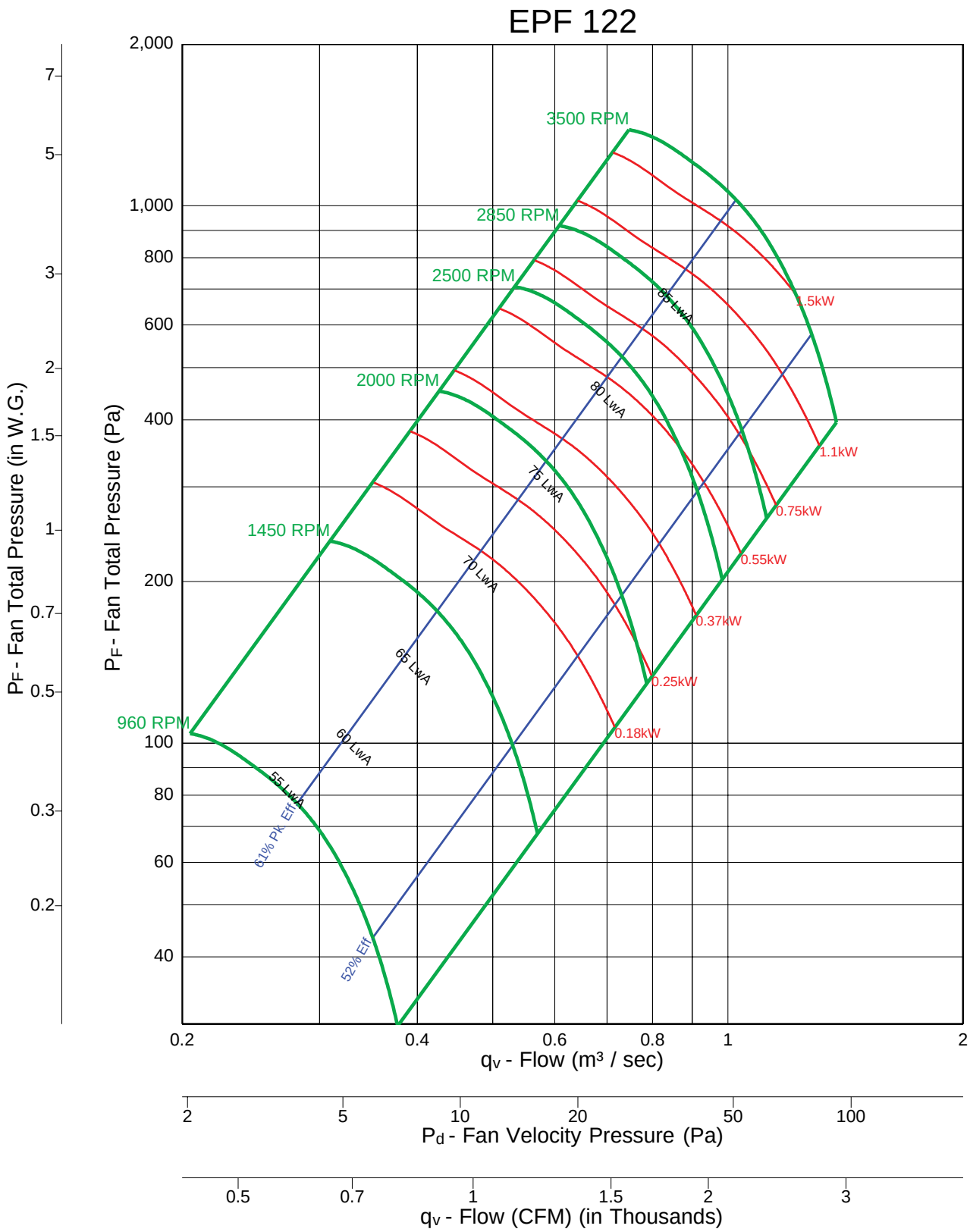
NOTES:

1. Arrangement 1 and 3 weights include an aluminium impeller on size 122 through 245, and a steel impeller on size 270 through 730.
2. Arrangement 4 weights include an aluminium impeller on all sizes.
3. Weights are for the 12-bladed impeller design (EPQ and EPQN). 9-bladed designs (EPF and EPFN) are slightly less and can be reduced by the difference between the impeller weights shown above.
4. Weights do not include motor, drive, motor base, or slide base.



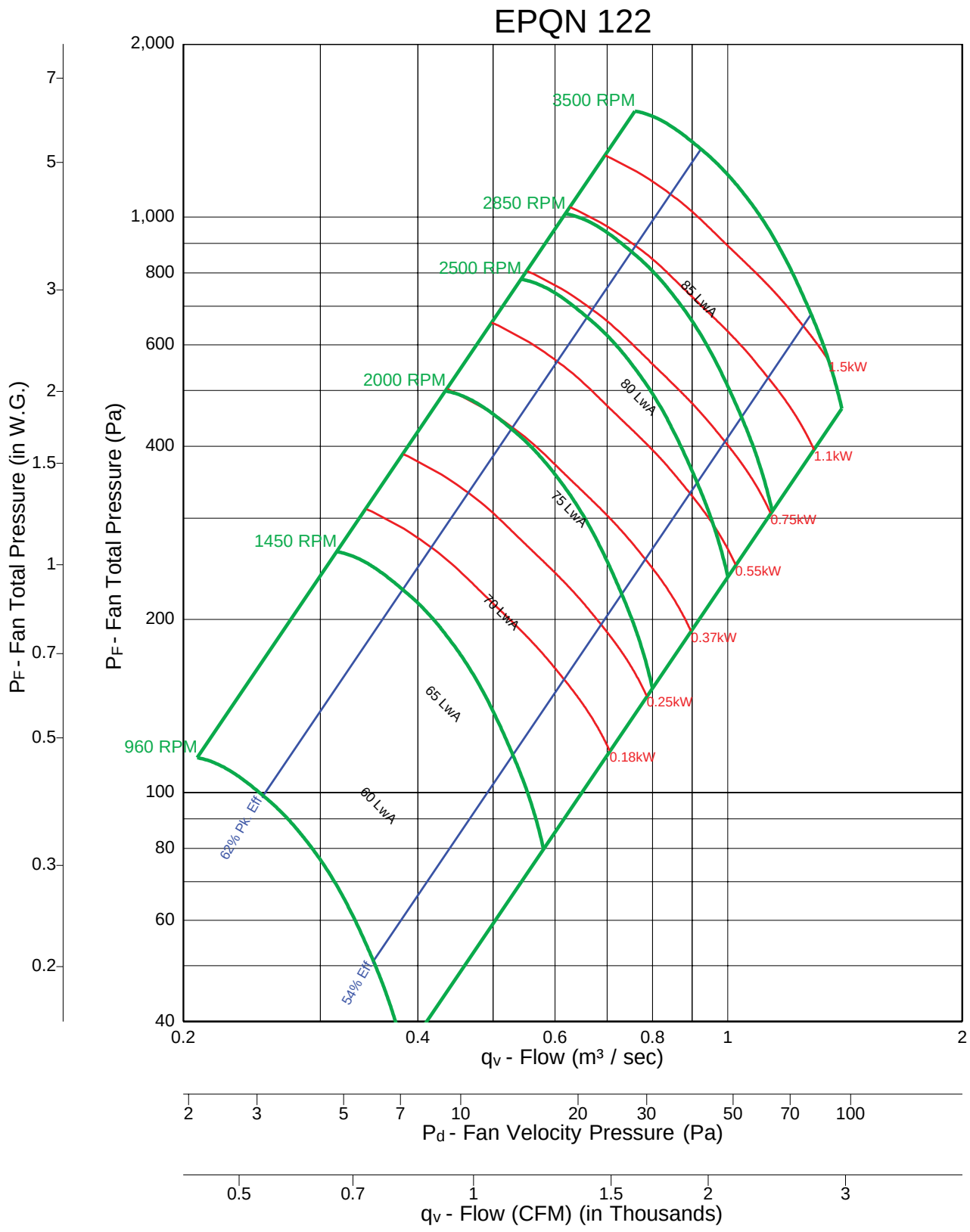
Fan Efficiency Grade = FEG 75

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



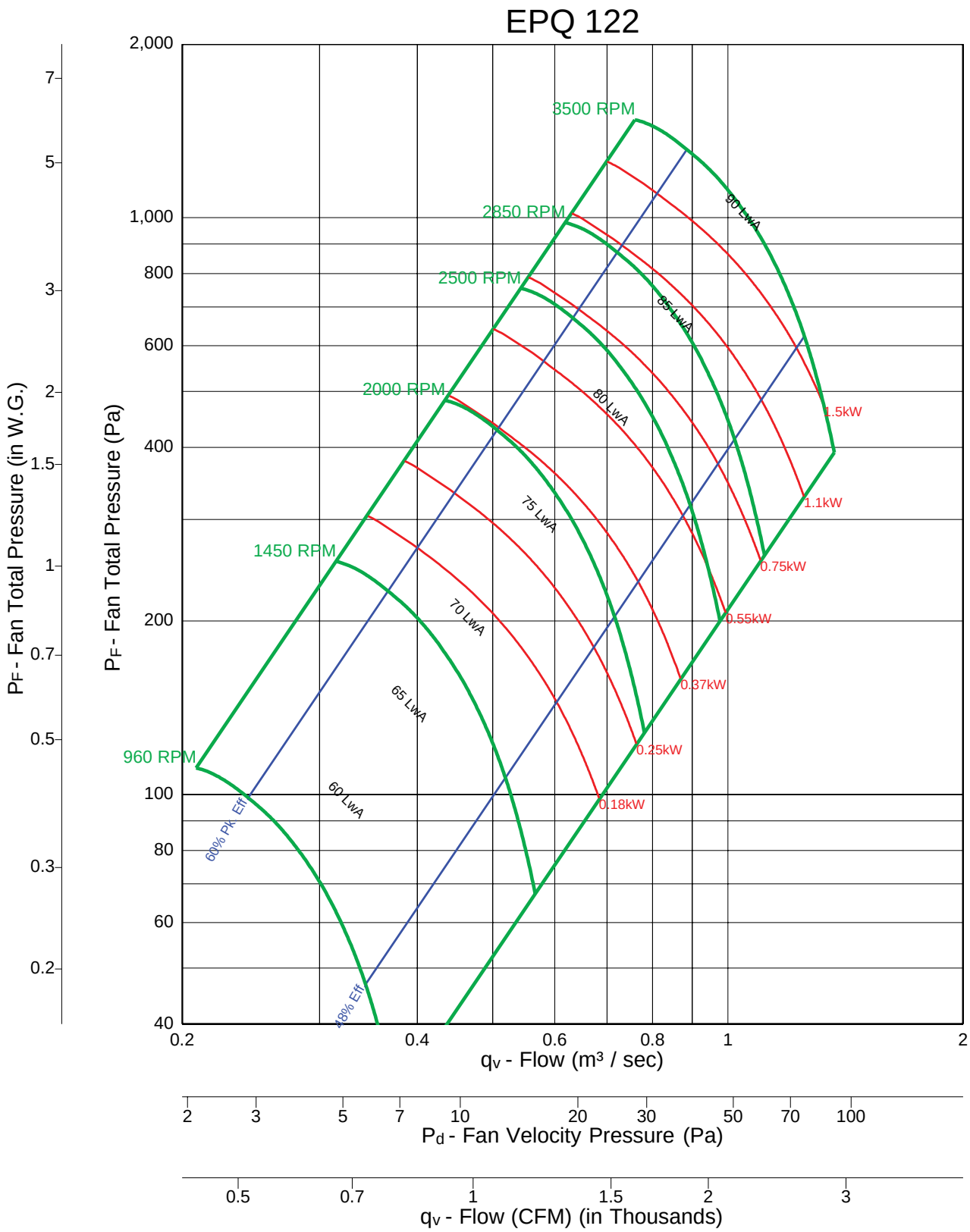
Fan Efficiency Grade = FEG 71

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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 71

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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 71

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free outlet.
6. Ratings do not include the effects of duct end correction.
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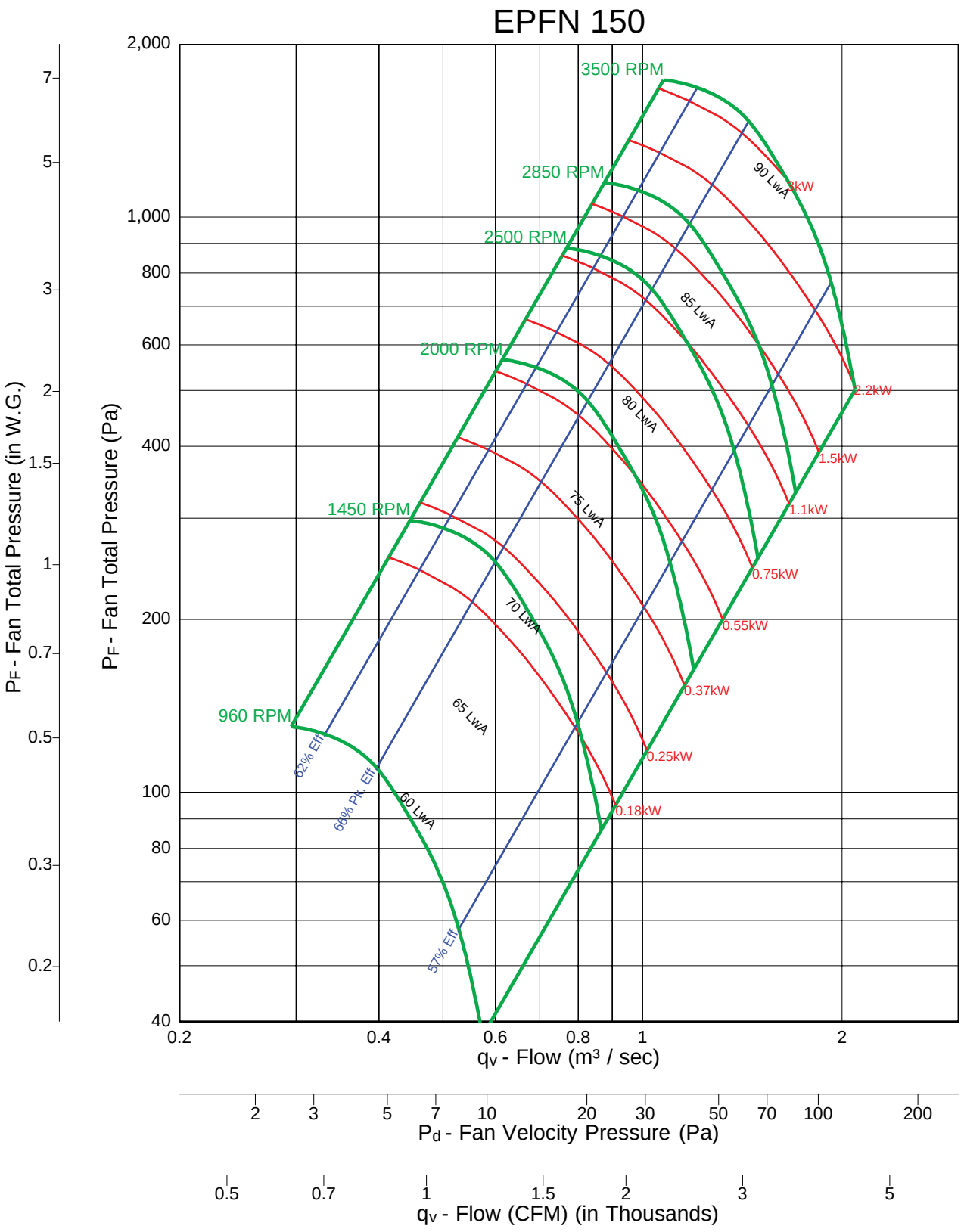
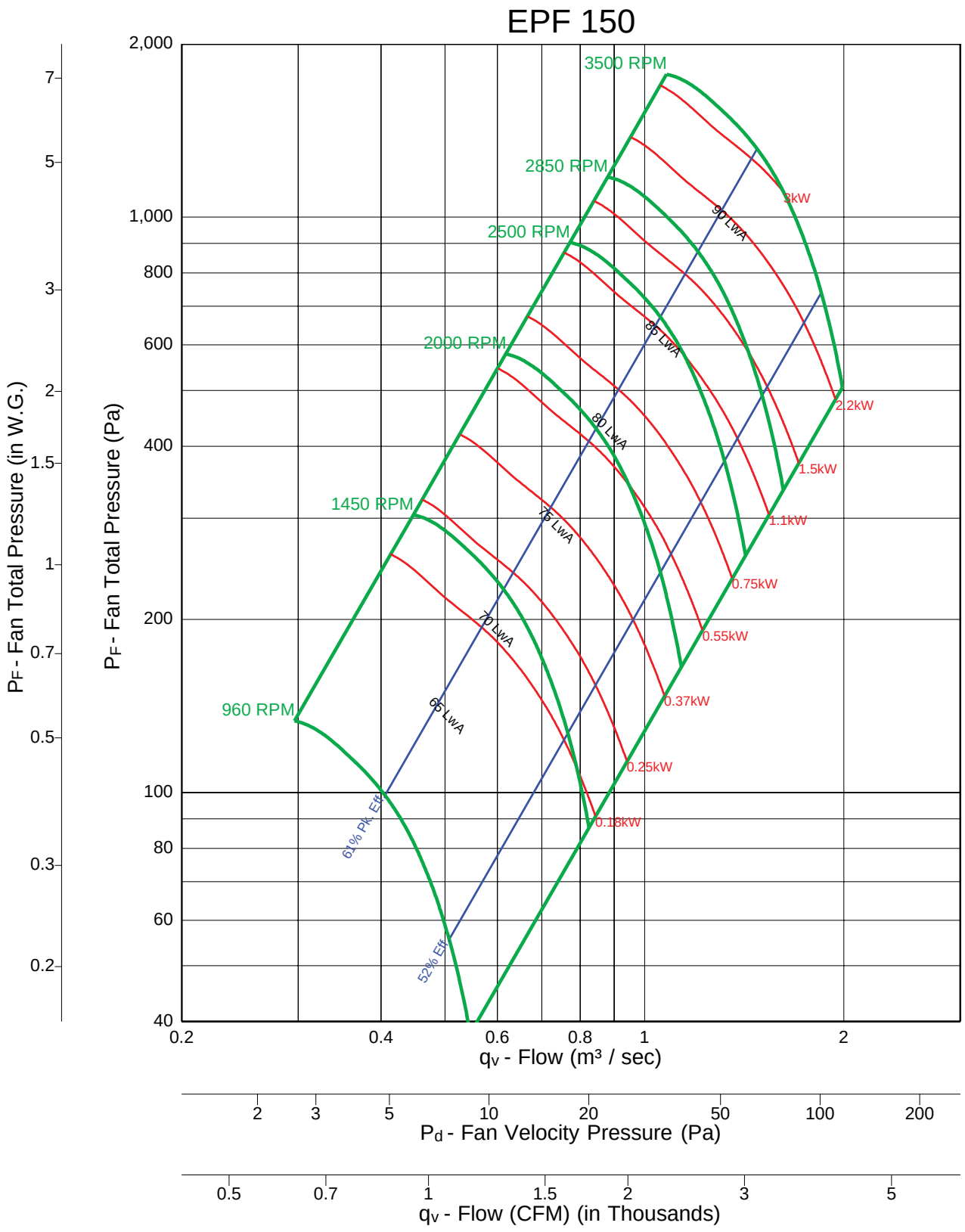


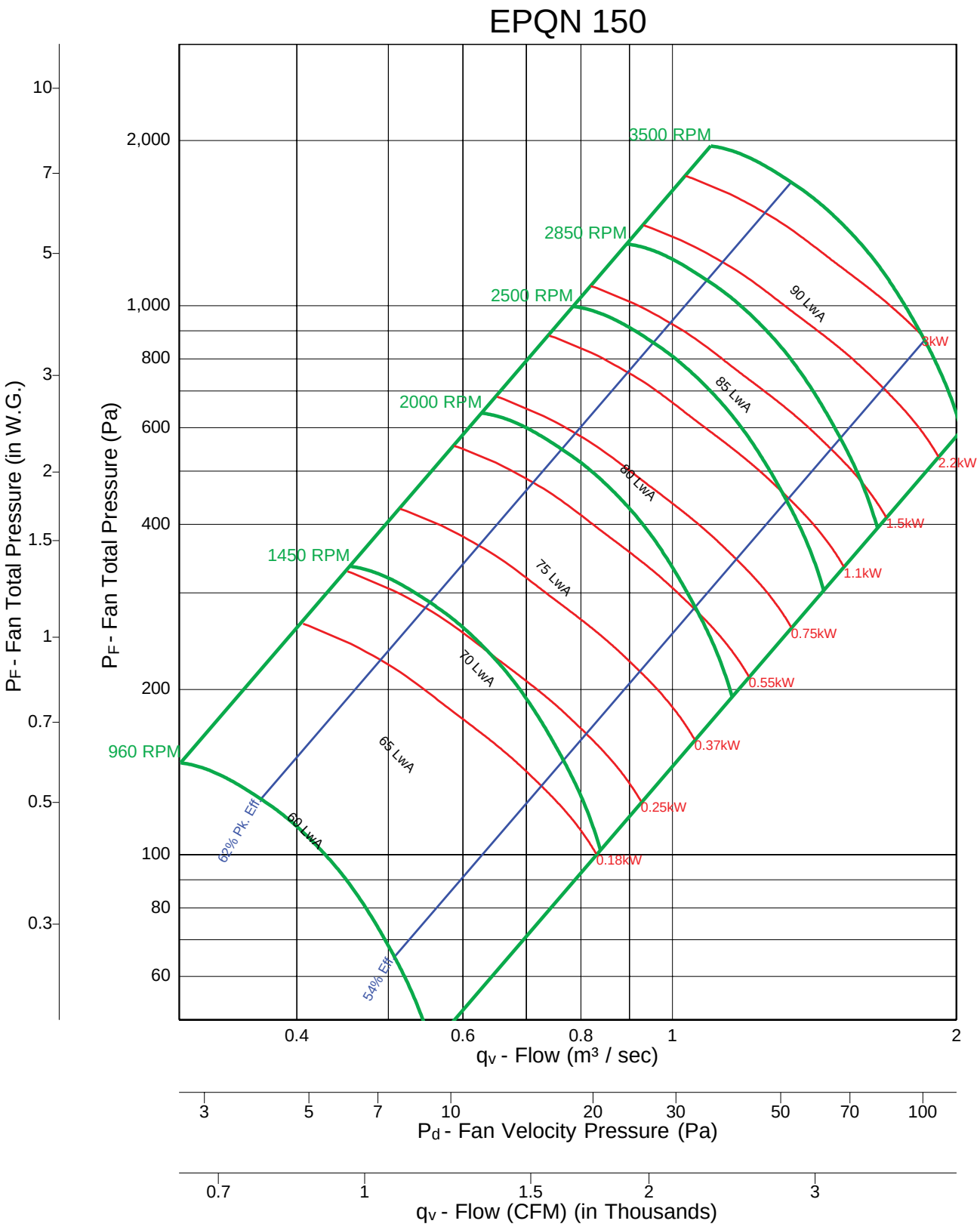
Fan Efficiency Grade = FEG 75

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



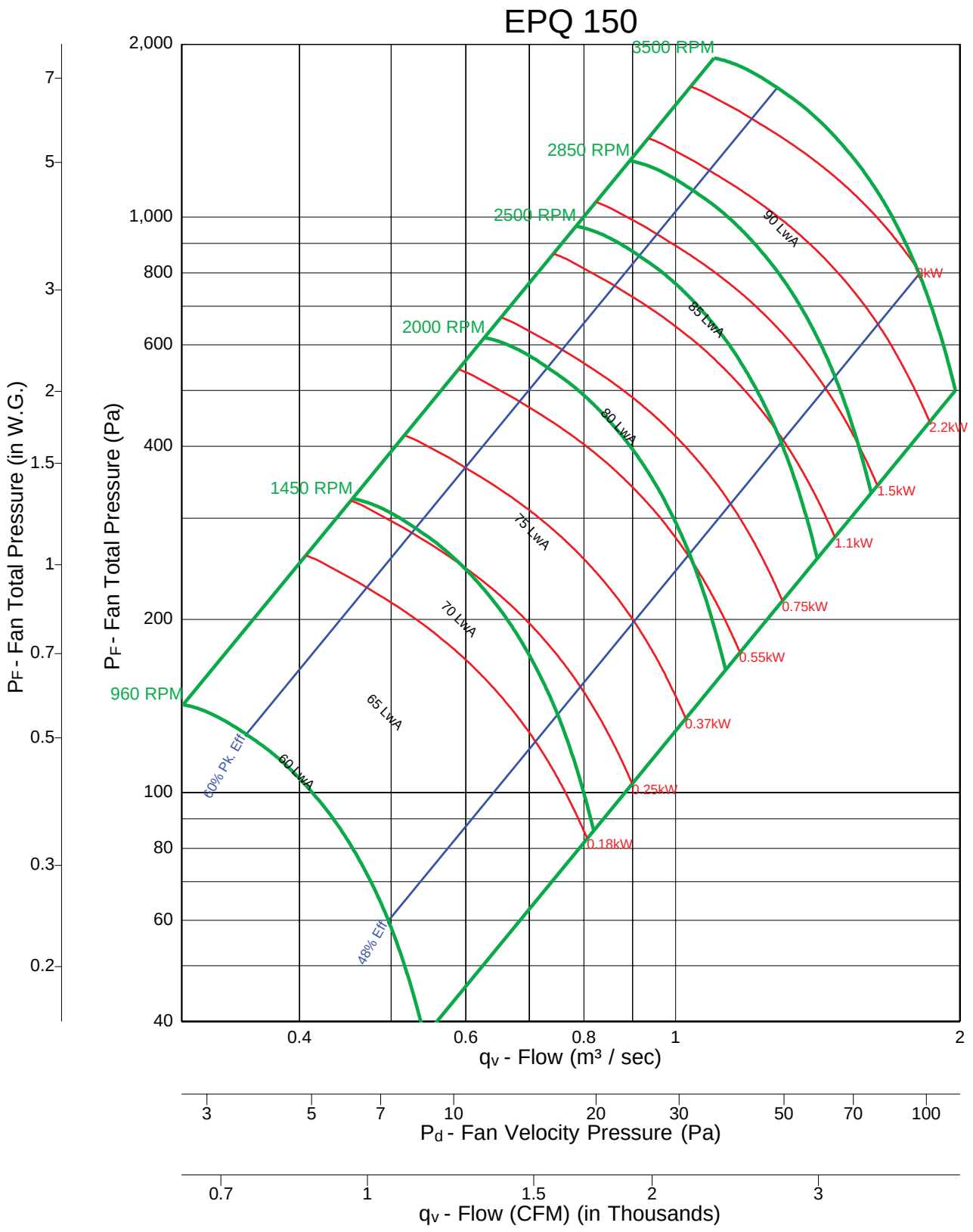
Fan Efficiency Grade = FEG 67

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



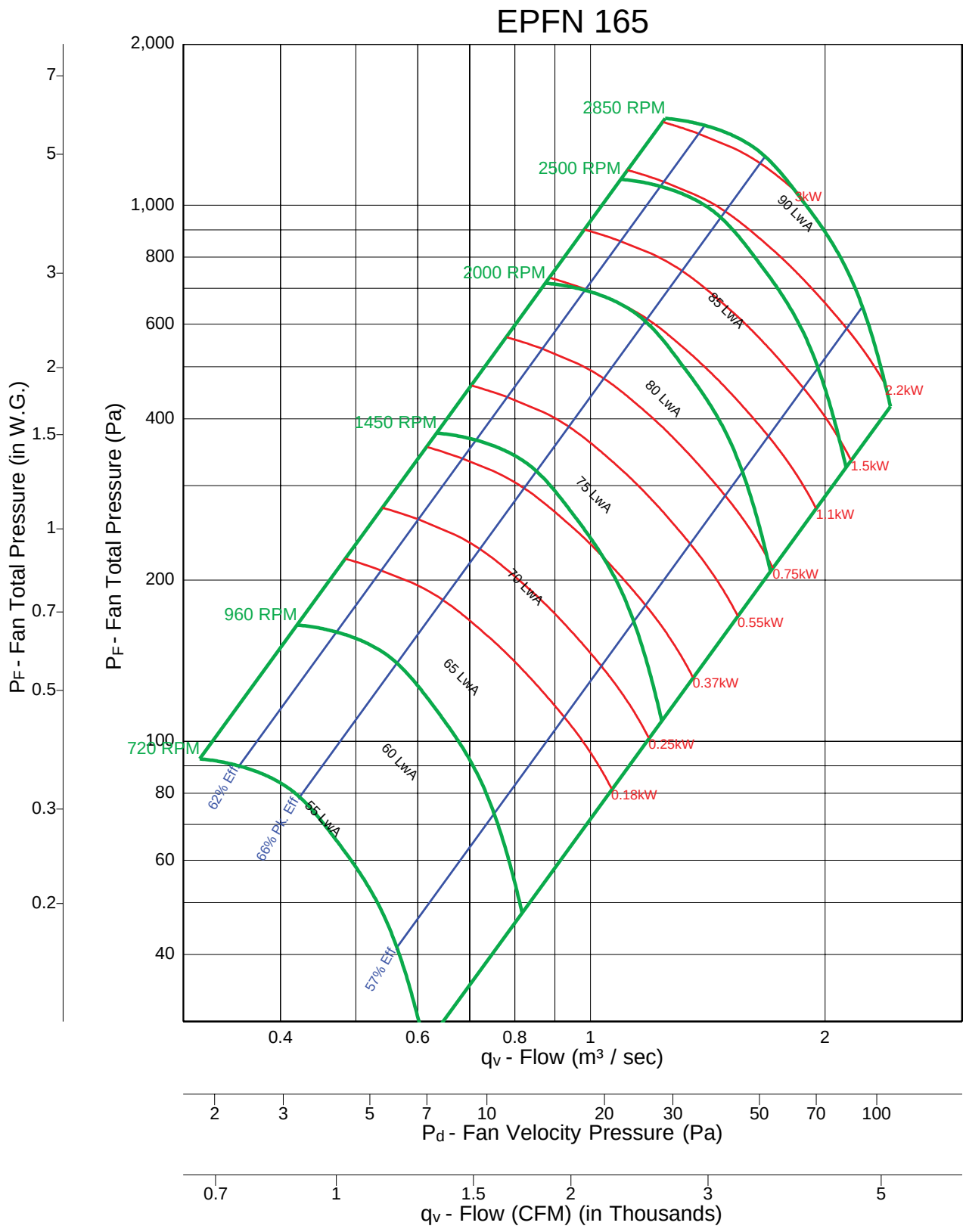
Fan Efficiency Grade = FEG 71

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



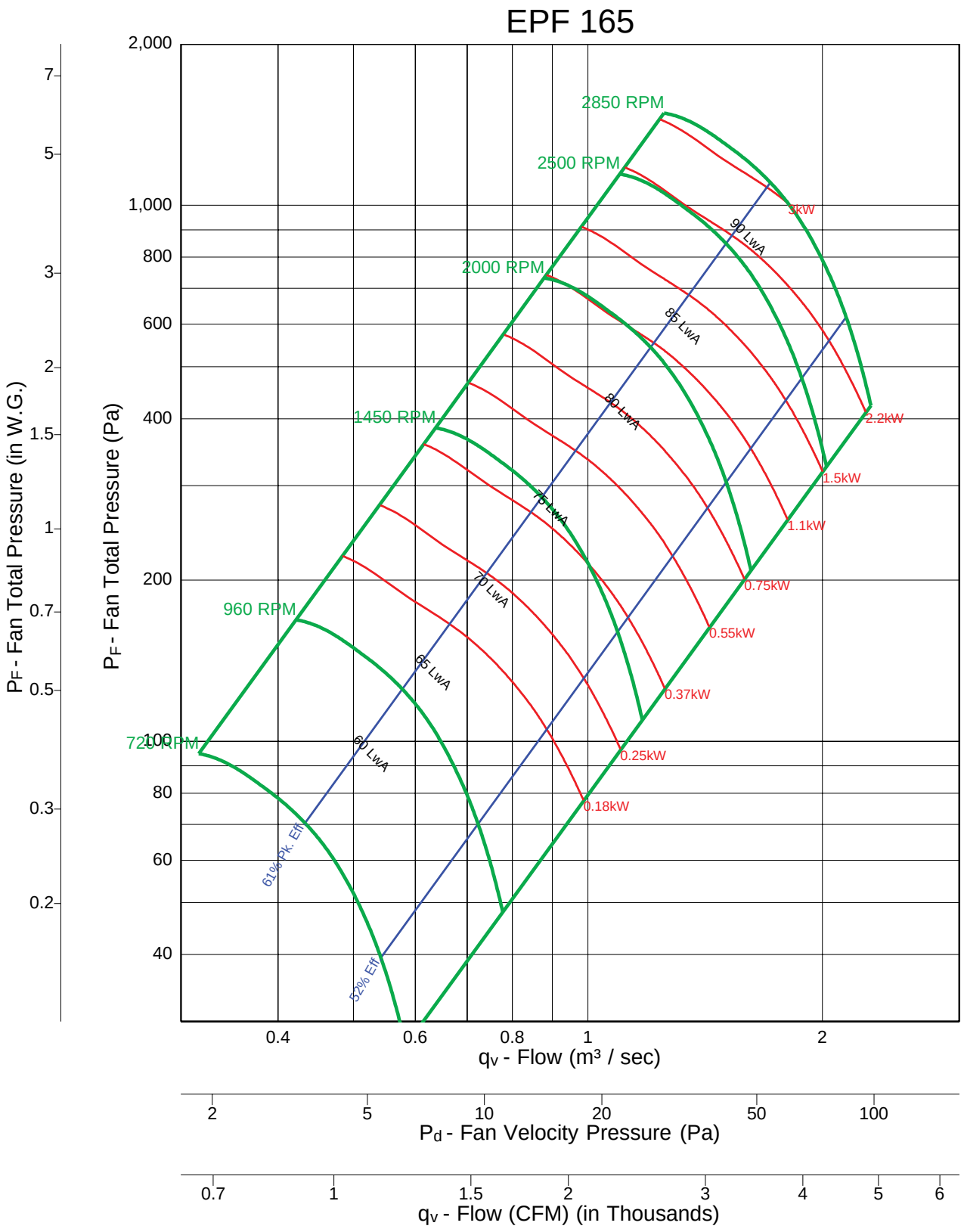
Fan Efficiency Grade = FEG 67

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



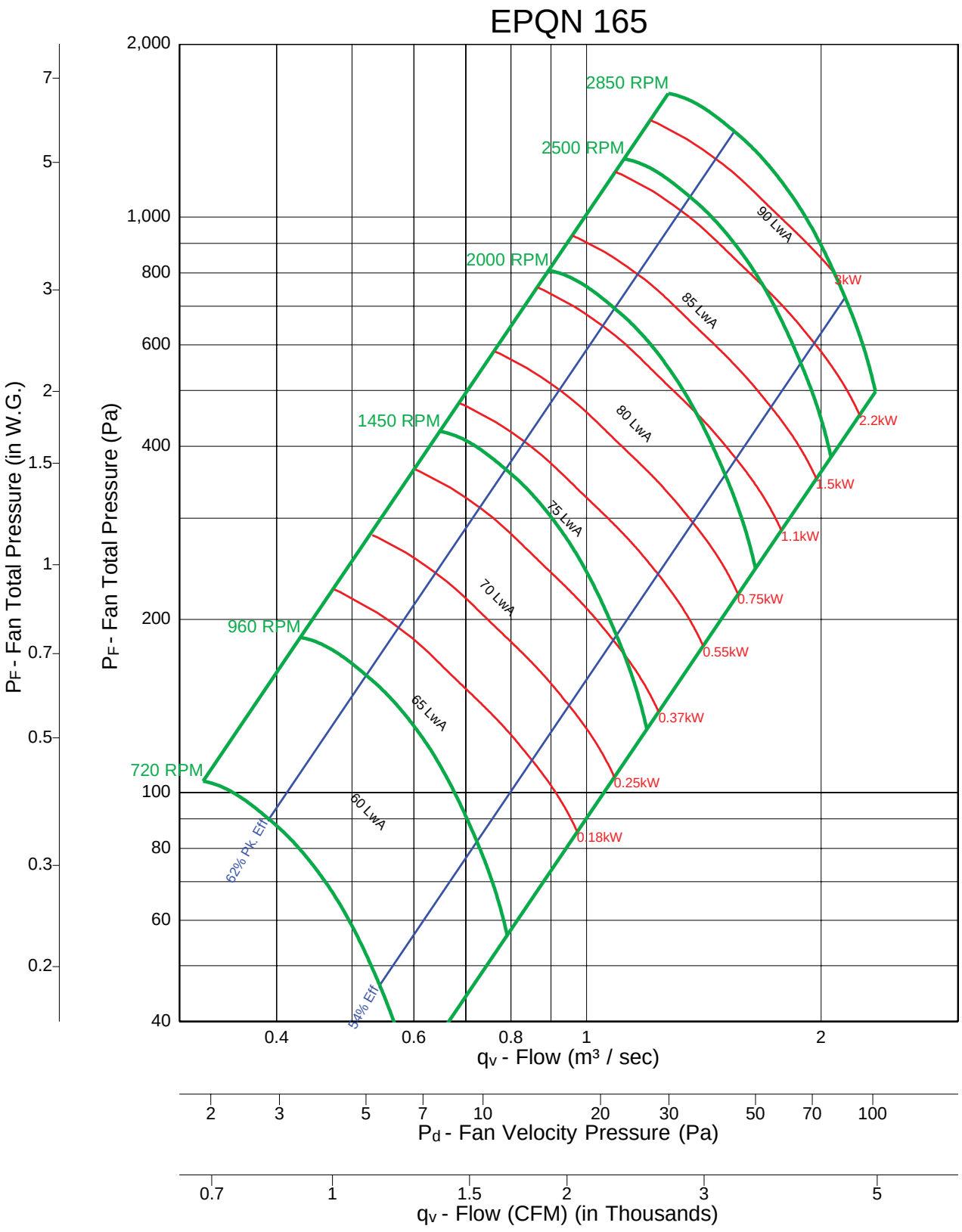
Fan Efficiency Grade = FEG 71

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



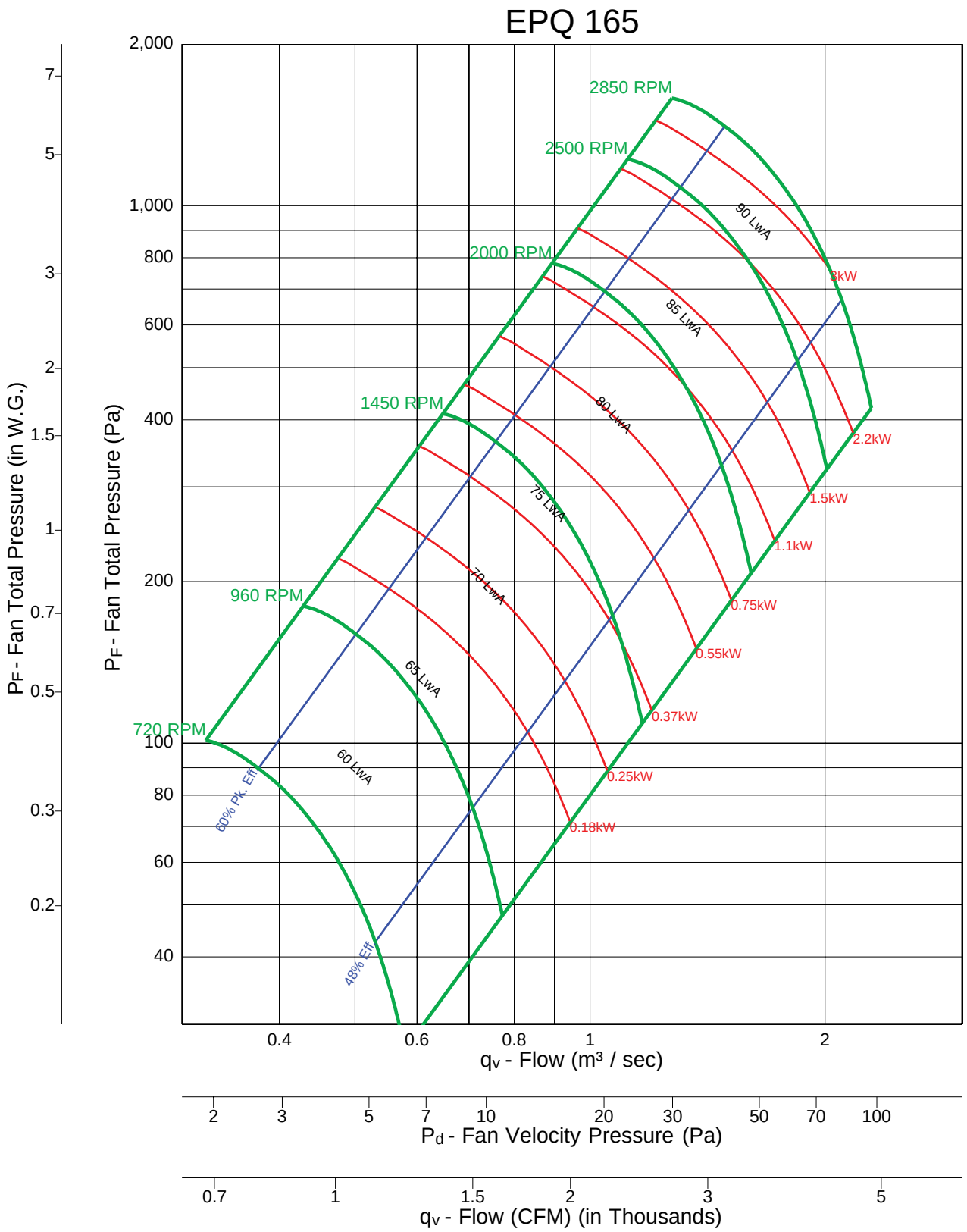
Fan Efficiency Grade = FEG 67

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



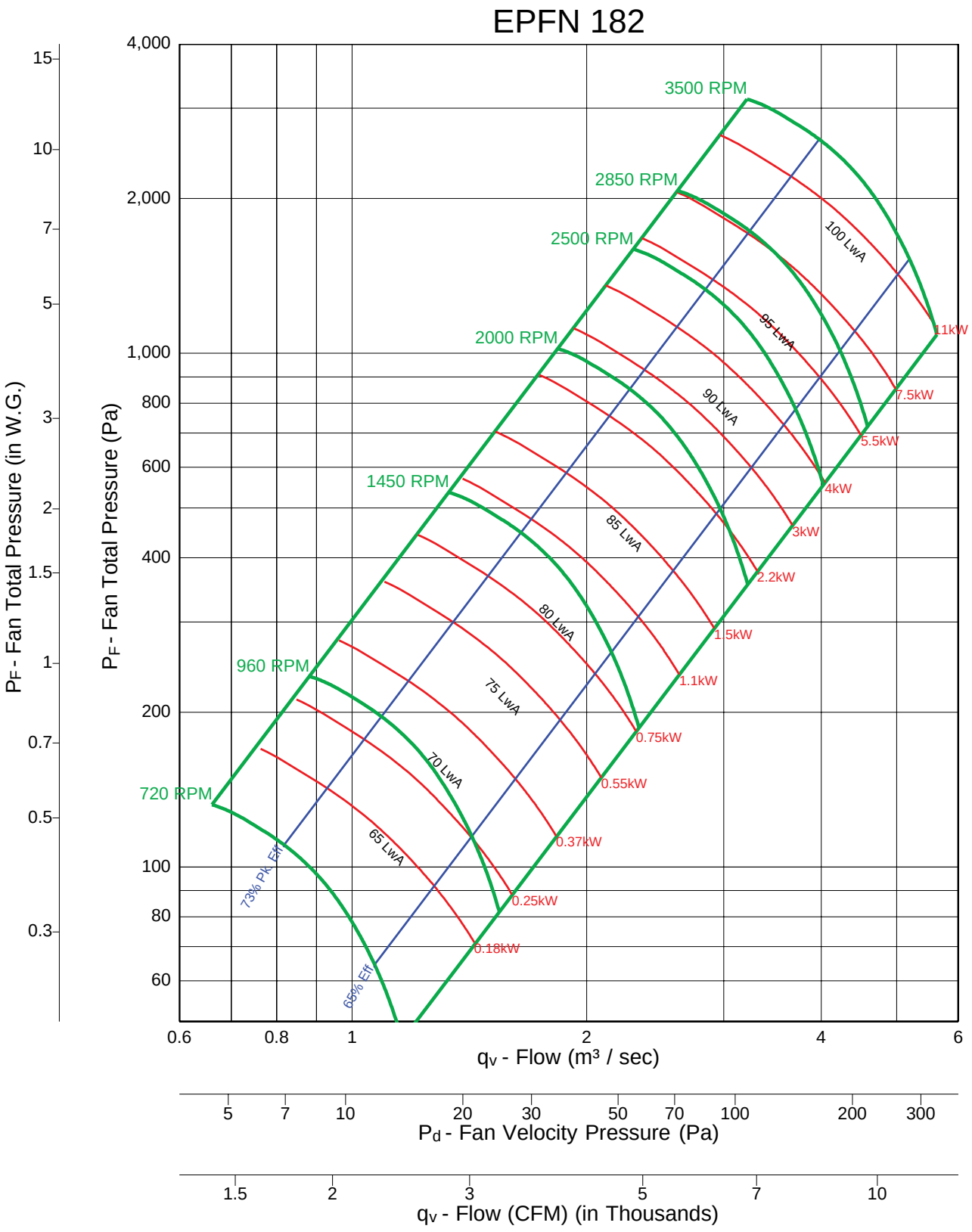
Fan Efficiency Grade = FEG 67

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



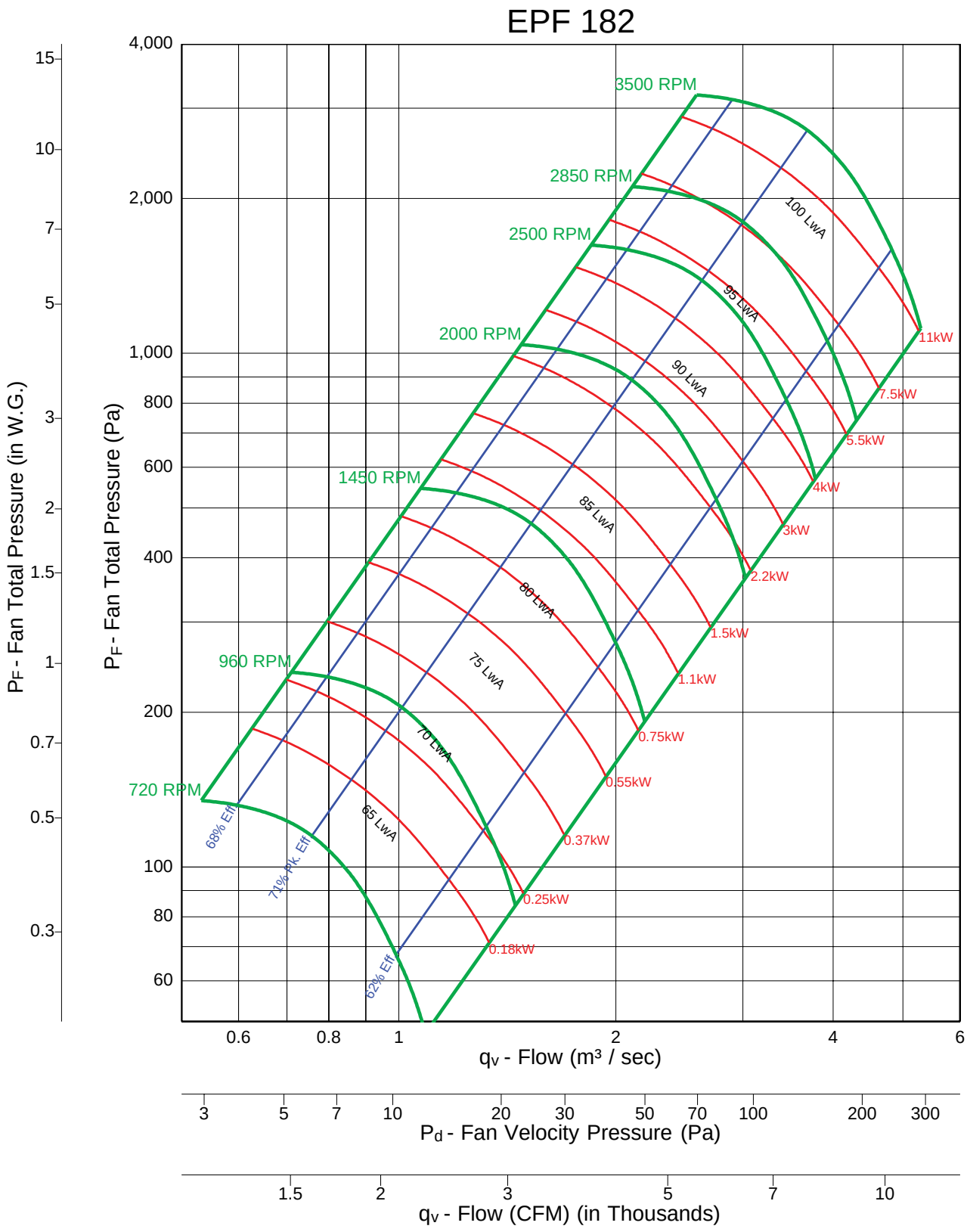
Fan Efficiency Grade = FEG 67

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



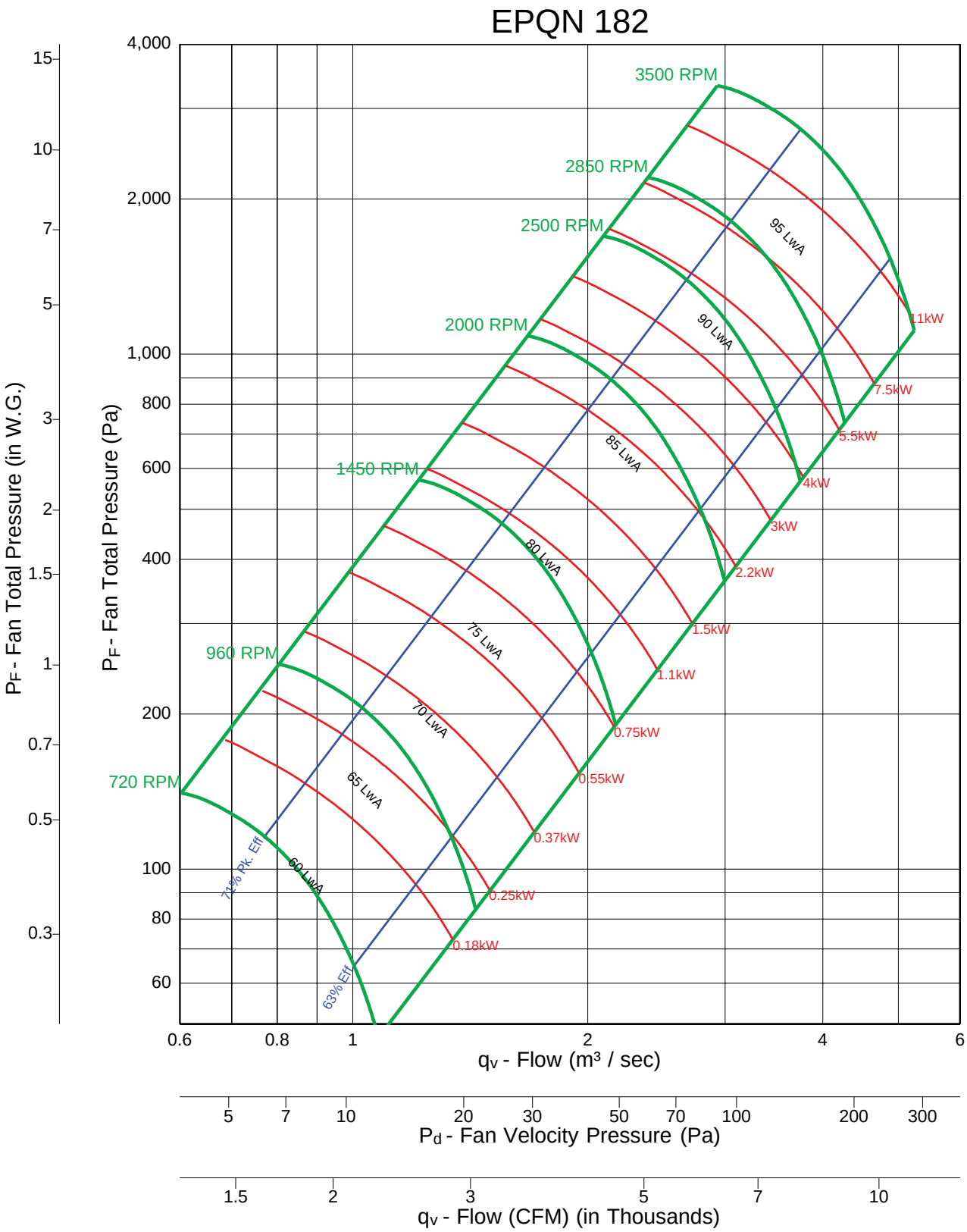
Fan Efficiency Grade = FEG 80

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



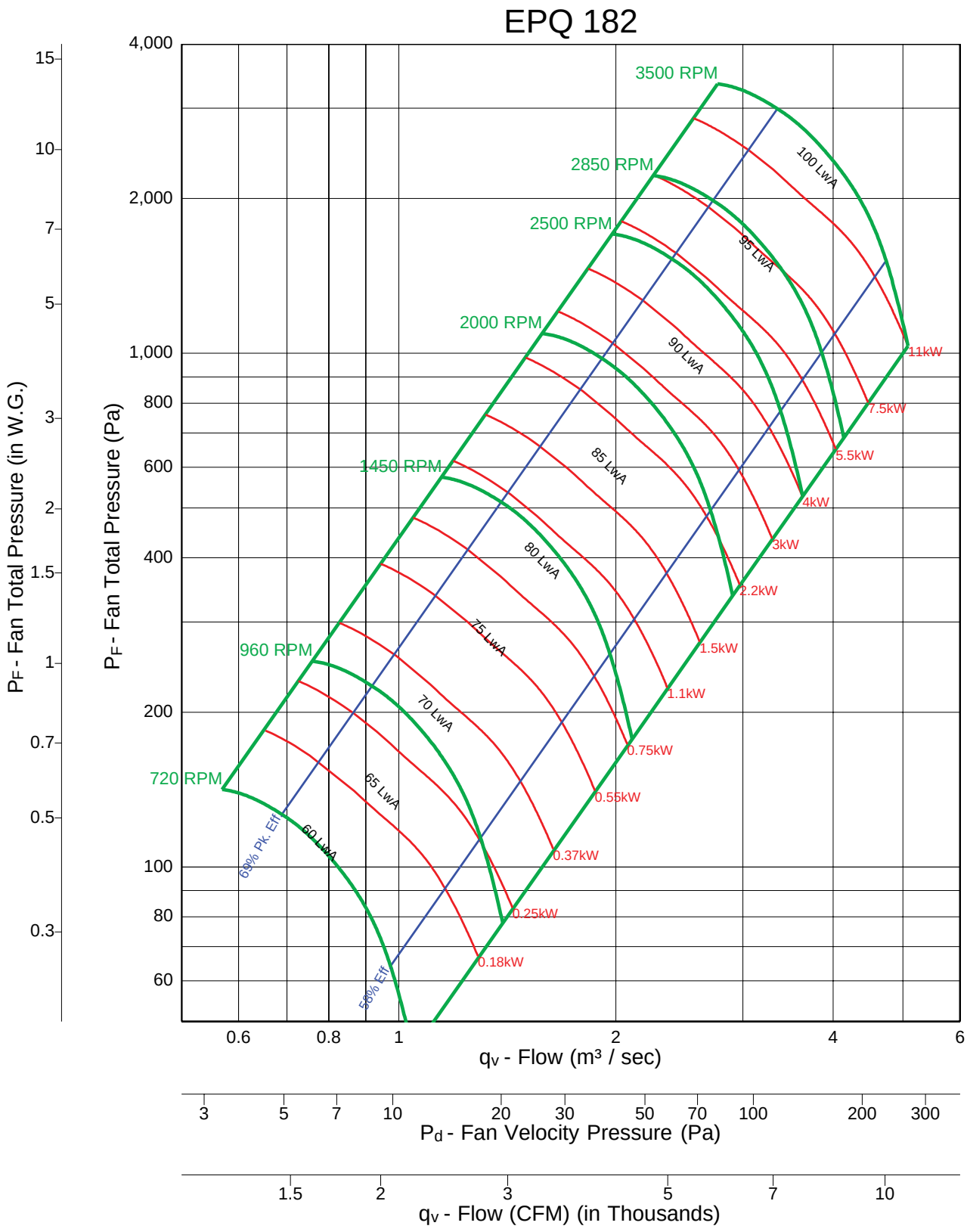
Fan Efficiency Grade = FEG 75

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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 A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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 A: Free inlet, Free 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.
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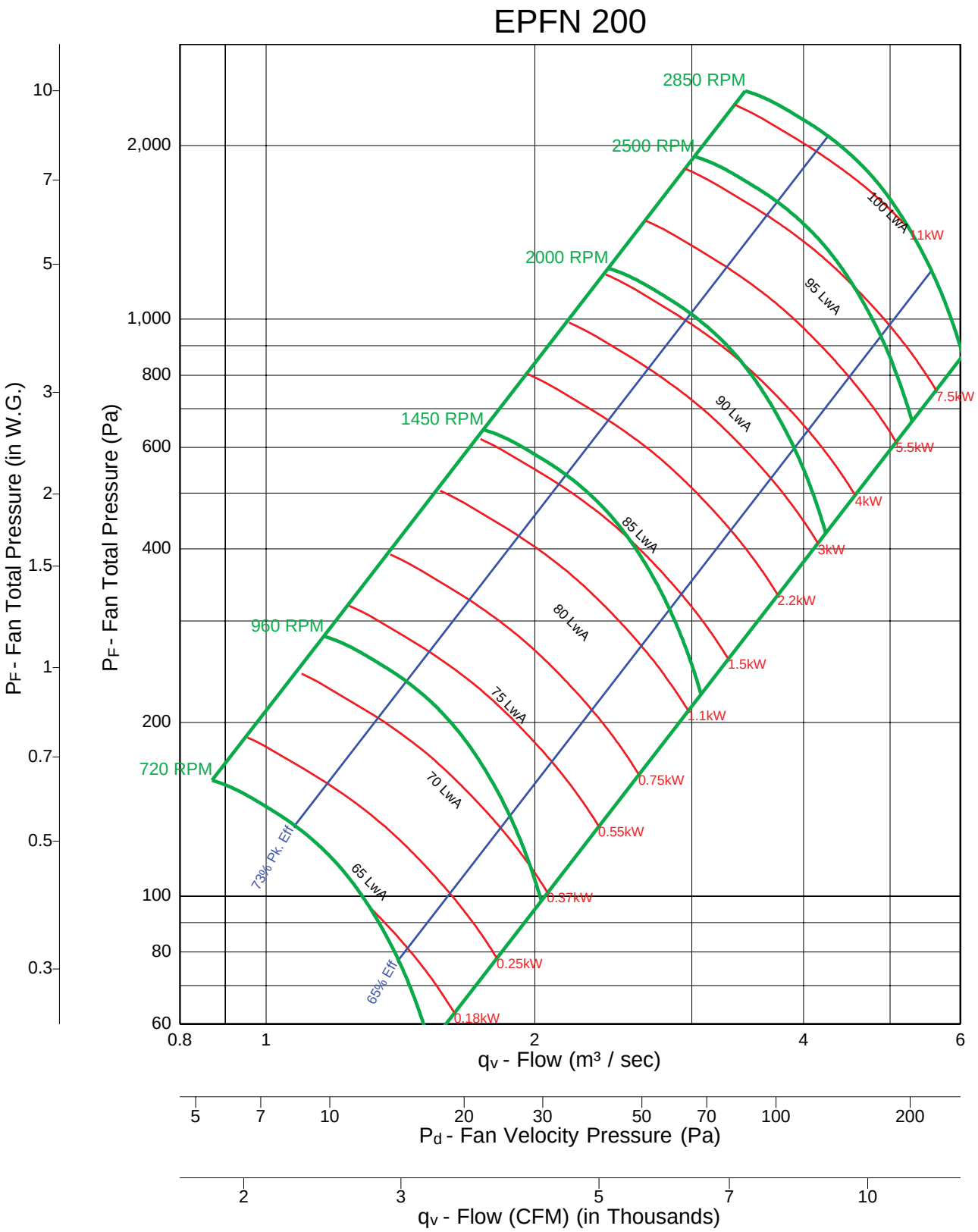
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.



Fan Efficiency Grade = FEG 80

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
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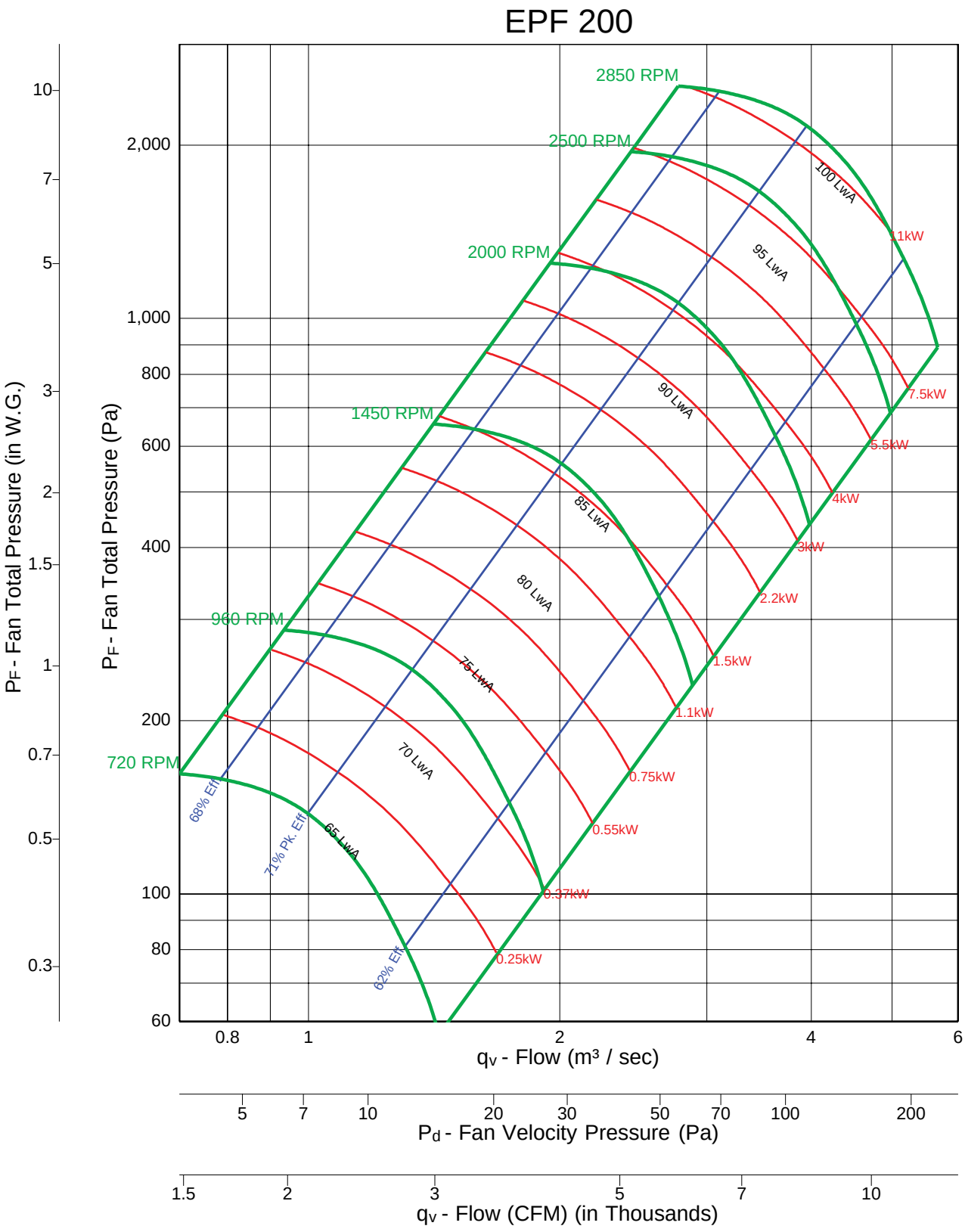

Fan Efficiency Grade = FEG 75

Notes:
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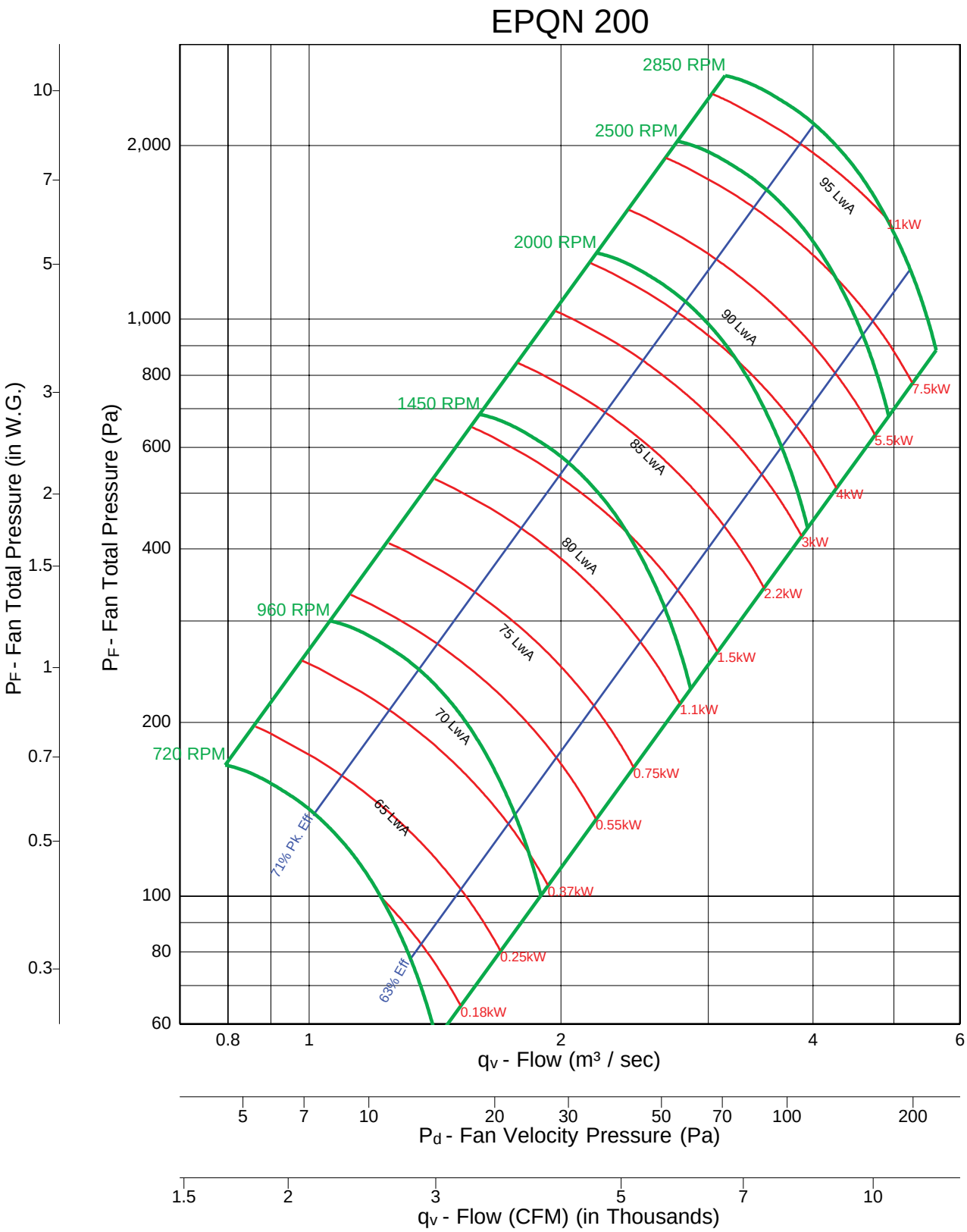

Fan Efficiency Grade = FEG 75

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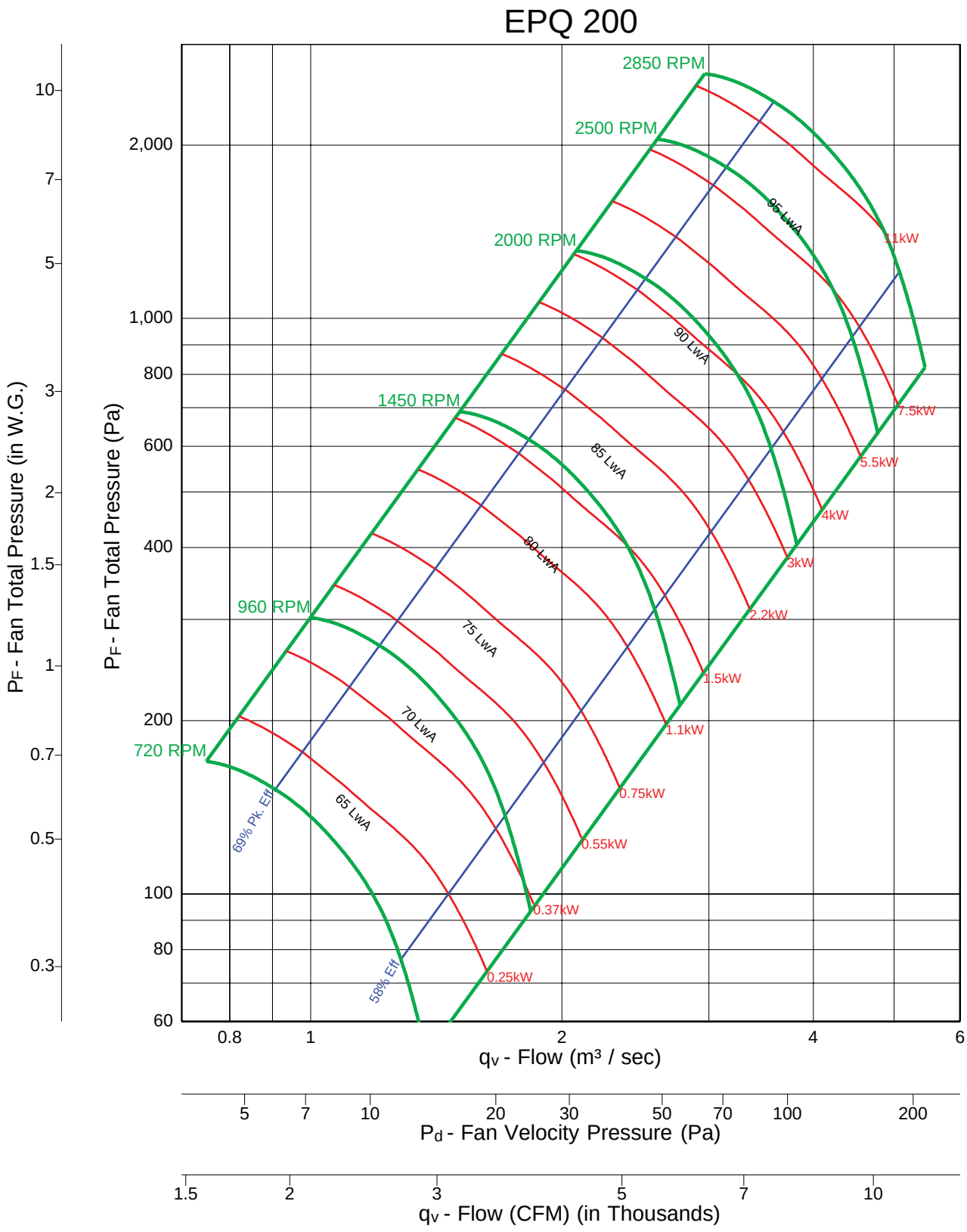

Fan Efficiency Grade = FEG 75

Notes:
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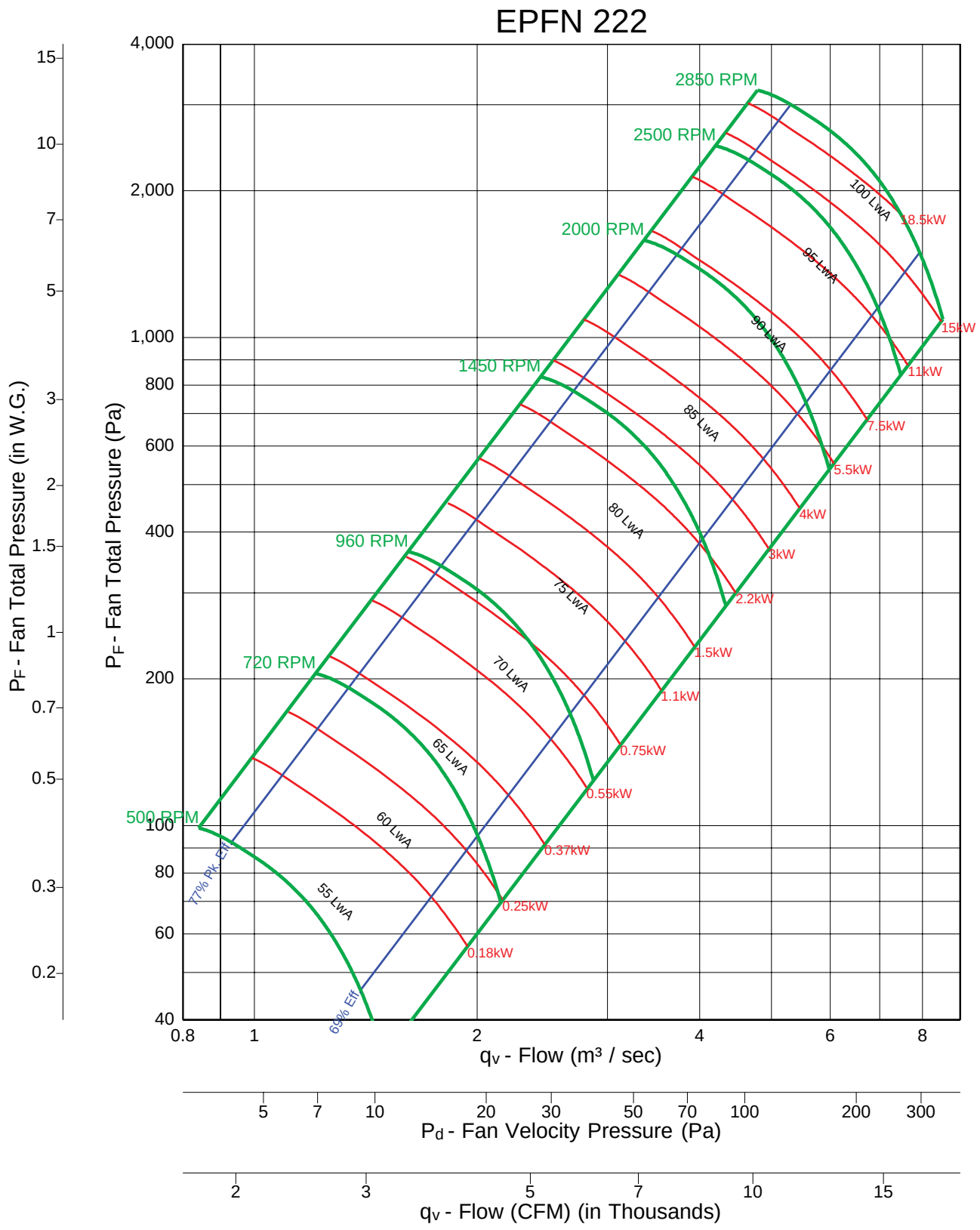

Fan Efficiency Grade = FEG 80

Notes:
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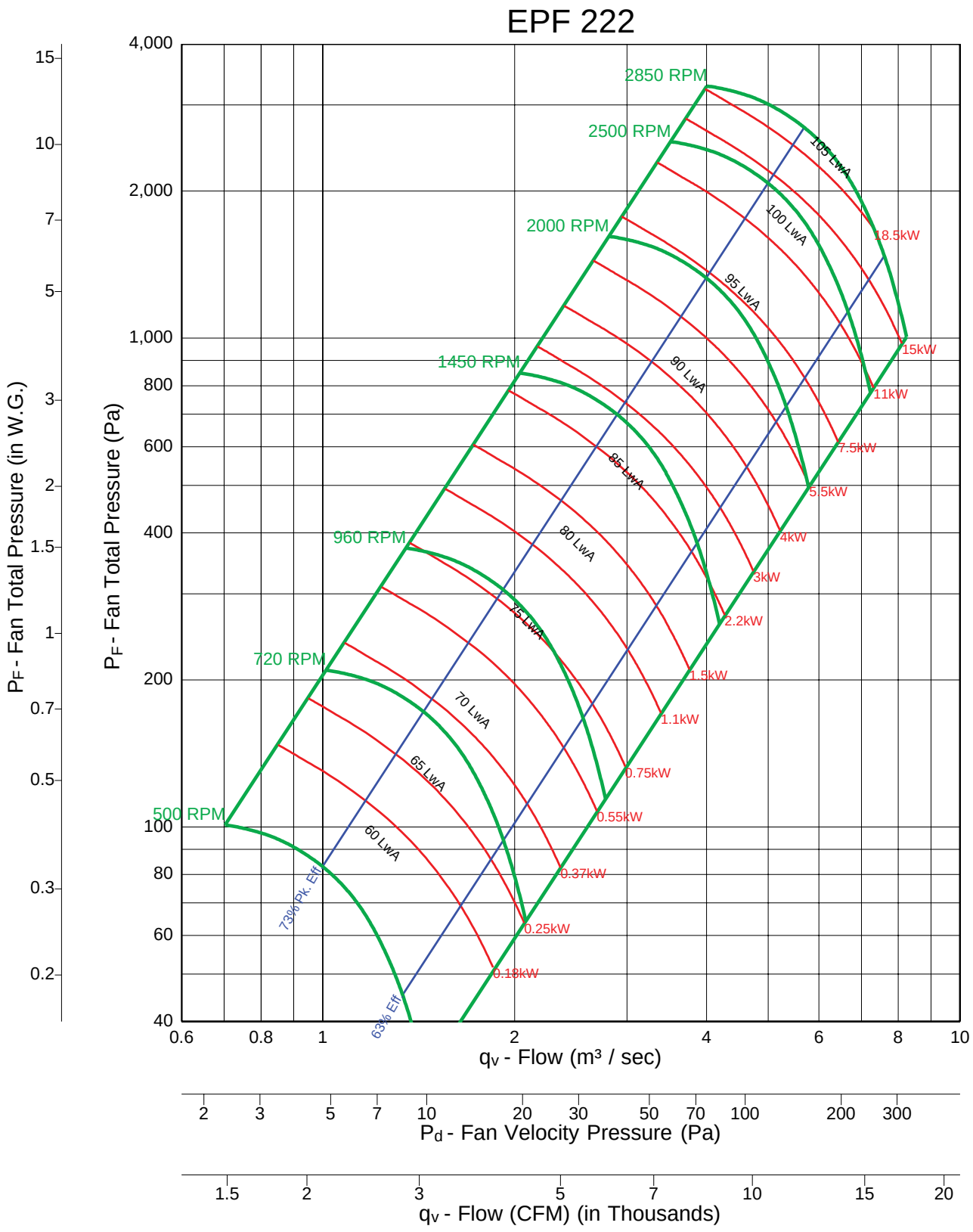

Fan Efficiency Grade = FEG 75

Notes:
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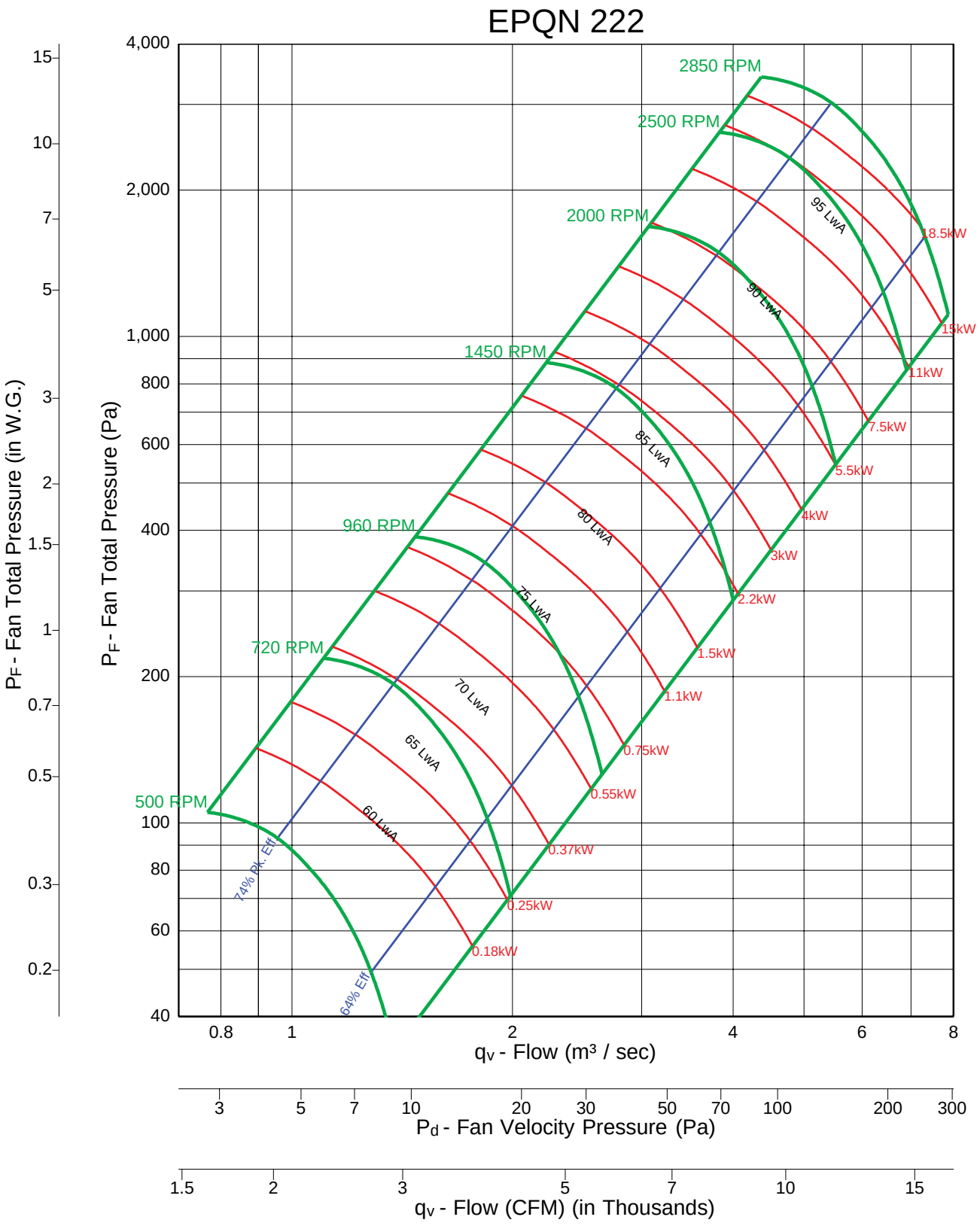

Fan Efficiency Grade = FEG 80

Notes:
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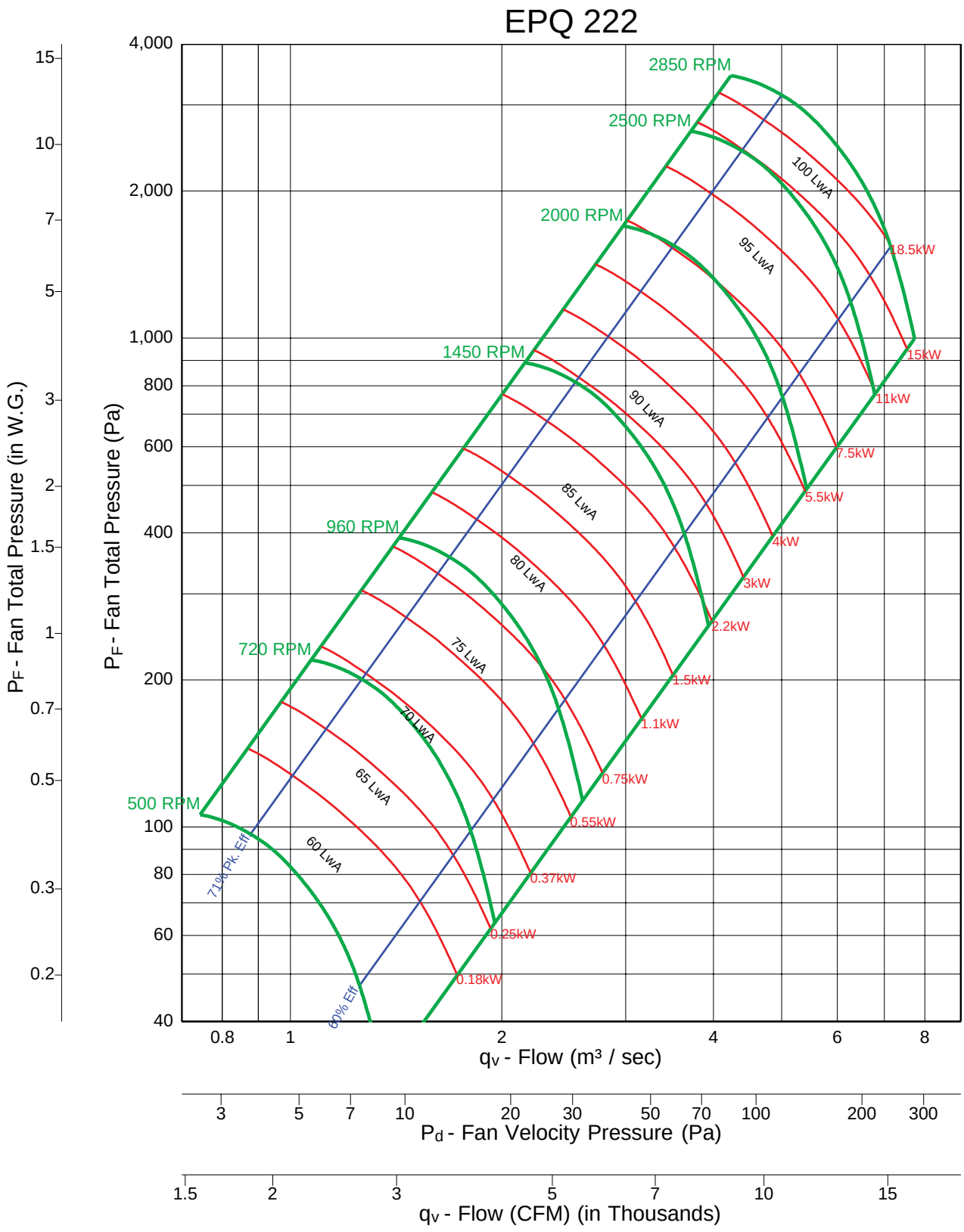

Fan Efficiency Grade = FEG 75

Notes:
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2. Power rating (kW) does not include transmission losses.
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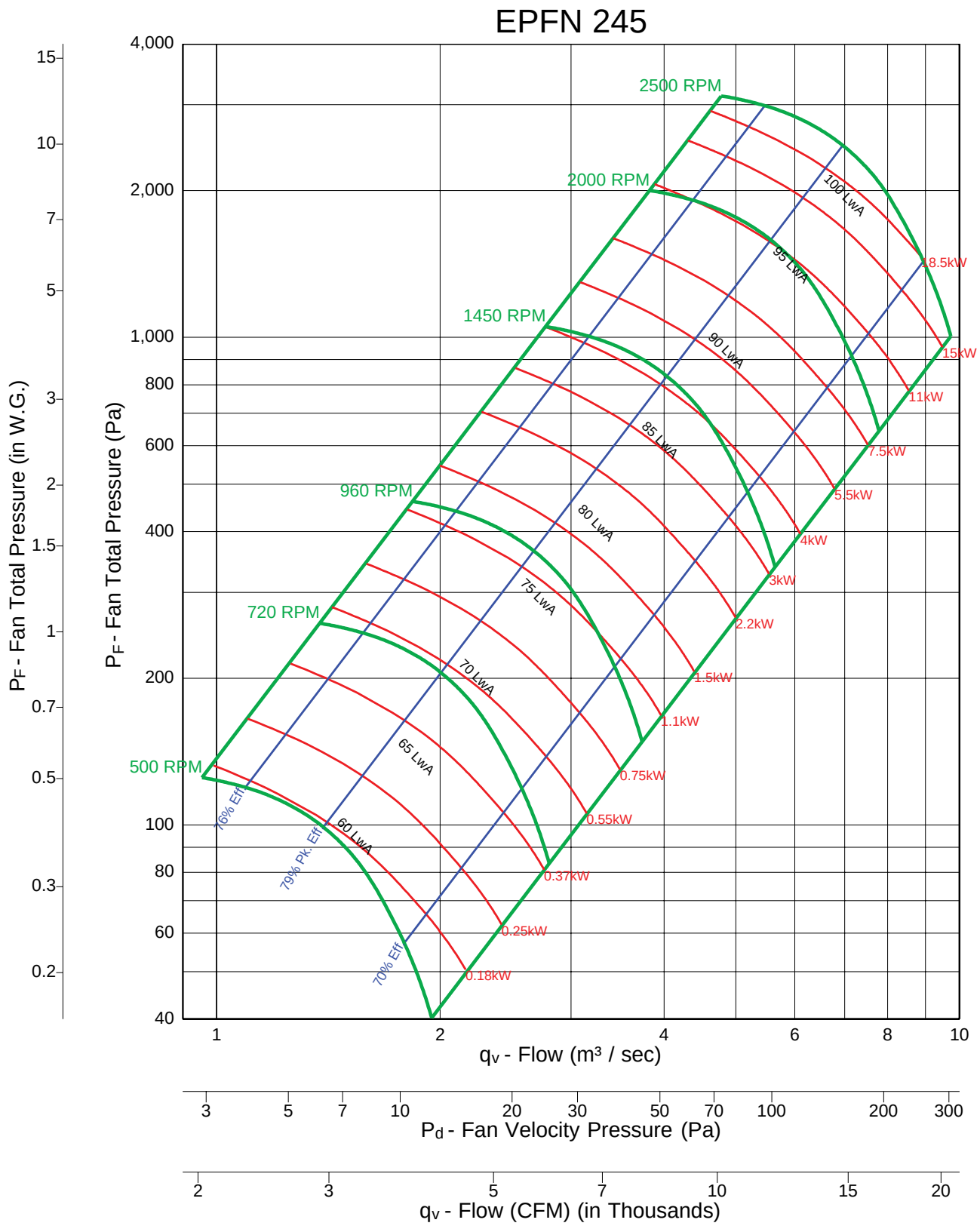

Fan Efficiency Grade = FEG 85

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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.
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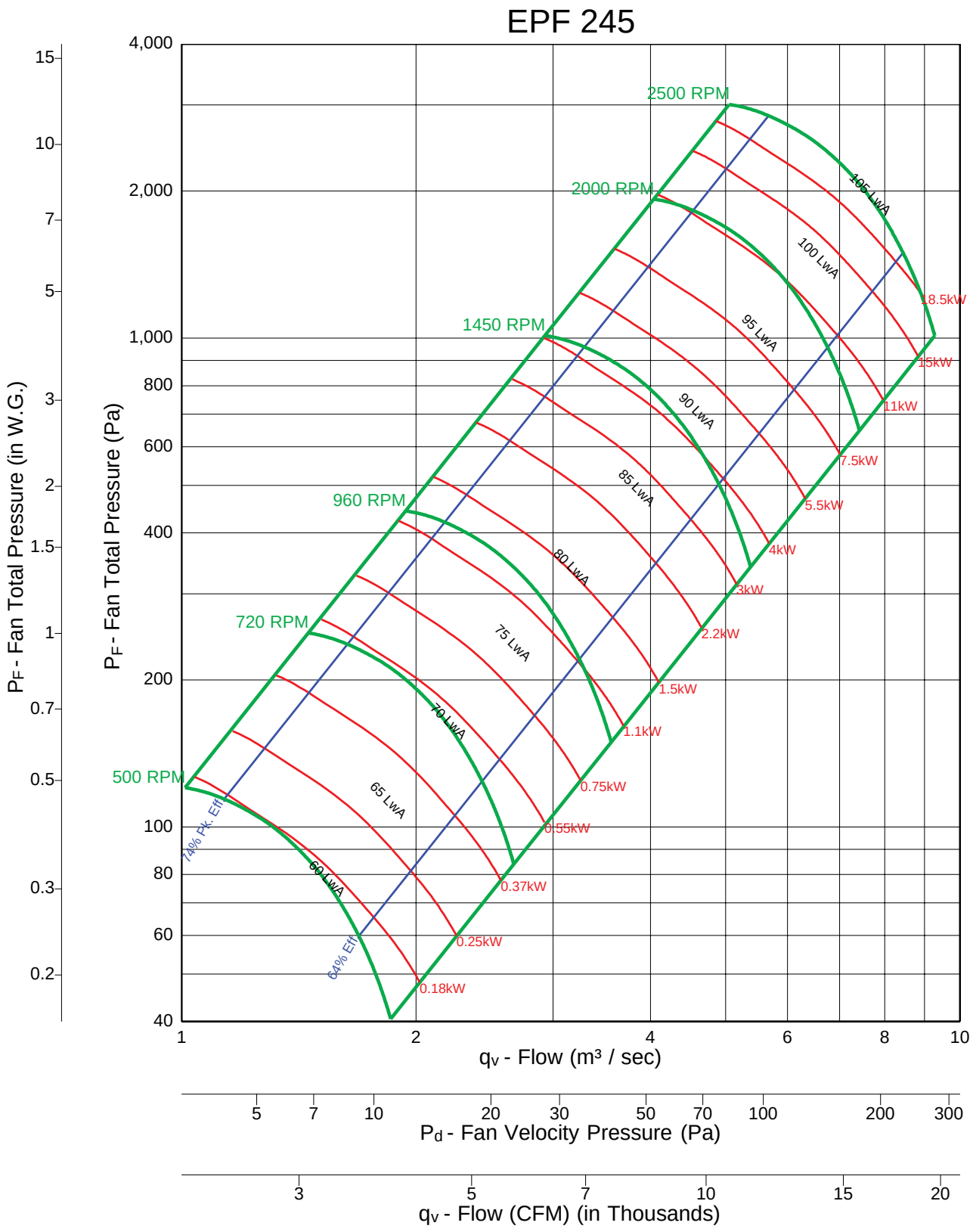
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.



Fan Efficiency Grade = FEG 80

Notes:
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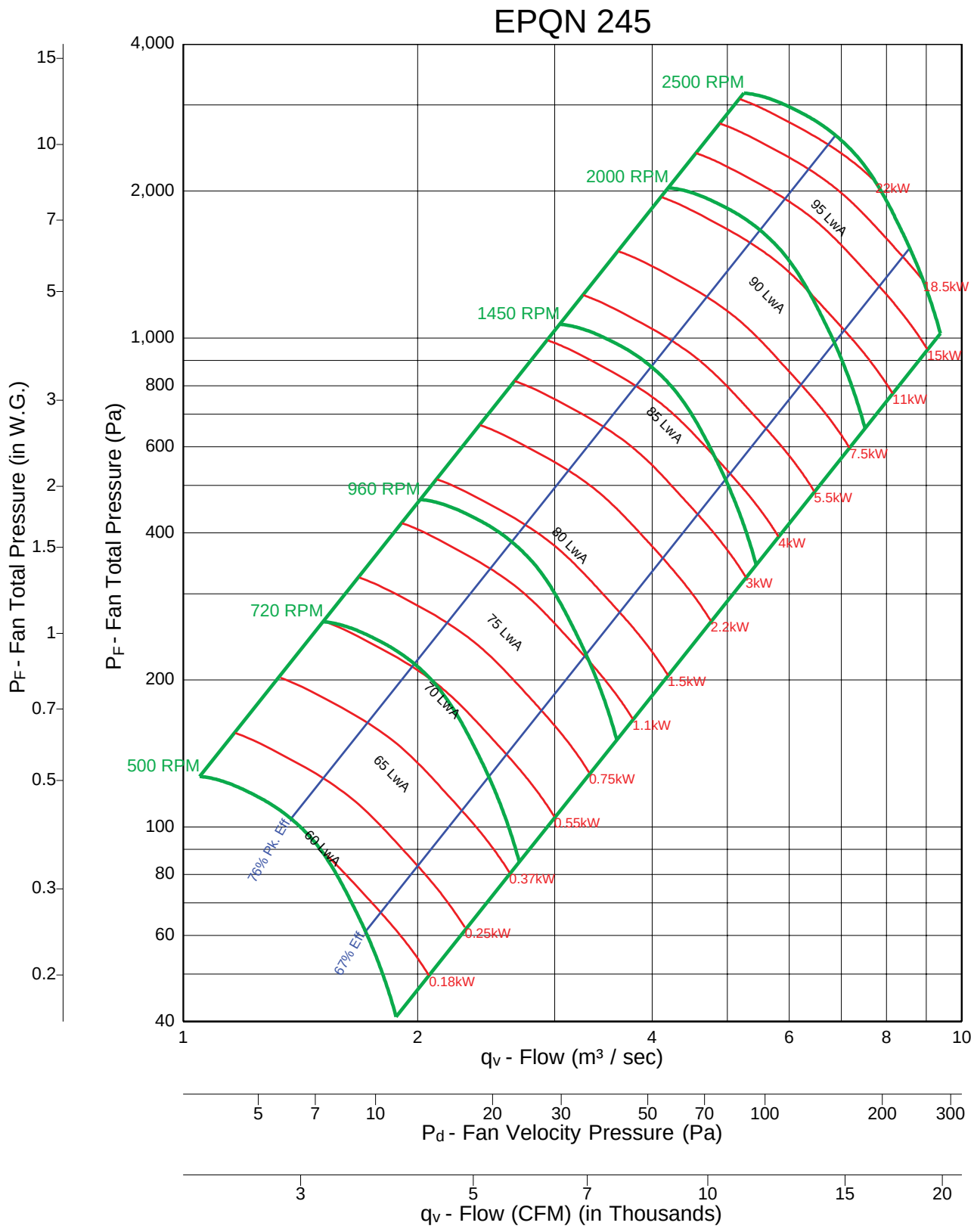

Fan Efficiency Grade = FEG 80

Notes:
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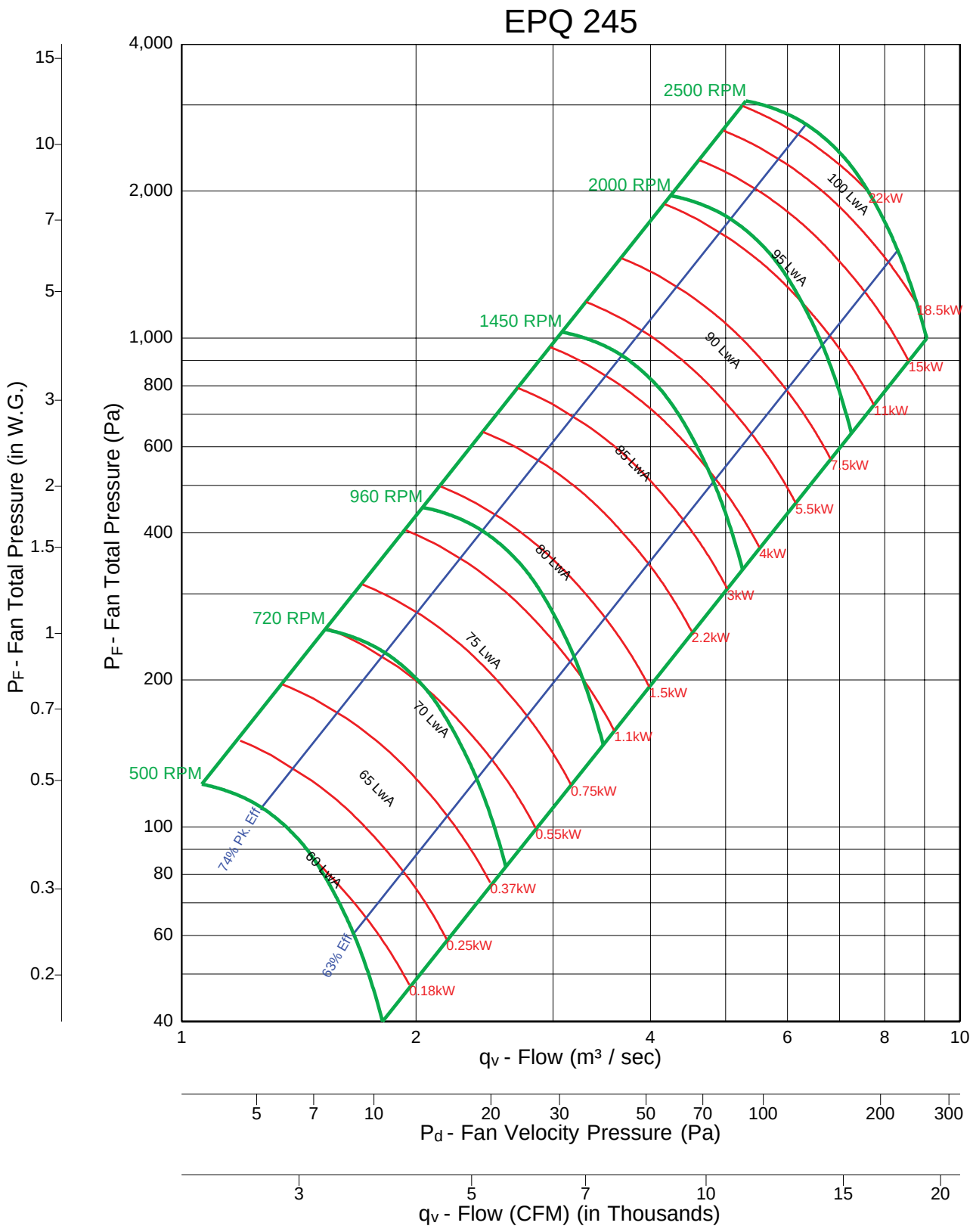

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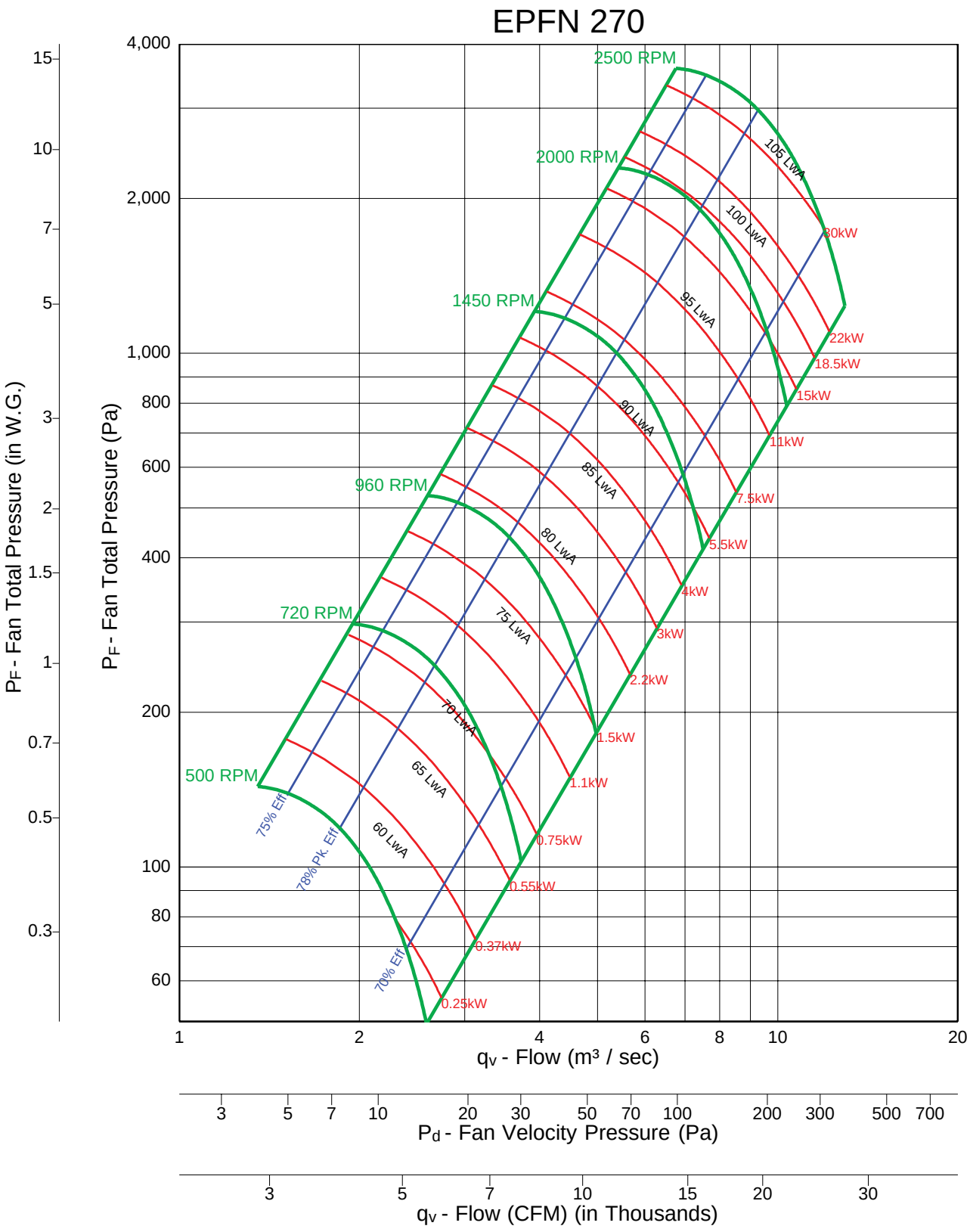

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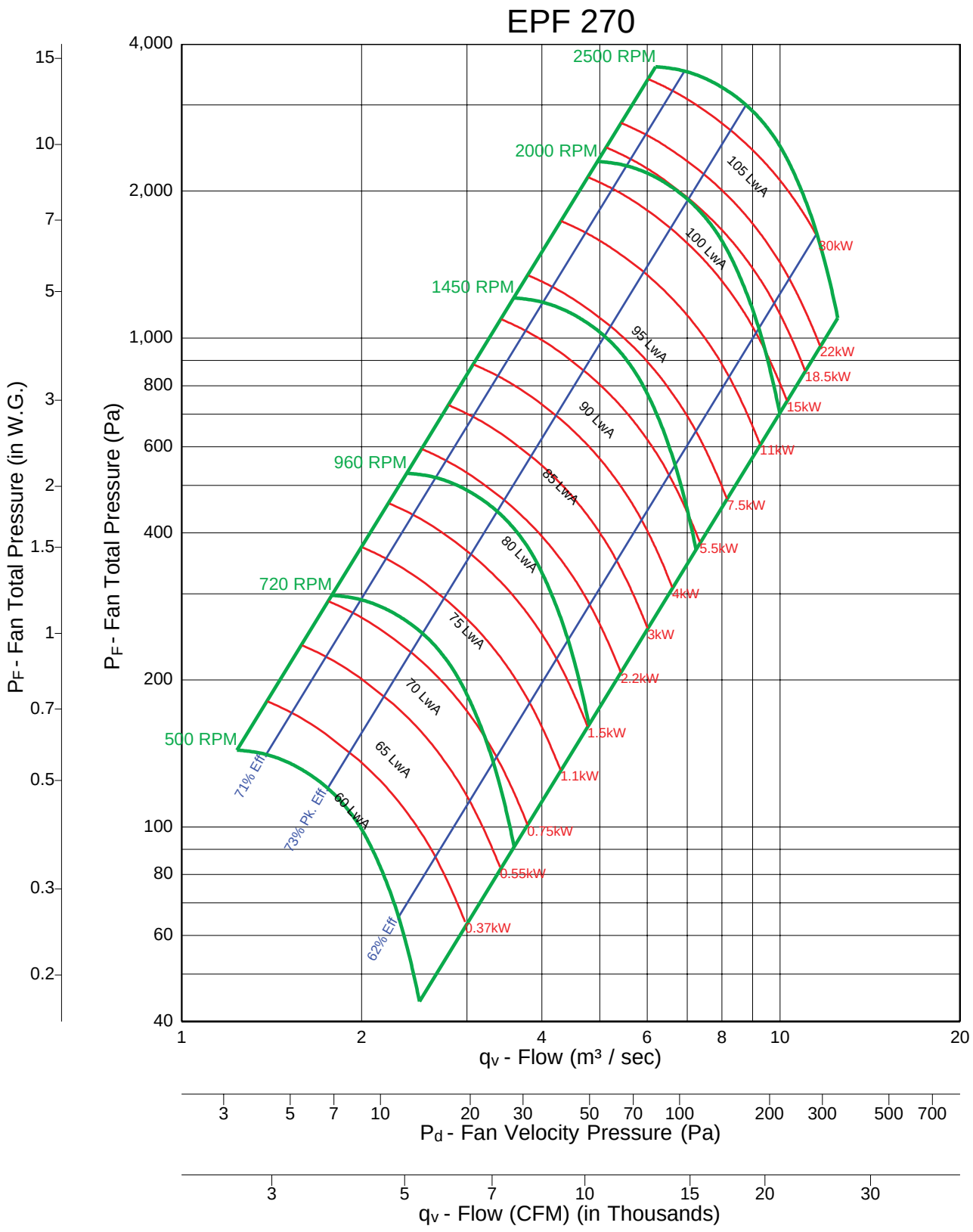

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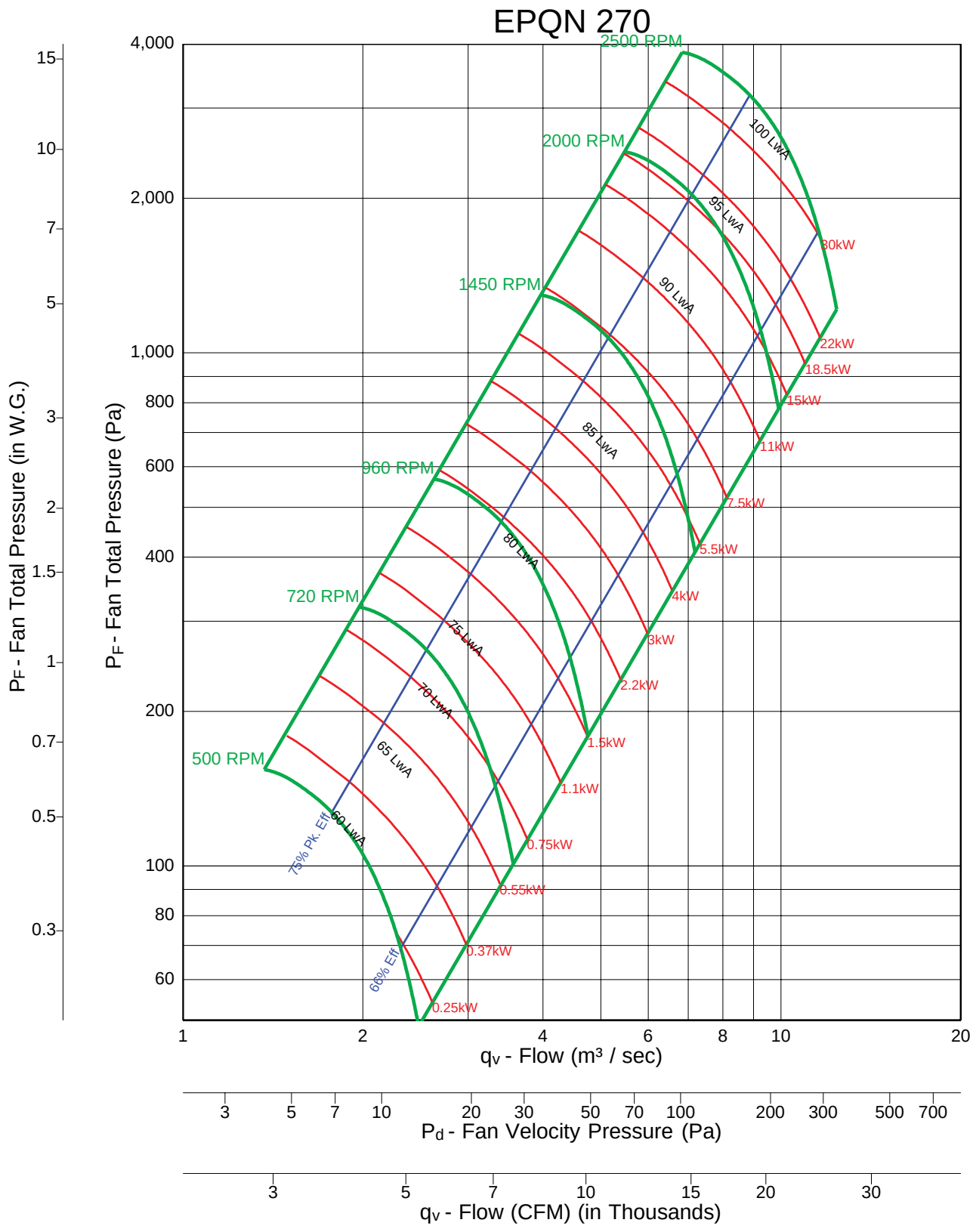

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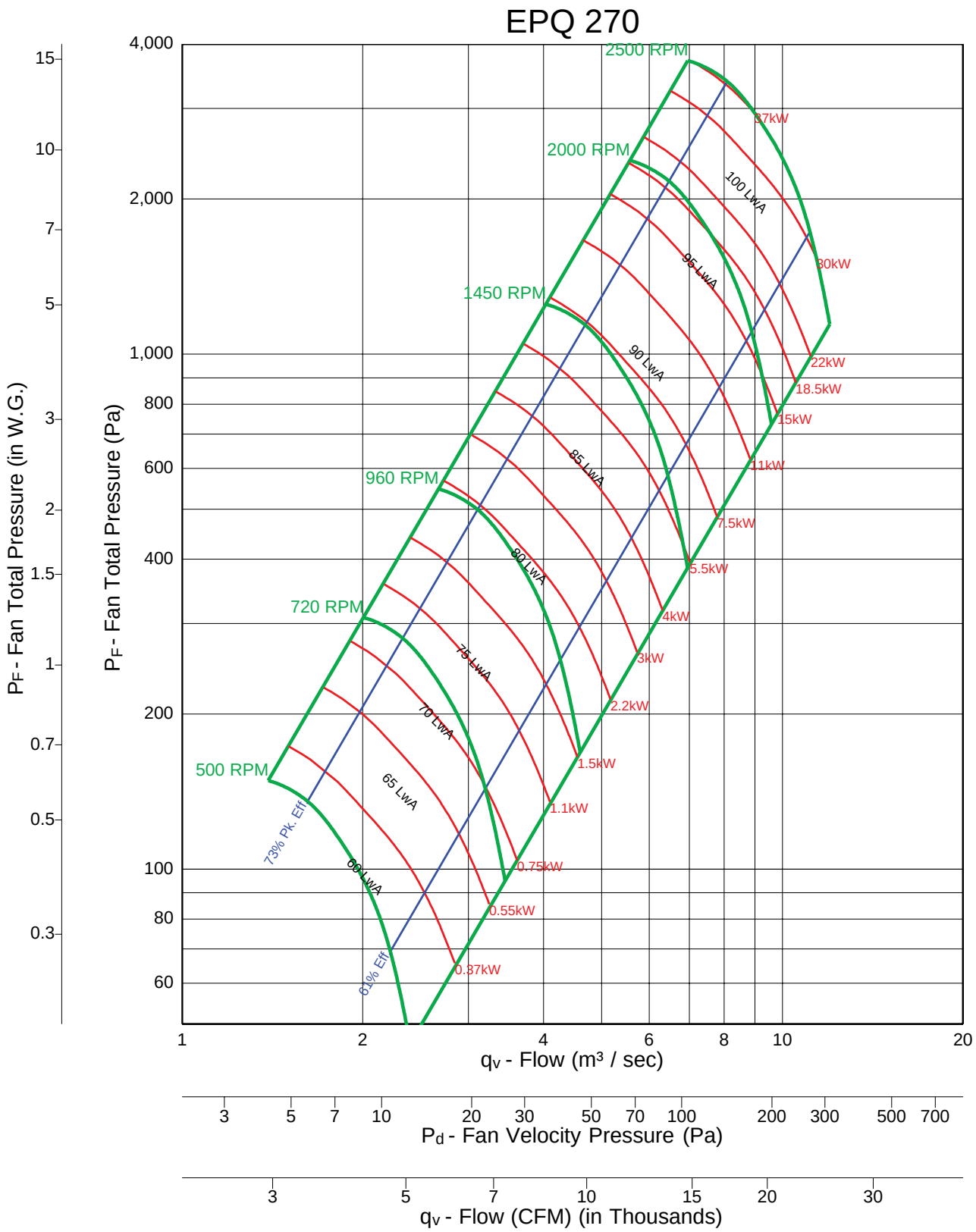

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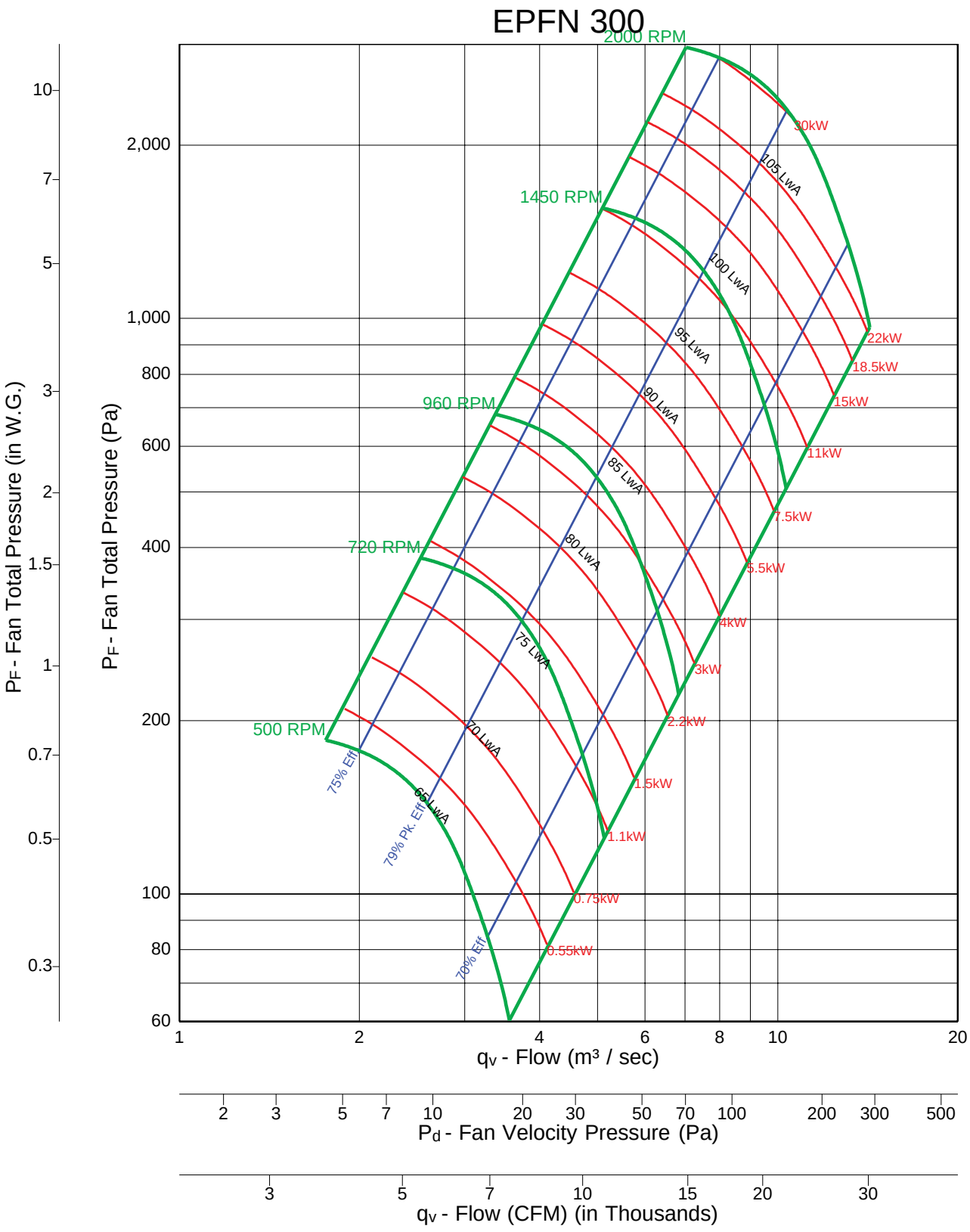

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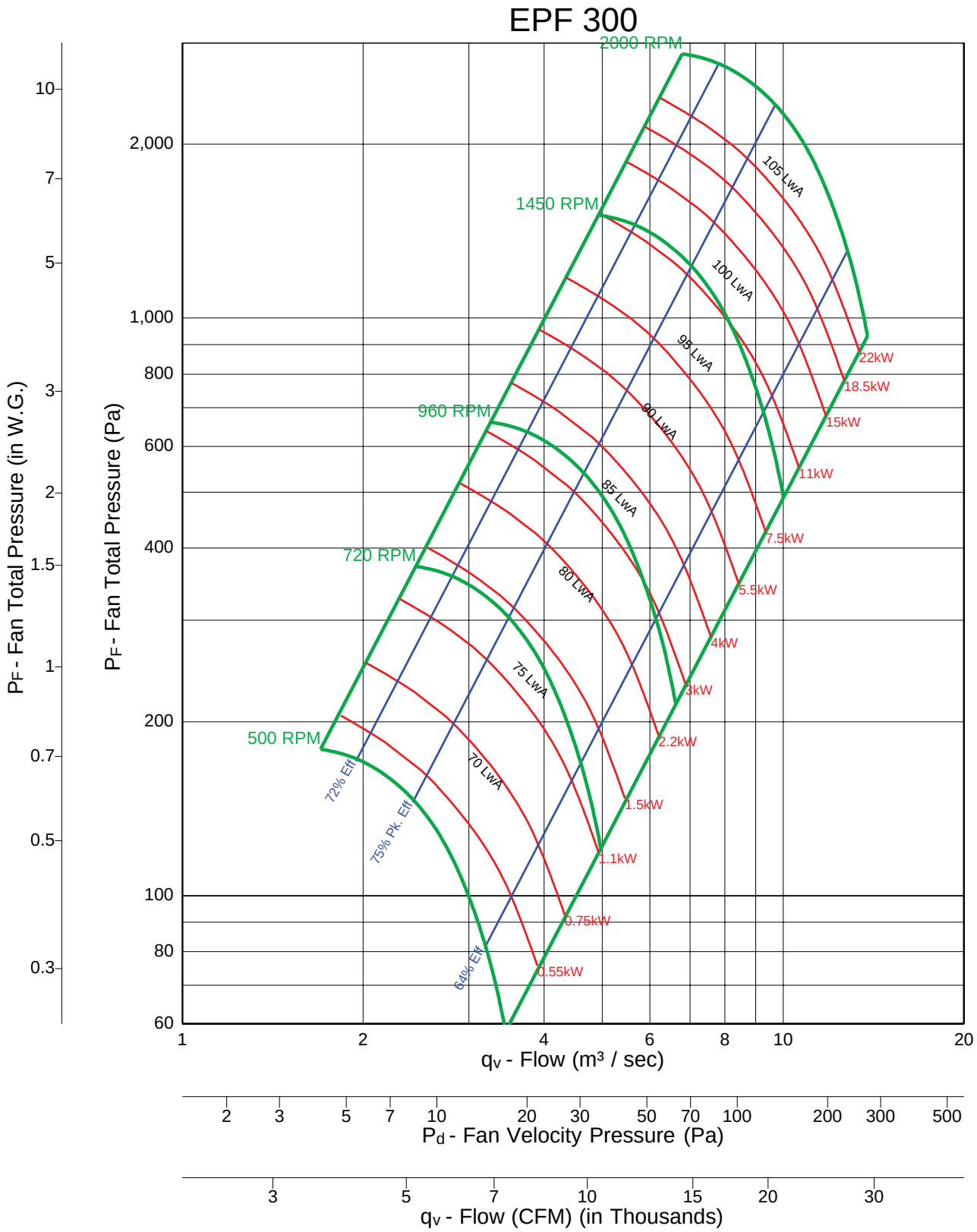

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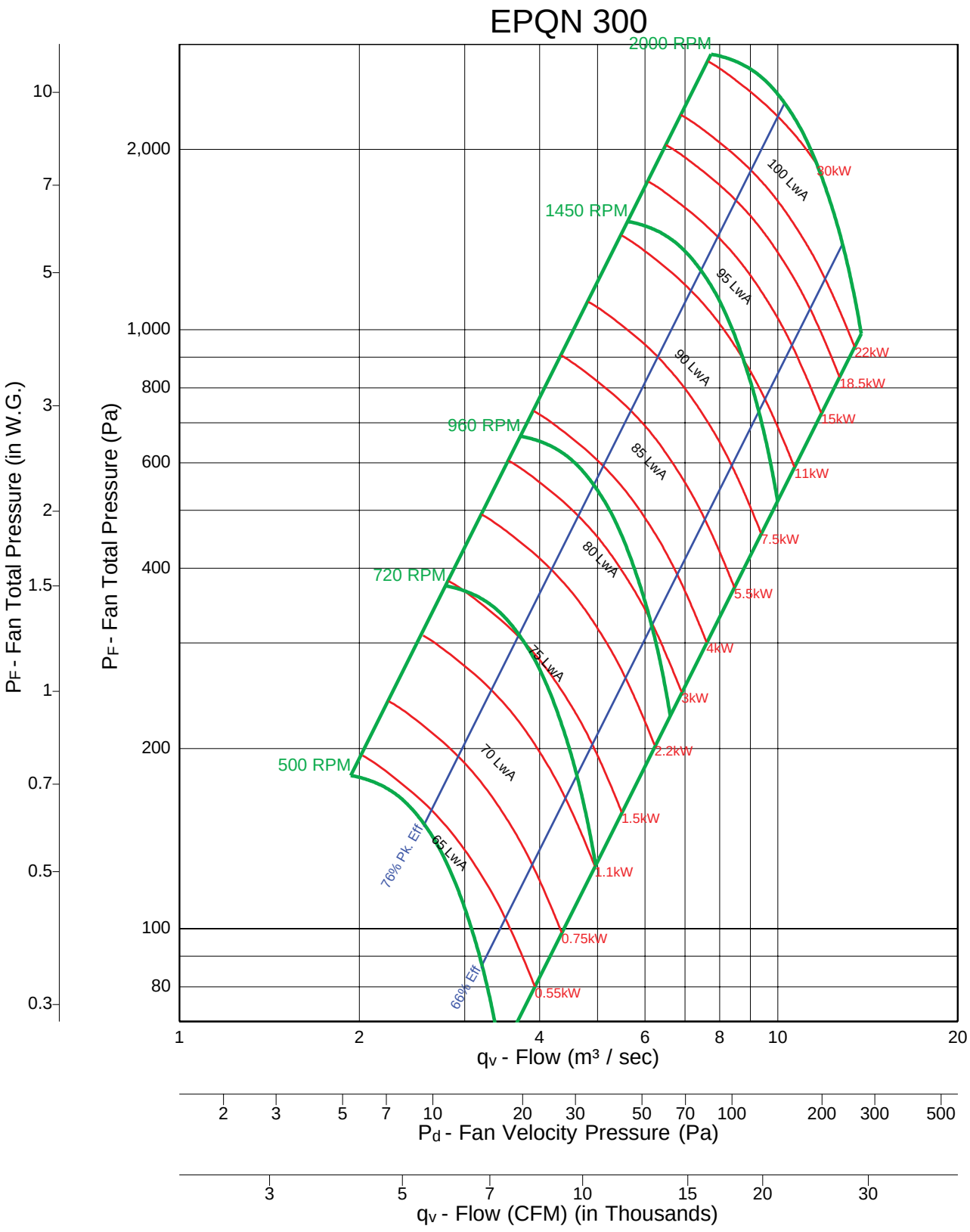

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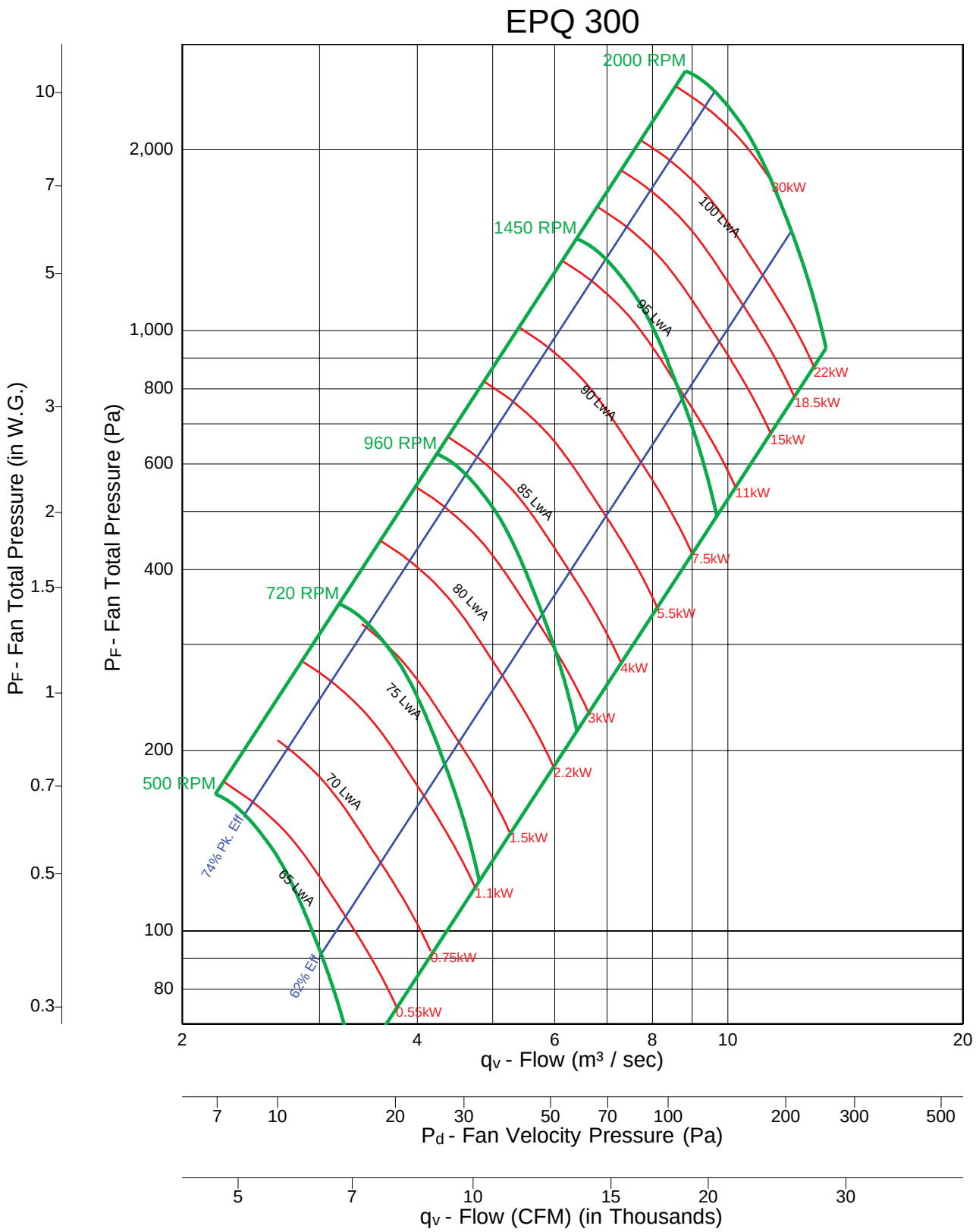

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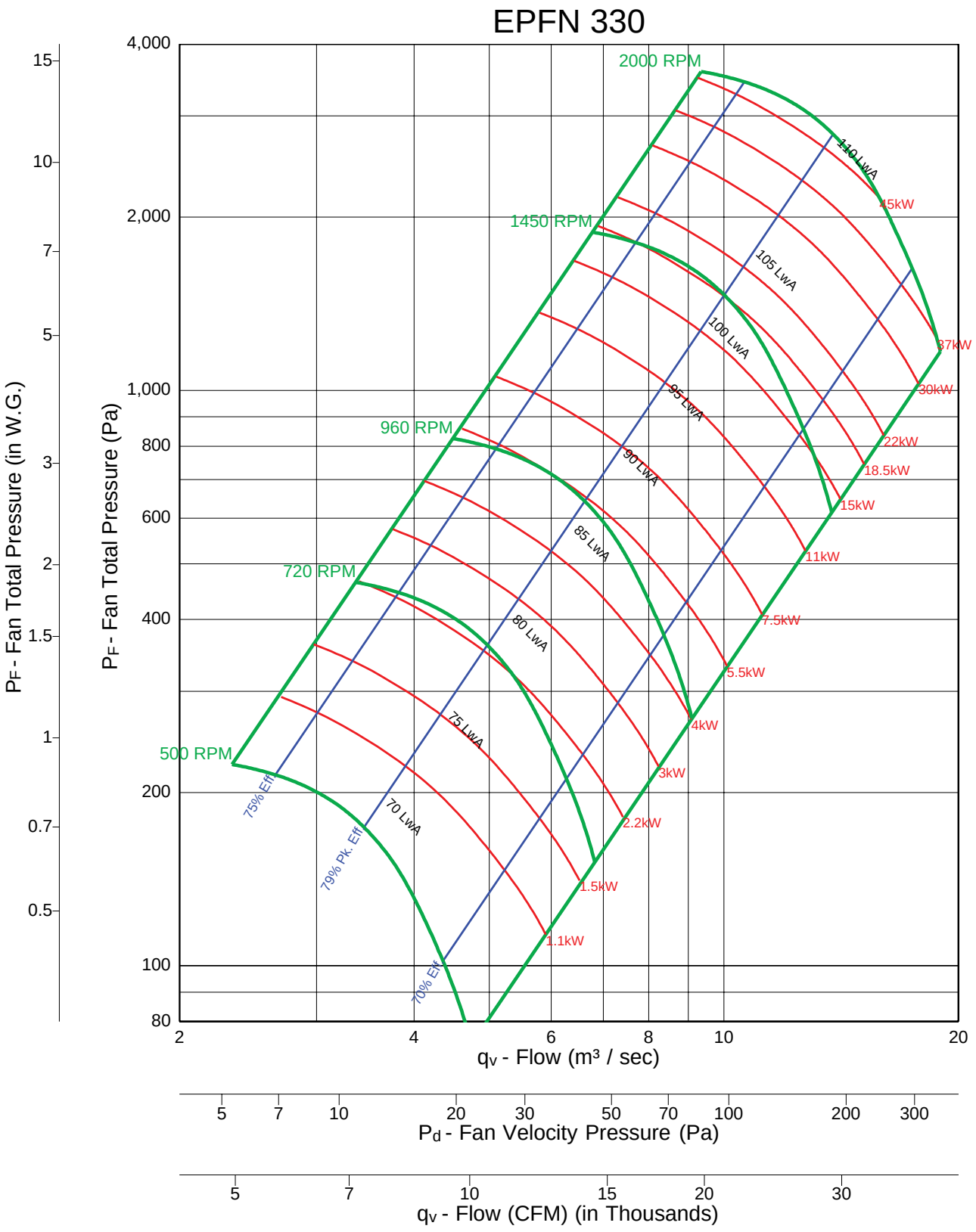

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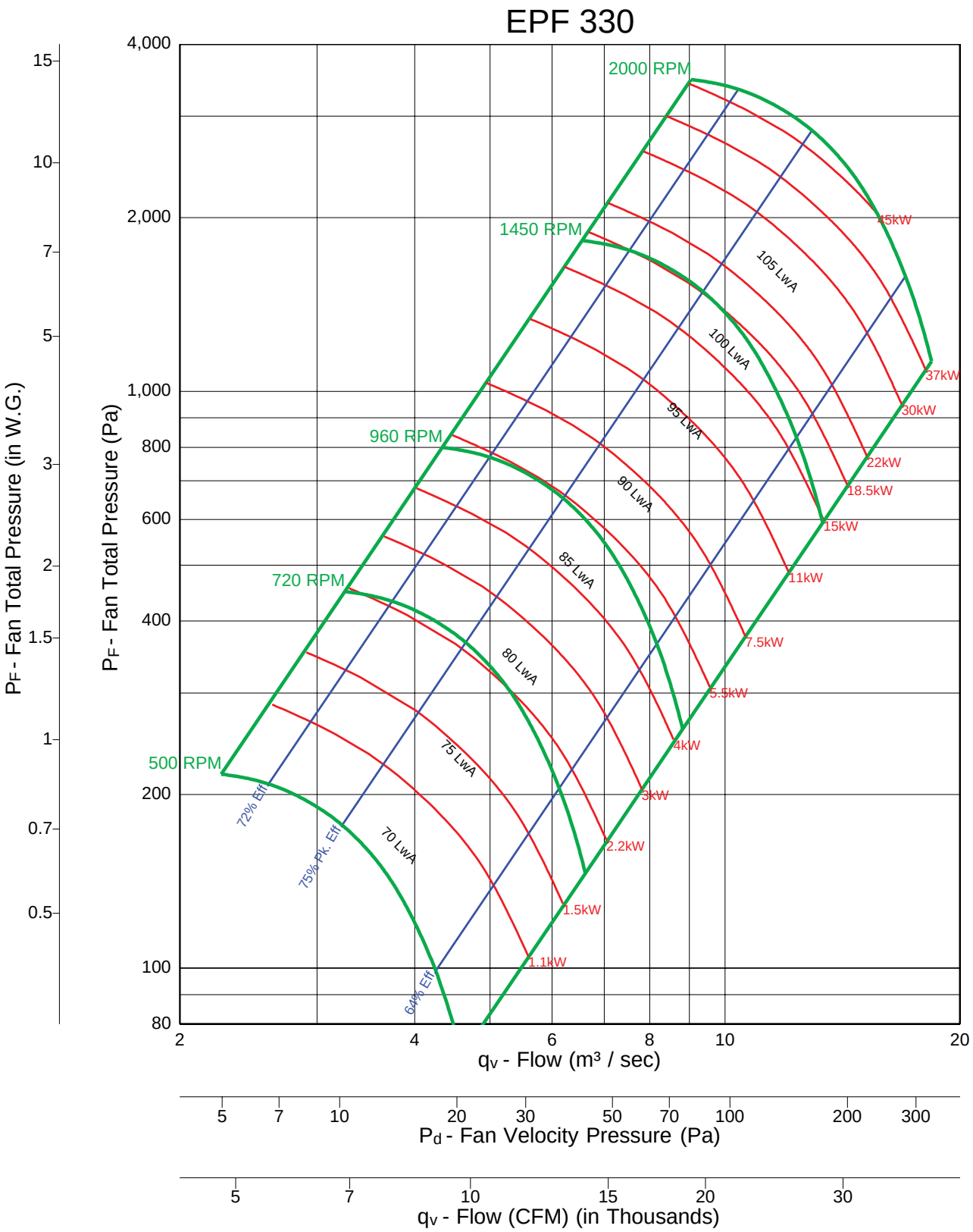

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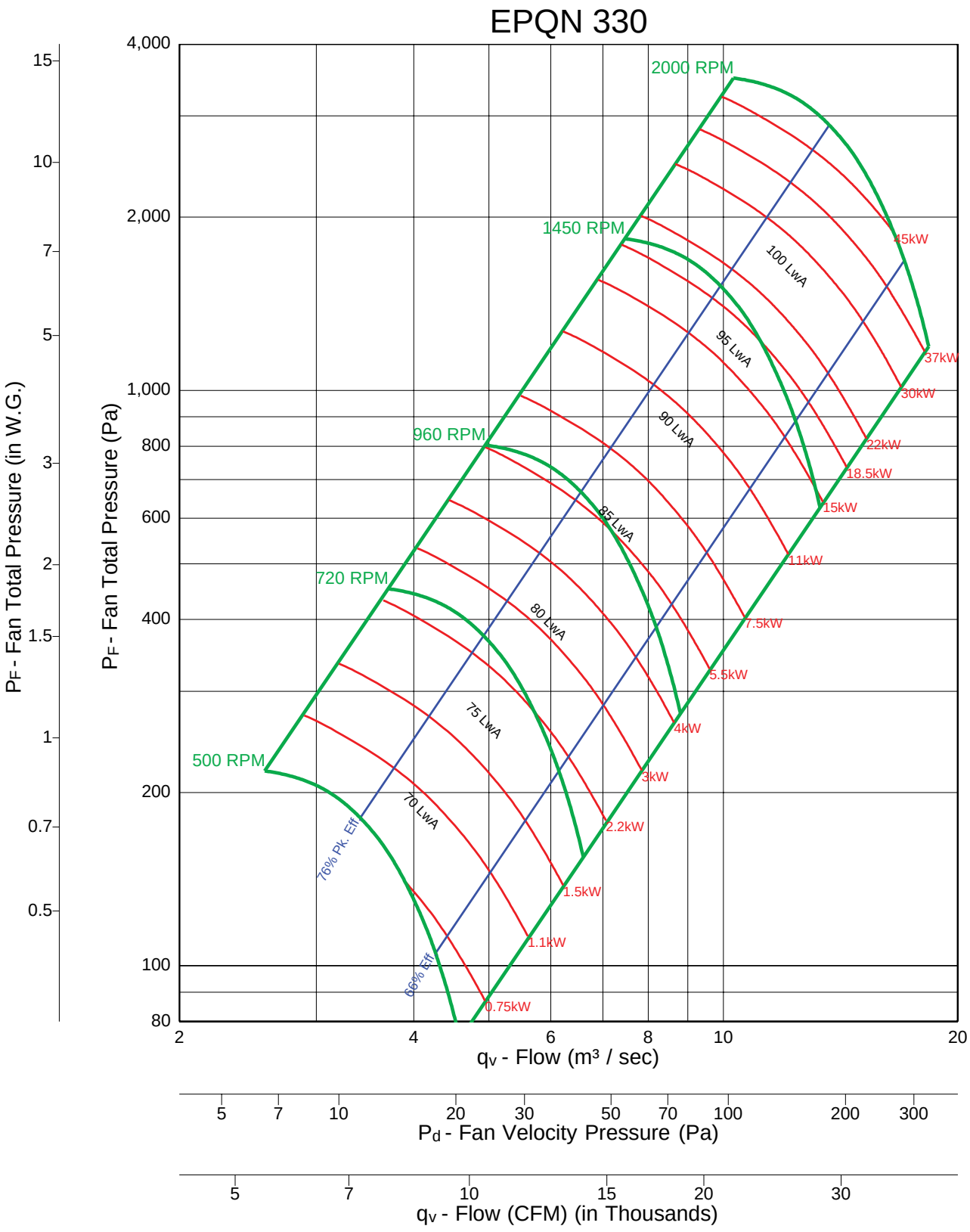

Fan Efficiency Grade = FEG 80

Notes:
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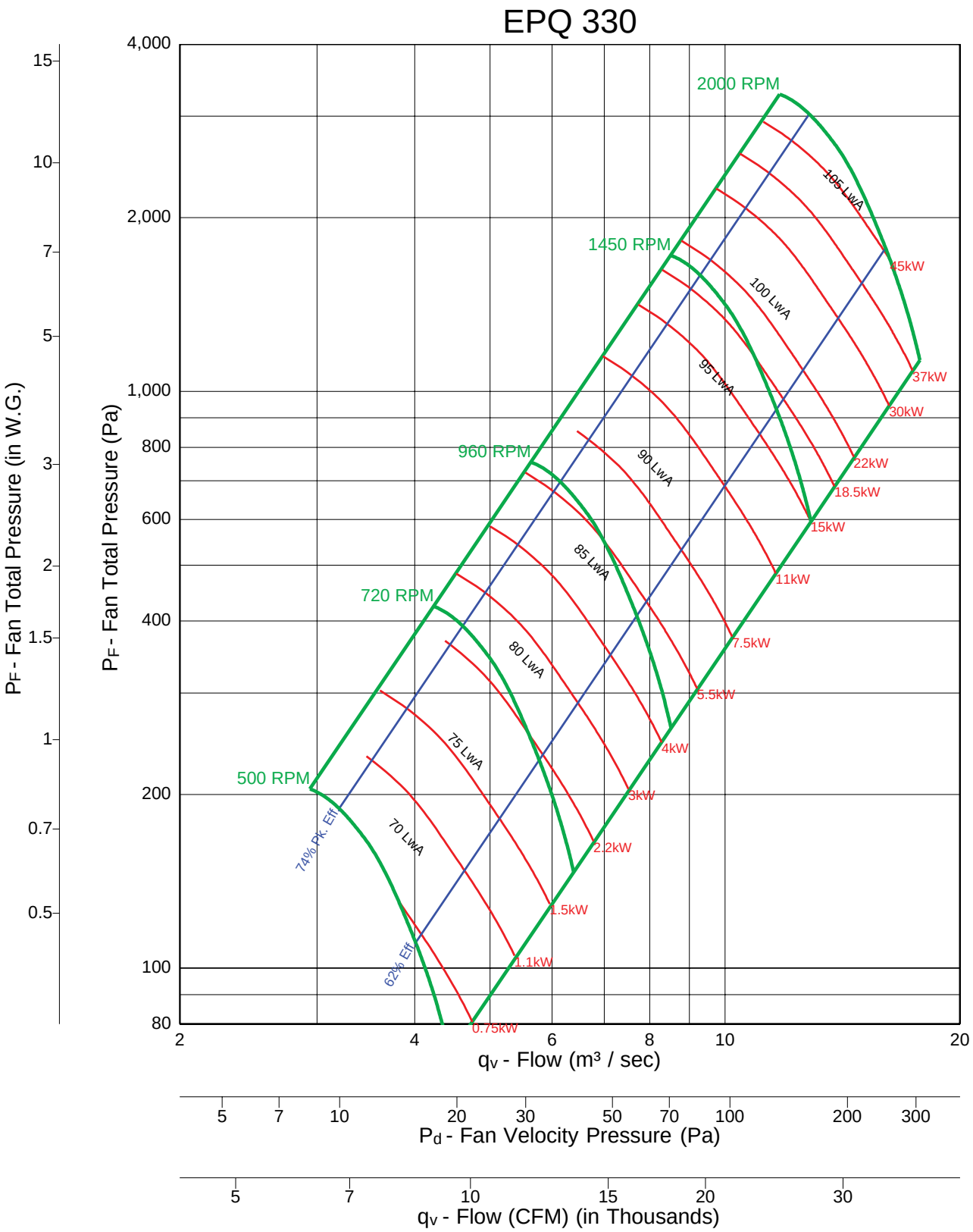

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Notes:
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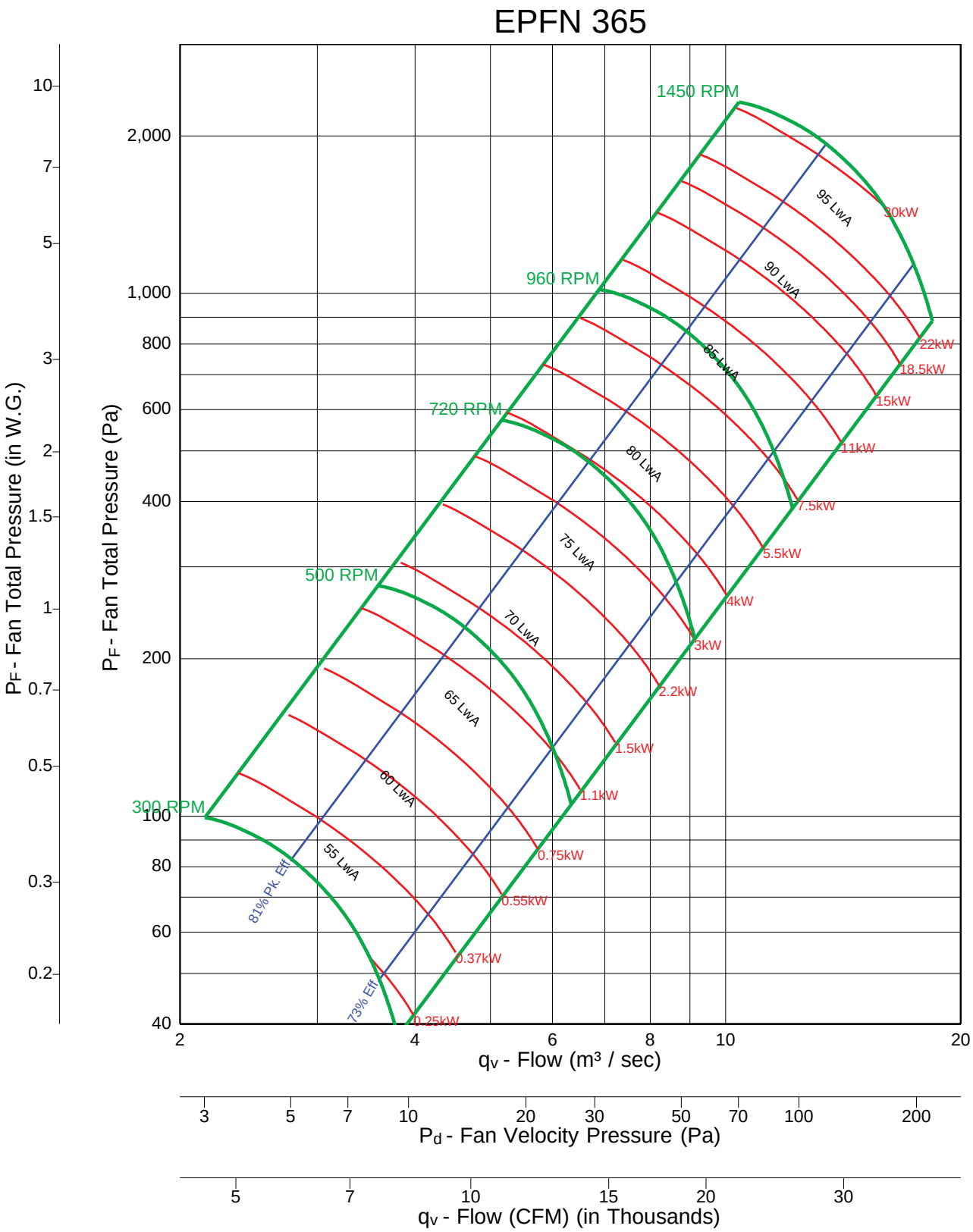

Fan Efficiency Grade = FEG 85

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free outlet.
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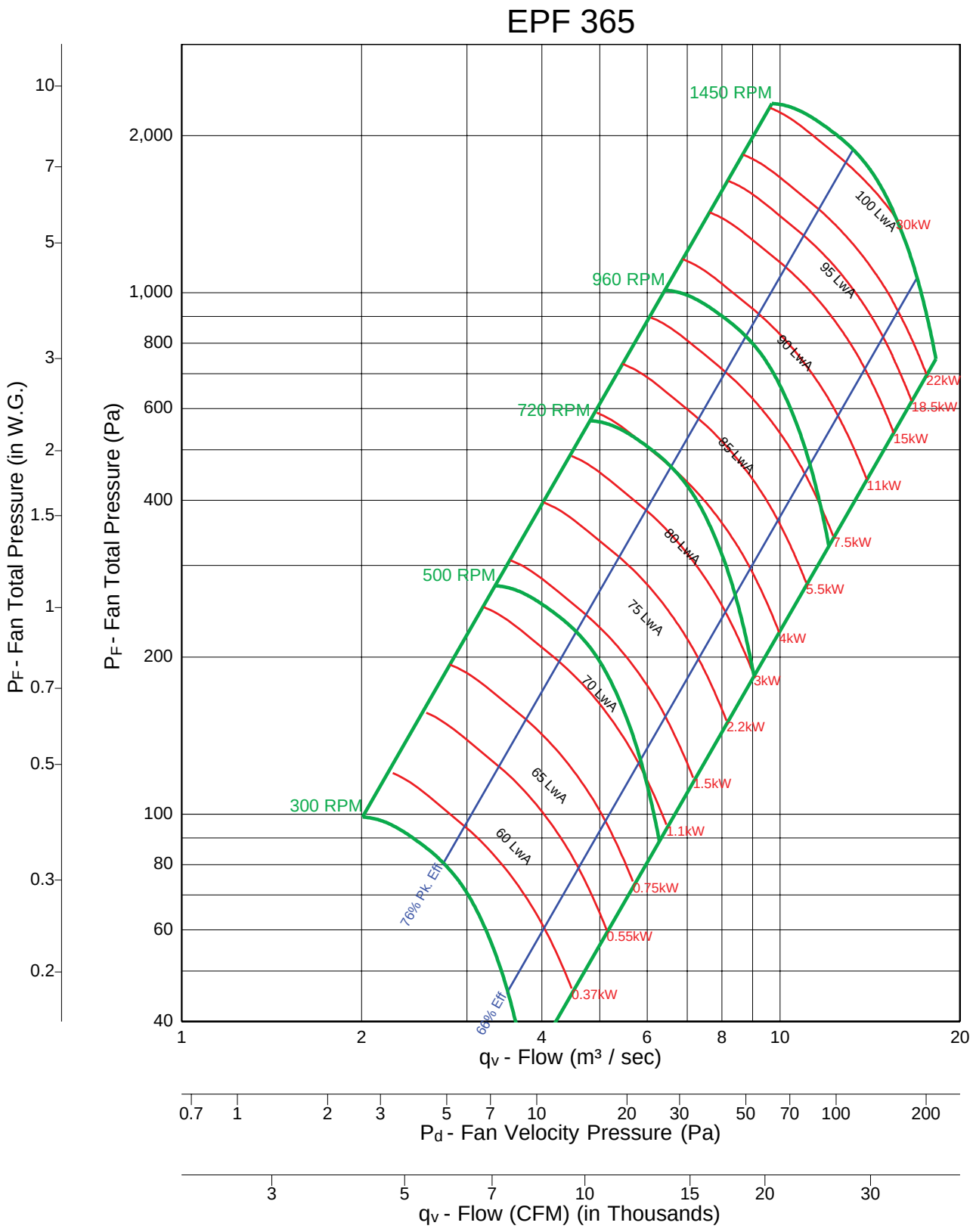

Fan Efficiency Grade = FEG 80

Notes:
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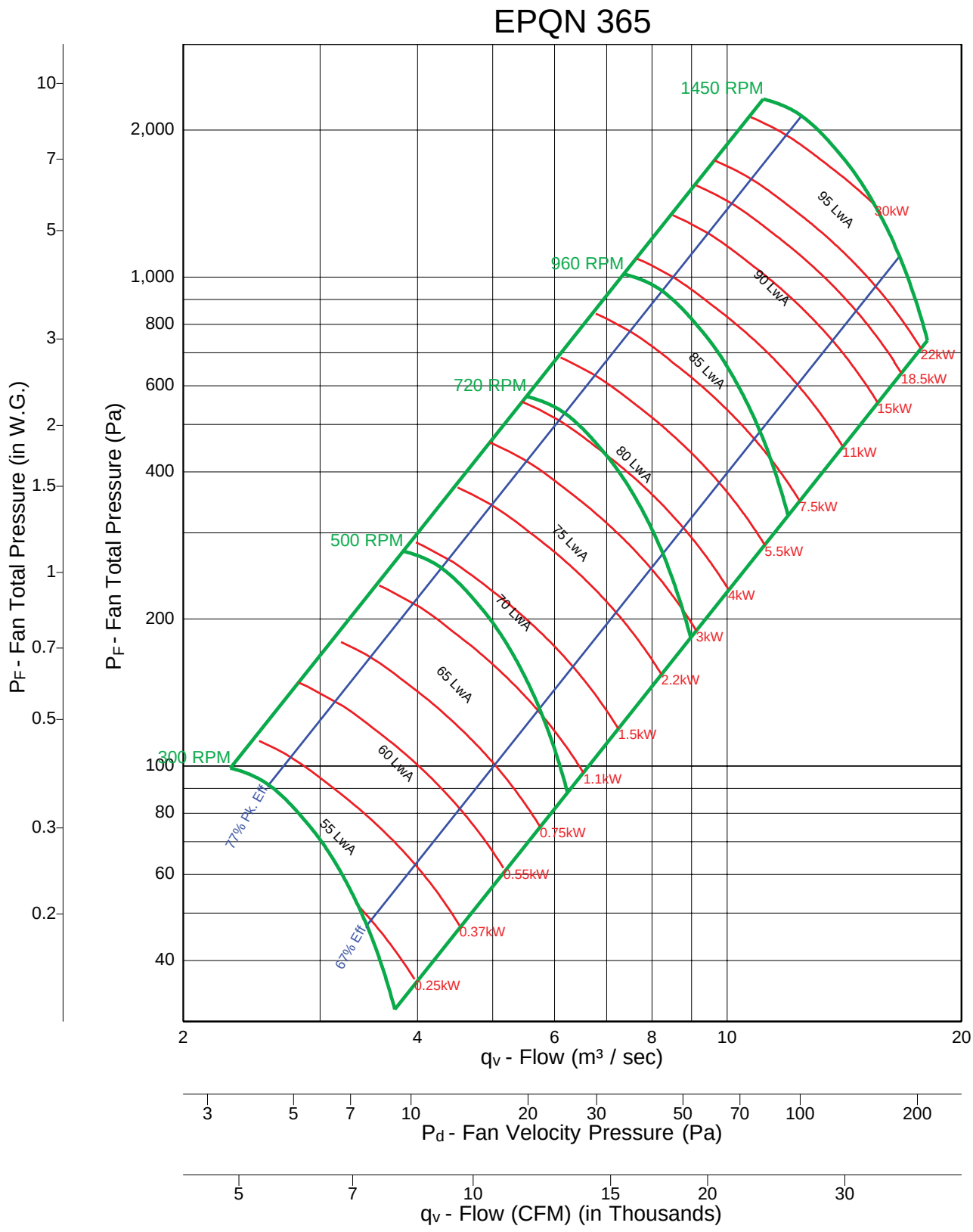

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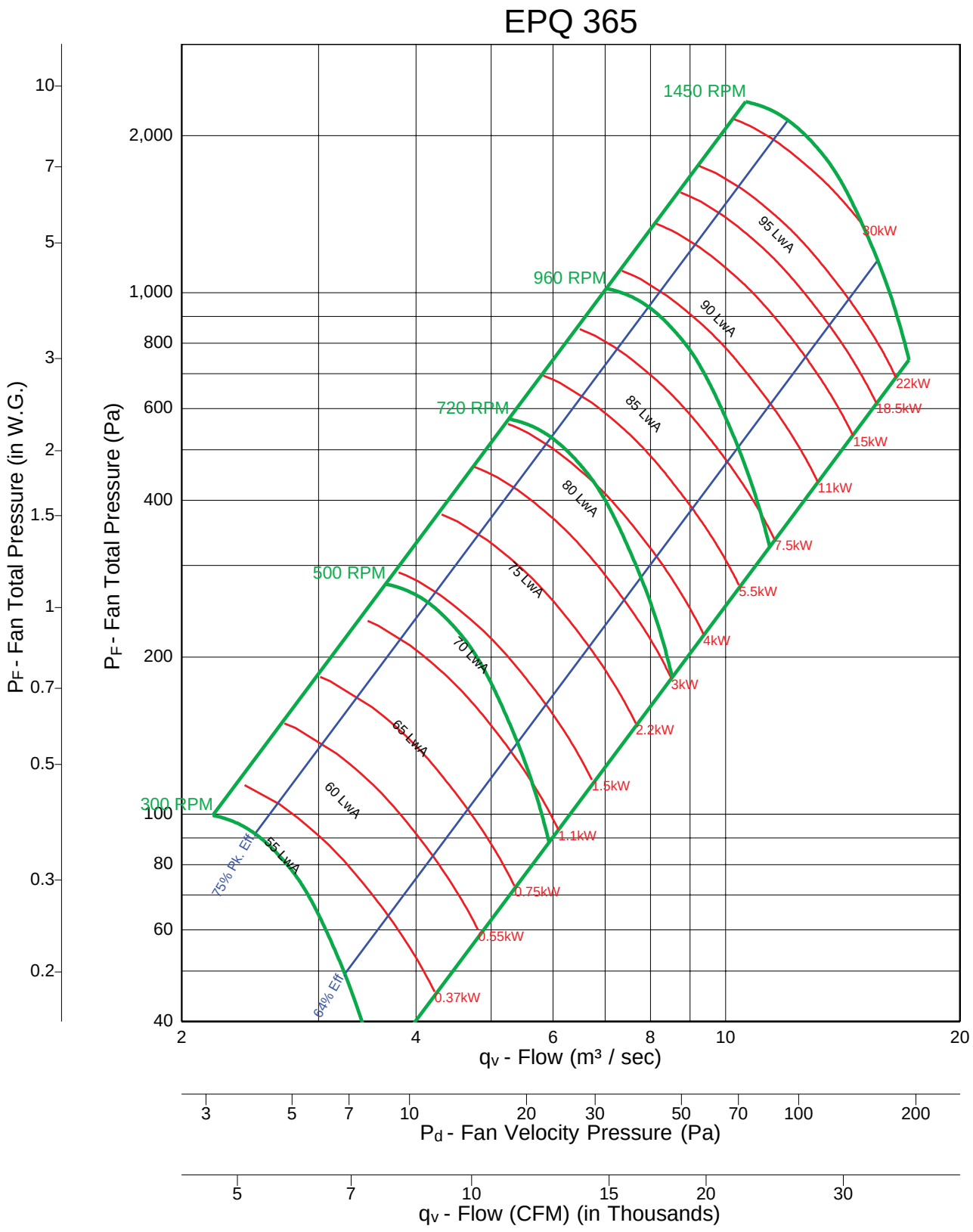

Fan Efficiency Grade = FEG 80

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free outlet.
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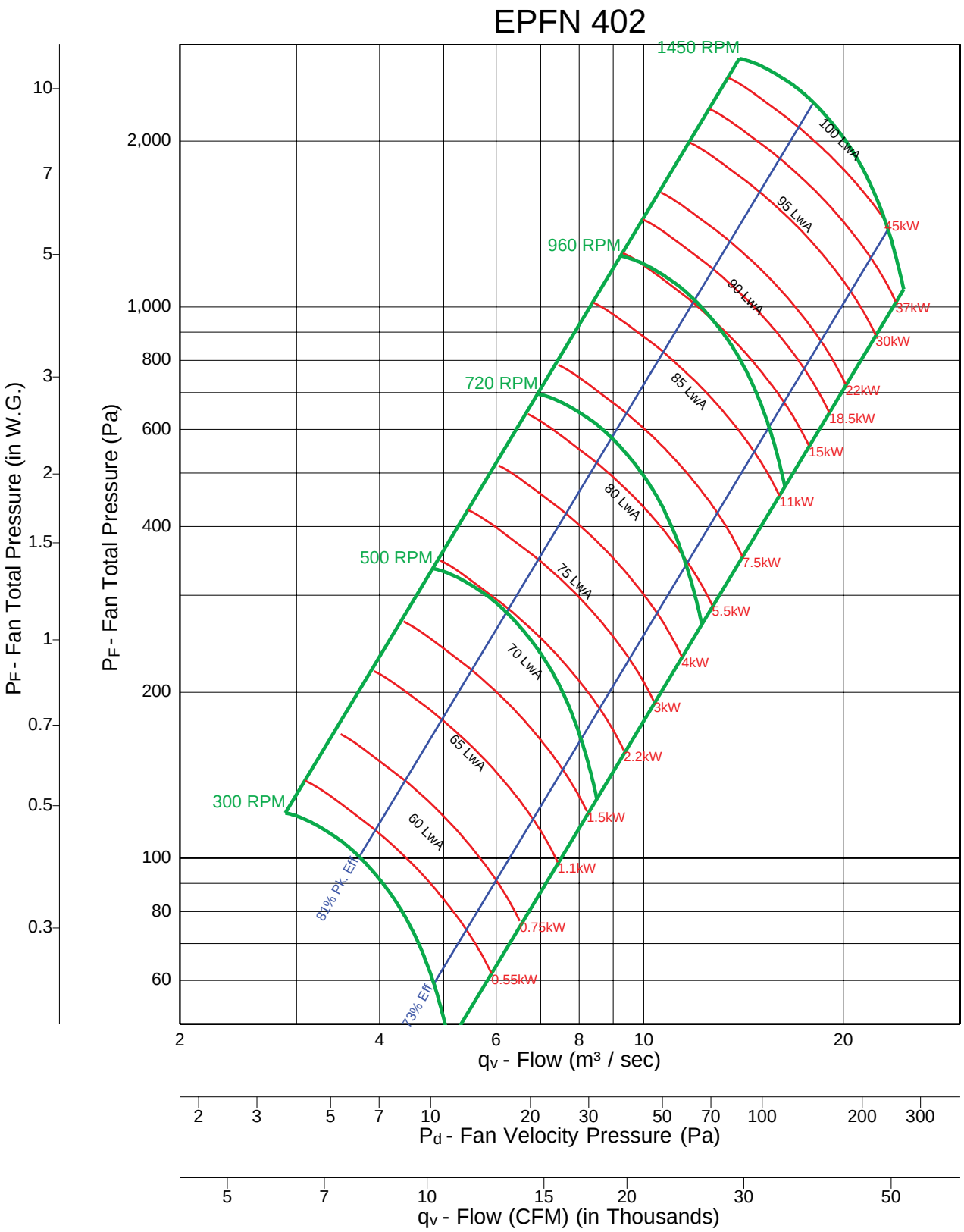

Fan Efficiency Grade = FEG 85

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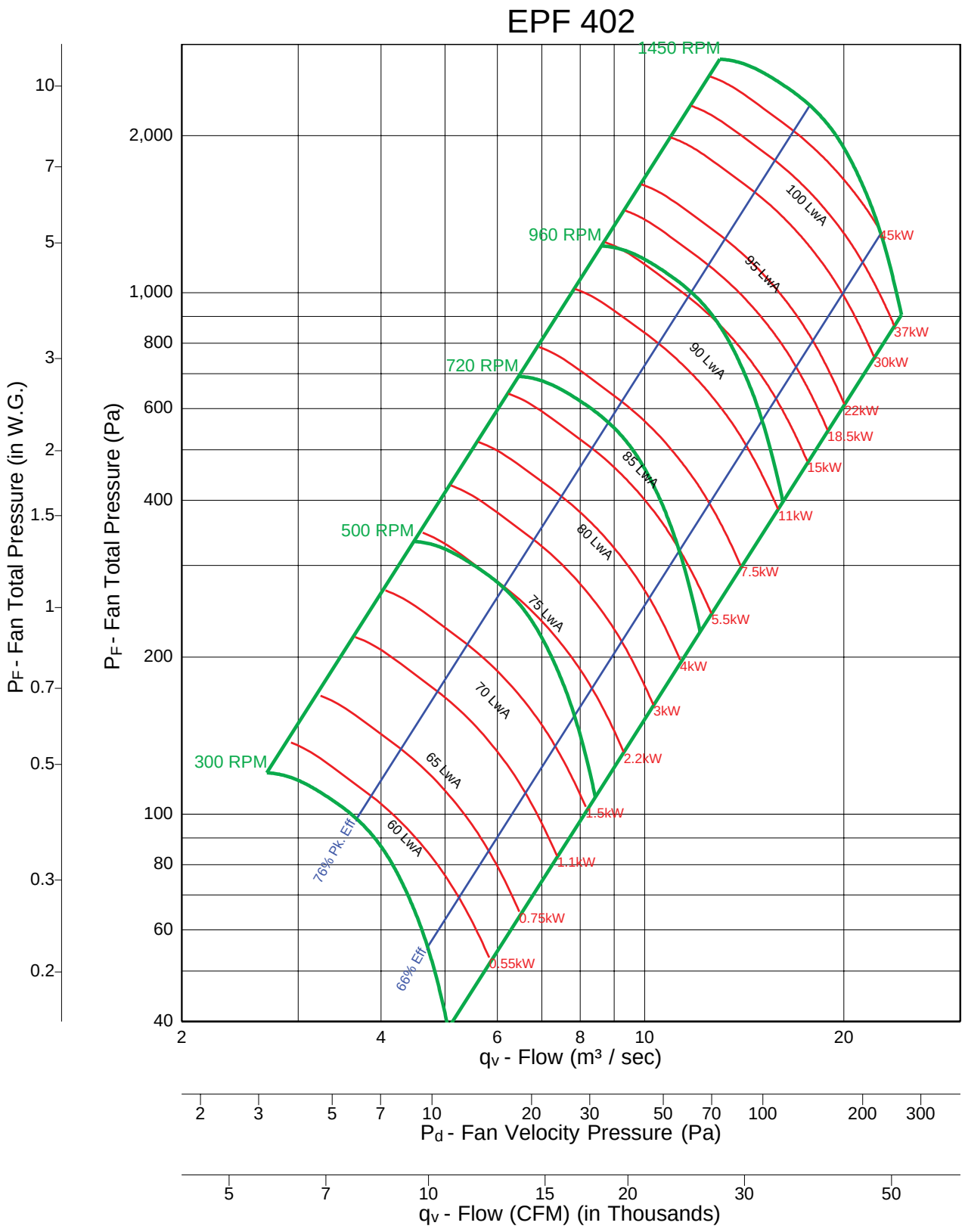

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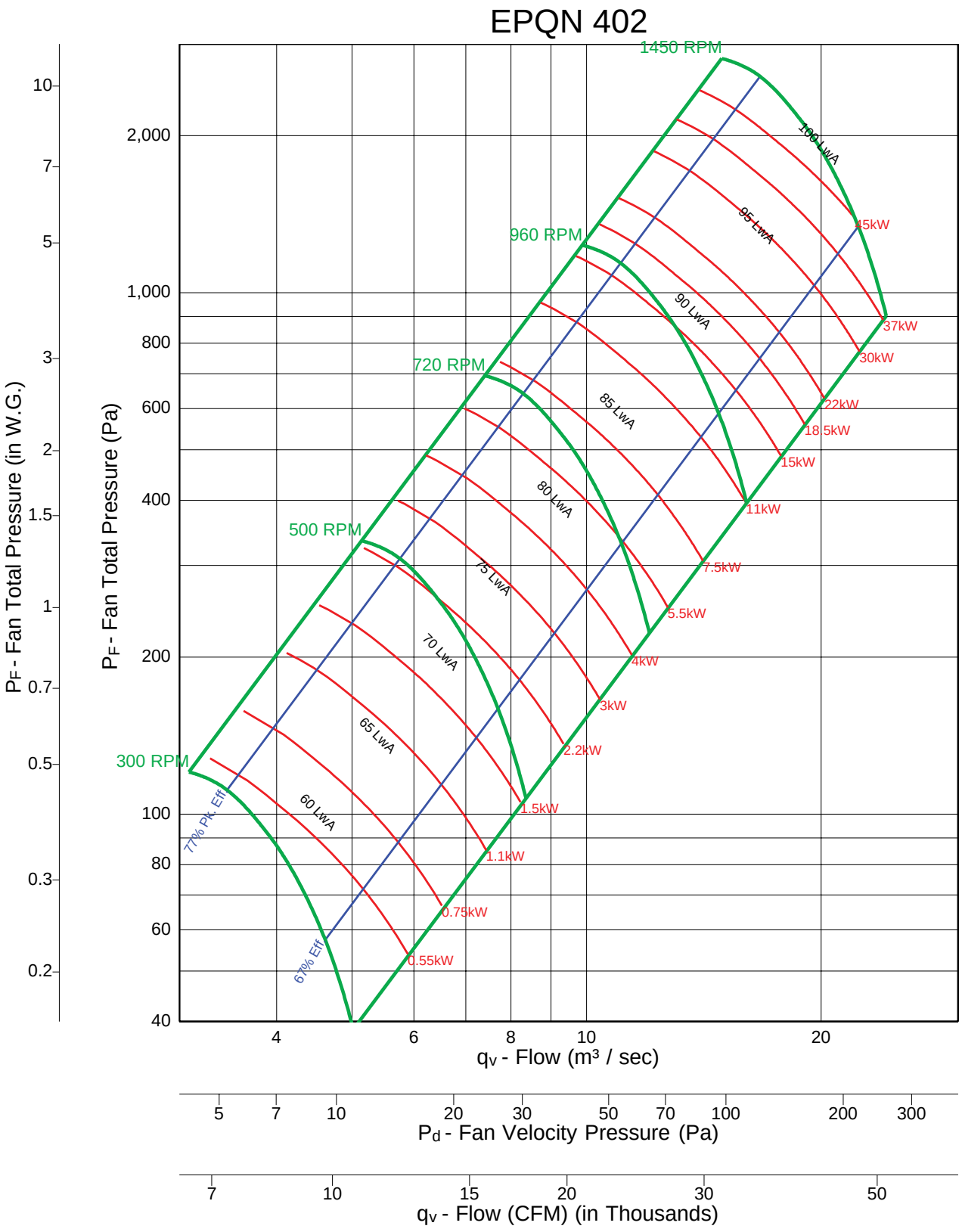

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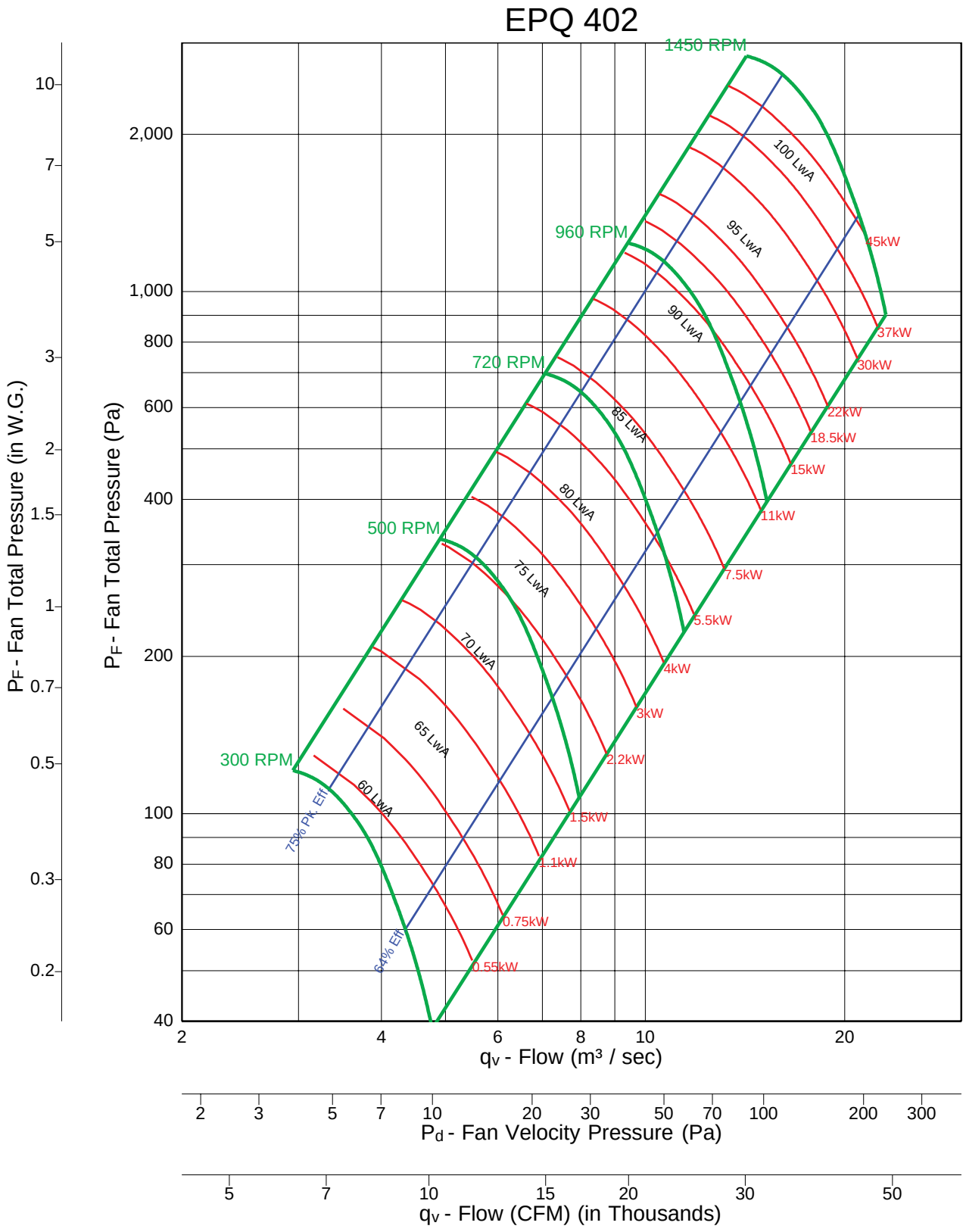

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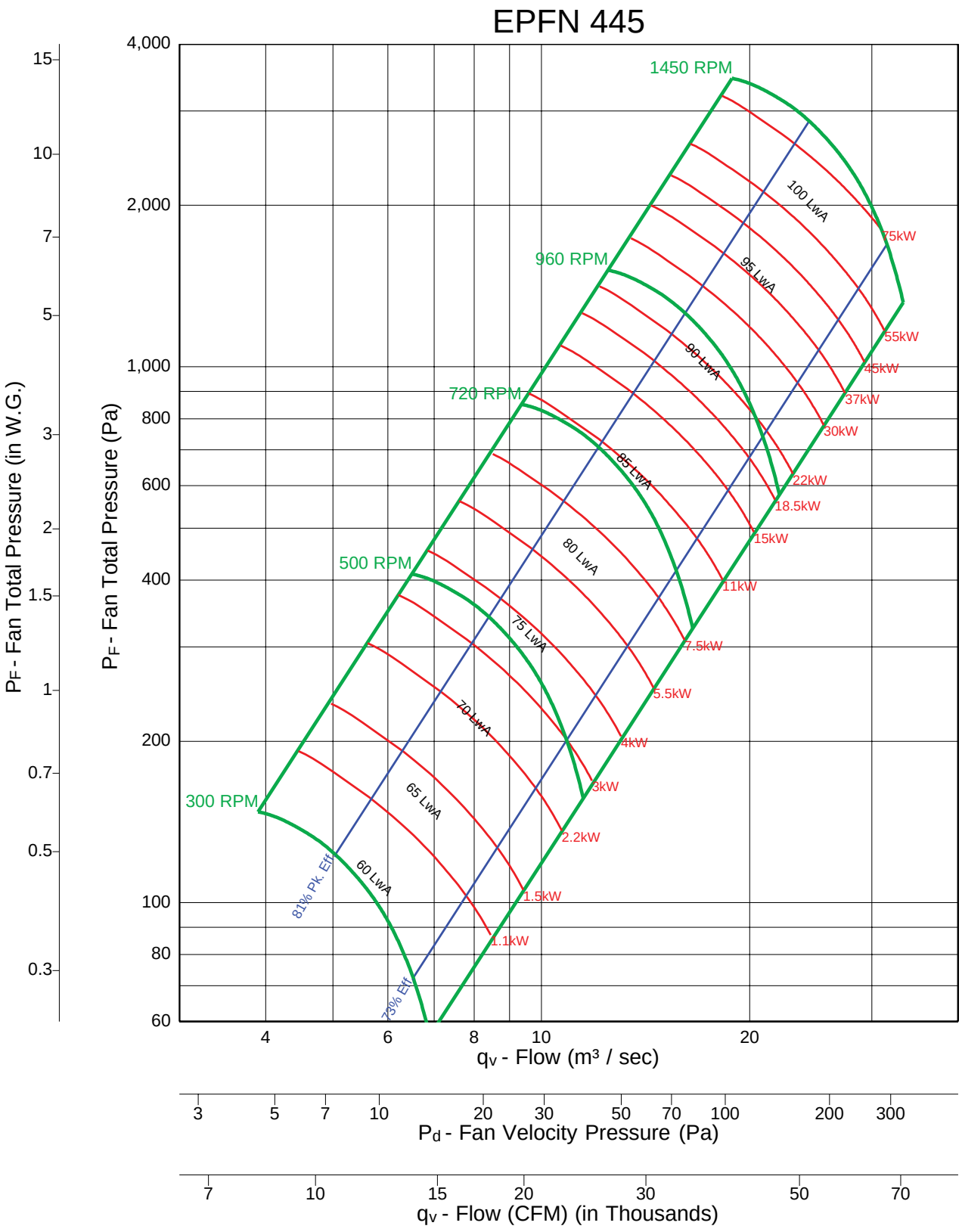

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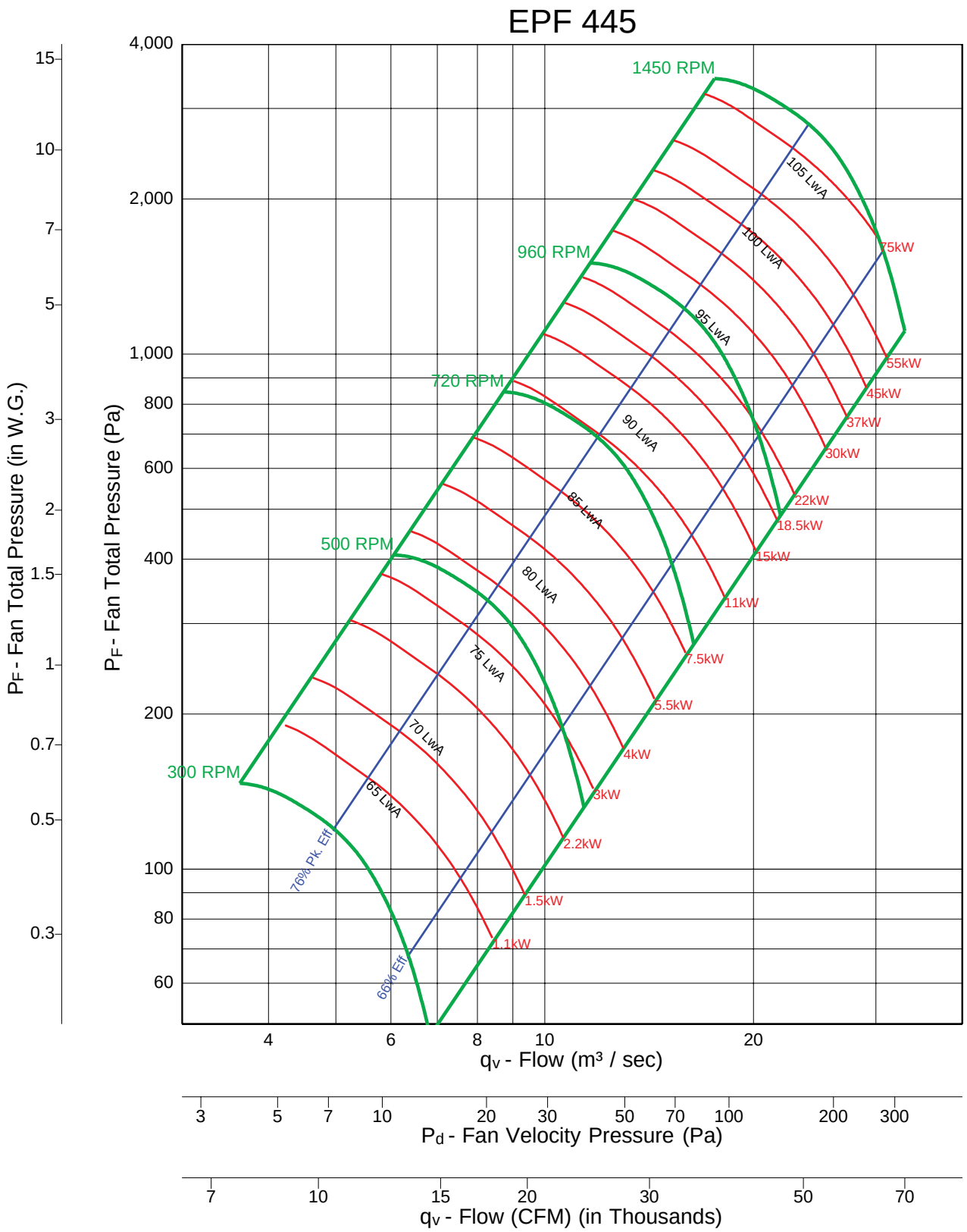

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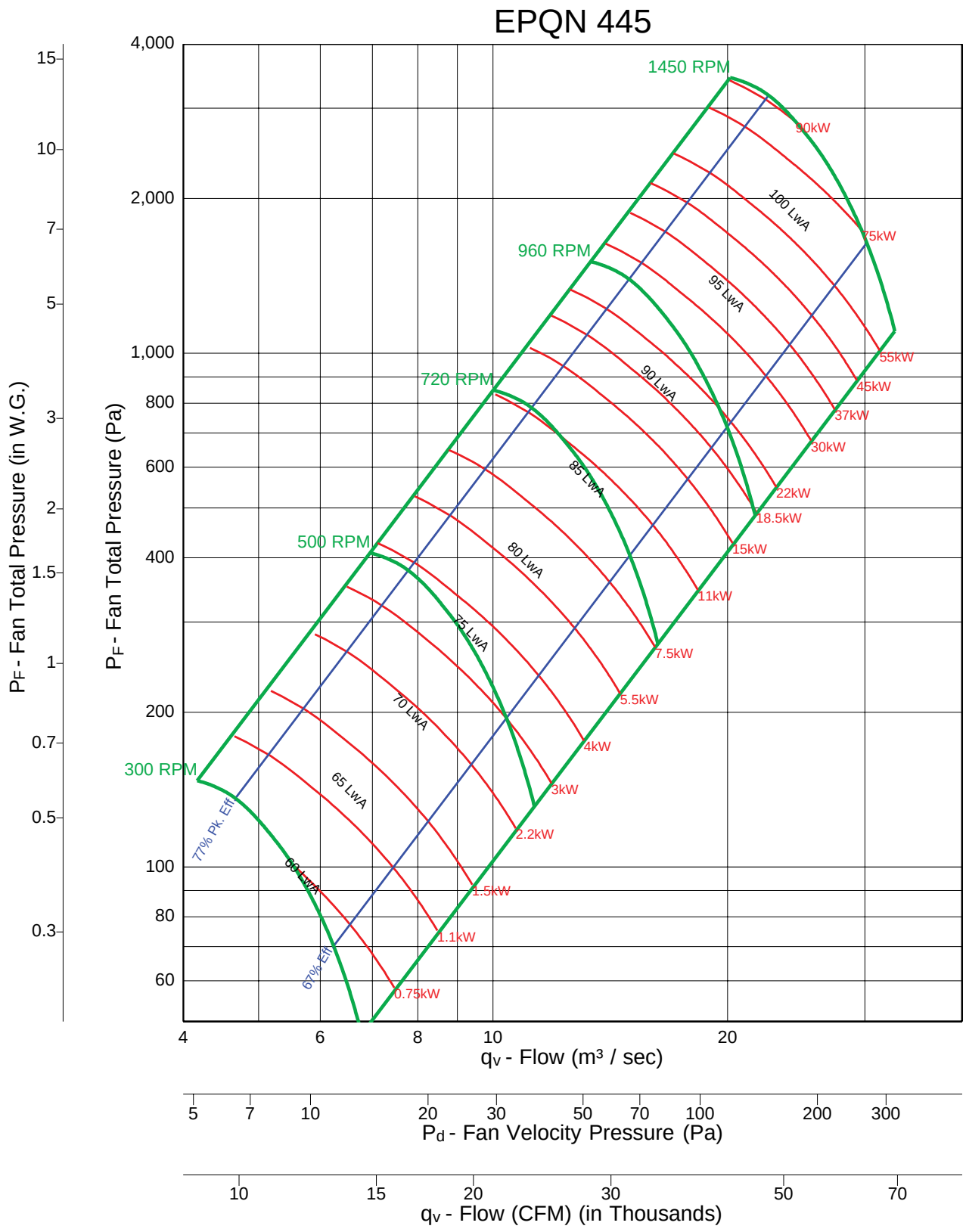

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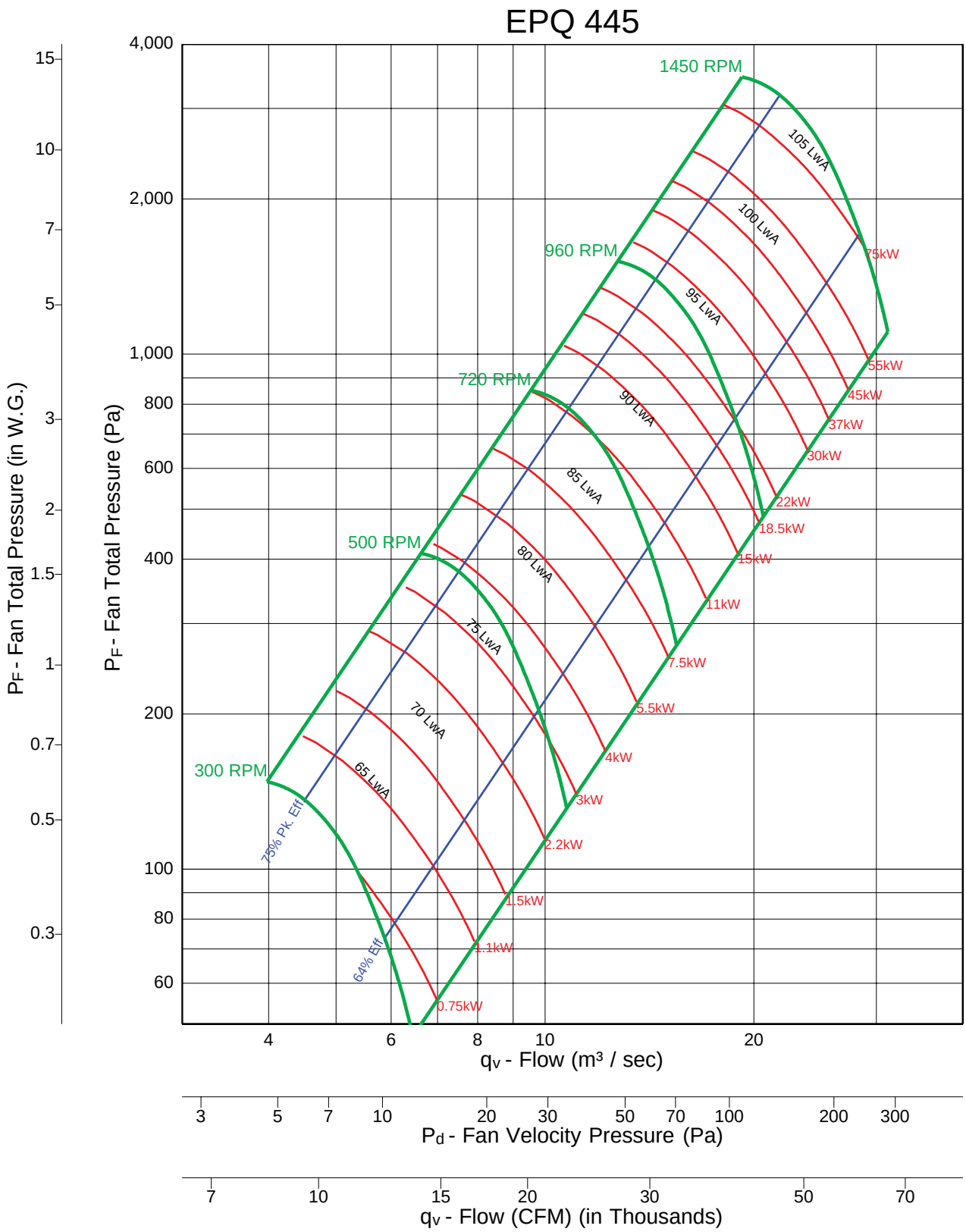

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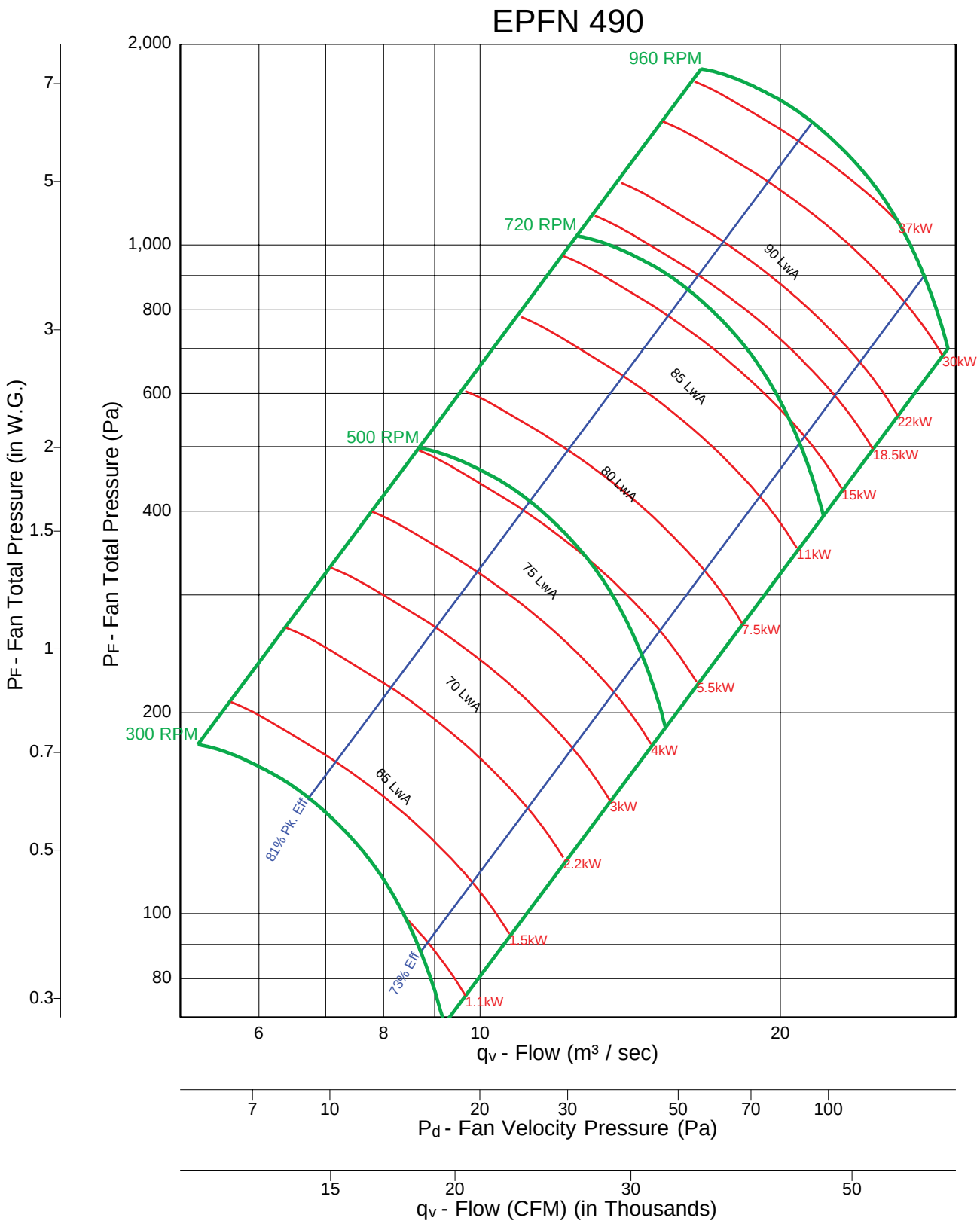

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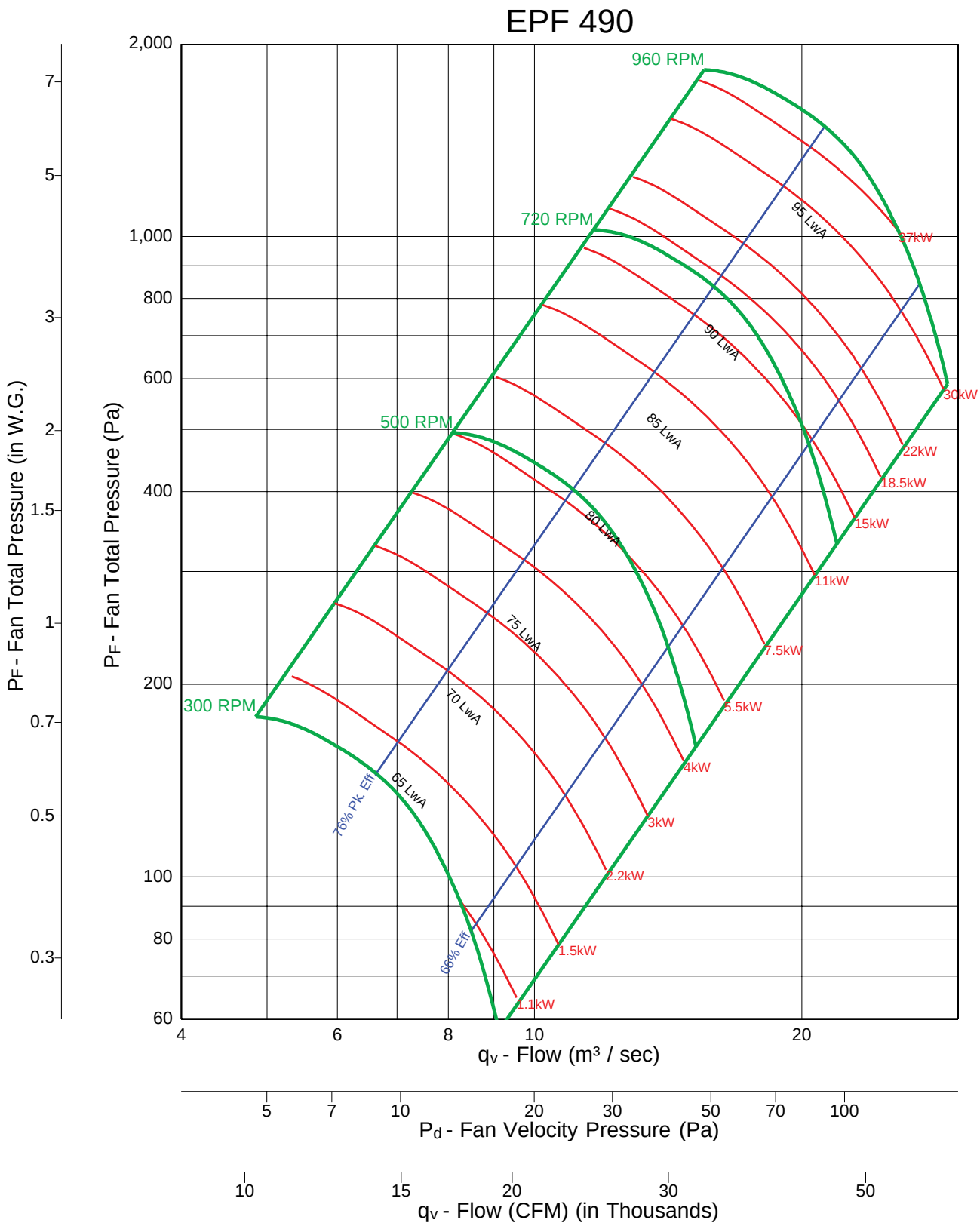

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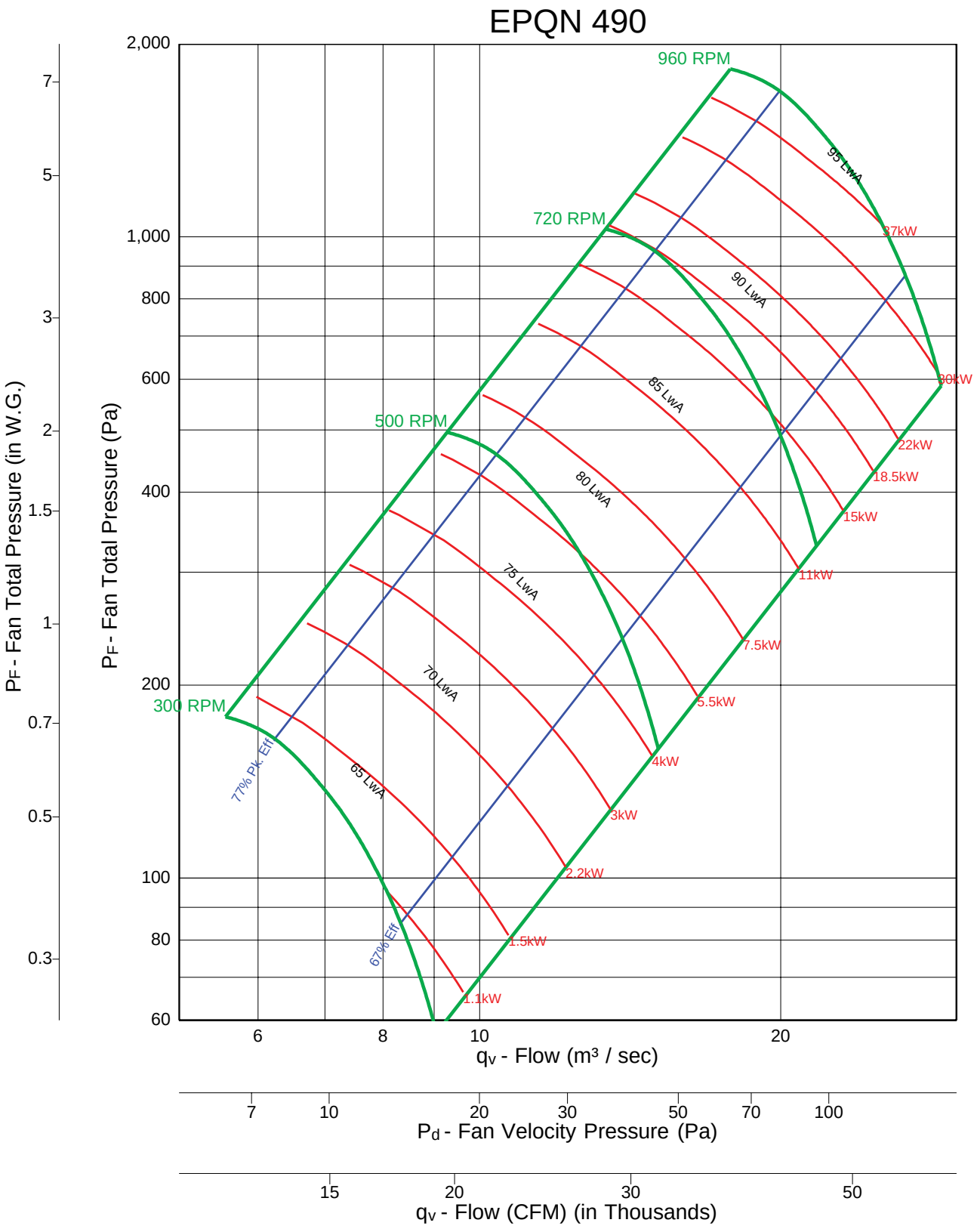

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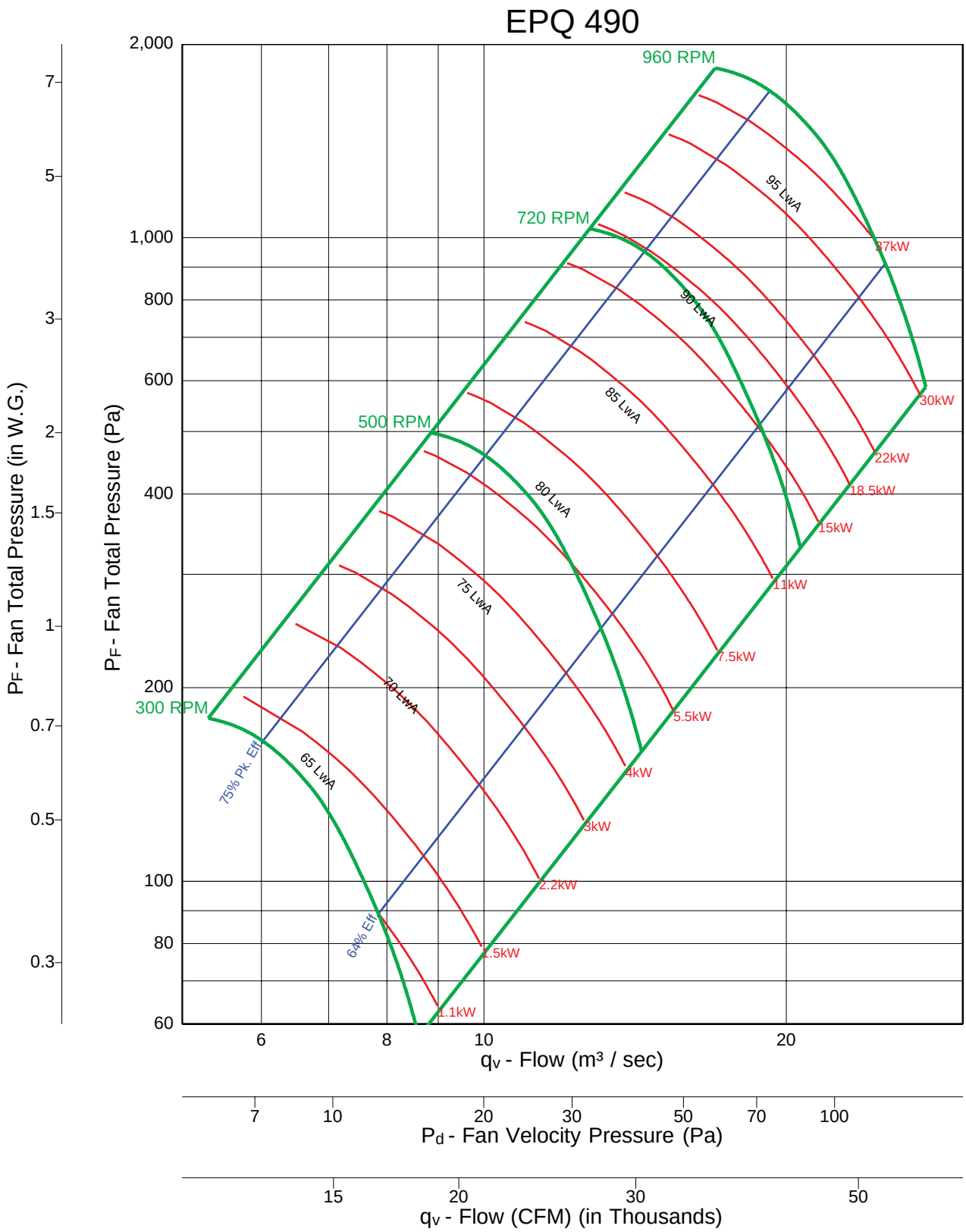

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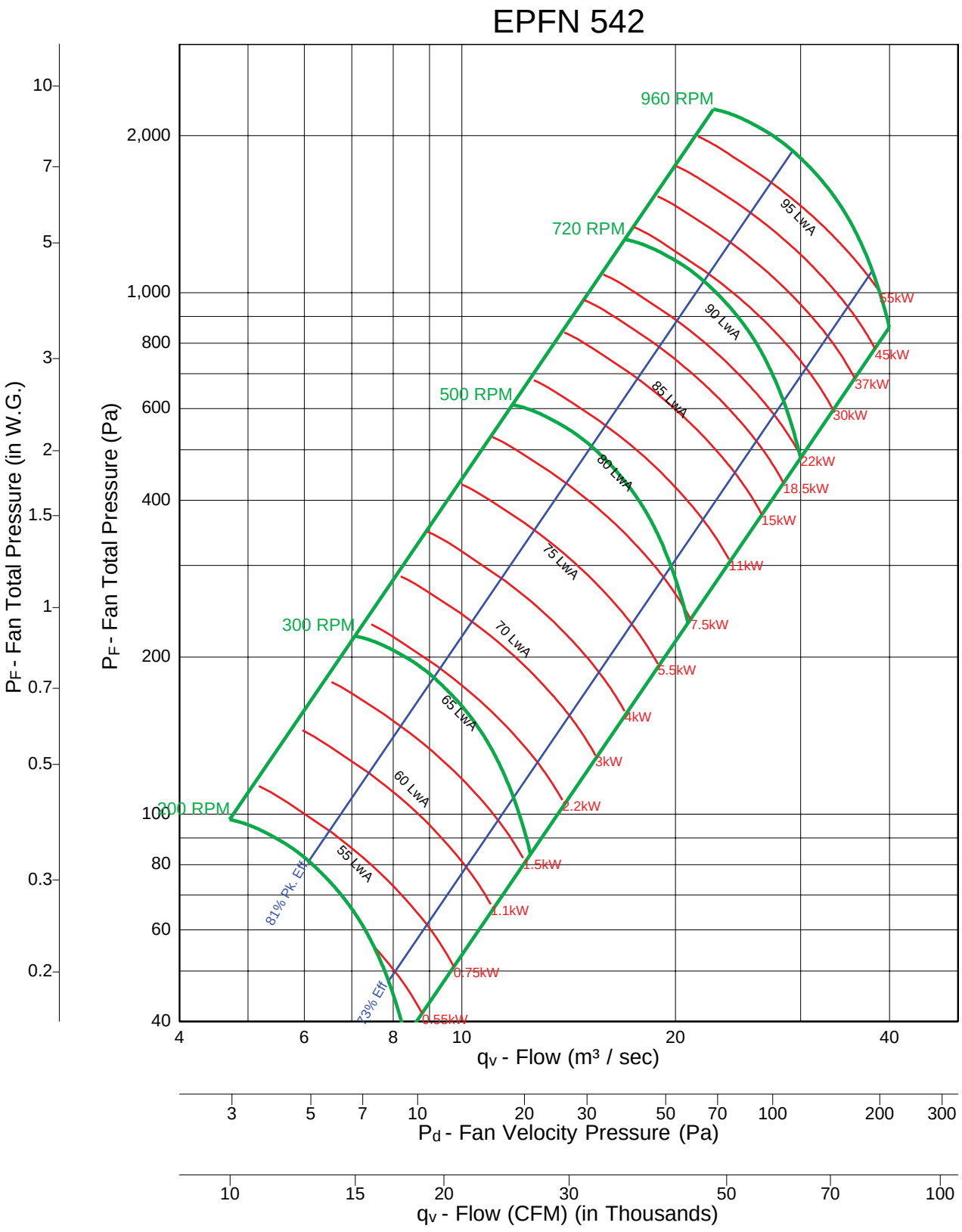

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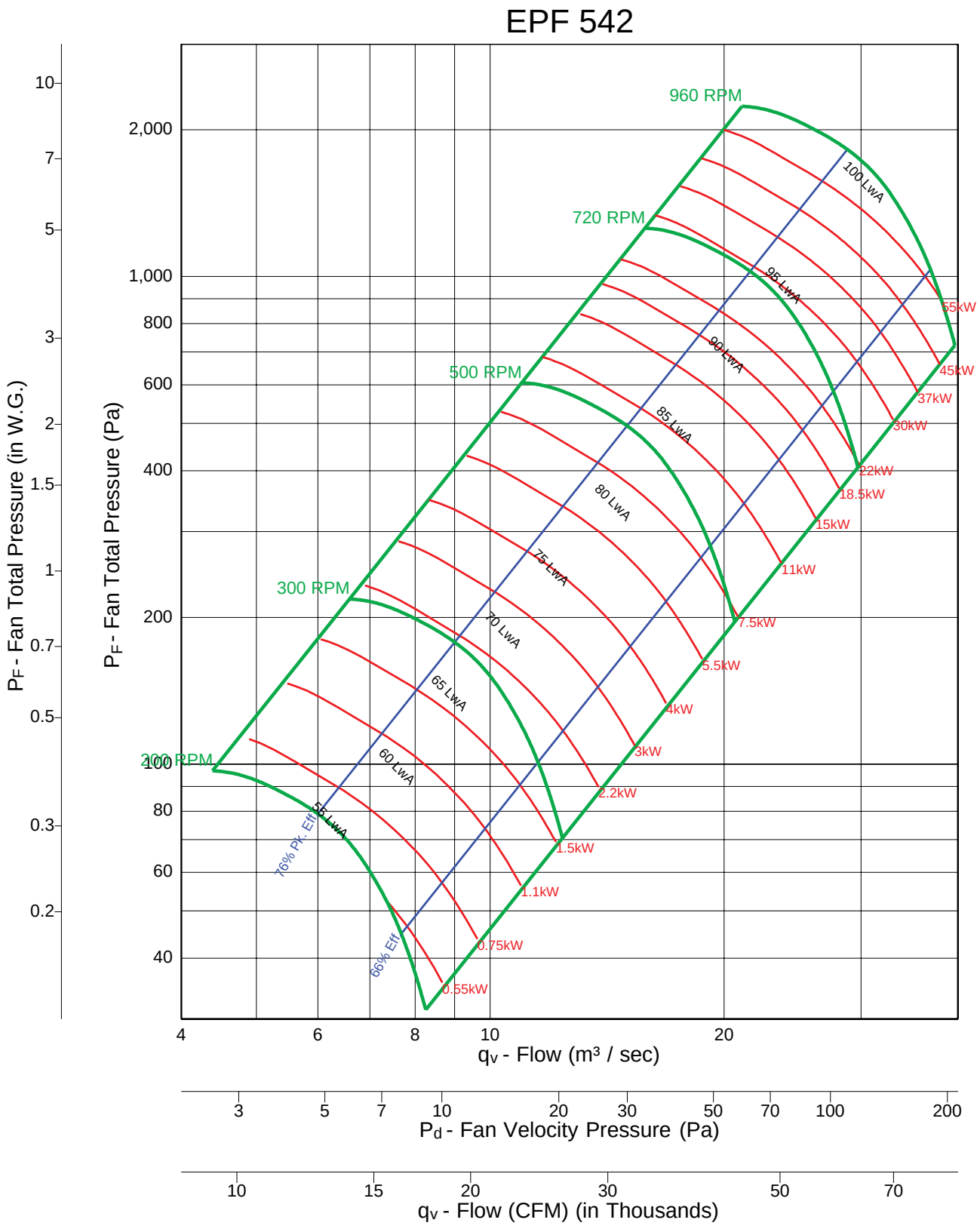

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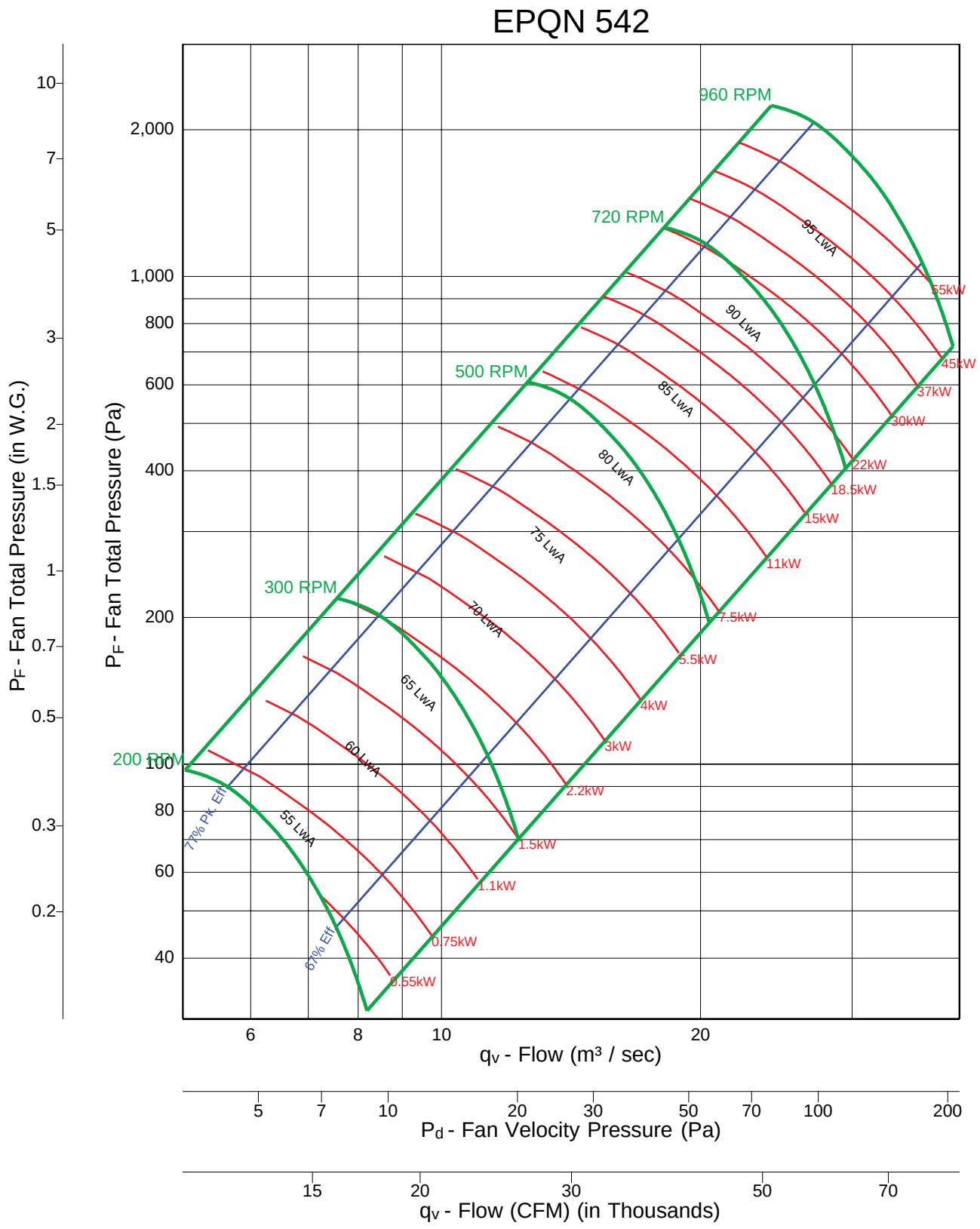

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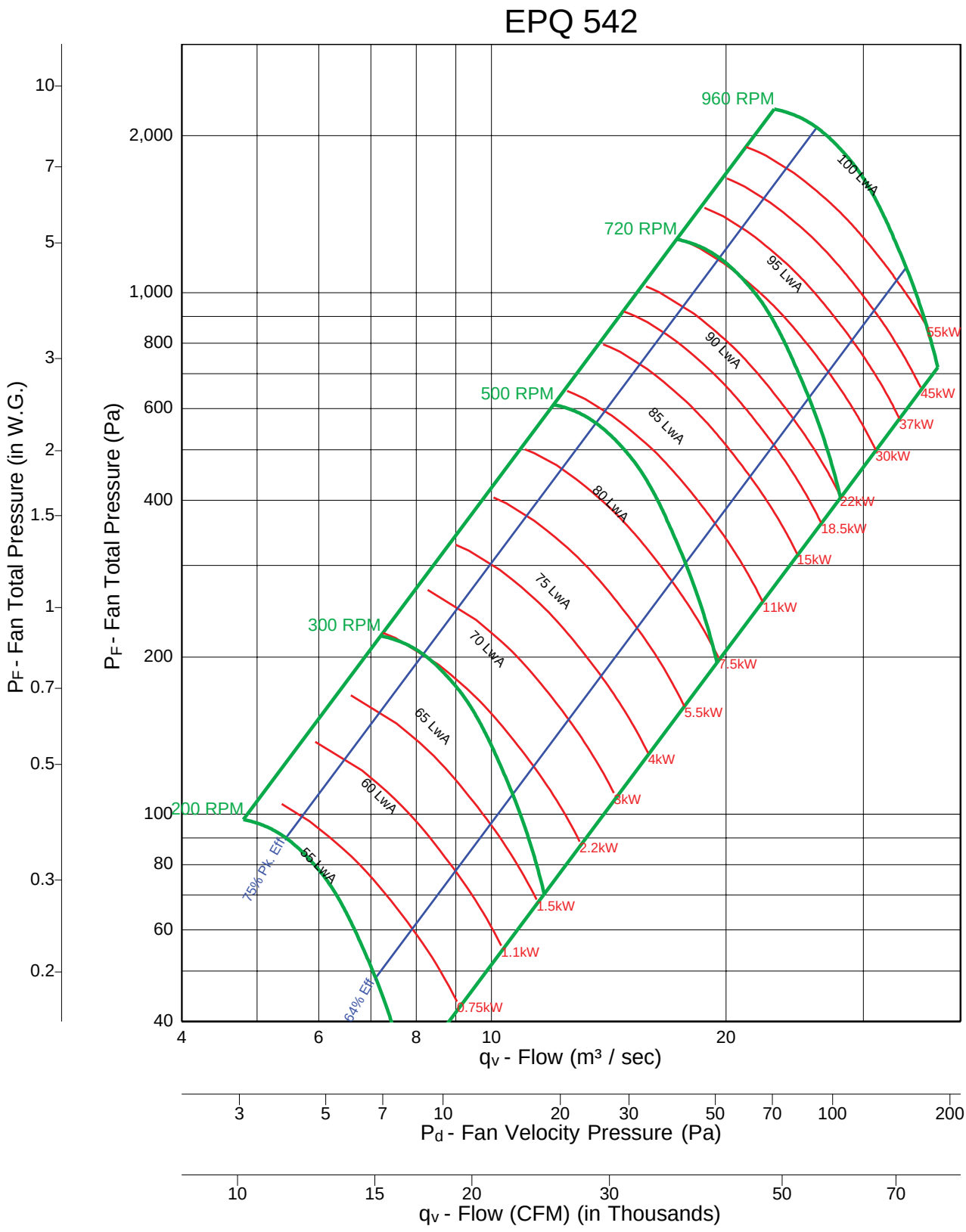

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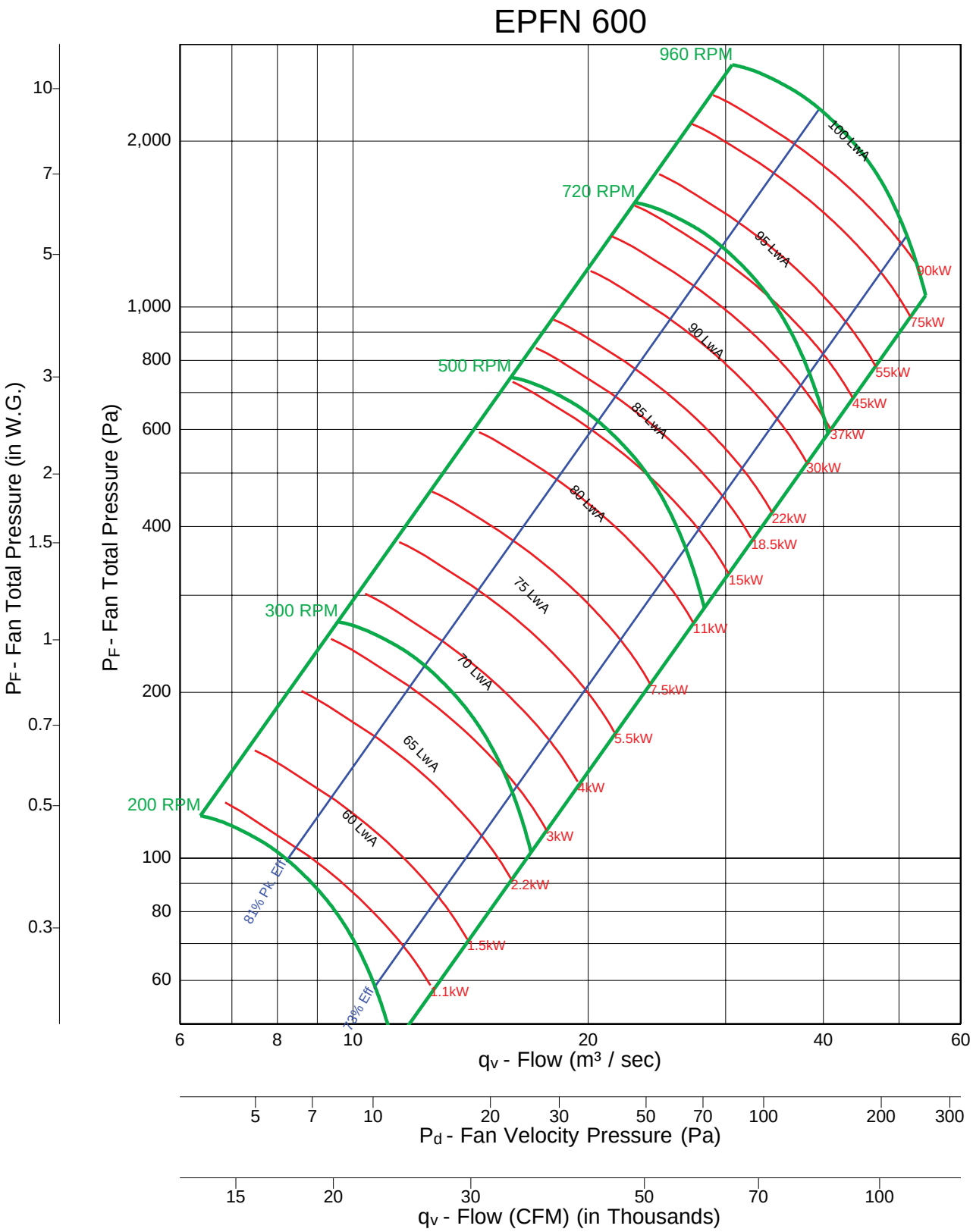

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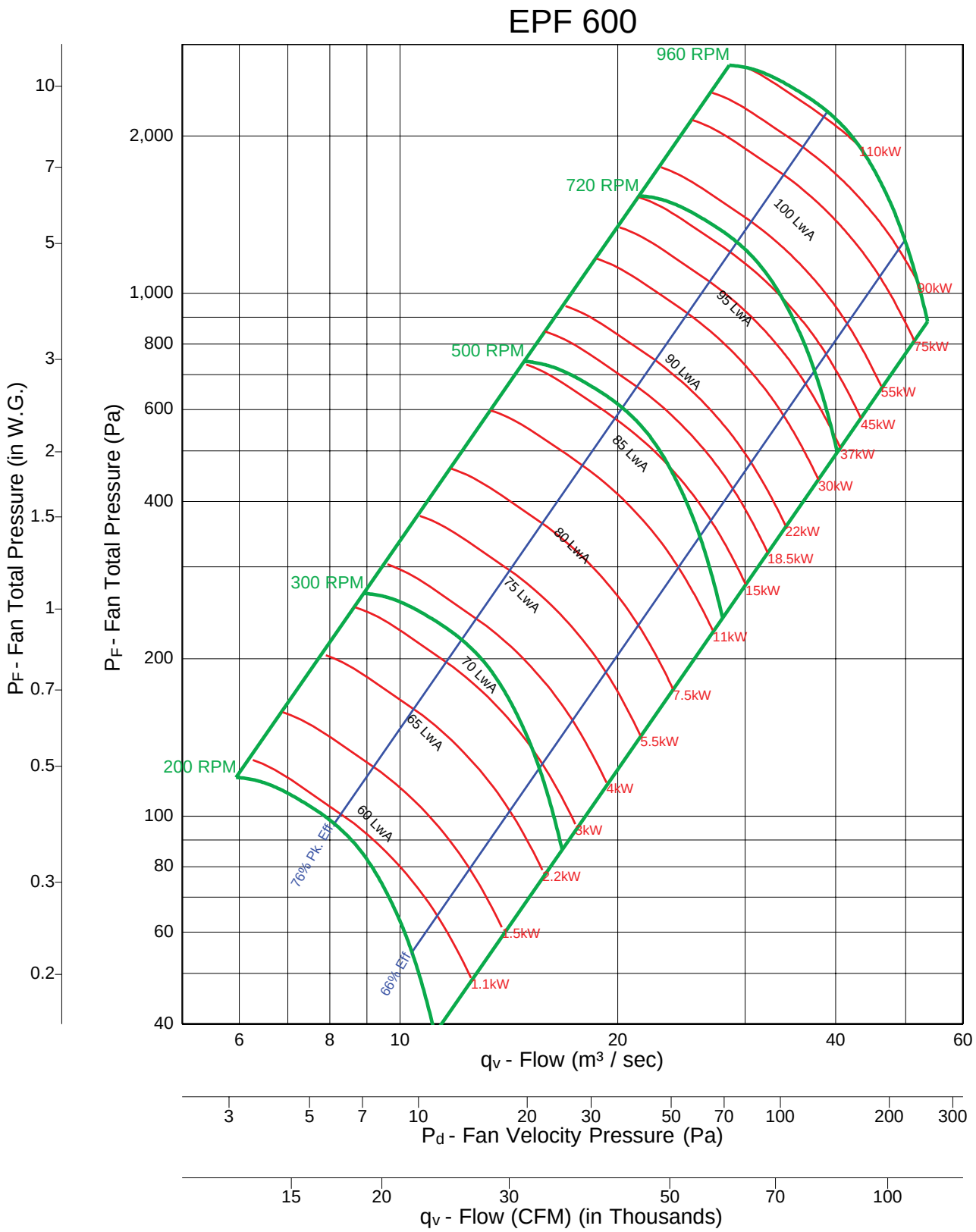

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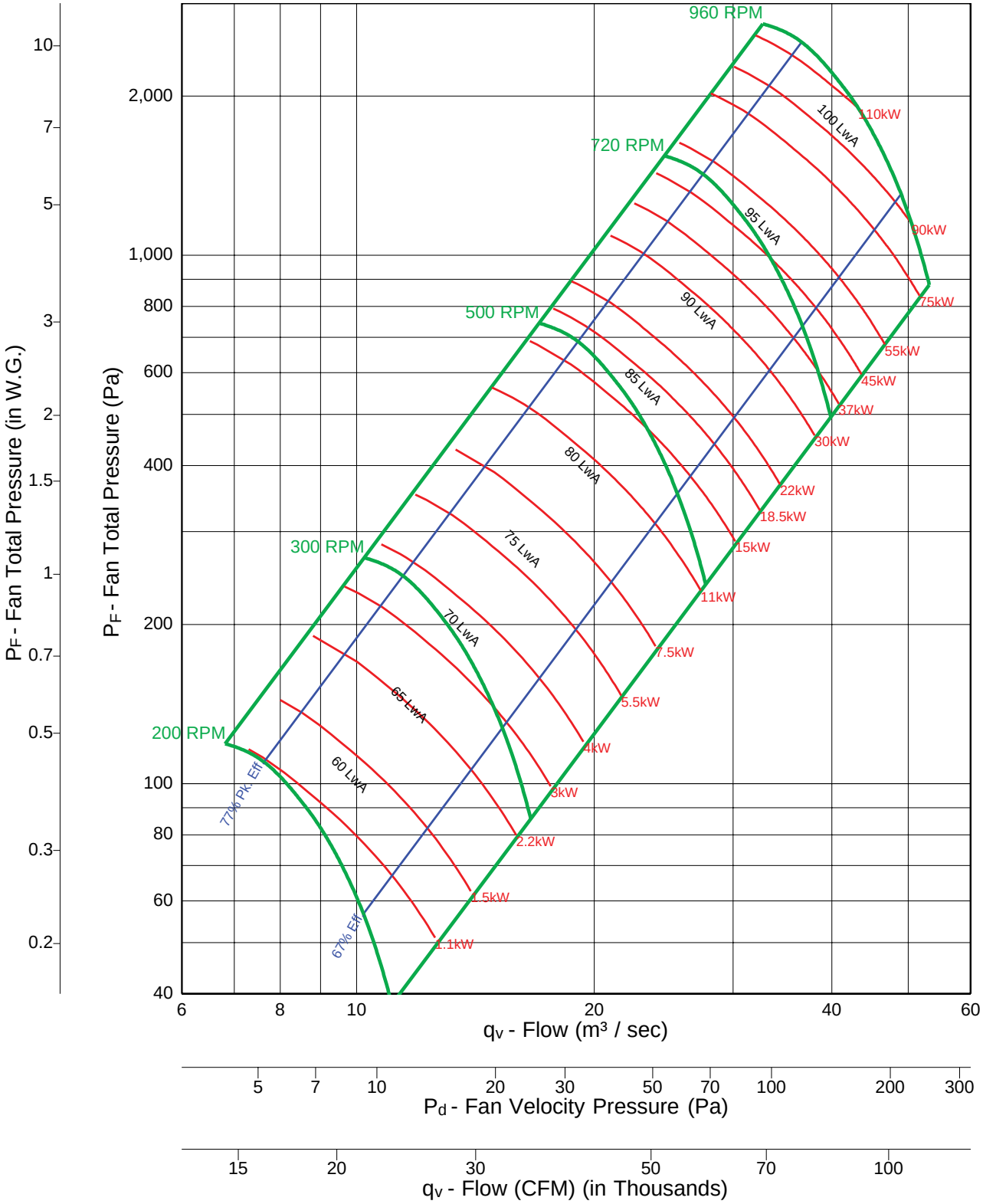
EPQN 600



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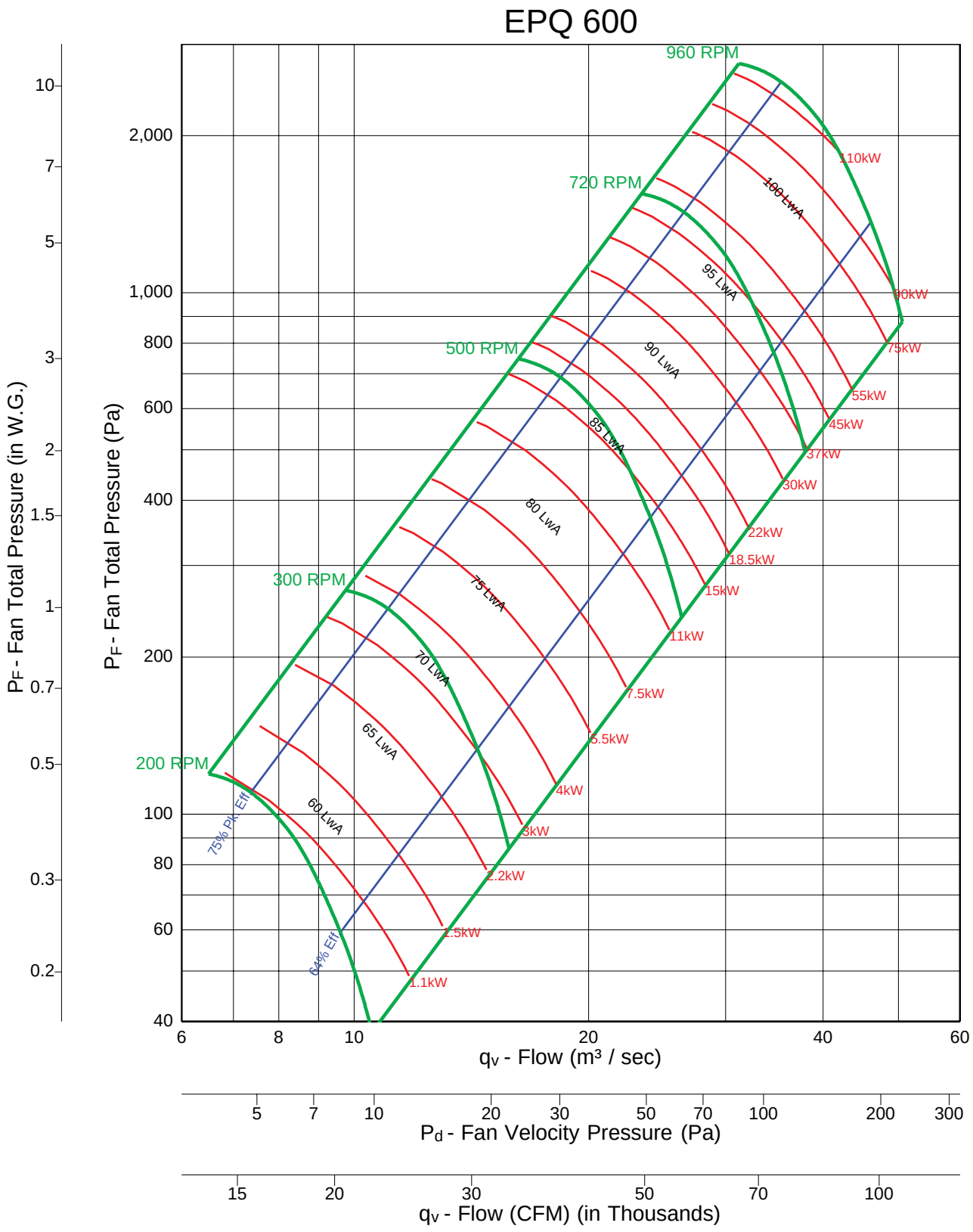

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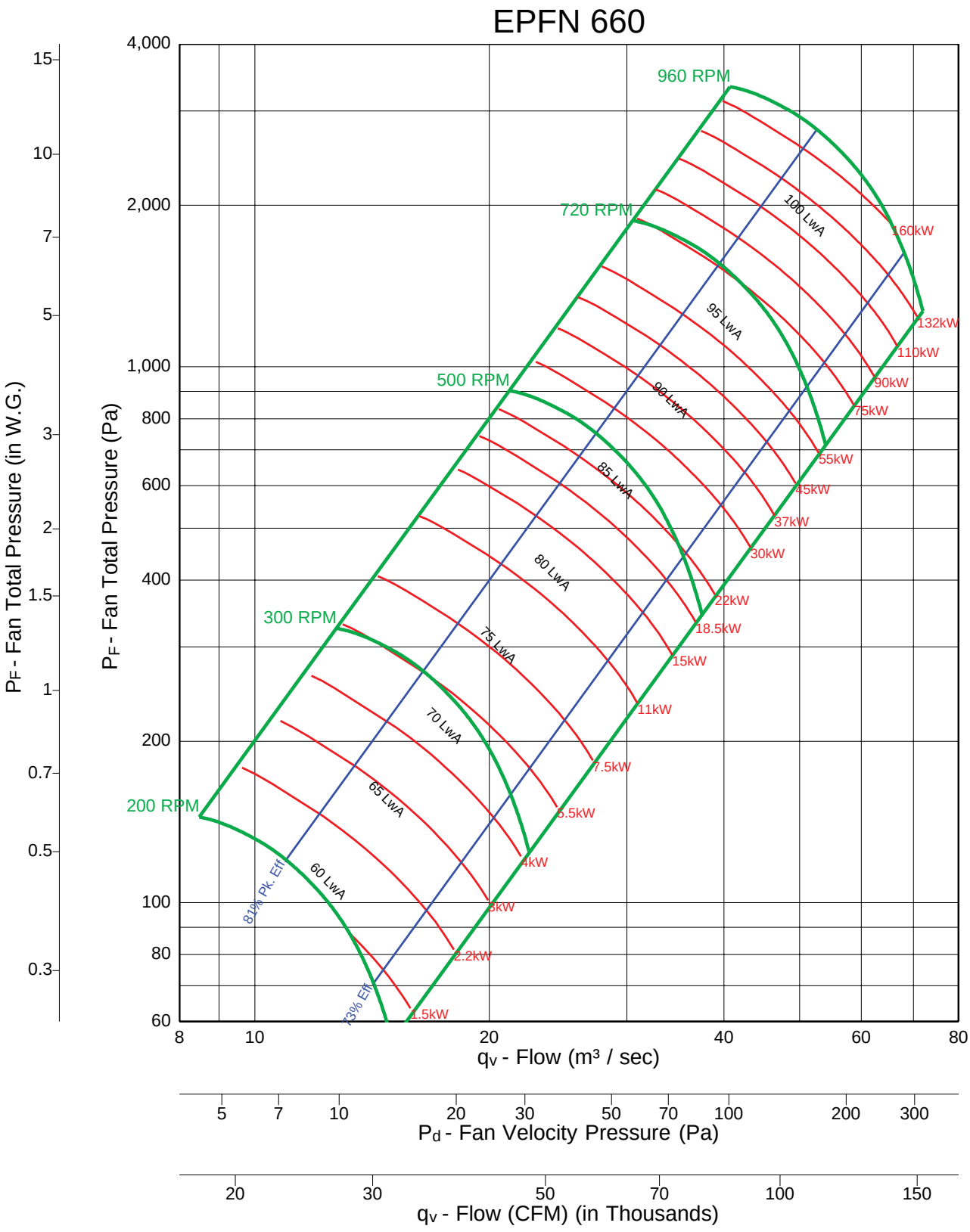

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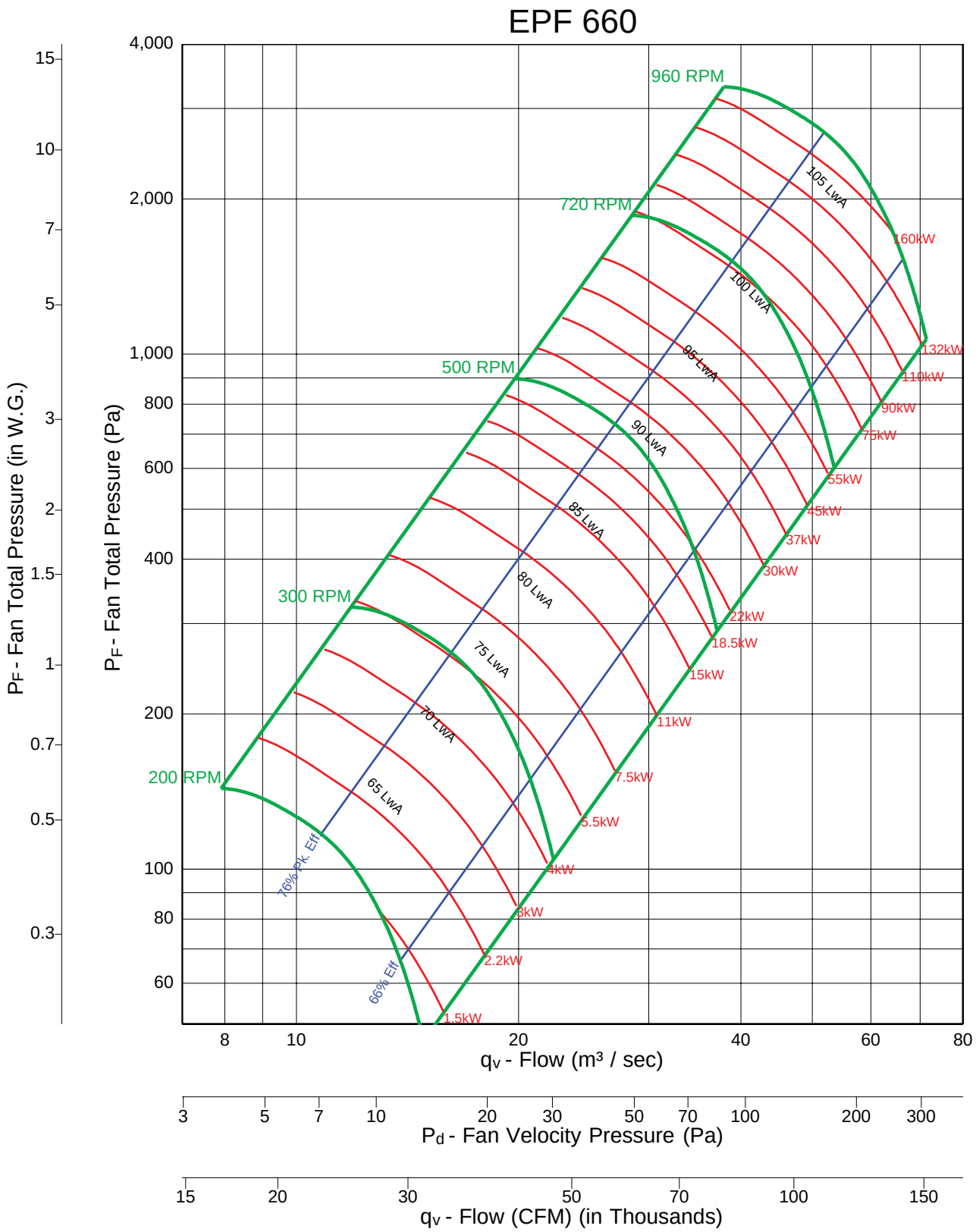

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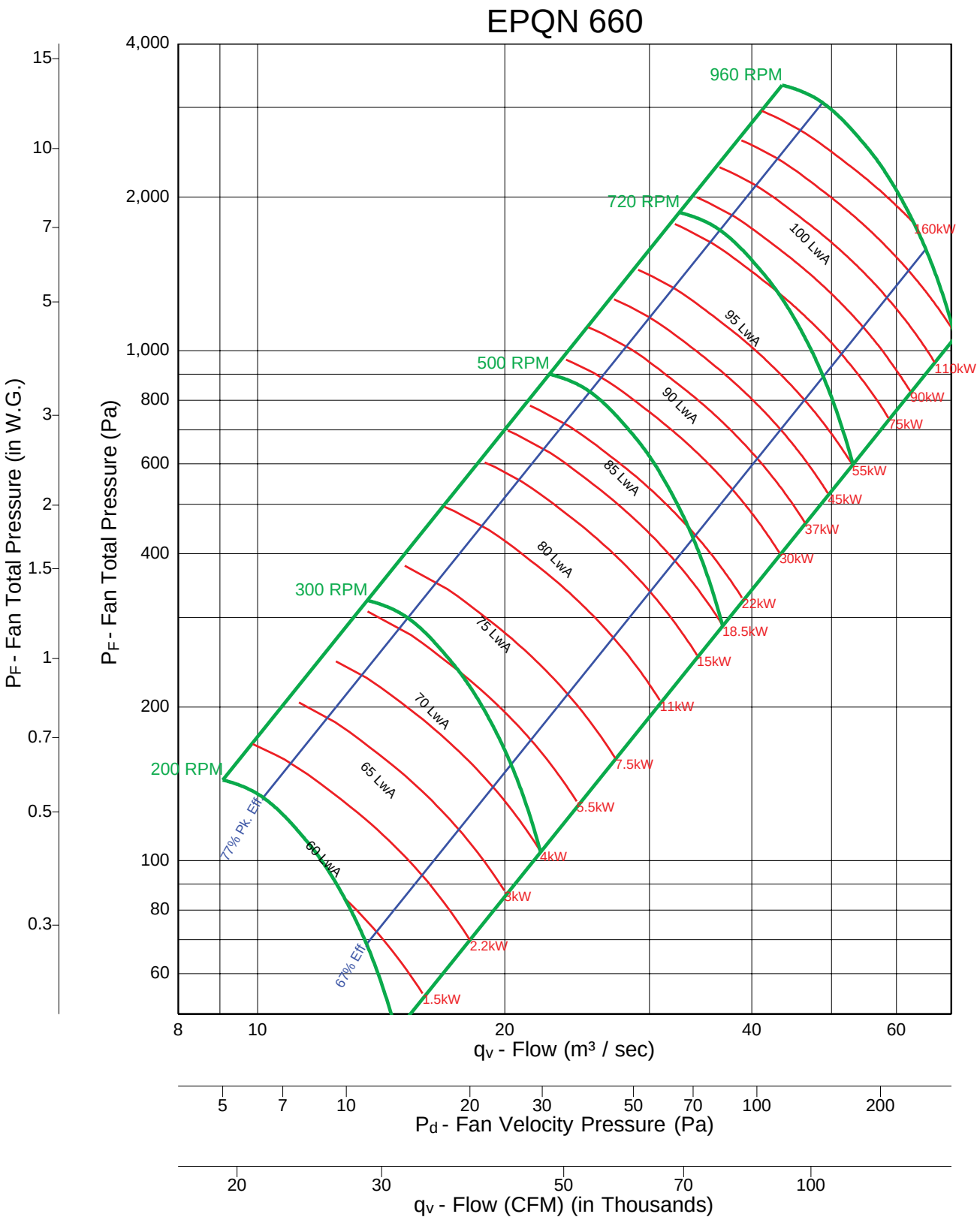

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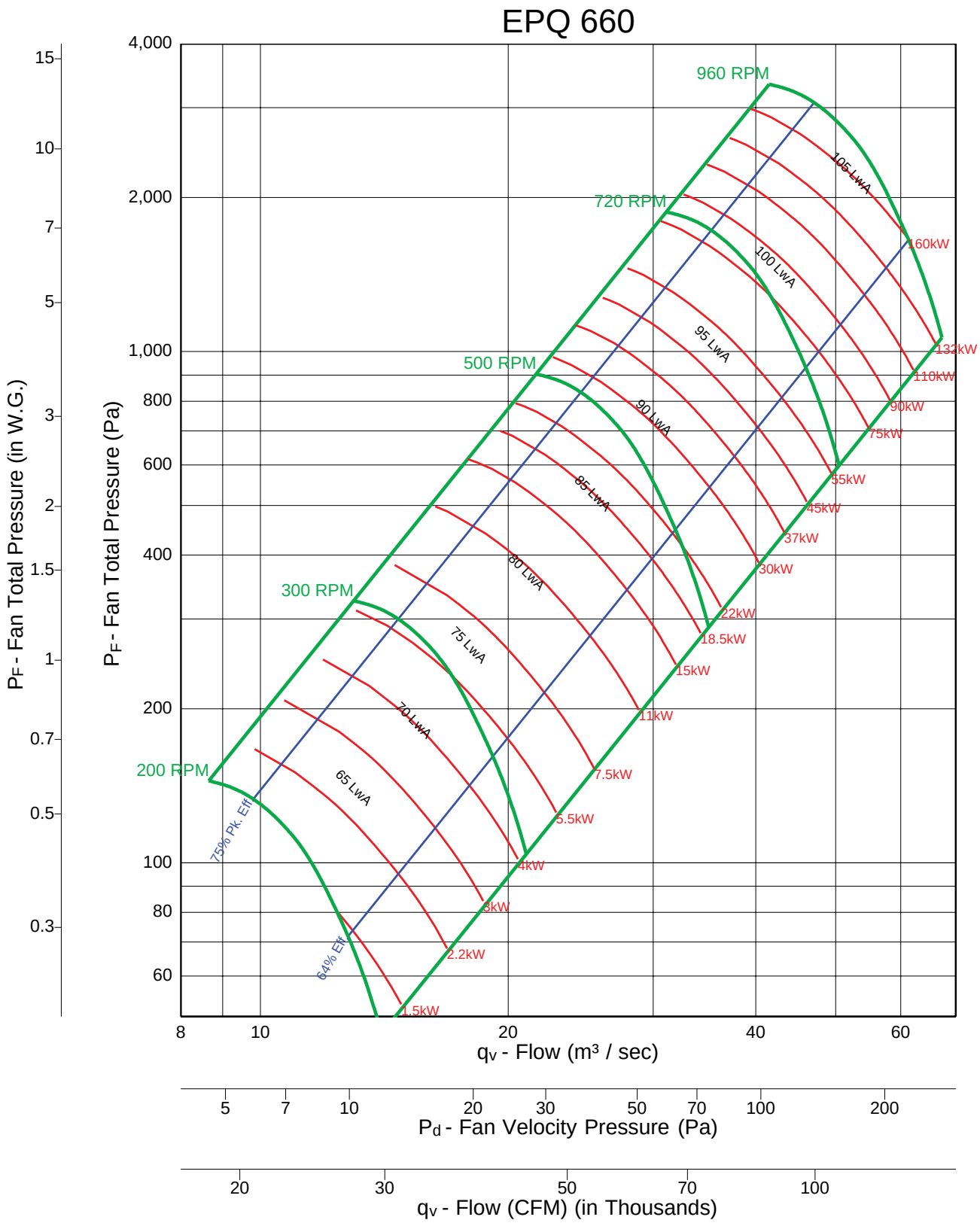

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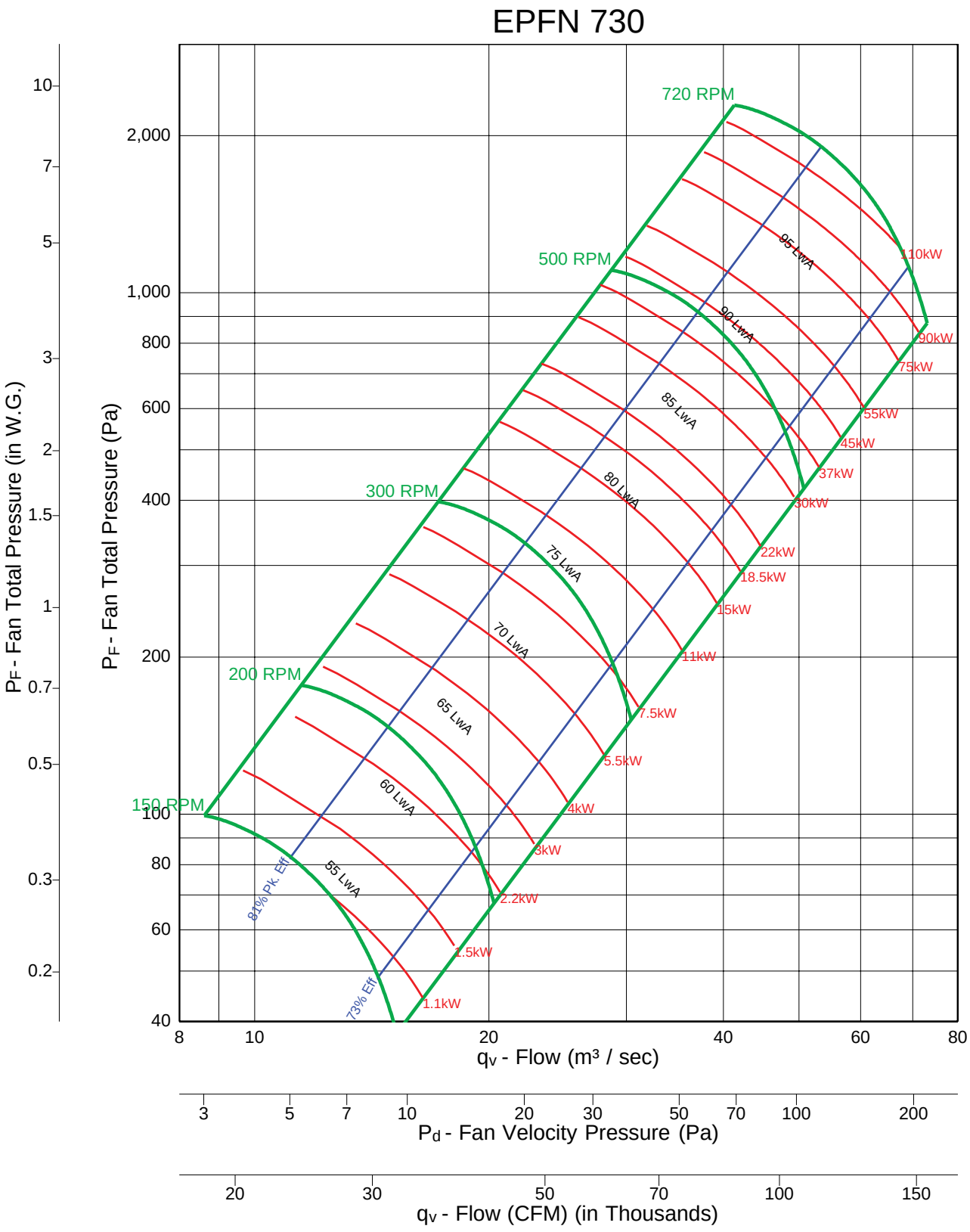

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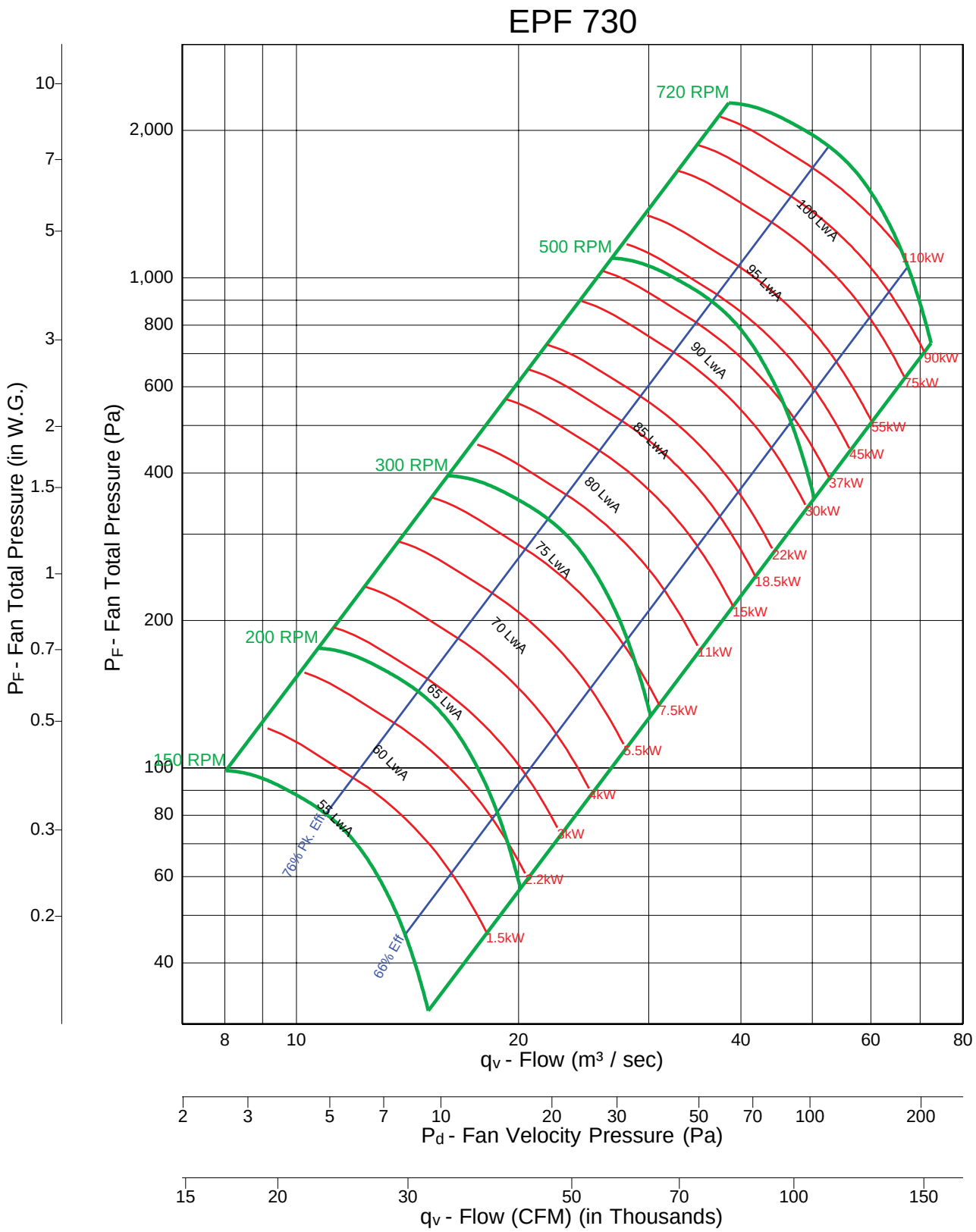

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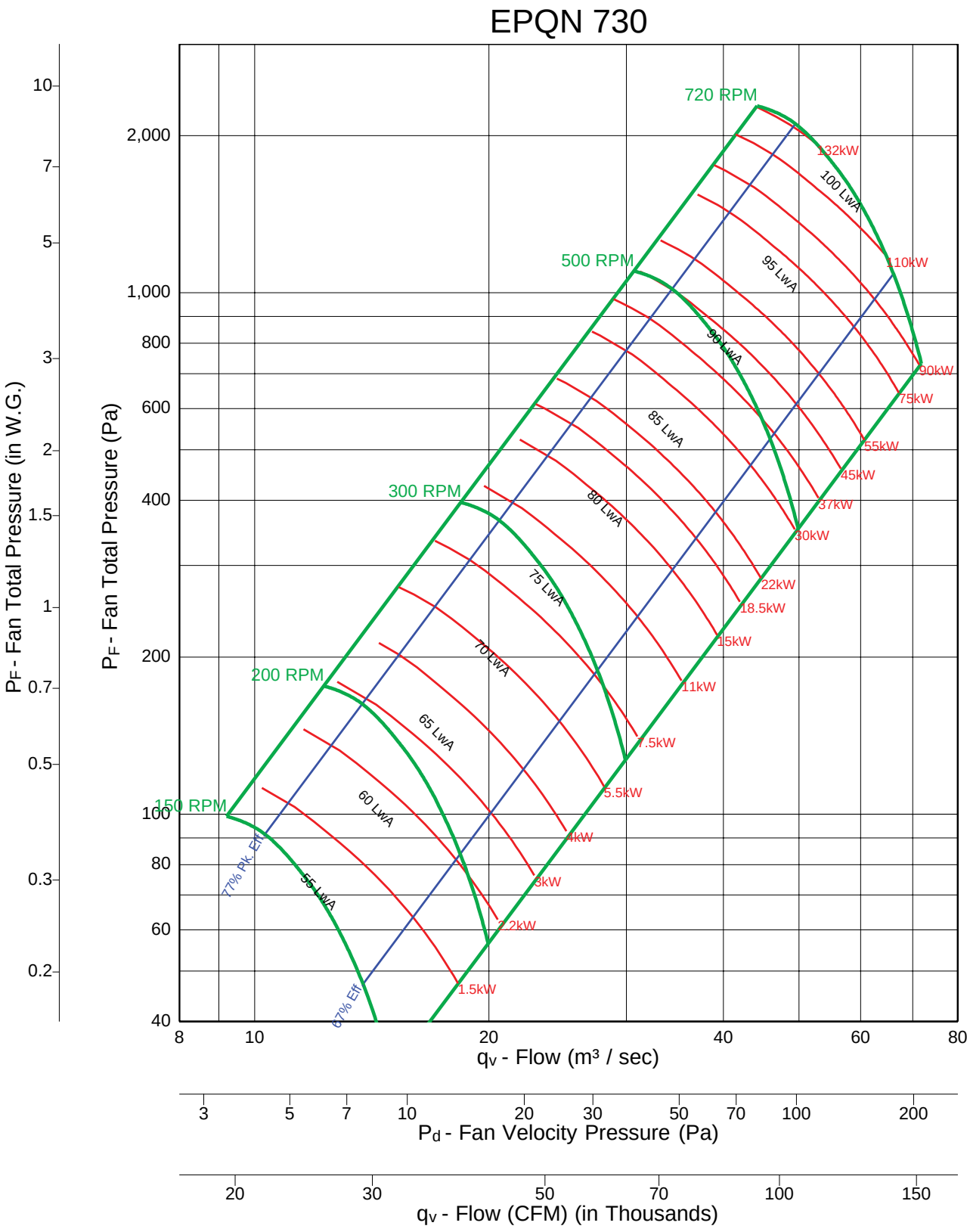

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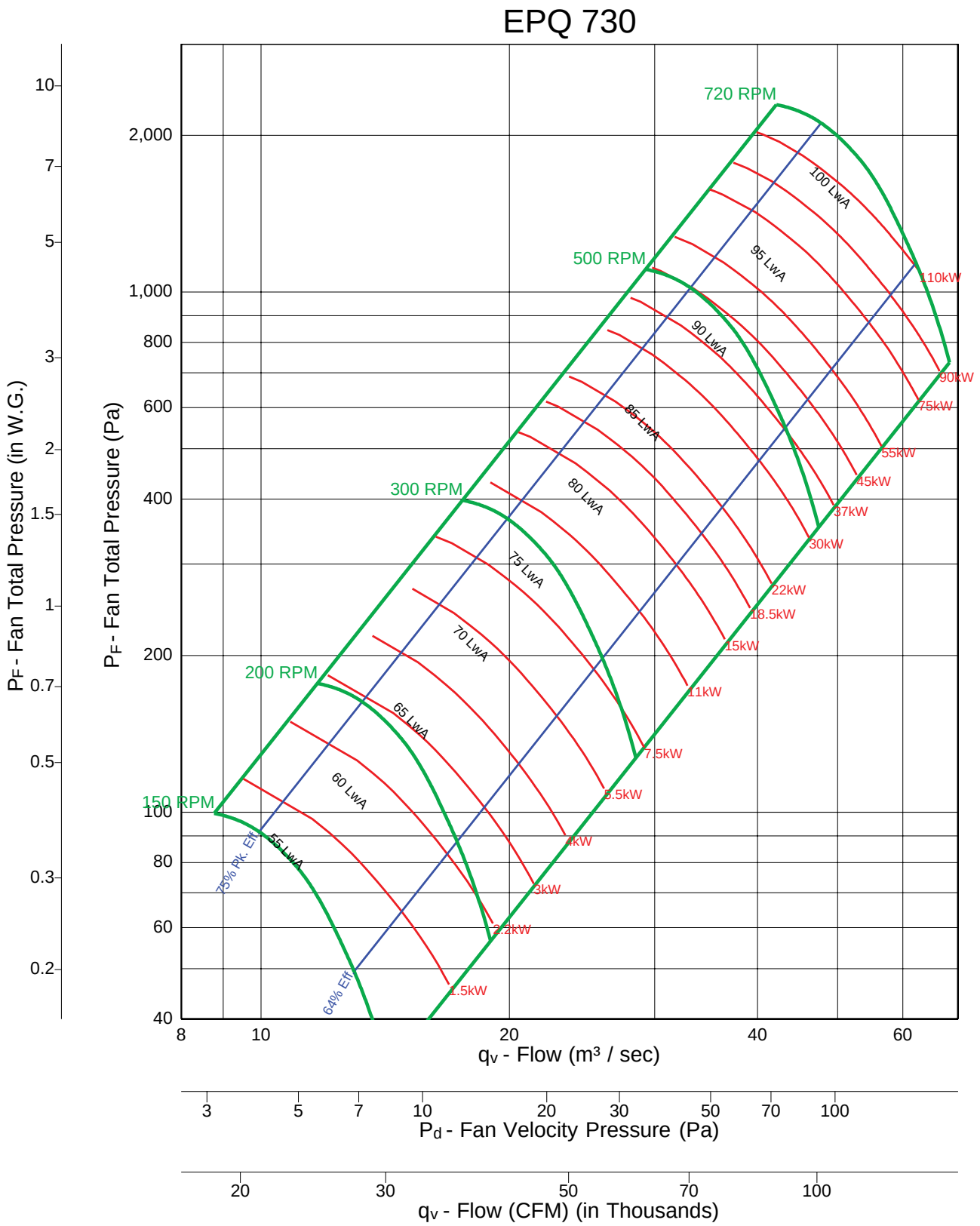
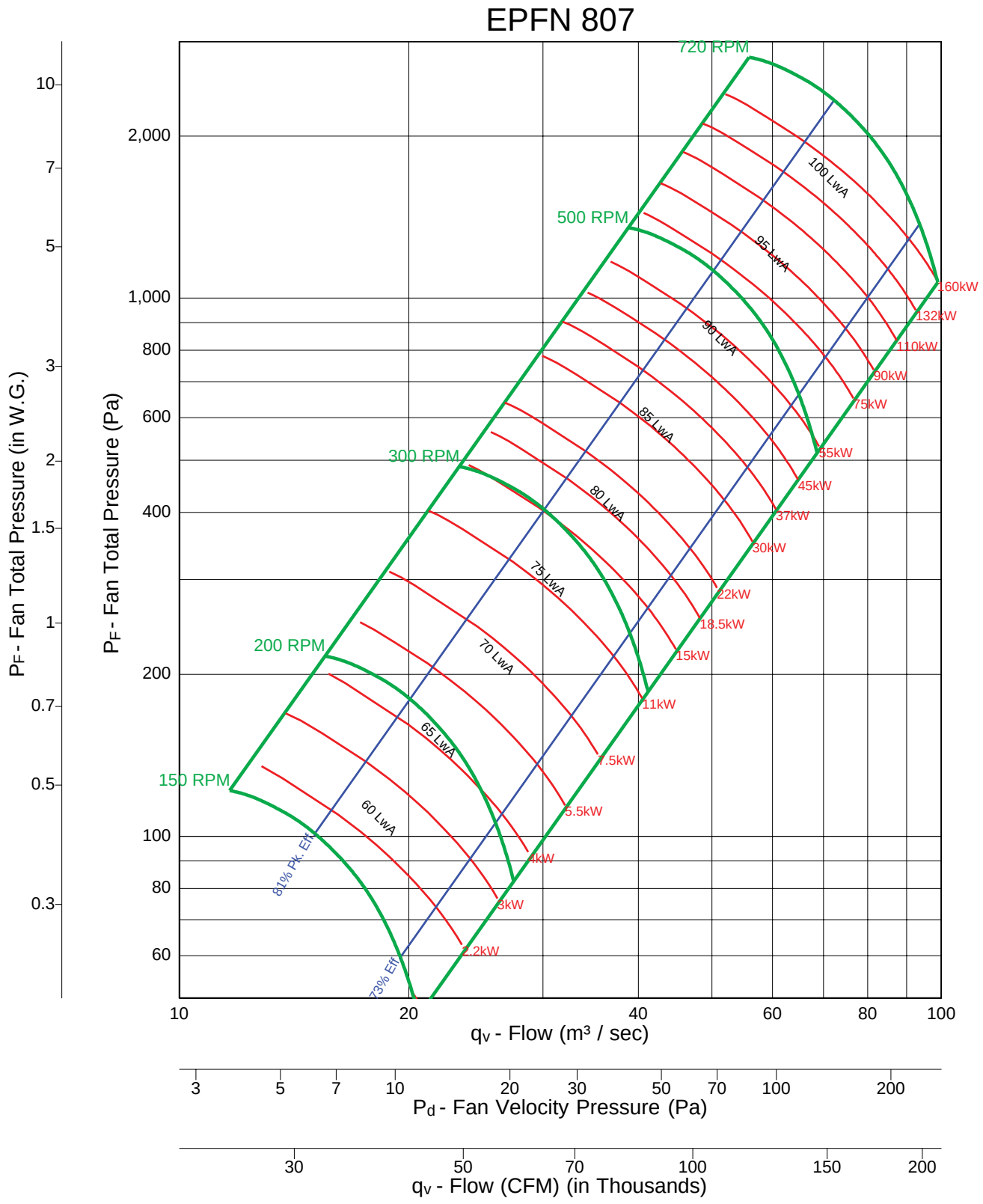
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.



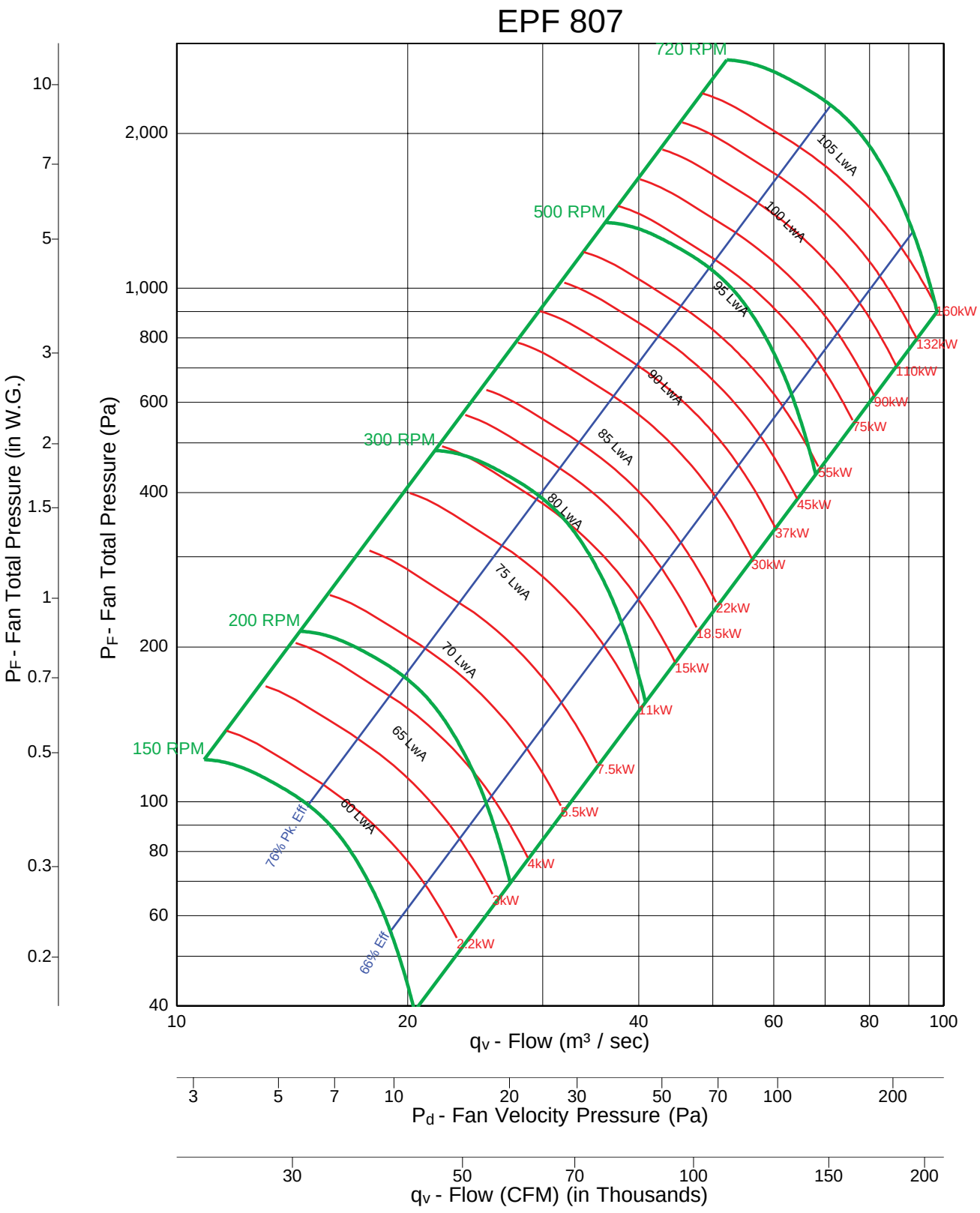
Fan Efficiency Grade = FEG 80

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



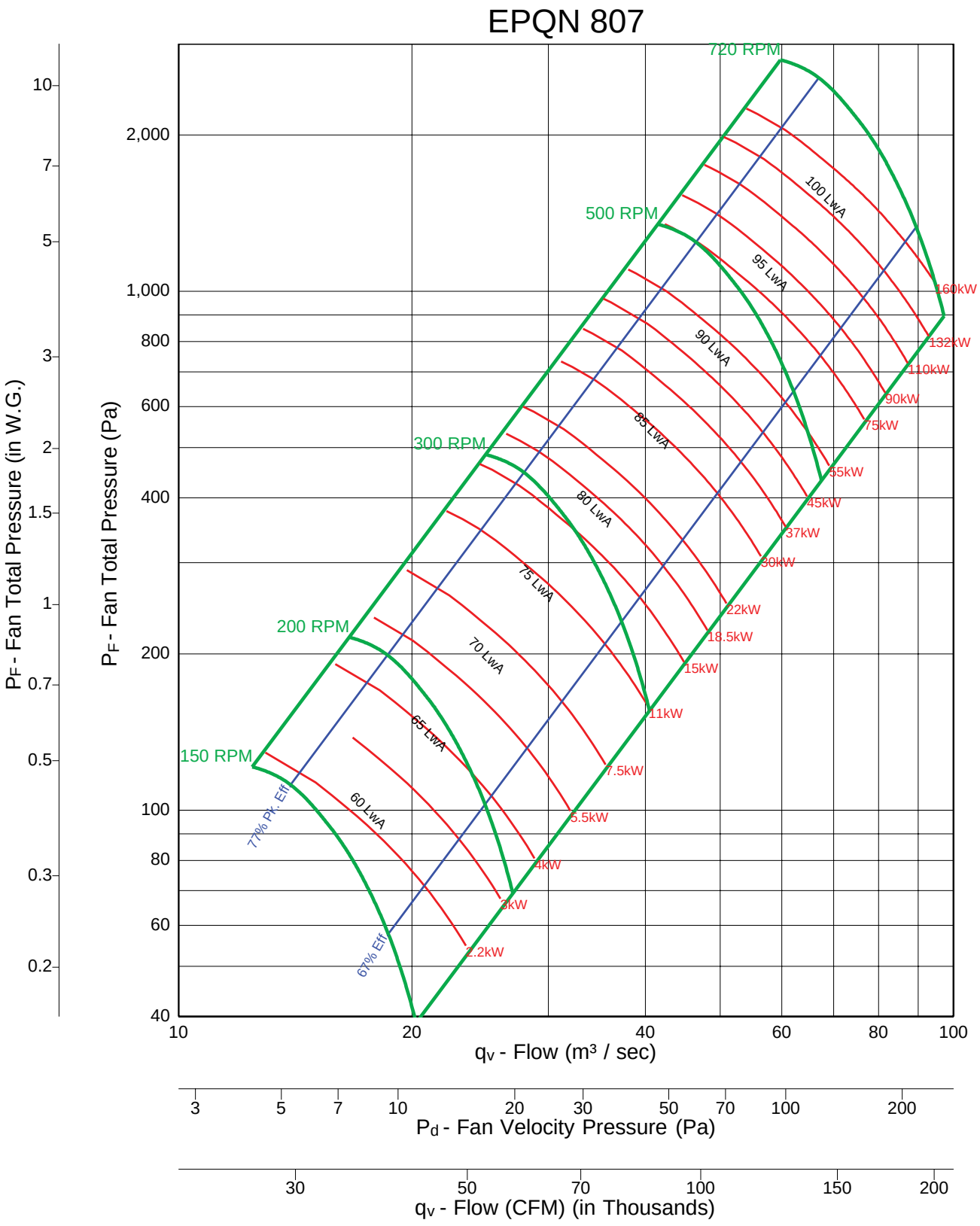
Fan Efficiency Grade = FEG 85

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



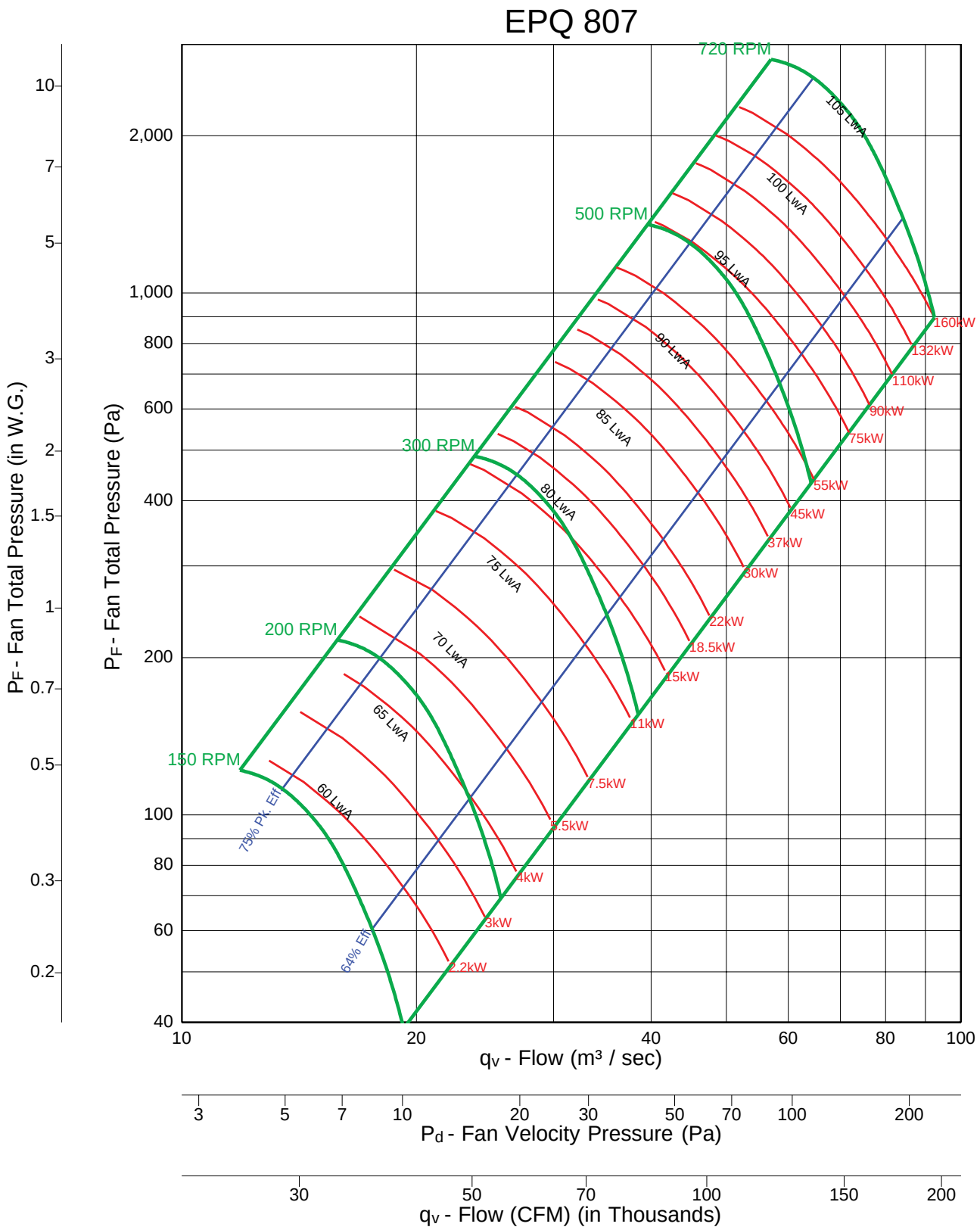
Fan Efficiency Grade = FEG 80

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



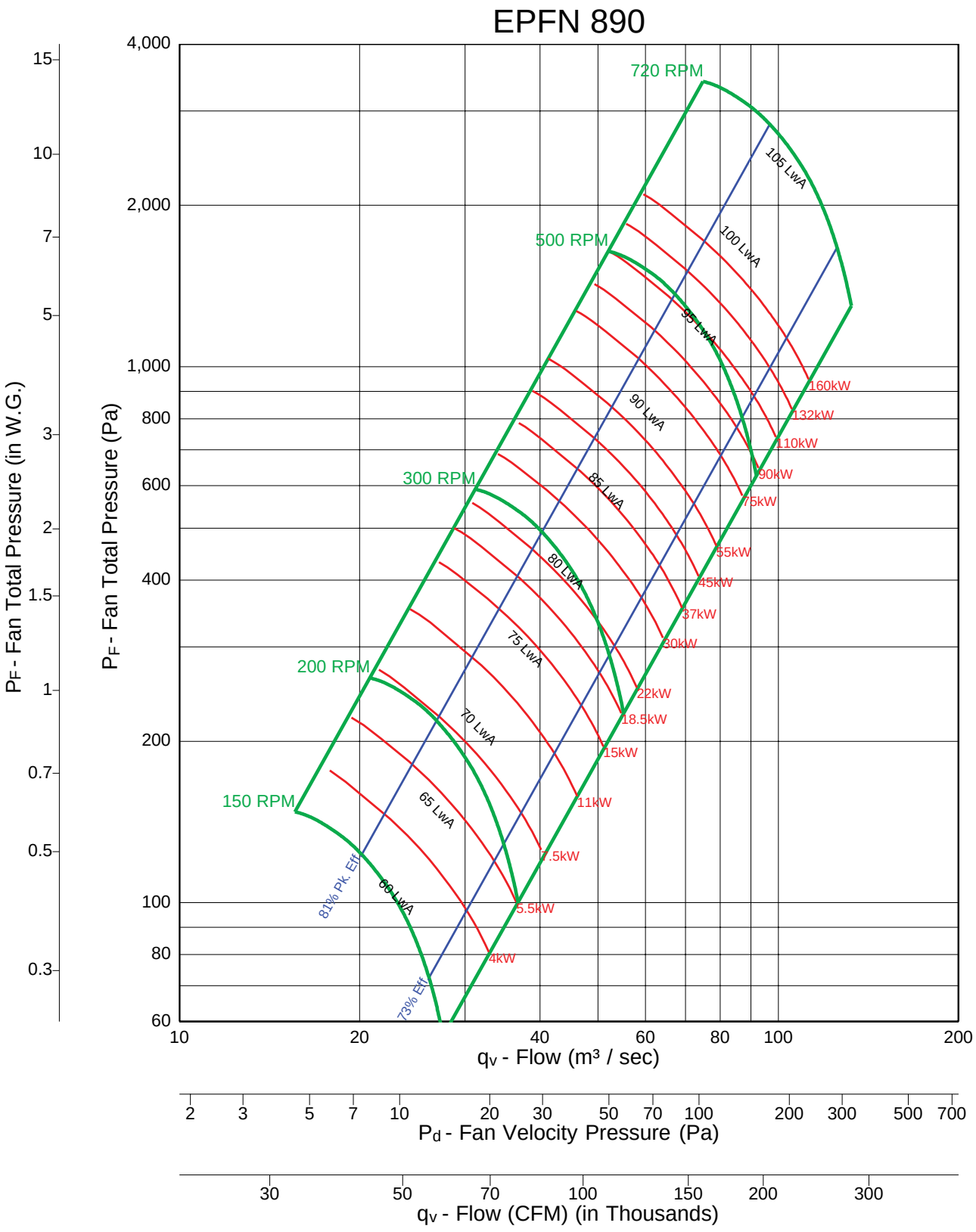
Fan Efficiency Grade = FEG 80

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



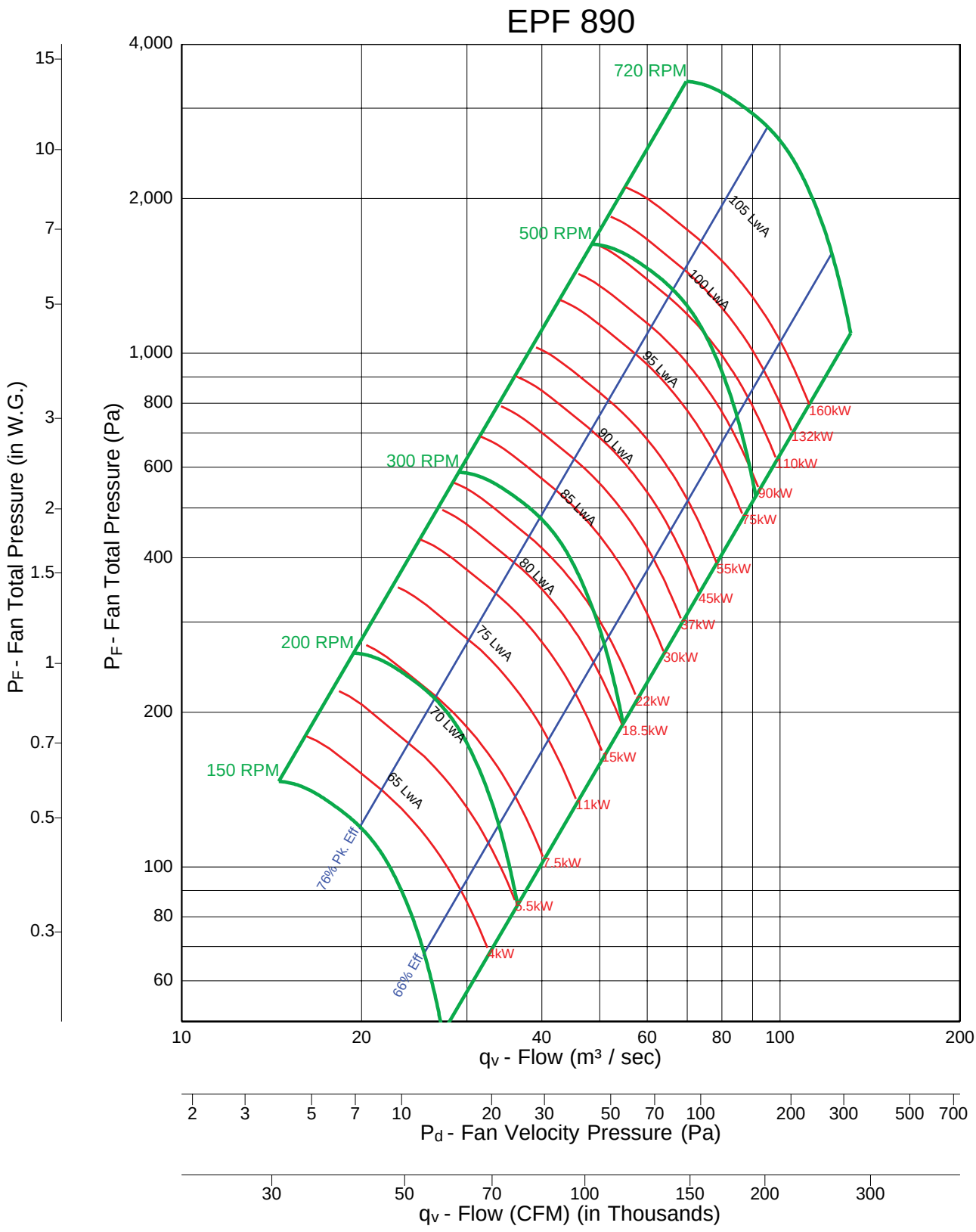
Fan Efficiency Grade = FEG 80

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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.



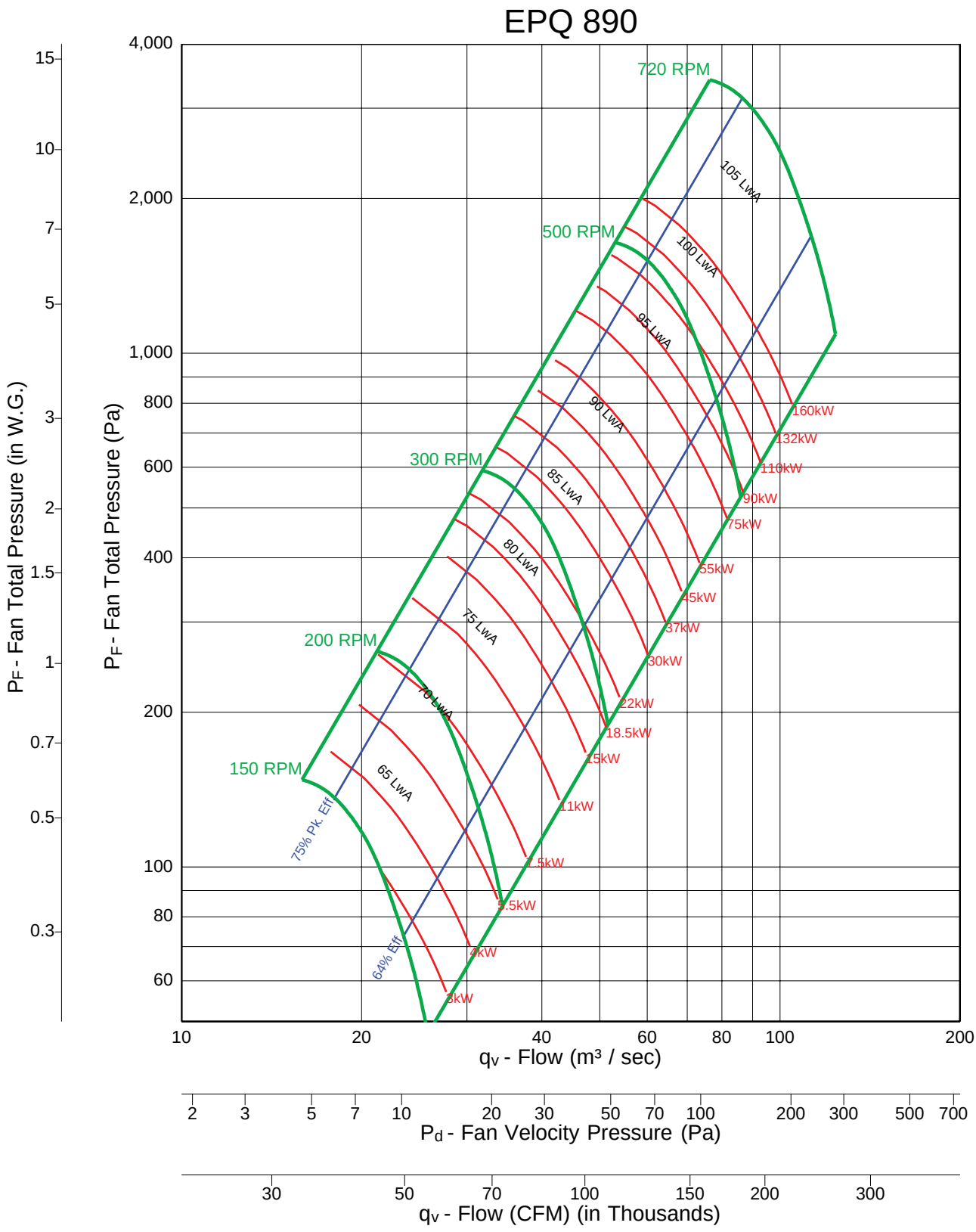
Fan Efficiency Grade = FEG 85

Notes:
1. Performance certified is for Installation Type A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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

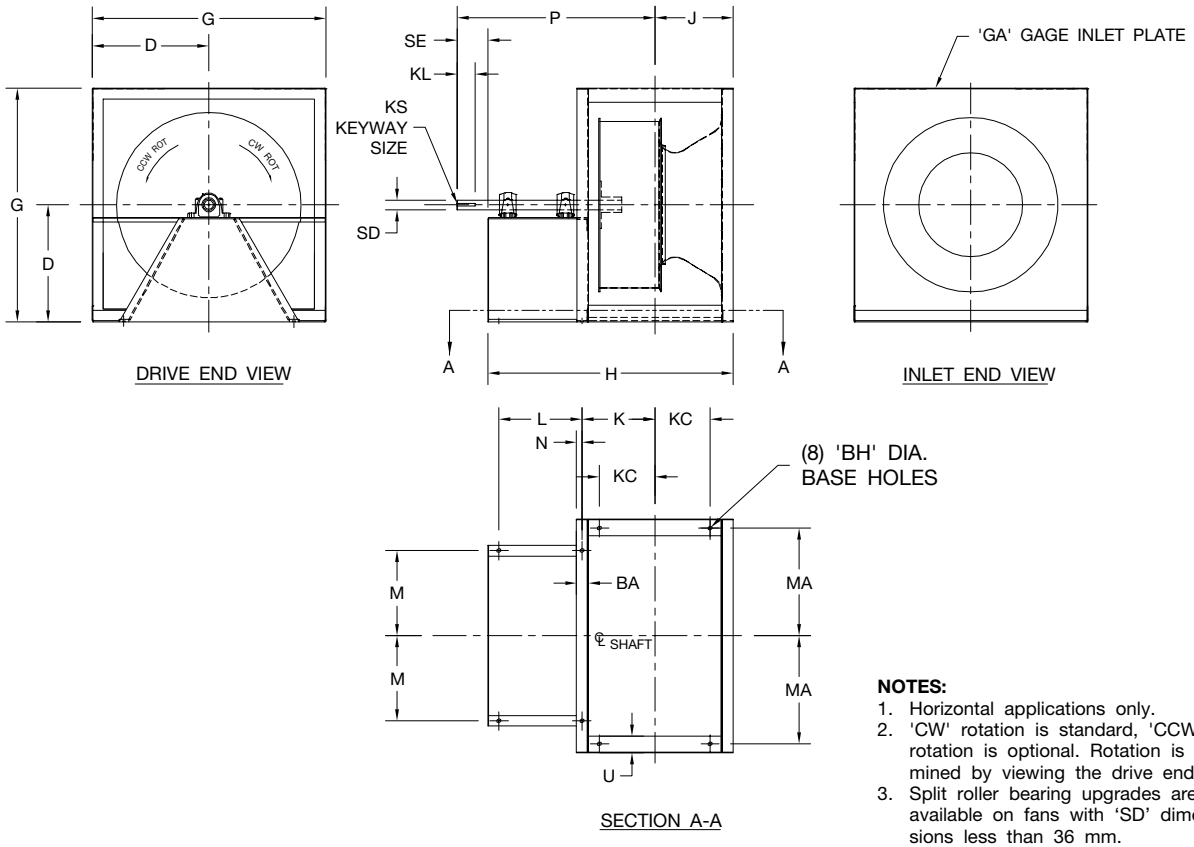
Notes:
1. Performance certified is for Installation Type A: Free inlet, Free outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to 10 E-12 watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwiA sound power levels for Installation Type A: Free inlet, Free 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 A: Free inlet, Free 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 LwiA sound power levels for Installation Type A: Free inlet, Free 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, Arr. 1 - Class I and II



NOTES:

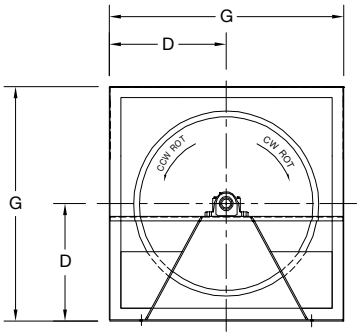
1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Split roller bearing upgrades are not available on fans with 'SD' dimensions less than 36 mm.
4. Arrangement 1 is available on models EPFN and EPQN.

SIZE	BA	BH	D	G	GA	H	J	K	KC	KL	KS		L	M	MA	N	P	SD		SE	U
											CL I	CL II						CL I	CL II		
122	38	21	254	508	2.5	581	175	159	102	83	8 x 7	8 x 7	200	171	232	16	518	25	30	111	38
150	38	21	279	559	2.5	683	200	184	127	83	8 x 7	8 x 7	251	210	257	16	594	25	30	111	38
165	38	21	305	610	2.5	715	216	200	140	83	8 x 7	8 x 7	251	222	283	16	610	25	30	111	38
182	44	21	330	660	2.5	784	241	222	133	99	8 x 7	10 x 8	273	245	292	19	670	30	38	127	102
200	57	21	368	737	2.5	857	272	246	191	92	10 x 8	10 x 8	292	270	330	25	713	38	38	127	102
222	57	21	406	813	3	962	292	267	203	108	10 x 8	14 x 9	356	298	368	25	813	38	45	143	102
245	64	21	432	864	3	1051	321	292	191	108	10 x 8	14 x 9	391	327	368	29	873	38	45	143	102
270	64	21	483	965	3	1153	346	318	203	143	14 x 9	14 x 9	441	359	419	29	984	45	50	178	102
300	76	21	533	1067	3	1273	387	353	229	140	14 x 9	14 x 9	486	403	445	35	1064	50	50	178	121
330	89	21	584	1168	3	1394	429	387	273	171	14 x 9	16 x 10	530	441	495	41	1175	50	55	210	121
365	89	21	648	1295	5	1506	465	424	305	171	14 x 9	18 x 11	570	480	559	41	1251	50	65	210	121
402	89	21	711	1422	5	1630	502	461	343	171	16 x 10	18 x 11	621	530	622	41	1338	55	65	210	121
445	102	21	787	1575	5	1799	554	506	402	165	18 x 11	20 x 12	691	581	673	48	1454	65	70	210	152
490	102	21	864	1727	5	1938	598	551	446	165	20 x 12	20 x 12	741	645	749	48	1549	70	75	210	152
542	102	21	965	1930	5	2065	649	602	497	162	20 x 12	25 x 14	767	702	851	48	1626	75	90	210	152
600	127	21	965	1930	6	2283	732	672	554	168	20 x 12	25 x 14	832	778	851	60	1767	75	90	216	152
660	127	21	1035	2070	6	2477	791	730	613	168	25 x 14	28 x 16	908	842	921	60	1905	90	100	219	152
730	127	21	1168	2337	6	2686	857	797	679	168	25 x 14	28 x 16	984	943	1054	60	2048	90	100	219	152
807	127	21	1295	2591	6	2912	932	871	754	156	28 x 16	32 x 18	1060	1038	1181	60	2189	100	115	210	152

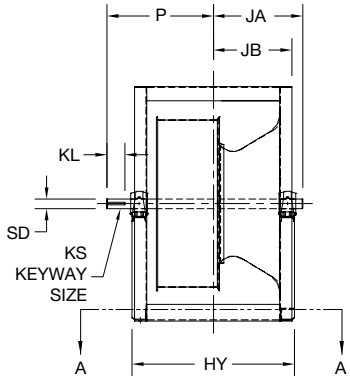
DIMENSIONS ARE IN (mm) UNLESS OTHERWISE STATED AND ARE SUBJECT TO CHANGE.
CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

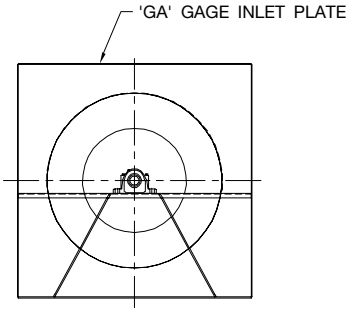
Fans & Blowers
Twin City

Horizontal, Arr. 3 - Class I, II, and III

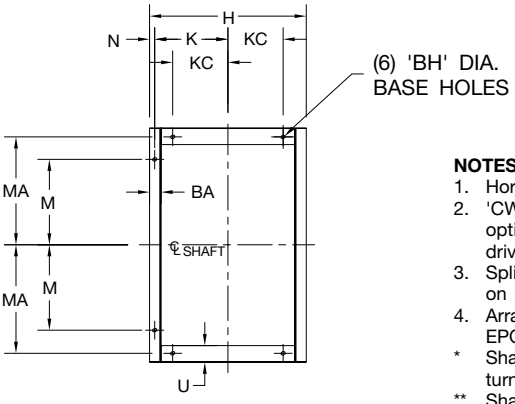


DRIVE END VIEW





INLET END VIEW



SECTION A-A

NOTES:

1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Split roller bearing upgrades are not available on fans with 'SD' dimensions less than 36 mm.
4. Arrangement 3 is available on models EPF and EPQ.

* Shaft diameter ('SD') on Size 730, Class III is turned down from 112 mm

** Shaft diameter ('SD') on Size 807, Class III is turned down from 125 mm

Class I and II

SIZE	BA	BH	D	G	GA	H	HY		JA		JB	K	KC	KL	KS		M	MA	N	P		SD		U
							CL I	CL II	CL I	CL II					CL I	CL II				CL I	CL II	CL I	CL II	
122	38	21	254	508	2.5	349	406	406	197	200	175	159	102	60	8 x 7	8 x 7	171	232	16	283	283	25	30	38
150	38	21	279	559	2.5	400	457	457	222	226	200	184	127	86	8 x 7	8 x 7	210	257	16	334	334	25	30	38
165	38	21	305	610	2.5	432	489	489	238	241	216	200	140	86	8 x 7	8 x 7	222	283	16	349	349	25	30	38
182	44	21	330	660	2.5	483	527	527	260	262	241	222	133	76	8 x 7	10 x 8	245	292	19	359	383	30	38	102
200	57	21	368	737	2.5	543	562	588	278	286	272	246	191	76	8 x 7	10 x 8	270	330	25	376	400	30	38	102
222	57	21	406	813	3	584	603	629	302	310	292	267	203	102	10 x 8	14 x 9	298	368	25	446	449	38	45	102
245	64	21	432	864	3	641	648	673	324	332	321	292	191	89	10 x 8	14 x 9	327	368	29	456	459	38	50	102
270	64	21	483	965	3	692	699	724	349	357	346	318	203	89	10 x 8	14 x 9	359	419	29	481	484	38	50	102
300	76	21	533	1067	3	775	781	781	386	389	387	353	229	114	14 x 9	14 x 9	403	445	35	538	546	45	50	121
330	89	21	584	1168	3	857	864	864	421	424	429	387	273	114	14 x 9	14 x 9	441	495	41	570	575	45	50	121
365	89	21	648	1295	5	930	940	965	459	471	465	424	305	121	14 x 9	18 x 11	480	559	41	613	629	50	60	121
402	89	21	711	1422	5	1003	1013	1038	497	508	502	461	343	140	14 x 9	18 x 11	530	622	41	675	684	50	60	121
445	102	21	787	1575	5	1108	1118	1118	548	552	554	506	402	140	18 x 11	18 x 11	581	673	48	724	732	60	65	152
490	102	21	864	1727	5	1197	1207	1207	592	598	598	551	446	140	18 x 11	20 x 12	645	749	48	768	784	60	70	152
542	102	21	965	1930	5	1299	1308	1359	643	662	649	602	497	168	18 x 11	20 x 12	702	851	48	856	880	65	75	152
600	127	21	965	1930	6	1464	1477	1477	722	725	732	672	554	173	20 x 12	25 x 14	778	851	60	940	970	70	90	152
660	127	21	1035	2070	6	1581	1594	1645	781	797	791	730	613	187	20 x 12	25 x 14	842	921	60	1016	1068	75	90	152
730	127	21	1168	2337	6	1715	1727	1778	851	864	857	797	679	187	25 x 14	25 x 14	943	1054	60	1110	1135	90	90	152
807	127	21	1295	2591	6	1864	1877	1978	930	997	932	871	754	160	28 x 16	32 x 18	1038	1181	60	1162	1216	100	115	152

AC1001285B

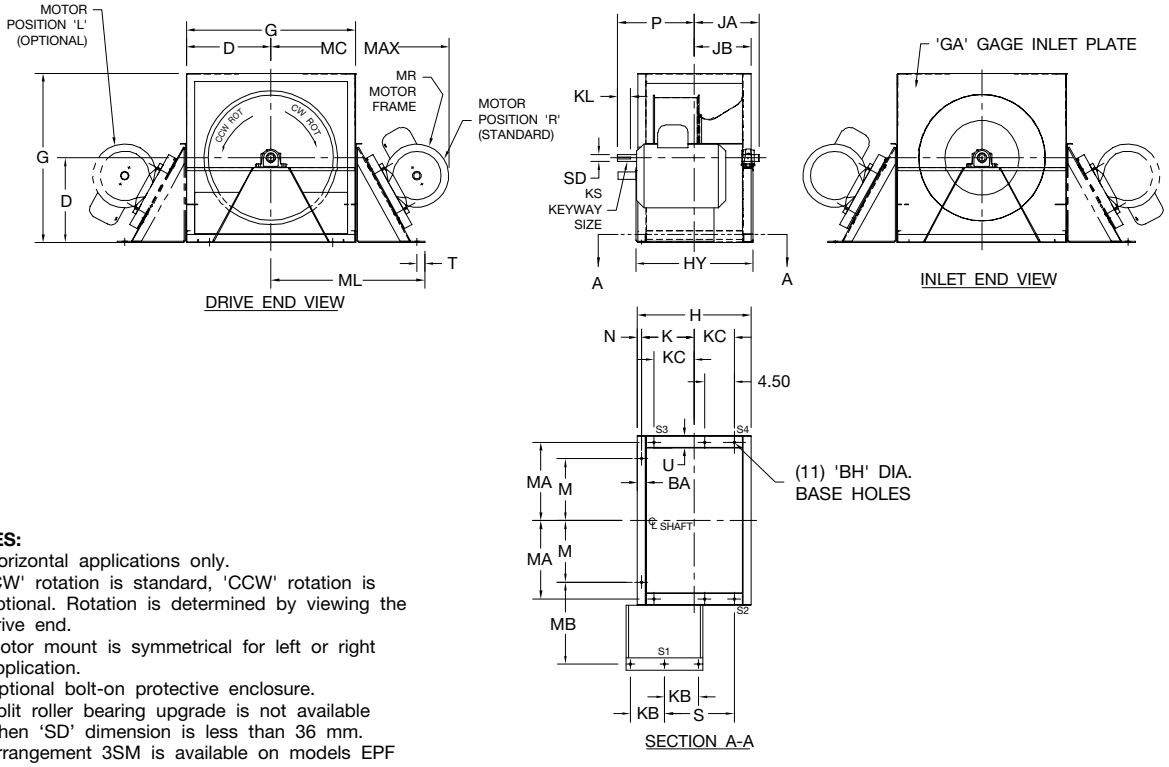
Class III

SIZE	BA	BH	D	G	GA	H	HY	JA	JB	K	KC	KL	KS	M	MA	N	P	SD	U
182	44	21	330	660	3	483	552	272	241	222	133	75	14 x 9	245	292	19	386	45	102
200	57	21	368	737	3	543	588	289	272	246	191	75	14 x 9	270	330	25	403	45	102
222	57	21	406	813	5	584	632	313	292	267	203	100	14 x 9	298	368	25	459	50	102
245	64	21	432	864	5	641	676	335	321	292	191	89	14 x 9	327	368	29	470	50	102
270	64	21	483	965	5	692	727	365	346	318	203	87	18 x 11	359	419	29	497	60	102
300	76	21	533	1067	5	775	784	391	387	353	229	113	18 x 11	403	445	35	551	60	121
330	89	21	584	1168	5	857	892	435	429	387	273	116	18 x 11	441	495	41	600	65	121
365	89	21	648	1295	6	930	969	475	465	424	305	116	18 x 11	480	559	41	633	65	121
402	89	21	711	1422	6	1003	1092	530	502	461	343	140	20 x 12	530	622	41	715	70	121
445	102	21	787	1575	6	1108	1172	570	554	506	402	168	20 x 12	581	673	48	789	75	152
490	102	21	864	1727	6	1197	1311	627	598	551	446	168	20 x 12	645	749	48	857	75	152
542	102	21	965	1930	6	1299	1413	681	649	602	497	162	25 x 14	702	851	48	929	90	152
600	127	21	965	1930	8	1464	1530	744	732	672	554	175	28 x 16	778	851	60	1005	100	152
660	127	21	1035	2070	8	1581	1699	816	791	730	613	210	28 x 16	842	921	60	1122	100	152
730	127	21	1168	2337	8	1715	1832	878	857	797	679	221	25 x 14	943	1054	60	1195	90*	152
807	127	21	1295	2591	8	1864	1981	957	932	871	754	211	28 x 16	1038	1181	60	1265	100**	152

DIMENSIONS ARE IN (mm) UNLESS OTHERWISE STATED AND ARE SUBJECT TO CHANGE.

CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Horizontal, Arr. 3SM - Class I and II



NOTES:

1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Motor mount is symmetrical for left or right application.
4. Optional bolt-on protective enclosure.
5. Split roller bearing upgrade is not available when 'SD' dimension is less than 36 mm.
6. Arrangement 3SM is available on models EPF and EPQ.

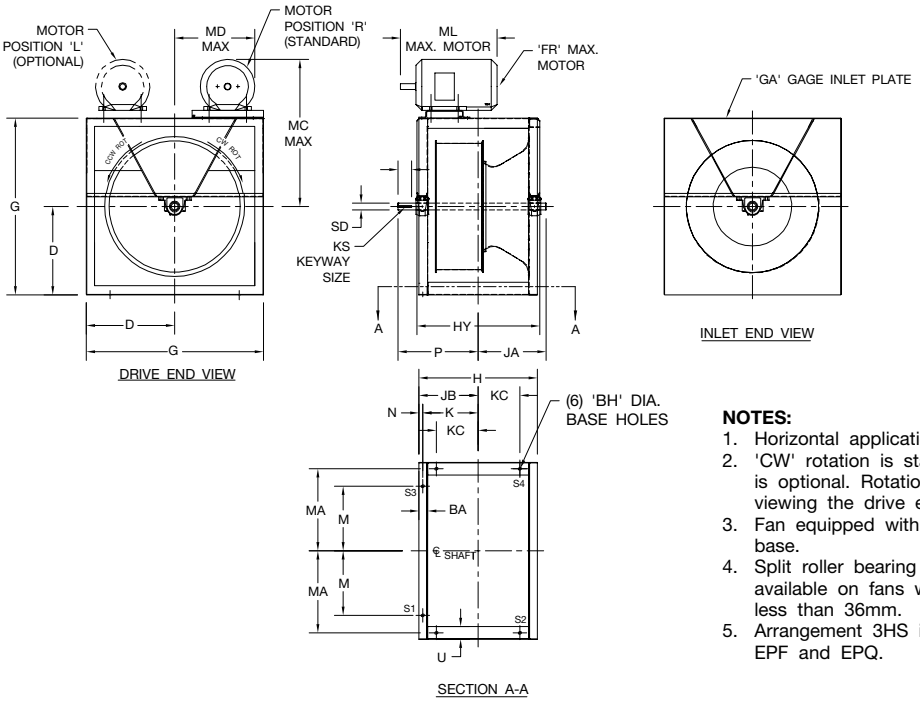
SIZE	BA	BH	D	G	GA	H	HY		JA		JB	K	KB	KC	KL	KS		M	MA	MB	MC	ML
							CL I	CL II	CL I	CL II						CL I	CL II					
165	38	21	305	610	2.5	432	489	489	245	281	216	200	127	140	86	8 x 7	8 x 7	222	283	343	679	591
182	44	21	330	660	2.5	483	527	578	275	306	241	222	143	133	76	8 x 7	10 x 8	245	292	348	699	617
200	57	21	368	737	2.5	543	562	613	292	324	272	246	143	191	76	8 x 7	10 x 8	270	330	360	787	656
222	57	21	406	813	3	584	654	654	344	344	292	267	143	203	102	10 x 8	14 x 9	298	368	379	953	703
245	64	21	432	864	3	641	699	699	367	367	321	292	165	191	89	10 x 8	14 x 9	327	368	399	813	751
270	64	21	483	965	3	692	749	749	392	392	346	318	165	203	89	10 x 8	14 x 9	359	419	451	959	835
300	76	21	533	1067	3	775	806	832	421	425	387	353	222	229	114	14 x 9	14 x 9	403	445	480	1067	914
330	89	21	584	1168	3	857	864	889	449	454	429	387	222	273	114	14 x 9	14 x 9	441	495	537	1226	1010
365	89	21	648	1295	5	930	940	965	487	508	465	424	265	305	121	14 x 9	18 x 11	480	559	594	1353	1105
402	89	21	711	1422	5	1003	1038	1038	529	545	502	461	246	343	140	14 x 9	18 x 11	530	622	651	1257	1219
445	102	21	787	1575	5	1108	1118	1118	584	591	554	506	246	402	140	18 x 11	18 x 11	581	673	702	1353	1321
490	102	21	864	1727	5	1197	1207	1257	629	649	598	551	246	446	140	18 x 11	20 x 12	645	749	770	1588	1453
542	102	21	965	1930	5	1299	1308	1359	686	692	649	602	259	497	168	18 x 11	20 x 12	702	851	857	1689	1597
600	127	21	965	1930	6	1464	1477	1527	759	780	732	672	233	554	173	20 x 12	25 x 14	778	851	840	1797	1656

SIZE	MR	N	P		S		SD		T	U
			CL I	CL II	CL I	CL II	CL I	CL II		
165	80 - 132M	16	346	354	213	221	25	30	25	38
182	90S - 132M	19	373	399	222	227	30	38	25	102
200	90L - 160M	25	416	416	318	318	30	38	25	102
222	90S - 160M	25	464	464	375	375	38	45	25	102
245	90S -160L	29	473	473	337	337	38	50	25	102
270	90S - 160L	29	499	499	376	376	38	50	25	102
300	90L - 180M	35	552	559	392	399	45	50	32	121
330	90L - 180L	41	581	603	452	459	45	50	32	121
365	112S - 200M	41	626	654	480	486	50	60	32	121
402	112S - 200L	41	687	716	592	598	50	60	38	121
445	112M - 200L	48	743	770	703	673	60	65	38	152
490	132M - 200L	48	787	814	768	795	60	70	38	152
542	132S - 225S	48	891	886	887	883	65	75	38	152
600	132S - 225M	60	956	983	1040	1032	70	90	38	152

DIMENSIONS ARE IN (mm) UNLESS OTHERWISE STATED AND ARE SUBJECT TO CHANGE.
CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

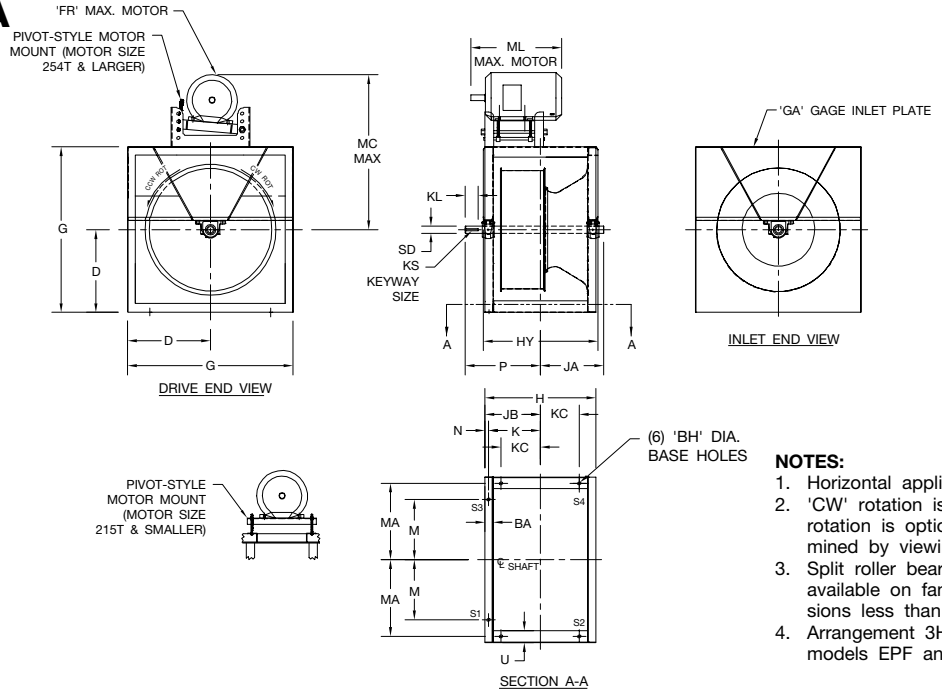
Horizontal, Arr. 3HS/3HA - Class I and II

Arr. 3HS



NOTES:
1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Fan equipped with standard NEMA slide base.
4. Split roller bearing upgrades are not available on fans with 'SD' dimensions less than 36mm.
5. Arrangement 3HS is available on models EPF and EPQ.

Arr. 3HA



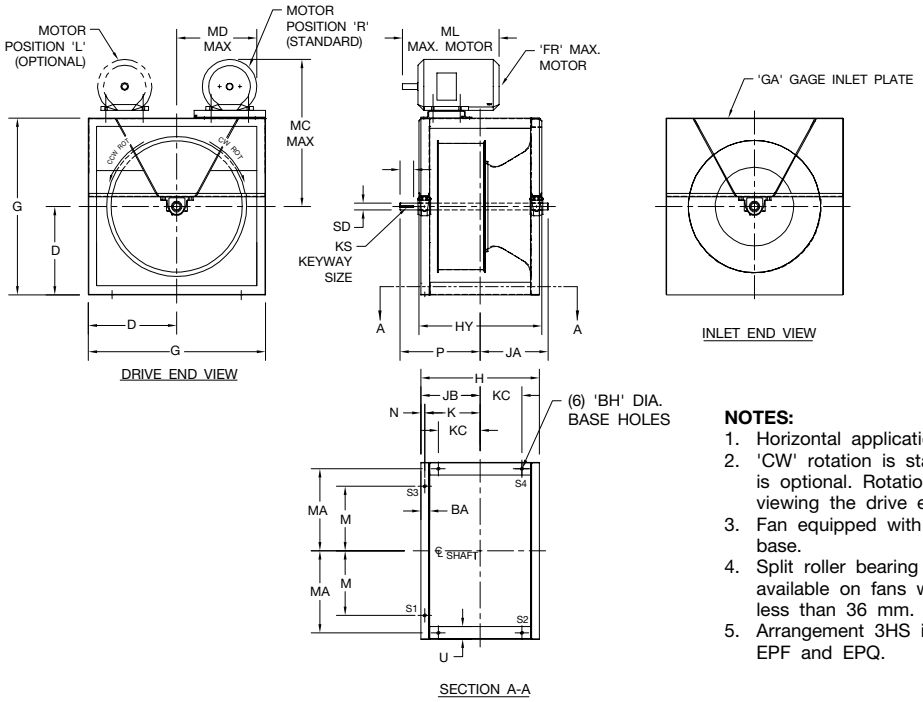
NOTES:
1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Split roller bearing upgrades are not available on fans with 'SD' dimensions less than 36 mm.
4. Arrangement 3HA is available on models EPF and EPQ.

SIZE		BA	BH	D	FR	G	GA	H	HY		JA		JB	K	KC	KL	KS	
3HA	3HS								CL I	CL II	CL I	CL II					CL I	CL II
122	**—**	38	21	254	132M	508	2.5	349	406	406	197	200	175	159	102	60	8 x 7	8 x 7
150	**—**	38	21	279	132M	559	2.5	400	457	457	222	226	200	184	127	86	8 x 7	8 x 7
165	**—**	38	21	305	132M	610	2.5	432	489	489	238	241	216	200	140	86	8 x 7	8 x 7
182	**182**	44	21	330	132M	660	2.5	483	527	527	260	262	241	222	133	76	8 x 7	10 x 8
200	**200**	57	21	368	132M	737	2.5	543	562	588	278	286	272	246	191	76	8 x 7	10 x 8
222	**222**	57	21	406	160L	813	3	584	603	629	302	310	292	267	203	102	10 x 8	14 x 9
245	**245**	64	21	432	160L	864	3	641	648	673	324	332	321	292	191	89	10 x 8	14 x 9
270	**270**	64	21	483	180L	965	3	692	699	724	349	357	346	318	203	89	10 x 8	14 x 9
300	**300**	76	21	533	180L	1067	3	775	781	781	386	389	387	353	229	114	14 x 9	14 x 9
330	**330**	89	21	584	200L	1168	3	857	864	876	449	454	429	387	273	114	14 x 9	14 x 9
365	**365**	89	21	648	200L	1295	5	930	940	965	459	471	465	424	305	121	14 x 9	18 x 11
402	**402**	89	21	711	200L	1422	5	1003	1013	1038	497	508	502	461	343	140	14 x 9	18 x 11
445	**445**	102	21	787	225M	1575	5	1108	1118	1118	548	552	554	506	402	140	18 x 11	18 x 11
490	**490**	102	21	864	225M	1727	5	1197	1207	1207	592	598	598	551	446	140	18 x 11	20 x 12
542	**542**	102	21	965	225M	1930	5	1299	1308	1359	643	662	649	602	497	168	18 x 11	20 x 12

DIMENSIONS ARE IN (mm) UNLESS OTHERWISE STATED AND ARE SUBJECT TO CHANGE.
CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

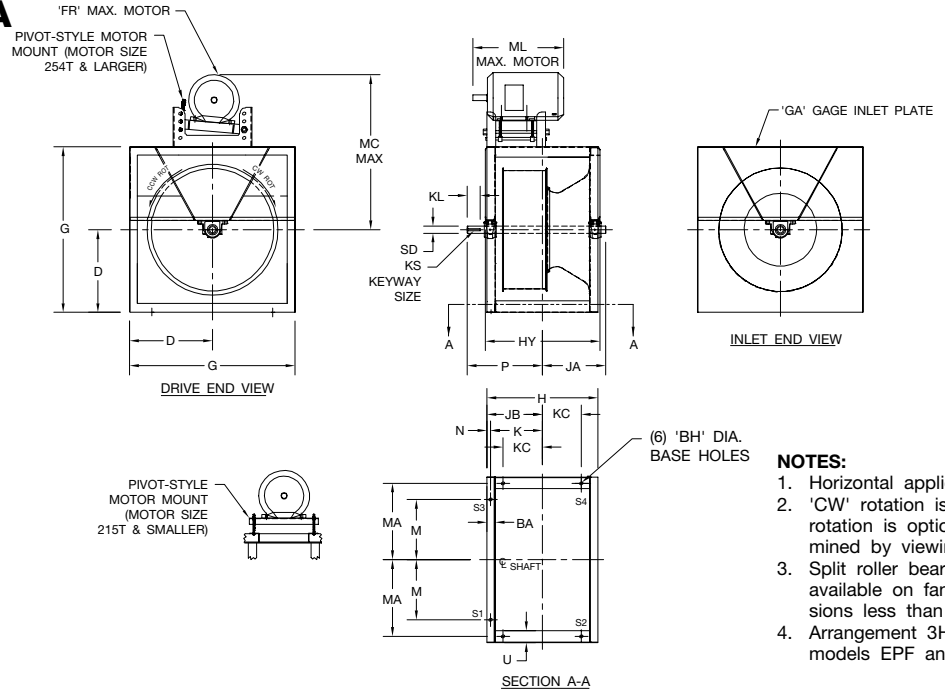
Horizontal, Arr. 3HS/3HA - Class I and II (cont.)

Arr. 3HS



NOTES:
1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Fan equipped with standard NEMA slide base.
4. Split roller bearing upgrades are not available on fans with 'SD' dimensions less than 36 mm.
5. Arrangement 3HS is available on models EPF and EPQ.

Arr. 3HA



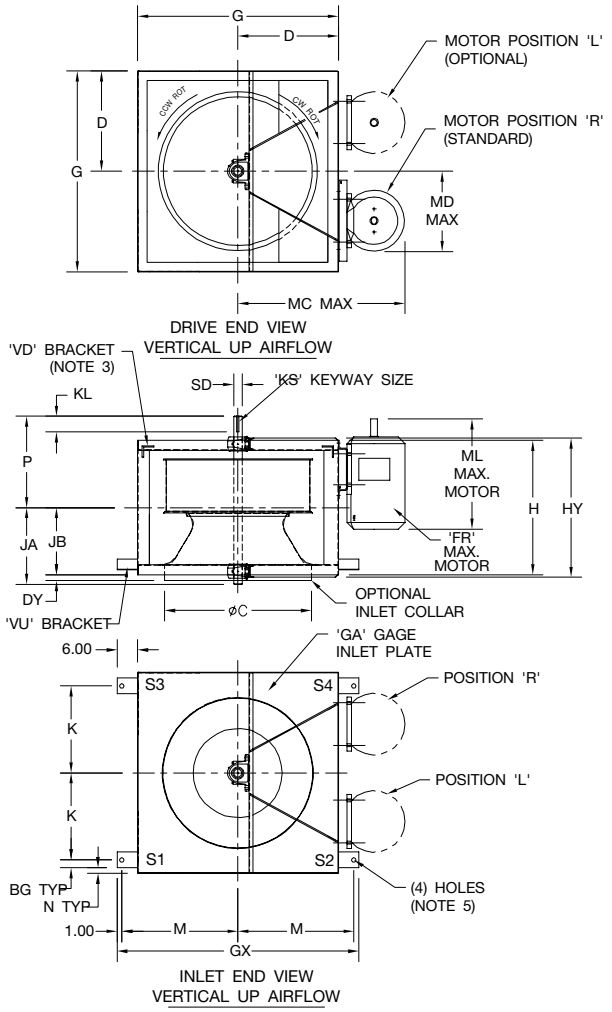
NOTES:
1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Split roller bearing upgrades are not available on fans with 'SD' dimensions less than 36 mm.
4. Arrangement 3HA is available on models EPF and EPQ.

SIZE		M	MA	MC		MD	ML	N	P		SD		U
3HA	3HS			3 HA	3 HS	3 HS			CL I	CL II	CL I	CL II	
122	**—**	171	232	681	---	---	514	16	283	283	25	30	38
150	**—**	210	257	706	---	---	514	16	334	338	25	30	38
165	**—**	222	283	732	---	---	514	16	349	349	25	30	38
182	**182**	245	292	759	699	330	514	19	359	383	30	38	102
200	**200**	270	330	797	737	368	514	25	376	400	30	38	102
222	**222**	298	368	1000	845	410	654	25	446	449	38	45	102
245	**245**	327	368	1026	870	435	654	29	456	459	38	50	102
270	**270**	359	419	1115	959	486	734	29	481	484	38	50	102
300	**300**	403	445	1165	1010	537	734	35	538	546	45	50	121
330	**330**	441	495	1330	1124	584	813	41	570	575	45	50	121
365	**365**	480	559	1394	1187	648	813	41	613	629	50	60	121
402	**402**	530	622	1461	1251	711	813	41	675	684	50	60	121
445	**445**	581	673	1584	1378	794	873	48	724	732	60	65	152
490	**490**	645	749	1661	1454	870	873	48	768	784	60	70	152
542	**542**	702	851	1762	1556	972	873	48	856	880	65	75	152

DIMENSIONS ARE IN (mm) UNLESS OTHERWISE STATED AND ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

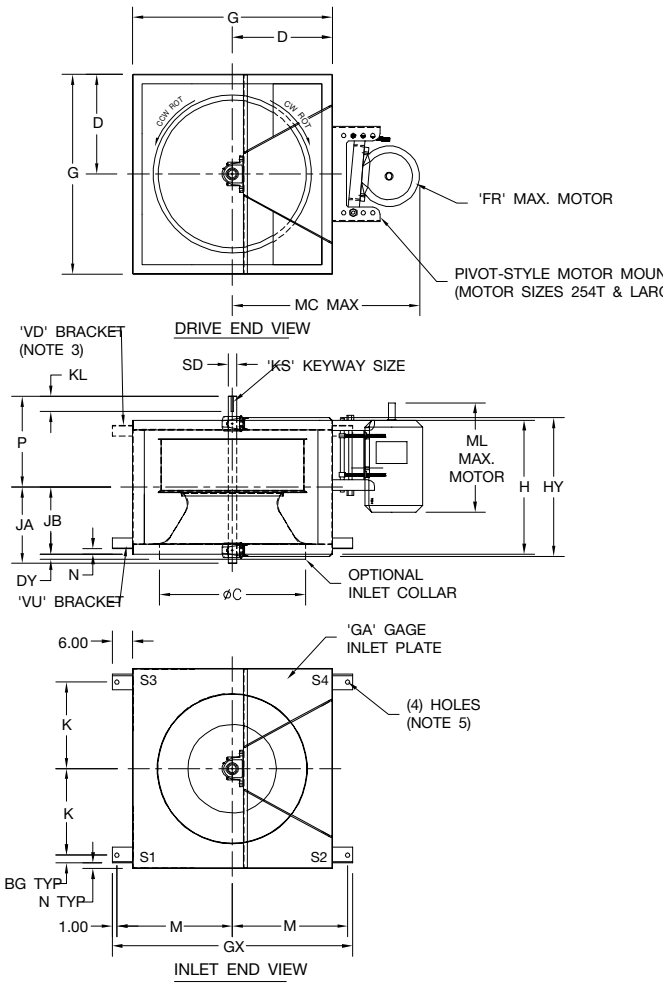
Vertical, Arr. 3VS/3VA - Class I and II

Arr. 3VS



NOTES:
1. Vertical applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Vertical up (VU) airflow is standard. Vertical down (VD) airflow requires brackets mounted on drive end.
4. Split roller bearing upgrades are not available on vertical fans.
5. Spring bracket holes are sized per spring type. Hole diameters when bracket is used as a mounting foot are as follows:
   Size 182–365: 0.56 Size 402–542: 0.81
6. Fans equipped with standard NEMA motor slide base.
7. Arrangement 3VS is available on models EPF and EPQ.

Arr. 3VA



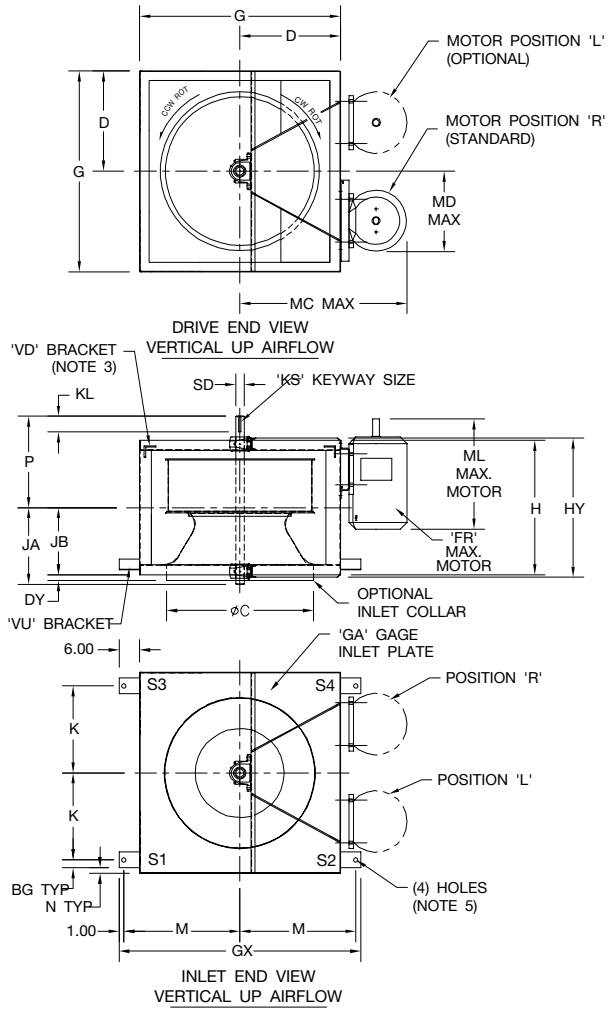
NOTES:
1. Vertical applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Vertical up (VU) airflow is standard. Vertical down (VD) airflow requires brackets mounted on drive end.
4. Split roller bearing upgrades are not available on vertical fans.
5. Spring bracket holes are sized per spring type. Hole diameters when bracket is used as a mounting foot are as follows:
   Size 122–365: 0.56 Size 402–542: 0.81
6. Arrangement 3VA is available on models EPF and EPQ.

SIZE		BG	C	D	DY	FR	G	GA	GX	H	HY		JA		JB	K	KL	KS	
3VA	3VS										CL I	CL II	CL I	CL II				CL I	CL II
122	**—**	29	337	254	54	132M	508	2.5	813	349	406	406	197	200	175	200	60	8 x 7	8 x 7
150	**—**	29	411	279	54	132M	559	2.5	864	400	457	457	222	226	200	226	86	8 x 7	8 x 7
165	**—**	29	451	305	54	132M	610	2.5	914	432	489	489	238	241	216	251	86	8 x 7	8 x 7
182	**182**	29	495	330	48	132M	660	2.5	965	483	527	527	260	264	241	264	86	8 x 7	10 x 8
200	**200**	41	543	368	48	132M	737	2.5	1041	543	562	588	278	287	272	289	94	8 x 7	10 x 8
222	**222**	41	603	406	48	160L	813	3	1118	584	603	629	302	310	292	327	116	10 x 8	14 x 9
245	**245**	41	662	432	41	160L	864	3	1168	641	648	673	324	332	321	353	103	10 x 8	14 x 9
270	**270**	41	724	483	41	180L	965	3	1270	692	699	724	349	357	346	403	103	10 x 8	14 x 9
300	**300**	41	803	533	29	180L	1067	3	1372	775	781	781	386	389	387	454	129	14 x 9	14 x 9
330	**330**	41	883	584	29	200L	1168	3	1473	857	864	864	422	424	429	505	129	14 x 9	14 x 9
365	**365**	54	978	648	43	200L	1295	5	1600	930	940	965	459	468	465	556	135	14 x 9	18 x 11
402	**402**	54	1078	711	43	200L	1422	5	1727	1003	1013	1038	499	505	502	619	151	14 x 9	18 x 11
445	**445**	54	1191	787	30	225M	1575	5	1880	1108	1118	1118	548	548	554	695	162	18 x 11	18 x 11
490	**490**	54	1311	864	30	225M	1727	5	2032	1197	1207	1207	589	598	598	772	165	18 x 11	20 x 12
542	**542**	54	1451	965	56	225M	1930	5	2235	1299	1308	1359	643	662	649	873	191	18 x 11	25 x 14

DIMENSIONS ARE IN (mm) UNLESS OTHERWISE STATED AND ARE SUBJECT TO CHANGE.
CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Vertical, Arr. 3VS/3VA - Class I and II (cont.)

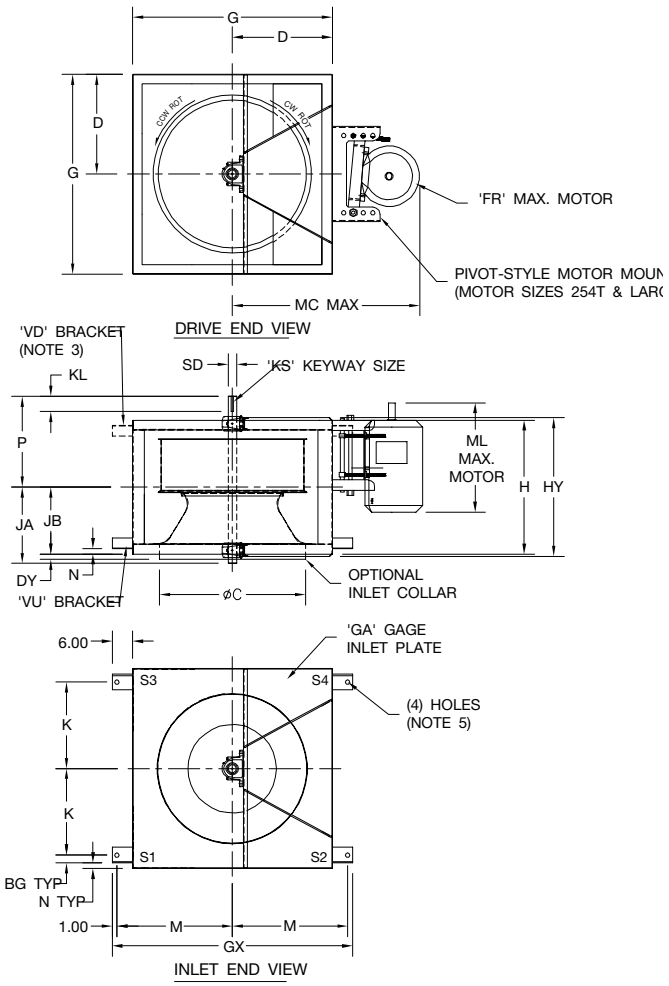
Arr. 3VS



NOTES:

1. Vertical applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Vertical up (VU) airflow is standard. Vertical down (VD) airflow requires brackets mounted on drive end.
4. Split roller bearing upgrades are not available on vertical fans.
5. Spring bracket holes are sized per spring type. Hole diameters when bracket is used as a mounting foot are as follows:
   Size 182–365: 0.56 Size 402–542: 0.81
6. Fans equipped with standard NEMA motor slide base.
7. Arrangement 3VS is available on models EPF and EPQ.

Arr. 3VA



NOTES:

1. Vertical applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Vertical up (VU) airflow is standard. Vertical down (VD) airflow requires brackets mounted on drive end.
4. Split roller bearing upgrades are not available on vertical fans.
5. Spring bracket holes are sized per spring type. Hole diameters when bracket is used as a mounting foot are as follows:
   Size 122–365: 0.56 Size 402–542: 0.81
6. Arrangement 3VA is available on models EPF and EPQ.

SIZE		M	MC		MD	ML		N	P		SD	
3VA	3VS		3 VA	3 VS	3 VS	3 VA	3 VS		CL I	CL II	CL I	CL II
122	**—**	381	730	—	—	514	—	25	283	283	25	30
150	**—**	406	756	—	—	514	—	25	334	334	25	30
165	**—**	432	781	—	—	514	—	25	349	349	25	30
182	**182**	457	806	660	334	514	413	25	368	391	30	38
200	**200**	495	845	743	368	514	514	38	394	416	30	38
222	**222**	533	973	781	406	654	514	38	461	464	38	45
245	**245**	559	998	806	432	654	514	38	470	473	38	50
270	**270**	610	1087	857	483	734	514	38	495	499	38	50
300	**300**	660	1138	972	537	734	654	38	552	560	45	50
330	**330**	711	1295	1022	588	813	654	38	583	589	45	50
365	**365**	775	1359	1086	651	813	654	38	627	643	50	60
402	**402**	838	1422	1149	715	813	654	38	684	695	50	60
445	**445**	914	1549	1264	791	873	734	38	746	754	60	65
490	**490**	991	1626	1340	867	873	734	38	794	810	65	70
542	**542**	1092	1727	1505	965	873	813	38	878	902	65	90

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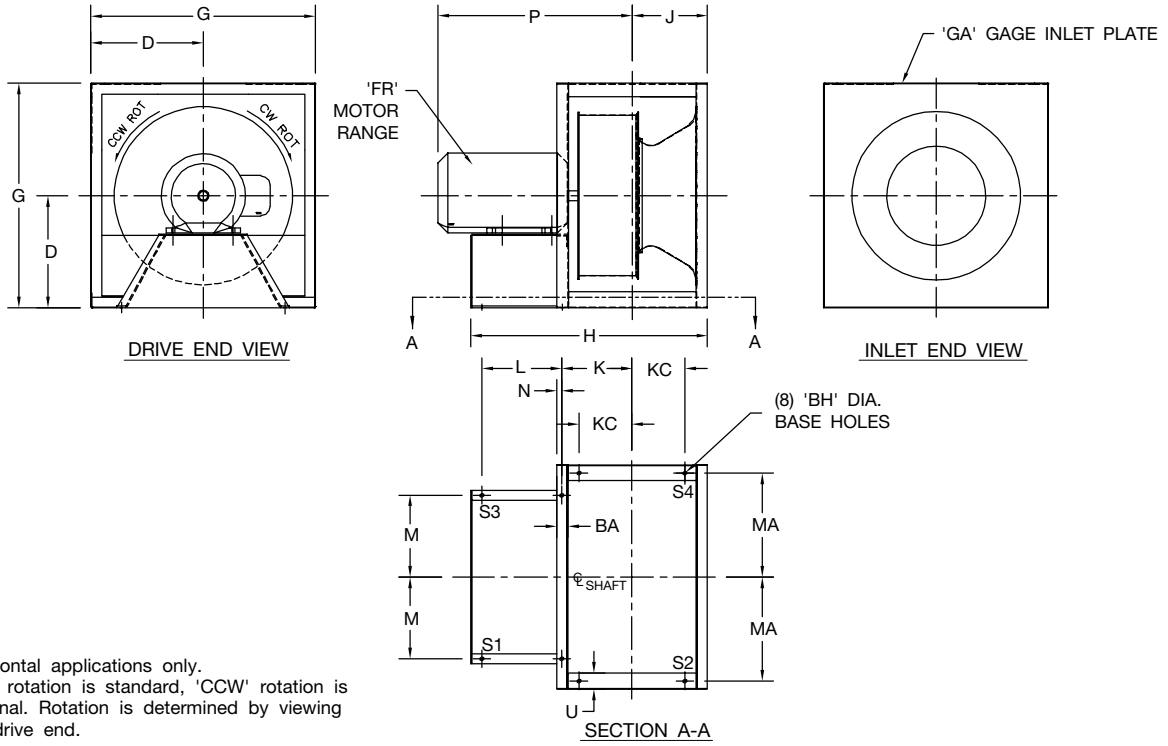
Horizontal, Arr. 4 - Class I and II



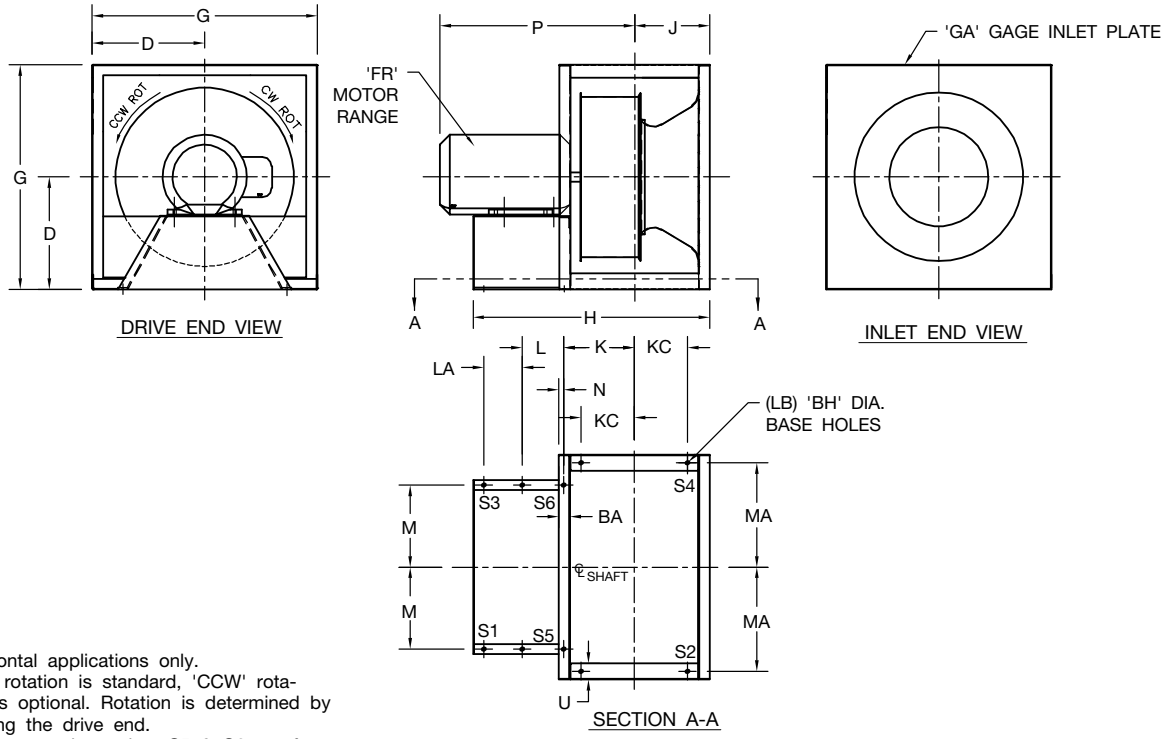
NOTES:
1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.

Class I and II, Size 122 - 270

SIZE	BA	BH	D	FR	G	GA	H		J		K		KC		L	M	MA	N	P Max.		U
							50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width					50-77% Width	78-105% Width	
122	38	21	254	80	508	2.5	497	522	162	175	146	159	89	102	137	171	232	16	433	443	38
				90S - 90L			549	575							189				437	449	
				112S - 112M			586	611							226				471	484	
150	38	21	279	80	559	2.5	545	573	186	200	170	184	113	127	137	210	257	16	457	471	38
				90S - 90L			592	621							184				461	475	
				112S - 112M			627	656							219				495	510	
165	38	21	305	80	610	2.5	581	613	200	216	184	200	124	140	145	222	283	16	471	487	38
				90S - 90L			640	672							203				475	490	
				112S - 112M			672	703							235				510	526	
182	44	21	330	90S - 90L	660	2.5	700	738	222	241	203	222	114	133	222	245	292	19	490	522	102
				112S - 112M			732	770							254				526	557	
				132S - 132M			776	814							298				611	643	
200	57	21	368	90S - 90L	737	2.5	738	780	251	272	226	246	170	191	210	270	330	25	506	537	102
				112S - 112M			773	814							245				541	572	
				132S - 132M			821	862							298				627	657	
222	57	21	406	112S - 112M	813	3	832	880	268	292	243	267	179	203	268	298	368	25	559	610	102
				132S - 132M			878	926							314				645	695	
				160M - 160L			978	1026							414				768	819	
245	64	21	432	112S - 112M	864	3	878	929	295	321	267	292	165	191	264	327	368	29	579	705	102
				132S - 132M			922	973							308				665	715	
				160M - 160L			1024	1075							410				789	838	
270	64	21	483	132S - 132M	965	3	959	254	318	346	289	318	175	203	300	359	419	29	687	734	102
				160M - 160L			1059	1116							400				811	857	
				180M - 180L			1103	1161							445				875	921	

DIMENSIONS ARE IN (mm) UNLESS OTHERWISE STATED AND ARE SUBJECT TO CHANGE.
CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Horizontal, Arr. 4 - Class I and II



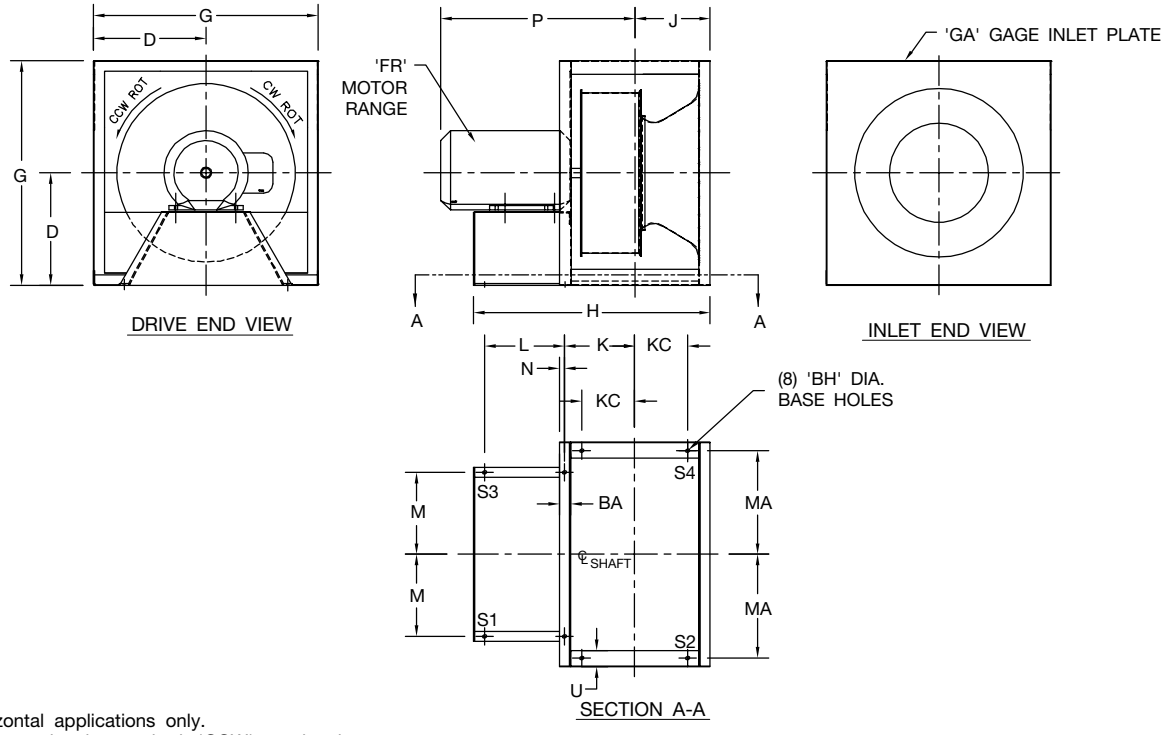
NOTES:
1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Spring mounting points S5 & S6 are for sizes 542 and larger.

Class I and II, Size 300 - 660

SIZE	BA	BH	D	FR	G	GA	H		J		K		KC		L	LA	LB	M	MA	N	P Max.		U
							50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width							50-77% Width	78-105% Width	
300	76	21	533	132S - 132M	1067	3	1024	1087	356	387	321	353	197	229	295	—	8	403	445	35	713	760	121
				160M - 160L			1125	1189							397	—	8				837	884	
				180M - 180L			1167	1230							438	—	8				900	948	
330	89	21	584	160M - 160L	1168	3	1176	1246	394	429	353	387	238	273	378	—	8	441	495	41	862	911	121
				180M - 180L			1221	1291							422	—	8				926	975	
				200M - 200L			1265	1335							233	233	10				989	1038	
365	89	21	648	180M - 180L	1295	5	1280	1356	427	465	386	424	267	305	414	—	8	480	559	41	960	998	121
				200M - 200L			1302	1378							437	—	8				1024	1062	
				225S - 225M			1319	1395							454	—	8				1068	1106	
				250M - 280S			1378	1454							256	256	10				1208	1246	
402	89	21	711	180M - 180L	1422	5	1350	1432	461	502	419	461	302	343	418	—	8	530	622	41	994	1035	121
				200M - 200L			1381	1464							449	—	8				1057	1099	
				225S - 225M			1381	1464							449	—	8				1102	1143	
				250M - 280S			1181	1518							252	252	10				1242	1283	
445	102	21	787	200M - 200L	1575	5	1524	1616	508	554	461	506	356	402	252	252	10	581	673	48	1092	1181	152
				225S - 225M			1553	1645							266	266	10				1137	1226	
				250M - 280S			1549	1642							264	264	10				1276	1322	
490	102	21	864	200M - 200L	1727	5	1599	1699	548	598	500	551	395	446	248	248	10	645	749	48	1132	1219	152
				225S - 225M			1627	1727							263	263	10				1176	1264	
				250M - 280S			1621	1721							260	260	10				1316	1367	
542	102	21	965	225S - 225M	1930	5	1716	1829	592	649	545	602	440	497	263	263	10	702	851	48	1221	1311	152
				250M - 280S			1708	1821							259	259	10				1360	1418	
				280M			1794	1907							302	302	10				1526	1583	
600	127	21	965	225S - 225M	1930	6	1849	1973	670	732	610	672	492	554	259	259	10	778	851	60	1275	1360	152
				250M - 280S			1868	1992							268	268	10				1415	1477	
				280M			1918	2042							293	293	10				1580	1642	
660	127	21	1035	225S - 225M	2070	6	1940	2076	721	791	660	730	545	613	246	246	10	842	921	60	1327	1427	152
				250M - 280S			1967	2103							265	265	10				1467	1535	
				280M			2037	2173							300	300	10				1632	1700	

DIMENSIONS ARE IN (mm) UNLESS OTHERWISE STATED AND ARE SUBJECT TO CHANGE.
CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Horizontal, Arr. 4 - Class III



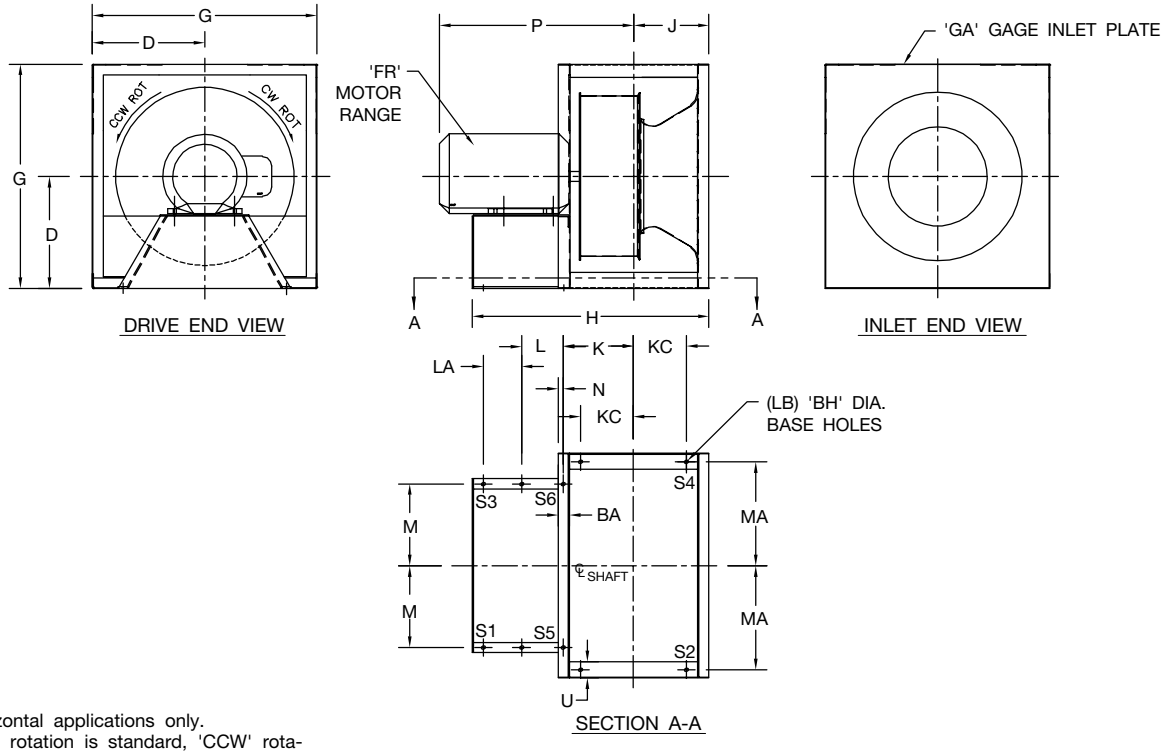
NOTES:
1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.

Class III, Size 182 - 330

SIZE	BA	BH	D	FR	G	GA	H		J		K		KC		L	M	MA	N	P Max.		U
							50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width					50-77% Width	78-105% Width	
182	44	21	330	90S - 90L	660	3	686	722	222	241	203	222	114	133	207	245	292	19	492	511	102
				112S - 112M			718	754							238				527	546	
				132S - 132M			756	792							276				613	632	
200	57	21	368	90S - 90L	737	3	740	780	251	272	226	246	170	191	210	270	330	25	508	529	102
				112S - 112M			775	814							245				543	564	
				132S - 132M			803	843							273				629	649	
222	57	21	406	112S - 112M	813	5	827	873	268	292	243	267	179	203	262	298	368	25	562	586	102
				132S - 132M			849	895							284				648	672	
				160M - 160L			951	997							386				772	795	
245	64	21	432	112S - 112M	864	5	887	937	295	321	267	292	165	191	272	327	368	29	583	608	102
				132S - 132M			903	953							287				668	694	
				160M - 160L			998	1048							383				792	818	
270	64	21	483	132S - 132M	965	5	954	1010	318	346	289	318	175	203	294	359	419	29	691	719	102
				160M - 160L			1034	1089							373				814	843	
				180M - 180L			1078	1134							418				878	907	
300	76	21	533	132S - 132M	1067	5	1029	1091	356	387	321	353	197	229	298	403	445	35	716	748	121
				160M - 160L			1103	1165							373				840	871	
				180M - 180L			1141	1203							411				903	935	
				200M - 200L			1186	1248							456				967	998	
330	89	21	584	160M - 160L	1168	5	1141	1210	394	429	353	387	238	273	341	441	495	41	865	900	121
				180M - 180L			1180	1248							379				929	964	
				200M - 200L			1238	1307							438				992	1027	

DIMENSIONS ARE IN (mm) UNLESS OTHERWISE STATED AND ARE SUBJECT TO CHANGE.
CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Horizontal, Arr. 4 - Class III



NOTES:
1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Spring mounting points S5 & S6 are for sizes 445 and larger.

Class III, Size 365 - 660

SIZE	BA	BH	D	FR	G	GA	H		J		K		KC		L	LA	LB	M	MA	N	P Max.		U
							50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width							50-77% Width	78-105% Width	
365	89	21	648	180M - 180L	1295	6	1226	1300	427	465	386	500	267	305	359	—	8	480	559	41	965	1002	121
				200M - 200L			1254	1329							387	—	8				1029	1065	
				225S - 225M			1286	1360							419	—	8				1073	1110	
				250M - 280S			1362	1437							248	248	10				1213	1249	
402	89	21	711	180M - 180L	1422	6	1334	1415	461	502	419	461	302	343	400	—	8	530	622	41	998	1038	121
				200M - 200L			1365	1446							432	—	8				1062	1102	
				225S - 225M			1353	1434							419	—	8				1106	1146	
				250M - 280S			1429	1510							248	248	10				1246	1286	
445	102	21	787	225S - 225M	1575	6	1429	1519	508	554	461	506	356	402	406	—	8	581	673	48	1097	1141	152
				250M - 280S			1515	1605							246	246	10				1281	1326	
				280M			1610	1700							294	294	10				1446	1491	
490	102	21	864	200M - 200L	1727	6	1526	1624	548	598	500	551	395	446	422	—	8	645	749	48	1137	1186	152
				225S - 225M			1535	1633							432	—	8				1181	1230	
				250M - 280S			1561	1659							457	—	8				1321	1370	
				280M			1681	1780							289	289	10				1486	1535	
542	102	21	965	225S - 225M	1930	6	1614	1726	592	649	545	602	440	497	422	—	8	702	851	48	1226	1281	152
				250M - 280S			1662	1773							235	235	10				1365	1421	
				280M			1756	1867							282	282	10				1530	1586	
600	127	21	965	225S - 225M	1930	8	1818	1940	670	732	610	672	492	554	242	242	10	778	851	60	1280	1341	152
				250M - 280S			1811	1934							239	239	10				1419	1481	
				280M			1881	2004							274	274	10				1584	1646	
660	127	21	1035	225S - 225M	2070	8	1983	2118	721	791	660	730	545	613	272	272	10	842	921	60	1334	1408	152
				250M - 280S			1973	2108							267	267	10				1473	1540	
				280M			1942	2153							290	290	10				1638	1705	

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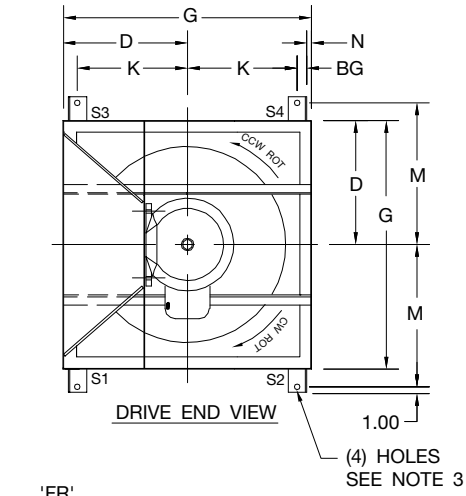
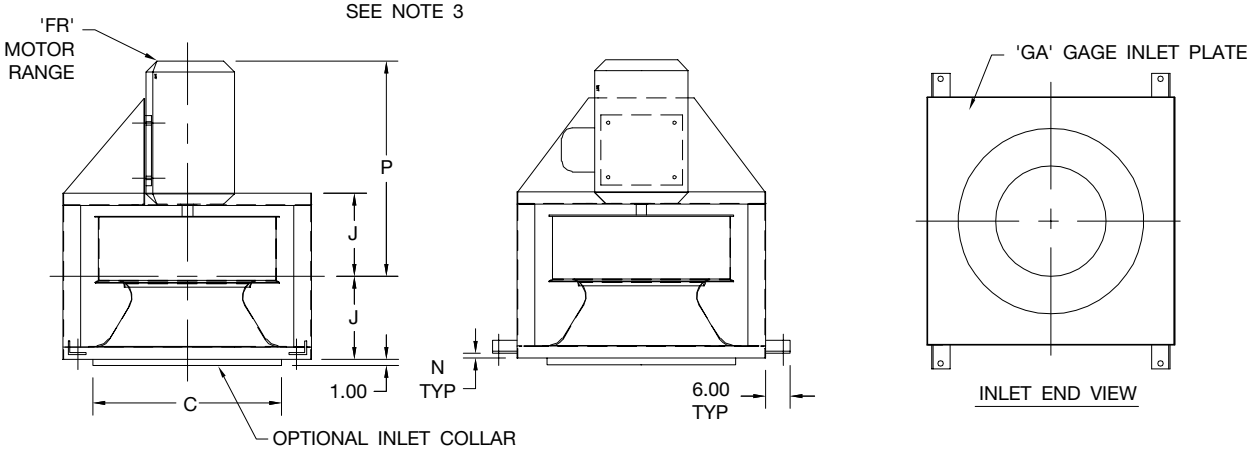
CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Vertical, Arr. 4V - Class I and II



NOTES:
1. Vertical applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Spring bracket holes are sized per spring type. Hole diameters when bracket is used as a mounting foot are as follows:
   Size 182–365: 0.56
   Size 402–490: 0.81



SIZE	BG	C	D	FR	G	GA	J		K	M	N	P MAX.	
							50-70% WIDTH	71-105% WIDTH				50-70% WIDTH	71-105% WIDTH
182	41	495	330	90S - 132M	660	2.5	222	241	264	457	25	638	660
200	41	543	368	90S - 132M	737	2.5	251	272	289	495	38	651	679
222	41	603	406	112S - 160L	813	3	268	292	327	533	38	810	838
245	41	662	432	112S - 160L	864	3	295	321	353	559	38	829	857
270	41	724	483	132S - 180L	965	3	318	346	403	610	38	911	940
300	41	803	533	132S - 180L	1067	3	356	387	454	660	38	937	965
330	41	883	584	160M - 200L	1168	3	394	429	505	711	38	1022	1070
365	54	978	648	180M - 280S	1295	5	427	465	556	775	38	1232	1302
402	54	1078	711	180M - 280S	1422	5	461	502	619	838	38	1267	1337
445	54	1191	787	200M - 280S	1575	5	508	554	695	914	38	1343	1394
490	54	1311	864	200M - 280S	1727	5	548	598	772	991	38	1376	1435

DIMENSIONS ARE IN (mm) UNLESS OTHERWISE STATED AND ARE SUBJECT TO CHANGE.
CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Fans shall be Model EPF, EPFN, EPQ or EPQN centrifugal plenum (plug) type, as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

Fans shall have a sharply rising pressure characteristic extending through the operating range and continuing to rise beyond the peak efficiency to ensure quiet and stable operation. Fans shall have a non-overloading design with self-limiting horsepower characteristics and shall reach a peak in the normal selection area. All fans shall be capable of operating over the minimum pressure class limits as specified in AMCA's Standard 2408-69.

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). Arrangement 3 fans shall be tested and rated with shaft, bearings, and bearing bar in the inlet Sound certification shall apply to both inlet and outlet sound power levels.

Fans shall have a sharply rising pressure characteristic extending through the operating range and continuing to rise beyond the peak efficiency to ensure quiet and stable operation. Fans shall have a non-overloading design with self-limiting horsepower characteristics and shall reach a peak in the normal selection area. All fans shall be capable of operating over the minimum pressure class limits as specified in AMCA Standard 99.

CONSTRUCTION — Fans shall be designed without a scroll type housing and shall incorporate a non-overloading type backward inclined aerofoil blade impeller, heavy-gauge reinforced steel inlet plate, structural steel frame, and shaft and bearings.

FRAME AND INLET PANEL — Inlet panels shall be of heavy-gauge reinforced steel construction. The inlet panel incorporates a removable spun inlet cone designed for smooth airflow into the accompanying inlet retaining ring of the fan impeller. A square, formed lip suitable for attachment of a boot connector shall surround the unit.

IMPELLER — Impellers shall have a spun non-tapered style blade retaining ring on the inlet side to allow higher efficiencies over the performance range of the fan. Sizes 245 and smaller shall have aerofoil-shaped extruded aluminium blades. Sizes 270 and larger shall have die-formed aerofoil steel blades with the option of extruded aluminium blades. All impellers on direct drive arrangement 4 fans shall have aerofoil-shaped extruded aluminium blades. All hollow blade impellers shall be continuously welded around all edges. EPF and EPFN impellers shall have nine blades for high efficiencies. EPQ and EPQN impellers shall have twelve blades for better sound quality. All impellers shall be statically and dynamically balanced on precision electronic balancers to a Balance Quality Grade G6.3 (3.8 mm/s rms) per ANSI/AMCA 204 or better.

SHAFT — Shafts shall be AISI 1040 or 1045 hot rolled steel, accurately turned, ground, polished, and ring gauged for verification. Shafts shall be sized for the first critical speed of at least 1.43 times the maximum speed. All shafts must be dial indicated for straightness after the keyways are cut and straightened as required.

FAN BEARINGS — Bearings shall be heavy duty, grease lubricated, spherical roller or adapter mounted anti-friction ball, self-aligning, pillow block type and selected for a minimum bearing life L10 in excess of 40,000 hours at the maximum fan RPM. All bearings shall be equipped with greasable zerk fittings and, where necessary, extended lube lines for easy access for lubrication.

DRIVE — Motor sheaves shall be cast iron, variable pitch on applications 7.5 kW and smaller, and fixed pitch on 11 kW and larger. Drives and belts shall be rated for 150% of the required motor rating.

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. Aluminium components shall be unpainted.

ACCESSORIES — When specified, accessories shall be provided by Twin City Fan & Blower to maintain one source responsibility.

VARIABLE INLET VANES — When specified, the variable inlet vanes shall be internal "nested" type. Each assembly is to have eleven vanes on sizes 245 and larger, and eight vanes on sizes 182 through 222. Each vane assembly shall be complete with quadrant and handle, suitable for manual or automatic operation. Construction shall be heavy-gauge and shall be of the cantilever design. Vanes are lubricated for life with a high quality moisture-resistant lubricant.

FACTORY RUN TEST — All fans prior to shipment shall be completely assembled and test run as a unit at the specified operating speed or maximum RPM allowed for the particular construction type. Maximum vibration shall be within the limits of ANSI/AMCA 204 Balance Quality Grade G6.3 (3.8 mm/s rms). 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 EPF, EPFN, EPQ and EPQN fans for at least twelve (12) months from start-up or eighteen (18) months from shipment, whichever occurs first.

INDUSTRIAL & COMMERCIAL FANS

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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