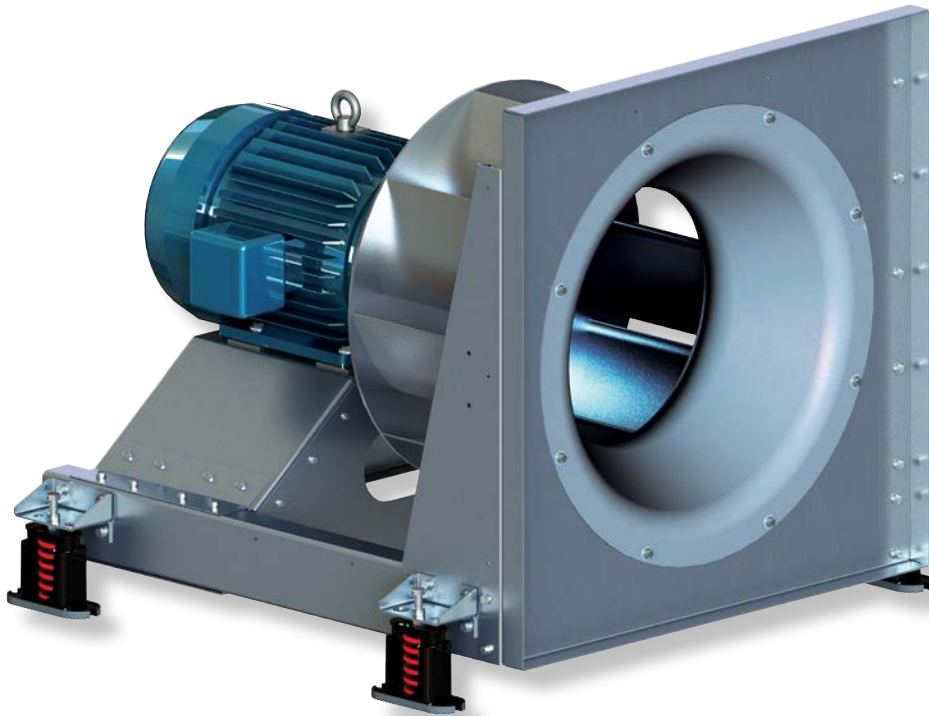


Fans & Blowers

# Twin City

Air Moving Solutions.



## COMMERCIAL DUTY PLUG TYPE PLENUM FANS

EPLFN | EPLQN

# PlugTypePlenumFans

## Models

### EPLFN | EPLQN

Twin City Fan & Blower's models EPLFN and EPLQN commercial duty plug type plenum fans incorporate the same performance and quality characteristics of the E-Series plug type plenum fans, but in a lighter duty, more economical design. The EPLFN and EPLQN offer a competitive cost advantage over full-framed plug type plenum fan designs in light to medium duty applications with static pressures of 2100 Pa or less.

The compact direct drive EPLFN and EPLQN offers reduced maintenance by eliminating shafts, bearings and V-belt drives, thereby providing an energy efficient solution. The EPLFN and EPLQN are a great choice for applications requiring clean airstreams as there is no belt residue in the airstream. The arrangement 4 configuration offers space savings with a reduced fan footprint. Different performance points can be achieved either through impeller width reduction or varying motor speeds. Models EPLFN and EPLQN are AMCA certified for Sound and Air.

#### EPLFN

The model EPLFN features a highly efficient and cost effective, 9-bladed aerofoil impeller design. The high efficiency of the EPLFN will often allow the use of smaller fans without increasing power requirements.

#### EPLQN

The Better Sound Quality model EPLQN features a 12-bladed aerofoil impeller design that flattens the sound spectrum and reduces the dominance of pure tones.

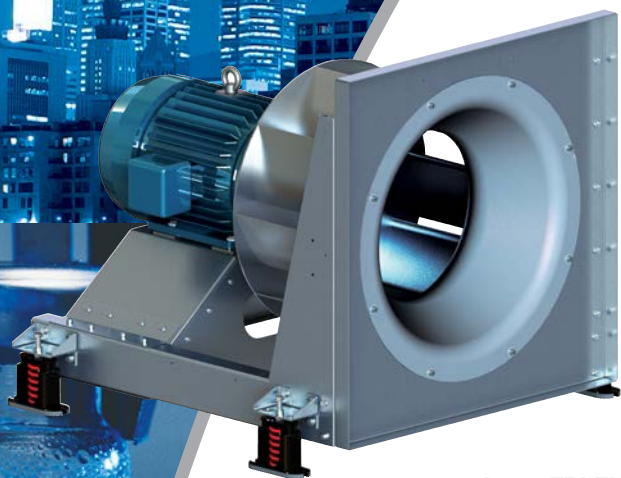
#### Capabilities & Features

- 14 sizes from 315 mm to 1250 mm impeller diameters
- High efficient 9 and 12 bladed aerofoil impellers
- Class II construction
- Arrangement 4 direct drive
- Volume flow from 0.5 to 32 m<sup>3</sup>/sec
- Static pressures to 2100 Pa

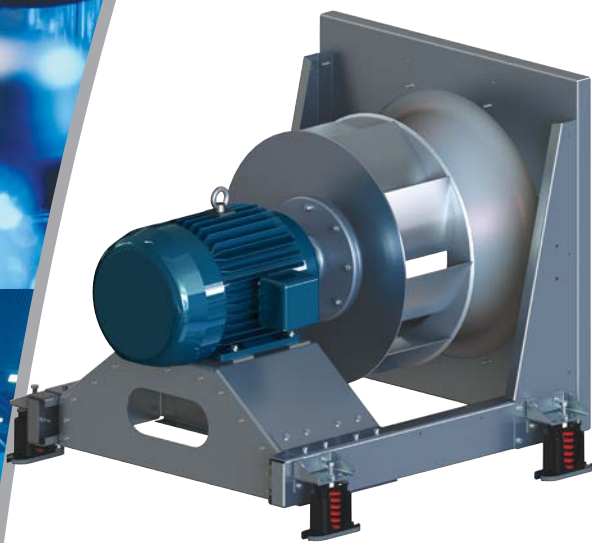
Fans & Blowers

# Twin City

©2012 Twin City Fan Companies, Ltd., Minneapolis, MN. All rights reserved. Catalogue illustrations cover the general appearance of Twin City Fan & Blower products at the time of publication and we reserve the right to make changes in design and construction at any time without notice.



Arr. 4 EPLFN  
Plenum Fan



Arr. 4 EPLFN  
Plenum Fan Back



Twin City Fan & Blower certifies that the Model EPLFN and Model EPLQN 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.

## Application Information

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

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.

### 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. Particularly direct drive versions such as these as there are no associated drive losses.

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

## Construction Features

### Impellers

High efficiency, non-overloading aerofoil impellers are provided on all EPLFN and EPLQN fan sizes. Aluminium impellers are standard on all sizes. All impellers balanced to level G6.3 (3.8 mm/s rms).

### Inlet Cones

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

### Inlet Plate

Fan inlet cones shall mount to heavy-gauge steel inlet plate. A steel lip suitable for attachment of a boot connector shall surround the unit.

### Frame

Models EPLFN and EPLQN feature heavy-gauge galvanized or finish painted steel mounting rails and motor mount for strength and rigidity in direct drive applications.

### Mechanical Run Test

All fans are assembled for a mechanical run test and final balance prior to shipment. Vibration readings are taken in the axial, horizontal and vertical direction at the specified speed. Fans are balanced to Balance Quality Grade G6.3 (3.8 mm/s rms) peak or less.

### AMCA Sound, Air, & FEG Certification

Models EPLFN and EPLQN have been tested per AMCA standards. The AMCA logo provides assurance that sound and air performances are achieved, and fan efficiency grades met.

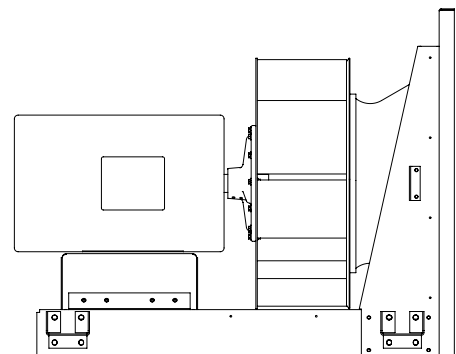
### Arrangement 4 (Horizontal)

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.

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

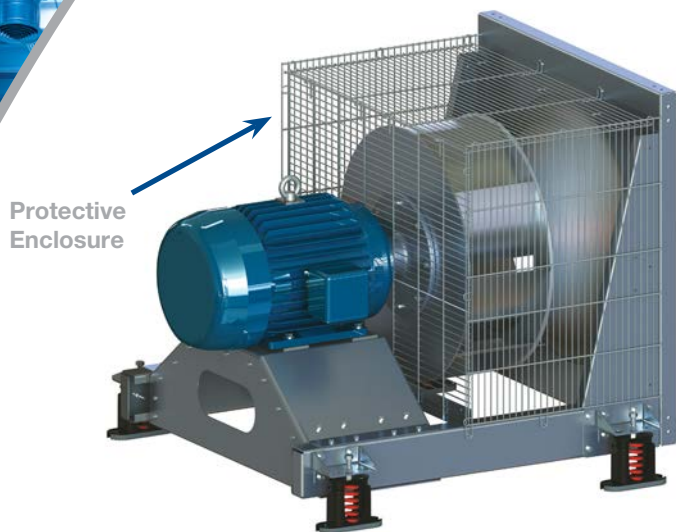
Fans can be selected with varying impeller widths to provide desired performance at direct drive motor speeds. Performance changes in the field are usually achieved by means of a VFD.

## Arrangements





# Accessories



## Protective Enclosure

Grille style protective enclosure completely encloses all sides and the back of the fan impeller to protect personnel from moving fan parts. The panels are individually removable to provide access to the impeller for service or inspection. Protective enclosures are plated wire.

## Inlet Screen

Heavy-gauge screen mounted to fan inlet for easy removal.

## Vibration Isolation Pads

Spring type vibration isolation mounting pads are available to reduce the transmission of fan vibration in 25 mm or 50 mm deflection.

## 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.

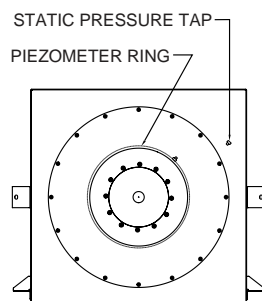
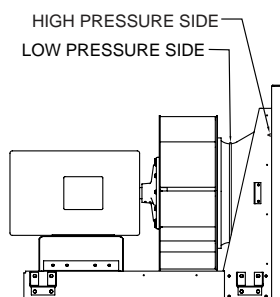
The pressure drop is measured from the tapping located on the face of the inlet cone to the piezometer ring in the throat. The inlet tapping is connected to the high-pressure side of the transducer and the piezometer ring is connected to the low-pressure side. See diagram below.

Based on Twin City Fan laboratory tests, the system was determined to be accurate within  $\pm 5\%$ .

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.

Piezometer Ring  
Mounted at Throat  
of Inlet Cone



Fans & Blowers  
**Twin City**

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<sup>3</sup>/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:

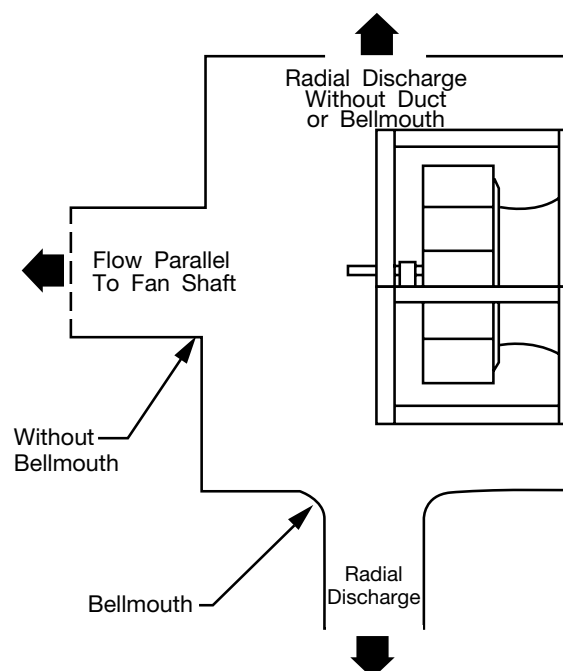
$$\text{Duct area} = \frac{(1.25^2 \times \Pi)}{4} = 1.227 \text{ m}^2$$

$$\text{Duct velocity} = \frac{14.15}{1.227} = 11.53 \text{ m/s}$$

$$\text{Duct velocity pressure @ std. cond.} = \left(\frac{\rho}{2}\right) v^2 = 0.6 \times (11.53)^2 = 80 \text{ Pa}$$

$$\begin{aligned} \text{Entrance loss correction factor} &= 1.1 \times \text{duct velocity pressure} \\ &= 1.1 \times 80 = 88 \text{ Pa} \end{aligned}$$

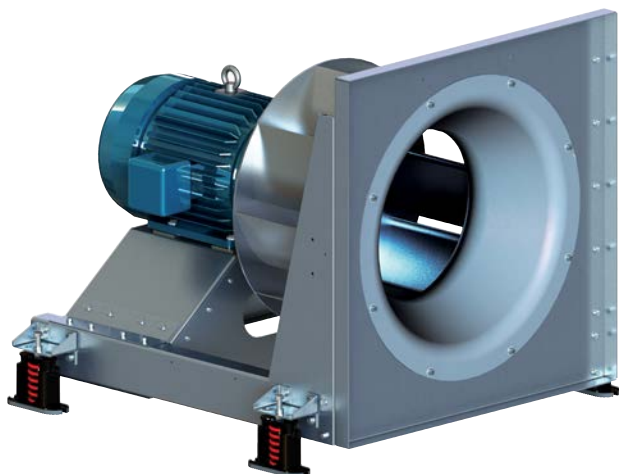
Thus, select the fan for = 1250 + 88 = 1338 Pa static pressure



# Application Guidelines

## 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](http://www.amca.org) and Twin City Fan Engineering Data Letter "Fan Performance Troubleshooting Guide" (FE-100) at [www.tcf.com](http://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. 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 4.
5. 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 balancer's measurements. Select motors loaded no closer than 90% of the maximum loading of the motor.
6. For multiple fans in a plenum, alternate CW and CCW rotation fans to minimize losses. If fans are not counter-rotating, install walls between each fan to create cells in the outlet plenum.
7. 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.



## 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 (page 7). 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 (page 7) 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 plug type plenum perpendicular to the fan/motor shaft, large system effect losses can occur. See Figure 2 (page 7) 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 (page 7).

## 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

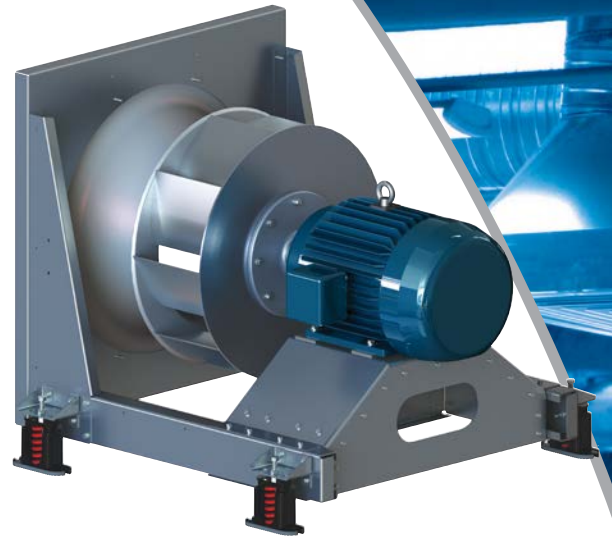
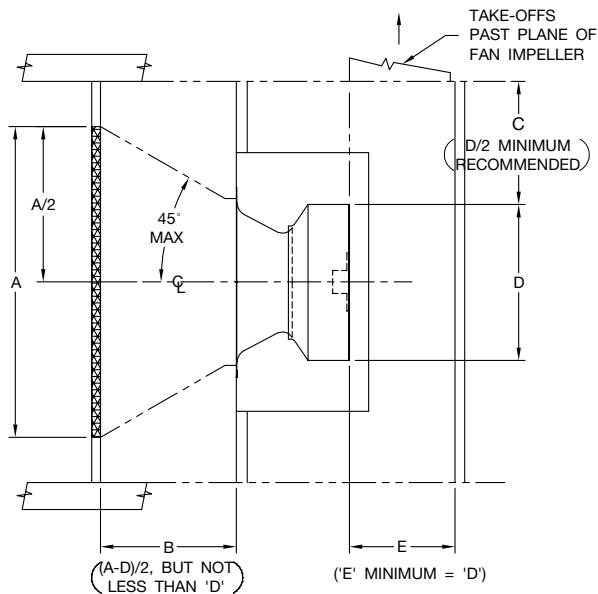


Figure 2. Flow Baffle and Vortex Spin Breaker Location

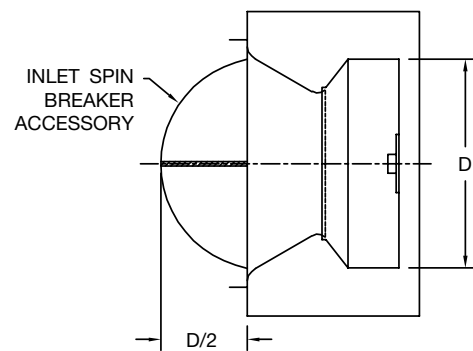
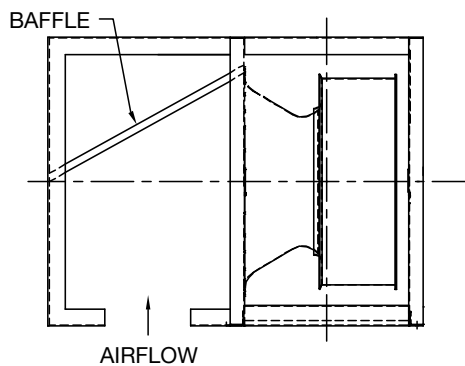
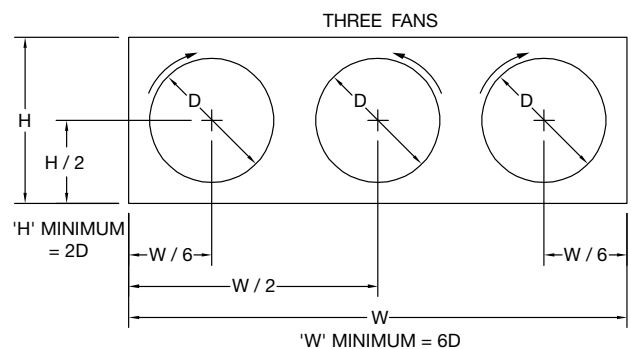
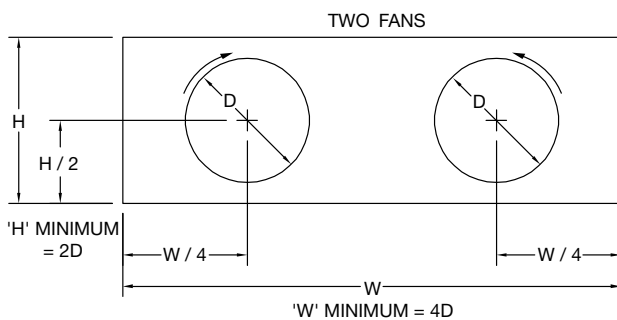
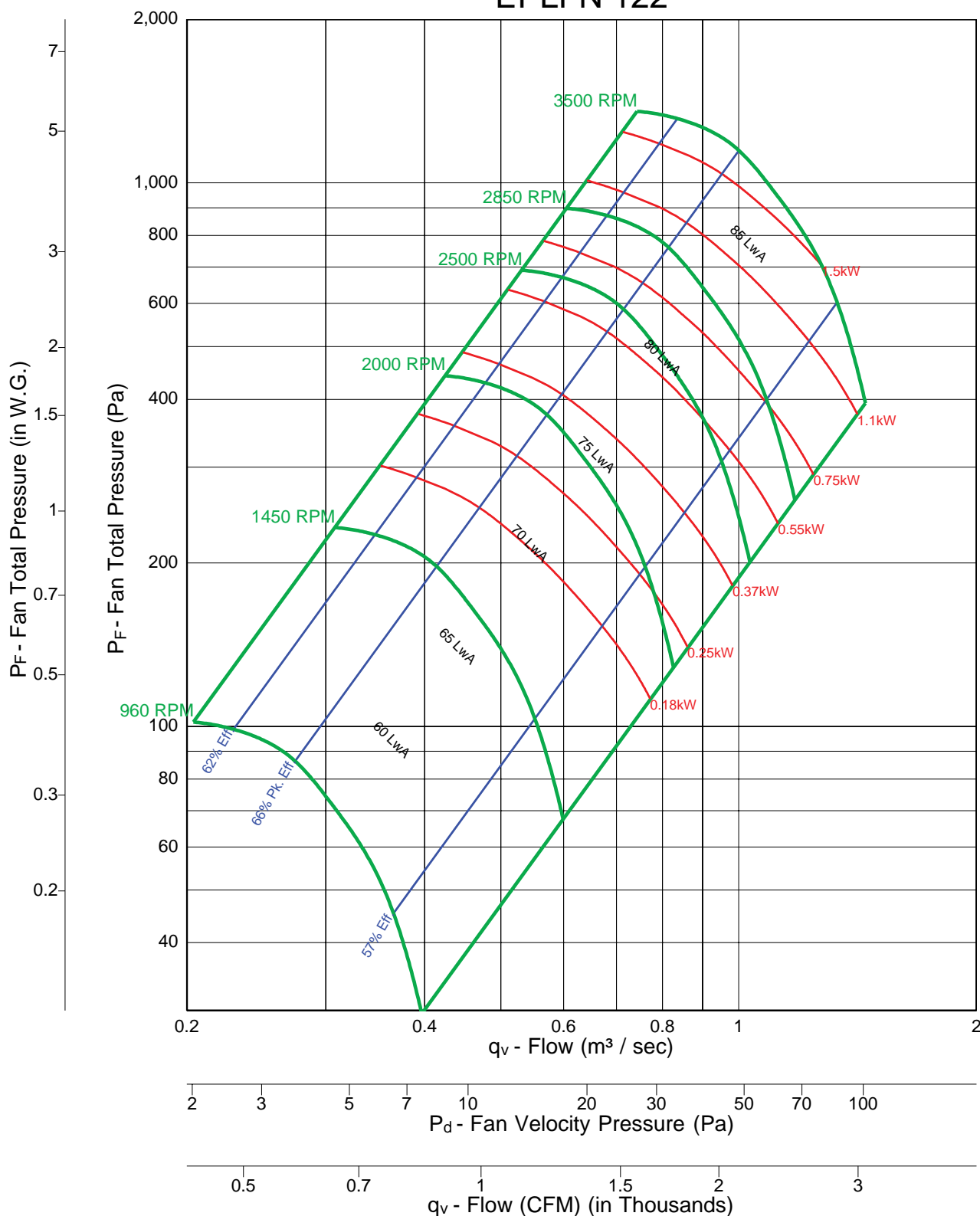


Figure 3. Location of Counter-Rotating Fans



NOTE: 'D' = Impeller diameter

## EPLFN 122



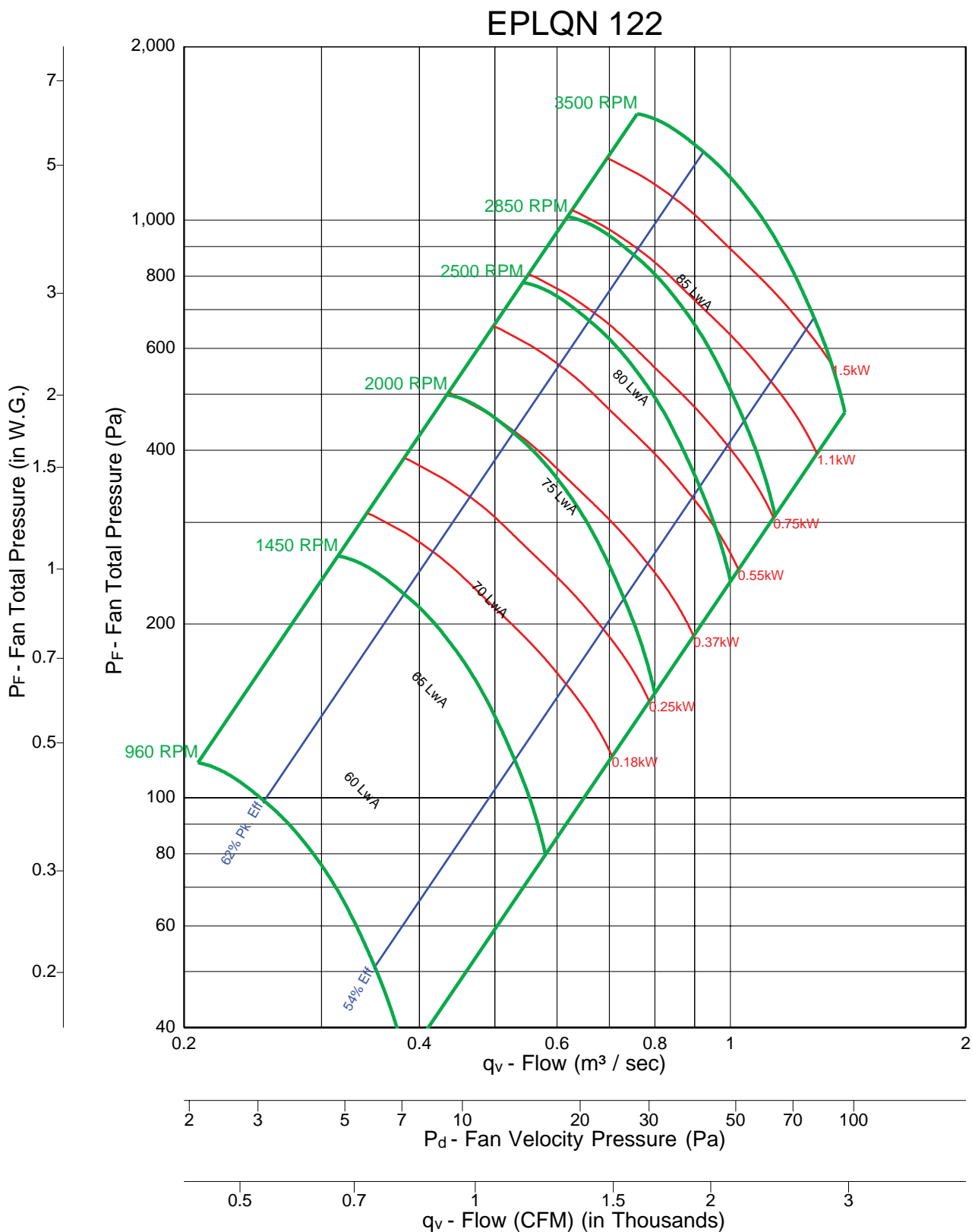
**Fan Efficiency Grade = FEG 75**



### 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 LwA 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.





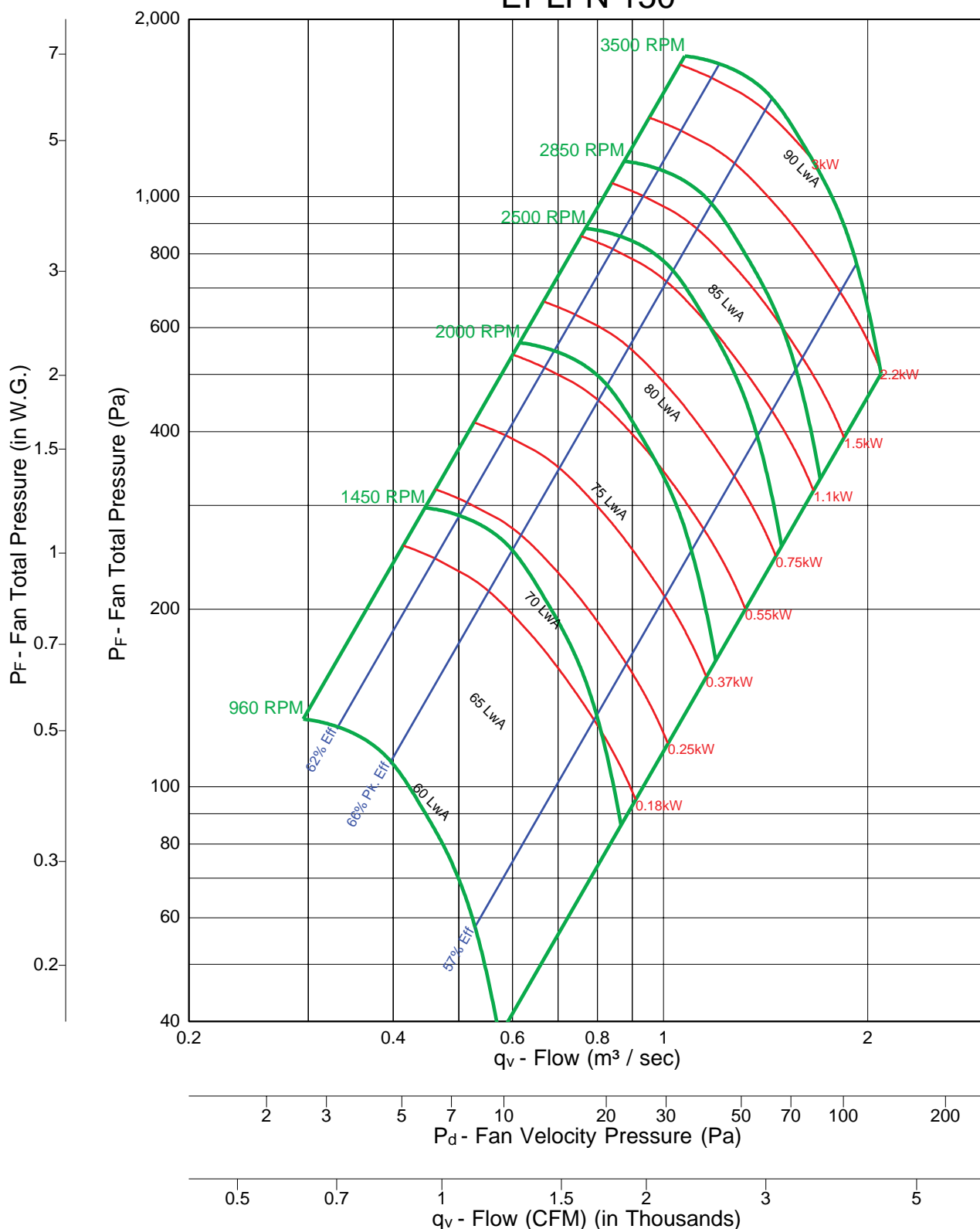
Fan Efficiency Grade = FEG 71



### 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 LwA 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.

## EPLFN 150

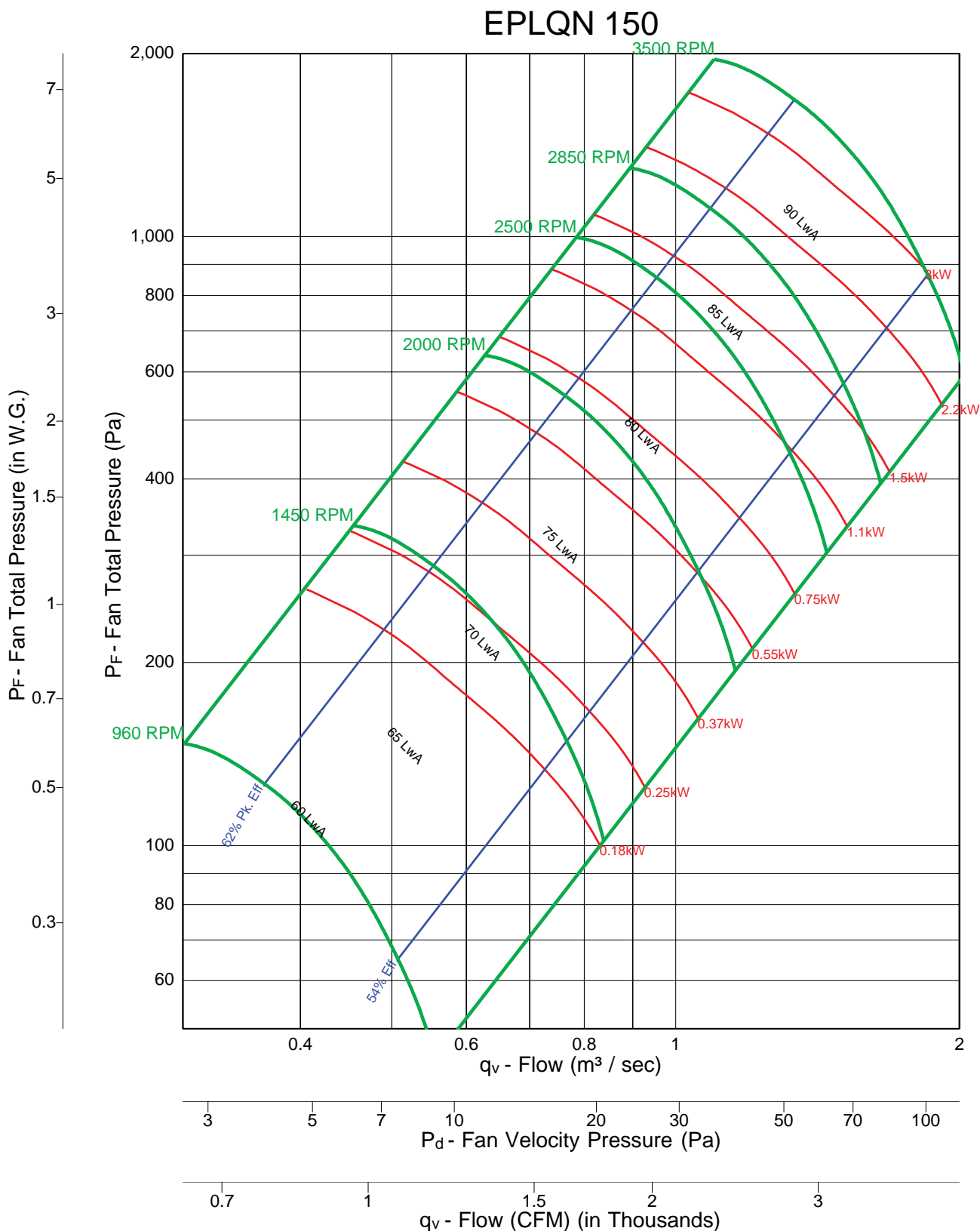


Fan Efficiency Grade = FEG 75



### 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 LwA 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.



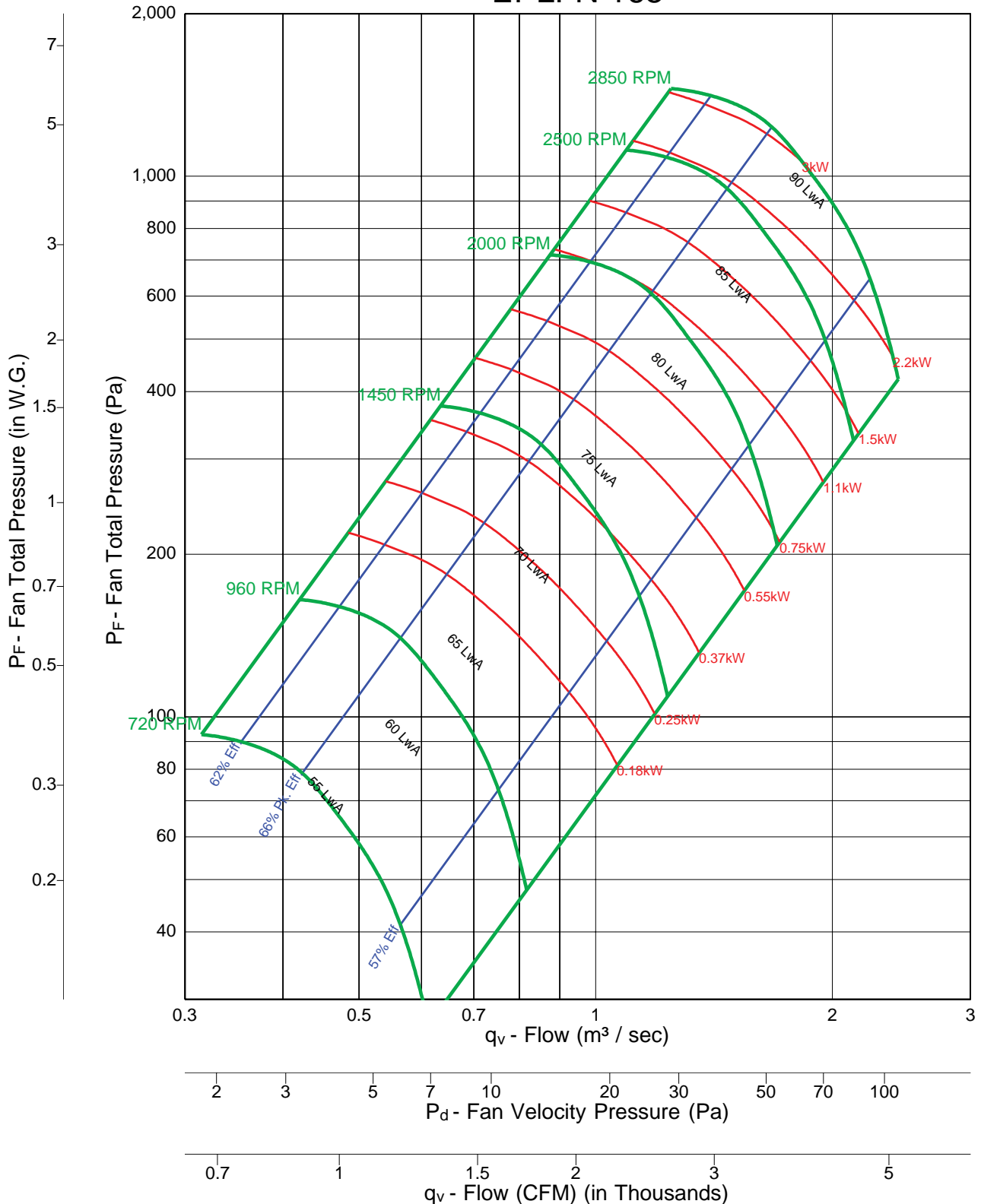
**Fan Efficiency Grade = FEG 71**



### 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 LwA 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.

## EPLFN 165



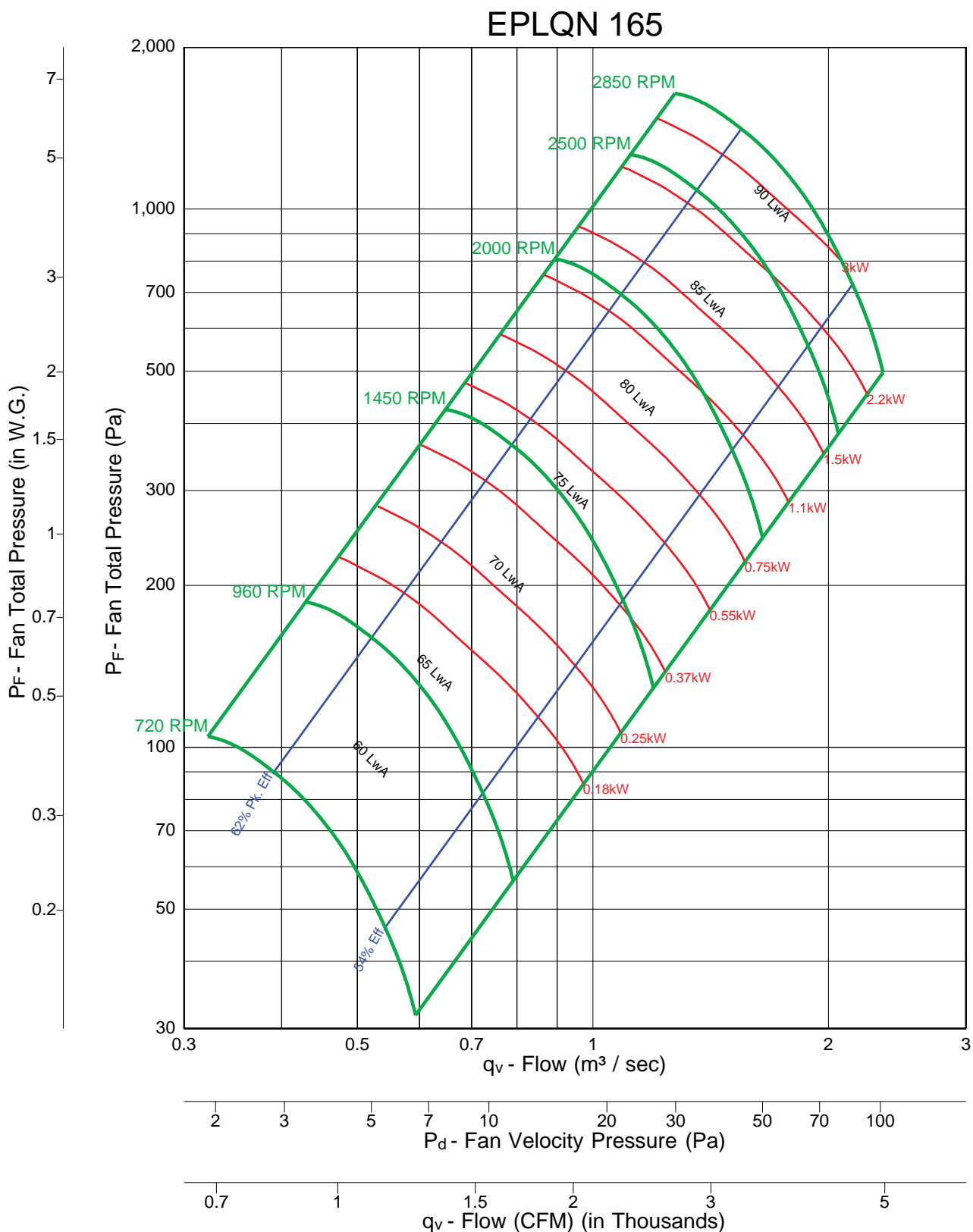
Fan Efficiency Grade = FEG 71



### 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 LwA 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.





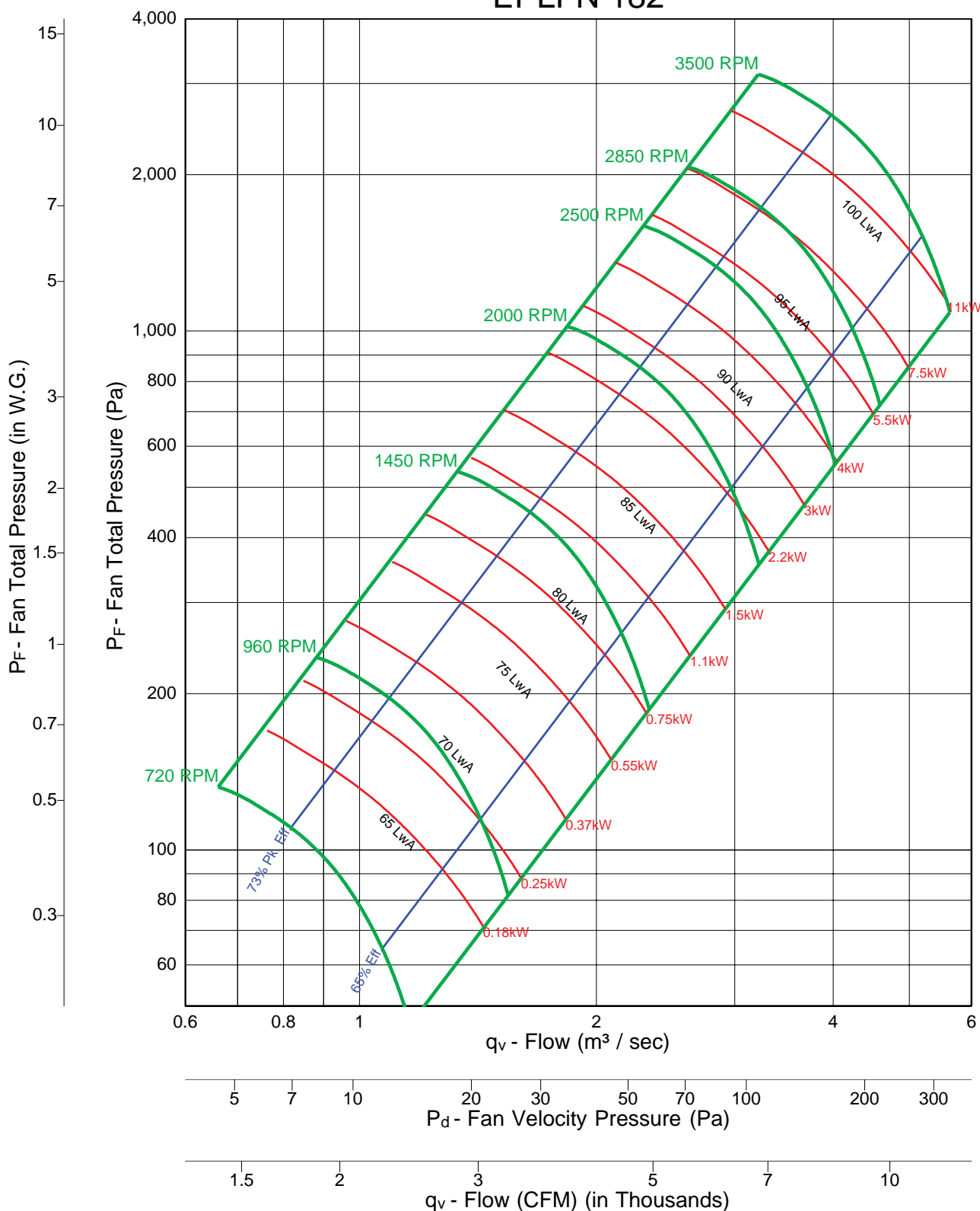
**Fan Efficiency Grade = FEG 67**



**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 LwA 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.

## EPLFN 182

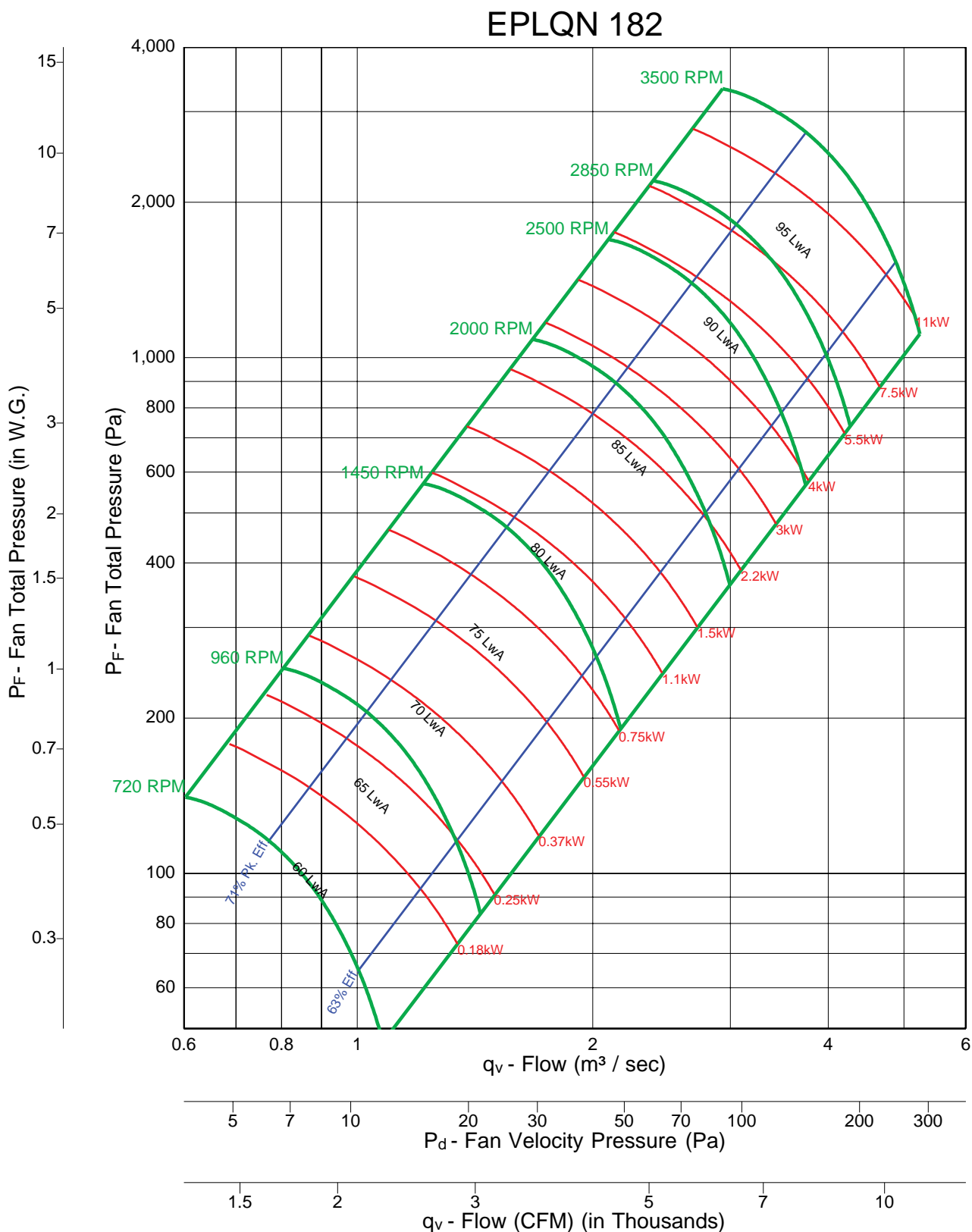


**Fan Efficiency Grade = FEG 80**



### 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 LwA 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.



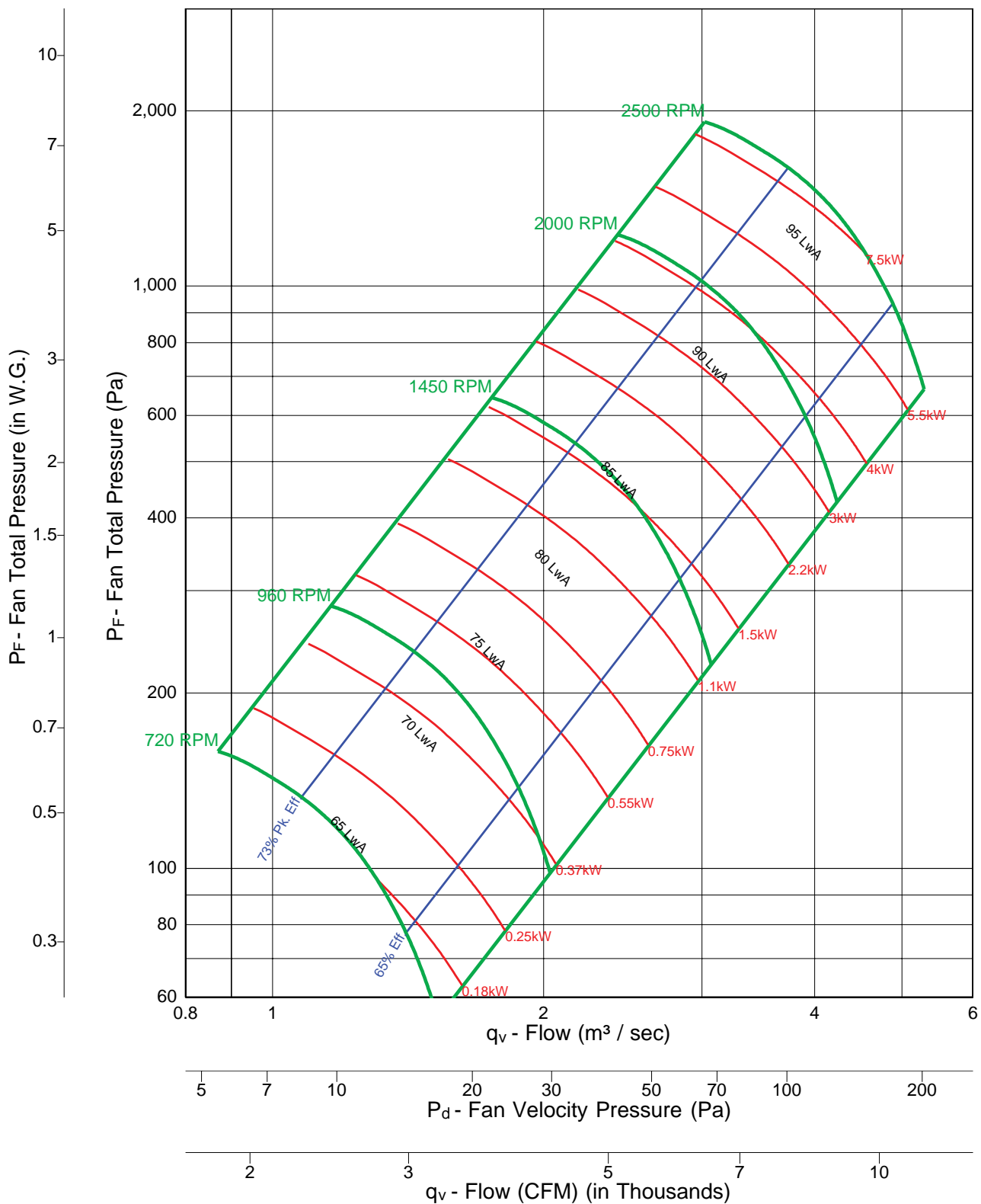
**Fan Efficiency Grade = FEG 75**



**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 LwA 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.

## EPLFN 200



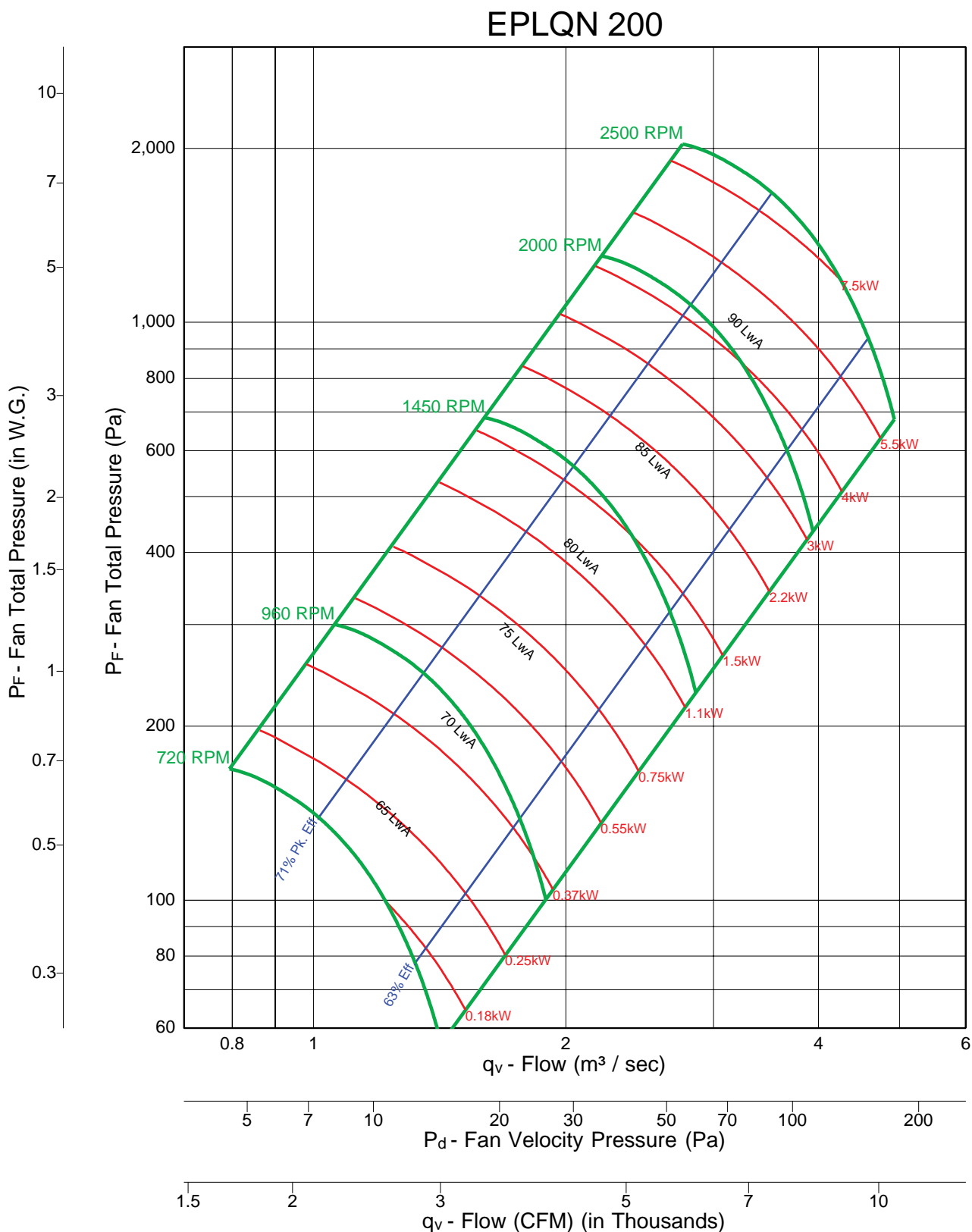
Fan Efficiency Grade = FEG 80



### 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 LwA 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.





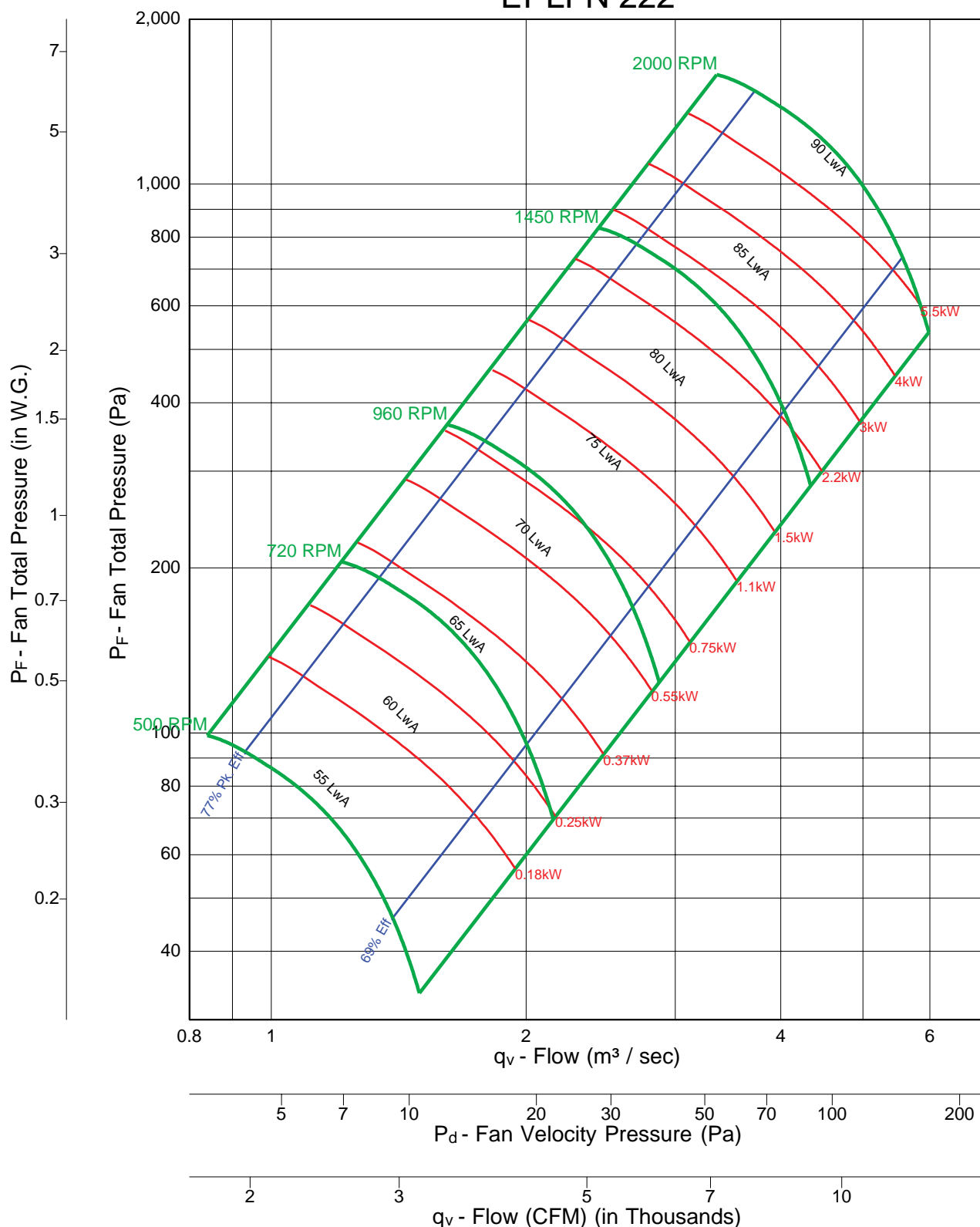
**Fan Efficiency Grade = FEG 75**



**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 LwA 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.

## EPLFN 222

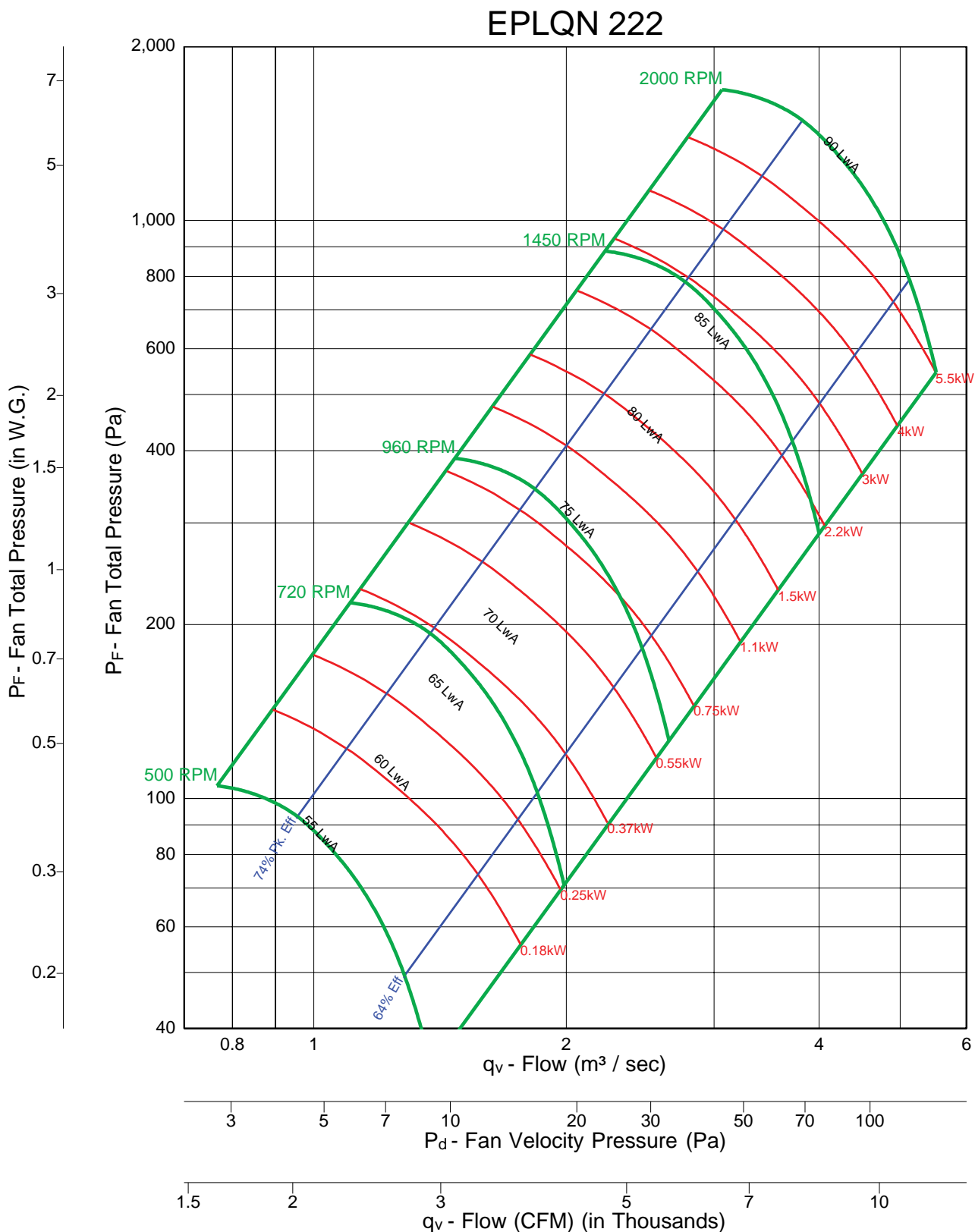


Fan Efficiency Grade = FEG 80



### 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 LwA 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.



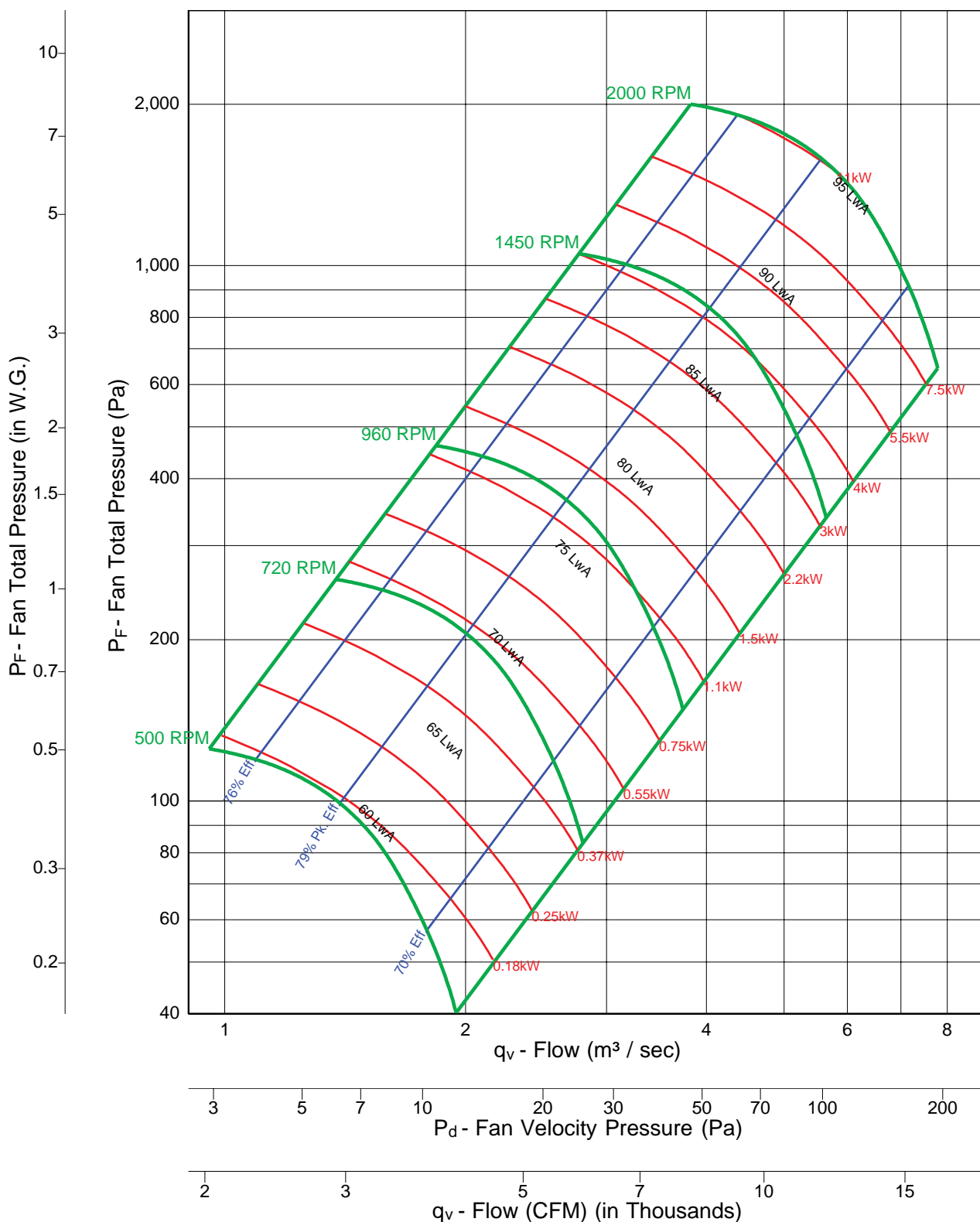
**Fan Efficiency Grade = FEG 80**



**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 LwA 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.

## EPLFN 245



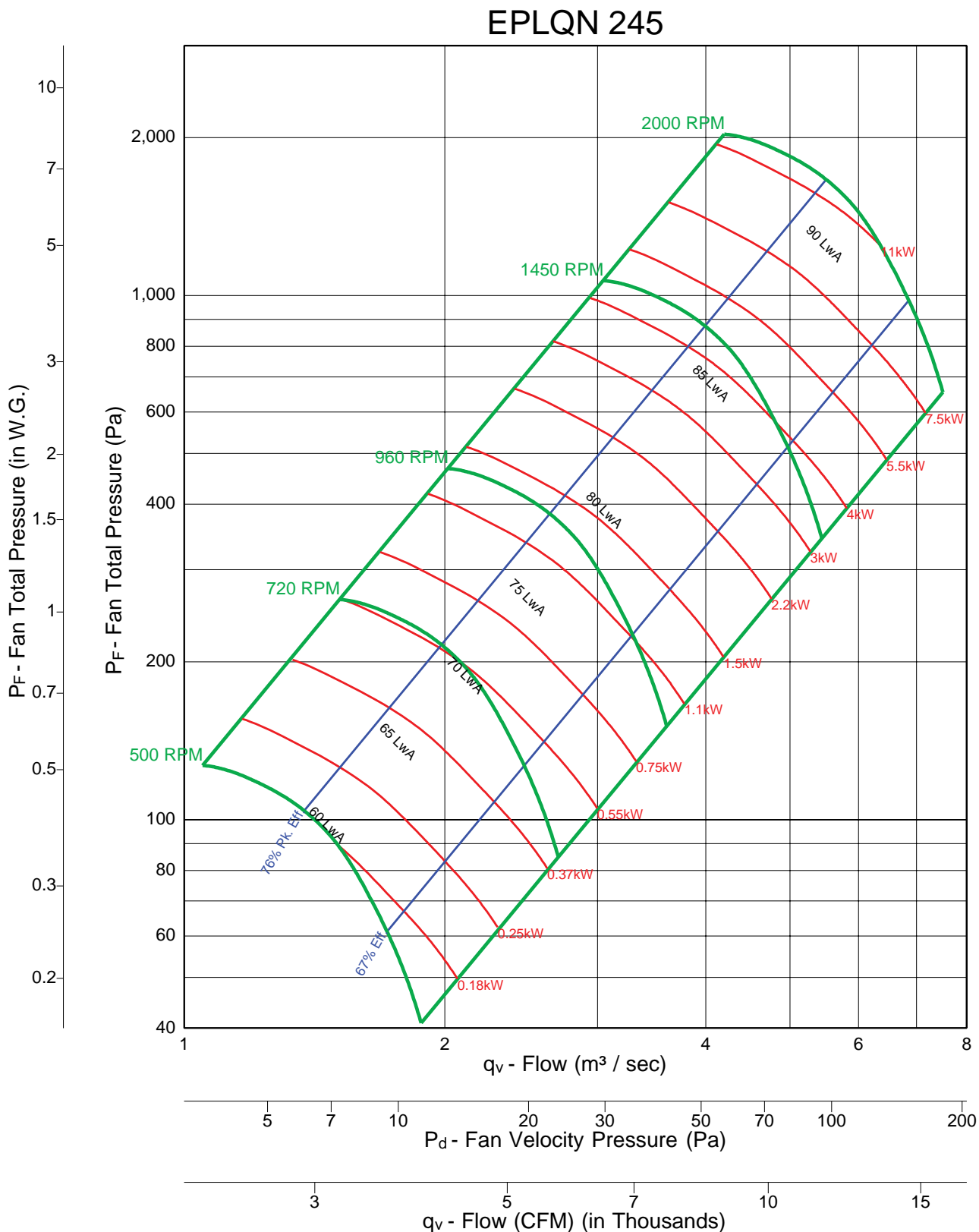
Fan Efficiency Grade = FEG 85



### 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 LwA 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.





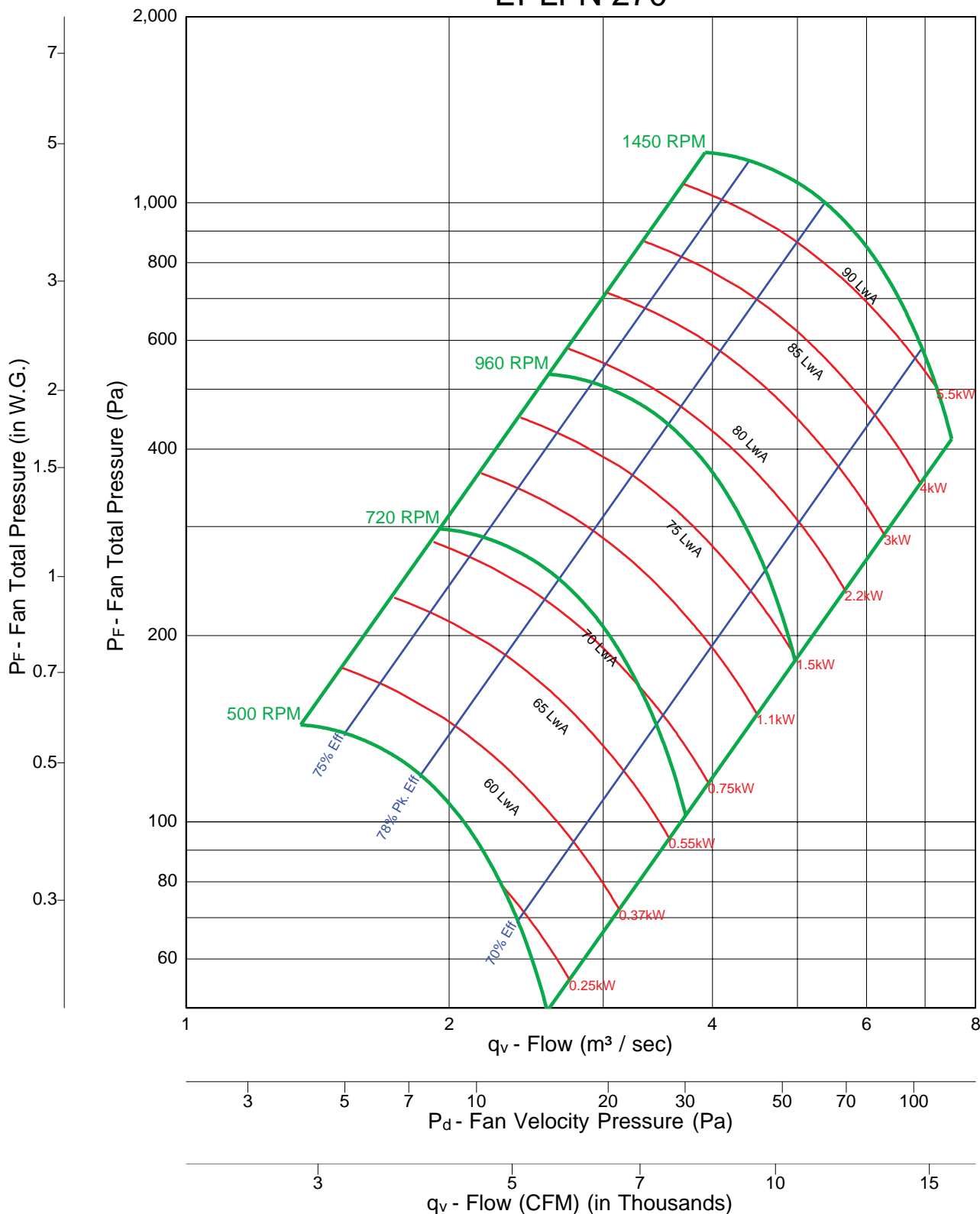
**Fan Efficiency Grade = FEG 80**



### 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 LwA 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.

## EPLFN 270

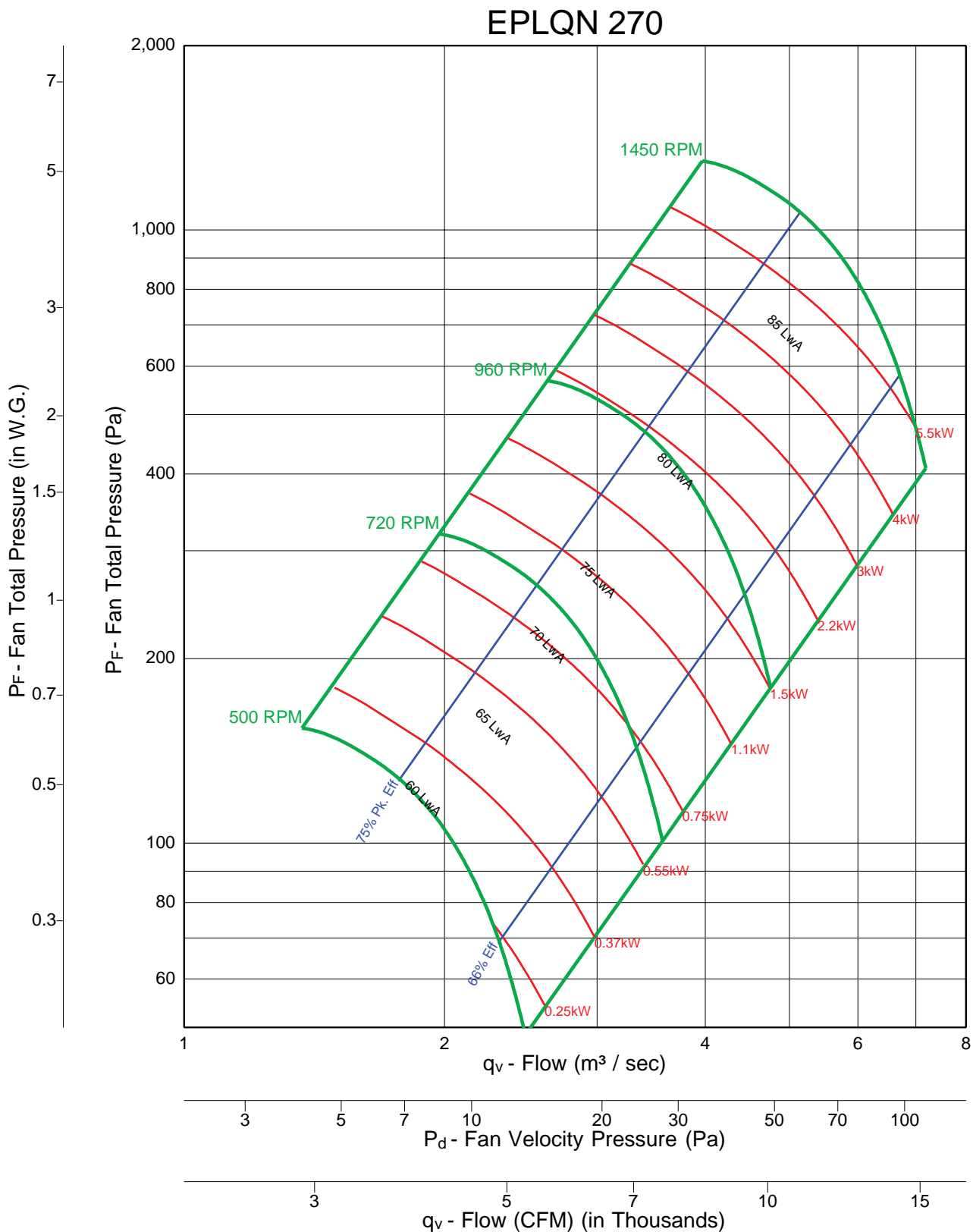


Fan Efficiency Grade = FEG 80



### 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 LwA 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.



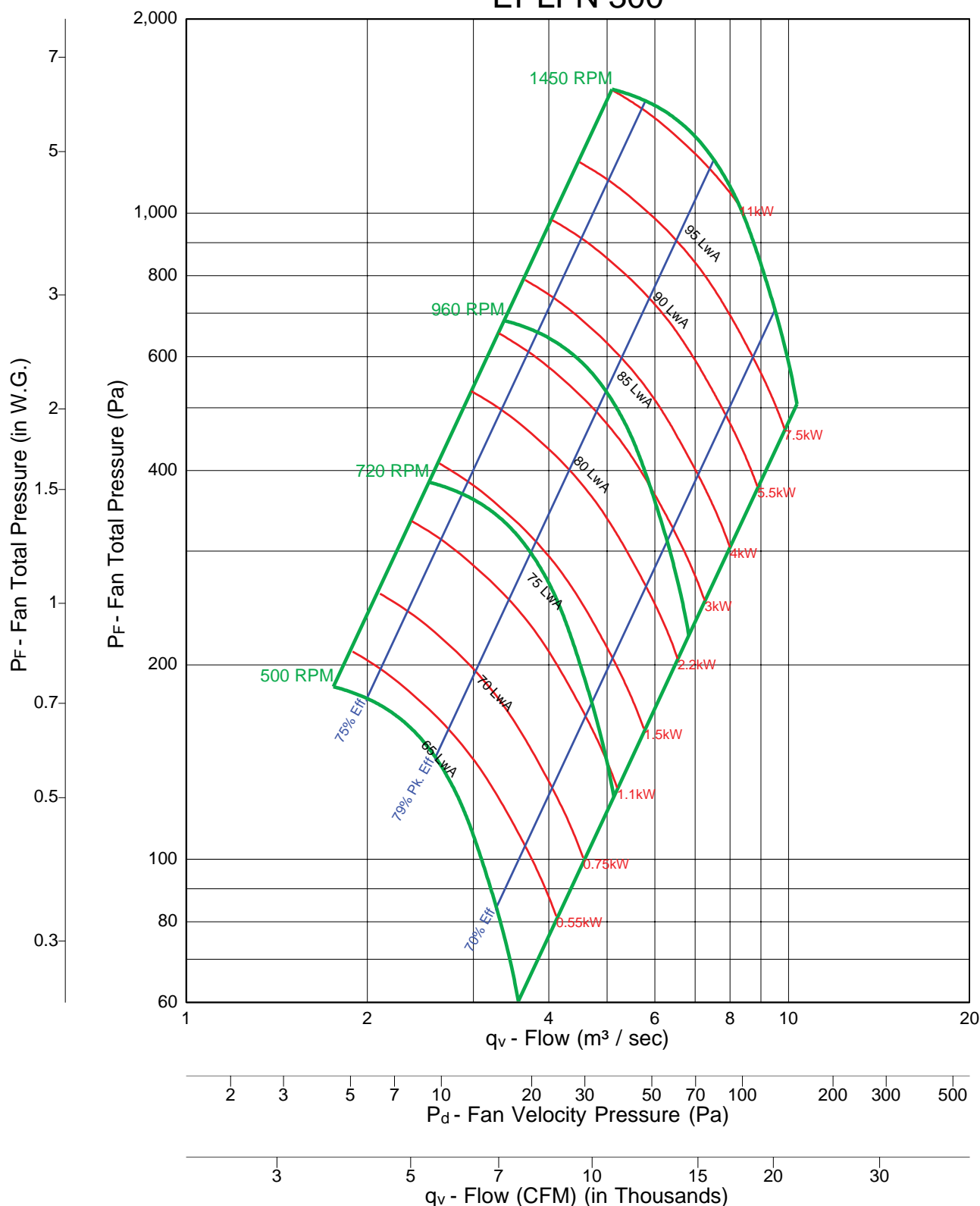
Fan Efficiency Grade = FEG 80



### 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 LwA 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.

## EPLFN 300



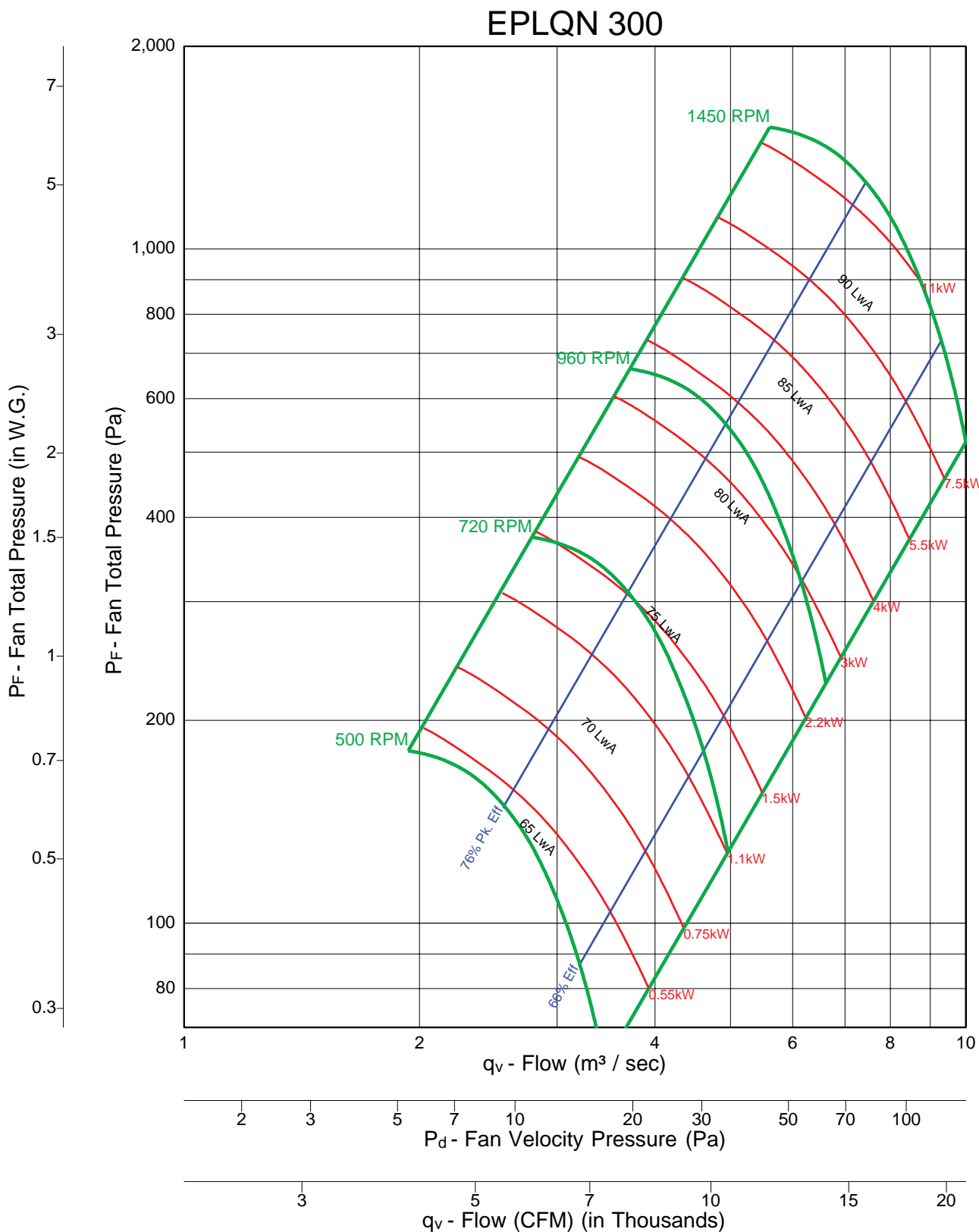
Fan Efficiency Grade = FEG 80



### 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 LwA 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.



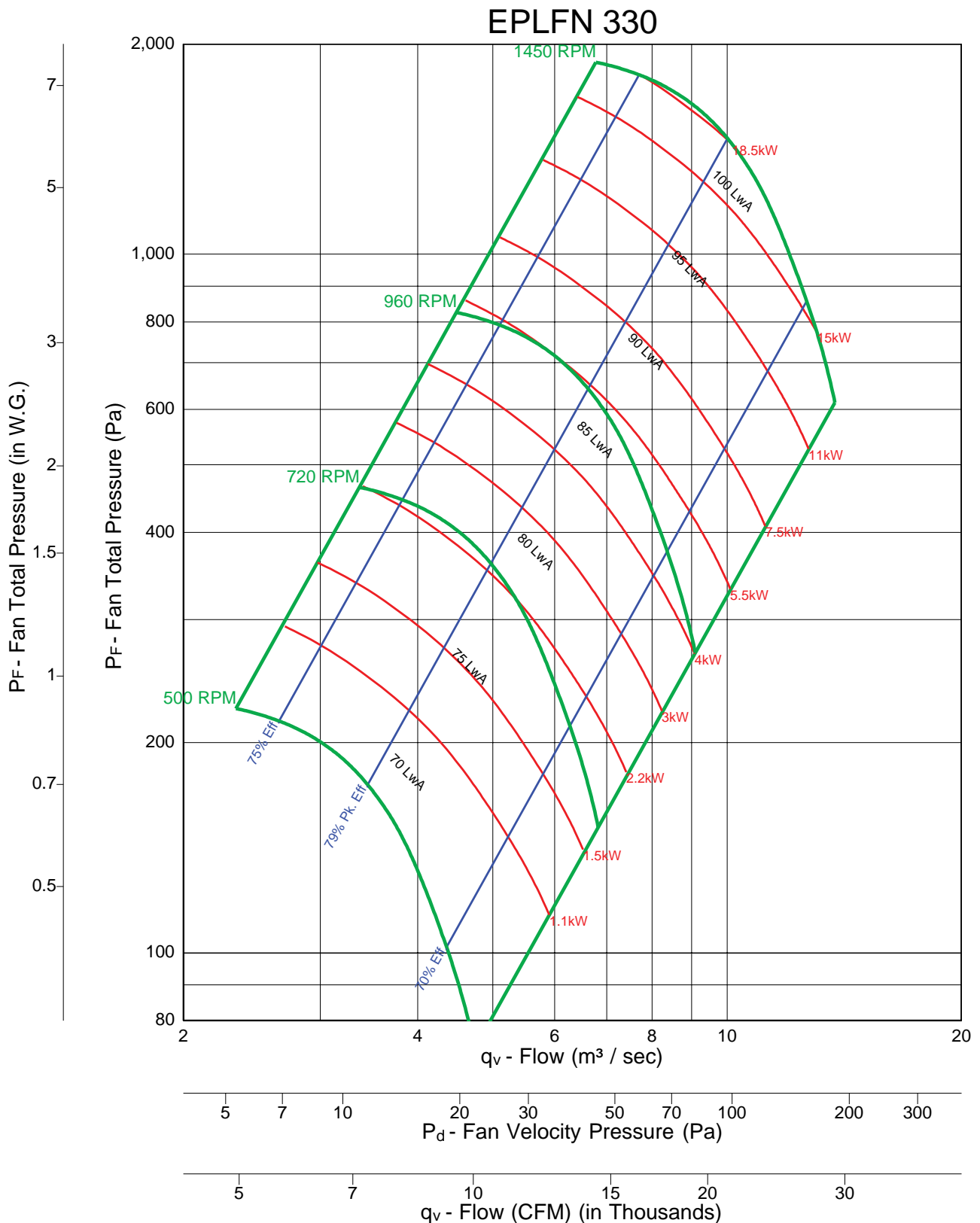


Fan Efficiency Grade = FEG 80



### 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 LwA 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.

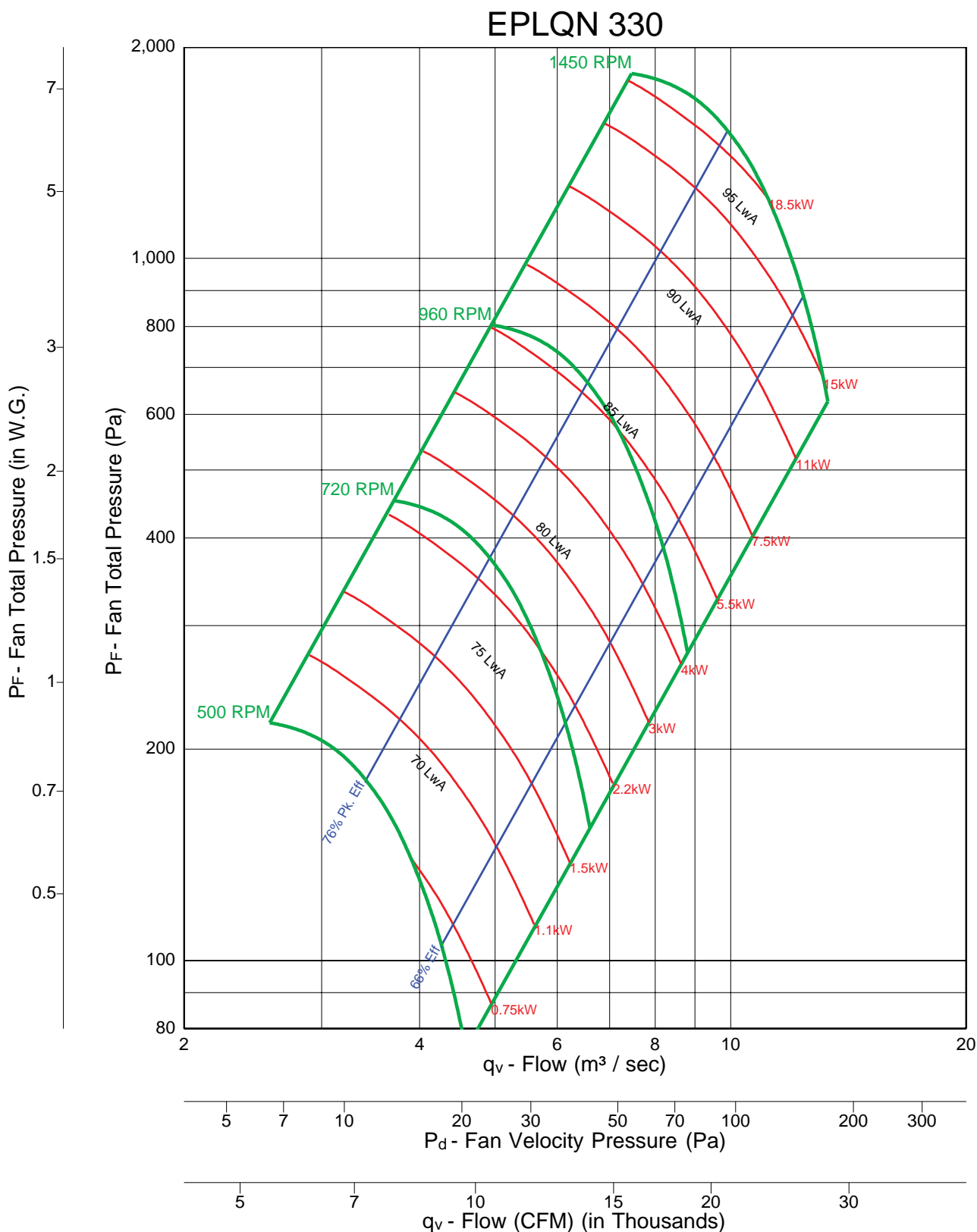


**Fan Efficiency Grade = FEG 80**



**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 LwA 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.



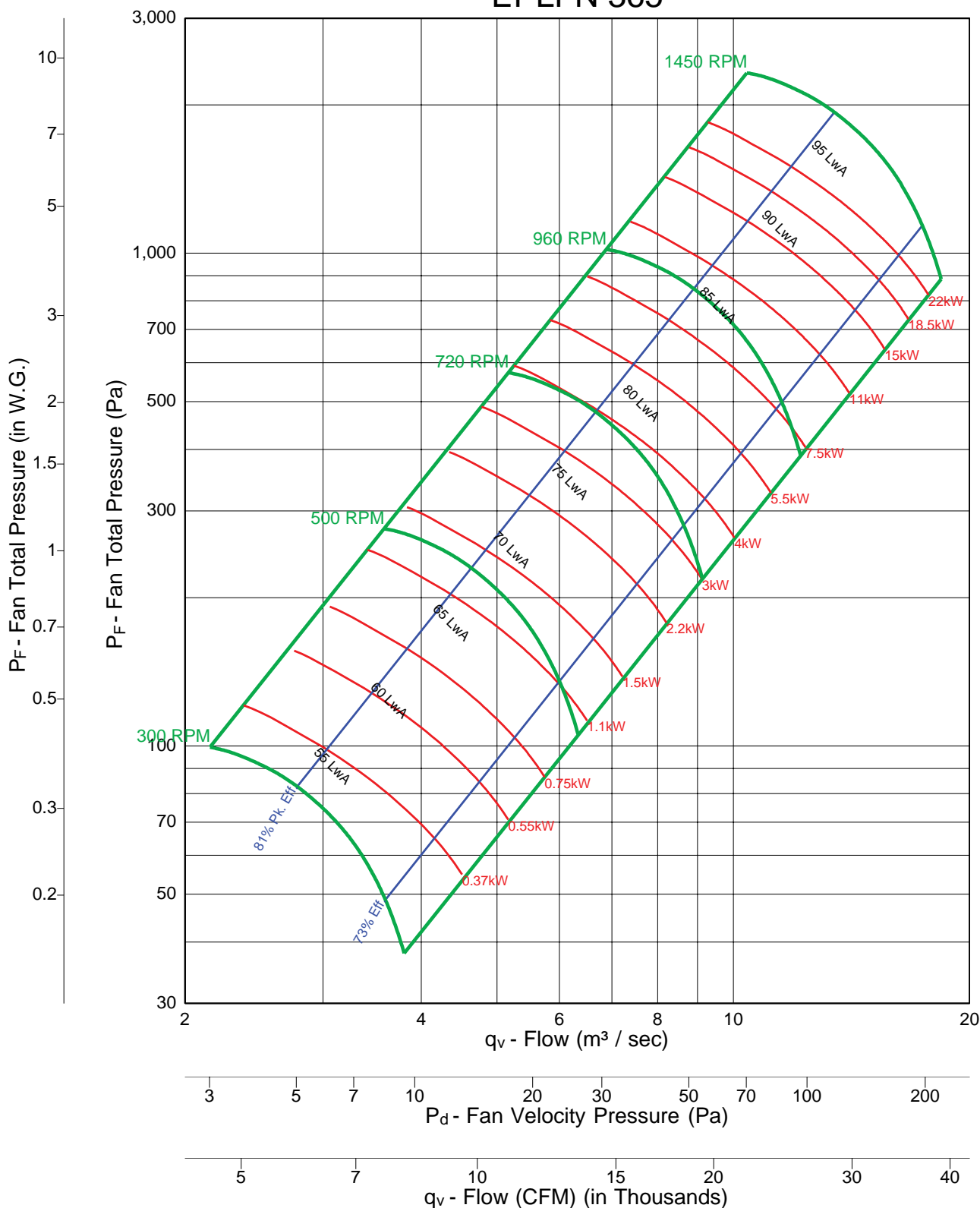
**Fan Efficiency Grade = FEG 80**



**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 LwA 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.

## EPLFN 365

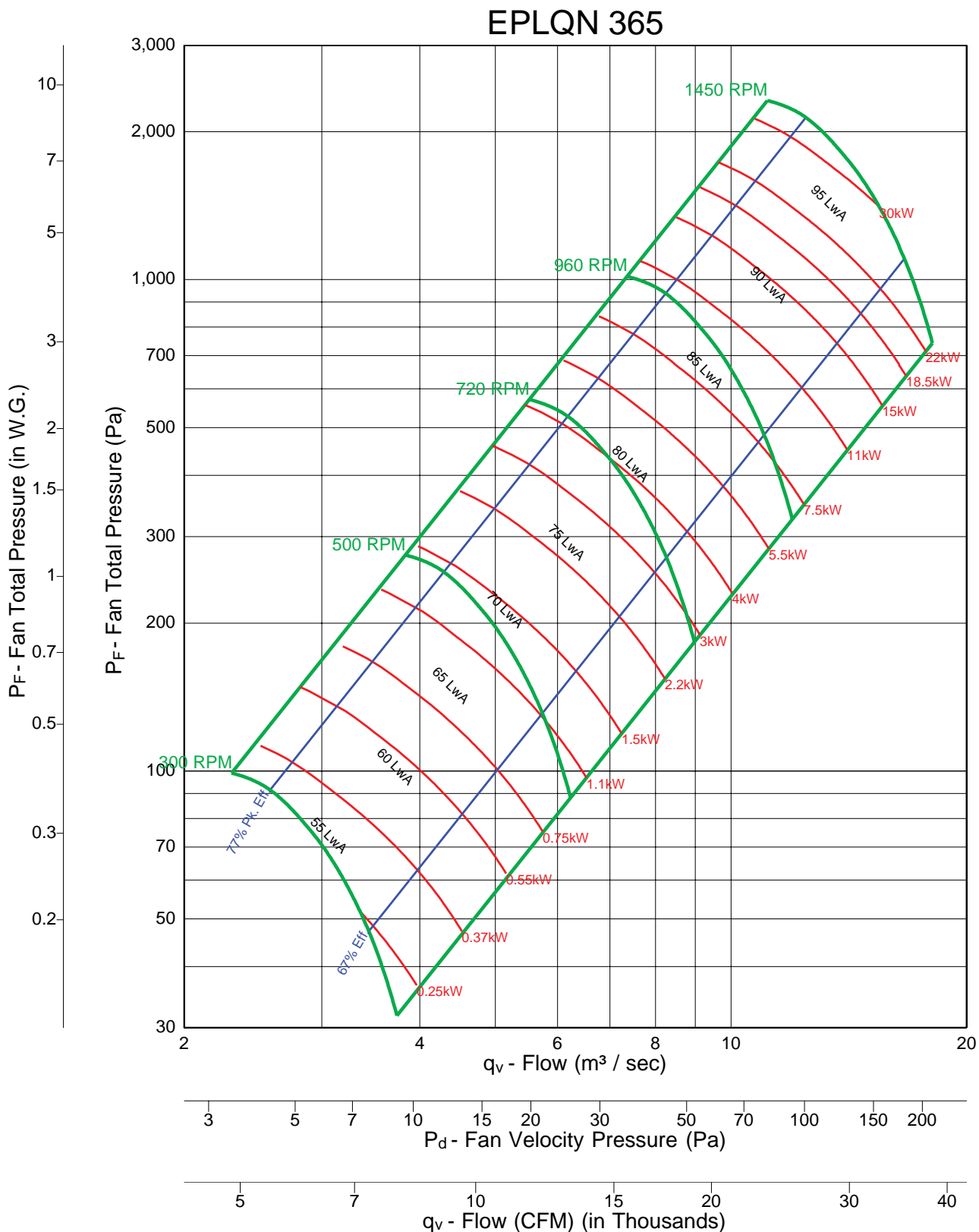


Fan Efficiency Grade = FEG 85



### 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 LwA 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.



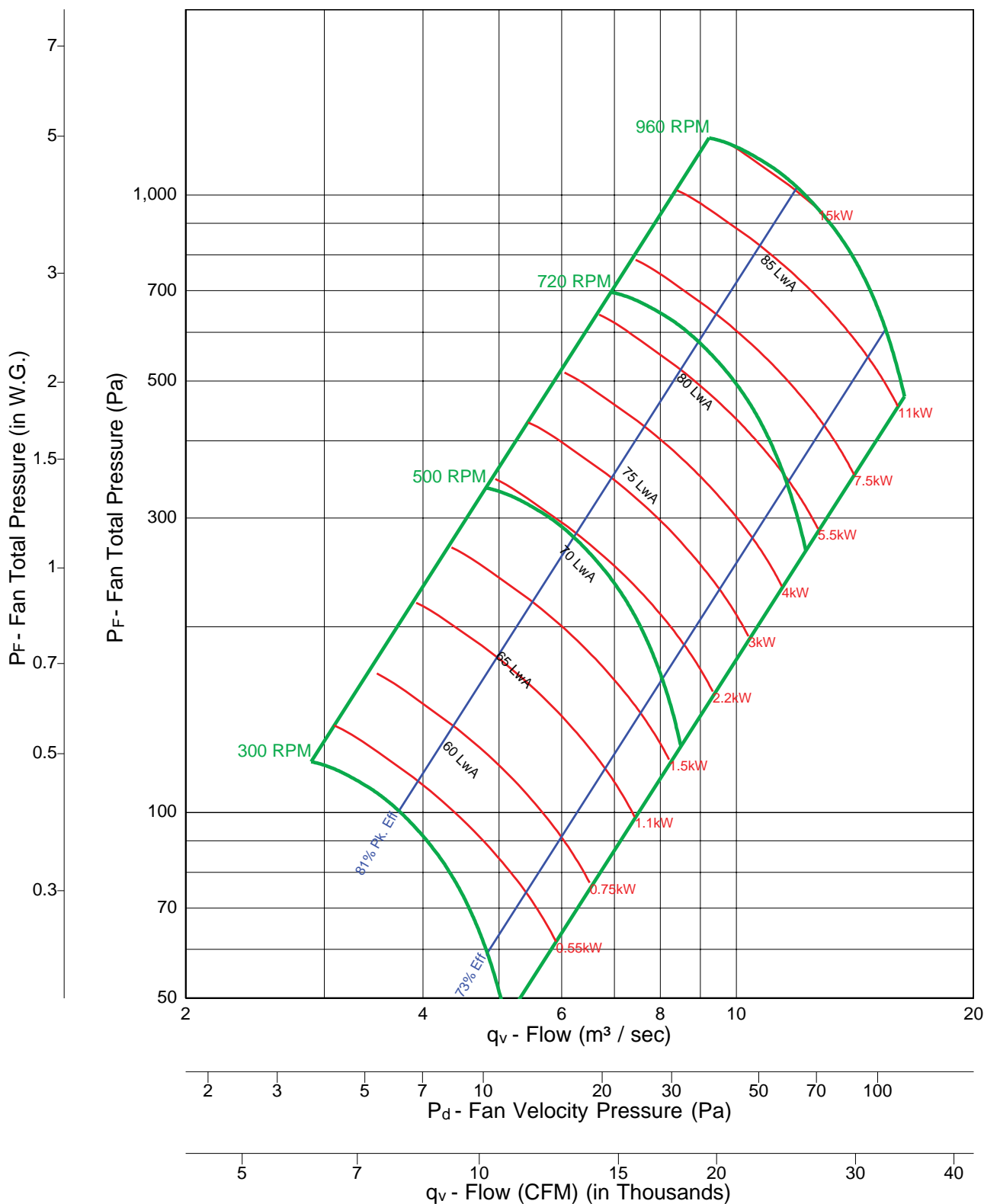
**Fan Efficiency Grade = FEG 80**



### 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 LwA 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.

## EPLFN 402



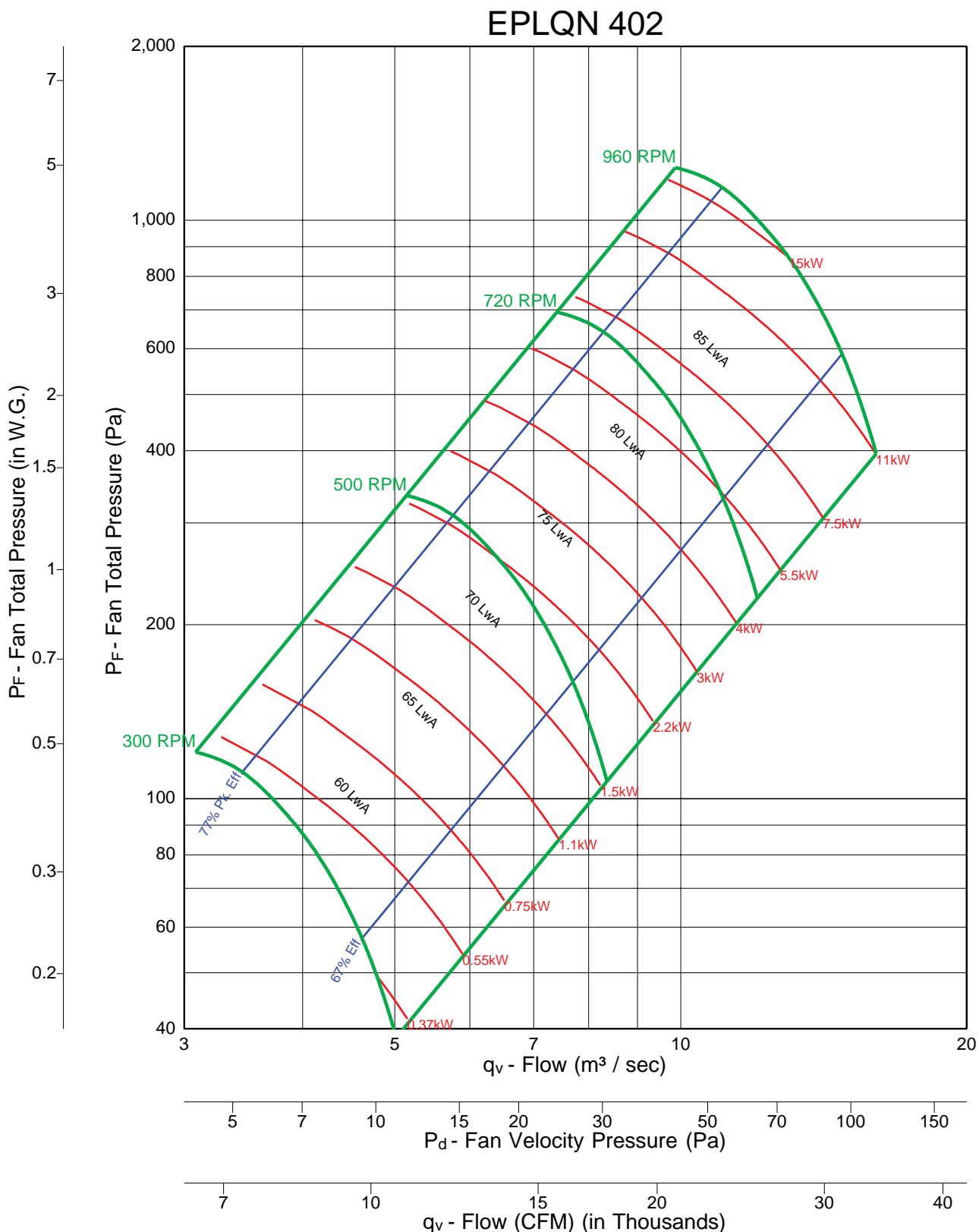
Fan Efficiency Grade = FEG 85



### 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 LwA 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.





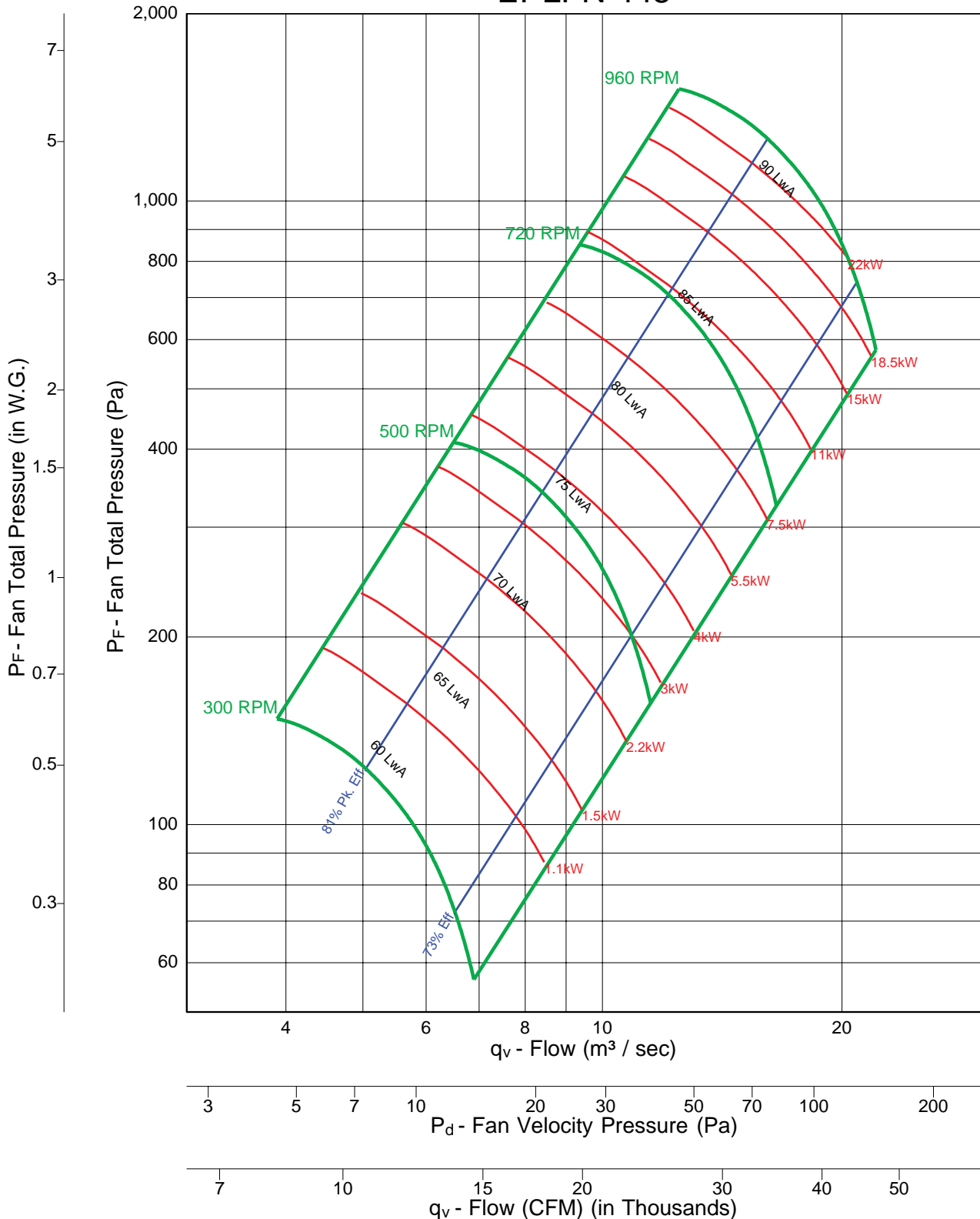
**Fan Efficiency Grade = FEG 80**



**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 LwA 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.

## EPLFN 445

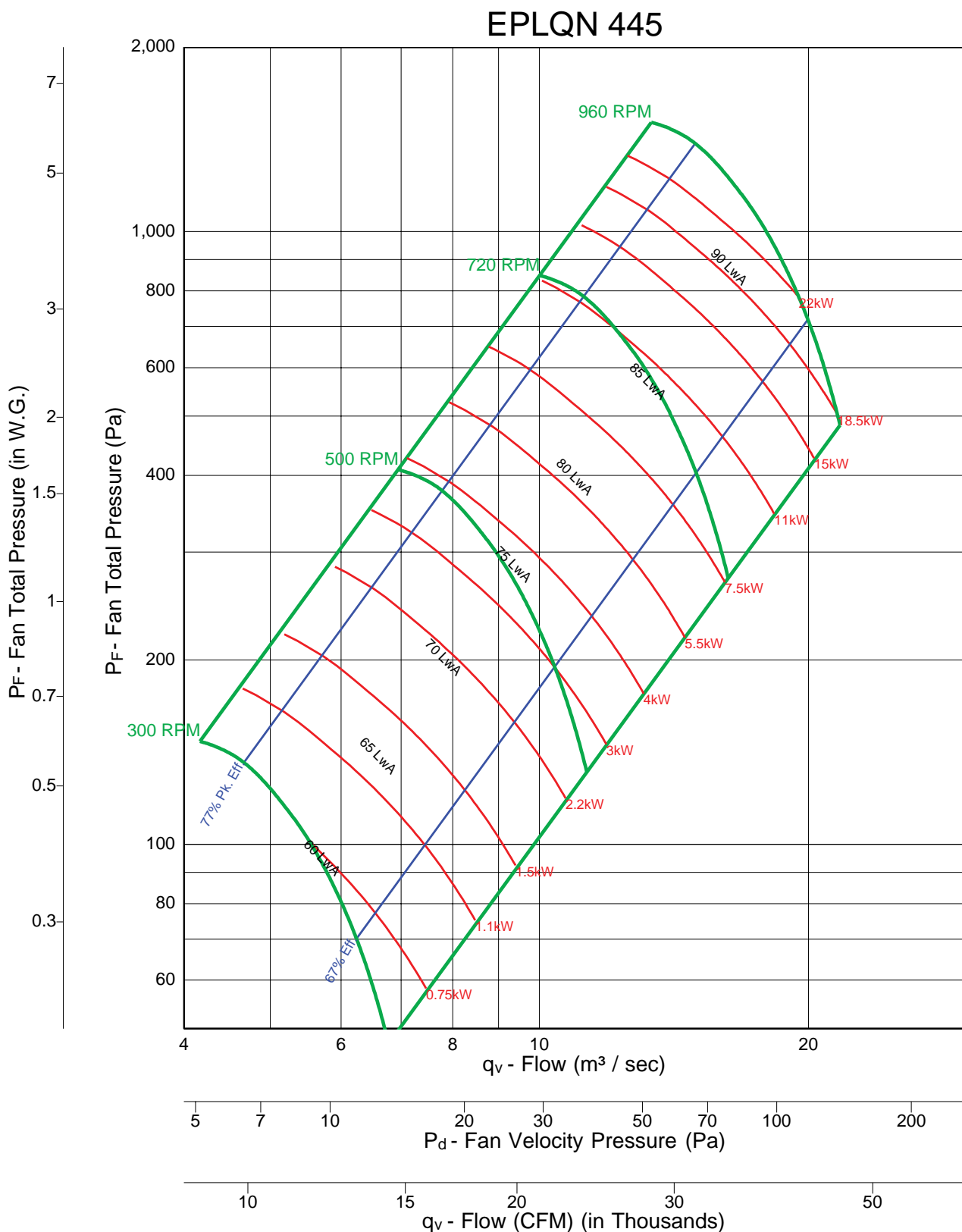


Fan Efficiency Grade = FEG 85



### 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 LwA 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.



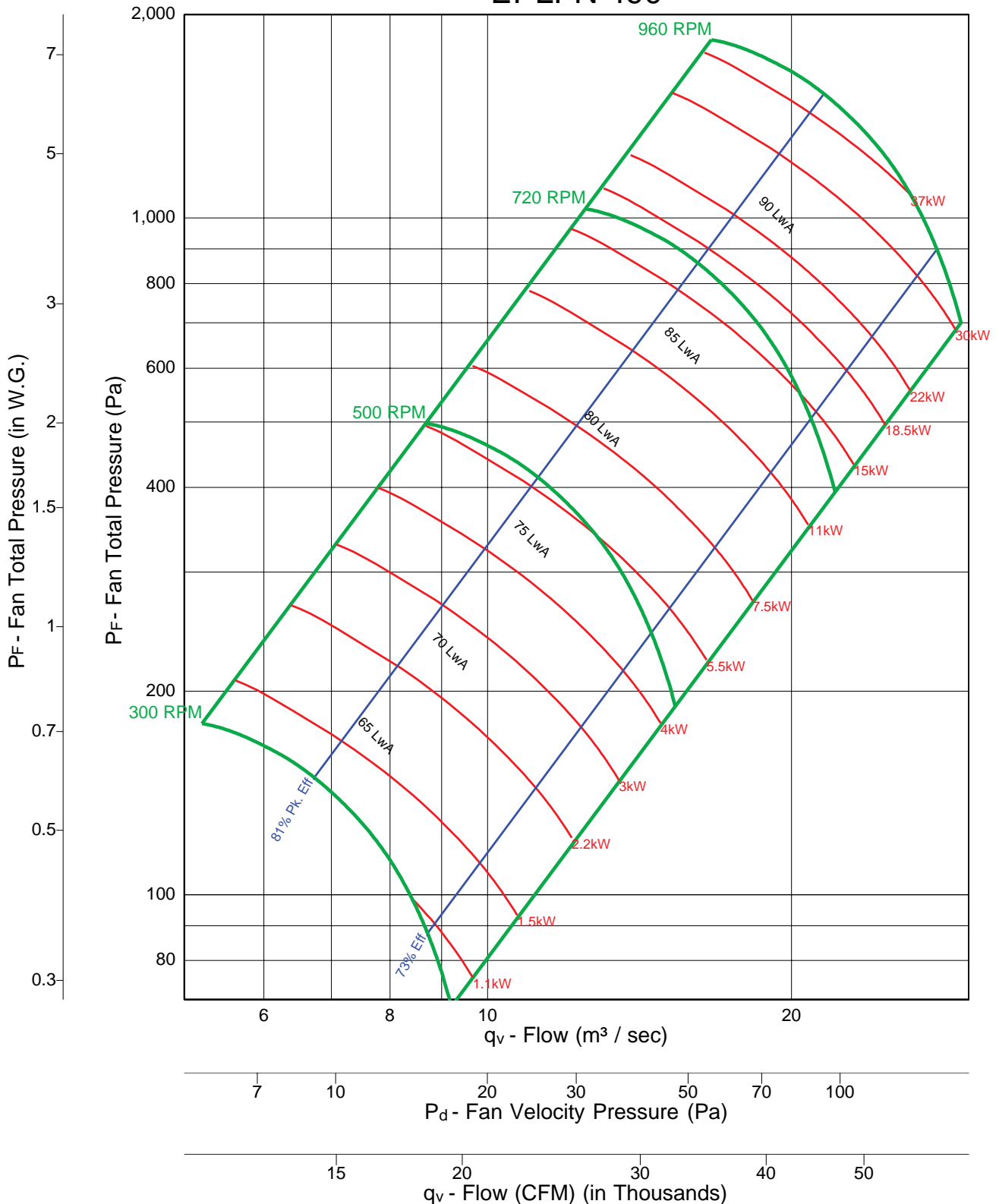
Fan Efficiency Grade = FEG 80



### 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 LwA 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.

## EPLFN 490

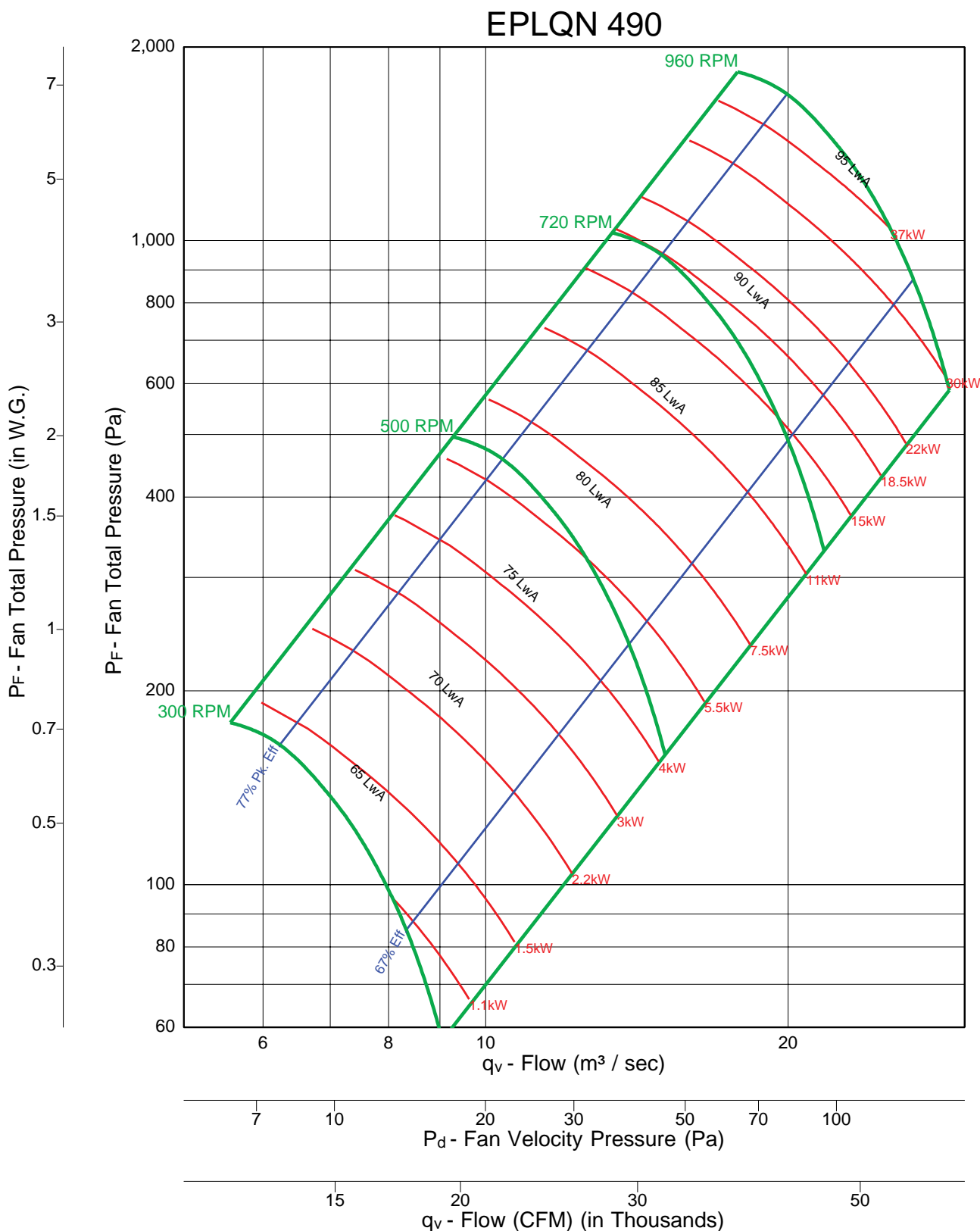


Fan Efficiency Grade = FEG 85



### 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 LwA 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.



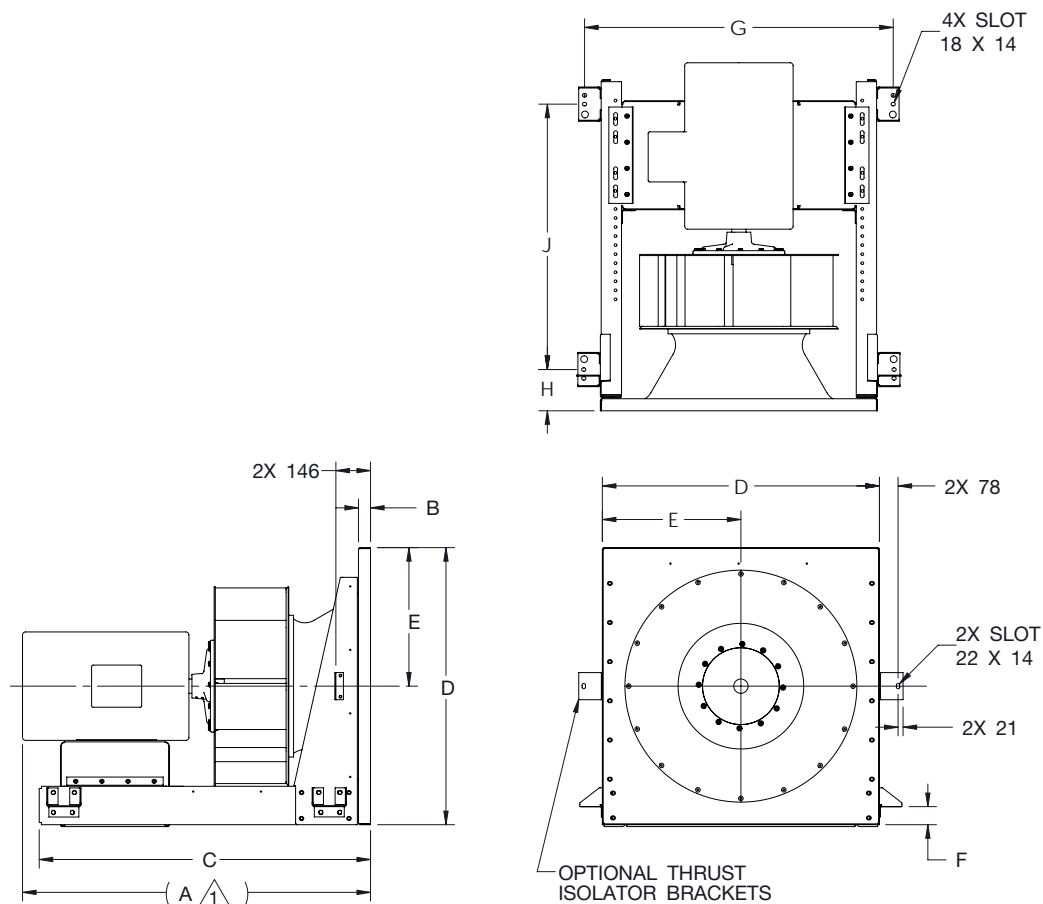
Fan Efficiency Grade = FEG 80



### 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 LwA 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.

## Arrangement 4



1 'A' DIMENSION IS REFERENCE FOR TEFC MOTORS (MAX)

### NOTES:

1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Fan guard available as option.
4. Inlet guard available as option.

SIZE	MOTOR FRAME (IEC)	MOTOR RATING (kW)		DIMENSIONS (mm UNLESS SPECIFIED)								
		MIN	MAX	A	B	C	D	E	F	G	H	J
122	80M TO 90L	0.5	2.2	648	51	635	508	254	76	596	161	355
150	80M TO 90S	0.5	1.5	601	51	613	559	279	76	646	166	364
	90L TO 112M	2.2	4.0	756	51	686	559	279	76	646	166	437
165	80M TO 112M	0.5	4.0	704	51	665	610	305	76	696	169	417
	132S	-	5.5	872	51	839	610	305	76	696	169	591
182	80M TO 112M	0.5	4.0	802	51	766	660	330	76	748	169	499
	132S TO 160M	5.5	15	1014	51	940	660	330	76	748	169	672
200	80M TO 112M	0.5	4.0	835	51	785	737	368	76	824	169	505
	132S TO 160M	5.5	15	1047	51	978	737	368	76	824	169	697
222	80M TO 112M	0.5	4.0	891	51	862	813	406	76	899	169	607
	132S TO 180M	5.5	22	1106	51	991	813	406	76	899	169	736
245	90S TO 132M	1.1	7.5	1019	51	985	864	432	76	1001	174	706
	160M TO 180M	11	22	1168	51	1086	864	432	76	1001	174	806
270	100L TO 132M	3.0	7.5	1066	51	1047	965	483	76	1103	174	769
	160M TO 200L	11	30	1254	51	1143	965	483	76	1103	174	865
300	112M TO 160L	4.0	15	1251	51	1155	1067	533	76	1203	174	871
	160L TO 200L	18.5	37	1331	51	1283	1067	533	76	1203	174	998
330	132M TO 180L	7.5	22	1366	51	1249	1168	584	76	1305	174	971
	200L TO 250M	30	55	1467	51	1397	1168	584	76	1305	174	1119
365	160L TO 180L	11	22	1432	51	1305	1295	648	76	1432	185	1023
	200L TO 225S	30	37	1534	51	1448	1295	648	76	1432	185	1166
402	160L TO 200L	11	22	1500	64	1420	1422	711	133	1599	221	1063
	200L TO 250M	30	55	1662	64	1619	1422	711	133	1599	221	1263
445	160L TO 225M	11	30	1619	64	1547	1575	787	133	1752	221	1177
	225S TO 280M	37	90	1782	64	1746	1575	787	133	1752	221	1377
490	160L TO 225M	11	30	1716	76	1622	1727	864	133	1904	234	1246
	280S	-	45	1879	76	1854	1727	864	133	1904	234	1478

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

AC1003031



IMPELLER SIZE	DIAMETER (MM)	MAX RPM (20°C)	WR <sup>2</sup> (kg-m <sup>2</sup> )		IMPELLER WEIGHT (kg)		BARE FAN WEIGHT (kg)	
			EPLFN	EPLQN	EPLFN	EPLQN	EPLFN	EPLQN
122	314	4000	0.04	0.09	4.1	4.5	25.5	25.9
150	356	3909	0.07	0.14	5.5	5.9	31.4	31.8
165	400	3468	0.12	0.22	6.8	7.7	44.1	45.0
182	464	2930	0.26	0.3	8.2	9.1	53.6	54.5
200	508	2674	0.31	0.35	9.5	10.9	62.7	64.1
222	565	2403	0.51	0.59	13.6	15.5	88.6	90.5
245	622	2183	0.88	1.0	15.9	17.7	109	111
270	686	1981	1.2	1.5	18.2	20.9	133	135
300	762	1783	2.1	2.5	24.5	27.7	165	168
330	838	1620	3.2	3.7	30.5	35.0	196	200
365	927	1465	4.7	5.4	35.9	41.4	265	270
402	1022	1329	7.0	8.0	42.3	48.6	359	365
445	1130	1202	10.7	12.4	61.4	68.2	470	477
490	1245	1091	16.5	19.0	74.5	83.2	557	565

## Typical Specifications

Fans shall be Model EPLFN or EPLQN cost effective centrifugal plug type plenum (plug) type, as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

**PERFORMANCE** — Performance ratings shall conform to AMCA Standard 205 (fan efficiency grade), 211 (air performance) and 311 (sound performance). Fans shall be tested in accordance with ANSI/AMCA Standard 210 (air performance) and 300 (sound performance) in an AMCA accredited laboratory. Fans shall be licensed to bear the AMCA certified ratings seal for both sound and air, and fan efficiency grade (FEG).

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 un-housed and incorporate a non-overloading type backward inclined aerofoil blade impeller, heavy-gauge galvanized or finish painted steel frame and inlet plate.

**FRAME AND INLET PANEL** — Inlet plates shall be of heavy-gauge galvanized or finish painted steel construction. The inlet plate 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. All impellers on direct drive arrangement 4 fans shall have aerofoil shaped, extruded aluminium blades. All impellers shall be continuously welded around all edges. EPLFN impellers shall have nine blades for high efficiencies. EPLQN impellers shall have twelve blades for better sound quality. All impellers shall be statically and dynamically balanced on precision electronic balancers to a level of G6.3 (3.8 mm/s rms) or better.

**FINISH AND COATING** — Fan shall be constructed of corrosion resistant galvanized or finish painted steel. Aluminium components shall be unpainted.

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

**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. Each impeller shall be statically and dynamically balanced in accordance with ANSI/AMCA 204-96 "Balance Quality and Vibration Levels for Fans" to 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. Records shall be maintained and a written copy shall be available upon request.

**GUARANTEE** — The manufacturer shall guarantee the workmanship and materials for its EPLFN or EPLQN 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**



**A Twin City Fan Company**

**TWIN CITY FAN & BLOWER | [WWW.TCF.COM](http://WWW.TCF.COM)**

**5959 Trenton Lane N | Minneapolis, MN 55442 | Phone: 763-551-7600 | Fax: 763-551-7600**