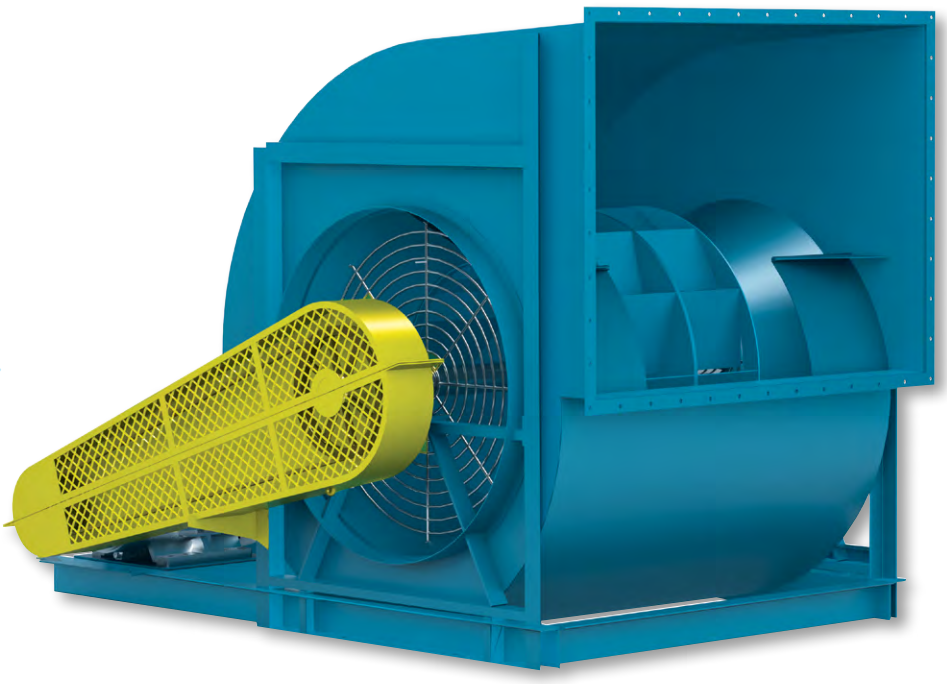
TCF

TWIN CITY FAN

INDUSTRIAL PROCESS AND
COMMERCIAL VENTILATION SYSTEMS

BACKWARD INCLINED FANS

BC-SW | BC-DW



BC DWDI
Arrangement 3

Models

BC SWSI & BC DWDI

This catalogue features Model BC non-overloading centrifugal fans in SWSI (single width, single inlet) and DWDI (double width, double inlet) design. BAE aerofoil fans offer a slightly higher efficiency and less noise than BC fans at a price premium of about 2%. However, the hollow aerofoil blades are more susceptible to erosion by particulate matter in the airstream than BC blades and thus Model BAE is recommended for clean air applications only. Both designs are a popular choice for the efficient handling of large volumes of relatively clean air at low to moderate pressures in applications such as:

- HVAC (heating, ventilating and air conditioning)
- Combustion air supply
- Filtration and drying systems
- Fume hood and spray booth and other exhaust systems
- Air pollution control (clean side of dust collectors)
- Industrial processes

Please discuss your particular application with the Twin City Fan & Blower representative for your area.

Twin City Fan & Blower has established itself as a leader in the design and manufacture of quality air moving equipment and continues to advance by implementing a philosophy that stresses quality in all of its operations. Our products are known for their rugged construction and reliability of operation. Twin City Fan & Blower offers flexibility in design and construction of fans coupled with superior service before and after the sale.

Refer to Catalogue 370 for Model BAE (aerofoil impeller) SWSI and DWDI fans.

Refer to Catalogue 600 for Ventilating Sets featuring Model BC (designated as BCV) and FC (FCV) fans in Arrangement 10.

Refer to Catalogue 370 for Model BAV (aerofoil impeller) ventilation sets in Arrangement 10.

Model BC SWSI & BC DWDI is available with UL/cUL 705 listing, for electrical, File No. E158680.

Twin City Fan & Blower certifies that the Model BC SWSI and BC DWDI 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 comply with the requirements of the AMCA Certified Ratings Program.

Refer to Catalogue 306 for sound power levels.

Model BC SWSI

Sizes

311 mm to 2,495 mm impeller diameters

Performance

Airflow to 130 m^3/sec
Static pressure to 4,972 Pa

Arrangements

Available in Arrangements 1, 3, 4, 8, 9, 9F, 10

Model BC DWDI

Sizes

311 mm to 2,495 mm impeller diameters

Performance

Airflow to 162 m^3/sec
Static pressure to 3,480 Pa

Arrangements

Available in Arrangements 3, 3F

Impeller Construction

Type BC impellers are constructed of steel using flat single thickness blades, solid welded to the rim and back plate. The inlet-side rim is designed as a proper companion for the inlet cone.

Note that the use of a conical spun shroud (rim) makes BC fans less susceptible to the performance losses associated with poor inlet conditions. All BC impellers are statically and dynamically balanced to grade G6.3 (3.8 mm/s rms peak or less) for smooth operation prior to being assembled in the fan, followed by final balance of the entire rotating assembly.

Housing Construction

All fan housings are continuously welded to provide strength and durability for extended service life — a necessity in all commercial and industrial installations.

All SWSI fans and DWDI Class III and IV fans feature an outlet flange for duct connection as standard. DWDI Class I and II fan outlets are designed for slip-on joint connection. A flanged outlet is available as an option. Inlet collars for slip-joint connections are standard on all SWSI fans. Lifting lugs are standard on all fans. All housings are reinforced with rigid bracing to increase structural integrity. The support angles are intermittently welded and caulked between welds to prevent bleed-through corrosion. Precisely positioned cut off plates and aerodynamically spun inlet cones provide high efficiency and smooth airflow through the fan.

All fans are available in standard discharge configuration (see page 8). SWSI fans Class I and II, sizes 270 and smaller in Arrangements 1, 4, 9 and 10 are field rotatable to any standard discharge position. To help reduce overall heights, all DWDI fans feature a non-rotatable housing design as standard.

Shaft

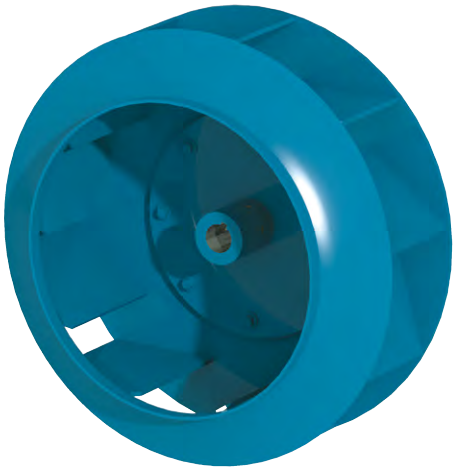
Shafts are AISI Grade 1040 or 1045 hot-rolled steel accurately turned, ground, polished, and ring gauged for accuracy. Shafts are generously sized for a first critical speed of at least 1.43 times the maximum speed for the class.

Bearings

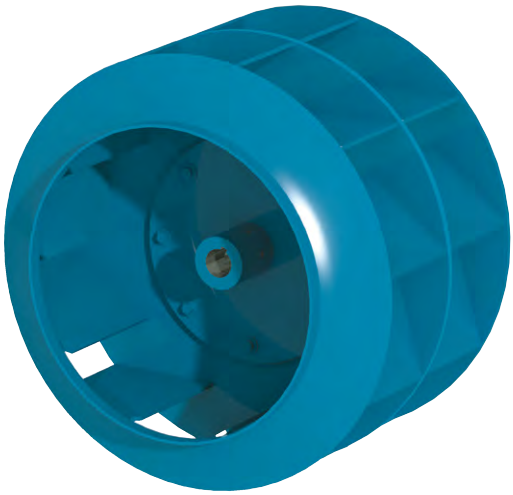
Bearings are heavy duty, grease lubricated, spherical roller or adapter mounted anti-friction ball, self-aligning, pillow block type, selected for minimum average bearing life L-10 in excess of 40,000 hours at the maximum fan RPM.

Mechanical Run Test & Final Vibration Check

All fans are assembled for a mechanical run test and final balance prior to shipment. Vibration readings are taken on both fan bearings in the axial, horizontal, and vertical directions at the specified speed. Fans are balanced to 3.8 mm/s rms peak or less.



BC SWSI Impeller



BC DWDI Impeller

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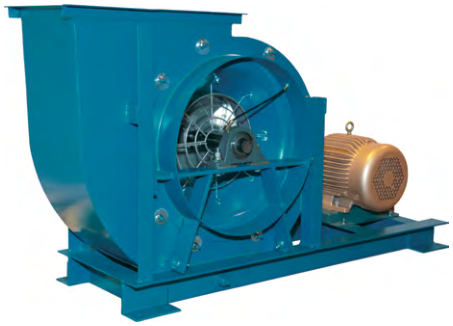
SWSI ARRANGEMENTS

Arrangement 1 fan with optional unitary base, horizontal split housing, shaft and V-belt drive guard.

Arrangement 1
SWSI — Single Width, Single Inlet

Arrangement 1 fans are usually belt driven. The impeller is overhung on the shaft, i.e., mounted at the end of the shaft. The motor can be mounted in any of the four AMCA standard motor positions, W, X, Y, or Z. The two fan bearings are mounted on the bearing pedestal, out of the airstream. Arrangement 1 fans are thus recommended for high temperature or contaminated air applications. Belt driven configurations offer performance flexibility. If the performance requirements change after the fan has been installed, it is simple and inexpensive to change the drive.

Extended lube line at inlet — standard on all Arrangement 3 fans.



Arrangement 3
SWSI — Single Width, Single Inlet

Arrangement 3 is available in belt driven only. Arrangement 3 SWSI has one bearing located in the airstream. The impeller is mounted between the bearings and supported by the fan housing, which makes it a structurally sound, compact, and economical arrangement.

Direct drive Arrangement 4 with bolted access door and shaft seal.

Arrangement 4
SWSI — Single Width, Single Inlet

Arrangement 4 is available in direct drive only. The fan impeller is mounted directly on the motor shaft with the motor mounted on a pedestal. An Arrangement 4 design offers low maintenance as there are no fan bearings, fan shaft or drive parts to maintain. Arrangement 4 is typically limited to size 365 or smaller.

Typical Direct Drive Speeds

60 Hz OPERATION		50 Hz OPERATION	
Synchronous Speed	Full Load Speed	Synchronous Speed	Full Load Speed
3600	3500	3000	2900
1800	1750	1500	1450
1200	1170	1000	975
900	870	750	725

The actual full load speed of the motor can vary slightly depending upon motor HP and motor design.

Arrangement 8 fan with optional coupling.

Arrangement 8
SWSI — Single Width, Single Inlet

Arrangement 8 is a modified version of Arrangement 1 used for direct drive. The Arrangement 1 bearing pedestal is extended to accommodate the motor. A flexible coupling connects the fan and motor shaft. Refer to the typical direct drive speeds under Arrangement 4.
Recommended for 185 kW and larger applications.

SWSI ARRANGEMENTS

Arrangement 9
SWSI — Single Width, Single Inlet

Arrangement 9 is available as belt driven only. A motor slide base is mounted on the side of the bearing pedestal. This arrangement permits the unit to ship as a complete assembly with the motor and drive mounted. Typically, the motor is mounted on the left side of the pedestal for CW rotation fans and on the right side for CCW rotation fans.

Fan shown is Arrangement 9 CW-THD with non-standard motor location on right-hand side.

Arrangement 9F
SWSI — Single Width, Single Inlet
(Not Shown)

Arrangement 9F is available when a unit requires a motor that is too large to mount on the side of the bearing pedestal. The fan base is extended to accommodate the motor, for horizontal mounting, similar to an Arrangement 1 fan. Typically, the motor is mounted on the left side of the pedestal for CW rotation fans and on the right side for CCW rotation fans. Arrangement 9F is not suitable for mounting vibration isolators directly under the fan.

Arrangement 10
SWSI — Single Width, Single Inlet

Arrangement 10 is available as belt driven only. For Class I and II fans, sizes 122 through 365, Arrangement 10 units are commonly referred to as Ventilating Sets. (Refer to Catalogue 600 for more details.) An Arrangement 10 unit has an adjustable motor base mounted inside the bearing pedestal. This arrangement offers a more compact design than the Arrangement 9 and is suitable for roof or outdoor installations with a weather cover.

Class II Arrangement 10 ventilating set with optional shaft cooler and insulated heat shield.

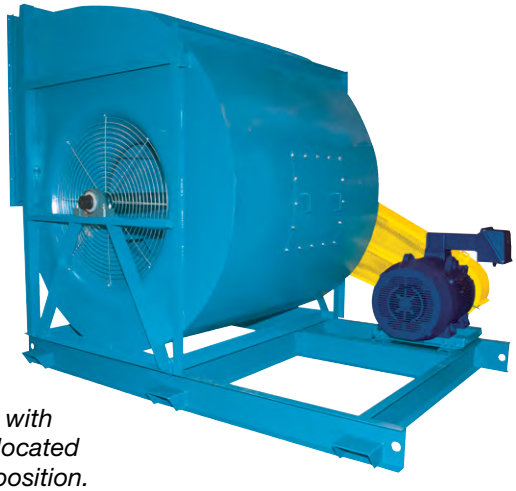
DWDI ARRANGEMENTS

Arrangement 3

DWDI fans are generally supplied in Arr. 3 for V-belt drive. The impeller is mounted between the bearings and supported by the fan housing. Since both bearings are located in the airstream, standard DWDI fans should be used for clean air applications with air temperatures limited to 54ºC. The motor can be mounted in any of the four standard motor positions: W, X, Y or Z.

Arrangement 3F

Arr. 3F offers an integral extended base to accommodate the motor. The base is pre-punched to accept vibration isolators. Arr. 3F is available to Size 660 and for motor positions W and Z as standard. For motor positions X and Y, consult factory.



Arr. 3F with motor located in “Z” position.

OPTIONAL CONSTRUCTION

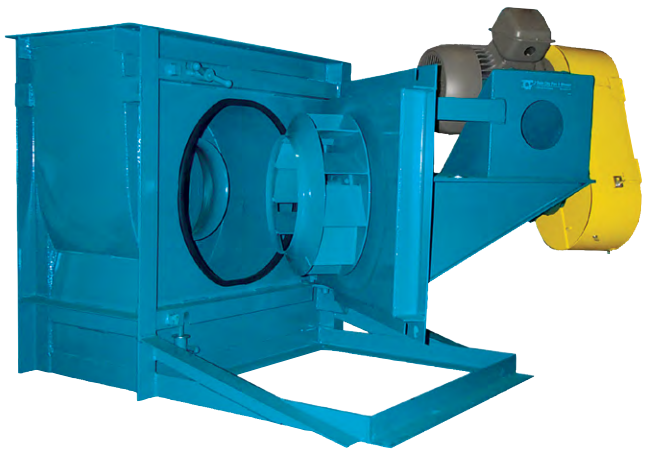
Split Housings

All fans are designed to permit impeller removal through the fan inlet. To suit installation as well as transportation requirements, Twin City Fan & Blower offers horizontal split, pie-shaped, as well as other special split housing designs. Pie-shaped split housings allow fan impeller and shaft removal without disconnecting ductwork.

Fan with pie-shaped split housing with bolted access door

Swingout Construction

Swingout fans are ideal for applications requiring frequent cleaning and inspection of the fan impeller and interior of the housing such as found in spray painting booth exhaust. Refer to Catalogue GA200 for other types of easy access fans offered by Twin City Fan & Blower.



Spark Resistant Construction

Fan applications may involve the handling of potentially explosive or flammable particles, fumes or vapours. Such applications require careful consideration by the system designer to insure the safe handling of such gases. Twin City Fan & Blower offers the following classifications of spark resistant construction per AMCA Standard 99-0401-86. It is the specifier or the user's responsibility to specify the type of spark resistant construction with full recognition of the potential hazards and the degree of protection required.

Type A — All parts of the fan in contact with the airstream must be made of non-ferrous material — usually aluminium and limited to 120°C operation.

Type B — The fan shall have a non-ferrous impeller and non-ferrous ring about the opening through which the shaft passes — usually aluminium impeller and anti-spark track and limited to 120°C construction.

Type C — The fan shall be so constructed that the shift of the impeller or shaft will not permit two ferrous parts of the fan to rub or strike. This is accomplished with an aluminium inlet cone and anti-spark track. This construction is limited to 250°C Construction to 425°C is available using a steel inlet cone with copper/bronze lining.

Notes:

1. Bearings shall be placed outside the airstream. Therefore, do not use Arrangement 3 or 7.
2. The user shall electrically earth all fan parts.Refer to the above listed AMCA standard for full details.

Special Metals

To suit the demanding applications of today's industry, Twin City Fan & Blower offers a variety of material for construction, including aluminium and stainless steel. We offer AWS and ASME certified welding procedures and welding technicians to assure quality construction when using special metals as well.

High Temperature Modifications

Construction

Standard fan design options are available to handle airstream temperatures to 425°C. Consult your Twin City Fan & Blower representative for applications over 425°C. The fan bearings should be kept outside of the hot airstream and below 54°C ambient. High temperature operating limits, available arrangements, and necessary modifications are shown in Table 1.

Shaft Cooler and Shaft Seal

Table 1. High Temperature Construction Requirements

TEMPERATURE (°C)	TYPE OF BEARING	LUBRICATION	OTHER REQUIREMENTS	AVAILABLE ARRANGEMENTS
–28°C to +148°C	Ball or Roller	Grease	Standard Fan	Arr. 1, 8, 9, 9F, 10 Arr. 3 and 3F to 54°C Arr. 4 to 82°C
148°C to 260°C	Ball or Roller with (1) Expansion Bearing	High Temp. Grease	Shaft Cooler, Shaft Seal. For Arr. 9 & 10 Fans, a Motor Heat Shield is Included.	Arr. 1, 8, 9, 9F, 10
260°C to 426°C	Ball or Roller with (1) Expansion Bearing	High Temp. Grease	High Temp. Aluminum Paint Shaft Cooler, Shaft Seal. For Arr. 9 & 10 Fans, a Motor Heat Shield is included.	Arr. 1, 8, 9, 9F, 10 (Arr. 9 & 10 Limited to 315°C)

Derating Factors For High Temperature

Fan operation at high temperature adversely affects the strength of fan impellers. As a result, the maximum safe speed must be derated by the factors shown in Table 2.

Example: Maximum safe speed at 315°C for a size 365 BC, SWSI, Class II steel impeller = 0.86 x 1283 = 1103 RPM (1283 RPM is maximum RPM at 21°C).

Table 2. Derating Factors For High Temperature

TEMPERATURE (°C)	STANDARD STEEL	STAINLESS STEEL
20	1.00	1.00
95	0.99	0.95
120	0.98	0.93
150	0.98	0.91
205	0.96	0.88
260	0.93	0.84
315	0.90	0.81
370	0.80	0.78
425	0.60	0.75
480	—	0.73
535	—	0.70

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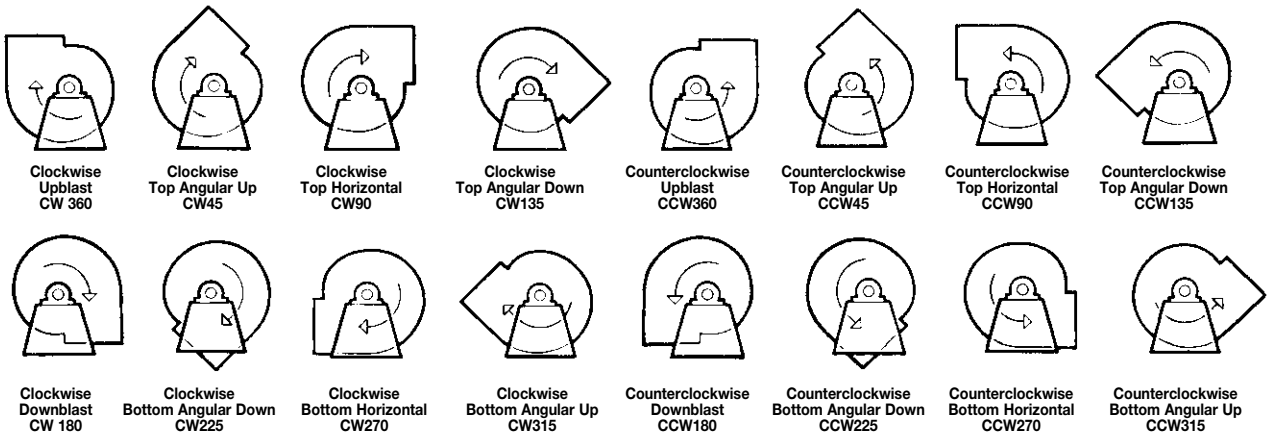
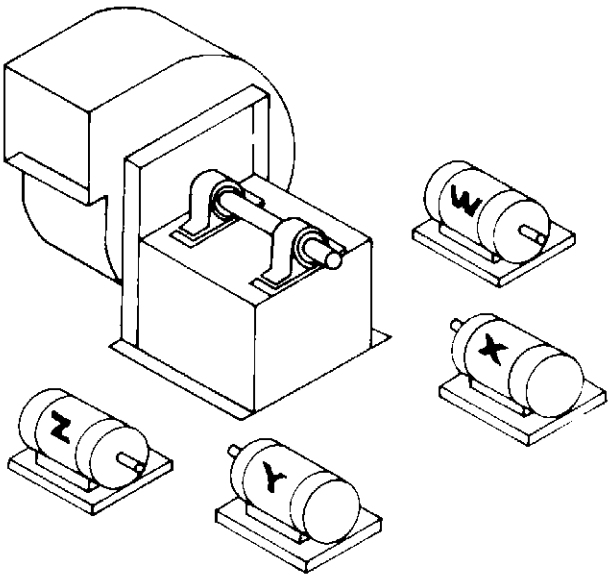
Designation for Rotation and Discharge



Direction of rotation is determined from drive side of the fan.
On single inlet fans, the drive side is always considered the side opposite the fan inlet.
On double inlet fans with drives on both sides, the drive side is that with the higher power drive unit.
The direction of discharge is determined in accordance with the diagrams shown above. The angle of discharge references the vertical axis of the fan and is designated in degrees above or below that reference axis.
On fans inverted for ceiling suspension or side-wall mounting, the discharge is determined when the fan is resting on the floor.

Motor Positions



The drawing above illustrates the AMCA motor position standards for Arrangement 1 and 3 fans (Arrangement 1 shown). The location of the motor is determined by facing the drive side of the fan and designating the motor position by letters W, X, Y, or Z, in accordance with the diagram shown above.

Volume Control Devices

Outlet dampers, variable inlet vanes, and variable frequency drives are three popular devices used to control volume for fan systems.

Variable Inlet Vanes

Variable inlet vanes cause the entering air to spin in the direction of impeller rotation, resulting in reduction in volume, static pressure and absorbed power and thus providing an infinite number of fan curves approximately parallel to the original fan curve. Variable inlet vanes cost about 50% to 80% more than outlet dampers but offer significant savings in energy. Because of their simplicity, inlet vanes can be more reliable when compared to variable frequency drives.

There are two types of variable inlet vanes: nested (internal type) and bolted on (external type).

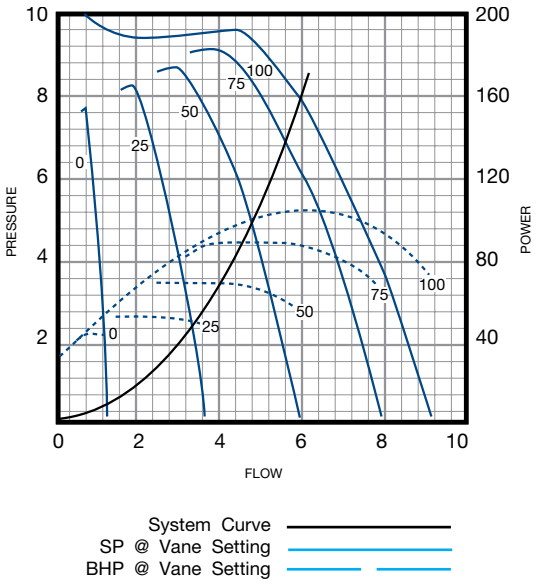
Nested inlet vanes are built into the fan inlet cone and offer the advantage of saving space and lower cost as opposed to the external type, and they may be provided on all fan sizes 165 and larger. Twin City Fan & Blower offers cantilevered vanes to size 730 Class II fans to minimize insertion losses and noise associated with centre hub design.

External inlet vanes are bolted to the inlet of the fan and are available as standard to size 150. Use of external vanes should be considered for hostile environments since operating linkages are shielded from the airstream. Both types of inlet vanes are available to 315°C construction.

Nested Inlet Vanes

External Inlet Vanes

Performance Curves at Different Vane Settings



Outlet Dampers

The closing of the damper adds to the resistance that the fan is working against. This moves the operating point to the left of the initial rating point. The savings in power depends on the relative position on the fan curve and is usually much less than offered by other methods. Outlet dampers are typically the least expensive option and should be considered when infrequent operation at lesser capacity is desired or when handling hot, humid or particulate laden air.

There are two types of outlet dampers: parallel blade and opposed blade.

Parallel blade dampers are recommended for systems where air volume is modulated between fully open to about 75% of open.

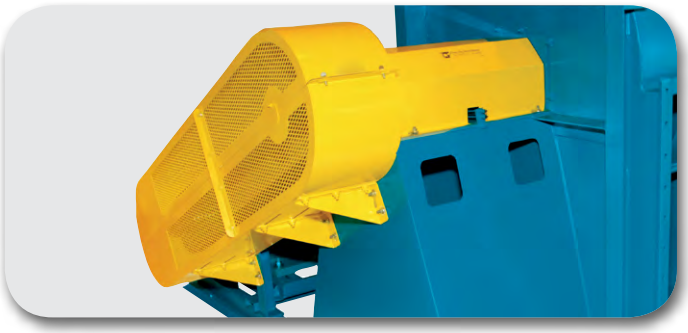
Opposed blade dampers cost about 10% more and are recommended for systems where volume is modulated over the entire range. Opposed blades reduce air volume in a closer relationship to the control arm movement.

Variable Frequency Drive (VFD) Fan Motors VFD changes the fan speed and can provide the greatest potential for energy savings, although at highest initial cost. VFD should be considered for extended operation at part load conditions, especially below 70% of the full volume operation.

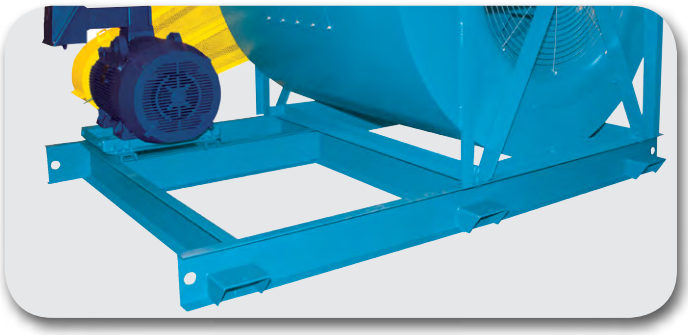
Parallel Blade Outlet Damper

Opposed Blade Outlet Damper

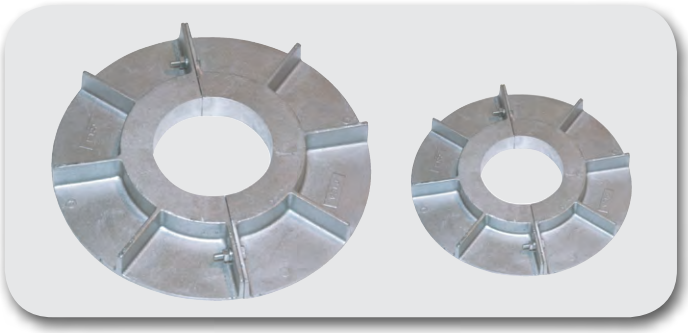
ACCESSORIES



Belt, Bearing and Shaft Guard



Unitiary Base



Shaft Coolers

Belt Guards

A belt guard protects personnel from the moving drive parts. Both standard and totally enclosed type guards are available.

Shaft and Bearing Guards (SWSI)

Solid sheet metal guards cover shaft and bearings and come with extended lube lines to a common point out either side of the guard. A guard spanning the shaft between the bearings is also available to provide easy access to bearings for lubrication and vibration monitoring.

Unitary Base

A structural steel base provides common support to fan, motor and drive including guards. This style of base is designed for use without isolators and requires adequate foundation integrity for proper operation.

Vibration Isolation Bases

Heavy structural base for fan, motor and drive is designed for use with spring or rubber-in-shear type isolators. Use of flexible connectors at inlet and outlet is required on fans with isolators.

V-Belt Drives

V-belt drives offer an economical yet flexible means of transmitting power to the fans. There are two types of V-belt drives.

- **Adjustable Pitch or Variable Speed Drives**
  An adjustable pitch drive offers easy adjustment of speed. The motor pulley pitch can be adjusted when the fan is at rest which can offer speed variation of about 10% from the design speed. This style of sheave can result in higher vibration so adjustable pitch drives are not recommended for use on motors over 7.5 kW or wherever low vibration is required.
- **Fixed Pitch or Constant Speed Drives**
  This type of drive offers low cost and lowest vibration levels. Speed change can often be accomplished by changing only one of the sheaves.

Bearing Upgrades

Unit roller or split pillow block, double row roller bearings are available. Split pillow block roller bearings are not available for fans with less than 35 mm diameter bearings and are not recommended for fans with light loadings. Refer to Fan Engineering Data FE-1200 and FE-1300 for the correct type of bearings, selection criteria, maintenance, etc.

Shaft Cooler or Heat Slinger

A cast aluminium shaft cooler is recommended to dissipate the heat and protect the fan bearings for all applications over 150°C. (Refer to picture on page 7.)

Special Paint & Protective Coatings

Twin City Fan & Blower has an in-house, specialty coating facility to handle any type of coating requirement. Refer to Engineering Supplement ES-35 for more details.

Access Doors

Bolted, quick opening, and raised bolted access doors are available for impeller inspection or maintenance.

Drain

Threaded pipe coupling welded to the lowest point in the housing scroll. All fans come with a drain hole in the bottom of the housing.

Shaft Seal

A shaft seal reduces leakage and protects the bearings from a contaminated airstream. It is constructed of non-asbestos woven fibrous materials (ceramic felt) compressed between an aluminium cover plate and the fan housing. A ceramic felt shaft seal does not make the fan air tight. A variety of special seals are available for low leakage applications requiring more positive protection, including mechanical type stuffing boxes. (The picture on page 7 shows a standard seal.)

Flanged Inlet

A punched inlet flange is available for duct mounting.

Flanged Outlet (DWDI Class I & II)

A punched or un-punched flange is welded to the fan outlet. An un-punched flanged outlet is standard on all SWSI and DWDI Class III and IV fans.

Inlet/Outlet Companion Flanges

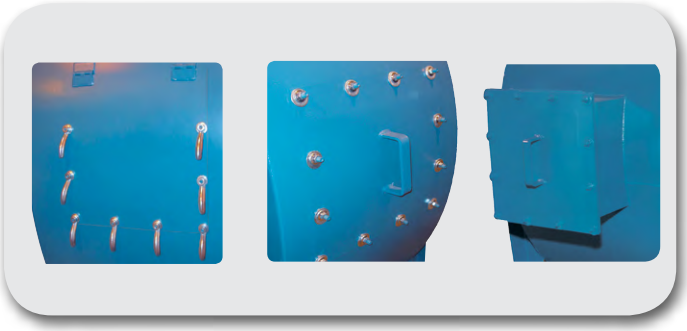
Companion flanges are used for installing the fan to flexible sleeve connections and are punched to match the fan's inlet or outlet.

Inlet and Outlet Screens

Safety screens are available for mounting in the fan inlet or outlet in non-ducted applications.

Other Accessories Available

- Variation in impeller diameter and width
- Inlet boxes
- Bearings RTD
- Piezometer ring airflow measuring system
- Consult factory for other accessories



Quick-Open Access Door | Bolted Access Door | Raised Bolted Access Door

Drain

Shaft Seal

Safety Screen

Companion Inlet Flange

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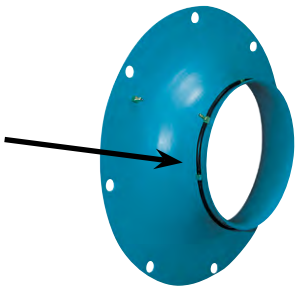
Piezometer Ring (Airflow Measuring System)

A piezometer ring is available on model BC fans, as well as other Twin City Fan housed and plenum 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.

Piezometer Ring Mounted at Throat of Inlet Cone



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.

Fan Selection Guidelines

The performance curves in this catalogue are based on fans handling standard air at a density of 1.2 kg/m^3. This is equivalent to air at 21°C at sea level (101.325 kPa barometric pressure). When specified performance is at a density different than standard, it must be converted to the equivalent standard conditions before the fan can be selected from the performance curves. The equivalent standard conditions can be calculated by using the Temperature and Altitude Density Ratios shown in the table below.

Table 3. Temperature and Altitude Density Ratios

AIR TEMP °C	ALTITUDE IN METRES ABOVE SEA LEVEL											
	0	300	600	900	1200	1500	1750	2000	2400	2800	3500	4500
	BAROMETRIC PRESSURE IN kPa											
	101.32	97.77	94.32	90.97	87.71	84.55	81.99	79.49	75.62	71.91	65.76	57.73
-40	1.258	1.214	1.171	1.129	1.089	1.050	1.018	0.987	0.939	0.893	0.816	0.717
-20	1.158	1.117	1.078	1.040	1.002	0.966	0.937	0.909	0.864	0.822	0.752	0.660
10	1.035	0.999	0.963	0.929	0.896	0.864	0.838	0.812	0.772	0.735	0.672	0.590
20	1.000	0.965	0.931	0.898	0.866	0.835	0.809	0.785	0.746	0.710	0.649	0.570
40	0.936	0.903	0.871	0.840	0.810	0.781	0.757	0.734	0.699	0.664	0.608	0.533
65	0.867	0.837	0.807	0.778	0.751	0.724	0.702	0.680	0.647	0.615	0.563	0.494
100	0.786	0.758	0.732	0.706	0.680	0.656	0.636	0.617	0.587	0.558	0.510	0.448
125	0.736	0.710	0.685	0.661	0.637	0.614	0.596	0.577	0.549	0.522	0.478	0.419
150	0.693	0.669	0.645	0.622	0.600	0.578	0.561	0.544	0.517	0.492	0.450	0.395
175	0.654	0.631	0.609	0.587	0.566	0.546	0.529	0.513	0.488	0.464	0.424	0.373
200	0.619	0.597	0.576	0.556	0.536	0.517	0.501	0.486	0.462	0.439	0.402	0.353
225	0.588	0.567	0.547	0.528	0.509	0.491	0.476	0.461	0.439	0.417	0.382	0.335
250	0.560	0.540	0.521	0.503	0.485	0.467	0.453	0.439	0.418	0.397	0.363	0.319
275	0.535	0.516	0.498	0.480	0.463	0.446	0.433	0.420	0.399	0.380	0.347	0.305
300	0.511	0.493	0.476	0.459	0.442	0.426	0.414	0.401	0.381	0.363	0.332	0.291
350	0.470	0.454	0.438	0.422	0.407	0.392	0.380	0.369	0.351	0.334	0.305	0.268
375	0.452	0.436	0.421	0.406	0.391	0.377	0.366	0.355	0.337	0.321	0.293	0.258
400	0.435	0.420	0.405	0.391	0.377	0.363	0.352	0.341	0.325	0.309	0.282	0.248
425	0.420	0.405	0.391	0.377	0.364	0.350	0.340	0.330	0.313	0.298	0.273	0.239
450	0.405	0.391	0.377	0.364	0.351	0.338	0.328	0.318	0.302	0.287	0.263	0.231
500	0.379	0.366	0.353	0.340	0.328	0.316	0.307	0.297	0.283	0.269	0.246	0.216
550	0.356	0.344	0.331	0.320	0.308	0.297	0.288	0.279	0.266	0.253	0.231	0.203
600	0.336	0.324	0.313	0.302	0.291	0.280	0.272	0.264	0.251	0.238	0.218	0.191

Example

Assume a 365 BC SWSI fan to handle 7.3 m^3/sec, 625 Pa SP, at 150°C and 900 m altitude.

1. For the operating conditions of 150°C and 900 m altitude, the factor can be found in Table 3 to be 0.622.
2. Divide the operating SP by this factor. Thus, 625 Pa ÷ 0.622 = 1005 Pa SP, which is the equivalent static pressure at standard air density.
3. From the 365 BC SWSI performance curve find the fan RPM and absorbed power for 7.3 m^3/sec and 1005 Pa SP to be 893 RPM and 9.6 kW (by interpolation) at standard conditions. 9.6 kW is also referred to as “cold” or “starting” absorbed power.

To determine the absorbed power at operating conditions, multiply the absorbed power at standard conditions by the factor from Table 3 (9.6 x 0.622 = 6.0 kW). The absorbed power at operating conditions is 6.0 kW.

Maximum RPM, Impeller Weights & WR^2 (moment of inertia in $kg\text{-}m^2$)

BC SWSI

FAN SIZE	CLASS I			CLASS II			CLASS III			CLASS IV		
	MAX. RPM	IMPELLER WEIGHT (kg)	WR^2 ($kg\text{-}m^2$)	MAX. RPM	IMPELLER WEIGHT (kg)	WR^2 ($kg\text{-}m^2$)	MAX. RPM	IMPELLER WEIGHT (kg)	WR^2 ($kg\text{-}m^2$)	MAX. RPM	IMPELLER WEIGHT (kg)	WR^2 ($kg\text{-}m^2$)
122	3167	6.8	0.07	4119	6.8	0.07	5208	10	0.1	5608	11.4	0.11
135	2874	7.7	0.1	3738	8.2	0.11	4726	12.3	0.16	5099	12.7	0.16
150	2587	9.1	0.16	3364	9.5	0.17	4253	14.1	0.24	4580	15.0	0.24
165	2352	10.9	0.24	3058	12.7	0.29	3867	17.3	0.35	4167	16.8	0.35
182	2118	14.1	0.37	2729	17.7	0.46	3473	24.1	0.59	3766	24.1	0.59
200	1932	17.3	0.53	2490	22.3	0.73	3169	28.6	0.83	3442	34.1	1.1
222	1737	30.0	1.0	2238	33.6	1.2	2848	38.6	1.3	3088	44.5	1.7
245	1577	36.8	1.6	2033	39.5	1.8	2587	50.0	2.1	2808	59.1	2.8
270	1397	42.7	2.4	1803	46.8	2.7	2287	60.0	3.3	2544	69.1	4.1
300	1257	51.4	3.7	1623	56.8	4.3	2059	78.2	5.9	2291	78.2	5.7
330	1143	68.6	6.3	1475	75.9	6.7	1871	97.7	9.3	2081	93.2	8.4
365	995	90.0	10.3	1283	97.3	11.0	1727	124	12.1	1883	115	12.5
402	903	111	15.2	1163	115	16.1	1566	137	18.4	1706	135	18.4
445	817	155	23.9	1052	178	29.2	1416	187	28.7	1545	203	32.7
490	742	179	34.4	956	207	42.2	1286	217	41.5	1401	250	50.4
542	670	210	50.9	863	246	58.7	1162	275	66.2	1260	332	84.0
600	606	270	82.3	780	292	87.1	1050	360	112	1146	412	132
660	551	390	127	710	443	153	955	485	170	1040	568	209
730	498	521	225	641	519	225	863	579	260	940	712	325
807	450	632	347	580	666	369	780	778	439	851	900	522
890	408	865	567	526	867	567	708	1081	732	772	1218	851
982	370	1020	825	477	1026	826	641	1262	1109	CONSULT FACTORY		

BC DWDI

FAN SIZE	CLASS I			CLASS II			CLASS III			CLASS IV		
	MAX. RPM	IMPELLER WEIGHT (kg)	WR^2 ($kg\text{-}m^2$)	MAX. RPM	IMPELLER WEIGHT (kg)	WR^2 ($kg\text{-}m^2$)	MAX. RPM	IMPELLER WEIGHT (kg)	WR^2 ($kg\text{-}m^2$)	MAX. RPM	IMPELLER WEIGHT (kg)	WR^2 ($kg\text{-}m^2$)
122	3196	9.3	0.11	4168	10.0	0.11	CONSULT FACTORY*			CONSULT FACTORY*		
135	2904	10.8	0.16	3787	14.9	0.19						
150	2594	13.5	0.25	3383	17.1	0.29						
165	2358	16.9	0.39	3075	21.6	0.48						
182	2149	24.2	0.6	2776	27.1	0.72	3504	36.2	0.97	3766	40.0	0.99
200	1961	27.6	0.86	2533	41.5	1.22	3197	45.5	1.4	3442	55.5	1.8
222	1762	38.9	1.48	2277	49.1	1.9	2874	60.9	2.2	3088	74.1	2.8
245	1601	54.1	2.5	2068	59.1	2.9	2610	74.5	3.4	2808	98.6	4.6
270	1392	63.6	3.8	1830	78.2	4.6	2267	93.2	5.4	2544	115	7.2
300	1253	78.2	6.1	1647	94.5	7.2	2040	126	9.9	2290	135	9.9
330	1139	115	10.6	1497	125	11.4	1855	158	15.9	2081	154	14.5
365	1015	143	16.7	1302	155	18.0	1651	201	24.5	1883	181	21.5
402	920	168	24.7	1181	183	26.4	1497	209	31.6	1706	220	31.7
445	832	254	38.5	1068	298	49.1	1354	289	48.5	1545	330	56.7
490	748	292	55.7	966	347	71.2	1222	331	70.5	1401	397	85.4
542	676	338	82.6	872	372	99.6	1104	418	110	1260	499	136
600	611	415	129	789	437	148	998	560	190	1146	633	218
660	555	543	196	717	645	262	907	730	285	1040	872	349
730	502	790	388	648	796	388	820	868	422	940	1055	551
807	459	990	604	589	1035	626	746	1240	777	851	1387	898
890	416	1402	948	534	1382	947	677	1648	1231	772	1795	1406
982	377	1627	1389	484	1604	1389	CONSULT FACTORY			CONSULT FACTORY		

* Operating speeds above 4000 RPM are not recommended. Consult factory.

BC SWSI Class I

FAN SIZE	HOUSING		SHAFT DIAMETER & BEARINGS				BARE FAN WEIGHT (kg)		
	SIDES (mm)	SCROLL (mm)	ARR 1 & 9		ARR 3				
			SHAFT DIA.	BEARING TYPE	SHAFT DIA.	BEARING TYPE	ARR 1	ARR 3	ARR 9
122	2	2	25	B	25	B	54	45	56
135	2	2	25	B	25	B	61	55	65
150	2	2	25	B	25	B	74	65	78
165	2	2	25	B	25	B	87	87	91
182	2	2	30	B	30	B	111	96	117
200	2	2	38	B	38	B	135	109	141
222	3	2	38	B	38	B	176	126	185
245	3	2	38	B	38	B	212	154	223
270	3	2	45	B	38	B	256	190	269
300	3	3	50	B	45	B	308	284	324
330	3	3	50	B	45	B	372	400	391
365	3	3	50	B	50	B	459	431	481
402	3	3	55	B	50	B	609	550	639
445	3	3	65	B	50	B	715	695	751
490	3	3	70	B	55	R	834	770	875
542	3	3	75	B	65	R	1197	995	1257
600	3	3	75	B	75	R	1420	1373	1491
660	3	3	90	R	75	R	1821	1750	1912
730	3	3	90	R	90	R	2255	2077	2368
807	3	3	100	R	100	R	2280	2386	2394
890	5	3	100	R	100	R	3105	2864	3260
982	5	5	125	SR	125	SR	4049	3359	4251

Bearing Types: B = Ball Bearing R = Unit Roller Bearings SR = Split Pillow Block Roller Bearings

BC SWSI Class II

FAN SIZE	HOUSING		SHAFT DIAMETER & BEARINGS				BARE FAN WEIGHT (kg)		
	SIDES (mm)	SCROLL (mm)	ARR 1 & 9		ARR 3				
			SHAFT DIA.	BEARING TYPE	SHAFT DIA.	BEARING TYPE	ARR 1	ARR 3	ARR 9
122	2	2	25	B	25	B	56	50	59
135	2	2	25	B	25	B	64	60	67
150	2	2	30	B	30	B	79	71	83
165	2	2	30	B	30	B	92	96	97
182	2	2	38	B	38	B	119	105	125
200	2	2	38	B	38	B	140	120	146
222	3	2	38	B	38	B	180	139	189
245	3	2	45	B	45	B	222	169	233
270	3	2	45	B	45	B	262	210	275
300	3	3	50	B	50	B	315	312	331
330	3	3	55	B	55	B	389	440	408
365	3	3	65	B	65	B	491	474	515
402	3	3	65	R	65	B	634	605	666
445	3	3	70	R	70	R	745	765	783
490	3	3	75	R	70	R	870	848	913
542	3	3	90	R	75	R	1255	1095	1318
600	3	3	90	R	90	R	1471	1510	1545
660	3	3	100	R	100	R	1911	1925	2007
730	3	3	100	R	100	R	2333	2285	2450
807	3	3	115	SR	115	SR	2381	2625	2500
890	5	3	125	SR	125	SR	3271	3150	3435
982	5	5	eng	SR	eng	SR	4154	3695	4361

Bearing Types: B = Ball Bearing R = Unit Roller Bearings SR = Split Pillow Block Roller Bearings

BC SWSI Class III

FAN SIZE	HOUSING		SHAFT DIAMETER & BEARINGS				BARE FAN WEIGHT (kg)		
	SIDES (mm)	SCROLL (mm)	ARR 1 & 9		ARR 3				
			SHAFT DIA.	BEARING TYPE	SHAFT DIA.	BEARING TYPE	ARR 1	ARR 3	ARR 9
122	3	3	38	B	38	B	63	89	66
135	3	3	38	B	38	B	72	101	76
150	3	3	45	B	45	B	90	125	95
165	3	3	45	B	45	B	102	165	107
182	3	3	45	B	45	B	133	179	140
200	3	3	50	B	45	B	156	197	164
222	3	3	50	B	50	R	201	217	211
245	5	5	55	B	50	R	282	245	296
270	5	5	55	B	50	R	336	290	353
300	5	5	65	R	55	R	432	468	453
330	5	5	70	R	65	R	526	476	552
365	5	5	70	R	65	R	630	658	662
402	5	5	75	R	70	R	781	820	820
445	5	5	90	R	75	R	960	1017	1008
490	5	5	90	R	75	R	1126	1156	1183
542	5	5	100	R	90	R	1595	1475	1675
600	5	5	115	SR	100	R	2013	2017	2114
660	5	5	115	SR	100	R	2401	2692	2521
730	5	5	125	SR	115	SR	2893	3146	3038
807	5	5	125	SR	125	SR	2898	3630	3043
890	5	5	enq	SR	enq	SR	3483	4325	3657

Bearing Types: B = Ball Bearing R = Unit Roller Bearings SR = Split Pillow Block Roller Bearings

BC SWSI Class IV

FAN SIZE	HOUSING		SHAFT DIAMETER & BEARINGS				BARE FAN WEIGHT (kg)		
	SIDES (mm)	SCROLL (mm)	ARR 1 & 9		ARR 3				
			SHAFT DIA.	BEARING TYPE	SHAFT DIA.	BEARING TYPE	ARR 1	ARR 3	ARR 9
122	5	5	45	B	45	B	80	95	84
135	5	5	45	B	45	B	92	113	96
150	5	5	45	B	45	B	107	140	113
165	5	5	50	B	45	R	127	184	133
182	5	5	50	B	45	R	173	199	182
200	5	5	55	R	50	R	213	219	224
222	5	5	55	R	50	R	265	241	278
245	5	5	65	R	55	R	317	272	333
270	5	5	65	R	55	R	389	323	408
300	5	5	70	R	65	R	490	520	515
330	6	6	75	R	70	R	669	707	703
365	6	6	90	R	75	R	865	732	908
402	6	6	90	R	75	R	1064	912	1117
445	6	6	100	R	90	R	1330	1130	1396
490	6	6	100	R	90	R	1535	1284	1611
542	6	6	115	SR	100	R	1996	1640	2096
600	6	6	125	SR	115	SR	2410	2241	2530
660	6	6	125	SR	115	SR	2905	2991	3051
730	6	6	enq	SR	125	SR	3579	3495	3758
807	6	6	enq	SR	enq	SR	3525	4034	3701
890	6	6	enq	SR	enq	SR	4181	4806	4390

Bearing Types: B = Ball Bearing R = Unit Roller Bearings SR = Split Pillow Block Roller Bearings

BC DWDI Class I & II

FAN SIZE	HOUSING		SHAFT DIAMETER & BEARINGS						BARE FAN WEIGHT (kg)			
			CLASS I			CLASS II			ARR. 3		ARR. 3F	
	SIDES (mm)	SCROLL (mm)	SHAFT DIAMETER @ BRG.	SHAFT DIAMETER @ IMP	BEARING TYPE	SHAFT DIAMETER @ BRG.	SHAFT DIAMETER @ IMP	BEARING TYPE	CLASS I	CLASS II	CLASS I	CLASS II
122	2	2	30	30	B	38	38	B	63	70	82	90
135	2	2	30	30	B	45	45	B	72	79	94	103
150	2	2	38	38	B	45	45	B	88	96	114	125
165	2	2	38	38	B	50	50	B	101	111	131	144
182	3	2	45	45	B	50	50	B	113	124	146	161
200	3	2	45	45	B	55	55	B	156	172	203	223
222	3	2	50	50	B	65	65	B	205	225	266	293
245	3	2	55	55	B	65	65	B	231	255	301	331
270	3	2	55	55	B	70	70	R	290	320	378	415
300	3	3	65	65	B	70	75	R	407	448	529	582
330	3	3	65	65	B	70	90	R	461	508	600	660
365	3	3	70	70	B	70	90	R	615	676	799	879
402	3	3	70	75	R	70	90	R	768	845	999	1099
445	3	3	70	90	R	75	100	R	955	1050	1241	1365
490	3	3	70	90	R	90	100	R	1050	1155	1365	1501
542	3	3	75	100	R	90	115	R	1339	1473	1741	1915
600	3	3	90	115	R	100	125	R	1886	2075	—	—
660	3	3	90	115	R	100	125	R	2409	2650	—	—
730	3	3	100	125	R	100	enq	R	2773	3050	—	—
807	3	3	100	enq	R	115	enq	SR	3445	3790	—	—
890	5	3	115	enq	R	115	enq	SR	4136	4550	—	—
982	5	5	125	enq	SR	enq	enq	SR	5024	5526	—	—

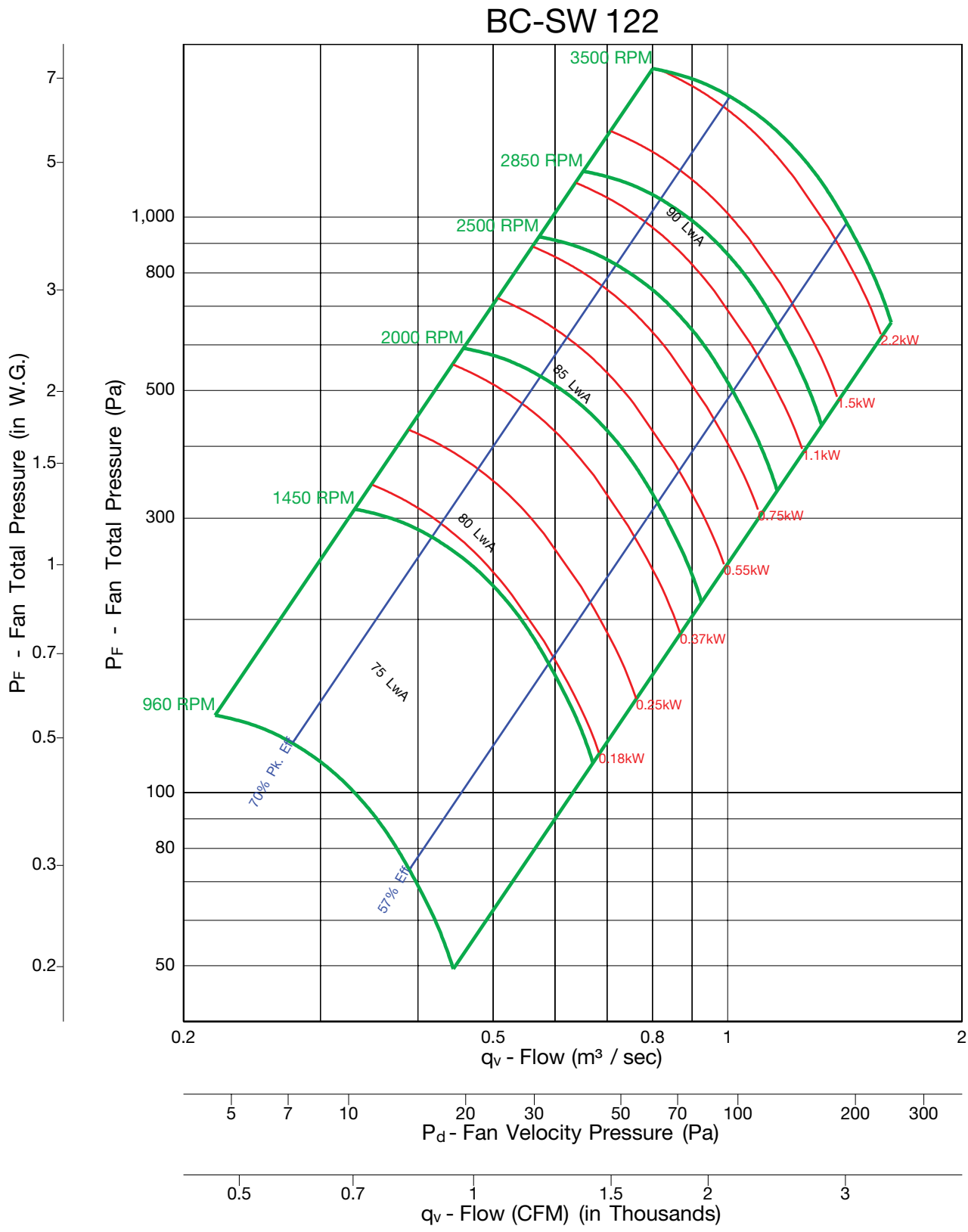
Bearing Types: B = Ball Bearing R = Unit Roller Bearings SR = Split Pillow Block Roller Bearings

BC DWDI Class III & IV

FAN SIZE	HOUSING (mm)				SHAFT DIAMETER & BEARINGS						BARE FAN WEIGHT (kg)	
	CLASS III		CLASS IV		CLASS III			CLASS IV			ARR. 3	
	SIDES	SCROLL	SIDES	SCROLL	SHAFT DIAMETER @ BRG.	SHAFT DIAMETER @ IMP	BEARING TYPE	SHAFT DIAMETER @ BRG.	SHAFT DIAMETER @ IMP	BEARING TYPE	CLASS III	CLASS IV
122 135 150 165	CONSULT FACTORY		CONSULT FACTORY		CONSULT FACTORY			CONSULT FACTORY			CONSULT FACTORY	
182	3	3	5	5	55	55	R	65	65	R	211	235
200	3	3	5	5	65	65	R	55	75	SR	285	317
222	3	3	5	5	65	65	R	65	90	SR	364	405
245	5	5	5	5	65	75	R	70	100	SR	402	446
270	5	5	5	5	70	90	R	75	100	SR	491	545
300	5	5	5	5	70	90	R	75	115	SR	670	744
330	5	5	6	6	75	90	R	90	125	SR	739	821
365	5	5	6	6	75	100	R	90	125	SR	929	1032
402	5	5	6	6	90	100	R	100	enq	SR	1161	1290
445	5	5	6	6	90	115	R	100	enq	SR	1443	1604
490	5	5	6	6	100	125	R	115	enq	SR	1578	1754
542	5	5	6	6	100	enq	R	115	enq	SR	2000	2223
600	5	5	6	6	115	enq	SR	125	enq	SR	2813	3126
660	5	5	6	6	125	enq	SR	enq	enq	SR	3685	4095
730	5	5	6	6	125	enq	SR	enq	enq	SR	4242	4714
807	5	5	6	6	—	—	SR	—	—	SR	5271	5857
890	5	5	6	6	—	—	SR	—	—	SR	6328	7032
982	5	5	6	6	—	—	—	—	—	—	—	—

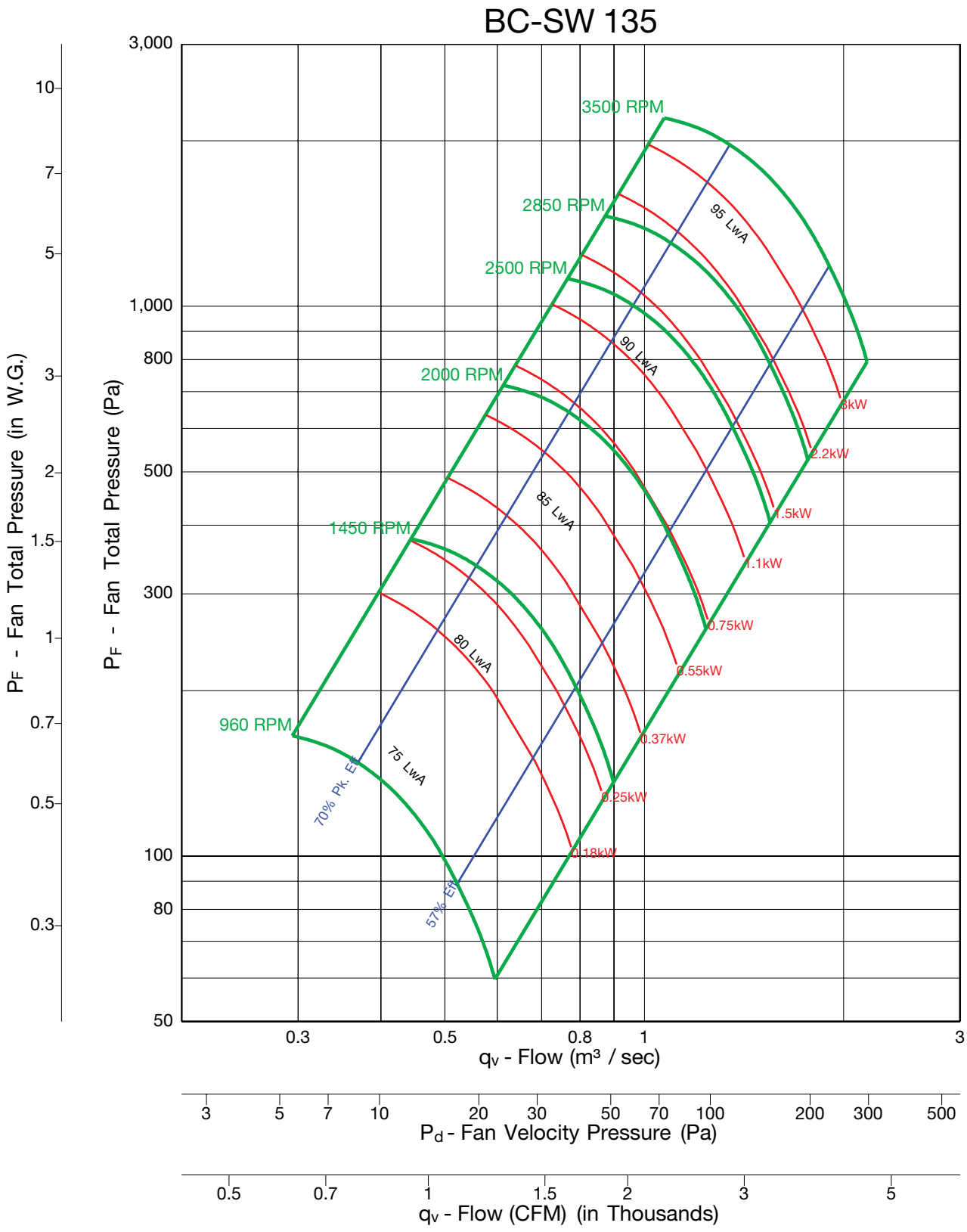
Bearing Types: B = Ball Bearing R = Unit Roller Bearings SR = Split Pillow Block Roller Bearings

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.



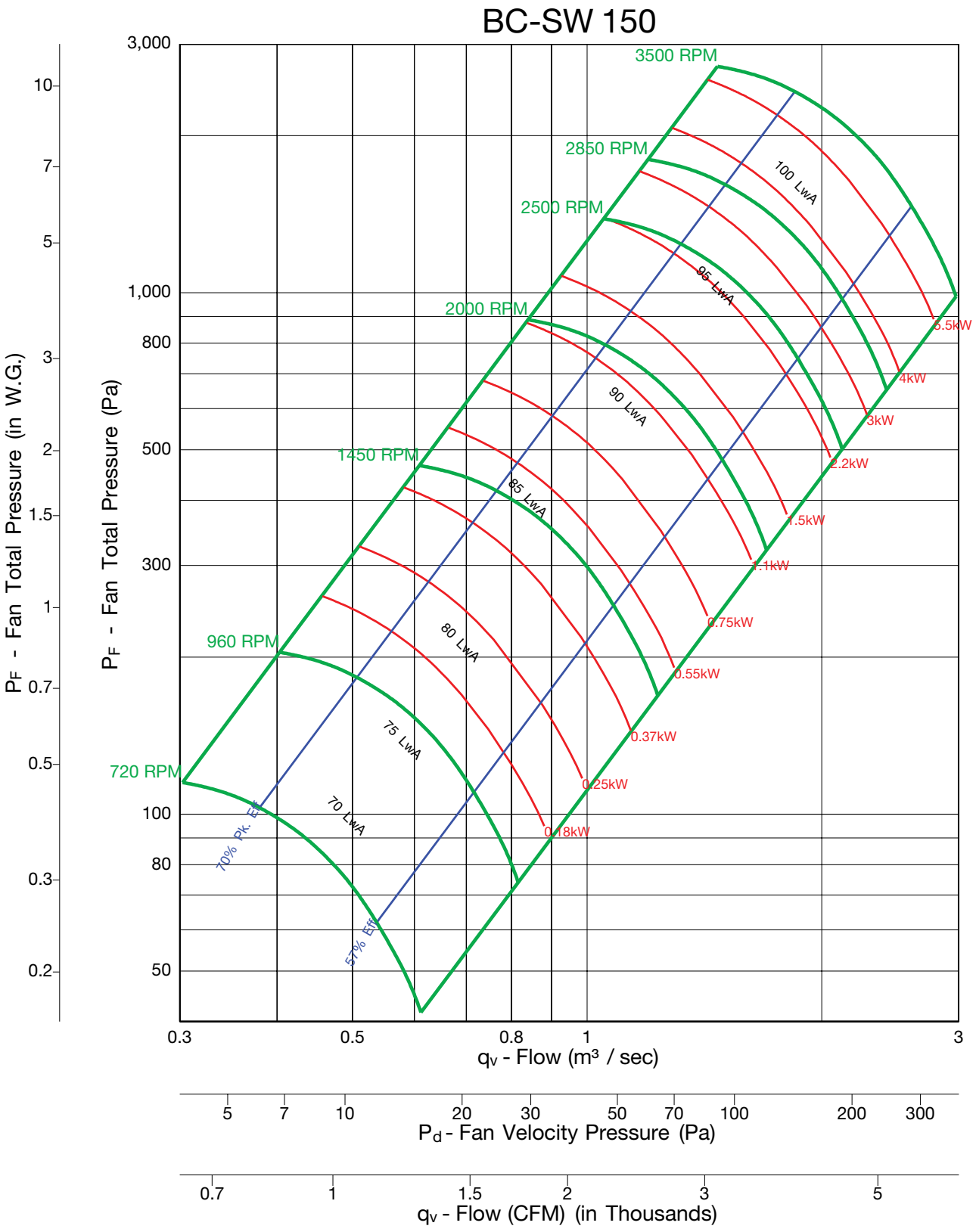
Fan Efficiency Grade = FEG 80

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



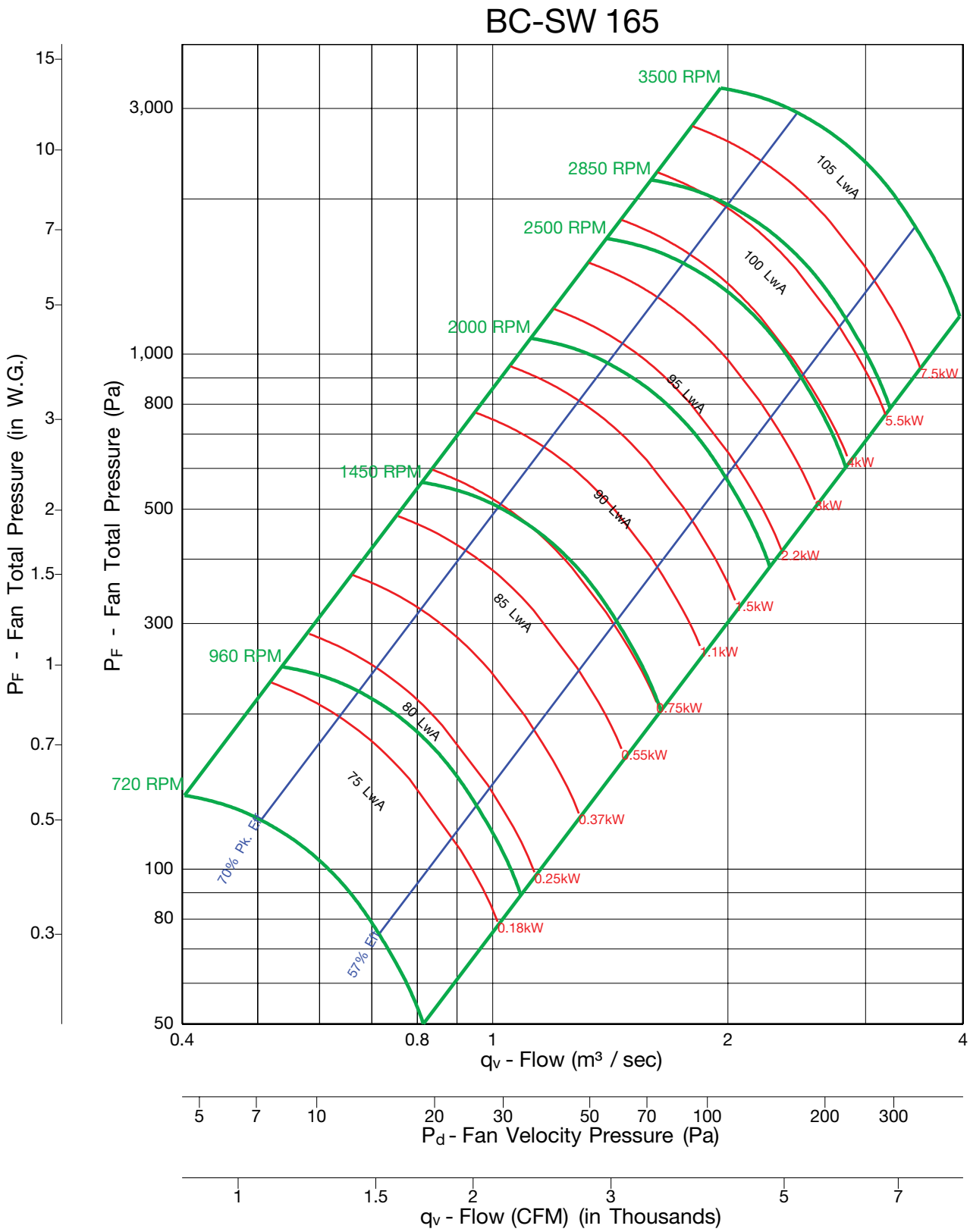
Fan Efficiency Grade = FEG 80

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



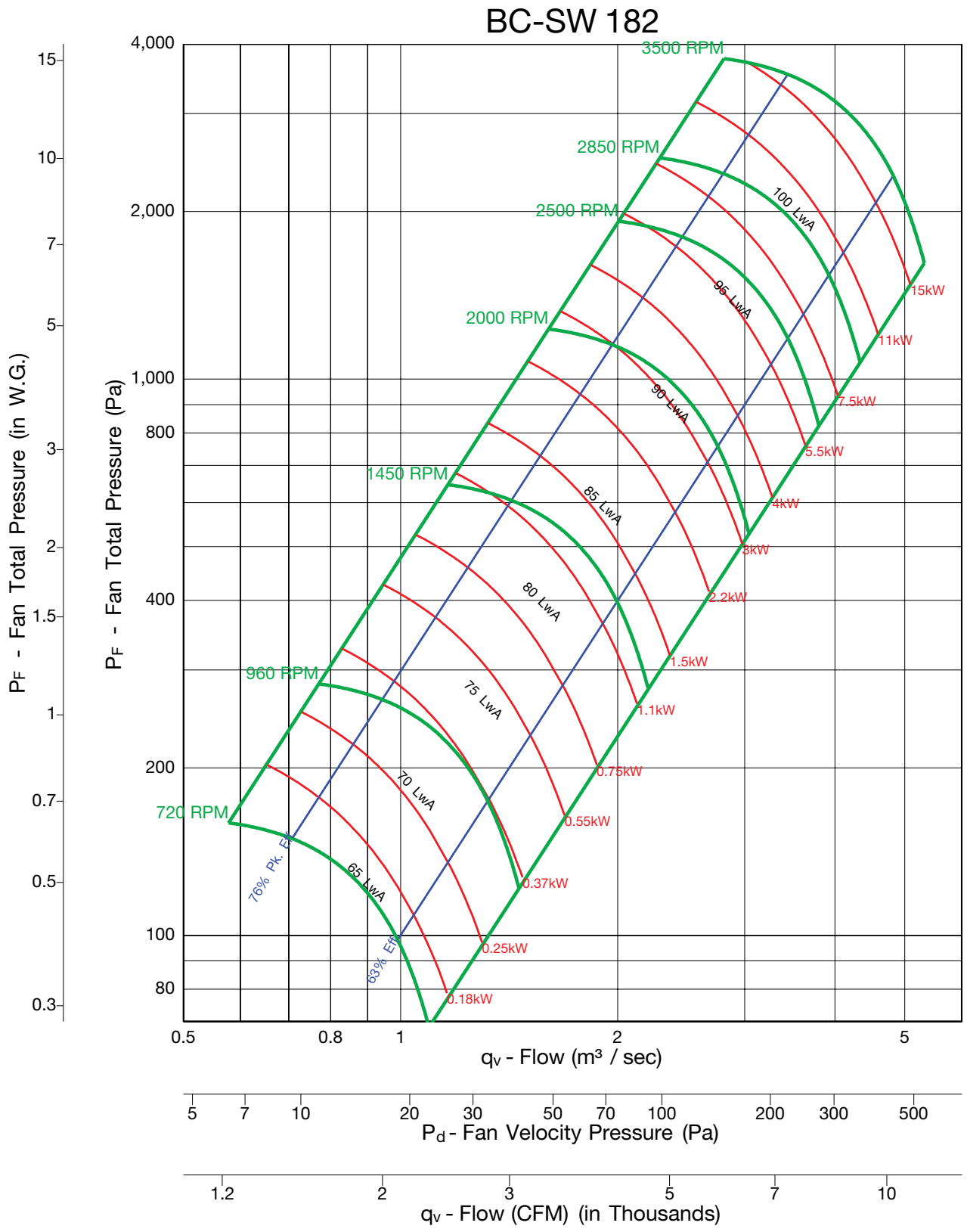
Fan Efficiency Grade = FEG 75

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



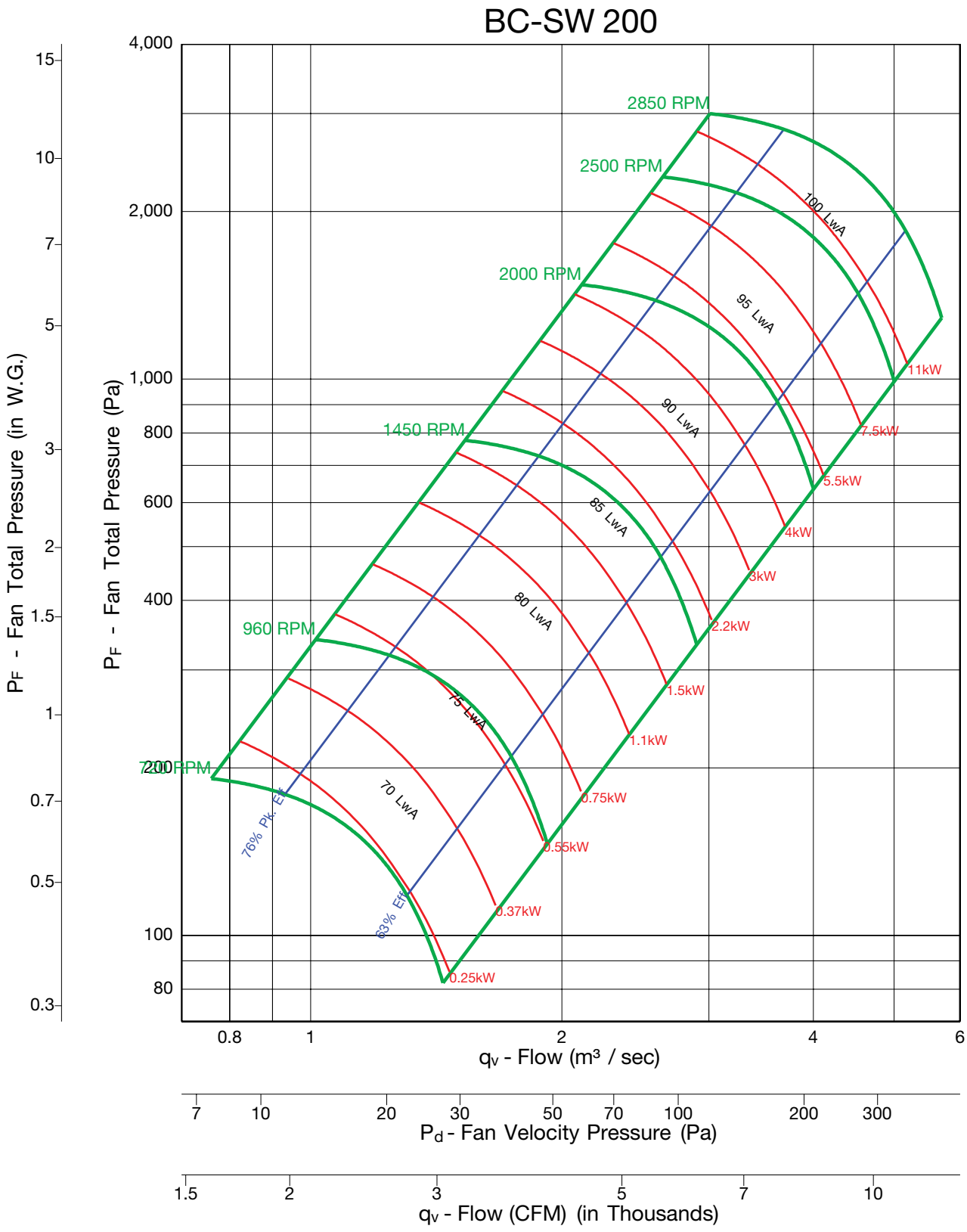
Fan Efficiency Grade = FEG 75

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



Fan Efficiency Grade = FEG 80

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



Fan Efficiency Grade = FEG 80

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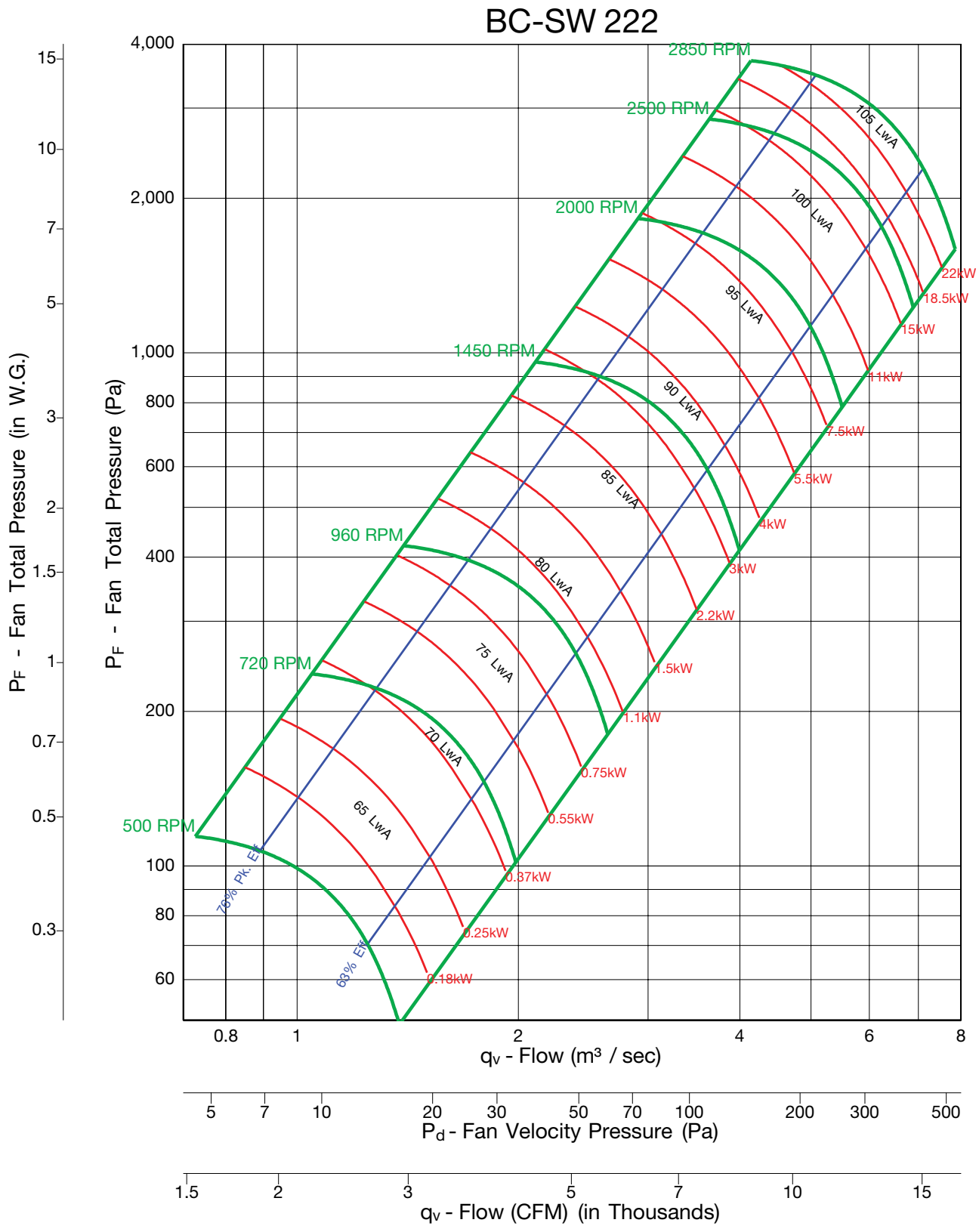
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.



Fan Efficiency Grade = FEG 80

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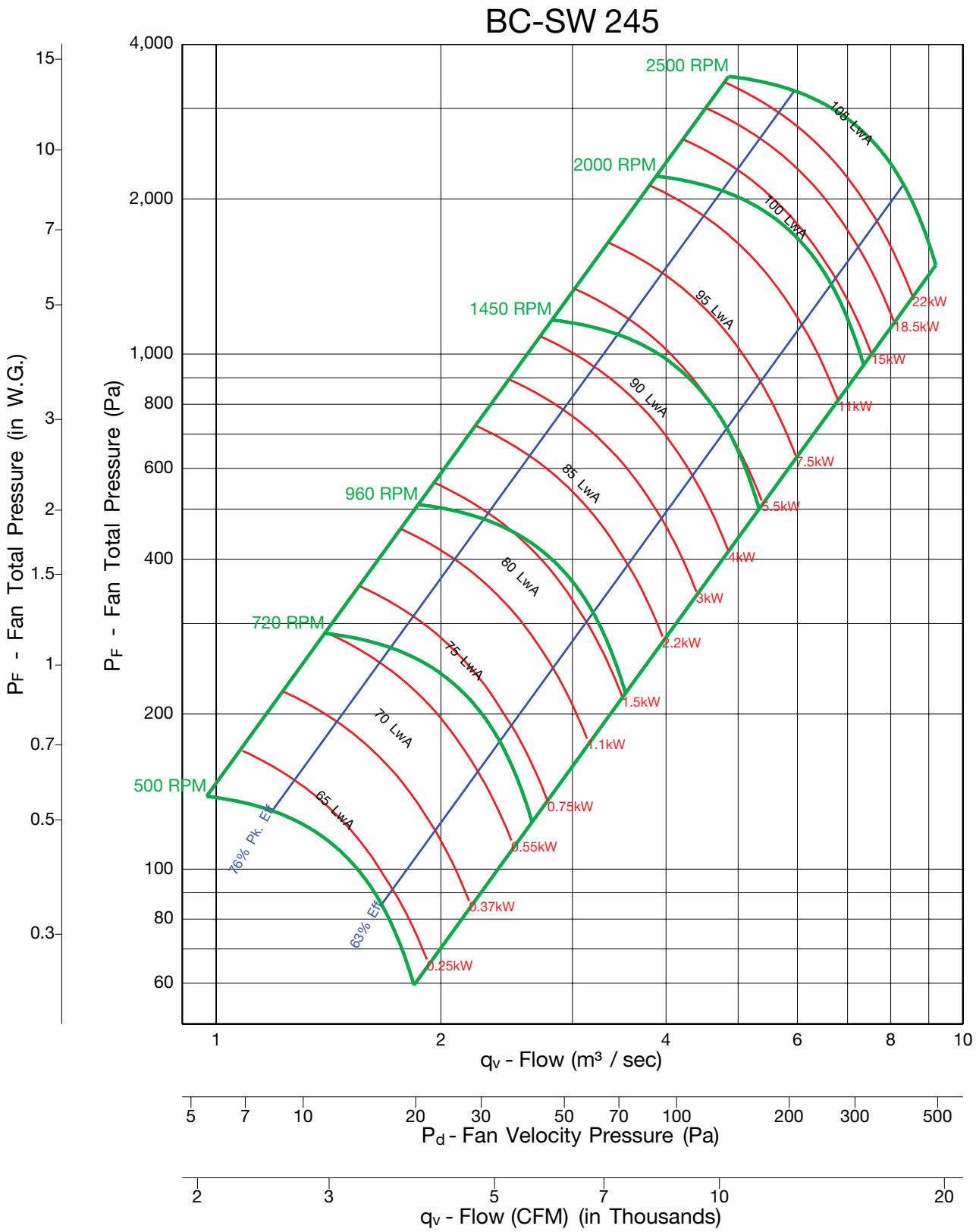

Fan Efficiency Grade = FEG 80

Notes:
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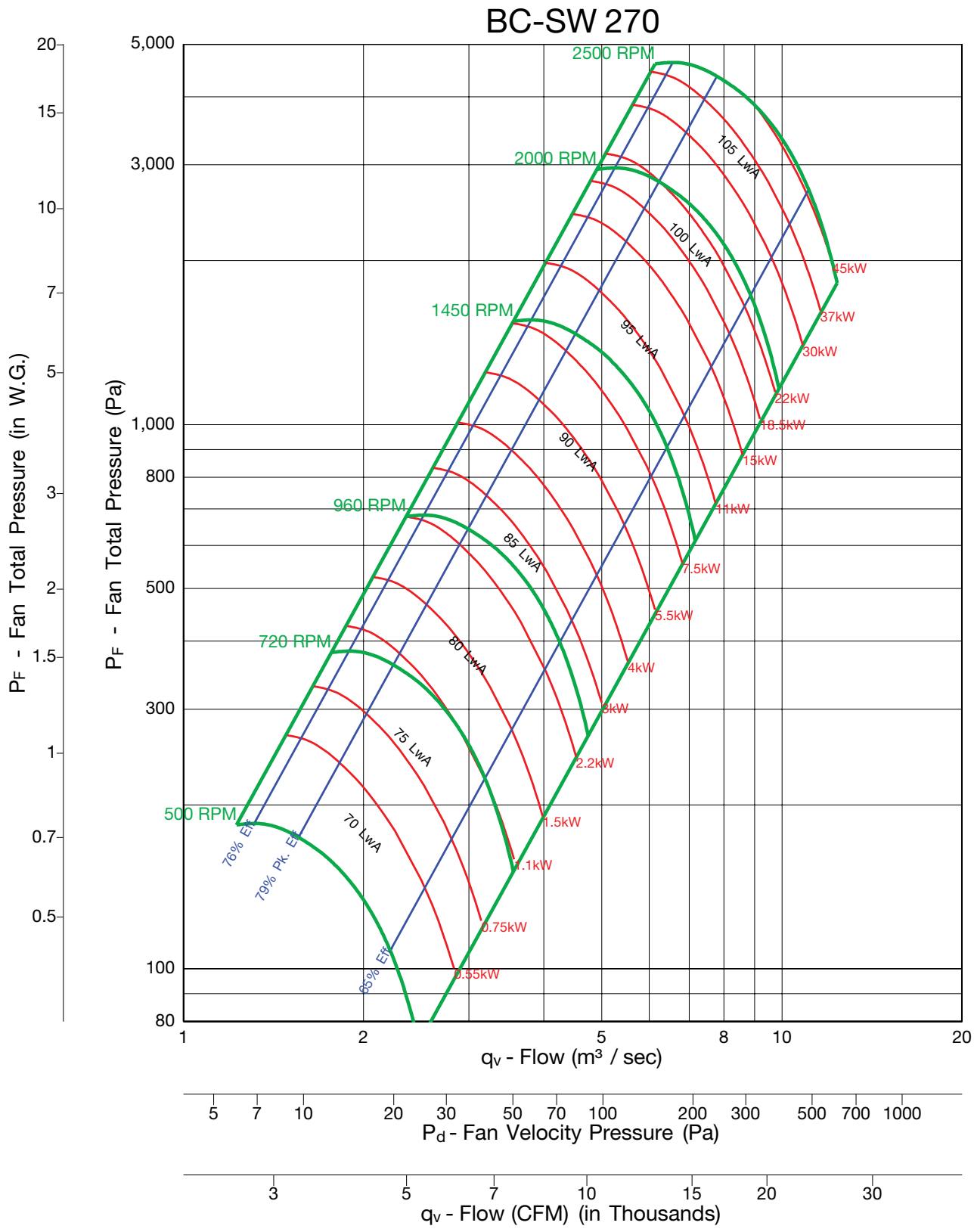

Fan Efficiency Grade = FEG 85

Notes:
1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
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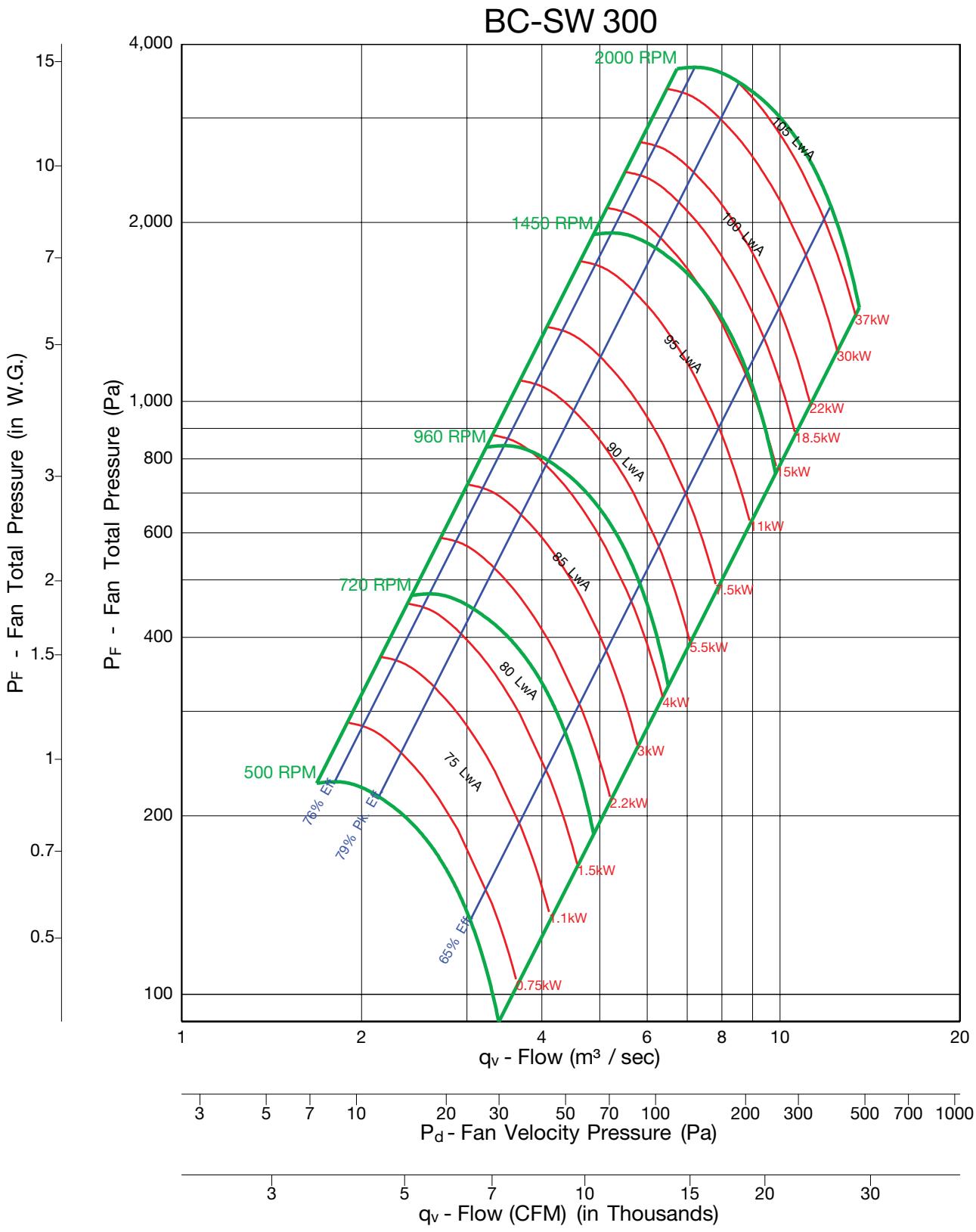
6. Ratings do not include the effects of duct end correction.
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.



Fan Efficiency Grade = FEG 85

Notes:
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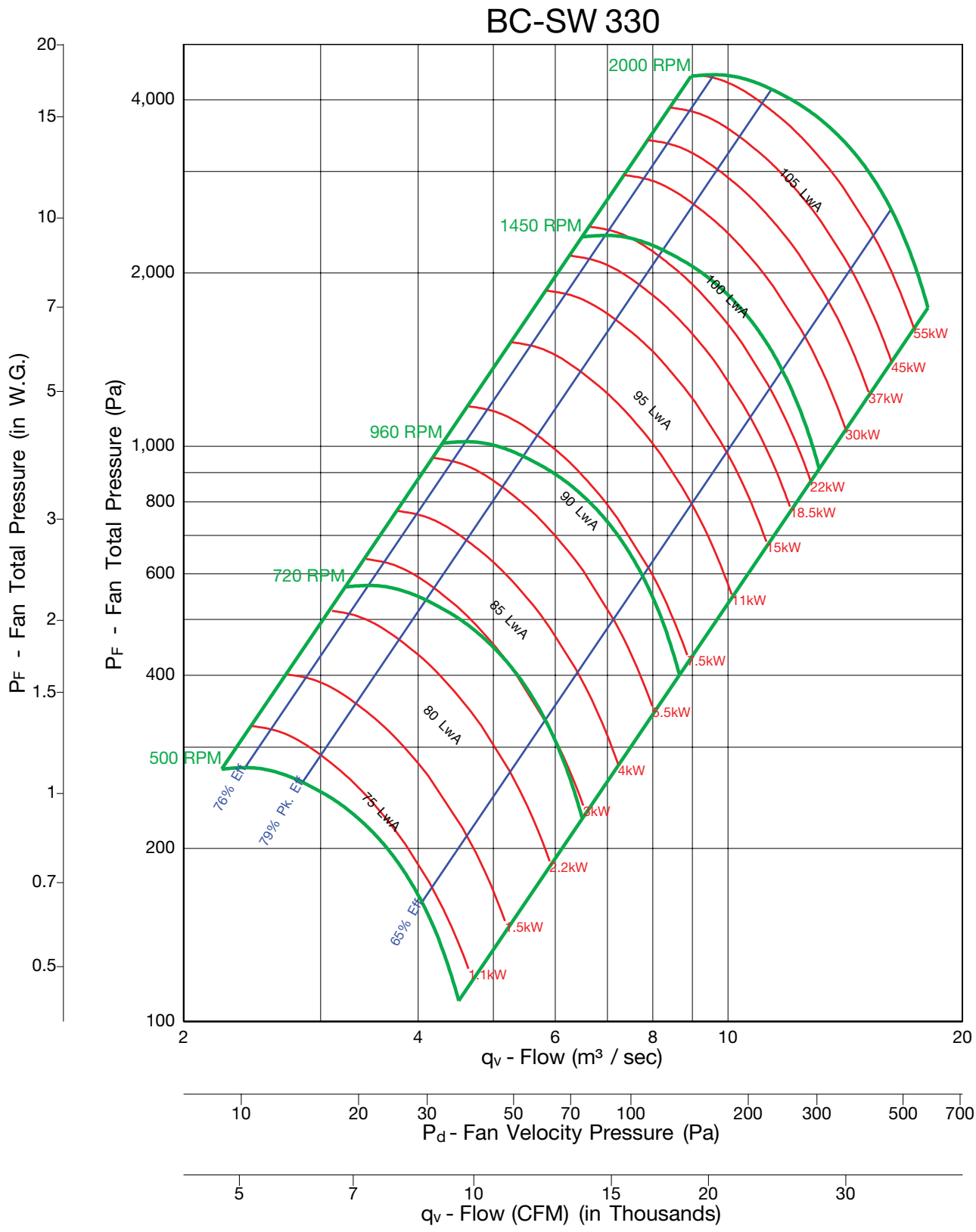

Fan Efficiency Grade = FEG 80

Notes:
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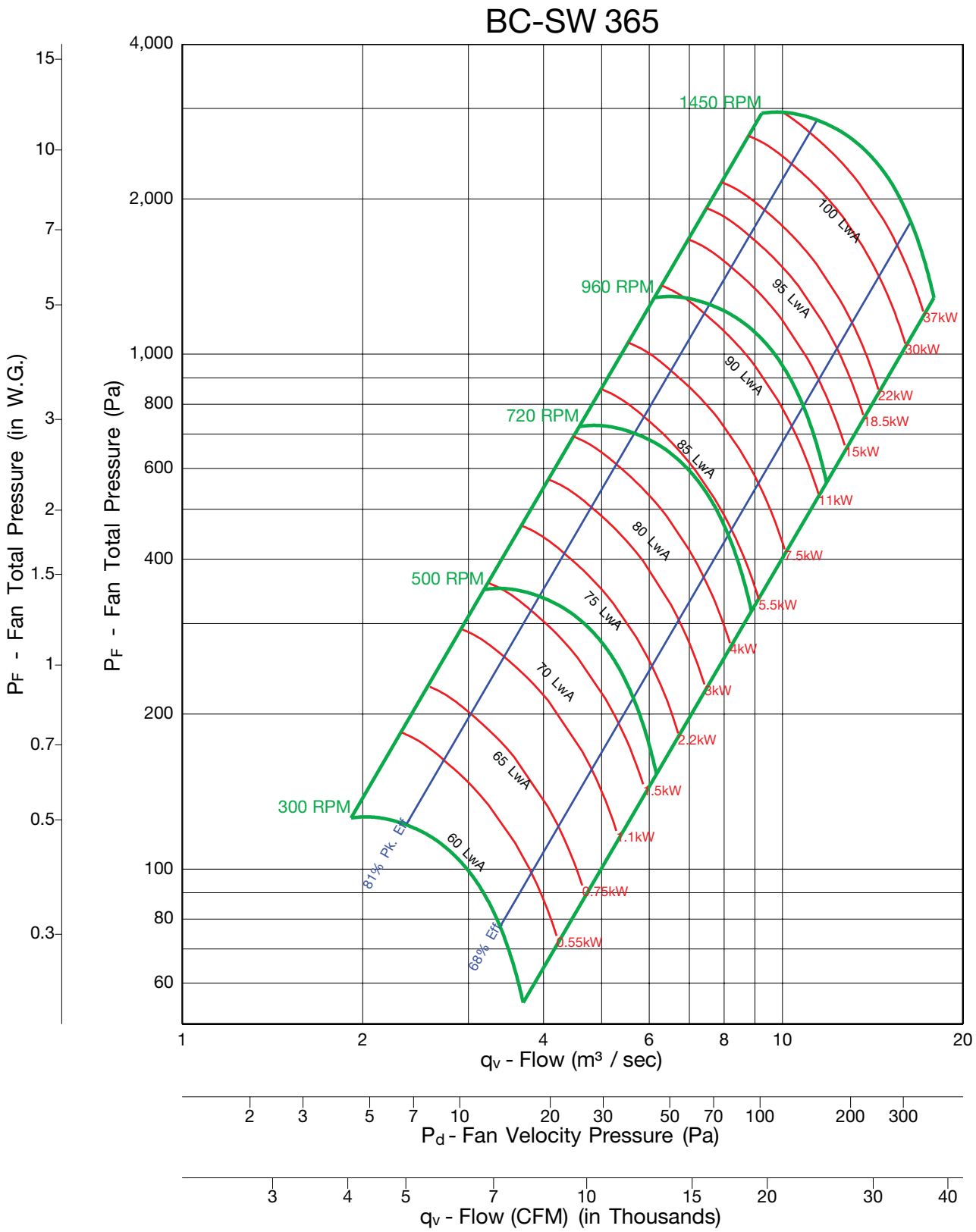
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.



Fan Efficiency Grade = FEG 85

Notes:
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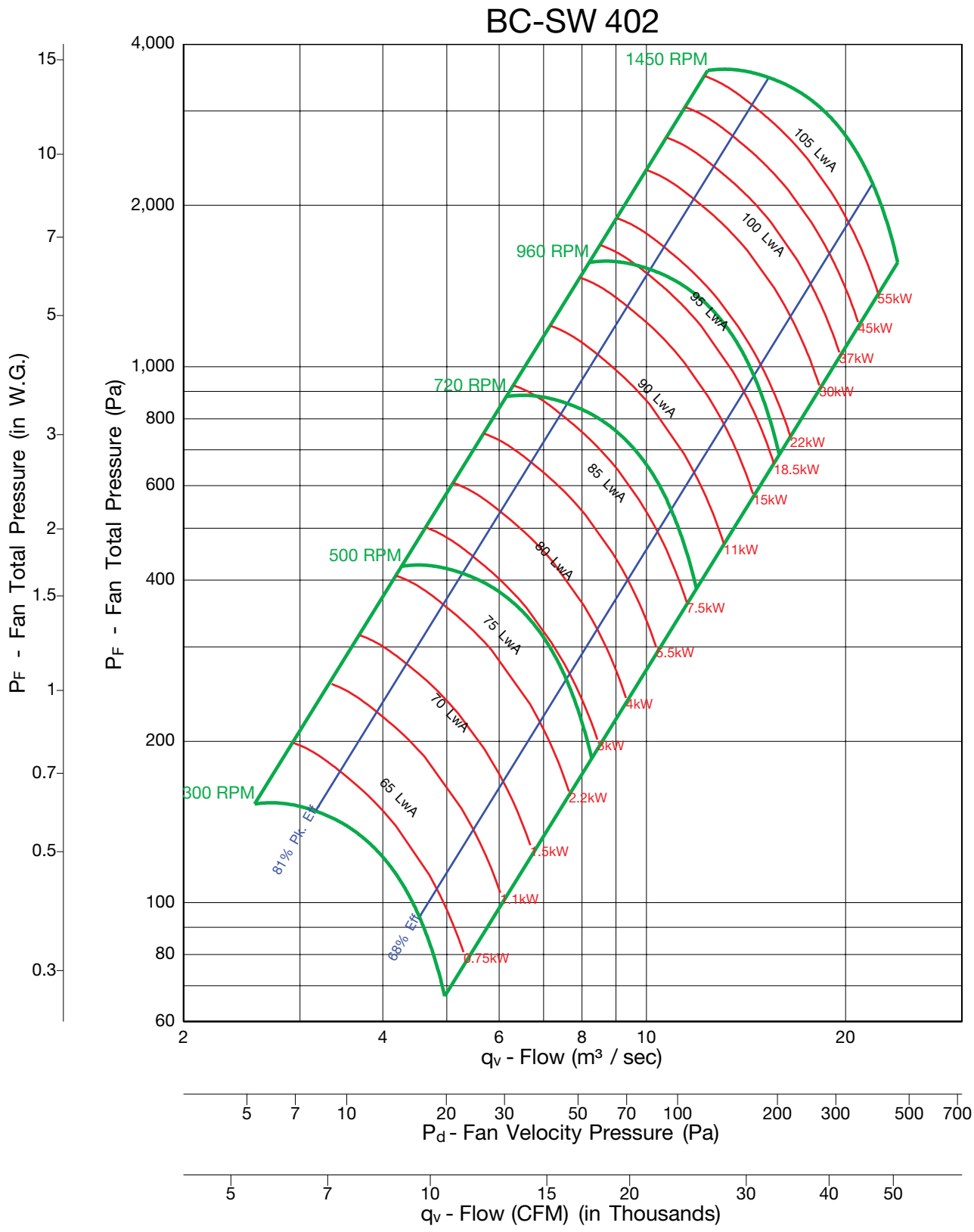

Fan Efficiency Grade = FEG 85

Notes:
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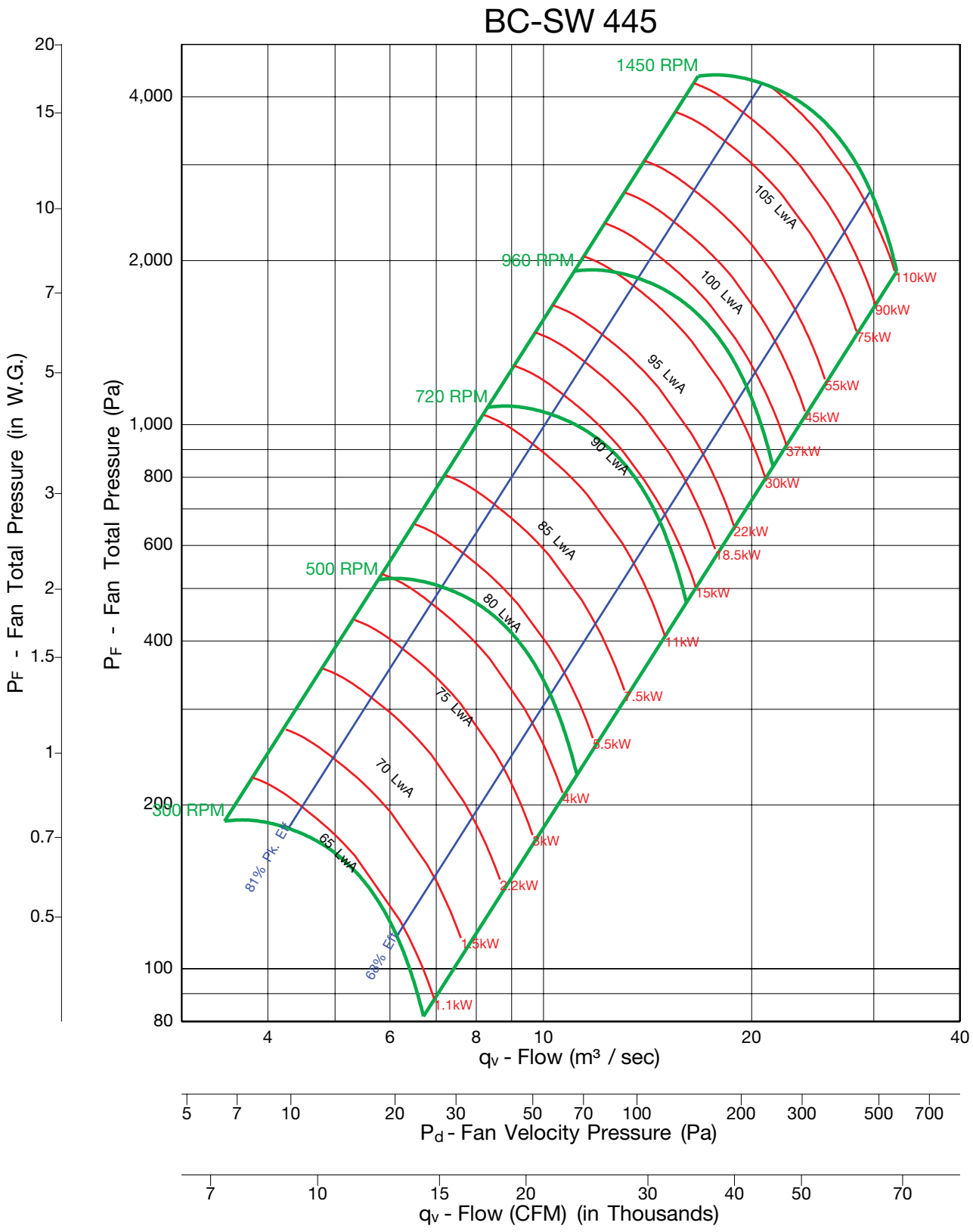

Fan Efficiency Grade = FEG 85

Notes:
1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
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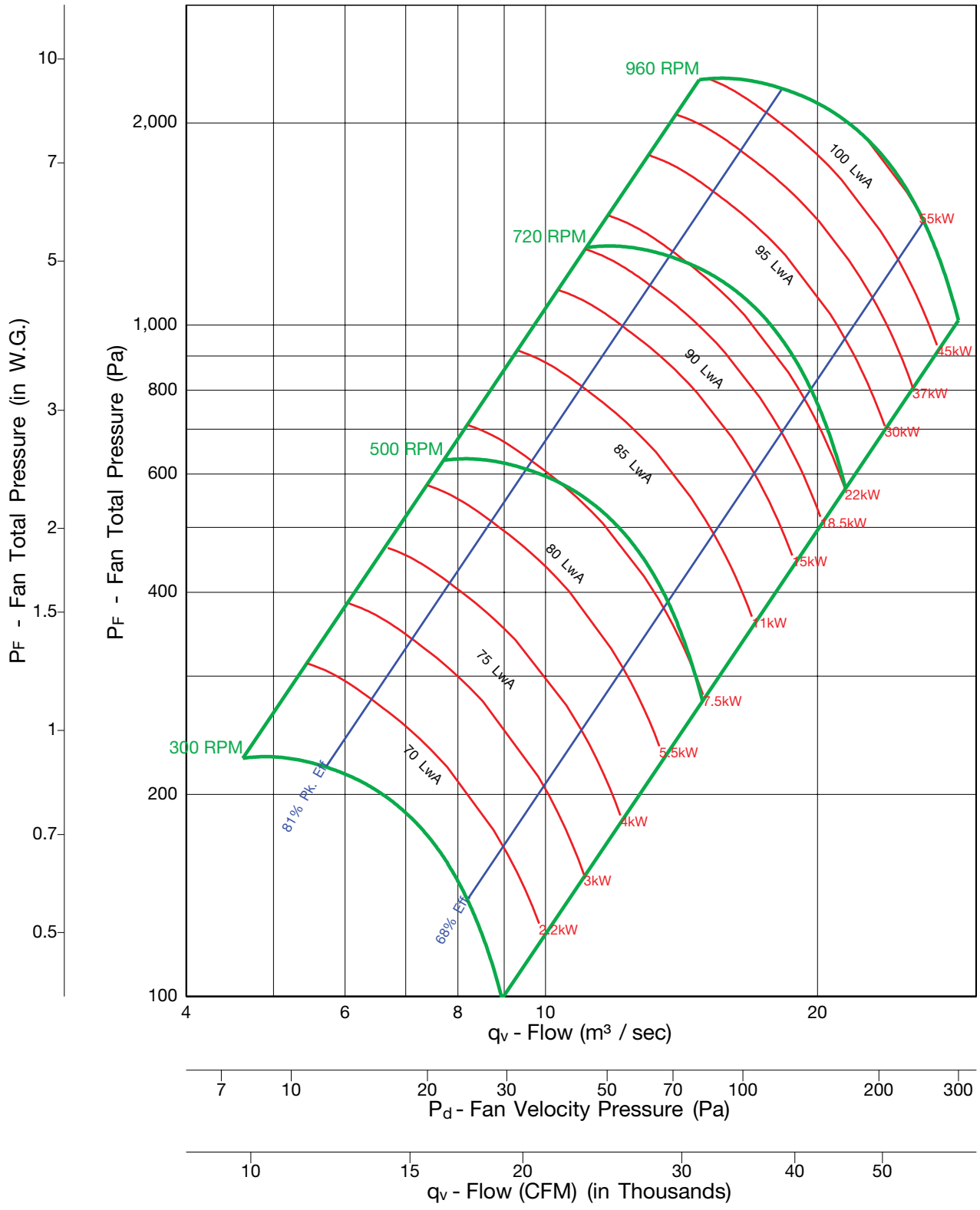
7. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.

BC-SW 490



Fan Efficiency Grade = FEG 85

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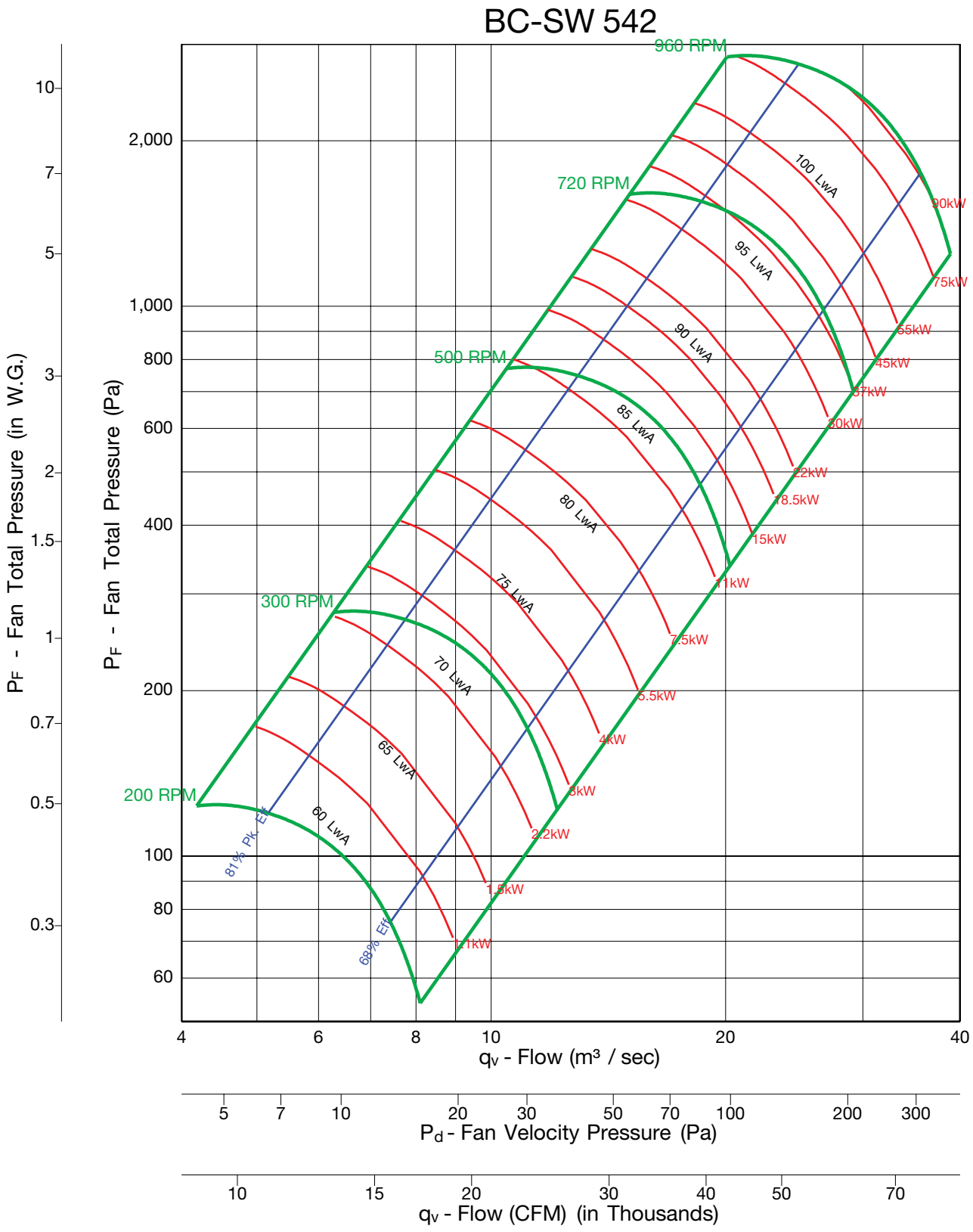

Fan Efficiency Grade = FEG 85

Notes:
1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
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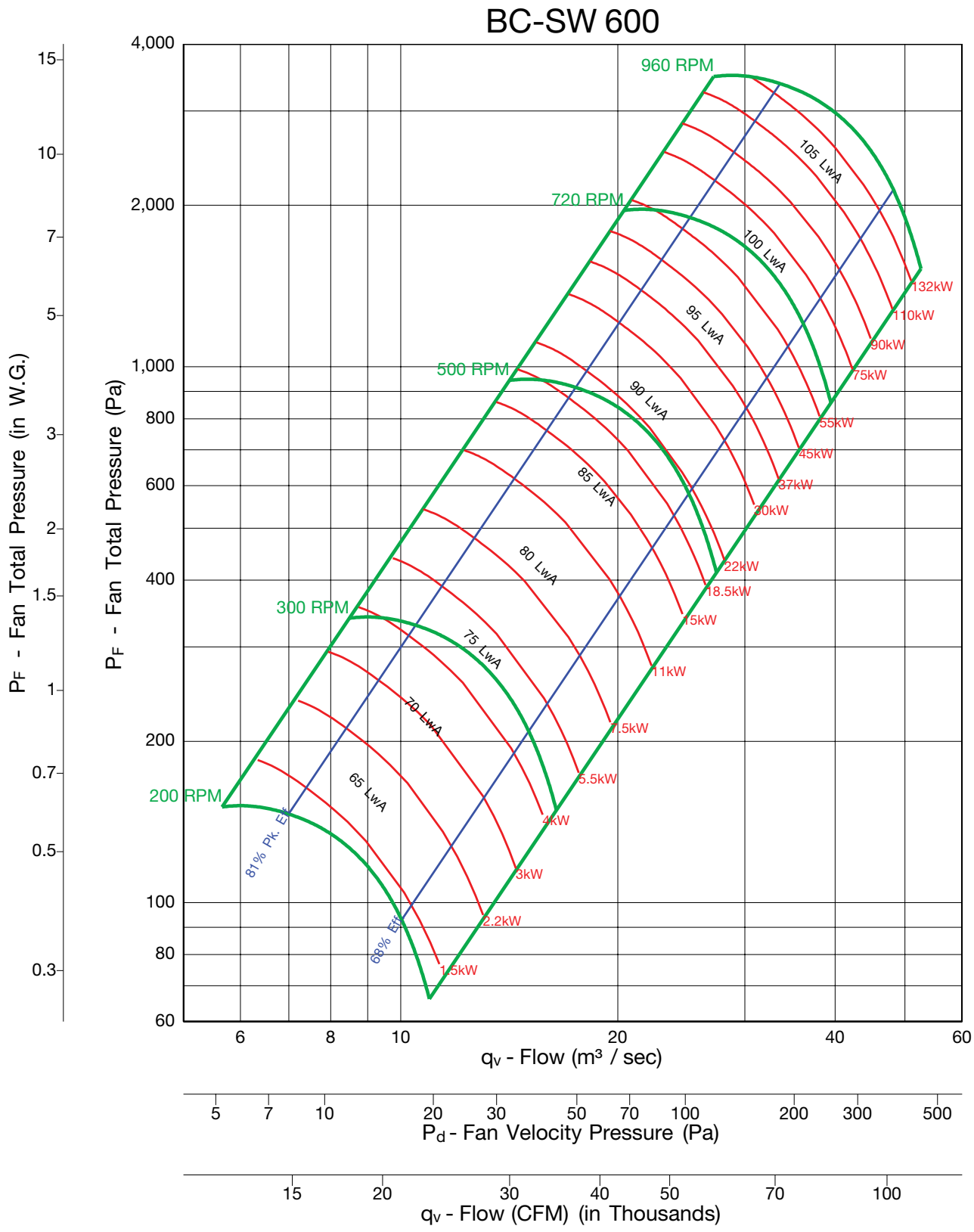

Fan Efficiency Grade = FEG 85

Notes:
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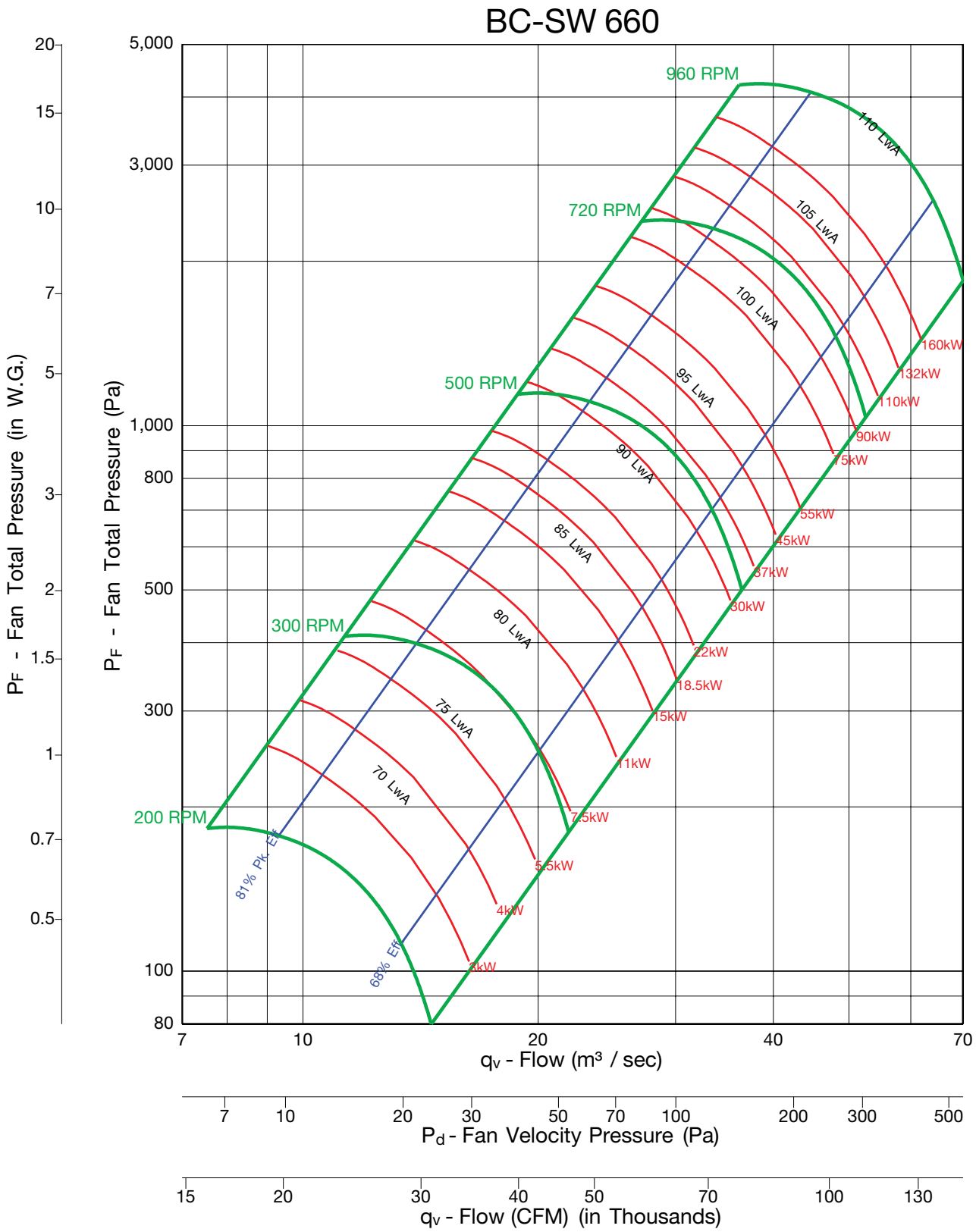

Fan Efficiency Grade = FEG 85

Notes:
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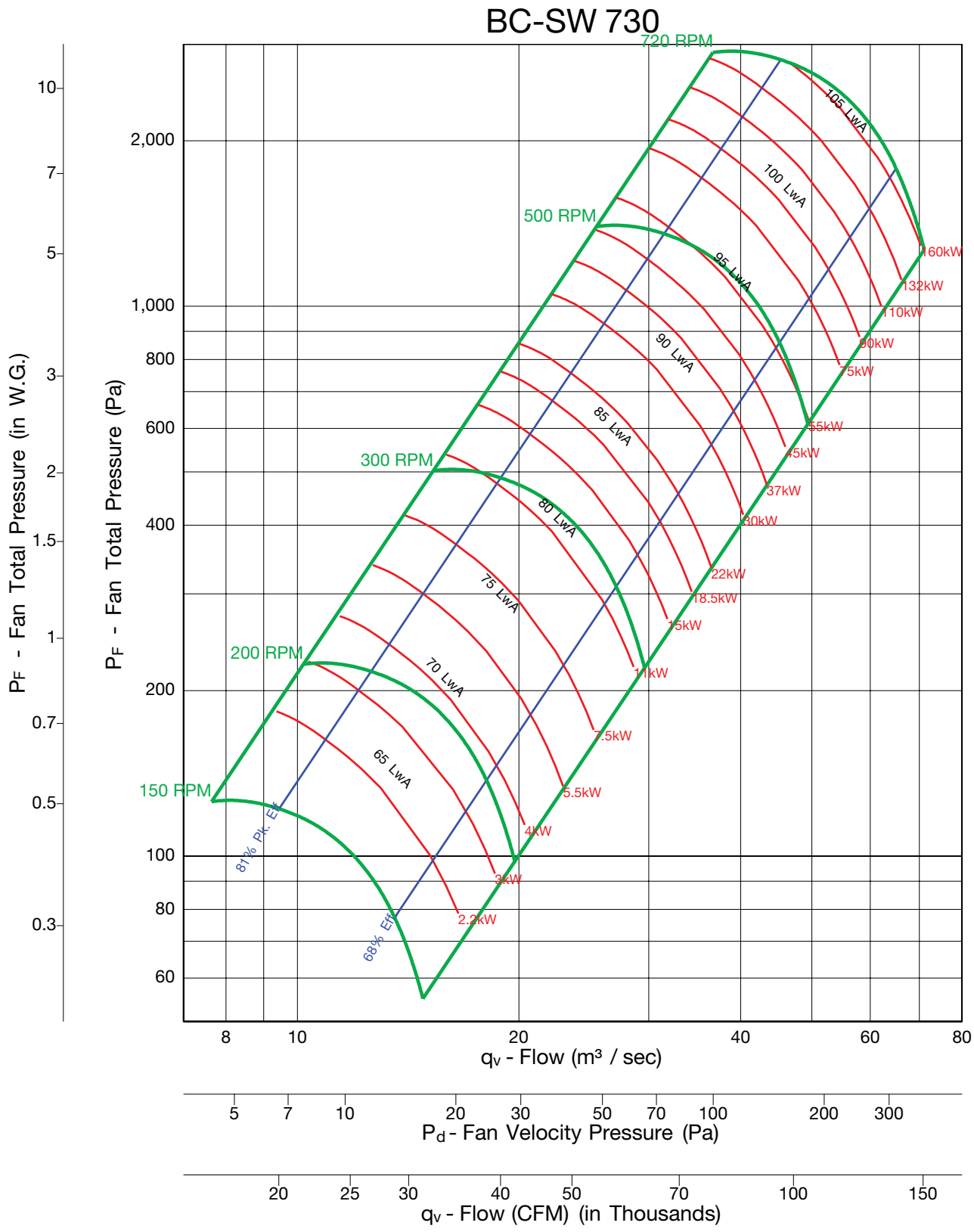

Fan Efficiency Grade = FEG 85

Notes:
1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
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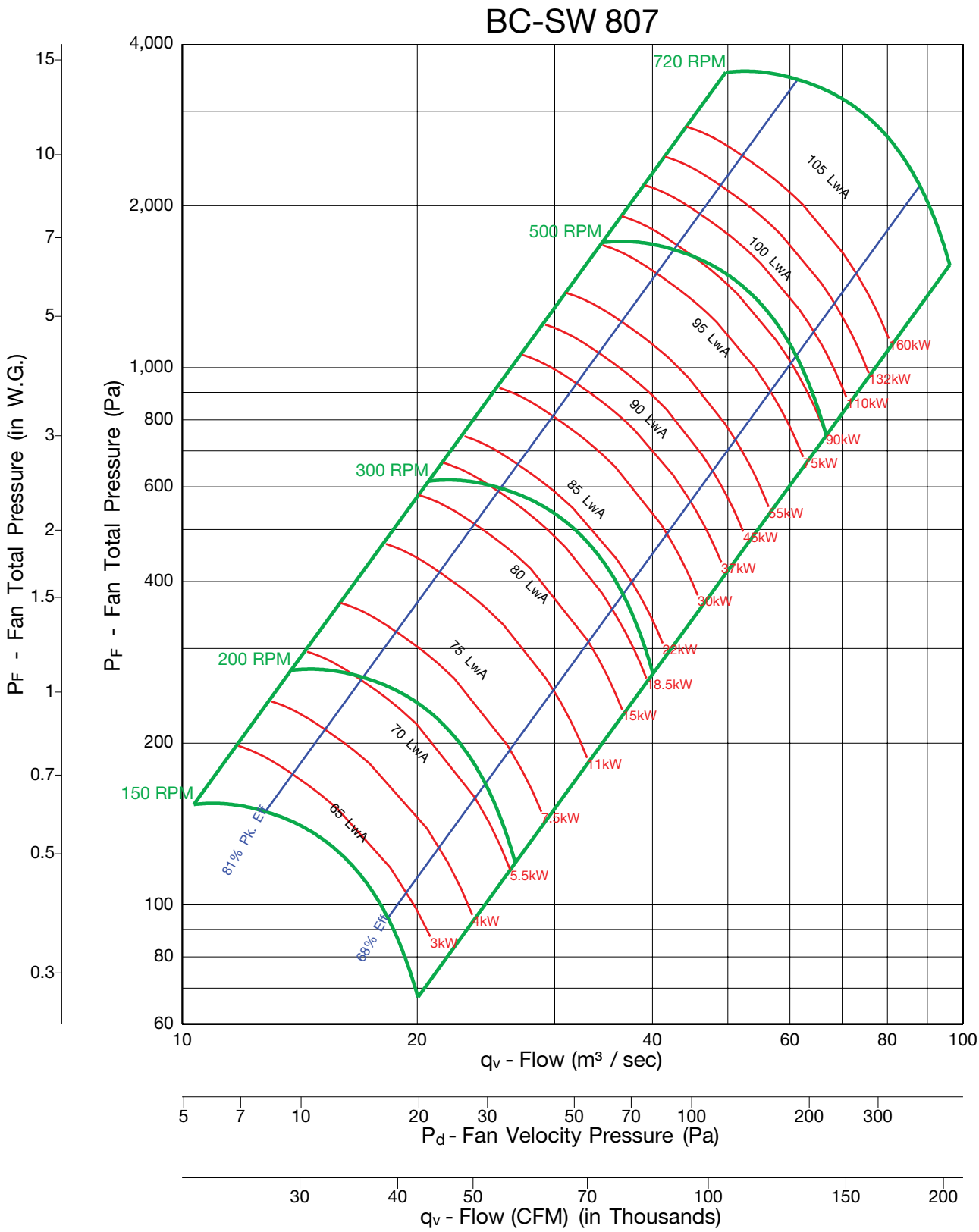

Fan Efficiency Grade = FEG 85

Notes:
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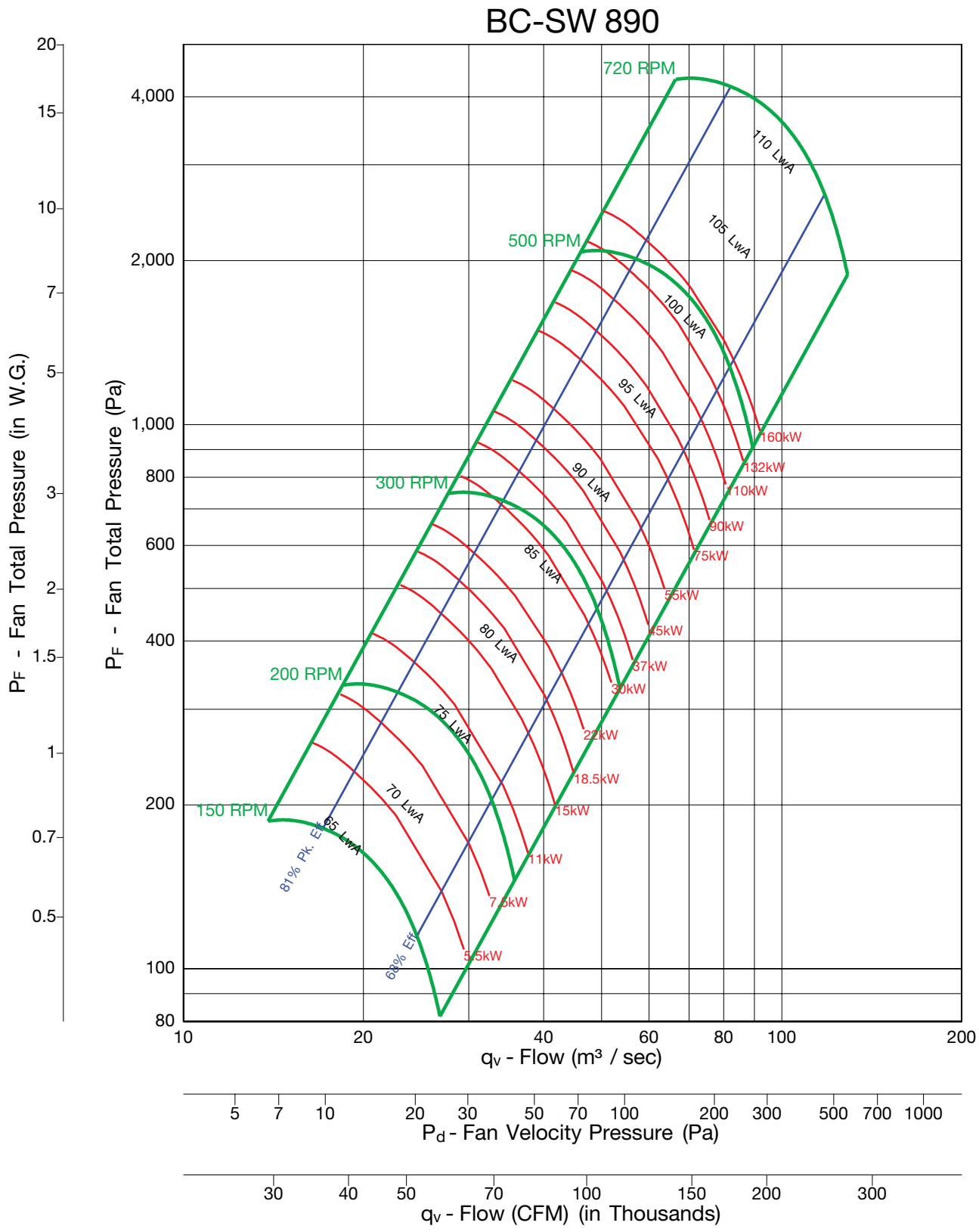

Fan Efficiency Grade = FEG 85

Notes:
1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
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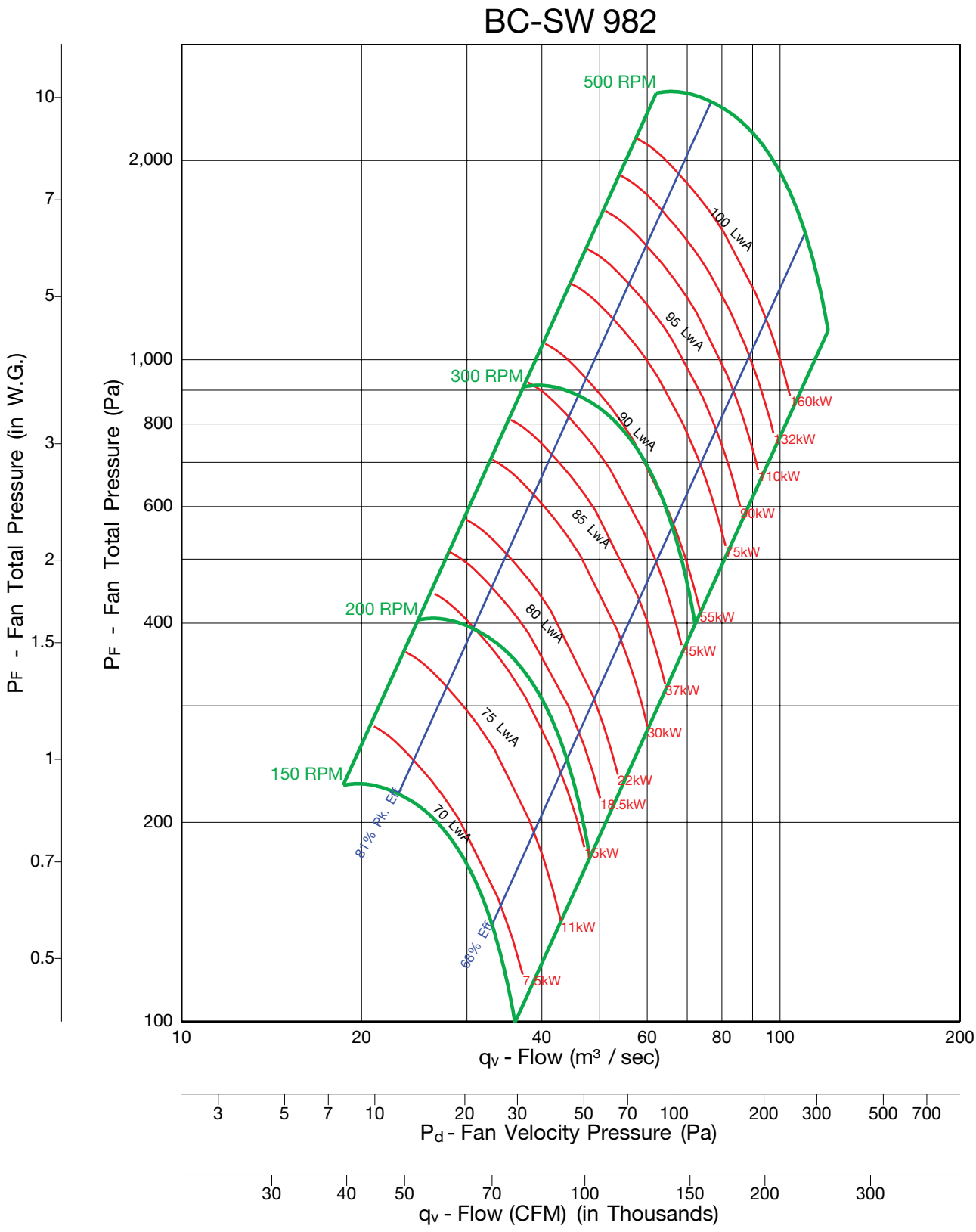

Fan Efficiency Grade = FEG 85

Notes:
1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
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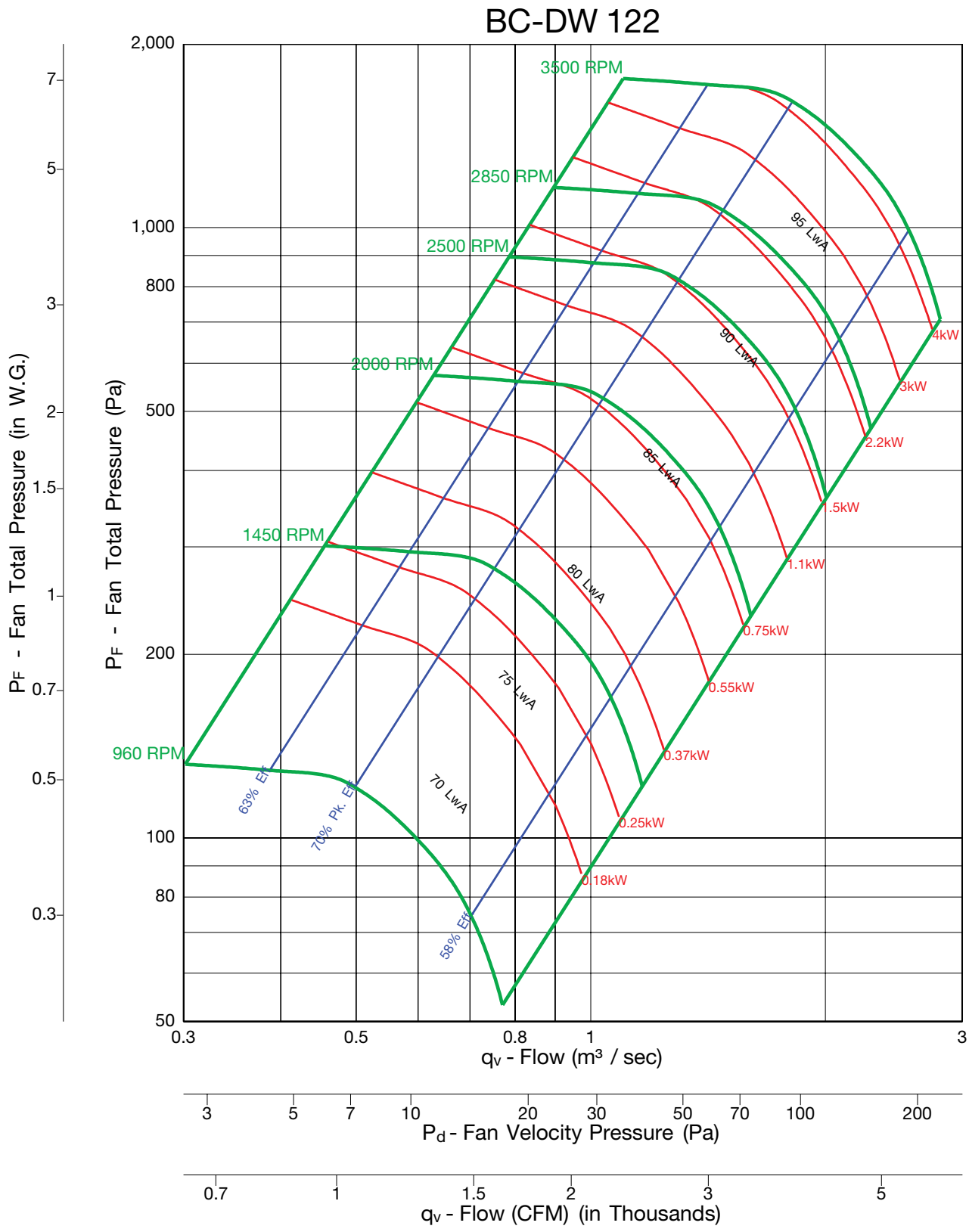

Fan Efficiency Grade = FEG 80

Notes:
1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
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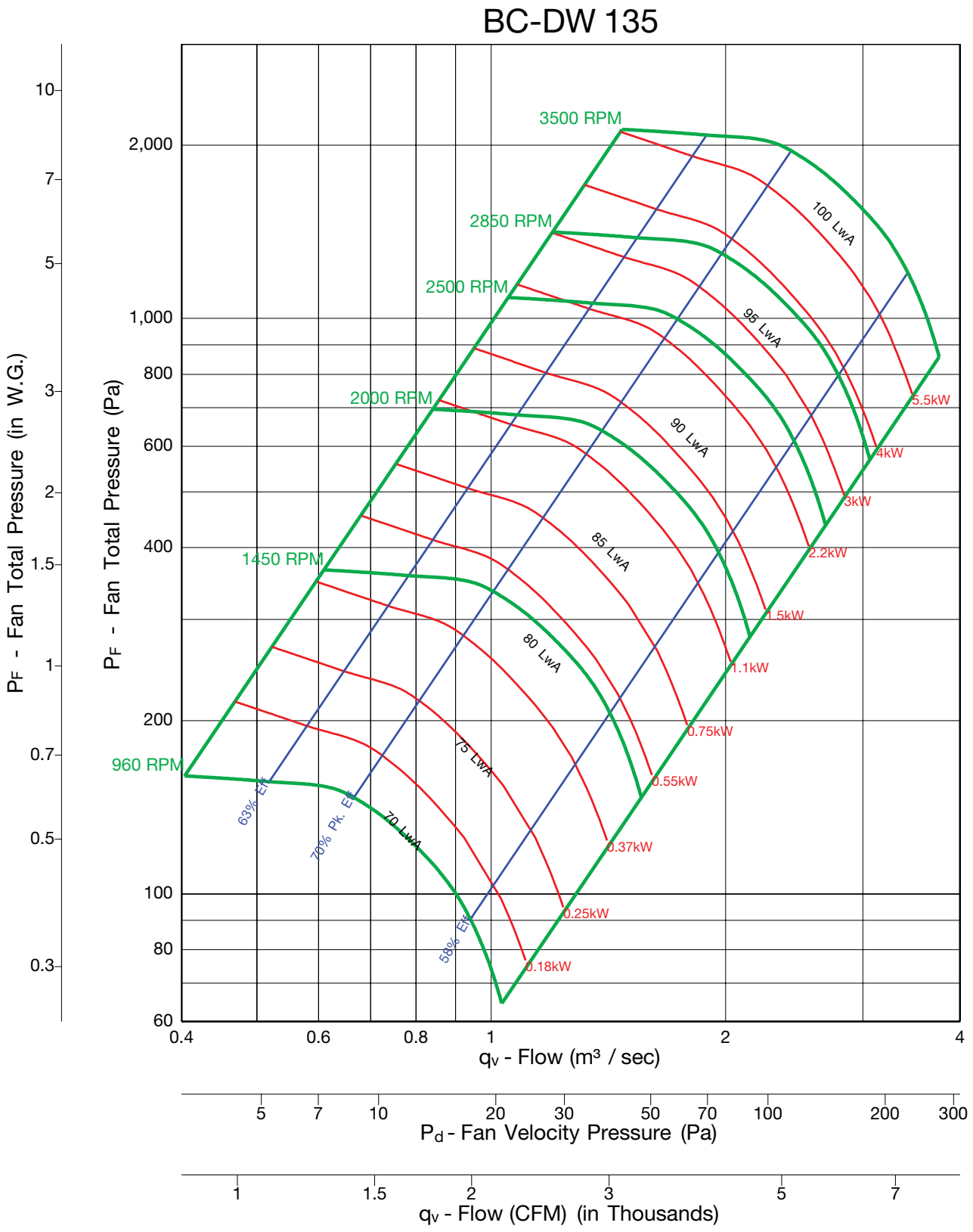

Fan Efficiency Grade = FEG 80

Notes:
1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
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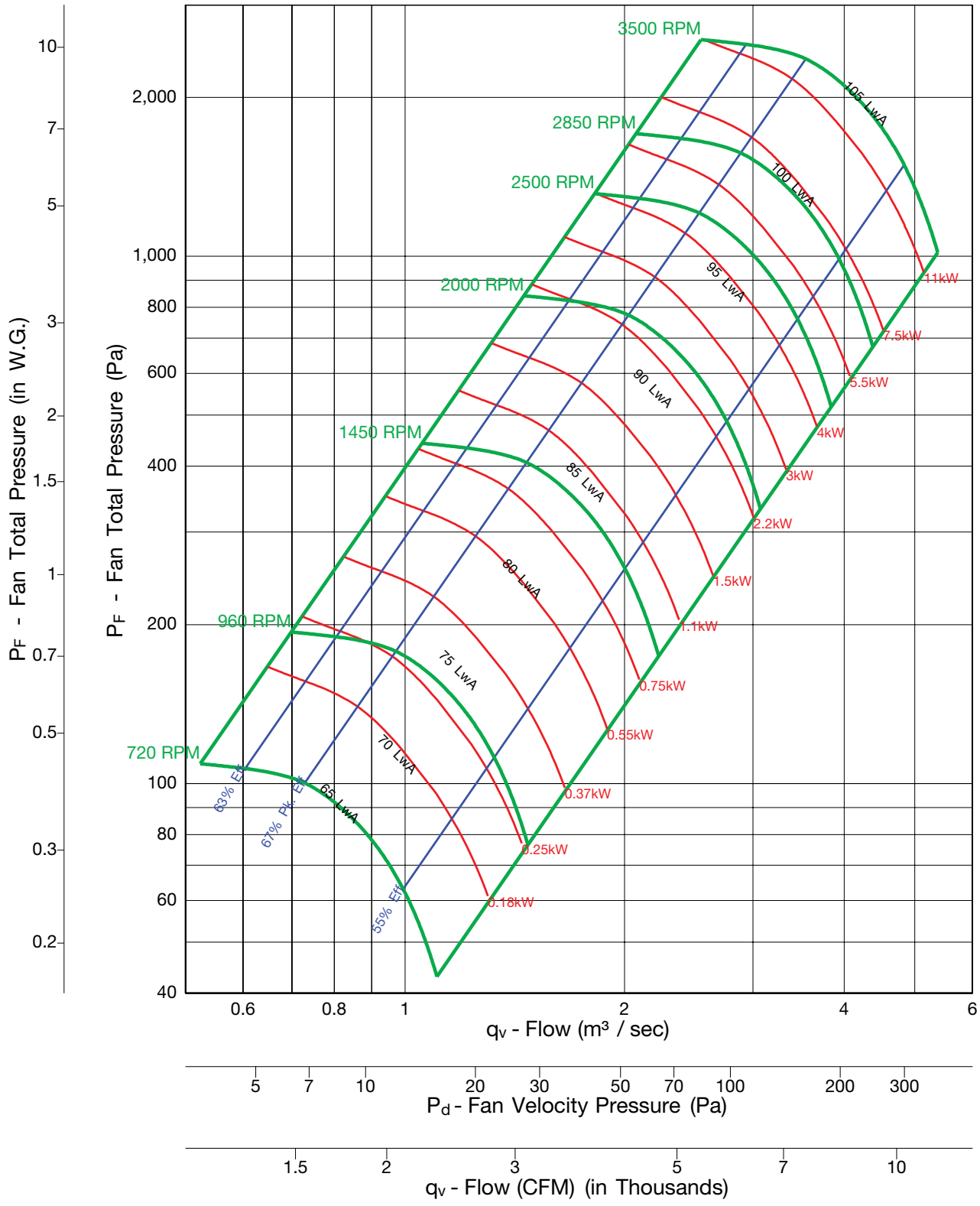
BC-DW 150



Fan Efficiency Grade = FEG 75

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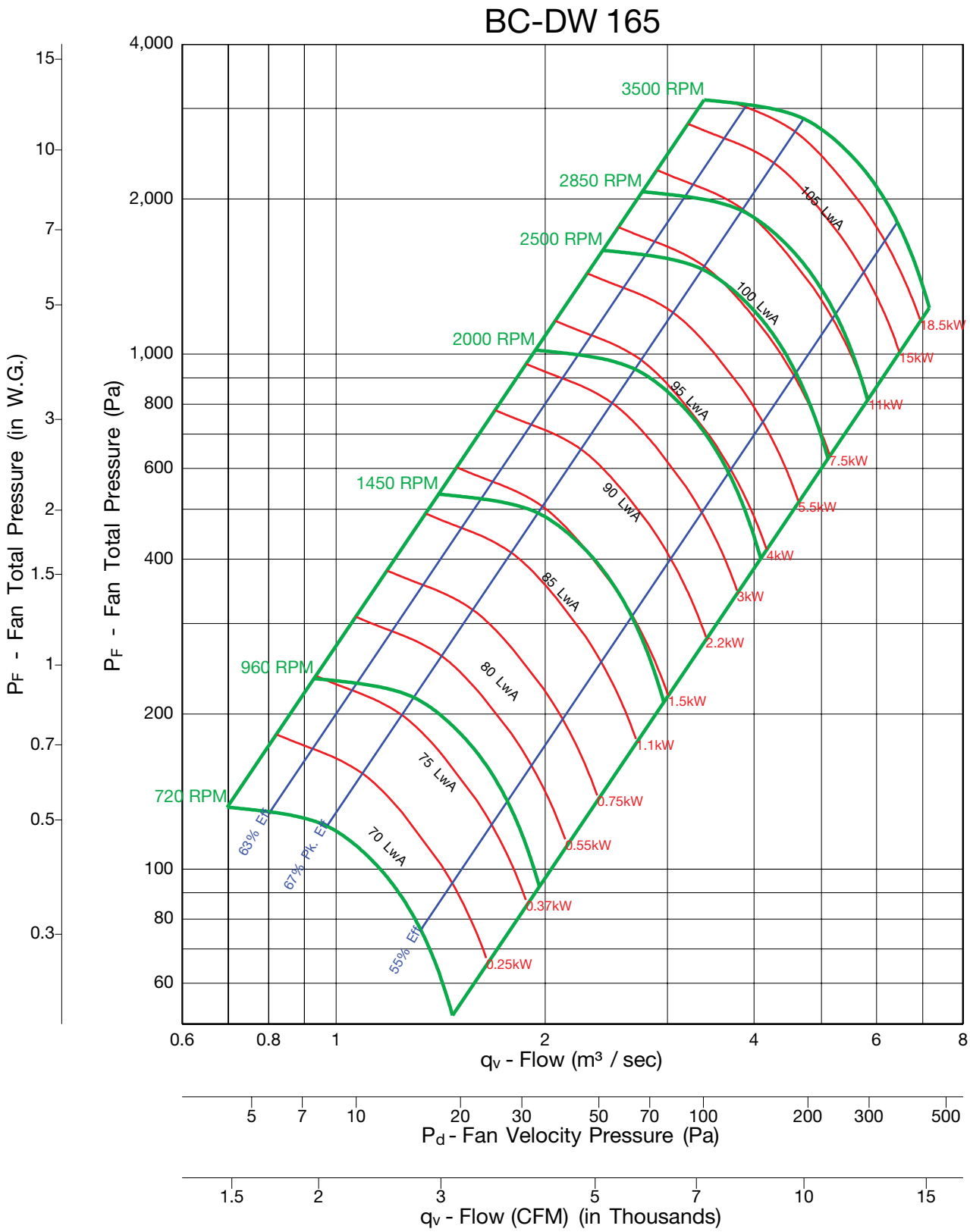

Fan Efficiency Grade = FEG 71

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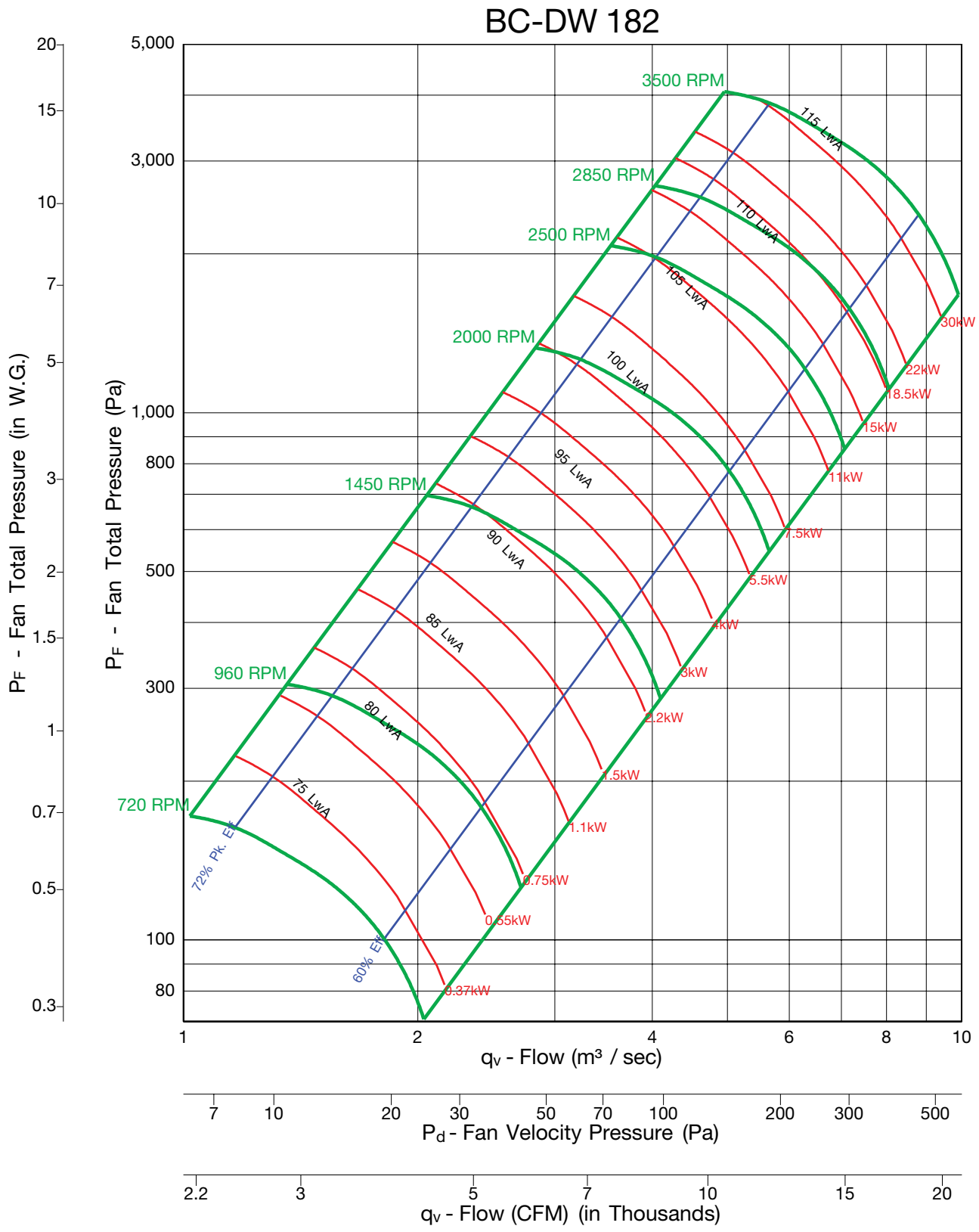

Fan Efficiency Grade = FEG 75

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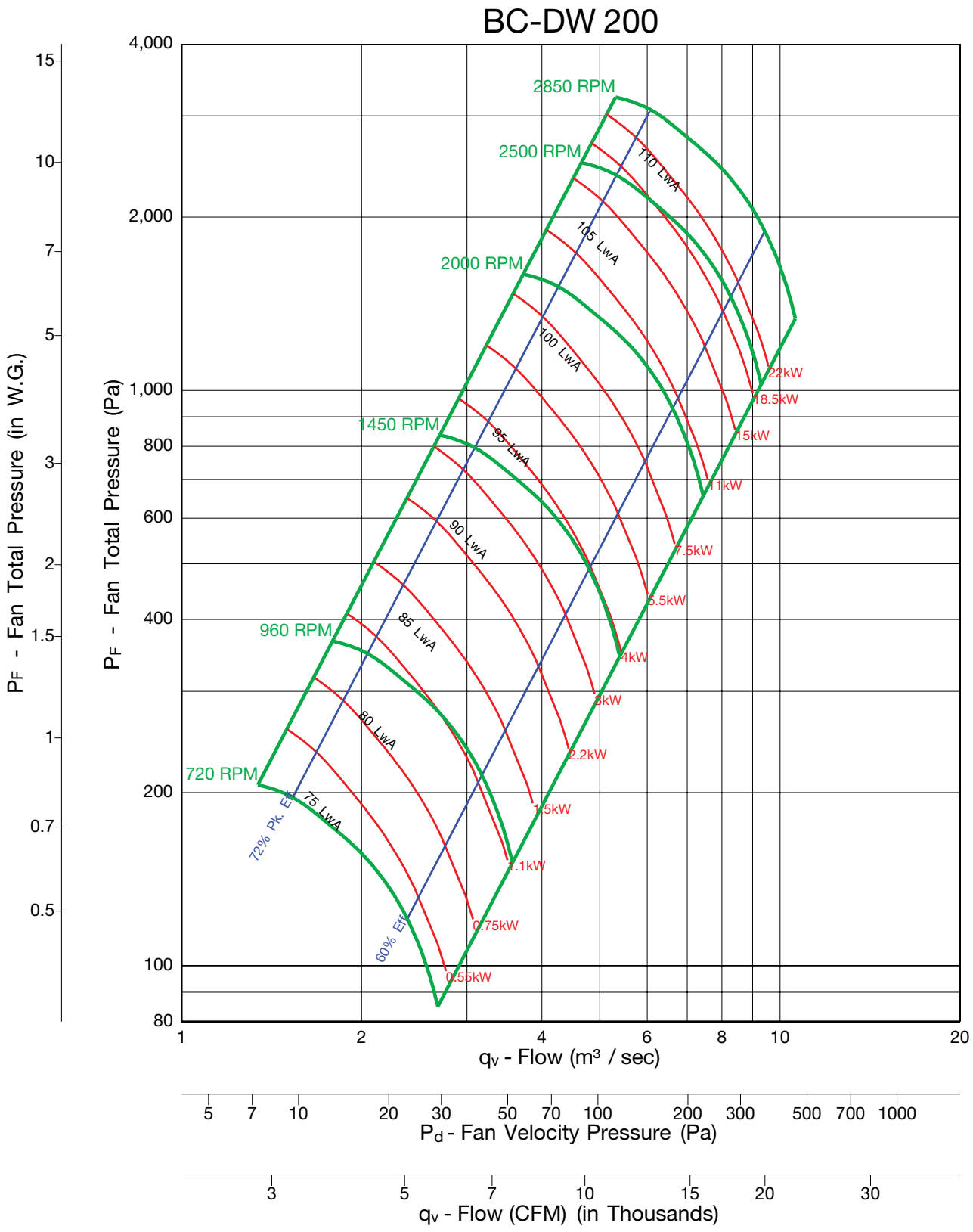

Fan Efficiency Grade = FEG 75

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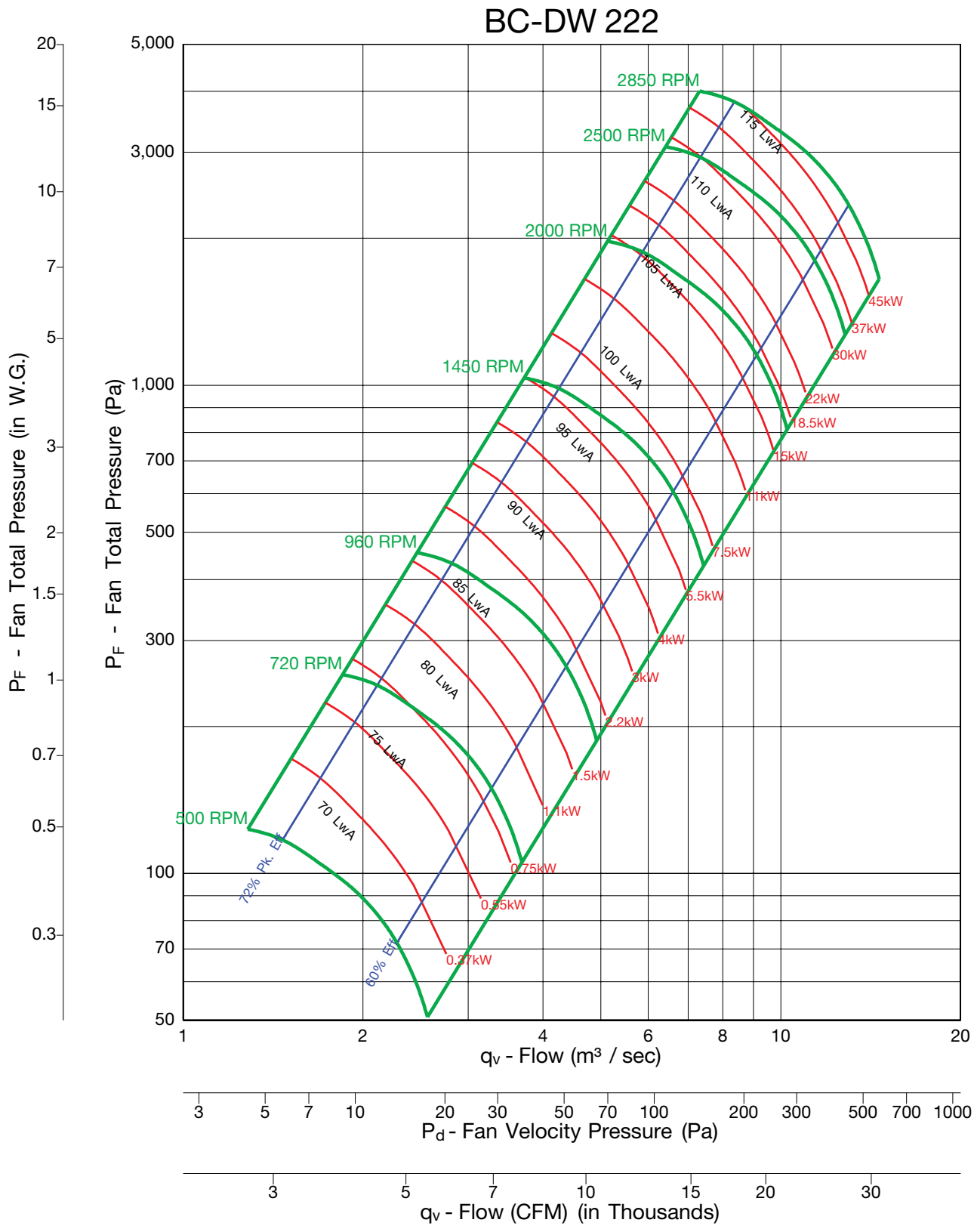

Fan Efficiency Grade = FEG 75

Notes:
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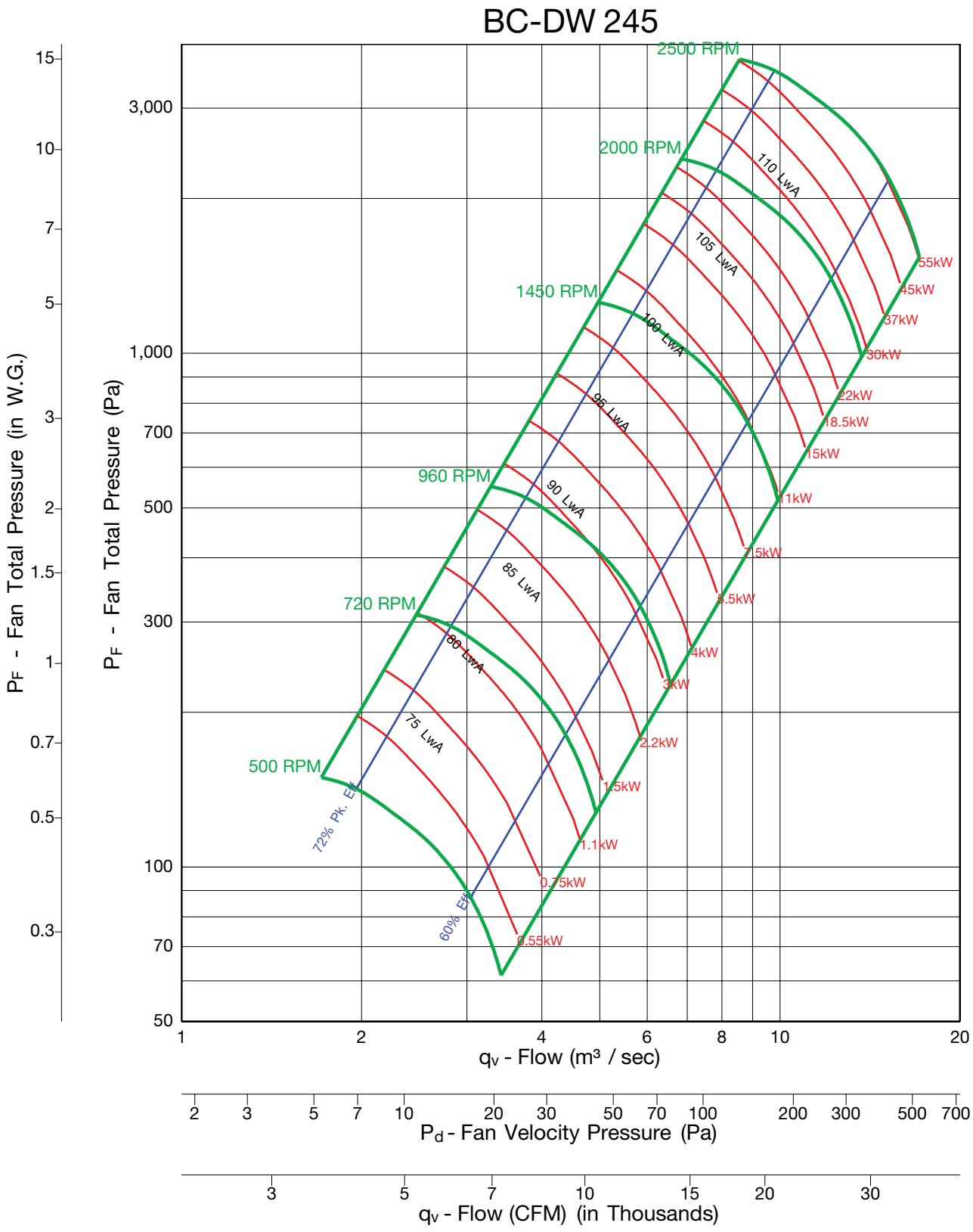

Fan Efficiency Grade = FEG 75

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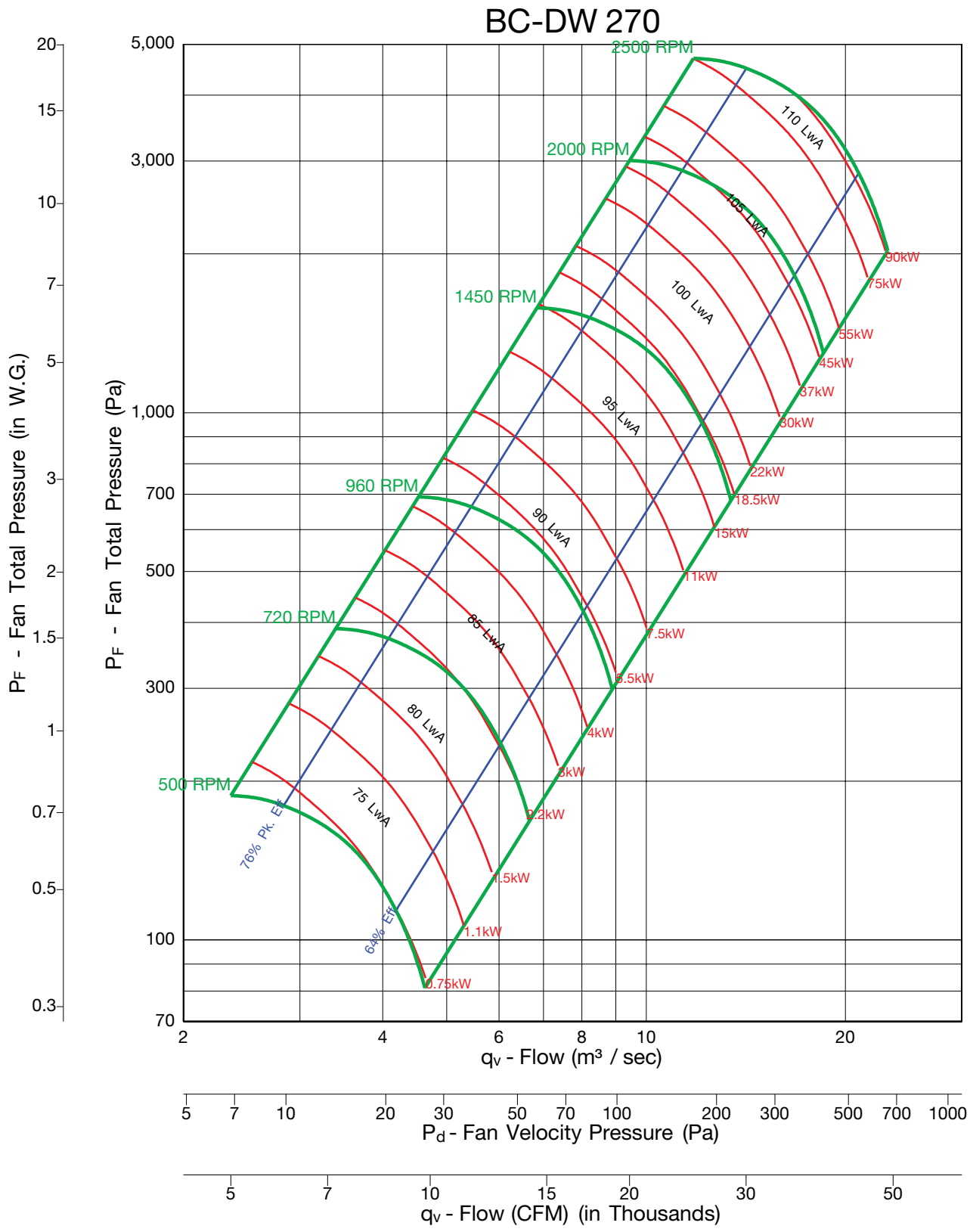

Fan Efficiency Grade = FEG 80

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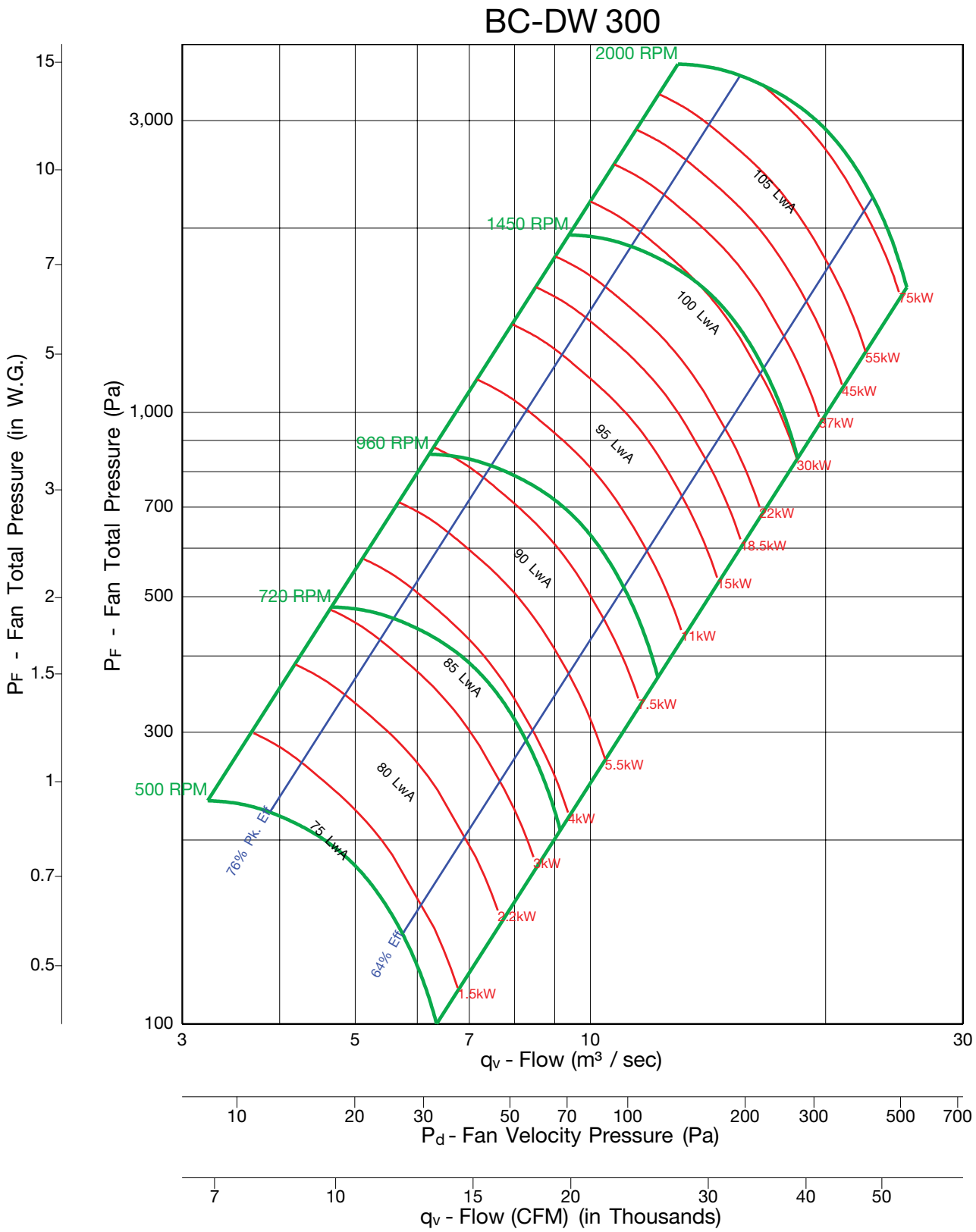
1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
2. Power rating (kW) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power level ratings shown are in decibels, referred to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



Fan Efficiency Grade = FEG 80

Notes:
1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
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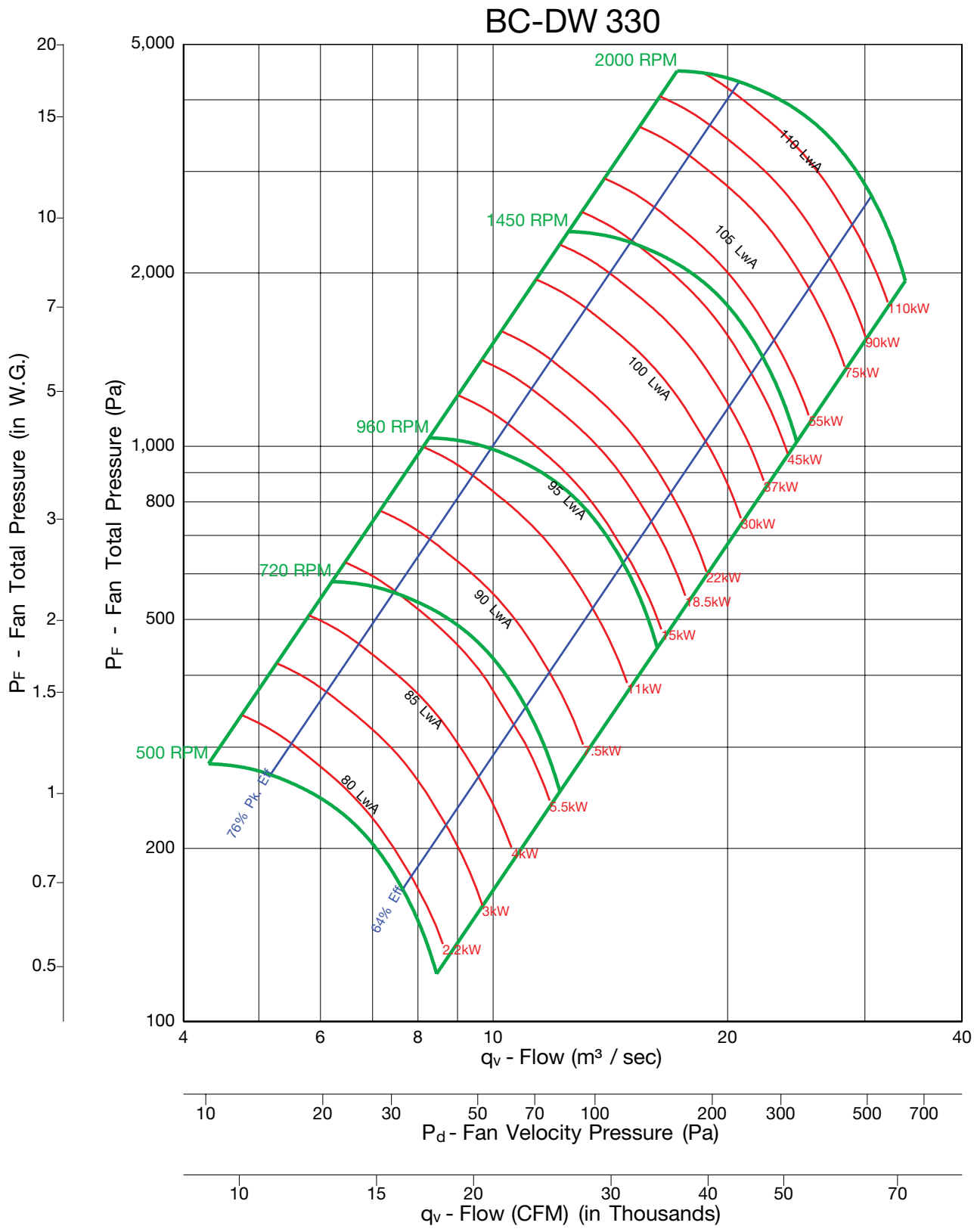

Fan Efficiency Grade = FEG 80

Notes:
1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
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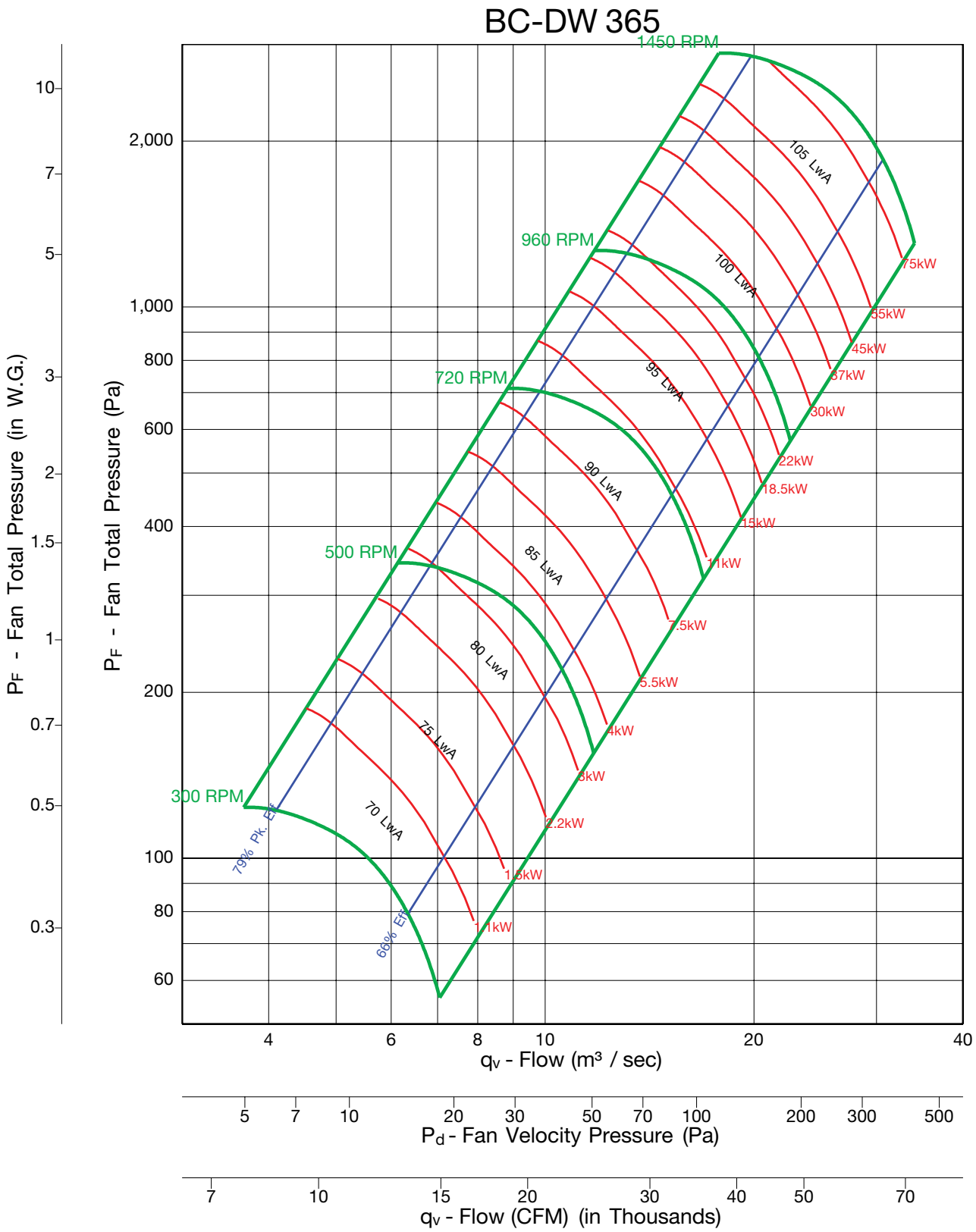

Fan Efficiency Grade = FEG 80

Notes:
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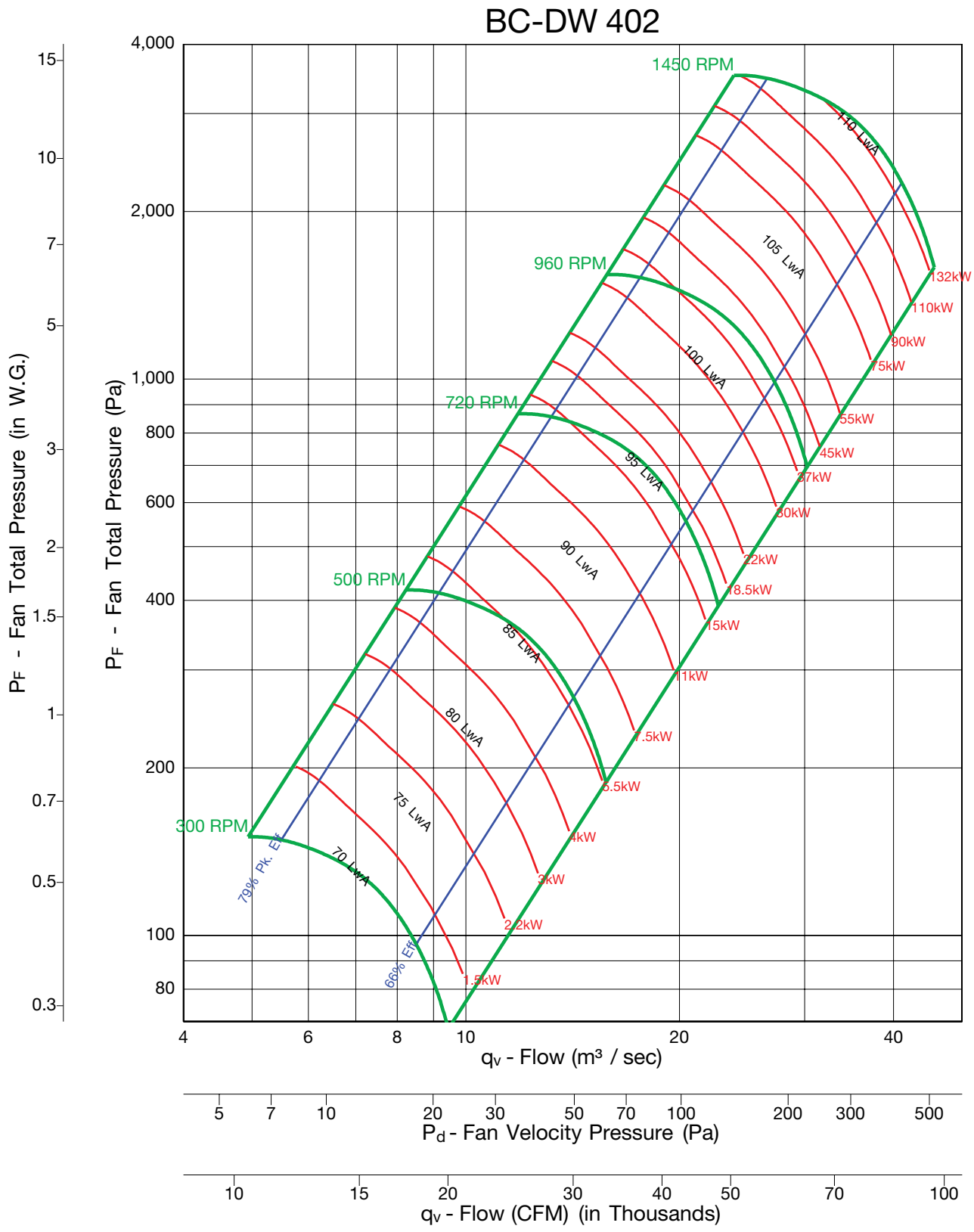

Fan Efficiency Grade = FEG 80

Notes:
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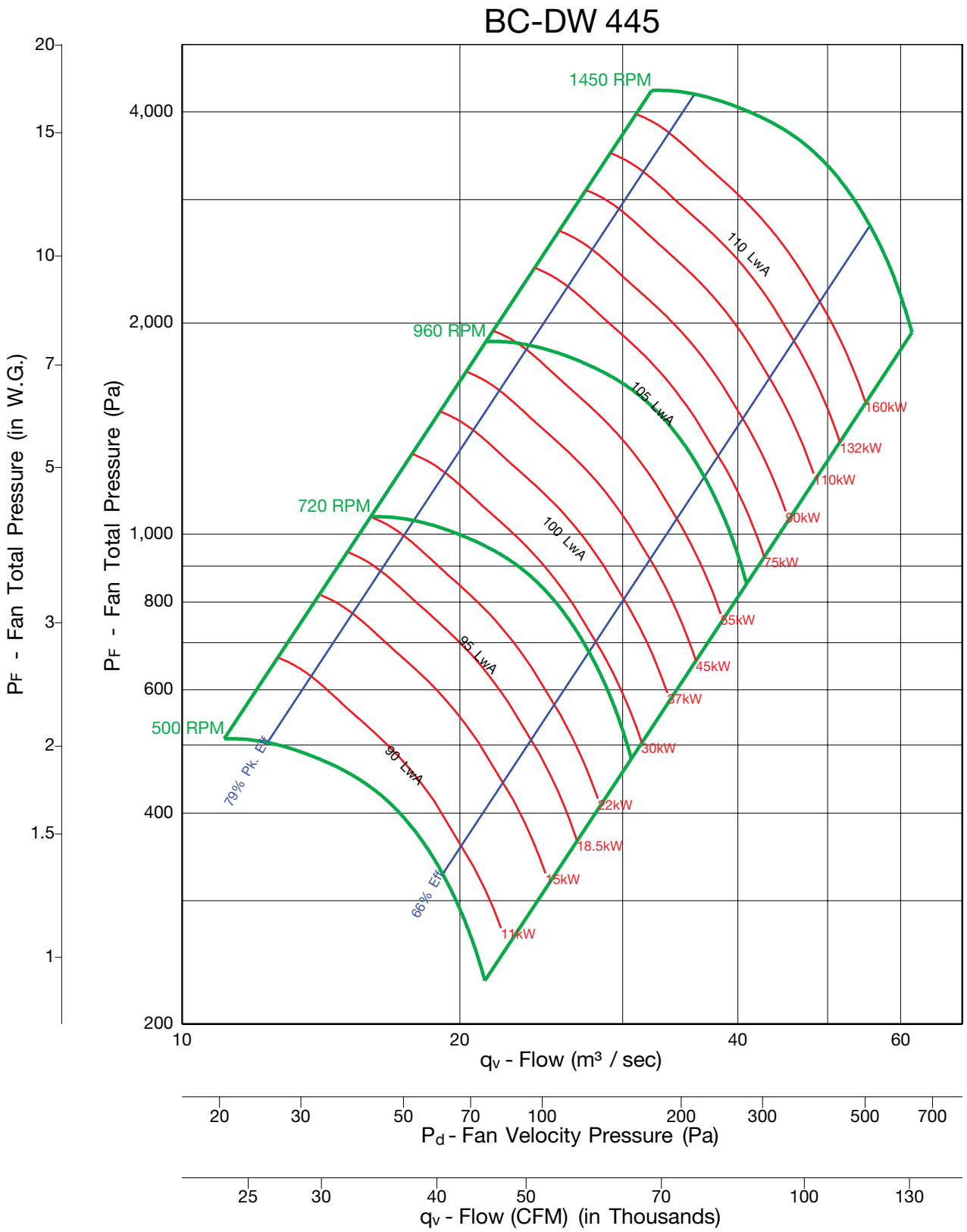

Fan Efficiency Grade = FEG 80

Notes:
1. Performance certified is for Installation Type B & D: Free or ducted inlet, ducted outlet.
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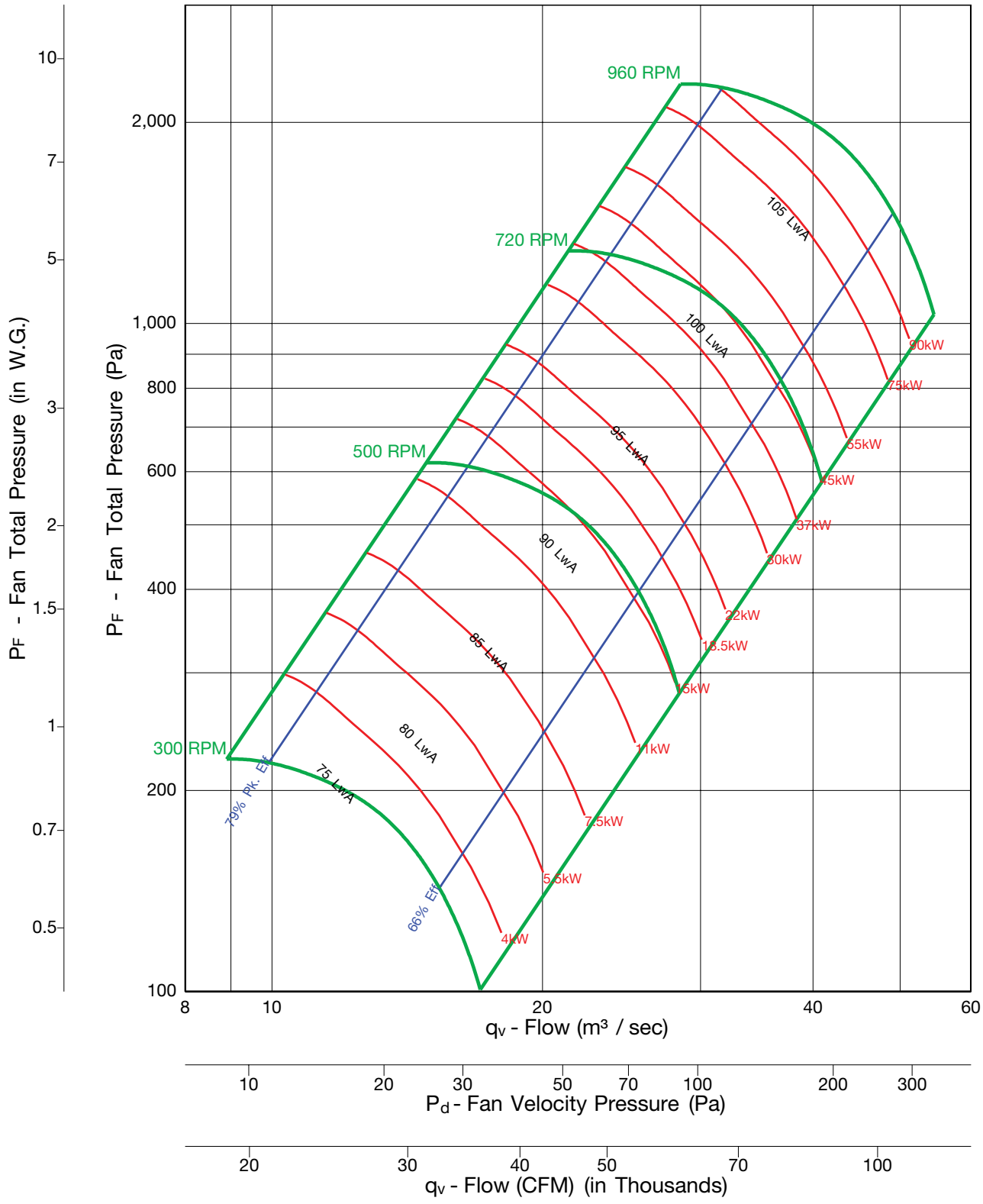
BC-DW 490



Fan Efficiency Grade = FEG 80

Notes:
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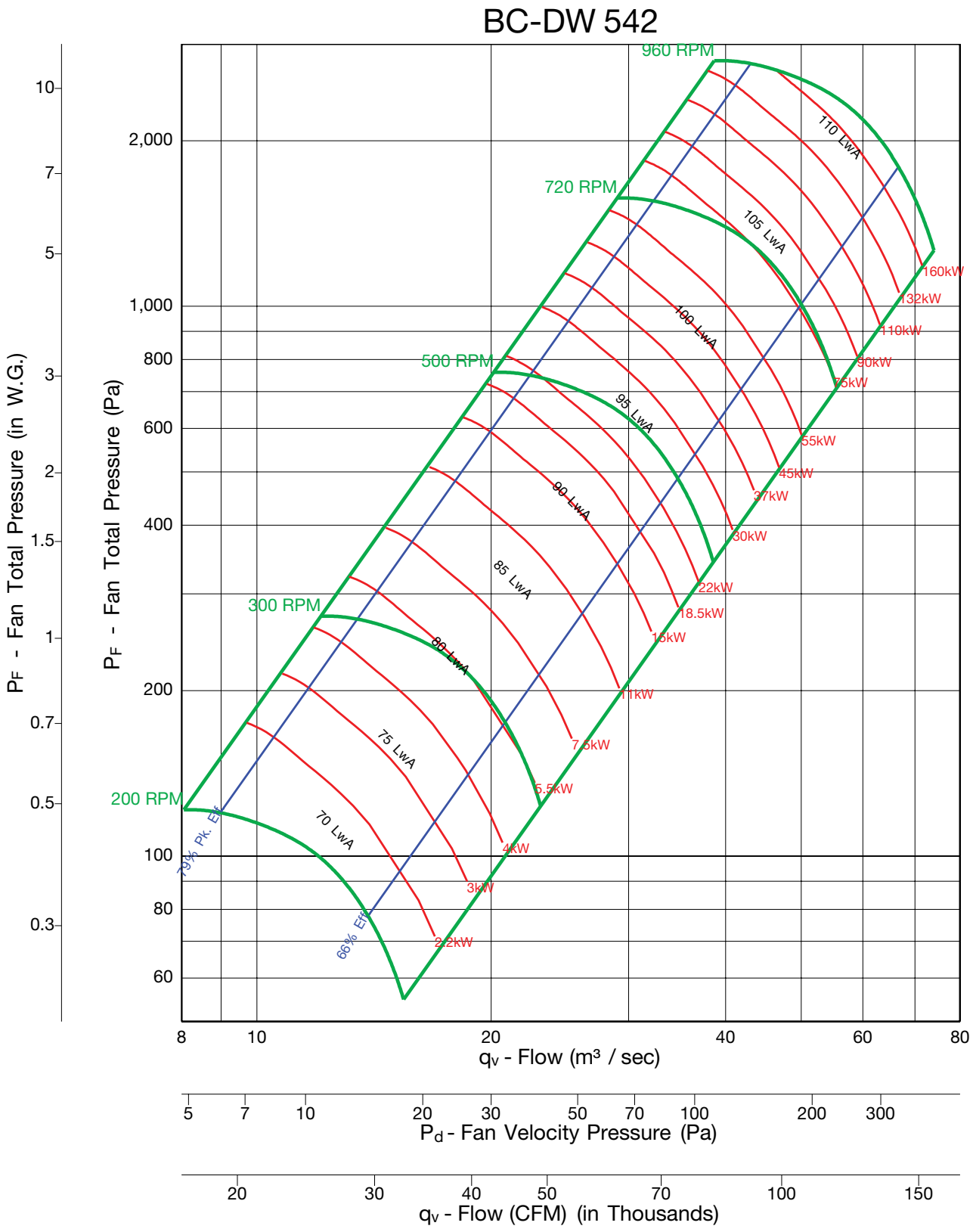

Fan Efficiency Grade = FEG 80

Notes:
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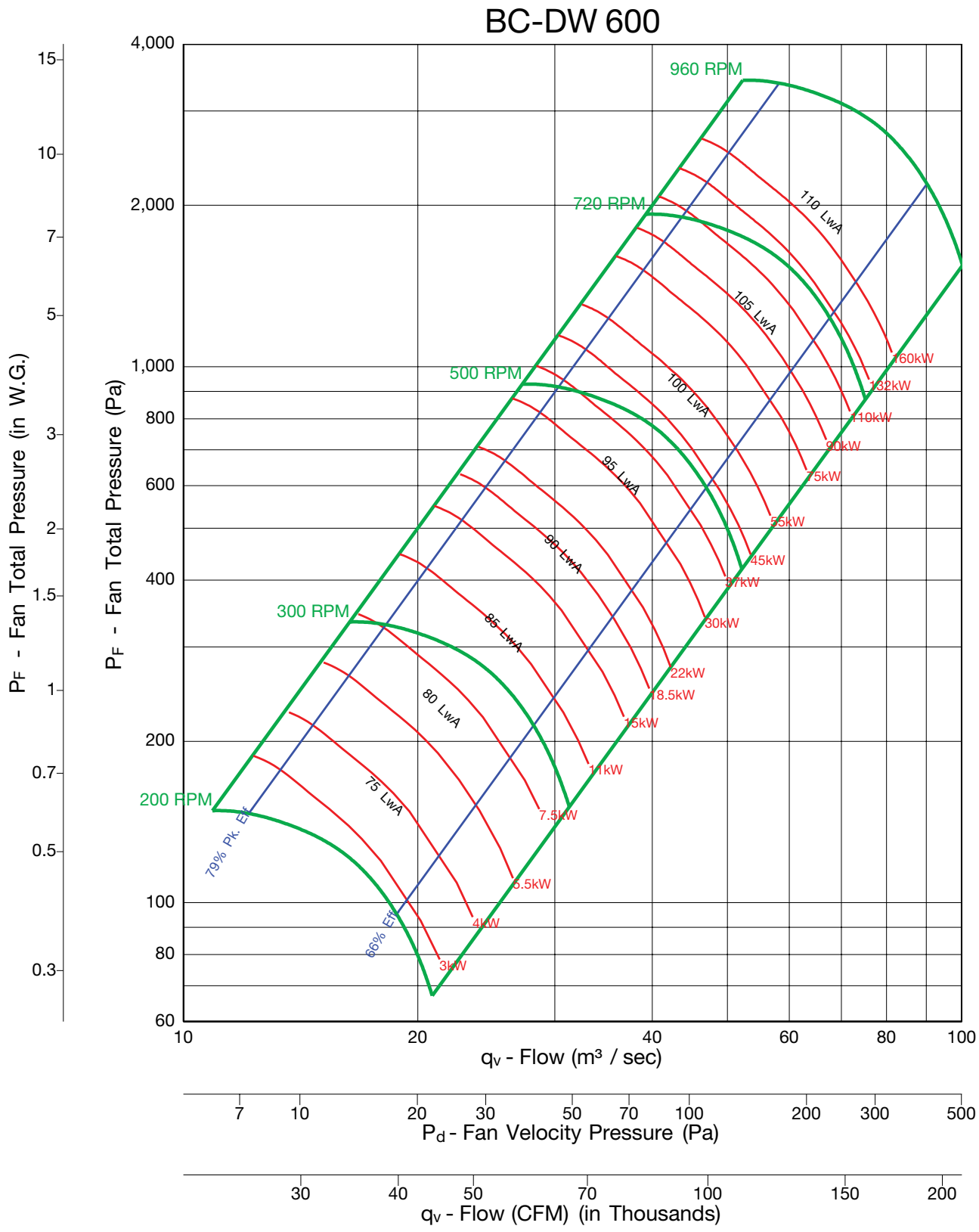

Fan Efficiency Grade = FEG 80

Notes:
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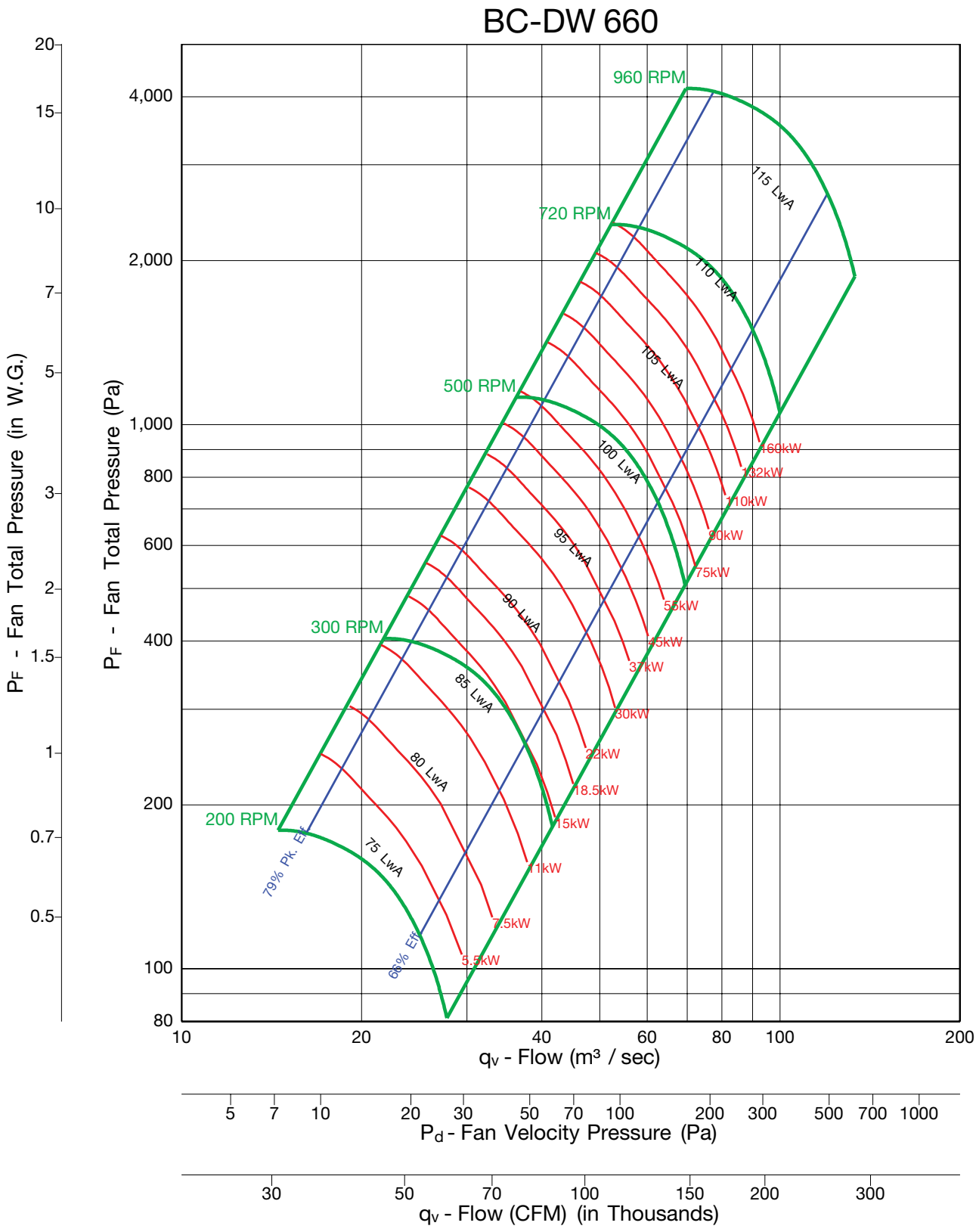

Fan Efficiency Grade = FEG 80

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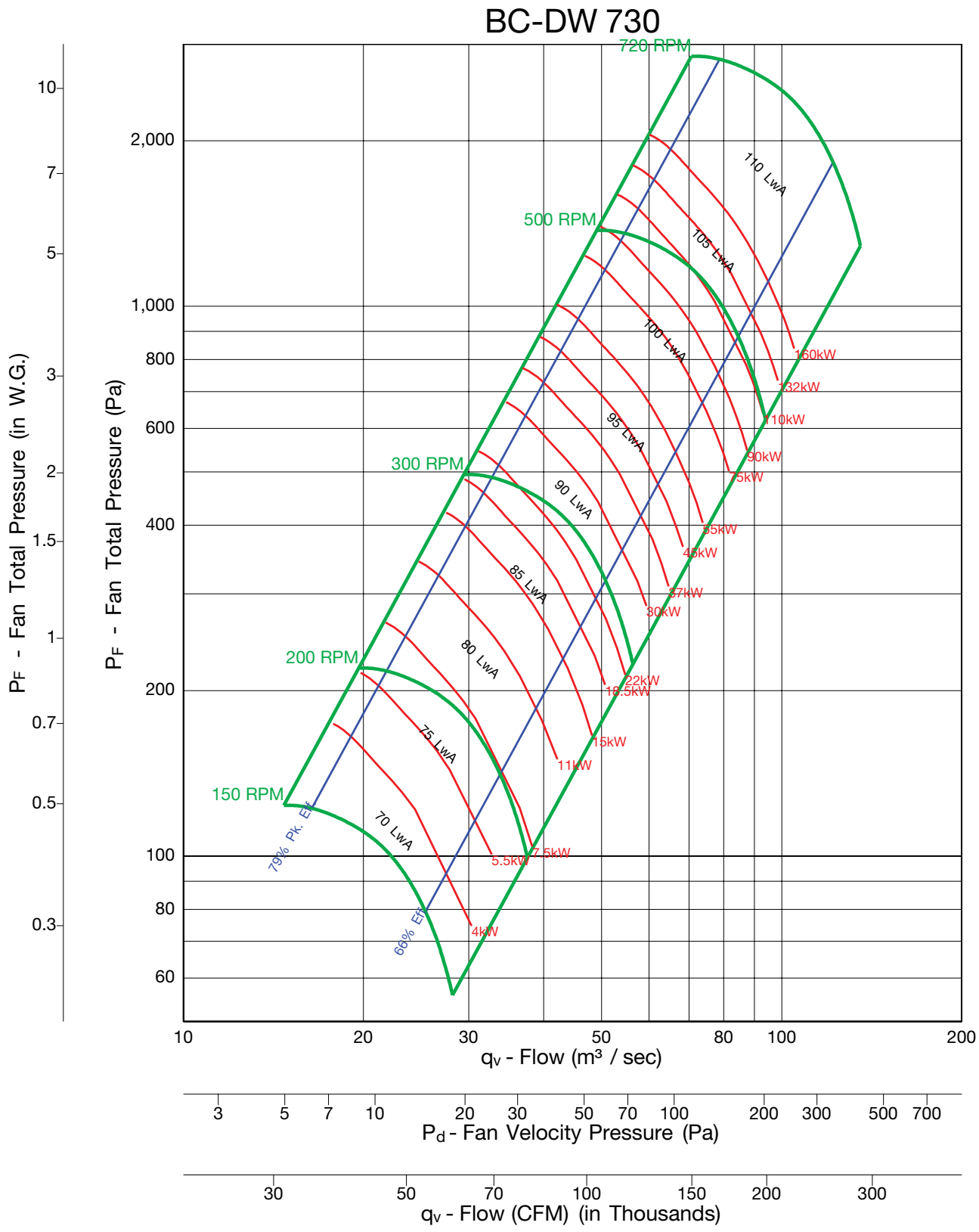

Fan Efficiency Grade = FEG 80

Notes:
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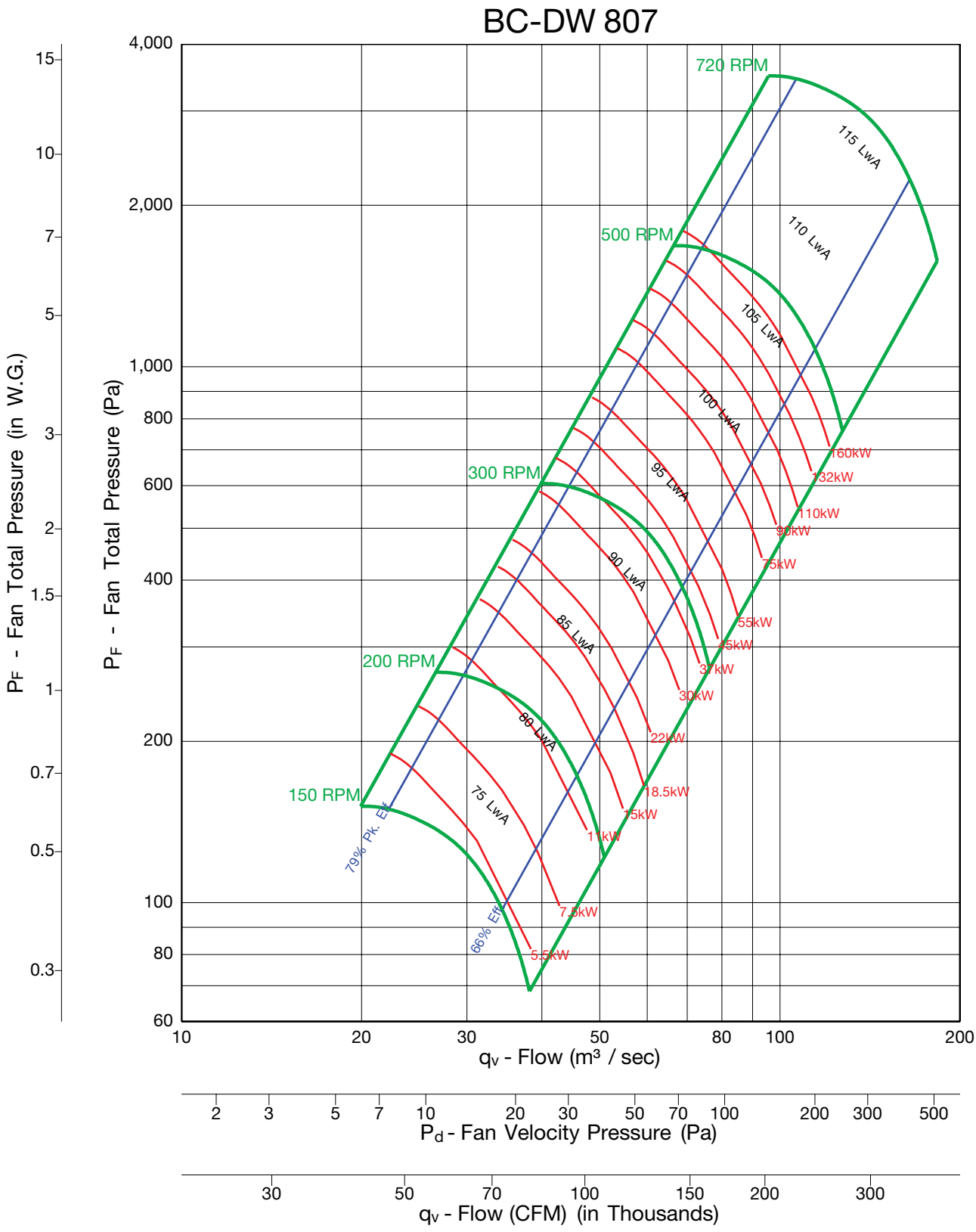

Fan Efficiency Grade = FEG 80

Notes:
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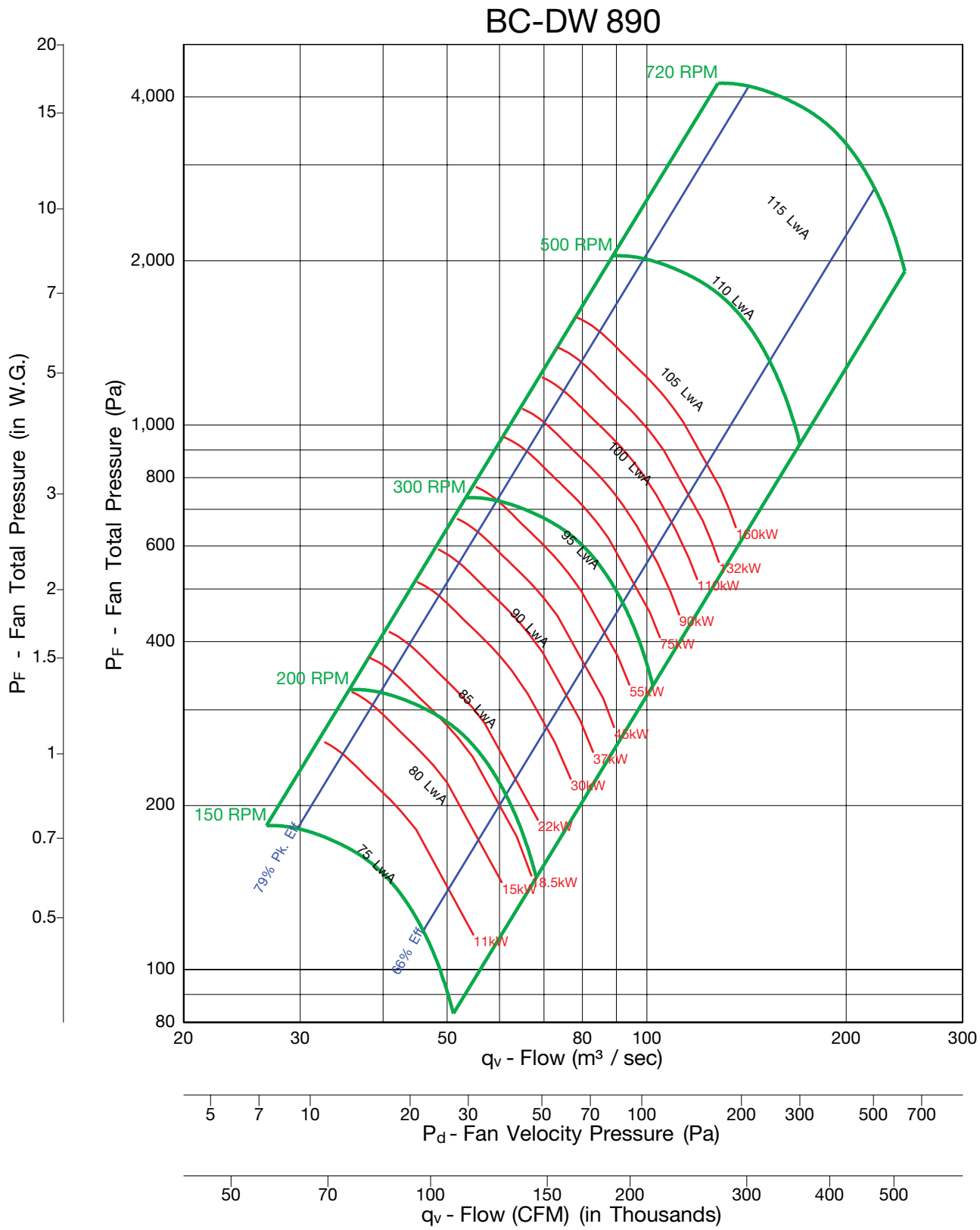

Fan Efficiency Grade = FEG 80

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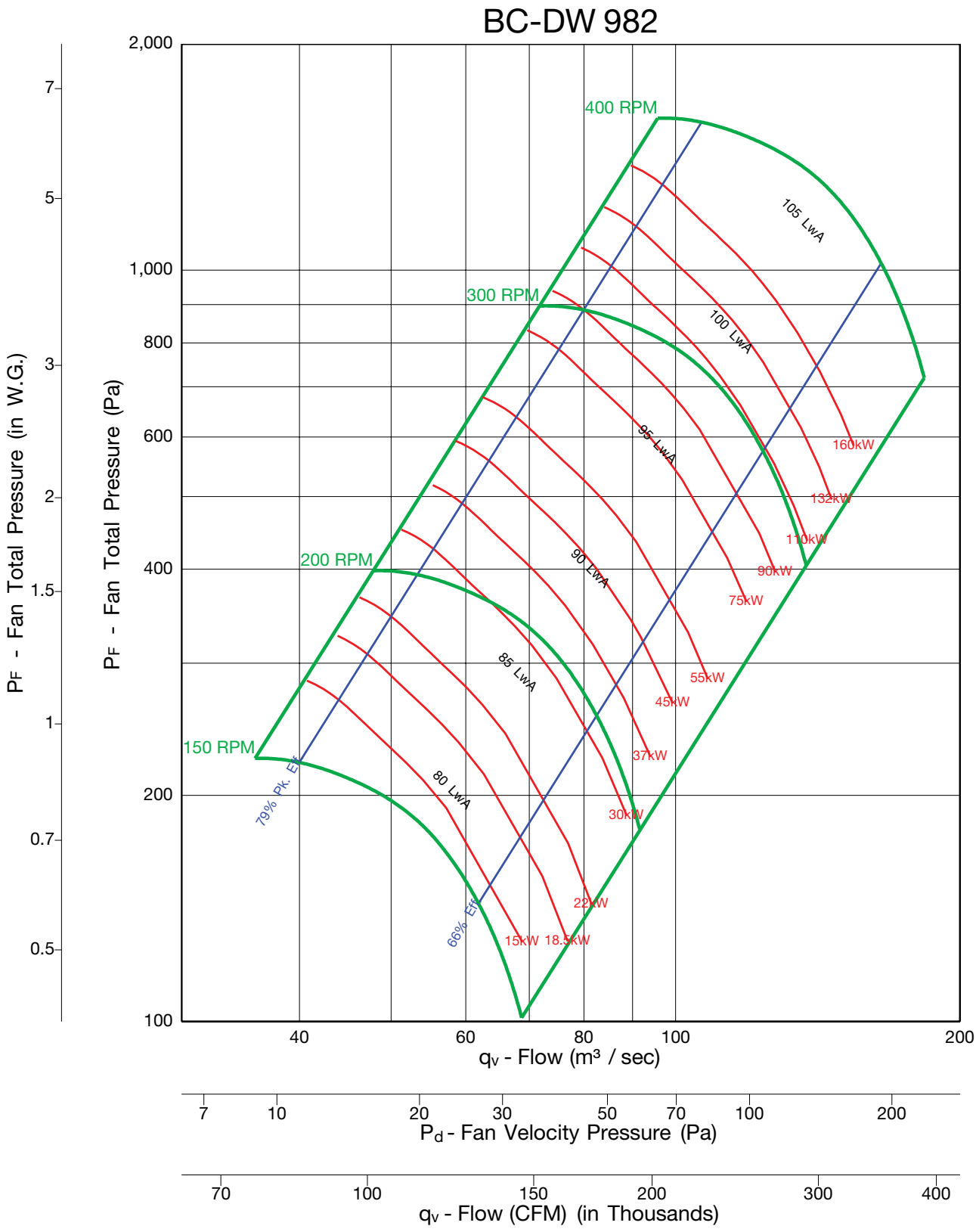

Fan Efficiency Grade = FEG 80

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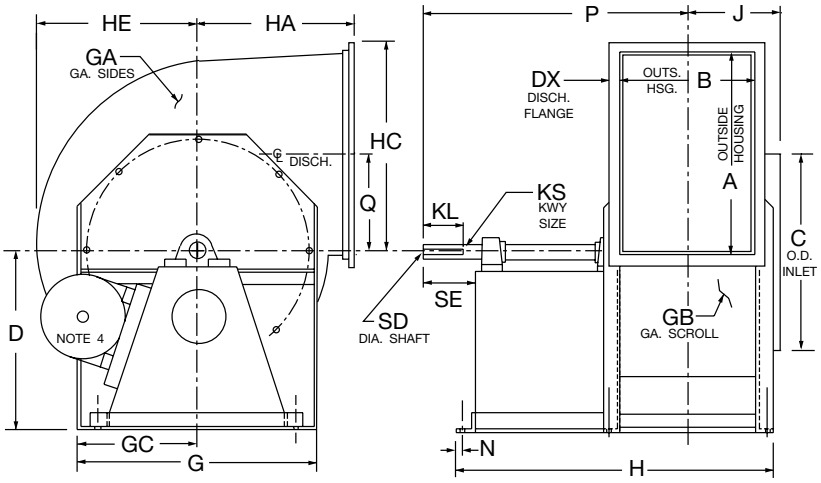
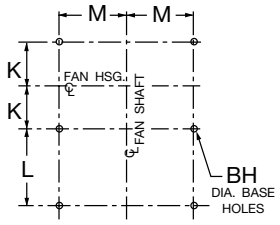
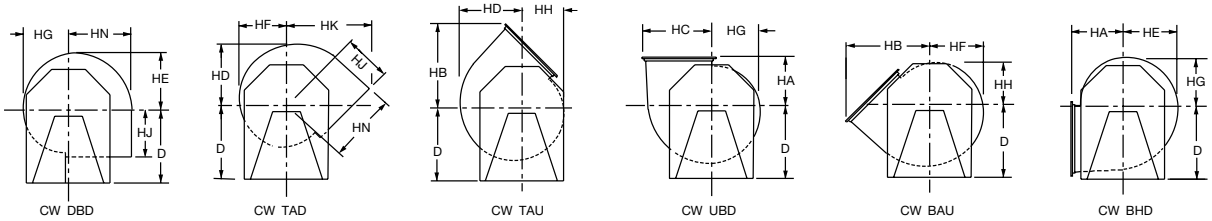
Arrangement 9, SWSI Rotatable, Class I & II



CW THD



FOUNDATION PLAN



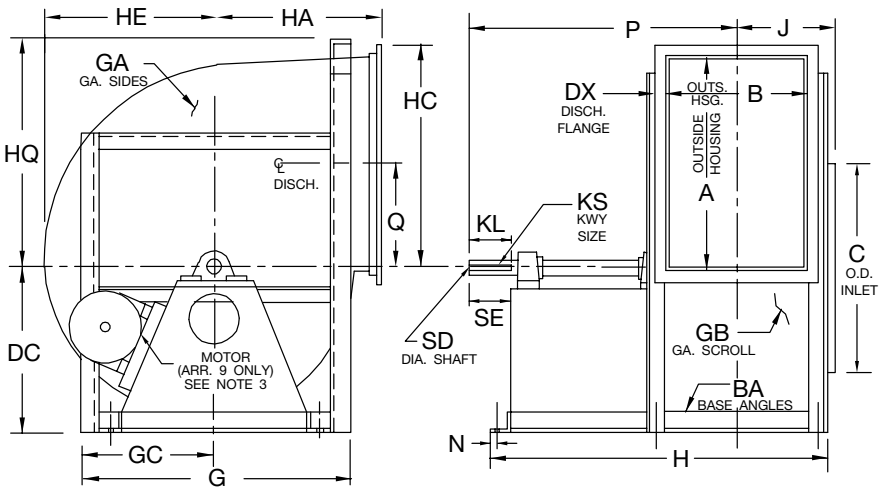
NOTES:
1. Discharge angles are included on all discharges except "TAD" and "DBD."
2. "CW" rotation is shown. "CCW" rotation is similar but opposite.
*3. Shaft diameter is increased to 1.187 on Hi-Temp. fans which require shaft coolers.
4. Standard Arr. 9 motor location is on the left for "CW" rotation units and on the right for "CCW" rotation. Dimension "FR" equals max. motor frame.

SIZE	A	B	BH	C	D	DX	FR	G	GA	GB	GC	H	HA	HB	HC	HD	HE	HF
122	330	248	11	337	368	25	90L	406	2.0	2.0	203	686	248	425	354	284	268	252
135	363	275	11	370	400	25	112M	445	2.0	2.0	222	778	273	467	387	313	295	278
150	403	303	11	411	451	25	112M	483	2.0	2.0	241	806	303	516	427	349	327	308
165	443	335	11	451	483	25	132M	521	2.0	2.0	260	918	334	565	467	383	359	338
182	492	370	11	495	533	32	160M	572	2.5	2.0	286	1064	368	630	522	424	399	375
200	538	405	14	543	578	32	160M	635	2.5	2.0	318	1099	402	686	568	467	440	413
222	598	449	14	603	648	32	160L	692	2.5	2.0	346	1149	449	762	629	519	484	456
245	659	494	14	662	711	32	160L	756	2.5	2.0	378	1194	495	838	689	568	533	502
270	727	543	14	724	775	38	180M	838	2.5	2.0	419	1314	545	926	764	627	589	554

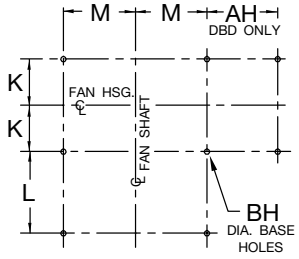
SIZE	HG	HH	HJ	HK	HN	J	K	KL	KS		L	M	N	P	Q	SD		SE
									CLASS I	CLASS II						CLASS I	CLASS II	
122	236	221	235	399	329	189	146	64	8 x 7	8 x 7	368	171	13	572	164	25	25*	83
135	260	243	260	440	362	203	160	64	8 x 7	8 x 7	432	187	13	649	181	25	25*	83
150	289	270	291	489	402	230	175	76	8 x 7	8 x 7	432	210	13	676	200	25	30	95
165	318	297	321	538	441	246	191	76	8 x 7	8 x 7	505	222	16	756	221	25*	30	95
182	351	327	356	598	490	276	208	89	8 x 7	10 x 8	616	245	16	897	245	30	38	108
200	404	359	389	654	537	294	226	89	10 x 8	10 x 8	616	270	16	914	268	38	38	108
222	427	399	437	730	597	316	254	102	10 x 8	10 x 8	597	298	22	943	298	38	38	121
245	470	438	483	806	657	338	276	114	10 x 8	14 x 9	597	327	22	978	329	38	45	133
270	519	484	532	889	725	362	300	114	14 x 9	14 x 9	670	359	22	1075	362	45	45	133

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

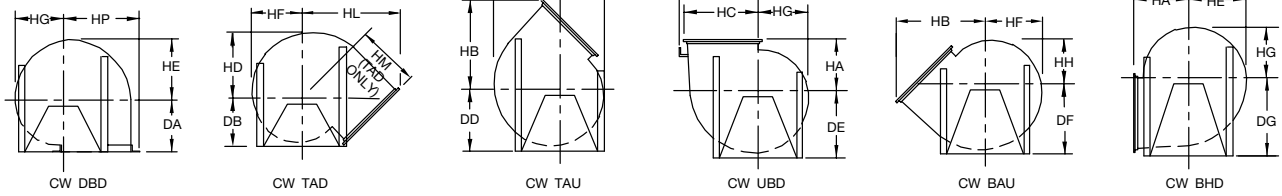
Arrangement 1 & 9, SWSI Non-Rotatable, Class I & II



CW THD



FOUNDATION PLAN



NOTES:

1. Discharge angles are included on all discharges.
2. "CW" rotation is shown. "CCW" rotation is similar but opposite.
3. Standard Arr. 9 motor location is on the left for "CW" rotation units and on the right for "CCW" rotation. Dimension "FR" equals max. motor frame.
4. For fans with inlet box at 90 degrees or 270 degrees, use "BAU" discharge dimension "DF" for centerline height.

SIZE	A	AH	B	BA	BH	C	DA	DB	DC	DD	DE	DF	DG	DX	FR ARR. 9	G	GA	GB
300	808	438	605	65 x 65	14	803	679	679	679	679	724	762	902	38	180L	1041	3.0	2.5
330	892	484	662	65 x 65	14	883	762	762	762	762	787	832	991	38	200M	1118	3.0	2.5
365	983	537	734	65 x 65	14	978	737	775	749	800	851	902	1041	38	200M	1219	3.0	2.5
402	1083	592	808	75 x 75	21	1078	813	826	838	895	940	1003	1156	38	200L	1334	3.0	2.5
445	1197	656	894	75 x 75	21	1191	899	921	902	978	1016	1099	1270	38	225S	1435	3.0	2.5
490	1319	715	981	75 x 75	21	1311	991	984	991	1073	1118	1207	1391	51	225S	1562	3.0	2.5
542	1457	808	1089	75 x 100	21	1451	1094	1073	1105	1181	1245	1327	1530	51	250S	1702	3.0	2.5
600	1613	887	1202	75 x 100	21	1604	1211	1143	1219	1302	1372	1461	1683	51	250S	1854	3.0	2.5
660	1770	994	1326	90 x 125	21	1762	1332	1257	1334	1416	1499	1600	1861	64	250M	2032	3.0	2.5
730	1962	1083	1462	90 x 125	21	1949	1473	1378	1448	1568	1638	1765	2051	64	250M	2235	3.0	3.0

SIZE	GC	H	HA	HB	HC	HD	HE	HF	HG	HH	HL	HM	HP	HQ	J	K	KL	KS	
																		CL I	CL II
300	521	1416	605	1024	845	697	654	616	578	540	1197	849	870	—	394	338	127	14 x 9	14 x 9
330	559	1540	667	1129	929	765	721	678	635	592	1295	903	954	—	422	367	127	14 x 9	16 x 10
365	610	1610	737	1242	1019	851	800	753	705	657	1410	975	1045	—	457	402	127	14 x 9	18 x 11
402	667	1724	813	1367	1119	940	881	829	776	724	1537	1056	1157	—	508	446	127	16 x 10	18 x 11
445	718	1851	899	1508	1233	1038	972	914	857	800	1669	1127	1272	—	551	489	140	18 x 11	20 x 12
490	781	1946	991	1669	1369	1140	1072	1008	945	881	1837	1230	1394	—	594	532	140	20 x 12	20 x 12
542	851	2223	1094	1838	1506	1264	1186	1116	1046	976	2004	1329	1557	1518	673	598	152	20 x 12	25 x 14
600	927	2330	1211	2032	1662	1397	1313	1235	1157	1080	2191	1437	1713	1670	730	656	152	20 x 12	25 x 14
660	1016	2572	1332	2237	1832	1534	1443	1356	1268	1181	2408	1575	1896	1835	818	730	178	25 x 14	28 x 16
730	1118	2785	1473	2472	2023	1700	1597	1502	1407	1311	2646	1719	2086	2026	887	799	191	25 x 14	28 x 16

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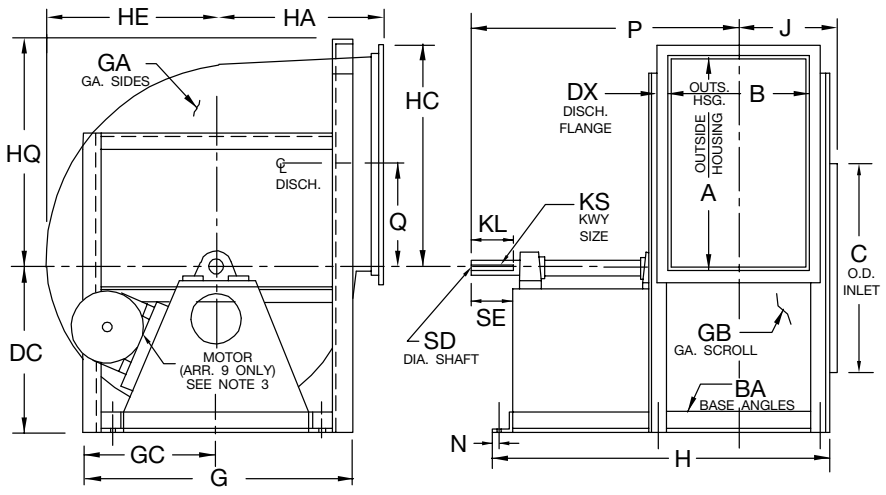
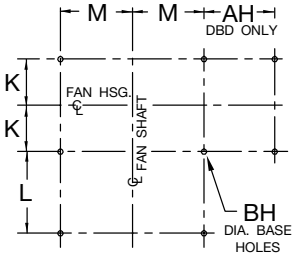
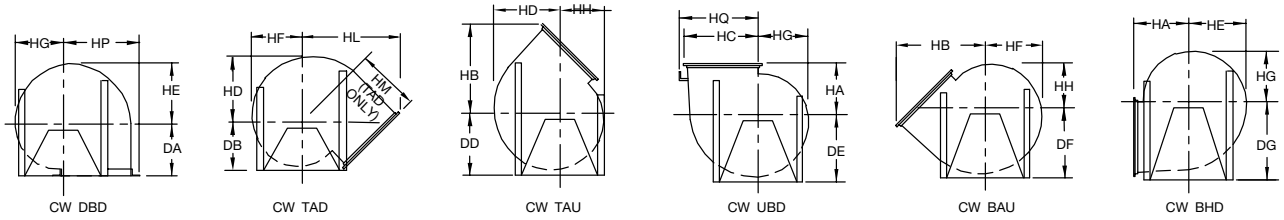
Arrangement 1 & 9, Non-Rotatable, Class I & II (cont'd.)



CW THD



FOUNDATION PLAN



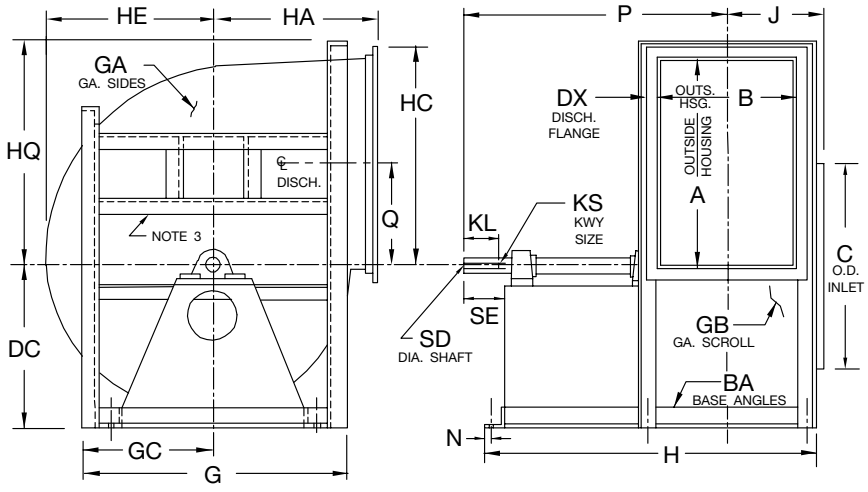
NOTES:

1. Discharge angles are included on all discharges.
2. "CW" rotation is shown. "CCW" rotation is similar but opposite.
3. Standard Arr. 9 motor location is on the left for "CW" rotation units and on the right for "CCW" rotation. Dimension "FR" equals max. motor frame.
4. For fans with inlet box at 90 degrees or 270 degrees, use "BAU" discharge dimension "DF" for centerline height.

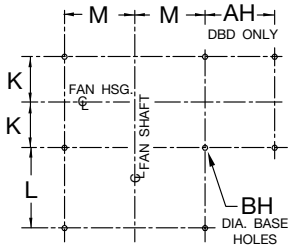
SIZE	L	M	N	P	Q	SD		SE
						CL I	CL II	
300	683	403	29	1132	402	50	50	146
330	749	441	29	1227	445	50	55	146
365	749	480	29	1262	489	50	65	146
402	762	530	35	1313	540	55	65	146
445	803	581	35	1410	597	65	70	159
490	813	645	35	1462	657	70	75	159
542	930	702	48	1646	727	75	90	171
600	924	778	48	1697	805	75	90	171
660	991	842	60	1851	883	90	100	197
730	1067	943	60	2008	978	90	100	210

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

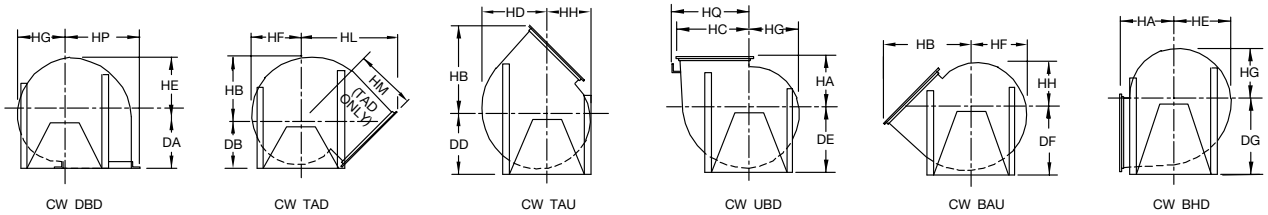
Arrangement 1, SWSI Non-Rotatable, Class I & II



CW THD



FOUNDATION PLAN



CW DBD | CW TAD | CW TAU | CW UBD | CW BAU | CW BHD

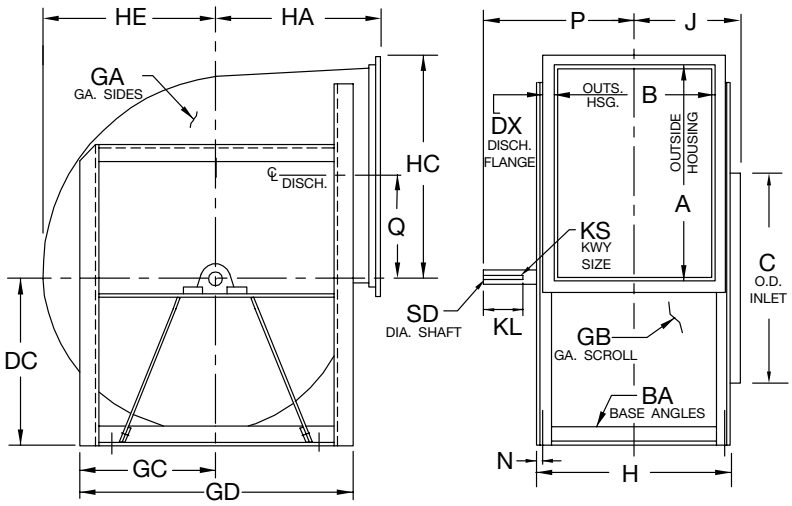
NOTES:
1. Discharge angles are included on all discharges.
2. "CW" rotation is shown. "CCW" rotation is similar but opposite.
3. Frame supports vary in contruction by size and by discharge position.
4. For fans with inlet box at 90 degrees or 270 degrees, use "BAU" discharge dimension "DF" for centerline height.

SIZE	A	AH	B	BA	BH	C	DA	DB	DC	DD	DE	DF	DG	DX	G	GA	GB	GC
807	2170	1195	1616	90 x 125	21	2156	1630	1511	1600	1715	1829	1943	2261	64	2426	3	3	1213
890	2391	1276	1781	90 x 125	21	2372	1778	1664	1759	1873	1988	2159	2483	64	2705	5	3	1353
982	2642	1365	1969	125 x 150	21	2629	1975	1816	1943	2032	2197	2337	2750	64	3099	5	5	1549

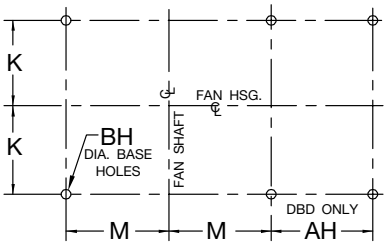
SIZE	H	HA	HB	HC	HD	HE	HF	HG	HH	HL	HM	HP	HQ	J	K	KL	KS	
																	CL I	CL II
807	3013	1630	2731	2230	1880	1765	1661	1556	1451	2888	1854	2294	2229	960	875	203	28 x 16	32 x 18
890	3255	1778	2991	2451	2072	1946	1830	1715	1599	3185	2051	2515	2451	1043	957	203	28 x 16	32 x 18
982	3572	1975	3305	2700	2288	2150	2021	1892	1764	3558	2330	2788	2711	1162	1064	203	32 x 18	enq

SIZE	L	M	N	P	Q	SD		SE
						CL I	CL II	
807	1143	1038	60	2180	1083	100	115	229
890	1219	1178	60	2338	1192	100	125	229
982	1299	1350	73	2512	1316	125	enq	229

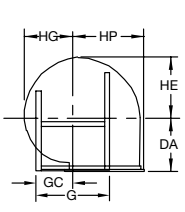
Arrangement 3, SWSI Non-Rotatable, Class I & II



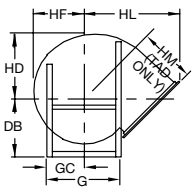
CW THD



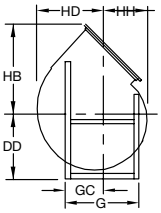
FOUNDATION PLAN



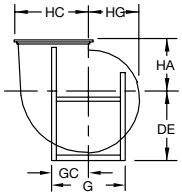
CW DBD



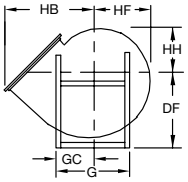
CW TAD



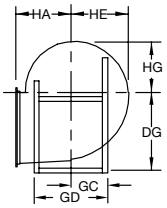
CW TAU



CW UBD



CW BAU



CW BHD

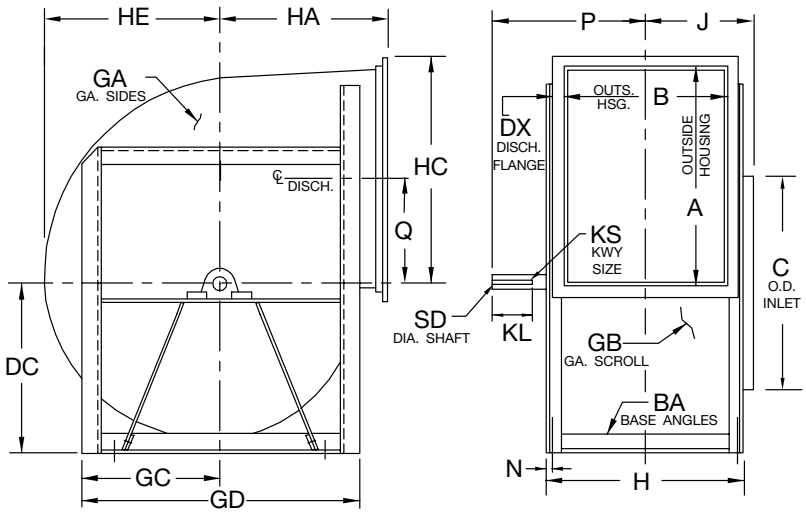
NOTES:
1. Discharge angles are included on all discharges.
2. Inlet bearing bar support is removable.
3. "CW" rotation is shown. "CCW" rotation is similar but opposite.
4. Bearing bar supports may extend beyond base angles. See Drawing AC1000851 for dimensions if space limitations are required for mounting fan.

SIZE	A	AH	B	BA	BH	C	DA	DB	DC	DD	DE	DF	DG	DX	G	GA	GB	GC
122	330	179	248	38 x 38	11	337	248	387	260	279	292	311	381	25	502	2.0	2.0	251
135	363	197	275	38 x 38	11	370	273	406	286	305	324	337	413	25	533	2.0	2.0	267
150	403	214	303	38 x 38	11	411	303	425	311	337	356	375	457	25	578	2.0	2.0	289
165	443	248	335	38 x 50	11	451	334	445	343	368	387	413	495	25	616	2.0	2.0	308
182	492	275	370	38 x 50	11	495	368	470	375	400	425	451	546	32	660	2.5	2.0	330
200	538	295	405	38 x 50	14	543	402	495	413	438	464	489	597	32	711	2.5	2.0	356
222	598	327	449	50 x 50	14	603	449	533	457	489	521	559	660	32	794	2.5	2.0	397
245	659	359	494	50 x 50	14	662	495	559	508	540	572	610	718	32	851	2.5	2.0	425
270	727	395	543	50 x 50	14	724	545	597	559	597	629	667	787	38	914	2.5	2.0	457

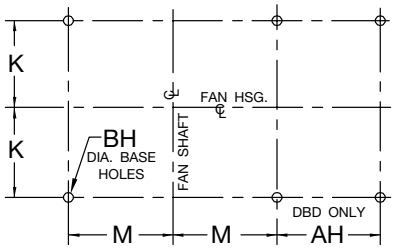
SIZE	GD	H	HA	HB	HC	HD	HE	HF	HG	HH	HL	HM	HP	J	K	KL	KS	
																	CLASS I	CLASS II
122	470	324	248	425	354	284	268	252	236	221	572	454	367	189	146	64	8 x 7	8 x 7
135	502	353	273	467	387	313	295	278	260	243	611	476	400	203	160	64	8 x 7	8 x 7
150	546	381	303	516	427	349	327	308	289	270	660	508	440	230	175	76	8 x 7	8 x 7
165	616	438	334	565	467	383	359	338	318	297	708	535	492	246	197	76	8 x 7	8 x 7
182	660	473	368	630	522	424	399	375	351	327	773	572	541	276	214	89	8 x 7	10 x 8
200	711	508	402	686	568	467	440	413	386	359	832	608	588	294	232	89	10 x 8	10 x 8
222	794	552	449	762	629	519	484	456	427	399	916	667	648	316	254	102	10 x 8	10 x 8
245	851	597	495	838	689	568	533	502	470	438	988	706	708	338	276	114	10 x 8	14 x 9
270	914	645	545	926	764	627	589	554	519	484	1076	759	776	362	300	114	10 x 8	14 x 9

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

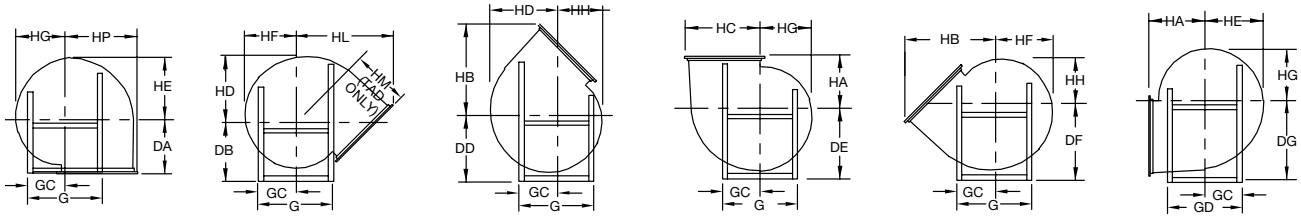
Arrangement 3, SWSI Non-Rotatable, Class I & II (cont'd.)



CW THD



FOUNDATION PLAN



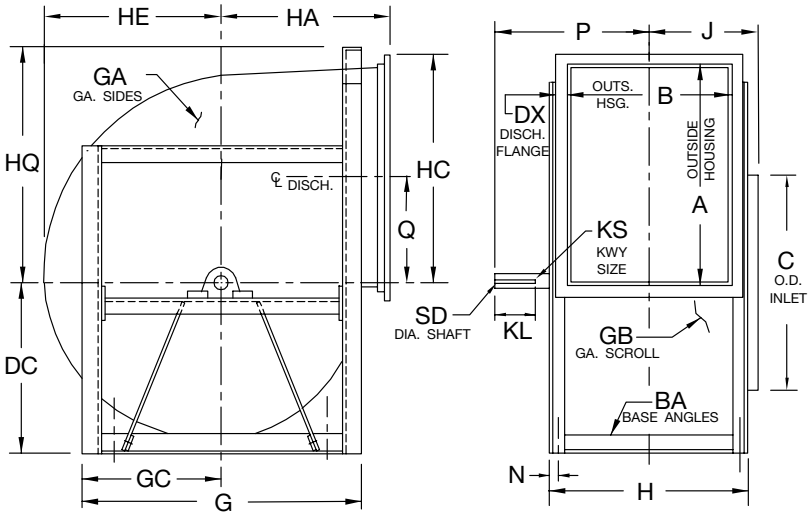
CW DBD | CW TAD | CW TAU | CW UBD | CW BAU | CW BHD

NOTES:
1. Discharge angles are included on all discharges.
2. Inlet bearing bar support is removable.
3. "CW" rotation is shown. "CCW" rotation is similar but opposite.
4. Bearing bar supports may extend beyond base angles. See Drawing AC1000851 for dimensions if space limitations are required for mounting fan.

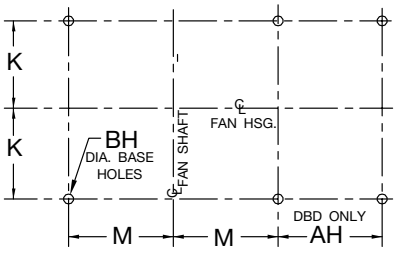
SIZE	M	N	P		Q	SD	
			CL I	CL II		CL I	CL II
122	171	16	254	254	164	25	25
135	187	16	268	268	181	25	25
150	210	16	295	305	200	25	30
165	222	22	311	321	221	25	30
182	245	22	351	372	245	30	38
200	270	22	389	389	268	38	38
222	298	22	424	424	298	38	38
245	327	22	459	468	329	38	45
270	359	22	483	492	362	38	45

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

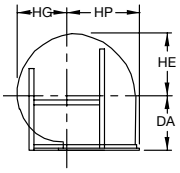
Arrangement 3, SWSI Non-Rotatable, Class I & II



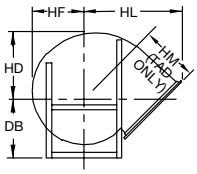
CW THD



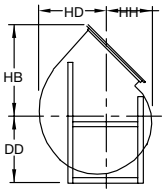
FOUNDATION PLAN



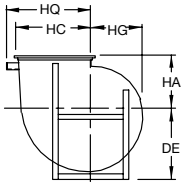
CW DBD



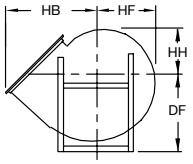
CW TAD



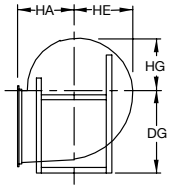
CW TAU



CW UBD



CW BAU



CW BHD

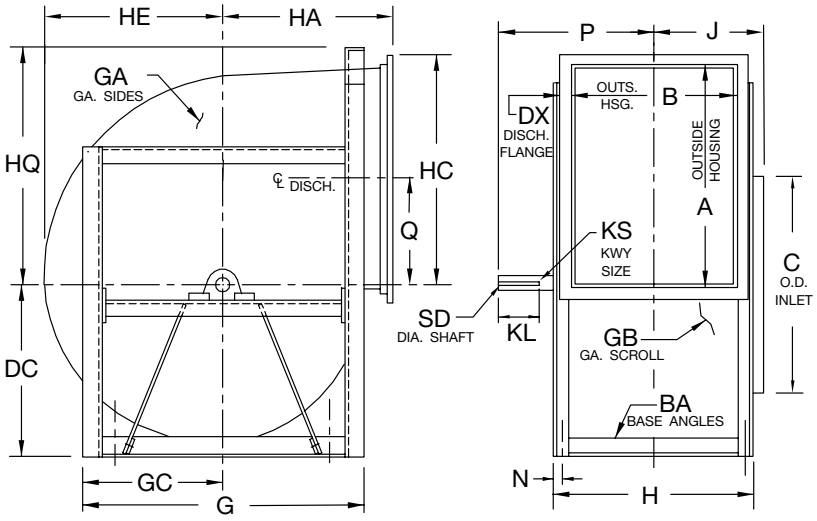
NOTES:
1. Discharge angles are included on all discharges.
2. Inlet bearing bar support is removable.
3. "CW" rotation is shown. "CCW" rotation is similar but opposite.
4. Frame supports vary in construction by size and by discharge position.
5. Bearing bar supports may extend beyond base angles. See Drawing AC1000851 for dimensions if space limitations are required for mounting fan.

SIZE	A	AH	B	BA	BH	C	DA	DB	DC	DD	DE	DF	DG	DX	G	GA	GB	GC
300	808	438	605	65 x 65	14	803	605	660	622	660	724	749	870	38	1041	3.0	2.5	521
330	892	484	662	65 x 65	14	883	667	705	686	724	787	819	946	38	1118	3.0	2.5	559
365	983	537	734	65 x 65	14	978	737	775	749	800	851	902	1041	38	1219	3.0	2.5	610
402	1083	592	808	75 x 75	21	1078	813	826	838	895	940	1003	1156	38	1334	3.0	2.5	667
445	1197	656	894	75 x 75	21	1191	899	921	902	978	1016	1099	1270	38	1435	3.0	2.5	718
490	1319	715	981	75 x 75	21	1311	991	984	991	1073	1118	1207	1391	51	1562	3.0	2.5	781
542	1457	808	1089	75 x 100	21	1451	1094	1073	1105	1181	1245	1327	1530	51	1702	3.0	2.5	851
600	1613	887	1202	75 x 100	21	1604	1211	1143	1219	1302	1372	1461	1683	51	1854	3.0	2.5	927
660	1770	994	1326	90 x 125	21	1762	1332	1257	1334	1416	1499	1600	1861	64	2032	3.0	2.5	1016
730	1962	1083	1462	90 x 125	21	1949	1473	1378	1448	1568	1638	1765	2051	64	2235	3.0	3.0	1118

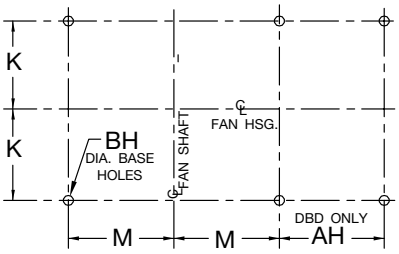
SIZE	H	HA	HB	HC	HD	HE	HF	HG	HH	HL	HM	HP	HQ	J	K	KL	KS	
																	CLASS I	CLASS II
300	734	605	1024	845	697	654	616	578	540	1197	849	870	—	406	338	127	14 x 9	14 x 9
330	791	667	1129	929	765	721	678	635	592	1295	903	954	—	435	367	127	14 x 9	16 x 10
365	861	737	1242	1019	851	800	753	705	657	1410	975	1045	—	484	402	127	14 x 9	18 x 11
402	962	813	1367	1119	940	881	829	776	724	1537	1056	1157	—	521	446	127	14 x 9	18 x 11
445	1048	899	1508	1233	1038	972	914	857	800	1666	1127	1272	—	576	489	140	14 x 9	20 x 12
490	1134	991	1669	1369	1140	1072	1008	945	881	1837	1230	1394	—	621	532	140	16 x 10	20 x 12
542	1292	1094	1838	1506	1264	1186	1116	1046	976	2004	1329	1557	1518	675	598	152	18 x 11	20 x 12
600	1407	1211	2032	1662	1397	1313	1235	1157	1080	2191	1437	1713	1670	730	656	152	20 x 12	25 x 14
660	1581	1332	2237	1832	1534	1443	1356	1268	1181	2408	1575	1896	1835	818	730	178	20 x 12	28 x 16
730	1718	1473	2472	2023	1700	1597	1502	1407	1311	2646	1719	2086	2026	886	799	191	25 x 14	28 x 16

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

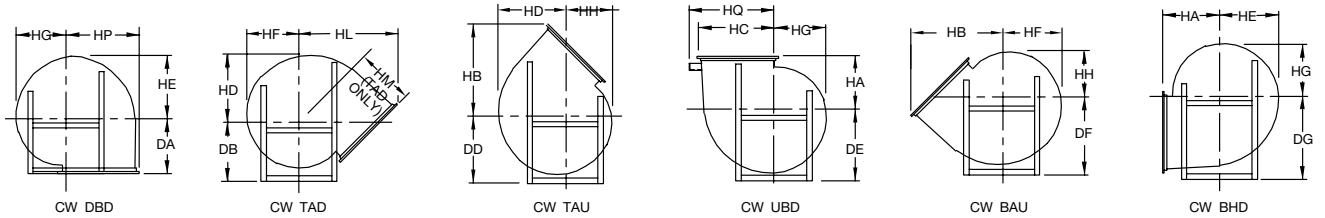
Arrangement 3, SWSI Non-Rotatable, Class I & II



CW THD



FOUNDATION PLAN

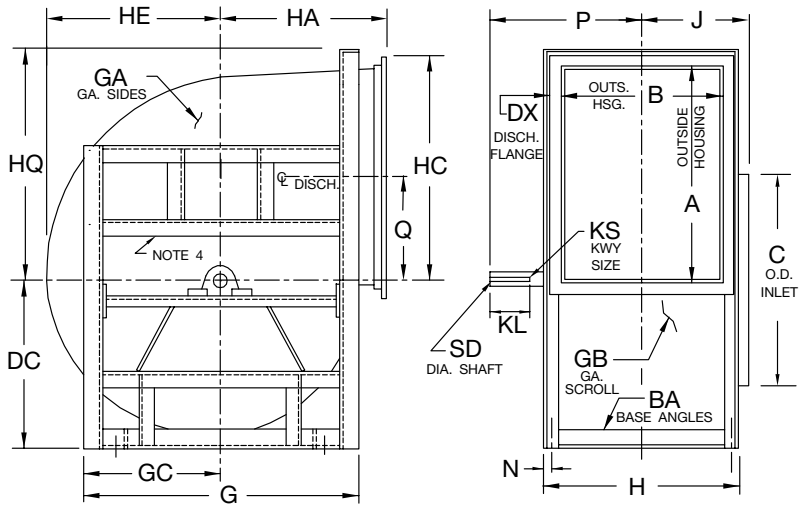


NOTES:
1. Discharge angles are included on all discharges.
2. Inlet bearing bar support is removable.
3. "CW" rotation is shown. "CCW" rotation is similar but opposite.
4. Frame supports vary in construction by size and by discharge position.
5. Bearing bar supports may extend beyond base angles. See Drawing AC1000851 for dimensions if space limitations are required for mounting fan.

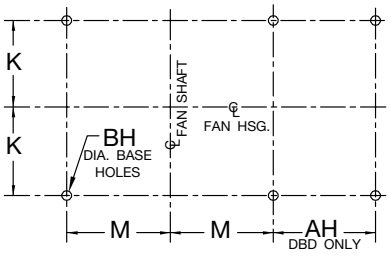
SIZE	M	N	P		Q	SD	
			CL I	CL II		CL I	CL II
300	403	29	537	540	402	45	50
330	441	29	565	581	445	45	55
365	480	29	603	626	489	50	65
402	530	35	641	664	540	50	65
445	581	35	697	741	597	50	70
490	645	35	768	784	657	55	70
542	702	48	848	857	727	65	75
600	778	48	902	937	805	75	90
660	842	60	1013	1037	883	75	100
730	943	60	1105	1118	978	90	100

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

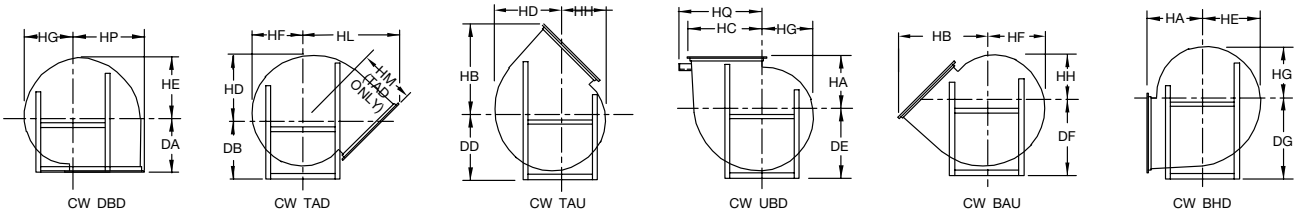
Arrangement 3, SWSI Non-Rotatable, Class I & II



CW THD



FOUNDATION PLAN



NOTES:
1. Discharge angles are included on all discharges.
2. Inlet bearing bar support is removable.
3. "CW" rotation is shown. "CCW" rotation is similar but opposite.
4. Frame supports vary in contruction by size and by discharge position.
5. Bearing bar supports may extend beyond base angles. See Drawing AC1000851 for dimensions if space limitations are required for mounting fan.

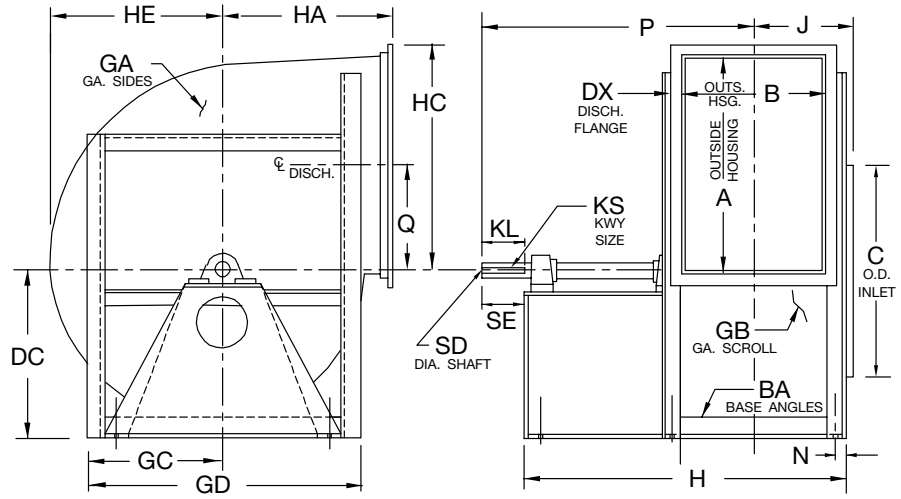
SIZE	A	AH	B	BA	BH	C	DA	DB	DC	DD	DE	DF	DG	DX	G	GA	GB	GC
807	2170	1195	1616	90 x 125	21	2156	1630	1511	1600	1715	1829	1943	2261	64	2426	3	3	1213
890	2391	1276	1781	90 x 125	21	2372	1778	1664	1759	1873	1988	2159	2484	64	2705	5	3	1353
982	2642	1365	1969	100 x 150	21	2629	1975	1816	1943	2032	2197	2337	2750	64	3099	5	5	1549

SIZE	H	HA	HB	HC	HD	HE	HF	HG	HH	HL	HM	HP	HQ	J	K	KL	KS	
																	CL I	CL II
807	1870	1630	2731	2230	1880	1765	1661	1556	1451	2888	1854	2294	2229	988	875	203	28 x 16	32 x 18
890	2035	1778	2991	2451	2072	1946	1830	1715	1599	3185	2051	2515	2451	1097	957	203	28 x 16	32 x 18
982	2273	1975	3305	2700	2288	2150	2021	1892	1764	3558	2330	2788	2711	1216	1064	203	32 x 18	eng

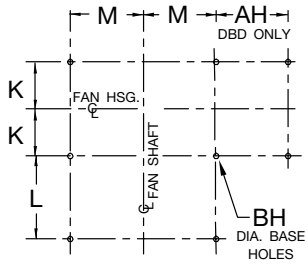
SIZE	M	N	P		Q	SD	
			CL I	CL II		CL I	CL II
807	1038	60	1210	1259	1083	100	115
890	1178	60	1289	1357	1192	100	125
982	1350	73	1445	1470	1316	125	eng

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

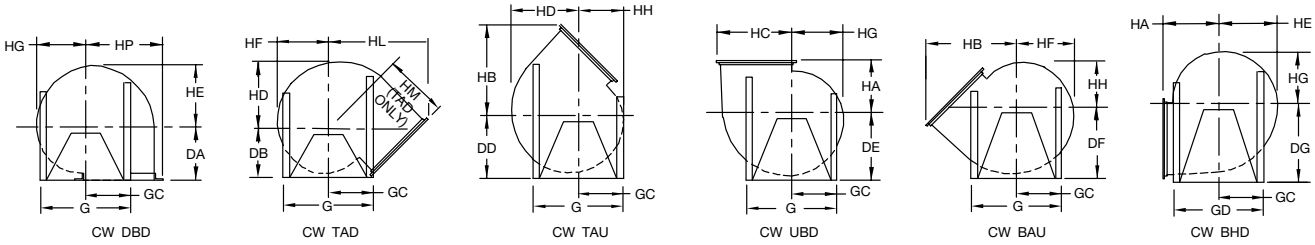
Arrangement 1, SWSI Non-Rotatable, Class III



CW THD



FOUNDATION PLAN



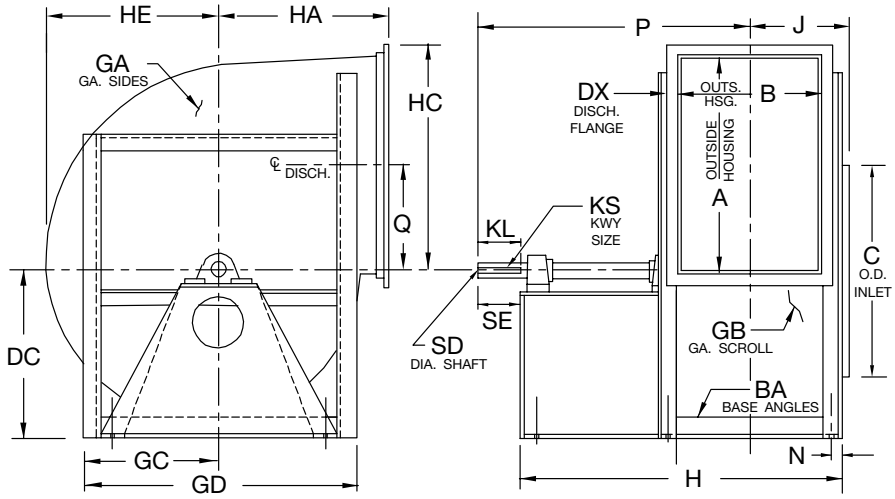
NOTES:
1. Discharge angles are included on all discharges.
2. "CW" rotation is shown. "CCW" rotation is similar but opposite.
3. For fans size 182-330 (except TAD 182-200) with inlet box at 90 degrees or 270 degrees, use "BAU" discharge dimension "DF" for centerline height.

SIZE	A	AH	B	BA	BH	C	DA	DB	DC	DD	DE	DF	DG	DX	G	GA	GB	GC
122	334	194	251	38 x 50	11	337	248	387	260	279	292	311	394	32	502	3	3	251
135	367	211	278	38 x 50	11	370	273	406	286	305	324	337	425	32	533	3	3	267
150	406	229	306	38 x 50	11	411	303	425	311	337	356	375	470	32	578	3	3	289
165	446	249	338	38 x 50	11	451	334	445	343	368	387	413	495	32	616	3	3	308
182	495	276	372	50 x 50	14	495	368	470	375	400	425	451	559	32	686	3	3	343
200	541	297	406	50 x 50	14	543	402	495	413	438	464	489	610	32	737	3	3	368
222	602	341	451	65 x 65	14	603	449	533	457	489	521	559	673	32	819	3	3	410
245	665	372	499	65 x 65	14	662	495	559	508	540	572	610	730	38	876	5	5	438
270	734	411	548	65 x 65	14	724	545	597	559	597	629	667	800	38	940	5	5	470
300	813	452	608	75 x 75	21	803	605	660	622	660	699	749	883	38	1067	5	5	533
330	897	499	665	75 x 75	21	883	667	705	686	724	762	819	959	38	1143	5	5	572

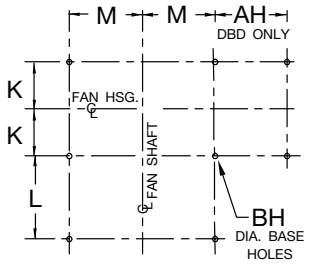
SIZE	GD	H	HA	HB	HC	HD	HE	HF	HG	HH	HL	HM	HP	J	K	KL	KS
122	473	568	248	432	362	286	270	254	238	222	583	462	381	202	154	76	10 x 8
135	505	610	273	473	395	314	297	279	262	245	622	484	414	216	168	76	10 x 8
150	549	676	303	522	435	351	329	310	291	272	673	516	454	230	183	89	14 x 9
165	588	708	334	572	475	384	360	340	319	298	719	543	494	246	198	89	14 x 9
182	686	765	368	630	524	425	400	376	353	329	789	592	543	262	214	114	14 x 9
200	737	826	402	687	570	467	441	414	387	360	846	627	589	279	232	114	14 x 9
222	819	946	449	764	630	521	486	457	429	400	932	687	662	314	260	127	14 x 9
245	876	1032	495	845	699	572	537	505	473	441	988	699	724	338	284	152	18 x 11
270	940	1134	545	927	767	630	592	557	522	487	1068	743	792	363	310	152	18 x 11
300	1067	1257	605	1026	846	699	656	617	579	537	1187	833	884	406	346	178	18 x 11
330	1143	1365	667	1129	930	767	722	679	637	594	1286	887	969	435	375	178	20 x 12

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

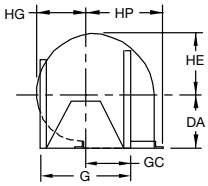
Arrangement 1, SWSI Non-Rotatable, Class III (cont'd.)



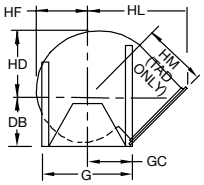
CW THD



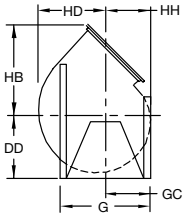
FOUNDATION PLAN



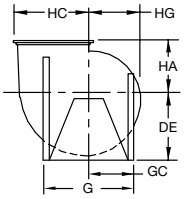
CW DBD



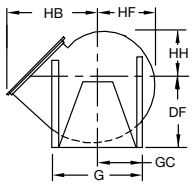
CW TAD



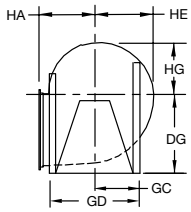
CW TAU



CW UBD



CW BAU



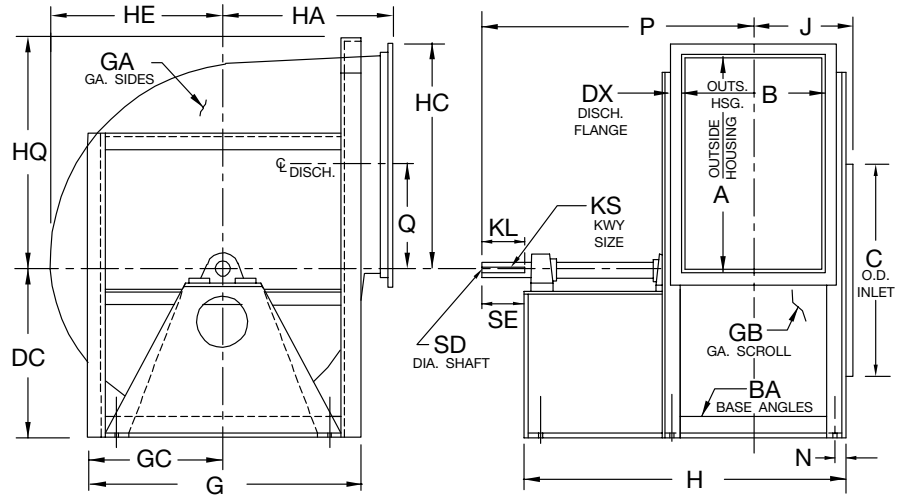
CW BHD

NOTES:
1. Discharge angles are included on all discharges.
2. "CW" rotation is shown. "CCW" rotation is similar but opposite.
3. For fans size 182-330 (except TAD 182-200) with inlet box at 90 degrees or 270 degrees, use "BAU" discharge dimension "DF" for centerline height.

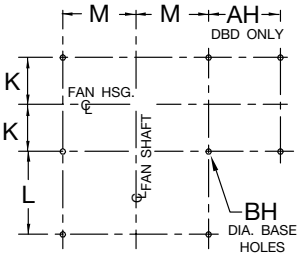
SIZE	L	M	N	P	Q	SD	SE
122	191	165	22	481	164	38	89
135	203	181	22	508	181	38	89
150	241	203	22	573	200	45	102
165	241	222	22	589	221	45	102
182	267	245	22	656	245	45	127
200	292	270	22	699	268	50	127
222	349	292	29	797	298	50	140
245	387	321	29	884	329	60	165
270	438	353	29	960	362	60	165
300	483	397	35	1073	402	65	197
330	533	435	35	1153	445	70	197

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

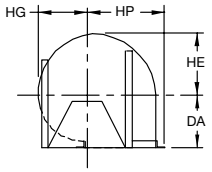
Arrangement 1, SWSI Non-Rotatable, Class III



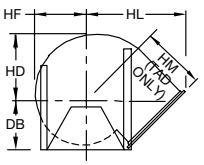
CW THD



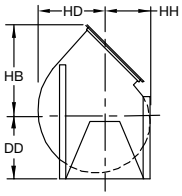
FOUNDATION PLAN



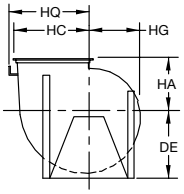
CW DBD



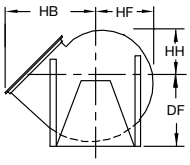
CW TAD



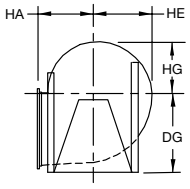
CW TAU



CW UBD



CW BAU



CW BHD

NOTES:
1. Discharge angles are included on all discharges.
2. "CW" rotation is shown. "CCW" rotation is similar but opposite.
3. For fans with inlet box at 90 degrees or 270 degrees, use "BAU" discharge dimension "DF" for centerline height.

SIZE	A	AH	B	BA	BH	C	DA	DB	DC	DD	DE	DF	DG	DX	G	GA	GB	GC
365	988	551	737	75 x 75	21	978	737	743	749	800	851	902	1054	38 x 38	1245	5	5	622
402	1087	619	811	75 x 100	21	1078	813	806	838	895	940	1003	1156	50 x 50	1334	5	5	667
445	1202	683	897	75 x 100	21	1191	899	921	902	978	1016	1099	1270	50 x 50	1435	5	5	718
490	1324	741	984	75 x 100	21	1311	991	984	991	1073	1118	1207	1391	50 x 50	1562	5	5	781
542	1462	835	1092	90 x 125	21	1451	1094	1073	1105	1181	1245	1327	1543	65 x 65	1702	5	5	851
600	1618	914	1205	90 x 125	21	1604	1211	1143	1219	1302	1372	1461	1695	65 x 65	1880	5	5	940
660	1775	1021	1329	100 x 150	21	1762	1332	1257	1334	1416	1499	1600	1873	65 x 65	2032	5	5	1016
730	1965	1110	1465	100 x 150	21	1949	1473	1378	1448	1568	1638	1765	2064	65 x 65	2235	5	5	1118
807	2173	1223	1619	100 x 150	21	2156	1630	1511	1600	1715	1829	1943	2273	65 x 65	2451	5	5	1226
890	2394	1303	1781	100 x 150	21	2372	1778	1664	1759	1873	1988	2159	2496	65 x 65	2731	5	5	1365

SIZE	H	HA	HB	HC	HD	HE	HF	HG	HH	HL	HM	HP	HQ	J	K	KL	KS CLASS I	L	M
365	1473	737	1243	1021	854	802	754	706	659	1400	959	1059	—	470	410	178	20 x 12	572	473
402	1626	813	1376	1134	941	883	830	778	725	1534	1035	1184	—	533	461	203	20 x 12	610	518
445	1788	899	1518	1248	1041	973	916	859	802	1691	1141	1299	—	576	503	203	25 x 14	686	568
490	1924	991	1669	1370	1141	1073	1010	946	883	1840	1232	1421	—	619	546	229	25 x 14	737	632
542	2083	1094	1849	1521	1267	1187	1118	1048	978	2026	1343	1584	1518	699	613	229	28 x 16	749	689
600	2273	1211	2042	1676	1399	1314	1237	1159	1081	2224	1468	1740	1683	756	670	241	32 x 18	826	765
660	2499	1332	2239	1834	1537	1445	1357	1270	1183	2411	1576	1923	1838	843	744	254	32 x 18	889	829
730	2711	1473	2473	2024	1702	1599	1503	1408	1313	2648	1721	2113	2026	911	813	267	32 x 18	965	930
807	2940	1630	2731	2232	1883	1767	1662	1557	1453	2903	1873	2321	2245	988	889	267	32 x 18	1041	1032
890	3178	1778	2991	2453	2073	1948	1832	1716	1600	3199	2070	2542	2464	1068	970	279	enq	1118	1165

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Model

BC-SW

Fans shall be Model BC Backward Inclined, as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

PERFORMANCE — Fans shall be tested in accordance with AMCA 210 and AMCA 300 test codes for air moving devices and shall be licensed to bear the AMCA certified ratings seal for both sound and air.

Fans shall have a sharply rising pressure characteristic extending through the operating range and continuing to rise beyond the efficiency peak to ensure quiet and stable operation. Fans shall have a non-overloading design with self-limiting power 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 99-2408.

HOUSING — BC fan housings shall be of heavy gauge, continuously welded construction. Housings with lock seams or partially welded construction are not acceptable. Discharge flanges are to be provided for rigidity and duct connection. Housings shall be suitably braced to prevent vibration or pulsation. Housings shall have tapered spun, aerodynamically designed inlet cones or funnels providing stable flow and high rigidity.

Class I and II sizes 270 and smaller shall be of the rotatable design, convertible to 8 standard discharge configurations.

IMPELLER — BC backward inclined impellers shall be single thickness plate type, designed for maximum efficiency and quiet operation, and shall be solid welded to the rim and back plate. Partial welding will not be acceptable on aerofoil or backward inclined blades. All impellers shall be statically and dynamically balanced.

SHAFT — Shafts shall be AISI 1040 or 1045 hot rolled steel, accurately turned, ground, polished, and ring gauged for accuracy. Shafts shall be sized for the first critical speed of at least 1.43 times the maximum speed.

BEARINGS — Bearings shall be heavy duty, grease lubricated, spherical roller or adapter mounted anti-friction ball, self-aligning, pillow block type and selected for a minimum average bearing life L-10 in excess of 40,000 hours at the maximum fan RPM.

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 located external to the fan casing and 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.

ACCESSORIES — When specified, accessories such as belt guards, weather covers, access doors, companion flanges, variable inlet vanes, outlet dampers, piezometer ring airflow measurement device, inlet boxes, shaft coolers, shaft seals, inlet screens, etc., shall be provided by Twin City Fan & Blower to maintain one source responsibility.

When specified, fans shall be supplied with internal or nested type variable inlet vanes for impeller diameters 420 mm and larger. Cantilevered vane blades are to be used through Size 660 to minimize air performance insertion losses and noise. The operating mechanism shall be out of the inlet airstream.

FACTORY BALANCE AND RUN TESTING — All fan impellers shall be statically and dynamically balanced in accordance with ANSI/AMCA 204 “Balance Quality and Vibration Levels for Fans” to a Balance Quality Grade G6.3, (3.8 mm/s rms). All assembled fans are test run at the rated operating speed or at the maximum RPM of the fan. Vibration readings are recorded in the horizontal, vertical and axial directions on both bearings. Trim balancing is performed if necessary to maintain vibration limits. Records shall be maintained and a written copy shall be available upon request.

GUARANTEE — The manufacturer shall guarantee the workmanship and materials for its BC Backward Inclined fans for at least twelve (12) months from start-up or eighteen (18) months from shipment, whichever occurs first.

Model

BC-DW

Fans shall be Model BC Backward Inclined, as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

PERFORMANCE — Fans shall be tested in accordance with AMCA 210 test codes for air moving devices and shall be licensed to bear the AMCA certified ratings seal for air.

Fans shall have a sharply rising pressure characteristic extending through the operating range and continuing to rise beyond the efficiency peak to ensure quiet and stable operation. Fans shall have a non-overloading design with self-limiting power 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 2408-69.

HOUSING — BC fan housings shall be of heavy gauge, continuously welded construction. Housings with lock seams or partially welded construction are not acceptable. Housings shall be suitably braced to prevent vibration or pulsation. Housings shall have spun, aerodynamically designed inlet cones or inlet venturies for smooth airflow into the impellers.

IMPELLER — Impellers shall have tapered spun impeller cones or shrouds, providing stable flow and high rigidity. Impellers shall be of the non-overloading type. BC backward inclined impellers shall be single thickness plate type, continuously welded to the rim and back plate. Blades shall be designed for maximum efficiency and quiet operation. Partial welding will not be acceptable on aerofoil or backward inclined blades. Smaller sizes may use extruded aluminium blades. All impellers shall be statically and dynamically balanced. The complete fan assembly shall be test balanced at the operating speed prior to shipment.

SHAFT — Shafts shall be AISI 1040 or 1045 hot rolled steel, accurately turned, ground, polished, and ring gauged for accuracy. Shafts shall be sized for the first critical speed of at least 1.43 times the maximum speed.

BEARINGS — Bearings shall be heavy duty, grease lubricated, spherical roller or adapter mounted anti-friction ball, self-aligning, pillow block type and selected for a minimum average bearing life L-10 in excess of 40,000 hours at the maximum fan RPM.

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 located external to the fan casing and 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.

ACCESSORIES — When specified, accessories such as belt guards, access doors, companion flanges, variable inlet vanes, outlet dampers, piezometer ring airflow measurement device, inlet boxes, shaft coolers, shaft seals, inlet screens, etc., shall be provided by Twin City Fan & Blower to maintain one source responsibility.

When specified, fans shall be supplied with internal or nested type variable inlet vanes for impeller diameters 420 mm and larger. Cantilevered vane blades are to be used through Size 660 to minimize air performance insertion losses and noise. The operating mechanism shall be out of the inlet airstream. Double width fans shall have interconnecting linkage to ensure operation in unison.

FACTORY BALANCE AND RUN TESTING — All fan impellers shall be statically and dynamically balanced in accordance with ANSI/AMCA 204 “Balance Quality and Vibration Levels for Fans” to a Balance Quality Grade G6.3 (3.8 mm/s rms). All assembled fans are test run at the rated operating speed or at the maximum RPM of the fan. Vibration readings are recorded in the horizontal, vertical and axial directions on both bearings. Trim balancing is performed if necessary to maintain vibration limits. Records shall be maintained and a written copy shall be available upon request.

GUARANTEE — The manufacturer shall guarantee the workmanship and materials for its BC Backward Inclined fans for at least twelve (12) months from start-up or eighteen (18) months from shipment, whichever occurs first.

INDUSTRIAL PROCESS AND COMMERCIAL VENTILATION SYSTEMS

CENTRIFUGAL FANS | UTILITY SETS | PLENUM & PLUG FANS | INLINE CENTRIFUGAL FANS

MIXED FLOW FANS | TUBEAXIAL & VANEAXIAL FANS | PROPELLER WALL FANS | PROPELLER ROOF VENTILATORS

CENTRIFUGAL ROOF & WALL EXHAUSTERS | CEILING VENTILATORS | GRAVITY VENTILATORS | DUCT BLOWERS

RADIAL BLADED FANS | RADIAL TIP FANS | HIGH EFFICIENCY INDUSTRIAL FANS | PRESSURE BLOWERS

LABORATORY EXHAUST FANS | FILTERED SUPPLY FANS | MANCOOLERS | FIBERGLASS FANS | CUSTOM FANS

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