

Plenum Fans
(Backward Curved Wheels)

DPF Series
(Free Running Wheel without Scroll)

Blowtech Air Devices Pvt. Ltd. was founded in 1988 and quickly established itself as a leading manufacturer and exporter of HVAC fans and ventilation products in India. The company has excelled in the design, development and manufacture of the following high quality product line for a wide range of HVAC&R applications:

- Centrifugal and Axial Flow Fans
- Inline Duct Fans
- Cabinet Fans
- Commercial Kitchen Ventilation Fans
- Fan Filter Units
- Evaporative Coolers & Scrubbers
- Energy Recovery Ventilators (ERVs)
- Impellers, Housings & Propellers

Blowtech's Fan Test Lab as per AMCA210



The company's 40,000 sq. ft., state of the art manufacturing facility near New Delhi (India) incorporates the most modern equipment & machines, a skilled workforce & over thirty years of rich experience. The production process is supported by a complete in house design and development facility and a full fledged tool room. All tools, jigs, fixtures and special purpose machines (SPMs) are designed and developed in house. All fan components are manufactured exclusively with the aid of precision tools and dies. This ensures inbuilt quality and consistency in fan performance fan after fan, year after year.

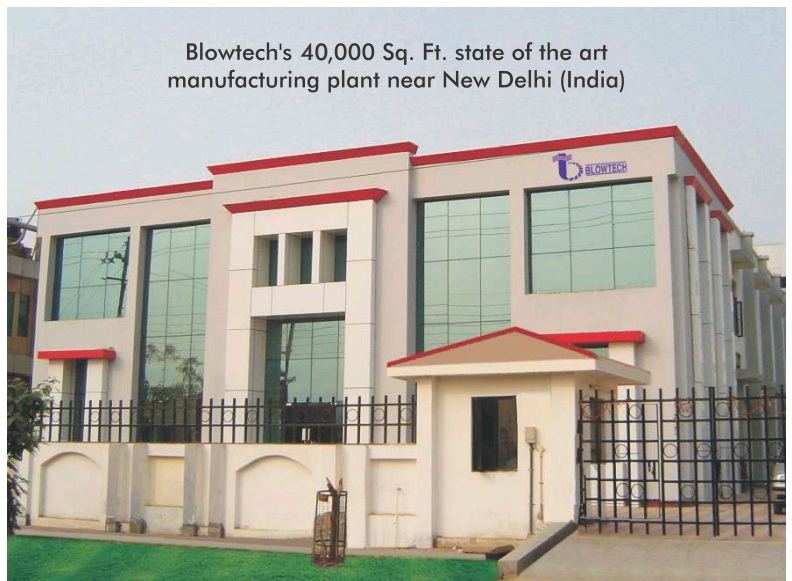
Blowtech passed ISO-9001 QMS certification in 2003 and is a member of the Air Movement and Control Association International (AMCA). Consistent with its objectives of designing for optimum quality and performance, the company has its own Fan Test Laboratory which houses a Multiple Nozzle Test Chamber in accordance with AMCA Standard 210. The line of products including centrifugal fans, tube axial fans, kitchen exhaust fans, cabinet fans, direct driven fans, fan blades and impellers are tested in this in-house laboratory for performance evaluation and design validation.

To ensure long life and vibration-free operation, each impeller is first checked for eccentricity and run-out. Only after passing this quality check, the impeller is ready for balancing on computerized dynamic balancing machines. Balancing is done as per balance quality grade G 4.0 of the International Standard ISO 1940.

On the basis of advanced management ideas and perfect quality systems, Blowtech constantly strives to absorb and adopt latest technologies, precisely control the quality in each of its working processes and actively promote its products to keep it at the leading position in the HVAC&R industry in India. Our stakeholders' and affiliate relationship networks ensure that we remain at the forefront of industry knowledge and future technology trends.

Our skills, infrastructure and experience are trusted by our customers to optimize performance, minimize costs and increase efficiencies of their products. Our people ensure the success of our company, bringing the best in commercial understanding, technical capabilities and market know-how to bear on our customers' business.

Blowtech's 40,000 Sq. Ft. state of the art manufacturing plant near New Delhi (India)



DPF Series

Plenum Fans (with Backward Curved Wheels) (Free Running Wheel without Scroll)



Blowtech Air Devices Pvt. Ltd. certifies that the **DPF Series Fan Models 500 to 1000** shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.



DPF Series Plenum Fans

Free Running Backward Curved Wheels without Scroll Housing

Blowtech Plenum Fans are designed for air handling applications where the fan wheel can operate without a scroll housing inside a plenum. The wheel and inlet cones are especially designed for this application so as to yield high efficiencies even in absence of a scroll. The advantages are:

- 1. Compact design (No housing)**

Since the fan can work without a bulky scroll, a significant amount of space saving can be achieved and fan assembly can be made very compact.

- 2. Direct Driven with Variable Speed Drives**

The most common drive configuration for Plenum Fans is directly mounted fan wheel and inlet cone assembly on a motor and speed variation achieved through electronic variable speed drives. This leads to significant space savings vis-a-vis belt drives and avoids recurring maintenance problems with belt drives such as belt alignments, loose belts, belt breakage etc.

- 3. Universal Orientation and Fan System Connection**

The free running fan wheel is mounted inside a plenum and pressurizes the entire plenum uniformly. This allows the fan to be connected to the system from any side of the plenum, thus offering considerable flexibility in many difficult installation situations.

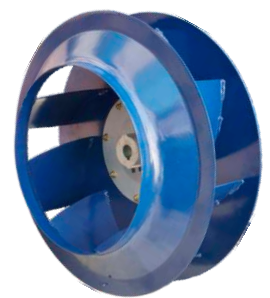
DPF Series plenum fans are available in 13 sizes from wheel diameter of **250 mm to 1000 mm**. The sizes are as per AMCA Standards Handbook 99, Section 5, R20. The Air Volume capacity of DPF fans ranges from 200 m³/h to 65000 m³/h and maximum pressure capability of about 2000 Pa.

The DPF series is available in two designs - R and K, R being the standard offer. K variant offers stronger wheel construction and higher speed ratings for higher pressure applications.

Fan Construction Specifications

Impeller (Wheel)

The Wheel of DPF series is made of mild steel with welded backward curved blades and coated with polyester powder paint. A die cast aluminium hub with a precisely machined bore and a keyway is fitted to the wheel backplate. Use of precision tooling for the punching and assembling of wheel components results in extremely low levels of eccentricity and run out. The wheel is statically and dynamically balanced on computerised balancing machines to balance quality grade G 4.0 of ISO 1940 and AMCA 204 standard.



Inlet Cone

The inlet cone is made in one piece in mild steel using precision forming to achieve an optimum match with the wheel shroud. The specially designed inlet cone of Blowtech DPF series plenum fan provides for a smooth entry of air into the wheel inlet without eddies and swirls. This ensures optimum efficiency. For sizes 800, 900 & 1000, the inlet cone is made from moulded fibreglass.

Supporting Structure

Structural components (Base Frame, Motor Mounting, Front Panel) of DPF fans are made of rolled steel sections and galvanised/cold rolled sheets.

In the standard execution, these components are coated with polyester powder paint. Special coatings may be applied on request.

Interpretation of Fan Sound Power Levels

The sound power levels $L_{wo}(A)$ shown on the performance charts are at fan outlet for installation type A free inlet free outlet in accordance with AMCA standard 301. The single total A-weighted value has been calculated by summing the measurements over the 8 octave bands using the following A-weighting correction factors:

Octave band mid-frequency (Hz)	63	125	250	500	1000	2000	4000	8000
A-weighting correction (dB)	-26.2	-16.1	-8.6	-3.2	0	+1.2	+1	-1.1

Since what humans hear are sound pressure levels (and not power levels), an approximate idea of the Sound Pressure Level $L_{po}(A)$ can be obtained from the power levels $L_{wo}(A)$ shown on the curves using the following formulae:

a) In spherical free field : $L_{po}(A) = L_{wo}(A) - 20 \log_{10}(d) - 11$

b) In room conditions : $L_{po}(A) = L_{wo}(A) - 20 \log_{10}(d) - 7$

where d = distance between the fan and the microphone in meters.

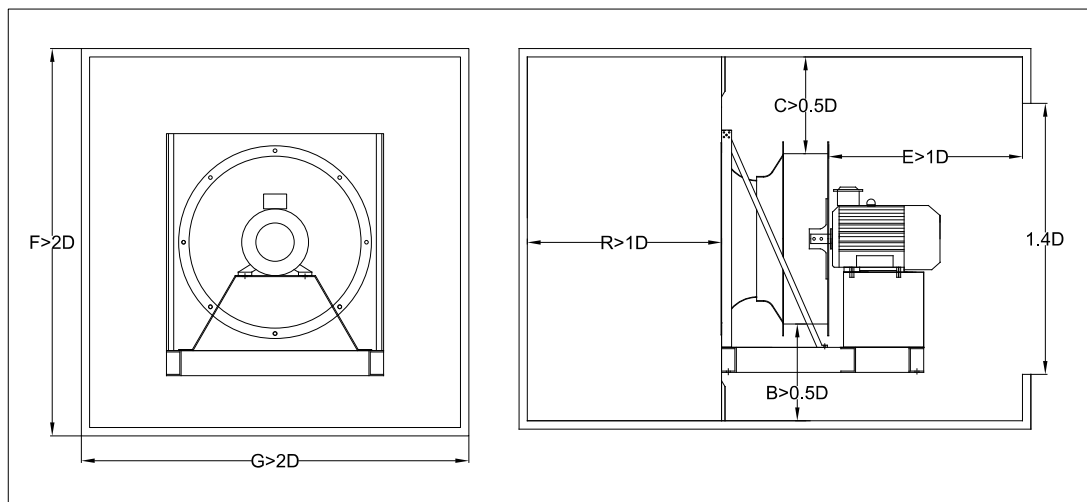
It should be noted that the sound power level of a fan, as installed in practice, could be significantly higher than that measured in laboratory conditions, due to a host of factors such as vibrations in the drive motor, stiffness of fan installation, air leakage through the connections, or turbulence produced by guards, diffusers, grills or transition pieces.

Also the above equations to estimate sound pressure levels must be used with extreme caution. The sound pressure level depends not only on the distance ' d ' but also on the acoustic properties of the enclosure in which the fan is installed. The above equations are only valid for theoretical acoustic environments. In real life situations, the actual pressure levels may be significantly different.

Guidelines for Placing the DPF Fan inside a Plenum

While installing Blowtech's DPF series fan inside a plenum, the recommended minimum clearances as shown in the figure below must be followed to ensure fan performance is not compromised due to system effects.

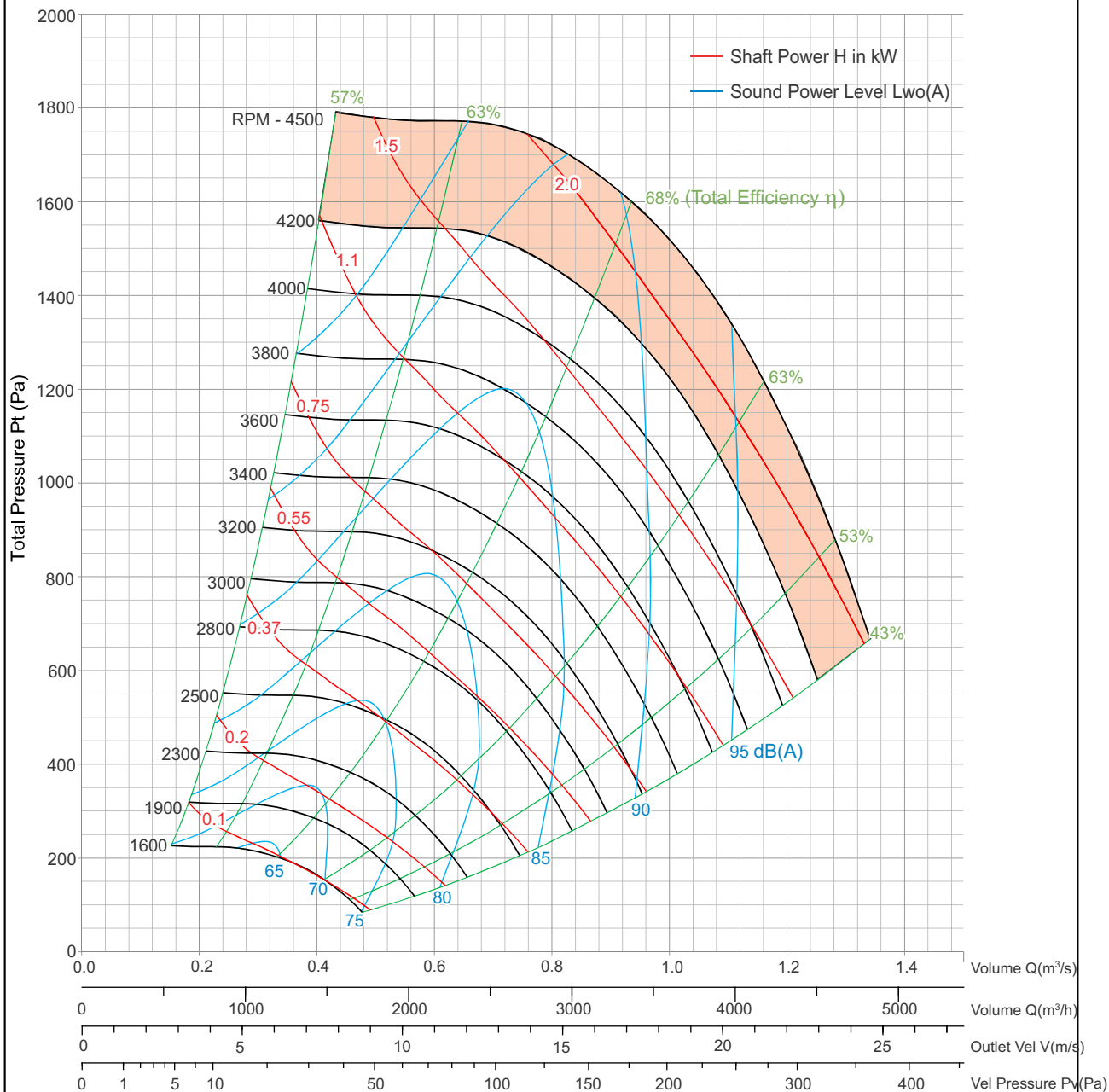
D = Impeller Diameter



DPF 250

K
 R

Density ρ : 1.2kg/m³

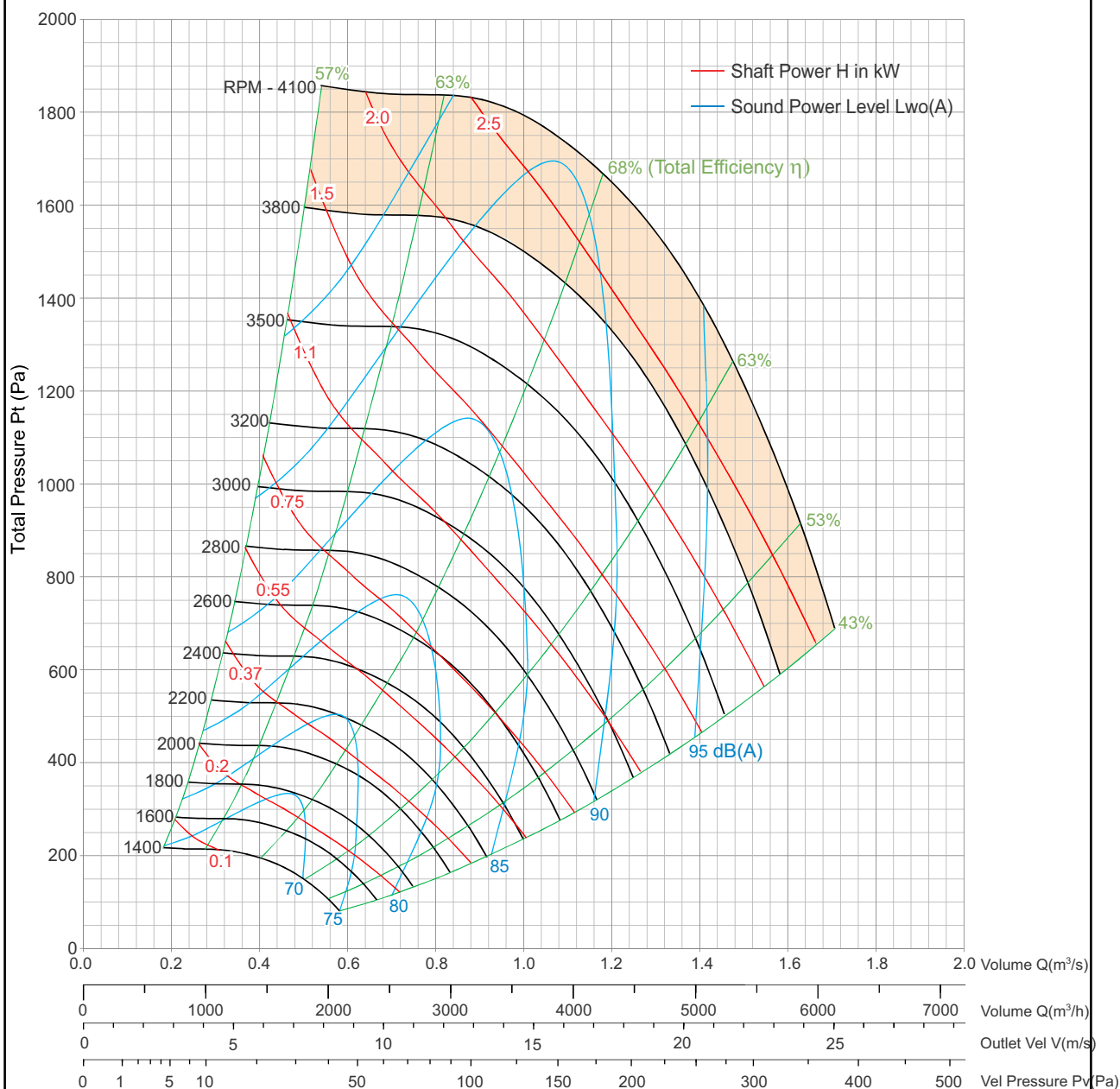


- Performance shown is for installation type A - Free inlet, Free outlet. Performance ratings do not include the effects of appurtenances (accessories).
- The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for Outlet $L_{wo}(A)$ sound power levels for installation Type A: Free inlet, Free outlet.
- Model DPF 250 is not licensed to bear the AMCA Certified Ratings Seal.

DPF 280

K
 R

Density ρ : 1.2kg/m³

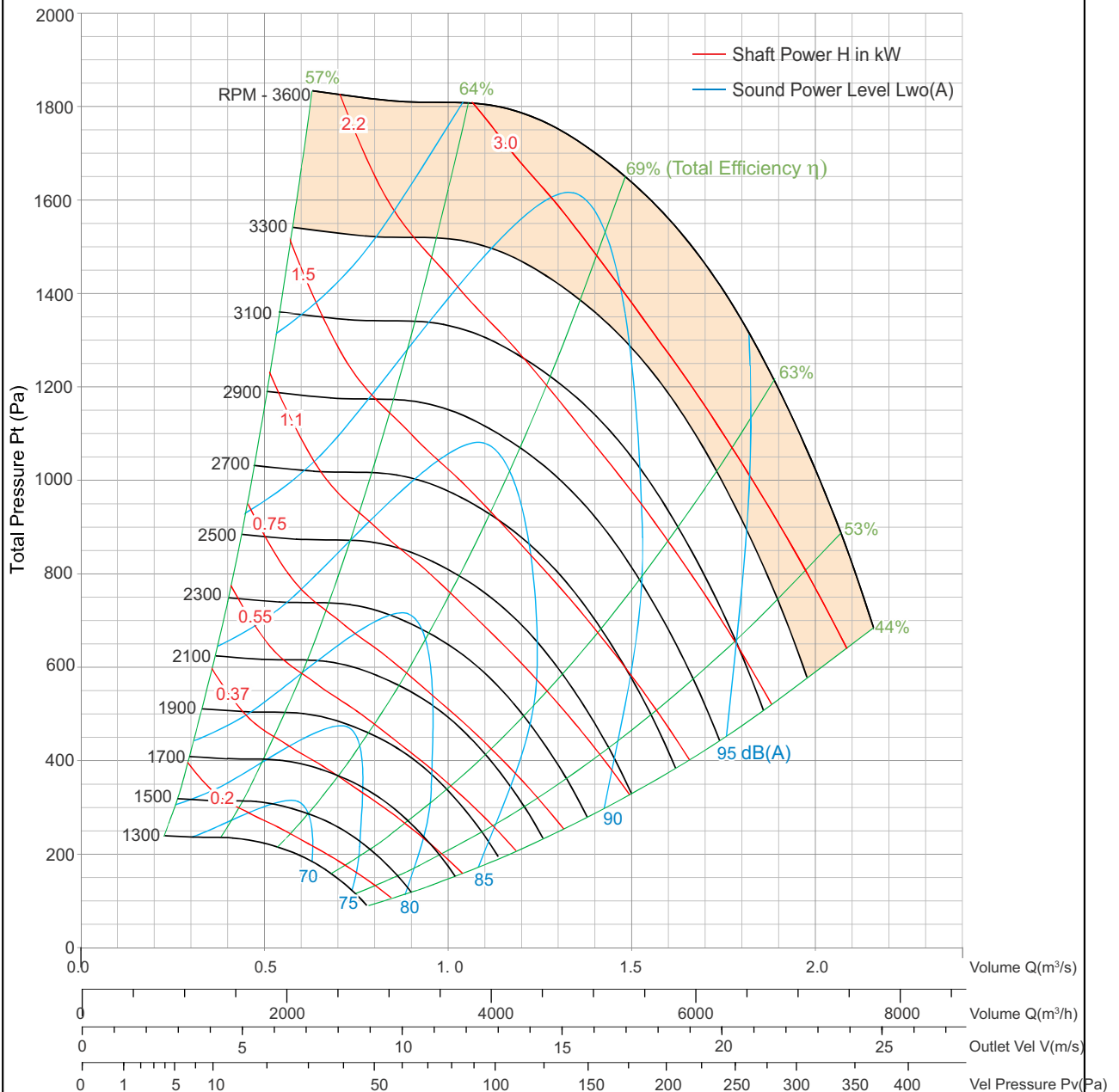


- Performance shown is for installation type A - Free inlet, Free outlet. Performance ratings do not include the effects of appurtenances (accessories).
- The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for Outlet Lwo(A) sound power levels for installation Type A: Free inlet, Free outlet.
- Model DPF 280 is not licensed to bear the AMCA Certified Ratings Seal.

DPF 315

K
R

Density $\rho: 1.2\text{kg/m}^3$

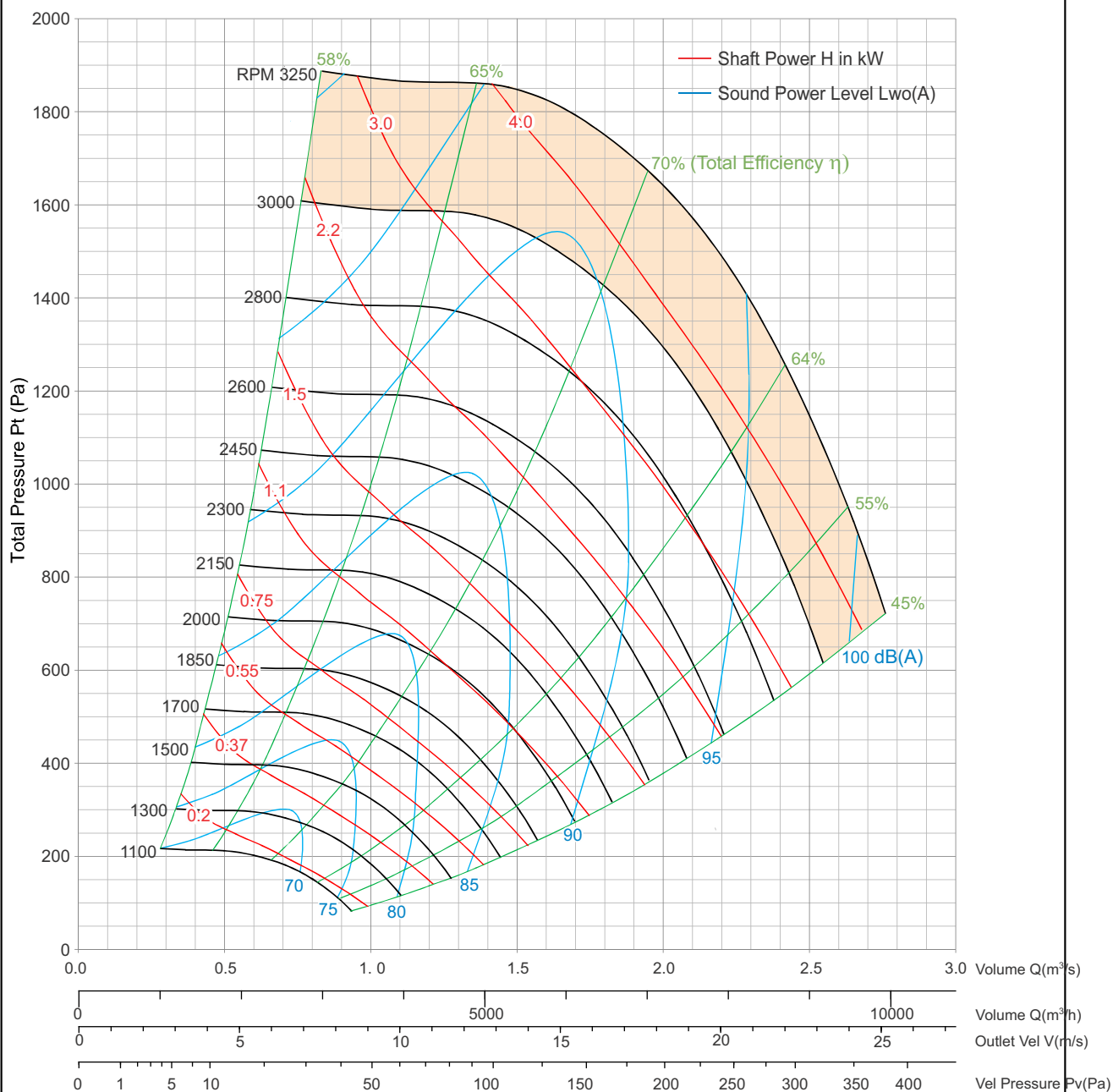


- Performance shown is for installation type A - Free inlet, Free outlet. Performance ratings do not include the effects of appurtenances (accessories).
- The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for Outlet Lwo(A) sound power levels for installation Type A: Free inlet, Free outlet.
- Model DPF 315 is not licensed to bear the AMCA Certified Ratings Seal.

DPF 355

K
 R

Density ρ : 1.2kg/m³

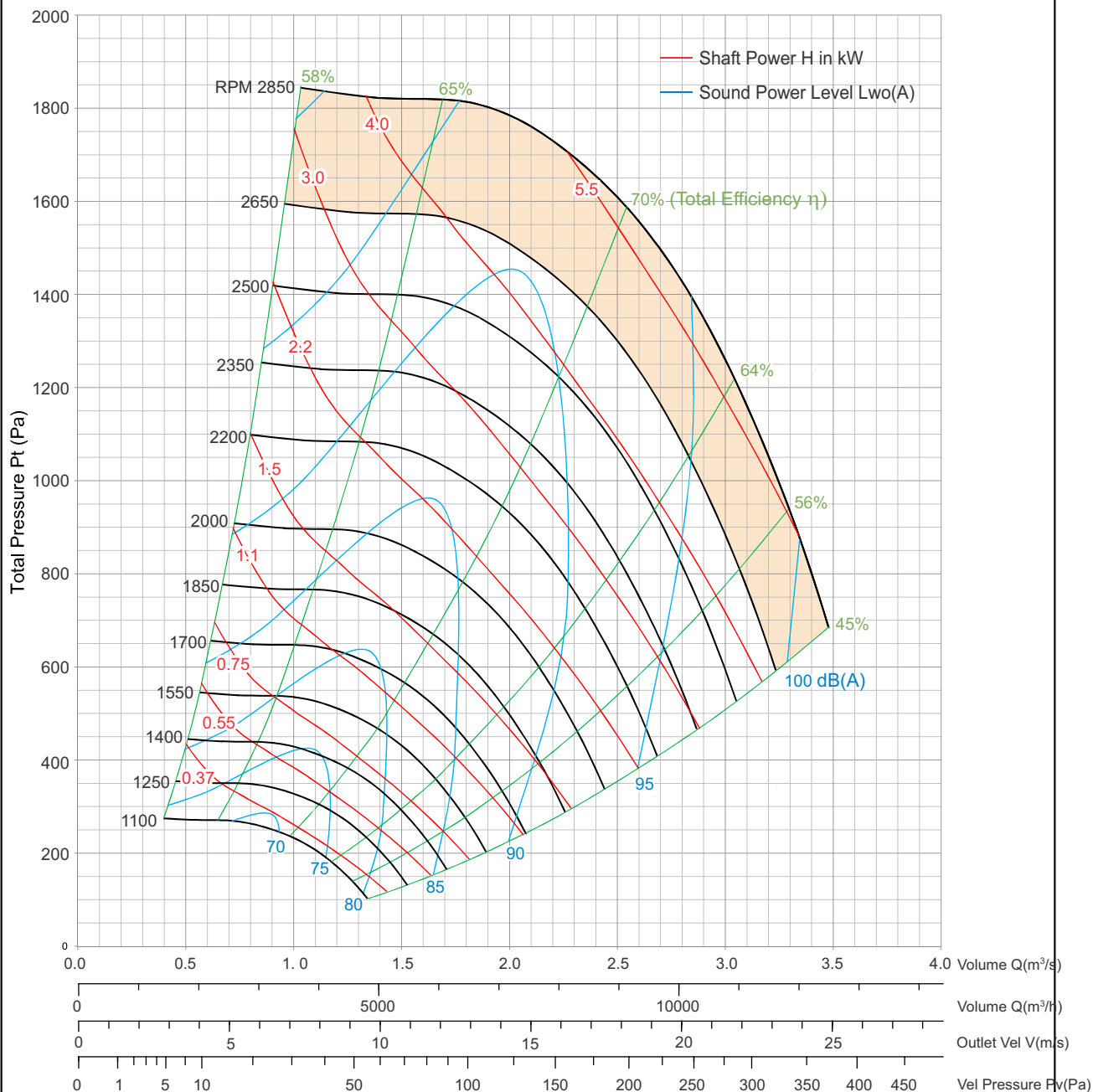


- Performance shown is for installation type A - Free inlet, Free outlet. Performance ratings do not include the effects of appurtenances (accessories).
- The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for Outlet $L_{wo}(A)$ sound power levels for installation Type A: Free inlet, Free outlet.
- Model DPF 355 is not licensed to bear the AMCA Certified Ratings Seal.

DPF 400

K
 R

Density ρ : 1.2kg/m³

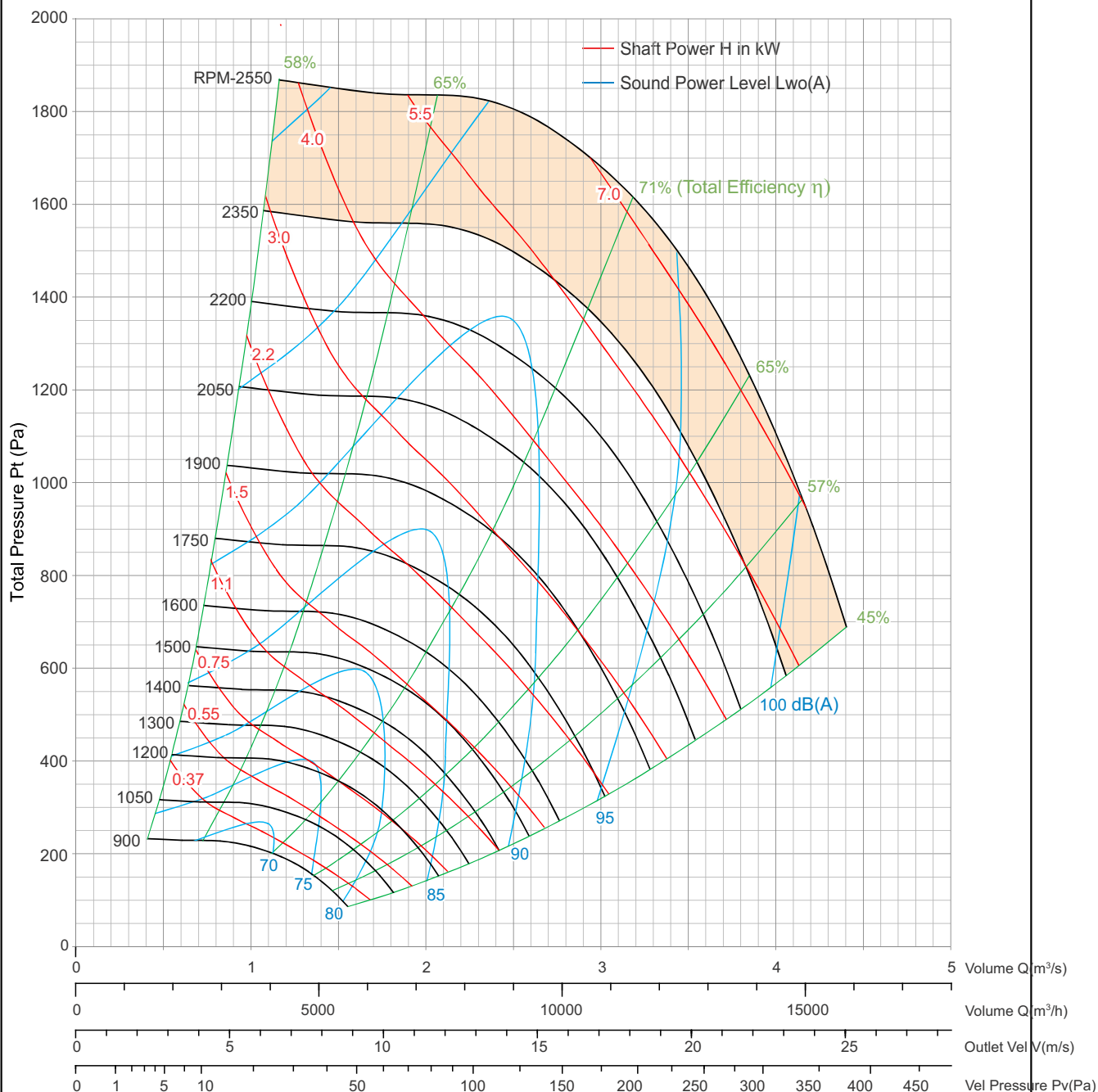


- Performance shown is for installation type A - Free inlet, Free outlet. Performance ratings do not include the effects of appurtenances (accessories).
- The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for Outlet Lwo(A) sound power levels for installation Type A: Free inlet, Free outlet.
- Model DPF 400 is not licensed to bear the AMCA Certified Ratings Seal.

DPF 450

K
 R

Density ρ : 1.2kg/m³



- Performance shown is for installation type A - Free inlet, Free outlet. Performance ratings do not include the effects of appurtenances (accessories).
- The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for Outlet Lwo(A) sound power levels for installation Type A: Free inlet, Free outlet.
- Model DPF 450 is not licensed to bear the AMCA Certified Ratings Seal.

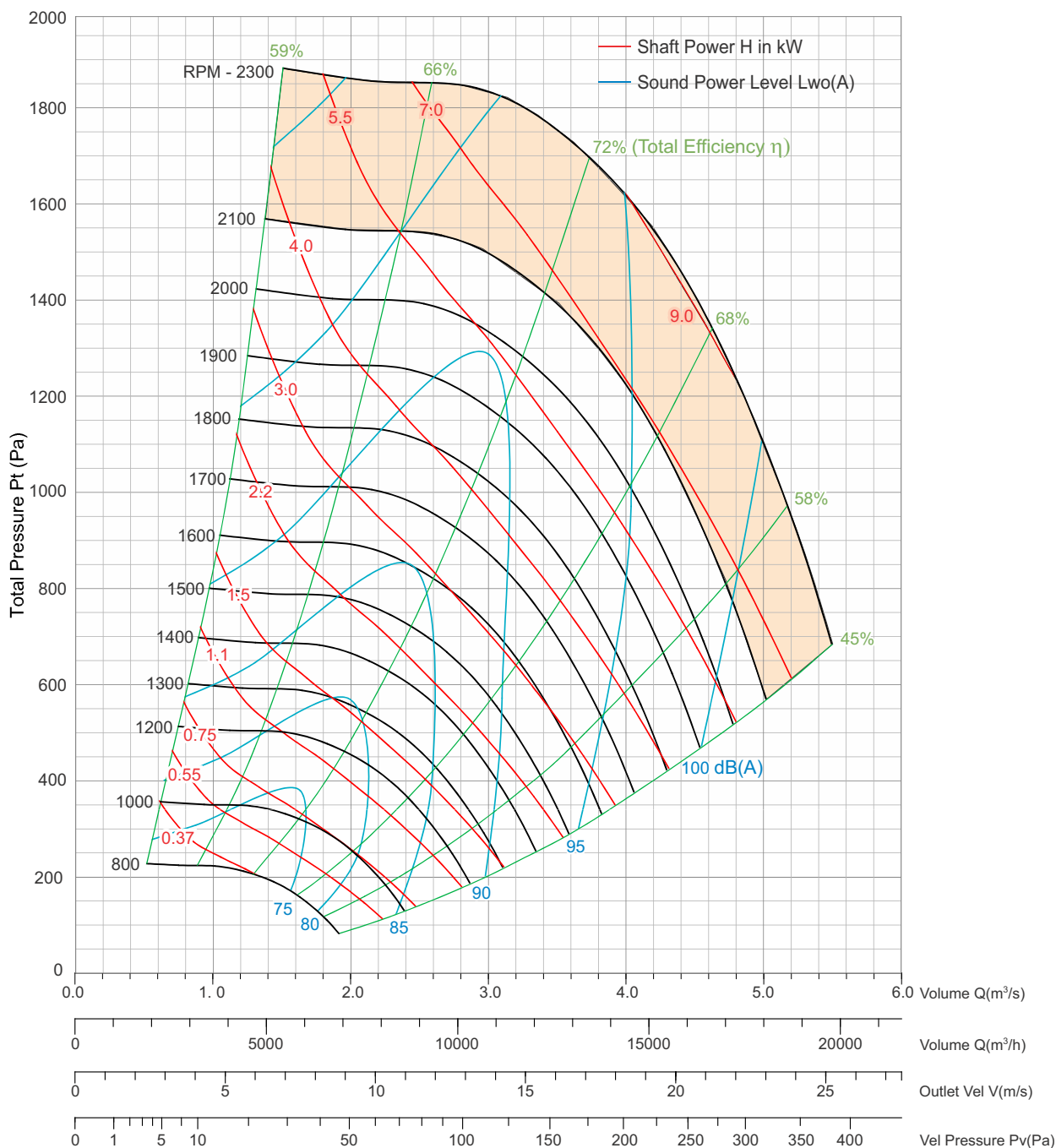
DPF 500

FEG 75



K
R

Density ρ : 1.2kg/m³



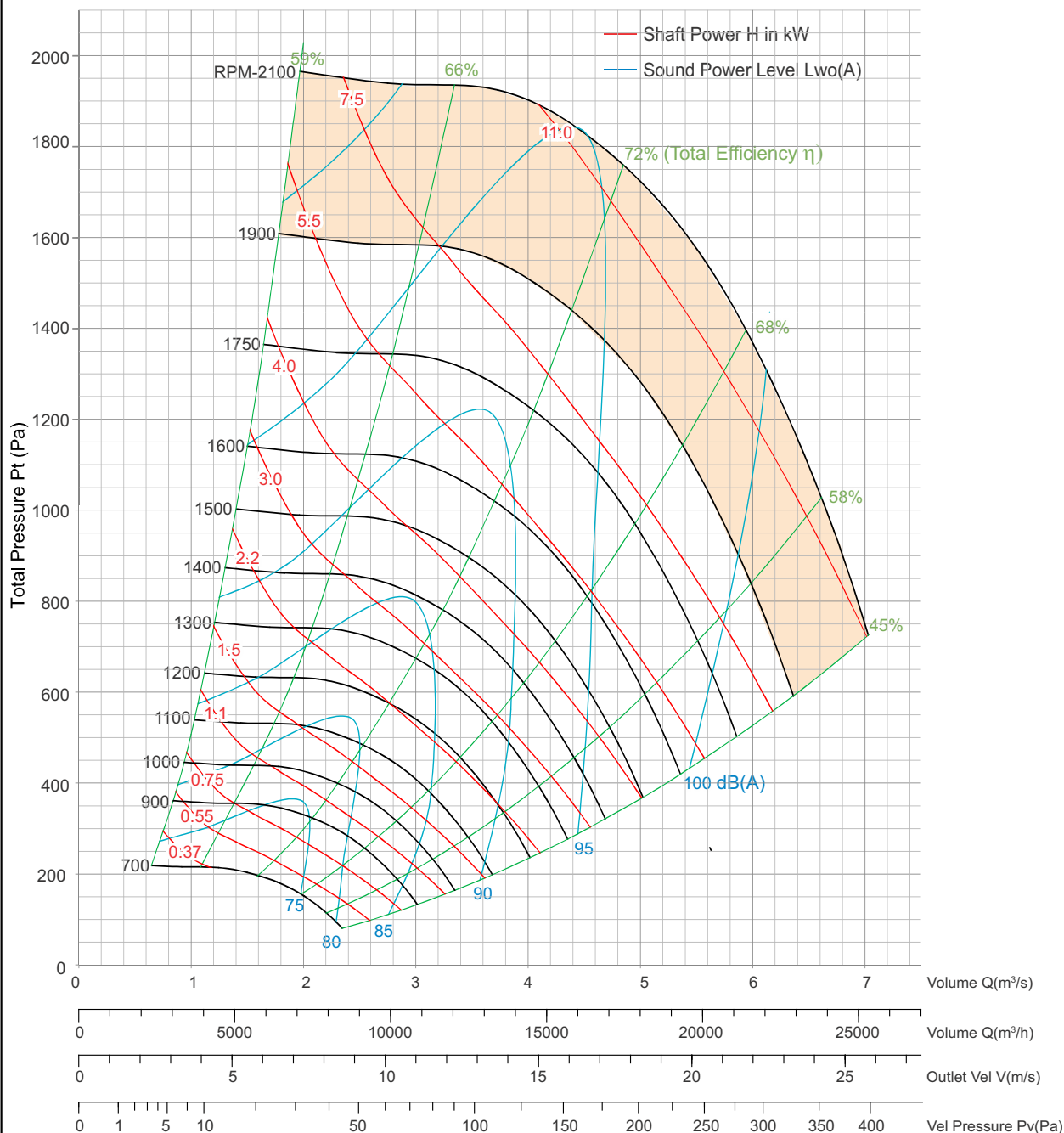
- Performance certified is for installation type A - Free inlet, Free outlet.
- Performance ratings do not include the effects of appurtenances (accessories).
- The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for Outlet $L_{wo}(A)$ sound power levels for installation Type A: Free inlet, Free outlet.

DPF 560

FEG 75

K
R

Density ρ : 1.2kg/m³



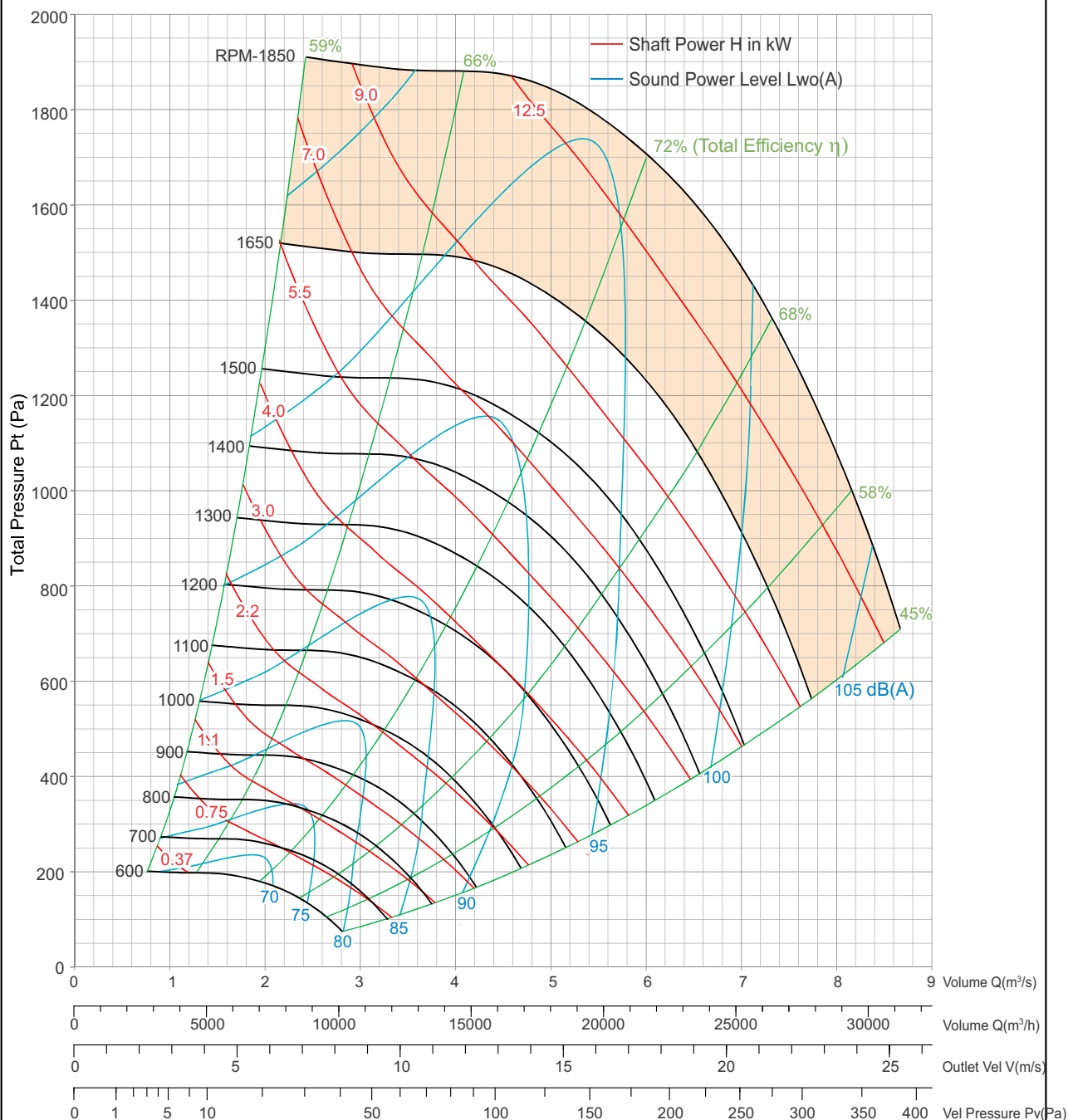
- Performance certified is for installation type A - Free inlet, Free outlet.
- Performance ratings do not include the effects of appurtenances (accessories).
- The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for Outlet $L_{wo}(A)$ sound power levels for installation Type A: Free inlet, Free outlet.

DPF 630

FEG 75

K
R

Density ρ : 1.2kg/m³



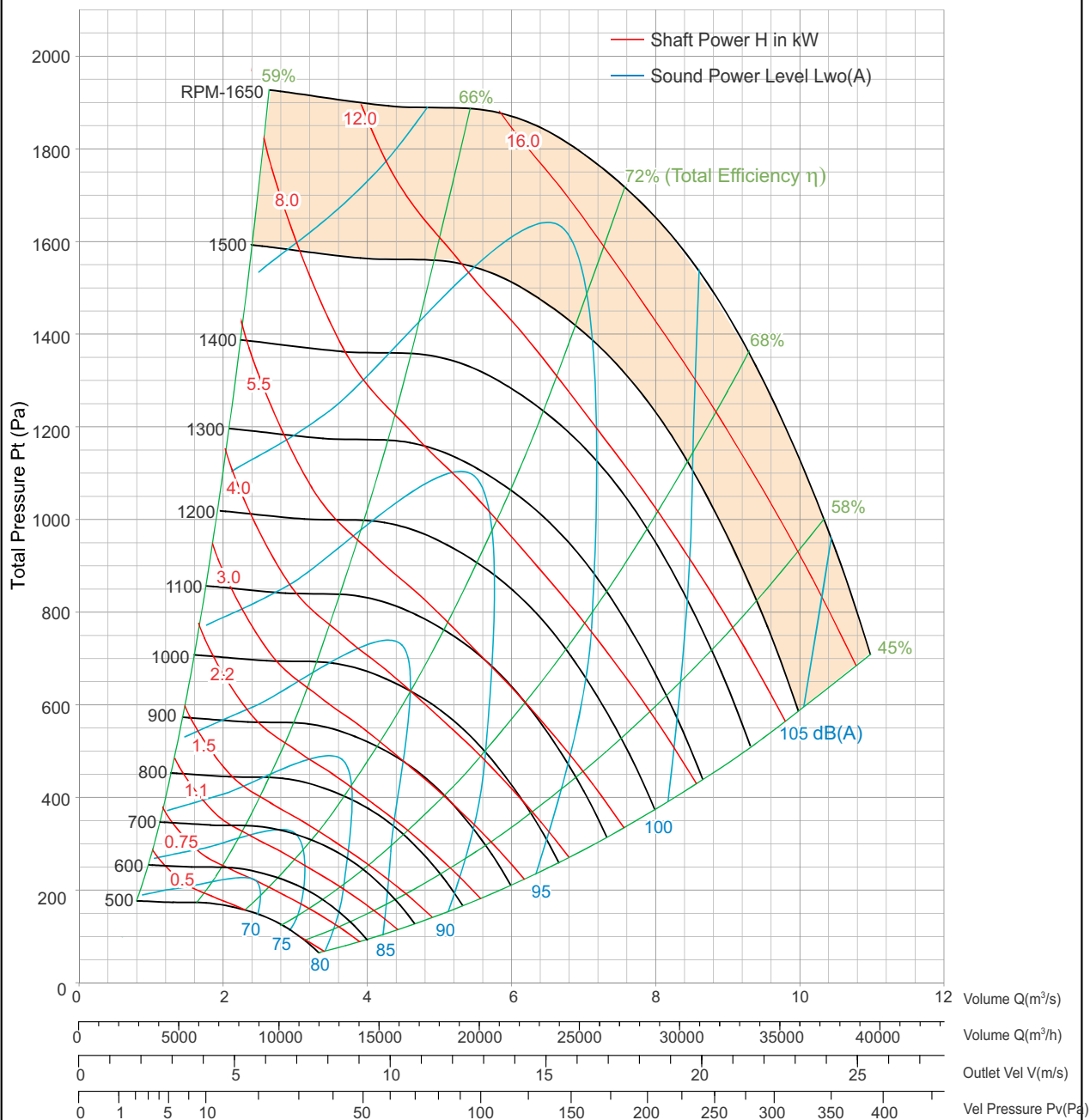
- Performance certified is for installation type A - Free inlet, Free outlet.
- Performance ratings do not include the effects of appurtenances (accessories).
- The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for Outlet $L_{wo}(A)$ sound power levels for installation Type A: Free inlet, Free outlet.

DPF 710

FEG 75

K
R

Density ρ : 1.2kg/m³



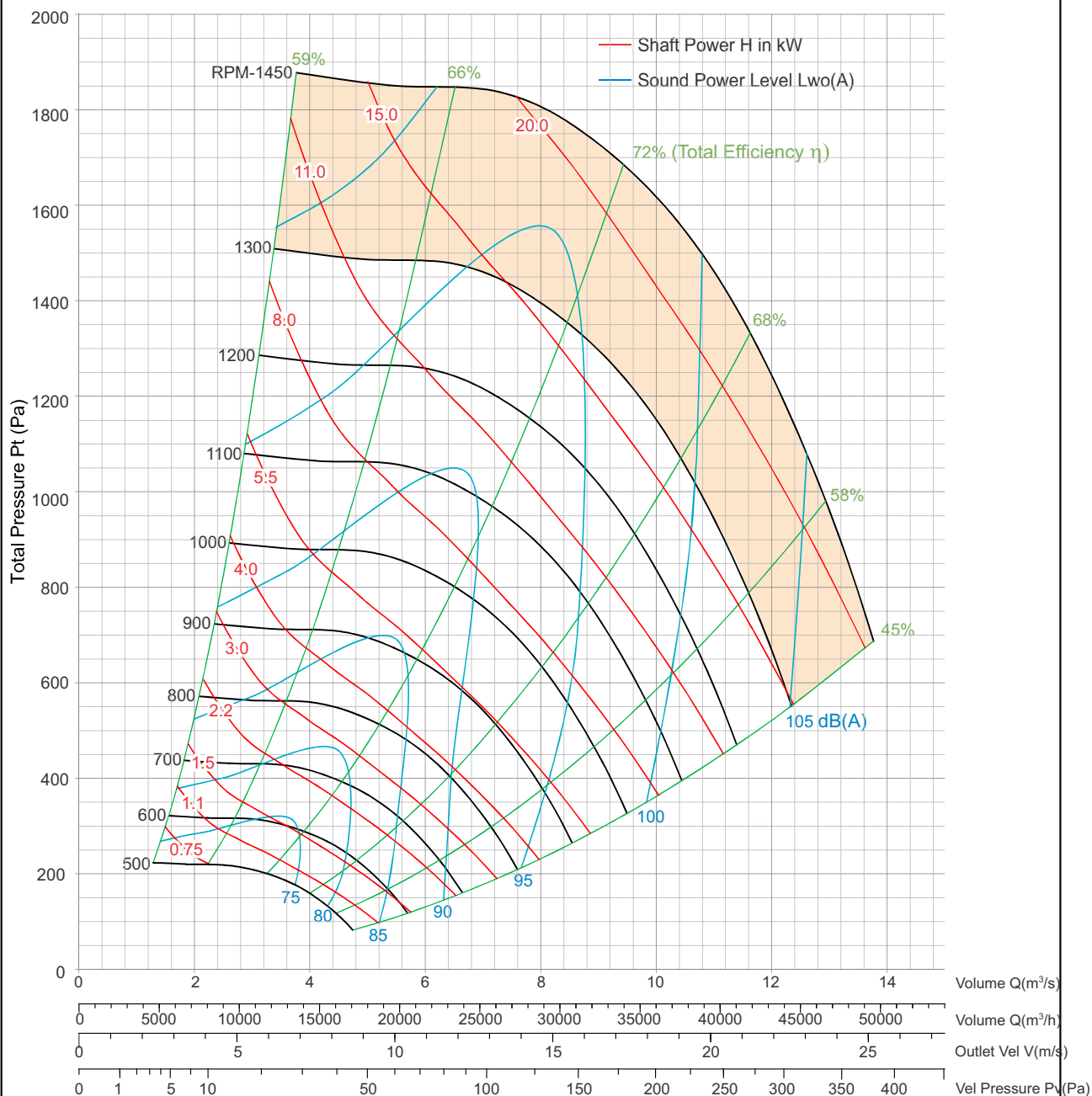
- Performance certified is for installation type A - Free inlet, Free outlet.
- Performance ratings do not include the effects of appurtenances (accessories).
- The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for Outlet Lwo(A) sound power levels for installation Type A: Free inlet, Free outlet.

DPF 800

FEG 75

K
R

Density ρ : 1.2kg/m³



- Performance certified is for installation type A - Free inlet, Free outlet.
- Performance ratings do not include the effects of appurtenances (accessories).
- The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for Outlet Lwo(A) sound power levels for installation Type A: Free inlet, Free outlet.

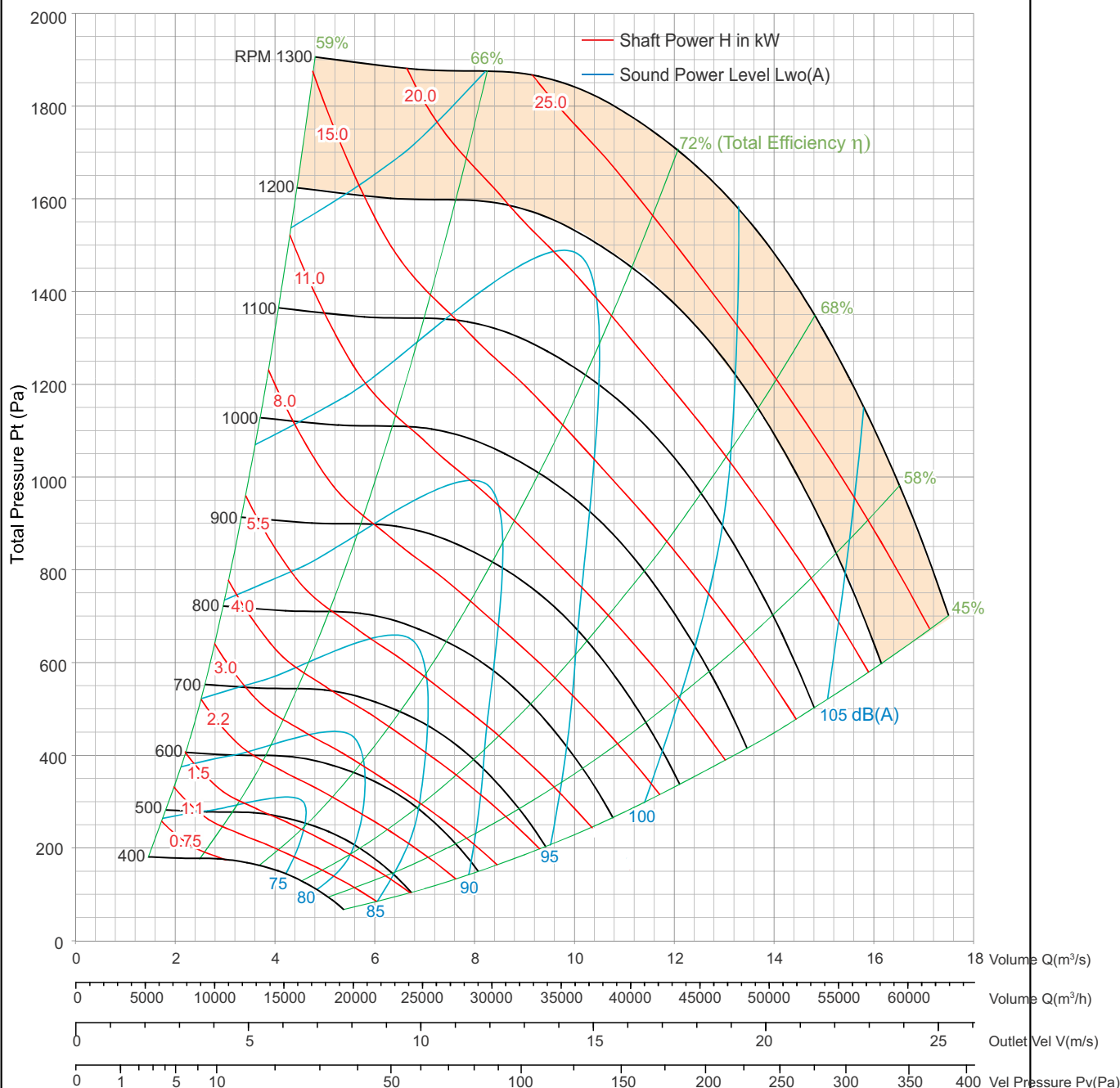
DPF 900

FEG 75



K
R

Density ρ : 1.2kg/m³



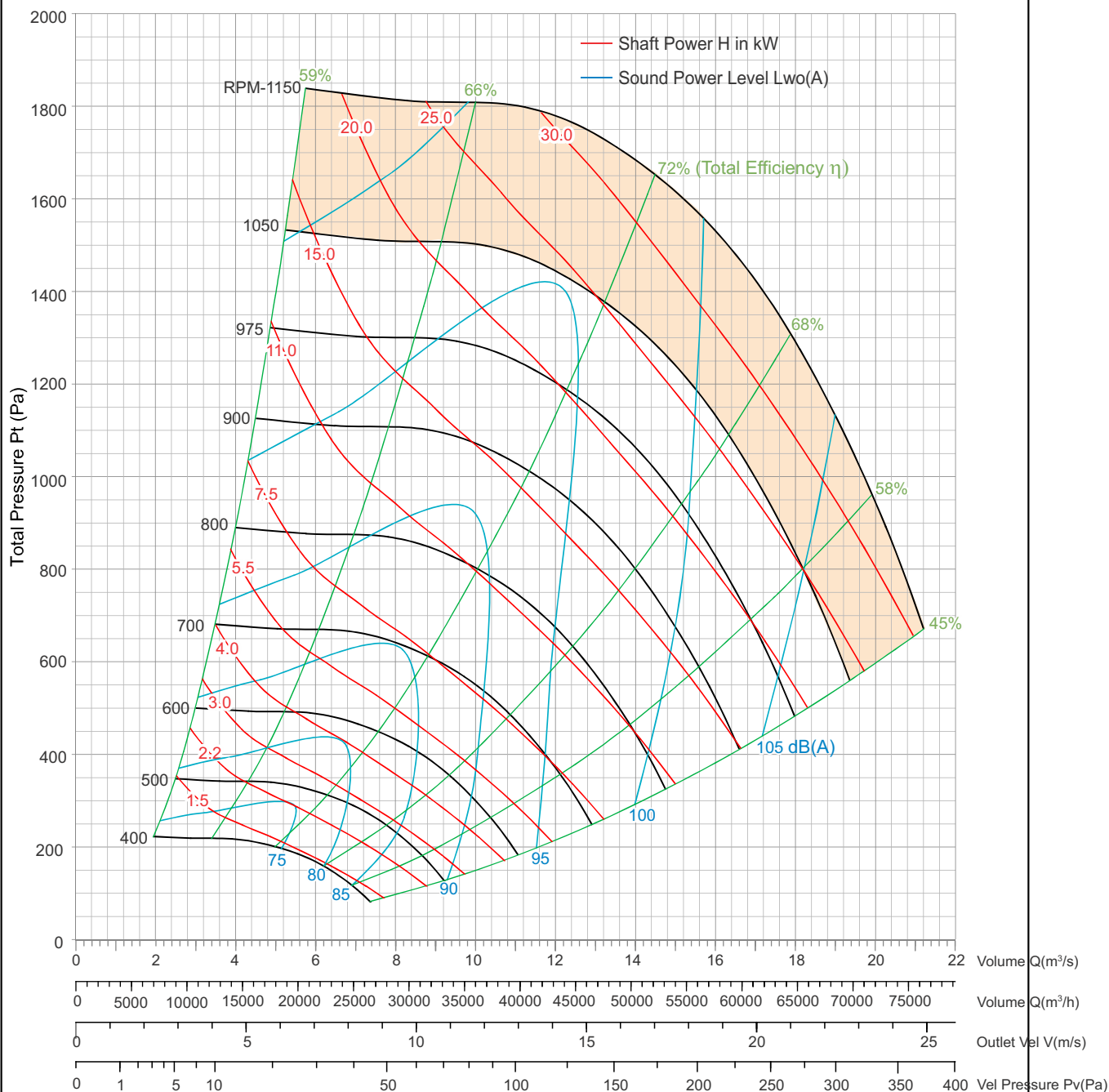
- Performance certified is for installation type A - Free inlet, Free outlet.
- Performance ratings do not include the effects of appurtenances (accessories).
- The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for Outlet Lwo(A) sound power levels for installation Type A: Free inlet, Free outlet.

DPF 1000

FEG 75

K
R

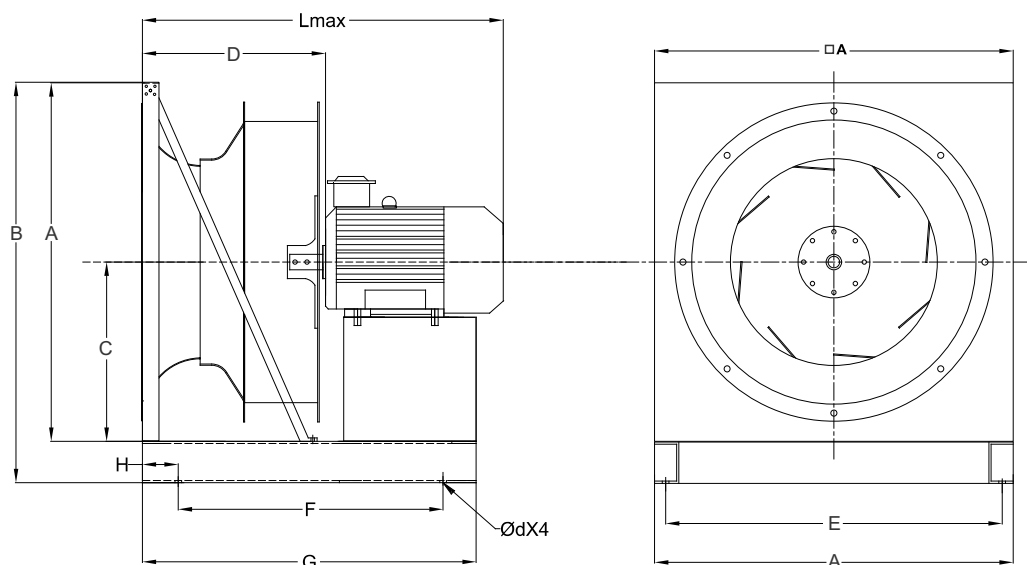
Density ρ : 1.2kg/m³



- Performance certified is for installation type A - Free inlet, Free outlet.
- Performance ratings do not include the effects of appurtenances (accessories).
- The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for Outlet Lwo(A) sound power levels for installation Type A: Free inlet, Free outlet.

Dimensions

DPF Plenum Fans 250-1000



Model	A	B	C	D	E	F	Ød	G	H	L _{max}	Motor Frame Size
250	410	485	205	170	370	330	Ø12	430	50	510	71 - 90L
280	410	485	205	190	370		Ø12				71 - 100L
315	410	485	205	212	370	360	Ø12	460	50	532	71 - 100L
355	460	535	230	236	420	380	Ø14	480	50	581	71 - 112M
400	516	591	258	263	476	400	Ø14	510	55	608	80 - 112M
450	580	655	290	296	540	400	Ø14	510	55	586	80 - 90
						450		570	60	686	100 - 132S
500	640	715	320	330	600	450	Ø14	570	60	650	80 - 100
						520		640	60	760	112 - 132M
560	716	791	358	369	676	520	Ø14	640	60	759	90L - 132S
						600		735	67.5	864	132M - 160M
630	800	900	400	412	750	540	Ø18	680	70	802	100L - 132S
						640		780	70	907	132M - 160M
710	900	1000	450	465	850	600	Ø18	780	90	895	112M - 132M
						700		880	90	1005	160M - 160L
800	1010	1110	505	520	960	700	Ø18	900	100	1015	132M - 160M
						800		1000	100	1125	160L - 180L
900	1130	1230	565	582	1080	800	Ø18	1000	100	1122	132M - 160L
						900		1100	100	1277	180M - 200L
1000	1260	1360	630	650	1210	900	Ø18	1100	100	1255	160L - 180L
						1000		1200	100	1365	200L - 225S

All dimensions are in mm

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