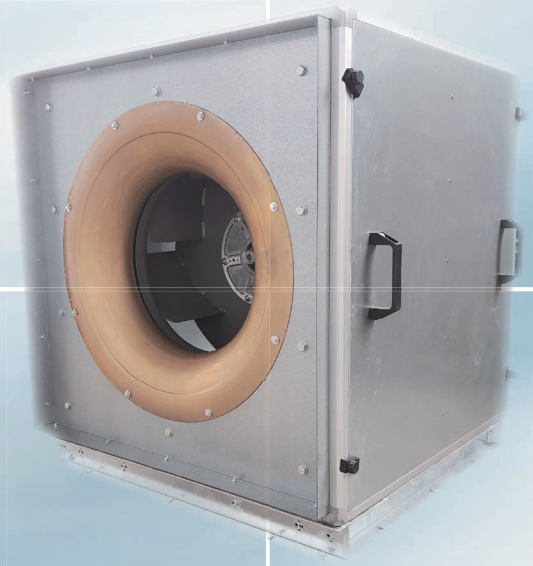
In-Line Centrifugal Fans

- WMF Explosion Proof Series



TI23ATEX 353

Air in Motion.

Wolter Fans.

K01.WMF.EX

wolter

Table of Content

Subject to change without prior notice.

ATEX Explosion Proof -
In-Line Centrifugal Fan
General Information

Fan type code

WMF 500 S - 4 AD Ex

- Explosion Proof ATEX
- Motor supply: AE = AC single-phase, AD = AC three-phase
- Number of poles of motor: 2, 4, 6, 8
- Fan lining: S = single skin, S1 = 25mm double skin, S2 = 50mm double skin
- The size of the impeller 250 to 630
- Model name

Cert.No.: TI23ATEX 353

Design Features

Performance

The in-line centrifugal flow fan has all the advantage of axial flow and centrifugal fans. i.e. straight airflow, light weight, compact and space saving design, easy installation, high-pressure stability, low noise level and low running costs. The fans are specially designed with build-in inlet cone to achieve high static efficiency and high volume flow. Standard size from 250 to 630 are available. The performance range is from 200 up to 24,000 m^3/hrs on air volume, at static pressure up to 2,600Pa. The performance curves have been established in according to AMCA 210 / ISO 5801.

Explosion proof fans with size from 250 to 630 are available upon requested.

- Certified according to ATEX guideline 94/9/EC as well as EN 60079-0, EN 1127-1, EN ISO 80079-36, EN ISO 80079-37 and EN 14986
- Applicable in categorie 2, zone 1 and 2
- Ex e increased safety respectively and Ex d = flameproof enclosure
- The fans are applicable for group IIA, IIB and IIC and also additional usable for hydrogen.
- Motor protection by cold conductor. Only certified when connected with a motor protection device

Fan Housing

Wolter's WMF 250 to 630 rigidly constructed fans box housing made from extruded aluminium profiles and can be of flame retardant plastic or aluminium corners. Side plates and mounting feet for bolting onto supports are fabricated from heavy gauge pre-galvanised sheet, can be of aluminium or stainless steel sheet as well.

Fans inlet and outlet can be fitted with DW142 flanges suitable for direct connection to flexible connector are designed for easy removal and installation. The fans housing are design for easy access to the impeller and drive with access panel to facilitated easy maintenance. All steel components are supplied with zinc plated and finish as standard. For special applications, motors can be installed externally on fan housing. Explosion proof fans inlet cone come with sheet metal type with non-sparking material protection (such as brass, copper and etc) as per the requirements and application.

Acoustic Housing - Optional 50mm Acoustic Panel

Frame housing are made from extruded aluminium profiles and corners. The external side plates are made from pre-galvanized sheet metal with internal perforated galvanized sheet as standard. Aluminium or stainless steel are available upon requested. Epoxy coat as optional. Access panel are provided on each enclosure so that all removable parts can be assessed for maintenance purpose.

Cabinet housing insulated to ensure low noise levels are internally acoustic lining with 32 kg/m^3 fiberglass of insert, non-hygroscopic, vermin and moisture proof as well as asbestos and CFC free and not support growth of bacteria. Servicing side door on request. For weatherproof version, weather-hood can be added as requested.

Sound levels

In order to make possible an assessment of sound projection adequate to human ear the A-assessed description of sound levels has been chosen. The ascertaining of the sound level follows the reverberant room method in accordance to AMCA 300 / ISO 13347-2. The A-weighted sound power levels is shown on the performance curves.

The sound power level at the different octave band mid-frequencies relevant for the interpretation of sound absorbers can be calculated by means of an equation.

Centrifugal Plug Fan Impeller

Wolter backward curve impellers are manufactured from powder coated sheet steel as standard. Aluminium or stainless steel sheet are available upon requested, finished in epoxy paint as optional.

The special design blade configuration guarantees high volume flow and static efficiency with low noise operation. Impellers are statically and dynamically balanced in accordance to quality level ISO 21940-11 / AMCA 204.

Motor

Wolter uses standard closed squirrel cage motor with airstreams rated to IEC 34, if required also in accordance to EPACT. The standard motors have Class F and enclosure IP54 or IP55. Continuous operating ranges from -40°C to +40°C, other operating condition on demand. Multi speed versions with 2 or 3 speeds as optional, TAB or DUAL wounded are also available. The motor bearings have a L10 life.

The motors are single / three phase, 50/60 Hz suitable for 220~240 or 380~415 volts. All other voltage can be supplied upon request. Max. allowed voltage tolerance of plus and minus 10% is valid. Flying leads as standard. Special cable lengths and fans with mounted terminal box on request. All wiring connection must be connected as per diagram as indicated on M&I manual. For explosion proof application, motor shaft are fitted with non-sparking sleeve to prevent impeller movement.

For explosion proof fans, the following table shows possible temperature classifications:

Protection type	Description
i	intrinsic safety
c	constructional safety
d	flameproof enclosure
e	increased safety
p	pressurisation
o	oil immersion
m	encapsulation
q	powder filling
nA	non sparking

Temperature classification	Ignition temp.of different gas mixtures	Max. surface temp. of electrial equipment
T1	> 450 °C	450 °C
T2	> 300 - > 450 °C	300 °C
T3	> 200 - > 300 °C	200 °C
T4	> 135 - > 200 °C	135 °C
T5	> 100 - > 135 °C	100 °C
T6	> 85 - > 100 °C	85 °C

Group	Gases and vapours of substances
IIA	acetone, ammonia, ethyl alcohol, fuel, benzene, methane, propane, carbon dioxide
IIB	ethylene, town gas, diethylether
IIC	hydrogen, carbon, disulphide, acetylene

- Wolter Test certification with T6 is valid for T5, T4, T3, T2 and T1 but not vice versa.
- For normal application or without specific instructions, motor will be delivered with T3/T4 motor as standard
- Motor certification on protection type with Ex “d” can be valid for Ex “e” but not vice versa. Wolter supplied motor on Ex“d“ will come with certification, Ex“e“ certification may not be necessary.

For explosion proof application

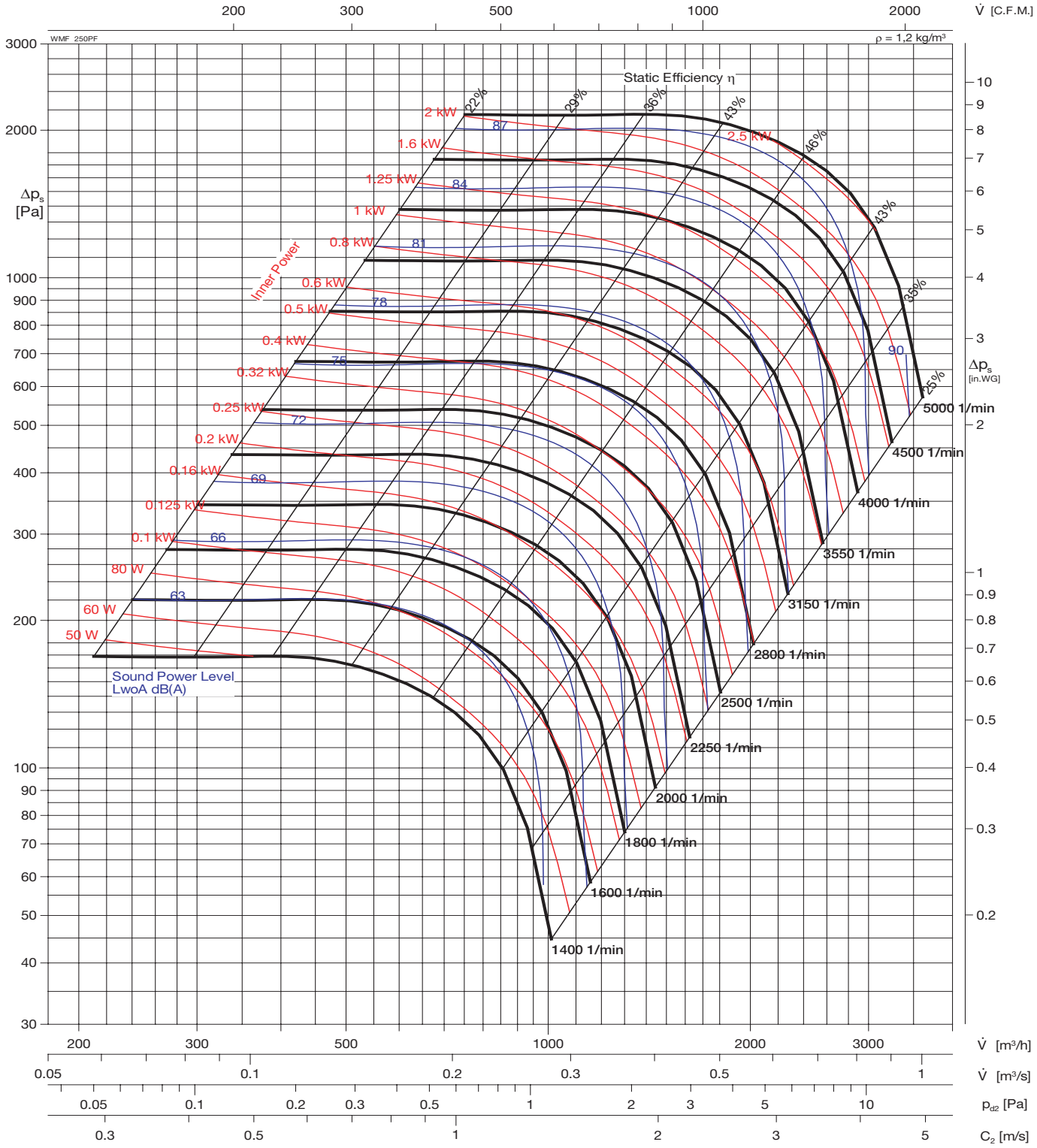
The electrical connections of the fan shall be carried out according to the instructions of the motor manufacturer. Wiring connection must come with certified cable glands entries and closing unused holes of the terminal box shall be certified according to the standards: EN 60079-0, EN 60079-1 and EN 60079-31. Extra mounted terminal box and other accessories are upon request.

Accessories (optional)

The following accessories are available:

- Flexible connection:
  The flexible connection consists of two galvanized flange, assembled with a gas-tight canvas. Please note that the dimensions of suction side and outlet side can be different and the correct one has to be chosen
- Inlet and outlet flange:
  Equivalent to flexible connection fitting flanges of specification in accordance to DW142 for inlet and outlet side can be ordered. They are pre-galvanized on both sides
- Dampers:
  The self-working dampers with blades made of weatherproof plastic and aluminium frames has to be mounted at the suction side. Motor driven volume control dampers made of strong extruded aluminium profile or stainless steel are also available with any dimension in width.
- Motor with 100% speed controllable
- Motor with protection through thermal contact
- Protective guard
- Anti-vibration mounting isolators

WMF 250 Ex



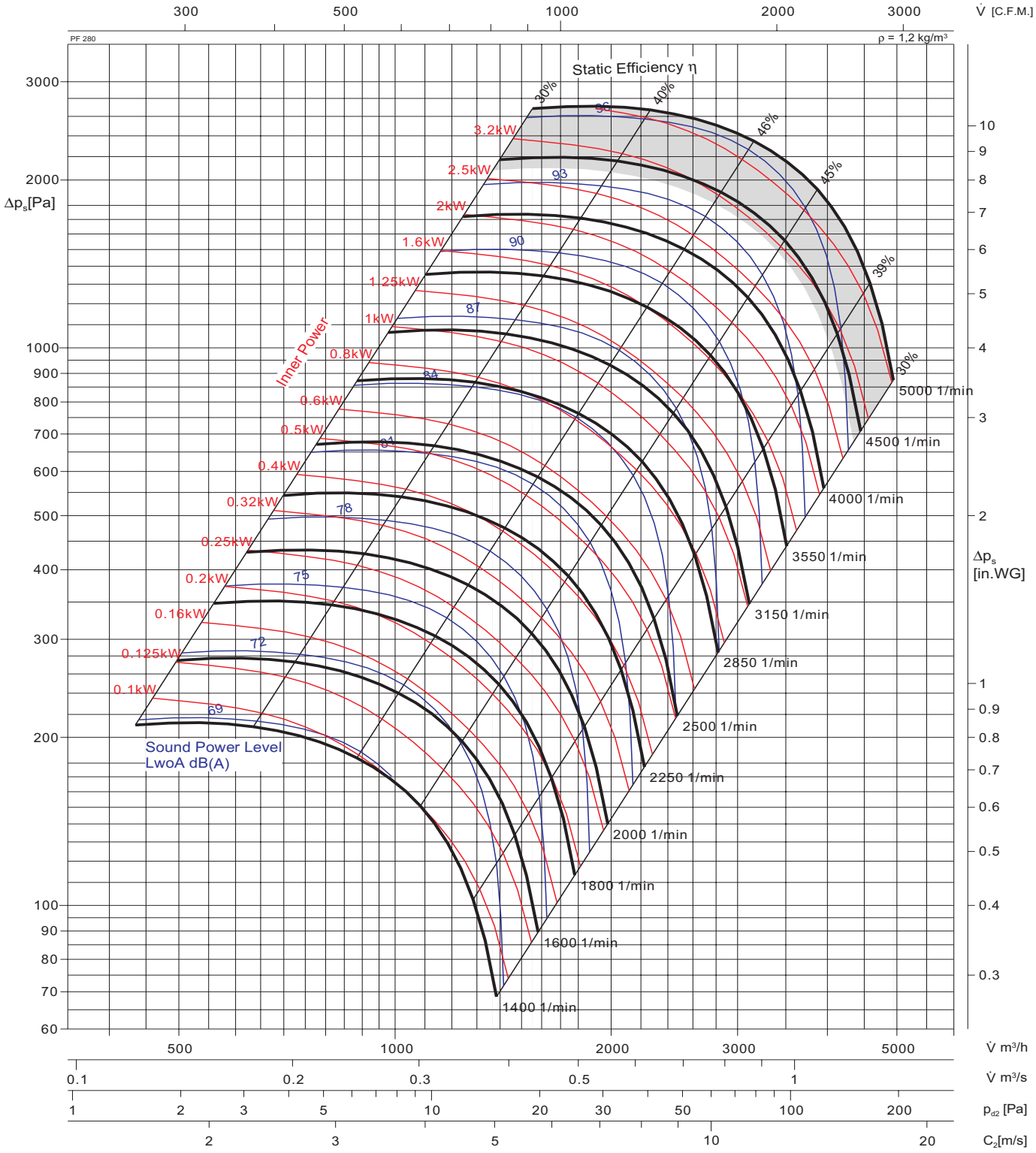
Relative frequency spectrum in ΔdB/Okt

N [1/min]	Octave b. midfreq. [Hz]							
RPM	63	125	250	500	1K	2K	4K	8K
2 Pole	-7.5	-7.5	-8.6	-9.0	-7.1	-10.8	-11.1	-16.5
4 Pole	-6.7	-7.8	-8.2	-6.4	-10.0	-10.3	-15.7	-17.8

Cert.No.:
TI23ATEX 353

Air and sound Perforamnce testing was according to AMCA 210 and AMCA 300 with one side open in an accredited laboratory by AMCA; The A-weighted sound ratings shown have been calculated per AMCA International Standard 301nances.

WMF 280 Ex



Relative frequency spectrum in ΔdB/Okt

N [1/min]	Octave b. midfreq. [Hz]							
RPM	63	125	250	500	1K	2K	4K	8K
2 Pole	-7.2	-7.2	-8.5	-8.9	-7.3	-11.2	-11.7	-17.1
4 Pole	-6.4	-7.7	-8.0	-6.4	-10.4	-10.8	-16.2	-18.4

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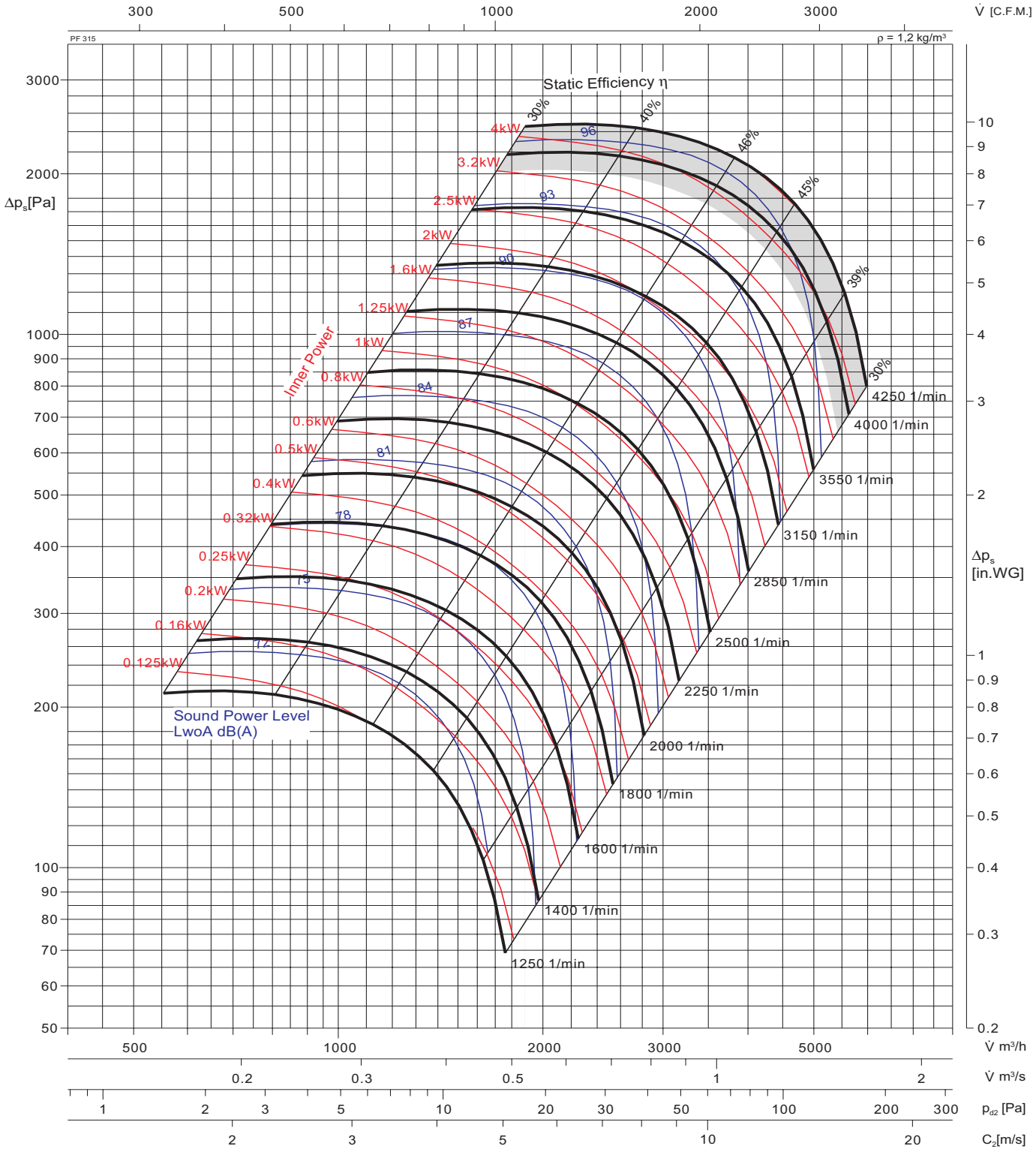
WMF 315 Ex



Relative frequency spectrum in ΔdB/Okt

N [1/min]	Octave b. midfreq. [Hz]							
RPM	63	125	250	500	1K	2K	4K	8K
2 Pole	-7.0	-7.0	-8.5	-8.8	-7.5	-11.7	-12.2	-17.7
4 Pole	-6.0	-7.5	-7.9	-6.6	-10.7	-11.3	-16.8	-18.9

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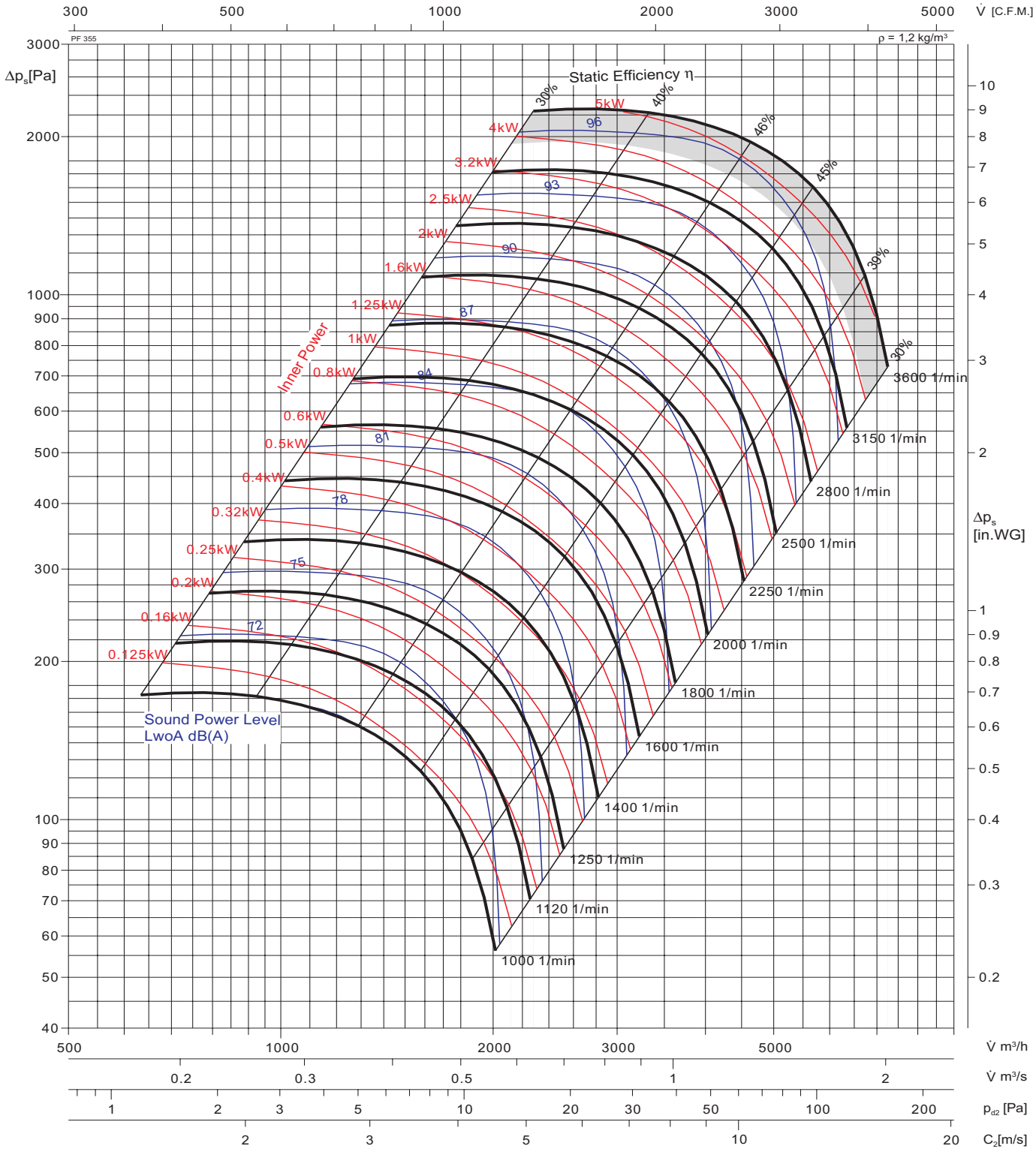
WMF 355 Ex



Relative frequency spectrum in ΔdB/Okt

N [1/min]	Octave b. midfreq. [Hz]							
RPM	63	125	250	500	1K	2K	4K	8K
2 Pole	-6.7	-6.7	-8.5	-8.7	-7.8	-12.2	-13.1	-17.8
4 Pole	-5.6	-7.4	-7.7	-6.7	-11.1	-12.0	-16.7	-20.0

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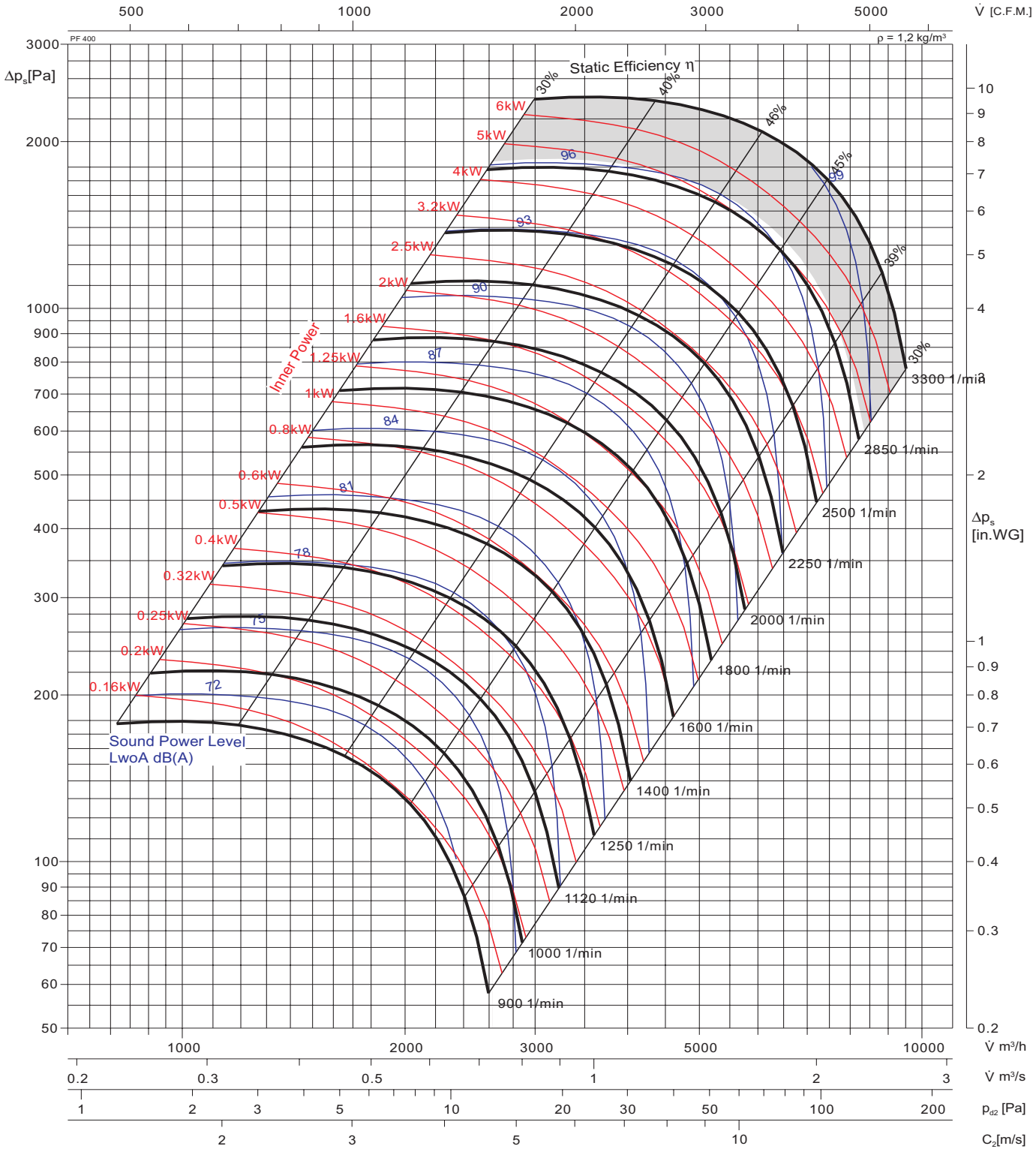
WMF 400 Ex



Relative frequency spectrum in ΔdB/Okt

N [1/min]	Octave b. midfreq. [Hz]							
RPM	63	125	250	500	1K	2K	4K	8K
2 Pole	-6	-6	-9	-9	-8	-13	-14	-19
4 Pole	-5	-7	-8	-7	-12	-12	-18	-20
6 Pole	-6	-7	-6	-9	-12	-14	-19	-19

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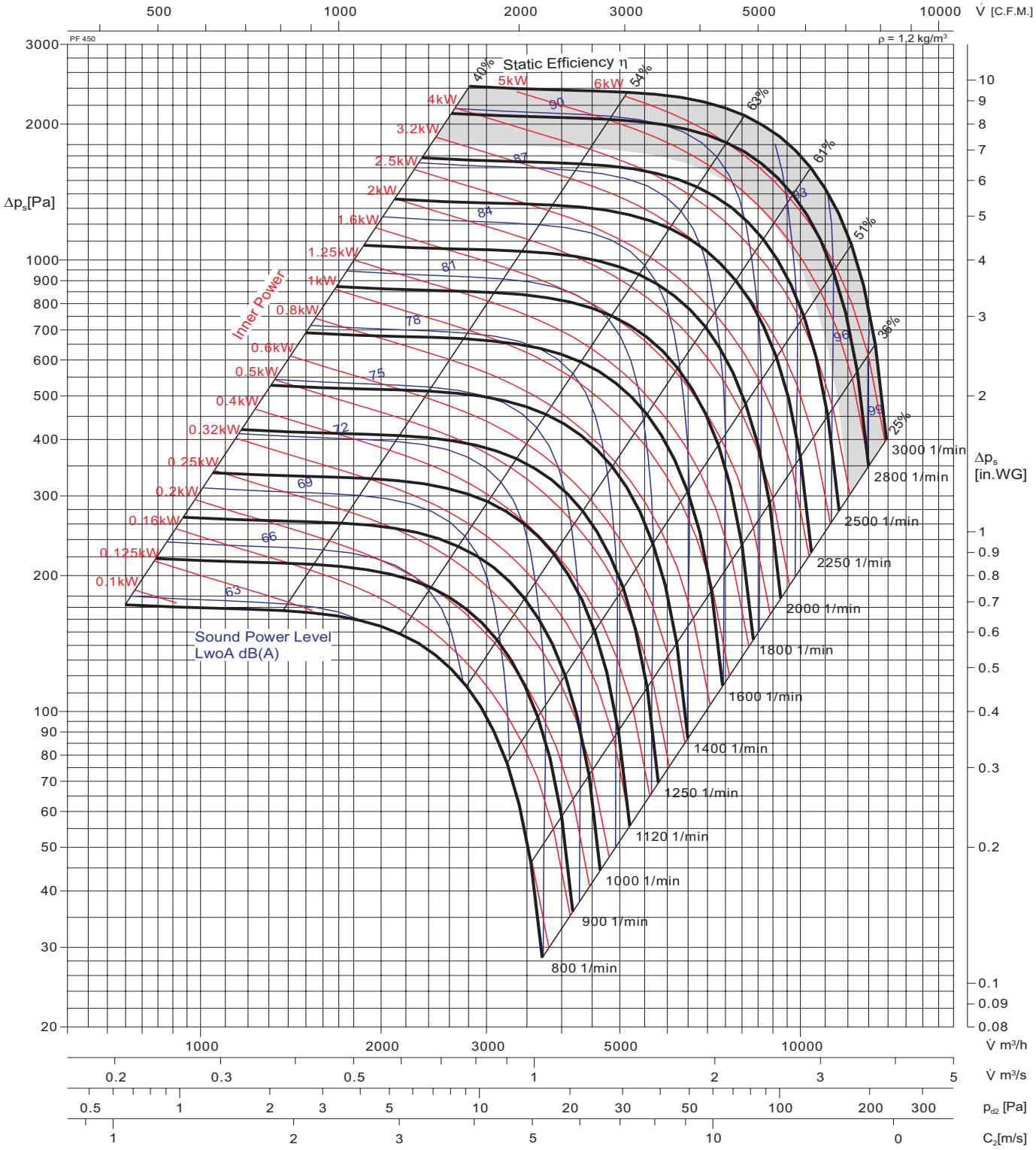
WMF 450 Ex



Relative frequency spectrum in ΔdB/Okt

N [1/min]	Octave b. midfreq. [Hz]							
RPM	63	125	250	500	1K	2K	4K	8K
2 Pole	-14	-14	-8	-8	-7	-6	-9	-15
4 Pole	-14	-8	-8	-7	-6	-9	-15	-22
6 Pole	-11	-8	-7	-6	-7	-12	-19	-26

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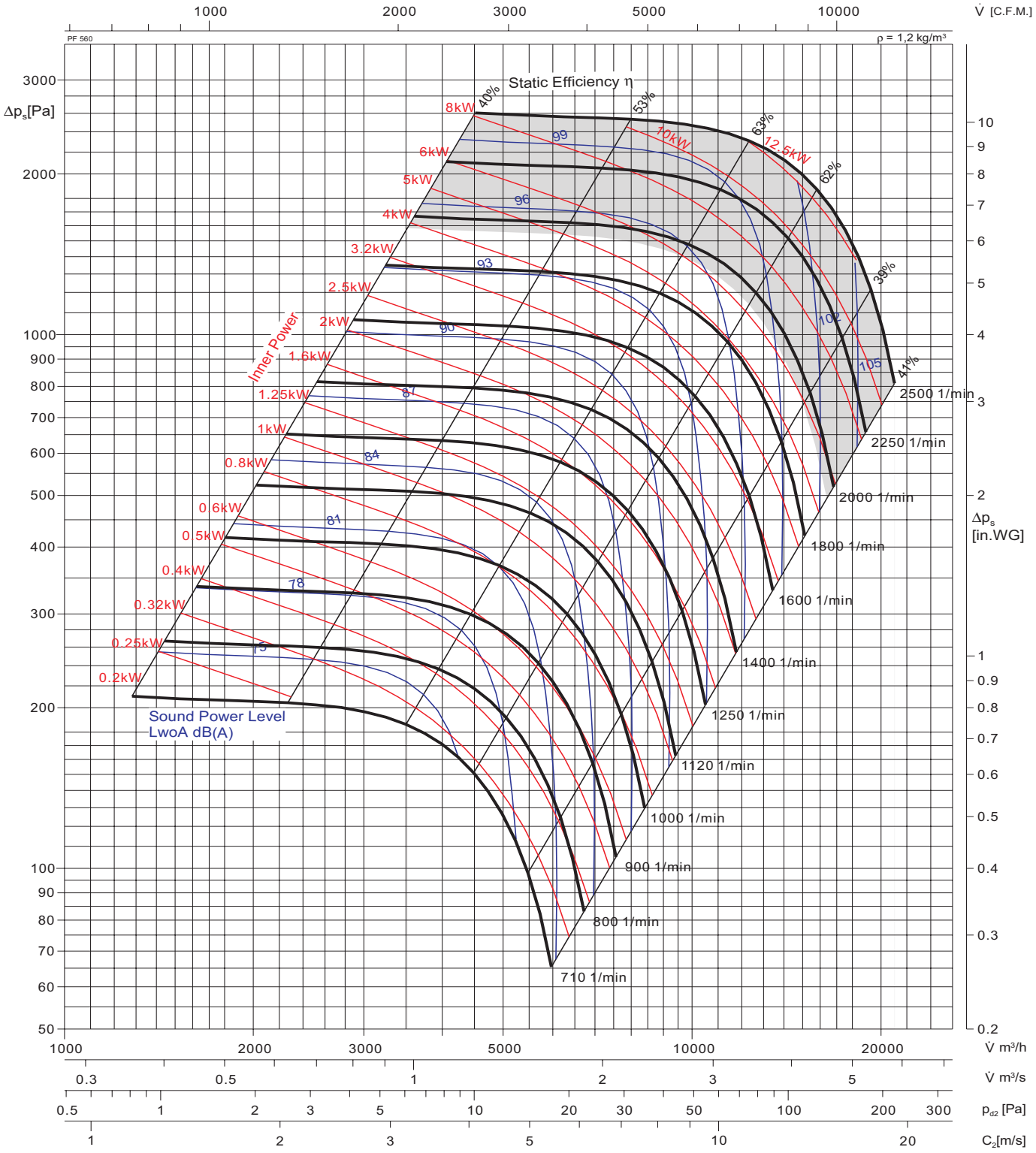
WMF 500 Ex



Relative frequency spectrum in ΔdB/Okt

N [1/min]	Octave b. midfreq. [Hz]							
RPM	63	125	250	500	1K	2K	4K	8K
4 Pole	-13	-8	-8	-7	-6	-9	-15	-23
6 Pole	-10	-7	-7	-6	-7	-12	-20	-26

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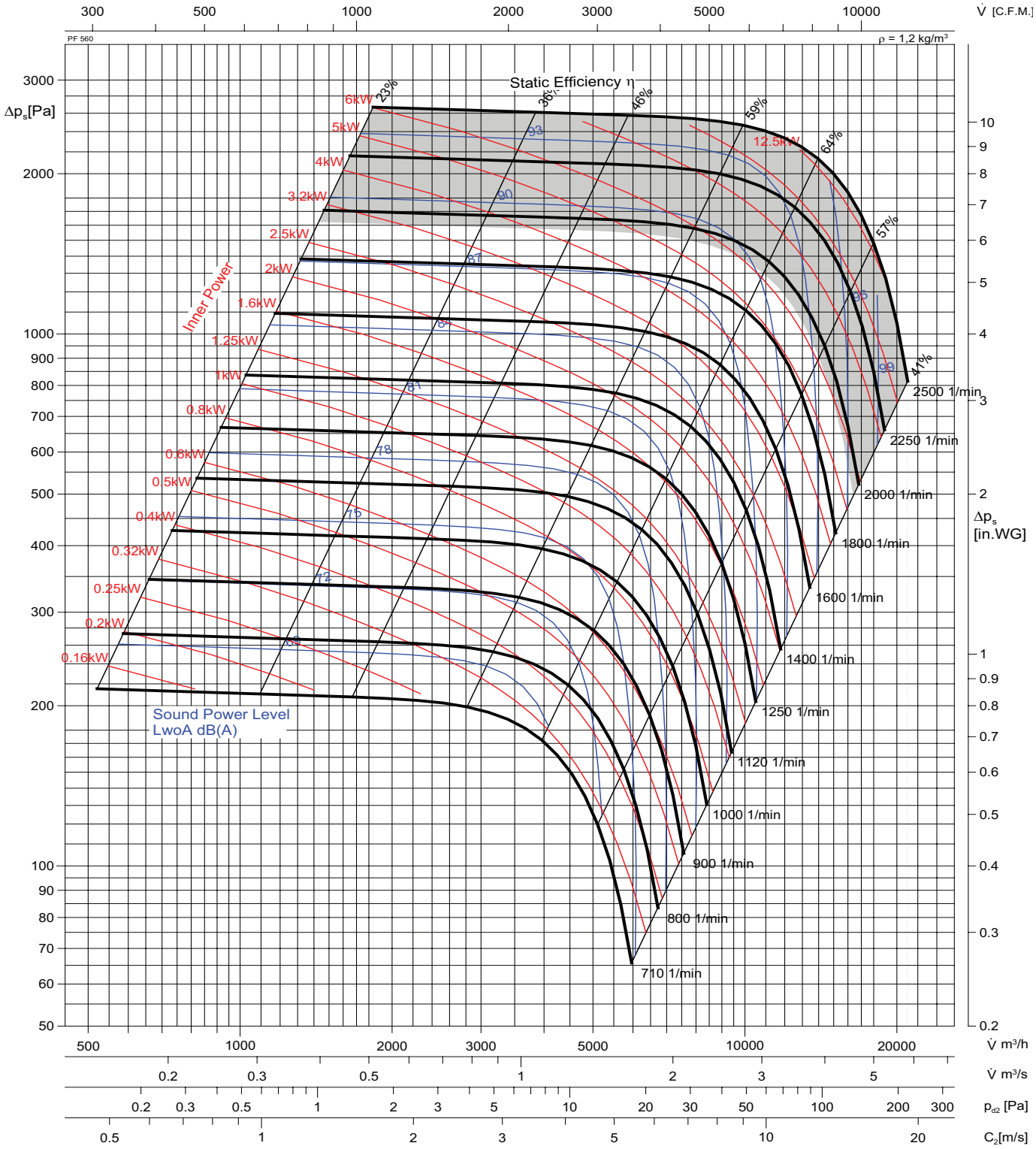
WMF 560 Ex



Relative frequency spectrum in ΔdB/Okt

N [1/min]	Octave b. midfreq. [Hz]							
RPM	63	125	250	500	1K	2K	4K	8K
4 Pole	-13	-8	-7	-7	-6	-9	-16	-23
6 Pole	-10	-7	-7	-6	-7	-12	-20	-27

Cert.No.:
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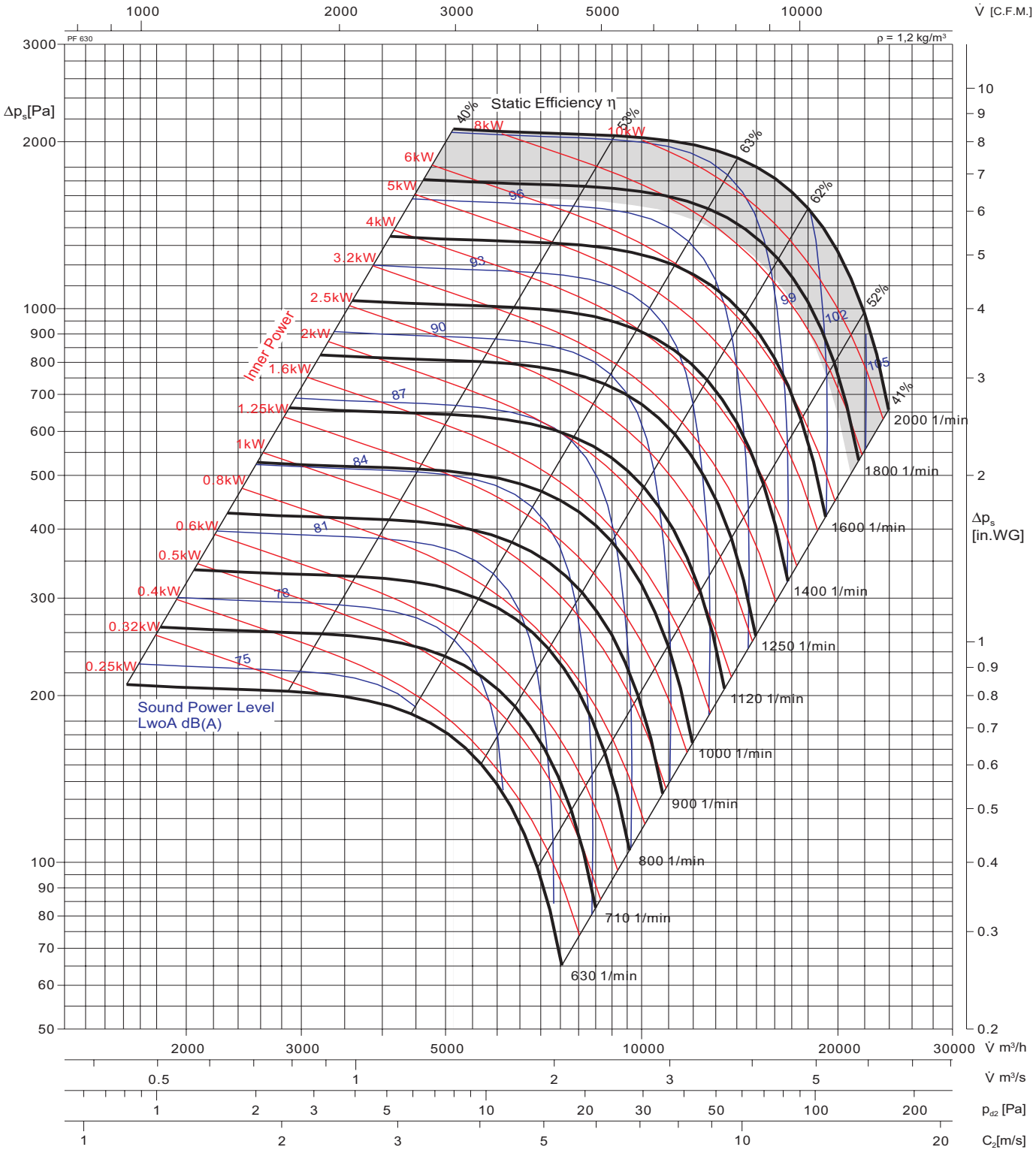
WMF 630 Ex



Relative frequency spectrum in ΔdB/Okt

N [1/min]	Octave b. midfreq. [Hz]							
RPM	63	125	250	500	1K	2K	4K	8K
4 Pole	-12	-8	-7	-7	-6	-9	-16	-23
6 Pole	-9	-7	-7	-6	-7	-13	-20	-27
8 Pole	-8	-7	-7	-6	-9	-16	-23	-30

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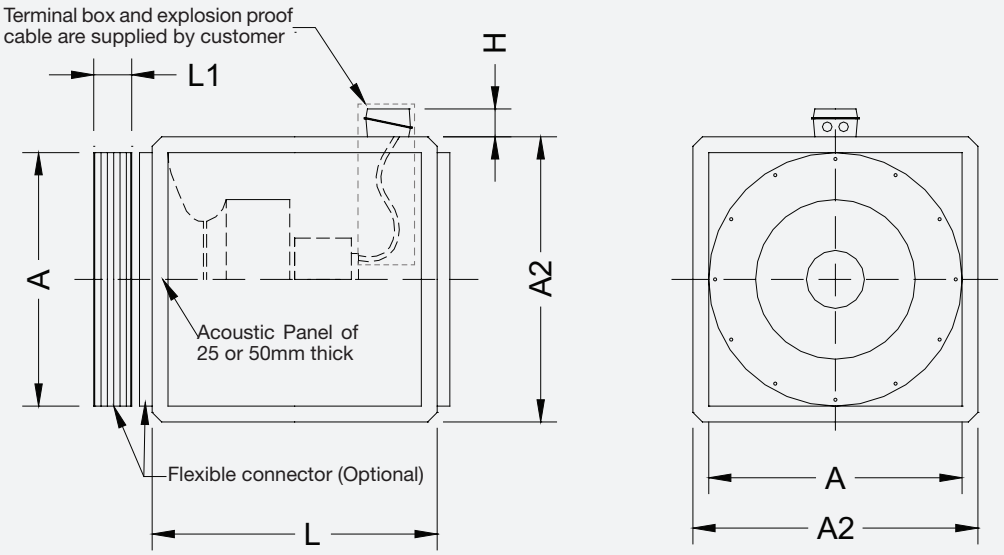

WMF	A	A2						H	L			L1	Weight
		Single Skinned PF25	Double Skinned PF25	Single Skinned PF50	Double Skinned PF50	Single Skinned PF100	Double Skinned PF100		PF25	PF50	PF100		PF50 w/o Motor
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
250	450	500	500	550	550	-	-	60	450	500	-	140	30
280	500	550	550	600	600	-	-	60	500	550	-	140	34
315	550	600	600	650	650	-	-	60	550	600	-	140	37
355	600	650	650	700	700	-	-	60	600	650	-	140	41
400	650	700	700	750	750	-	-	60	650	700	-	140	45
450	700	750	750	800	800	-	-	60	700	750	-	140	64
500	800	850	850	900	900	-	-	88	800	850	-	140	81
560	850	900	900	950	950	-	-	88	850	900	-	140	99
630	900	950	950	1000	1000	-	-	88	900	950	-	140	118

** Explosion proof fans with size from 250 to 630 are available upon requested. Certified according to ATEX guideline 94/9/EC as well as EN60079-0, EN1127-1 and 13463-1; Applicable in categorie 2, zone 1 and 2; Ex e increased safety respectively and Ex d = flameproof enclosure; The fans are applicable for group IIA, IIB and IIC and also additional usable for hydrogen; Motor protection by cold conductor. Only certified when connected with a motor protection device.

• We reserve the right to alter measurements without notice in case of technical improvements.

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Air in Motion

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