

FSE Centrifugal Fan Series

Model Nos.: FSE





The Seacon centrifugal fan are the result of long experience in the development and manufacturing of ventilation systems. The partnership between highly motivated Seacon employees and world known component suppliers guarantees quality products on the highest technical level and precise reliability.

The Seacon advantage:

- Easy electrical connection
- Easy installation
- Impellers and casings made of galvanized steel or coated steel
- High efficiency & economic
- Can also be operated in polluted air without problems
- Low noise & quiet running
- Application flexibility

The Seacon quality:

The Seacon belt driven centrifugal fans are driven by high efficiency IEC motor class IP 55, insulation class be F or H Motor and impeller are statically & dynamically balanced in two levels according to VDI 2060.

Ball or Roller bearing can be easily replaced. Lti uses the bearing lift of L10 type. The casing and impeller can be make of stainless steel or be coated with epoxy paint upon request.

The Seacon ranges:

Standard execution complete with outlet lange and mounting feet, baseframe, belt and belt guard.

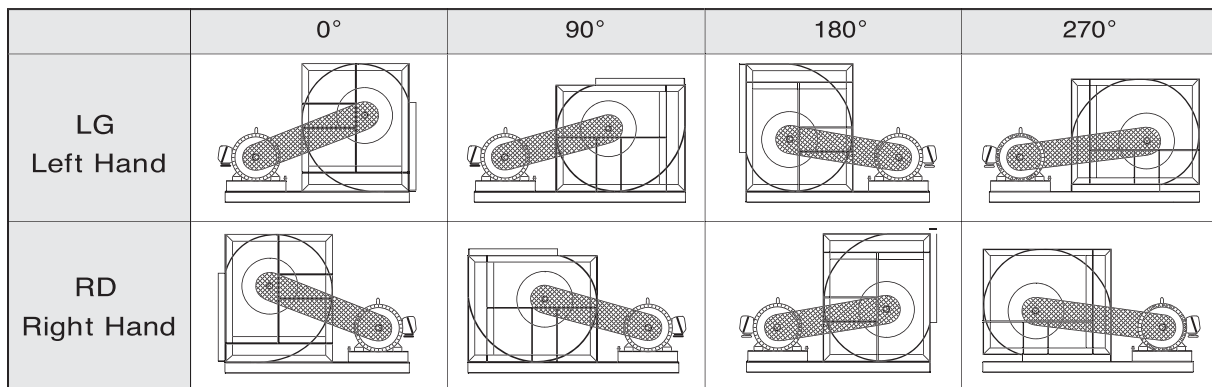
Type of Product

1. Direction of Rotation

Ventilator can be divided into two direction of rotations, left-hand rotation(LG) and right hand rotation (RD); Viewing from end of motor outlet line, if the impeller rotates clockwise, it is called right hand ventilator; If the impeller rotates anti-clockwise, it is called left hand ventilator.

2. Direction of Air Outlet

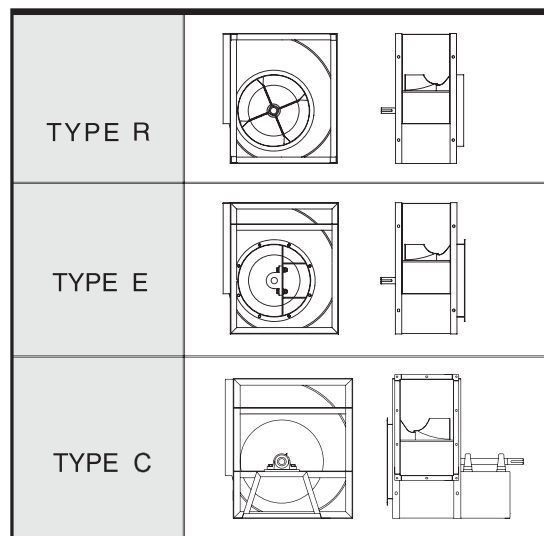
According to Fig 1 , Ventilator can be made in four air-outlet directions: 0°, 90°, 180°, and 270°.



(Fig1)

3. Type of structure

According to Fig 2, Ventilators can be divided into Category R, Category E and Category C.



(Fig2)

Construction of Product

Ventilators are mainly consisted of scroll, impeller, frame bearing, Shaft, outlet flange.

1). Scroll

The scroll is made of hot galvanizing steel sheet. Its side plate has an outline complying with aerodynamics. The scroll plat fixed to the side plates by means of "electric spot welding".

2). Impeller

For wards curved radial impellers the impeller is made of high grade hot galvanizing steel sheet and is designed to a special configuration according to aerodynamics to make the efficiency highest and the noise lowest. The impeller is fixed on the middle disk plate and on the end ring with riveting grippers. The impeller has enough rigidity during continuous rotation with maximum power. Backwards curved radial impellers are made of high grade cold-rolled sheet The veneer blades which are designed in three-dimensional theory are welded between middle tray and endmost Before leaving factory, all impellers have passed all-round dynamic balance test according to the Company Standard which is higher level than National Standard.

3). Frame

The frames for type R ventilators are made of galvanized steel angle iron bars. The cutting and bending of the frame parts, as well as the TOX connections, are formed with the use of molds to assure their high accuracy and the rigidity of the frames; The frames for type E, type C ventilators are welded by angle steel and flat, steel and they are finished with polyesters coatings in order to assure sufficient rigidity and intensity.

4). Bearings

Ball bearings are used in all of the Lti centrifugal ventilators. They are high quality bearings and they are selected to minimize the ventilator noise levels. The bearings are pre-lubricated, sealed, and selfcentering. For type R ventilators, the bearings are mounted using vibration resistant washers. For type E, type C ventilators, self-aligning pillow block ball bearings are used, Type k ventilators bearings are supplied with lubrication fittings.

5. Shaft

The shafts are made of 40 Cr or C45 carbon steel bars. The shafts are rough machined and then stress relieved before final machining. The shaft diameters are machined to very accurate tolerance levels and they are fully checked to assure precision fits They are coated after assembly in order to provide corrosion resistance. Stainless steel shaft will br use in spark protection application.

6. Inlet and Outlet Flange

The inlet flange are made of high grade cold-rolled sheet and painted with polyester coatings The outlet flange is made of galvanized steel The connections of the flange components to each other and to the scroll are made using a TOX non-welding process This maintains a good flange appearance while also providing sufficient strength and rigidity.

Performance of Ventilator

1. The ventilator performance in this catalogue denotes the performance in standard conditions. It denotes air inlet conditions of ventilator as follows:

Air inlet pressure $P_a = 101.325\text{KPa}$

Air temperature $t = 20\text{ }^\circ\text{C}$

Inlet gas density $\rho = 1.2\text{Kg/m}^3$

If the practical air inlet conditions of customer or the speed of the operating ventilator changes, the conversion can be carried out according to the following expression:

$$\frac{Q_0^*}{Q_0} = \frac{n^*}{n}$$

$$\frac{P_0^*}{P_0} = \frac{n^{*2}}{n^2} \cdot \frac{\rho^*}{\rho} \quad \frac{P_0^*}{P_0} = \frac{n^{*2}}{n^2} \cdot \frac{P_a^*}{P_a} \cdot \frac{273+t}{273+t^*}$$

$$\frac{N_{in_0}^*}{N_{in_0}} = \frac{n^{*3}}{n^3} \cdot \frac{\rho^*}{\rho} \quad \frac{N_{in_0}^*}{N_{in_0}} = \frac{n^{*3}}{n^3} \cdot \frac{P_a^*}{P_a} \cdot \frac{273+t}{273+t^*}$$

where:

Volume Q (m^3/h), total pressure P_0 (Pa), speed n (r/min) can be obtained from Performance chart.

Asterisk (*) on the upper right corner denotes the performance parameter needed by the customers in practical gas inlet conditions.

The difference in relative humidity is omitted from the above-mentioned formulas.

2. The power (N_{in_0}) on the performance chart the internal power of the ventilator.

Shaft power of ventilator: $N_s = N_{in_0} / \eta_m$

where: N_s -Shaft power of ventilator

η_m -Mechanical efficiency of ventilator

The value of mechanical efficiency of ventilator can be obtained from Table 1.

Way of ventilator driving	η_m
electric motor directly driven	1
Coupling directly driven	0.98
V-belt driven	0.95

(Table1)

(2) The rated power of the drive motor equals the total required shaft input power multiplied by the safety factor:

$$N = N_s \cdot K$$

where: N = rated power of drive motor

K = required safety factor

The required safety factor is provided in Table 2.

Power of electric motor(Kw)	K值Value k
$\leq 2.2\text{Kw}$	1.2
$\leq 11\text{Kw}$	1.15
$> 11\text{Kw}$	1.1

(Table2)

3. Noise: The noise levels shown on each performance chart, L_{wIA} , refer to the overall sound power “A Weighted” levels. The computed sound power levels were converted into A-Weighted levels using adjustments to the octave band spectrum as follows:

Center Frequency Hz	63	125	250	500	1000	2000	4000	8000
Weighted Adjustment dB (A)	-25.5	-12.5	-8.5	-3	0	+1	+1	-1

Table. 3

The overall sound pressure levels, L_{pIA} , can be computed from the overall sound power levels as follows:

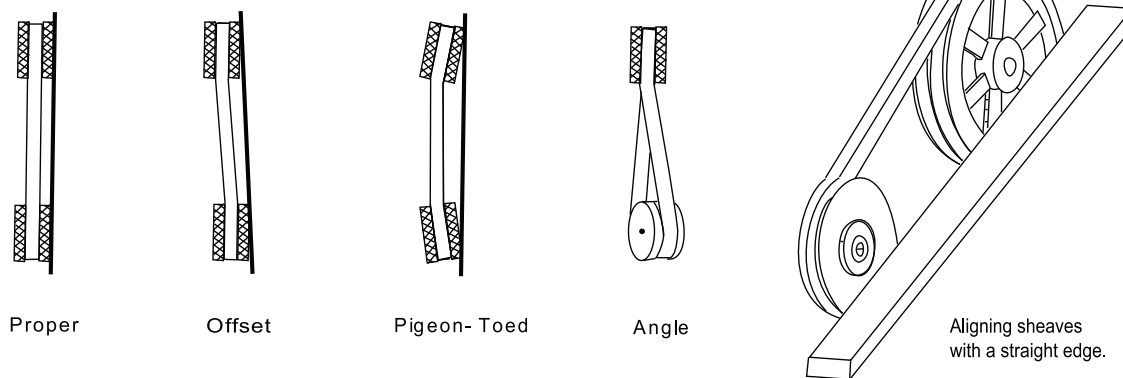
Free Field Conditions: $L_{pIA} = L_{wIA} - (20 \log_{10} d) - 11$

Room Conditions: $L_{pIA} = L_{wIA} - (20 \log_{10} d) - 7$

Where: d = distance from fan in meters.

V-BELT DRIVE INSTALLATION

1. Remove the protective coating from the ends of the fan shaft and assure that the shaft ends are free of nicks and burrs.
2. Check fan and motor shafts for parallel and angular alignment.
3. The center distance must be controlled as $0.7(d_1 + d_2) < 2(d_1 + d_2)$; the belt speed of the fan should be more than 25 m/s, but less than 35m/s, ($25 < v < 35$ m/s)
4. Slide sheaves on to the shafts - do not drive the sheaves on to the shafts as this may result in bearing damage.
5. Align fan and motor sheaves with a straight-edge or string, and tighten. as shown in Fig3.
6. Place belts over the sheaves. Do not pry or force the belts as this could result in damage to the cords within the belts.
7. Adjust the belt tension until the belts appear snug. Run the unit for a few minutes and allow the belts to set properly.
8. Switch off the fan, adjust the belt tension by moving the motor base. When in operation, the tight side of the belts should be in a straight line from sheave to sheave and there should be a slight bow on the slack side.



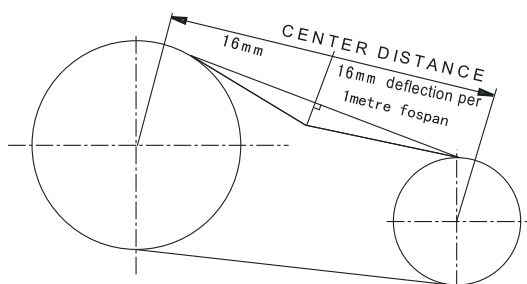
(Fig3)

Belt tension

A proper level of belt tension is required in order to obtain a satisfactory belt life. If the belt tension level is too high, then excessive loads will be imposed on the belts and the bearings, and this will reduce the lives of both of these components. If the belt tension level is too low, then the belt will slip. Belt slippage generates a large amount of heat, and this heat will drastically reduce the life of a belt. Belt-tensioning gauges can be used to determine whether the belts are tensioned properly. A chart is normally supplied with the gauge which indicates the ranges of forces required to deflect the belts by a given amount to obtain the proper belt tension level. The required forces are based upon the center distance of the sheaves and the belt cross-section. The belts are properly tensioned when the forces required to deflect the belt are within the specified range, see Fig 4 and Table 3.

If a belt-tensioning gauge is not available, then the belt should be tightened just enough so that the belt does not squeal when the ventilator is started. A very short period of noise during the starting of a ventilator is allowable, but a squeal lasting several seconds or longer is not acceptable. After tensioning the belts and before starting the ventilator, check to make sure that the sheaves are properly aligned. Realign the sheaves if necessary. Note that new belts may stretch a little during initial use, so the belt tension level should be checked after a few days of operation.

Belt tension indicator applied to mid centre distance.



(Fig4)

Belt Section	Force required to deflect belt 16mm per metre of span		
	Smial Pulle/Diamter (mm)	牛顿	Kilogram force (Kgf)
SPZ	56-95	13-20	1.3-2.0
	100-140	20-25	2.0-2.5
SPA	80-132	25-35	2.5-3.6
	140-200	35-45	3.6-4.6
SPB	112-224	45-65	4.6-6.6
	236-315	65-85	6.6-8.7
SPC	224-335	85-115	8.7-11.7
	375-560	115-150	11.7-15.3
A	80-140	10-15	1.1-1.5
B	125-200	20-30	2.0-3.1

(Table3)

Bearing Lubrication

The ventilator bearings are filled with lubricant when they come from the factory, so the bearings do not require any additional grease to be supplied before starting the ventilator.

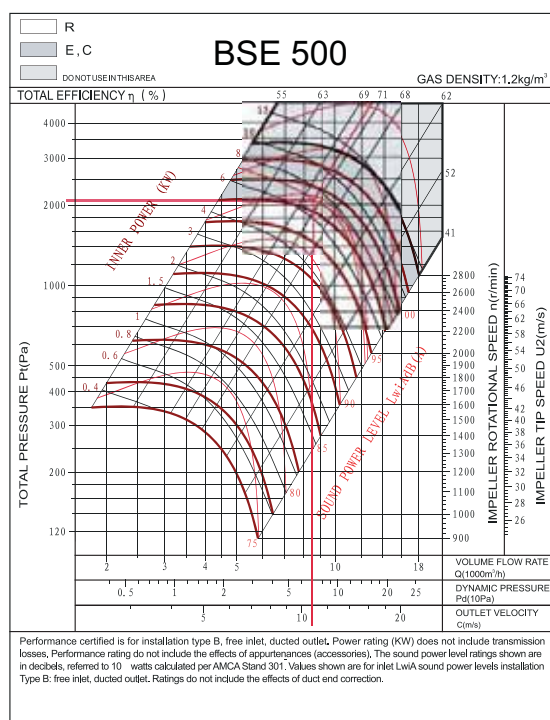
The ventilator that are equipped with pillow block bearings are provided with lubrication fittings, and these fittings allow for additional lubrication to be supplied to the bearings at regular intervals. The allowable period of time between lubrication of these bearings depends upon the operating speeds and temperatures of the bearing as well as on the type of grease used. The best way to determine the required frequency of lubrication is to inspect the condition of the grease that is discharged from the seals when new grease is added. If the discharged grease looks similar to the new grease, then a longer period of time between lubrications is possible. If the discharged grease is much darker than the new grease, then this indicates that the grease is being oxidized and more frequent lubrications of the bearings are required.

Instructions

1. During ordering it is necessary to state the type of ventilator, speed, air volume, air pressure, direction of air outlet, rotating direction, type of electric motor and its specifications.

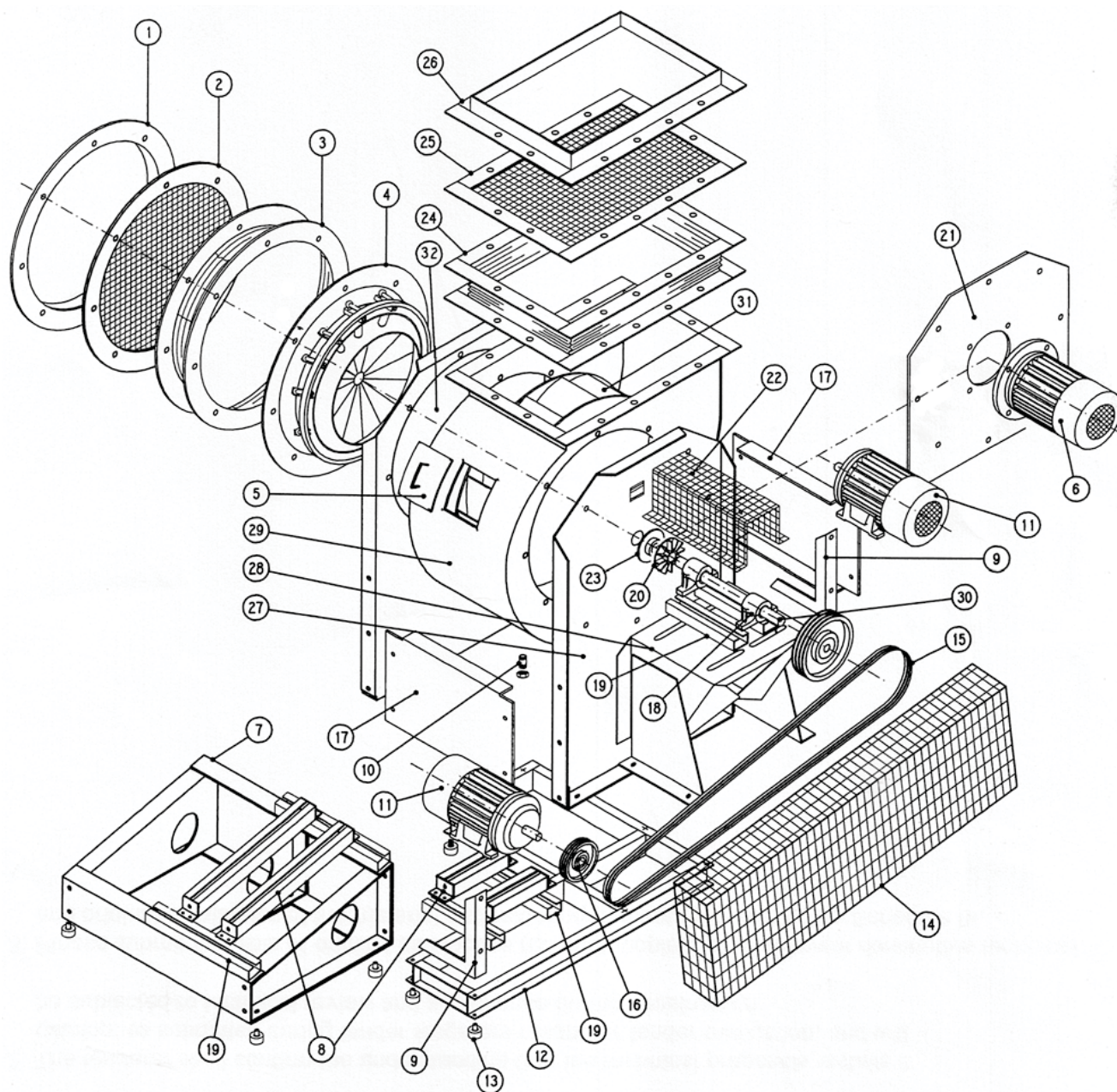
2. Prior to installation, the ventilator should be carefully inspected. Special care should be taken in checking the shaft, impeller and bearings. If there is an indication of any damage, then the damaged parts should be repaired or replaced before the ventilator is installed or operated.
3. The inside of the scroll and casing need to be checked to make sure that there are no foreign objects contained there in, such as tools or loose parts.
4. The rotational directions of the motor and impeller should be checked to assure that they are consistent with each other.
5. A flexible connector should be used between the ventilator outlet flange and its mating pipe. The bolts used to fasten the outlet flange to the pipe should not be over tightened.
6. Following the installation, the impeller should be turned by hand or with the use of a wrench to make sure that it turns freely. Once this is verified, the ventilator can be operated normally.
7. The rated motor power as calculated here in is not sufficient to drive the ventilator with an unrestricted discharge flow path. Operating the ventilator with an unrestricted discharge flow path will result in flow rates that exceed the ventilator flow rate capabilities, and such operation will quickly burn out the motor. So care must be taken in operating the ventilators to make sure that the maximum rated flows, as provided on the performance chart in this brochure, are not exceeded.
8. This fan is restricted for use in areas where air substances are non-corrosive and non-toxics, non-alkaline or where dust particles $< 150\text{mg/m}^3$, $-20^\circ\text{C} < \text{temperature} < 85^\circ\text{C}$. If special conditions during transportation, load and unload, It is strictly prohibited to Shock the ventilators.

Example Of Cruve Reading



Volume	V=8500 m ³ /h
Total Pressure	Pt=2060 Pa
Dynamic Pressure	Pd=70Pa
Outlet Velocity	C=10.8 m/s
Speed	n=2265 r/min
Impeller Tip Speed	U ₂ =61 m/s
Inner Power	N _{ino} =7.1 kW
Sound Power Level	LwA=94.4dB(A)
Total Pressure Efficiency	η =70.5 %

LABELLING OF FAN COMPONENTS



- | | |
|---|-------------------------------|
| 1 Inlet flange | 17 Sideplate |
| 2 Inlet guard | 18 Bearing |
| 3 Inlet flexible connection | 19 Bearing support rail |
| 4 Inlet vane control | 20 Cooling wheel |
| 5 Inspection door | 21 Flange for B5 motor |
| 6 Motor - B5 execution | 22 Shaft guard |
| 7 Motor support | 23 Shaft seal |
| 8 Motor rails | 24 Outlet flexible connection |
| 9 Support | 25 Outlet guard |
| 10 Drain plug | 26 Outlet flange |
| 11 Motor - B3 execution | 27 Frame |
| 12 Common base frame | 28 Motor or Bearing support |
| 13 Anti-vibration mounts (spring or rubber) | 29 Fan housing |
| 14 Belt guard | 30 Shaft |
| 15 Belt | 31 Impeller |
| 16 Pulley | 32 Inlet cone |

DOUBLE INLET CENTRIFUGAL VENTILATORS WITH BACKWARD WHEELS

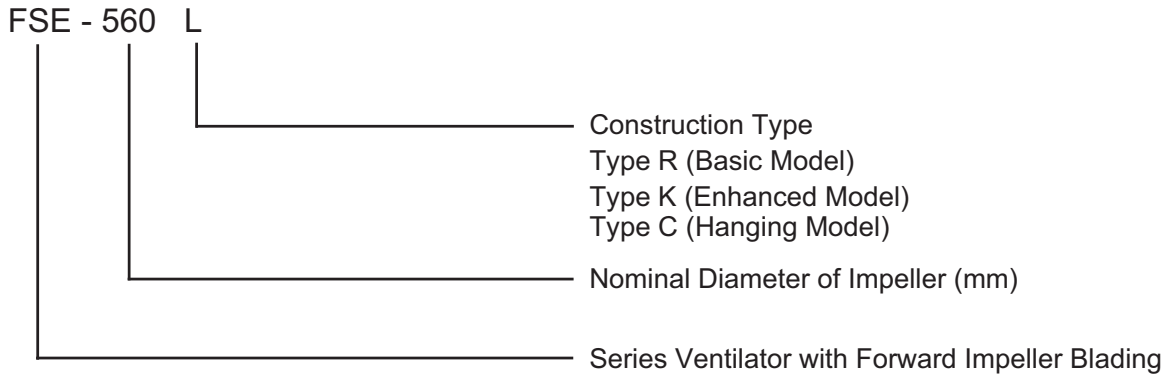
Outline

The BSE series of centrifugal fans with backward blade was developed by using international advanced technologies. They are licensed to bear the AMCA Seal. The BSE Series includes 15 models as described in this brochure. The volume flow ranges of the BSE Series varies from 1,000 cubic meters per hour to 120,000 cubic meters per hour. and pressure range from 200 Pa to 3,000 Pa. Some of the features and characteristics of these ventilators are: backward impeller blading, a wide range of applications, high efficiency, low noise, and low power consumption. These ventilators are ideal for use in central air conditioning systems, heating and ventilating air conditioning systems, and in purifiers. They are also suitable for use in a number of other ventilator applications.

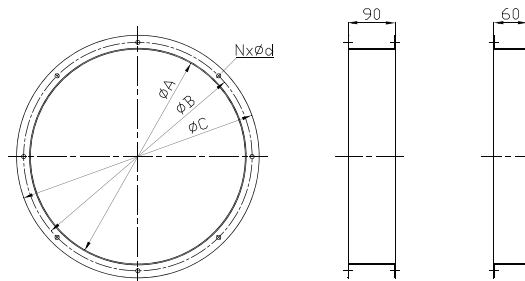


Designation of Products

The model designations signify the nominal impeller outside diameters:

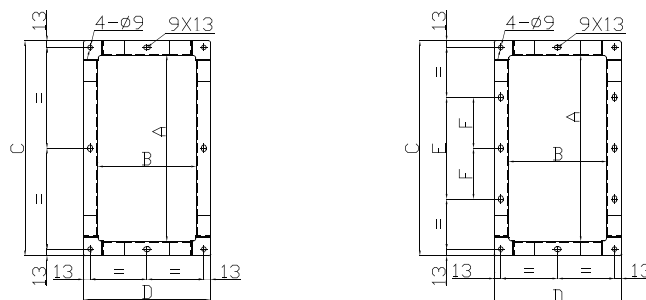


(Inlet Flange)

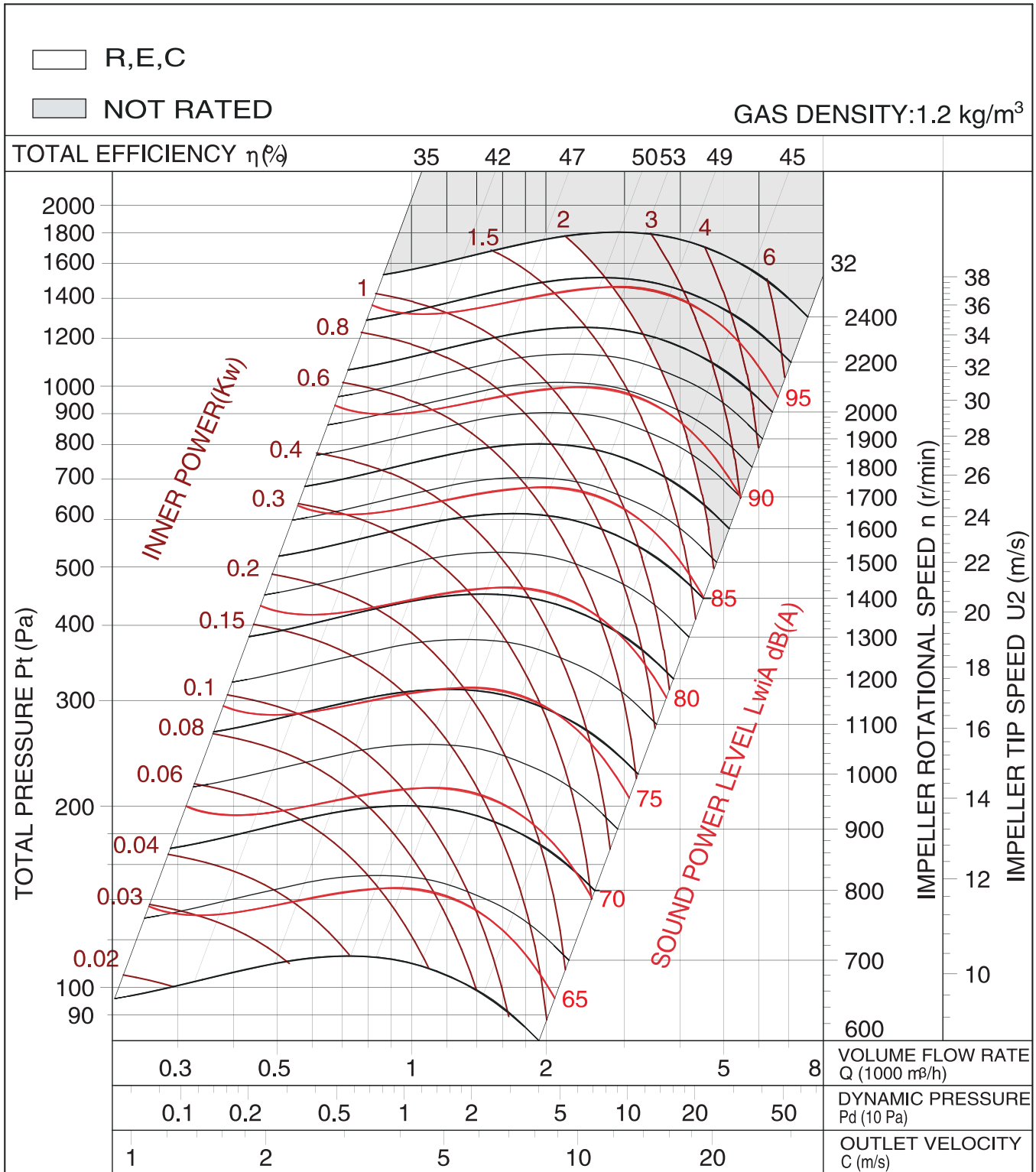


Type	280	315	355	400	450	500	560	630	710	800	900	1000
A	292	322	362	404	448	510	570	635	722	808	896	996
B	325	344	386	432	485	544	605	670	750	844	945	1044
C	355	383	423	466	515	570	635	700	778	875	980	1080
N-d	6x7	6x7	8x9	8x9	8x9	8x11	8x11	10x13	10x13	12x13	12x13	12x13

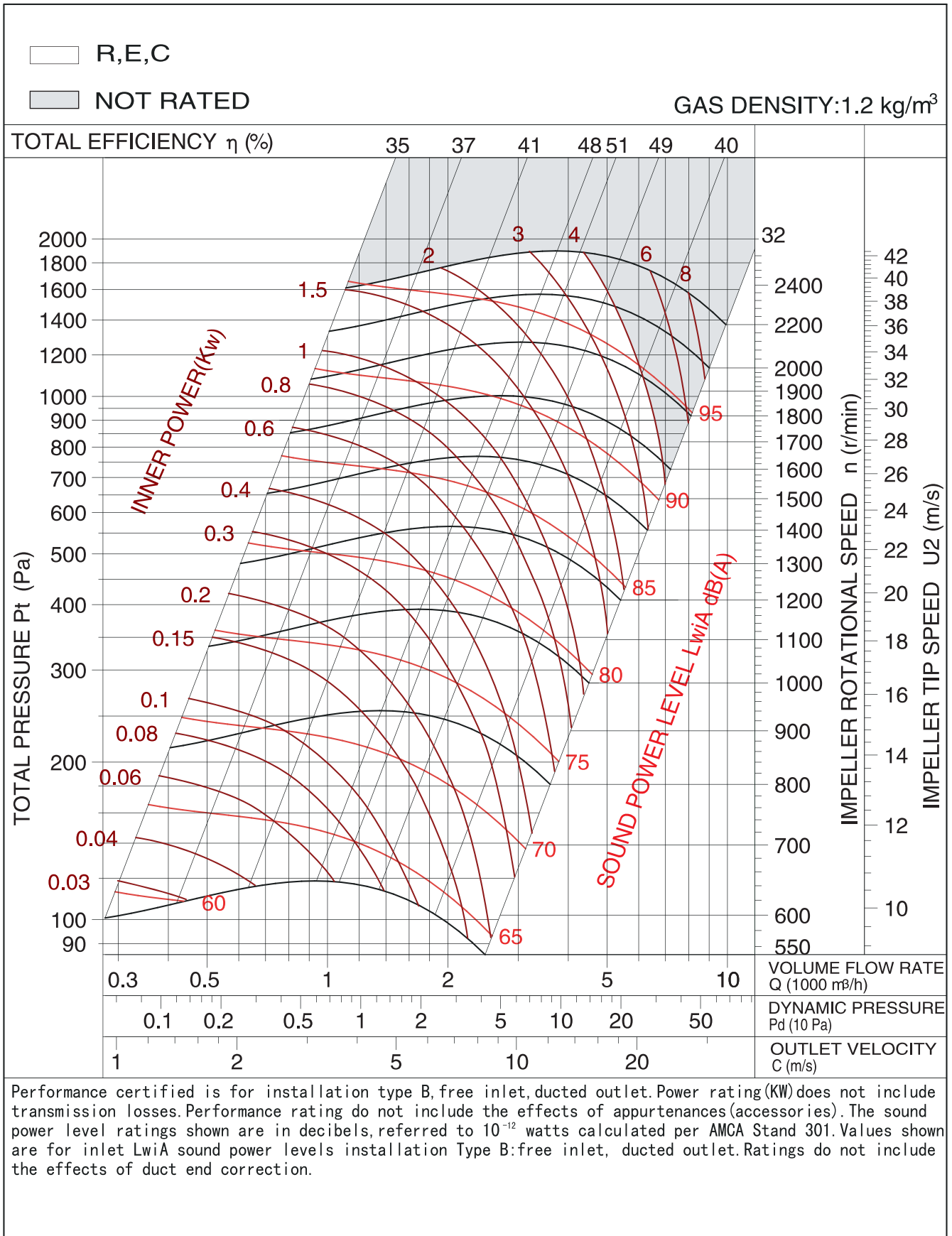
(Outlet Flange)

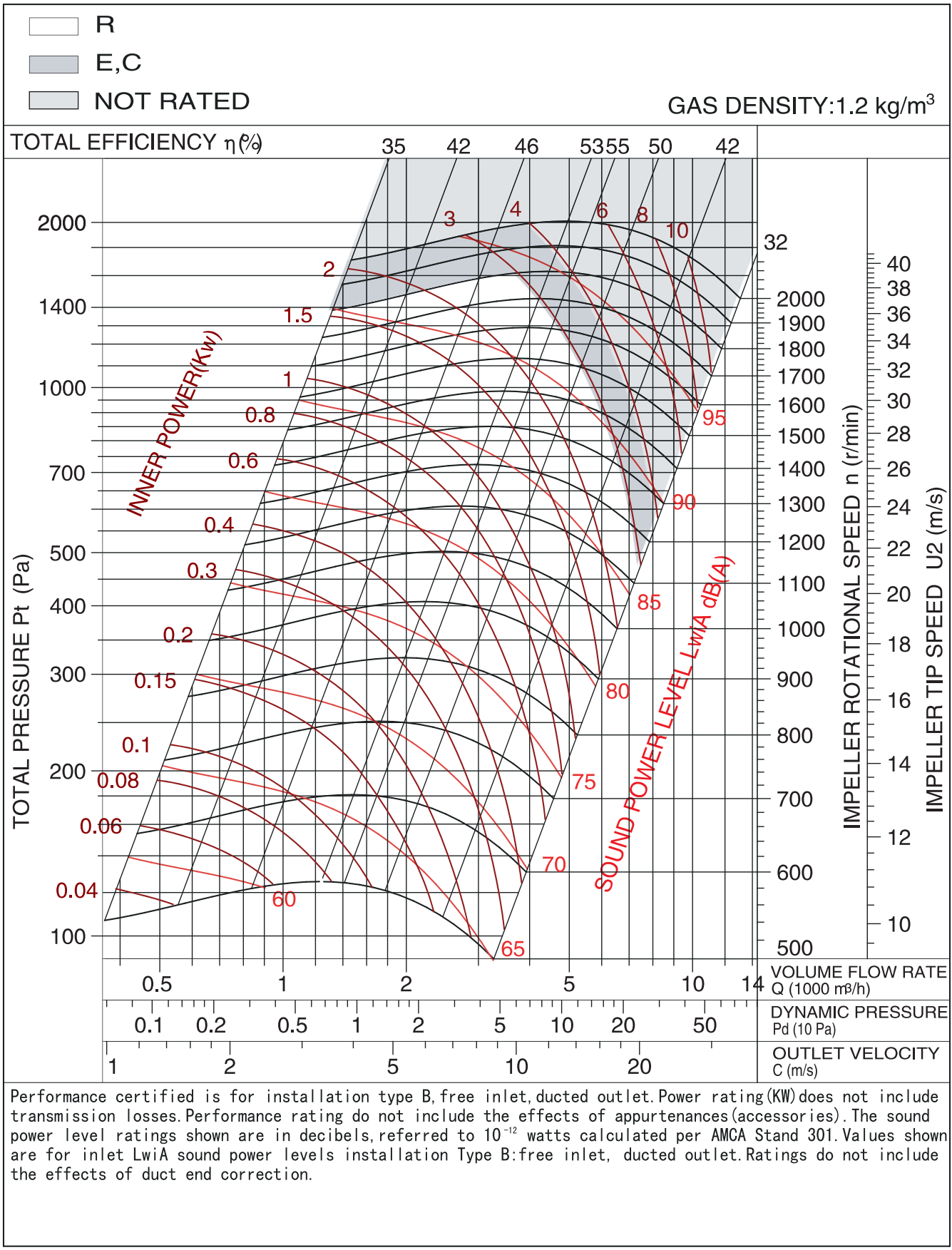


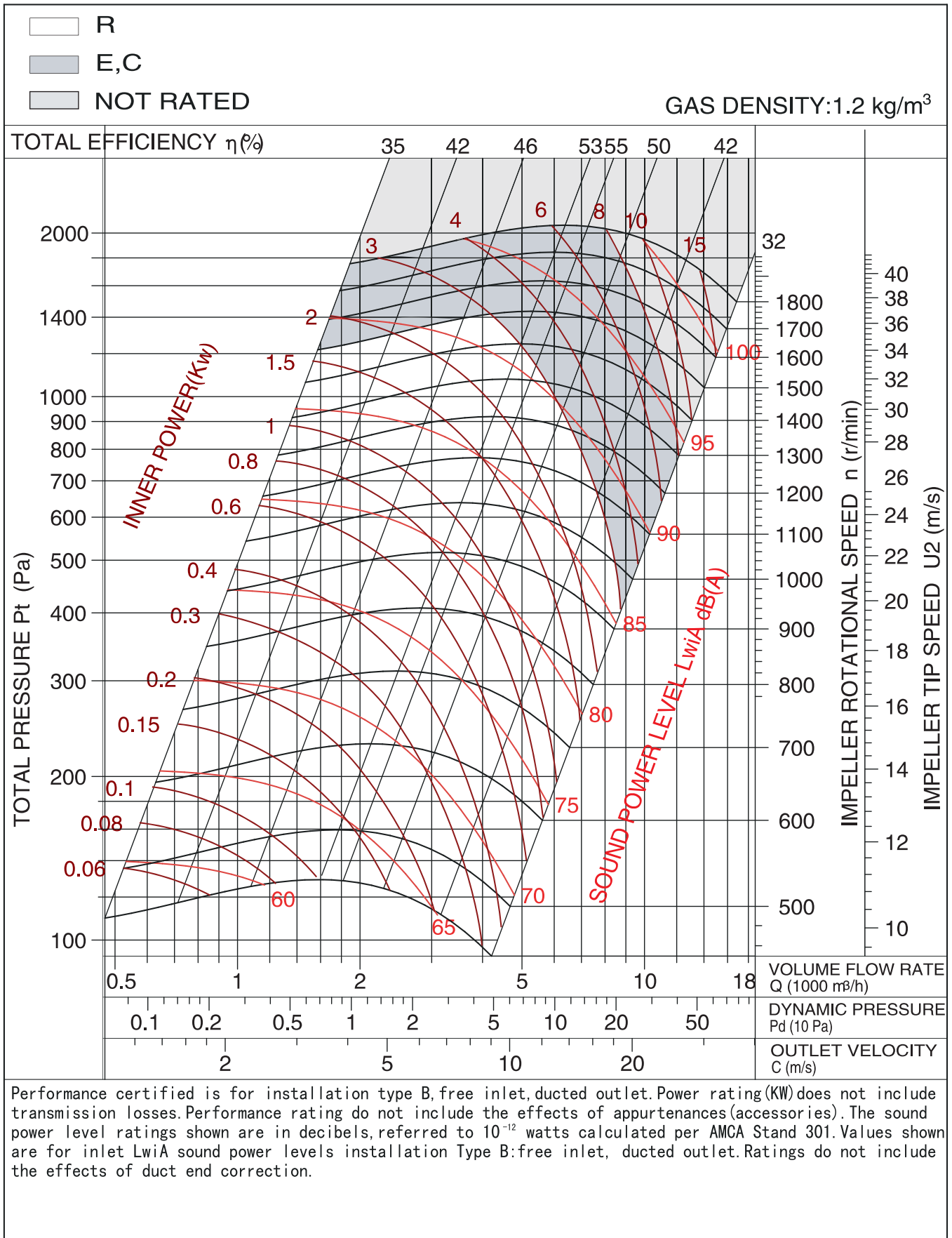
Type	280	315	355	400	450	500	560	630	710	800	900	1000
A	361	404	453	507	569	638	715	801	898	1007	1130	1267
B	197	223	238	258	288	324	368	412	468	520	582	663
C	417	460	509	563	625	684	771	857	954	1063	1186	1323
D	253	279	294	314	344	380	424	468	524	576	638	719
E	\	\	\	200	200	250	250	300	400	500	600	700
F	\	\	\	\	\	\	\	\	200	250	300	350

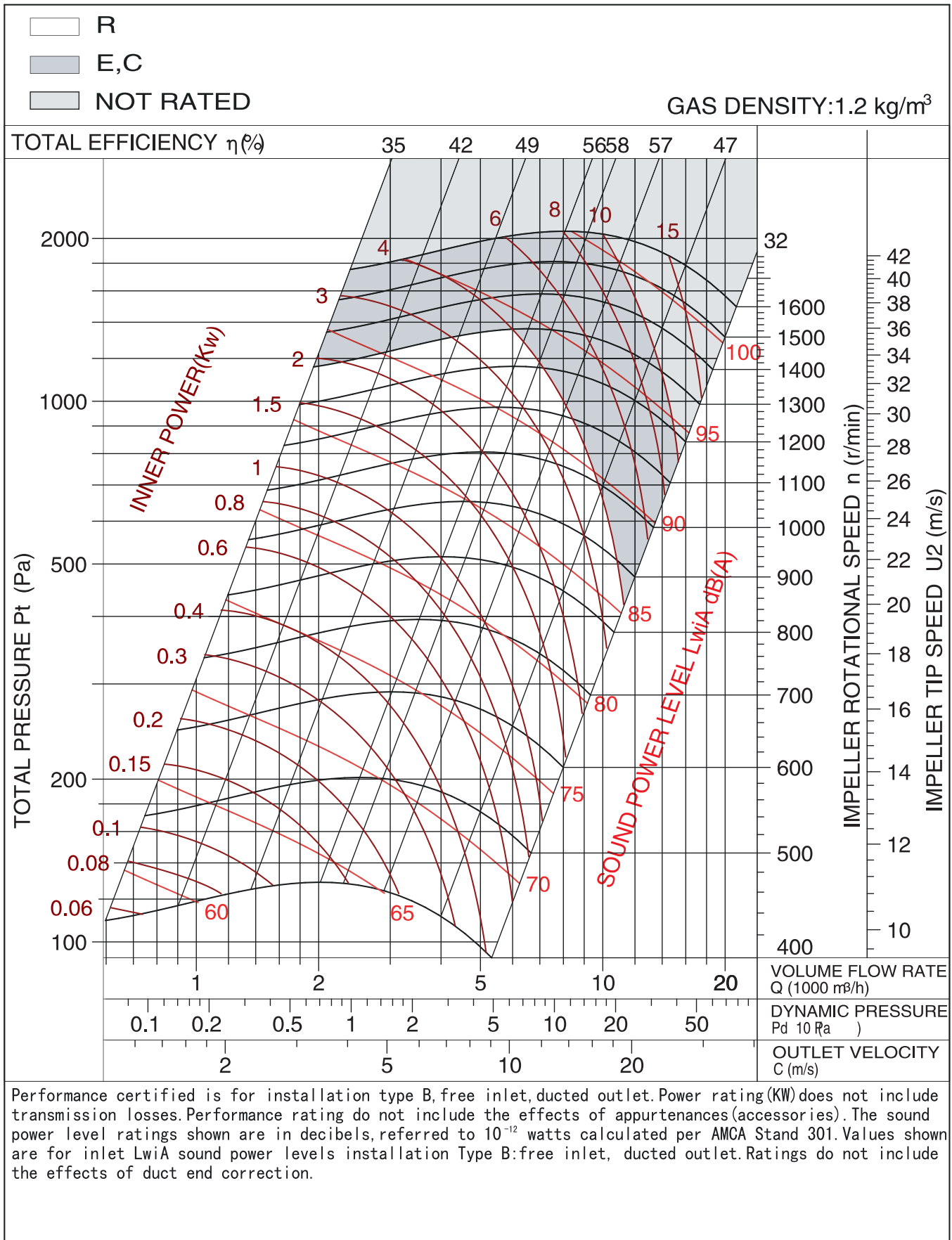


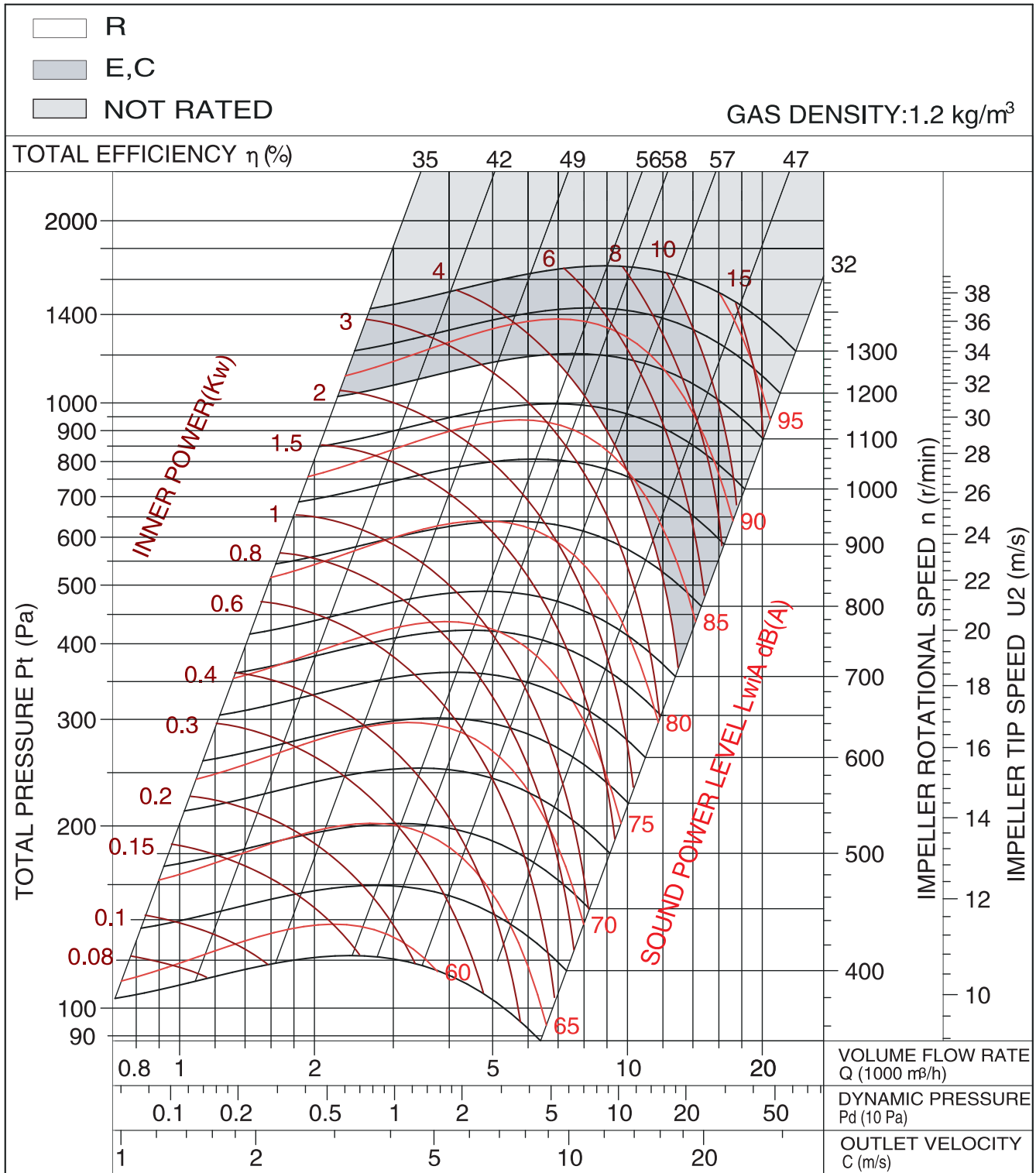
Performance certified is for installation type B, free inlet, ducted outlet. Power rating (KW) does not include transmission losses. Performance rating do not include the effects of appurtenances (accessories). The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Stand 301. Values shown are for inlet LwIA sound power levels installation Type B: free inlet, ducted outlet. Ratings do not include the effects of duct end correction.



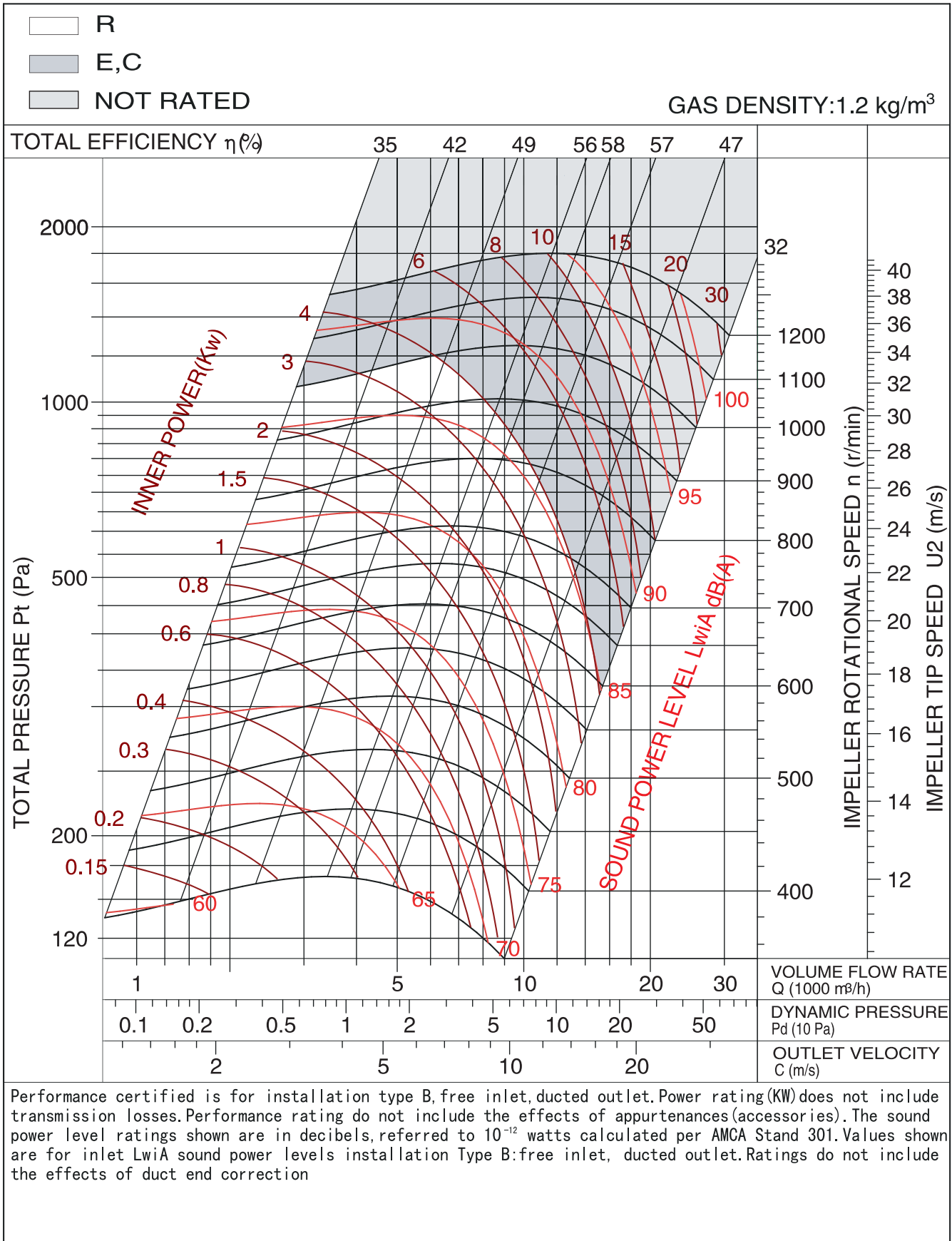


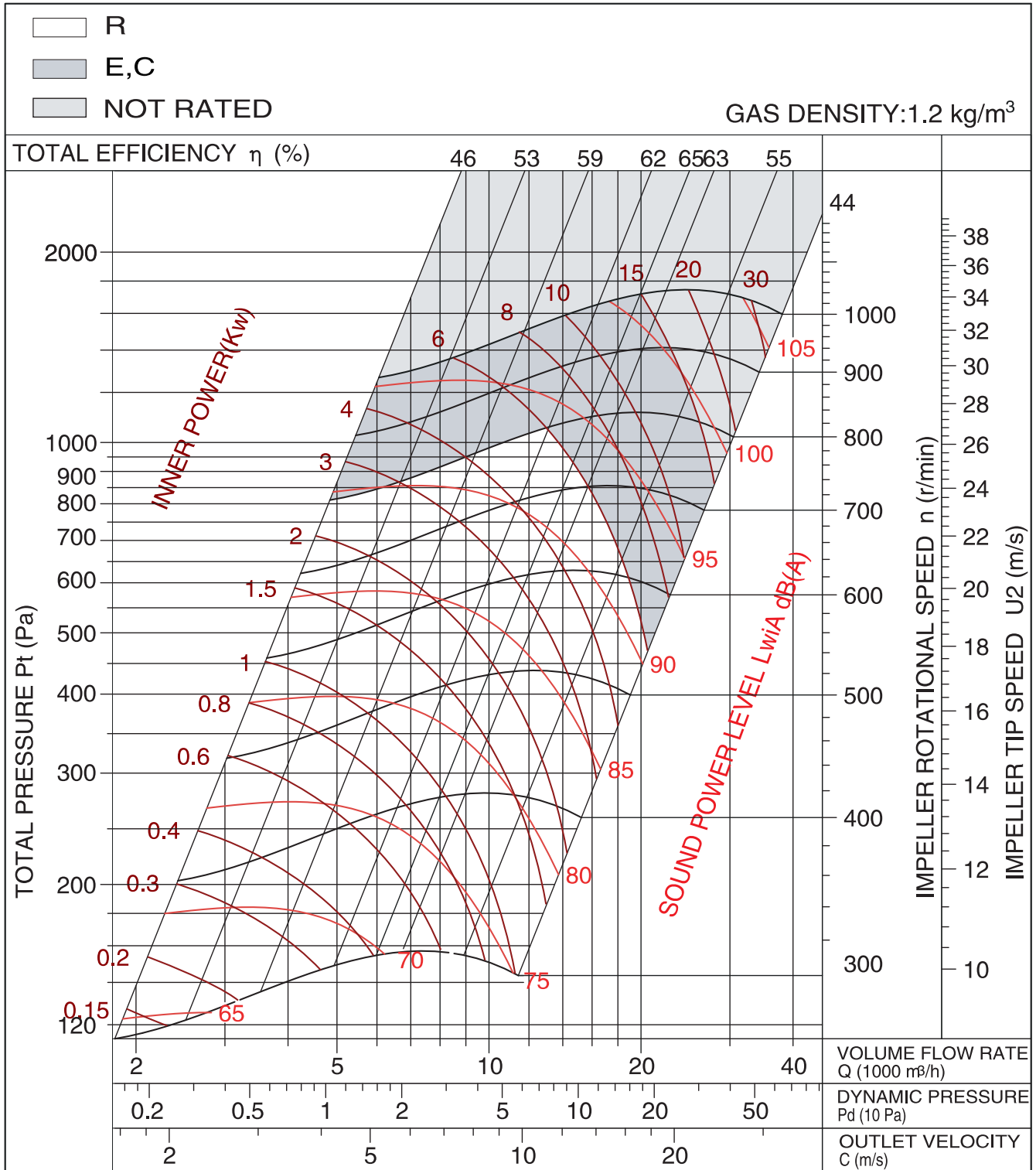




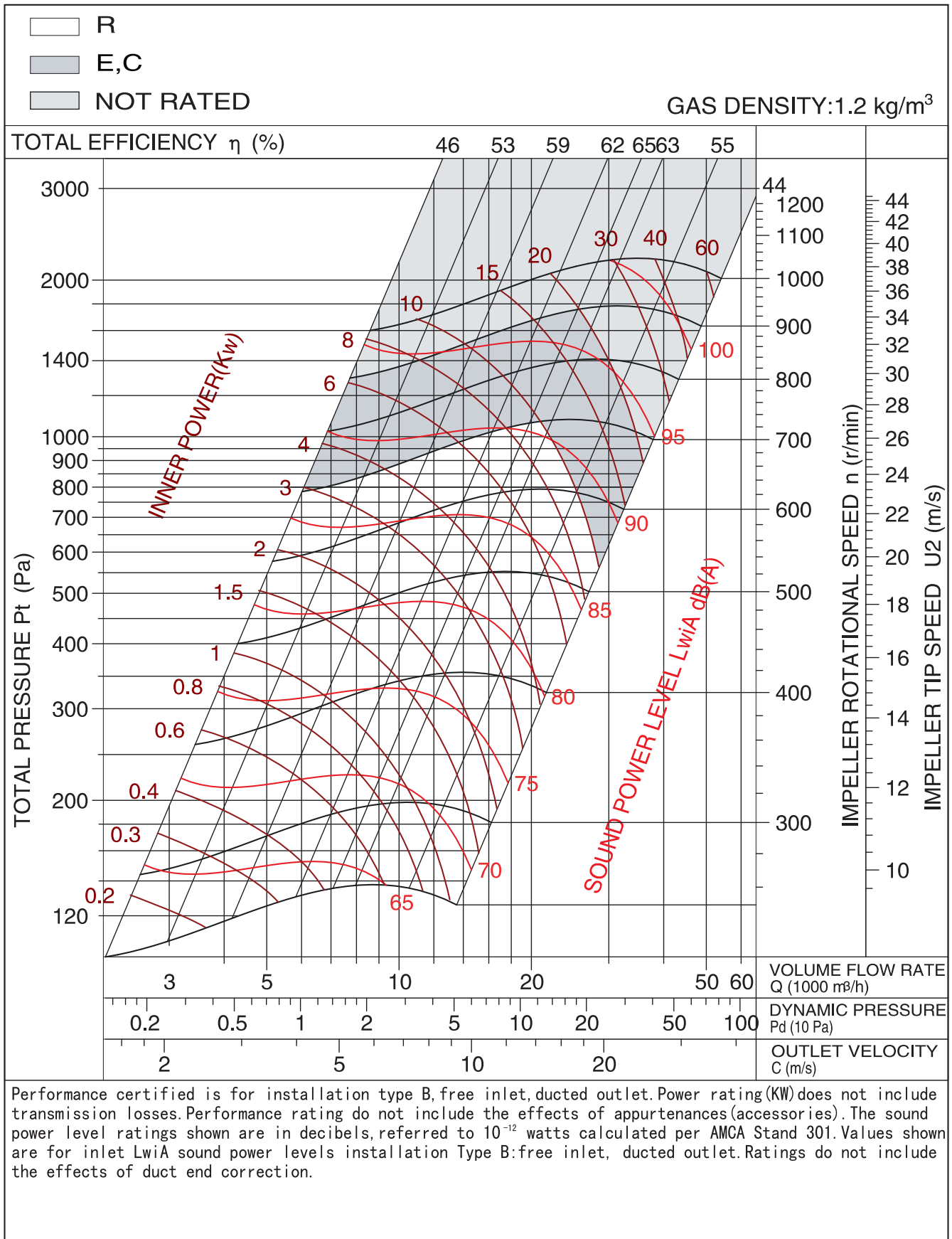


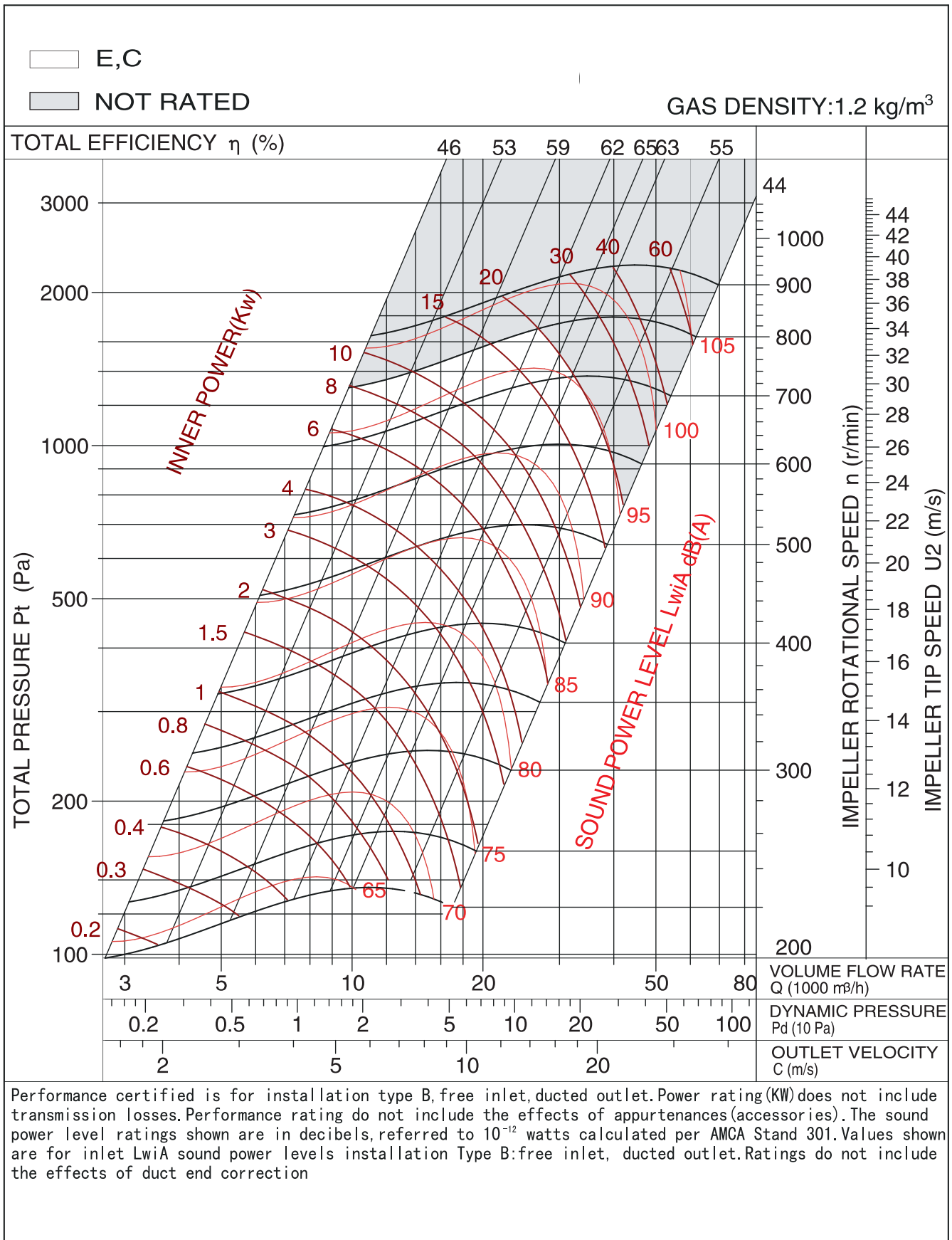
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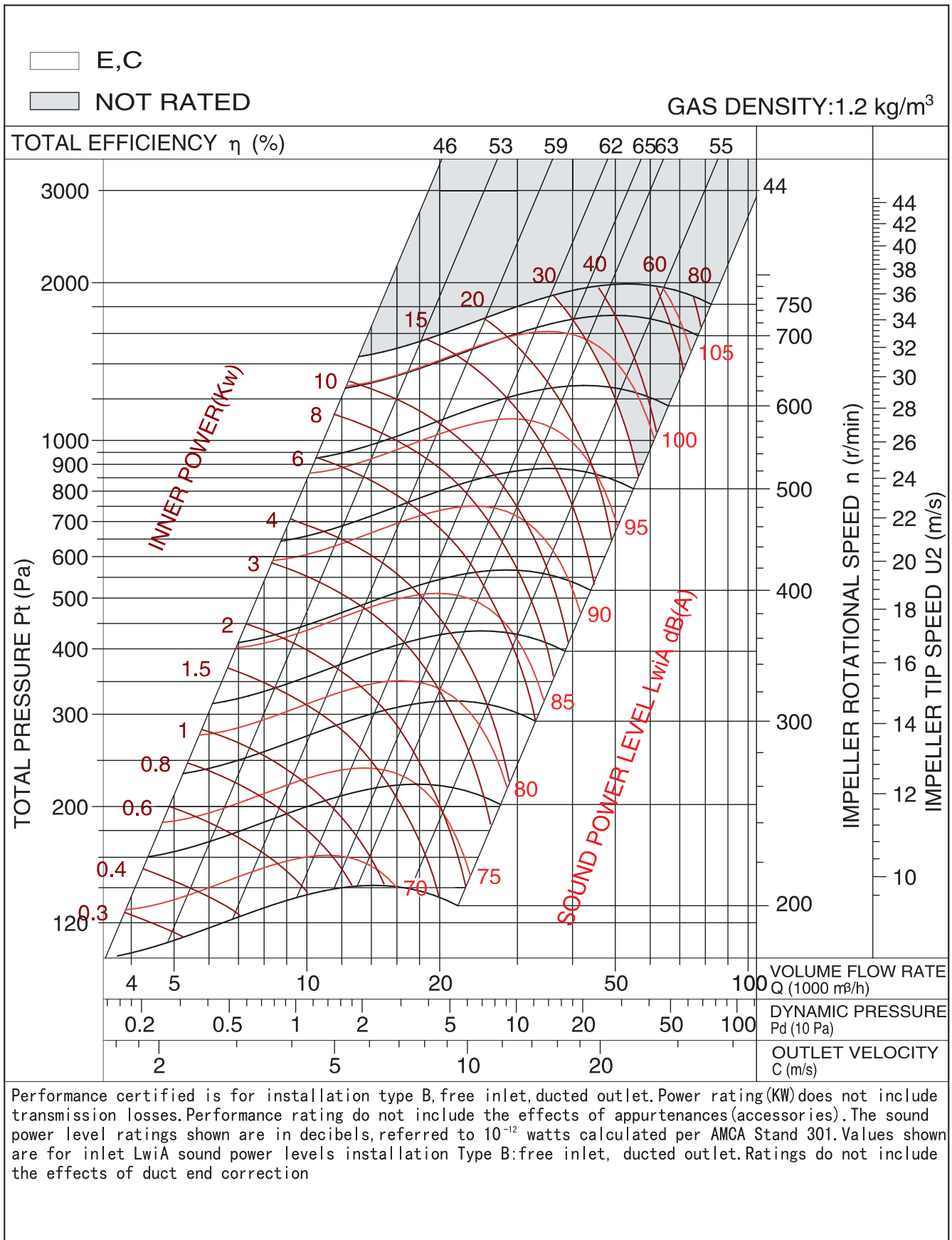


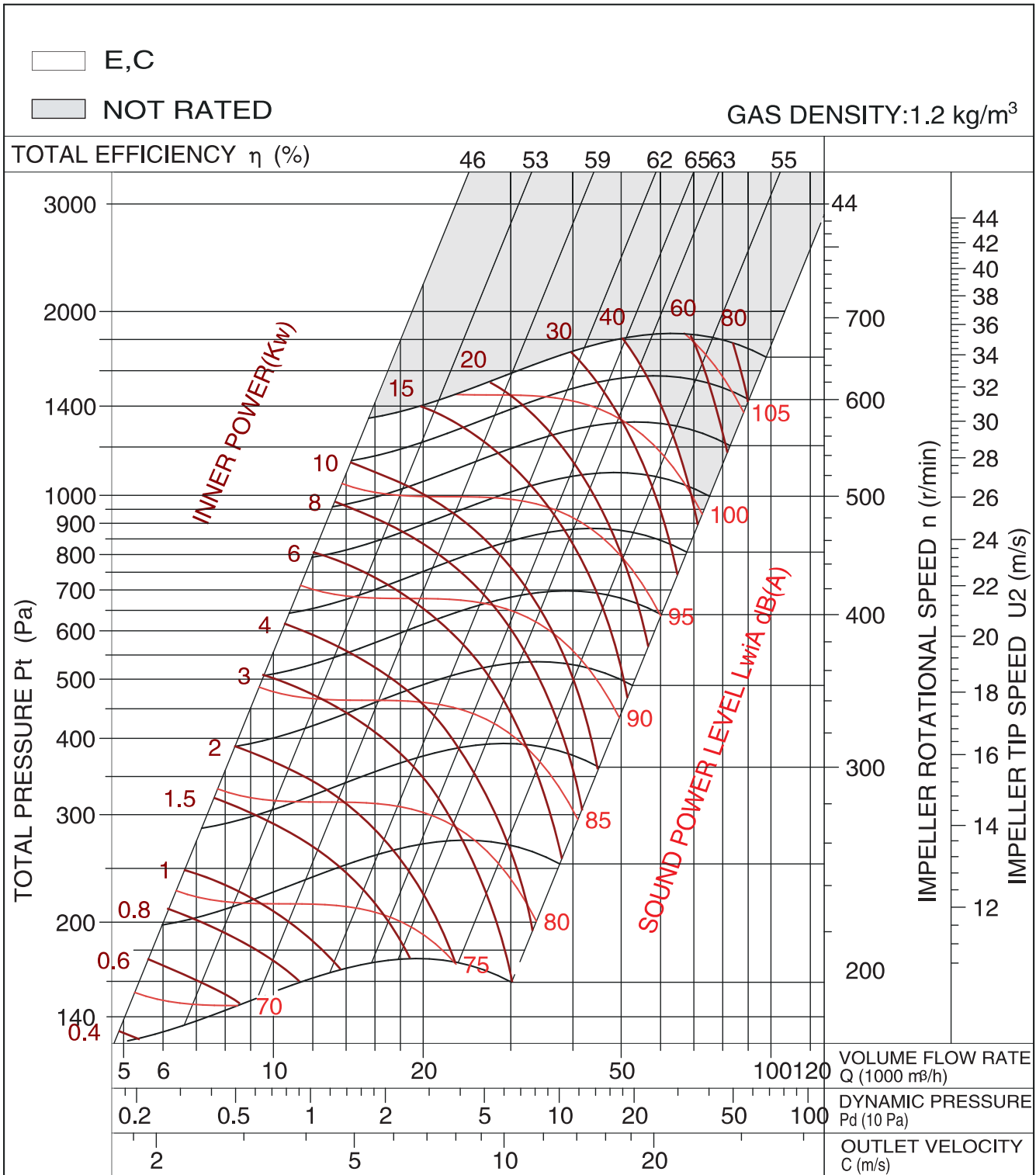


Performance certified is for installation type B, free inlet, ducted outlet. Power rating (KW) does not include transmission losses. Performance rating do not include the effects of appurtenances (accessories). The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Stand 301. Values shown are for inlet Lw(A) sound power levels installation Type B: free inlet, ducted outlet. Ratings do not include the effects of duct end correction.



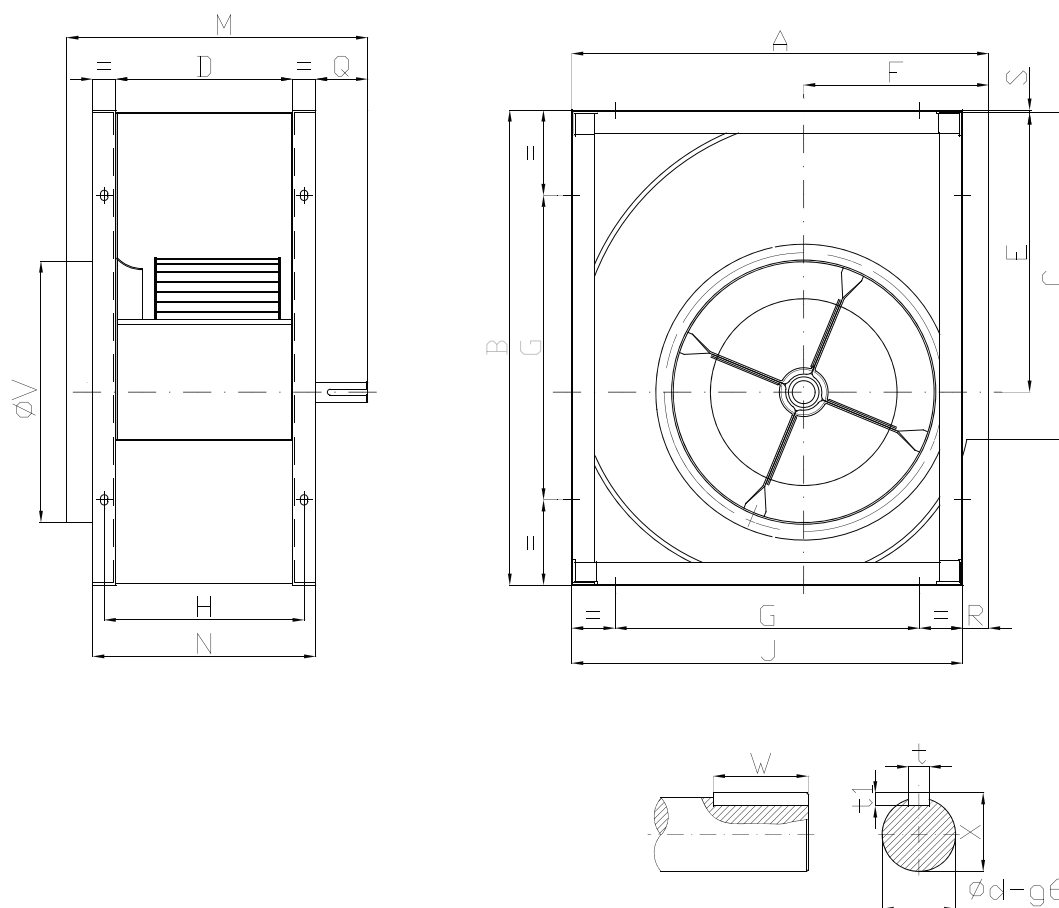






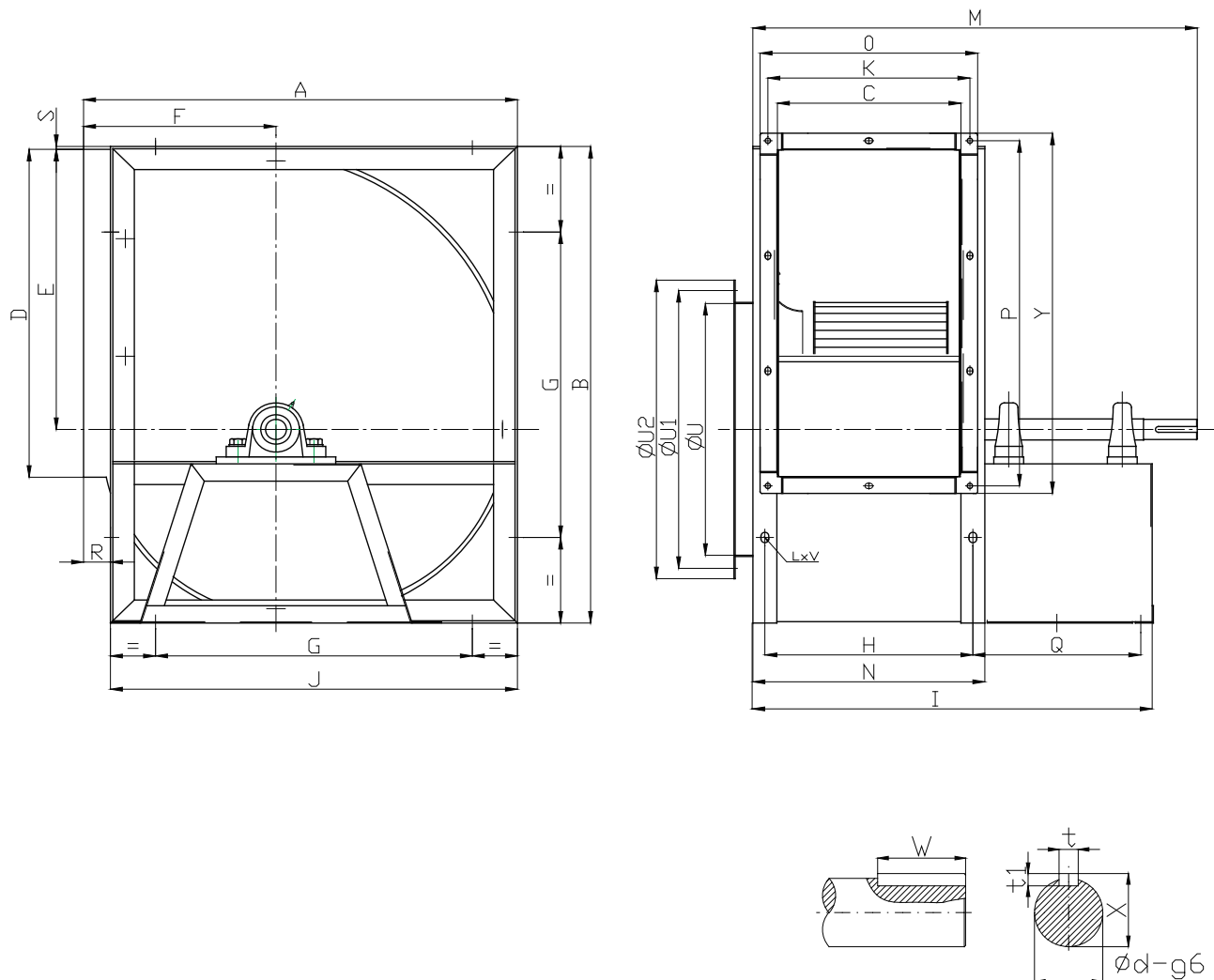
Performance certified is for installation type B, free inlet, ducted outlet. Power rating (KW) does not include transmission losses. Performance rating do not include the effects of appurtenances (accessories). The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Stand 301. Values shown are for inlet LwIA sound power levels installation Type B: free inlet, ducted outlet. Ratings do not include the effects of duct end correction.

FSE-R



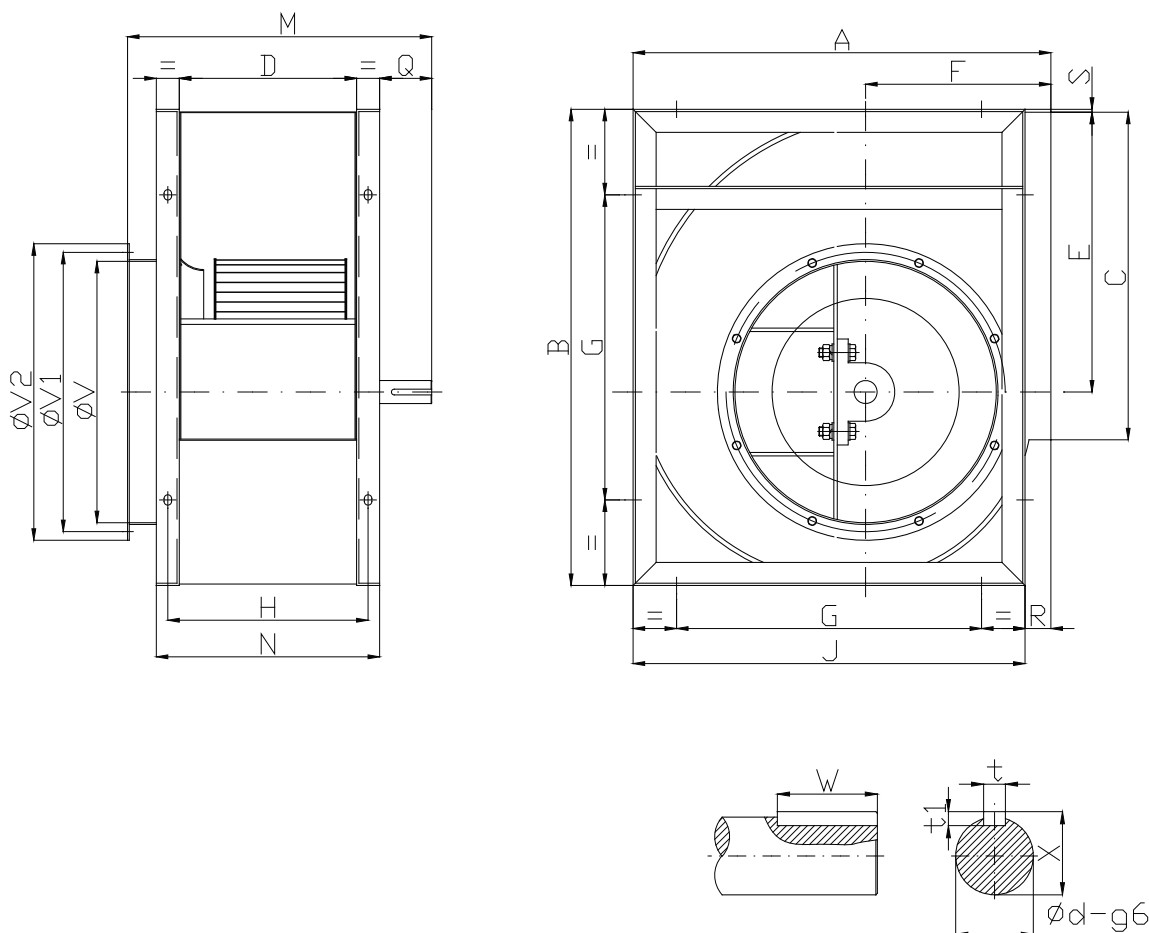
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280	466	518	361	197	302	215	280	227	432	30	360	257	73	34	5	292	8	7	50	28	25	13x18
315	518	578	404	223	340	236	280	253	480	30	395	283	83	38	3	322	8	7	60	28	25	13x18
355	578	655	453	238	383	261	355	278	548	40	416	318	78	30	6	362	8	7	60	33	30	13x18
400	651	736	507	258	431.5	290	355	298	613	40	436	338	78	38	4.5	404	8	7	60	33	30	13x18
450	726	827	569	288	486	322	530	338	681	40	480	368	92	45	5	448	10	8	70	38	35	13x18
500	800	918	638	324	538	352	530	364	750	40	515	404	92	50	5	510	10	8	70	38	35	13x18
560	893	1030	715	368	602	390	530	418	845	50	585	468	87	48	8	570	12	8	70	43	40	13x18
630	999	1157	801	412	678.5	434	530	468	946	50	630	512	87	53	7	635	14	9	70	48.5	45	13x18
710	1121	1303	898	468	765	485	630	518	1058	50	715	568	115	63	7	722	14	9	90	53.5	50	17x22

FSE-C



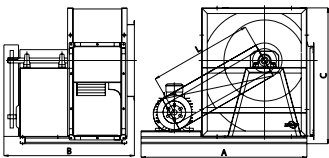
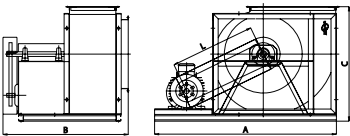
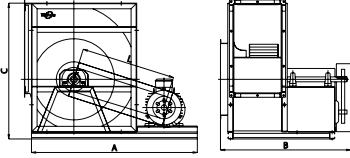
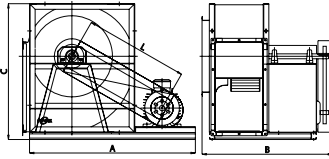
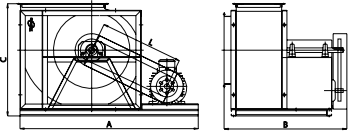
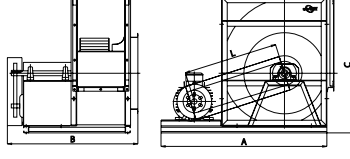
Model	A	B	C	D	E	F	G	H	I	J	K	M	N	O	P	Q	R	S	t	t1	U	U1	U2	W	X	Y	φ d	LxV
280	466	518	197	361	302	215	280	227	530	432	213	590	257	239	391	274	34	5	8	7	292	325	355	40	33	471	30	13x18
315	518	578	223	404	340	236	280	253	556	480	233	612	283	259	434	274	38	3	8	7	322	344	383	40	33	460	30	13x18
355	578	655	238	453	383	261	355	278	627	548	260	687	318	286	483	300	30	6	8	7	362	386	423	50	38	509	35	13x18
400	651	736	258	507	431.5	290	355	298	654	613	290	708	338	316	537	300	38	4.5	8	7	404	432	466	50	38	563	35	13x18
450	726	827	288	569	486	322	530	338	728	681	318	796	368	344	599	340	45	5	10	8	448	485	515	70	43	526	40	13x18
500	800	918	324	638	538	352	530	364	764	750	350	830	404	376	668	340	50	5	10	8	510	544	570	70	43	694	40	13x18
560	893	1030	368	715	603	390	530	418	855	845	366	930	468	414	745	378	48	8	12	8	570	605	635	90	53.5	771	50	13x18
630	999	1157	412	801	678.5	434	530	468	904	946	434	974	512	460	831	378	53	7	12	8	635	670	700	90	53.5	857	50	13x18
710	1121	1303	468	898	765	485	630	518	1005	1058	483	1105	568	512	928	436	63	7	14	9	722	750	778	90	64	954	60	17x22
800	1250	1468	520	1007	862	535	710	570	1060	1181	541	1167	620	567	1039	440	69	7	14	9	808	844	875	90	64	1063	60	17x22
900	1408	1648	582	1130	971	604	800	632	1191	1319	602	1300	702	613	1160	510	89	7	16	10	896	945	980	100	64	1186	60	17x22
1000	1541	1810	663	1267	1066	657	900	713	1259	1462	668	1381	783	694	1297	510	79	9	16	10	996	1044	1080	100	64	1323	60	17x22

FSE-E



Model	A	B	C	D	E	F	G	H	J	K	M	N	Q	R	S	V	V1	V2	t	t1	W	X	ϕd	LxV
280	466	518	361	197	302	215	280	227	432	30	405	257	86	34	5	292	325	355	8	7	60	33	30	13x18
315	518	578	404	223	340	236	280	253	480	30	440	283	96	38	3	322	344	383	8	7	70	33	30	13x18
355	578	655	453	238	383	261	355	278	548	40	461	318	91	30	6	362	386	423	10	8	70	38	35	13x18
400	651	736	507	258	431.5	290	355	298	613	40	481	338	91	38	4.5	404	432	466	10	8	70	38	35	13x18
450	726	827	569	288	486	322	530	338	681	40	536	368	116	45	5	448	485	515	12	8	90	43	40	13x18
500	800	918	638	324	538	352	530	364	750	40	572	404	116	50	5	510	544	570	12	8	90	43	40	13x18
560	893	1030	715	368	602	390	530	418	845	50	625	468	115	48	8	570	605	635	14	9	90	53.5	50	13x18
630	999	1157	801	412	678.5	434	530	468	946	50	670	512	115	53	7	635	670	700	14	9	90	53.5	50	13x18
710	1121	1303	898	468	765	485	630	518	1058	50	736	568	126	63	7	722	750	778	18	11	90	64	60	17x22
800	1250	1468	1007	520	862	535	710	570	1181	50	788	620	126	69	7	808	844	875	18	11	90	64	60	17x22
900	1408	1648	1130	582	971	604	800	632	1319	60	867	702	135	89	7	896	945	980	18	11	100	64	60	17x22
1000	1541	1810	1267	663	1066	657	900	713	1462	60	950	783	135	79	9	996	1044	1080	18	11	100	64	60	17x22

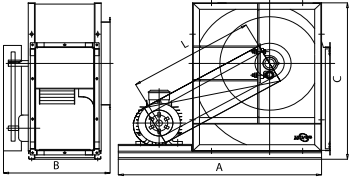
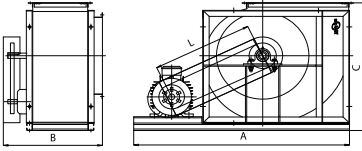
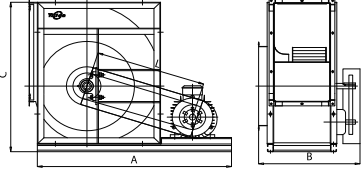
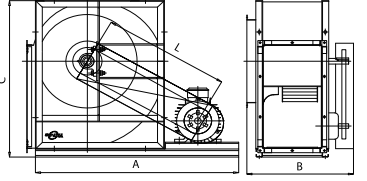
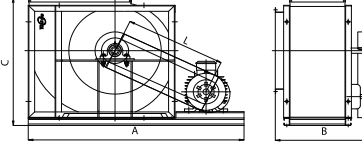
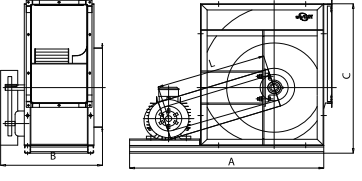
FSE-C

		0°				90°				180°			
LG													
RD													
Type	MOTOR	L	A	B	C	L	A	B	C	L	A	B	C
280	80	425	760	675	568	375	850	675	516	410	760	675	568
	90	435	780	675	568	385	860	675	516	420	780	675	568
	100	445	800	675	568	395	880	675	516	430	800	675	568
	112	455	850	675	568	405	930	675	516	440	850	675	568
	132	465	870	675	568	415	950	675	516	450	870	675	568
315	80	465	800	700	628	405	900	700	568	440	800	700	628
	90	475	820	700	627	415	920	700	568	450	820	700	627
	100	485	850	700	628	425	950	700	568	460	850	700	628
	112	495	900	700	628	435	1000	700	568	470	900	700	628
	132	505	920	700	628	445	1020	700	568	480	920	700	628
355	80	515	850	775	705	445	1000	775	628	480	850	775	705
	90	525	860	775	705	455	1000	775	628	490	860	775	705
	100	535	900	775	705	465	1040	775	628	500	900	775	705
	112	545	960	775	705	475	1080	775	628	510	960	775	705
	132	555	980	775	705	485	1100	775	628	520	980	775	705
400	90	585	930	800	786	500	950	800	701	540	930	800	786
	100	595	980	800	786	510	1000	800	701	550	980	800	786
	112	605	1030	800	786	520	1160	800	701	560	1030	800	786
	132	615	1050	800	786	530	1180	800	701	570	1050	800	786
	160	615	1100	800	786	530	1230	800	701	570	1100	800	786
450	90	650	1000	894	877	548	1120	894	776	590	1000	894	877
	100	660	1050	894	877	558	1170	894	776	600	1050	894	877
	112	670	1100	894	877	568	1220	894	776	610	1100	894	877
	132	680	1120	894	877	578	1270	894	776	620	1120	894	877
	160	680	1200	894	877	578	1350	894	776	620	1200	894	877
500	90	720	1100	930	968	610	1250	930	850	650	1100	930	968
	100	730	1130	930	968	620	1280	930	850	660	1130	930	968
	112	740	1180	930	968	630	1330	930	850	670	1180	930	968
	132	750	1200	930	968	640	1350	930	850	680	1200	930	968
	160	750	1280	930	968	640	1440	930	850	680	1280	930	968

FSE-C

		0°				90°				180°			
Type	MOTOR	L	A	B	C	L	A	B	C	L	A	B	C
560	100	805	1210	1020	1093	680	1370	1020	956	720	1210	1020	1093
	112	815	1260	1020	1093	690	1420	1020	956	730	1260	1020	1093
	132	825	1280	1020	1093	700	1460	1020	956	740	1280	1020	1093
	160	835	1360	1020	1093	710	1540	1020	956	750	1360	1020	1093
	180	845	1400	1020	1093	720	1580	1020	956	760	1400	1020	1093
630	100	895	1310	1065	1220	755	1530	1065	1062	795	1310	1065	1220
	112	905	1360	1065	1220	765	1580	1065	1062	805	1360	1065	1220
	132	915	1380	1065	1220	775	1600	1065	1062	815	1380	1065	1220
	160	930	1450	1065	1220	790	1680	1065	1062	830	1450	1065	1220
	180	940	1500	1065	1220	800	1730	1065	1062	840	1500	1065	1220
	200	950	1550	1065	1220	810	1780	1065	1062	850	1550	1065	1220
710	100	1005	1430	1185	1366	840	1670	1185	1184	885	1430	1185	1366
	112	1015	1480	1185	1366	850	1720	1185	1184	895	1480	1185	1366
	132	1025	1500	1185	1366	860	1740	1185	1184	905	1500	1185	1366
	160	1040	1570	1185	1366	875	1800	1185	1184	920	1570	1185	1366
	180	1050	1620	1185	1366	885	1850	1185	1184	930	1620	1185	1366
	200	1060	1670	1185	1366	895	1900	1185	1184	940	1670	1185	1366
	225	1070	1700	1185	1366	905	1930	1185	1184	950	1700	1185	1366
800	112	1130	1580	1245	1548	950	1880	1245	1330	990	1580	1245	1548
	132	1140	1600	1245	1548	960	1900	1245	1330	1000	1600	1245	1548
	160	1155	1650	1245	1548	975	1950	1245	1330	1015	1650	1245	1548
	180	1165	1720	1245	1548	985	2020	1245	1330	1025	1720	1245	1548
	200	1175	1770	1245	1548	995	2070	1245	1330	1035	1770	1245	1548
	225	1185	1820	1245	1548	1005	2120	1245	1330	1045	1820	1245	1548
	250	1195	1880	1245	1548	1015	2180	1245	1330	1055	1880	1245	1548
900	112	1270	1730	1375	1728	1060	2060	1375	1488	1110	1730	1375	1728
	132	1280	1750	1375	1728	1070	2080	1375	1488	1110	1750	1375	1728
	160	1295	1800	1375	1728	1085	2130	1375	1488	1125	1800	1375	1728
	180	1310	1880	1375	1728	1095	2220	1375	1488	1135	1880	1375	1728
	200	1320	1920	1375	1728	1105	2250	1375	1488	1145	1920	1375	1728
	225	1330	1980	1375	1728	1115	2320	1375	1488	1155	1980	1375	1728
	250	1340	2050	1375	1728	1125	2380	1375	1488	1165	2050	1375	1728
1000	132	1400	1900	1450	1890	1175	2250	1450	1621	1215	1900	1450	1890
	160	1415	1950	1450	1890	1190	2300	1450	1621	1230	1950	1450	1890
	180	1425	2030	1450	1890	1200	2380	1450	1621	1240	2030	1450	1890
	200	1435	2070	1450	1890	1210	2420	1450	1621	1250	2070	1450	1890
	225	1445	2130	1450	1890	1220	2480	1450	1621	1260	2130	1450	1890
	250	1455	2200	1450	1890	1230	2550	1450	1621	1270	2200	1450	1890
	280	1465	2250	1450	1890	1240	2600	1450	1621	1280	2250	1450	1890

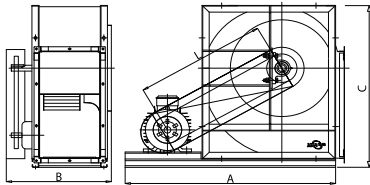
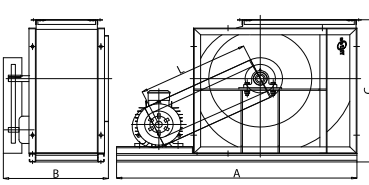
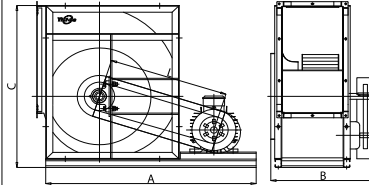
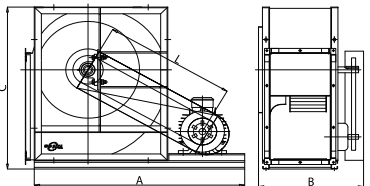
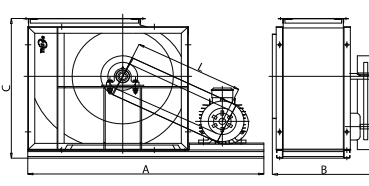
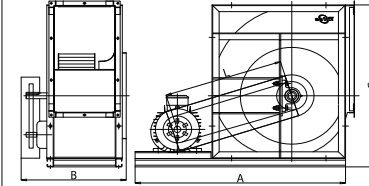
FSE-E

		0°				90°				180°			
													
													
Type	MOTOR	L	A	B	C	L	A	B	C	L	A	B	C
280	80	425	760	430	568	375	850	430	516	410	760	430	568
	90	435	780	430	568	385	860	430	516	420	780	430	568
	100	445	800	430	568	395	880	430	516	430	800	430	568
	112	455	850	430	568	405	930	430	516	440	850	430	568
	132	465	870	430	568	415	950	430	516	450	870	430	568
315	80	465	800	465	628	405	900	465	568	440	800	465	628
	90	475	820	465	627	415	920	465	568	450	820	465	627
	100	485	850	465	628	425	950	465	568	460	850	465	628
	112	495	900	465	628	435	1000	465	568	470	900	465	628
	132	505	920	465	628	445	1020	465	568	480	920	465	628
355	80	515	850	495	705	445	1000	495	628	480	850	495	705
	90	525	860	495	705	455	1000	495	628	490	860	495	705
	100	535	900	495	705	465	1040	495	628	500	900	495	705
	112	545	960	495	705	475	1080	495	628	510	960	495	705
	132	555	980	495	705	485	1100	495	628	520	980	495	705
400	90	585	930	525	786	500	950	525	701	540	930	525	786
	100	595	980	525	786	510	1000	525	701	550	980	525	786
	112	605	1030	525	786	520	1160	525	701	560	1030	525	786
	132	615	1050	525	786	530	1180	525	701	570	1050	525	786
	160	615	1100	525	786	530	1230	525	701	570	1100	525	786
450	90	650	1000	580	877	548	1120	580	776	590	1000	580	877
	100	660	1050	580	877	558	1170	580	776	600	1050	580	877
	112	670	1100	580	877	568	1220	580	776	610	1100	580	877
	132	680	1120	580	877	578	1270	580	776	620	1120	580	877
	160	680	1200	580	877	578	1350	580	776	620	1200	580	877
500	90	720	1100	620	968	610	1250	620	850	650	1100	620	968
	100	730	1130	620	968	620	1280	620	850	660	1130	620	968
	112	740	1180	620	968	630	1330	620	850	670	1180	620	968
	132	750	1200	620	968	640	1350	620	850	680	1200	620	968
	160	750	1280	620	968	640	1440	620	850	680	1280	620	968

FSE-E

		0°				90°				180°			
Type	MOTOR	L	A	B	C	L	A	B	C	L	A	B	C
560	100	805	1210	665	1093	680	1370	665	956	720	1210	665	1093
	112	815	1260	665	1093	690	1420	665	956	730	1260	665	1093
	132	825	1280	665	1093	700	1460	665	956	740	1280	665	1093
	160	835	1360	665	1093	710	1540	665	956	750	1360	665	1093
	180	845	1400	665	1093	720	1580	665	956	760	1400	665	1093
630	100	895	1310	715	1220	755	1530	715	1062	795	1310	715	1220
	112	905	1360	715	1220	765	1580	715	1062	805	1360	715	1220
	132	915	1380	715	1220	775	1600	715	1062	815	1380	715	1220
	160	930	1450	715	1220	790	1680	715	1062	830	1450	715	1220
	180	940	1500	715	1220	800	1730	715	1062	840	1500	715	1220
	200	950	1550	715	1220	810	1780	715	1062	850	1550	715	1220
710	100	1005	1430	770	1366	840	1670	770	1184	885	1430	770	1366
	112	1015	1480	770	1366	850	1720	770	1184	895	1480	770	1366
	132	1025	1500	770	1366	860	1740	770	1184	905	1500	770	1366
	160	1040	1570	770	1366	875	1800	770	1184	920	1570	770	1366
	180	1050	1620	770	1366	885	1850	770	1184	930	1620	770	1366
	200	1060	1670	770	1366	895	1900	770	1184	940	1670	770	1366
	225	1070	1700	770	1366	905	1930	770	1184	950	1700	770	1366
800	112	1130	1580	825	1548	950	1880	825	1330	990	1580	825	1548
	132	1140	1600	825	1548	960	1900	825	1330	1000	1600	825	1548
	160	1155	1650	825	1548	975	1950	825	1330	1015	1650	825	1548
	180	1165	1720	825	1548	985	2020	825	1330	1025	1720	825	1548
	200	1175	1770	825	1548	995	2070	825	1330	1035	1770	825	1548
	225	1185	1820	825	1548	1005	2120	825	1330	1045	1820	825	1548
	250	1195	1880	825	1548	1015	2180	825	1330	1055	1880	825	1548
900	112	1270	1730	905	1728	1060	2060	905	1488	1110	1730	905	1728
	132	1280	1750	905	1728	1070	2080	905	1488	1110	1750	905	1728
	160	1295	1800	905	1728	1085	2130	905	1488	1125	1800	905	1728
	180	1310	1880	905	1728	1095	2220	905	1488	1135	1880	905	1728
	200	1320	1920	905	1728	1105	2250	905	1488	1145	1920	905	1728
	225	1330	1980	905	1728	1115	2320	905	1488	1155	1980	905	1728
	250	1340	2050	905	1728	1125	2380	905	1488	1165	2050	905	1728
1000	132	1400	1900	975	1890	1175	2250	975	1621	1215	1900	975	1890
	160	1415	1950	975	1890	1190	2300	975	1621	1230	1950	975	1890
	180	1425	2030	975	1890	1200	2380	975	1621	1240	2030	975	1890
	200	1435	2070	975	1890	1210	2420	975	1621	1250	2070	975	1890
	225	1445	2130	975	1890	1220	2480	975	1621	1260	2130	975	1890
	250	1455	2200	975	1890	1230	2550	975	1621	1270	2200	975	1890
	280	1465	2250	975	1890	1240	2600	975	1621	1280	2250	975	1890

FSE-R

		0°				90°				180°			
													
													
Type	MOTOR	L	A	B	C	L	A	B	C	L	A	B	C
280	71	415	740	400	568	365	830	400	516	400	740	400	568
	80	425	760	400	568	375	850	400	516	410	760	400	568
	90	435	780	400	568	385	860	400	516	420	780	400	568
	100	445	800	400	568	395	880	400	516	430	800	400	568
	112	455	850	400	568	405	930	400	516	440	850	400	568
315	71	455	780	435	628	395	880	435	568	430	780	435	628
	80	465	800	435	628	405	900	435	568	440	800	435	628
	90	475	820	435	628	415	920	435	568	450	820	435	628
	100	485	850	435	628	425	950	435	568	460	850	435	628
	112	495	900	435	628	435	1000	435	568	470	900	435	628
355	71	505	830	465	705	435	960	465	628	470	830	465	705
	80	515	850	465	705	445	980	465	628	480	850	465	705
	90	525	860	465	705	455	1000	465	628	490	860	465	705
	100	535	900	465	705	465	1040	465	628	500	900	465	705
	112	545	960	465	705	475	1080	465	628	510	960	465	705
400	71	565	880	495	786	480	900	495	701	520	880	495	786
	80	575	900	495	786	490	920	495	701	530	900	495	786
	90	585	930	495	786	500	950	495	701	540	930	495	786
	100	595	980	495	786	510	1000	495	701	550	980	495	786
	112	605	1030	495	786	520	1160	495	701	560	1030	495	786
	132	615	1050	495	786	530	1180	495	701	570	1050	495	786
450	80	640	980	550	877	548	1100	550	776	580	980	550	877
	90	650	1000	550	877	548	1120	550	776	590	1000	550	877
	100	660	1050	550	877	558	1170	550	776	600	1050	550	877
	112	670	1100	550	877	568	1220	550	776	610	1100	550	877
	132	680	1120	550	877	578	1270	550	776	620	1120	550	877
500	80	710	1080	590	968	600	1230	590	850	640	1080	590	968
	90	720	1100	590	968	610	1250	590	850	650	1100	590	968
	100	730	1130	590	968	620	1280	590	850	660	1130	590	968
	112	740	1180	590	968	630	1330	590	850	670	1180	590	968
	132	750	1200	590	968	640	1350	590	850	680	1200	590	968

FSE-R

Type	MOTOR	0°				90°				180°			
		L	A	B	C	L	A	B	C	L	A	B	C
560	90	795	1160	635	1093	670	1320	635	956	710	1160	635	1093
	100	805	1210	635	1093	680	1370	635	956	720	1210	635	1093
	112	815	1260	635	1093	690	1420	635	956	730	1260	635	1093
	132	825	1280	635	1093	700	1460	635	956	740	1280	635	1093
	160	835	1360	635	1093	710	1540	635	956	750	1360	635	1093
630	90	885	1260	685	1220	745	1480	685	1062	785	1260	685	1220
	100	895	1310	685	1220	755	1530	685	1062	795	1310	685	1220
	112	905	1360	685	1220	765	1580	685	1062	805	1360	685	1220
	132	915	1380	685	1220	775	1600	685	1062	815	1380	685	1220
	160	930	1450	685	1220	790	1680	685	1062	830	1450	685	1220
710	90	995	1380	740	1366	830	1620	740	1184	875	1380	740	1366
	100	1005	1430	740	1366	840	1670	740	1184	885	1430	740	1366
	112	1015	1480	740	1366	850	1720	740	1184	895	1480	740	1366
	132	1025	1500	740	1366	860	1740	740	1184	905	1500	740	1366
	160	1040	1570	740	1366	875	1800	740	1184	920	1570	740	1366

L=Center distance between fan and motor pulley

FSE Serials Ventilator Operational Limits

			280	315	355	400	450	500	560	630	710	800	900	1000
Max. absorbed power	R	KW	2	2	3	3	4	4	4	6	10	\	\	\
	E	KW	2	2	4	8	10	10	10	15	20	20	30	40
	C	KW	2	2	4	8	10	10	10	15	20	20	30	40
Max.R.P.M	R	rpm	2400	2000	1800	1500	1300	1100	1000	800	700	\	\	\
	E	rpm	2400	2000	2000	1800	1600	1300	1200	1000	900	800	750	650
	C	rpm	2400	2000	2000	1800	1600	1300	1200	1000	900	800	750	650
Air Temperature Limits (Min-20°C)	R	Max.°C	85	85	85	85	85	85	85	85	85	\	\	\
	E	Max.°C	85	85	85	85	85	85	85	85	85	85	85	85
	C	Max.°C	180	180	180	180	180	180	180	180	180	180	180	180
Fan weight	R	Kg	15	17	21	30	37	48	60	76	125	\	\	\
	E	Kg	23	26	39	46	51	70	95	110	162	200	245	275
	C	Kg	30	33	48	57	65	85	115	130	185	230	280	315

The datas such as performance, dimension and etc. in this catalogue is subject to change without notice, Please contact with the manufacture for further information.



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