



Research
Design and
High Technology



Soler & Palau

Sales Department

C/ Llevant, 4 – Polígono Industrial Llevant
08150 Parets del Vallès (Barcelona) - SPAIN
Tel. +34935719420
Fax +34935719421
e-mail: oem.info@solerpalau.com
Web: <http://www.solerpalau.com>



FDA

Double Inlet
Centrifugal Fan
with Forward Wheels



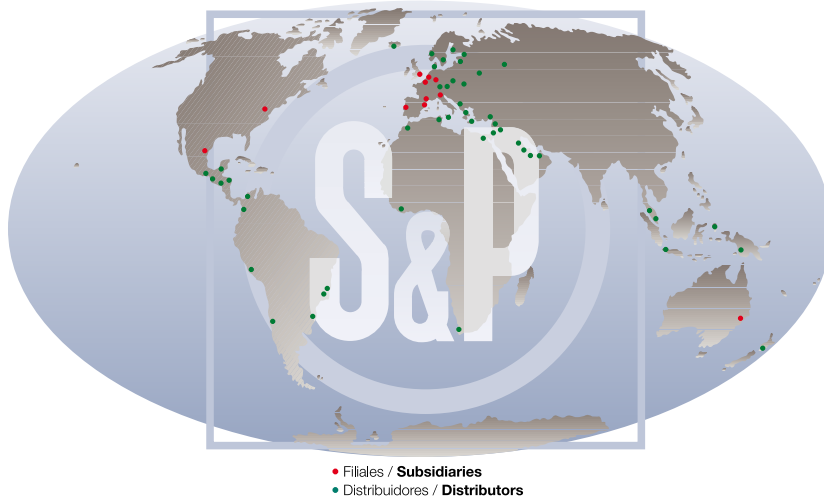
S&P - LA EMPRESA

Desde su fundación en el año 1951, en la localidad de Ripoll (España), Soler & Palau, S.A. se ha convertido, desde hace ya bastantes años, en uno de los líderes mundiales en la fabricación y venta de todo tipo de equipos de ventilación y de extracción de aire.

Ocho plantas productivas y once empresas filiales propias de comercialización, ubicadas en diversos países y continentes constituyen el actual Grupo S&P que, con un cualificado equipo de más de 1300 personas, ejerce su actividad en todos los países del mundo.

S&P - THE COMPANY

Soler & Palau was founded in 1951 in Ripoll (Spain) and since this date has become one of the world's leading companies engaged in the manufacture, sales and distribution of all types of ventilating and air moving products. Today Soler & Palau has eight production plants and eleven wholly owned commercial subsidiary companies located across the globe. Supporting the design, development production and commercial facilities are a professional team of more than 1300 employees who ensure that Soler & Palau continue to have an active presence in all global market sectors.



S&P - LA ESTRATEGIA

Investigación y Desarrollo de productos y tecnología propios; Calidad de producción por encima de la media de su campo de actividad y Vocación de Expansión sostenible son, y han sido entre otros, tres de los pilares fundamentales sobre los que descansa la trayectoria de Soler & Palau, S.A. Contar hoy con más de 60 Ingenieros titulados en las áreas de Investigación, Desarrollo, Innovación y Producción; Certificaciones ISO 9001:2000 y 14001:1996 acreditadas por AENOR (Soler & Palau fue la primera empresa registrada en España). Laboratorios propios de ensayo con certificación oficial EN-45001-89 y crecimientos anuales, sostenidos en las últimas décadas, muy superiores a los de su mercado son algunos de los logros de la correcta aplicación de la mencionada estrategia de empresa.

Nuevos y apasionantes proyectos que verán la luz muy en breve, están hoy en marcha en el Grupo S&P.

S&P - THE STRATEGY

At the heart of Soler & Palau's company strategy is the continued substantial investment in product and manufacturing research, development and quality control. Since 1951 the sustained investment in these critical areas has enabled Soler & Palau to offer to its customers products with unparalleled quality and reliability. These critical elements of success today form the fundamental cornerstones of the company's strategy for growth within increasingly competitive global markets.

Today Soler & Palau has more than 60 highly qualified engineers working in areas such as product and manufacturing technology research, development, innovation and production. The engineers work closely with international safety standards agencies to ensure that all of Soler & Palau's products are manufactured and supplied in accordance with only the very latest mechanical and electrical safety standards. All products are extensively tested with the company's comprehensive in-house airflow, acoustic and environmental test laboratories which have been officially certified by AENOR to EN-45001-89 standards. Currently Soler & Palau hold both ISO 9001:2000 and ISO 14001:1996 certifications and were also the first company in Spain to be registered to the original ISO 9000 standards.

Through operating a continual rigorous program of new and existing product development and improvement means that Soler & Palau's customers are assured that they will continue to receive products of only the very highest quality and reliability both now and in the future.



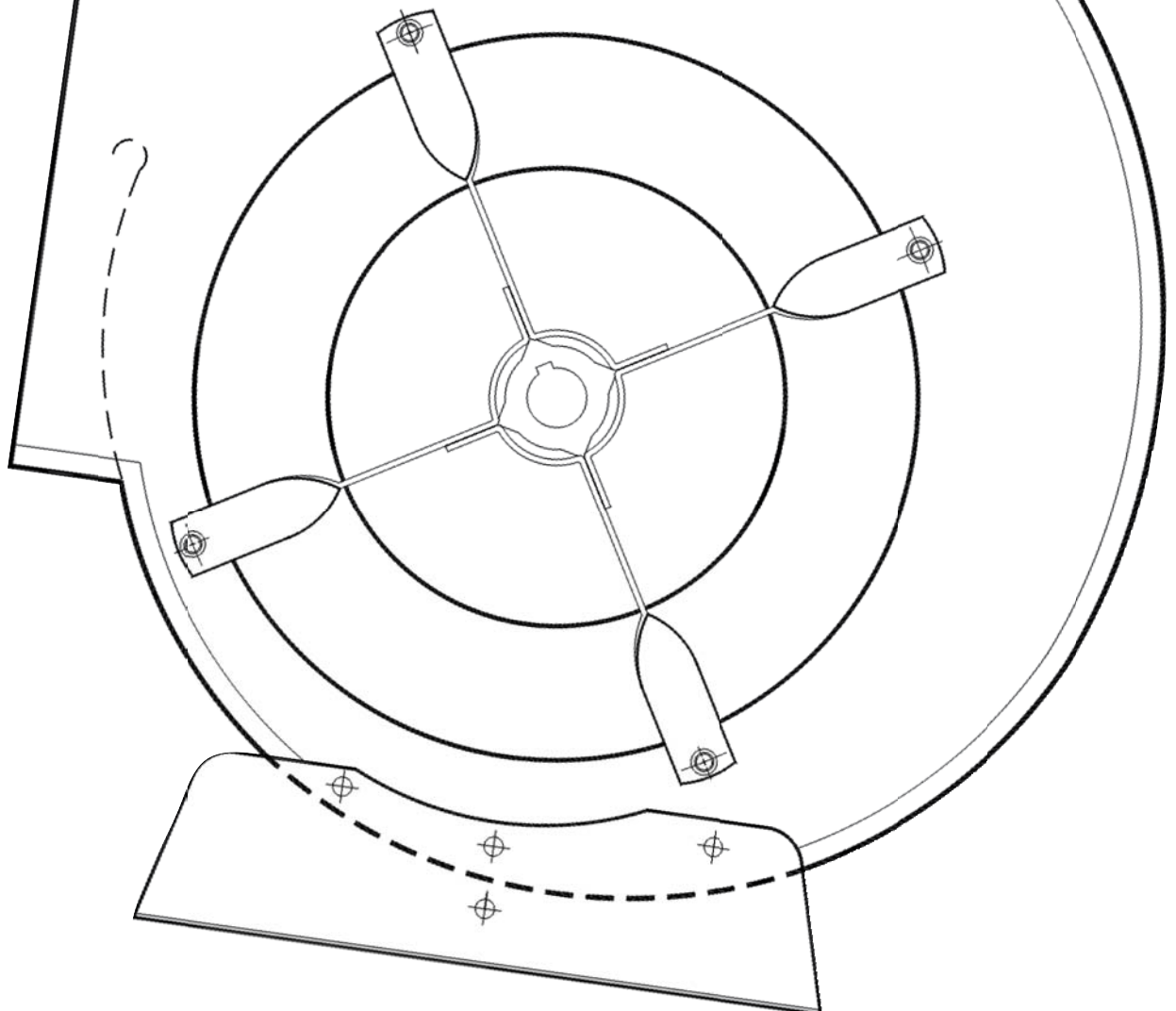


Soler & Palau S.A. certifies that the **FDA series: version S, C, T and X - model 200 to 1000** shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA publication 211 and AMCA publication 311 and comply with the requirements of the AMCA Certified Ratings Program.



FDA Series

DOUBLE INLET CENTRIFUGAL FAN
with Forward Wheels



FDA Series

Double Inlet Forward Curved Centrifugal Fans

The FDA series is DIDW centrifugal fans with forward curved impellers. The fans are suitable for supply or extract applications in commercial, process and industrial HVAC systems.

Sizes of this series are in accordance with AMCA standard 99-0098-76 and DIN 323 R20.

	Model 160 to 710		
Type S-C	I		Model 800 to 1.000
Type T	II		I
Type X	III		II

Type / Operating Limit

Each fan type has its maximum operating speed and power due to its mechanical design.

The operating limit of FDA series - fan type is design to meet the requirement of class I, II and III limit as defined in AMCA standard 99-2408-69.

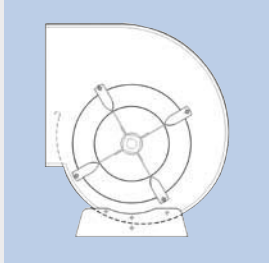
The FDA series is available in type S, C, T and X.

Type S

This type is supplied with mounting feet and can be mounted in three different orientations. The construction is mainly for OEM application which only subject to testing and approval.

Performance of 160 and 180 are not AMCA licensed.

Fan size	160 to 710
Volume	1.000 to 50.000 m ³ /h
Total Pressure	up to 1.400 Pa

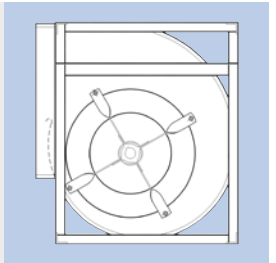


Type C

This type has a frame fitted on both sides of the fan which gives better strength and rigidity. It allows mounting in four different orientations.

Performance of 160 and 180 are not AMCA licensed.

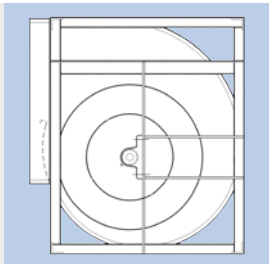
Fan size	160 to 710
Volume	1.000 to 50.000 m ³ /h
Total Pressure	up to 1.400 Pa



Type T

This type has a welded frame giving increased stiffness and rigidity required for higher operating performance.

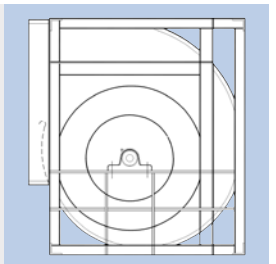
Fan size	250 to 1.000
Volume	2.500 to 100.000 m ³ /h
Total Pressure	up to 1.600 Pa



Type X

The structure is similar to type T but utilizes enhanced bearings to support higher dynamic load necessary for the increased performance.

Fan size	560 to 1.000
Volume	15.000 to 130.000 m ³ /h
Total Pressure	up to 1.800 Pa



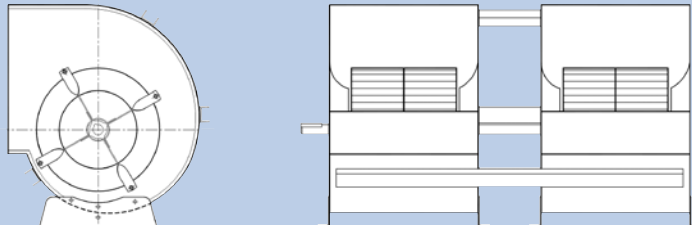
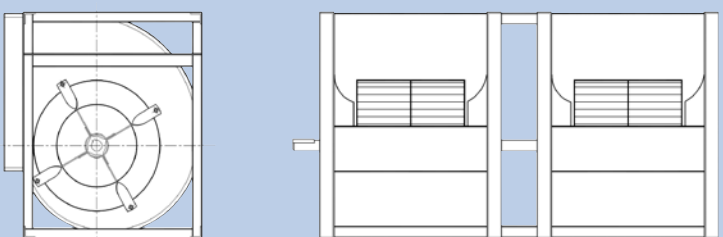
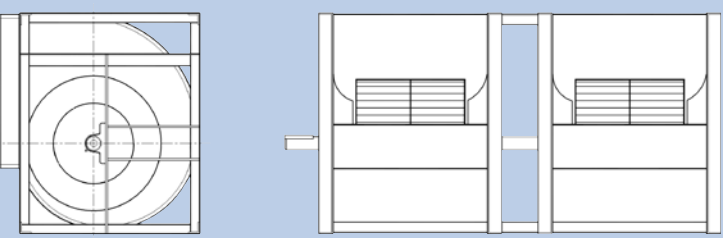
FDA Twin Fan

FDA series are also available in twin fan version, with two double inlet fans mounted on the same shaft. To select for twin fans, use the curves of single fan with the following factors:

- Volume x 2
- Absorbed Power x 2.15
- Speed x 1.05
- Noise + 3 dB

This series is available in Type S2, C2 or T2, fig. 2 shows the sizes and type available.

Performances of twin fan series are not AMCA licensed.

<p>Type S2</p> <table border="1"> <tr> <td>Fan size</td> <td>250 to 500</td> </tr> <tr> <td>Volume</td> <td>5.000 to 50.000 m³/h</td> </tr> </table>	Fan size	250 to 500	Volume	5.000 to 50.000 m ³ /h	
Fan size	250 to 500				
Volume	5.000 to 50.000 m ³ /h				
<p>Type C2</p> <table border="1"> <tr> <td>Fan size</td> <td>250 to 500</td> </tr> <tr> <td>Volume</td> <td>5.000 to 50.000 m³/h</td> </tr> </table>	Fan size	250 to 500	Volume	5.000 to 50.000 m ³ /h	
Fan size	250 to 500				
Volume	5.000 to 50.000 m ³ /h				
<p>Type T2</p> <table border="1"> <tr> <td>Fan size</td> <td>355 to 630</td> </tr> <tr> <td>Volume</td> <td>10.000 to 80.000 m³/h</td> </tr> </table>	Fan size	355 to 630	Volume	10.000 to 80.000 m ³ /h	
Fan size	355 to 630				
Volume	10.000 to 80.000 m ³ /h				

Wheel

The wheel of FDA series has forward curved blades manufactured in galvanised sheet steel.



Housing

For all sizes, the housing is manufactured in galvanized sheet steel with the housing fixed to the side plates in "pittsburg lock" form system.

Frame

The frame is manufactured with galvanized angular bars for type "C". For type "T" and "X", they are manufactured with sections of steel and finished with polyester powder coating.



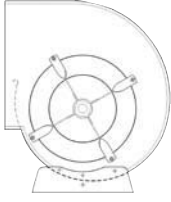
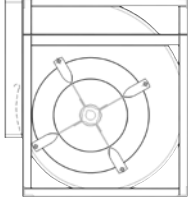
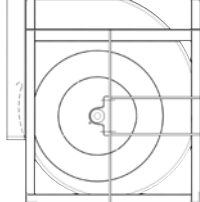
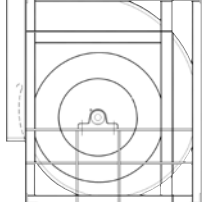
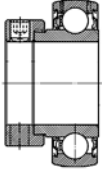
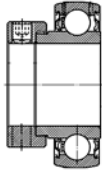
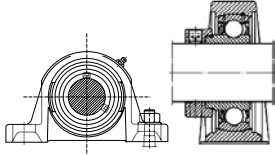
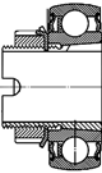
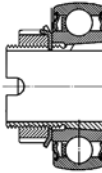
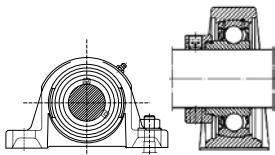
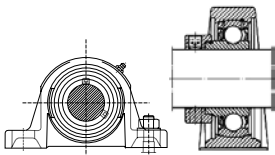
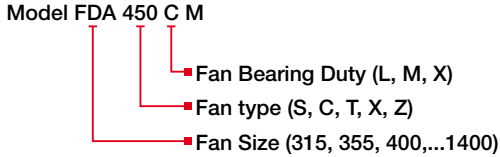
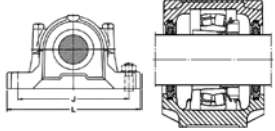
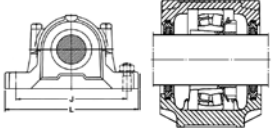
Shaft

Shafts are manufactured from C45 carbon steel using an automatic process for positioning and cutting of the keyways. All dimensional tolerances of the shaft are fully checked to ensure a precision fit and then coated with an anti-corrosion varnish after assembly.



Bearings

Bearings used are either deep groove ball bearing type with an eccentric locking collar or an adapter sleeve, or spherical roller bearings type sealed at both sides for different duty application as classified below:

	Mounted in a rubber housing		Mounted on cast iron supports with grease point	
Fan Type	S	C	T	X
				
	SL Light Duty	CL Light Duty	TL Light Duty	-
Bearing Duty				
	SM Medium Duty	CM Medium Duty	TM Medium Duty	XM Medium Duty
				
	eg. Model FDA 450 C M		TX Extra Heavy Duty	XX Extra Heavy Duty
	 <ul style="list-style-type: none"> Model FDA 450 C M → Fan Bearing Duty (L, M, X) → Fan type (S, C, T, X, Z) → Fan Size (315, 355, 400,...1400) 			

The bearings are lubricated for life and maintenance-free.

If re-lubrication is necessary, it is recommended to use lithium base grease suitable for all temperatures within the operational limits.

Balancing Quality

All wheels are statically and dynamically balanced to ISO1940 and AMCA 204 – G2.5 standards.

Paintings

Special powder-paint coatings of various thicknesses can be supplied on request.

Accessories

Casing Drain

This option is available when using fans exposed to the atmosphere or operating in high humidity conditions.

Outlet Flanges

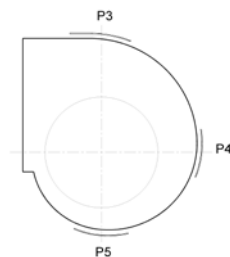
Outlet flanges are available upon request.

Inspection Doors

The inspection door can be supplied upon request. It can be supplied in one of the three position (P3, P4 & P5).

Guards

Inlet guards, discharge guards and non-drive end shaft guards are available on request.



Fan Rotation and Discharge

The rotation and discharge of the fan is in accordance with AMCA standard 99-2406-83.

The direction of rotation is determined from the drive side of the fan [refer Fig. 3]: -

CW - clockwise rotation

CCW - counter-clockwise rotation

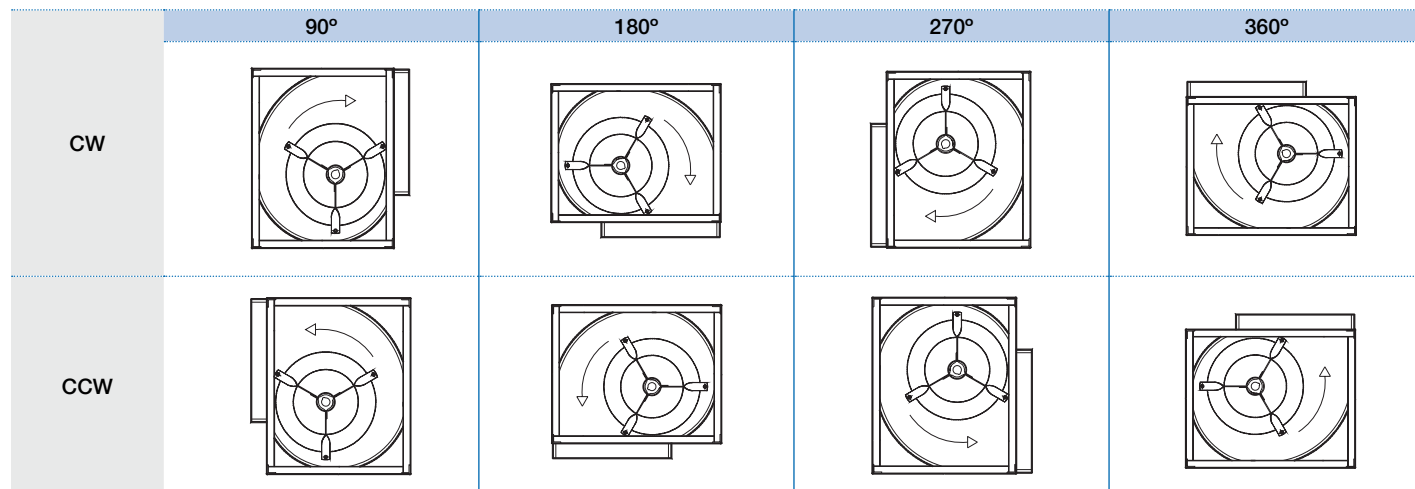


Fig. 3 - Fan rotation and discharge

Motor Position

The position of the motor for belt drive centrifugal fan is in accordance with AMCA standard 99-2407-66.

Location of motor is determined by facing the drive side of fan and designating the positions by letters W, X, Y, or Z .

[refer to Fig.4]

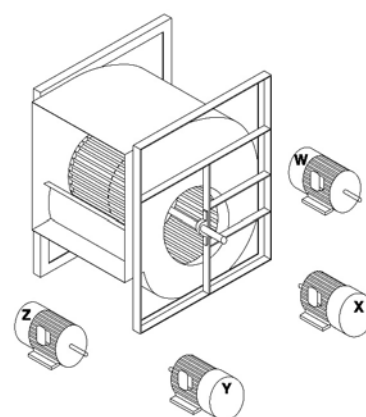


Fig. 4 - Motor Position

Motor Selection

The power curve shown on each performance curve represents the absorbed power at the shaft of the fan measured in kW.

To determine the power of the motor to be installed, a correction factor as shown in fig. 5 should be applied to compensate for transmission losses.

For conversion to horsepower (HP), use multiplying factor 1.34. Ut pat. Ostonsequat volutat illa or iurercil essequat.

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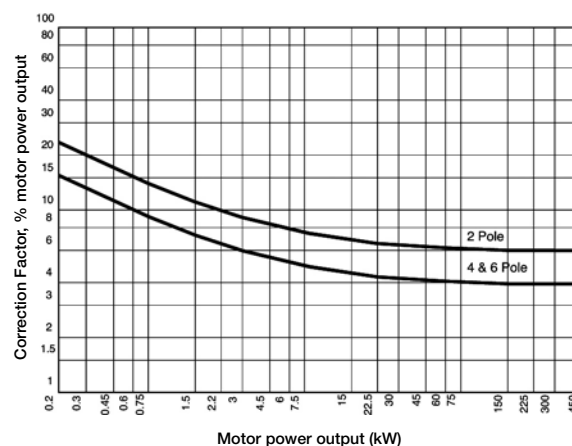


Fig. 5 – Recommended for compensation

Dynamic Pressure

The dynamic pressure and outlet air velocity shown on each curve are calculated on the full air discharge area, i.e. ducted outlet conditions.

With free outlet conditions, the velocity pressure is higher. To determine this new value, multiply the velocity pressure of the ducted outlet obtained from the fan curve by the following correction factor "K".

Fan performances calculate with this correction factors are not licensed by AMCA.

[K = 2.6]

Performance

The performance data shown on each diagram has been tested and measured in accordance to AMCA Standard 210 – Fig 12 – installation type B (free inlet and ducted outlet conditions).

Ratings are referred to the standard air density with the total pressure as a function of the air volume, using logarithmic scales.

It is essential that, the same installation type and test standards are used at all times, when comparing fan performances.

Noise

The noise level shown on each diagram refer to the sound power "A-weighted" and the data on the inlet side has been measured in accordance with AMCA Standard 300 diag. 2 - configuration "B". The noise levels of the fans are determined as follows:

- Sound power level - ("A" scale): $L_w(A)$ as catalogue.
- Octave band spectrum: $L_w = L_w(A) + L_w \text{ rel. dB}$ [refer to Soler & Palau S.A. for more details].
- Sound pressure level:

a) free field

$$L_p(A) = L_w(A) - (20 \log_{10} d) - 11$$

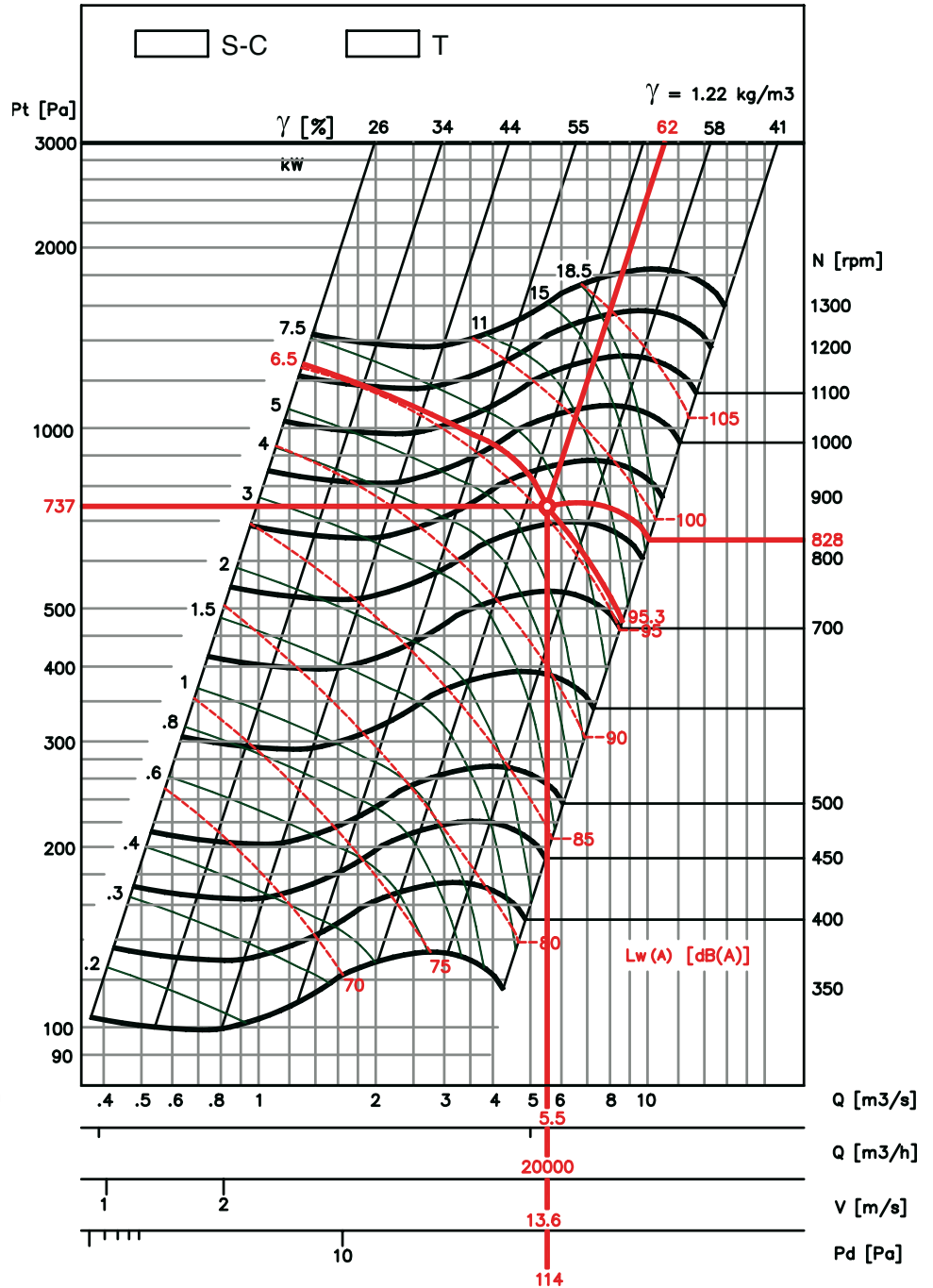
b) room conditions

$$L_p(A) = L_w(A) - (20 \log_{10} d) - 7$$

where d = distance of fan (m)

Example of Selection

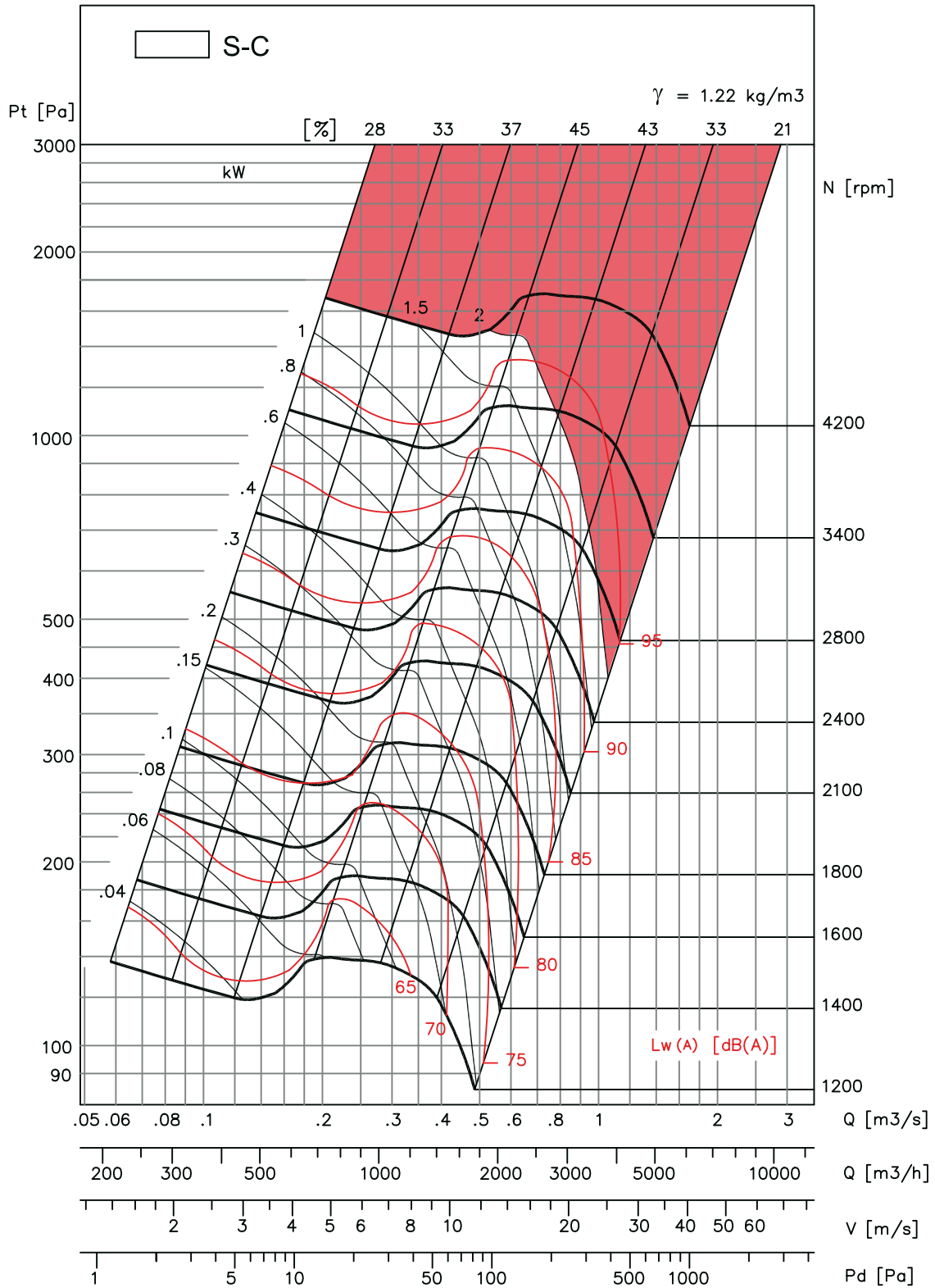
FDA 500



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.
 - The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.

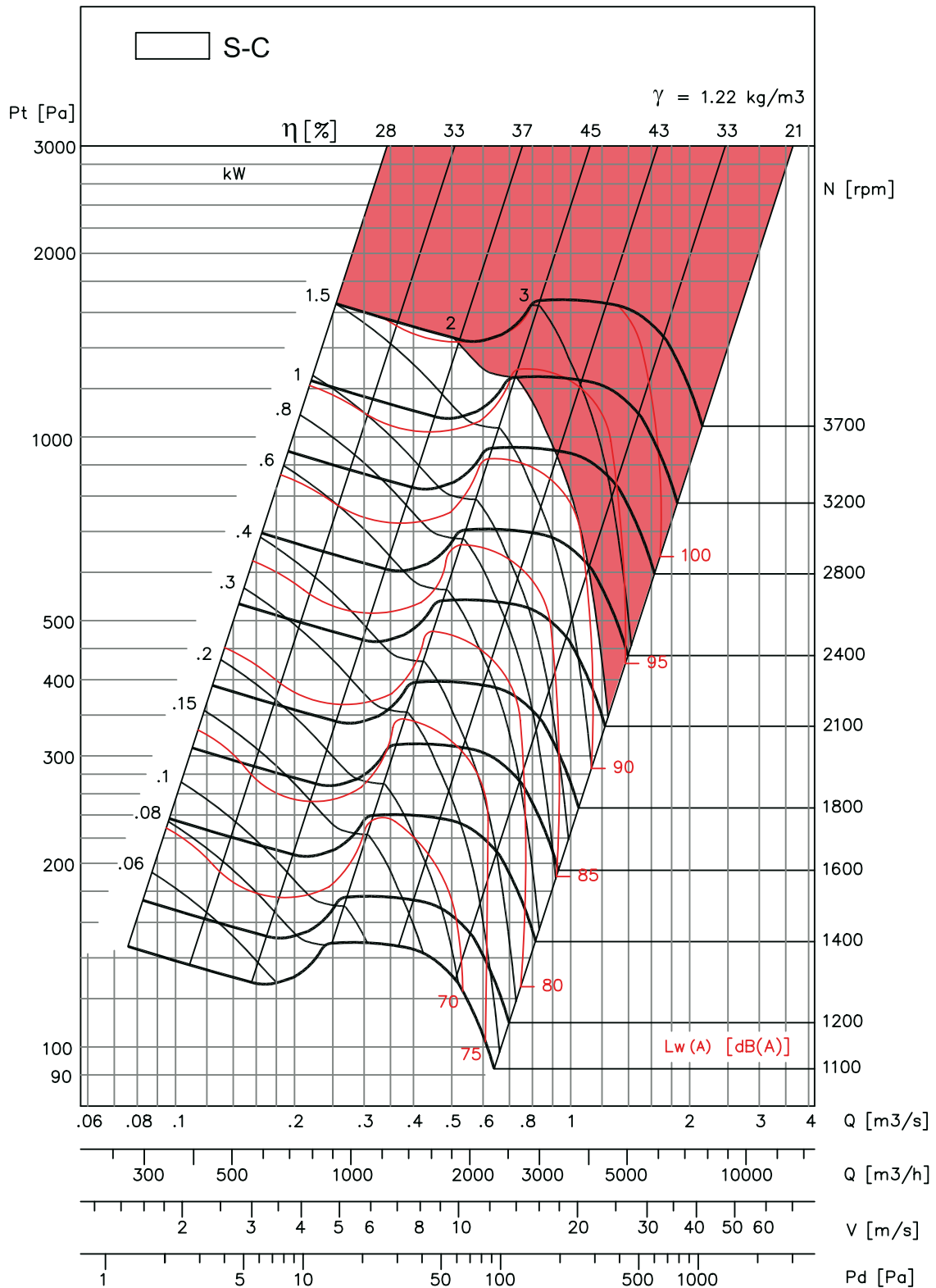


FDA 160



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.
 - The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.
 - MODEL FDA160 IS NOT LICENSED TO BEAR THE AMCA CERTIFIED RATINGS SEAL.

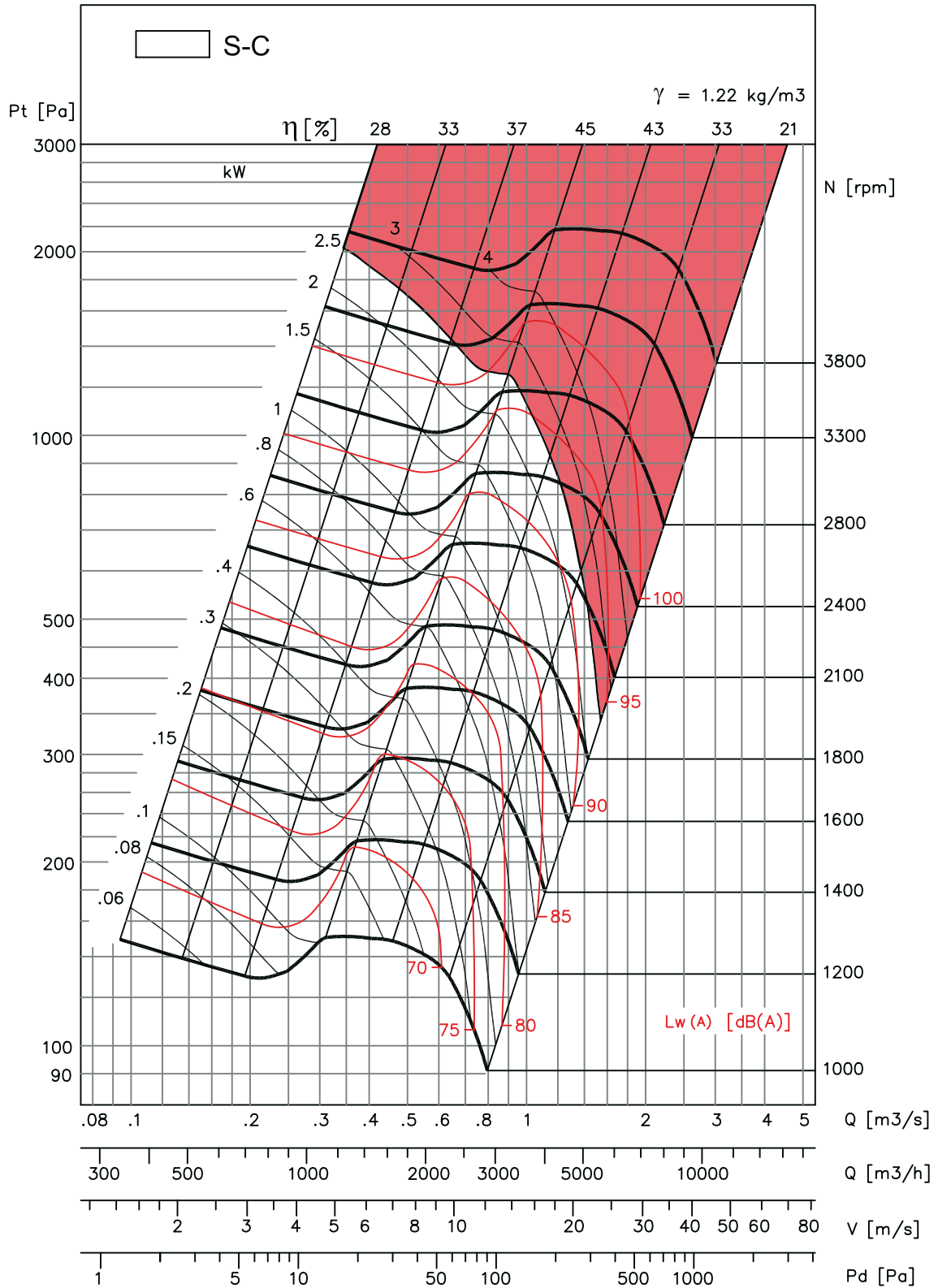
FDA 180



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.
 - The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.
 - MODEL FDA180 IS NOT LICENSED TO BEAR THE AMCA CERTIFIED RATINGS SEAL.



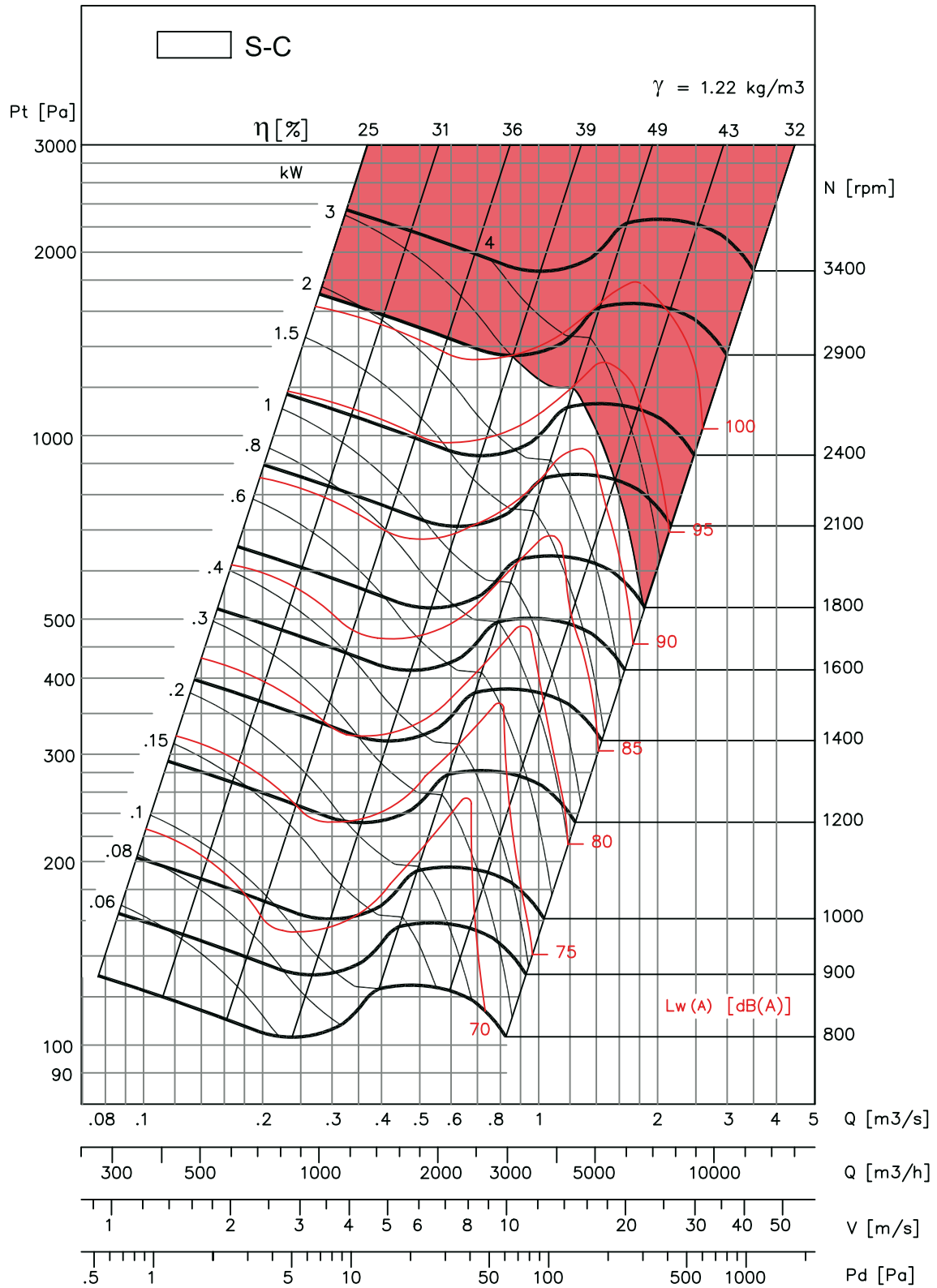
FDA 200



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.

- The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet $L_{wi}(A)$ sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.

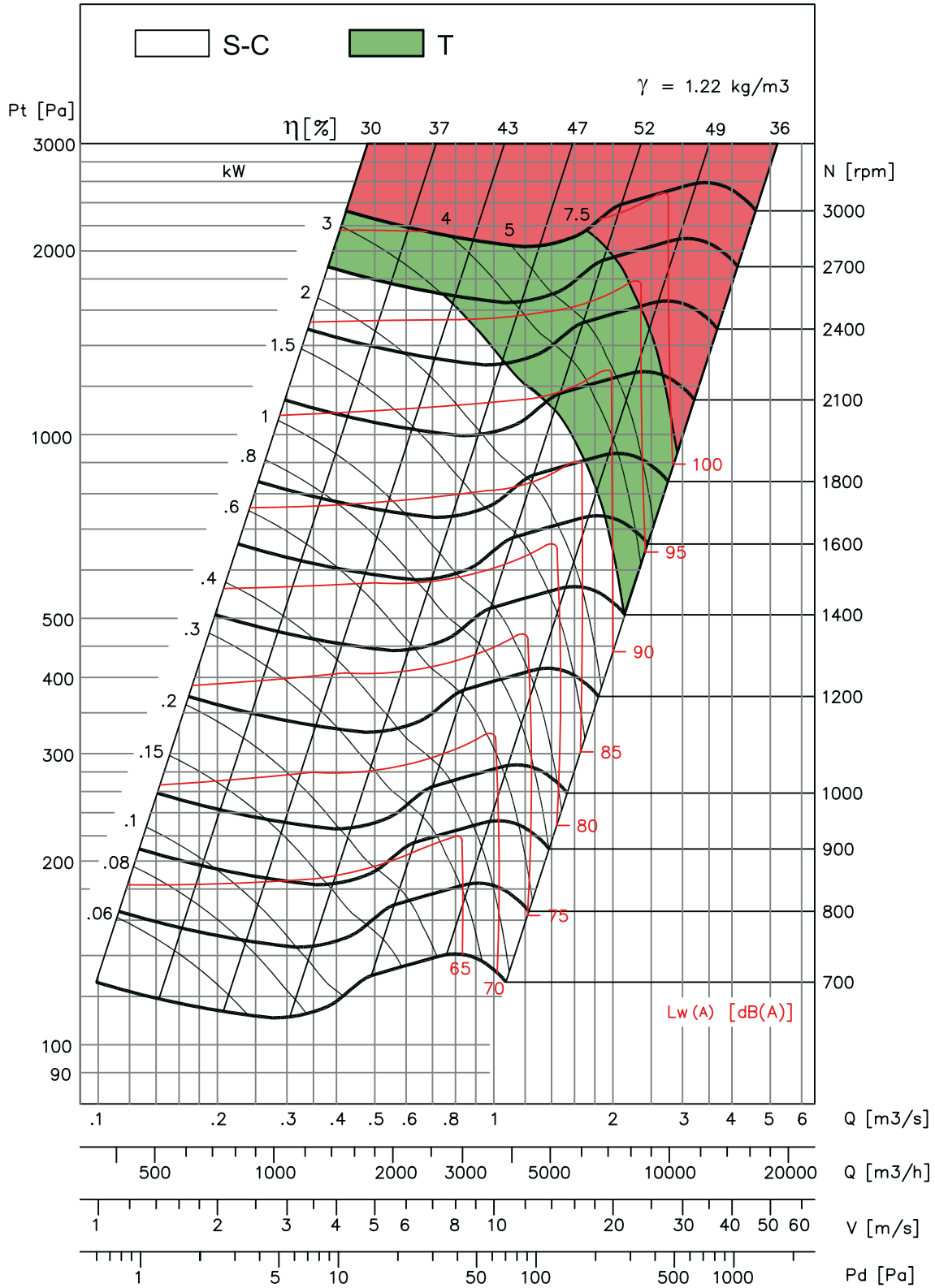
FDA 225



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.
 - The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.

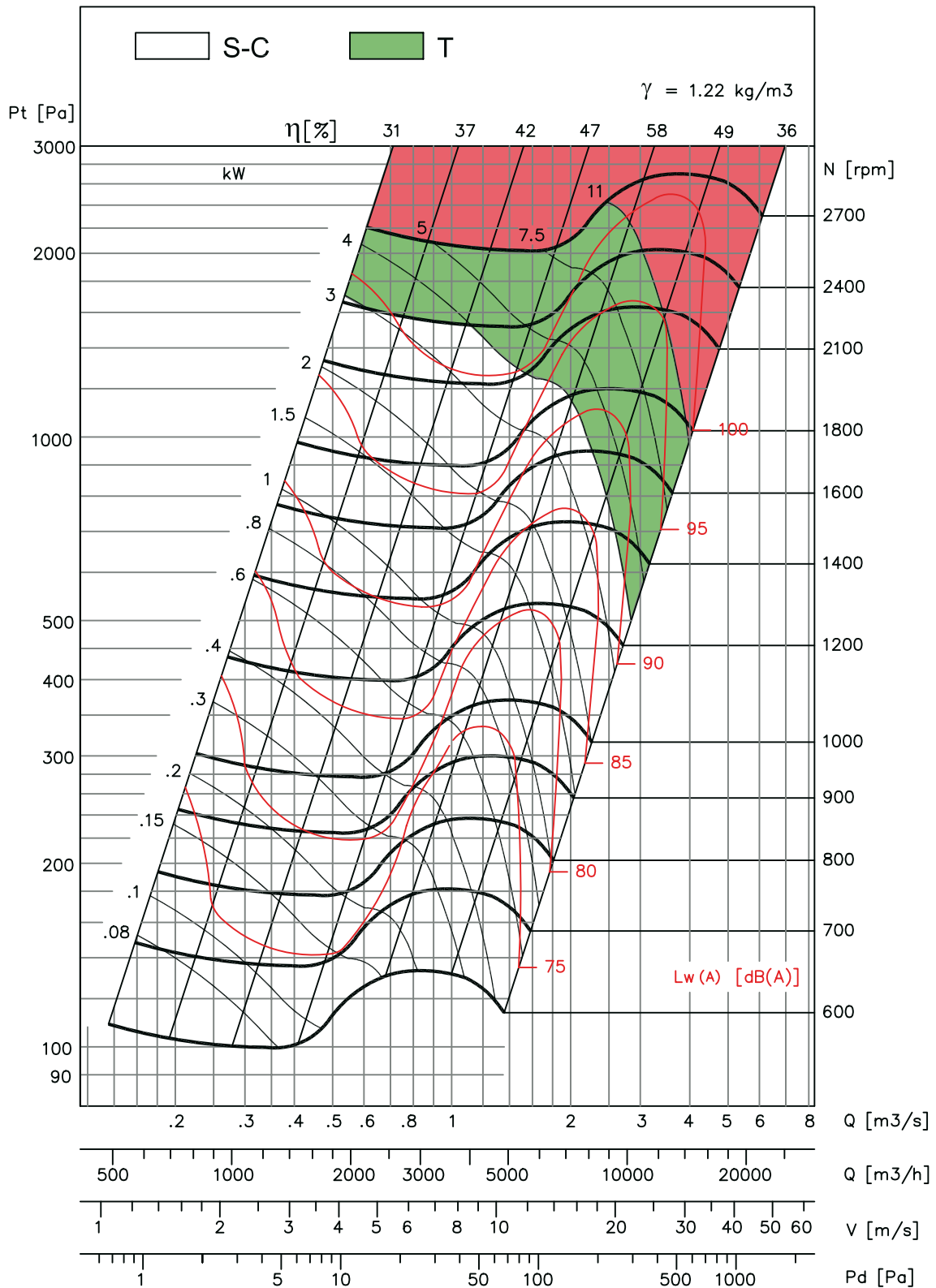


FDA 250



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.
 - The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.

FDA 280

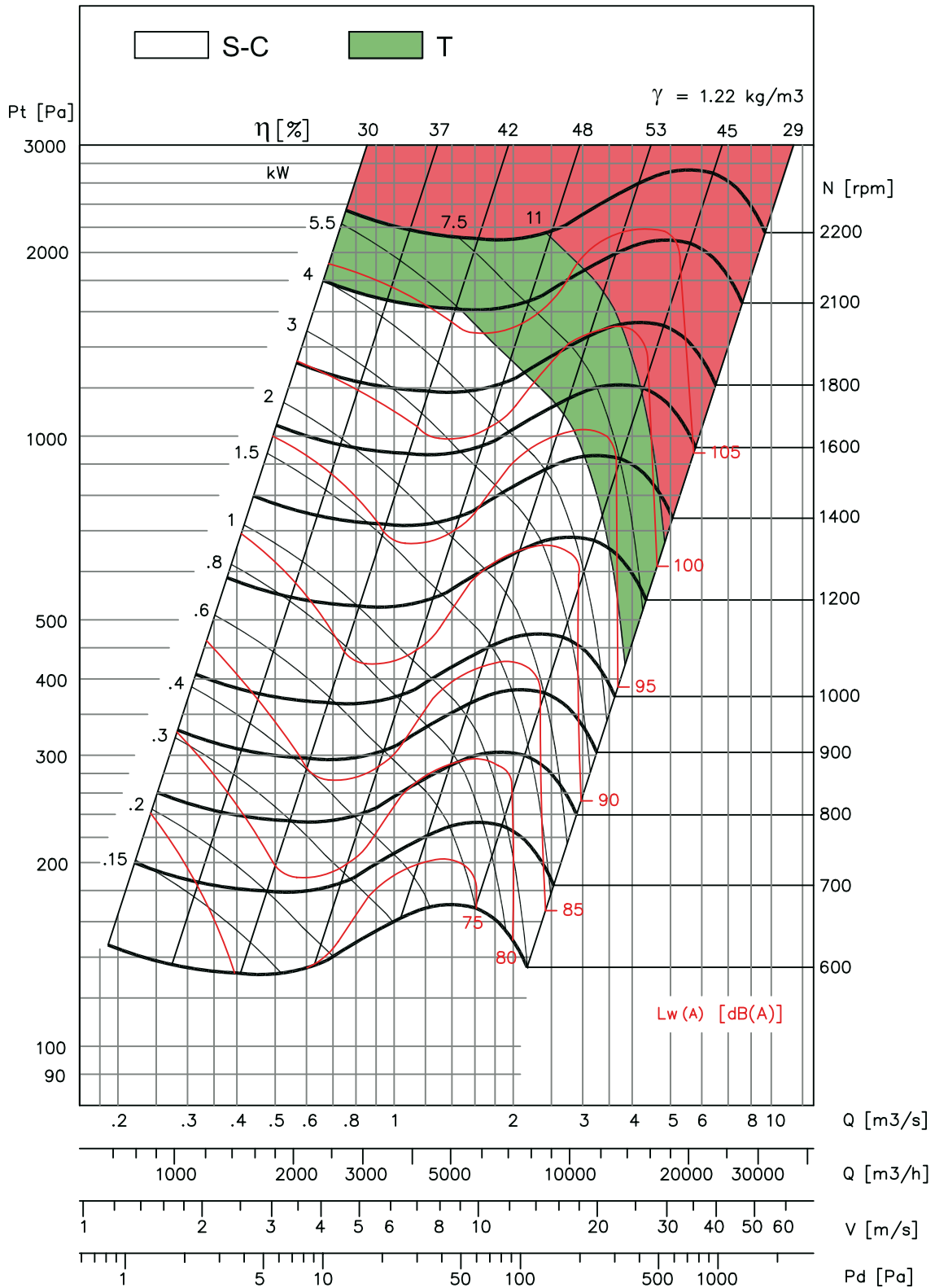


- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.

- The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.

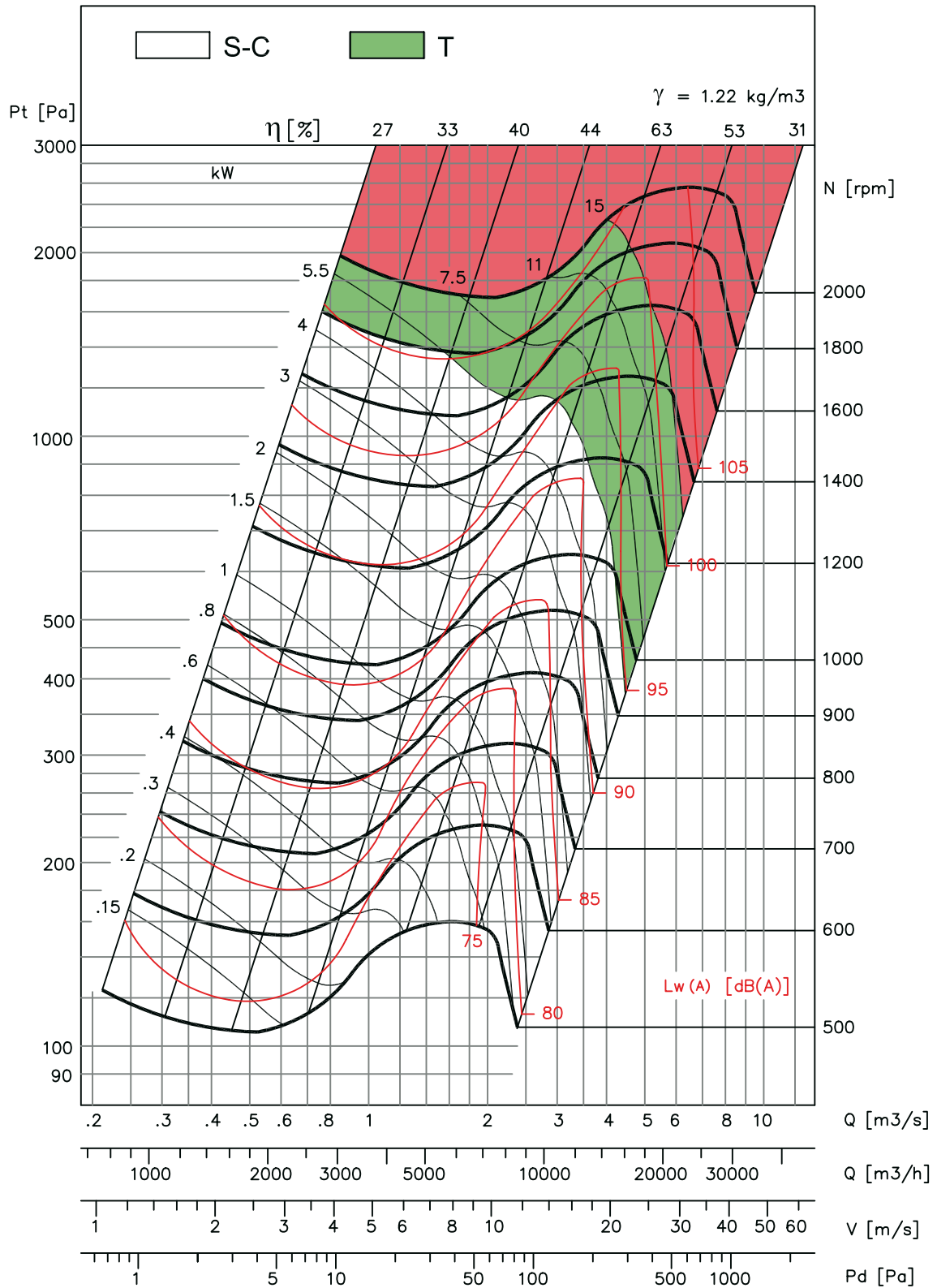


FDA 315



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.
 - The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.

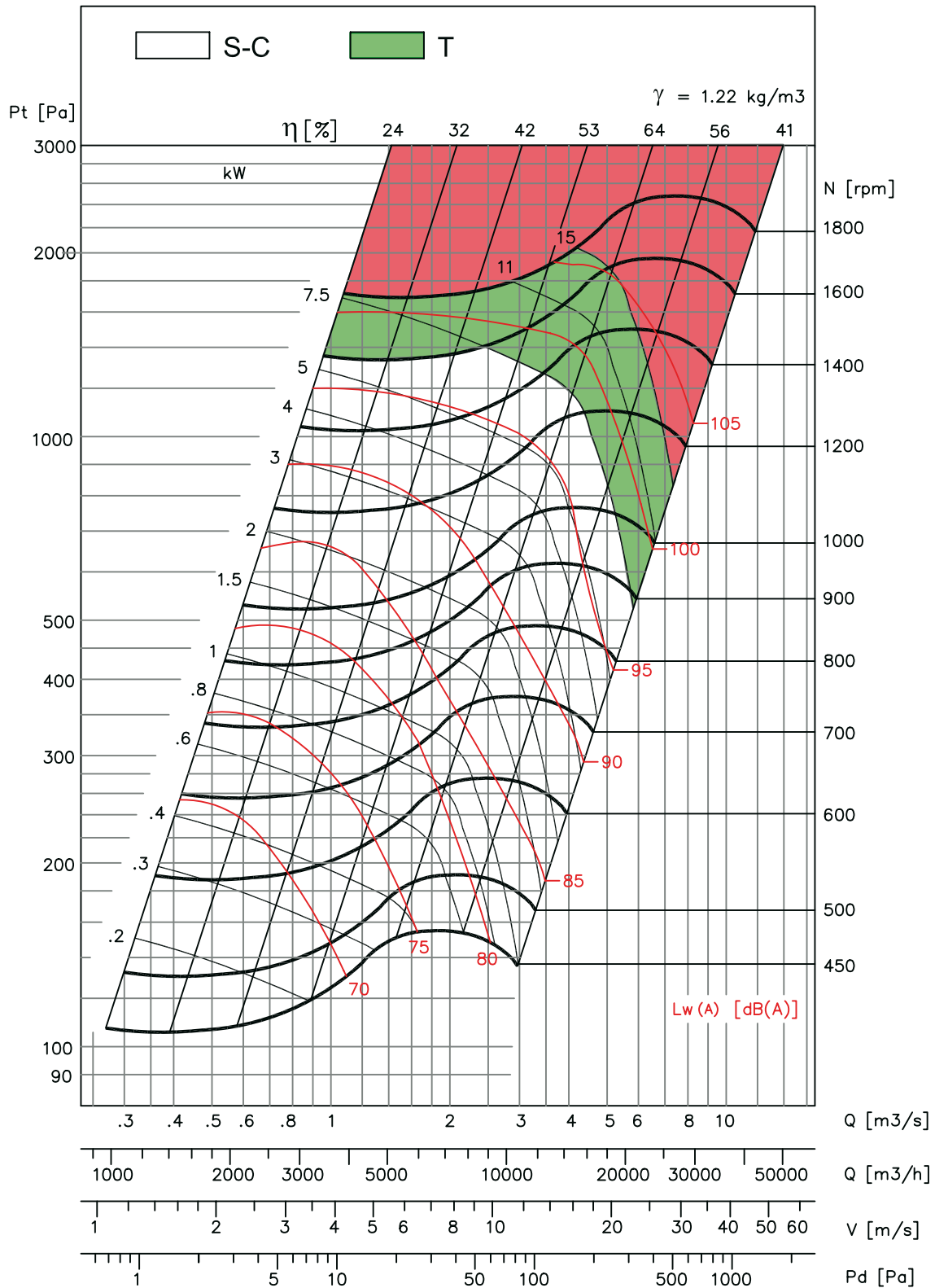
FDA 355



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.
 - The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.

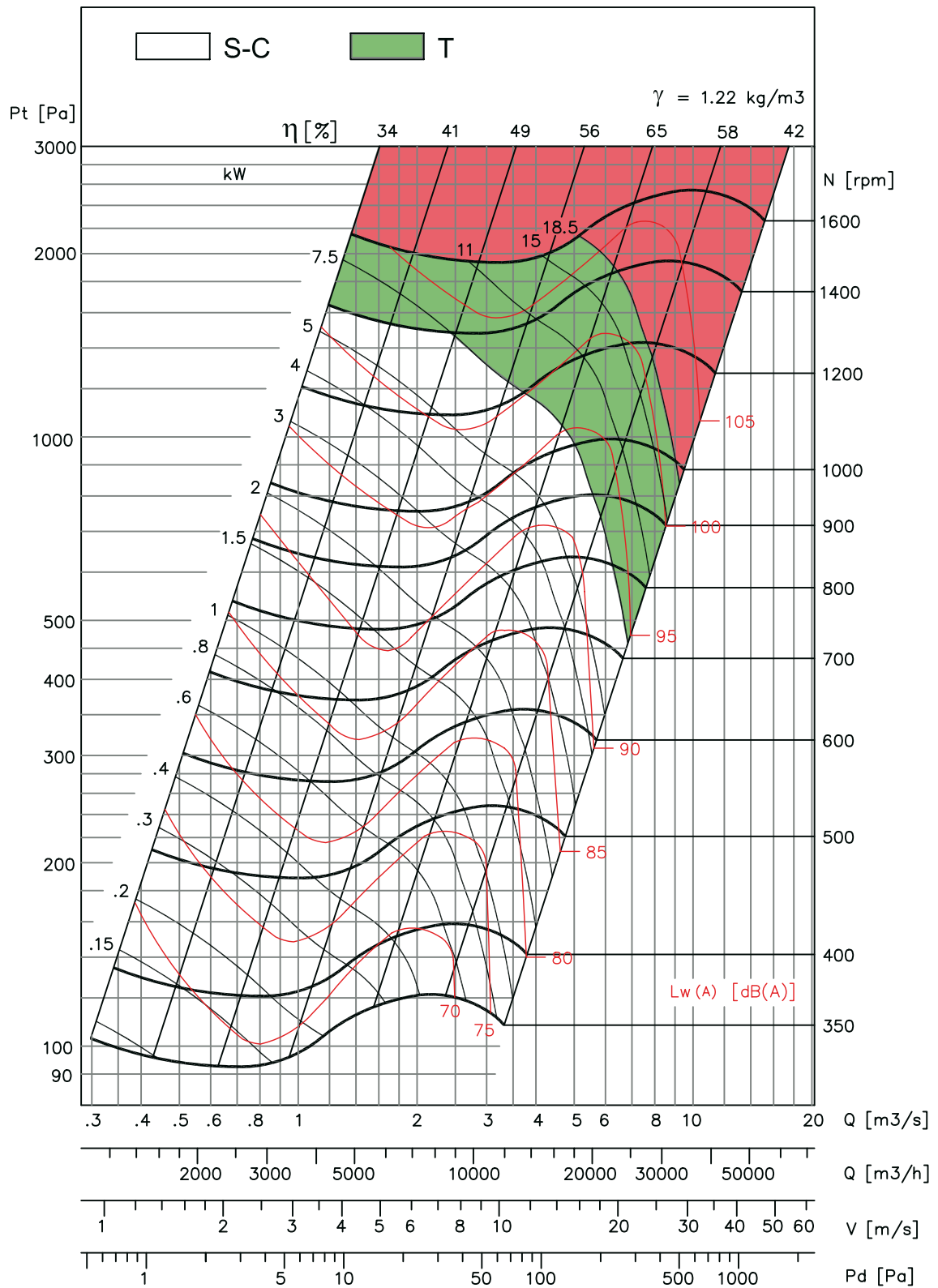


FDA 400



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.
 - The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.

FDA 450

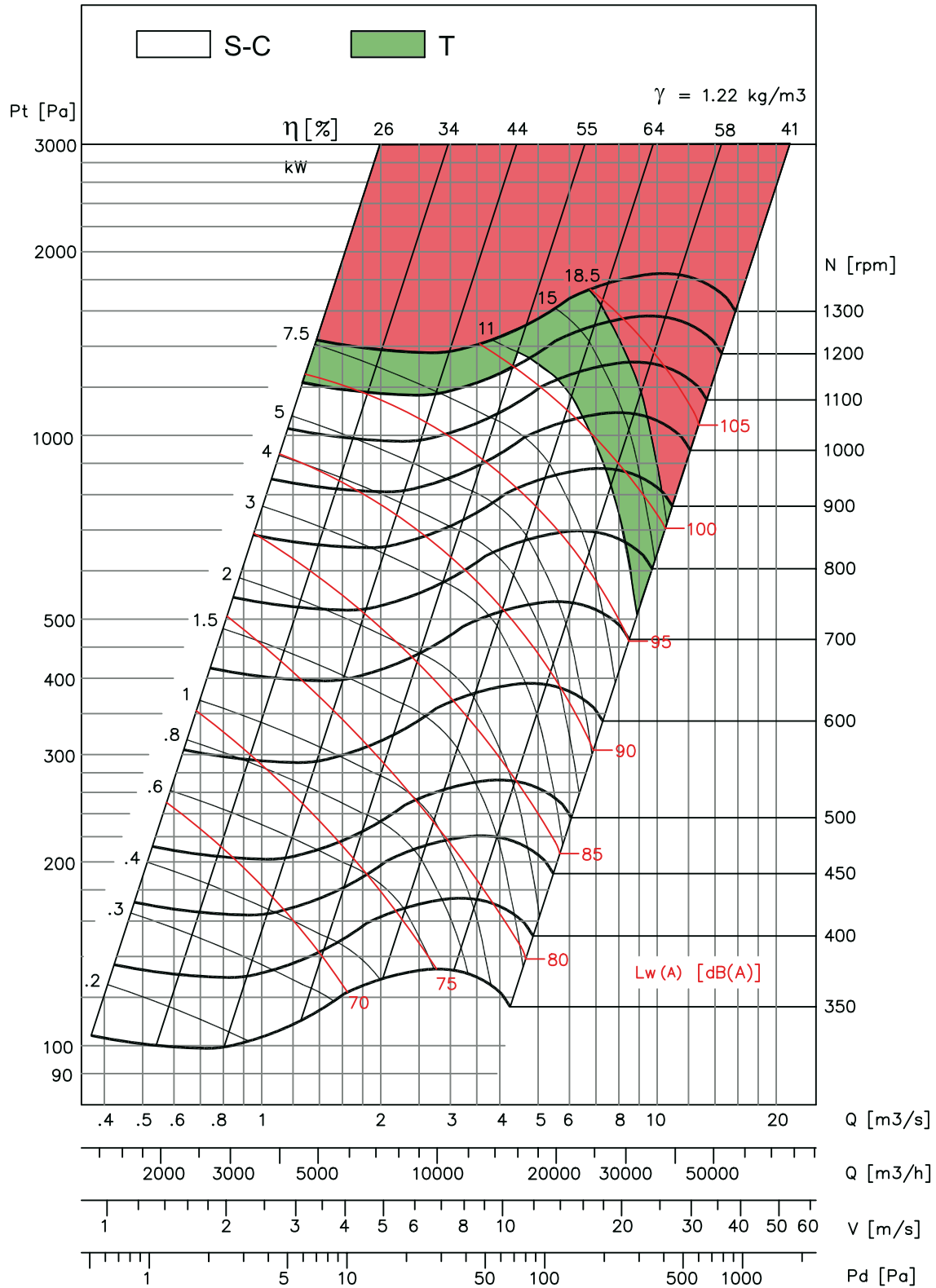


- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.

- The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.

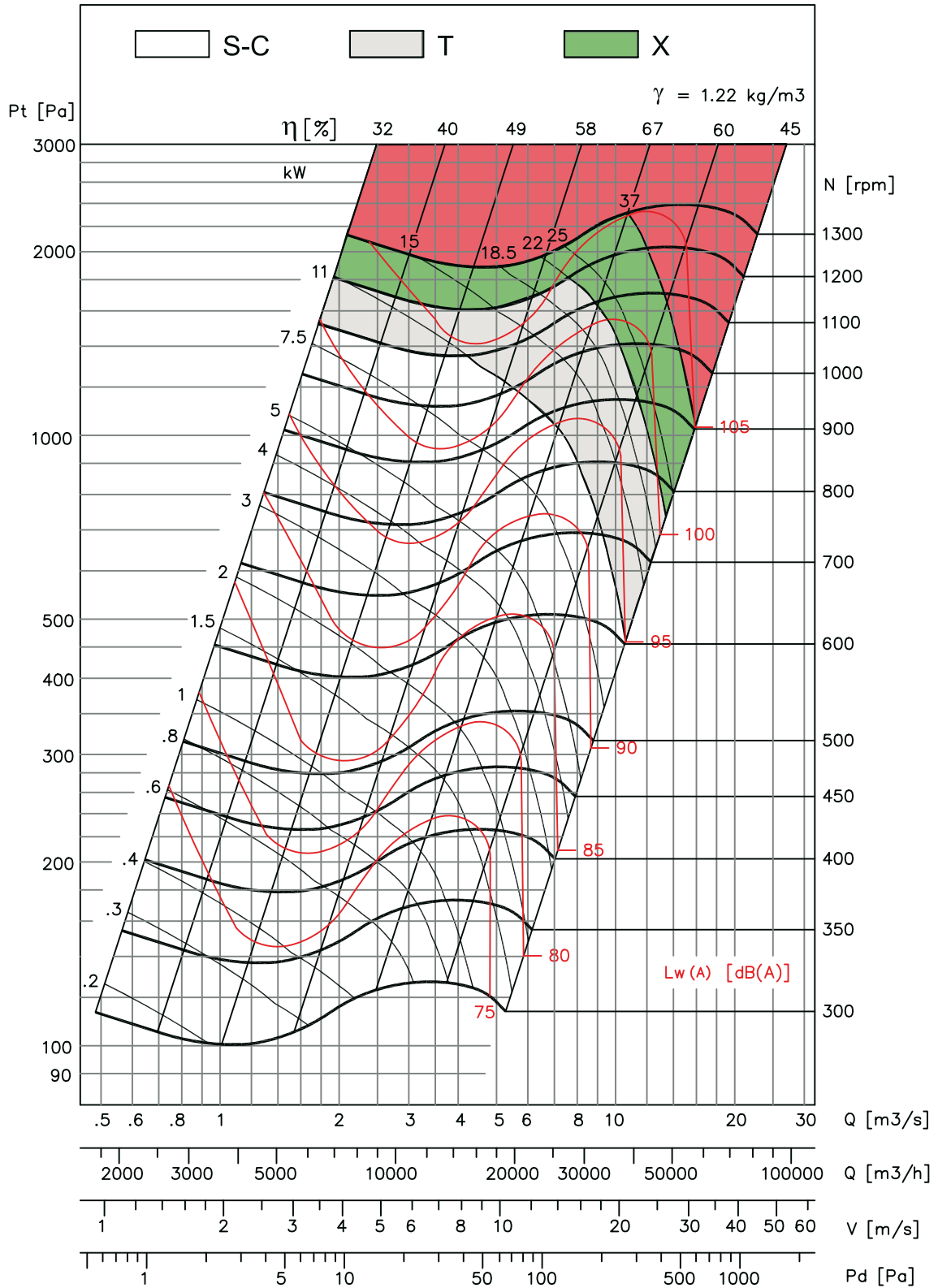


FDA 500



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.
 - The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.

FDA 560

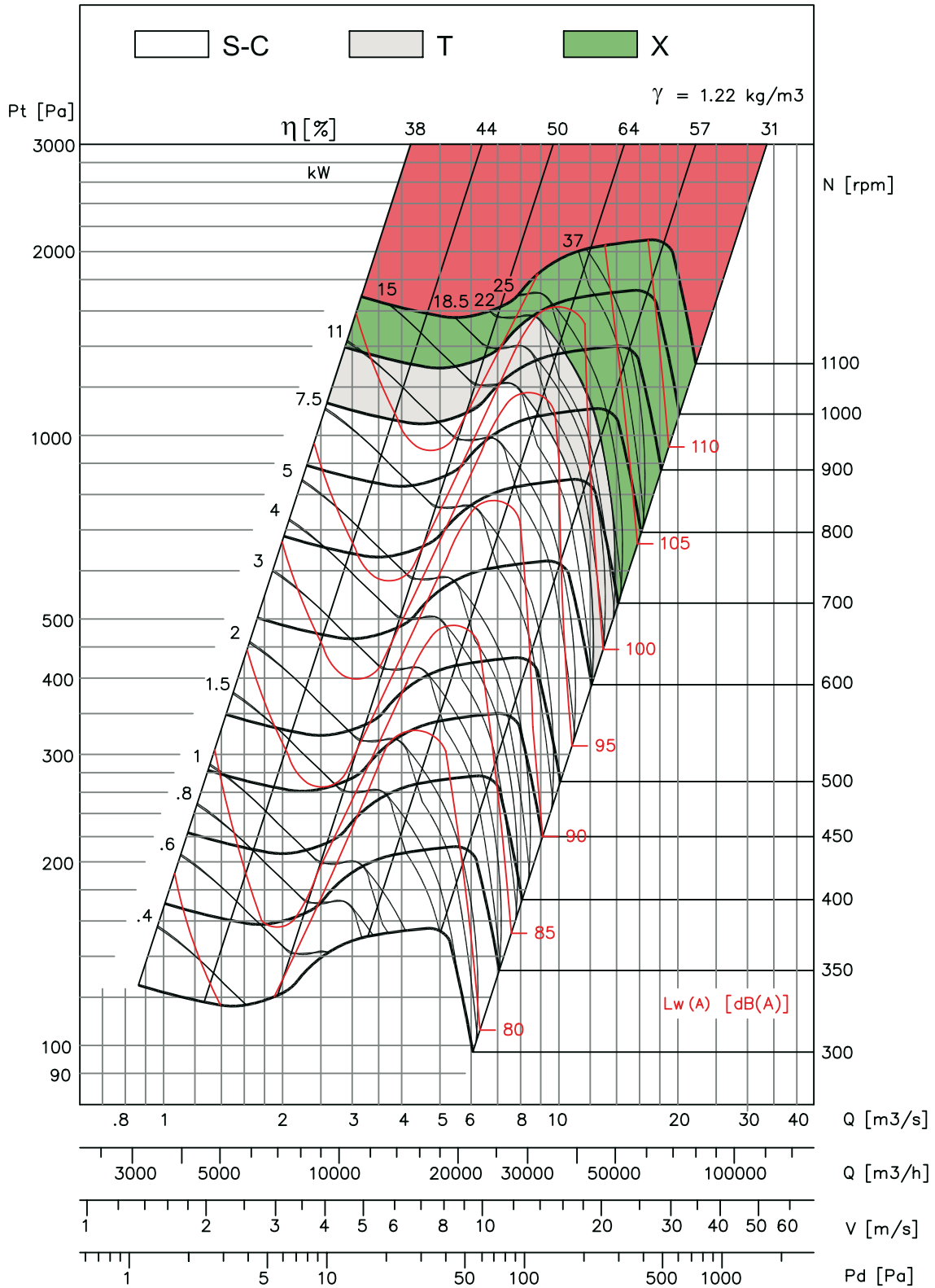


- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.

- The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.



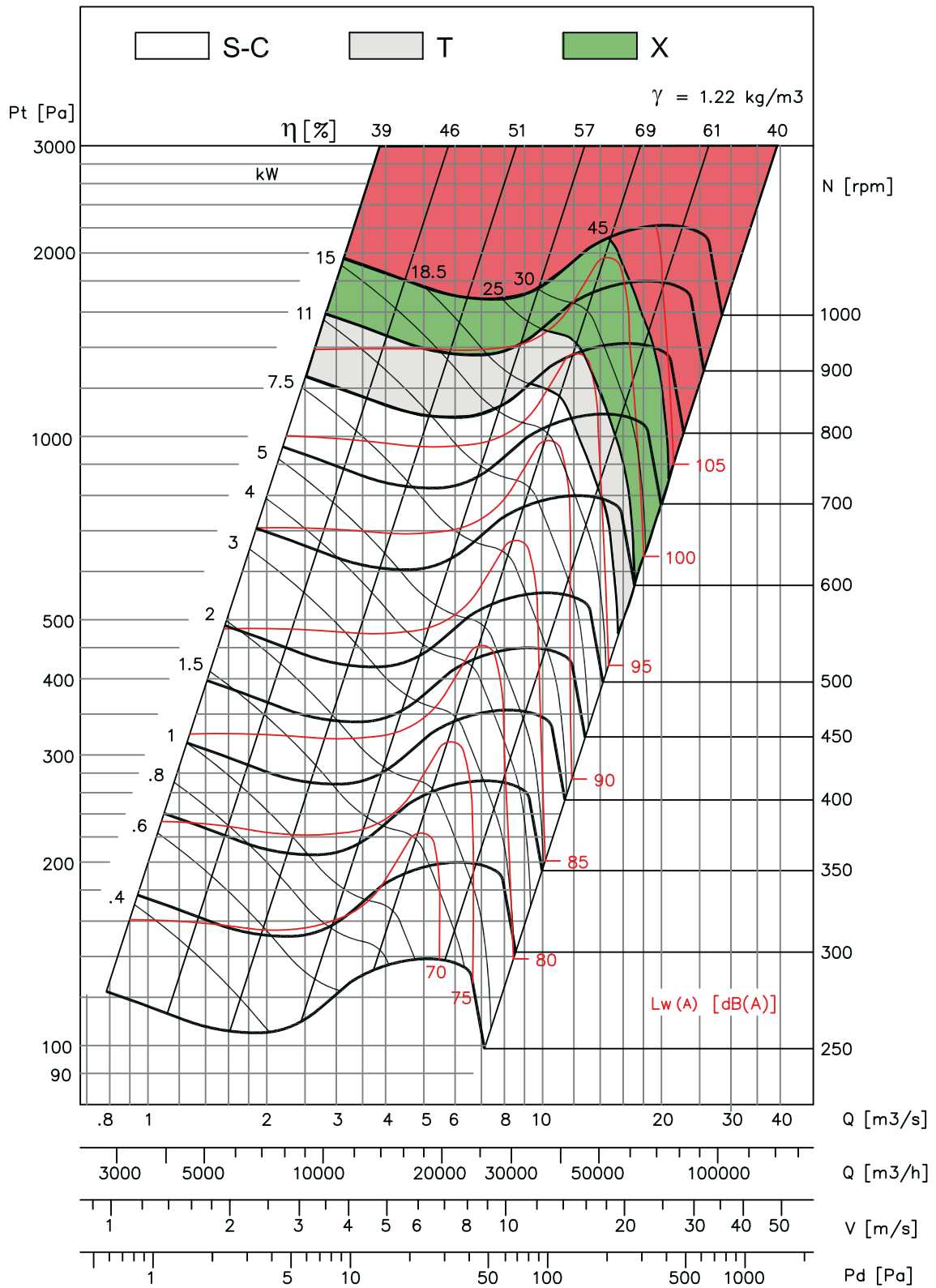
FDA 630



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.

- The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.

FDA 710

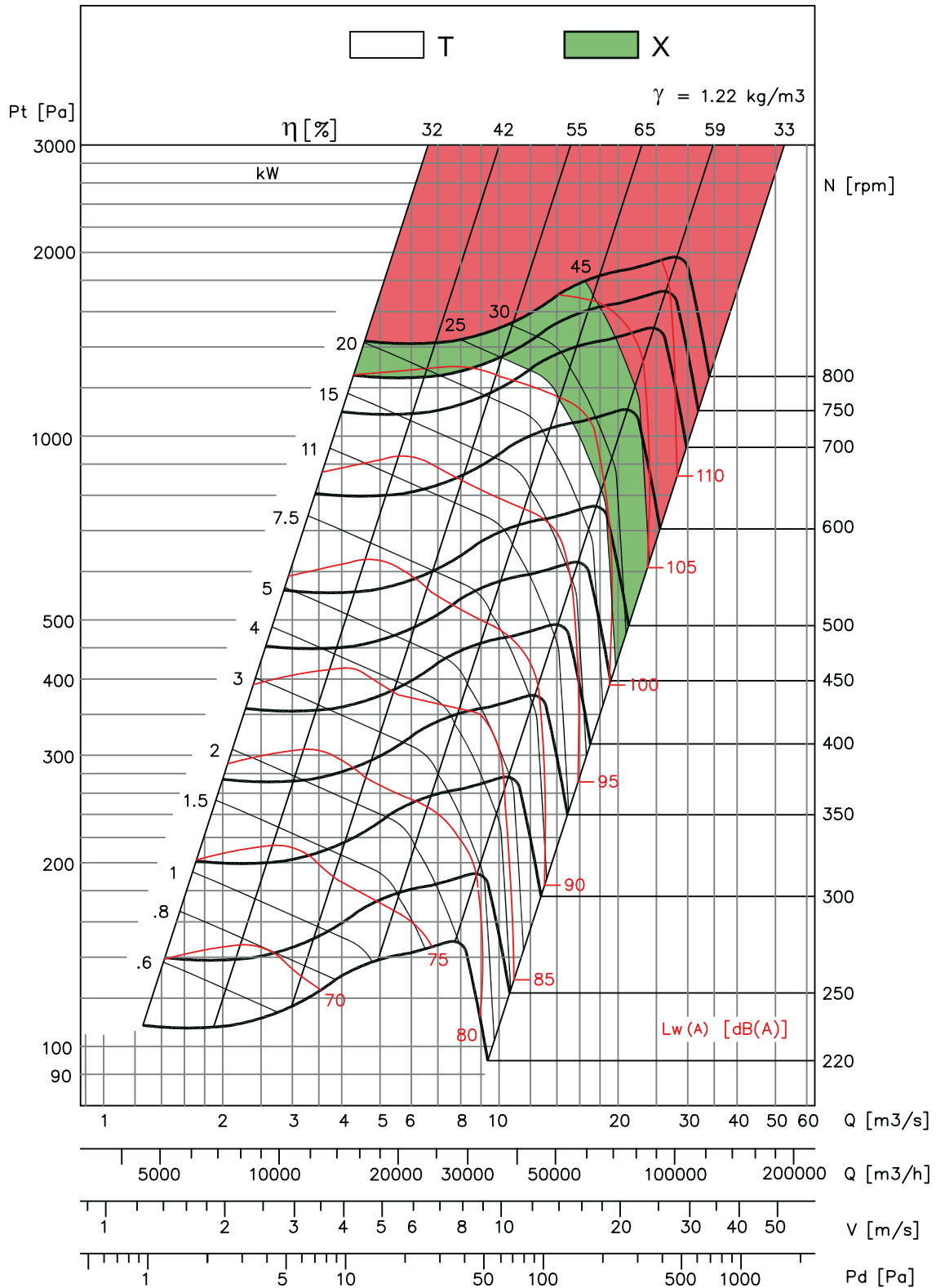


- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.

- The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet $L_{wi}(A)$ sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.



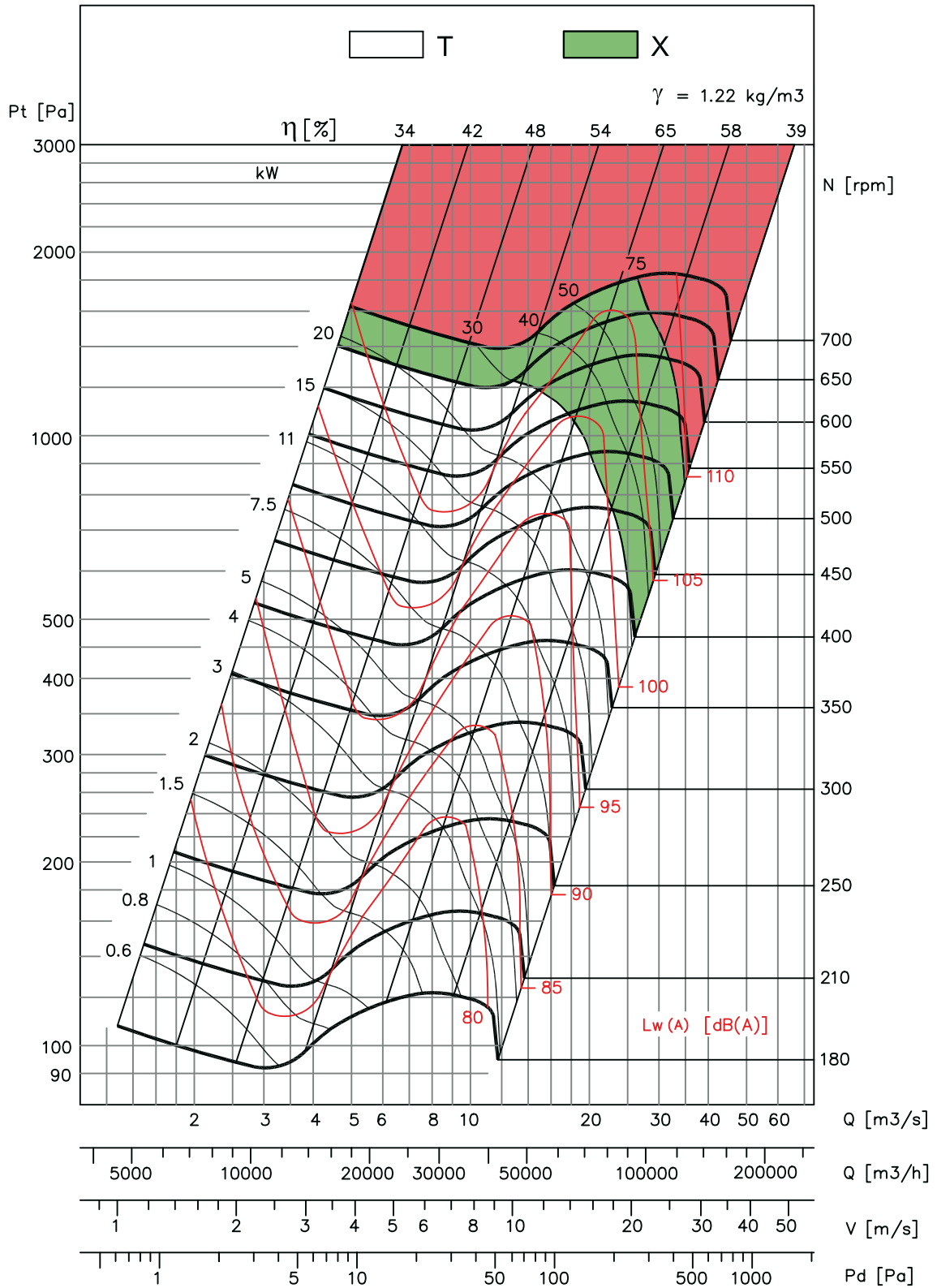
FDA 800



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.

- The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.

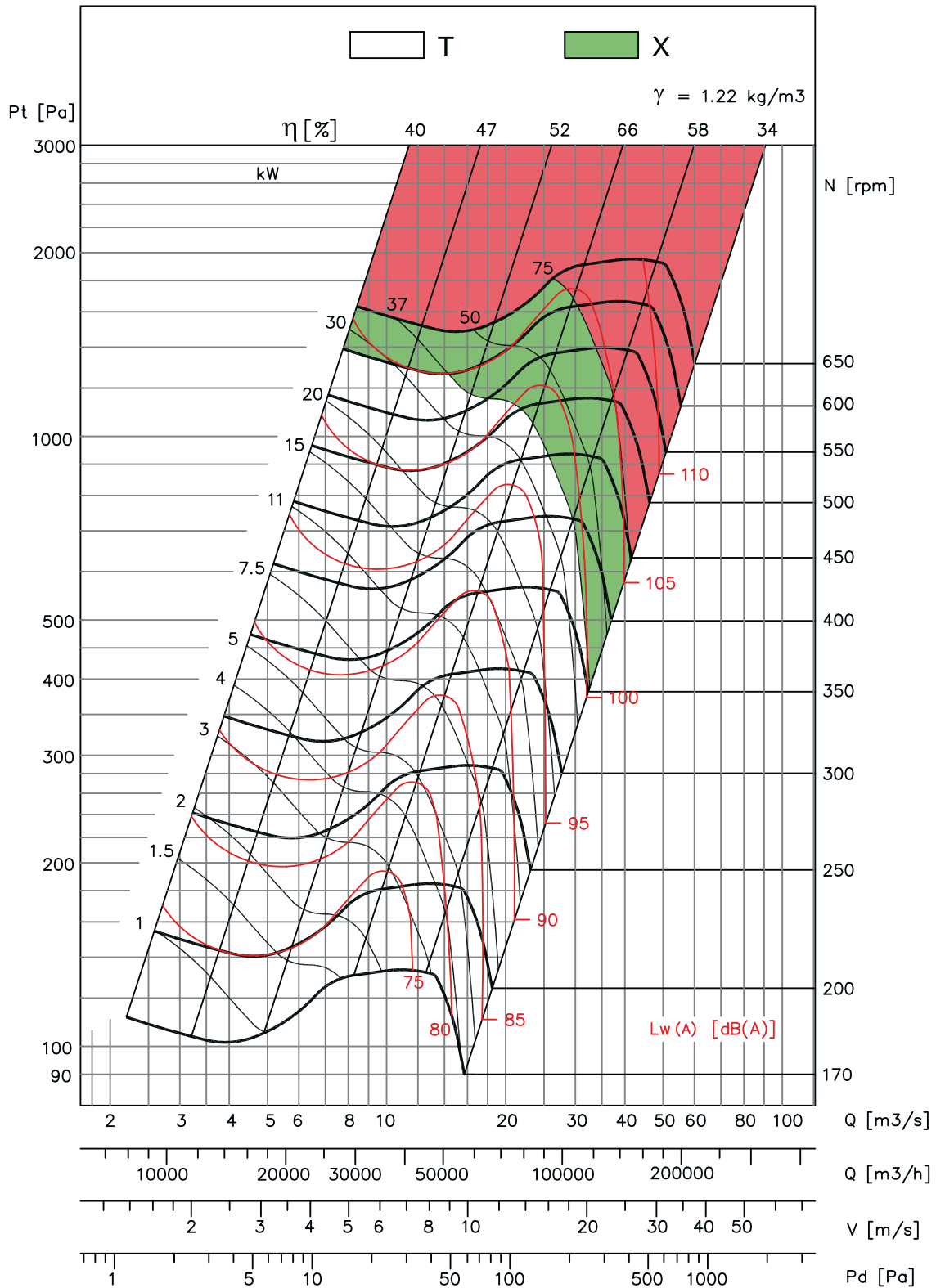
FDA 900



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.
 - The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.



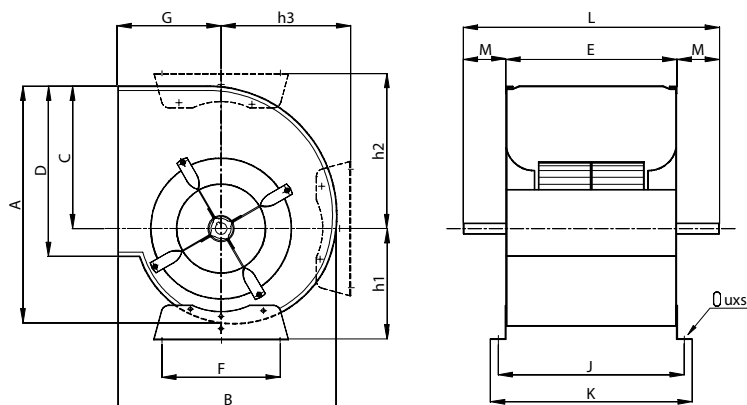
FDA 1000



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include drive losses.
 - The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet Lwi(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.

FDA 'S'

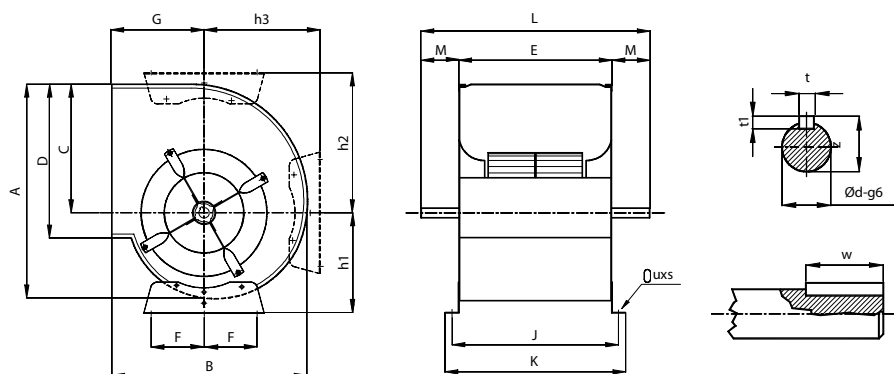
FDA 160-400 'S'



Model	A	B	C	D	E	F	G	J	K	L	M	h1	h2	h3	ød		
															CL	CM	uxs
160	292	282	172	204	204	180	140	224	244	368	82	150	204	150	20	-	11x16
180	328	312	192	228	228	180	152	248	268	392	82	164	224	164	20	20	11x16
200	364	342	215	256	256	224	164	281	306	420	82	181	245	184	20	20	11x16
225	408	380	243	288	288	224	180	313	338	452	82	197	274	204	20	20	11x16
250	452	416	270	322	322	224	194	347	372	486	82	210	299	227	20	20	11x16
280	508	464	302	360	360	280	214	390	420	556	98	236	331	255	25	25	11x16
315	572	516	340	404	404	280	236	434	464	600	98	261	370	283	25	25	11x16
355	644	576	383	452	452	315	260	492	532	672	110	274	411	320	30	30	11x16
400	724	644	432	506	506	355	290	546	586	726	110	302	462	359	30	30	11x16

All Dimensions in mm.

FDA 450-710 'S'



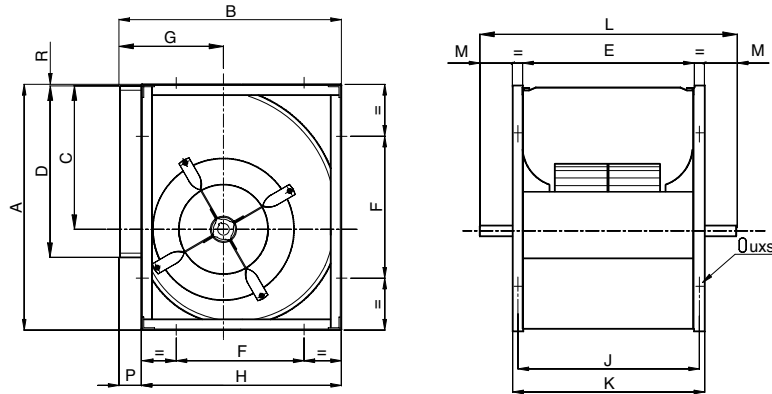
Model	A	B	C	D	E	F	G	J	K	L	M	h1	h2	h3	ød		
															CL	CM	uxs
450	816	722	486	568	568	200	322	608	648	814	123	336	518	407	35	35	13x18
500	906	794	538	638	638	225	352	678	718	924	143	375	568	448	35	35	13x18
560	1016	886	603	714	714	250	390	764	814	1000	143	416	634	502	40	40	13x18
630	1142	992	679	800	800	280	434	850	900	1092	146	468	707	571	40	45	13x18
710	1286	1114	765	898	898	315	484	948	998	1234	168	531	797	636	50	50	13x18

All Dimensions in mm.



FDA 'C'

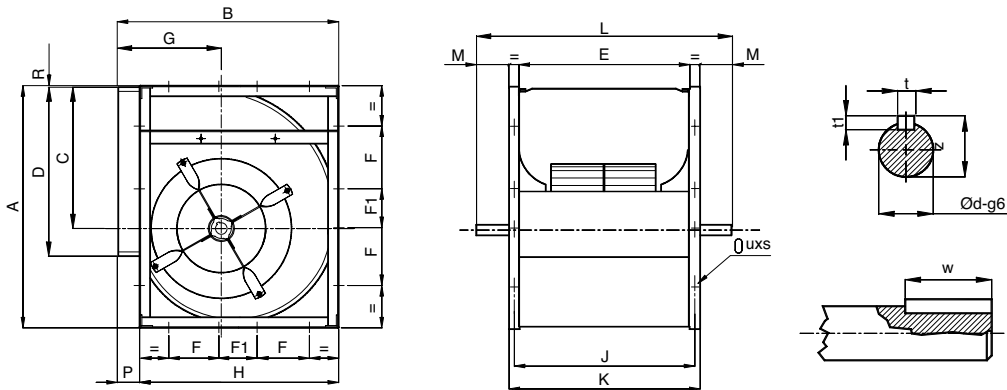
FDA 180-400 'C'



Model	A	B	C	D	E	F	G	H	J	K	L	M	P	R	ød		uxs
															CL	CM	
180	336	323	192	228	228	180	152	294	248	268	392	62	29	5	20	20	9x12
200	370	343	215	256	256	224	164	306	281	306	420	57	37	4	20	20	11x16
225	415	382	243	288	288	224	180	348	313	338	452	57	34	3	20	20	11x16
250	460	418	270	322	322	224	194	383	347	372	486	57	35	4	20	20	11x16
280	518	466	302	360	360	280	214	432	390	420	556	68	34	5	25	25	13x18
315	578	518	340	404	404	330	236	480	434	464	600	68	38	3	25	25	13x18
355	654	578	383	452	452	368	260	548	492	532	672	70	30	6	30	30	13x18
400	736	650	432	506	506	402	290	612	546	586	726	70	38	5	30	30	13x18

All Dimensions in mm.

FDA 450-710 'C'

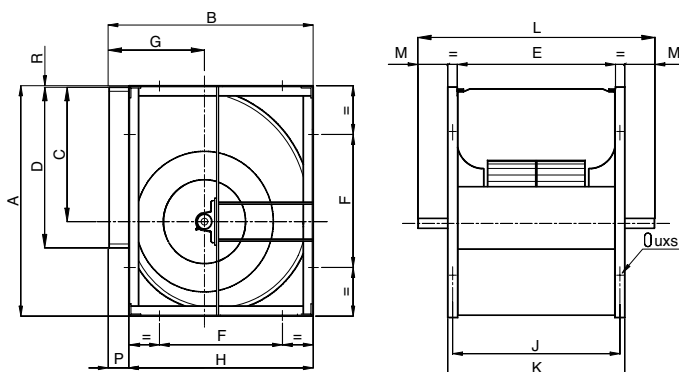


Model	A	B	C	D	E	F	F1	G	H	J	K	L	M	P	R	ød		uxs
																CL	CM	
450	827	726	486	568	568	200	111	322	681	608	648	814	83	45	5	35	35	13x18
500	918	800	538	638	638	245	120	352	750	678	718	924	103	50	5	35	35	13x18
560	1030	892	603	714	714	280	125	390	844	764	814	1000	93	48	7	40	40	13x18
630	1157	998	679	800	800	328	110	434	945	850	900	1092	96	53	6	40	45	13x18
710	1302	1112	765	898	898	360	150	484	1057	948	998	1234	118	63	7	50	50	17x22

All Dimensions in mm.

FDA 'T'

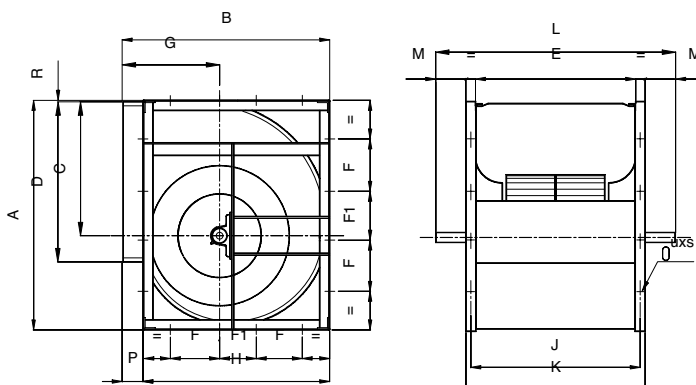
FDA 250-400 'T'



Model	A	B	C	D	E	F	G	H	J	K	L	M	P	R	ød		
															TL	TM	uxs
250	460	418	270	322	322	224	194	383	347	372	538	83	35	4	25	25	11x16
280	518	466	302	360	360	280	214	432	390	420	588	84	34	5	30	30	13x18
315	578	518	340	404	404	330	236	480	434	464	632	84	38	3	30	30	13x18
355	654	578	383	452	452	368	260	548	492	532	718	93	30	6	35	35	13x18
400	736	650	432	506	506	402	290	612	546	586	772	93	38	5	35	35	13x18

All Dimensions in mm.

FDA 450-1000 'T'

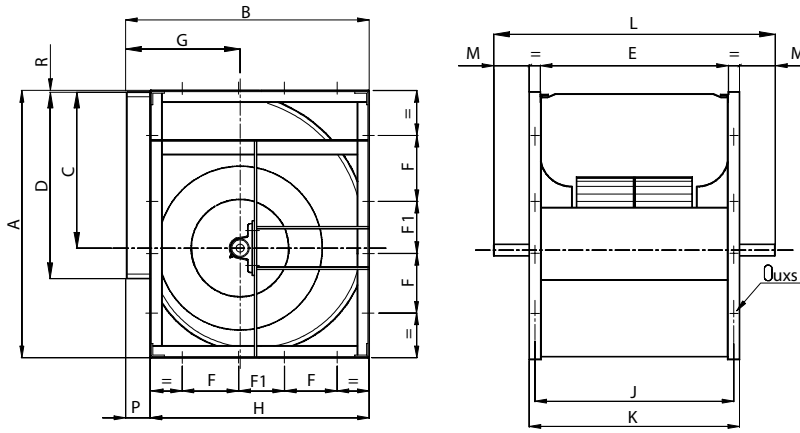


Model	A	B	C	D	E	F	F1	G	H	J	K	L	M	P	R	ød		
																TL	TM	uxs
450	827	726	486	568	568	200	111	322	681	608	648	878	115	45	5	40	40	13x18
500	918	800	538	638	638	245	120	352	750	678	718	956	119	50	5	40	45	13x18
560	1030	892	603	714	714	280	125	390	844	764	814	1080	133	48	7	45	45	13x18
630	1157	998	679	800	800	328	110	434	945	850	900	1166	133	53	6	50	50	13x18
710	1302	1120	765	898	898	360	150	484	1057	948	998	1280	141	63	7	50	55	17x22
800	1468	1254	862	1006	1006	405	171	540	1180	1056	1106	1388	141	74	7	55	55	17x22
900	1648	1408	971	1130	1130	455	189	604	1319	1180	1230	1566	168	89	7	60	60	17x22
1000	1810	1540	1066	1266	1266	500	200	656	1450	1316	1366	1724	179	90	9	60	70	17x22

All Dimensions in mm.

FDA 'X'

FDA 560-1000 'X'

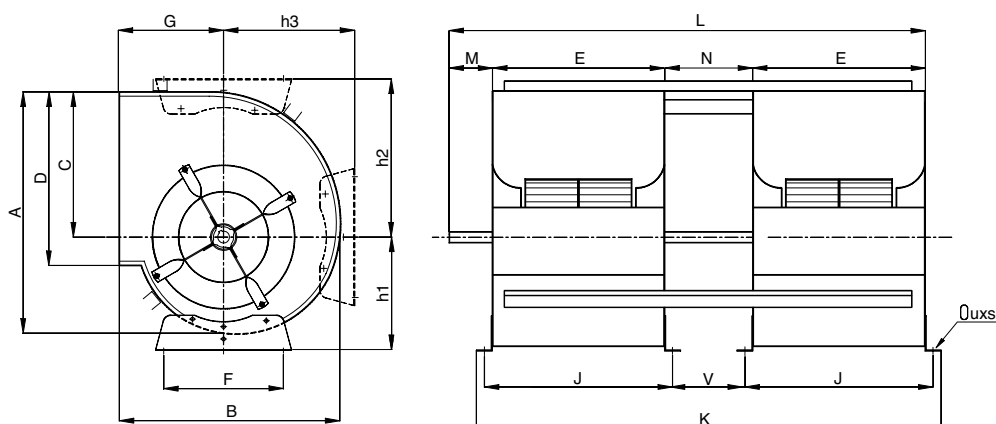


Model	A	B	C	D	E	F	F1	G	H	J	K	L	M	P	R	ød	uxs
560	1030	892	603	714	714	280	125	390	844	764	814	1138	162	48	7	55	13x18
630	1157	998	679	800	800	328	110	434	945	850	900	1286	193	53	6	60	13x18
710	1302	1120	765	898	898	360	150	484	1057	948	998	1390	196	63	7	65	17x22
800	1468	1254	862	1006	1006	405	171	540	1180	1056	1106	1498	196	74	7	65	17x22
900	1648	1408	971	1130	1130	455	189	604	1319	1180	1230	1660	215	89	7	70	17x22
1000	1810	1540	1066	1266	1266	500	200	656	1450	1316	1366	1845	239.5	90	9	80	17x22

All Dimensions in mm.

FDA 'S2'

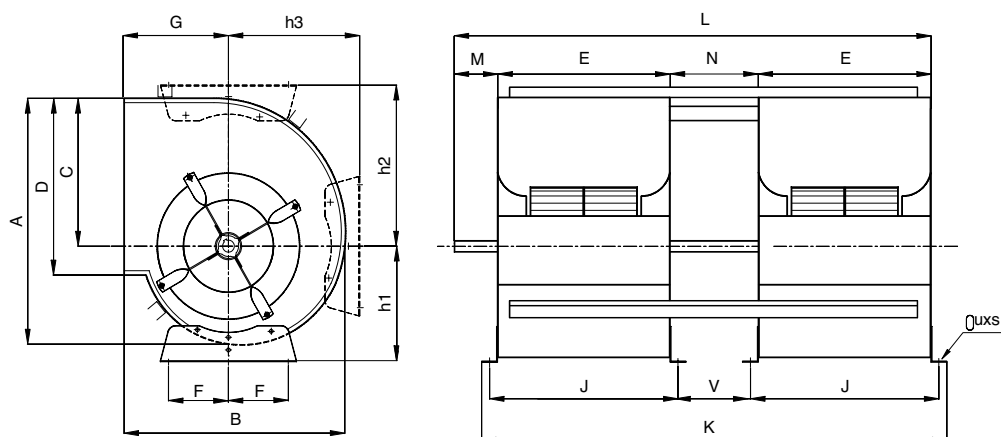
FDA 250-400 'S2'



Model	A	B	C	D	E	F	G	J	K	L	M	N	V	h1	h2	h3	ød	uxs
250	452	416	270	322	322	224	194	347	944	994	100	250	225	210	299	227	25	11x16
280	508	464	302	360	360	280	214	390	1060	1110	110	280	250	236	331	255	30	11x16
315	572	516	340	404	404	280	236	434	1183	1233	110	315	285	261	370	283	30	11x16
355	644	576	383	452	452	315	260	492	1339	1389	130	355	315	274	411	320	35	11x16
400	724	644	432	506	506	355	290	546	1492	1542	130	400	360	302	462	359	35	11x16

All Dimensions in mm.

FDA 450-500 'S2'

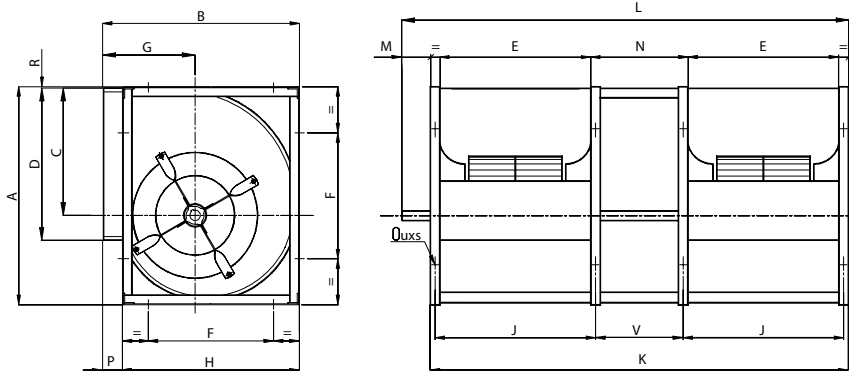


Model	A	B	C	D	E	F	G	J	K	L	M	N	V	h1	h2	h3	ød	uxs
450	816	722	486	568	568	200	322	608	1666	1726	140	450	410	336	518	407	40	13x18
500	906	794	538	638	638	225	352	678	1856	1916	140	500	460	375	568	448	40	13x18

All Dimensions in mm.

FDA 'C2'

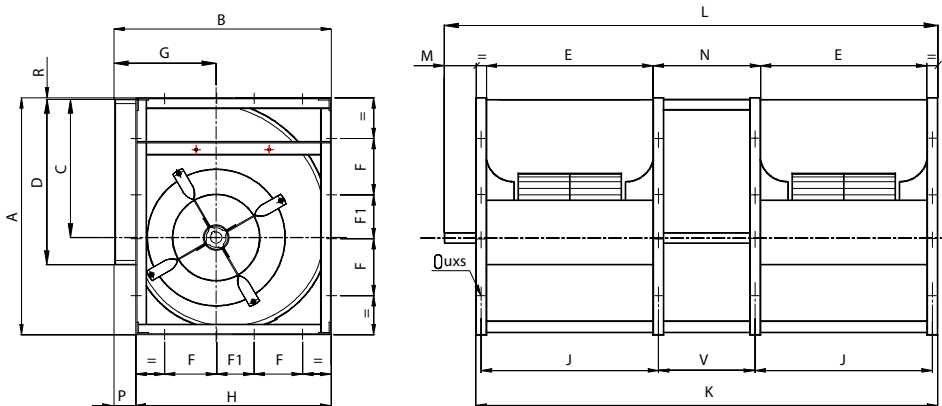
FDA 250-400 'C2'



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	V	ød	uxs
250	460	418	270	322	322	224	194	383	347	939	1019	75	250	35	4	220	25	11x16
280	518	466	302	360	360	280	214	432	390	1060	1140	80	280	34	5	250	30	13x18
315	578	518	340	404	404	330	236	480	434	1183	1263	80	315	38	3	285	30	13x18
355	654	578	383	452	452	368	260	548	492	1339	1429	90	355	30	6	315	35	13x18
400	736	650	432	506	506	402	290	612	546	1492	1582	90	400	38	5	360	35	13x18

All Dimensions in mm.

FDA 450-500 'C2'

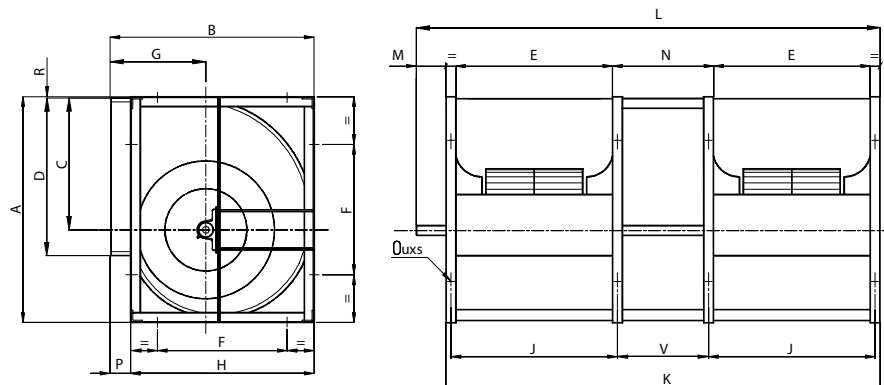


Model	A	B	C	D	E	F	F1	G	H	J	K	L	M	N	P	R	V	ød	uxs
560	827	726	486	568	568	200	111	322	681	608	1666	1766	100	450	45	5	410	40	13x18
630	918	800	538	638	638	245	120	352	750	678	1856	1956	100	500	50	5	460	40	13x18

All Dimensions in mm.

FDA 'T2'

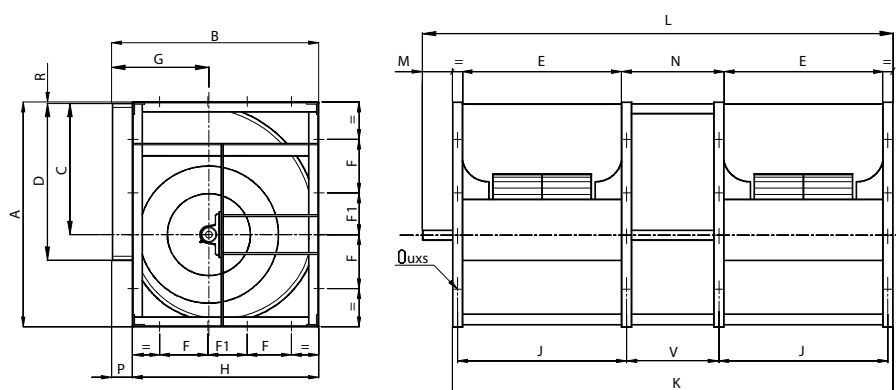
FDA 355-400 'T2'



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	V	ød	uxs
355	654	578	383	452	452	368	260	548	492	1339	1449	110	355	30	6	315	40	13x18
400	736	650	432	506	506	402	290	612	546	1492	1602	110	400	38	5	360	40	13x18

All Dimensions in mm.

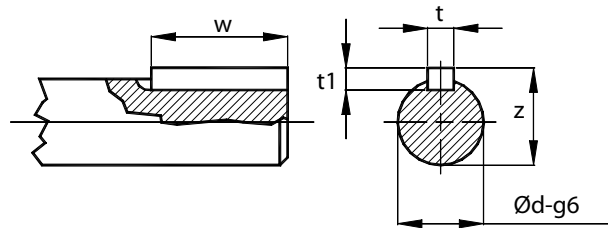
FDA 450-630 'T2'



Model	A	B	C	D	E	F	F1	G	H	J	K	L	M	N	P	R	V	ød	uxs
450	827	726	486	568	568	200	111	322	681	608	1666	1801	135	450	45	5	410	45	13x18
500	918	800	538	638	638	245	120	352	750	678	1856	1991	135	500	50	5	460	50	13x18
560	1030	892	603	714	714	280	125	390	844	764	2088	2228	140	560	48	7	510	50	13x18
630	1157	998	679	800	800	328	110	434	945	850	2330	2470	140	630	53	6	580	55	13x18

All Dimensions in mm.

Shaft



Ød	t	t1	w	z
20	6	6	30	22.5
25	8	7	40	28
30	8	7	40	33
35	10	8	50	38
40	12	8	70	43
45	14	9	70	48.5
50	14	9	90	53.5
55	16	10	90	59
60	18	11	90	64
70	20	12	110	74.5
75	20	12	110	79.9
80	22	14	110	85
85	22	14	110	90
90	25	14	140	95

All Dimensions in mm.

Operational Limits - "FDA"

			160	180	200	225	250	280	315	355	400	450	500	560	630	710	800	900	1000	
Maximum Absorbed Power	S-C	kW	2	2	2.5	3	3	4	5.5	5.5	7.5	7.5	11	11	15	18.5				
	T	kW					7.5	11	11	15	15	18.5	18.5	22	22	25	25	30	37	
	X	kW												37	37	45	45	75	75	
	S2-C2	kW					6	8	8	11	11	13	13							
	T2	kW									20	20	22	24	28	28				
Maximum Fan Speed	S-C	rpm	4200	3700	3300	2900	2700	2400	2100	1800	1600	1400	1200	1100	900	800				
	T	rpm					3000	2700	2200	2000	1800	1600	1300	1200	1000	900	750	650	600	
	X	rpm												1300	1100	1000	800	700	650	
	S2-C2	rpm					2200	2000	1600	1500	1200	1000	900							
	T2	rpm									1700	1400	1200	1000	900	750				
Temperature Range Min. -20oC	S-C	Max.°C	85	85	85	85	85	85	85	85	85	85	85	85	85	85				
	T-X	Max.°C					100	100	100	100	100	100	100	100	100	100	100	100	100	100
	S2-C2	Max.°C					85	85	85	85	85	85	85							
	T2	Max.°C									100	100	100	100	100	100				
Wheel	Diameter	mm	160	180	200	225	250	280	315	355	400	450	500	560	630	710	800	900	1000	
	Weight	kg	1.4	1.6	1.7	1.9	2.8	3.6	4.8	5.7	9.7	11.7	18.5	24.5	33	41.5	65	76	92	
	J = PD ² /4	kgm ²	0.01	0.011	0.014	0.02	0.04	0.06	0.1	0.15	0.33	0.5	0.95	1.6	2.7	4.4	8.7	13.1	19.4	
Fan weight	S	kg	7	8	9	10.6	12	17	22	28	37	48	69	81	101	118				
	C	kg		9.5	10.5	12	15	20	24	32	41	51	74	93	104	127				
	T	kg					21	27	30	45	55	61	81	110	140	192	240	293	340	
	X	kg												138	175	227	281	326	384	
	S2	kg					25	35	45	59	77	100	142							
	C2	kg					32	43	52	69	88	108	155							
	T2	kg									116	145	166	207	273	334				