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# FSA

SINGLE INLET  
CENTRIFUGAL FAN  
with Forward Wheels





# FSA Series

## SINGLE INLET CENTRIFUGAL FAN with Forward Wheels



Kruger Ventilation Industries Asia Co.,Ltd certifies that the **FSA series : version S, C, T and U - 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.

The AMCA Certified Ratings Seal applies to air performance and sound for **models FSA 200 to 1000** only. The AMCA Certified Ratings Seal applies to FEG for **models FSA 225 to 1000** only.



## FSA Series

### Single Inlet Forward Curved Centrifugal Fans

The FSA series is SISW centrifugal fans with forward curved impellers. The fans are suitable for supply or exhaust applications in commercial, process and industrial HVAC systems. Sizes of this series are in accordance with AMCA standard 99-0098-76 R20.

#### Type

The FSA series is available in type S, C, T or U as shown in Fig. 1:-

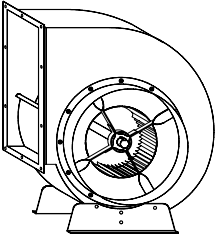
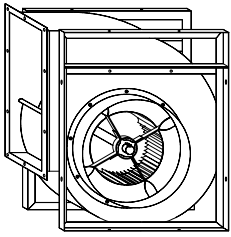
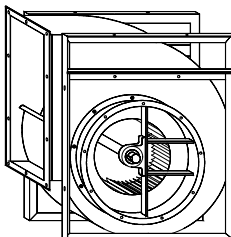
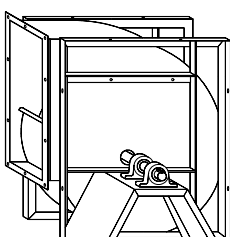
Type S	Type C	Type T	Type U
 <p>This type is supplied with mounting feet and can be mounted in three different fan orientations. Inlet flange 'L' and outlet flange are supplied as standard</p> <p>Size: 200 to 450 Vol.: 800 to 8000 m<sup>3</sup>/h Total Press.: up to 1600 Pa.</p>	 <p>This type has a frame fitted on both sides of the fan which gives better strength and rigidity and allows mounting in four different orientation.</p> <p>Size: 200 to 630 Vol.: 800 to 18000 m<sup>3</sup>/h Total Press.: up to 1600 Pa</p>	 <p>This type has a welded frame, giving increased stiffness and rigidity required for higher operating performance.</p> <p>Size: 315 to 1400 Vol. : 3000 to 80000 m<sup>3</sup>/h Total Press. : up to 2000 Pa</p> <p>Performance of 1120, 1250 &amp; 1400 are not AMCA licensed.</p>	 <p>This type is manufactured with a special frame with two bearing fixed externally to the airflow eliminating any obstruction to the inlet and allow operation with air temperature up to max. of 180°C.</p> <p>Size: 315 to 1400 Vol.: 3000 to 80000 m<sup>3</sup>/h Total Press.: up to 2000 Pa</p> <p>Performance of 1120, 1250 &amp; 1400 are not AMCA licensed.</p>

Fig.1

### Technical Specifications

#### Wheel

The wheel of FSA series is made of galvanised sheet steel forward curved blades.

#### Housing

For all sizes except 1250 and above, the housing is manufactured in galvanized sheet steel with the housing fixed to the side plates in "pittsburg lock" form system.

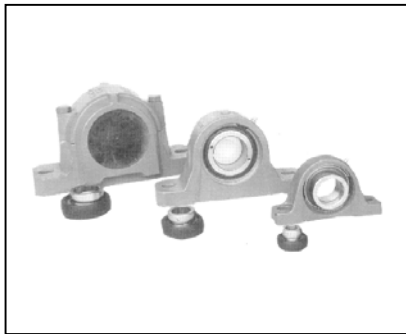
Housings for 1250 and 1400 are manufactured in mild steel finished with polyester powder coating.





### Frame

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



### 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.

For type "S" and "C", they are mounted in a rubber housing, whereas for type "T" and "U", they are mounted on cast iron supports with grease points.

Except TX, XX, UX extra heavy duty bearings, all 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.

### Shaft

Shaft 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. All shafts are then coated with an anti-corrosion varnish after assembly.



### Balancing Quality

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

All fans after assembly are trim-balanced to ISO1940 or AMCA 204 - G2.5 standard.

Clean room application fans with balancing grade of G1.0 are available upon request.

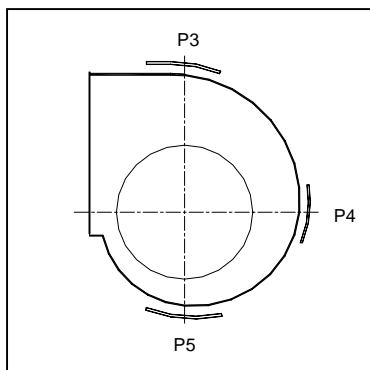
### Accessories

#### Casing Drain

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

#### Inspection Doors

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



#### Outlet Flanges

Outlet flanges are available upon request. For more details, refer to page 32.

#### Inlet Flanges

This option are set against the fan to facilitate installation. It is available in 2 types -"L" flange or "U" flange. For more details, refer to page 32.

### 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. 2] :-

CW - clockwise rotation  
 CCW - counter-clockwise rotation

	90°	180°	270°	360°
CW				
CCW				

Fig. 2 - Fan rotation and discharge

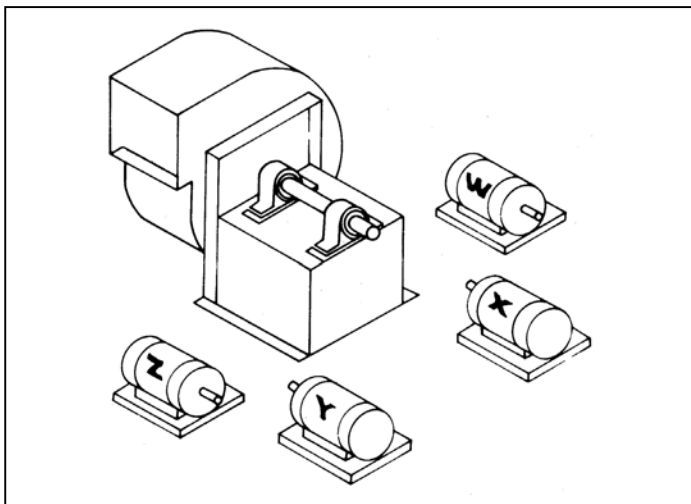


Fig. 3 - Motor Position

### 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.3]

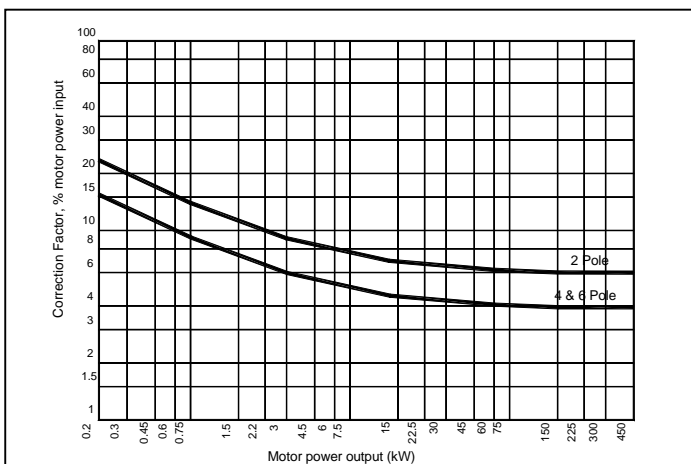


Fig. 4 – Recommended for compensation

### Motor Selection

The power curves shown on each performance graph 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 factors as shown in fig.4 should be applied to compensate for transmission losses:

For conversion to horsepower (HP), use multiplying factor 1.34.

## Dynamic Pressure

Both dynamic pressure and outlet air velocity shown on each curve are calculated base on the full air discharge area - 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 calculated with this correction factors are not licensed by AMCA.

$$[ K = 2.6 ]$$

## Performance

The performance data shown on each graph is derived from tests conducted in accordance to AMCA standard 210 Fig 12 – installation type B (free inlet and ducted outlet condition).

Ratings refer 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 graph refer to the "A-weighted" sound power values 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):  
Lw (A) as catalogue
- Octave band spectrum:  
Lw = Lw(A) + Lw rel. dB [refer to Kruger for more details]
- Sound pressure level:
  - a) free field  
 $Lp(A) = Lw(A) - (20\log_{10}d) - 11$
  - b) room conditions  
 $Lp(A) = Lw(A) - (20\log_{10}d) - 8$

where d = distance from fan (m)

**Performance**

The performance data shown on each diagram is derived from tests conducted in accordance to AMCA Standard 210- Fig 12- Installation type B (free inlet and duct outlet condition).

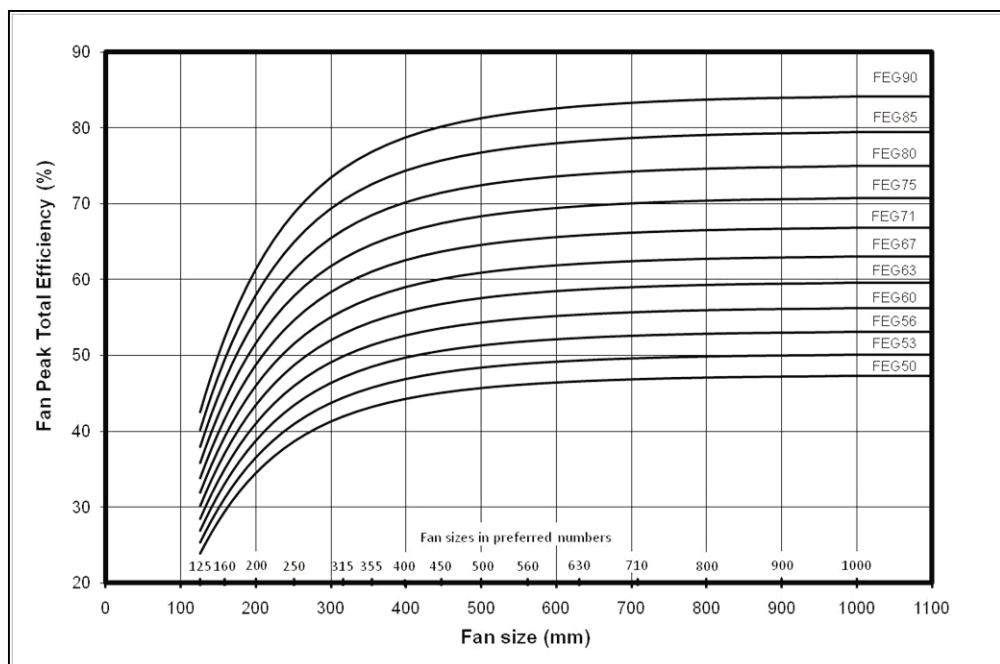
Ratings refer to standard air density with the total pressure as a function of the air volume, using logarithmic scale.

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

According to AMCA 205, FSA series can be classify as FEG 53~67 based on fan peak efficiency. The following is the explanation of FEG classification:

1. Fan size is the impeller diameter in mm.
2. The fan peak efficiency shall be calculated from the fan (total) pressure.
3. If this method is used for a direct driven fan, the fan efficiency is the impeller efficiency.
4. The FEG label for a given fan size is assigned when the fan peak efficiency is equal or lower than the efficiency at the grade upper limit and higher than efficiency at the grade upper limit of the next lower grade for the fan size.
5. For any fan sizes larger than 1016 mm, the values of the grade upper limits are the same as for a size of 1016 mm.
6. No labels are considered for the fans with the fan peak total efficiency below FEG 50.
7. The values of efficiencies are calculated for fan sizes in the preferred R40 Series.
8. Not all fan sizes in preferred numbers shown.

**Fan Efficiency Grades (FEG) for Fans without Drives (SI) – AMCA 205**



# Example of Reading

Air Volume  $Q = 8100 \text{ m}^3/\text{h}$

Outlet Velocity  $V = 10.95 \text{ m/s}$

Dynamic Pressure  $P_d = 71 \text{ Pa}$

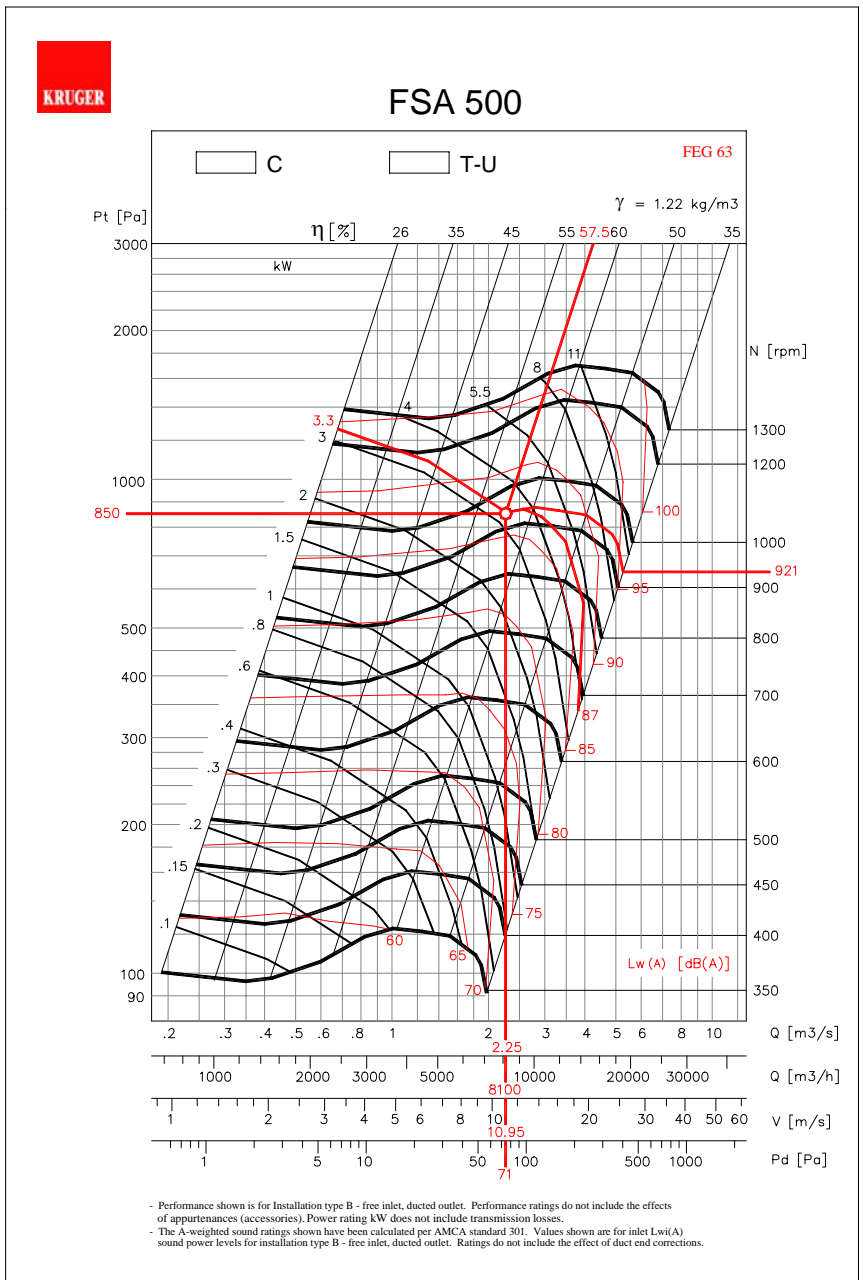
Total Pressure  $P_t = 850 \text{ Pa}$

Fan Speed  $N = 921 \text{ rpm}$

Absorbed Power  $W = 3.3 \text{ kW}$

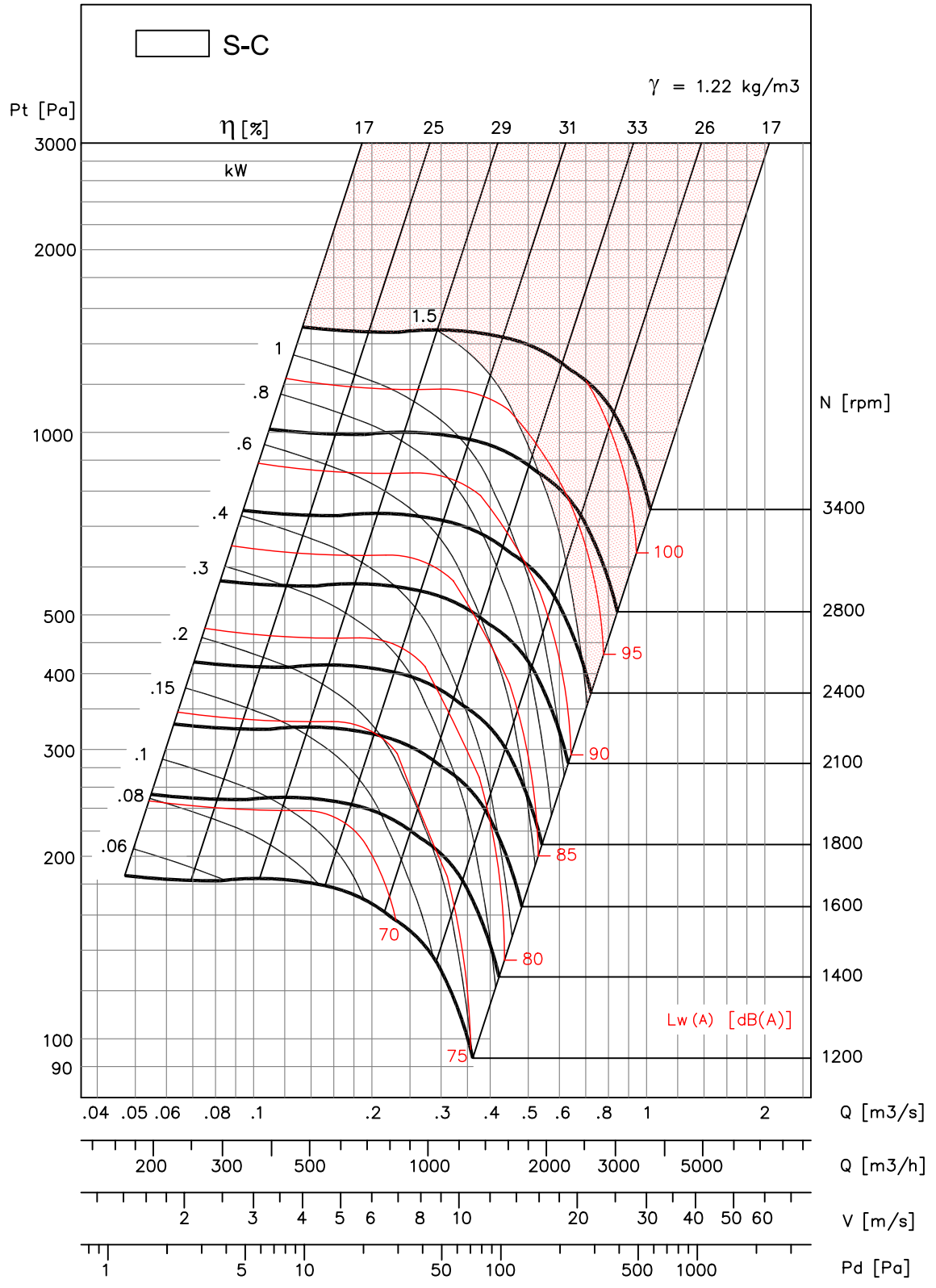
Total Efficiency  $\eta = 57.5 \%$

Sound Power Level  $L_w(A) = 87 \text{ dB(A)}$





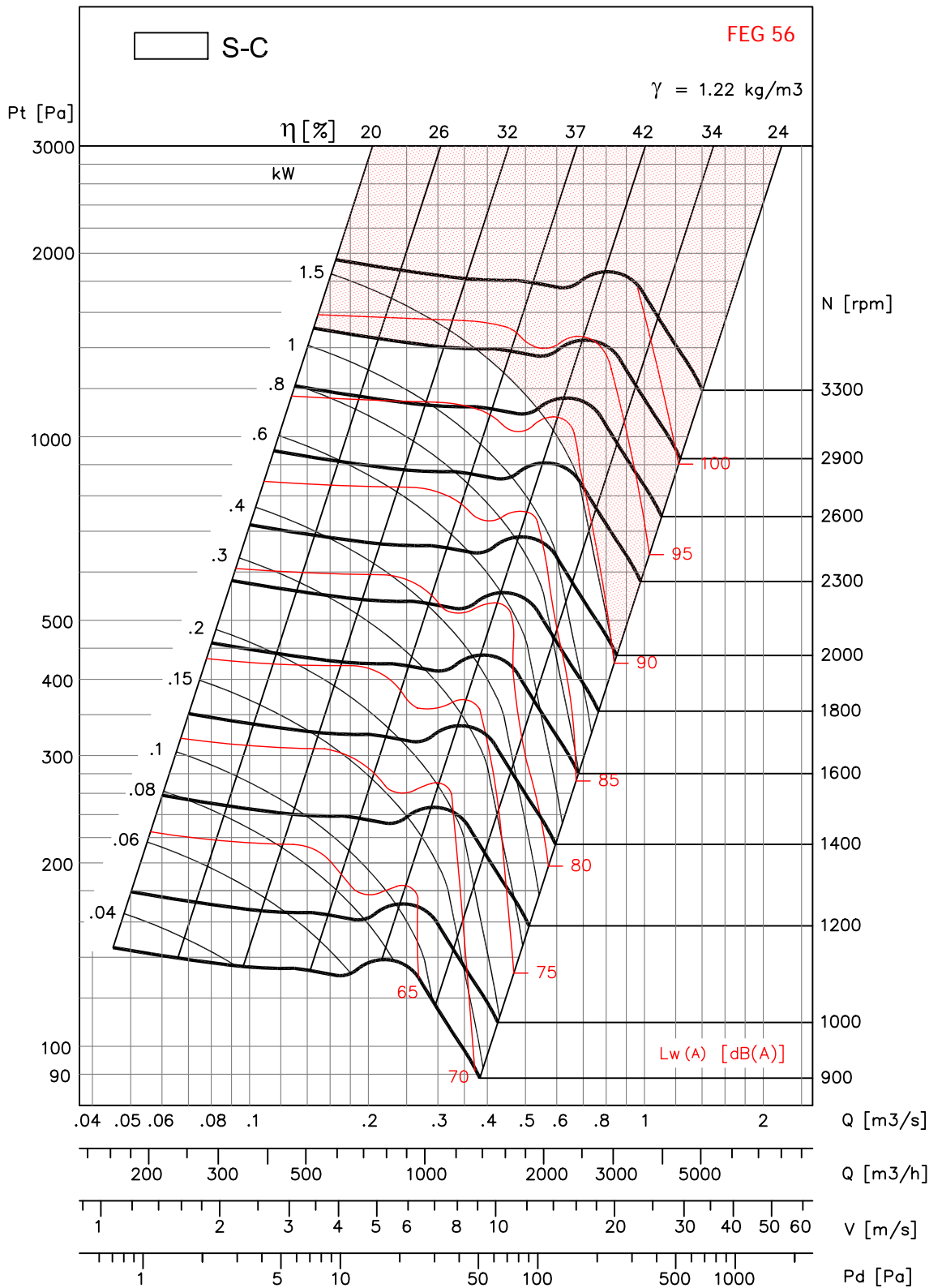
# FSA 200



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission 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.



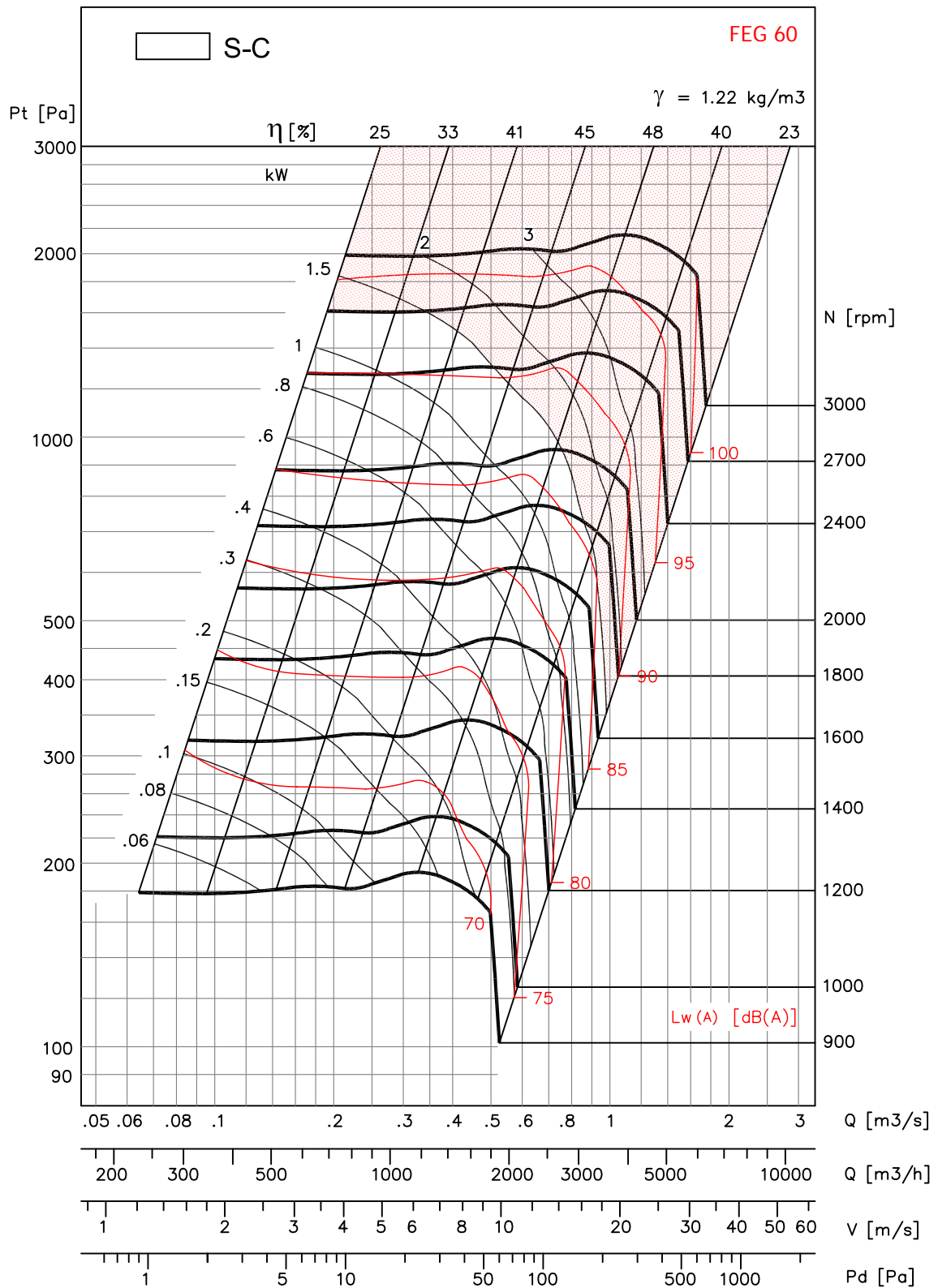
# FSA 225



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission 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.



# FSA 250

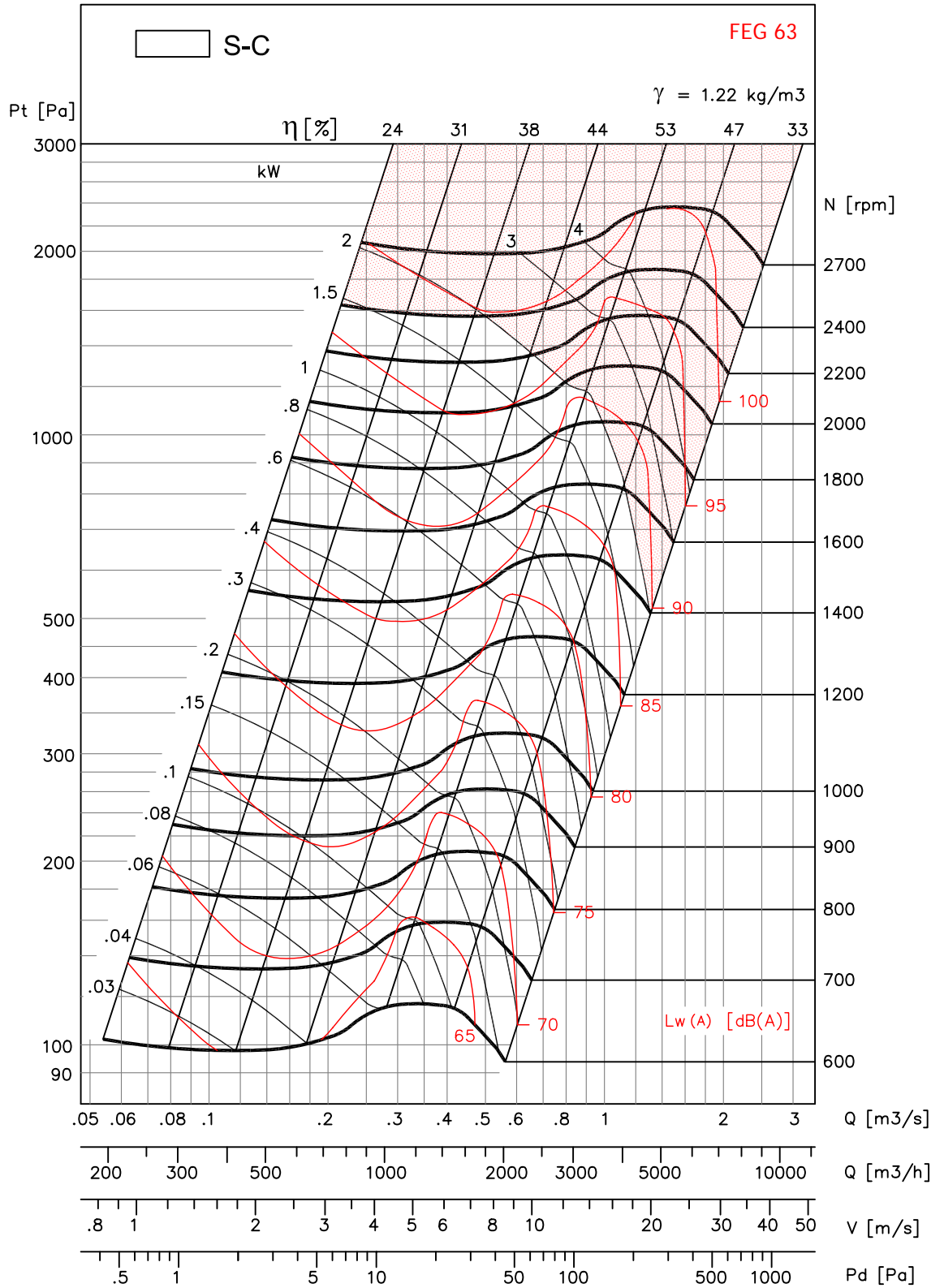


- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission losses.
- The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown 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.





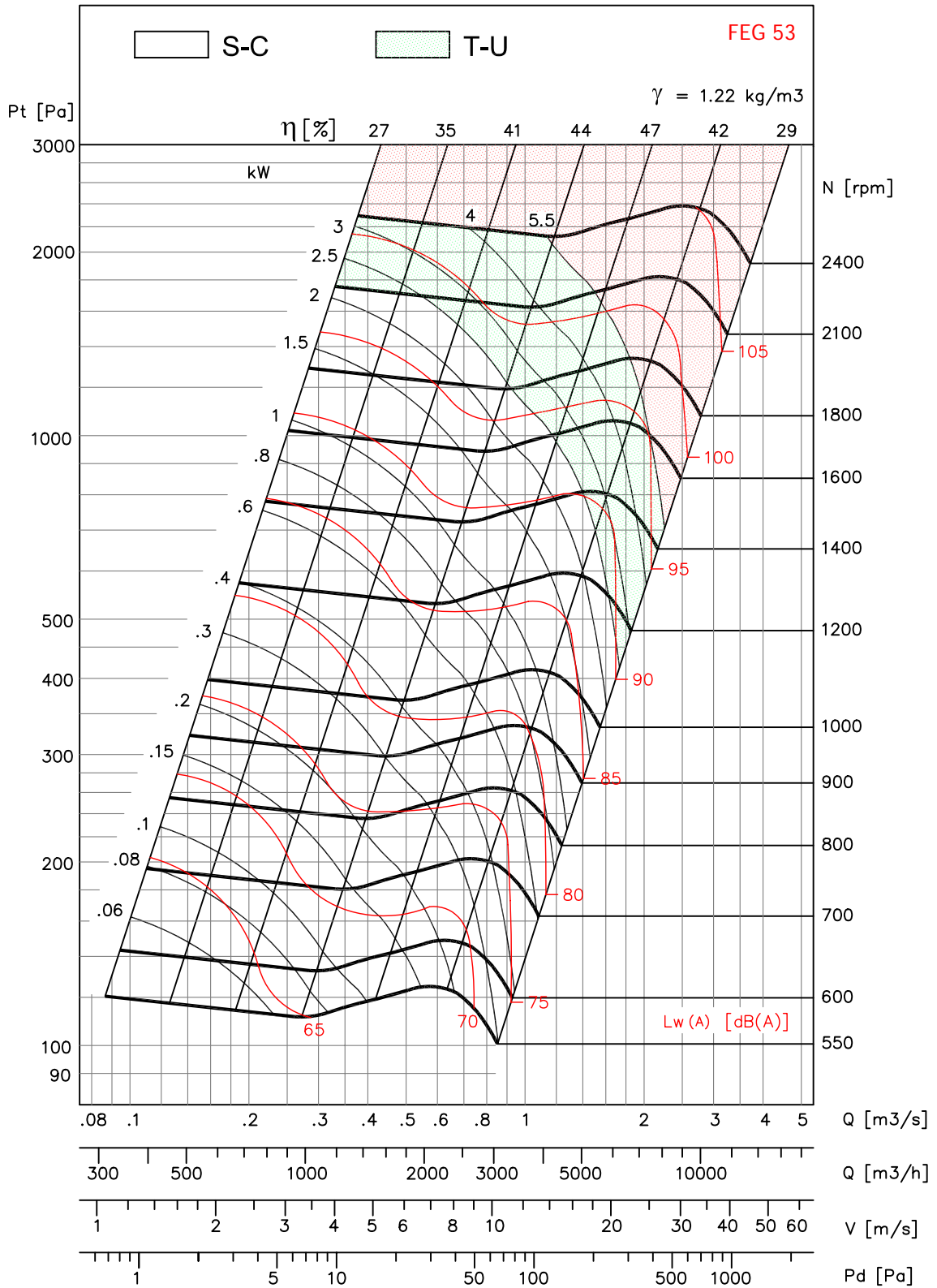
# FSA 280



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission 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.



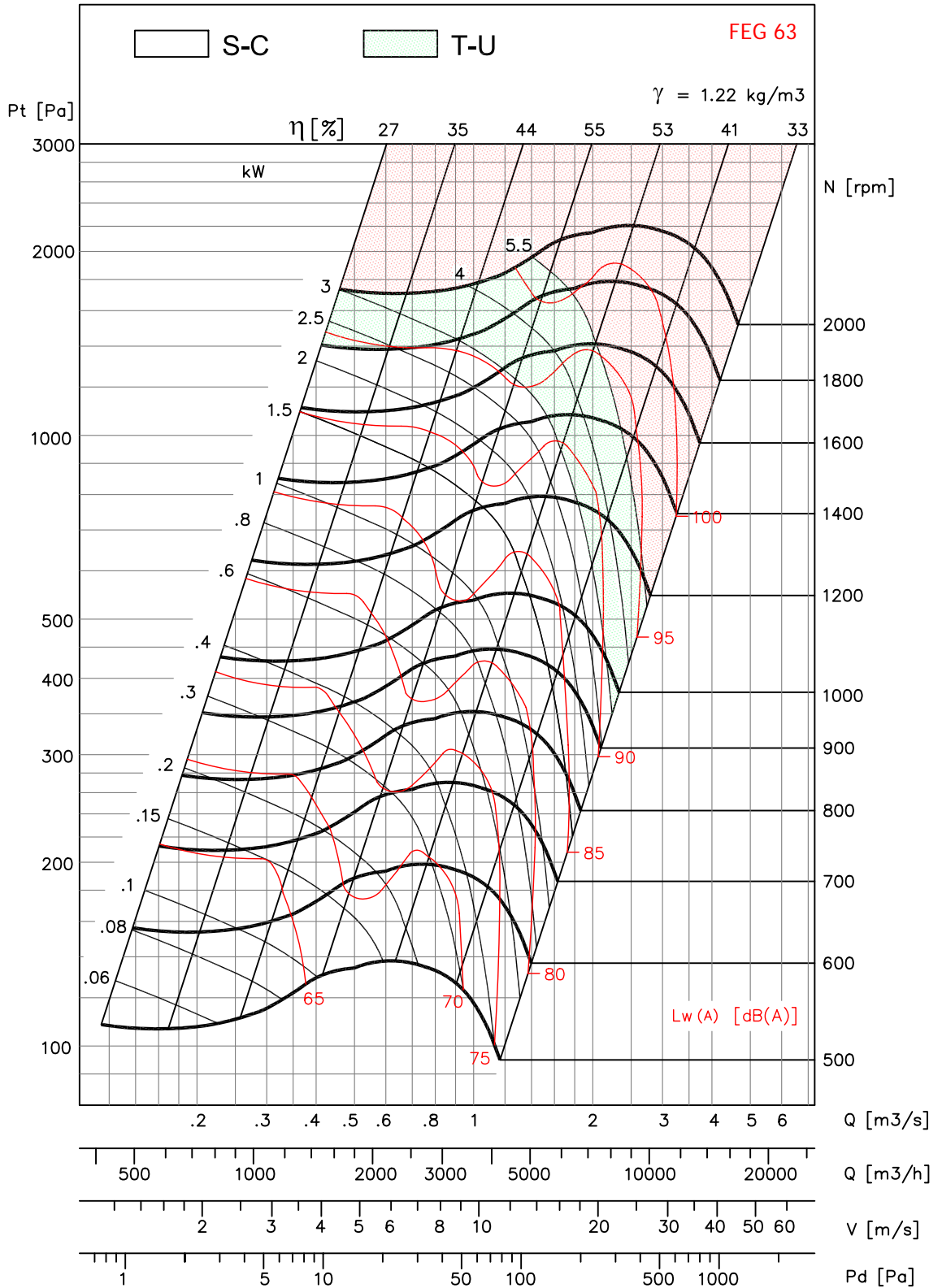
# FSA 315



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



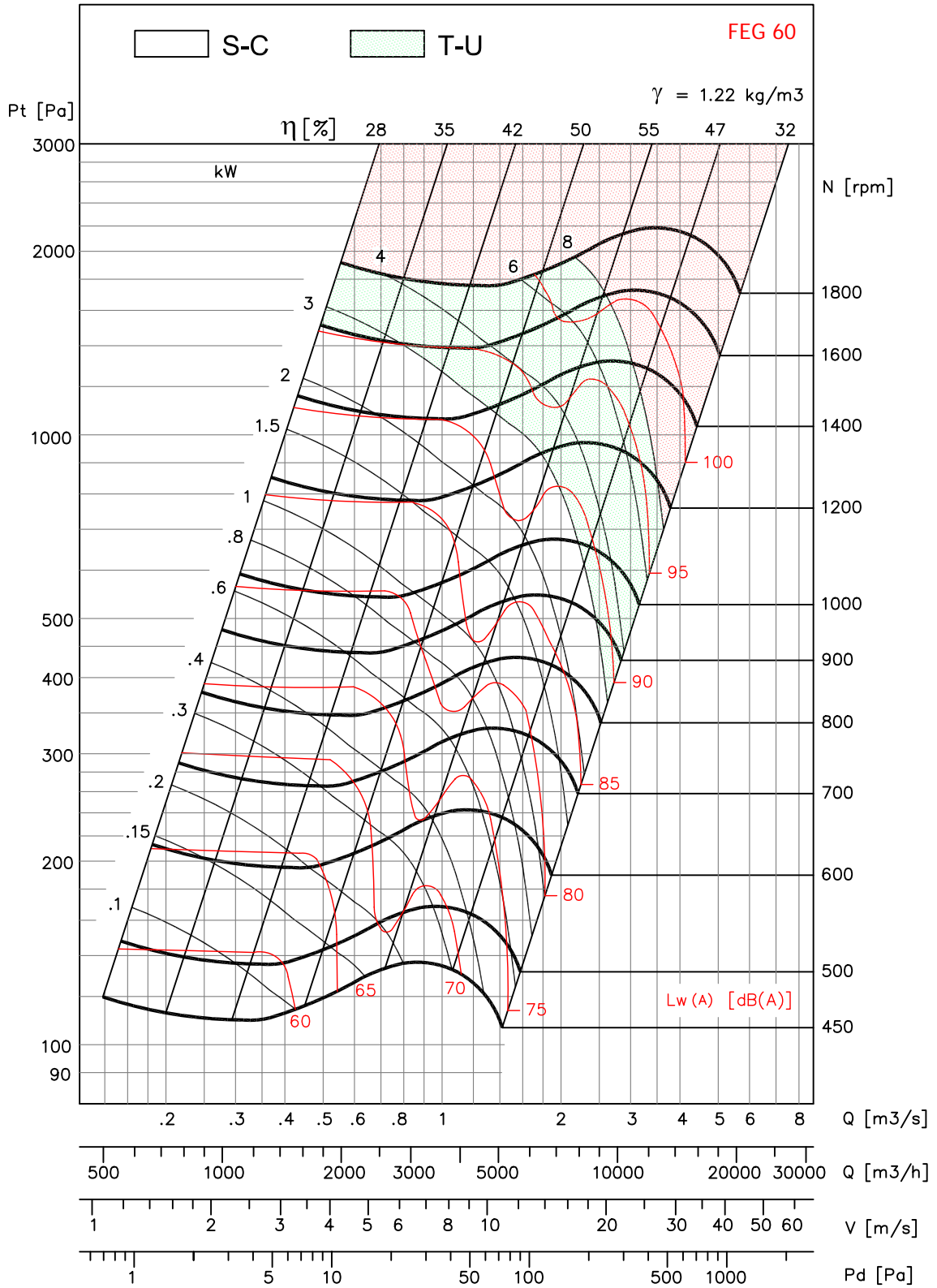
# FSA 355



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission 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.



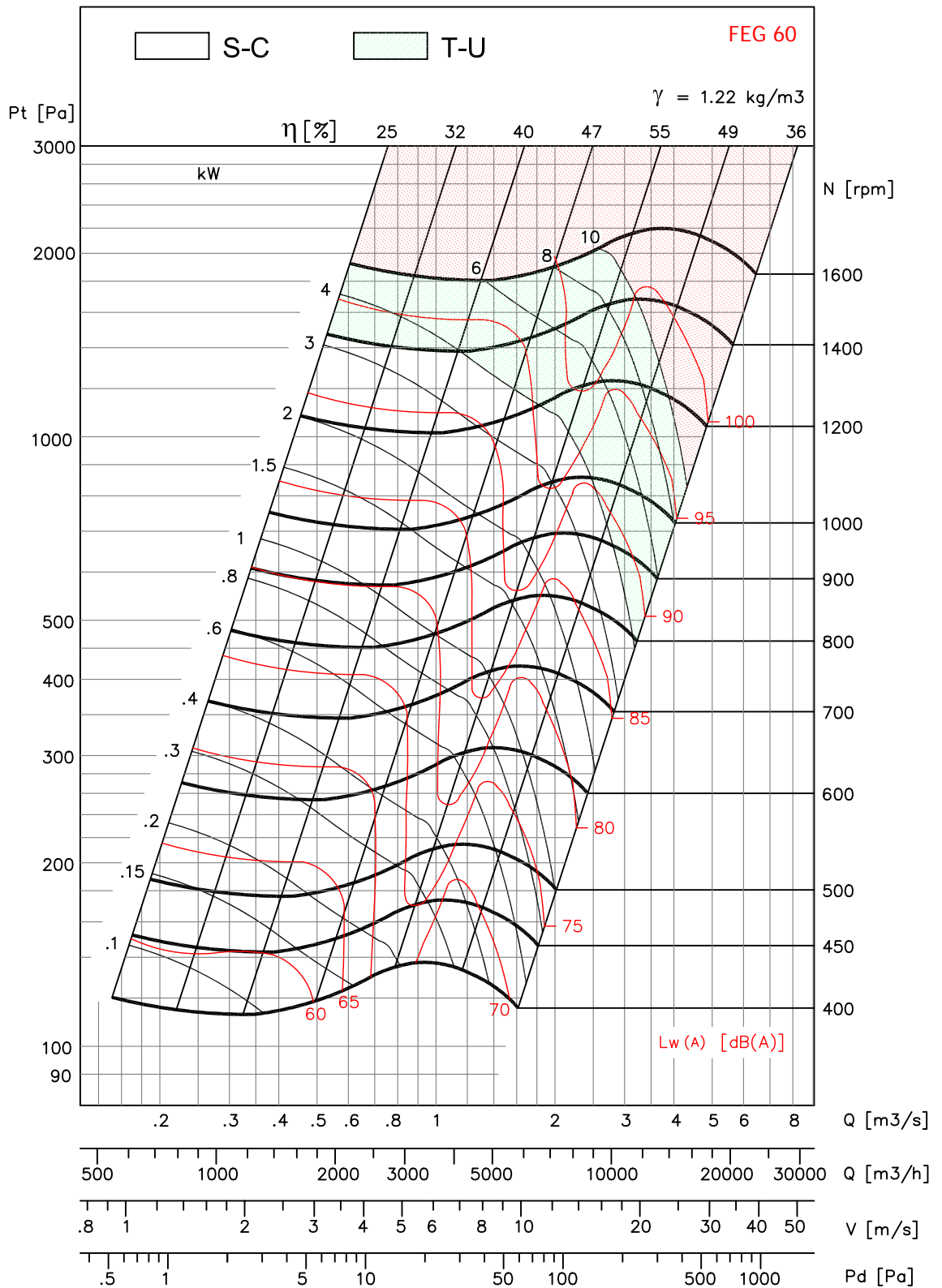
# FSA 400



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission 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.



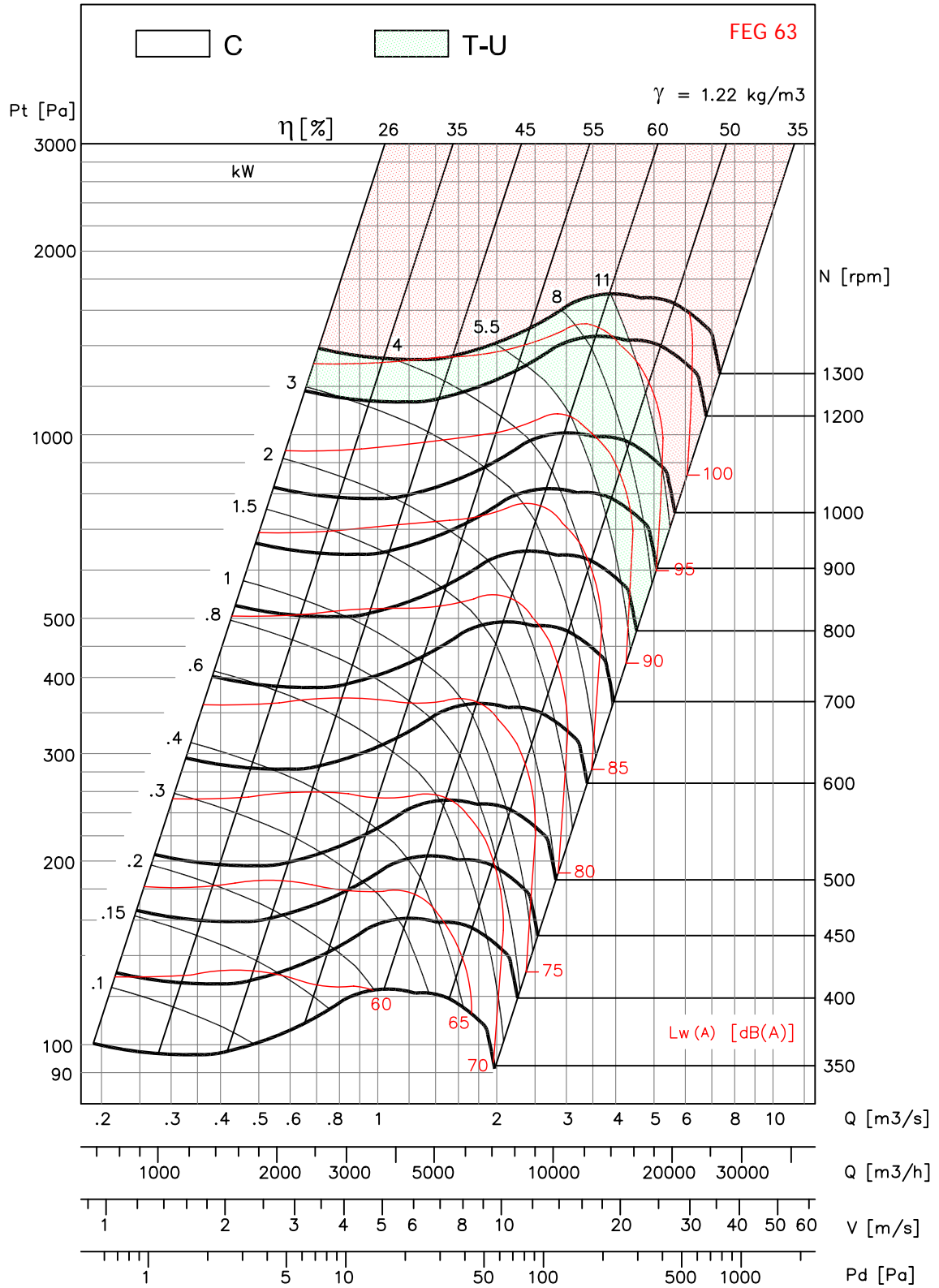
# FSA 450



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission 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.



# FSA 500

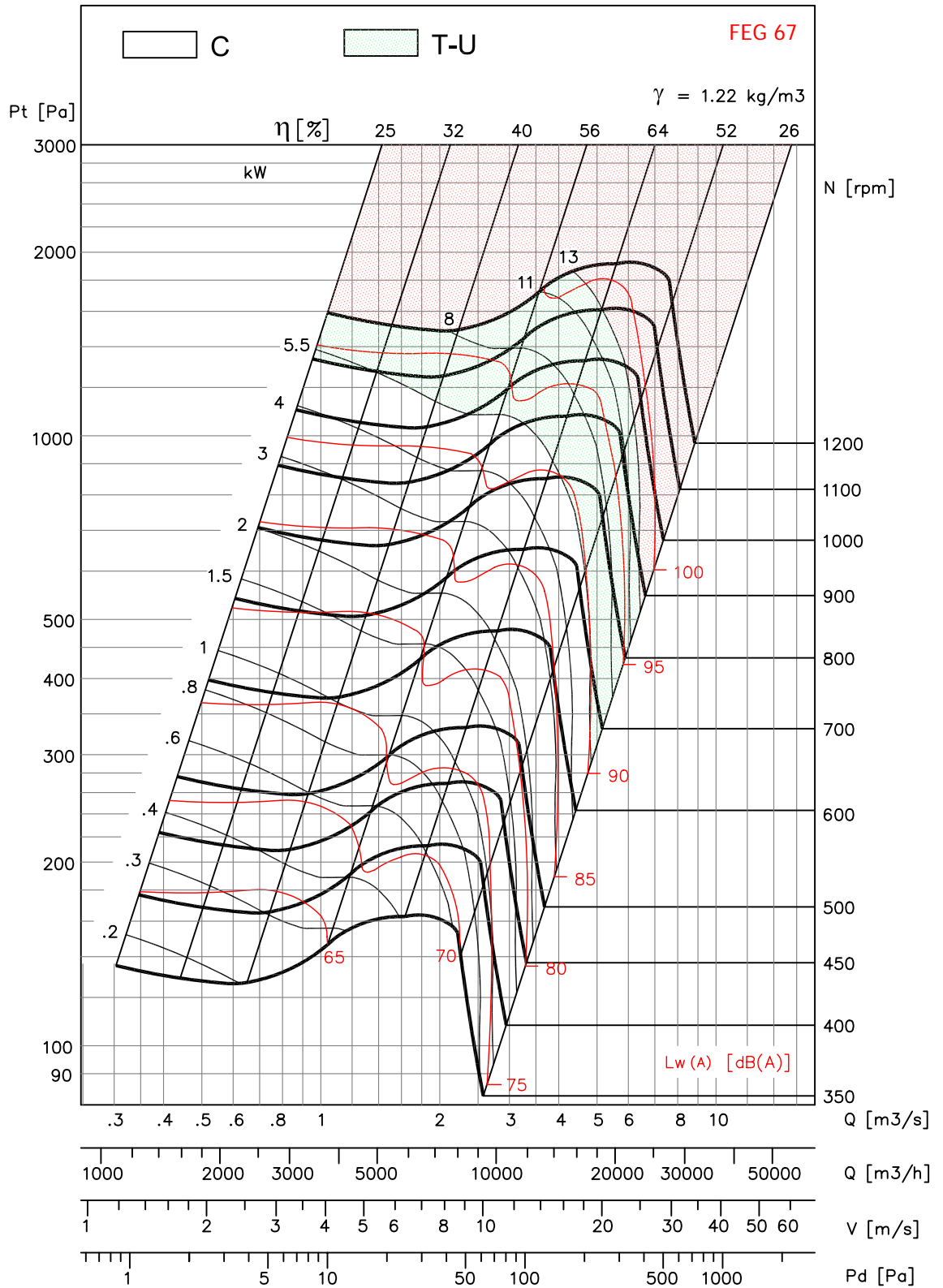


- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission losses.
- The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown 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.





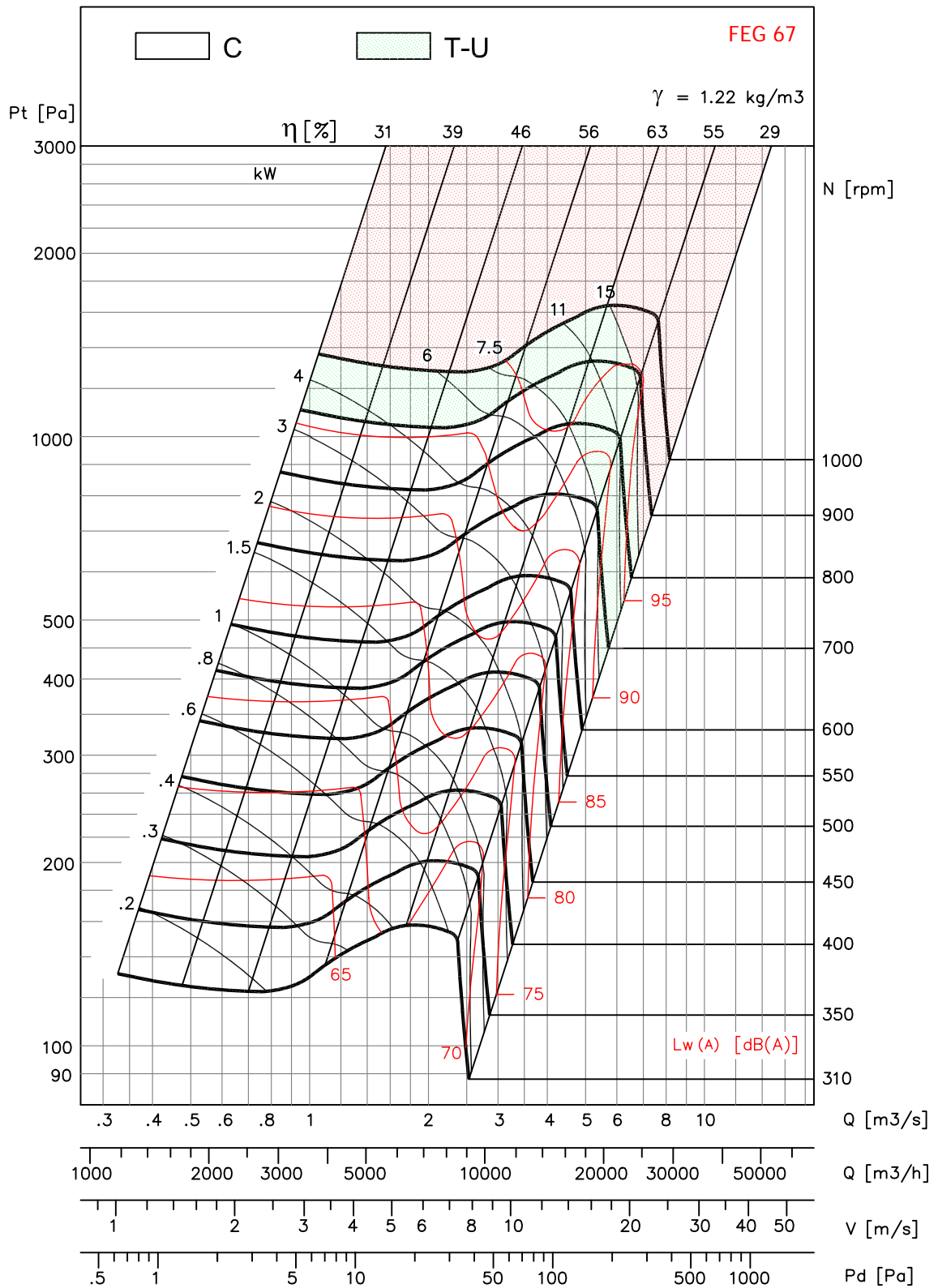
# FSA 560



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission 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.



# FSA 630

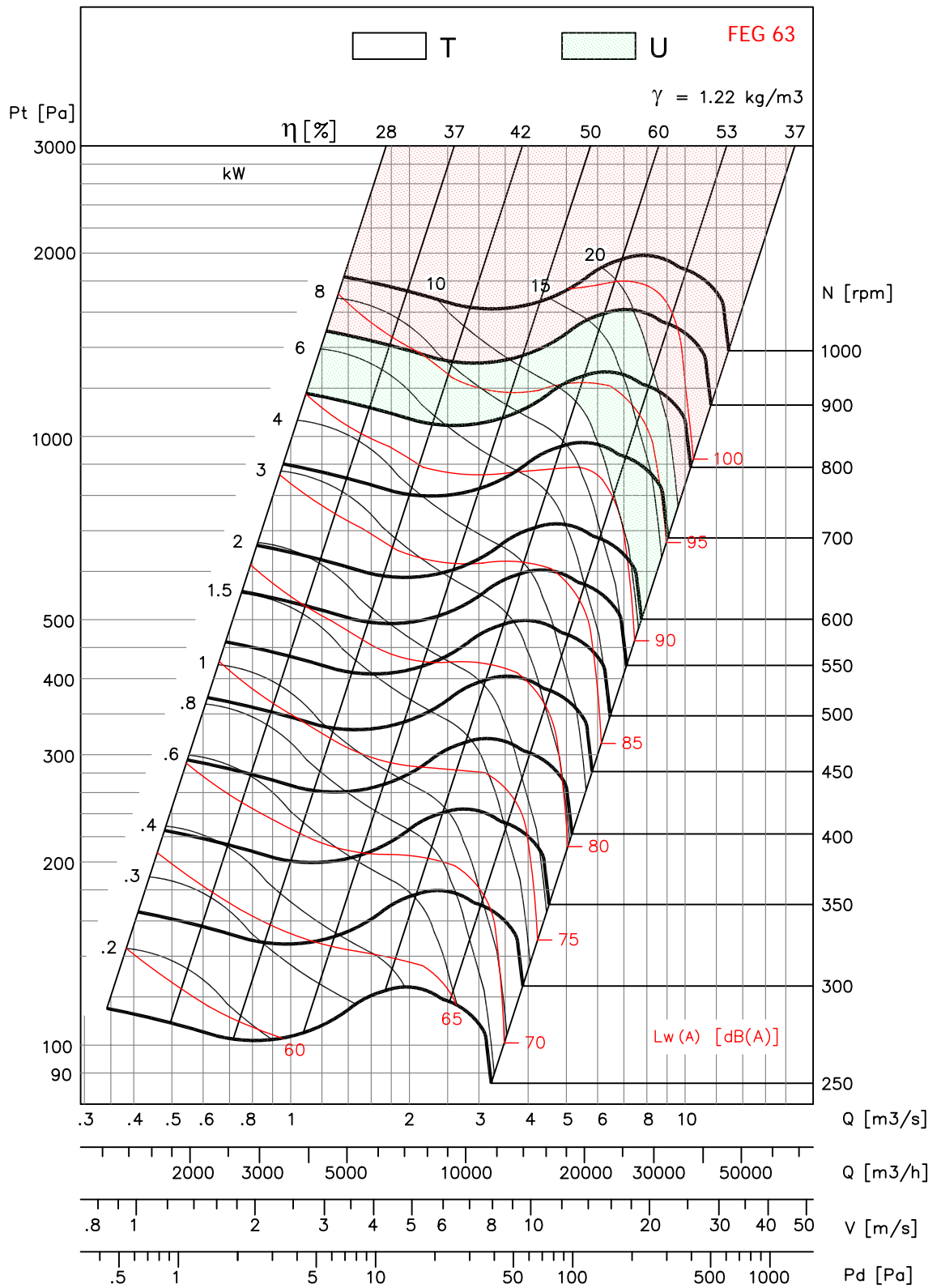


- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission losses.
- The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown 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.





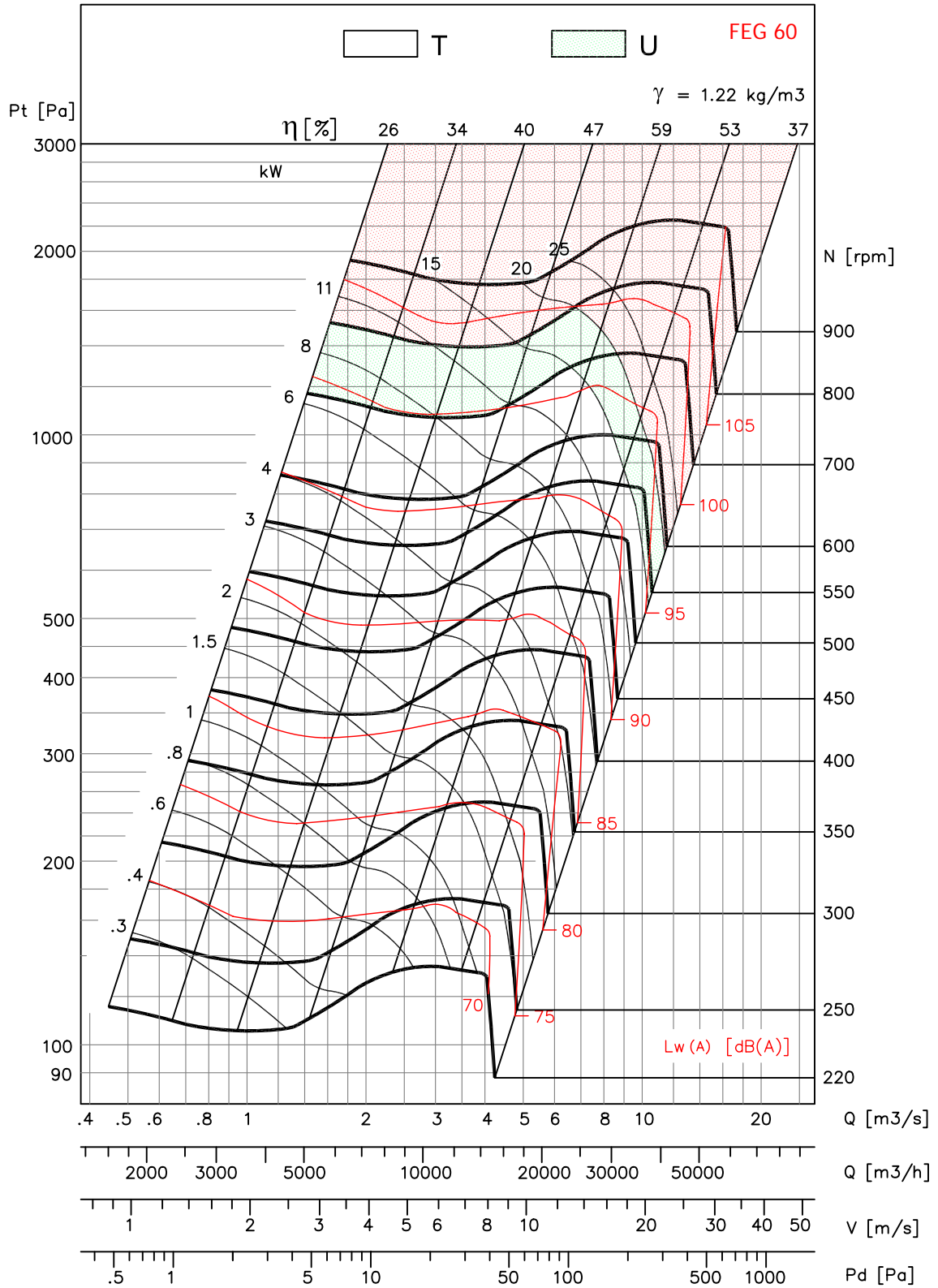
# FSA 710



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission 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.



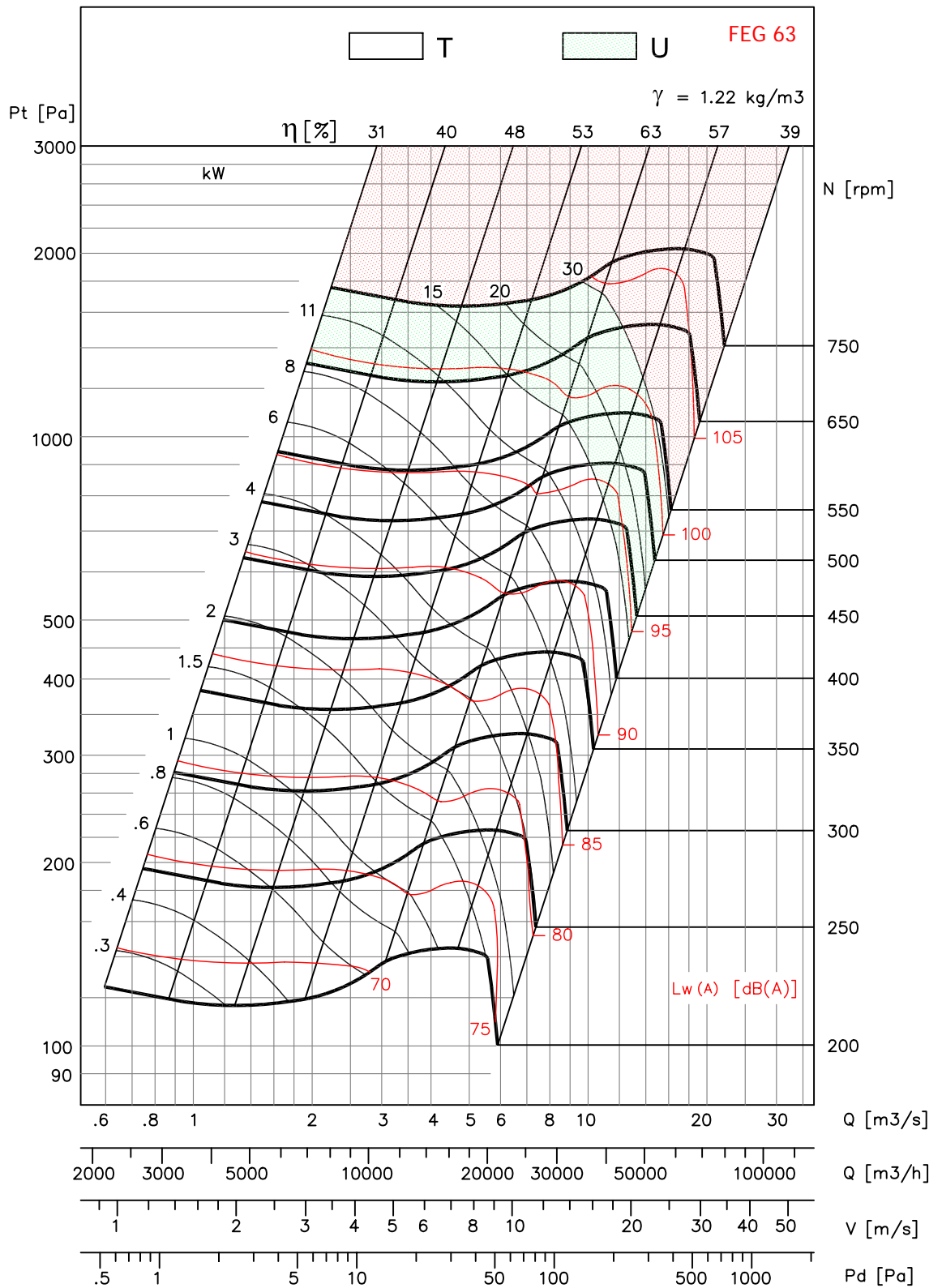
# FSA 800



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission 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.



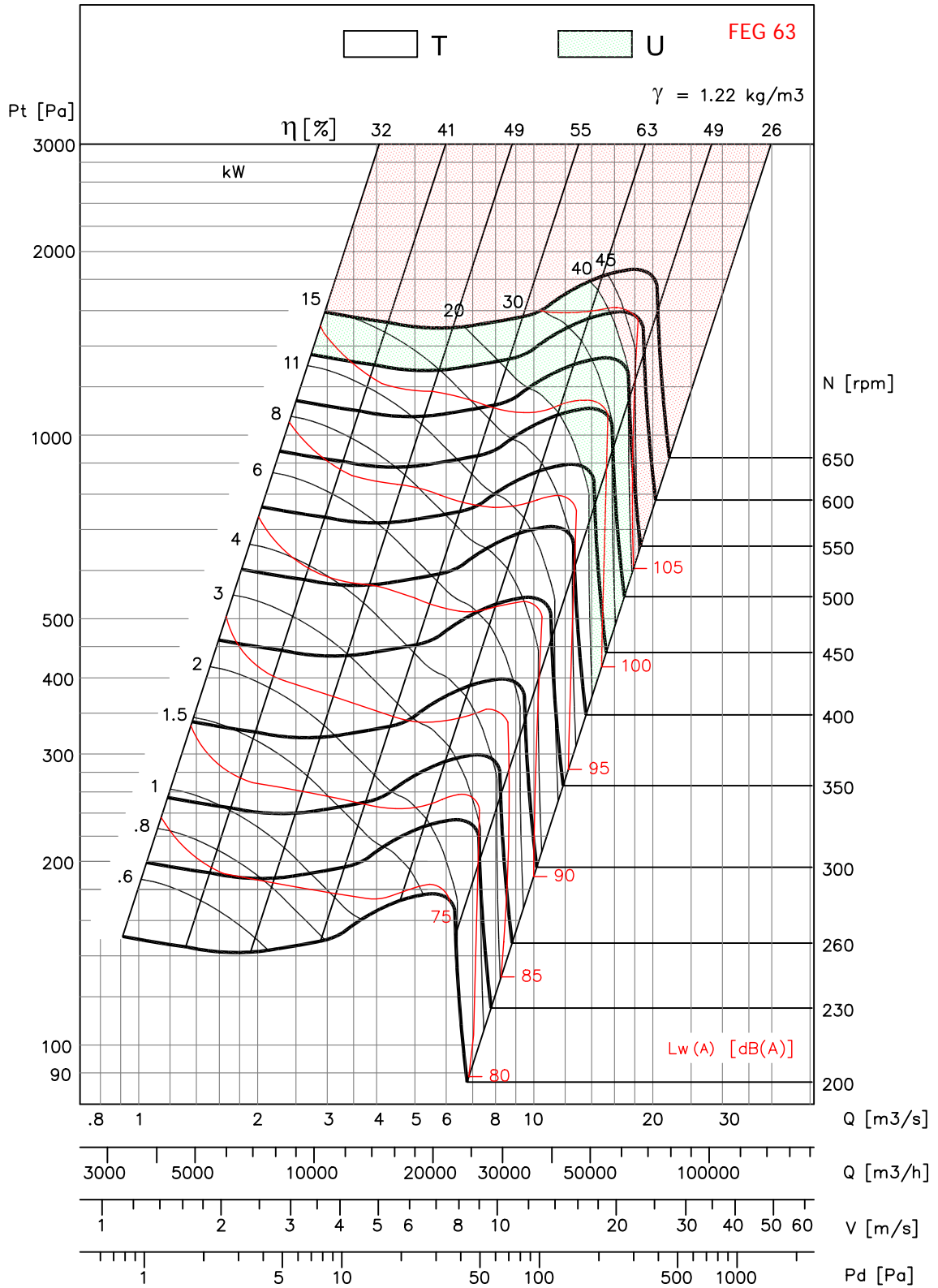
# FSA 900



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission 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.



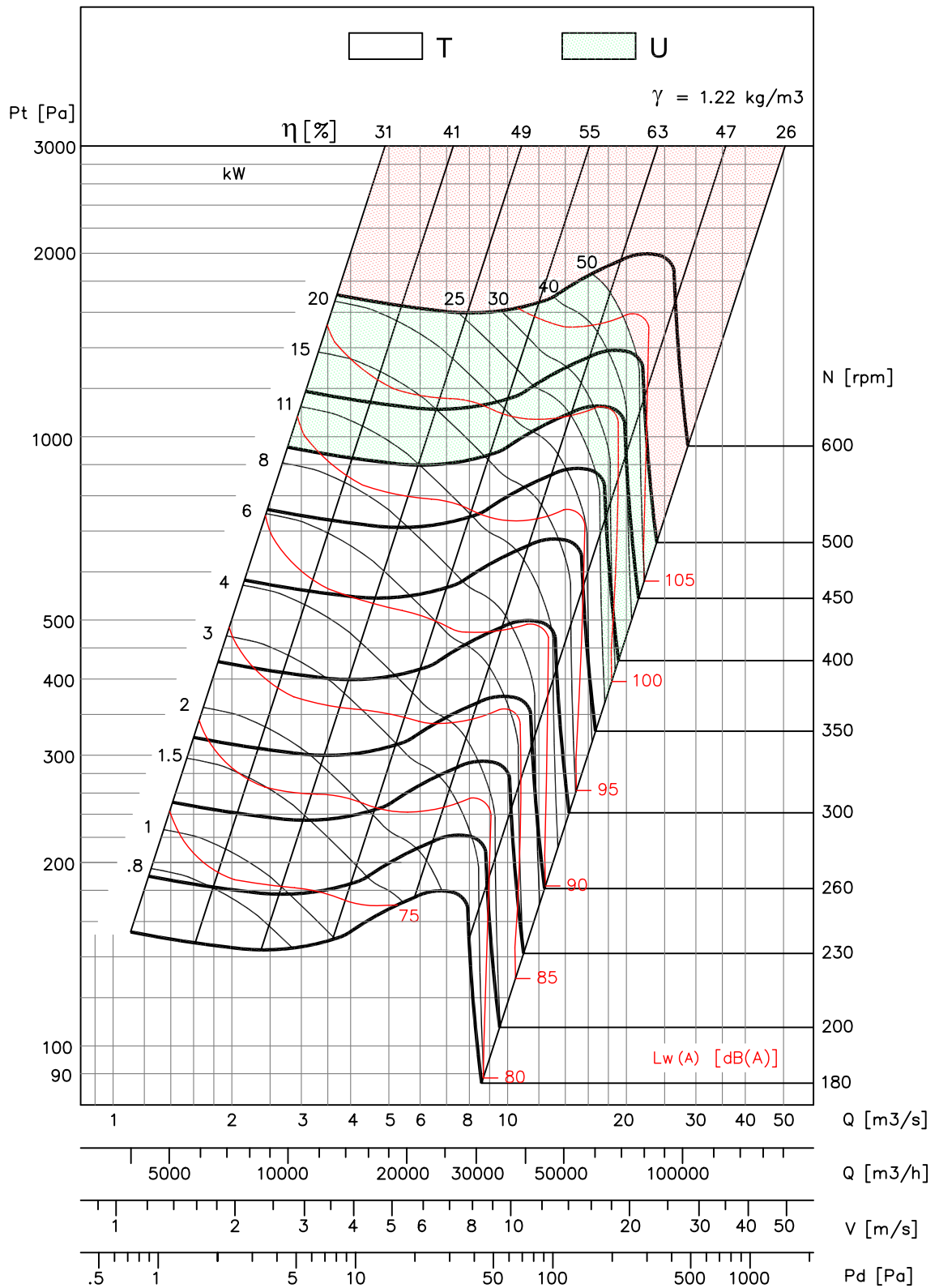
# FSA 1000



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission 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.



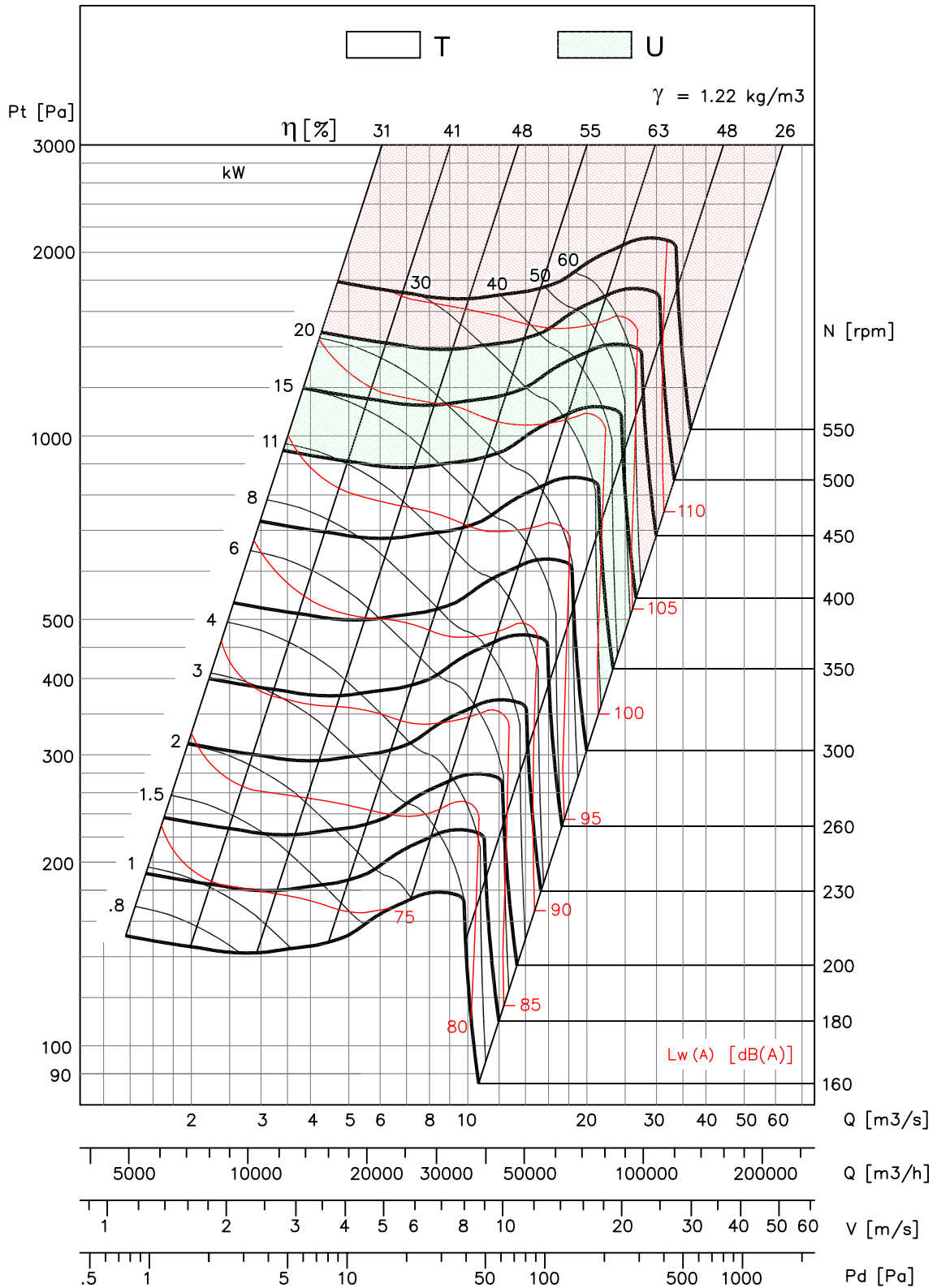
# FSA 1120



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission 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 FSA1120 IS NOT LICENSED TO BEAR THE AMCA CERTIFIED RATINGS SEAL.



# FSA 1250

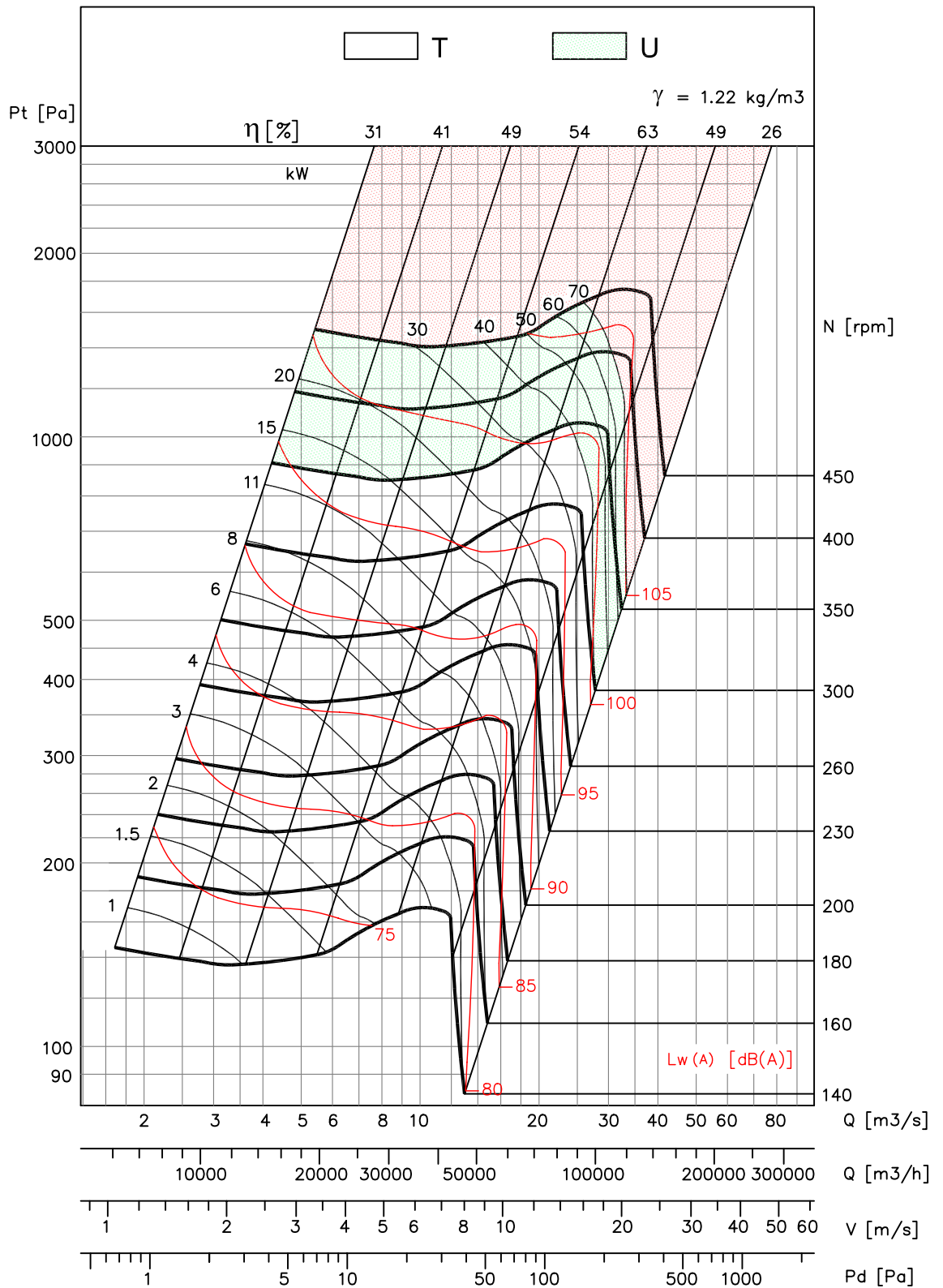


- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission losses.
- The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown 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 FSA1250 IS NOT LICENSED TO BEAR THE AMCA CERTIFIED RATINGS SEAL.



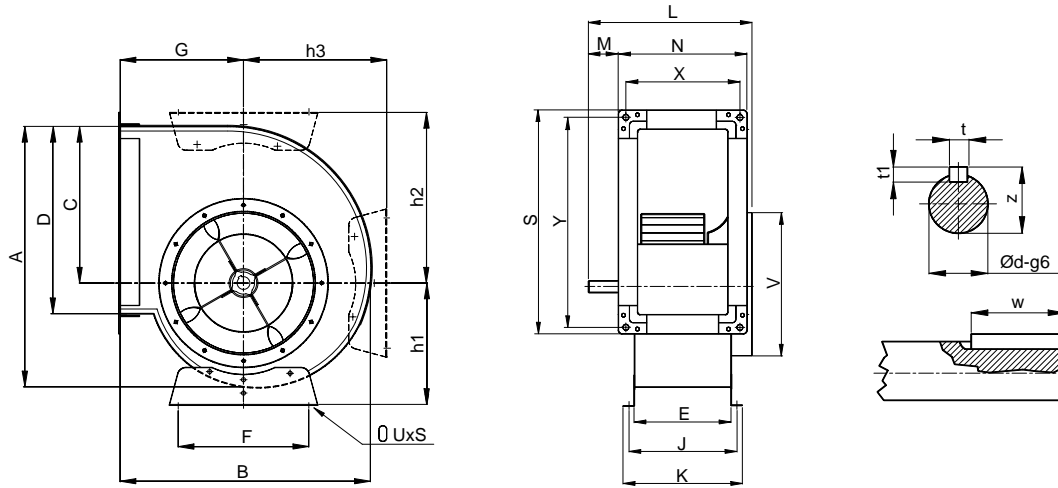


# FSA 1400



- Performance shown is for Installation type B - free inlet, ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power rating kW does not include transmission losses.
- The A-weighted sound ratings shown have been calculated per AMCA standard 301. Values shown are for inlet L<sub>wi</sub>(A) sound power levels for installation type B - free inlet, ducted outlet. Ratings do not include the effect of duct end corrections.
- MODEL FSA1400 IS NOT LICENSED TO BEAR THE AMCA CERTIFIED RATINGS SEAL.

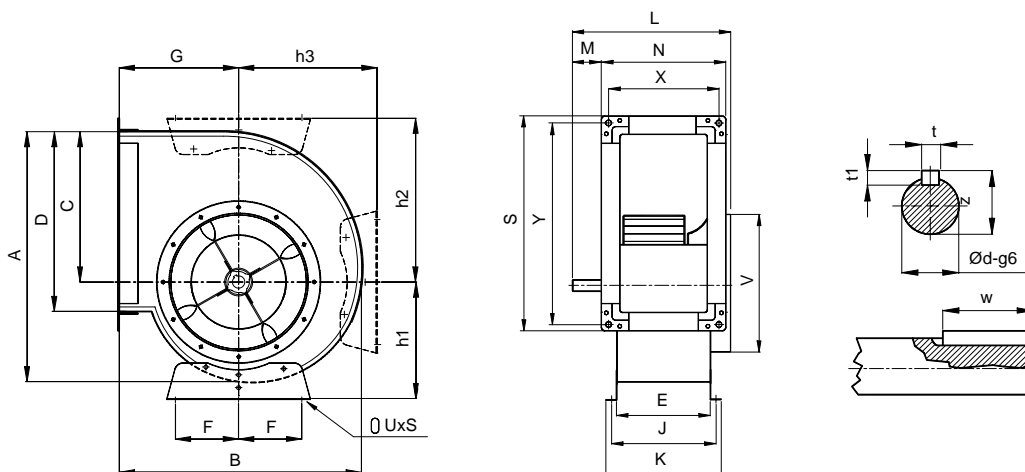
FSA 200-400 'S'



Model	A	B	C	D	E	F	G	J	K	L	M	N	S	V	X	Y	h1	h2	h3	t	t1	w	z	Ød	uxs
200	364	342	215	256	130	224	164	155	180	303	65	186	312	203	158	284	181	245	184	6	6	30	22.5	20	11x16
225	408	380	243	288	146	224	180	171	196	319	65	202	344	228	174	316	197	274	204	6	6	30	22.5	20	11x16
250	452	416	270	322	164	224	194	189	214	337	65	220	378	253	192	350	210	299	227	6	6	30	22.5	20	11x16
280	508	464	302	360	182	280	214	212	242	370	80	238	416	283	210	388	236	331	255	8	7	40	28	25	11x16
315	572	516	340	404	204	280	236	234	264	432	80	260	460	319	232	432	261	370	283	8	7	40	28	25	11x16
355	644	576	383	452	228	315	260	268	308	460	84	284	508	359	256	480	274	411	320	8	7	40	33	30	11x16
400	724	644	432	506	256	355	290	296	336	488	84	312	562	404	284	534	302	462	359	8	7	40	33	30	11x16

All Dimensions in mm.

FSA 450 'S'

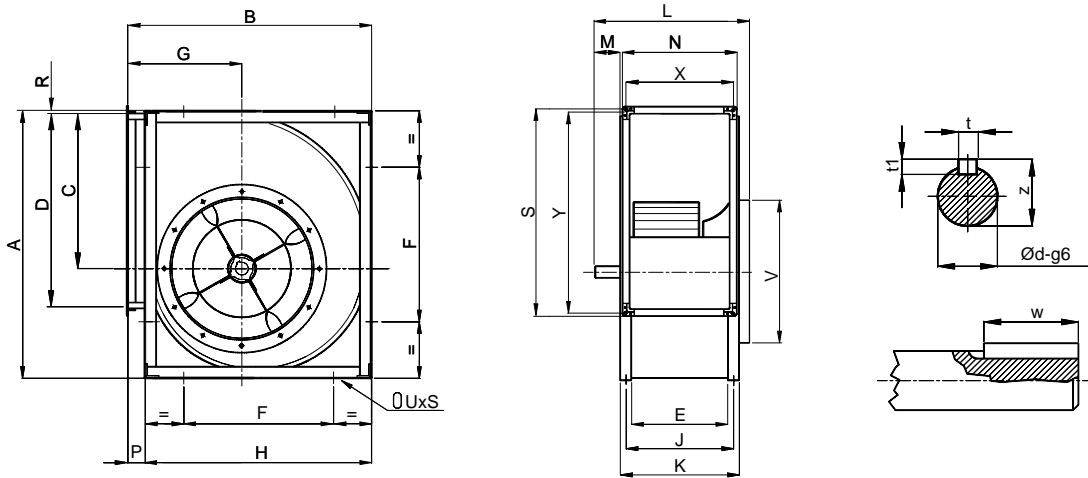


Model	A	B	C	D	E	F	G	J	K	L	M	N	S	V	X	Y	h1	h2	h3	t	t1	w	z	Ød	uxs
450	816	722	486	568	288	200	322	328	368	536	100	344	624	454	316	596	336	518	407	10	8	50	38	35	13x18

All Dimensions in mm.



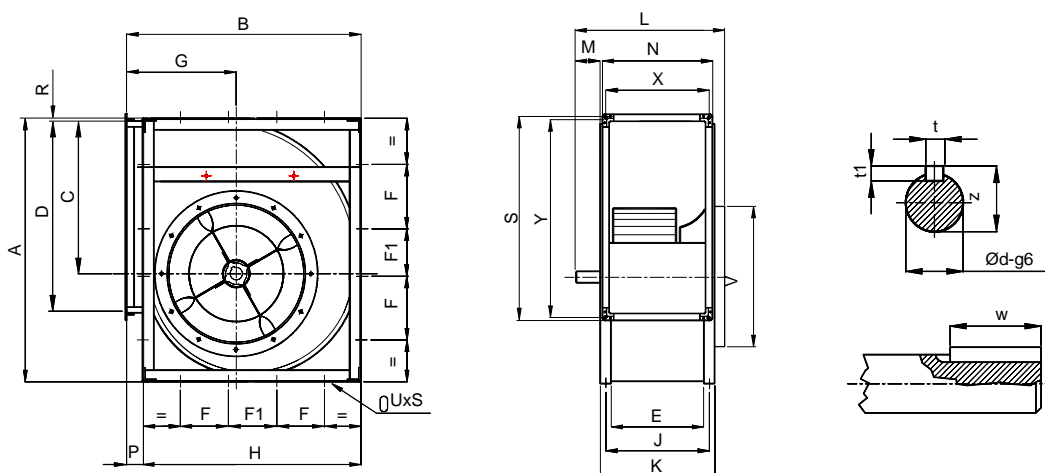
FSA 200-400 'C'



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	V	X	Y	t	t1	w	z	Ød	uxs
200	370	343	215	256	130	224	164	306	155	180	303	68	186	37	4	312	203	158	284	6	6	30	22.5	20	11x16
225	415	382	243	288	146	224	180	348	171	196	319	68	202	34	3	344	228	174	316	6	6	30	22.5	20	11x16
250	460	418	270	322	164	224	194	383	189	214	337	68	220	35	4	378	253	192	350	6	6	30	22.5	20	11x16
280	518	466	302	360	182	280	214	432	212	242	370	78	238	34	5	416	283	210	388	8	7	40	28	25	13x18
315	578	518	340	404	204	330	236	480	234	264	432	78	260	38	3	460	319	232	432	8	7	40	28	25	13x18
355	654	578	383	452	228	368	260	548	268	308	460	72	284	30	6	508	359	256	480	8	7	40	33	30	13x18
400	736	650	432	506	256	402	290	612	296	336	488	72	312	38	5	562	404	284	534	8	7	40	33	30	13x18

All Dimensions in mm.

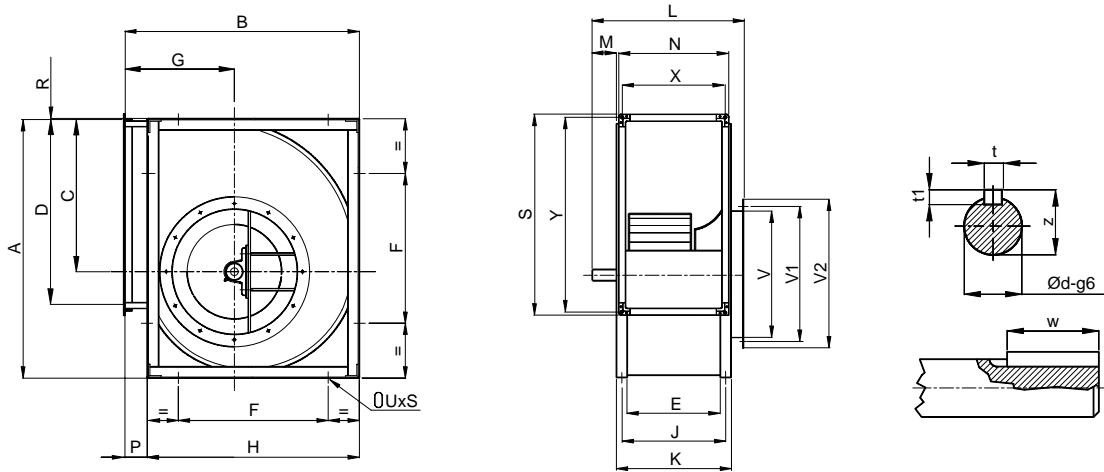
FSA 450-630 'C'



Model	A	B	C	D	E	F	F1	G	H	J	K	L	M	N	P	R	S	V	X	Y	t	t1	w	z	Ød	uxs
450	827	726	486	568	288	200	111	322	681	328	368	536	88	344	45	5	624	454	316	596	10	8	50	38	35	13x18
500	918	800	538	638	322	245	120	352	750	362	402	570	88	378	50	5	694	504	350	666	10	8	50	38	35	13x18
560	1030	892	603	714	360	280	125	390	844	410	460	630	100	416	48	7	770	564	388	742	12	8	70	43	40	13x18
630	1157	998	679	800	404	328	110	434	945	454	504	674	100	460	53	6	856	634	432	828	12	8	70	43	40	13x18

All Dimensions in mm.

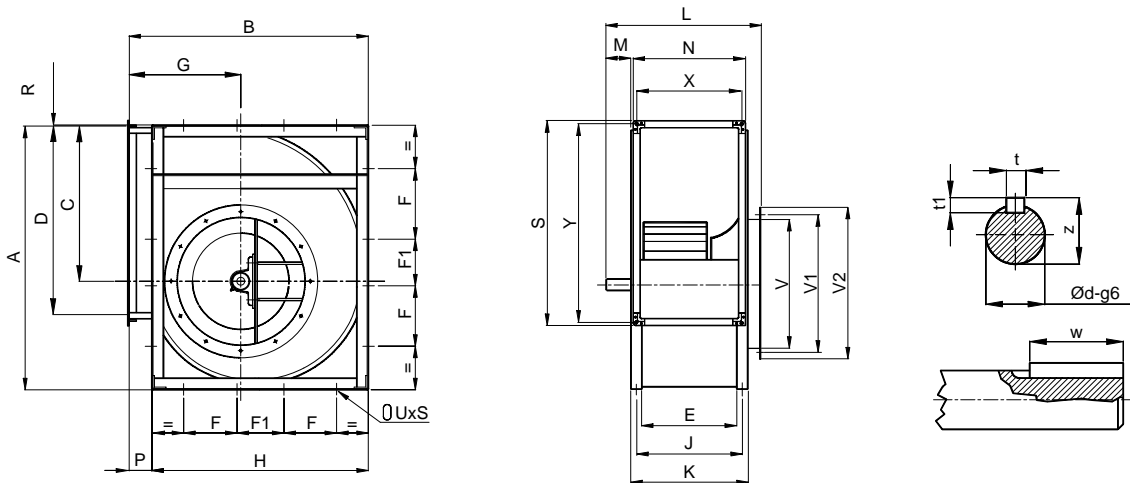
FSA 315-400 'T'



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	V	v1	v2	X	Y	t	t1	w	z	Ød	uxs
315	578	518	340	404	204	330	236	480	234	264	438	84	260	38	3	460	315	356	395	232	432	8	7	40	33	30	13x18
355	654	578	383	452	228	368	260	548	268	308	484	96	284	30	6	508	355	395	435	256	480	10	8	50	38	35	13x18
400	736	650	432	506	256	402	290	612	296	336	512	96	312	38	5	562	400	438	480	284	534	10	8	50	38	35	13x18

All Dimensions in mm.

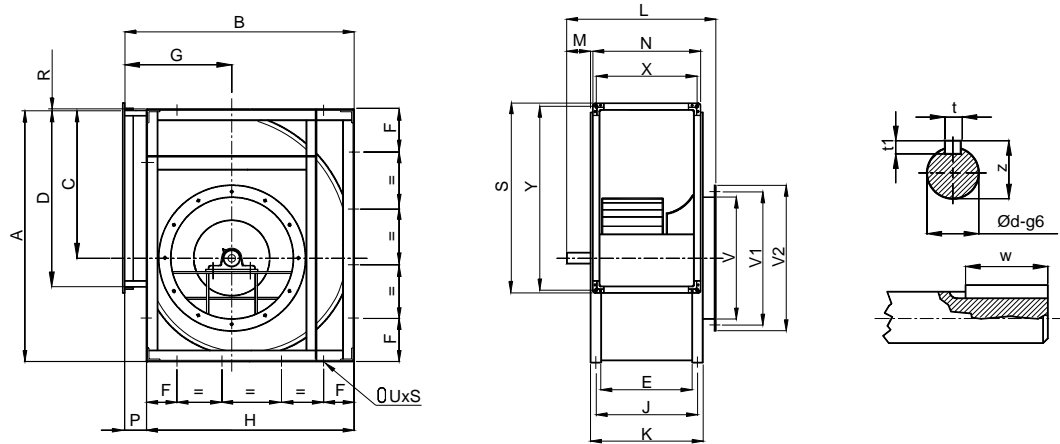
FSA 450-1000 'T'



Model	A	B	C	D	E	F	F1	G	H	J	K	L	M	N	P	R	S	V	v1	v2	X	Y	t	t1	w	z	Ød	uxs
450	827	726	486	568	288	200	111	322	681	328	368	566	118	344	45	5	624	450	487	530	316	596	12	8	70	43	40	13x18
500	918	800	538	638	322	245	120	352	750	362	402	600	118	378	50	5	694	500	541	580	350	666	12	8	70	43	40	13x18
560	1030	892	603	714	360	280	125	390	844	410	460	644	114	416	48	7	770	560	605	646	388	742	14	9	70	48.5	45	13x18
630	1157	998	679	800	404	328	110	434	945	454	504	688	114	460	53	6	856	630	674	716	432	828	14	9	70	48.5	45	13x18
710	1302	1120	765	898	452	360	150	484	1057	502	552	760	138	508	63	7	954	710	751	796	480	926	14	9	90	53.5	50	17x22
800	1468	1254	862	1006	506	405	171	540	1180	556	606	814	138	562	74	7	1062	800	837	886	534	1034	14	9	90	53.5	50	17x22
900	1648	1408	971	1130	568	455	189	604	1319	618	668	884	146	624	89	7	1186	900	934	986	596	1158	18	11	90	64	60	17x22
1000	1810	1540	1066	1266	638	500	200	656	1450	688	738	954	146	694	90	9	1322	1000	1043	1086	666	1294	18	11	90	64	60	17x22

All Dimensions in mm.

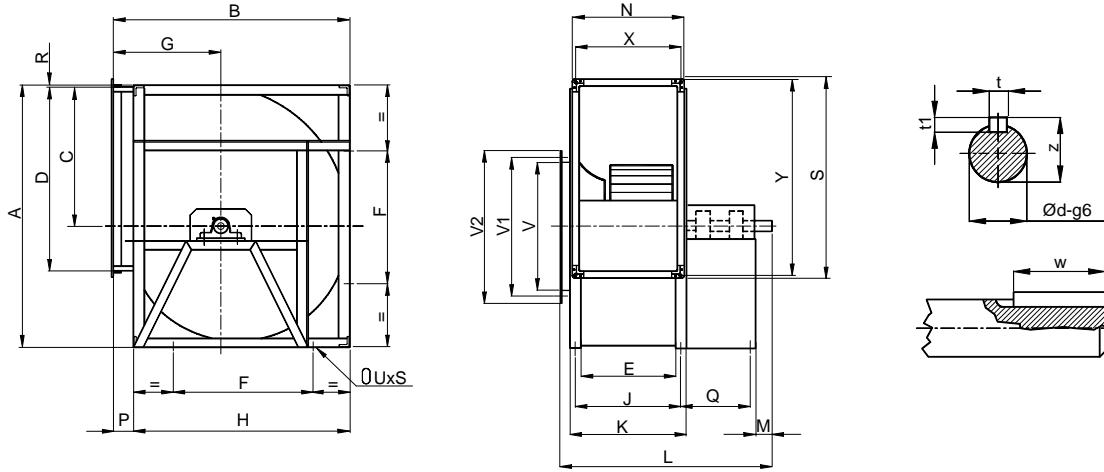
FSA 1120-1400 'T'



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	V	V1	V2	X	Y	t	t1	w	z	$\varnothing d$	uxs
1120	2033	1725	1200	1422	716	290	748	1630	776	842	1145	160	772	95	9	1478	1120	1180	1226	744	1450	18	11	110	69	65	17x22
1250	2285	1930	1353	1524	804	300	830	1831	879	954	1251	166	860	99	9	1580	1250	1303	1356	832	1552	20	12	110	74.5	70	17x22
1400	2568	2170	1515	1794	902	310	963	2057	977	1052	1373	190	958	113	13	1850	1400	1480	1506	930	1822	20	12	110	79.5	75	17x22

All Dimensions in mm.

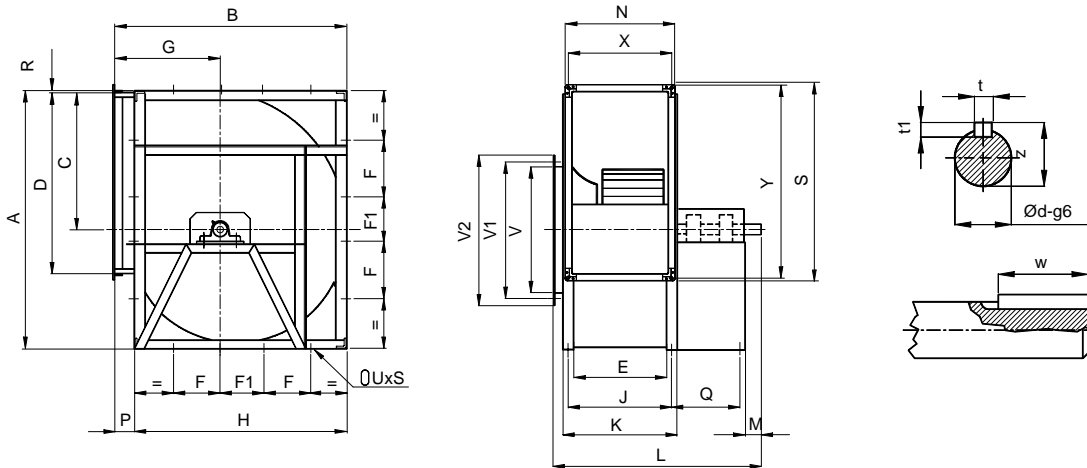
FSA 315-400 'U'



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	V	V1	V2	X	Y	t	t1	w	z	Ød	uxs
315	578	518	340	404	204	330	236	480	234	264	686	60	260	38	274	3	460	315	356	395	232	432	8	7	40	33	30	13x18
355	654	578	383	452	228	368	260	548	268	308	756	70	284	30	300	6	508	355	395	435	256	480	10	8	50	38	35	13x18
400	736	650	432	506	256	402	290	612	296	336	784	70	312	38	300	5	562	400	438	480	284	534	10	8	50	38	35	13x18

All Dimensions in mm.

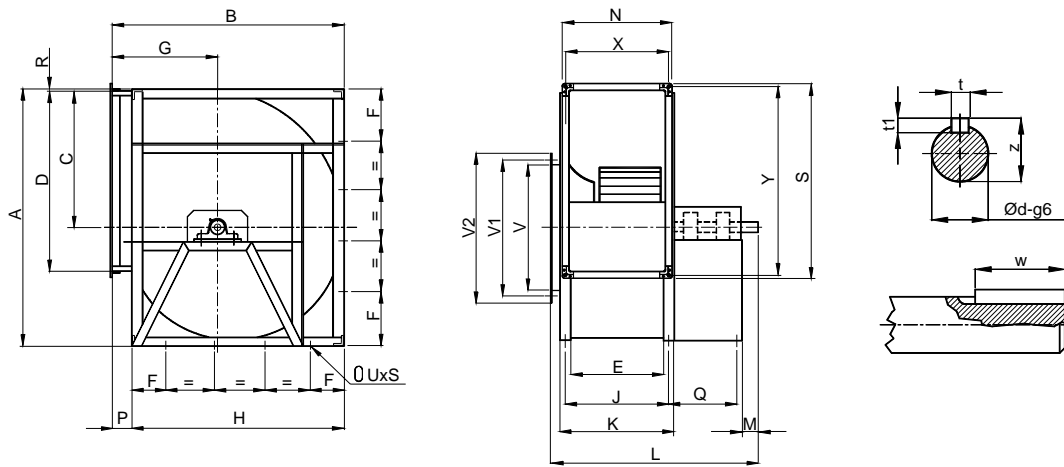
FSA 450-1000 'U'



Model	A	B	C	D	E	F	F1	G	H	J	K	L	M	N	P	Q	R	S	V	V1	V2	X	Y	t	t1	w	z	Ød	uxs
450	827	726	486	568	288	200	111	322	681	328	368	876	90	344	45	340	5	624	450	487	530	316	596	12	8	70	43	40	13x18
500	918	800	538	638	322	245	120	352	750	362	402	910	90	378	50	340	5	694	500	541	580	350	666	12	8	70	43	40	13x18
560	1030	892	603	714	360	280	125	390	844	410	460	995	90	416	48	378	7	770	560	605	646	388	742	14	9	70	48.5	45	13x18
630	1157	998	679	800	404	328	110	434	945	454	504	1039	90	460	53	378	6	856	630	674	716	432	828	14	9	70	48.5	45	13x18
710	1302	1120	765	898	452	360	150	484	1057	502	552	1165	110	508	63	436	7	954	710	751	796	480	926	14	9	90	53.5	50	17x22
800	1468	1254	862	1006	506	405	171	540	1180	556	606	1221	110	562	74	440	7	1062	800	837	886	534	1034	16	10	90	59	55	17x22
900	1648	1408	971	1130	568	455	189	604	1319	618	668	1353	110	624	89	510	7	1186	900	934	986	596	1158	18	11	90	64	60	17x22
1000	1810	1540	1066	1266	638	500	200	656	1450	688	738	1453	140	694	90	510	9	1322	1000	1043	1086	666	1294	18	11	110	69	65	17x22

All Dimensions in mm.

FSA 1120-1400 'U'



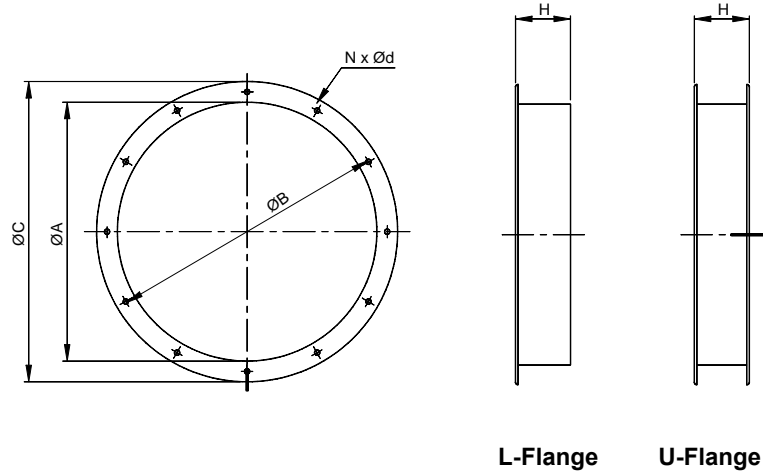
Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	V	V1	V2	X	Y	t	t1	w	z	Ød	uxs
1120	2033	1725	1200	1422	716	290	748	1630	776	842	1691	140	772	95	572	9	1478	1120	1180	1226	744	1450	20	12	110	74.5	70	17x22
1250	2285	1930	1353	1524	804	300	830	1831	879	954	1857	140	860	99	632	9	1580	1250	1303	1356	832	1552	20	12	110	79.5	75	17x22
1400	2568	2170	1515	1794	902	310	963	2057	977	1052	2040	140	958	113	717	13	1850	1400	1480	1506	930	1822	22	14	110	85	80	17x22

All Dimensions in mm.

## Inlet Flange

Model	A	B	C	H	n x d
200	200	235	260	80	6 x 8
225	225	259	285	80	6 x 8
250	250	286	315	80	6 x 8
280	280	322	350	80	6 x 8
315	315	356	395	120	6 x 10
355	355	395	435	120	8 x 10
400	400	438	480	120	8 x 10
450	450	487	530	120	8 x 10
500	500	541	580	120	8 x 10
560	560	605	646	120	8 x 10
630	630	674	716	120	8 x 10
710	710	751	796	120	8 x 10
800	800	837	886	120	12 x 12
900	900	934	986	120	12 x 12
1000	1000	1043	1086	120	12 x 12
1120	1120	1180	1226	200	12 x 14
1250	1250	1303	1356	200	12 x 14
1400	1400	1480	1506	200	14 x 14

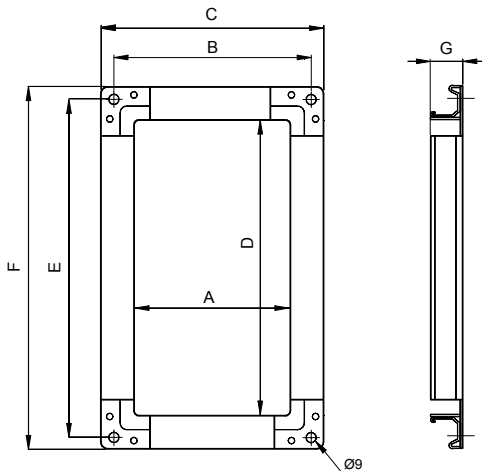
All Dimension in mm.



L-Flange

U-Flange

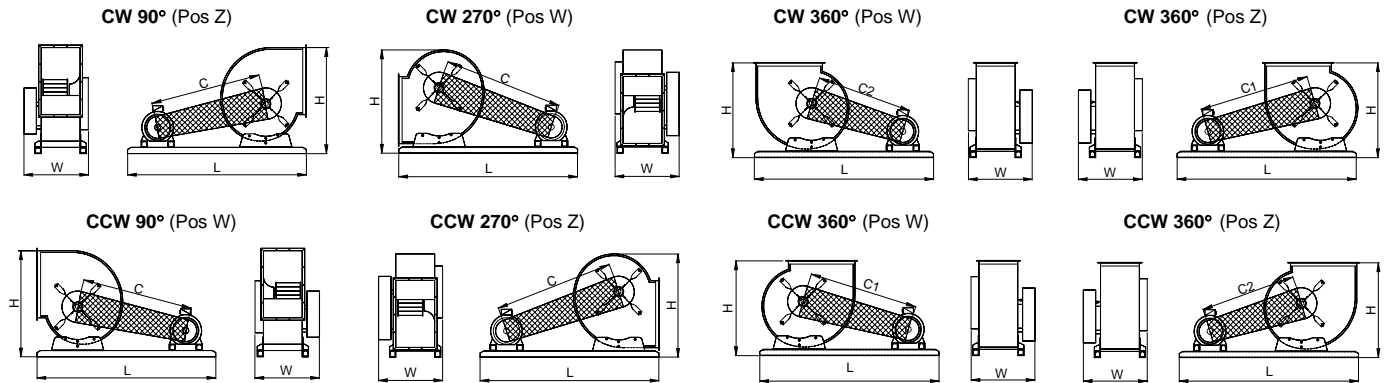
## Outlet Flange



Model	A	B	C	D	E	F	G
200	130	158	186	256	284	312	28
225	146	174	202	288	316	344	28
250	164	192	220	322	350	378	28
280	182	210	238	360	388	416	28
315	204	232	260	404	432	460	28
355	228	256	284	452	480	508	28
400	256	284	312	506	534	562	28
450	288	316	344	568	596	624	28
500	322	350	378	638	666	694	28
560	360	388	416	714	742	770	28
630	404	432	460	800	828	856	28
710	452	480	508	898	926	954	28
800	506	534	562	1006	1034	1062	28
900	568	596	624	1130	1158	1186	28
1000	638	666	694	1266	1294	1322	28
1120	716	744	772	1422	1450	1478	28
1250	804	832	860	1524	1552	1580	28
1400	902	930	958	1794	1822	1850	28

All Dimension in mm.

## OVERALL DIMENSION – FSA “S” SERIES

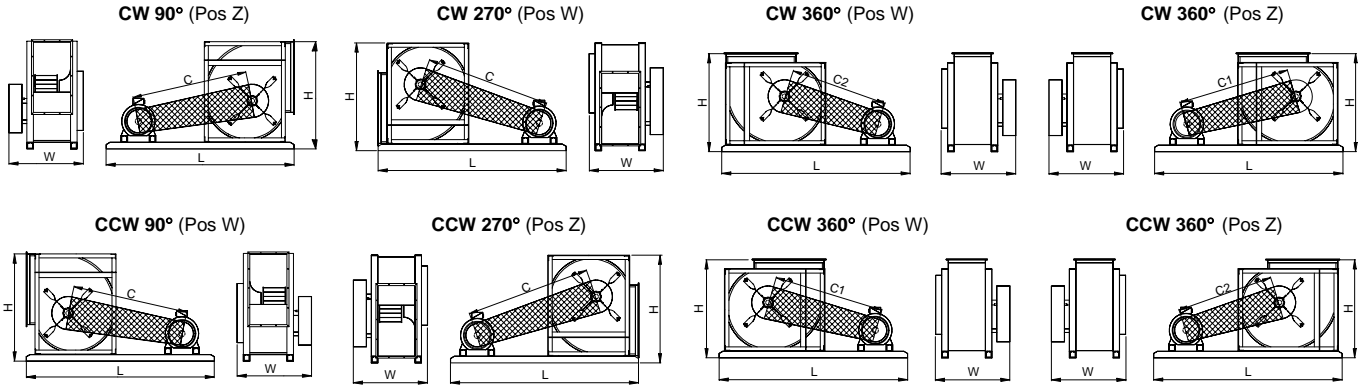


Model	Motor Frame Size	90°/ 270°							360°					
		C (90°)	C (270°)	L	W	H (90°)	H (270°)	* Wt (kg)	C1	C2	L	W	H	* Wt (kg)
200	63	328	349	600	333	436	349	10	383	318	640	333	388	10
	71	358	376	640	333	436	376	10	393	328	660	333	388	10
	80	387	402	680	333	436	402	10	422	357	700	333	388	10
	90	415	428	720	333	436	428	10	450	385	740	333	388	11
	100	444	454	760	333	436	454	11	479	413	780	333	388	11
225	63	356	383	640	349	480	383	11	411	336	680	349	424	11
	71	385	409	680	349	480	409	11	440	364	720	349	424	11
	80	413	434	720	349	480	434	11	449	373	740	349	424	11
	90	441	459	760	349	480	459	12	477	400	780	349	424	12
	100	469	485	800	349	480	485	12	505	428	820	349	424	12
250	63	384	418	680	367	520	418	14	439	355	720	367	461	14
	71	413	443	720	367	520	443	14	468	383	760	367	461	14
	80	441	468	760	367	520	468	14	496	410	700	367	461	14
	90	469	492	800	367	520	492	14	523	437	840	367	461	14
	100	497	517	840	367	520	517	14	551	464	880	367	461	15
280	63	430	468	740	400	578	468	16	482	392	780	400	509	17
	71	439	475	760	400	578	475	17	510	419	820	400	509	17
	80	467	499	800	400	578	499	17	537	445	860	400	509	17
	90	494	522	840	400	578	522	17	564	471	900	400	509	17
	100	521	546	880	400	578	546	17	591	497	940	400	509	17
315	63	455	504	780	462	641	504	19	523	423	840	462	559	19
	71	483	527	820	462	641	527	19	551	449	880	462	559	19
	80	510	550	860	462	641	550	19	577	475	920	462	559	20
	90	536	573	900	462	641	573	19	604	500	960	462	559	20
	100	563	596	940	462	641	596	20	630	526	1000	462	559	20
	112	588	618	980	462	641	618	20	655	550	1040	462	559	20
355	71	521	579	880	490	697	579	23	611	498	960	490	620	24
	80	548	601	920	490	697	601	23	618	504	980	490	620	24
	90	574	623	960	490	697	623	24	644	528	1020	490	620	24
	100	601	646	1000	490	697	646	24	670	553	1060	490	620	24
	112	626	666	1040	490	697	666	24	713	595	1120	490	620	24
400	71	559	632	940	518	774	632	31	671	543	1040	518	689	32
	80	585	653	980	518	774	653	32	696	567	1080	518	689	32
	90	611	674	1020	518	774	674	32	721	590	1120	518	689	32
	100	637	695	1060	518	774	695	32	747	614	1160	518	689	33
	112	681	733	1120	518	774	733	32	770	637	1200	518	689	33
450	71	616	703	1020	566	862	703	39	728	589	1120	566	769	40
	80	641	723	1060	566	862	723	39	753	612	1160	566	769	40
	90	667	743	1100	566	862	743	39	777	634	1200	566	769	40
	100	692	764	1140	566	862	764	40	811	666	1250	566	769	40
	112	716	783	1180	566	862	783	40	843	696	1300	566	769	40
	132	760	819	1250	566	862	819	40	866	718	1350	566	769	41

\* The above weight does not include motor and drive unit as these will vary with supplier.

All Dimensions in mm.

**OVERALL DIMENSION - FSA "C" SERIES**



Model	Motor Frame Size	90°/ 270°						360°					
		C (90°)	C (270°)	L	W	H	* Wt (kg)	C1	C2	L	W	H	* Wt (kg)
200	63	345	361	600	333	410	11	366	300	640	333	383	12
	71	376	389	640	333	410	12	376	310	660	333	383	12
	80	406	417	680	333	410	12	405	338	700	333	383	12
	90	436	444	720	333	410	12	434	366	740	333	383	12
225	63	369	390	640	349	455	13	393	319	680	349	422	13
	71	399	417	680	349	455	13	422	347	720	349	422	13
	80	429	444	720	349	455	13	431	356	740	349	422	13
	90	458	471	760	349	455	13	459	383	780	349	422	13
250	63	399	426	680	367	500	17	421	337	720	367	458	17
	71	429	452	720	367	500	17	449	365	760	367	458	17
	80	458	478	760	367	500	17	477	392	800	367	458	17
	90	486	504	800	367	500	17	505	419	840	367	458	17
280	63	396	432	740	400	558	20	463	373	780	400	506	20
	71	406	439	760	400	558	20	491	400	820	400	506	20
	80	434	463	800	400	558	20	518	426	860	400	506	21
	90	461	487	840	400	558	20	545	452	900	400	506	21
315	100	489	512	880	400	558	21	572	478	940	400	506	21
	71	499	536	820	462	618	23	534	433	880	462	558	23
	80	527	560	860	462	618	23	561	459	920	462	558	23
	90	554	584	900	462	618	23	587	484	960	462	558	24
355	100	582	609	940	462	618	24	614	509	1000	462	558	24
	71	534	582	880	490	694	28	593	479	960	490	618	28
	80	561	605	920	490	694	28	601	485	980	490	618	28
	90	588	628	960	490	694	28	626	509	1020	490	618	29
400	100	615	651	1000	490	694	29	652	534	1060	490	618	29
	112	640	673	1040	490	694	29	695	575	1120	490	618	29
	80	607	661	980	518	776	37	677	550	1080	518	690	37
	90	633	683	1020	518	776	37	702	573	1120	518	690	37
450	100	659	706	1060	518	776	37	727	597	1160	518	690	38
	112	704	745	1120	518	776	37	750	619	1200	518	690	38
	80	671	735	1060	566	867	45	733	593	1160	566	766	46
	90	696	757	1100	566	867	45	757	615	1200	566	766	46
500	100	722	779	1140	566	867	46	791	647	1250	566	766	46
	112	746	799	1180	566	867	46	824	678	1300	566	766	46
	132	790	836	1250	566	867	46	846	699	1350	566	766	47
	80	717	790	1140	600	968	60	779	629	1250	600	850	61
560	90	742	811	1180	600	968	60	812	659	1300	600	850	61
	100	749	815	1200	600	968	61	845	691	1350	600	850	62
	112	782	843	1250	600	968	61	877	720	1400	600	850	62
	132	854	907	1350	600	968	62	899	740	1450	600	850	63
630	80	752	844	1200	660	1080	73	852	686	1350	660	942	74
	90	786	872	1250	660	1080	74	884	714	1400	660	942	75
	100	820	900	1300	660	1080	74	916	744	1450	660	942	75
	112	852	927	1350	660	1080	74	947	773	1500	660	942	75
630	132	923	989	1450	660	1080	75	968	792	1550	660	942	76
	80	829	937	1300	704	1207	90	967	782	1500	704	1048	92
	90	862	964	1350	704	1207	91	998	811	1550	704	1048	92
	100	895	992	1400	704	1207	91	1031	840	1600	704	1048	93
630	112	926	1018	1450	704	1207	91	1061	868	1650	704	1048	93
	132	996	1078	1550	704	1207	92	1082	886	1700	704	1048	93
630	160	1058	1130	1650	704	1207	93	1140	940	1800	704	1048	94

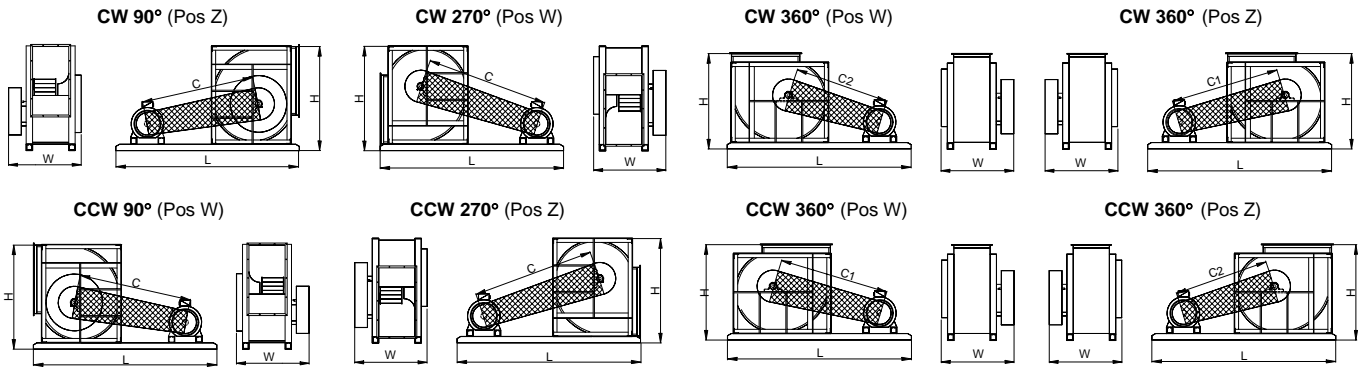
\* The above weight does not include motor and drive unit as these will vary with supplier.

All Dimensions in mm.





## OVERALL DIMENSION - FSA "T" SERIES

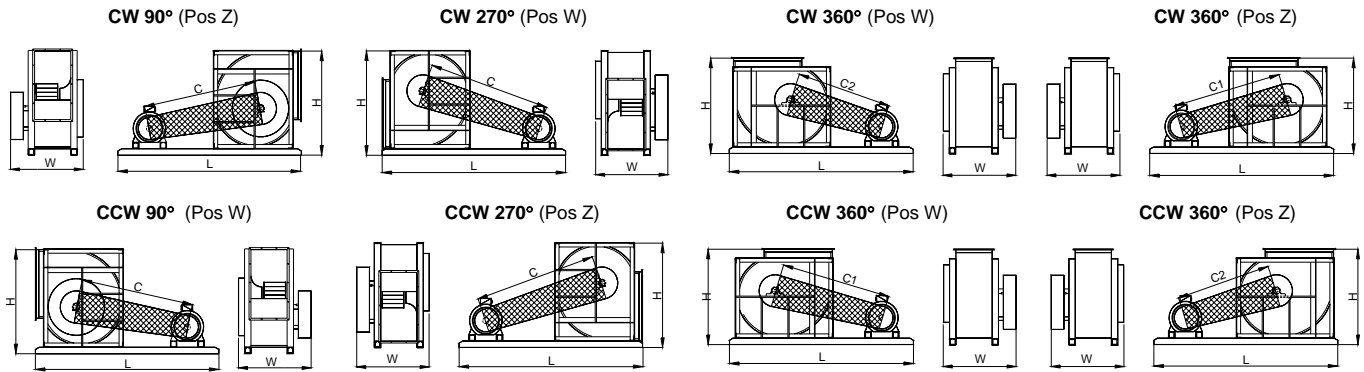


Model	Motor Frame Size	90°/ 270°						360°					
		C (90°)	C (270°)	L	W	H	* Wt (kg)	C1	C2	L	W	H	* Wt (kg)
315	90	515	547	860	468	618	32	587	484	960	468	558	32
	100	542	571	900	468	618	32	614	509	1000	468	558	32
	112	568	594	940	468	618	32	638	533	1040	468	558	33
	132	625	645	1020	468	618	32	694	587	1120	468	558	33
355	100	576	615	960	514	694	45	652	534	1060	514	618	46
	112	620	654	1020	514	694	46	695	575	1120	514	618	46
	132	676	704	1100	514	694	46	749	628	1200	514	618	47
400	100	621	669	1020	542	776	54	727	597	1160	542	690	55
	112	664	708	1080	542	776	54	750	619	1200	542	690	55
	132	719	756	1160	542	776	55	823	689	1300	542	690	55
	160	776	806	1250	542	776	55	888	752	1400	542	690	56
450	100	684	743	1100	596	867	59	791	647	1250	596	766	60
	112	707	763	1140	596	867	60	824	678	1300	596	766	60
	132	741	790	1200	596	867	60	846	699	1350	596	766	61
	160	856	894	1350	596	867	61	909	759	1450	596	766	61
500	112	734	799	1200	630	968	82	877	720	1400	630	850	83
	132	805	861	1300	630	968	82	899	740	1450	630	850	84
	160	870	917	1400	630	968	83	961	799	1550	630	850	84
560	112	804	884	1300	674	1080	108	947	733	1500	674	942	109
	132	875	945	1400	674	1080	109	1016	838	1600	674	942	110
	160	938	998	1500	674	1080	109	1076	895	1700	674	942	111
	180	1012	1064	1600	674	1080	110	1100	917	1750	674	942	111
630	112	879	975	1400	718	1207	125	1015	824	1600	718	1048	127
	132	948	1034	1500	718	1207	126	1082	886	1700	718	1048	127
	160	1010	1085	1600	718	1207	127	1140	940	1800	718	1048	128
	180	1082	1149	1700	718	1207	127	1211	1008	1900	718	1048	129
710	80	921	1002	1400	790	1382	187	1048	840	1650	790	1200	189
	90	907	1028	1450	790	1382	187	1080	868	1700	790	1200	190
	100	941	1055	1500	790	1382	187	1112	897	1750	790	1200	190
	112	972	1080	1550	790	1382	188	1142	924	1800	790	1200	191
	132	993	1095	1600	790	1382	188	1162	941	1850	790	1200	191
	160	1054	1144	1700	790	1382	190	1267	1040	2000	790	1200	193
800	90	1031	1170	1600	844	1548	229	1187	955	1850	844	1334	232
	100	1018	1156	1600	844	1548	229	1218	983	1900	844	1334	233
	112	1048	1180	1650	844	1548	230	1247	1009	1950	844	1334	233
	132	1115	1235	1750	844	1548	231	1267	1024	2000	844	1334	234
	160	1174	1283	1850	844	1548	232	1370	1120	2150	844	1334	236
	180	1197	1300	1900	844	1548	233	1391	1139	2200	844	1334	236
900	90	1108	1277	1700	914	1728	274	1343	1081	2050	914	1488	278
	100	1140	1302	1750	914	1728	275	1374	1108	2100	914	1488	279
	112	1169	1325	1800	914	1728	275	1403	1133	2150	914	1488	280
	132	1189	1338	1850	914	1728	276	1421	1148	2200	914	1488	280
	160	1293	1425	2000	914	1728	278	1476	1197	2300	914	1488	281
	180	1315	1441	2050	914	1728	278	1543	1260	2400	914	1488	283

\* The above weight does not include motor and drive unit as these will vary with supplier.

All Dimensions in mm.

## OVERALL DIMENSION - FSA "T" SERIES

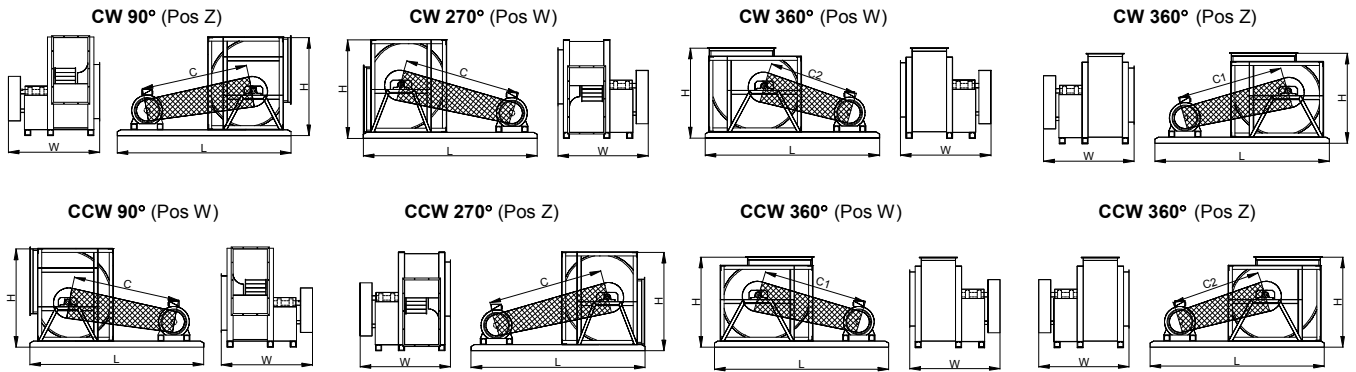


Model	Motor Frame Size	90° / 270°						360°					
		C (90°)	C (270°)	L	W	H	* Wt (kg)	C1	C2	L	W	H	* Wt (kg)
1000	90	1226	1415	1850	984	1890	308	1456	1172	2200	984	1620	312
	100	1257	1440	1900	984	1890	308	1486	1198	2250	984	1620	313
	112	1286	1463	1950	984	1890	309	1514	1222	2300	984	1620	313
	132	1305	1475	2000	984	1890	310	1532	1236	2350	984	1620	314
	160	1361	1518	2100	984	1890	311	1586	1282	2450	984	1620	315
	180	1429	1575	2200	984	1890	312	1651	1343	2550	984	1620	316
	200	1451	1591	2250	984	1890	313	1719	1405	2650	984	1620	318
1120	100	1374	1581	2050	1175	2158	595	1648	1317	2450	1175	1850	606
	112	1404	1603	2100	1175	2158	597	1676	1342	2500	1175	1850	607
	132	1423	1615	2150	1175	2158	598	1695	1356	2550	1175	1850	609
	160	1525	1700	2300	1175	2158	602	1749	1403	2650	1175	1850	611
	180	1547	1715	2350	1175	2158	603	1815	1464	2750	1175	1850	614
	200	1568	1730	2400	1175	2158	605	1883	1527	2850	1175	1850	617
	225	1632	1783	2500	1175	2158	607	1945	1585	2950	1175	1850	619
1250	100	1517	1756	2250	1281	2435	922	1827	1453	2700	1281	2080	943
	112	1545	1778	2300	1281	2435	924	1855	1477	2750	1281	2080	946
	132	1564	1790	2350	1281	2435	927	1873	1491	2800	1281	2080	948
	160	1619	1831	2450	1281	2435	931	1926	1537	2900	1281	2080	953
	180	1687	1886	2550	1281	2435	936	1992	1596	3000	1281	2080	958
	200	1755	1943	2650	1281	2435	941	2012	1613	3050	1281	2080	960
	225	1819	1995	2750	1281	2435	946	2073	1669	3150	1281	2080	965
	250	1883	2049	2850	1281	2435	951	2135	1726	3250	1281	2080	970
1400	100	1642	1925	2450	1403	2718	1208	1995	1584	2950	1403	2320	1232
	112	1670	1946	2500	1403	2718	1210	2022	1607	3000	1403	2320	1234
	132	1733	1995	2600	1403	2718	1215	2084	1661	3100	1403	2320	1239
	160	1786	2035	2700	1403	2718	1220	2137	1707	3200	1403	2320	1244
	180	1852	2088	2800	1403	2718	1225	2156	1722	3250	1403	2320	1246
	200	1872	2101	2850	1403	2718	1227	2222	1782	3350	1403	2320	1251
	225	1933	2150	2950	1403	2718	1232	2282	1836	3450	1403	2320	1256
	250	1995	2201	3050	1403	2718	1237	2343	1893	3550	1403	2320	1261
280	2101	2290	3200	1403	2718	1244	2447	1990	3700	1403	2320	1268	

\* The above weight does not include motor and drive unit as these will vary with supplier.

All Dimensions in mm.

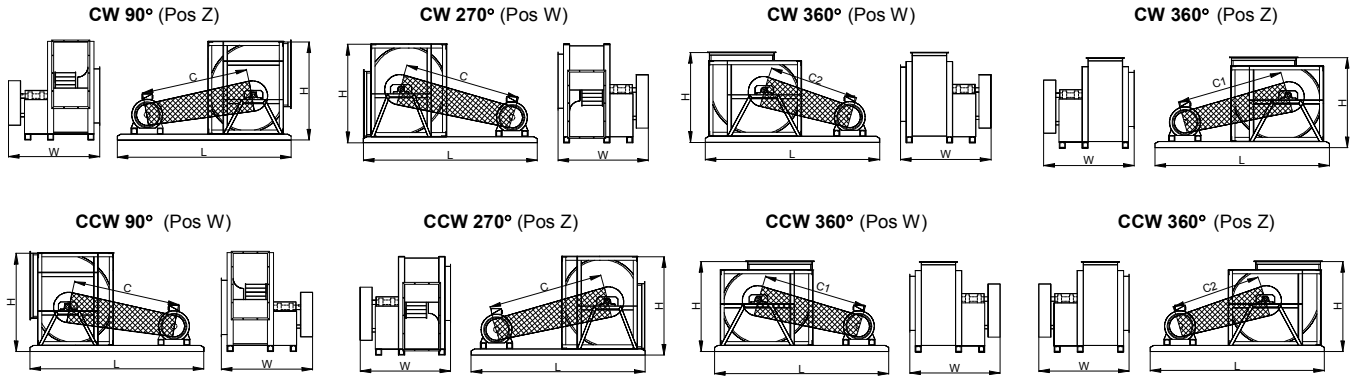
## OVERALL DIMENSION - FSA "U" SERIES



Model	Motor Frame Size	90°/ 270°						360°					
		C (90°)	C (270°)	L	W	H	* Wt (kg)	C1	C2	L	W	H	* Wt (kg)
315	80	488	524	820	716	618	43	561	459	920	716	558	43
	90	515	547	860	716	618	43	587	484	960	716	558	44
	100	542	571	900	716	618	43	614	509	1000	716	558	44
	112	568	594	940	716	618	44	638	533	1040	716	558	44
	132	625	645	1020	716	618	44	694	587	1120	716	558	45
355	80	523	570	880	786	694	60	601	485	980	786	618	60
	90	549	592	920	786	694	60	626	509	1020	786	618	61
	100	576	615	960	786	694	60	652	534	1060	786	618	61
	112	620	654	1020	786	694	61	695	575	1120	786	618	61
	132	676	704	1100	786	694	61	749	628	1200	786	618	62
400	80	569	626	940	814	776	69	677	550	1080	814	690	70
	90	595	647	980	814	776	69	702	573	1120	814	690	70
	100	621	669	1020	814	776	70	727	597	1160	814	690	71
	112	664	708	1080	814	776	70	750	619	1200	814	690	71
	132	719	756	1160	814	776	71	823	689	1300	814	690	72
450	80	569	626	940	814	776	69	677	550	1080	814	690	70
	90	595	647	980	814	776	69	702	573	1120	814	690	70
	100	621	669	1020	814	776	70	727	597	1160	814	690	71
	112	664	708	1080	814	776	70	750	619	1200	814	690	71
	132	719	756	1160	814	776	71	823	689	1300	814	690	72
500	80	569	626	940	814	776	69	677	550	1080	814	690	70
	90	595	647	980	814	776	69	702	573	1120	814	690	70
	100	621	669	1020	814	776	70	727	597	1160	814	690	71
	112	664	708	1080	814	776	70	750	619	1200	814	690	71
	132	719	756	1160	814	776	71	823	689	1300	814	690	72
560	90	658	722	1060	906	867	78	757	615	1200	906	766	80
	100	684	743	1100	906	867	79	791	647	1250	906	766	80
	112	707	763	1140	906	867	79	824	678	1300	906	766	80
	132	741	790	1200	906	867	80	846	699	1350	906	766	81
	160	856	894	1350	906	867	81	909	759	1450	906	766	81
630	90	739	830	1200	1025	1080	136	884	714	1400	1025	942	138
	100	773	858	1250	1025	1080	137	916	744	1450	1025	942	139
	112	804	884	1300	1025	1080	137	947	773	1500	1025	942	140
	132	875	945	1400	1025	1080	138	1016	838	1600	1025	942	141
	160	938	998	1500	1025	1080	140	1076	895	1700	1025	942	142
710	90	1012	1064	1600	1025	1080	141	1100	917	1750	1025	942	143
	90	816	923	1300	1069	1207	154	998	811	1550	1069	1048	157
	100	848	950	1350	1069	1207	154	1031	840	1600	1069	1048	157
	112	879	975	1400	1069	1207	155	1061	868	1650	1069	1048	158
	132	948	1034	1500	1069	1207	156	1082	886	1700	1069	1048	158
800	160	1010	1085	1600	1069	1207	157	1140	940	1800	1069	1048	160
	180	1082	1149	1700	1069	1207	158	1211	1008	1900	1069	1048	161
	90	907	1028	1450	1195	1382	227	1080	868	1700	1195	1200	232
	100	941	1055	1500	1195	1382	228	1112	897	1750	1195	1200	233
	112	972	1080	1550	1195	1382	229	1142	924	1800	1195	1200	233
	132	993	1095	1600	1195	1382	230	1162	941	1850	1195	1200	234
	160	1054	1144	1700	1195	1382	232	1220	994	1950	1195	1200	236
	180	1126	1207	1800	1195	1382	233	1290	1061	2050	1195	1200	238
200	1199	1272	1900	1195	1382	235	1313	1082	2100	1195	1200	239	
225	1268	1333	2000	1195	1382	237	1379	1146	2200	1195	1200	241	
800	90	986	1130	1550	1251	1548	276	1187	955	1850	1251	1334	281
	100	1018	1156	1600	1251	1548	276	1218	983	1900	1251	1334	282
	112	1048	1180	1650	1251	1548	277	1247	1009	1950	1251	1334	283
	132	1115	1235	1750	1251	1548	279	1267	1024	2000	1251	1334	284
	160	1174	1283	1850	1251	1548	281	1370	1120	2150	1251	1334	287
	180	1197	1300	1900	1251	1548	282	1391	1139	2200	1251	1334	288
	200	1269	1362	2000	1251	1548	284	1461	1206	2300	1251	1334	289
225	1336	1420	2100	1251	1548	286	1526	1268	2400	1251	1334	291	

\* The above weight does not include motor and drive unit as these will vary with supplier.

# OVERALL DIMENSION - FSA "U" SERIES



Model	Motor Frame Size	90° / 270°						360°					
		C (90°)	C (270°)	L	W	H	* Wt (kg)	C1	C2	L	W	H	* Wt (kg)
900	90	1108	1277	1700	1383	1728	328	1343	1081	2050	1383	1488	334
	100	1140	1302	1750	1383	1728	329	1374	1108	2100	1383	1488	335
	112	1169	1325	1800	1383	1728	330	1403	1133	2150	1383	1488	336
	132	1189	1338	1850	1383	1728	331	1421	1148	2200	1383	1488	337
	160	1293	1425	2000	1383	1728	333	1476	1197	2300	1383	1488	339
	180	1315	1441	2050	1383	1728	334	1543	1260	2400	1383	1488	341
	200	1385	1501	2150	1383	1728	336	1564	1278	2450	1383	1488	342
	225	1451	1557	2250	1383	1728	338	1627	1338	2550	1383	1488	344
1000	250	1518	1615	2350	1383	1728	340	1692	1399	2650	1383	1488	345
	90	1226	1415	1850	1483	1890	368	1456	1172	2200	1483	1620	374
	100	1257	1440	1900	1483	1890	369	1486	1198	2250	1483	1620	375
	112	1241	1423	1900	1483	1890	369	1514	1222	2300	1483	1620	376
	132	1305	1475	2000	1483	1890	371	1532	1236	2350	1483	1620	377
	160	1361	1518	2100	1483	1890	373	1586	1282	2450	1483	1620	379
	180	1429	1575	2200	1483	1890	374	1651	1343	2550	1483	1620	381
	200	1451	1591	2250	1483	1890	375	1719	1405	2650	1483	1620	383
1120	225	1515	1644	2350	1483	1890	377	1781	1463	2750	1483	1620	384
	250	1581	1700	2450	1483	1890	379	1844	1523	2850	1483	1620	386
	280	1690	1796	2600	1483	1890	382	1903	1579	2950	1483	1620	388
	100	1374	1581	2050	1721	2158	684	1648	1317	2450	1721	1850	701
	112	1404	1603	2100	1721	2158	686	1676	1342	2500	1721	1850	703
	132	1423	1615	2150	1721	2158	689	1695	1356	2550	1721	1850	705
	160	1479	1658	2250	1721	2158	693	1749	1403	2650	1721	1850	709
	180	1547	1715	2350	1721	2158	697	1815	1464	2750	1721	1850	713
1250	200	1616	1773	2450	1721	2158	701	1883	1527	2850	1721	1850	717
	225	1680	1827	2550	1721	2158	705	1945	1585	2950	1721	1850	721
	250	1746	1882	2650	1721	2158	709	2008	1645	3050	1721	1850	725
	280	1806	1932	2750	1721	2158	713	2067	1700	3150	1721	1850	729
	315	1911	2024	2900	1721	2158	719	2169	1798	3300	1721	1850	735
	100	1517	1756	2250	1887	2435	1098	1827	1453	2700	1887	2080	1130
	112	1545	1778	2300	1887	2435	1101	1855	1477	2750	1887	2080	1134
	132	1564	1790	2350	1887	2435	1105	1873	1491	2800	1887	2080	1137
1400	160	1619	1831	2450	1887	2435	1112	1926	1537	2900	1887	2080	1144
	180	1687	1886	2550	1887	2435	1119	1992	1596	3000	1887	2080	1152
	200	1708	1901	2600	1887	2435	1123	2058	1657	3100	1887	2080	1159
	225	1771	1952	2700	1887	2435	1130	2120	1714	3200	1887	2080	1166
	250	1835	2005	2800	1887	2435	1137	2182	1772	3300	1887	2080	1173
	280	1943	2097	2950	1887	2435	1148	2240	1825	3400	1887	2080	1180
	315	2046	2186	3100	1887	2435	1159	2340	1921	3550	1887	2080	1191
	100	1642	1925	2450	2070	2718	1421	1995	1584	2950	2070	2320	1457
1400	112	1670	1946	2500	2070	2718	1424	2022	1607	3000	2070	2320	1460
	132	1733	1995	2600	2070	2718	1432	2084	1661	3100	2070	2320	1468
	160	1786	2035	2700	2070	2718	1439	2137	1707	3200	2070	2320	1475
	180	1852	2088	2800	2070	2718	1446	2202	1765	3300	2070	2320	1482
	200	1872	2101	2850	2070	2718	1450	2222	1782	3350	2070	2320	1486
	225	1933	2150	2950	2070	2718	1457	2282	1836	3450	2070	2320	1493
	250	1995	2201	3050	2070	2718	1464	2343	1893	3550	2070	2320	1500
	280	2101	2290	3200	2070	2718	1475	2447	1990	3700	2070	2320	1511
315	2153	2331	3300	2070	2718	1482	2546	2084	3850	2070	2320	1522	

\* The above weight does not include motor and drive unit as these will vary with supplier.

All Dimensions in mm.

### Operational Limits - "FSA"

		200	225	250	280	315	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	
Maximum Absorbed Power	<b>S</b>	1.5	1.5	1.5	2	2.5	3	3	4											
	<b>C</b>	1.5	1.5	1.5	2	2.5	3	3	4	5.5	5.5	7.5								
	<b>T</b>					5.5	5.5	8	10	11	13	15	10	15	15	20	25	30	40	40
	<b>U</b>					5.5	5.5	8	10	11	13	15	20	25	30	40	50	60	70	70
Maximum Fan Speed	<b>S</b>	3400	2900	2700	2400	2100	1800	1600	1400											
	<b>C</b>	3400	2900	2700	2400	2100	1800	1600	1400	1200	1100	900								
	<b>T</b>					2400	2000	1800	1600	1300	1200	1000	800	700	650	600	450	400	350	350
	<b>U</b>					2400	2000	1800	1600	1300	1200	1000	900	800	750	650	600	500	450	450
Temperature Range / Min. -20°C	<b>S-C</b>	85	85	85	85	85	85	85	85	85	85	85								
	<b>T</b>					100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	<b>U</b>					180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
Wheel	Diameter	200	225	250	280	315	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	
	Weight	1	1.1	1.6	2	2.7	3.2	5.4	6.5	10.2	13.5	18.2	23	36	42	51	88	142	172	
	<b>J = PD<sup>2</sup>/4</b>	0.008	0.012	0.021	0.034	0.057	0.087	0.18	0.28	0.53	0.89	1.49	2.44	4.81	7.21	10.86	24.03	44.9	73.1	
Fan weight	<b>S</b>	5.9	6.7	9	11.5	13.6	17.2	25	32											
	<b>C</b>	7.5	8.5	12	15	17.5	21.9	30	38	48	60	76								
	<b>T</b>					26	39	47	52	69	94	110	162	202	245	276	518	768	1040	
	<b>U</b>					33	49	58	66	84	114	130	186	232	280	316	557	847	1147	



## Centrifugal Fan Ordering Information

Fan Details			
■ Fan type		<input type="checkbox"/> DIDW <input type="checkbox"/> SISW	
■ Impeller type		<input type="checkbox"/> Forward Curved <input type="checkbox"/> Backward Curved <input type="checkbox"/> Others : _____ (Please State)	
■ Model & size e.g. FSA 560 C		<input type="checkbox"/> Model : _____ (If known)	
■ Drive type - belt, direct, coupling (if differ from standard)		<input type="checkbox"/> Belt <input type="checkbox"/> Direct <input type="checkbox"/> Coupling <input type="checkbox"/> Others : _____ (Please State)	
■ Arrangement (1 & 3 for bare shaft fan; 4, 8 & 12 for complete with drive system)		<input type="checkbox"/> Bare fan <input type="checkbox"/> Complete with drive system	
■ Rotation & Discharge e.g. CCW 270		<input type="checkbox"/> CW <input type="checkbox"/> CCW <input type="checkbox"/> 90 <input type="checkbox"/> 180 <input type="checkbox"/> 270 <input type="checkbox"/> 360	
■ Motor position (refer to diagram) e.g. W		<input type="checkbox"/> W <input type="checkbox"/> X <input type="checkbox"/> Y <input type="checkbox"/> Z	
■ Air Flow Rate		Q : _____ <input type="checkbox"/> L/S <input type="checkbox"/> m <sup>3</sup> /h <input type="checkbox"/> m <sup>3</sup> /min <input type="checkbox"/> m <sup>3</sup> /s <input type="checkbox"/> cfm	
■ Pressure (static & total)		SP : _____ TP : _____ <input type="checkbox"/> Pa <input type="checkbox"/> mmH <sub>2</sub> O <input type="checkbox"/> inWG	
■ Fan RPM (if specified)		Max. : _____ Min. : _____	
■ Noise level		<input type="checkbox"/> dB <input type="checkbox"/> dBA Lw : _____ Lp : _____ at Distance : _____ m <input type="checkbox"/> free field <input type="checkbox"/> room condition <input type="checkbox"/> corner / wall	
■ Ambient temperature		<input type="checkbox"/> Temp. : _____ °C	
■ Air density, if differ from standard		<input type="checkbox"/> Density : _____ kg/m <sup>3</sup> <input type="checkbox"/> Altitude : _____ m	
Motor Details		Fittings Detail	
■ Power	<input type="checkbox"/> kW : _____ <input type="checkbox"/> HP : _____	■ Accessories  <input type="checkbox"/> Inspection door <input type="checkbox"/> Drain plug <input type="checkbox"/> Flexible duct <input type="checkbox"/> Inlet vane control  <input type="checkbox"/> Vibration Isolators: <input type="checkbox"/> Rubber <input type="checkbox"/> Spring <input type="checkbox"/> Floor-mount <input type="checkbox"/> Ceiling-hang  <input type="checkbox"/> Silencers : <input type="checkbox"/> With pod <input type="checkbox"/> Without pod <input type="checkbox"/> Inlet <input type="checkbox"/> Outlet <input type="checkbox"/> Both inlet & outlet  <input type="checkbox"/> Counter-flanges : <input type="checkbox"/> Flat <input type="checkbox"/> L-type <input type="checkbox"/> U-type <input type="checkbox"/> Inlet <input type="checkbox"/> Outlet	
■ No. of Poles / RPM	<input type="checkbox"/> 2P <input type="checkbox"/> 4P <input type="checkbox"/> 6P <input type="checkbox"/> 8P <input type="checkbox"/> Others : _____ (pls state RPM)		
■ Voltage	<input type="checkbox"/> 220V <input type="checkbox"/> 415V <input type="checkbox"/> 380V <input type="checkbox"/> 440V <input type="checkbox"/> 400V <input type="checkbox"/> Others : _____		
■ Phase	<input type="checkbox"/> 1φ <input type="checkbox"/> 3φ		
■ Frequency	<input type="checkbox"/> 50 Hz <input type="checkbox"/> 60 Hz	Special Features	
■ Frame size	<input type="checkbox"/> IEC : _____ <input type="checkbox"/> NEMA : _____ <input type="checkbox"/> Others : _____	■ Other Requirements  <input type="checkbox"/> Painting <input type="checkbox"/> Powder coating <input type="checkbox"/> Hot-dipped galvanizing  <input type="checkbox"/> Spark-resistant <input type="checkbox"/> Corrosion-resistant <input type="checkbox"/> Heat-resistant, temp. _____ °C <input type="checkbox"/> Smoke Spill, Max. temp. _____ °C for _____ Hr	
■ Make, if specified	<input type="checkbox"/> Brand : _____ <input type="checkbox"/> Mfr. : _____ <input type="checkbox"/> Country : _____		

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