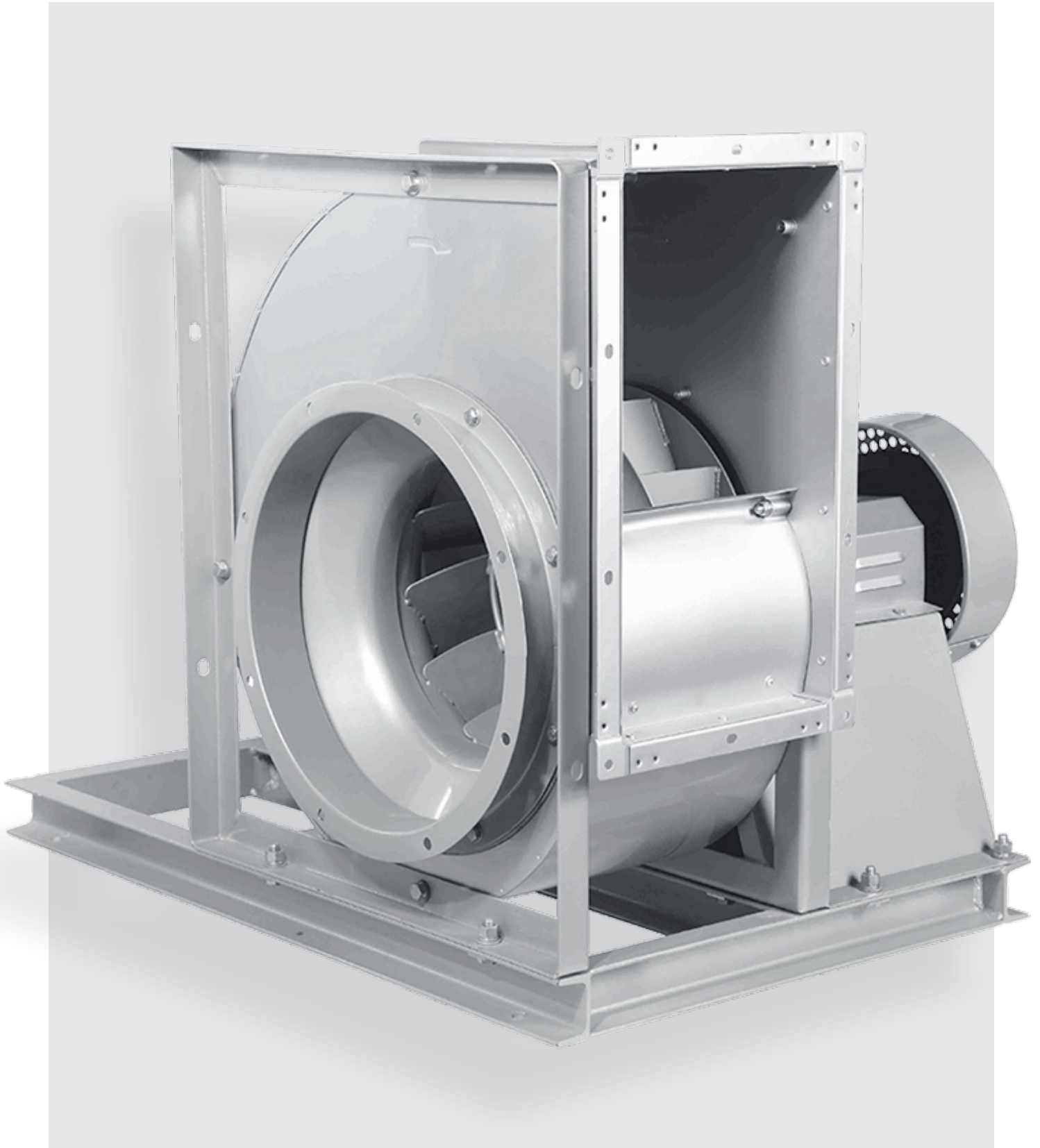


# FTSB

SWSI Backward-curved Centrifugal Fans

# ELTA

AMCA APPROVED



## Product Overview

### Description

FTSB SWSI backward-curved centrifugal fans

Licensed to bear the AMCA Seal for Sound and Air performance and Fan Efficiency Grade (FEG)

15 sizes ranging from 280mm to 1400mm

Air volume flow rates from 700m<sup>3</sup>/h to 120,000m<sup>3</sup>/h

Total pressure from 200 Pa to 3000 Pa

Operating ambient temperature of up to +40°C

Available in 3 versions: Standard (S), Heavy duty (H) & Impeller overhangs bearing pedestal (P)

Each fan comprises a housing unit, impeller, bearing and shaft

If motor is required IP55 protection is standard, Class F insulation with Class B temperature rise

Totally enclosed fan-cooled (TEFC) squirrel cage induction motors

### Features

Housing is made of galvanised steel

Backward-curved impeller and inlet flange are made of high-grade cold-rolled steel

Designed to achieve highly aerodynamic inlet conditions

Frames for S version are made of galvanised angled iron

H and P versions have additional steel plates welded to angled iron frames for enhanced rigidity and strength

Fan shaft is made of carbon steel and coated to resist corrosion

Bearings are of high quality to minimise fan noise

High efficiency & low power consumption

Inlet flange, outlet flange and thermal protection for motors is available upon request

### Construction

Scroll is joint to the side plates through spot welds or Pittsburgh seam

Impellers are welded using high precision machine and balanced to ANSI/AMCA 204

Shafts undergo stress relief and heat treatment process and are designed to operate at 1.4 times the fan maximum running speed

Frames for H and P versions are finished in polyester coating

Bearings are either sealed and maintenance free or have lubrication fittings

Can be built to suit one of the four discharge positions



### Product Coding

Code	Reference
<b>FTSB</b>	SWSI backward curved centrifugal fan
<b>560</b>	Nominal Diameter (mm)
-	
<b>ACW</b>	Direction of rotation (see Fig.1)
<b>90</b>	Discharge position (see Fig.1)
-	
<b>H</b>	Type of construction: S : Standard H : Heavy Duty P : Impeller overhangs bearing pedestal
e.g.	<b>FTSB560-ACW90-H</b>

### Typical applications

Central air-conditioning system

Air purification systems and a variety of ventilation applications

Not suitable for corrosive, inflammable, toxic or explosive environments



Elta Malaysia Sdn Bhd certifies that the FTSB fans shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. All the Centrifugal Fans described herein are licensed to bear the AMCA Seal, and their certified ratings are shown on pages 5 through 19.

Fig 1 : Discharge positions and Direction of rotation

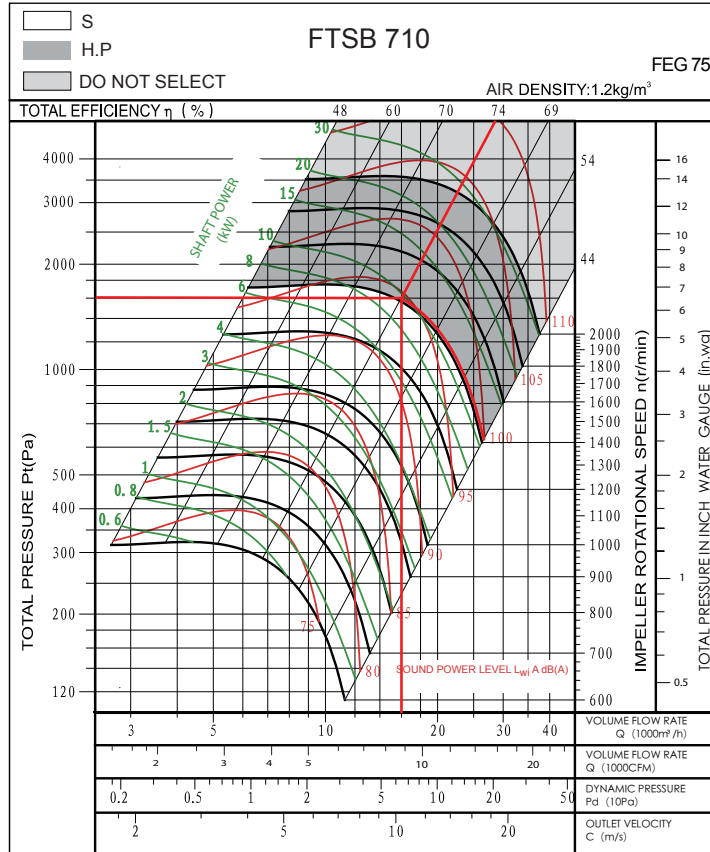
	0°	90°	180°	270°
ACW Anticlockwise				
CW Clockwise				

Note: Direction of rotation is determined from the drive side.

Fig 2 : Types of construction.

Version	Fan Size	Fan Diagram
S	280-710	
H	280-1000	
P	280-1400	

Model	FTSB710H
Volume	$q_v=16000\text{m}^3/\text{h}$
Total Pressure	$P_{tF}=1600\text{Pa}$
Dynamic Pressure	$P_{dF}=64\text{Pa}$
Outlet Velocity	$C=10.35\text{m/s}$
Fan Speed	$n=1430\text{r/min}$
Shaft Power	$P_{sh}=9.5\text{KW}$
A Sound Power Level	$L_{wA}=94\text{dB(A)}$
Total Efficiency	$\eta_{tF}=74\%$



### Motor Selection

The power ( $P_{sh}$ ) on the performance chart refers to the shaft power of the fan.

The rated power of the drive motor equals the total required shaft input multiplied by the safety factor :  $P_{sh.p}=P_{sh} \times K + \eta_{me}$   
 The value of mechanical drive efficiency can be obtained from Table 1.

The required safety factors is provided in Table 2.

(Table 1)

Drive Type	$\eta_{me}$
Motor Direct	1
Coupling Direct	0.98
Belt	0.95

(Table 2)

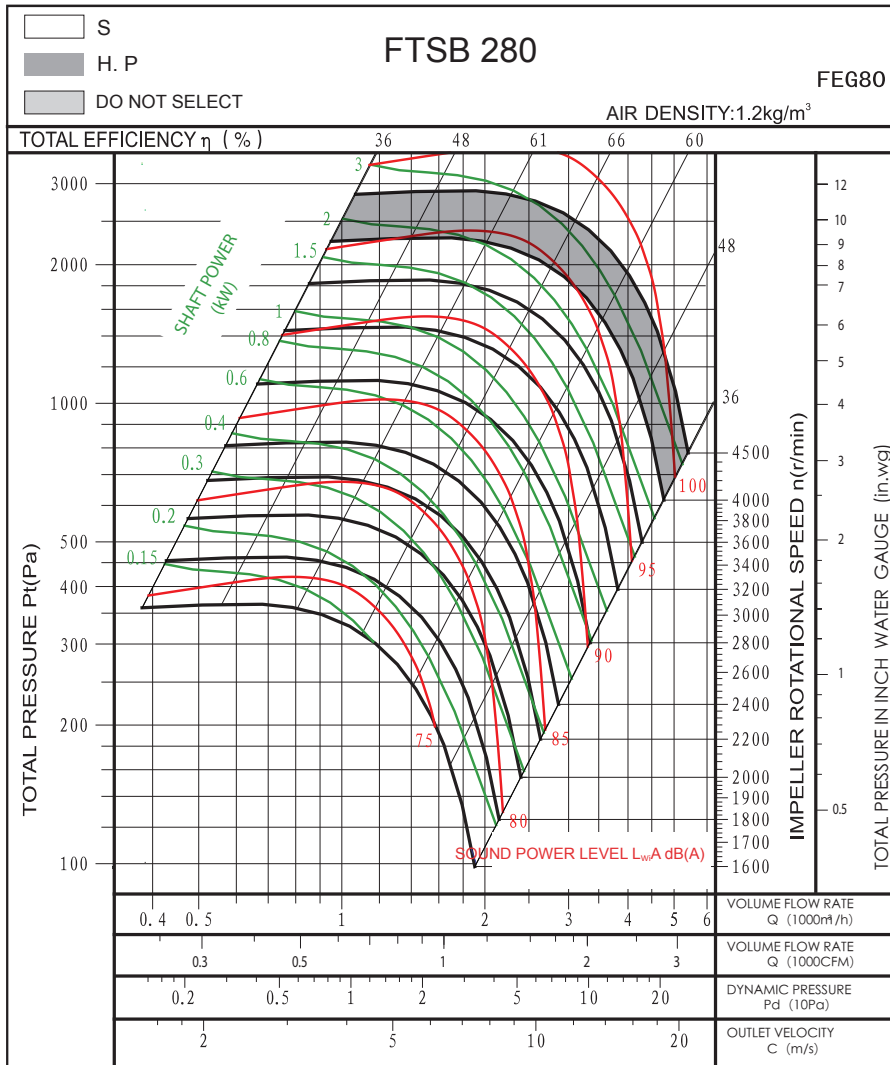
Power of electric motor (Kw)	Value k
$\leq 0.75\text{Kw}$	1.3
$\leq 2.2\text{Kw}$	1.2
$\leq 7.5\text{Kw}$	1.15
$\geq 11\text{Kw}$	1.1

# FTSB280 FEG80

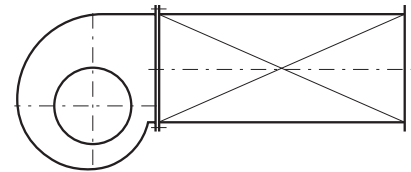
## Technical Data & Performance Curve

Wheel diameter	D = 280 mm	Fan weight	m = 17 kg
Moment of inertia	J = 0.04kg·m <sup>2</sup>	Speed limit	n <sub>max</sub> = 4500 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>wA</sub> sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

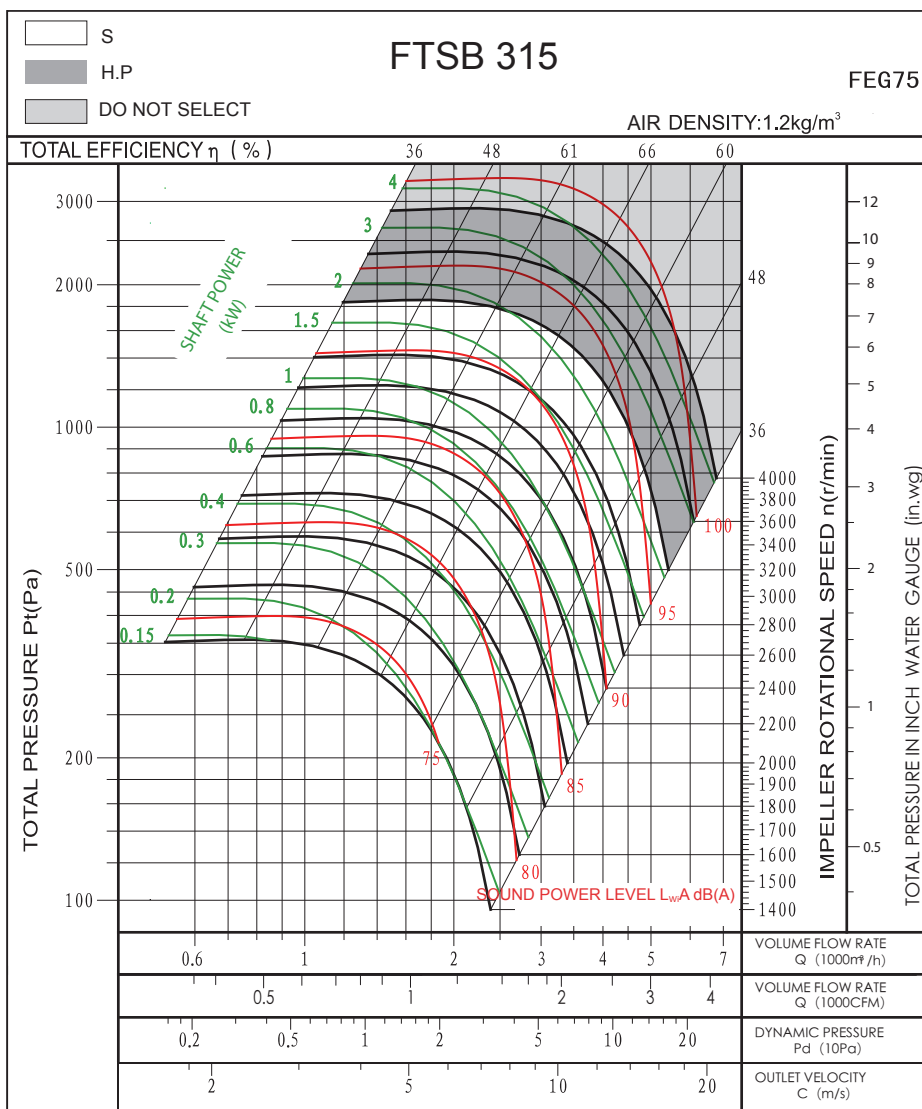


# FTSB315 FEG75

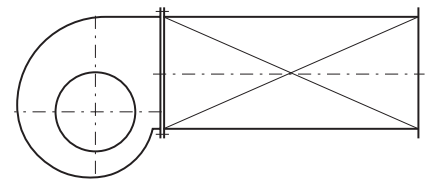
## Technical Data & Performance Curve

Wheel diameter	D = 315 mm	Fan weight	m = 27 kg
Moment of inertia	J = 0.06kg·m <sup>2</sup>	Speed limit	n <sub>max</sub> = 4000 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>wA</sub> sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

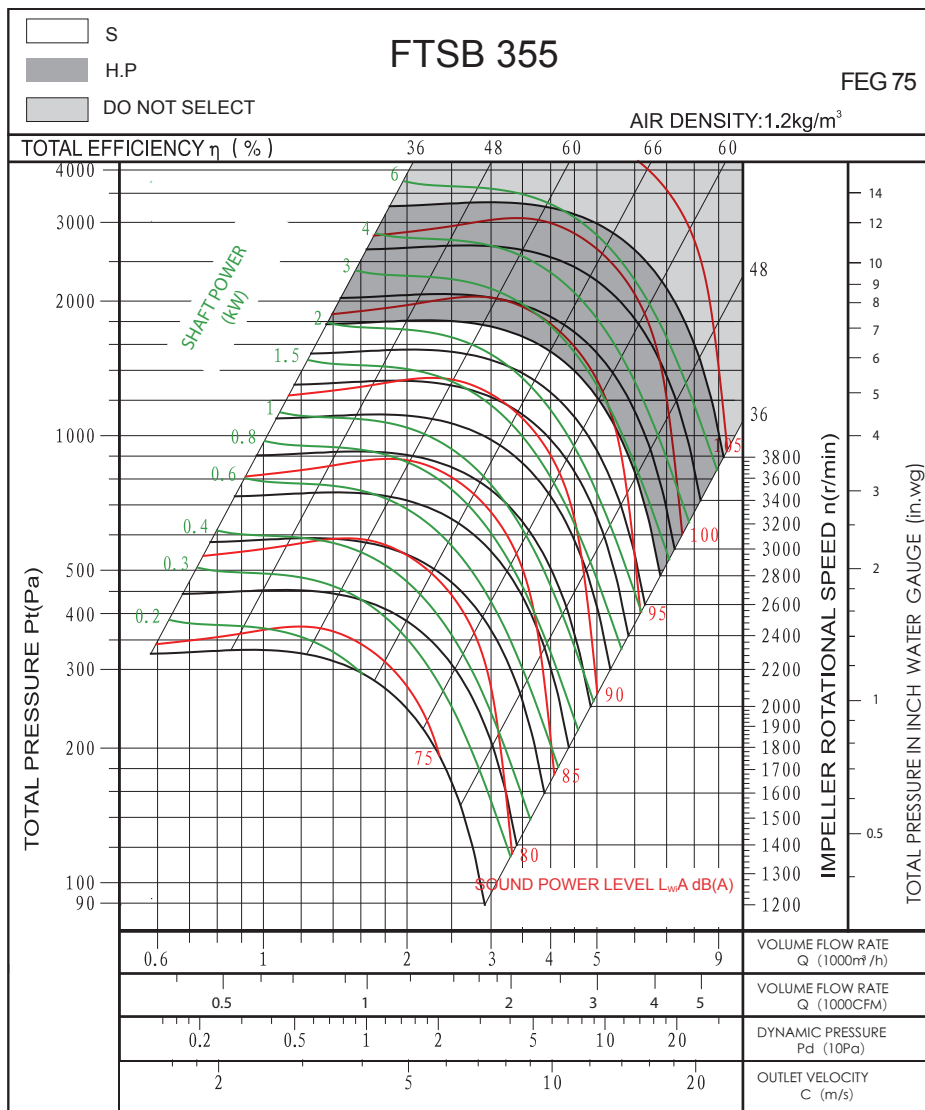


# FTSB355 FEG75

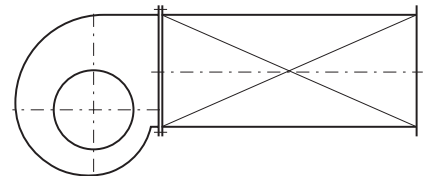
## Technical Data & Performance Curve

Wheel diameter	D = 355 mm	Fan weight	m = 39kg
Moment of inertia	J = 0.112kg·m <sup>2</sup>	Speed limit	n <sub>max</sub> = 3800 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>WA</sub> sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

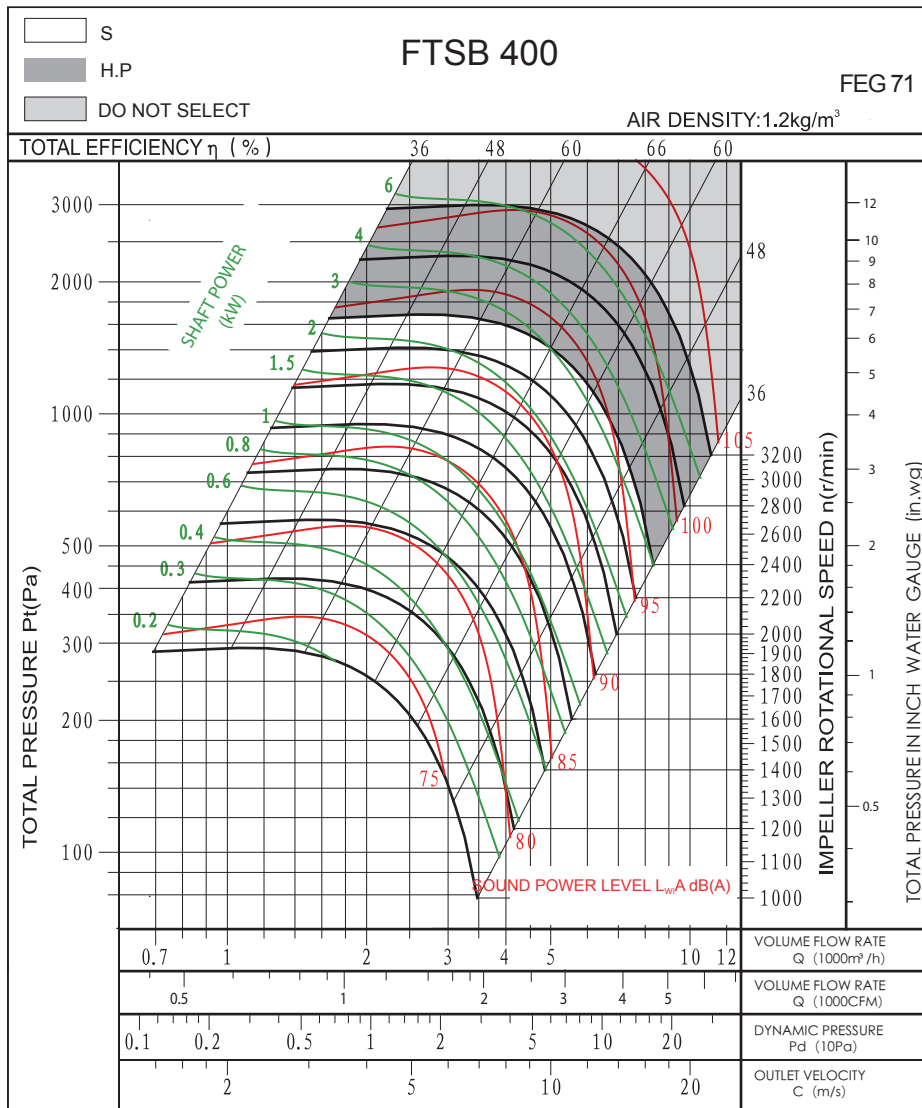


# FTSB400 FEG71

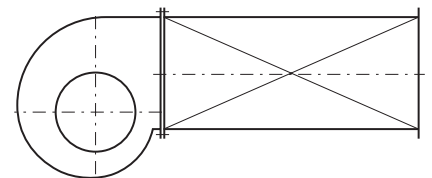
## Technical Data & Performance Curve

Wheel diameter	D = 400 mm	Fan weight	m = 44 kg
Moment of inertia	J = 0.185kg·m <sup>2</sup>	Speed limit	n <sub>max</sub> = 3200 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>wA</sub> sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

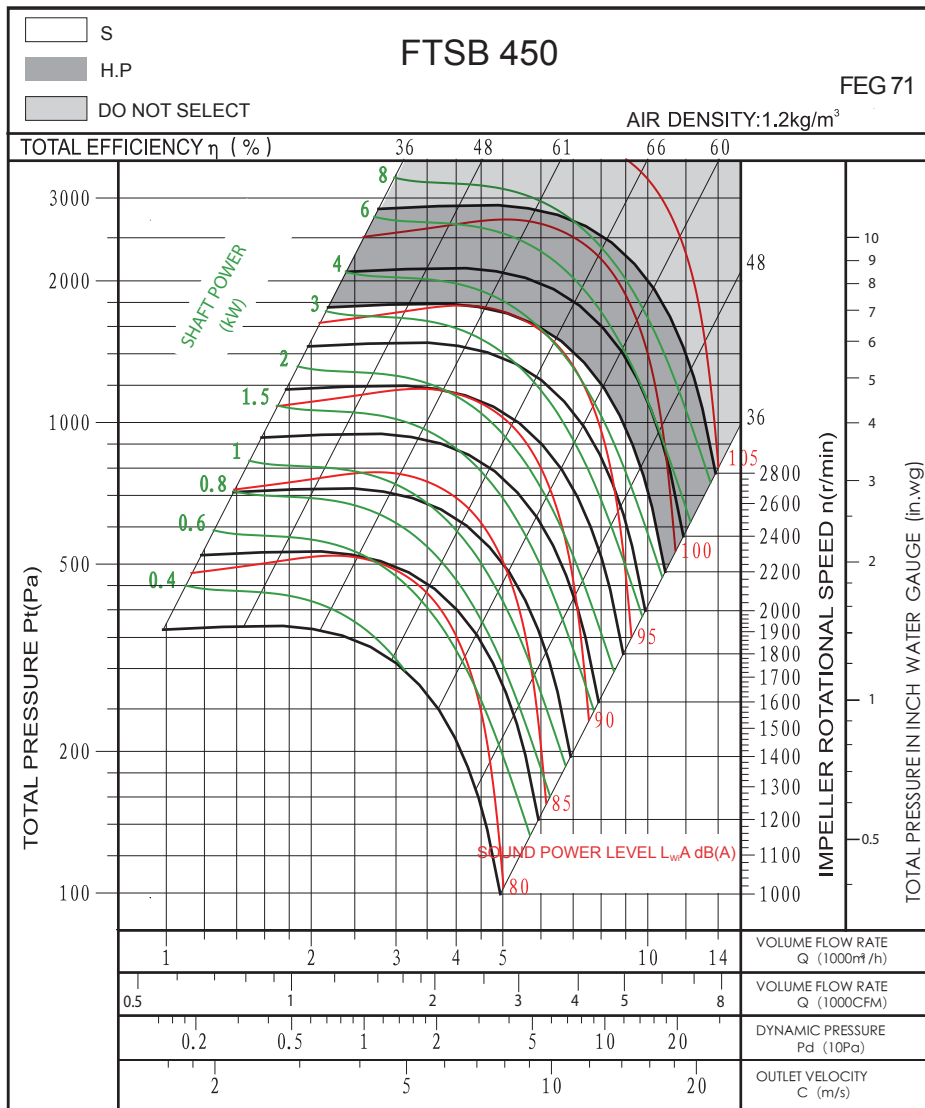


# FTSB450 FEG71

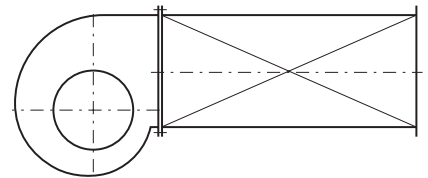
## Technical Data & Performance Curve

Wheel diameter	D = 450 mm	Fan weight	m = 55 kg
Moment of inertia	J = 0.29kg m <sup>2</sup>	Speed limit	n <sub>max</sub> = 2800 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>wA</sub> sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

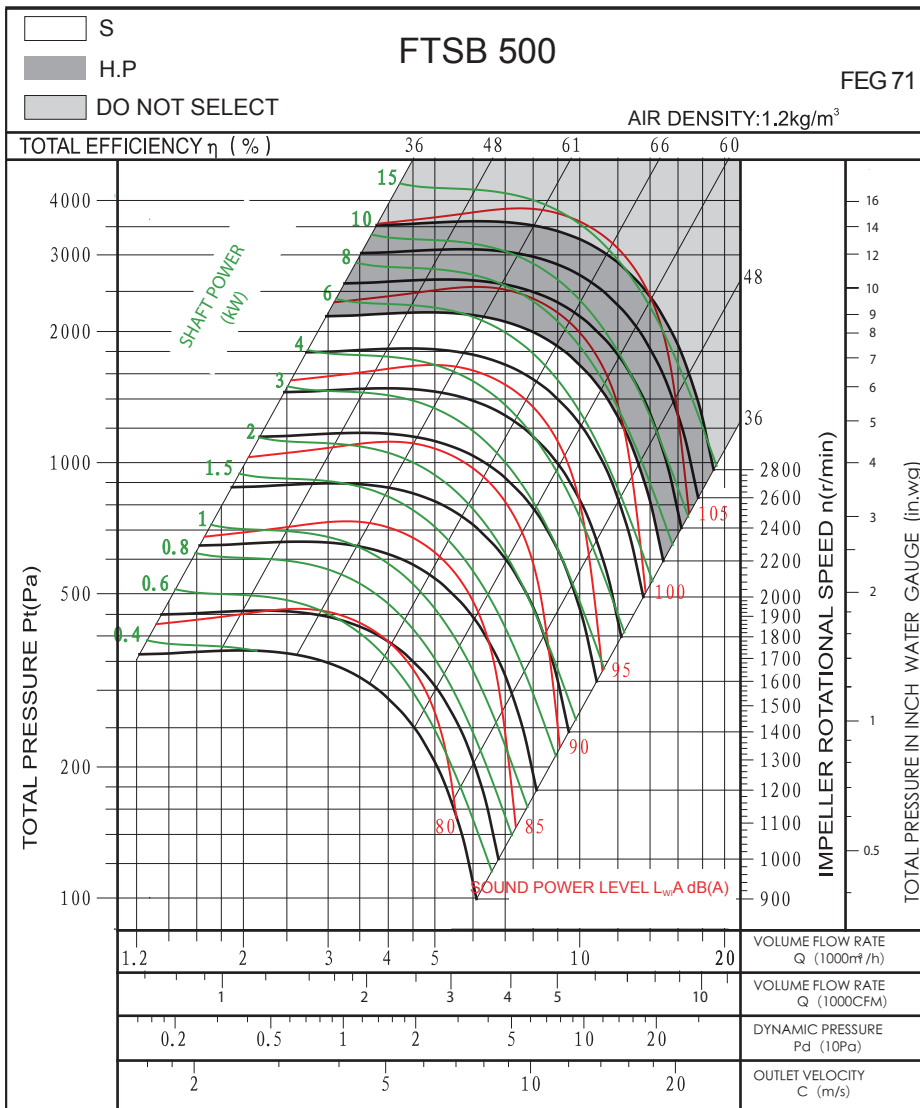


# FTSB500 FEG71

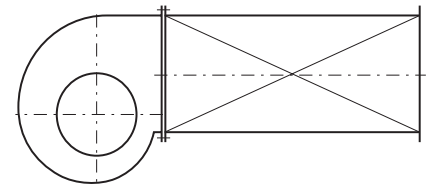
## Technical Data & Performance Curve

Wheel diameter	D = 500 mm	Fan weight	m = 70 kg
Moment of inertia	J = 0.49 kg·m <sup>2</sup>	Speed limit	n <sub>max</sub> = 2800 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>w</sub>A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

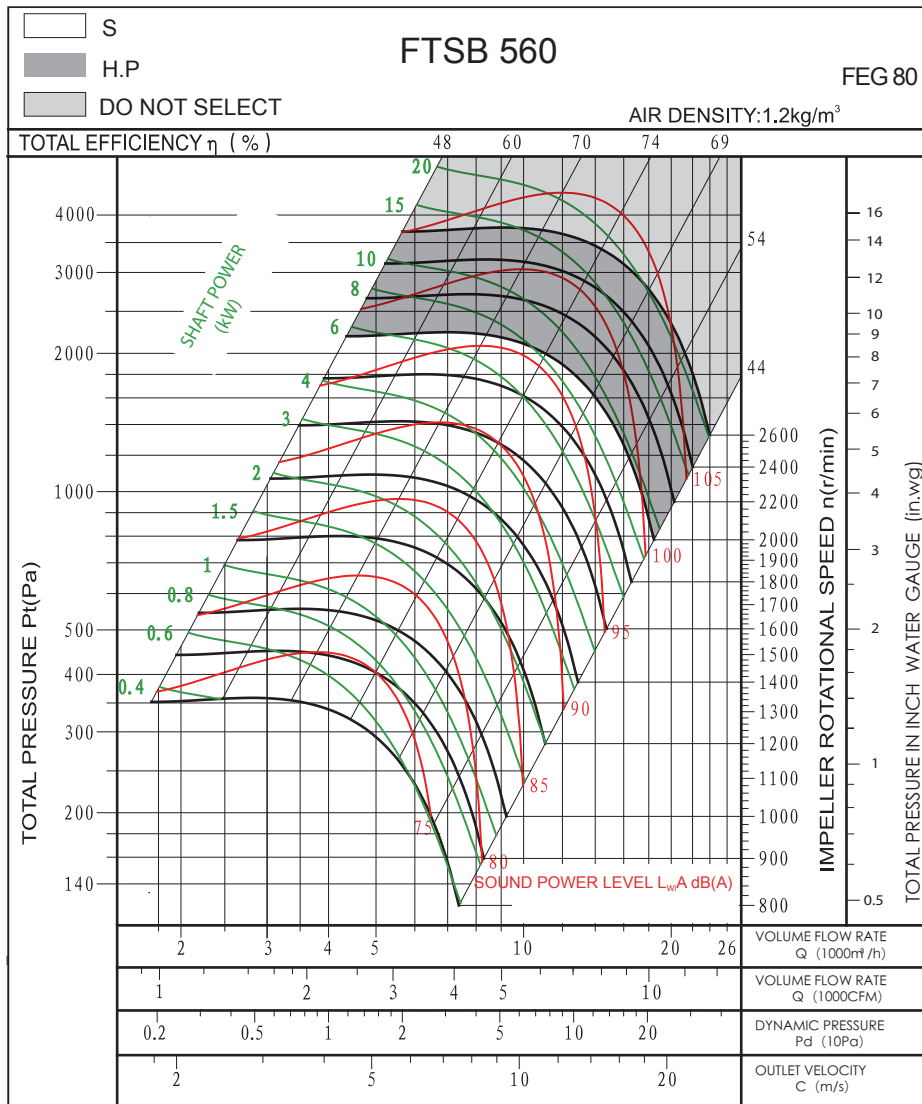


# FTSB560 FEG80

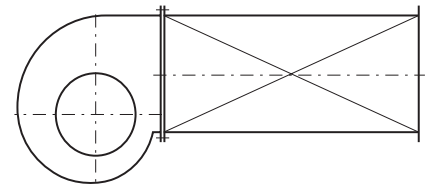
## Technical Data & Performance Curve

Wheel diameter	D = 560 mm	Fan weight	m = 110 kg
Moment of inertia	J = 0.78 kg·m <sup>2</sup>	Speed limit	n <sub>max</sub> = 2600 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>wA</sub> sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

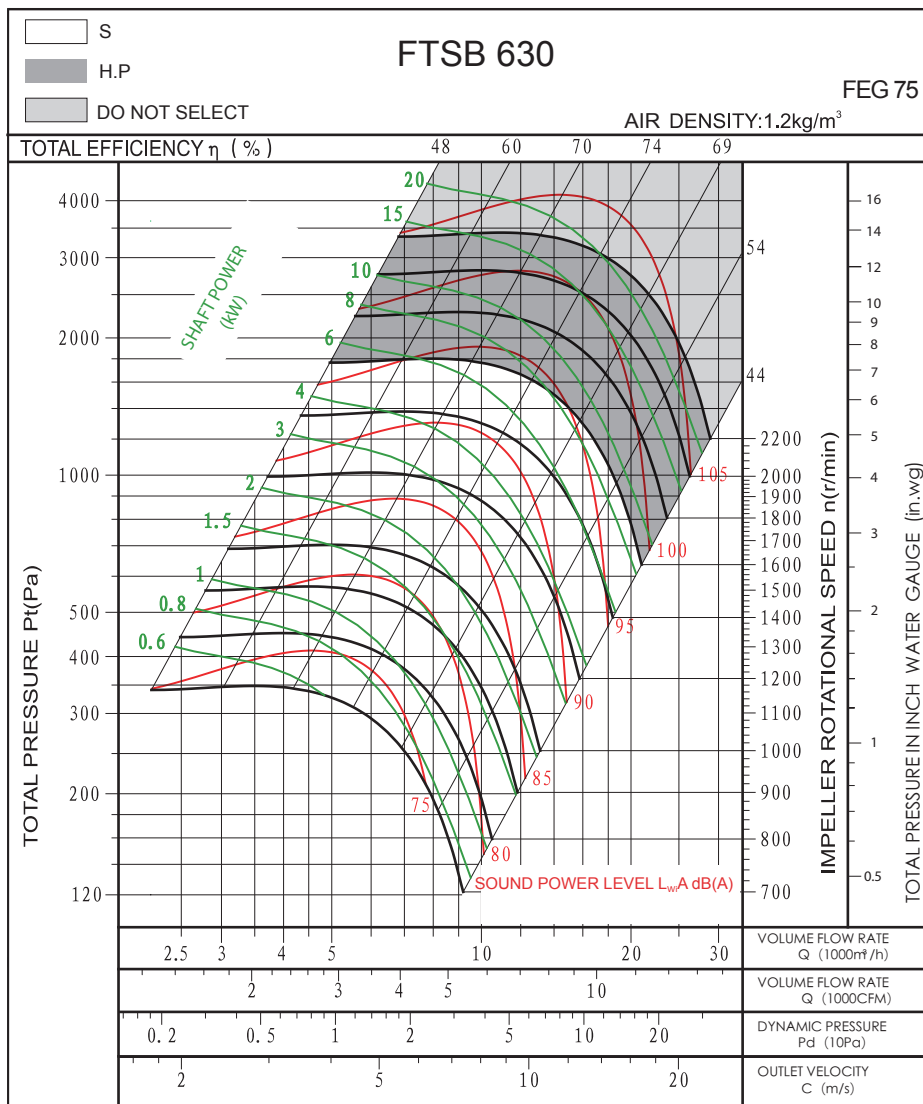


# FTSB630 FEG75

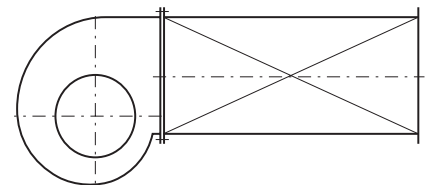
## Technical Data & Performance Curve

Wheel diameter	D =630 mm	Fan weight	m =125 kg
Moment of inertia	J =1.28 kg·m <sup>2</sup>	Speed limit	n <sub>max</sub> = 2200 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>w</sub>A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

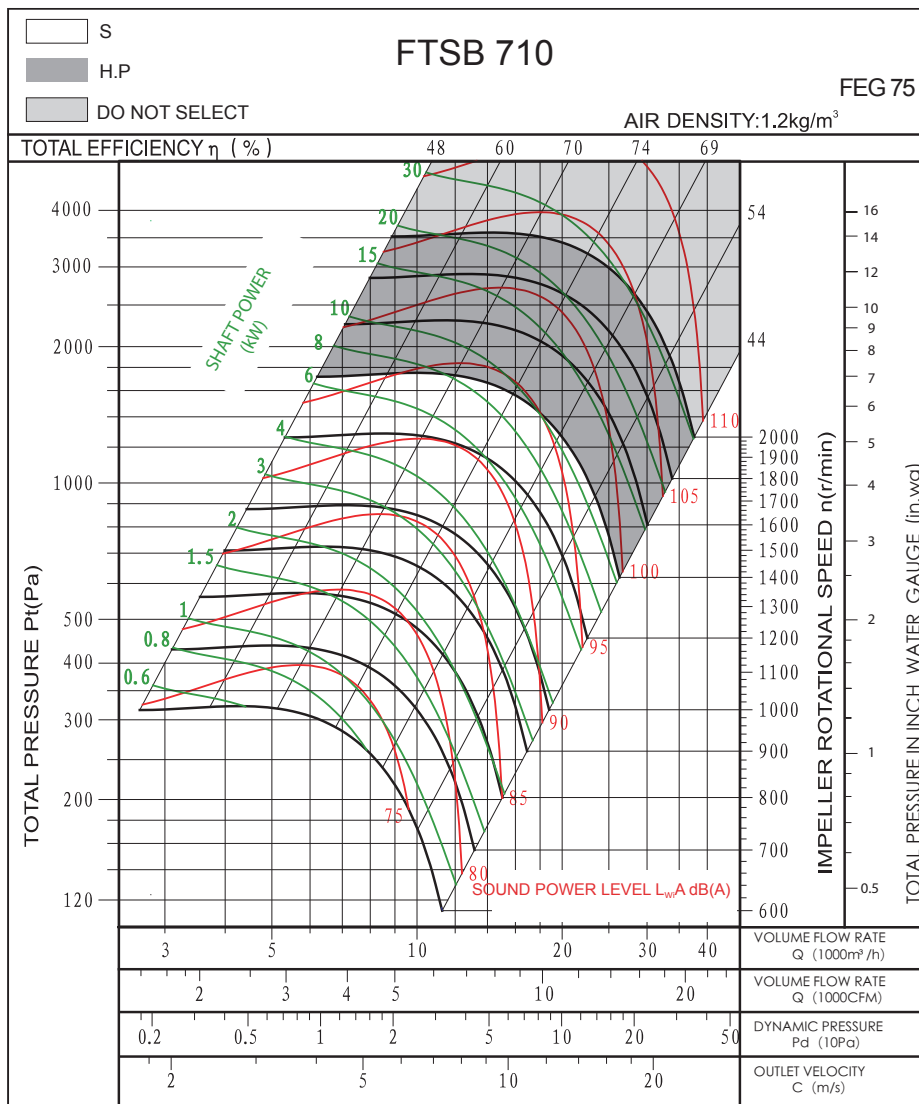


# FTSB710 FEG75

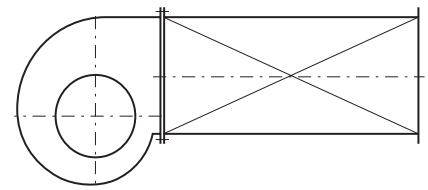
## Technical Data & Performance Curve

Wheel diameter	D = 710 mm	Fan weight	m =215 kg
Moment of inertia	J = 2.61 kg·m <sup>2</sup>	Speed limit	n <sub>max</sub> = 2000 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>w</sub>A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

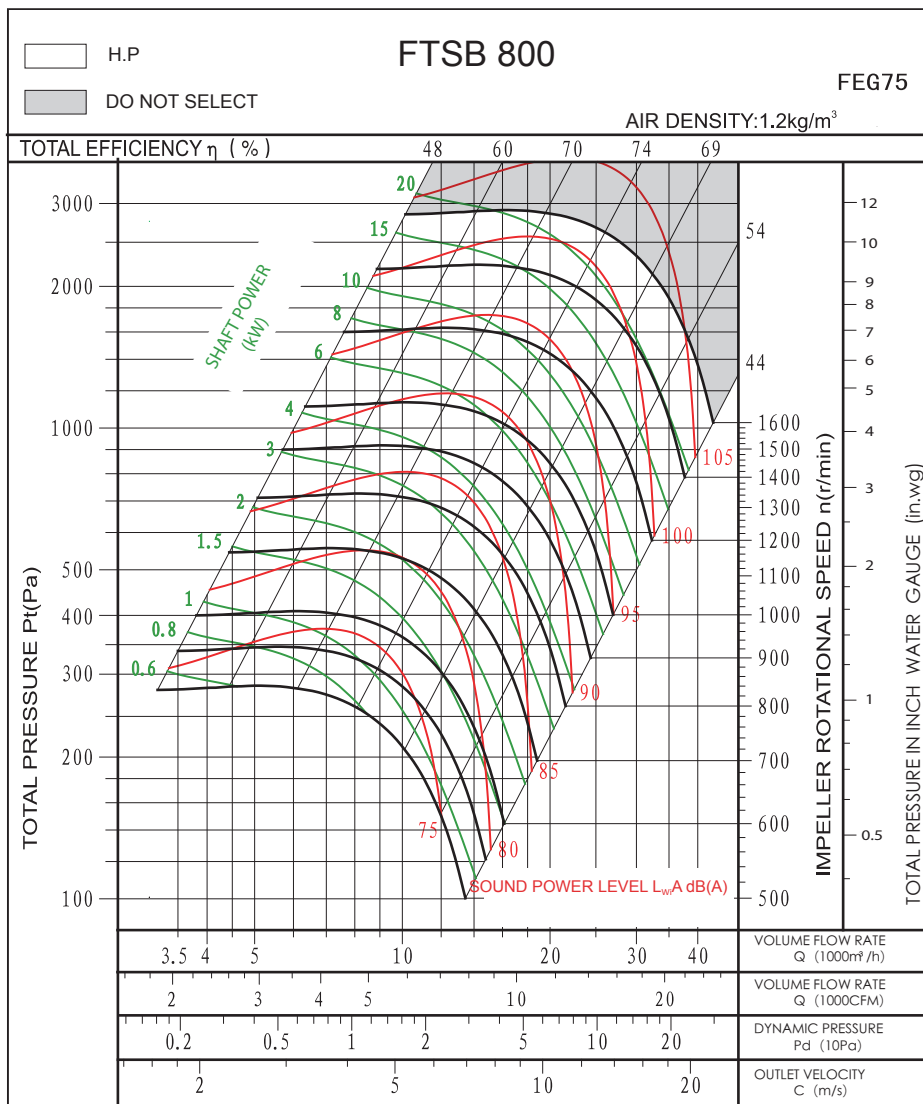


# FTSB800 FEG75

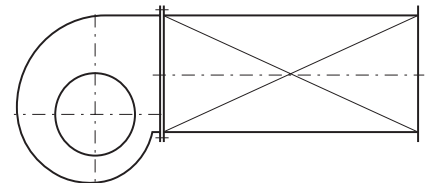
## Technical Data & Performance Curve

Wheel diameter	D = 800 mm	Fan weight	m =245 kg
Moment of inertia	J = 5.09kg·m <sup>2</sup>	Speed limit	n <sub>max</sub> 1400 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>WA</sub> sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

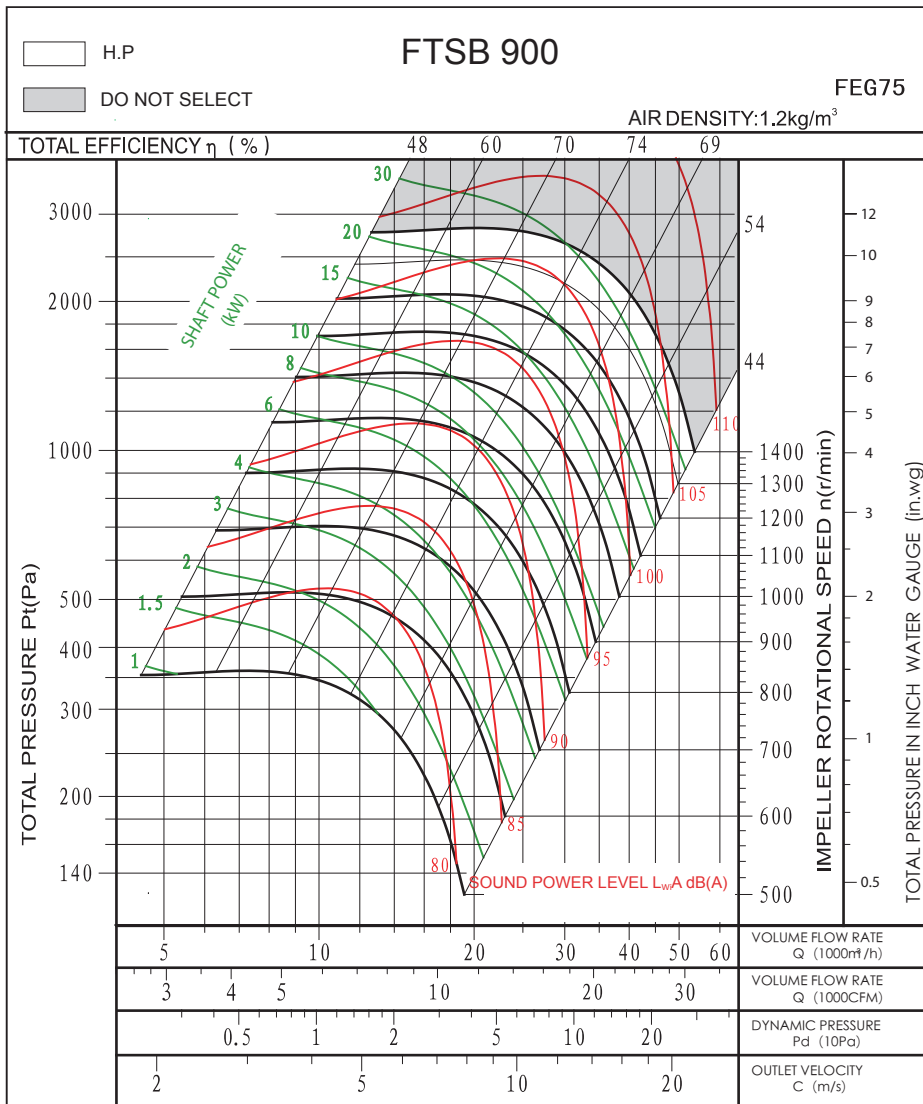


# FTSB900 FEG75

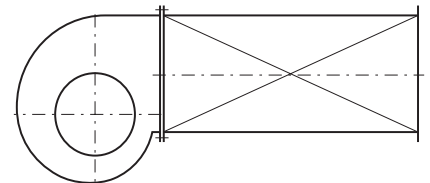
## Technical Data & Performance Curve

Wheel diameter	D = 900 mm	Fan weight	m =350 kg
Moment of inertia	J = 7.59kg·m <sup>2</sup>	Speed limit	n <sub>max</sub> =1400 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>wA</sub> sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

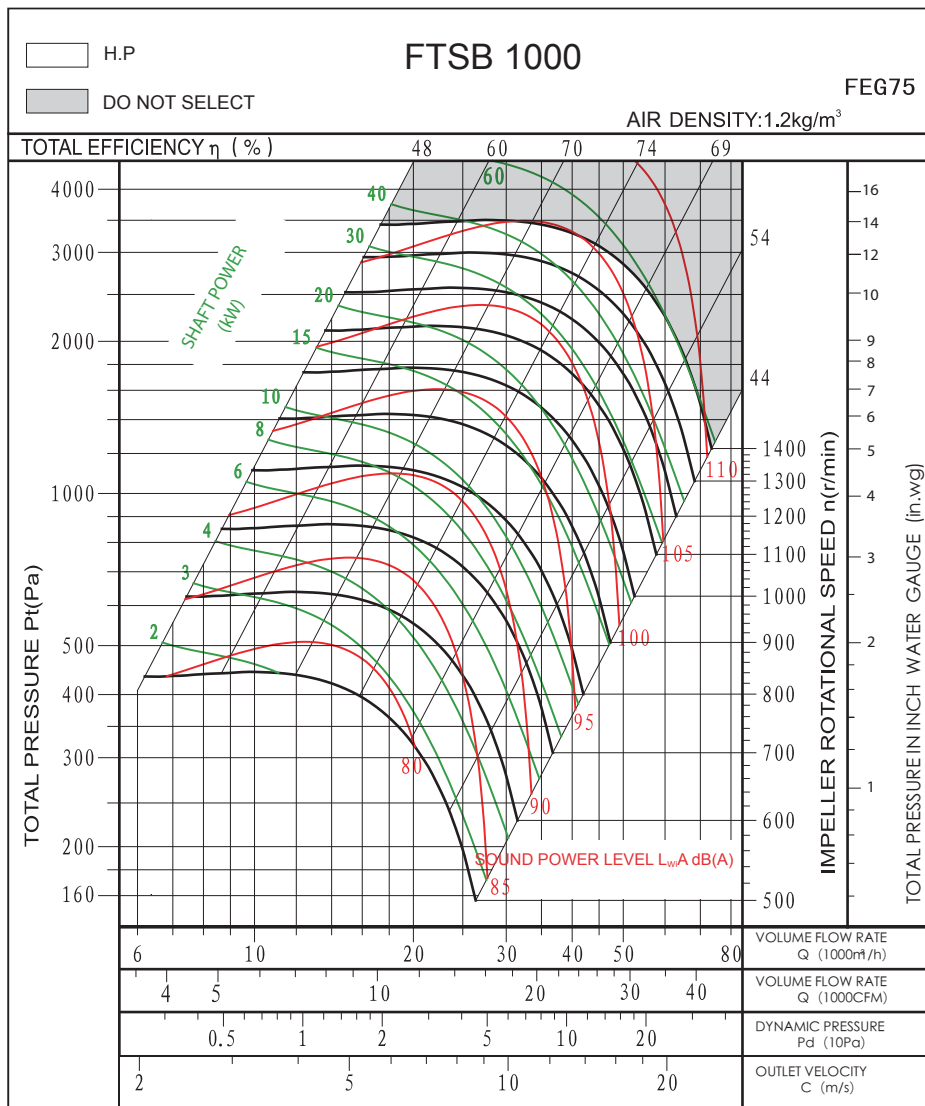


# FTSB1000 FEG75

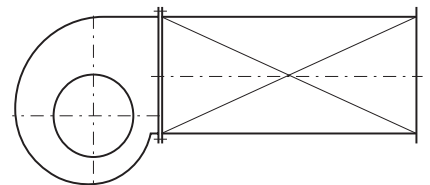
## Technical Data & Performance Curve

Wheel diameter	D = 1000 mm	Fan weight	m =435 kg
Moment of inertia	J =13.64kg·m <sup>2</sup>	Speed limit	n <sub>max</sub> =1400 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>w</sub>A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

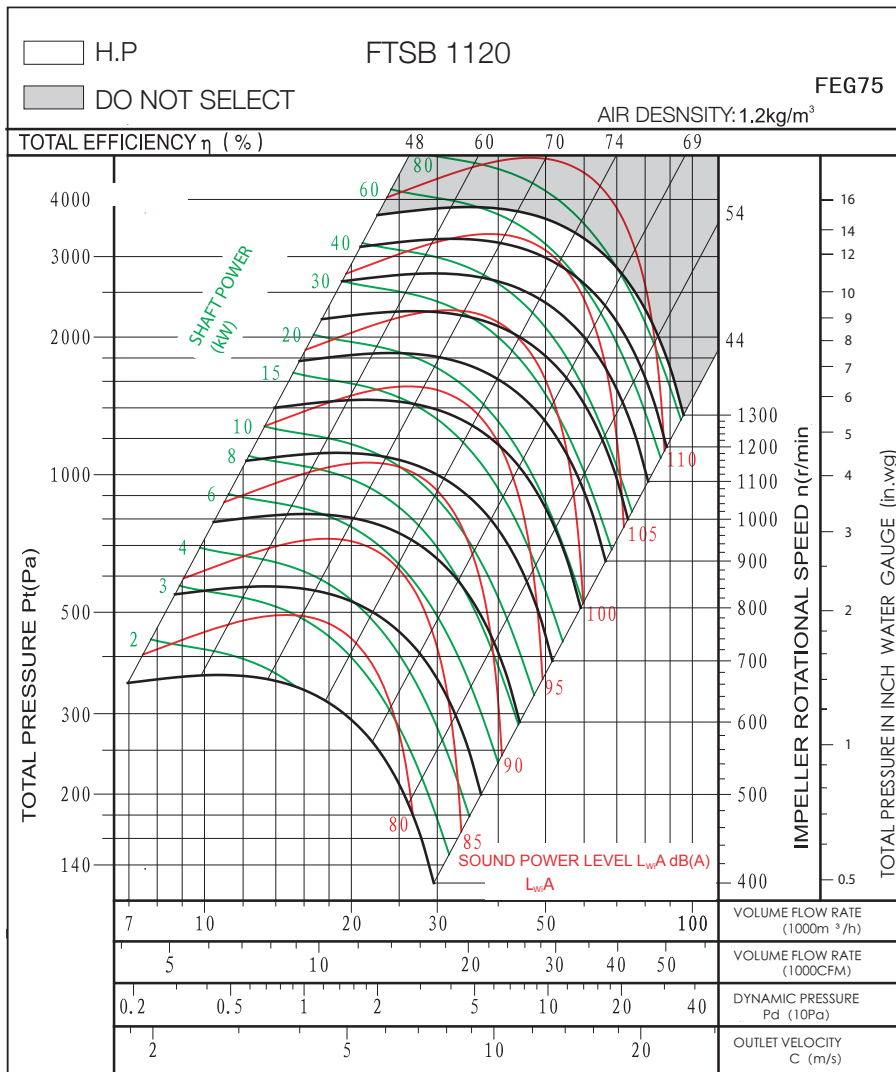


# FTSB1120 FEG75

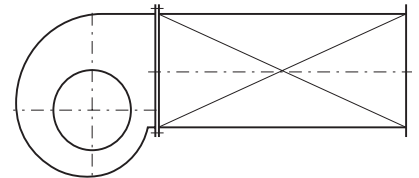
## Technical Data & Performance Curve

Wheel diameter	D = 1120mm	Fan weight	m = 600 kg
Moment of inertia	J = 23.93kg m <sup>2</sup>	Speed limit	n <sub>max</sub> = 1300 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>w</sub>A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

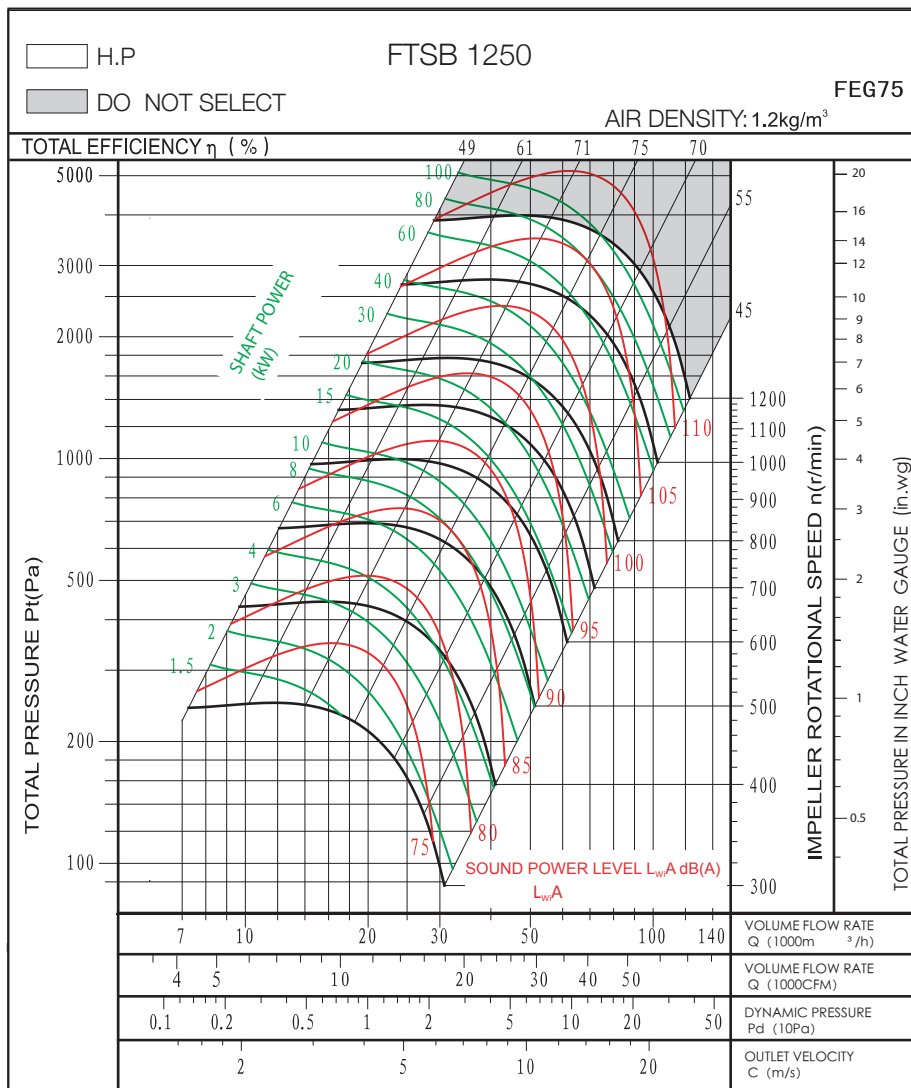


# FTSB1250 FEG75

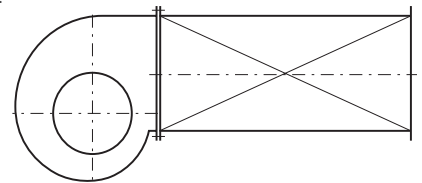
## Technical Data & Performance Curve

Wheel diameter	D = 1250 mm	Fan weight	m = 790 kg
Moment of inertia	J = 41.7 kg m <sup>2</sup>	Speed limit	n <sub>max</sub> = 1200 r/min

Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>wA</sub> sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:

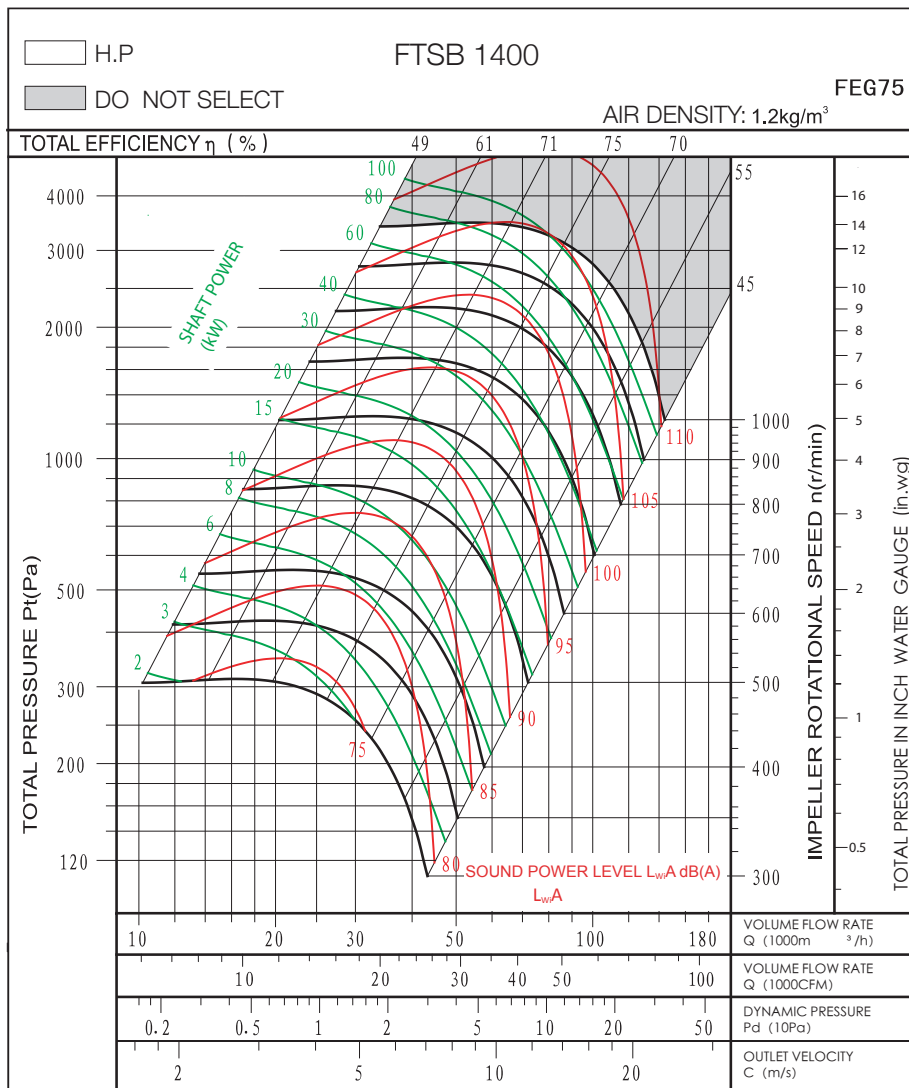


# FTSB1400 FEG75

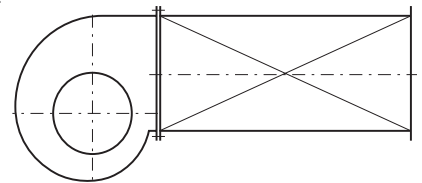
## Technical Data & Performance Curve

Wheel diameter	D = 1400mm	Fan weight	m = 1080 kg
Moment of inertia	J = 77.4 kg m <sup>2</sup>	Speed limit	n <sub>max</sub> = 1000 r/min

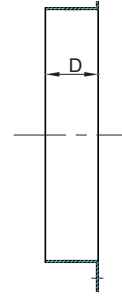
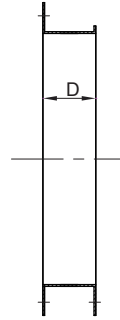
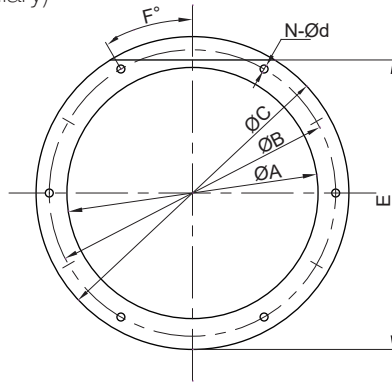
Performance certified is for installation type B: free inlet, ducted outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet L<sub>w</sub>A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



### Inlet Flange (Ancillary)



H-flange

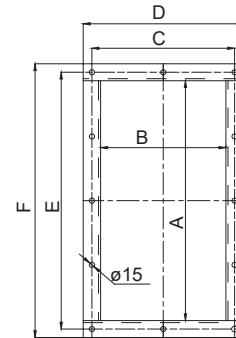
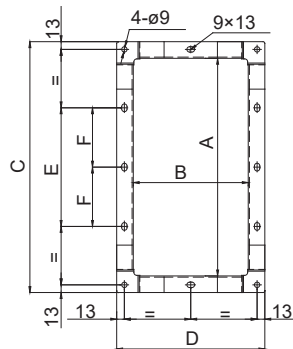
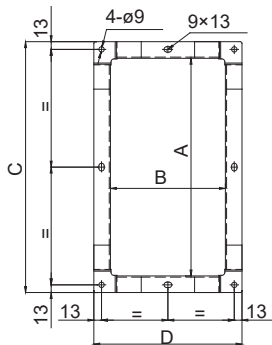
L-flange

Unit: mm

Model Dim	280	315	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400
A	293	312	350	396	449	508	569	634	706	800	896	994	1130	1264	1404
B	325	344	386	432	485	544	605	670	750	844	945	1044	1180	1310	1450
C	353	372	410	456	509	568	635	700	786	880	980	1084	1226	1360	1500
D	60	60	60	60	60	60	60	60	60	80	80	80	100	100	100
E	327.5	354	396	440	491.5	546	609.5	681	765	856	945	1060	1193	1320	1484
F°	0	30	22.5	22.5	22.5	0	0	0	18	0	0	0	0	0	0
N-d	6x9	6x9	8x9	8x11	8x11	8x11	8x13	10x13	10x13	12x13	12x13	12x13	12x15	16x17	14x17

Note: Customers can choose H-type flange or L-type flange. The default is the L-type flange.

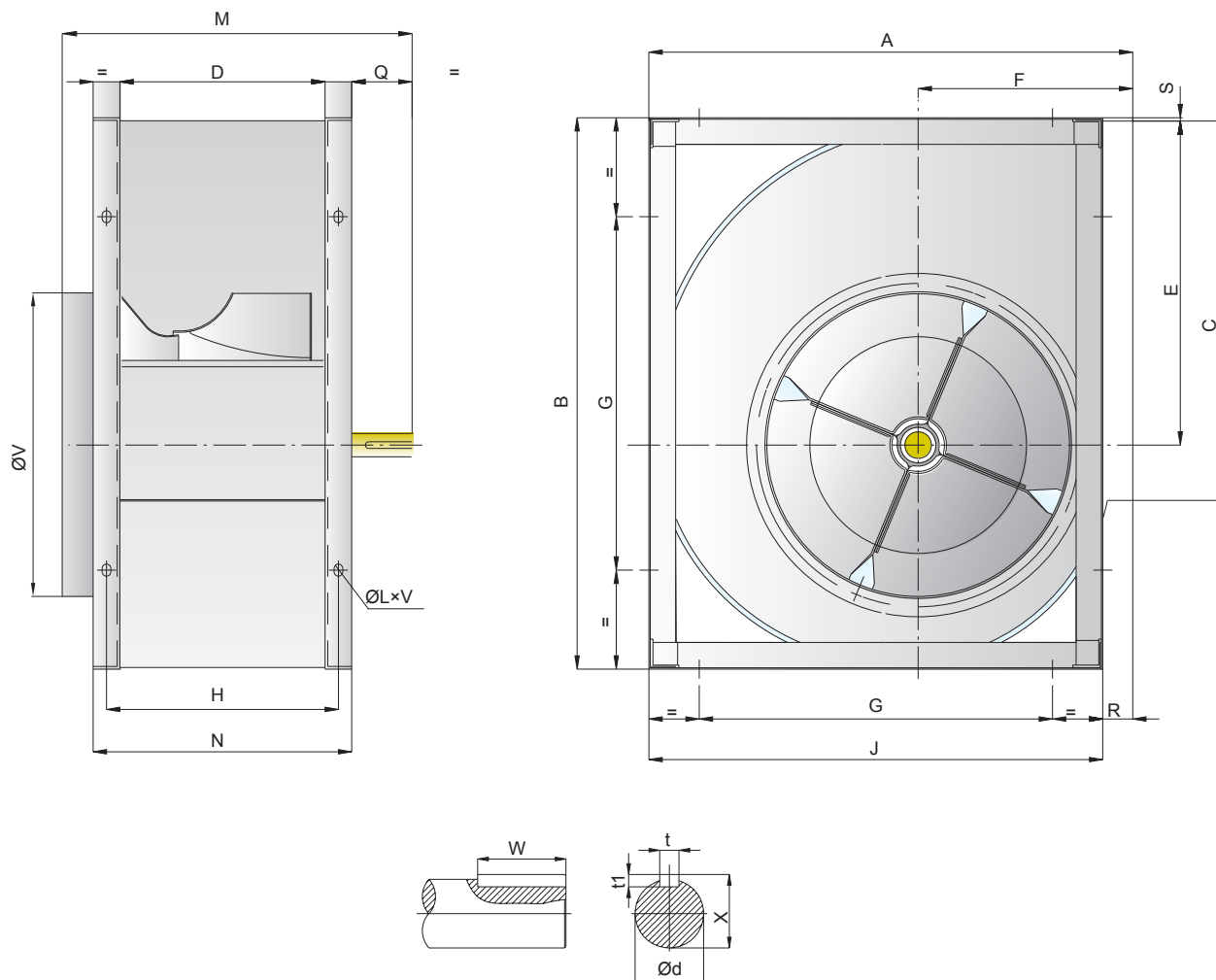
### Outlet Flange (Ancillary)



Unit: mm

Model Dim	280	315	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400
A	361	404	453	507	569	638	715	801	898	1007	1130	1267	725	804	902
B	197	223	247	274	308	344	383	432	478	533	595	663	705	1590	1776
C	417	460	509	563	625	694	771	857	954	1063	1186	1323	757	854	952
D	253	279	303	330	364	400	439	488	534	589	651	719	805	904	1002
E	\	\	\	200	200	250	250	300	400	500	600	700	1478	1640	1826
F	\	\	\	\	\	\	\	\	200	250	300	350	1526	1690	1876

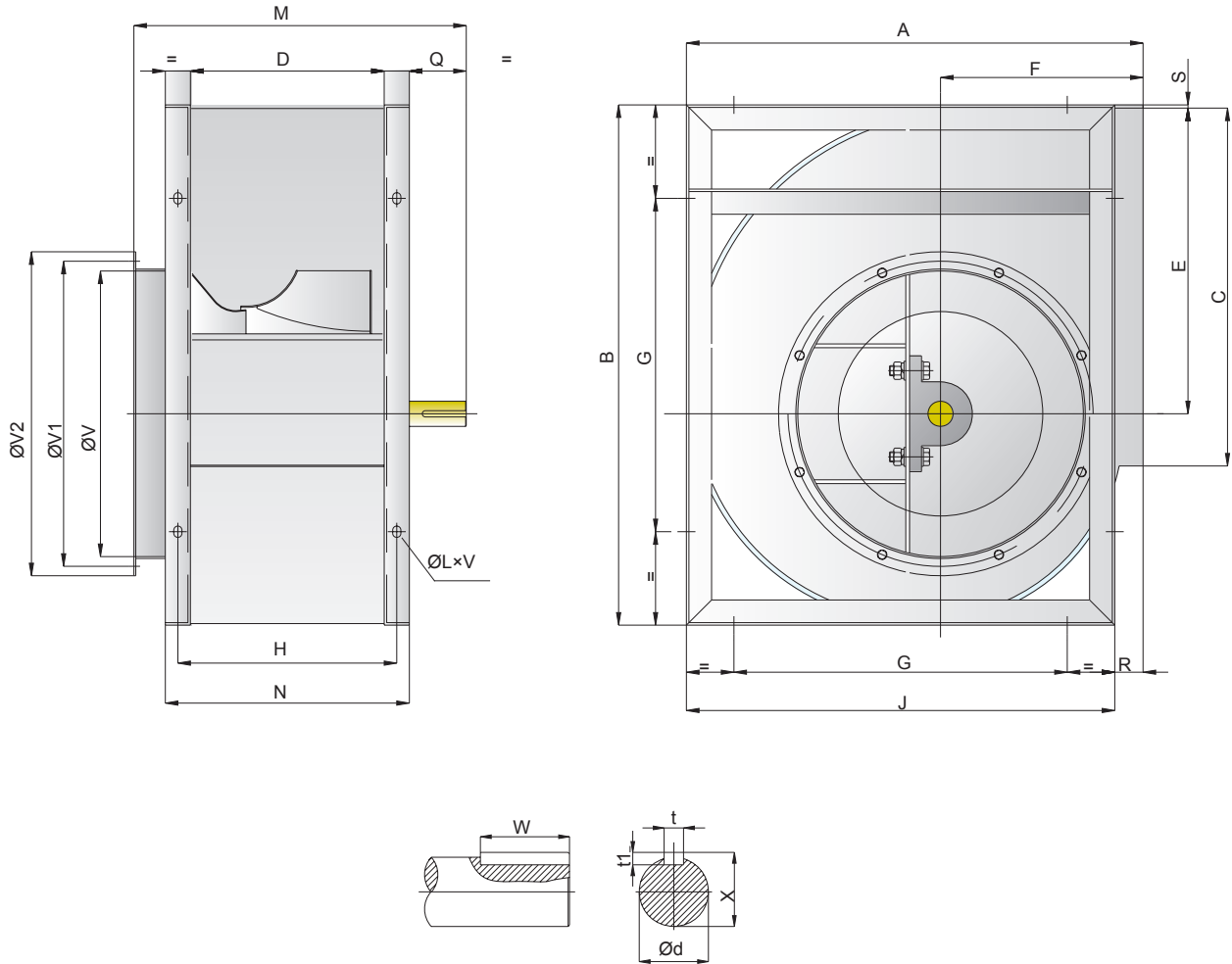
### FTSB-S



Unit : mm

Dim. Size	A	B	C	D	E	F	G	H	J	K	M	N	Q	R	S	V	t	t1	W	X	$\varnothing d$	LxV
280	466	518	361	197	302	215	280	227	432	30	360	257	73	34	5	292	8	7	50	28	25	13x18
315	518	578	404	223	340	236	280	253	480	30	395	283	83	38	3	322	8	7	60	28	25	13x18
355	578	655	453	247	383	261	355	287	548	40	425	327	78	30	6	362	8	7	60	33	30	13x18
400	651	736	507	274	431.5	290	355	314	613	40	452	354	78	38	4.5	404	8	7	60	33	30	13x18
450	726	827	569	308	486	322	530	348	681	40	500	388	92	45	5	448	10	8	70	38	35	13x18
500	800	918	638	344	538	352	530	394	750	40	535	424	92	50	5	510	10	8	70	38	35	13x18
560	893	1030	715	383	602	390	530	433	845	50	600	483	87	48	8	570	12	8	70	43	40	13x18
630	999	1157	801	432	678.5	434	530	482	946	50	650	532	87	53	7	635	14	9	70	48.5	45	13x18
710	1121	1303	898	478	765	485	630	528	1058	50	725	578	115	63	7	722	14	9	90	48.5	50	17x22

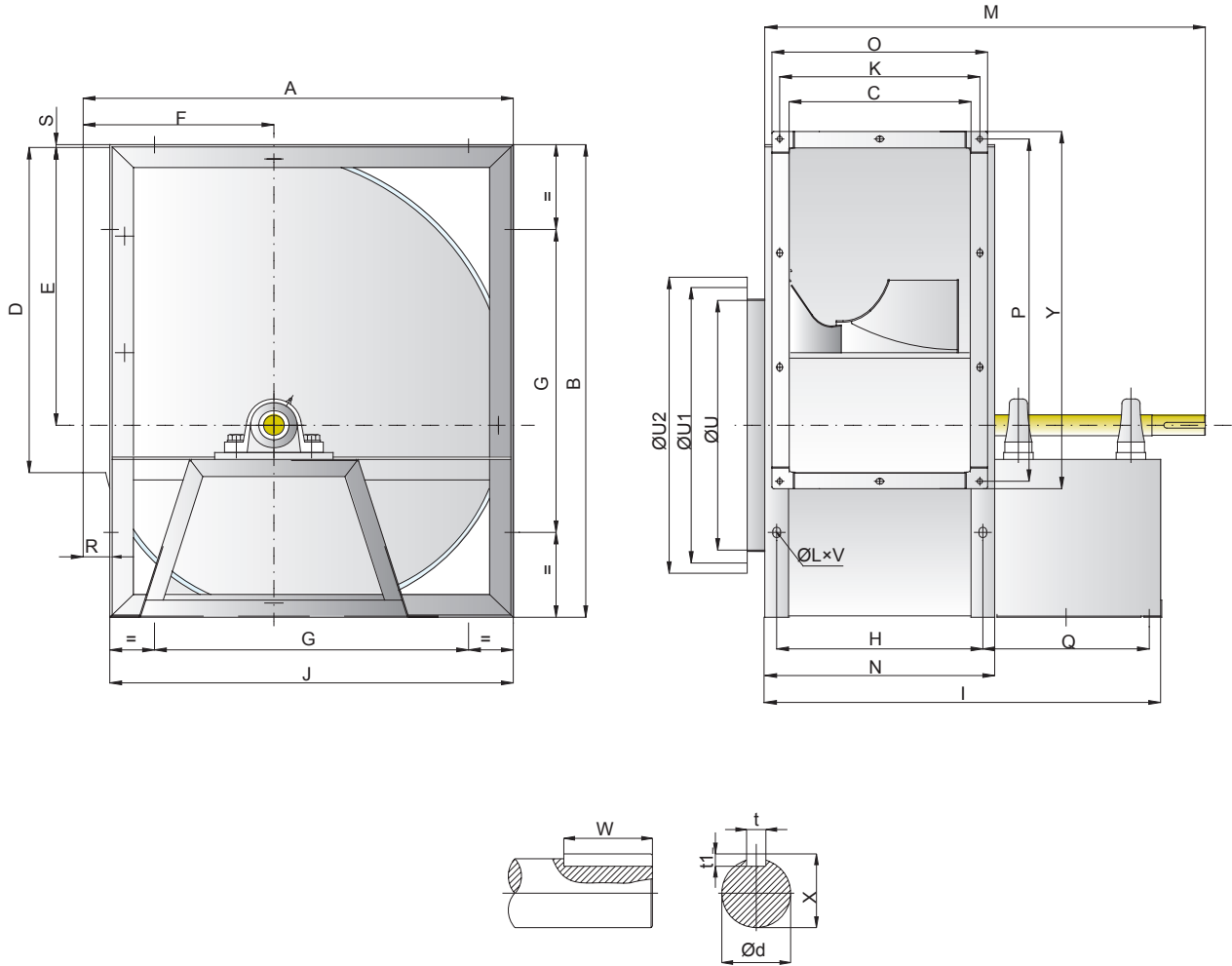
### FTSB-H



Unit : mm

Dim. Size	A	B	C	D	E	F	G	H	J	K	M	N	Q	R	S	V	V1	V2	t	t1	W	X	Φd	LxV
280	466	518	361	197	302	215	280	227	432	30	405	257	86	34	5	292	325	355	8	7	60	33	30	13x18
315	518	578	404	223	340	236	280	253	480	30	440	283	96	38	3	322	344	383	8	7	70	33	30	13x18
355	578	655	453	247	383	261	355	287	548	40	470	327	91	30	6	362	386	423	10	8	70	38	35	13x18
400	651	736	507	274	431.5	290	355	314	613	40	497	354	91	38	4.5	404	432	466	10	8	70	38	35	13x18
450	726	827	569	308	486	322	530	348	681	40	556	388	116	45	5	448	485	515	12	8	90	43	40	13x18
500	800	918	638	344	538	352	530	394	750	40	592	424	116	50	5	510	544	570	12	8	90	43	40	13x18
560	893	1030	715	383	602	390	530	433	845	50	640	483	115	48	8	570	605	635	14	9	90	53.5	50	13x18
630	999	1157	801	432	678.5	434	530	482	946	50	690	532	115	53	7	635	670	700	14	9	90	53.5	50	13x18
710	1121	1303	898	478	765	485	630	528	1058	50	746	578	126	63	7	722	750	778	18	11	90	64	60	17x22
800	1250	1468	1107	533	862	535	710	583	1181	50	801	633	126	69	7	808	844	875	18	11	90	64	60	17x22
900	1408	1648	1130	595	971	604	800	655	1319	60	880	715	135	89	7	896	945	980	18	11	100	69	65	17x22
1000	1541	1810	1267	663	1066	657	900	713	1462	60	950	783	135	79	9	996	1044	1080	18	11	100	69	65	17x22

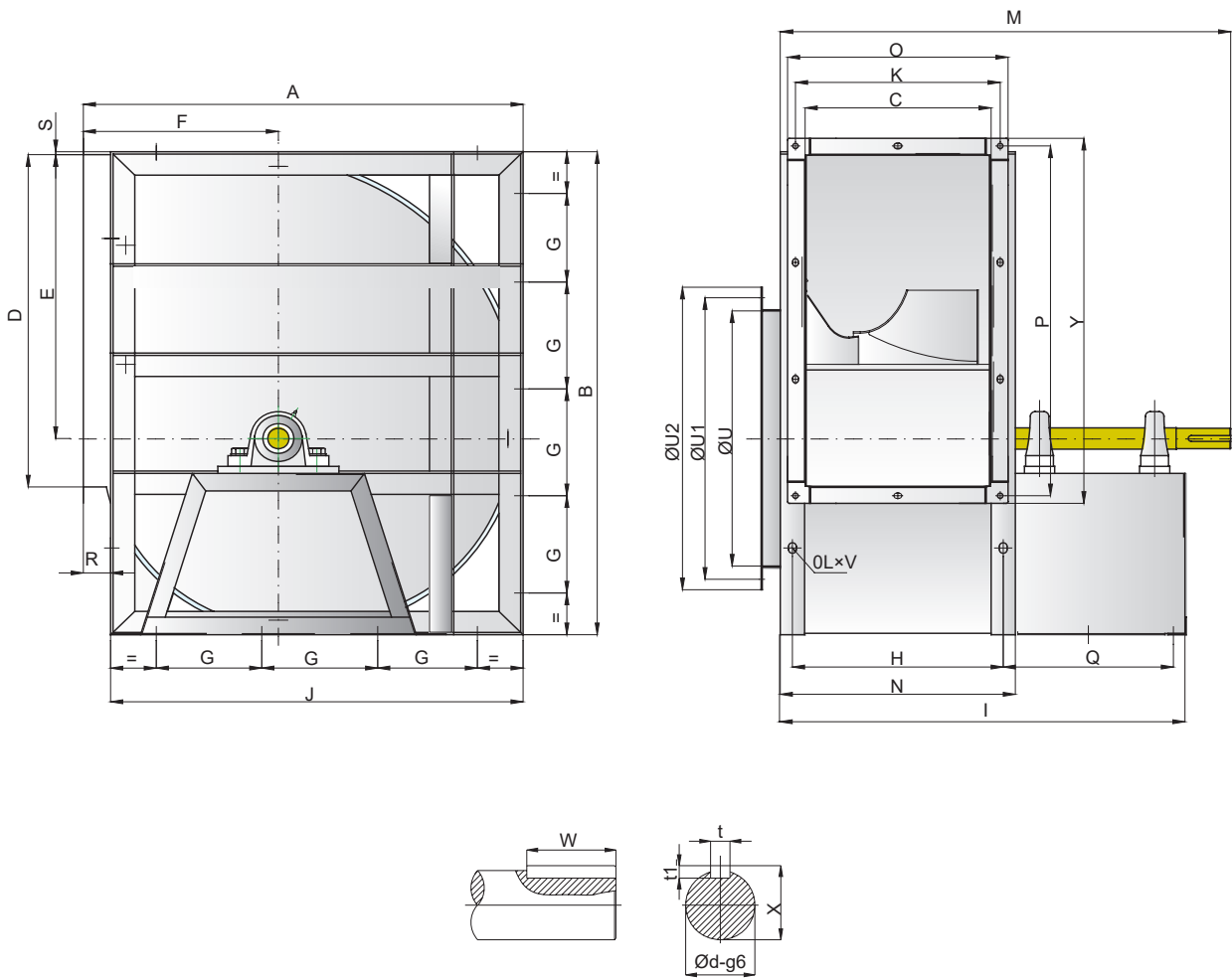
### FTSB-P



Unit : mm

Dim. Size	A	B	C	D	E	F	G	H	I	J	K	M	N	O	P	Q	R	S	t	t1	U	U1	U2	W	X	Y	Φd	LxV
280	466	518	197	361	302	215	280	227	530	432	213	590	257	239	391	274	34	5	8	7	292	325	355	40	28	417	25	13x18
315	518	578	223	404	340	236	280	253	556	480	233	612	283	259	434	274	38	3	8	7	322	344	383	40	28	460	25	13x18
355	578	655	247	453	383	261	355	287	627	548	260	697	327	286	483	300	30	6	8	7	362	386	423	50	33	509	30	13x18
400	651	736	274	507	432	290	355	314	654	613	290	724	354	316	537	300	38	4.5	8	7	404	432	466	50	33	563	30	13x18
450	726	827	308	569	486	322	530	348	728	681	318	816	388	344	599	340	45	5	10	8	448	485	515	70	38	625	35	13x18
500	800	918	344	638	538	352	530	384	764	750	350	850	424	376	668	340	50	5	10	8	510	544	570	70	38	694	35	13x18
560	893	1030	383	715	603	390	530	433	855	845	366	945	483	414	745	378	48	8	12	8	570	605	635	90	43	771	40	13x18
630	999	1157	432	801	679	434	530	482	904	946	434	994	532	460	831	378	53	7	12	8	635	670	700	90	43	857	40	13x18
710	1121	1303	478	898	765	485	630	528	1005	1058	483	1115	578	512	928	436	63	7	14	9	722	750	778	90	48.5	954	45	17x22
800	1250	1468	533	1107	862	535	710	583	1060	1181	541	1170	633	567	1039	440	69	7	14	9	808	844	875	90	48.5	1063	45	17x22
900	1408	1648	595	1130	971	604	800	655	1191	1319	602	1313	715	613	1160	510	89	7	16	10	896	945	980	100	58.5	1186	45	17x22
1000	1541	1810	663	1267	1066	657	900	713	1259	1462	668	1381	783	694	1297	510	79	9	16	10	996	1044	1080	100	58.5	1323	45	17x22

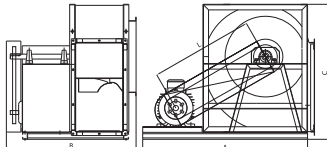
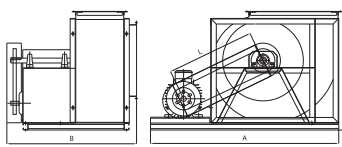
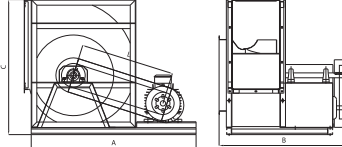
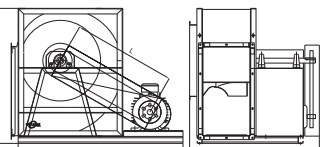
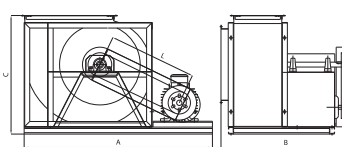
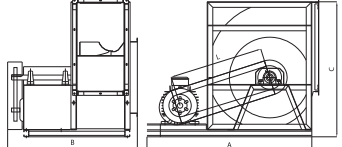
### FTSB-P



Unit: mm

Size	A	B	C	D	E	F	G	H	I	J	K	M	N	O	P	Q	R	S	t	t1	U	U1	U2	W	X	Y	Ød	LxV
1120	1748	2033	705	1423	1194	758	400	765	1397	1630	757	1547	825	805	1478	572	118	9	18	11	1130	1180	1226	120	69	1526	65	17x22
1250	1950	2270	800	1588	1333	840	450	880	1565	1825	854	1740	950	904	1640	600	125	12	20	12	1265	1310	1361	120	74.5	1690	70	17x22
1400	2160	2535	900	1774	1492	920	500	980	1713	2050	952	1863	1050	1002	1826	648	110	10	22	14	1402	1450	1500	140	85	1876	80	17x22

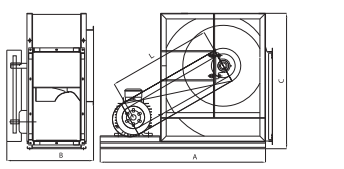
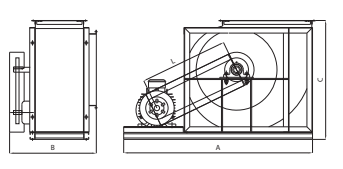
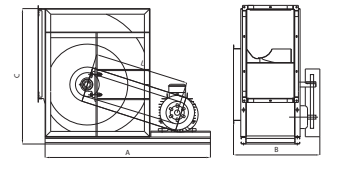
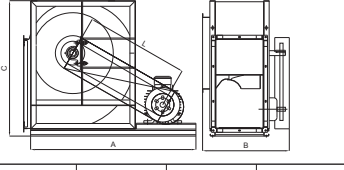
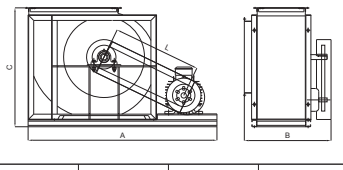
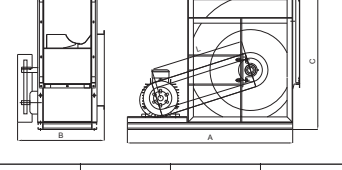
### FTSB-P (with motor)

		0°				90°				180°			
													
													
Size	Motor frame	L	A	B	C	L	A	B	C	L	A	B	C
280	80	425	760	675	568	375	850	675	516	410	760	675	568
	90	435	780	675	568	385	860	675	516	420	780	675	568
	100	445	800	675	568	395	880	675	516	430	800	675	568
	112	455	850	675	568	405	930	675	516	440	850	675	568
	132	465	870	675	568	415	950	675	516	450	870	675	568
315	80	465	800	700	628	405	900	700	568	440	800	700	628
	90	475	820	700	627	415	920	700	568	450	820	700	627
	100	485	850	700	628	425	950	700	568	460	850	700	628
	112	495	900	700	628	435	1000	700	568	470	900	700	628
	132	505	920	700	628	445	1020	700	568	480	920	700	628
355	80	515	850	775	705	445	1000	775	628	480	850	775	705
	90	525	860	775	705	455	1000	775	628	490	860	775	705
	100	535	900	775	705	465	1040	775	628	500	900	775	705
	112	545	960	775	705	475	1080	775	628	510	960	775	705
	132	555	980	775	705	485	1100	775	628	520	980	775	705
400	90	585	930	800	786	500	950	800	701	540	930	800	786
	100	595	980	800	786	510	1000	800	701	550	980	800	786
	112	605	1030	800	786	520	1160	800	701	560	1030	800	786
	132	615	1050	800	786	530	1180	800	701	570	1050	800	786
	160	615	1100	800	786	530	1230	800	701	570	1100	800	786
450	90	650	1000	894	877	548	1120	894	776	590	1000	894	877
	100	660	1050	894	877	558	1170	894	776	600	1050	894	877
	112	670	1100	894	877	568	1220	894	776	610	1100	894	877
	132	680	1120	894	877	578	1270	894	776	620	1120	894	877
	160	680	1200	894	877	578	1350	894	776	620	1200	894	877
500	90	720	1100	930	968	610	1250	930	850	650	1100	930	968
	100	730	1130	930	968	620	1280	930	850	660	1130	930	968
	112	740	1180	930	968	630	1330	930	850	670	1180	930	968
	132	750	1200	930	968	640	1350	930	850	680	1200	930	968
	160	750	1280	930	968	640	1440	930	850	680	1280	930	968
560	100	805	1210	1020	1093	680	1370	1020	956	720	1210	1020	1093
	112	815	1260	1020	1093	690	1420	1020	956	730	1260	1020	1093
	132	825	1280	1020	1093	700	1460	1020	956	740	1280	1020	1093
	160	835	1360	1020	1093	710	1540	1020	956	750	1360	1020	1093
	180	845	1400	1020	1093	720	1580	1020	956	760	1400	1020	1093
630	100	895	1310	1065	1220	755	1530	1065	1062	795	1310	1065	1220
	112	905	1360	1065	1220	765	1580	1065	1062	805	1360	1065	1220
	132	915	1380	1065	1220	775	1600	1065	1062	815	1380	1065	1220
	160	930	1450	1065	1220	790	1680	1065	1062	830	1450	1065	1220
	180	940	1500	1065	1220	800	1730	1065	1062	840	1500	1065	1220
200	950	1550	1065	1220	810	1780	1065	1062	850	1550	1065	1220	

### FTSB-P (with motor)

		0°				90°				180°			
ACW Anticlockwise													
CW Clockwise													
Size	Motor frame	L	A	B	C	L	A	B	C	L	A	B	C
710	100	1005	1430	1185	1366	840	1670	1185	1184	885	1430	1185	1366
	112	1015	1480	1185	1366	850	1720	1185	1184	895	1480	1185	1366
	132	1025	1500	1185	1366	860	1740	1185	1184	905	1500	1185	1366
	160	1040	1570	1185	1366	875	1800	1185	1184	920	1570	1185	1366
	180	1050	1620	1185	1366	885	1850	1185	1184	930	1620	1185	1366
	200	1060	1670	1185	1366	895	1900	1185	1184	940	1670	1185	1366
	225	1070	1700	1185	1366	905	1930	1185	1184	950	1700	1185	1366
800	112	1130	1580	1245	1548	950	1880	1245	1330	990	1580	1245	1548
	132	1140	1600	1245	1548	960	1900	1245	1330	1000	1600	1245	1548
	160	1155	1650	1245	1548	975	1950	1245	1330	1015	1650	1245	1548
	180	1165	1720	1245	1548	985	2020	1245	1330	1025	1720	1245	1548
	200	1175	1770	1245	1548	995	2070	1245	1330	1035	1770	1245	1548
	225	1185	1820	1245	1548	1005	2120	1245	1330	1045	1820	1245	1548
	250	1195	1880	1245	1548	1015	2180	1245	1330	1055	1880	1245	1548
900	112	1270	1730	1375	1728	1060	2060	1375	1488	1110	1730	1375	1728
	132	1280	1750	1375	1728	1070	2080	1375	1488	1110	1750	1375	1728
	160	1295	1800	1375	1728	1085	2130	1375	1488	1125	1800	1375	1728
	180	1310	1880	1375	1728	1095	2220	1375	1488	1135	1880	1375	1728
	200	1320	1920	1375	1728	1105	2250	1375	1488	1145	1920	1375	1728
	225	1330	1980	1375	1728	1115	2320	1375	1488	1155	1980	1375	1728
	250	1340	2050	1375	1728	1125	2380	1375	1488	1165	2050	1375	1728
1000	132	1400	1900	1450	1890	1175	2250	1450	1621	1215	1900	1450	1890
	160	1415	1950	1450	1890	1190	2300	1450	1621	1230	1950	1450	1890
	180	1425	2030	1450	1890	1200	2380	1450	1621	1240	2030	1450	1890
	200	1435	2070	1450	1890	1210	2420	1450	1621	1250	2070	1450	1890
	225	1445	2130	1450	1890	1220	2480	1450	1621	1260	2130	1450	1890
	250	1455	2200	1450	1890	1230	2550	1450	1621	1270	2200	1450	1890
	280	1465	2250	1450	1890	1240	2600	1450	1621	1280	2250	1450	1890

### FTSB-H (with motor)

		0°				90°				180°			
													
													
Size	Motor frame	L	A	B	C	L	A	B	C	L	A	B	C
280	80	425	760	430	568	375	850	430	516	410	760	430	568
	90	435	780	430	568	385	860	430	516	420	780	430	568
	100	445	800	430	568	395	880	430	516	430	800	430	568
	112	455	850	430	568	405	930	430	516	440	850	430	568
	132	465	870	430	568	415	950	430	516	450	870	430	568
315	80	465	800	465	628	405	900	465	568	440	800	465	628
	90	475	820	465	627	415	920	465	568	450	820	465	627
	100	485	850	465	628	425	950	465	568	460	850	465	628
	112	495	900	465	628	435	1000	465	568	470	900	465	628
	132	505	920	465	628	445	1020	465	568	480	920	465	628
355	80	515	850	495	705	445	1000	495	628	480	850	495	705
	90	525	860	495	705	455	1000	495	628	490	860	495	705
	100	535	900	495	705	465	1040	495	628	500	900	495	705
	112	545	960	495	705	475	1080	495	628	510	960	495	705
	132	555	980	495	705	485	1100	495	628	520	980	495	705
400	90	585	930	525	786	500	950	525	701	540	930	525	786
	100	595	980	525	786	510	1000	525	701	550	980	525	786
	112	605	1030	525	786	520	1160	525	701	560	1030	525	786
	132	615	1050	525	786	530	1180	525	701	570	1050	525	786
	160	615	1100	525	786	530	1230	525	701	570	1100	525	786
450	90	650	1000	580	877	548	1120	580	776	590	1000	580	877
	100	660	1050	580	877	558	1170	580	776	600	1050	580	877
	112	670	1100	580	877	568	1220	580	776	610	1100	580	877
	132	680	1120	580	877	578	1270	580	776	620	1120	580	877
	160	680	1200	580	877	578	1350	580	776	620	1200	580	877
500	90	720	1100	620	968	610	1250	620	850	650	1100	620	968
	100	730	1130	620	968	620	1280	620	850	660	1130	620	968
	112	740	1180	620	968	630	1330	620	850	670	1180	620	968
	132	750	1200	620	968	640	1350	620	850	680	1200	620	968
	160	750	1280	620	968	640	1440	620	850	680	1280	620	968
560	100	805	1210	665	1093	680	1370	665	956	720	1210	665	1093
	112	815	1260	665	1093	690	1420	665	956	730	1260	665	1093
	132	825	1280	665	1093	700	1460	665	956	740	1280	665	1093
	160	835	1360	665	1093	710	1540	665	956	750	1360	665	1093
	180	845	1400	665	1093	720	1580	665	956	760	1400	665	1093

### FTSB-H (with motor)

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

### FTSB-S (with motor)

		0°				90°				180°			
ACW Anticlockwise													
CW Clockwise													
Size	Motor frame	L	A	B	C	L	A	B	C	L	A	B	C
280	71	415	740	400	568	365	830	400	516	400	740	400	568
	80	425	760	400	568	375	850	400	516	410	760	400	568
	90	435	780	400	568	385	860	400	516	420	780	400	568
	100	445	800	400	568	395	880	400	516	430	800	400	568
	112	455	850	400	568	405	930	400	516	440	850	400	568
315	71	455	780	435	628	395	880	435	568	430	780	435	628
	80	465	800	435	628	405	900	435	568	440	800	435	628
	90	475	820	435	628	415	920	435	568	450	820	435	628
	100	485	850	435	628	425	950	435	568	460	850	435	628
	112	495	900	435	628	435	1000	435	568	470	900	435	628
355	71	505	830	465	705	435	960	465	628	470	830	465	705
	80	515	850	465	705	445	980	465	628	480	850	465	705
	90	525	860	465	705	455	1000	465	628	490	860	465	705
	100	535	900	465	705	465	1040	465	628	500	900	465	705
	112	545	960	465	705	475	1080	465	628	510	960	465	705
400	71	565	880	495	786	480	900	495	701	520	880	495	786
	80	575	900	495	786	490	920	495	701	530	900	495	786
	90	585	930	495	786	500	950	495	701	540	930	495	786
	100	595	980	495	786	510	1000	495	701	550	980	495	786
	112	605	1030	495	786	520	1160	495	701	560	1030	495	786
	132	615	1050	495	786	530	1180	495	701	570	1050	495	786
450	80	640	980	550	877	548	1100	550	776	580	980	550	877
	90	650	1000	550	877	548	1120	550	776	590	1000	550	877
	100	660	1050	550	877	558	1170	550	776	600	1050	550	877
	112	670	1100	550	877	568	1220	550	776	610	1100	550	877
	132	680	1120	550	877	578	1270	550	776	620	1120	550	877
500	80	710	1080	590	968	600	1230	590	850	640	1080	590	968
	90	720	1100	590	968	610	1250	590	850	650	1100	590	968
	100	730	1130	590	968	620	1280	590	850	660	1130	590	968
	112	740	1180	590	968	630	1330	590	850	670	1180	590	968
	132	750	1200	590	968	640	1350	590	850	680	1200	590	968
560	90	795	1160	635	1093	670	1320	635	956	710	1160	635	1093
	100	805	1210	635	1093	680	1370	635	956	720	1210	635	1093
	112	815	1260	635	1093	690	1420	635	956	730	1260	635	1093
	132	825	1280	635	1093	700	1460	635	956	740	1280	635	1093
	160	835	1360	635	1093	710	1540	635	956	750	1360	635	1093

### FTSB-S (with motor)

		0°				90°				180°			
ACW Anticlockwise													
CW Clockwise													
Size	Motor Frame	L	A	B	C	L	A	B	C	L	A	B	C
630	90	885	1260	685	1220	745	1480	685	1062	785	1260	685	1220
	100	895	1310	685	1220	755	1530	685	1062	795	1310	685	1220
	112	905	1360	685	1220	765	1580	685	1062	805	1360	685	1220
	132	915	1380	685	1220	775	1600	685	1062	815	1380	685	1220
	160	930	1450	685	1220	790	1680	685	1062	830	1450	685	1220
710	90	995	1380	740	1366	830	1620	740	1184	875	1380	740	1366
	100	1005	1430	740	1366	840	1670	740	1184	885	1430	740	1366
	112	1015	1480	740	1366	850	1720	740	1184	895	1480	740	1366
	132	1025	1500	740	1366	860	1740	740	1184	905	1500	740	1366
	160	1040	1570	740	1366	875	1800	740	1184	920	1570	740	1366

L=Center distance between fan and motor pulley

### Operational Limits

		280	315	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	
Max. Absorbed power	R	KW	2	2	2.5	3	4	6	8	8	9	\	\	\	\	\	
	E	KW	4	4	6	7	7	15	18	20	22	25	30	45	80	100	100
	C	KW	4	4	6	7	7	15	18	20	22	25	30	45	80	100	100
Max. Speed	R	rpm	4000	3200	2800	2400	2200	2400	2600	1600	1400	\	\	\	\	\	
	E	rpm	4500	4000	3800	3200	2800	2800	2000	2200	2000	1600	1400	1400	1300	1200	1000
	C	rpm	4500	4000	3800	3200	2800	2800	2000	2200	2000	1600	1400	1400	1300	1200	1000
Air Temperature Limits (Min. 20°C)	R	Max:°C	85	85	85	85	85	85	85	85	85	\	\	\	\	\	
	E	Max:°C	85	85	85	85	85	85	85	85	85	85	85	85	85	85	
	C	Max:°C	180	180	180	180	180	180	180	180	180	180	180	180	180	180	
Fan Weight	R	Kg	17	27	39	44	55	70	110	125	175	\	\	\	\	\	
	E	Kg	29	39	52	58	73	91	140	160	210	245	350	435	600	790	1080
	C	Kg	27	37	50	55	72	89	138	161	215	252	360	445	610	800	1100





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