

We Care for Your Needs

CENTRIFUGAL FAN

DWF Series



ENERGY TWIN CITY
A TWIN CITY FAN COMPANY

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CENTRIFUGAL VENTILATORS

DWF Series

OVERVIEW

The DWF Series of centrifugal air conditioning fan was developed with advanced technologies. They are licensed to bear the AMCA Seal for air performance, sound, and FEG. The DWF Series includes 15 models as described in this catalogue. The volume flow of the SYD Series ranges from 1,000m³/h to 100,000m³/h. Some of the features and characteristics of these fans are: forward impeller blades, a wide range of applications, high efficiency, low noise, and low power consumption. These fans are ideal for use in central air conditioning systems, in purifiers. They are also suitable for use in a variety of other ventilation applications.

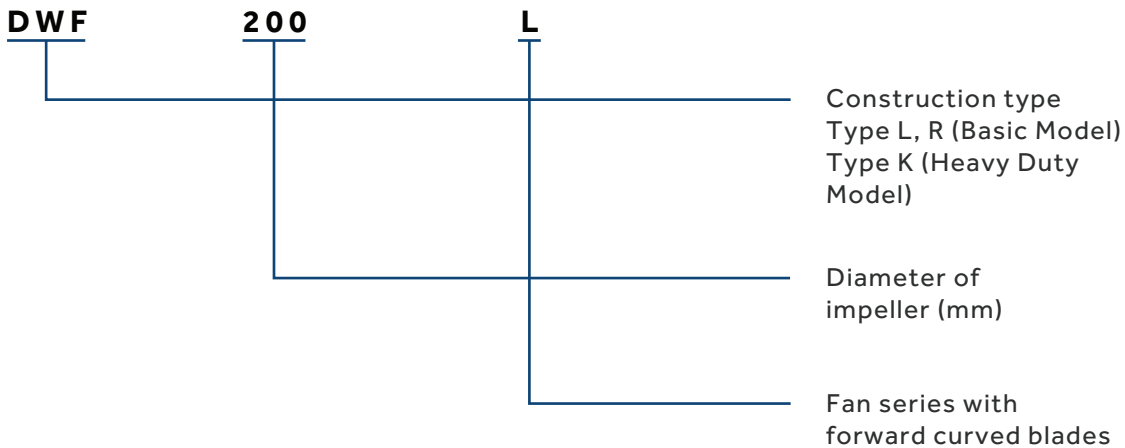
CERTIFICATIONS

AMCA Sound & Air Performance, CE (IEC60335) EMC & RoHS



Energy Industrial Company L.L.C. certifies that the DWF Series 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.

NOMENCLATURE



➤ PRODUCT FEATURES

ROTATION

DWF series fans have two direction of rotations, left-hand rotation (LG) and right-hand rotation (RD); Viewing from drive side, if the impeller rotates clockwise, it is left hand (LG) rotation. If the impeller rotates counter clockwise, it is right-hand (RD).

GENERAL INFORMATION

DWF SERIES CENTRIFUGAL FAN

DISCHARGE DIRECTION

As shown in Fig1, DWF Series ventilator can be constructed in four discharge directions: 0, 90, 180, and 270 .

	0°	90°	180°	270°
LG Left Hand				
RD Right Hand				

TYPE OF CONSTRUCTION

As shown in Fig 2, DWF series ventilators can be divided into Category L , R , K Category R2 , K2.

Fan Type	Fan Size	Fan Diagram	Bearing Type
TYPE L	200-250		
TYPE R	200-710		
TYPE K	200-1000		
TYPE R2	200-500		
TYPE K2	200-500		

HOUSINGS

The housing is made of hot galvanized steel sheet. The side plates include inlet cones that are designed with the best aerodynamics for inlet condition. The scroll is fixed to the side plates by spot welding or "Pittsburg seam locking".

IMPELLER

Forward curved impeller is constructed of high-grade hot galvanized steel sheet with the advanced aerodynamics profile to achieve the highest efficiency and the lowest noise level. The impeller is fixed on the center plate and on the end ring with riveting grippes. The impeller is constructed with maximum strength that endure the continuous operation with maximum power. All impellers are balanced to ANSI/AMCA Standard 204-05 .

FRAME

The frames for type L, R construction are made of galvanized steel angle iron bars . The cutting and bending of the frame parts, as well as the TOX connections, are formed with the use of toolings to assure the high accuracy and the rigidity of the frames; The frames for K constructions are welded by angle steel and flat steel, and finished with polyester coating in order to ensure sufficient rigidity and strength. The bearing supports are machined to ensure proper installation and alignments of the bearings.

BEARINGS

The DWF series fans are using high-quality ball bearings. They are selected to minimize the noise levels. For type R and L fans, the bearings are mounted on bearing bracket as well as shock-proof washer. The bearings are pre-lubricated, sealed, self-centering and maintenance-free. For type K fans are supplied with eccentric shaft bearings. The bearing design life (L10) is above 100000 hours.

SHAFT

The shafts are made of 40 Cr carbon steel bars. The shafts are rough machined and then stress relieved with heat treatment before final machining. The shaft diameters are machined to very accurate tolerance levels and they are fully checked to ensure precision fit. Each shaft is made turned, ground and polished. They are coated after assembly to provide corrosion resistance. Shaft size should be designed to meet the first critical speed of at least fan maximum running speed 1.4 times.

OUTLET FLANGE

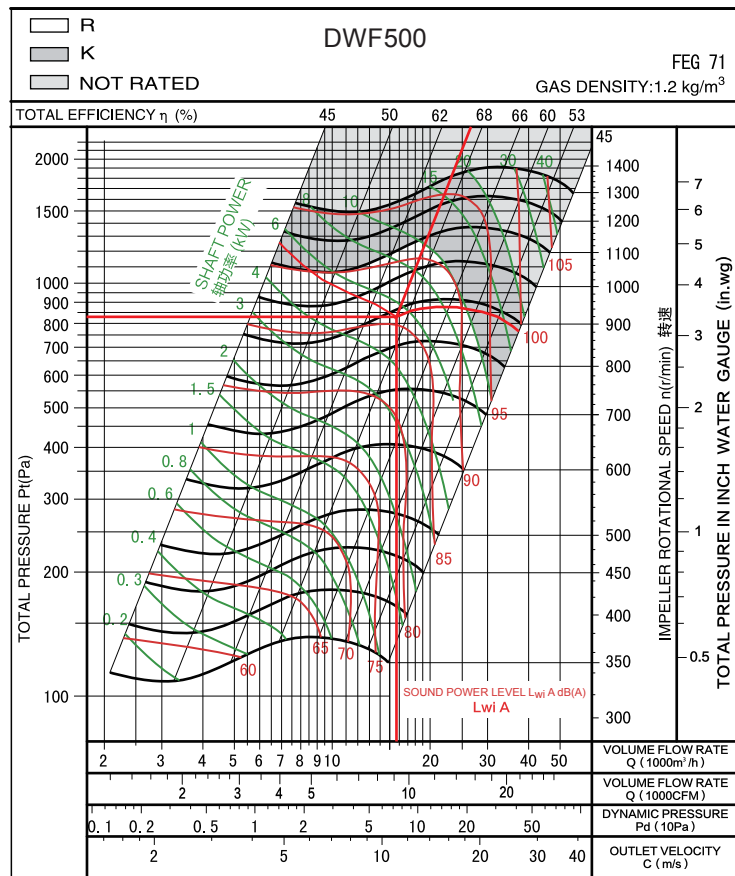
The outlet flange is made of galvanized steel. The connections of the flange components to the scroll are made using a TOX non-welding process. This maintains a good flange appearance while also providing sufficient strength and rigidity.

PERFORMANCE CHART

DWF SERIES CENTRIFUGAL FAN

► FAN PERFORMANCE CURVE

Type	DWF500K
Volume	$qV=15700\text{m}^3/\text{h}$
Total Pressure	$P_{\text{tf}}=839\text{Pa}$
Dynamic Pressure	$P_{\text{df}}=109\text{Pa}$
Outlet Velocity	$C=13.5\text{m/s}$
Fan Speed	$n=980\text{r/min}$
Shaft Power	$P_{\text{sh}}=5.34\text{KW}$
A Sound Power Level	$L_{\text{wA}}=86\text{dB(A)}$
Total Efficiency	$\eta_{\text{tf}}=68.5\%$



MOTOR SELECTION

The power (Psh) 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 : $P=P_{\text{sh}} \times K \eta_{\text{me}}$

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

The required safety factors is provided in Table 2.

Drive type	η_{me}
Motor Direct Driven	1
Coupling Direct Driven	0.98
V-Blet Driven	0.95

Table 1

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

Table 2

THE TWIN FAN PERFORMANCE CALCULATION

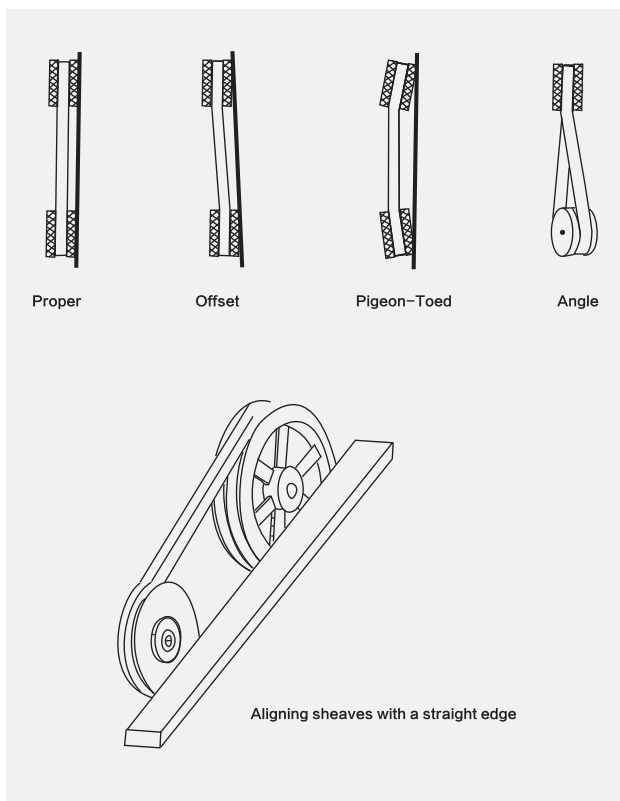
Comparing the performance of the twin fan of Category L2, R2 and K2 with the comparable single fan performance of L, R and K. In the same condition of pressure, the twin fans' performance are as the following:

Volume x 2	RPM x 1.05
Shaft Power x 2.15	Noice + 3 dB

Performance of twin ventilators are not licensed by AMCA International.

V-BELT DRIVE INSTALLATION

- Remove the protective coating from the ends of the fan shaft and ensure that the shaft ends are free of nick and burrs.
- Check fan and motor shafts for alignment.
- The center distance must be controlled as $0.7(d1+d2) < a < 2(d1+d2)$, The belt speed of forward curve fan should be more than 10m/s, but less than 15m/s, ($10 < v < 15\text{m/s}$). The belt speed of backward curve fan should be more than 25m/s, but less than 35m/s ($25 < v < 35\text{m/s}$).
- Slide sheaves on to the shafts, Do not hammer the sheaves on to the shafts with force as this may result in bearing damage.
- Align fan and motor sheaves with a straight-edge, and tighten the sheaves.
- Place belts over the sheaves with care. Do not bend or squeeze the belts or it might get damaged.
- Adjust the belt tension until the belts appear snug. Run the unit for a few minutes and allow the belts to set properly.
- Switch off the fan, adjust the belt tension by moving the motor base. When in operation, the tight side of the belts should be in a straight line from sheave to sheave and there should be a slight bow on the slack side.



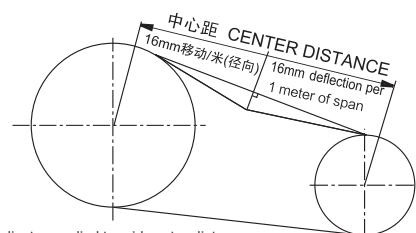
BELT TENSION

A proper level of belt tension is required in order to obtain a satisfactory belt life. If the belt tension level is too high, excessive loads will be imposed on the belts and the bearing, and this will reduce the lives of both of these components. If the belt tension level is too low, the belt will slip. Belt slippage generates a large amount of heat, and this heat will drastically reduce the life of a belt.

Belt-tensioning gauges can be used to determine whether the belts are tensioned properly. A chart is normally supplied with the gauge which indicates the ranges of forces required to deflect the belts by a given amount to obtain the proper belt tension level. The required forces are based upon the center distance of the sheaves and the belt cross-section. The belts are properly tensioned when the forces required to deflect the belt are within the specified range, see Fig 4 and Table 3.

If a belt-tensioning gauge is not available, then the belt should be tightened just enough so that the belt does not squeal when the ventilator is started. A very short period of noise during the starting of a ventilator is allowable, but a squeal lasting several seconds or longer is not acceptable. After tensioning the belts and before starting the fan, check to make sure that the sheaves are properly aligned.

Realign the sheaves if necessary. Note that new belts may stretch a little during initial use, so the belt tension level should be checked after a few days of operation.



Belt tension indicator applied to mid centre distance.

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

BEARING LUBREICATION

The fan bearings are filled with lubricant when they ship from the factory, so the bearings do not require any additional grease to be supplied before starting the fan. The fans that are equipped with pillow block bearing are provided with lubrication fittings, and these fittings allow for additional lubrication to be supplied to the bearings at regular intervals. The allowable period of time between lubrication of these bearings depends upon the operating speeds and temperatures of the bearing as well as on

the type of lubrication, It is recommended to inspect the condition of the grease that is discharged from the bearings when new grease is added. If the discharged grease looks similar to the new grease, then a longer period of time between lubrications is possible. If the discharged grease is much darker than the new grease, this indicates that the grease is being oxidized and more frequent lubrications of the bearings are required.

INSTRUCTIONS

- When placing the order, it is necessary to state the type of fan, speed, air volume, air pressure, discharge direction, rotation direction, type of electric motor and its specifications.
- Prior to installation, the fan should be carefully inspected. Special care should be taken in checking the shaft, impeller and bearings. If there is an indication of any damage, the damaged parts should be repaired or replaced before the fan is installed or commissioned.
- The inside of the scroll and casing need to be checked to make sure that there are no foreign objects inside the housing, such as tools or loose parts.
- The rotational directions of the motor and impeller should be checked to ensure that they are in compliance with the specification and purchase orders.
- A flexible connector should be used between the fan outlet flange and its mating ductwork. The flex connector should not be over stretched.
- Following the installation, the impeller should be turned by hand or with the use of a wrench to make sure that it turns freely without colliding with other parts of the fan. Once all this is done, the fan can be commissioned normally.
 - The rated motor power as calculated herein might not be sufficient to drive the fan with an unrestricted discharge flow. Operating the fan with an unrestricted discharge outlet will result in flow rate that exceeds the specified fan capabilities. Such operation will quickly burn the motor and damage the fan. Great care must be taken in operating the fan to make sure that the maximum rated flows, as provided on the performance charts in this catalog, are not exceeded.
 - The fan is limited for use in areas where air substances are non-corrosive, non-toxic and non-erosive and where dust particles are less than 150mg/m³ with a temperature between -20°C and 85°C. Special care should be taken during transportation, load and unload.

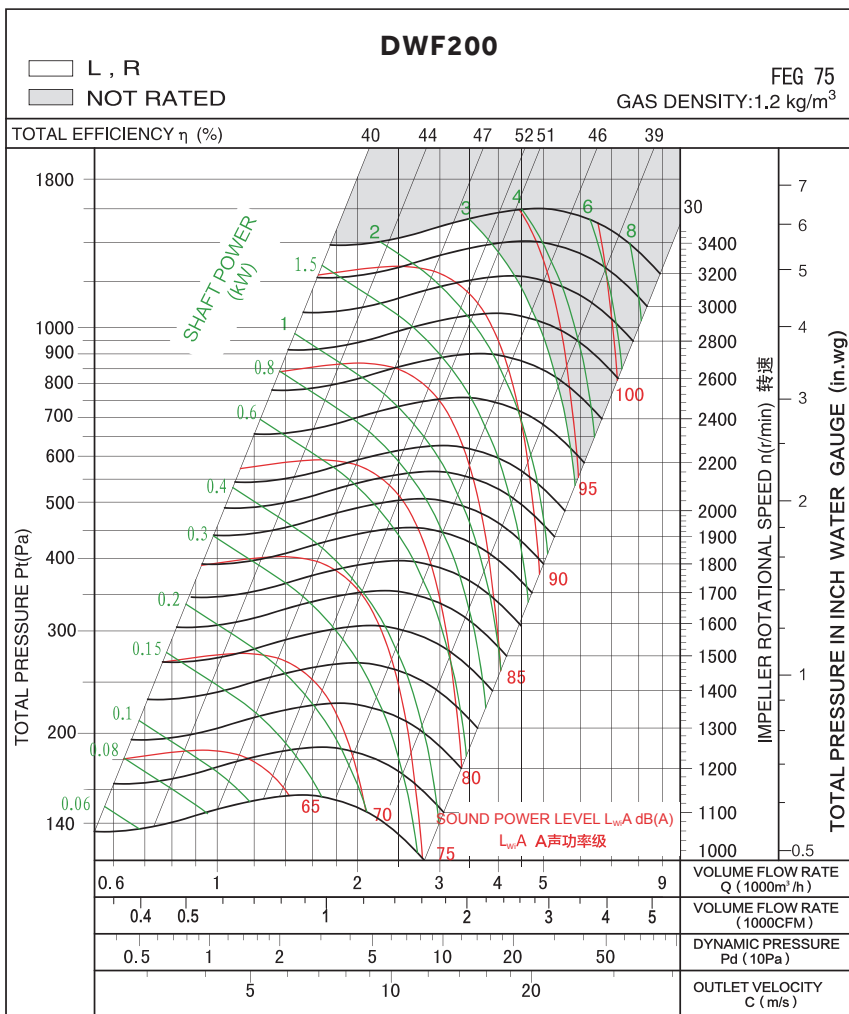
➤ DWF200 FEG75

TECHNICAL DATA

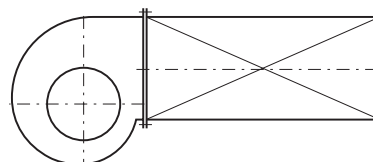
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 200 mm	J = 0.015 kg.m ²	m = 9.4 kg	n _{max} = 3200 r/min

PERFORMANCE CURVE

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 LWiA sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



FAN DATA

DWF SERIES CENTRIFUGAL FAN

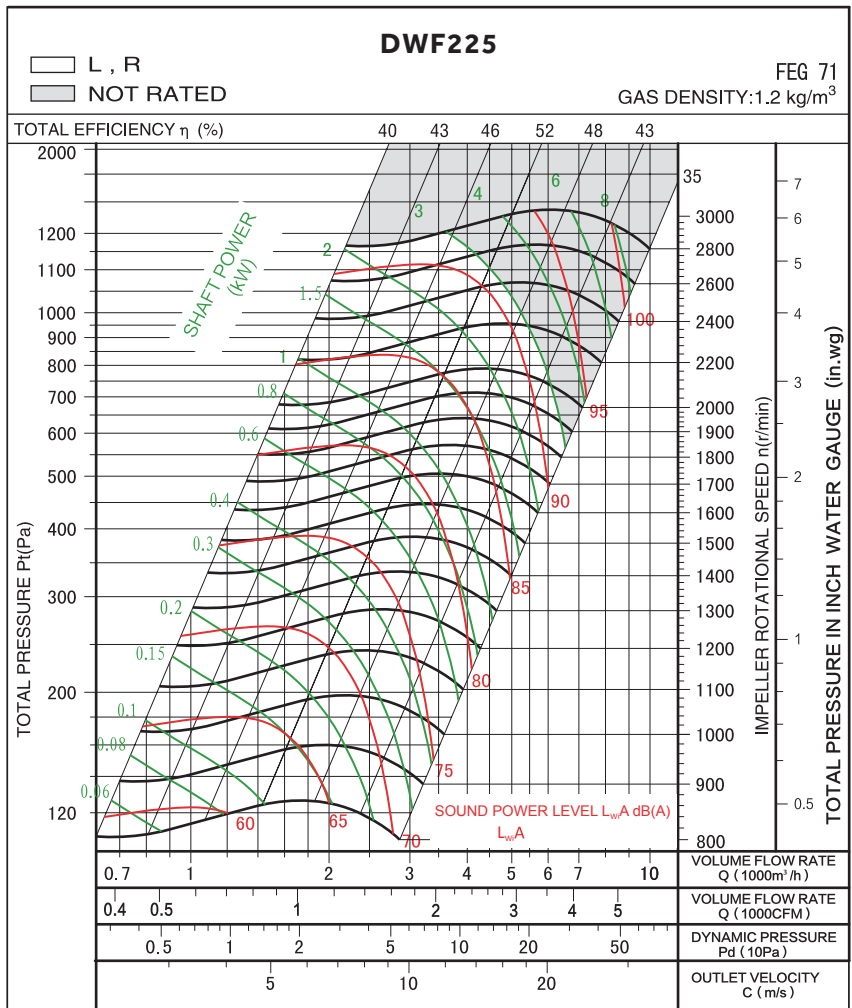
► DWF225 FEG71

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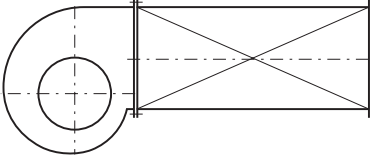
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 225 mm	J = 0.021 kg.m ²	m = 10.8 kg	n _{max} = 2800 r/min

PERFORMANCE CURVE

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 LWiA sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



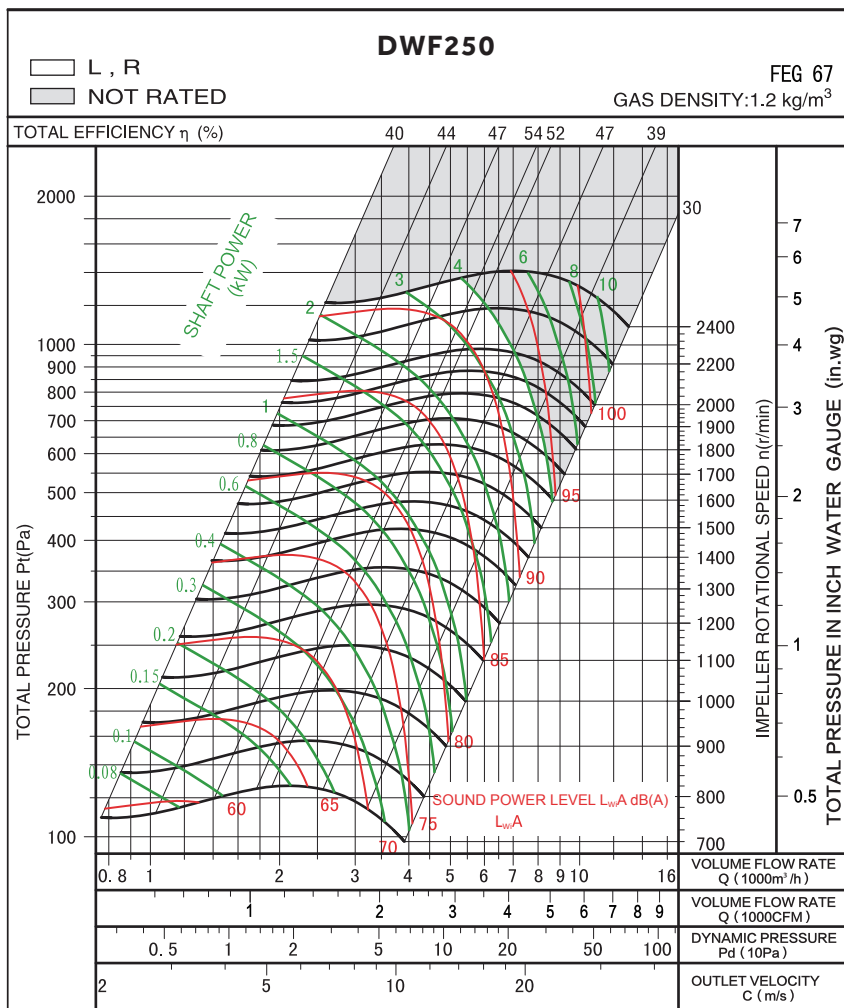
➤ DWF250 FEG67

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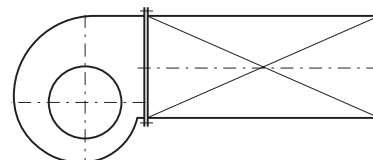
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 250 mm	J = 0.038 kg.m ²	m = 13 kg	n _{max} = 2400 r/min

PERFORMANCE CURVE

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 LWiA sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



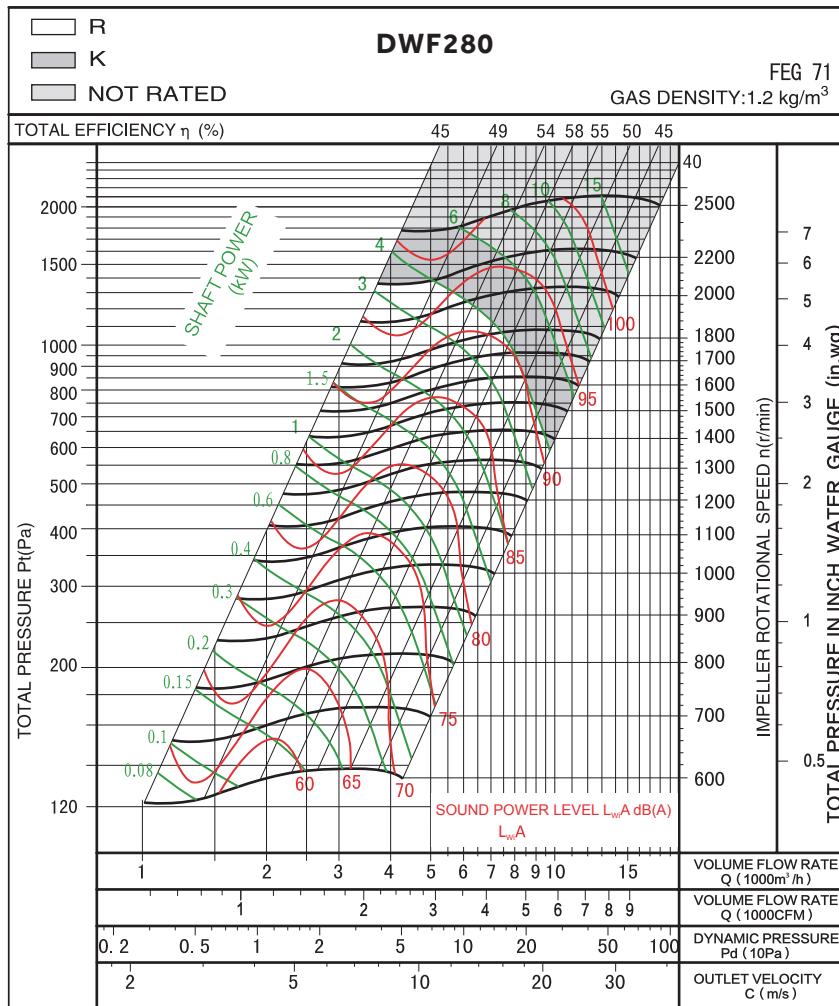
➤ DWF280 FEG71

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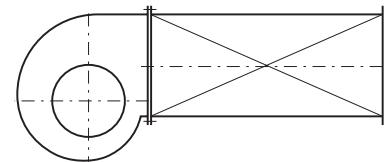
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 280 mm	J = 0.06 kg.m ²	m = 29 kg	n _{max} = 2500 r/min

PERFORMANCE CURVE

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_{wi}A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



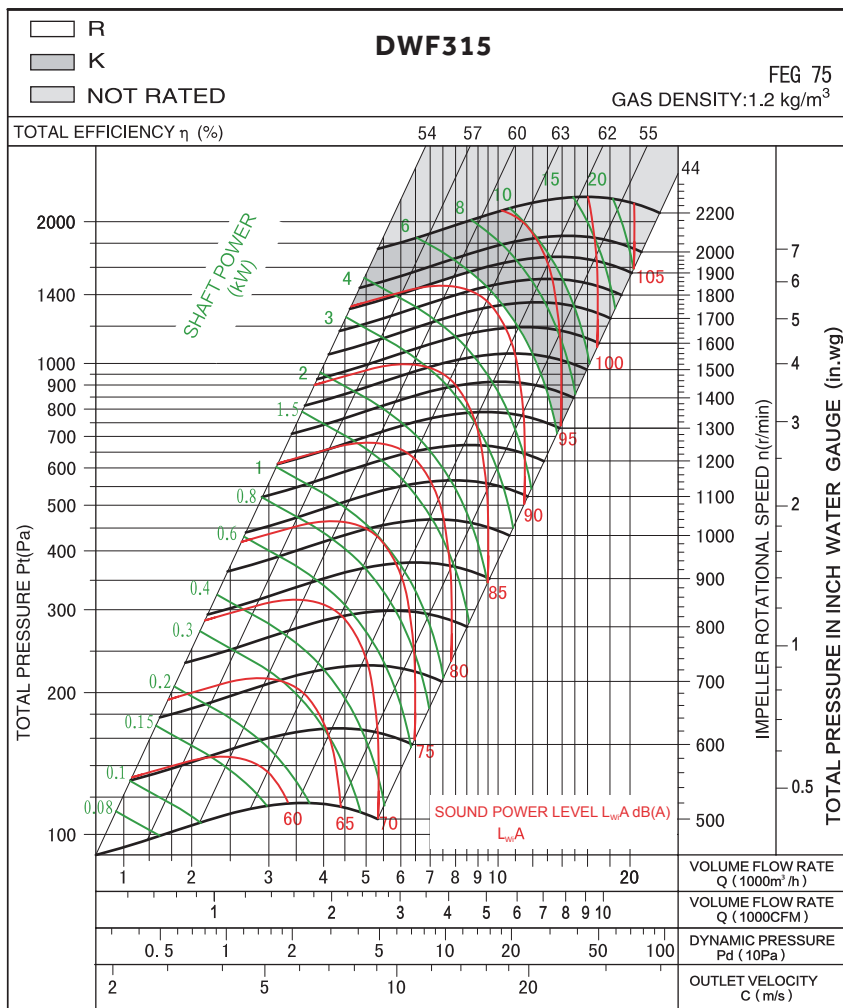
➤ DWF315 FEG75

TECHNICAL DATA

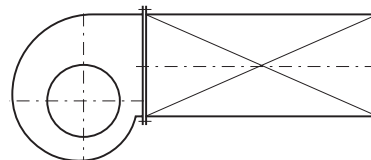
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 315 mm	J = 0.1 kg.m ²	m = 35 kg	n _{max} = 2200 r/min

PERFORMANCE CURVE

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_{wi}A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



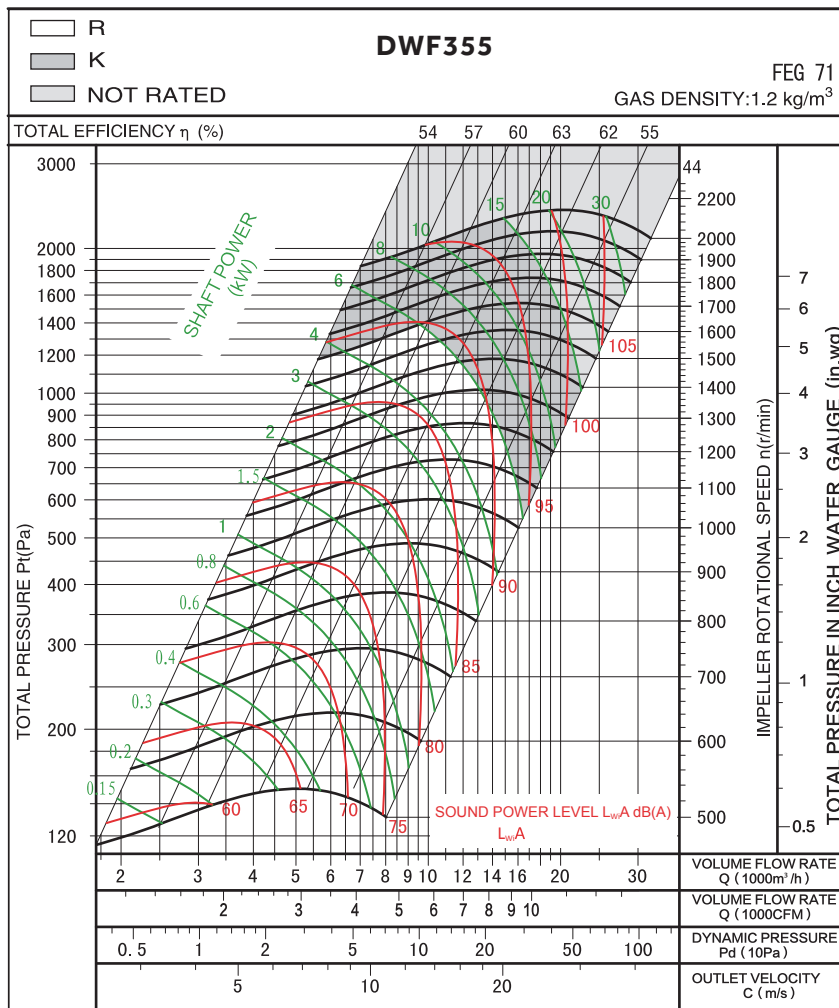
► DWF355 FEG71

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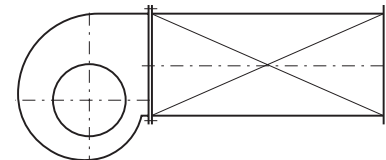
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 355 mm	J = 0.15 kg.m ²	m = 42 kg	n _{max} = 2000 r/min

PERFORMANCE CURVE

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_{wi}A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



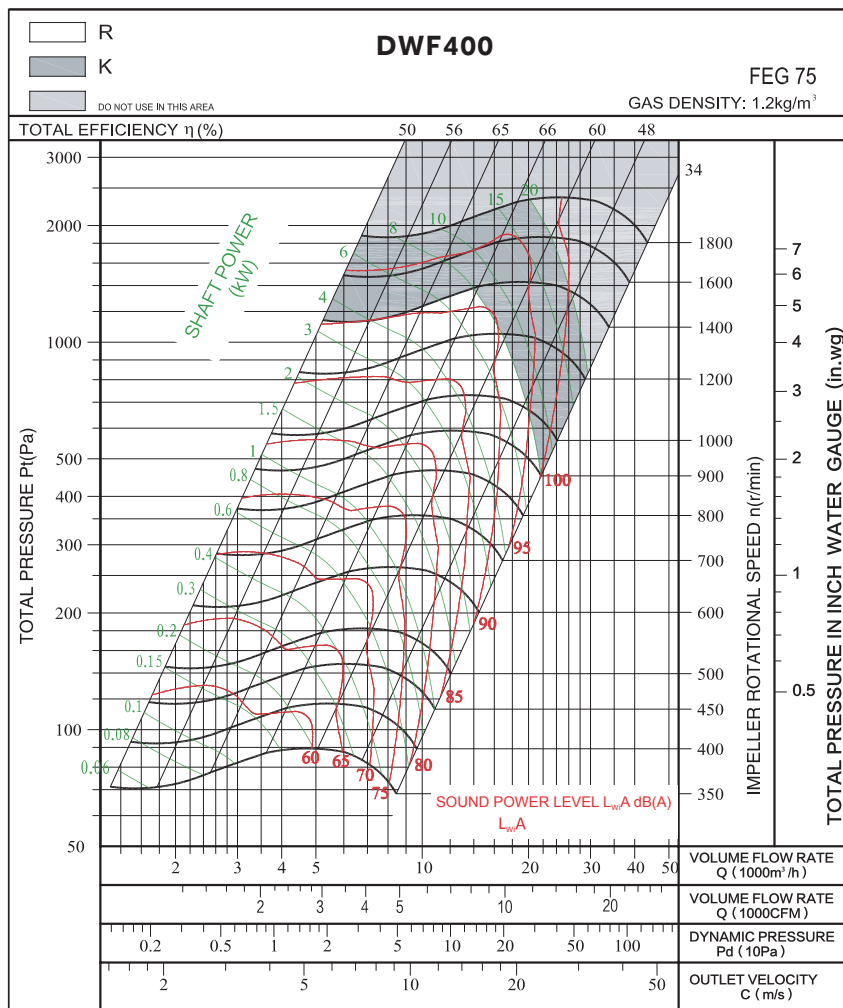
➤ DWF400 FEG75

TECHNICAL DATA

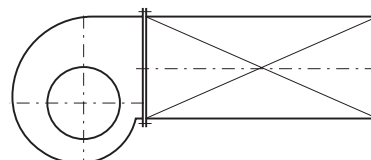
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 400 mm	J = 0.31 kg.m ²	m = 57 kg	n _{max} = 1800 r/min

PERFORMANCE CURVE

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_{wi}A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



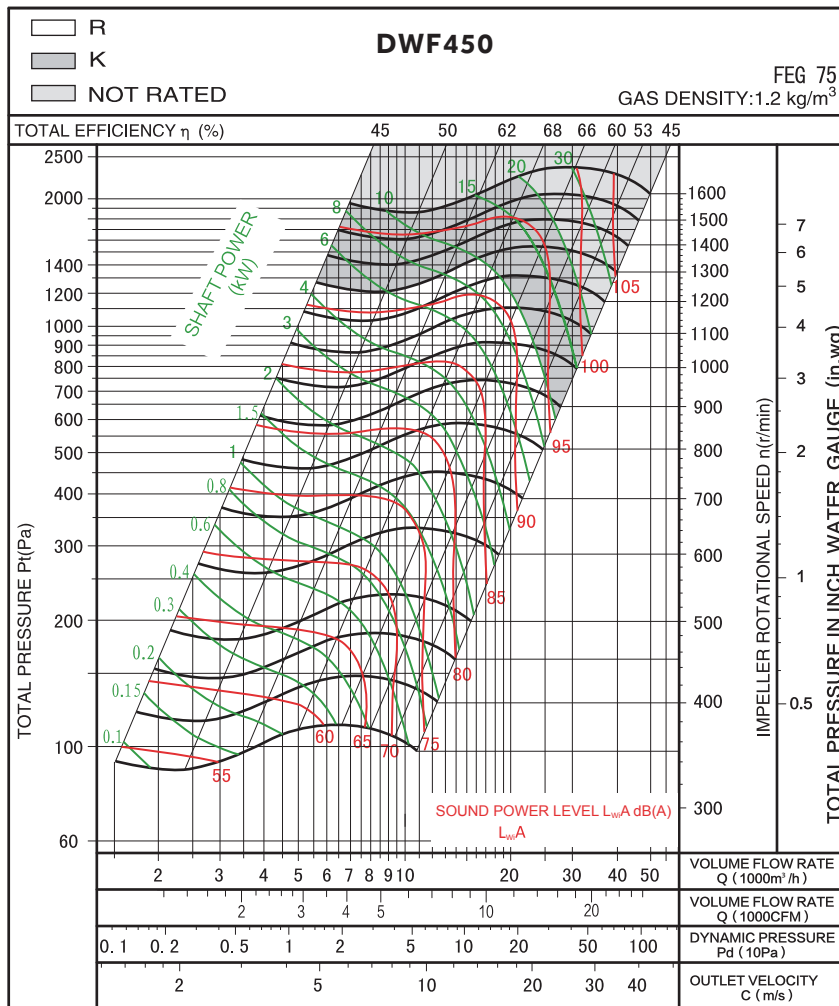
➤ DWF450 FEG75

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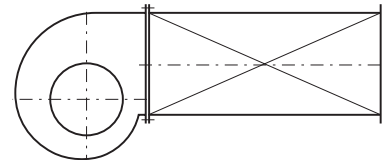
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 450 mm	J = 0.48 kg.m ²	m = 72 kg	n _{max} = 1600 r/min

PERFORMANCE CURVE

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_{wi}A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



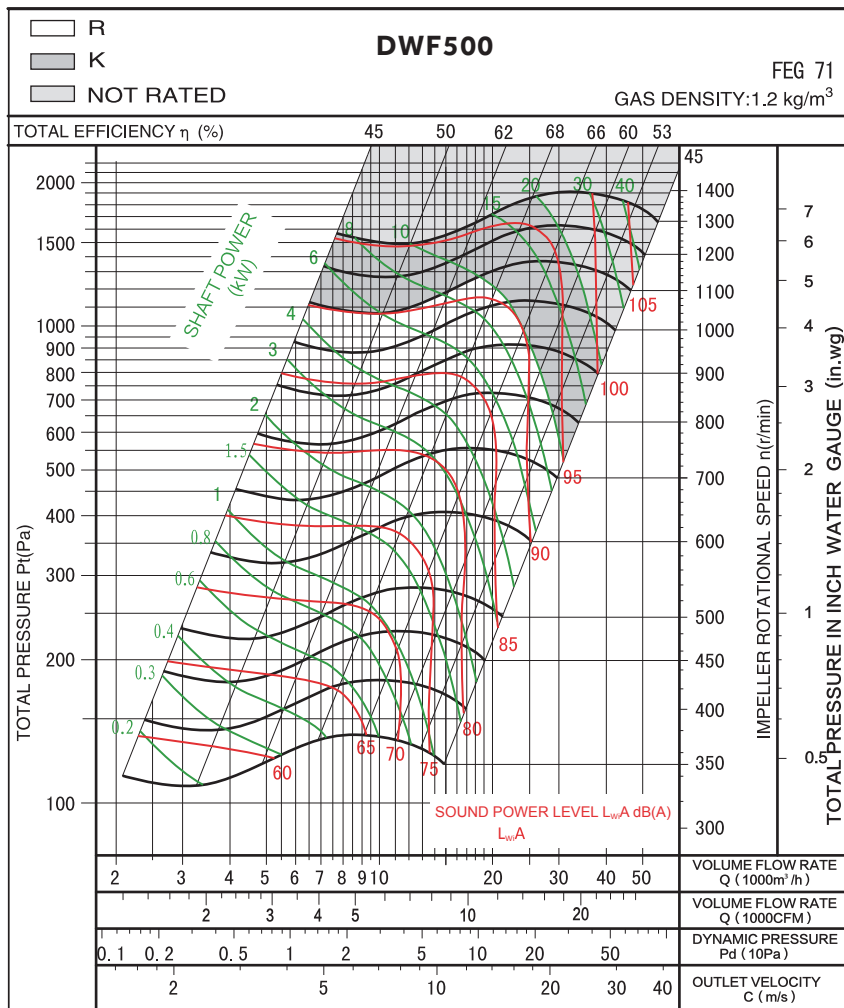
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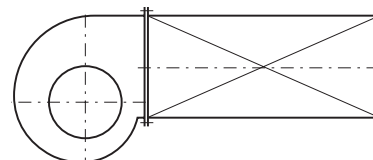
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 500 mm	J = 0.9 kg.m ²	m = 92 kg	n _{max} = 1300 r/min

PERFORMANCE CURVE

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_{wi}A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



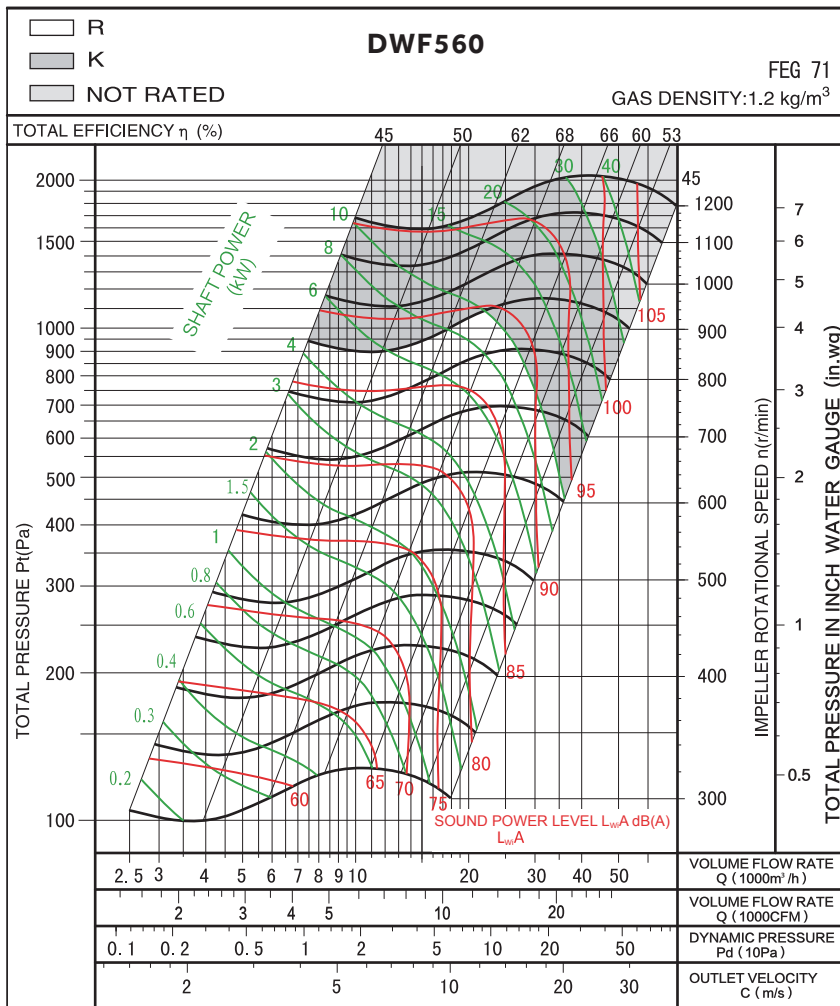
► DWF560 FEG71

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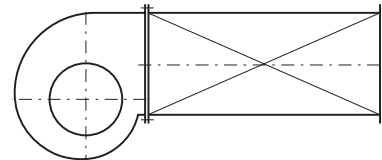
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 560 mm	J = 1.66 kg.m ²	m = 160 kg	n _{max} = 1200 r/min

PERFORMANCE CURVE

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_{wi}A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



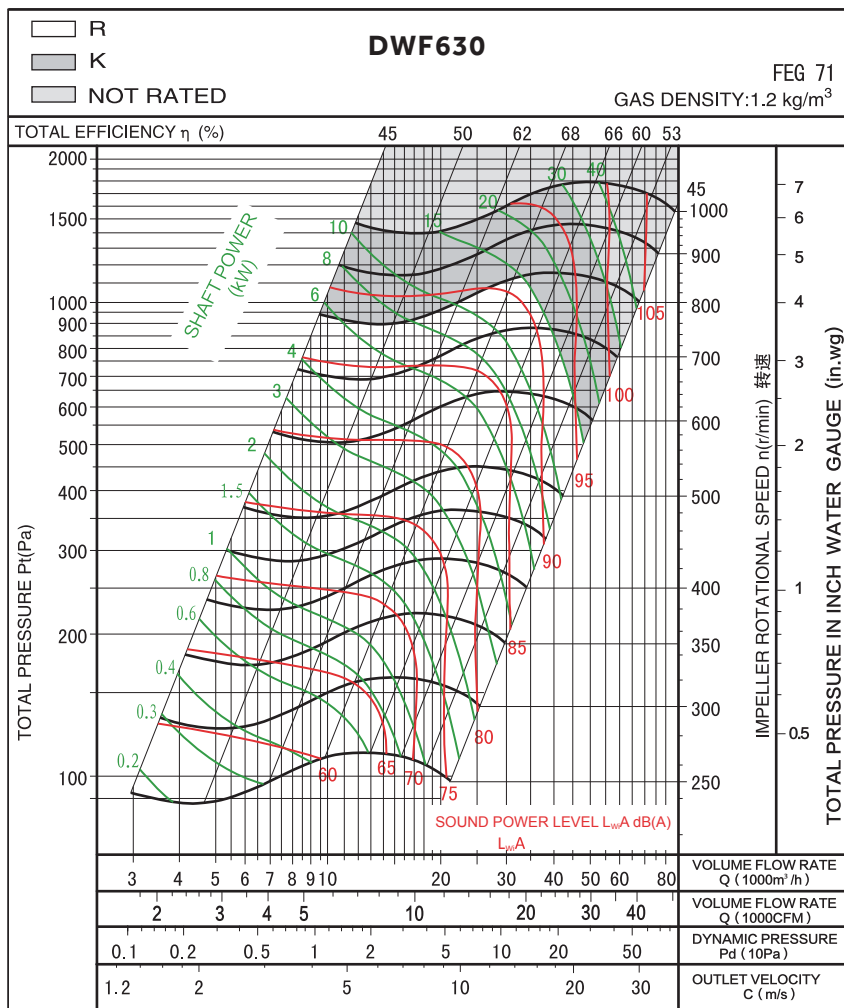
➤ DWF630 FEG71

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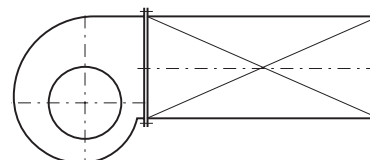
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 630 mm	J = 2.15 kg.m ²	m = 185 kg	n _{max} = 1000 r/min

PERFORMANCE CURVE

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_{wi}A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



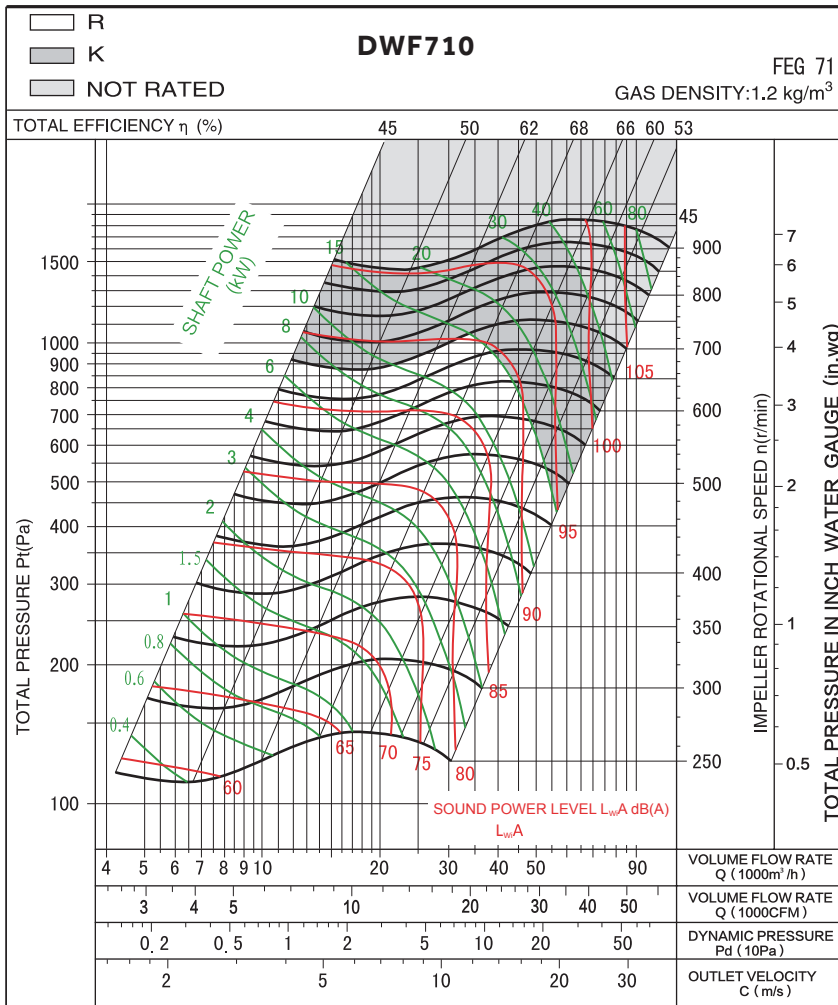
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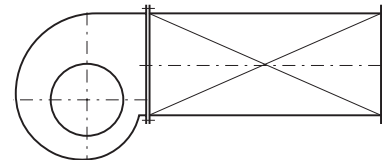
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 710 mm	J = 4.02 kg.m ²	m = 240 kg	n _{max} = 900 r/min

PERFORMANCE CURVE

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_{wi}A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



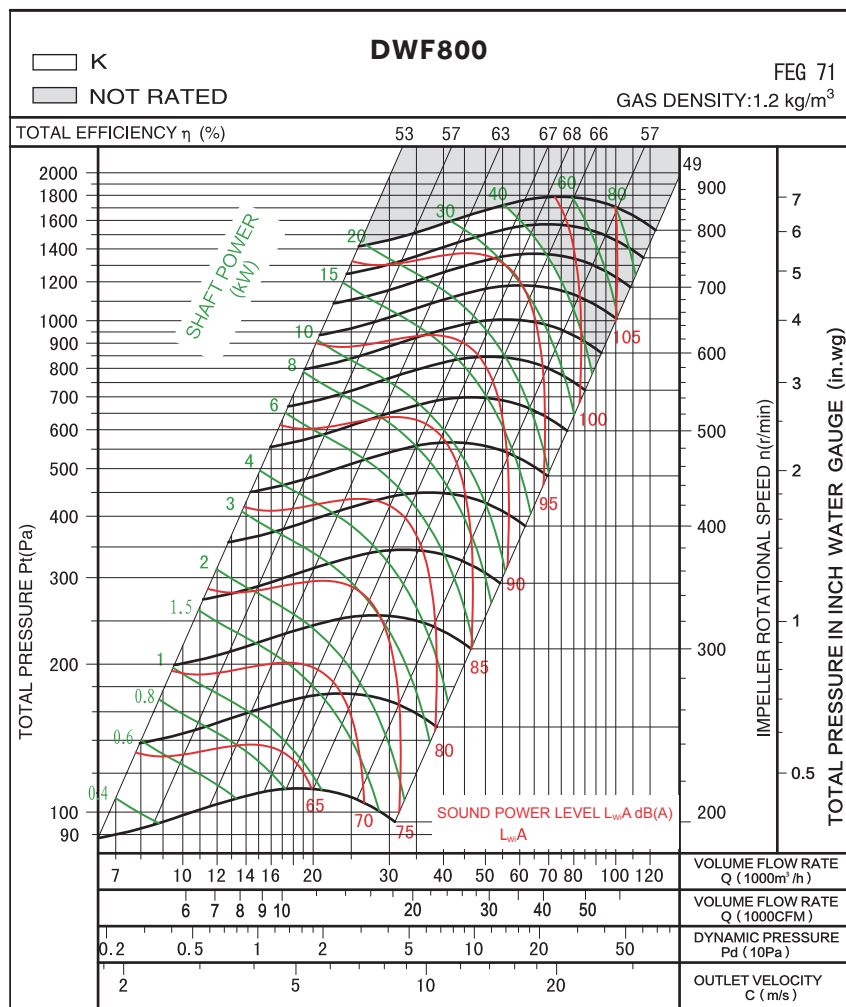
➤ DWF800 FEG75

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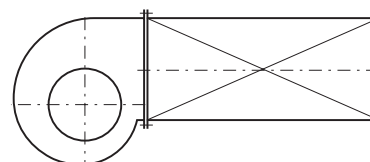
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 800 mm	J = 8.31 kg.m ²	m = 290 kg	n _{max} = 800 r/min

PERFORMANCE CURVE

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_{wi}A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



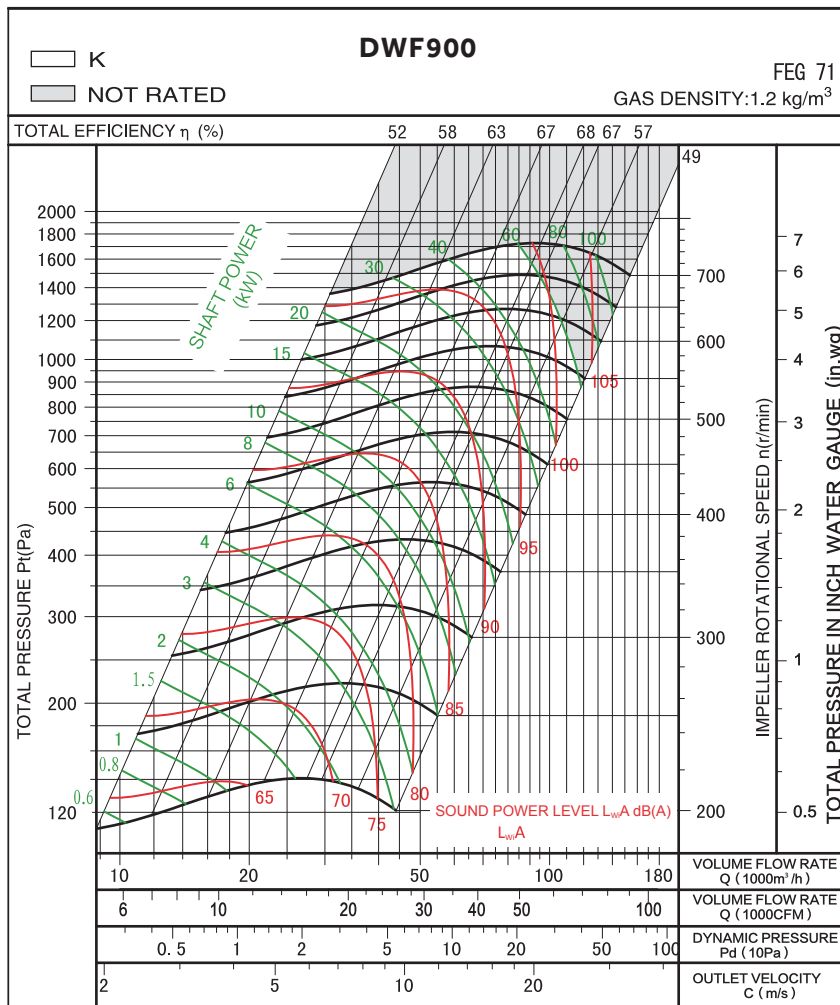
► DWF900 FEG71

TECHNICAL DATA

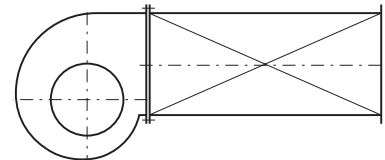
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 900 mm	J = 12.7 kg.m ²	m = 365 kg	n _{max} = 700 r/min

PERFORMANCE CURVE

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_{wi}A sound power levels for installation type B: free inlet, ducted outlet.



Measured in installation B according to AMCA Standard 210:



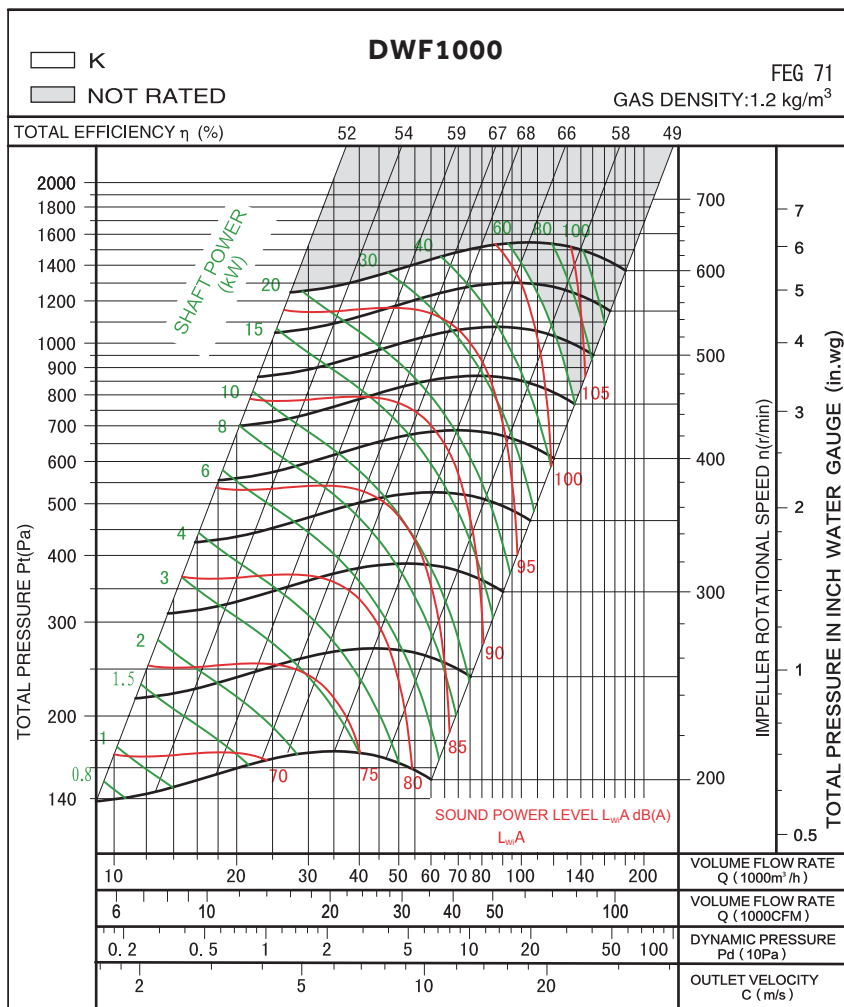
➤ DWF1000 FEG75

TECHNICAL DATA

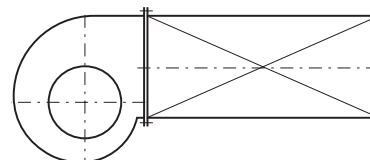
WHEEL DIAMETER	MOMENT OF INERTIA	FAN WEIGHT	SPEED LIMIT
D = 1000 mm	J = 18.9 kg.m ²	m = 480 kg	n _{max} = 600 r/min

PERFORMANCE CURVE

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_{wi}A sound power levels for installation type B: free inlet, ducted outlet.



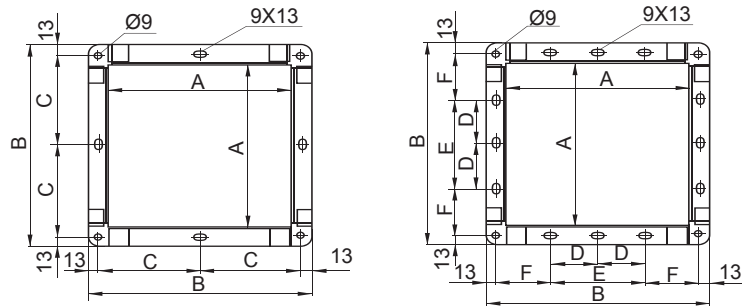
Measured in installation B according to AMCA Standard 210:



DWF SERIES

DWF SERIES CENTRIFUGAL FAN

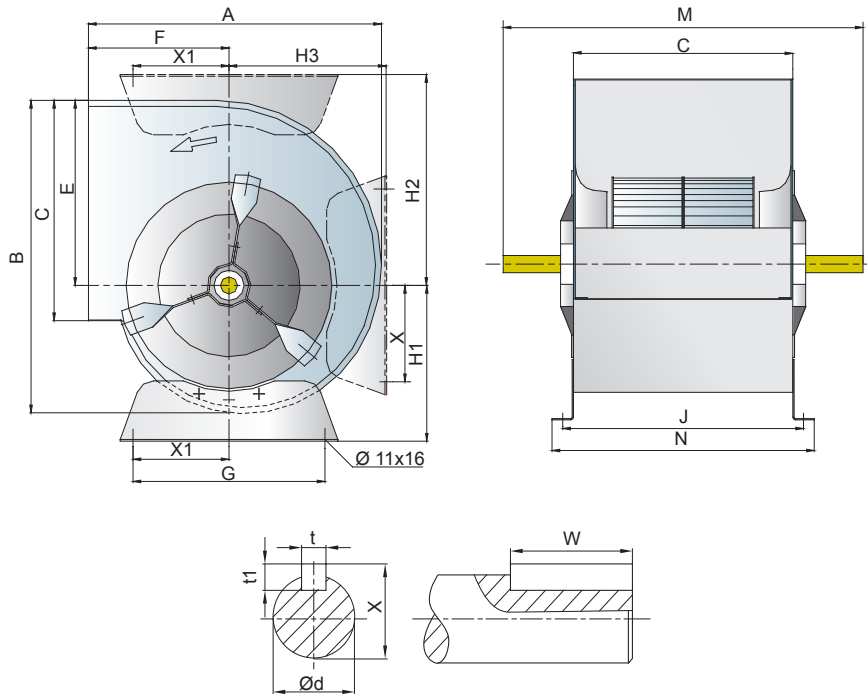
OUTLET FLANGE



mm

	200	225	250	280	315	355	400	450	500	560	630	710	800	900	1000
A	256	288	322	361	404	453	507	569	638	715	801	898	1007	1130	1267
B	296	328	362	417	460	509	563	625	694	771	857	954	1063	1186	1323
C	138	154	171	195.5	217	241.5	-	-	-	-	-	-	-	-	-
D	-	-	-	-	-	-	-	-	-	-	-	200	250	300	350
E	-	-	-	-	-	-	-	200	250	250	300	400	500	600	700
F	-	-	-	-	-	-	-	168.5	199.5	247.5	265.5	264	268.5	280	298.5

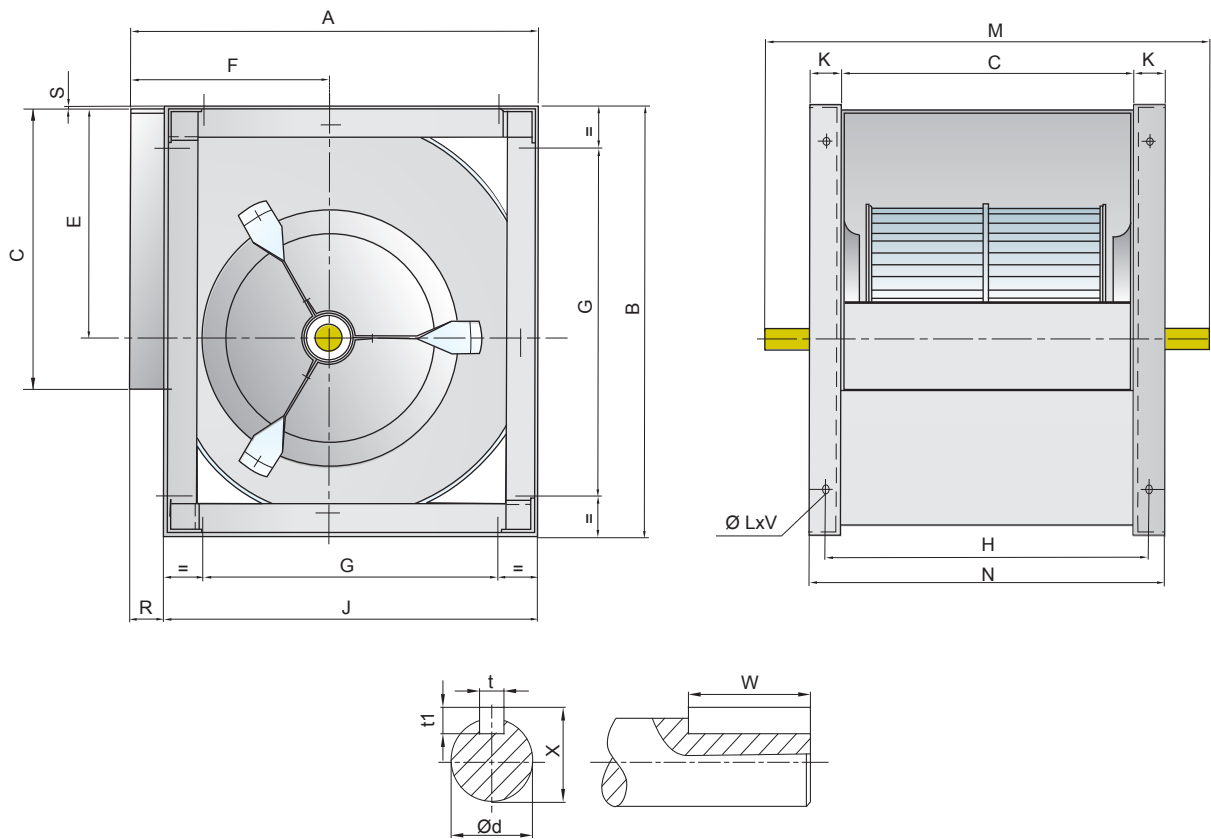
➤ DWF - L



mm

	A	B	C	E	F	G	J	M	N	X1	H1	H2	H3	t	T1	X	W	Ød
200	342	364	256	215	164	224	281	420	306	112	181	245	184	6	6	22.5	40	20
225	380	407.8	288	243	180	224	313	460	338	112	197	274	204	6	6	22.5	50	20
250	417	454	322	270	195	224	347	490	372	112	210	299	227	6	6	22.5	50	20

➤ DWF - R



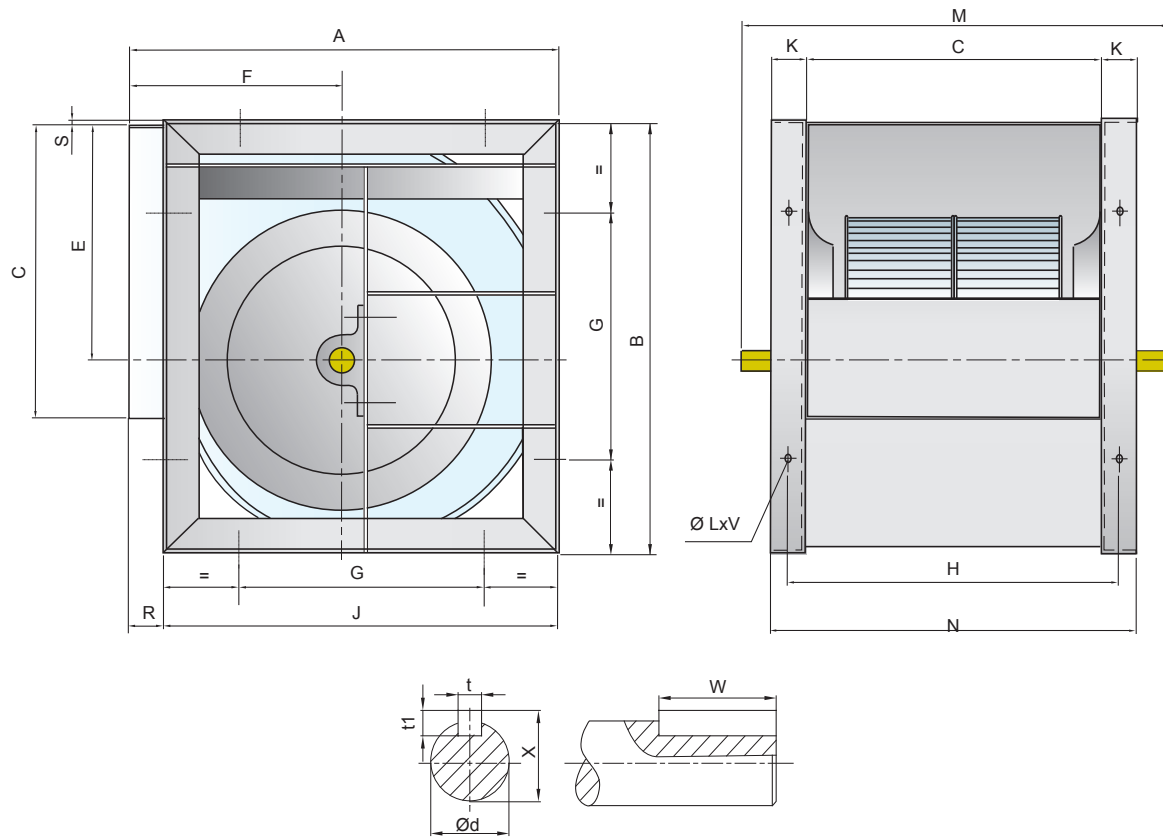
mm

	A	B	C	E	F	G	H	J	K	M	N	R	S	t	t1	W	X	Ød	LxV
200	343	370	256	215	164	224	281	306	25	420	306	37	4	6	6	40	22.5	20	11x16
225	383	415	288	243	180	224	313	348	25	460	338	35	3	6	6	50	22.5	20	11x16
250	419	461	322	270	195	224	347	384	25	490	372	35	4	6	6	50	22.5	20	11x16
280	466	518	361	302	215	280	391	432	30	555	421	34	5	8	7	40	28	25	13x18
315	518	578	404	340	236	280	434	480	30	600	464	38	3	8	7	40	28	25	13x18
355	578	655	453	383	261	355	493	548	40	675	533	30	6	8	7	65	33	30	13x18
400	651	736	507	431.5	290	355	547	613	40	725	587	38	4.5	08	7	65	33	30	13x18
450	726	827	569	486	322	530	609	681	40	815	649	45	5	10	8	70	38	35	13x18
500	800	914	638	538	352	530	678	750	40	885	718	50	5	10	8	50	38	35	13x18
560	893	1030	715	602	390	530	765	845	50	1000	815	48	8	12	8	70	43	40	13x18
630	999	1157	801	678.5	434	530	851	946	50	1090	901	53	7	14	9	70	48.5	45	13x18
710	1121	1303	898	765	485	630	948	1058	50	1255	998	63	7	14	9	90	53.5	50	17x22

DWF SERIES

DWF SERIES CENTRIFUGAL FAN

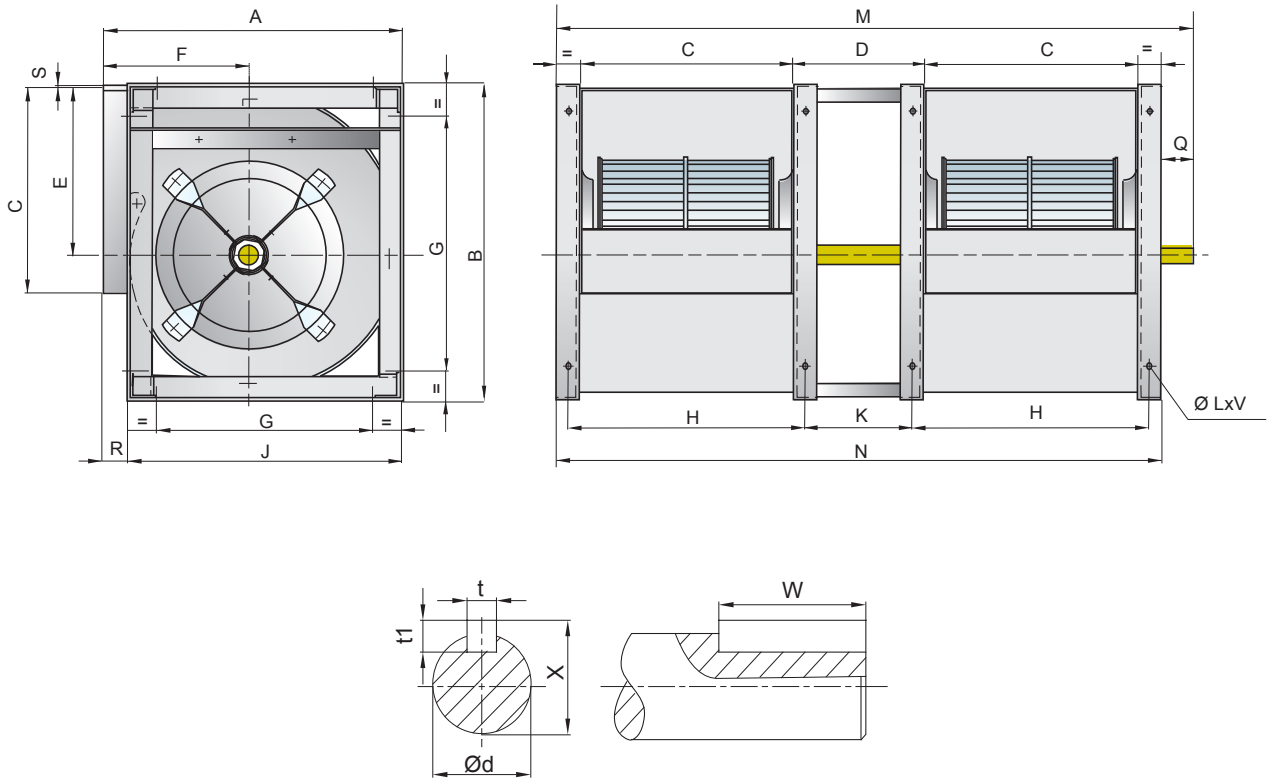
➤ DWF - K



mm

	A	B	C	E	F	G	H	J	K	M	N	R	S	t	t1	W	X	Ød	LxV
280	466	518	361	302	215	280	391	432	30	580	421	34	5	8	7	40	33	30	13x18
315	518	578	404	340	236	280	434	480	30	625	464	38	3	8	7	40	33	30	13x18
355	578	655	453	383	261	355	493	548	40	685	533	30	6	10	8	50	38	35	13x18
400	651	736	507	431.5	290	355	547	613	40	790	587	38	4.5	10	8	70	38	35	13x18
450	726	827	569	486	322	530	609	681	40	850	649	45	5	12	8	70	43	40	13x18
500	800	918	638	538	352	530	678	750	40	920	718	50	5	12	8	70	43	40	13x18
560	893	1030	715	602	390	530	765	845	50	1070	815	48	8	14	9	90	53.5	50	13x18
630	999	1157	801	678.5	434	530	851	946	50	1155	901	53	7	14	9	90	53.5	50	13x18
710	1121	1303	898	765	485	630	948	1058	50	1290	998	63	7	18	11	90	64	60	17x22
800	1250	1468	1007	862	535	710	1057	1181	50	1450	1107	69	7	18	11	90	64	60	17x22
900	1408	1648	1130	971	604	800	1180	1319	60	1570	1250	89	9	18	11	100	64	60	17x22
1000	1541	1810	1267	1066	657	900	1317	1462	60	1700	1387	79	9	18	11	100	64	60	17x22

➤ DWF - R2



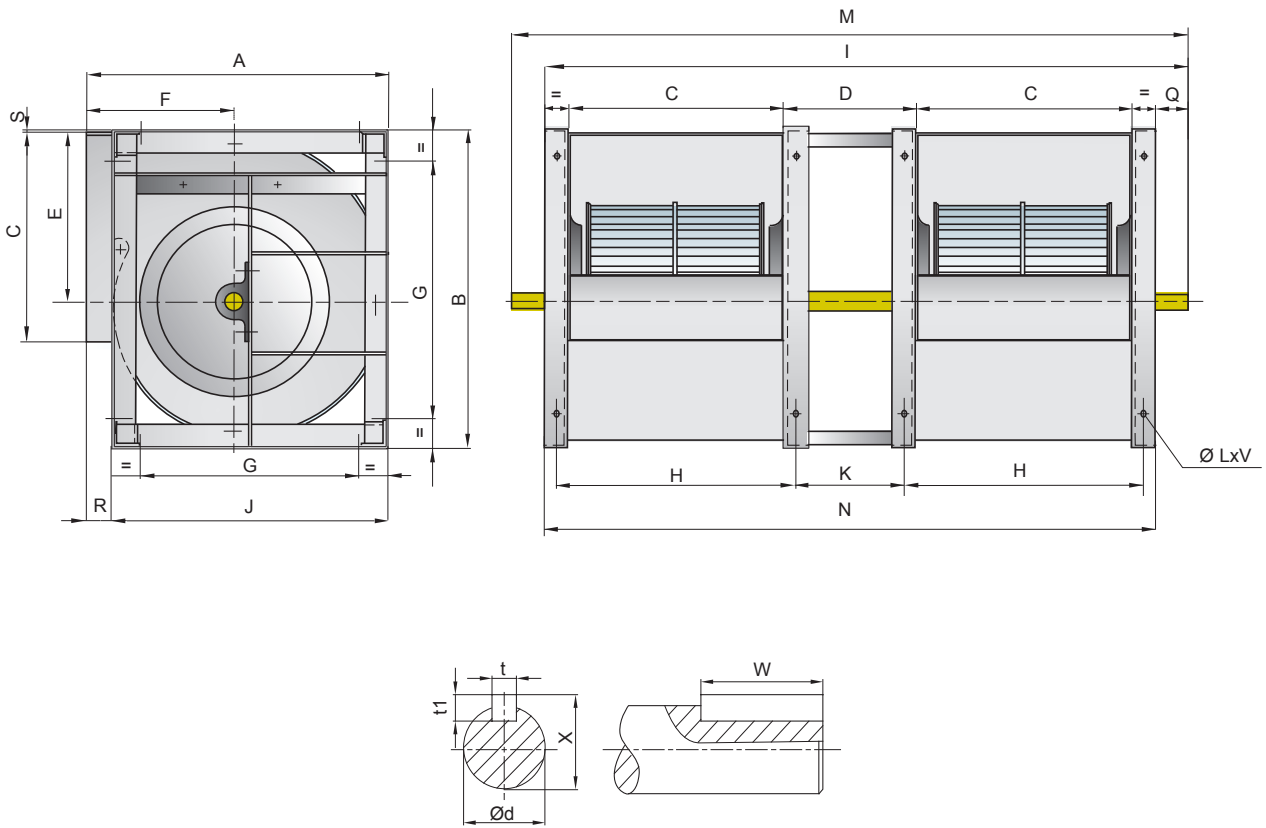
mm

	A	B	C	D	E	F	G	H	J	K	M	N	Q	R	S	t	t1	W	X	Ød	LxV
280	466	518	361	280	302	215	280	391	432	250	1140	1062	78	34	5	8	7	60	33	30	13x18
315	518	578	404	315	340	236	280	434	480	285	1263	1183	80	38	3	8	7	60	33	30	13x18
355	578	655	453	355	383	261	355	493	548	315	1431	1341	90	30	6	10	8	50	38	35	13x18
400	651	736	507	400	431.5	290	355	547	613	360	1582	1494	98	38	4	10	8	50	38	35	13x18
450	726	827	569	450	486	322	530	609	681	410	1768	1668	100	45	5	12	8	70	43	40	13x18
500	800	918	638	500	538	352	530	678	750	460	1956	1856	100	50	5	12	8	70	43	40	13x18

DWF SERIES

DWF SERIES CENTRIFUGAL FAN

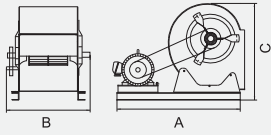
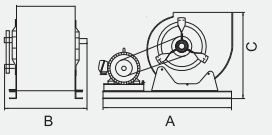
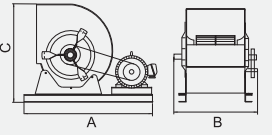
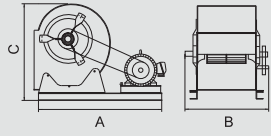
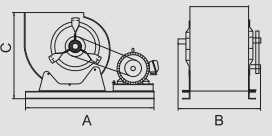
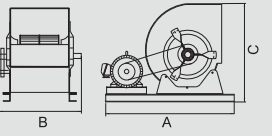
► DWF - K2



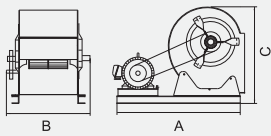
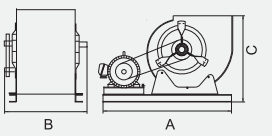
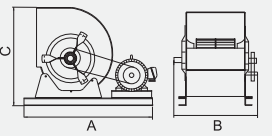
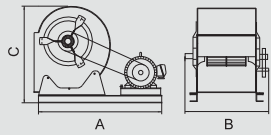
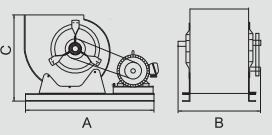
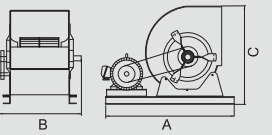
mm

	A	B	C	D	E	F	G	H	I	J	K	M	N	Q	R	S	t	t1	W	X	Ød	LxV
355	578	655	453	355	383	261	355	493	1451	548	315	-	1341	110	30	6	12	8	40	70	43	13x18
400	651	736	507	400	432	290	355	547	1604	613	360	-	1494	110	38	4.5	12	8	40	70	43	13x18
450	726	827	569	450	486	322	530	609	1803	681	410	-	1668	135	45	5	14	9	40	90	48.5	13x18
500	800	918	638	500	538	352	530	678	1991	750	460	-	1856	135	50	5	14	9	50	90	53.5	13x18

➤ **DWF - L**

		0°			90°			180°		
LG Left Hand										
RD Right Hand										
MODEL	MOTOR FRAME SIZE	A	B	C	A	B	C	A	B	C
200	56	730	420	404	730	420	358	730	420	406
	63	730	420	404	730	420	358	730	420	406
	71	730	420	404	730	420	358	730	420	406
	80	730	420	404	730	420	358	730	420	406
225	63	760	460	450	760	460	394	760	460	450
	71	760	460	450	760	460	394	760	460	450
	80	760	460	450	760	460	394	760	460	450
	90	760	460	450	760	460	394	760	460	450
250	63	820	490	484	820	490	422	820	490	482
	71	820	490	484	820	490	422	820	490	482
	80	820	490	484	820	490	422	820	490	482
	90	820	490	484	820	490	422	820	490	482

➤ **DWF - L**

		0°			90°			180°		
LG Left Hand										
RD Right Hand										
MODEL	MOTOR FRAME SIZE	A	B	C	A	B	C	A	B	C
200	56	730	420	404	730	420	358	730	420	406
	63	730	420	404	730	420	358	730	420	406
	71	730	420	404	730	420	358	730	420	406
	80	730	420	404	730	420	358	730	420	406
225	63	760	460	450	760	460	394	760	460	450
	71	760	460	450	760	460	394	760	460	450
	80	760	460	450	760	460	394	760	460	450
	90	760	460	450	760	460	394	760	460	450
250	63	820	490	484	820	490	422	820	490	482
	71	820	490	484	820	490	422	820	490	482
	80	820	490	484	820	490	422	820	490	482
	90	820	490	484	820	490	422	820	490	482

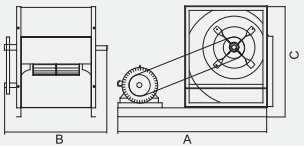
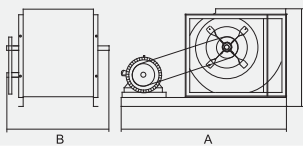
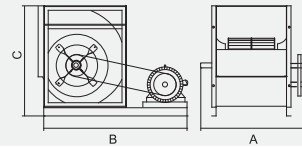
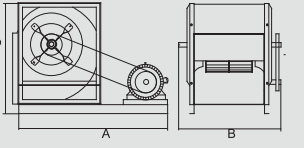
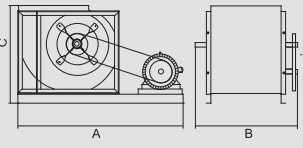
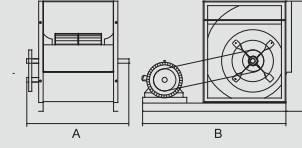
DWF SERIES

DWF SERIES CENTRIFUGAL FAN

► DWF- R

		0°			90°			180°		
LG Left Hand										
RD Right Hand										
MODEL	MOTOR FRAME SIZE	A	B	C	A	B	C	A	B	C
280	71	940	575	568	940	575	516	940	575	568
	80	940	575	568	940	575	516	940	575	568
	90	940	575	568	940	575	516	940	575	568
	100	940	575	568	940	575	516	940	575	568
	112	940	575	568	940	575	516	940	575	568
	132	940	575	568	940	575	516	940	575	568
315	71	1040	630	628	1040	640	568	1040	640	628
	80	1040	640	628	1040	640	568	1040	640	628
	90	1040	640	628	1040	640	568	1040	640	628
	100	1040	640	628	1040	640	568	1040	640	628
	112	1040	640	628	1040	640	568	1040	640	628
	132	1040	640	628	1040	640	568	1040	640	628
355	71	1110	700	705	1110	700	628	1110	700	705
	80	1110	700	705	1110	700	628	1110	700	705
	90	1110	700	705	1110	700	628	1110	700	705
	100	1110	700	705	1110	700	628	1110	700	705
	112	1110	700	705	1110	700	628	1110	700	705
	132	1110	700	705	1110	700	628	1110	700	705
400	71	1250	760	786	1250	760	701	1250	760	786
	80	1250	760	786	1250	760	701	1250	760	786
	90	1250	760	786	1250	760	701	1250	760	786
	100	1250	760	786	1250	760	701	1250	760	786
	112	1250	760	786	1250	760	701	1250	760	786
	132	1250	760	786	1250	760	701	1250	760	786
450	71	1340	845	877	1340	845	776	1340	845	877
	80	1340	845	877	1340	845	776	1340	845	877
	90	1340	845	877	1340	845	776	1340	845	877
	100	1340	845	877	1340	845	776	1340	845	877
	112	1340	845	877	1340	845	776	1340	845	877
	132	1340	845	877	1340	845	776	1340	845	877
	160	1340	845	877	1340	845	776	1340	845	877

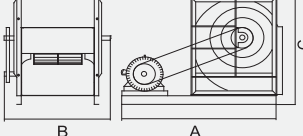
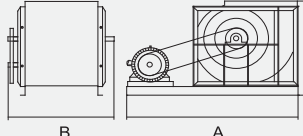
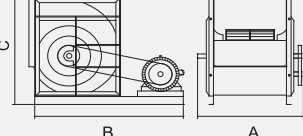
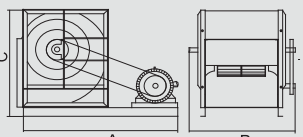
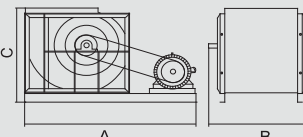
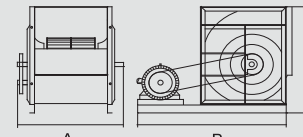
➤ **DWF- R**

		0°			90°			180°		
LG Left Hand										
RD Right Hand										
MODEL	MOTOR FRAME SIZE	A	B	C	A	B	C	A	B	C
500	80	1420	915	981	1420	915	863	1420	915	981
	90	1420	915	981	1420	915	863	1420	915	981
	100	1420	915	981	1420	915	863	1420	915	981
	112	1420	915	981	1420	915	863	1420	915	981
	132	1420	915	981	1420	915	863	1420	915	981
	160	1420	915	981	1420	915	863	1420	915	981
560	80	1580	1000	1093	1580	1000	956	1580	1000	1093
	90	1580	1000	1093	1580	1000	956	1580	1000	1093
	100	1580	1000	1093	1580	1000	956	1580	1000	1093
	112	1580	1000	1093	1580	1000	956	1580	1000	1093
	132	1580	1000	1093	1580	1000	956	1580	1000	1093
	160	1580	1000	1093	1580	1000	956	1580	1000	1093
630	90	1770	1090	1220	1770	1090	1062	1770	1090	1220
	100	1770	1090	1220	1770	1090	1062	1770	1090	1220
	112	1770	1090	1220	1770	1090	1062	1770	1090	1220
	132	1770	1090	1220	1770	1090	1062	1770	1090	1220
	160	1770	1090	1220	1770	1090	1062	1770	1090	1220
	180	1770	1090	1220	1770	1090	1062	1770	1090	1220
710	100	1950	1255	1366	1950	1255	1184	1950	1255	1366
	112	1950	1255	1366	1950	1255	1184	1950	1255	1366
	132	1950	1255	1366	1950	1255	1184	1950	1255	1366
	160	1950	1255	1366	1950	1255	1184	1950	1255	1366
	180	1950	1255	1366	1950	1255	1184	1950	1255	1366

DWF SERIES

DWF SERIES CENTRIFUGAL FAN

► DWF- K

		0°			90°			180°		
	LG Left Hand									
	RD Right Hand									
MODEL	MOTOR FRAME SIZE	A	B	C	A	B	C	A	B	C
280	90	940	600	568	940	600	516	940	600	568
	100	940	600	568	940	600	516	940	600	568
	112	940	600	568	940	600	516	940	600	568
	132	940	600	568	940	600	516	940	600	568
	160	940	600	568	940	600	516	940	600	568
315	100	1040	665	628	1040	665	568	1040	665	628
	112	1040	665	628	1040	665	568	1040	665	628
	132	1040	665	628	1040	665	568	1040	665	628
	160	1040	665	628	1040	665	568	1040	665	628
	180	1040	665	628	1040	665	568	1040	665	628
325	100	1110	725	705	1110	725	628	1110	725	705
	112	1110	725	705	1110	725	628	1110	725	705
	132	1110	725	705	1110	725	628	1110	725	705
	160	1110	725	705	1110	725	628	1110	725	705
	180	1110	725	705	1110	725	628	1110	725	705
400	100	1250	790	786	1250	790	701	1250	790	786
	112	1250	790	786	1250	790	701	1250	790	786
	132	1250	790	786	1250	790	701	1250	790	786
	160	1250	790	786	1250	790	701	1250	790	786
	180	1250	790	786	1250	790	701	1250	790	786
450	100	1340	845	877	1340	845	776	1340	845	877
	112	1340	890	877	1340	890	776	1340	890	877
	132	1340	890	877	1340	890	776	1340	890	877
	160	1340	890	877	1340	890	776	1340	890	877
	180	1340	890	877	1340	890	776	1340	890	877
	200	1340	890	877	1340	890	776	1340	890	877
500	100	1420	915	981	1420	915	863	1420	915	981
	112	1420	960	981	1420	960	863	1420	960	981
	132	1420	960	981	1420	960	863	1420	960	981
	160	1420	960	981	1420	960	863	1420	960	981
	180	1420	960	981	1420	960	863	1420	960	981
	200	1420	960	981	1420	960	863	1420	960	981

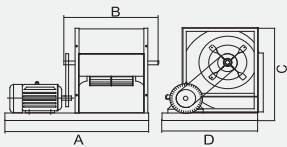
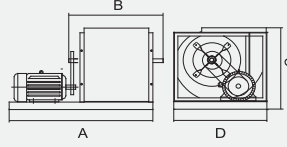
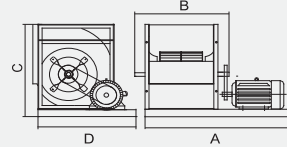
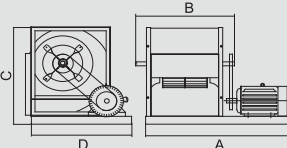
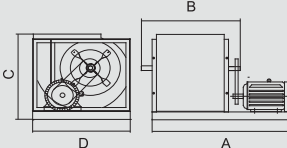
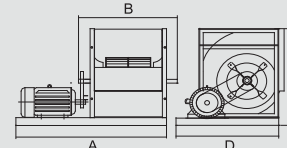
► DWF- K

		0°			90°			180°		
LG Left Hand										
RD Right Hand										
MODEL	MOTOR FRAME SIZE	A	B	C	A	B	C	A	B	C
560	132	1580	1070	1093	1580	1070	956	1580	1070	1093
	160	1580	1070	1093	1580	1070	956	1580	1070	1093
	180	1580	1070	1093	1580	1070	956	1580	1070	1093
	200	1580	1070	1093	1580	1070	956	1580	1070	1093
630	132	1770	1155	1220	1770	1155	1062	1770	1155	1220
	160	1770	1155	1220	1770	1155	1062	1770	1155	1220
	180	1770	1155	1220	1770	1155	1062	1770	1155	1220
	200	1770	1155	1220	1770	1155	1062	1770	1155	1220
710	132	1950	1290	1366	1950	1290	1284	1950	1290	1366
	160	1950	1290	1366	1950	1290	1284	1950	1290	1366
	180	1950	1290	1366	1950	1290	1284	1950	1290	1366
	200	1950	1290	1366	1950	1290	1284	1950	1290	1366
	225	1950	1290	1366	1950	1290	1284	1950	1290	1366
800	100	2130	1450	1548	2130	1450	1330	2130	1450	1548
	112	2130	1450	1548	2130	1450	1330	2130	1450	1548
	132	2130	1450	1548	2130	1450	1330	2130	1450	1548
	160	2130	1450	1548	2130	1450	1330	2130	1450	1548
	180	2130	1450	1548	2130	1450	1330	2130	1450	1548
	200	2130	1450	1548	2130	1450	1330	2130	1450	1548
	225	2130	1450	1548	2130	1450	1330	2130	1450	1548
900	112	2450	1570	1748	2450	1570	1508	2450	1570	1748
	132	2450	1570	1748	2450	1570	1508	2450	1570	1748
	160	2450	1570	1748	2450	1570	1508	2450	1570	1748
	180	2450	1570	1748	2450	1570	1508	2450	1570	1748
	200	2450	1570	1748	2450	1570	1508	2450	1570	1748
	225	2450	1570	1748	2450	1570	1508	2450	1570	1748
1000	112	2650	1700	1910	2650	1700	1641	2650	1700	1910
	132	2650	1700	1910	2650	1700	1641	2650	1700	1910
	160	2650	1700	1910	2650	1700	1641	2650	1700	1910
	180	2650	1700	1910	2650	1700	1641	2650	1700	1910
	200	2650	1700	1910	2650	1700	1641	2650	1700	1910
	225	2650	1700	1910	2650	1700	1641	2650	1700	1910
	250	2650	1700	1910	2650	1700	1641	2650	1700	1910

DWF SERIES

DWF SERIES CENTRIFUGAL FAN

► DWF- R

		0°			90°			180°		
LG Left Hand										
RD Right Hand										
MODEL	MOTOR FRAME SIZE	A	B	C	A	B	C	A	B	C
280	71	840	612	568	840	612	516	840	612	568
	80	840	612	568	840	612	516	840	612	568
	90	840	612	568	840	612	516	840	612	568
	100	840	612	568	840	612	516	840	612	568
	112	840	612	568	840	612	516	840	612	568
315	71	880	617	628	880	617	568	880	617	628
	80	880	617	628	880	617	568	880	617	628
	90	880	617	628	880	617	568	880	617	628
	100	880	617	628	880	617	568	880	617	628
	112	880	617	628	880	617	568	880	617	628
355	71	940	655	705	940	655	628	940	655	705
	80	940	655	705	940	655	628	940	655	705
	90	940	655	705	940	655	628	940	655	705
	100	940	655	705	940	655	628	940	655	705
	112	940	655	705	940	655	628	940	655	705
400	80	1130	736	786	1130	736	613	1130	736	786
	90	1130	736	786	1130	736	613	1130	736	786
	100	1130	736	786	1130	736	613	1130	736	786
	112	1130	736	786	1130	736	613	1130	736	786
	132	1130	736	786	1130	736	613	1130	736	786
450	90	1210	827	877	1210	827	776	1210	827	877
	100	1210	827	877	1210	827	776	1210	827	877
	112	1210	827	877	1210	827	776	1210	827	877
	132	1210	827	877	1210	827	776	1210	827	877
500	90	1290	918	981	1290	918	863	1290	918	981
	100	1290	918	981	1290	918	863	1290	918	981
	112	1290	918	981	1290	918	863	1290	918	981
	132	1290	918	981	1290	918	863	1290	918	981
	160	1290	918	981	1290	918	863	1290	918	981
560	90	1410	1030	1093	1410	1030	956	1410	1030	1093
	100	1410	1030	1093	1410	1030	956	1410	1030	1093
	112	1410	1030	1093	1410	1030	956	1410	1030	1093
	132	1410	1030	1093	1410	1030	956	1410	1030	1093
	160	1410	1030	1093	1410	1030	956	1410	1030	1093

➤ **DWF - R**

		0°			90°			180°		
LG Left Hand										
RD Right Hand										
MODEL	MOTOR FRAME SIZE	A	B	C	A	B	C	A	B	C
630	90	1510	1157	1220	1510	1157	1062	1510	1157	1220
	100	1510	1157	1220	1510	1157	1062	1510	1157	1220
	112	1510	1157	1220	1510	1157	1062	1510	1157	1220
	132	1510	1157	1220	1510	1157	1062	1510	1157	1220
710	160	1730	1303	1366	1730	1303	1491	1730	1303	1366
	100	1730	1303	1366	1730	1303	1491	1730	1303	1366
	112	1730	1303	1366	1730	1303	1491	1730	1303	1366
	132	1730	1303	1366	1730	1303	1491	1730	1303	1366
	160	1730	1303	1366	1730	1303	1491	1730	1303	1366
	180	1730	1303	1366	1730	1303	1491	1730	1303	1366

➤ **DWF - K**

		0°			90°			180°		
LG Left Hand										
RD Right Hand										
MODEL	MOTOR FRAME SIZE	A	B	C	A	B	C	A	B	C
280	100	840	612	568	840	612	516	840	612	568
	112	840	612	568	840	612	516	840	612	568
	132	840	612	568	840	612	516	840	612	568
315	100	880	617	628	880	617	568	880	617	628
	112	880	617	628	880	617	568	880	617	628
	132	880	617	628	880	617	568	880	617	628
355	160	880	617	628	880	617	568	880	617	628
	100	940	655	705	940	655	628	940	655	705
	112	940	655	705	940	655	628	940	655	705
	132	940	655	705	940	655	628	940	655	705
400	160	940	655	705	940	655	628	940	655	705
	112	1130	736	786	1130	736	613	1130	736	786
	132	1130	736	786	1130	736	613	1130	736	786
	160	1130	736	786	1130	736	613	1130	736	786

DWF SERIES

DWF SERIES CENTRIFUGAL FAN

► DWF- K

		0°			90°			180°		
LG Left Hand										
RD Right Hand										
MODEL	MOTOR FRAME SIZE	A	B	C	A	B	C	A	B	C
450	112	1210	827	877	1210	827	776	1210	827	877
	132	1210	827	877	1210	827	776	1210	827	877
	160	1210	827	877	1210	827	776	1210	827	877
	180	1210	827	877	1210	827	776	1210	827	877
500	112	1290	918	981	1290	918	863	1290	918	981
	132	1290	918	981	1290	918	863	1290	918	981
	160	1290	918	981	1290	918	863	1290	918	981
	180	1290	918	981	1290	918	863	1290	918	981
560	132	1410	1030	1093	1410	1030	956	1410	1030	1093
	160	1410	1030	1093	1410	1030	956	1410	1030	1093
	180	1410	1030	1093	1410	1030	956	1410	1030	1093
	200	1410	1030	1093	1410	1030	956	1410	1030	1093
630	132	1510	1157	1220	1510	1157	1062	1510	1157	1220
	160	1510	1157	1220	1510	1157	1062	1510	1157	1220
	180	1510	1157	1220	1510	1157	1062	1510	1157	1220
	200	1510	1157	1220	1510	1157	1062	1510	1157	1220
710	132	1730	1303	1366	1730	1303	1491	1730	1303	1366
	160	1730	1303	1366	1730	1303	1491	1730	1303	1366
	180	1730	1303	1366	1730	1303	1491	1730	1303	1366
	200	1730	1303	1366	1730	1303	1491	1730	1303	1366
	225	1730	1303	1366	1730	1303	1491	1730	1303	1366
800	132	1870	1468	1548	1870	1468	1330	1870	1468	1548
	160	1870	1468	1548	1870	1468	1330	1870	1468	1548
	180	1870	1468	1548	1870	1468	1330	1870	1468	1548
	200	1870	1468	1548	1870	1468	1330	1870	1468	1548
	225	1870	1468	1548	1870	1468	1330	1870	1468	1548
900	160	2170	1648	1748	2170	1648	1748	2170	1648	1748
	180	2170	1648	1748	2170	1648	1748	2170	1648	1748
	200	2170	1648	1748	2170	1648	1748	2170	1648	1748
	225	2170	1648	1748	2170	1648	1748	2170	1648	1748
1000	160	2300	1810	1910	2300	1810	1641	2300	1810	1910
	180	2300	1810	1910	2300	1810	1641	2300	1810	1910
	200	2300	1810	1910	2300	1810	1641	2300	1810	1910
	225	2300	1810	1910	2300	1810	1641	2300	1810	1910
	250	2300	1810	1910	2300	1810	1641	2300	1810	1910

➤ **DWF SERIES FAN OPERATIONAL LIMITS**

			200	225	250	280	315	355	400	450	500	560	630	710	800	900	1000
Max. absorbed Power	L	Kw	3	3	4	/	/	/	/	/	/	/	/	/	/	/	/
	R	Kw	3	3	4	4	6	6	8	10	10	10	15	15	/	/	/
	K	Kw	/	/	/	6	10	15	20	20	20	30	30	40	40	60	60
	R2	Kw	/	/	/	9	13	13	18	22	22	/	/	/	/	/	/
	K2	Kw	/	/	/	/	/	33	45	45	45	/	/	/	/	/	/
Max.Speed	L	rmp	3200	2800	2400	/	/	/	/	/	/	/	/	/	/	/	/
	R	rmp	3200	2800	2400	2200	1900	1600	1400	1300	1100	900	800	700	/	/	/
	K	rmp	/	/	/	2500	2200	2000	1800	1600	1300	1200	1000	900	800	700	600
	R2	rmp	/	/	/	1800	1600	1400	1200	1000	900	/	/	/	/	/	/
	K2	rmp	/	/	/	/	/	1600	1400	1200	1000	/	/	/	/	/	/
Air Temperature Limits (Min-20°C)	L	Max°C	85	85	85	/	/	/	/	/	/	/	/	/	/	/	/
	R	Max°C	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
	K	Max°C	/	/	/	85	85	85	85	85	85	85	85	85	85	85	85
	R2	Max°C	/	/	/	85	85	85	85	85	85	/	/	/	/	/	/
	K2	Max°C	/	/	/	/	/	85	85	85	85	/	/	/	/	/	/
Fan Weight	L	Kg	7.4	9.2	11	/	/	/	/	/	/	/	/	/	/	/	/
	R	Kg	9.4	10.8	13	19	25	36	44	57	71.5	131	156	192	/	/	/
	K	Kg	/	/	/	29	35	42	57	72	92	160	185	240	290	365	480
	R2	Kg	/	/	/	38	50	71	87	113	142	/	/	/	/	/	/
	K2	Kg	/	/	/	/	/	85	107	136	175	/	/	/	/	/	/

This fan features described in the sample, such as size, performance parameters, the Company reserves the right to change without notice; if unknown place, please call us.

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